



**Fish & Wildlife Service**

# **Parker River National Wildlife Refuge**

## *Multi-species Hunting Plan*

### *August 2019*



Photo Credit: Matt Poole (USFWS)

*Appendix A. Compatibility Determination*  
*Appendix B. Environmental Assessment*  
*and Finding of No Significant Impact*  
*Appendix C. Intra-Service Section 7 Evaluation*



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# PARKER RIVER NATIONAL WILDLIFE REFUGE MULTI-SPECIES HUNTING PLAN

## **I. Introduction**

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

Parker River NWR was established in 1942 under the authority of the Migratory Bird Conservation Act “... *for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.*”

In 1962, the Refuge Recreation Act (16 U.S.C. 460K-460K-4) expanded the purpose of Parker River NWR to include: “...*(1) incidental fish and wildlife-oriented recreation development, (2) the protection of natural resources, (3) the conservation of endangered species and threatened species...*”

The mission of the NWRS, as outlined by the National Wildlife Refuge System Administration Act, as amended by the National Wildlife 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.”

The NWRSA 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 NWRS;
- Ensure that the biological integrity, diversity, and environmental health of the NWRS are maintained for the benefit of present and future generations of Americans;
- Ensure that the mission of the NWRS 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 NWRS are located;
- Assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the NWRS and the purposes of each refuge;

- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the NWRs through which the American public can develop an appreciation for fish and wildlife;
- Ensure that opportunities are provided within the NWRs 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 recreational 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.

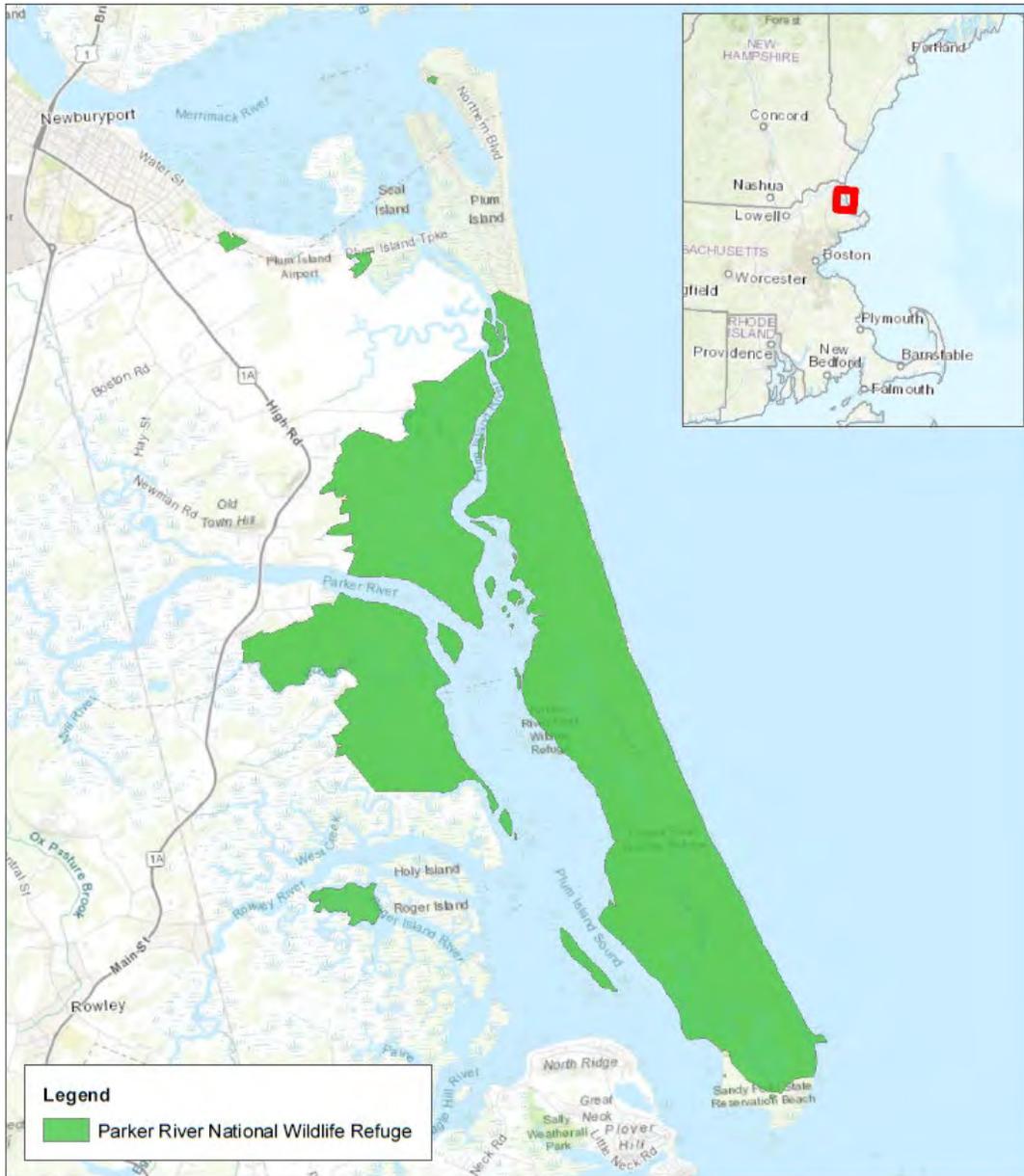
Parker River NWR is located 37 miles north of Boston, Massachusetts, and is situated within the Great Marsh, which extends from Gloucester, Massachusetts, to the New Hampshire border, and is the largest contiguous salt marsh north of Long Island, New York (USFWS 2007, Figure 1). In 1979, the Commonwealth of Massachusetts designated a large portion of the area as the Great Marsh Area of Critical Environmental Concern (ACEC) in recognition of its significant wildlife value and its importance as a stopover site for migrating shorebirds (USFWS 2007). Around that time, the refuge was named the Parker River/Essex Bay Area of Critical Environmental concern and was designated as a Western Hemisphere Shorebird Reserve Network Regional site (USFWS 2007).

Parker River NWR consists of 4,727 acres of diverse upland and wetland habitats including sandy beach and dune, interdunal swales, sandplain and cultivated grasslands, maritime shrublands and forests, freshwater marsh, and salt marsh with associated creek, river, mud flat, and salt panne habitats (USFWS 2008). These refuge habitats support varied and abundant populations of resident and migratory wildlife including more than 300 species of birds and dozens of species of mammals, reptiles, amphibians, invertebrates, and plants (USFWS 2008).

On October 20, 1948, Presidential Proclamation 2817 designated certain tidal waters near Parker River NWR, and the refuge proper, as closed to migratory bird hunting. In addition to refuge lands, the Proclamation Area (Figure 2) encompasses much of Plum Island Sound, the mouth of the Parker River, and the Plum Island River. The refuge lands located west of Plum Island Sound and the Plum Island River remained open to waterfowl hunting. No changes to refuge lands open for waterfowl hunting has occurred since the proclamation.

Currently, the Plum Island portion of the NWR is open annually to a 1-day, lottery-issued permit deer hunt. Deer hunt permittees may use shotguns and primitive firearms. Additionally, waterfowl hunting occurs during state designated waterfowl seasons within the three designated tidal areas in the salt marsh west of Plum Island Sound (*Hunting Areas A, B, and C*). A special 1-day Youth Waterfowl Hunt is also conducted on the Plum Island portion of the refuge in the salt marsh adjacent to North and Bill Forward Pools. Figure 3 shows a map of the current hunting areas.

**Figure 1. Parker River National Wildlife Refuge**



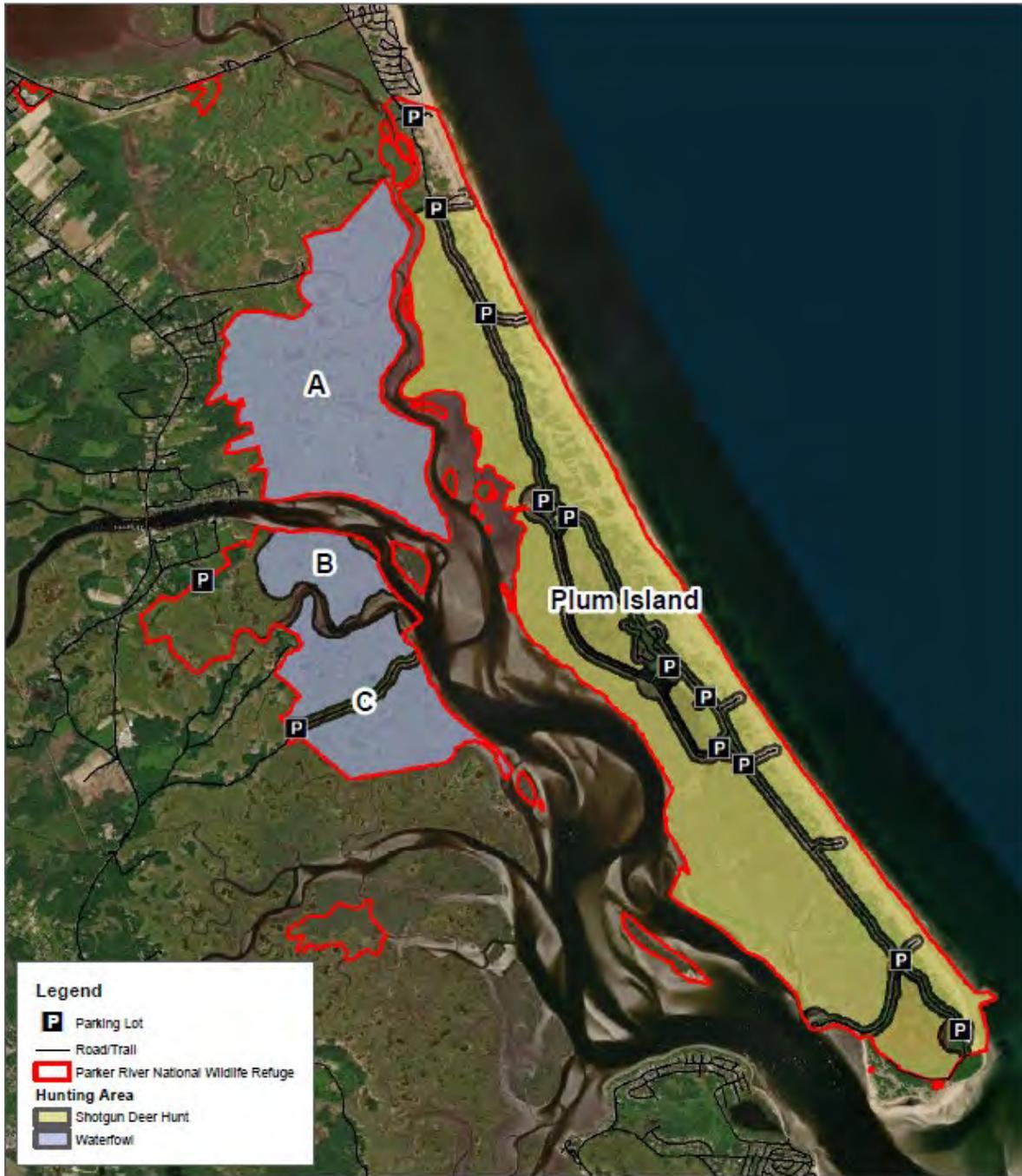
Data Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, US FWS , US GS , FAO, NPS , NRCAN, GeoBase, IGN, Kadaster NL, Ordnance

**Figure 2. Parker River NWR Proclamation and Taking Boundary**



Map Projection: NAD\_1983\_UTM\_Zone\_19N Graticule Units: degrees, minutes, seconds. Map Grid Unit: Meter S:\refuge\parkerriver\proclamation\_boundary.mxd 05-02-2011

**Figure 3. Map of the Current Hunting Areas**



Data Sources: Esri, HERE, Garmin, Intermap, increment P Corp ., GEBCO, USFWS, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance

## II. Statement of Objectives

The objectives of a multi-species hunting program on Parker River NWR are to:

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

## III. Description of Hunting Program

### A. Areas to be Opened or Changed to Hunting

#### Plum Island

Currently, 2,465 acres are open for shotgun deer hunting on Plum Island during the 1-day permit hunt (out of a potential 2,570 acres). All areas north of Lot 2 (90 acres) and 15 acres around sub-headquarters is closed to hunting for safety purposes. As deer are a generalist species, all habitats except open water are used by the species (Table 1). Primary habitats include the maritime forests and shrublands, pine forests, mowed grasslands, and the dunes. Deer are frequently seen in the salt marsh and occasionally the drier portions of the impoundments.

Table 1. White-tailed deer habitat on the Plum Island portion of Parker River NWR

Habitat	Acres
Maritime Shrubland/Forest	395
Pine Forest	37
Mowed Grasslands	71
Dunes	540
Sandplain Grassland	24
Interdunal Swale	47
Impoundment	266
Salt Marsh	1,008
Beach	182
TOTAL	2,570

Waterfowl hunting, except for the Youth Waterfowl Hunt, is closed on the island due to Presidential Proclamation 2817. No changes to hunting areas on Plum Island are being proposed.

### Hunting Areas A, B, C, and D

Waterfowl hunting is occurring within three designated tidal areas in the salt marsh west of Plum Island Sound, for a total of 1,524 acres (Figure 3). This hunting plan proposes the expansion of Area B to include the area immediately west of the current hunt boundary and extending to the refuge boundary (Figure 4). Additionally, a new hunting area will be created under this plan from a recently acquired parcel (*Area D*). These additions would result in a net increase of 259 acres to the hunting areas. A majority of these areas are composed of salt marsh, with limited uplands. *Area A* has five acres of forest, *Area B* has 17 acres of forest, *Area C* has two acres of maritime forest/shrublands and 18 acres of old field that is reverting to shrublands, and *Area D* has no upland. In addition to waterfowl, these areas will be open to all migratory game birds, white-tailed deer (archery only), upland game birds, rabbit and squirrels (gray squirrel, eastern cottontail, and snowshoe hare), and furbearers (coyote, red fox, gray fox, raccoon, and opossum).

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

All hunts will conform to applicable State and Federal regulations as published annually by Massachusetts Division of Fish and Wildlife, unless otherwise noted. Parker River NWR is located within Massachusetts Wildlife Management Zone (WMZ) 10 and the coastal zone for migratory bird hunting.

White-tailed Deer – Deer may be hunted on the Plum Island portion of the refuge during the first Wednesday and Thursday of the Massachusetts shotgun season (an increase of one day). All state legal implements, including shotguns, primitive weapons, archery equipment, and crossbows (permitted disabled hunters), will be permitted. Hunting for deer in *Hunting Areas A, B, C, and D* will be permitted during all Massachusetts deer hunting seasons, but archery equipment will be the only permitted implement in these areas.

The State estimates that the white-tailed deer population in Massachusetts exceeds 100,000 individuals (MDFW 2017). Populations range from 12 to 18 individuals per square mile in western and central Massachusetts to over 50 individuals per square mile in certain portions of eastern Massachusetts (MDFW 2018). Historically, deer overpopulation has caused damage to the maritime shrub habitat on the refuge as well as contributing to an unhealthy deer population.

Migratory Game Birds – Ducks, geese, brant, coots, mergansers, Virginia rail, sora rail, Wilson's snipe, and American woodcock may be hunted in accordance with all State regulations. Season and bag limits vary each year.

Upland Game Birds – Wild turkey, ruffed grouse, ring-necked pheasant, and crows may be hunted in accordance with all State regulations, with the exception of crow hunting. To limit impacts to migrating and nesting birds, crow hunting on Parker River NWR will be restricted to September 1 through February 28. Rifles for crow hunting will not be permitted on the refuge.

Rabbits and Squirrels – Eastern cottontail, snowshoe hare, and gray squirrel may be hunted in accordance with all State regulations, with the exception of night hunting. Hunting at Parker River NWR will be restricted to one-half hour before sunrise to one-half hour after sunset.

