

# Patuxent Research Refuge Supplemental Environmental Assessment For Hunting

## Executive Summary

### Introduction

The U.S. Fish and Wildlife Service (Service) prepared this Supplemental Environmental Assessment (EA) to evaluate the effects associated with the proposed action of requiring non-lead ammunition beginning September 1, 2026, and to comply with the National Environmental Policy Act (NEPA) in accordance with the Council on Environmental Quality regulations (40 CFR 1500-1509) and Department of the Interior (43 CFR 46; 516 DM 8) and Service (550 FW 3) regulations and policies. This document is a supplement to, and updates, a previous EA for the Patuxent Research Refuge (PRR, refuge) Hunting Plan, prepared and approved by the Service in September 2022 (hereafter referred to as the 2022 EA). The Service issued a Finding of No Significant Impact (FONSI) for the proposed action and 2022 EA on September 2, 2022.

As part of the final rule “2022-2023 Station-Specific Hunting and Sport Fishing Regulations” (2022 Rule) published in the Federal Register on September 16, 2022 (87 FR 57108), the following passage is specified:

*“As part of the 2023-2024 proposed rule, Blackwater, Chincoteague, Eastern Neck, Erie, Great Thicket, Patuxent Research Refuge, Rachel Carson, and Wallops Island NWRs will propose a non-lead requirement, which will take effect on September 1, 2026. In the June 9, 2022, proposed rule (87 FR 35136), the Service intended to phase out the use of lead on these eight refuges by allowing the use of lead ammunition and tackle for all new hunting and fishing opportunities—until fall 2026, which is when the Service plans to require non-lead ammunition and tackle for all activities on these refuges. (To clarify, if a refuge proposed to expand pre-existing opportunities that previously required non-lead ammunition or tackle, then non-lead ammunition and tackle would still be required for those activities.) Based on the breadth of comments received on the eight refuges' plan to require non-lead ammunition and tackle by fall 2026, the Service will propose these requirements next year and provide another opportunity to comment during the 2023-2024 rulemaking.”*

The Service committed in the 2022 Rule to consider the future of lead use based on numerous public comments. The Service received over 48,000 comments on the proposed rule, with a large portion of those comments concerning lead ammunition and fishing tackle. Thus, this Supplemental EA includes additional information analyzing the potential impacts of lead under alternatives of requiring or not requiring non-lead ammunition beginning September 1, 2026, and utilizes the latest research and best available science where applicable. The refuge currently prohibits lead use for all hunting and fishing except for white-tailed deer hunting, for this reason only the hunting program would change under the proposed regulations and only hunting is analyzed below.

### Purpose and Need

The purpose of the proposed non-lead ammunition requirement is to provide the public with high quality wildlife-dependent recreational opportunities that align with refuge purposes and management objectives.

Lead ammunition can present a risk of adverse impacts to wildlife health and the best available scientific evidence shows that lead use is currently impacting wildlife nationwide. Some species present on the refuge are especially susceptible to lead exposure from ammunition. Additionally, even though the current level of lead available in the environment on the refuge may not be causing adverse impacts, the continued use of lead for deer hunting could lead to accumulated lead levels that present a significant danger to wildlife health. Thus, the proposed requirement to use non-lead ammunition beginning September 1, 2026, may immediately benefit wildlife health and protects against the accumulation of lead on the refuge beyond 2026. This requirement is also needed because by addressing a potential threat to wildlife health it ensures that both the current hunting program and any future hunting openings and expansions can be compatible with our conservation mission and the purposes of the refuge.

Hunting is consistent with the refuge's 2013 Comprehensive Conservation Plan (CCP), which stated as Goal 6 to "provide high quality hunting and fishing experiences for hunters and anglers." Objective 6.1 further clarified to "provide robust and diverse, quality hunting opportunities to hunters of all ages while promoting hunter and visitor safety and wildlife health and accommodating other public use opportunities." We provide hunting opportunities on the assumption that, when properly regulated, it will also serve as a viable management tool for controlling populations and protecting habitat, although for some species there are inherent difficulties in achieving such an objective.

The need for the proposed action is evidenced by the requirement to meet the Service's priorities and mandates as outlined by the National Wildlife Refuge System Administration Act (NWRSA) of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, 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)). Department of the Interior Secretarial Order 3356 directs the Service to enhance and expand public access to lands and waters on refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action would also promote one of the priority public uses of the National Wildlife Refuge System (Refuge System). By providing opportunities for visitors to hunt, we can promote stewardship of our natural resources and increase public appreciation and support for the Refuge System.

The No Action Alternative (see below), in contrast, does not meet this need because the use of lead ammunition for hunting on this refuge beyond September 1, 2026, would likely not be a compatible recreational use. Nevertheless, we are analyzing it as the No Action Alternative as it is the baseline needed to evaluate the proposed action. If the current hunting program were to continue under the No Action Alternative, the Service would have to reevaluate the hunting opportunities expanded in the 2022 Rule that permitted the use of lead ammunition, since these

expansions were previously analyzed and adopted with the expectation of implementing the planned non-lead ammunition requirement beginning September 1, 2026. This reevaluation would include revisiting the relevant Hunting Plan discussion, NEPA analysis, and ESA Section 7 analysis, in addition to evaluating the compatibility, so that we can determine whether those opportunities can remain open on this refuge.

### Alternatives

For this Supplemental EA, two alternatives are analyzed: the No Action Alternative and the Proposed Action Alternative. The fishing program is identical under both alternatives, as non-lead tackle is already required for fishing on the refuge, so the analysis only considers the two alternatives for the hunting program.

The No Action Alternative (Alternative A) would continue the refuge's current hunting program. We would continue to provide hunting opportunities for waterfowl (ducks, light geese, dark geese), migratory birds (mourning dove), white-tailed deer, upland game (rabbit, gray squirrel, woodchuck), and wild turkey on designated areas of the refuge. No change to the hunting programs would occur, and the programs would be conducted as they are currently. Use of non-lead ammunition is currently required for upland game, turkey, migratory bird, and waterfowl hunting at PRR. Under this alternative, the use of lead ammunition for hunting white-tailed deer would continue to be allowed.

Under Alternative B, we will eliminate use of lead ammunition for hunting of all species, including for white-tailed deer, on PRR starting on September 1, 2026. Until September 2026, only federally approved non-lead shot would be permitted while hunting for all species except for white-tailed deer. We will initially encourage the voluntary use of non-lead ammunition for hunting white-tailed deer, and over the next three years, we will provide outreach and education opportunities for hunters to learn about lead impacts and available alternatives.

### Environmental Consequences

Potential effects from lead ammunition use in the three-year transition period and potential positive environmental impacts due to the non-lead requirement, as compared to allowing the continued use of lead, are considered in this Supplemental EA.

Due to the continued use of lead (prior to September 1, 2026) for deer hunting, there remains concern about the bioavailability of spent lead ammunition (bullets) on the environment, the health of fish and wildlife, and human health. The Service is aware of fish and wildlife species, including endangered and threatened species, that are susceptible to biomagnification of lead from their food sources. There is also evidence that some species are susceptible to direct ingestion of lead ammunition or lead tackle due to their foraging behaviors.

### Public Review

With the 2022 EA package, including the EA, Hunting Plan, and Compatibility Determination, the public had the opportunity to review and comment on each of the draft documents from May 3 through August 8, 2022, a total of 97 days. We distributed a press release to news organizations and alerted visitors to the plan's availability on the refuge website. A total of four comment letters were submitted from the public that offered input to the refuge for the 2022 EA.

A summary of the comments and our responses can be found in Appendix D of the 2022 EA.

This Supplemental EA has been thoroughly coordinated with all interested and/or affected parties. Refuge staff coordinated with State agency staff in preparation of the Hunting Plan and incorporated their comments into the documents. The public will be notified of the availability of the Supplemental EA and associated documents for review and will include no less than a 60-day comment period. We will inform the public through local venues, the refuge website, and social media. Comments received from the public will be considered, and modifications may be incorporated into the final plan and decision documents.

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## **Patuxent Research Refuge Supplemental Environmental Assessment for Hunting**

This Supplemental Environmental Assessment (EA) evaluates the potential effects associated with the proposed action of requiring non-lead ammunition beginning September 1, 2026, and complies with the National Environmental Policy Act (NEPA) in accordance with Council on Environmental Quality regulations (40 CFR 1500-1509) and Department of the Interior (43 CFR 46; 516 DM 8) and U.S. Fish and Wildlife Service (550 FW 3) regulations and policies. This document is a supplement to, and updates, a previous EA for the Patuxent Research Refuge (PRR, refuge) Hunting Plan, prepared and approved by the Service in September 2022 (hereafter referred to as the 2022 EA). The Service issued a Finding of No Significant Impact (FONSI) for the proposed action and 2022 EA on September 2, 2022. NEPA requires examination of the effects of proposed actions on the natural and human environment. A list of laws and executive orders evaluated through this EA is included at the end of this document.

### **Proposed Action**

The U.S. Fish and Wildlife Service (Service) is proposing to eliminate use of lead ammunition for all hunting, including for white-tailed deer, on PRR beginning September 1, 2026. Until September 2026, only federally approved non-lead shot would be permitted while hunting for all species, except for white-tailed deer. We would initially encourage the use of non-lead ammunition for hunting white-tailed deer, and we will educate hunters about lead and its impacts. This Supplemental EA analyzes the environmental impacts associated with the proposed non-lead requirement. The proposed action will be finalized at the conclusion of the public comment period for the EA.

### **Background**

National wildlife refuges are guided by the mission and goals of the National Wildlife Refuge System (Refuge System), the purposes of an individual refuge, Service policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act (NWRSA) 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 Fish and Wildlife Service Manual.

PRR was established pursuant to Executive Order 7514, dated December 16, 1936. The primary purpose of the refuge is “To effectuate further the purposes of the Migratory Bird Conservation Act” and to serve “as a wildlife experiment and research refuge.” Dedicated on June 3, 1939, Secretary of Agriculture Henry A. Wallace stated, “The chief purpose of this refuge is to assist in the restoration of wildlife – one of our greatest natural resources.” The PRR mission is “To help protect and conserve the Nation’s wildlife and habitat through research on critical environmental problems and issues.”

The refuge has grown from 2,679 acres in 1936 to 12,841 acres today. The most consequential growth in the refuge land holdings occurred in 1991, when 8,100 acres in Anne Arundel County transferred from Fort Meade to PRR, which at the time was 4,700 acres. This transferred property is now called the North Tract.

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

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

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

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

As part of the final rule “2022-2023 Station-Specific Hunting and Sport Fishing Regulations” (2022 Rule) published in the Federal Register on September 16, 2022 (87 FR 57108), the following passage is specified:

*“As part of the 2023-2024 proposed rule, Blackwater, Chincoteague, Eastern Neck, Erie, Great Thicket, Patuxent Research Refuge, Rachel Carson, and Wallops Island NWRs will propose a non-lead requirement, which will take effect on September 1, 2026. In the June 9, 2022, proposed rule (87 FR 35136), the Service intended to phase out the use of lead on these eight refuges by allowing the use of lead ammunition and tackle for all new hunting*

*and fishing opportunities—until fall 2026, which is when the Service plans to require non-lead ammunition and tackle for all activities on these refuges. (To clarify, if a refuge proposed to expand pre-existing opportunities that previously required non-lead ammunition or tackle, then non-lead ammunition and tackle would still be required for those activities.) Based on the breadth of comments received on the eight refuges' plan to require non-lead ammunition and tackle by fall 2026, the Service will propose these requirements next year and provide another opportunity to comment during the 2023-2024 rulemaking.”*

The Service committed in the 2022 Rule to consider the future of lead use based on numerous public comments. The Service received over 48,000 comments on the proposed rule, with a large portion of those comments concerning lead ammunition and fishing tackle. The refuge currently prohibits lead use for all hunting and fishing except for white-tailed deer hunting, for this reason only the hunting program would change under the proposed regulations and only hunting is analyzed below.

### **Purpose and Need for the Action**

The purpose of the proposed non-lead ammunition requirement is to provide the public with high quality wildlife-dependent recreational opportunities that align with refuge purposes and management objectives.

Lead ammunition and tackle can present a risk of adverse impacts to wildlife health and the best available scientific evidence shows that lead use is currently impacting wildlife nationwide. Some species present on the refuge are especially susceptible to lead exposure from ammunition and/or tackle. Additionally, even though the current level of lead available in the environment on the refuge may not be causing adverse impacts, the continued use of lead for deer hunting could lead to accumulated lead levels that present a significant danger to wildlife health. Thus, the requirement to use non-lead ammunition beginning September 1, 2026, may immediately benefit wildlife health and protects against the accumulation of lead on the refuge beyond 2026. This requirement is also needed because by addressing a potential threat to wildlife health it ensures that both the current hunting and fishing programs and any future hunting and fishing opening and expansions can be compatible with our conservation mission and the purposes of the refuge.

Hunting, when compatible, is consistent with the refuge’s 2013 Comprehensive Conservation Plan (CCP), which stated as Goal 6 to “provide high quality hunting and fishing experiences for hunters and anglers.” Objective 6.1 further clarified to “provide robust and diverse, quality hunting opportunities to hunters of all ages while promoting hunter and visitor safety and wildlife health and accommodating other public use opportunities.” We provide hunting opportunities on the assumption that, when properly regulated, it will also serve as a viable management tool for controlling populations and protecting habitat, although for some species there are inherent difficulties in achieving such an objective.

The need for the proposed action is evidenced by the requirement to meet the Service’s priorities and mandates as outlined by the NWRSA of 1966, as amended by the Refuge System Improvement Act of 1997, 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)). Department of the Interior Secretarial Order 3356 directs the Service to enhance and expand public access to lands and waters on refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action would also promote one of the priority public uses of the Refuge System. By providing opportunities for visitors to hunt, we can promote stewardship of our natural resources and increase public appreciation and support for the Refuge System.

Additionally, hunting is a traditional recreational use of renewable natural resources deeply rooted in America’s heritage and can be an important wildlife management tool. National wildlife refuges, including PRR, conduct hunting programs within the framework of Federal, State, and refuge regulations. Hunters on the refuge are expected to be ethical and respectful of other users, wildlife species, and the environment while on refuge lands. Finally, the proposed action will help to meet the statement of objectives detailed in the Hunting Plan. The existing restrictions on lead tackle meet the objectives of the Fishing Plan.

The No Action Alternative (see below), in contrast, does not meet this need because the use of lead ammunition for hunting on this refuge beyond September 1, 2026, would likely not be a compatible recreational use. Nevertheless, we are analyzing it as the No Action Alternative as it is the baseline needed to evaluate the proposed action. If the current hunting program were to continue under the No Action Alternative, the Service would have to reevaluate the hunting opportunities expanded in the 2022 Rule that permitted the use of lead ammunition, since these expansions were previously analyzed and adopted with the expectation of implementing the planned non-lead ammunition requirement beginning September 1, 2026. This reevaluation would include revisiting the relevant Hunting Plan discussion, NEPA analysis, and ESA Section 7 analysis, in addition to evaluating the compatibility, so that we can determine whether those opportunities can remain open on this refuge.

The EA serves as the NEPA document which analyzes the impacts on environmental, cultural, and historical resources of the proposed action.

## **Alternatives**

The fishing program is identical under both alternatives, as non-lead tackle is already required for fishing on the refuge, so the analysis only considers the two alternatives for the hunting program.

### ALTERNATIVE A – NO ACTION ALTERNATIVE

Alternative A is the current management of the hunting program. This alternative is referred to as the “No Action Alternative” for NEPA purposes. The No Action Alternative would continue to provide hunting opportunities for waterfowl (ducks, light geese, dark geese), migratory birds (mourning dove), white-tailed deer, upland game (rabbit, gray squirrel, woodchuck), and wild turkey on designated areas of the refuge. No change to the hunting programs would occur, and the programs would be conducted as they are currently. Use of non-lead ammunition is currently required for upland game, turkey, migratory bird, and waterfowl hunting at PRR. Under this alternative, the use of lead ammunition for hunting white-tailed deer would continue to be allowed.