Furbearers – Coyote, red fox, gray fox, raccoon, and opossum may be hunted in accordance with all State regulations, except night hunting and hunting implements. Hunting is limited to one-half hour before sunrise to one-half hour after sunset. Rifles and handguns, and dogs are not permitted for hunting furbearers on the refuge.

#### Hunting Access - Plum Island

Access for the permit deer hunt and the Youth Waterfowl hunt will be through the main entrance only. Vehicle traffic is restricted to the public Wildlife Drive only. Driving is prohibited off-road. Parking is permitted in designated lots only.

#### Hunting Access - Hunting Areas A, B, C, and D

Access to the hunting areas is by foot or boat only (see below). On-refuge parking is limited with parking lots filled on a first come, first served basis. The refuge entrance gate and parking lots open 1 hour before legal shooting time. Launching of motorized boats is allowed from the boat ramp across from Lot 1, only during the hunting season.

*Area A* - Access is by boat or by foot from non-refuge areas.

*Area B* - Access is by foot from the refuge parking lot located off of Marsh Avenue (Newbury, MA), or by foot or boat from non-refuge areas.

*Area C (Nelson Island)* – Access is by foot from the refuge parking lot located at the end of Stackyard Road (Rowley, MA), or by foot from non-refuge areas. Hunting within 150 feet of the parking area is prohibited.

*Area D* – Access is by boat only.

### **C. Hunter Permit Requirements**

Permits will be issued for the 2-day permit deer hunt. Permits will be issued via a lottery system. By limiting the number of permits issued, the refuge can manage hunting activities in such a way that it is an enjoyable experience for those hunting and for other users of the refuge, as well as managing the impacts to the natural resources. No permits will be required for all other hunting.

### **D. Consultation and Coordination with the State**

National wildlife refuges, including Parker River NWR, conduct hunting programs within the framework of State and Federal regulations. The Refuge Program in the Service's Northeast Regional Office has had several discussions with the State on hunting opportunities at Parker River NWR, plus an additional conversation in January 2019 regarding this proposal. Future consultation, if any, will be considered during implementation. The refuge has moved forward with developing this Hunting Plan based on previously approved hunt plans.

Figure 4. Map of the Proposed Hunting Areas



Data Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, US FWS , US GS ,  
FAO, NPS , NRCAN, GeoBase, IGN, Kadaster NL, Ordnance

## E. Law Enforcement

The enforcement of refuge and State hunting regulations, trespass, and other public use violations normally associated with management of a national wildlife refuge is the responsibility of refuge law enforcement officers. These officers cooperate with, and are assisted by, State and local police officers as well as State Environmental Protection Officers (EPOs).

During the hunting seasons, the refuge will be patrolled regularly by officers and EPOs. Regulations and maps will be posted on the Parker River NWR website ([https://www.fws.gov/refuge/parker\\_river](https://www.fws.gov/refuge/parker_river)), at the refuge headquarters/visitor center, and will be given to each deer hunt permittee. Boundaries of the refuge are clearly marked by refuge boundary signs.

## F. Funding and Staffing Requirements

The cost involved in offering this wildlife-dependent, priority public use is minimal. Most of the costs are associated with the permit deer hunt, which requires the shutdown of the refuge lands on Plum Island to all other public uses. Staff costs are associated with administration (i.e., printing and processing applications and issuing permits), law enforcement, signage, and infrastructure such as parking areas, boat ramp, roads, and gates.

Signage, maps, brochures	\$ 2,000
Infrastructure	\$ 1,600
Administration	\$ 4,800
Law Enforcement	\$ 5,000
<b>Total annual recurring annual costs</b>	<b>\$13,400</b>

## IV. Conduct of the Hunting Program

To ensure compatibility with refuge purposes and the mission of the Refuge System, hunting is conducted in accordance with State and Federal regulations, as supplemented by refuge-specific regulations. However, the refuge manager may, upon annual review of the hunting program, impose further restrictions on hunting, recommend that the refuge be closed to hunting, or further liberalize hunting regulations up to the limit of State regulations. The refuge would restrict hunting if it becomes inconsistent with other, higher priority refuge programs or endangers refuge resources or public safety.

### A. Hunter Permit Application, Selection, and/or Registration Procedures

#### Two-Day Permit Deer Hunt

All persons hunting on the refuge will be required to obtain a permit. All hunters must fill out an application form to be entered into the lottery. Two hunters are permitted per application. Forms will be available on the refuge's website and at the Parker River NWR Headquarters.

Applications can be emailed, mailed, or faxed to Parker River NWR between September 1 and September 30. Following Massachusetts State regulations, resident children 12 to 17 years of age may hunt on the refuge when accompanied by a properly licensed adult, 18 years of age or older.

Seventy permits will be issued, with 35 issued for Wednesday and 35 for Thursday. Selected applicants will be notified by October 10 via email or letter. Non-selected applicants will also receive notification that they were not selected. The hunt permit fee is free for hunters aged 17 years and younger and hunters with disabilities, \$10 for hunters aged 62 and older, and \$20 for hunters aged 18 to 61. Hunters must purchase their permits by October 31. After payment is received, the hunter will be mailed their permit, along with a copy of the refuge hunting regulations and a refuge hunt map. No permits will be required for all other hunting permitted on the refuge.

## **B. Refuge-Specific Hunting Regulations**

To ensure compatibility with refuge purposes and the mission of the Refuge System, hunting must be conducted in accordance with State and Federal regulations, as supplemented by refuge-specific regulations (50 CFR Chapter 1, Subchapter C), and information sheets/brochures. Refuge-specific stipulations are also detailed in the Hunting Compatibility Determination (appendix A). Listed below are general refuge-specific regulations that pertain to hunting on Parker River NWR as of the date of this plan. These regulations may be modified as conditions change or if refuge expansion occurs.

- Refuge hunting hours are one-half hour before sunrise to one-half hour after sunset.
- Anyone hired to assist or guide hunter(s) must obtain, possess, and carry a valid Special Use Permit issued by the refuge manager.

### *Permit Deer Hunt Only*

- Hunters must check-in and out with refuge personnel prior to entering and exiting the refuge.
- Hunters must possess their refuge hunt permit at all times while scouting and hunting on the refuge.
- Hunting from the Hellcat and Stage Island Observation Towers is prohibited.
- All hunters must exit the refuge within one hour after legal shooting ends.
- Harvested deer must be registered at the refuge check station, if operational.
- Permittees may scout from the Thursday through Sunday prior to their hunt and must possess their refuge permit while scouting.

Additionally, Parker River NWR prohibits the use of rifles and handguns to hunt any species. While they allow the use of dogs for retrieving game, the use of dogs while coyote or fox hunting is prohibited. Shooting across refuge roads, boundaries and within or into administratively closed zones is prohibited. Parker River NWR also prohibits launching motorized boats for scouting purposes prior to hunting.

## **C. Relevant State Regulations**

Hunters are responsible for knowing and complying with all Massachusetts regulations. The refuge requires no specific orientation or safety training for hunters participating in general hunting activities.

## **V. Public Engagement**

### **A. Outreach for Announcing and Publicizing the Hunting Program**

Hunting opportunities are publicized through refuge pamphlets, website and social media, Mass Wildlife’s annual “Massachusetts Fishing and Hunting Guide”, social media, and press releases.

### **B. Anticipated Public Reaction to the Hunting Program**

The refuge is open to all six of the Refuge System’s priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education and environmental interpretation). About 300,000 people visit the refuge each year, with specific visits accounting for: 19,000 to the Visitor Center; 100,000 to the Wildlife Drive; 145,000 on four trails (along with five boardwalks that provide beach access); 3,000 hunters; and 36,000 anglers, among other users (USFWS 2011). With the exception of the 2-day permit deer hunt that occurs on the Plum Island portion of the refuge in December, most of the hunting that occurs on the refuge takes place in designated hunting areas that are either closed to and/or experience a very low level of use by other users. The Plum Island portion of the refuge is closed to all other users during the 2-day deer hunt in December. As this portion of the refuge is a popular destination year round, some conflict will occur when the refuge is closed for the deer hunt. Access to Sandy Point State Reservation for hunting is still allowed during the 2-day permit hunt.

There may be reaction to the refuge hunts by anti-hunter groups and individuals. Response to any demonstrations or protests will be coordinated through the Northeast Regional Office of the Service. If necessary, State and local law enforcement officials may be asked to assist.

The draft hunting plan, with an accompanying compatibility determination (CD) and environmental assessment (EA), was released to the public for a 30-day comment period on April 8, 2019. Public comments were accepted through May 8, and a public presentation was scheduled in Newburyport on April 25. Three comment letters were received during the comment period. No substantive changes were made to the plan based on the comments.

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

Hunting information sheets and maps are updated annually and made available to hunters on the refuge website and at the visitor center. General information regarding hunting and other wildlife-dependent public uses can be obtained at Parker River NWR headquarters, 6 Plum Island Turnpike, Newburyport, MA, by emailing [parkerriver@fws.gov](mailto:parkerriver@fws.gov), or calling the refuge at (978) 465-5753. Once on the refuge, areas closed to hunting will be clearly marked with “No Hunting Zone” or “No Waterfowl Hunting Zone” signs as appropriate. The boundaries of all lands owned by the Service are posted with refuge boundary signs. During the permit deer hunt, refuge staff will be present to assist hunters as needed.

## **VI. Compatibility Determination**

Hunting and all associated program activities proposed in this plan are found compatible with the

purposes of the refuge. Allowing deer, migratory birds, upland game birds, rabbit and squirrel, and furbearer hunting on Parker River NWR contributes to, and does not materially interfere with, or detract from, the mission of the Refuge System and the purposes for which the refuge was established. See appendix A.

## **VII. References**

Classification of Natural Communities of Massachusetts, Version 2.0. 2016. Massachusetts National Heritage and Endangered Species Program. Division of Fisheries and Wildlife. 1 Rabbit Hill Rd., Westborough, MA 01581. Accessed February 2019 at: <https://www.mass.gov/files/documents/2016/08/sg/cultural-grassland.pdf>.

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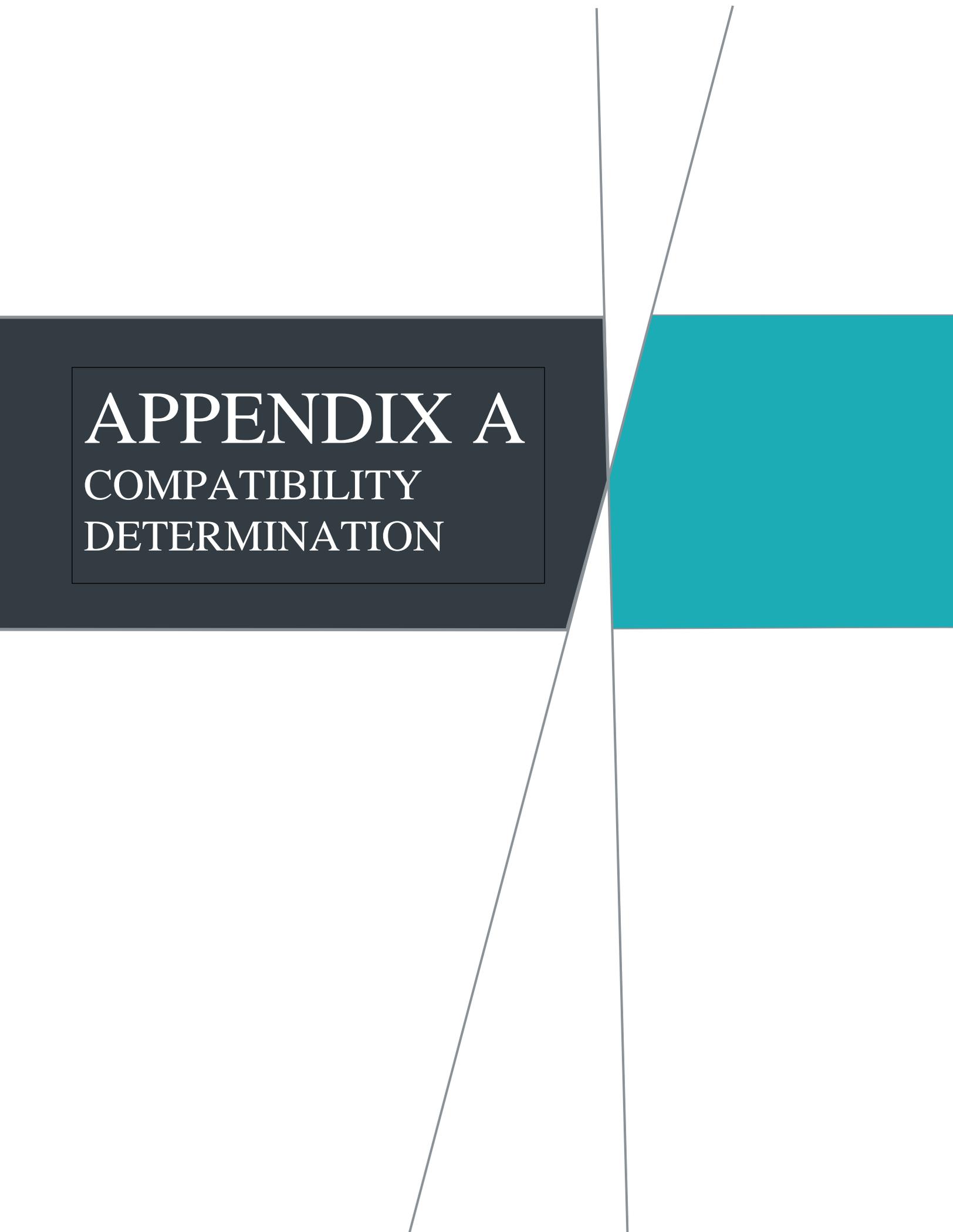
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The cover features a dark grey horizontal band on the left side. A teal-colored shape, resembling a stylized arrow or a parallelogram, points from the right edge of the dark grey band towards the right side of the page. The text is centered within a white rectangular area on the dark grey band. The background is white with two thin, light grey lines that intersect near the top right and extend downwards.

# APPENDIX A

## COMPATIBILITY DETERMINATION

## COMPATIBILITY DETERMINATION

**USE:** Hunting

**REFUGE NAME:** Parker River National Wildlife Refuge

**ESTABLISHING AND ACQUISITION AUTHORITIES:**

Migratory Bird Conservation Act (16 U.S.C. 715d) PL 91-504, 16 USC § 1132(c)

**PURPOSE FOR WHICH ESTABLISHED:**

“...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” (16 U.S.C. section 715d).

**NATIONAL WILDLIFE REFUGE SYSTEM MISSION:**

To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (National Wildlife Refuge System Improvement Act of 1997, 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 waterfowl, white-tailed deer, wild turkey, American woodcock, Wilson’s snipe, sora rail, Virginia rail, crow, pheasant, ruffed grouse, Eastern cottontail rabbit, gray squirrel, snowshoe hare, coyote, fox, opossum, and raccoon at Parker River NWR. Hunting was identified as one of six priority public uses of the National Wildlife Refuge System (Refuge System) by the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997, when found to be compatible.

The Plum Island portion of the refuge was opened to a permit deer hunt, and waterfowl hunting has occurred west of Plum Island Sound since shortly after the refuge’s establishment in the 1940s.

This compatibility determination (CD) amends and updates hunting areas, acreages, regulations, and species available for hunting, including the continuation of the migratory game bird hunting program, and permitting all State of Massachusetts (State) legal methods of take to be used for deer hunting in this area during the firearms deer hunt; expanding the waterfowl hunting areas; opening archery deer hunting within the waterfowl hunting areas; and opening wild turkey, woodcock, Wilson’s snipe, sora rail, Virginia rail, crow, pheasant, ruffed grouse, Eastern cottontail rabbit, gray squirrel, snowshoe hare, coyote, fox, opossum, and raccoon hunting in the waterfowl hunting areas (see attached map).