## ALTERNATIVE B – PROPOSED ACTION ALTERNATIVE

Under Alternative B, we will eliminate use of lead ammunition for hunting of all species, including for white-tailed deer, on PRR starting on September 1, 2026. Currently, non-lead ammunition is required for all upland game, migratory bird, and turkey hunting (everything except for deer). During the transition period, we will encourage the voluntary use of non-lead ammunition for hunting deer. The transition period will allow hunters time to adapt to the new regulations so that they can continue to engage in deer hunting opportunities on the refuges. The refuge staff will provide information to assist in a valuable transition period that benefits fish, wildlife, and people.

The refuge manager, upon annual review of the hunting program, however, may take the necessary steps to impose further restrictions, recommend that the refuge be closed to hunting, or further liberalize hunting regulations up to the limits of the State. We will restrict hunting if it becomes inconsistent with other, higher priority refuge programs or endangers refuge resources of public safety.

### *Measures to Avoid Conflicts:*

Hunting is a well-established activity at PRR. The greatest numbers of hunters are anticipated in October, November, and December and, thus, would not be disturbing to most wildlife during breeding seasons, except for nesting bald eagles. To avoid conflicts with other biological resources on the refuge, and other refuge uses, the refuge ends hunting of upland game species on January 31 to allow the visitors to use the North Tract and South Tract during the spring and summer. To avoid conflicts and safety issues with ongoing research, residential, office, and maintenance areas on the Central Tract, the refuge operates lottery hunts for assigned stands. To minimize conflicts with other refuge users in the spring, the refuge runs a limited lottery hunt for the spring turkey season.

### Other Alternatives Considered but Eliminated from Further Analysis:

In developing hunting plans for national wildlife refuges, we regularly receive comments and requests from some members of the public to eliminate hunting. An alternative that would close the refuge to all hunting was therefore considered but dismissed from detailed analysis. A “No Hunting Alternative” would not accomplish the purposes we seek to accomplish by the adoption of this hunting plan, as described in the Purpose and Need section of this Supplemental EA. Closing the refuge to hunting would conflict with the Refuge System Improvement Act, which provides that hunting is an appropriate and priority use of the Refuge System, shall receive priority consideration in refuge planning and management, mandates that hunting opportunities should be facilitated when feasible, and directs the Service to administer the Refuge System so as to “provide increased opportunities for families to experience compatible wildlife-dependent recreation, particularly opportunities for parents and their children to safely engage in traditional outdoor activities, such as fishing and hunting.”

Furthermore, Department of the Interior Secretarial Order 3356, signed in 2017, directs the Service to enhance and expand public access to lands and waters on refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. An alternative that failed to provide any opportunity to participate in hunting activities, where such activities are compatible with the

purposes of the Refuge System, would also fail to meet the goals of the Refuge System.

Refuge staff have worked closely with stakeholders and the Maryland Department of Natural Resources (MDDNR) to develop the current proposed hunting plan. There are no unresolved conflicts about the proposed action with respect to alternative uses of available resources. Additionally, the proposed action builds on an existing hunt program and includes the addition of seasons and areas developed, in part, from an initial scoping process of the refuge's CCP. Therefore, the Service does not need to consider additional alternatives (43 CFR 46.310).

### **Affected Environment and Environmental Consequences**

This section is organized by affected resource categories, and for each affected resource discusses (1) the existing environmental and socioeconomic baseline in the action area for each resource, and (2) the direct, indirect, and cumulative effects and impacts of the proposed action and any alternatives on each resource. The effects and impacts of the proposed action considered here are changes to the human environment, whether adverse or beneficial, that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives. Cumulative impacts are defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. This EA focuses on analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible, and therefore considered an "affected resource." Any resources that would not be more than negligibly impacted by the action may be dismissed from further analyses.

As stated above, this section predicts the foreseeable impacts of implementing the hunting program in each of the alternatives. When detailed information may be deficient or unavailable, we base our comparisons on professional judgment and experience. We usually identify potential impacts within a long-range timeframe (i.e., 15 years); beyond that timeframe they become more speculative. Please keep in mind the relatively small total land mass of the hunting area of the refuge in comparison with the entire Atlantic Flyway or the breeding ranges of the many birds and wildlife that use it. We recognize that the refuge is not isolated ecologically from the land around it; however, we may have overstated positive or negative impacts in that larger geographic context. Nevertheless, many of the actions we propose conform with the CCP and other regional landscape plans, and provide positive, incremental contributions to those larger landscape goals.

For more information regarding and the general characteristics of the refuge's environment, please see Chapter 4 of the refuge's CCP, which can be found at: <https://ecos.fws.gov/ServCat/Reference/Profile/43798>.

Table 1 identifies those resources that either do not exist within the project area or would either not be affected or only negligibly affected by the proposed action. As such, these resources are not further analyzed in this EA.

**Table 1** Potential for Adverse Impacts from Proposed Action and Alternatives

<b>Resources</b>	<b>Not Applicable:</b> Resource does not exist or not affected	<b>No/Negligible Impacts:</b> Exists but no or negligible impacts	<b>Greater than Negligible Impacts:</b> Impacts analyzed in this EA
Species to Be Hunted/Fished	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Non-Target Wildlife and Aquatic Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Threatened and Endangered Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Habitat, Vegetation, and Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Air Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Floodplains	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wilderness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visitor Use and Experience	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cultural Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Refuge Management and Operations	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Socioeconomics and Environmental Justice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The following resources either (1) do not exist within the project area or (2) would either not be affected or only negligibly affected by the proposed action:

- Air quality - The Service’s hunting programs produce negligible impacts to air quality. Some hunting equipment can discharge gases and hunters and anglers using vehicles for transportation to and from recreational areas on the refuge produce emissions, but the amount of air pollution from these sources is negligible and the pollutants produced do not have substantial localized effects.
- Floodplains - The Service’s hunting programs do not affect water flows or other factors relevant to flooding and floodplain landscapes. Therefore, no effects to floodplains are expected as a result of proposed regulations changes and expanding access. No modifications will be made that will increase the floodplain elevation or negatively impact its function and value and thus there will be no impacts to E.O. 11988 – Floodplain Management. E.O. 11990-Protection of Wetlands only applies if the refuge creates structures to support hunting in wetlands. This E.O. will be evaluated on a project-by-project basis, e.g., if an accessible blind were to be built in the future to support hunting activities. As it stands now, there would be no impact to wetlands due to this proposed activity related to developing supporting infrastructure as no infrastructure projects are proposed specific to this action. Wetland impacts specific to vegetation and habitat are addressed in those respective sections. The proposed action complies with E.O. 11988 – Floodplain management – Fed. Reg. 26951 (1977) and E.O. 11990-Protection of Wetlands.

- Wilderness - The refuge does not have any designated wilderness areas per the Wilderness Act, 16 U.S.C. 1131 et seq. nor does the refuge have any waterways that fall under the Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq. Given this, no effect to wilderness or wild and scenic rivers are expected. The proposed action complies with the Wilderness Act, 16 U.S.C. 1131 et seq. and the Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq.

Potential effects from lead ammunition use during the 3-year transition period and potential positive environmental impacts due to the non-lead requirement, as compared to allowing the continued use of lead, are considered in this Supplemental EA.

Nationwide, there is concern about the bioavailability of spent lead ammunition (bullets) on the environment, endangered and threatened species, birds (especially raptors), mammals, and other fish and wildlife susceptible to biomagnification. Generally, in this analysis four types of potential lead impacts are addressed: lethal and sublethal impacts, for both target and non-target species.

Lead shot and bullet fragments found in animal carcasses and gut piles are the most prevalent source of lead exposure (Kelly et al. 2011). Many hunters do not realize that the carcass or gut pile they leave in the field usually contains lead bullet fragments. Avian predators and scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition (the result of lead's brittle quality causing fragmentation upon impact) or pellets in the tissues of animals killed or wounded by lead ammunition (Cade 2007; Church et al. 2006; Craig et al. 1990; Cruz-Martinez et al. 2015; Finkelstein et al. 2012; Herring et al. 2016; Hunt et al. 2006; Pattee et al. 1981; Pauli and Buskirk 2007; Platt 1976; Redig et al. 1980; Rideout et al. 2012; Stroud and Hunt 2009; Warner et al. 2014). Lead poisoning may weaken raptors by reducing their strength and coordination, increasing muscle and weight loss, reducing motor skill function and making them lethargic, which may make them more susceptible to disease, vehicle strikes or power line accidents and increases mortality rates by leaving them unable to hunt (Golden et al. 2016; Kelly and Kelly 2005; Kramer and Redig 1997; O'Halloran et al. 1989). Furthermore, nestlings of raptors have impaired survival and growth when parents bring food that is embedded with lead fragments (Hoffman 1985a, 1985b; Pattee 1984).

Recent modeling has even indicated that lead poisoning suppresses population growth in eagles (Slabe et al. 2022). The extent to which elevated levels of lead have been documented in raptors admitted for rehabilitation can be found in a study of bald eagles and golden eagles in the Raptor Rehabilitation Program at the College of Veterinary Medicine at Washington State University from 1991 to 2008, where 48 percent of bald eagles and 62 percent of golden eagles tested had blood lead levels considered toxic by current standards. Of the bald and golden eagles with toxic lead levels, 91 percent of bald eagles and 58 percent of golden eagles were admitted to the rehabilitation facility after the end of the general deer and elk hunting seasons in December (Stauber et al. 2010). Environmental lead exposure, even at low levels, could very well contribute to wildlife mortality by impairing organ functions, increasing susceptibility to trauma and disease, and hindering the complex mental processes and social behaviors required for reproductive success and survival (Grade et al. 2019).

The proposed requirement of non-lead ammunition on the refuge starting September 1, 2026, will

help address concerns about the bioavailability of lead on the refuge. Lead fishing tackle can also present similar risks, but its use is already prohibited on the refuge.

## **BIG GAME – WHITE-TAILED DEER**

### ***Description of Affected Resource***

White-tailed deer are the most intensely hunted of all game species offered at the refuge, and likely will remain so. In Region B (Central, Southern and Eastern Maryland) of the State, where habitat quality is considered good, the population was estimated at about 205,000 deer in 1998. The population increased slightly, to approximately 238,000 deer in 2002, before the implementation of liberal antlerless seasons and bag limits reduced the population to an estimated low of 170,000 deer in 2013 (Eyler 2013). Since 2013, the Region B deer population has remained stable up to 2018 (MDDNR 2020).

As for the PRR population, annual analyses of average deer weights of all age classes and sexes on the North Tract (where deer are most intensely hunted) suggests a healthy population existing within, and occasionally exceeding, the refuge’s carrying capacity. We also annually calculate deer density on the refuge to gauge how closely it tracks Maryland’s recommended density of 20 deer per square mile. For PRR to meet this recommended density, the deer population would need to be limited to about 374 deer for the refuge’s suitable deer habitat of 11,981 acres (18.72 square miles).

Based on harvest data from 2009 to 2016, the deer population ranged from 278 to 794, and density ranged from 22.1 to 63.2 per-square-mile. There is an inherent bias in using harvest data, as it is based on number of bucks harvested; this is the State’s methodology and is a viable index over time. We conducted camera trapping for two years (2012-2013) to obtain an independent doe to buck ratio and found no significant difference in abundance and density in relation to the state estimates.

**Table 2** White-tailed deer harvest over 5-year period from 2016-2021 on PRR

<b>Year</b>	<b>Total Harvest</b>	<b>Bucks</b>	<b>Does</b>
2016-2017	207	103	104
2017-2018	168	76	92
2018-2019	151	73	78
2019-2020	221	114	107
2020-2021	94	46	48

### ***Impacts on Affected Resource***

#### **ALTERNATIVE A – NO ACTION ALTERNATIVE**

White-tailed deer hunting would continue to be permitted in designated areas of the refuge. There could be temporary, localized population reductions (i.e., less than 200 per year) for white-tailed deer. Current levels of harvest would be expected under this alternative as no new opportunities would be provided. Table 3 provides anticipated impacts to species hunted as a result of these proposed actions. We estimate a stable number of hunt visits (5,000 to 6,000 visits) and total harvest of fewer than 200 deer under this alternative.

The current hunting program on the refuge carries the potential for adverse health impacts to huntable big game wildlife species from discarded lead in the environment in addition to the inherent impacts of intentional harvest from hunting. Some wildlife species are susceptible to direct ingestion of lead fragments that may remain in gut piles discarded in the field and/or bioaccumulation of lead from their food sources, whether on land or in waters of the refuge. These types of species that are susceptible to these circumstances are discussed in detail in the non-target wildlife and aquatic species section but are applicable to similar species that are hunted including predators and big game. Continued use of lead ammunition for deer hunting under this alternative and any future expansions to the current hunting program, without restrictions on the use of lead ammunition, increases these potential adverse effects.

#### ALTERNATIVE B – PROPOSED ACTION ALTERNATIVE

Lead that could enter the environment from proposed hunting activities would include fragments from ammunition that has left the body of harvested animals or left behind in discarded gut piles in the field. Given the estimated numbers of hunters and amount of take using lead ammunition, the lead that would enter the environment is likely very small over the next three years.

As non-lead requirements for ammunition take full effect beginning September 1, 2026, lethal and sublethal impacts to huntable wildlife species from discarded lead in the environment and the potential for exposure to lead that may result in adverse human health impacts decreases substantially and becomes negligible. Lead from previous hunting activities will still be present in the environment and may impact wild species; however, the impact is likely negligible given the likely low amount of lead currently present and available in the environment from past hunting activities and minor adverse risk of bioaccumulation. This residual lead from hunting activity will also degrade over time.

#### FOREST GAME/UPLAND GAME – *Wild Turkey, Gray Squirrel, Woodchuck, and Eastern Cottontail Rabbit*

##### ***Description of Affected Resource***

###### *Wild Turkey (Meleagris gallopavo)*

According to a former refuge biologist, H. Obrecht, turkeys began to reappear at PRR in the 1990s. These birds were from a flock that were released on Meyer's Station in 1989 by MD DNR (Huettner 2003). Volunteers from the Central Maryland Chapter of the National Wild Turkey Federation conducted weekly spring turkey surveys from 1994 until about 2009 on the refuge's North Tract. In 1994, 129 turkeys were documented. From 1997 to 2000, totals were 109, 116, 67, and 92, respectively.

Two of the most important environmental trends that may affect this resource are accelerated habitat fragmentation and increased coyote population. Fragmentation facilitates predation on turkey nests, yearlings, and sitting hens and may eventually be a cause of concern for turkey populations within the Baltimore-Washington metropolis. Raccoons have long been the most common predator of turkey but increasing populations of coyotes may become a factor in the future (Hughes et al. 2005). However, forest fragmentation on the refuge itself has been relatively stable or declined since the North Tract was transferred to the Service in 1991. The refuge has also

incorporated plans for reforestation and increasing the acreage of forest interior to promote healthy, regenerating, oak-dominated upland forest.

#### *Gray Squirrel (Sciurus carolinensis)*

Eastern gray squirrel is ubiquitous on refuge lands and the surrounding urban landscape. Females begin reproducing in their second year, each litter averaging 2.5 young. Because of their high reproductive potential, the population can explode into the thousands within a short span (Benson 2013).

#### *Eastern Cottontail Rabbit (Sylvilagus floridanus)*

Eastern cottontail is the most widely distributed of any species in the *Sylvilagus* family ranging from lower Canada and Maine south to Florida and Mexico and west to the Rocky Mountains. Cottontails use a wide range of disturbed, transitional, or successional habitats. They favor habitats that provide grasses and weedy forbs with ready access to escape cover such as thickets and brush.

Where soil fertility is high, environmental conditions mild, and food is abundant, reproductive rate tends to increase in this already fecund species. The average litter size in western Maryland is 4.50 but can produce up to 7 litters each year with 3 to 4 being typical (Chapman and Feldhamer 1982). Only about 20 to 25 percent of the young survive a full year, and annual mortality of the entire population, including adults is about 85 percent due to predation, weather, disease, parasites, and social behavior to suppress numbers (Tjaden and Kays 2002). Local abundance also fluctuates relative to local land uses, where forestation or intense land uses may cause a recession.

The refuge has no data on current or past rabbit densities on the refuge. In the relatively agricultural landscape of St. Clements Island, Maryland for example, peak densities were documented at 10.2 per hectare (4.12 per acre) (Chapman and Feldhamer 1982). Per refuge staff observations, cottontail rabbits appear to be more numerous in the dense, well-landscaped neighborhoods than on the refuge.