**(b) Where would the use be conducted?**

A permit deer hunt will continue to be allowed throughout the entire Plum Island portion of the refuge excluding areas north of parking lot 2, in the vicinity of sub-headquarters (HQ), as well as any established safety zones. During scheduled deer hunt days, the refuge will be closed to all other public uses, except waterfowl hunter boat launching from the Lot 1 boat launch.

An annual Youth Waterfowl Hunt will continue to take place within certain designated areas of the Plum Island portion of the refuge. Existing waterfowl hunting would continue within designated hunting zones A, B, and C. Areas A, B, C, and D, would also be open for the first time to those species listed in (a) above (see map at the end of this document).

Non-hunted areas include the current refuge headquarters and visitor center, the former refuge HQ, and the Plum Island portion of the refuge except during the controlled deer hunt and youth waterfowl hunt.

**(c) When would the use be conducted?**

*Deer*

A 2-day permit firearm deer hunt occurs on the Plum Island portion of the refuge on the first Wednesday and Thursday of the State shotgun deer season, usually in early December. A predetermined number of hunters are selected via lottery.

Archery hunting of deer is allowed within the refuge's designated waterfowl hunting areas during the State's designated season and according to State regulations and restrictions for Wildlife Management Zone (WMZ) 10.

*Migratory Game Birds*

Waterfowl hunting would continue to occur on the refuge. The refuge would be opened to hunting for all other MA legal migratory birds as annually set for each species by the State and within Federal guidelines.

The season is generally from early September through the middle of February each year depending on the species. The refuge is located entirely within the State's Coastal Zone and those regulations apply to all hunt areas.

*Upland Game Birds*

Upland game bird hunting would be opened on 1,783 acres of the refuge (Hunting Areas A, B, C & D). The hunting season for each species (pheasant, ruffed grouse and crow) is set by the State. Due to concerns about impacts on nesting birds, crow hunting would be restricted to September 1 through February 28. The refuge is located entirely within the State's WMZ 10 and those regulations apply to all hunt areas.

*Wild Turkey*

Wild turkey hunting (by archery and shotgun) would be opened on 1,783 acres of the refuge (Hunting Areas A, B, C, and D) in the spring and fall. The specific hunting periods and hours are determined by the State. The refuge is located entirely within the State's WMZ 10 and those regulations apply to all hunt areas. Hunters will be encouraged to voluntarily use non-toxic shot.

*Upland Game (Rabbit, Squirrel, and Furbearer)*

Upland game hunting would be opened on 1,783 acres of the refuge (e.g., Hunting Areas A, B, C, and D). The specific hunting periods and hours are determined by the State. The refuge is located entirely within the State's WMZ 10 and those regulations apply to all hunt areas.

**(d) How would the use be conducted?**

The refuge will continue to administer the hunting program according to State and Federal regulations. Federal regulations in 50CFR Chapter 1, subchapter C as well as refuge-specific regulations will apply. However, the refuge manager may, upon annual review of the hunting program, modify the program to ensure compatibility. We may restrict hunting if it becomes inconsistent with other refuge programs or endangers refuge resources or public safety.

*White-tailed Deer*

- A. Two-Day Permit Deer Hunt on the Plum Island Portion of the Refuge: All persons wishing to participate in this deer hunt must possess a valid Massachusetts hunting license and refuge deer hunt permit. Permittees are selected using a lottery system prior to the hunt, in which 35 hunters will be selected for each day, including up to four disabled hunters. These numbers are subject to change based on hunter satisfaction and resource availability.

Selected hunters may scout the appropriate areas open to hunting during the identified scouting period. All hunters must possess their refuge deer permit while scouting.

During the day of their hunt, hunters must check-in at the gatehouse and may park only in designated parking lots. "No hunting zones" include all areas north of parking lot 2, in the vicinity of sub-headquarters, and other identified safety zones. All hunters must check out at the gatehouse during their departure. Deer may be harvested with any method of take permitted in WMZ 10. If the refuge is operating a State-sanctioned deer registration station, all permit deer hunt-harvested deer must be registered at this station.

- B. Archery Deer Hunting: Archery hunting is available on 1,783 acres of refuge land within designated hunting areas (A, B, C & D). All hunters must comply with all applicable Federal and State regulations. Foot access is available from two parking lots on the west side of the refuge described as areas B (Marsh Ave., Newbury) and C (Nelson Island, Stackyard Rd., Rowley), and by foot or boat from off-refuge.

*Migratory Game Birds*

Migratory game bird hunting will be conducted in accordance with Federal and State laws, and refuge regulations as shown in 50 CFR, Chapter 1 subchapter C, and in refuge hunting brochures/information sheets. We may restrict hunting if it becomes inconsistent with other, priority refuge programs or endangers refuge resources or public safety.

Foot access is available from two parking lots on the west side of the refuge described as areas B (Marsh Ave., Newbury) and C (Nelson Island, Stackyard Rd., Rowley), and by foot or boat from off-refuge. Using dogs for retrieving is allowed and encouraged for migratory game bird hunting.

### *Upland Game Birds*

Upland game bird hunting would be opened on 1,783 acres of the refuge (Hunting Areas A, B, C & D). All hunters must comply with applicable Federal, State, and refuge regulations. Foot access is available from two parking lots on the west side of the refuge described as areas B (Marsh Ave., Newbury) and C (Nelson Island, Stackyard Rd., Rowley), and by foot or boat from off-refuge.

### *Wild Turkey*

Wild turkey hunting (by archery and shotgun) would be opened on 1,783 acres of the refuge (Hunting Areas A, B, C, and D) in the spring and fall. All hunters must comply with all applicable Federal, State, and refuge regulations. Foot access is available from two parking lots on the west side of the refuge described as areas B (Marsh Ave., Newbury) and C (Nelson Island, Stackyard Rd., Rowley), and by foot or boat from off-refuge.

### *Upland Game (Rabbit, Squirrel, and Furbearers)*

Upland game hunting would be opened on 1,783 acres of the refuge (e.g., Hunting Areas A, B, C, and D). All hunters must comply with applicable Federal, State, and refuge regulations. Foot access is available from two parking lots on the west side of the refuge described as areas B (Marsh Ave., Newbury) and C (Nelson Island, Stackyard Rd., Rowley), and by foot or boat from off-refuge.

### *For All Archery Deer, Migratory Game Bird, Upland Game Bird, Wild Turkey, and Upland Game Hunting*

Hunters may launch boats from the refuge boat ramp during the refuge hunting seasons to access hunting areas. Commercial waterfowl guides are required to obtain a special use permit (SUP) from the refuge manager (covered by the Commercial Tours, Guided Trips and Outfitting CD).

### **(e) Why is this use being proposed?**

Hunting is one of the priority public uses outlined in the Refuge Improvement Act. The Service supports and encourages priority uses when they are compatible on national wildlife refuges. Hunting is an important wildlife management tool and a traditional form of wildlife-oriented recreation deeply rooted in America's heritage. When managed appropriately, hunting can instill a unique appreciation of wildlife, animal behavior, and habitat needs. Historically, the refuge has been and continues to be a popular destination for this activity.

### **AVAILABILITY OF RESOURCES:**

There are sufficient funds within the refuge's annual operating budget to administer the hunting program (Table 1). The cost involved in offering this wildlife-dependent, priority public use is minimal. Most of the costs are associated with the permit deer hunt which requires the shutdown of the refuge lands on Plum Island to all other public uses. Staff costs are associated with administration i.e., printing and processing applications and issuing permits, law enforcement signage, and infrastructure such as parking areas, boat ramp, roads, and gates.

**Table 1. Refuge Annual Operating Budget**

Signage, maps, brochures	\$ 2,000
Infrastructure	\$ 1,600
Administration	\$ 4,800
<u>Law Enforcement</u>	<u>\$ 5,000</u>
Total annual recurring annual costs	\$13,400

Parker River NWR may request the assistance, if needed, of Service or other authorized law enforcement personnel from Federal, State, county or local agencies during the hunt.

This activity does not conflict with other recreational users as it is separated spatially (except for the permit deer hunt on Plum Island when the refuge is closed to all other users for that 2-day period).

**ANTICIPATED IMPACTS OF THE USE:**

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

Overall, the refuge expects an average increase of less than one hunter per day, for an increase of 30 additional migratory bird hunter visits per year (24 waterfowl, and six snipe/rail). The estimated increase in annual harvest would be approximately 50 ducks, 12 geese, four snipe/rail, and zero woodcock per year.

**Vegetation**

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

The refuge has been successful in reducing the number of deer present on the refuge since the 1980s. Positive, indirect effects on the vegetation will continue with maintaining an appropriate white-tailed deer population. The impacts of dense deer populations on forest regeneration and the composition and diversity of the herbaceous understory have been well documented (Tierson

et al. 1966, Behrend et al. 1970, Tilghman 1989, Cote et al. 2004, White 2012). An overabundance of deer can suppress native vegetation, facilitating the success of invasive species in forested habitats (Knight et al. 2009).

### **Hydrology (Water Resources and Wetlands)**

Salt marsh, tidal creeks, forested wetlands, and impoundments occur within the refuge. These habitats are located throughout the hunt area and would be traveled by deer and migratory game bird hunters, in particular. Some terrestrial wooded wetlands would be traversed to access hunting areas as well. Some impacts could occur if hunters use the same paths for access on a regular basis, but impacts are expected to be short-term and minor.

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

### **Wildlife**

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

The state estimates that the white-tailed deer population in Massachusetts exceeds 100,000 individuals (MDFW 2017). Populations range from 12 to 18 individuals per square mile in western and central Massachusetts to over 50 individuals per square mile in certain portions of eastern Massachusetts (MDFW 2018). Historically, deer overpopulation has caused damage to the maritime shrub habitat on the refuge as well as contributing to an unhealthy deer population.

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

For some species of birds, research has shown that the magnitude of disturbance behavior in individuals is negatively related to the proximity of humans to their habitat (Burger 1986). Some bird species flee from human disturbance, which can lower their nesting productivity and cause disease and death (Knight and Cole 1991). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. Bird communities in this study were apparently affected by the presence of recreational trails, where common species (i.e., American robins) were found near trails and more specialized species (i.e., grasshopper sparrows) were found farther from trails. Nest predation also was found to be greater near trails (Miller et al. 1998). Disturbance may affect the reproductive fitness of males by hampering territory defense, male attraction and other reproductive functions of song (Arcese 1987). Disturbance, which leads to reduced singing activity, makes males rely more heavily on physical deterrents in defending territories, which are time and energy consuming (Ewald and Carpenter 1978).

While some disturbance to non-target wildlife species is expected, we anticipate that impact to be minimal because the proposed hunting is regulated by the refuge and most of it occurs outside the breeding season (except for the spring turkey season). Although spring turkey season is during the spring migration, we expect only a small percentage of hunters to hunt on the refuge, which would result in limited disturbance in localized areas. All hunting activities being proposed have the potential to disturb wildlife using the refuge; however, the negative impacts are expected to be limited.

### **Federally Listed Species**

The federally endangered roseate tern, and threatened piping plover, red knot, and northern long-eared bat can be found on the refuge. Piping plovers breed on the refuge beach from late March thru late August. Given the time of year that hunting occurs on the refuge, this activity is not likely to having any material impact on any of the species.

### **Other Visitors and Users**

The refuge is open to all six of the Refuge System's priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education and environmental interpretation). About 300,000 people visit the refuge each year. Visits associated with specific activities are approximately: 19,000 to the Visitor Center; 100,000 to the Wildlife Drive; 145,000 on four trails (along with five boardwalks that provide beach access); 3,000 hunters; and 36,000 anglers, among other users. With the exception of the 2-day permit deer hunt that occurs on the Plum Island portion of the refuge in December, most of the hunting that occurs on the refuge takes place in designated hunting areas that are either closed to and/or experience a very low level of use by other users. The Plum Island portion of the refuge is closed to all other users during the 2-day permit deer hunt in December. Only negligible, short-term impacts to user groups have occurred and are anticipated to occur in the future.

### **Economic**

The refuge spans three towns (Newbury, Rowley, and Ipswich) in Essex County, Massachusetts. The county has a population of approximately 800,000 people. The predominant land uses near the refuge are residential and commercial development. Local Chambers of Commerce consider the refuge one of the area's main attractions. A number of nearby State parks, wildlife

management areas, and other publicly accessible open spaces provide additional recreational opportunities. Total expenditures from refuge visitors were \$7.4 million (\$2.3 million from residents and \$5.1 million from non-residents) in 2006. Expenditures specifically linked to hunting activities accounted for less than one (1) percent of all expenditures (Banking on Nature Report, USFWS, 2007). While hunting visitation may increase due to increased opportunities, additional economic impact is expected to be negligible under this action.

### **Cumulative Impacts**

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

The cumulative impacts of hunting on deer, turkey, migratory game birds, upland game birds, and upland game at the refuge are expected to be negligible. The proportion of the refuge's harvest of these species is negligible when compared to WMZ 10, regional, and State-wide populations and harvest. Table 2 demonstrates estimates of waterfowl harvest and hunter activity in the state of Massachusetts during the 2016 and 2017 hunting seasons (Raftovich 2018).

We anticipate that expanded hunting opportunities at the refuge will result in no significant direct or indirect cumulative impacts on resident or migratory wildlife because the hunting seasons occur largely outside of their breeding seasons. See the 2019 Parker River NWR Hunting Plan's Environmental Assessment for a thorough summary of anticipated impacts.

### **PUBLIC REVIEW AND COMMENT:**

This CD is part of the Parker River NWR Hunting Plan and the accompanying Environmental Assessment (EA). The documents were released to the public for a 30-day comment period on April 8, 2019. Public comments were accepted through May 8, and a public presentation was scheduled in Newburyport on April 25. Three comment letters were received during the comment period. No substantive changes were made to the plan based on the comments.

### **DETERMINATION (CHECK ONE):**

Use is not compatible.

Use is compatible with the following stipulations.

### **STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

- A permit will be required for the 2-day permit deer hunt on the Plum Island portion of the refuge.
- The use of dogs while coyote or fox hunting is prohibited.

**JUSTIFICATION:**

Hunting is a popular form of wildlife recreation in northeastern Massachusetts, as well as a traditional activity on the refuge. While it satisfies a recreational need, 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 may occur, but this disturbance is generally short-term and low-impact.

Hunting is a wildlife-dependent priority public use with minimal impact on refuge resources. It is consistent with the purposes for which the refuge was established, the Service's policy on hunting, the Refuge System Improvement Act, and the broad management objectives of the Refuge System.