#### *Woodchuck/Groundhog (Marmota monax)*

The refuge provides an open season on woodchuck/groundhog generally following the state season. However, no take for this species has been documented. Groundhogs are seldom seen in the scattered fields or shrubby open lands dotted across a primarily forested or floodplain landscape, therefore generally not conveniently available to hunters. There appears to be a lack of interest for this species in the local hunting community. Most groundhog sightings on the refuge are seen around lawns and buildings, such as at the Central Tract's office and facilities complex, Endangered Species Area or the South Tract Visitor Center (fewer).

#### *Other Furbearer Species*

The refuge does not currently offer seasons for other furbearer species such as bear, fox, raccoon, opossum, skunk, weasel, coyote, or bobcat.

#### ***Impacts on Affected Resource***

##### **ALTERNATIVE A – NO ACTION ALTERNATIVE**

Under this alternative, we do not expect harvest trends to appreciably change. The harvest rate of wild turkey over the past decade has been low, with 20 taken in 2021 representing the highest



amount in one season, and the lowest of 4 turkeys in 2008. With a limited number of turkey hunt dates offered (about 14 to 16 days in the season), low hunter density (nine zones, one hunter per zone), and a bag limit of one turkey per year, we anticipate that the refuge turkey population will not be negatively impacted by continuing low levels of hunting pressure and should remain viable and resilient for the foreseeable future.

Squirrel harvests since 2000 ranged from 196 in 2001 to a low 14 in 2006. However, 14 out of 20 harvests during the period remained above 60. While no formal surveys have been conducted to assess current Eastern gray squirrel population abundance on refuge lands, we assume that, given the supportive habitat and their reproductive potential, past and expected hunting pressure is insufficient to have a negative impact on the population.

Rabbits are not a popularly hunted species at PRR, likely due to scattered habitat in small parcels, and a refuge regulation that does not allow hunting with dogs. In a typical year, less than five rabbits are harvested. We expect that this will remain the case for the foreseeable future since the refuge is primarily a forest and most rabbits occur on the Central Tract where hunting is more restricted due to office complexes, residences, and U.S. Geological Survey (USGS) captive species research pens.

Given that non-lead ammunition is required for these hunts, there would be no new introduction of lead ammunition for these hunts under Alternative A. However, these species could potentially be negatively impacted by continued lead use for deer hunting under Alternative A, if, over time, lead levels in the soil become high enough to be taken up by the vegetation these species eat.

#### ALTERNATIVE B – PROPOSED ACTION ALTERNATIVE

The refuge currently prohibits lead ammunition for hunting of these species, so the proposed lead use requirement would not change the impacts of these hunts. However, the lead use requirement would reduce the potential for lead impacts to these species from accumulation over time of lead ammunition used in hunting deer.

#### **MIGRATORY GAME BIRD** – *Waterfowl, Mourning Dove*

##### *Description of Affected Resource*

###### *Waterfowl*

The refuge is located on the western edge of the Atlantic Flyway, where the migration pattern is more of a broad front type that is characteristic of the Piedmont. The scattered inland water bodies and narrow rivers support smaller migrating or wintering flocks, not the massive flocks of thousands characteristic of the Eastern Coastal Plain and lower tidal portions of the estuaries. As a result, the refuge plays a comparatively reduced role in contributing to migratory waterfowl species at the flyway level.

Waterfowl hunts have been conducted on the North Tract since prior to transfer to the Service in 1991-1992. Refuge hunt season for waterfowl begins with the State's season, but ends earlier than the State, which continues well into March. Migratory game bird hunting is suspended on the refuge during firearms season and early deer muzzleloader season except in a few locations. The refuge adheres to State and Federal regulations with respect to daily bag limits.

Our information on refuge waterfowl numbers is derived from weekly waterbird surveys and spring productivity surveys, both of which had been conducted every year from 1997 to 2017. Counts were conducted according to Integrated Waterbird Monitoring and Management (IWMM) protocol (Loges et al. 2014). We are indebted to volunteer Frank McGilvray for this information (2014).

#### *Canada Goose (Branta canadensis)*

The early season goose hunt is primarily a management hunt to help control the proliferation of resident Canada geese. Waterfowl productivity surveys on the refuge revealed record highs in the late 1990s where 270 pairs were observed and a record low of 107 pairs observed in 2015. The peak fledgling success was in 2004 when 275 goslings reached flight age, and the record low was 40 in 2008. Weekly waterfowl surveys of the species from 2011 to 2013 ranged from 24,000 observations (averaging 480 birds) in 2011 to 14,000 observations (averaging 280 birds) in 2013. The Migratory Bird Harvest Information Program for 2018 and 2019 reported 90,855 and 45,452 Canada Geese harvested in Maryland respectively (Raftovich et al. 2020).

#### *Mallard (Anas platyrhynchos)*

The mallard breeds primarily in Canada, and winters primarily from West Virginia and Virginia south. Maryland is part of the species' northeast year-round range including breeders. The pair count during productivity surveys continued to increase from a low of 13 in 2012, to 27 in 2017. The peak was 63 in 1998 and 1999. Only two broods were seen, which reflects the average from 2007 to 2015. The waterbird surveys show that the species continues to thrive here with observation counts ranging from 1864 (2011) to 2090 (2014), whereas harvests during the same period ranged from 9 (2012) to 50 (2013).

#### *Wood Duck (Aix sponsa)*

The wood duck nest box program (now discontinued) provided some of the best information on the species, in addition to that provided by waterbird survey counts. Over the past 20 years, the refuge had maintained as many as 132 wood duck nest boxes on various impoundments or other water bodies on the refuge, largely through the volunteer efforts of Frank McGilvray, a former Service waterfowl biologist. Productivity counts conducted annually from 1997 to 2017 showed a range of pairs observed from 55 in 2000 to 82 in 2005. As boxes aged or became unusable, they were removed from service. Waterbird counts provide an index for population abundance on the refuge. From 2010 to 2015, the counts ranged from 260 birds in 2012 to 516 in 2010, averaging 339 over the 6-year period. Harvest rates during the same period ranged from 12 in 2013 to 65 in 2011.

Wood duck is a popular species among waterfowl hunters. Given the sizeable quantity of floodplain habitat on the refuge (about 2,000 acres) to support natural nesting substrates and food resources for wood duck, and the inaccessibility of some sites, we hope hunting pressure is not substantial. The wood duck harvest in Maryland for 2018 and 2019 was 10,142 and 8,001 respectively (Raftovich et al. 2020). We rely on guidance from MDDNR on bag limits to ensure harvest rates remain within sustainable limits.

#### *Mourning Dove*

PRR is located in the Eastern Management Unit for mourning doves. Mourning doves are found

throughout the refuge foraging in patchy open areas along the refuge's many roads bordered by forests. Migratory Bird Harvest Information Program estimates for mourning dove total harvest in Maryland was 51,500 ± 34 percent in 2018 and 66,200 ± 27 percent in 2019 (Raftovich et al. 2020).

### ***Impacts on Affected Resource***

#### **ALTERNATIVE A – NO ACTION ALTERNATIVE**

Under this alternative, we do not expect current harvest trends to change. No new opportunities would be provided, so impacts would remain unchanged. The number of individuals harvested on the refuge, though additive to local, regional, and Atlantic Flyway harvest, is negligible to their populations. As migratory game bird species populations continue to be monitored, future harvests will be adjusted as needed under the existing processes. Canada goose is the most numerous waterfowl species harvested on the refuge, partly due to establishing and growing resident populations, followed by wood duck and mallard. The number of geese harvested each year is too low relative to the average population on the refuge or the state to have a significant impact. Other game includes hooded merganser, American black duck, American green-winged teal, bufflehead, ring-necked duck, ruddy duck, lesser scaup, Atlantic brant, gadwall, Northern shoveler, and redhead, though these are harvested in far fewer numbers, often only one bird per year.

Mourning dove harvest at PRR in the past 10 years has steeply declined. From 2011 to 2020 harvests were: 59, 65, 26, 3, 4, 22, 12, 2, 6, and 5 respectively. We do not monitor refuge populations of this species but follow State guidelines on bag limits and seasons. Lead shot was completely banned for the hunting of waterfowl (i.e., ducks, geese, swans, brant and coot) throughout the United States beginning in 1991.

While there would be no lead use in hunting these species under Alternative A, lead use for deer hunting could potentially impact these species. For example, the accumulation of lead in the soil from continued lead use could impact the vegetation and herbivorous insect food sources of doves. Similarly, lead ammunition from deer hunting that ends up in or near water on the refuge, although this is unlikely to occur, could be ingested by waterfowl and result in negative impacts. In both cases, accumulation of lead in the environment over time increases the chances for negative impacts to occur.

#### **ALTERNATIVE B – PROPOSED ACTION ALTERNATIVE**

The refuge currently prohibits lead ammunition for hunting of these species, so the proposed lead use requirement would not change the impacts of these hunts.

Environmental lead exposure, even at low levels, could very well contribute to bird mortality by impairing organ functions, increasing susceptibility to trauma and disease, and hindering the complex mental processes and social behaviors required for reproductive success and survival (Grade et al. 2019). However, it is unlikely that the amount of lead entering the environment under Alternative B would cause additional adverse effects toward migratory bird species since hunting takes place in areas of the refuge away from water, non-lead ammunition is already required for hunting any species except white-tailed deer, and non-lead ammunition will be required for all species beginning September 1, 2026. After the proposed non-lead requirement takes effect, there may also be a benefit to these species because no new lead will enter the environment.

## **NON-TARGET WILDLIFE AND AQUATIC SPECIES**

### ***Description of Affected Resource***

Non-target wildlife includes any forest-dependent species of the Mid-Atlantic portion of the Eastern biome. The refuge provides habitat for at least 38 mammal species, 55 amphibians and reptiles, 25 orders of insects, 248 bird species, and 55 species of fish. A comprehensive list of species known to occur at PRR can be obtained from the refuge's CCP. The same environmental trends for landscapes surrounding the refuge as described in the accounts of species to be hunted above will also apply to non-target wildlife and aquatic species. They share the same habitats, are not spatially exclusive, and therefore are not discussed separately.

The best available science indicates that lead ammunition may have negative impacts on wildlife, including aquatic species. This broad potential for adverse impacts to non-target wildlife and aquatic species and the overall environment is not inherent to the activities of hunting, but specifically to the use of lead ammunition. As non-target wildlife such as coyotes and foxes may scavenge on gut piles, the same concerns related to the exposure of avian scavengers to lead (discussed earlier) also may apply to these species. Those potentially adverse impacts can be prevented by requiring non-lead ammunition for hunting activities. Currently there are manufacturers that offer non-lead ammunition, and some states have either implemented restrictions on the use of lead or offer incentives to use non-lead ammunition (Arizona Game and Fish Department 2018; Center for Biological Diversity 2007; USFWS 1999; Washington Department of Fish and Wildlife 2022). In areas where non-lead ammunition are used, there have been declines in adverse effects to wildlife (Anderson et al. 2000; Kelly et al. 2011; Lewis et al. 2021; Samuel and Bowers 2000; Sieg et al. 2009).

### ***Impacts on Affected Resource***

#### **ALTERNATIVE A – NO ACTION ALTERNATIVE**

No change to the hunting program would occur, and the program would be conducted as it is currently. Some wildlife may be disturbed, distressed, or displaced as hunters walk, fire shots, and access specific areas on the refuge. Disturbances to birds, except waterfowl in hunted areas, are expected to be minimal, since most migrating and breeding activities occur from April to August when no hunting occurs on the refuge. Short-term disruptions to other species like bats, turtles, frogs, and some mammals are expected to be minor, due to bouts of inactivity or hibernation during this time. There could be temporary, localized disturbance to fish, mussels, and other aquatic species during waterfowl hunting but no significant impacts are expected for any non-target refuge wildlife species.

Lead has no known biological function in living things, but the bioavailability of the spent lead ammunition, may have adverse impacts on the environment, especially for mammals and birds, specifically waterfowl and raptors. For birds, this typically occurs through direct ingestion of lead through soil, sediment or directly from food items (Rattner et al. 2008). Upland game birds and waterfowl may be exposed to lead when they ingest spent shot or ammunition fragments along with grit or pebbles, which they need to fill their gizzards, a specialized organ involved in breaking down food (Kreager et al. 2008; Franson et al. 2009). Avian predators and scavengers can be susceptible to lead poisoning when they ingest lead fragments (the result of lead's brittle quality causing fragmentation upon impact) or pellets in the tissues of animals killed or wounded by lead

ammunition (Platt 1976; Pattee et al 1981; Craig et al. 1990; Church et al. 2006; Hunt et al. 2006; Cade 2007; Pauli and Buskirk 2007; Stroud and Hunt 2009; Finkelstein et al. 2012; Rideout et al. 2012; Cruz-Martinez et al. 2015; Herring et al. 2016).

Lead poisoning affects the blood, nervous and immune systems of wildlife (Eisler 1988). According to Fallon et al. (2017) clinical signs may include "...ataxia, impaired mobility, lowered sensory abilities, vomiting, anemia, lethargy, gastrointestinal stasis, weakness and mortality." Exposure to high amounts of lead in a short amount of time typically causes severe impairment of these systems and results in rapid death (Gill and Langelier 1994; Kelly et al. 1998; Schulz et al. 2006). Exposure to smaller amounts of lead over longer time periods, however, can cause anemia, lethargy, neurological disorders, an impaired ability to fight off disease and other negative effects (Jacobsen et al. 1977; Wobester 1997; Friend and Franson 1999; Pattee and Pain 2003; Franson and Pain 2011; Pain et al. 2019). These effects can in turn lead to indirect negative effects of lead exposure, such as increased susceptibility to predation. Thus, sublethal lead poisoning can have substantial adverse effects on wildlife health, including on reproduction (Scheuhammer 1987; Kendall et al. 1996; Provencher et al 2016; Pain et al. 2019, SETAC 2021).

Overall, the Service anticipates no measurable negative impacts to resident non-hunted wildlife populations locally, regionally, or globally due to the activity of hunting, as the impact of the current hunting program does not result in more than temporary flushing or relocation. However, continuing to permit the use of lead ammunition for deer hunting on refuge lands could mean an increase of lead in the environment, even at small amounts as estimated, and continue to have potentially negative impacts, especially potential cumulative impacts, to wildlife and aquatic species.

#### ALTERNATIVE B – PROPOSED ACTION ALTERNATIVE

The best available science indicates that lead ammunition may have negative impacts on wildlife and the environment (Golden et al. 2016; Hanley et al, 2022; Slabe et al, 2022). Animals can be poisoned by lead in a variety of ways, including ingestion of bullet fragments and shot pellets left in animal carcasses and spent ammunition left in the field (Haig et al. 2014). Under Alternative B, continuing to permit the use of lead ammunition until September 1, 2026, would mean a short-term increase of lead in the environment even at small amounts as estimated and would temporarily continue to have negative impacts to wildlife and aquatic species. To move towards reduction and future elimination of this threat on the refuge, under this proposed action we will be eliminating the use of lead ammunition over a 3-year period to educate and work with hunters on the use of non-lead alternatives. A transition to non-lead ammunition for all hunting activities will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to wildlife, including bald and golden eagles, as well as other scavenging species and provide deer hunters adequate time to transition to using alternatives. However, after the transition period is complete, this impact will be greatly reduced, and will result in unlikely exposure of non-target species to lead ammunition from hunting activities on PRR. This reduced risk should continually decrease over time following the non-lead requirement as any remnant sources of lead from hunting activities will degrade.

The bioaccumulation of lead is a potential concern, but it does not likely present a significant issue on this refuge as: (1) non-lead shot is currently required for hunting all species other than deer; (2) the refuge strongly encourages use of non-lead alternatives for hunting deer for the next 3 years;

(3) we would require the use of non-lead ammunition for all species (including deer) beginning September 1, 2026; and (4) we will educate hunters and the public to the potential adverse impacts of lead. Some hunters will also choose non-lead methods of take such as archery.

Harvest restrictions through implementing reduced bag limits are the refuge's primary method of ensuring against over-harvesting of small or vulnerable populations. The Refuge Manager has the authority to place further restrictions on bag limits as necessary beyond those set by the state for the best management practices of the species involved.