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

Signature: Refuge Manager Maia E. Carisi 8/14/19  
(Signature and Date)

**ACTING**  
Concurrence: Regional Chief Shaun Marino 9/19/19  
(Signature and Date)

Mandatory 15-year re-evaluation date: 9/19/2034  
(Date)

**Table 2. Preliminary estimates of waterfowl harvest and hunter activity in the Atlantic Flyway during the 2016 and 2017 hunting seasons (Massachusetts)**

<b>Duck Species Composition</b>	<b>2016</b>	<b>2017</b>
Mallard	6,269	4,178
Domestic Mallard	0	0
Black Duck	2,101	2,289
Mallard x Black Hybrid	200	94
Mottled Duck	0	0
Gadwall	133	0
Wigeon	33	0
Green-winged Teal	367	755
Blue-winged/Cinnamon Teal	33	0
Northern Shoveler	33	0
Northern Pintail	33	24
Wood Duck	4,468	3,115
Redhead	0	0
Canvasback	0	0
Greater Scaup	33	47
Lesser Scaup	0	71
Ring-necked Duck	33	0
Goldeneyes	67	189
Bufflehead	1,434	1,487
Ruddy Duck	0	0
Long-tailed Duck	2,123	1,815
Eiders	4,034	4,698
Scoters	2,548	2,029
Hooded Merganser	267	283
Other Mergansers	333	354
<b>Total Duck Harvest</b>	<b>24,500±25%</b>	<b>21,400±35%</b>
<b>Total Active Duck Hunters</b>	<b>3,700±27%</b>	<b>2,900±24%</b>
<b>Total Duck Hunter Days Afield</b>	<b>20,700±31%</b>	<b>15,400±29%</b>
<b>Seasonal Duck Harvest Per Hunter</b>	<b>4.3±37%</b>	<b>4.4±43%</b>
<b>Goose Species Composition</b>		
Canada Goose	11,594	8,546
Snow Goose	0	0
Blue Goose	0	0
Ross' Goose	0	0
White-fronted Goose	0	0
Brant	991	777
<b>Total Goose Harvest</b>	<b>12,600±42%</b>	<b>9,300±33%</b>
<b>Total Active Goose Hunters</b>	<b>3,600±27%</b>	<b>2,500±25%</b>
<b>Total Goose Hunter Days Afield</b>	<b>18,100±31%</b>	<b>13,200±32%</b>
<b>Seasonal Goose Harvest Per Hunter</b>	<b>3.2±50%</b>	<b>3.4±42%</b>
<b>Active Waterfowl Hunters</b>	<b>5,100±23%</b>	<b>4,300±20%</b>

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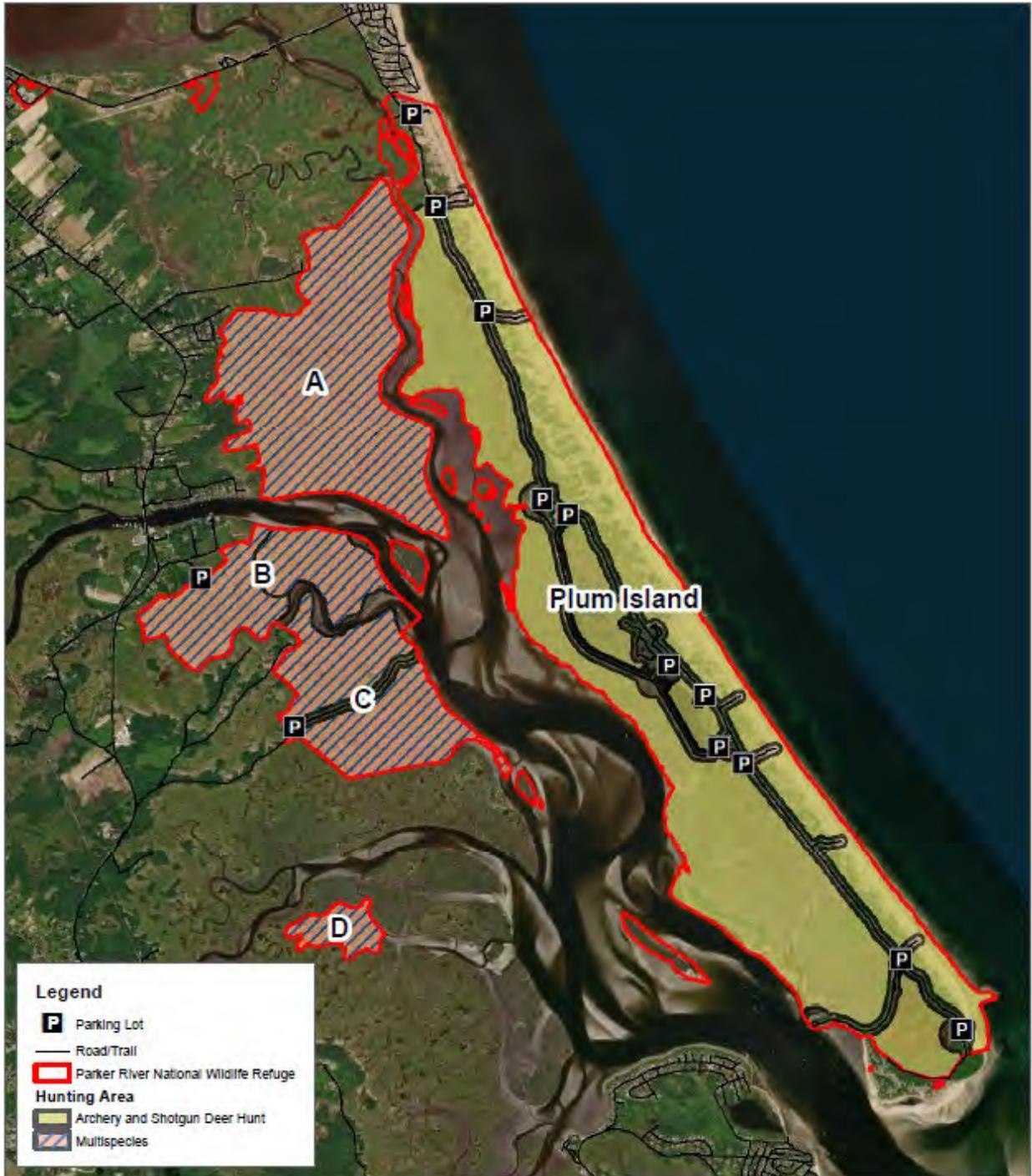
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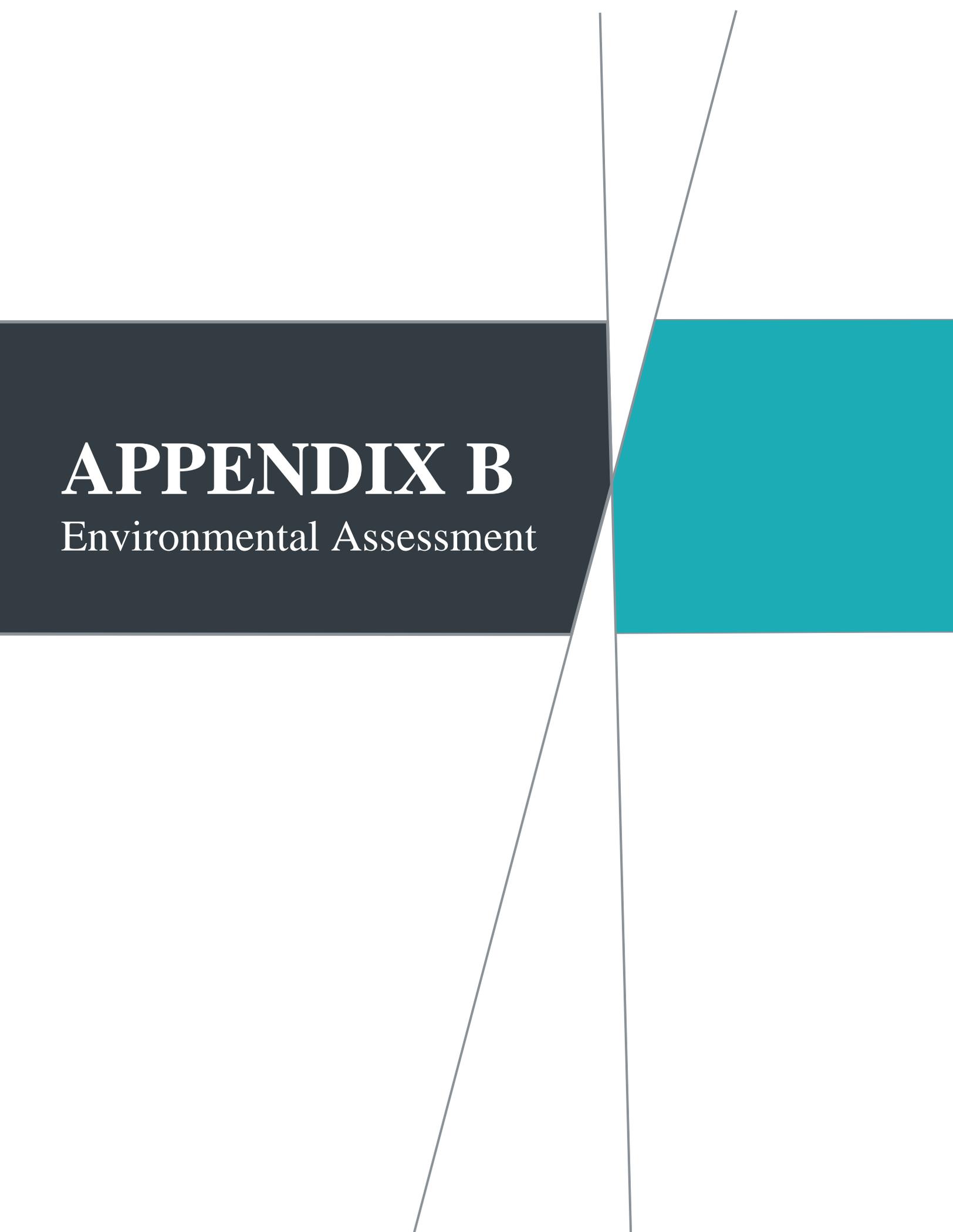
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Data Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, US FWS , US GS ,  
 FAO, NPS , NRCAN, GeoBase, IGN, Kadaster NL, Ordnance

The cover features a white background with a dark grey horizontal band on the left and a teal horizontal band on the right. Two thin grey lines intersect on the right side, one vertical and one diagonal. The text is centered within the dark grey band.

# **APPENDIX B**

Environmental Assessment



**Draft Environmental Assessment**

# **Hunting Expansion at Parker River National Wildlife Refuge**

**U.S. Fish and Wildlife Service**

December 2011



## Document Information

Prepared for US Fish and Wildlife Service – R5  
Project Name Draft Environmental Assessment  
Project Number 179536600  
Project Manager Kathleen Melland, Senior Project Scientist  
Date December 2018

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Cover photo (top): [https://commons.wikimedia.org/wiki/File:Parker\\_River\\_National\\_Wildlife\\_Refuge,\\_MA.\\_Credit-\\_Matt\\_Poole-USFWS\\_\(11805157015\).jpg](https://commons.wikimedia.org/wiki/File:Parker_River_National_Wildlife_Refuge,_MA._Credit-_Matt_Poole-USFWS_(11805157015).jpg)

Cover photo (bottom right): <https://www.pourvoiries.com/en/hunting-quebec/species/white-tailed-deer/>

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## I. Proposed Action

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

The Service is proposing to expand hunting opportunities for white-tailed deer, migratory game birds, upland game birds, rabbits and squirrels, and furbearers on the Parker River National Wildlife Refuge (NWR, Refuge). The 4,727-acre refuge is located 37 miles north of Boston, Massachusetts, within the Towns of Newbury, Newburyport, Rowley, and Ipswich. The Refuge occupies the southern three-fourths of Plum Island, a 9-mile long barrier island (USFWS 2008, USFWS 2007). Currently, the Plum Island portion of the refuge is open to an annual 1-day, lottery-issued permit firearms deer hunt. In addition, an annual Youth Waterfowl Hunt takes place within certain designated areas of the Plum Island portion of the refuge. Waterfowl hunting also occurs within the three designated tidal areas in the salt marsh west of Plum Island Sound (*Hunting Areas A, B and C*). The Hunting Plan and this accompanying Environmental Assessment propose changes to the current management strategies, including:

- Extending the (Plum Island) lottery shotgun deer hunt from 1 day to 2 days.
- Adding archery equipment as a legal implement during the Plum Island lottery Permit deer hunt.
- Expanding *Hunting Area B* and adding *Hunting Area D* to the existing Hunting Areas.
- Opening *Hunting Areas A, B, C and D* to allow for hunting of the following species: white-tailed deer (archery equipment only; *Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), American woodcock (*Scolopax minor*), Wilson's Snipe (*Gallinago delicata*), sora rail (*Porzana Carolina*), Virginia rail (*Rallus limicola*), crow (*Corvus sp.*), ring-necked pheasant (*Phasianus colchicus*), ruffed grouse (*Bonasa umbellus*), eastern cottontail (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*), snowshoe hare (*Lepus americanus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), red fox (*Vulpes vulpes*), opossum (*Didelphis virginiana*), and raccoon (*Procyon lotor*).

## II. Background Information

National wildlife refuges are guided by the mission and goals of the National Wildlife Refuge System (Refuge System), the purposes of an individual refuge, Service policy, and laws and international treaties. Relevant guidance includes the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997, Refuge Recreation Act of 1962, and selected portions of the Code of Federal Regulations (CFR) and Service Manual. Parker River NWR was established in 1942 under the authority of the Migratory Bird Conservation Act for the following purpose:

“... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds”.

In 1962, the Refuge Recreation Act (16 U.S.C. 460K-460K-4) expanded the purpose of Parker River NWR to include:

*“...(1) incidental fish and wildlife-oriented recreation development, (2) the protection of natural resources, (3) the conservation of endangered species and threatened species...”*

Parker River NWR is managed by the U.S. Fish and Wildlife Service (Service) as a part of the Refuge System (USFWS 2007). 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 fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”*

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

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

### **III. Purpose and Need for the Proposed Action**

Hunting is a healthy, traditional recreational use of renewable natural resources deeply rooted in America’s heritage, and it can be an important wildlife management tool. The Refuge System Administration Act of 1966, the Refuge System Improvement Act of 1997, other laws, and the

Service's policies permit hunting on a national wildlife refuge when it is compatible with the purposes for which the refuge was established and acquired.

National wildlife refuges, including Parker River NWR, conduct hunting programs within the framework of Federal, State, and refuge regulations. Hunters on the refuge are expected to be ethical hunters and respectful of other hunters, non-consumptive users, wildlife species, and the environment while on refuge lands.

The objective of the Parker River NWR hunting program is to:

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

Department of the Interior Secretarial Order 3356 directs the Service to enhance and expand public access to lands and waters on national wildlife refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action will also promote one of the priority public uses of the Refuge System, and will promote stewardship of our natural resources and increase public appreciation and support for the refuge by providing opportunities for visitors to hunt. To address the needs stated above, the purpose of the proposed action will 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 which analyzes the impacts on environmental, cultural, and historical resources of expanding hunting opportunities on the refuge.

#### **IV. Alternatives Considered**

The No Action Alternative would continue to provide deer hunting opportunities through a 1-day, lottery issued permit hunt on the Plum Island portion of the refuge and waterfowl hunting would continue in Hunting Areas A, B and C. Table 1 describes the primary differences between the two evaluated alternatives.

**Table 1. Primary differences between hunt alternatives**

	<b>No Action Alternative:</b>	<b>Proposed Action Alternative:</b>
Cost of program	\$8,600	\$13,400
Estimated funds to be received through Refuge permits*	\$550	\$1,100
Regulations	Permit deer hunt deviates from state regulations. Waterfowl hunting does not deviate from state regulations.	Permit deer hunt deviates from state regulations. Waterfowl, migratory bird, deer, upland game bird, rabbit and squirrel, and furbearer hunts do not significantly deviate from state regulations.
Species Open to Hunting	Deer, ducks, and geese.	Deer, all migratory birds, upland game birds, rabbits and squirrels, and furbearers.
Refuge Permit Required	Permit deer hunt only.	Permit deer hunt only.
Days Open to Hunting	94 days	186 Days

\* *Refuge permits issued only for the lottery, permit deer hunt*

The Service considered other hunting alternatives such as opening the refuge to black bear (*Ursus americanus*) hunting; however, bear hunting was ultimately decided against due to the species absence from the area and unlikelihood of species establishment. The proposed action builds on the existing hunt program and is described further in the Section 5 below.

## **V. Proposed Action Alternative**

The Service has prepared a hunting plan, which is presented with this document, and is summarized in this EA as the Proposed Action Alternative. Under this alternative, Parker River NWR will expand its permit white-tailed deer hunt to two days and allow the use of archery equipment, expand *Hunting Area B* to the full parcel boundary, create a new hunt area (*Hunting Area D*) with the recently acquired Marsh Hundreds property located in Ipswich, MA, and open *Hunting Areas A, B, C, and D* to 18 new species (listed below). Refuge permits will be issued through a lottery for the permit deer hunt only; no permit is required for all other hunting. The seasons, bag limits, and regulations will be consistent with those set by Massachusetts Division of Fish and Wildlife (Mass Wildlife) except where noted.

Hunters would also have to comply with additional refuge-specific regulations, including but not limited to those contained in 50 CFR Chapter 1, subchapter C. Those proposed under this alternative include:

- The species identified within this hunting plan are the only legal species to be hunted on the refuge. Hunting of all other species is prohibited;
- Shooting across refuge roads, boundaries and within or into administratively closed zones is prohibited;
- Decoys, boats, and other equipment must be removed at the end of each hunt day. All trash, including shotshell hulls, must be removed when leaving hunting areas;
- Refuge hunting hours are one-half hour before sunrise to one-half hour after sunset;
- Target practice on the refuge or any discharge of firearms not related to approved hunting activities is prohibited; and
- We allow the use of dogs to retrieve game; however, the use of dogs to fox and coyote hunt is prohibited.

The refuge manager may, upon annual review of the hunting program, impose further restrictions on hunting activity, recommend that the refuge be closed to hunting, consider zoning for different uses, or further liberalize hunting regulations within the limits of State law. Restrictions would occur if hunting becomes inconsistent with other higher priority refuge programs, or endangers refuge resources or public safety.

### V.1 White-tailed Deer

The Plum Island portion of the NWR is currently open to a 1-day, lottery-issued permit deer hunt annually. Table 2 depicts the changes in hunting alternatives proposed for white-tailed deer. The proposed alternative will entail doubling the Parker River lottery-issued permit deer hunt length from one to two days. In addition, the hunting plan will also permit deer hunters to use archery equipment, per MA state regulations, in addition to shotguns and primitive firearms that are already permitted. The number of permits will be doubled, with an extra 35 permits issued for the additional day of hunting. Hunting of white-tailed deer will be allowed within the refuge’s designated hunting areas (*Hunting Areas A, B, C, and D*) during the state’s designated seasons, with archery equipment being the only legal implement. While the dates of the refuge 2-day permit deer hunt will be refuge-specific, dates for deer hunting in Hunting Areas A, B, C and D will be aligned with State hunting dates.

**Table 2. Difference in deer hunting between refuge hunt alternatives**

	No Action	Proposed Action	Change
Permit Deer Hunt (Plum Island)	2,465 acres	2,465 acres	0 acres
	1 day	2 days	1 day
	35 permits	70 permits	35 permits
Archery Deer Hunting (Hunting Areas A, B, C and D)	0 acres	1,783 acres	1,783 acres
	0 days	74 days	74 days
	N/A	No Permit Required	None

All State regulations will be in effect for white-tailed deer hunting on the refuge. In addition to the refuge-specific regulations mentioned above, hunters during the 2-day permit hunt must also abide by the following regulations:

- Hunters must check-in and out with refuge personnel prior to entering and exiting the refuge.
- Hunters must possess their refuge hunt permit at all times while scouting and hunting on the refuge.
- Hunting from the Hellcat and Stage Island Observation Towers is prohibited.
- All hunters must exit the refuge within one hour after legal shooting ends.
- Harvested deer must be registered at the refuge check station, if operational.
- Permittees may scout from the Thursday through Sunday prior to their hunt and must possess their refuge permit while scouting.

## **V.2 Migratory Game Birds**

Approximately 4,618 acres of refuge land were acquired with Migratory Bird Conservation Commission (MBCC) funds. By law (16 U.S.C. 668dd(1)(A)), generally no more than 40 percent of the portions of refuge lands set apart as an inviolate sanctuary (acquired with approval of the MBCC) and acquired prior to November 8, 1978 should be open to migratory bird hunting. Currently, 1,524 acres of land purchased with MBCC funds are open to waterfowl (ducks, geese and coots) hunting, which equates to approximately 31 percent of MBCC-funded property. Table 3 depicts the changes in hunting alternatives proposed for migratory birds. Waterfowl hunting is already open to the general public within three designated tidal areas in the salt marsh west of Plum Island Sound. In addition, an annual Youth Waterfowl Hunt takes place within certain designated areas of the Plum Island portion of the refuge.

The Proposed Action Alternative allows for the expansion of Area B to include the area west of the current hunt area and extending to the refuge boundary. Additionally, the alternative would create a new hunting area (*Hunting Area D*) on the recently acquired Marsh Hundreds parcel located in Ipswich, MA. These additions would result in a net increase of 259 acres to the hunting areas. As *Hunting Area D* was purchased after 1978, its 65 acres are not included in the total acres open to hunting for MBCC purposes, although the additional acres in *Hunting Area B* are included. This leaves 1,623 acres (35 percent) of MCCC-funded land open to hunting under the preferred alternative. *Hunting Areas A, B, C, and D* will be opened to hunting for the following new migratory game bird species: American woodcock, Wilson's snipe, sora rail, and Virginia rail, in addition to the ducks, geese and coots that are currently permitted.

**Table 3. Difference in migratory game bird hunting between refuge hunt alternatives**

Species	No Action	Proposed Action	Change
Rails, Snipe, and Woodcock (Hunting Areas A, B, C and D)	0 acres	1,783 acres	1,783 acres
	0 days	91 days	91 days
Ducks and Geese (Hunting Areas A, B, C and D)	1,524 acres	1,783 acres	259 acres
	102 days	102 days	0 days

### V.3 Upland Game Birds

No hunting of upland game birds has occurred since the refuge establishment. The difference between the No Action Alternative and the Proposed Action for hunting of upland game birds is shown in Table 4. The Proposed Action would allow for the hunting of five new species: wild turkey, ruffed grouse, ring-necked pheasant, and crow. This change will occur within *Hunting Areas A, B, C, and D*, and would result in 1,783 acres being open to upland game bird hunting.

**Table 4. Difference in upland game bird hunting between refuge hunt alternatives**

Species	No Action	Proposed Action	Change
Upland Game Birds Hunting (Hunting Areas A, B, C and D)	0 acres	1,783 acres	1,783 acres
	0 days	167 days	167 days

### V.4 Rabbit and Squirrel

Table 5 depicts the changes in hunting alternatives proposed for rabbits and squirrels. The Proposed Action Alternative includes the addition of gray squirrel, cottontail rabbit, and snowshoe hare hunting within *Hunting Areas A, B, C, and D* (1,783 acres).

**Table 5. Difference in rabbit and squirrel hunting between refuge hunt alternatives**

Species	No Action	Proposed Action	Change
Rabbit & Squirrel Hunting (Hunting Areas A, B, C and D)	0 acres	1,783 acres	1,783 acres
	0 days	114 days	114 days

### V.5 Furbearers

Table 6 depicts the changes in hunting alternatives proposed for furbearers. The Proposed Action Alternative includes the addition of coyote, red fox, gray fox, raccoon, and opossum hunting within *Hunting Areas A, B, C, and D* (1,783 acres).

**Table 6. Difference in furbearer hunting between refuge hunt alternatives**

Species	No Action	Proposed Action	Change
Furbearer Hunting (Hunting Areas A, B, C and D)	0 acres	1,783 acres	1,783 acres
	0 days	136 days	136 days

This Proposed Action Alternative offers increased opportunities for public hunting and fulfills the Service’s mandate under the Refuge System Improvement Act of 1997. It provides a recreational experience to the general public while maintaining sustainable wildlife populations. Under this alternative, the refuge Federal wildlife officer and/or Environmental Protection officers will monitor the hunts, and conduct license, bag limit, and compliance checks. Refuge staff will administer the hunts. The Service has determined that this hunting plan is compatible with the purposes of Parker River NWR and the Refuge System, and a Compatibility Determination is found in the Hunting Plan.

## **VI. Mitigation Measures and Conditions**

The refuge-specific regulations detailed above (and in 50 CFR) are measures under the Proposed Action Alternative that will reduce or avoid impacts. Refuge and State law enforcement officers enforce hunting regulations. Providing hunting information through various forums will ensure the public is aware of applicable laws and policies.

To minimize conflicts and maximize safety between the hunting and non-hunting public, the Plum Island portion of the refuge will be closed to everyone except permitted hunters during the 2 days of the permit hunt. No hunting is permitted north of Parking Lot 2 to reduce impacts to island residents, located north of the refuge. Other safety zones are located within the vicinity of sub-headquarters and 150 feet of a roadway or trail. This last buffer zone applies for all hunting in all areas, not just the permit deer hunt.

For safety purposes, the use of rifles or handguns will not be permitted for the hunting of any species. Deer hunting in *Hunting Areas A, B, C, and D* will be limited to archery equipment only. No night hunting will be permitted to reduce disturbance to adjacent landowners.

Refuge management activities can be accomplished without conflict with hunting activities using administratively closed areas and methods of hunts. With exception of the permit deer hunt, areas open to hunting are rarely visited by refuge staff during the hunting season. Any administrative activities generally occur on weekdays, when hunter use is expected to be low.

## **VII. Affected Environment**

Parker River NWR consists of 4,727 acres in Newbury, Newburyport, Rowley, and Ipswich, Essex County, Massachusetts. The proposed action will occur on 4,153 acres. Refuge lands are composed of diverse upland and wetland habitats, including sandy beach and dune, interdunal

swales, sandplain and cultivated grasslands, maritime shrublands and forests, freshwater marsh, and salt marsh with associated creek, river, mud flat, and salt panne habitats. Table 7 provides additional, brief descriptions of affected resources. For more information regarding the affected environment, please see the refuge's Habitat Management Plan (USFWS 2007).

## **VIII. Environmental Impacts of the Action**

This section analyzes the environmental consequences of the action on each affected resource, including direct and indirect impacts. This EA only includes the written analyses of the environmental consequences on a resource when the impacts on that resource could be more than negligible and therefore considered an "affected resource". Any resources that will not be more than negligibly impacted by the action have been dismissed from further analyses. The refuge's Compatibility Determination for public hunting also has a summary of potential impacts associated with hunting, and is available in Appendix A of the Hunting Plan.

### **VIII.1 Impact Types**

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

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

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

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

### **VIII.2 Duration of Impacts**

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

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

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

### VIII.3 Intensity of Impact

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

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

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

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

Table 7 provides:

1. A brief description of the affected resources in the proposed action area.
2. Impacts of the proposed action on those resources, including direct and indirect impacts.

**Table 7. Anticipated Impacts to Natural Resources**

<b>Anticipated Impacts to Natural Resources</b>	
<b>Affected Environment</b>	<b>Anticipated Direct and Indirect Impacts</b>
<p><b><u>Migratory Game Birds</u></b> Waterfowl, coot, rail, snipe, and woodcock harvest is regulated by the Service and is based on surveys, harvest, and habitat data. Refuge populations of these species have remained relatively stable.</p>	<p><i>No Action:</i> Current or lower levels of migratory bird harvest would be expected under this action as no new opportunities would be provided.</p> <p><i>Proposed Action:</i> Several new hunting areas and hunted species are proposed, improving opportunities for hunters in the portions of the refuge. This may result in a small increase in hunter numbers and harvest, which could have minor negative impacts to migratory bird populations locally. Potential impacts to target migratory species include direct mortality or injury and indirect changes in behavior. It is not anticipated that the proposed action at the refuge would influence populations at the Flyway or Continental level.</p>
<p><b><u>Upland Game Birds</u></b> Wild turkeys are a resident wildlife species, whose population is managed by Mass Wildlife. Wild turkeys were reintroduced to Massachusetts in the 1970s and their populations have increased with the help of in-state transplants (ceased in 1996) and dispersal from adjacent states. The State</p>	<p><i>No Action:</i> No hunting of wild turkey, ruffed grouse, pheasant, or crow would be permitted on the refuge; therefore, no impacts to those species would occur. Crow populations would remain unchecked which may continue to negatively impact nesting shorebird populations on the refuge.</p> <p><i>Proposed Action:</i> Opening refuge lands to wild turkey, ruffed grouse, and pheasant hunting is unlikely to</p>

<b>Anticipated Impacts to Natural Resources</b>	
<b>Affected Environment</b>	<b>Anticipated Direct and Indirect Impacts</b>
<p>population is estimated at greater than 25,000 birds (MDFW 2018). Ruffed grouse and pheasant are habitat specialists which are rarely found at the refuge. Crows are common species found throughout the State. At Parker River NWR, crows are one of the top nest predators of piping plovers (federally threatened) and least terns, both beach-nesting birds.</p>	<p>negatively affect the local species' populations due to the very limited habitat available for hunting, thus limiting the number of individuals likely to be harvested. Hunting of crow is likely to moderately decrease the local population.</p> <p>Disturbance to these species in the area will occur during the hunting season, but the disturbance is considered negligible, as the number of individuals encountered will be small. Crow hunting may benefit protected beach nesting birds such as the least tern and piping plover.</p>
<p><b><u>Rabbits and Squirrels</u></b> Squirrels and cottontail rabbit are found throughout Massachusetts. They are a highly reproductive species, nesting multiple times each year and producing three to five young per litter (Burt 1976). Snowshoe hare are less common. No systematic inventory of mammalian species has been conducted at Parker River NWR; however, staff have regularly observed eastern cottontail rabbits and gray squirrels.</p>	<p><i>No Action:</i> No hunting of cottontail rabbit, snowshoe hare, or gray squirrel would be permitted on the refuge; therefore, no impacts to these species through hunting would occur.</p> <p><i>Proposed Action:</i> Opening refuge lands to cottontail rabbit, snowshoe hare, and gray squirrel hunting is unlikely to affect these species due to the very limited habitat available for hunting, thus limiting the number of individuals likely to be harvested. Disturbance to these species in the area will occur during the hunting season, although the disturbance is considered negligible, as the number of individuals encountered will be small.</p>
<p><b><u>Furbearers</u></b> Coyote, gray fox, red fox, raccoon, and opossum are common throughout Massachusetts. No systematic inventory of mammalian species has been conducted at Parker River NWR; however, staff have observed all species except gray fox. While all species have the potential to detrimentally impact beach nesting birds through depredation of nests and chicks, coyotes are the only species regularly observed doing such.</p>	<p><i>No Action:</i> No hunting of coyote, fox, raccoon, and opossum would be permitted on the refuge; therefore, no impacts to these species through hunting would occur.</p> <p><i>Proposed Action:</i> Opening refuge lands to hunting of these species is unlikely to affect these species due to the very limited habitat available for hunting, thus limiting the number of individuals likely to be harvested. Disturbance to these species in the area may occur during the hunting season, although the disturbance is considered negligible, as the number of individuals encountered will be small.</p>

<b>Anticipated Impacts to Natural Resources</b>	
<b>Affected Environment</b>	<b>Anticipated Direct and Indirect Impacts</b>
<p><b><u>Other Wildlife and Aquatic Species</u></b> The unique habitats at Parker River NWR supports a high diversity of wildlife species including game and nongame species, reptiles, amphibians, and invertebrates. More than 300 species of birds have been observed using the refuge throughout the year. The refuge serves as important breeding and migration habitat for many wildlife species of Federal and State concern, including: piping plover, red knot, roseate tern, least tern, bald eagle, least bittern, northern harrier, peregrine falcon, short-eared owl, whip-poor-will, saltmarsh sparrow, and multiple bat species.</p>	<p><i>No Action:</i> This alternative currently results in some short-term, but negligible, negative impacts to small mammals, birds, and other wildlife due to disturbance in areas where human access for hunting activities occurs.</p> <p><i>Proposed Action:</i> 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 degree of the impact by the proposed action is not expected to be different than what may already occur (including temporary displacement of songbirds, raptors, and resident wildlife from foot traffic moving through the area). In order to restrict possible disturbances to migrating and nesting birds, crow hunting would be restricted to September 1st through February 28.</p> <p>Hunting of crow and coyote may have a positive impact to beach nesting birds, as these species are common nest predators.</p> <p>Deer and turkey hunt participants will be encouraged to voluntarily use non-toxic ammunition. Scavenging of unrecovered deer and deer gut piles resulting from the permit deer hunt will likely occur and may cause detrimental impacts caused by lead exposure.</p>
<p><b><u>Threatened and Endangered Species and Other Special Status Species</u></b> <u>Federal:</u> Roseate tern (<i>Sterna dougallii</i>) are listed as endangered under the Endangered Species Act of 1973. Piping plover (<i>Charadrius melodus</i>), red knot (<i>Calidris canutus</i>), and northern long-eared bat (<i>Myotis septentrionalis</i>) are listed as threatened. All three bird species have been documented using the refuge, while northern long-eared bat have been documented in the local area. Piping plover nest along the full length of the refuge beach and are a high</p>	<p><i>No Action:</i> Current refuge hunting opportunities have few, if any, negative implications for species of special management concern, due largely to the seasonality and hunting area locations. Hunting occurs October through January, when these species are seldom present.</p> <p><i>Proposed Action:</i> Hunting usually begins in early September for snipe and woodcock. At this time, piping plover and red knot might still be present on the refuge as they migrate to their southern wintering grounds. There is the potential for disturbance of these species from hunters, although these species are more typical of beach and large mudflat habitats than the</p>