## **THREATENED, ENDANGERED, AND OTHER SPECIAL STATUS SPECIES**

### ***Description of Affected Resource***

The refuge provides habitat for forest-dependent threatened species, endangered species or species of special concern such as the bald eagle (*Haliaeetus leucocephalus*), Northern long-eared bat (*Myotis septentrionalis*, federally threatened), spotted turtle (*Clemys guttata*, at-risk species), and monarch butterfly (*Danaus plexippus*, candidate species for listing). The Patuxent and Little Patuxent Rivers which flow through the refuge support at least three mussel species and may support the federally threatened yellow lance (*Elliptio lanceolata*), which requires healthy and intact floodplain forest for stream and river water quality.

Northern long-eared bats use mines and caves in the winter to hibernate and use forests to forage and roost throughout the rest of the year. Northern long-eared bats may occur in some areas in the hunting zones. The species is most sensitive to disturbance during hibernation and when raising young, activities that are not known to occur on the refuge. Any incidental disturbance to non-breeding individuals would likely have a negligible impact on the species.

Spotted turtles usually prefer shallow water habitats, such as swamps, ponds, bogs, marshy wetlands, creeks (including tidal ones) or ephemeral pools, but at times may be found in forested areas some distance from water. Depending upon population location, seasonal activity begins in the late winter to early spring, and turtles are most active during the day. Mating typically occurs in spring (March through May) and eggs are laid on land from late May through early July, depending on the population location. It has been subject to illegal poaching in portions of its range and has suffered substantial population declines and widespread habitat destruction.

Forest interior birds, rare plants, rare odonatan, and State Species of Greatest Conservation Need are among the species groups or taxa for which the refuge provides quality habitat. Puritan tiger beetle has not been observed on this refuge despite decades of coleoptera searches in the most likely habitat, along Little Patuxent River. The puritan tiger beetle is found in sandy-clay, earthen shoreline bluffs, typically with sparse to no vegetation and narrow, sandy beaches along the cliff bases. The refuge has one bluff area along the Little Patuxent River, composed of red clay along an inaccessible section of the river. Hunting will likely have no impact on this species should it occur here.

There have been many botany forays throughout the refuge's 85-year history, and to date swamp pink and sensitive joint vetch have not been found. Swamp pink is found in perennially saturated, spring-fed, nutrient-poor, shrub swamps and forested wetlands, of which the refuge has many.

Sensitive joint vetch inhabits the intertidal zone of fresh to slightly salty (brackish) tidal river segments. This far upstream of the Patuxent River experiences very little tidal impact, and its riparian zones within the refuge are heavily forested, too shady for this species. Given the scarcity or unlikely presence of swamp pink and sensitive joint vetch, no impact from hunting is anticipated.

After four decades of protection under the Endangered Species Act, the bald eagle was removed from the Federal list of endangered and threatened wildlife in 2007. However, they are still protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Forests, shorelines, and wetlands provide important breeding, foraging and roosting locations for bald eagles.

Finally, potential impacts to migratory birds and eagles from use of lead and hunting activities, mentioned in the section above about wildlife, are likely negligible. As impacts are negligible to migratory birds and golden and bald eagles, legal mandates (under the Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. 668-668c, 50 CFR 22, Migratory Bird Treaty Act, as amended, and Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds) are met through this analysis. Even though inputs of lead are low as discussed previously, as an agency we are concerned about the potential effects of lead on refuge resources, as illustrated in the purpose and need for this Environmental Assessment. A more complete list of these species may be found in Appendix C.

### ***Impacts on Affected Resource***

In accordance with Section 7 of the Endangered Species Act (ESA), the refuge has completed an initial analysis of the effects of the proposed action. Given that the proposed action could change in light of the public comment period for the proposed rulemaking, the initial documentation is considered to be a draft and will not be finalized until the Service publishes a final rulemaking. Although the finalized ESA section 7 documentation will accompany the final rule and NEPA decision documentation, a summary of the initial section 7 analysis is reported here.

#### **ALTERNATIVE A – NO ACTION ALTERNATIVE**

All refuge hunting would continue with no changes in species or areas hunted. Deer hunting occurs from September through the end of January, with the most participation from October through early December, when eagles are not nesting. The refuge only has one known bald eagle nest; however, it does support a small group of foraging eagles during hunt season. To avoid flushing nest building or incubating adults, the road nearest the nest is closed from December 1 to July 1. Under this alternative, we anticipate a similar level of negligible impacts to these species.

Under the No Action Alternative, lead ammunition would still be permitted on refuge lands for deer hunting into the future, which would mean a continued and increasing risk to listed species and special status species from lead present in the environment over time. The Service continues to seriously consider the effects of the accumulation of lead in the environment on certain refuge lands from these activities over time. For example, the bald eagle may eat discarded gut piles from animals harvested with lead ammunition. Given that increasing the amount of lead introduced into the environment could lead to these effects over time, the Service concludes that the No Action

Alternative would ultimately present a potential risk to these natural resources in the long run with continued use of lead ammunition.

## ALTERNATIVE B – PROPOSED ACTION ALTERNATIVE

### Northern long-eared bat

Northern long-eared bats (NLEB) primarily use mines and caves in the winter to hibernate and use upland forests to forage and roost throughout the rest of the year. The species is most sensitive to disturbance during hibernation and when raising young, which are activities that are not known to occur on the refuge. There are no caves or mines found on refuge property, while the refuge does have forested areas.

Before the proposed non-lead ammunition requirement would take effect in 2026, the potential for impacts from lead to bats is discountable due to Northern long-eared bats' diet and foraging habits. Lead bullet fragments would have to break down in the soil in order to be taken up by plants near the area in which the fragments fall on or penetrate the soil surface. Typically, however, plants do not take heavy metals up until they have reached critical thresholds in the soil (Sharma and Dubey 2005). If lead is taken up by plants, it is mainly through the root system and partly, in minor amounts through the leaves. Inside the plants lead accumulates primarily in the root, but a part of it is translocated to the aerial portions. Larvae of certain herbivorous insect species could ingest some of the lead when they eat the exposed plants. Some of the insects could then be consumed by bats. Northern long-eared bats' diet is insects such as moths, flies, leafhoppers, caddisflies and beetles, only some of which are herbivorous. In addition, bats are transitory in nature and will not consume their entire diets on the refuge area. Considering the chain of events that are necessary for exposure and the small amount of lead that would contribute to lead concentrations in refuge soils, it seems likely that bats that occur on refuges will not consume lead derived from ammunition fired by deer hunters on the refuge. Therefore, any potential lead added to the environment during this interim time period, before the non-lead requirement takes effect on September 1 2026, is not likely to adversely affect this species. After the non-lead ammunition requirement takes effect in 2026, there may also be some beneficial impacts to the species because no new lead will enter the environment and the remaining lead ammunition will become less bioavailable over time, which will decrease the overall risk of adverse effects to this species. Therefore, proposed action to ultimately require non-lead ammunition is not likely to adversely affect this species.

### Monarch butterfly

Monarch butterflies migrate through the refuge, passing through Patuxent as late as November. There are several hundred acres of meadow/grassland habitat with host and nectar plants. Most nectar sources have senesced by the start of the fall hunting season.

Before the proposed non-lead requirement would take effect in 2026, we expect the effects from authorized lead use from ammunition in the interim to be discountable and insignificant due to the small amounts of lead that are expected to enter the environment and the specific circumstances that would need to occur for lead to have a measurable effect on the species. The potential for lead impacts to monarchs is discountable due to their diets. Adult monarch butterflies feed on nectar. Nectar typically carries less lead contaminants than other parts of the plant if lead is absorbed through the plant. Larvae consume the leaves and stems of milkweeds, where higher concentrations of lead could be present, if lead is absorbed through the plant. Lead absorption by



plants typically occurs first through roots and only makes its way into other plant parts if concentrations are high enough. This means that, as with bats, bioaccumulation through the plant to the monarch butterfly or larvae could potentially occur. However, as with bats, it relies on the very unlikely occurrence that lead concentrations in the soil from hunting activities reach high enough levels for uptake by plants, and in this case, it would further require uptake by milkweed and the specific plants that monarchs rely on for nectar sources. Therefore, any potential lead added to the environment during this interim time period, before the non-lead requirement takes effect on September 1 2026, is not likely to adversely affect this species.