<b>Anticipated Impacts to Natural Resources</b>	
<b>Affected Environment</b>	<b>Anticipated Direct and Indirect Impacts</b>
<p>management priority for the refuge.</p> <p><u>Massachusetts:</u> The following wildlife species are confirmed to occur on the refuge and have been listed by Massachusetts as threatened or endangered: pied-billed grebe, American bittern, least bittern, bald eagle, northern harrier, peregrine falcon, king rail, short-eared owl, northern parula, little brown bat, tricolored bat, eastern spadefoot toad, and threespine stickleback. Multiple MA-listed species occur on the refuge in small numbers, including: American bittersweet, sandplain gerardia, seabeach dock, and seabeach needlegrass.</p>	<p>salt marsh, so any disturbance will only occur to a few individuals.</p> <p>The addition of sora rail, Virginia rail, snipe, woodcock, archery deer, and spring turkey hunting will occur at times when northern long-eared bats may be present on the refuge (mid-April through early October). Sora rail, Virginia rail, snipe, woodcock, and spring turkey hunting occurs on the ground and hunters will not climb trees, so disturbance would be negligible. Fall archery deer hunters will hunt from tree stands, which may disturb roosting bats that are still present on the refuge in early October. By mid-October, most bats will have left the refuge for their hibernacula. An Endangered Species Act Section 7 evaluation was conducted for the piping plover, red knot, roseate tern, and northern long-eared bat (see Appendix C in Hunt Management Plan). The evaluation determined that the expansion of the hunting program may affect but are not likely to adversely affect the species – meaning effects would be negligible (e.g., not reach the level of ‘take’ of the species as defined under the Endangered Species Act).</p> <p>Opening the refuge to furbearer and crow hunting may be beneficial to piping plover, as these are common nest and chick predators. A reduction in these species local populations may lead to less depredation and more successful nesting attempts.</p> <p>Impacts to state-listed species will be negligible because of the small degree of seasonal overlap between their use of the refuge and the hunting season, and because of their limited occurrence on the refuge. Birds might be flushed; however, the disturbance would be minor and temporary.</p> <p>The populations of each listed plant are small and widely scattered on Plum Island, and it is unlikely hunters will come across them. Additionally, they will be dormant during the shotgun hunt, which will be the only time hunters encounter these plants.</p>

Anticipated Impacts to Natural Resources	
Affected Environment	Anticipated Direct and Indirect Impacts
<p><b><u>Vegetation (including vegetation of special management concern)</u></b>  Vegetation varies throughout the refuge; however, hunt areas are generally either maritime shrublands/forests or tidal salt marsh.</p>	<p><i>No Action:</i> Only minor impacts on vegetation associated with the Parker River NWR’s current hunting program have been observed. Waterfowl hunters have caused trampling and vegetation die-offs along frequently traveled paths in the salt marsh, especially at Areas B and C. Although the impacts in those paths have been major, the paths are few in number and small in area, so overall impacts are minor. Current hunting regulations require waterfowl hunters to use only temporary blinds (which must be removed at the end of each day), helping to minimize impacts to the marsh vegetation. While deer hunters are able to traverse areas closed to all other users, the single-day hunt and small number of hunters lead to negligible impacts to the refuge vegetation.</p> <p><i>Proposed Action:</i> Opening hunting to additional species will lengthen the period of time that hunters will be traversing the landscape, leading to an increase in vegetation trampling. The increase is expected to be minor as it is unlikely that a substantial number of hunters will be attracted to the refuge for these hunting opportunities. Most hunting will also take place during the dormant season when vegetation is least vulnerable. The expansion of <i>Hunting Area B</i> may actually reduce trampling in the portion that was originally open. Currently, hunters reach the salt marsh from the parking lot, and then must walk out to the open hunting area. This has led to the serious trampling and death of vegetation in the marsh along their walking path. Opening the full area will allow hunters to fan out from the parking lot, reducing the chances of path formation and trampling.</p> <p>Spring turkey hunters could trample some new growth, but the number of hunters present on the refuge is likely to be limited. Refuge hunting regulations that help to minimize impacts to vegetation including: the prohibition of cutting vegetation for blinds and stands, the authorization of temporary (versus permanent) blinds and stands, and the limitation of access to foot travel beyond the parking lot.</p>

<b>Anticipated Impacts to Natural Resources</b>	
<b>Affected Environment</b>	<b>Anticipated Direct and Indirect Impacts</b>
<p><b><u>Air Quality</u></b> The State of Massachusetts measures outdoor air quality for more than 20 monitoring stations across the State. Haverhill Air quality monitoring station, which is located approximately 20 miles west of Parker River NWR, is classified as having good air quality.</p>	<p><i>No Action:</i> Negligible, short-term adverse impacts occur on the refuge related to the current hunting program due to the use of fossil fuels by hunters traveling to the refuge.</p> <p><i>Proposed Action:</i> A continued negligible, short-term adverse impact could be associated with increased emissions from vehicles if hunting participation increases; however, it is anticipated that if those new hunters were not traveling to the refuge, they would likely be traveling to other hunt locations or engaging in other activities that would have comparable emission releases.</p>
<p><b><u>Water Resources</u></b> Current management of the hydrologic processes on the refuge is a combination of natural tidal influence and impoundment management. There are 1,237 acres of tidal river, bay, and estuary habitats at Parker River NWR.</p>	<p><i>No Action:</i> Impacts to water resources are generally by motorized boats used by migratory bird hunters that may inadvertently leak polluting substances. Creek bank erosion caused by the wake from fast moving boats have been documented, but the majority of the boaters in the local area are not engaged in hunting. Hunters cause minor impacts through bank erosion.</p> <p><i>Proposed Action:</i> New areas open to migratory bird hunting could see an impact from increased activities and boats, but disturbance is expected to be minor.</p>
<p><b><u>Wetlands</u></b> A variety of wetland communities on the refuge supports an array of habitats benefiting widely diverse species of animals and plants. Over 50 percent of the refuge (2,660 acres) is composed of salt marsh while 262 acres of brackish wetlands are found within the three impoundments.</p>	<p><i>No Action:</i> Hunters are permitted to walk on lands throughout designated hunting areas without restriction. Waterfowl hunters have caused trampling and vegetation die-offs along frequently traveled paths in the salt marsh, especially at Areas B and C. Although impacts in those paths have been major, the paths are few in number and small in area, so overall impacts are minor. Migratory bird hunters are permitted to place blinds on refuge marshes, but must remove them daily. This minimizes impacts to vegetation.</p> <p><i>Proposed Action:</i> Opening hunting to additional species will lengthen the period of time hunters will be traversing the landscape, leading to an increase in vegetation trampling. The increase is expected to be minor as it is unlikely that a considerable number of hunters will be attracted to the refuge for these hunting opportunities. Most hunting will also take place during the dormant season when vegetation is least vulnerable.</p>

<b>Anticipated Impacts to Natural Resources</b>	
<b>Affected Environment</b>	<b>Anticipated Direct and Indirect Impacts</b>
	<p>The expansion of <i>Hunting Area B</i> may actually reduce trampling in the portion that was originally open. Currently, hunters reach the salt marsh from the parking lot, and must walk out to the open hunting area. This has led to trampling and death of vegetation in the marsh along the walking path. Opening the full area will allow hunters to fan out from the parking lot, reducing the chances of path formation and trampling.</p>
<p><b><u>Wilderness</u></b>  Portions of Plum Island and Hunting Areas A, B, and C fall within the 1974 Parker River Wilderness Proposal area.</p>	<p><i>No Action:</i> Negligible negative impacts may currently occur to the proposed wilderness area due to hunting. Hunters are not permitted to permanently affix stands to refuge trees or build steps that would involve nails, screw, etc. Wheeled carts are only permitted on refuge roads, boardwalks, beach, Nelson Island Trail (former roadbed), and Stage Island Trail (former roadbed). No off-road vehicles are permitted.</p> <p><i>Proposed Action:</i> The addition of new lands to the hunting program is not expected to adversely impact proposed wilderness any more than the current hunting program.</p>
<p><b><u>Visitor Use and Experience</u></b>  The refuge is open to all six of the System’s priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education and environmental interpretation). About 300,000 people visit the refuge each year, making it one of the most highly visited NWRs in the Northeast Region. Visitation is highest for beach recreation, bird watching, photography, and fishing. The refuge also hosts a robust visitor services program, providing numerous public programs and tours each month.</p>	<p><i>No Action:</i> During the 1-day permit hunt, the refuge is closed to everyone except those permitted to hunt. This conflicts with other public uses, as visitors are not able to enjoy the refuge during the hunt weekend. Even in December, the refuge remains a popular destination for bird watchers, photographers, and walkers.</p> <p><i>Proposed Action:</i> With the exception of the 2-day permit deer hunt that occurs on the Plum Island portion of the refuge in December, most of the hunting that occurs on the refuge takes place in designated hunting areas that are either closed to and/or experience a very low level of use by other users. The Plum Island portion of the refuge is closed to all other users during the 2-day deer hunt in December, causing conflicts with all other user groups who are not able to access the refuge.</p>

<b>Anticipated Impacts to Natural Resources</b>	
<b>Affected Environment</b>	<b>Anticipated Direct and Indirect Impacts</b>
<p><b><u>Cultural Resources</u></b> Parker River NWR has a long history of use, beginning with Native Americans. Seventeen pre-contact Native Americans sites have been identified within the refuge, consisting of shell middens, camps, larger habitation sites, lithic workshops, and human burials. Shell midden deposits have been identified in virtually every ecozone on the refuge. Twenty-nine post-contact Euro-American sites have been documented, including seasonal camps, farmsteads, shipwrecks, life-saving stations, aids to navigation, and a grain mill. Many camps were present when the refuge was established and have been progressively removed, with the last removed in 2016. The only historic period structure remaining on the refuge is the Light Keeper’s Dwelling on the north end of Plum Island.</p>	<p><i>No Action:</i> No adverse impacts would occur under this alternative.</p> <p><i>Proposed Action:</i> No adverse impacts would occur under this alternative.</p>
<p><b><u>Refuge Management and Operations</u></b> Infrastructure associated with the hunt program is minimal. The parking lot at <i>Hunting Area B</i> and the associated trail to the marsh is the only hunting-specific infrastructure on the refuge. All other infrastructure, including roads, trails, bathrooms, and buildings are used by all visitors to the refuge.</p>	<p><i>No Action:</i> Current levels of use of refuge infrastructure are negligible due to the small number of hunters utilizing the refuge.</p> <p><i>Proposed Action:</i> While new areas of the refuge would be open to hunting, there is no additional infrastructure associated with them. The increase in hunters using the refuge due to the additional hunting opportunities will be small and have negligible impacts.</p>
<p><b><u>Administration</u></b> Staff requirements for offering this priority public use is minimal. Staff is needed for administrative duties, such as communicating with the public, printing and processing materials, collecting applications, and issuing permits. Refuge law enforcement is needed to ensure compliance with State and refuge regulations. This activity is within the staffing capabilities of the refuge to manage.</p>	<p><i>No Action:</i> Approximately \$8,600 of the refuge’s budget is currently spent on the hunt program. Refuge managers coordinate the budget each year to ensure funds are available. The refuge generates approximately \$550 annually from the sale of 35 shotgun deer hunt permits.</p> <p><i>Proposed Action:</i> Estimated costs to implement this alternative are \$13,400 annually, an increase of \$4,800. The refuge would generate approximately \$1,100 annually from the sale of 70 permit deer hunt permits.</p>

<b>Anticipated Impacts to Natural Resources</b>	
<b>Affected Environment</b>	<b>Anticipated Direct and Indirect Impacts</b>
<p><b><u>Socioeconomics</u></b> The refuge spans four towns (Newbury, Newburyport, Rowley, and Ipswich) in Essex County, Massachusetts. The county has a population of approximately 800,000 people. The refuge averages about 300,000 visitors per year. A number of nearby state parks, wildlife management areas, and other publicly accessible open spaces provide additional recreational opportunities. Total expenditures from refuge visitors were \$7.4 million (\$2.3 million from residents, \$5.1 million from non-residents) in 2006. However, expenditures linked to hunting activities accounted for less than 1 percent of all expenditures (USFWS 2007).</p>	<p><i>No Action:</i> The current program has minor impacts to the local economy. Most hunters travel to the refuge from within 50 miles, with many coming from neighboring communities, although some do travel further.</p> <p><i>Proposed Action:</i> While hunting visitation may increase due to increased opportunities, hunting only accounts for 1 percent of expenditures related to the refuge. Therefore, only a minor beneficial economic impact is expected to result from the Proposed Action; however, it is anticipated to increase in comparison to the No Action Alternative.</p>
<p><b><u>Environmental Justice</u></b> Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all Federal agencies to address any disproportionately high or adverse human health or environmental impacts on minorities and low-income populations and communities.</p>	<p>No influence expected.</p>
<p><b><u>Indian Trust Resources</u></b> DOI Environmental Compliance Memorandum 97-2 requires that all EAs must address explicitly whether there are or not any Indian Trust Resources that may be impacted by the action. There are no known Indian Trust Resources on the refuge or the nearby area.</p>	<p>No influence expected.</p>

## IX. Cumulative Impact Analysis

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

For more information on the national cumulative impacts of the Service’s hunting and fishing program on the National Wildlife Refuge System, see “U.S. Fish and Wildlife Service, Cumulative Impacts Report *2019-2020 National Wildlife Refuge and National Fish Hatchery Proposed Hunting and Sport Fishing Openings (2019)*”.

**Table 8. Cumulative Impacts Table**

<b>Past, Present, and Reasonably Foreseeable Activity in Area of Analysis</b>	<b>Descriptions of Anticipated Cumulative Impacts</b>
<p><b><u>Hunting</u></b> There is a long history of hunting in the area of Parker River NWR, long before refuge establishment. Waterfowl hunting has occurred on the refuge since establishment. Hunting occurs on public lands that are found adjacent to several locations of the refuge. These areas include: Sandy Point State Reservation and William Forward Wildlife Management Area.</p>	<p><b><u>Resident Wildlife:</u></b> Refuges, including Parker River NWR, conduct the refuge hunting program within the framework of State and Federal regulations. The State of Massachusetts sets WMZ 10 hunting frameworks based on species’ populations and monitored harvests. The proposed hunting program rules 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, we can ensure that we are maintaining seasons that are supportive of management on a more regional basis. Such an approach also provides consistency with large-scale population status and objectives.</p> <p>On average, two deer are harvested from the refuge each year. During the 2017 hunt season, 2,548 deer were harvested from WMZ 10. The refuge only constitutes 7.4 mi<sup>2</sup> of the WMZ 10’s 1,449 mi<sup>2</sup>. Under the Proposed Action Alternative, the refuge would allow the harvest of 15 new species. Even at the local level, the refuge only adds slightly to cumulative impacts on resident wildlife, and a negligible amount to regional and statewide populations.</p> <p><b><u>Migratory Birds:</u></b> Migratory bird populations throughout the United States are managed through an administrative process known as flyways. The refuge is located in the Atlantic flyway. In North America, the process for establishing hunting regulations is</p>

<b>Past, Present, and Reasonably Foreseeable Activity in Area of Analysis</b>	<b>Descriptions of Anticipated Cumulative Impacts</b>
	<p>conducted annually. In the United States, the process involves a number of scheduled meetings (Flyway Study Committees, Flyway Councils, Service Regulations Committee, etc.) in which information regarding the status of migratory bird populations and their habitats is presented to individuals within the agencies responsible for setting hunting regulations. In addition, public hearings are held and the proposed regulations are published in the Federal Register to allow public comment.</p> <p>Annual waterfowl assessments are based upon the distribution, abundance, and flight corridors of migratory birds. An Annual Waterfowl Population Status Report is produced each year and includes the most current breeding population and production information available for waterfowl in North America (Service 2017b). The Report is a cooperative effort by the Service, the Canadian Wildlife Service, various state and provincial conservation agencies, and private conservation organizations. An Annual Adaptive Harvest Management Report (AHM) provides the most current data, analyses, and decision making protocols (Service 2017a). These reports are intended to aid the development of waterfowl harvest regulations in the United States for each hunting season. Coot, moorhen and rail species numbers are also counted and analyzed.</p> <p>The refuge generally follows State dates. The refuge can be more restrictive, but cannot be more liberal than the AHM allows. The Service believes that hunting on the refuge will not add significantly to the cumulative impacts of migratory bird management on local, regional, or Atlantic Flyway populations because the percentage likely to be taken on the refuge, though possibly additive to existing hunting takes, would be a tiny fraction of the estimated populations. In addition, overall populations will continue to be monitored and future harvests will be adjusted as needed under the existing flyway and State regulatory processes. Several points support this conclusion: (1) the proportion of the National waterfowl harvest that occurs on national wildlife refuges is only 6 percent (Service 2013c); (2) there are no populations that exist wholly and exclusively</p>

<b>Past, Present, and Reasonably Foreseeable Activity in Area of Analysis</b>	<b>Descriptions of Anticipated Cumulative Impacts</b>
	<p>on national wildlife 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 Massachusetts. Although the Proposed Action Alternative will increase hunting opportunities compared to the No Action Alternative, the slight increase in hunter activity will not rise to a significant cumulative impact locally, regionally, or nationally.</p>
<p><b><u>Development and Population Increase</u></b> Although Massachusetts is the seventh smallest state in the U.S., it is the third most densely populated state in the country (Massachusetts Population 2018). The town of Newburyport, which contains a population of 17,837, has been increasing, though only slightly, for decades (<a href="https://datausa.io/profile/geo/newburyport-ma/">https://datausa.io/profile/geo/newburyport-ma/</a>). Developmental pressure, however, continues, especially in high elevations relative to areas that were traditionally constructed in tidal salt marshes. Development and population growth are most likely to reduce wildlife and available habitat.</p>	<p>Because the refuge uses an adaptive management approach for its hunt program, reviewing the hunt program annually and revising annually (if necessary), the Service’s hunt program can be adjusted to ensure that it does not contribute further to the cumulative impacts of population growth and development on resident wildlife and migratory birds.</p>
<p><b><u>Use of lead ammunition</u></b> Lead ammunition is permitted in Massachusetts for hunting all species, except waterfowl. The refuge permits lead ammunition use and/or field</p>	<p>The refuge would receive a maximum of 70 permit deer hunt visits per year. The doubling of permit deer hunt visits could slightly increase lead deposition on the Plum Island portion of the refuge. This accumulation of lead could incur negative impacts if it is consumed by</p>

<b>Past, Present, and Reasonably Foreseeable Activity in Area of Analysis</b>	<b>Descriptions of Anticipated Cumulative Impacts</b>
possession by shotgun deer hunt participants.	wildlife. The refuge will encourage permit deer hunt participants to use approved non-toxic ammunition.
<p><b><u>Climate Change</u></b>  Ecological stressors are expected to affect a variety of natural processes and associated resources into the future. The most substantial concern at the refuge is sea level rise and the impact on marsh elevation. This is already causing marsh migration, marsh inundation, and increased mortality in forests adjacent to salt marshes. These habitat changes may dramatically reduce the amount and quality of both forest for resident wildlife and salt marsh for migratory birds that are hunted. As a result, wildlife would be forced into reduced amounts of available habitat. Concentrating birds into smaller areas also has potential to more readily allow disease to spread within overwintering waterfowl populations, resulting in increased bird mortality.</p>	<p>Under the Proposed Action, the refuge would use an adaptive management approach for its hunt program, reviewing the hunt program annually and revising annually (if necessary), the Service’s hunt program can be adjusted to ensure that it does not contribute further to the cumulative impacts of climate change on resident wildlife and migratory birds.</p>

## **X. Summary of Findings and Conclusions**

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

**Table 9. Summary of Findings Table**

<b>Affected Environment</b>	<b>No Action Alternative</b>	<b>Proposed Action Alternative</b>
Hunted Species	Negligible, short-term adverse impacts to waterfowl and deer	Negligible, short-term adverse impacts to all species
Other Wildlife and Aquatic Species	Negligible, short-term adverse impacts (disturbance)	Minor, short-term adverse impacts (disturbance)
Threatened and Endangered Species	No adverse impacts	Negligible, short-term adverse impacts (disturbance). Minor, long-term positive impact (reduction in nest predation from crow and furbearers)
Vegetation	Negligible, short-term impacts (trampling) and soil erosion (boats)	Negligible, short-term impacts (trampling) and soil erosion (boats)
Air Quality	Negligible, short-term adverse impacts (emissions)	Negligible, short-term adverse impacts (emissions)
Water Resources	Minor, short-term adverse impacts (boat emissions)	Minor, short-term adverse impacts (boat emissions)
Wetlands	Negligible, short-term adverse impacts (trampling)	Negligible, short-term adverse impacts (trampling)
Wilderness	Negligible, short-term adverse impacts (trampling)	Negligible, short-term adverse impacts (trampling)
Cultural Resources	No adverse impacts	No adverse impacts
Visitor Use and Experience	Negligible, short-term impacts (temporary inconvenience)	Negligible, short-term impacts (temporary inconvenience)
Socioeconomics	Minor, long-term positive impacts (economic growth)	Minor, long-term positive impacts (economic growth)
Refuge Management and Operations	Minor, long-term positive (providing opportunities) and negative (funding) impacts	Minor, long-term positive (providing opportunities) and negative (funding) impacts
Environmental Justice	No impact	No impact

Affected Environment	No Action Alternative	Proposed Action Alternative
Indian Trust Resources	No impact	No impact

**X.1 No Action Alternative**

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

**X.2 Proposed Action Alternative**

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

The Service believes that hunting on the refuge will not have a significant impact on local, regional, or Atlantic flyway migratory bird populations because the percentage likely to be taken on the refuge, though possibly additive to existing hunting takes, would be a tiny fraction of the estimated populations. In addition, overall populations will continue to be monitored and future harvests will be adjusted as needed under the existing flyway and State regulatory processes. Additional hunting would not add more than slightly to the cumulative impacts to waterfowl stemming from hunting at the local, regional, or flyway levels, and would only result in minor, negative impacts to migratory bird populations.

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

**X.3 Conclusion**

The Service proposes to increase hunting and access opportunities on Parker River NWR as analyzed above under the Proposed Action Alternative, which is not anticipated to have any significant impacts on the human environment.

## **XI. Sources, Agencies and Persons Consulted**

### **XI.1 State Coordination**

National wildlife refuges, including Parker River NWR, conduct hunting programs within the framework of state, federal, and refuge regulations. The Services northeast regional office shared information with the State on the proposed changes for Parker River NWR. This EA associated with the draft Hunting Plan has not yet been reviewed by the Massachusetts Division of Fisheries and Wildlife (MassWildlife).

### **XI.2 Public Outreach**

Public notifications of the EA, Hunting Plan, and Compatibility Determination will be made available to the public through local venues, the refuge website, and social media notices, as well as notification in the Federal Register (as part of other expansions and openings on national wildlife refuges). There will be a 30-day public comment period.

### **XI.3 List of Preparers**

#### U.S. Fish and Wildlife Service, Parker River NWR Staff

- Bill Peterson – Refuge Manager
- Sharon Ware – Deputy Refuge Manager
- Matt Poole – Visitor Services Manager
- Jean Adams – Outdoor Recreation Planner
- Gareth Williams – Federal Wildlife Officer
- Nancy Pau – Wildlife Biologist
- Kaytee Hojnacki – Biological Technician

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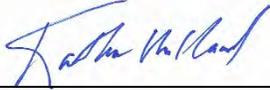
- Kristina Shope – Staff Scientist
- Kathleen Melland – Senior Project Scientist
- Michael Smith – Geospatial Technician
- Dan Salas – Senior Ecologist (ESA)

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

**XIII. Determination**

- 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:  Date: 3/28/2019

Name/Title/Organization: Kathleen Melland, Senior Project Scientist, Cardno

Certifying Officer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name/Title: \_\_\_\_\_

## **XIV. Other Applicable Statues, Executive Orders & 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, and 450.

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

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

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

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

**Natural Resources**

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

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

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

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

**Water Resources**

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

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

## XV. FINDING OF NO SIGNIFICANT IMPACT

### *MULTI-SPECIES HUNTING PLAN* PARKER RIVER NATIONAL WILDLIFE REFUGE *Essex County, Massachusetts*

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

#### XV.1 Selected Action (Proposed Action Alternative)

The Service proposes to expand hunting opportunities for white-tailed deer, migratory game birds, upland game birds, rabbits and squirrels, and furbearers on Parker River NWR. The 4,727-acre refuge is located 37 miles north of Boston, Massachusetts, within the towns of Newbury, Newburyport, Rowley, and Ipswich. The refuge occupies the southern three-fourths of Plum Island, a 9-mile-long barrier island (USFWS 2008, USFWS 2007). Currently, the Plum Island portion of the refuge is open to an annual 1-day, lottery-issued permit firearms deer hunt. In addition, an annual Youth Waterfowl Hunt takes place within certain designated areas of the Plum Island portion of the refuge. Waterfowl hunting also occurs within the three designated tidal areas in the salt marsh west of Plum Island Sound (Hunting Areas A, B, and C – *maps for all hunting areas can be found in the hunting plan*). The Hunting Plan and accompanying EA propose changes to current management strategies, including:

- Extending the (Plum Island) lottery shotgun deer hunt from 1 day to 2 days.
- Adding archery equipment as a legal implement during the Plum Island lottery Permit deer hunt.
- Expanding Hunting Area B, and adding Hunting Area D to existing hunting areas.
- Opening Hunting Areas A, B, C, and D to allow for hunting of the following species: white-tailed deer (archery equipment only), wild turkey, American woodcock, Wilson's Snipe, sora rail, Virginia rail, crow, ring-necked pheasant, ruffed grouse, eastern cottontail, gray squirrel, snowshoe hare, coyote, gray fox, red fox, opossum, and raccoon.

Refuge permits will be issued through a lottery for the permit deer hunt only; no permit is required for all other hunting. The seasons, bag limits, and regulations will be consistent with those set by Massachusetts Division of Fish and Wildlife (MassWildlife), except where noted. Hunters would also have to comply with additional refuge-specific regulations, including but not limited to those contained in 50 CFR Chapter 1, subchapter C. Under this alternative, the species

identified within this hunting plan are the only legal species to be hunted on the refuge. Hunting of all other species is prohibited.

The preferred alternative was selected over the other alternatives because:

The hunting program, along with all other management programs, relates directly to the overall mission of the Service. Additionally, the National Wildlife Refuge System (Refuge System) Improvement Act of 1997 identifies six priority public uses that are appropriate on national wildlife refuges, including hunting, fishing, wildlife observation, wildlife photography, and environmental interpretation and education.

Development and enhancement of a quality and biologically sound hunting program will provide the public with a high-quality recreational experience on refuge lands and increase opportunities and access for hunters, and better align with refuge habitat management objectives.

**XV.2 Other Alternatives Considered and Analyzed**

**No Action Alternative**

The No Action Alternative would continue to provide deer hunting opportunities through a 1-day, lottery issued permit hunt on the Plum Island portion of the refuge and waterfowl hunting would continue in Hunting Areas A, B, and C.

Under this alternative, there would be no additional costs to the refuge. There would be no change to the current public use and wildlife management programs on the refuge. The refuge would not increase its impact on the economy and would not provide new hunting and access opportunities. This alternative has the least direct impacts of physical and biological resources. In addition, this alternative would not meet mandates under the Refuge System Administration Act and Secretarial Order 3356.

The Service considered other hunting alternatives such as opening the refuge to black bear (*Ursus americanus*) hunting; however, bear hunting was ultimately decided against due to the species absence from the area and unlikelihood of species establishment.

**XV.3 Summary of Effects of Selected Action**

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

Affected Environment	No Action Alternative	Proposed Action Alternative
Hunted Species	Negligible, short-term adverse impacts to waterfowl and deer	Negligible, short-term adverse impacts to all species

Affected Environment	No Action Alternative	Proposed Action Alternative
Other Wildlife and Aquatic Species	Negligible, short-term adverse impacts (disturbance)	Minor, short-term adverse impacts (disturbance)
Threatened and Endangered Species	No adverse impacts	Negligible, short-term adverse impacts (disturbance). Minor, long-term positive impact (reduction in nest predation from crow and furbearers)
Vegetation	Negligible, short-term impacts (trampling) and soil erosion (boats)	Negligible, short-term impacts (trampling) and soil erosion (boats)
Air Quality	Negligible, short-term adverse impacts (emissions)	Negligible, short-term adverse impacts (emissions)
Water Resources	Minor, short-term adverse impacts (boat emissions)	Minor, short-term adverse impacts (boat emissions)
Wetlands	Negligible, short-term adverse impacts (trampling)	Negligible, short-term adverse impacts (trampling)
Wilderness	Negligible, short-term adverse impacts (trampling)	Negligible, short-term adverse impacts (trampling)
Cultural Resources	No adverse impacts	No adverse impacts
Visitor Use and Experience	Negligible, short-term impacts (temporary inconvenience)	Negligible, short-term impacts (temporary inconvenience)
Socioeconomics	Minor, long-term positive impacts (economic growth)	Minor, long-term positive impacts (economic growth)
Refuge Management and Operations	Minor, long-term positive (providing opportunities) and negative (funding) impacts	Minor, long-term positive (providing opportunities) and negative (funding) impacts
Environmental Justice	No impact	No impact
Indian Trust Resources	No impact	No impact

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

- Refuge and State law enforcement officers enforce hunting regulations. Providing hunting information through various forums will ensure the public is aware of applicable laws and policies.
- To minimize conflict and maximize safety between the hunting and non-hunting public, the Plum Island portion of the refuge will be closed to everyone except permitted hunters during the 2 days of the permit hunt. No hunting is permitted north of Parking Lot 2 to reduce impacts to island residents, located north of the refuge. Other safety zones are located within the vicinity of sub-headquarters and 150 feet of a roadway or trail. This last buffer zone applies for all hunting in all areas, not just the permit deer hunt.
- For safety purposes, the use of rifles or handguns will not be permitted for the hunting of any species. Deer hunting in Hunting Areas A, B, C, and D will be limited to archery equipment only. No night hunting will be permitted to reduce disturbance to adjacent landowners.
- To help reduce interaction between hunters on the refuge and other user groups off the refuge, refuge boundaries and hunt area boundaries will be clearly posted.
- The refuge will be adaptive with harvest management under the hunt program. Refuge-specific hunting regulations may be altered to achieve species-specific harvest objectives in the future. Many game species populations are monitored by MassWildlife through field surveys and game harvest reports, which will provide an additional means for monitoring populations. The State has determined that populations of game species are at levels acceptable to support hunting and these assessments are reviewed and adjusted periodically.
- Shooting across refuge roads, boundaries and within or into administratively closed zones is prohibited.
- Decoys, boats, and other equipment must be removed at the end of each hunt day. All trash, including shotshell hulls, must be removed when leaving hunting areas.
- Refuge hunting hours are one-half hour before sunrise to one-half hour after sunset.
- Target practice on the refuge or any discharge of firearms not related to approved hunting activities is prohibited.
- We allow the use of dogs to retrieve game; however, the use of dogs to fox and coyote hunt is prohibited.

The Refuge Manager may, upon annual review of the hunting program, impose further restrictions on hunting activity, recommend that the refuge be closed to hunting, consider zoning

for different uses, or further liberalize hunting regulations within the limits of State law. Restrictions would occur if hunting becomes inconsistent with other higher priority refuge programs, or endangers refuge resources or public safety.

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:

- The Service works closely with 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;
- Refuge staff will monitor for impacts related to hunting;
- 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 wilderness areas;
- There is no scientific controversy over the impacts of this action and the impacts of the proposed action are relatively certain; and
- 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.

The proposal is compatible with the purposes of the refuge and the mission of the Refuge System, and consistent with applicable laws and policies regarding the establishment of hunting on national wildlife refuges (see the Compatibility Determination (CD) (Appendix A of the Hunting Plan). Refuge-specific regulations promulgated in conjunction with this action will be

finalized through the standard of the *Federal Register*, and published in Title 50 of the Code of Federal Regulations (50 CFR §32.40).

#### XV.4 Public Review

The draft hunting plan, with accompanying CD and EA, was released to the public for a 30-day comment period on April 8, 2019. We informed the public through local venues, the refuge website, and social media. Public comments were accepted through May 8, and a public presentation was scheduled in Newburyport on April 25. Three comment letters were received during the comment period.

Parties contacted include the Massachusetts Division of Fisheries and Wildlife (MassWildlife). In a letter dated May 7, MassWildlife noted their overall support toward the increased opportunities for hunting at the refuge, and offered additional comments and recommendations to further enhance the hunting experience.

The following are MassWildlife's primary comments, and the Service's responses:

- **“Provide clear information to hunters about where the limited upland habitat exists in this area” (Areas A, B, C, & D).** Service response: Inquiring hunters will be referred to the MassWildlife Lands Viewer, which contains topographic and aerial photo basemaps overlaid with the refuge boundary, to identify upland habitat within Hunting Areas A, B, C, and D. This resource will also assist them with determining whether these uplands are within 150 feet of a State or hard-surfaced highway, and/or within 500 feet of any dwelling or building in use.
- **“The proposed hunt plan specifically allows for the hunting of all game species, in accordance with state laws and regulations with some notable exceptions. The exceptions to this include allowing only archery equipment for deer, shortening the crow hunting season, restricting night hunting, and limiting the allowable implements for furbearers.... consider lifting those proposed restrictions, particularly use of shotgun and primitive firearms during the white-tailed deer season”.** Service response: While we have strived to align with state regulations whenever possible, we also designed the proposed hunting program to be compatible with the established purposes of Parker River NWR and the Refuge System, and meet refuge habitat management objectives. For safety purposes, the use of rifles or handguns will not be permitted for the hunting of any species, and deer hunting in Hunting Areas A, B, C, and D will be limited to archery equipment only. No night hunting will be permitted to reduce disturbance to adjacent landowners. Refuge staff will continue to monitor for impacts related to hunting, and we believe that these proposed mitigation measures will ensure that there is low danger to the health and safety of refuge staff, resources, visitors, and the hunters themselves.
- **Open up more of the Plum Island portion of the refuge to hunting for deer and other species, and account for potential negative message being sent to non-hunters.** Service response: Plum Island is a very narrow strip of land (west to east). Any

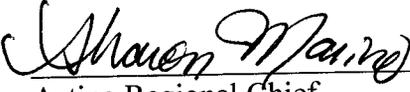
expansion of the area for hunting would yield little functional gain due to mandatory closure of areas around/along roadways, trails and parking lots, and the relative paucity of (forested) wildlife habitat on the island. The refuge agrees that hunting and other forms of outdoor recreation are often not mutually exclusive, as evidenced by the Nelson Island Trail remaining open to non-hunting uses when the surrounding area is open to hunting. However, due to Plum Island's narrow, linear shape, much of the island's primary deer habitat (forest and shrubland) occurs in close proximity to refuge roads, parking lots, hiking trails, and boardwalks. Refuge visitation remains high during November and December, and the refuge believes that shotgun deer hunting near these public use areas creates an excessive public safety risk. To mitigate this risk, the refuge prohibits public use on the Plum Island portion of the refuge, other than by permitted hunters, during the shotgun deer hunt. This prohibition has the secondary benefit of enabling the refuge to allow hunting within 150 feet of hiking trails and boardwalks, greatly increasing the area of primary deer habitat available for hunting.

- **“MassWildlife recommends that the Hunting Plan include information on how hunting access to Sandy Point State Reservation will be preserved and expanded. In the past, waterfowl hunters have been restricted from accessing the area because dogs are not allowed on Plum Island. This problem should be remedied for dogs used in hunting waterfowl....”** Service response: Refuge gatehouse staff are instructed to allow entry to all hunters who declare that they are destined for Sandy Point, regardless of whether or not they possess dogs. Refuge waterfowl hunters with dogs routinely pass by the refuge gatehouse without issue, prior to launching their boats at the Lot 1 boat launch. The refuge would urge any refuge or Sandy Point-destined hunter who is denied entry due to their dog to promptly report the instance to the refuge manager so that corrective actions may occur.

No substantive changes were made to the plan based on the comments.

## **XVI. Determination**

Based upon a review and evaluation of the information contained in the EA as well as other documents and actions of record affiliated with this proposal, the Service has determined that the proposal to implement hunting on Parker River NWR does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of Section 102 (2)(c) of the NEPA of 1969 (as amended). As such, an environmental impact statement is not required. An EA has been prepared in support of this finding and is available upon request to the U.S. Fish and Wildlife Service, Parker River NWR.

  
\_\_\_\_\_  
Acting Regional Chief  
National Wildlife Refuge System

9/19/19  
Date

## INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

**Originating Person:** Maria Parisi  
Acting Refuge Manager  
Parker River NWR

**Telephone Number:** (978) 572-5613  
**Date:** September 12, 2019

**I. Region:** Northeast, Region 5

**II. Service Activity (Program):** NWRS, Parker River NWR

**III. Pertinent Species and Habitat:**

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

Piping plover (*Charadrius melodus*), Red knot (*Calidris canutus rufa*), Northern long-eared bat (*Myotis septentrionalis*)

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

None

**C. Candidate species within the action area:**

None

**IV. Geographic area of station name and action:**

Expand hunting opportunities at Parker River National Wildlife Refuge

**V. Location:**

**A. Ecoregion Number and Name:**

Eastern Broadleaf Forest (Oceanic) Province; 221A (R.G. Bailey, Ecoregions of the United States, 1995)

**B. County and State:**

Essex, Massachusetts

**C. Section, township, and range (or latitude and longitude):**

42.757252, -70.806803

**D. Distance (miles) and direction to nearest town:**

The refuge is four miles southeast of the City of Newburyport.

**E. Species/habitat occurrence:**

Piping plover utilize the refuge during migration and for breeding. They begin arriving on the refuge in mid-March and their presence continues until late-

September. They typically occupy the refuge beach habitat, although they have occasionally been documented within the refuge impoundments as well.

Red knots utilize Parker River NWR as a stopover location between their northern breeding and southern winter grounds. In some years, a small number of birds (less than 50) are documented feeding and roosting from early May to early June along the refuge's beach, within the impoundments, and on the salt marsh mudflats. Larger numbers (flocks of 5 to 200) are seen from mid-July through early November, with peaks occurring in mid-September and mid-October.

Northern long-eared bats have been documented on the refuge through mist-netting in 2010. Additionally, acoustic work conducted in Newburyport in 2016 detected their presence. These bats are present, or are likely present, within the forested habitat on the refuge.

#### **VI. Description of Proposed Action**

Parker River National Wildlife Refuge proposes to expand the existing hunting program. The area in which hunting will occur will be expanded, with Hunt Area B expanding to the full refuge boundary (addition of 194 acres) and the creation of Hunt Area D at the recently acquired Marsh Hundreds parcel (65 acres) located in Ipswich (Figure 1).

Currently, the Plum Island portion of the refuge is open annually to a 1-day, lottery-issued permit deer hunt. Deer hunt permittees may use shotguns and primitive firearms. Additionally, waterfowl hunting occurs during state-designated waterfowl seasons within the three tidal areas in the salt marsh west of Plum Island Sound (Hunting Areas A, B, and C). A special 1-day Youth Waterfowl Hunt is also conducted on the Plum Island portion of the refuge in the salt marsh adjacent to North and Bill Forward Pools.

White-tailed deer hunting alterations will include the addition of a second day of shotgun hunting on the Plum Island portion of the refuge so that the hunt will occur on the first Wednesday and Thursday of December. This will continue to be a lottery-issued permit hunt, with 35 hunters selected for each day. Additionally, the refuge will open Hunt Areas A – D to all state deer seasons. Archery equipment will be the only legal deer hunting implement in these additional hunting areas, regardless of season. The youth hunt occurs the last Saturday of September, with the remainder of the deer seasons occurring from early October to the end of December.

Migratory bird hunting will be expanded to include all species and seasons permitted within Massachusetts. Currently, only waterfowl (ducks, geese, and coots) hunting is permitted within Hunt Areas A, B, and C. This expansion will open Hunt Areas A – D to

sora, Virginia rail, Wilson's snipe, and American woodcock in addition to waterfowl. Migratory bird hunting would occur from September 1 through mid-February. Dogs are permitted. Non-toxic shot is required for all migratory bird hunting.

Upland game bird hunting will be added within Hunt Areas A – D. This includes crow (both American and fish), ring-necked pheasant, ruffed grouse, and wild turkey. All state seasons will be followed, with the exception of crow season, which will end on February 28 to reduce impacts to migrating and breeding birds. Crow season begins on September, with the other bird seasons occurring between mid-October and late November. Spring turkey season occurs from late April through late May. Dogs are permitted. Non-toxic shot is required for all species except for turkey.

Rabbit and squirrel hunting will be added within Hunt Areas A – D. This includes eastern cottontail, snowshoe hare, and gray squirrel. These seasons begin in mid-October, with various ending dates ranging from early January for squirrel, to early February for hare, and late February for cottontail. Dogs are permitted. Non-toxic shot is required for all species.

Furbearer hunting will be added within Hunt Areas A – D. This includes coyote, fox (red and gray), opossum, and raccoon. Opossum and raccoon season occurs from October 1 through January 31. Fox season occurs from November 1 through the end of February. Coyote season occurs from mid-October through early March. Night hunting, electronic callers, dogs, rifles, and handguns are prohibited. Non-toxic shot is required for all species.

Single individuals or hunters in small groups will traverse areas open to hunting, generally to walk to a hunting spot in which they remain for multiple hours, although some hunters will continue to traverse the area in pursuit of game for the duration of their hunting trip. Hunters will be permitted to use temporary tree stands and ground blinds, which must be removed from the refuge at the end of each day. No damage to vegetation is permitted, including cutting limbs and using screw-in tree steps.

New hunting regulations would go into effect for the 2019/2020 season.

## **VII. Determination of Effects**

### **A. Explanation of effects of the action on species and critical habitats in items III. A, B, and C:**

Piping plovers are present on the refuge from mid-March through late September, with nesting occurring from late April through mid-August. Rail, snipe, and goose hunting seasons begin in early September, while small numbers of migrating plovers

are still present. These hunting activities will be occurring within the salt marsh, away from the plovers, which are utilizing the refuge's beach and more rarely, the impoundments. Hunting is not permitted in either of these locations. Spring turkey season occurs during the month of May, at which time the piping plovers are nesting on the refuge beach. As turkey hunting takes place in the upland or along the upland/salt marsh edge, in the designated hunting areas which are located off of Plum Island, hunters will not encounter plovers. All other hunting will occur when plovers are not present at Parker River NWR.

Hunting for most permitted species will be occurring in September, October, and early November, while red knots are potentially present on the refuge. This hunting will be occurring within the designated hunting areas (A-D), located within the western portion of the refuge, off of Plum Island. While the majority of red knots have been documented utilizing the refuge beach and impoundments, it is likely a small number can also be found within the salt marsh. Salt marsh use will be concentrated within the intertidal mudflats located within the creeks and rivers, while hunting will be occurring on the marsh platform. Hunters may come across these birds, causing minor disturbance as they flush. As hunters will be shooting upwards, it is unlikely a red knot will be shot as hunters will be able to clearly identify the birds as not a target species. The small number of hunters predicted to be present on the refuge, and the small number of red knots that may be in the marsh, will lead to no adverse impacts to this species from the expanded hunt plan at Parker River NWR.

No damage to piping plover or red knot habitat will occur from the hunt program, as vehicles will not be permitted off of designated roadways or parking lots, the construction of permit blinds and stands are prohibited, and harm to vegetation is also prohibited.

The proposed changes to the Parker River NWR Hunting Program are in compliance with the northern long-eared bat 4(d) rule and any incidental take of the species that may occur is not prohibited by the final 4(d) rule. Even so, impacts are unlikely to occur as hunting in forested habitat will occur after the bats have left the area for their winter hibernaculum or will be restricted to the ground. Harm to vegetation, including tree cutting, is prohibited, causing no impact to northern long-eared bat habitat.

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

No adverse effects.

**VIII. Effect determination and response requested:**

**A. Listed species/designated critical habitat:**

**Determination**

No effect/no adverse modification  
( piping plover )

**Response Requested**

X Concurrence

May affect, but is not likely to adversely  
affect species/adversely modify critical habitat  
(species: red knot and  
northern long-eared bat )

X Concurrence

May affect, and is likely to adversely  
affect species/adversely modify critical habitat  
(species: \_\_\_\_\_ )

\_\_\_ Formal Consultation

**B. Proposed species/proposed critical habitat:**

**Determination**

No effect/no adverse modification  
(species: \_\_\_\_\_ )

**Response Requested**

\_\_\_ Concurrence

Is likely to jeopardize proposed species/  
Adversely modify proposed critical habitat  
(species: \_\_\_\_\_ )

\_\_\_ Conference

**C. Candidate species:**

**Determination**

No effect  
(species: \_\_\_\_\_ )

**Response Requested**

\_\_\_ Concurrence

Is likely to jeopardize  
(species: : \_\_\_\_\_ )

\_\_\_ Conference

Mania E. Carisi  
Acting Refuge Manager, Parker River National Wildlife Refuge

9/12/2019  
Date

**IX. Reviewing Ecological Services Office Evaluation:**

A. Concurrence \_\_\_\_\_ Non-concurrence \_\_\_\_\_

B. Formal consultation required \_\_\_\_\_

C. Conference required \_\_\_\_\_

D. Informal conference required \_\_\_\_\_

E. Remarks (attach additional pages as needed) \_\_\_\_\_

  
\_\_\_\_\_  
Supervisor, New England Field Office

13 Sept 2019  
Date

## X. Maps



Data Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, US FWS, US GS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance

Figure 1. Map of expanded hunting areas at Parker River National Wildlife Refuge.

## About Cardno

Cardno is an ASX-200 professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage, and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

## Cardno Zero Harm

*Cardno*  
**ZERO  
HARM**  
EVERY JOB. EVERY DAY.  
job, every day

At Cardno, our primary concern is to develop and maintain safe and healthy conditions for anyone involved at our project worksites. We require full compliance with our Health and Safety Policy Manual and established work procedures and expect the same protocol from our subcontractors. We are committed to achieving our Zero Harm goal by continually improving our safety systems, education, and vigilance at the workplace and in the field. Safety is a Cardno core value and through strong leadership and active employee participation, we seek to implement and reinforce these leading actions on every