After the non-lead requirement takes effect in 2026, there may also be some beneficial impacts to the species because no new lead will enter the environment and the remaining lead will become less bioavailable over time, which will decrease the overall risk of adverse effects to this species. Therefore, proposed action to ultimately require non-lead ammunition is not likely to adversely affect this species.

#### Yellow lance mussel

This species may be present in the Patuxent River or Little Patuxent River, but to date has not been observed. Other mussel species, however, do occur in abundance.

Specific to potential impacts from continued use of lead ammunition for deer hunting, during the interim period before the proposed non-lead requirement would take effect, there is a chance that lead could enter the water where mussels live. Typically, lead is not soluble in water unless the conditions are right, such as the body of water is more acidic than typical of freshwater. Even if the small amount of lead added to the refuge from hunting deer in the interim reaches the rivers, it is not likely to accumulate in the water column of the flowing rivers and affect filter feeders like mussels.

Before the proposed non-lead requirement would take effect in 2026, we expect the effects from authorized lead use from ammunition to be discountable and insignificant due to the small amounts of lead that are expected to enter the environment, and the specific circumstances that would need to occur for lead to have a measurable effect on the species (e.g., acidity and lead at high enough concentrations).

After the non-lead requirement takes effect in 2026, there may also be some beneficial impacts to the species because no new lead will enter the environment and the remaining lead will become less bioavailable over time, which will decrease the overall risk of adverse effects to this species. Therefore, proposed action to ultimately require non-lead ammunition is not likely to adversely affect this species.

#### Puritan tiger beetle

This species has not been known to occur on this refuge despite decades of searches in the most likely habitat, along Little Patuxent River. The puritan tiger beetle is found on or near earthen shoreline bluffs, typically with sparse to no vegetation and narrow, sandy beaches along the cliff bases. The refuge has one bluff area along the Little Patuxent River, composed of red clay along an inaccessible section of the river. The immature stages of crickets and tenebroid beetles are capable of uptaking lead into the exoskeleton from their prey items (e.g., other insects and crustaceans),

and it may also be possible for tiger beetles. However, hunting activities at Patuxent do not overlap in space with the possible habitat of Puritan tiger beetles, with hunters possibly atop the cliff and beetles on or below the cliff. Considering the chain of events that are necessary for exposure and the small amount of lead that would contribute to lead concentrations in refuge soils, it seems likely that beetles, if they were to occur on the refuge, would not consume lead derived from ammunition fired by deer hunters on the refuge.

After the non-lead requirement takes effect in 2026, there may also be some beneficial impacts to the species because no new lead will enter the environment and the remaining lead will become less bioavailable over time, which will decrease the overall risk of adverse effects to this species. Therefore, proposed action to ultimately require non-lead ammunition is not likely to adversely affect this species.

#### Swamp pink and sensitive joint vetch

There have been many botany forays throughout the refuge's 85-year history, and to date swamp pink and sensitive joint vetch have not been found. Swamp pink is found in perennially saturated, spring-fed, nutrient-poor, shrub swamps and forested wetlands, of which the refuge has many. Sensitive joint vetch inhabits the intertidal zone of fresh to slightly salty (brackish) tidal river segments. The refuge is far enough upstream of the Patuxent River that it experiences very little tidal impact, and its riparian zones within the refuge are heavily forested, making them too shady for this species. Swamp pink leaves lay on the ground through winter (often covered with leaf litter) with a rosette visible in the middle; that rosette blooms in March through May. Even if the plant species were to occur on the refuge, hunters do not generally walk through habitat where swamp pink could occur.

Sharma and Dubey (2005) found that excess lead in plants causes a variety of toxic symptoms including stunted growth, chlorosis, blackening of root systems, inhibited photosynthesis, disrupted mineral nutrition and water balance, and altered plant hormones. Rattner et al. (2008) found that migration of lead from soil to roots and other parts of plants generally is considered to be minimal (Sorvari et al. 2006). Studies have documented elevated lead levels in plants in the vicinity of shooting ranges (Peterson et al. 1993, Mellor and McCartney 1994, Rooney et al. 1999, Hui 2002), but as proposed in this plan, hunters will not be concentrated or reach the numbers expected at a shooting range. As previously explained, hunters would be dissipated throughout the refuge and are unlikely to be in the area where these species could be found. Also, the migration of lead from soil to roots and other parts of the plant is expected to be minimal.

Given that there are no known occurrences of swamp pink or sensitive joint vetch, any potential impacts from the small amount of lead ammunition used during the three year transition period would be considered discountable because they are extremely unlikely to occur.

After the non-lead requirement takes effect in 2026, there may also be some beneficial impacts to the species because no new lead will enter the environment and the remaining lead will become less bioavailable over time, which will decrease the overall risk of adverse effects to this species. Therefore, proposed action to ultimately require non-lead ammunition is not likely to adversely affect this species.

### All Species

The best available science indicates that lead ammunition may have negative impacts on wildlife and the environment (Golden et al. 2016; Hanley et al, 2022; Slabe et al, 2022). Animals can be poisoned by lead in a variety of ways, including ingestion of bullet fragments and shot pellets left in animal carcasses and spent ammunition left in the field (Haig et al. 2014). We would encourage the voluntary use of non-lead ammunition for hunting for the next 3 years, then require non-lead ammunition for all activities starting September 1, 2026 (after the 3-year transition period) under the proposed alternative. This transition period will ensure continuity of visitor opportunities as hunters understand the changes and become more familiar with the availability and use of non-lead alternatives.

The bioaccumulation of lead is a potential concern, but it does not likely present a significant issue on this refuge as: (1) non-lead shot is currently required for hunting all species except for deer; (2) the refuge strongly encourages use of non-lead alternatives for deer hunting for the next 3 years; (3) we would require the use of non-lead ammunition for all species beginning September 1, 2026; and (4) we will educate hunters and the public to the potential adverse impacts of lead.

## **HABITAT, VEGETATION AND SOILS**

### ***Description of Affected Resource***

About 10,000 acres of the total 12,841 acres are in forest of some type. Refuge forests contribute to one of the largest blocks of contiguous forested habitat in the Baltimore-Washington region of Maryland. Upland mixed deciduous and floodplain bottomlands are the dominant forest types. Dominant species include a variety of oaks, poplar, pines, red maple, American beech, cherry, hickories, sweetgum, river birch, sycamore, black gum, American elm, sweetbay magnolia, and American hornbeam. Other habitat types include grasslands/old fields, emergent freshwater marshes, shrub and early succession forest communities, and constructed impoundments. Plant species assembled from historical data and recent updates provides 985 total plant species including 554 herbs/forbs, 209 graminoids, 165 trees/shrubs, 65 sedges, and 39 vines (Harms 2019; Hotchkiss and Stewart 1979; Perry and Bond 2011).

While the use of lead in the Service's current hunting program does not affect the traditional quality or characteristics of wildlife habitats such as vegetation cover, the use of lead ammunition, can introduce small amounts of lead into the soils and aquatic environments on refuge lands causing relatively negligible negative effects given lead is a toxic pollutant. One likely scenario is from gut piles left behind from harvested game, or lead ammunition from a gunshot that misses its target or lead ammunition fragments that exits the target becomes lodged in the ground, introducing lead fragments into the soil. When this does occur, it could lead to metals and other components of the ammunition impacting the composition of soils. In the case of lead ammunition, loose lead fragments may enter the soil after impact, and if the amount of lead reaches high enough concentrations, these lead fragments, if small enough, could be taken up by plants. If taken up by plants, lead can adversely affect plant growth. The introduction of lead in this manner is highly localized and it is unlikely that lead introduced from the Service's hunting program would introduce sufficient lead to the soils of any area for plants to take it up. There is scientific evidence that lead in soil can adversely impact plants, including inhibiting their growth of roots and cell walls provided concentration of lead is in the correct form and high enough concentration for plant

absorption (Balsberg-Pahlsson 1989; Eisler 1998; Tomar et al. 2000). However, the toxicity of lead from soil absorption to seed germination is very small (Balsberg-Pahlsson 1989) and the migration of lead from soil to roots and other parts of plants generally is considered to be minimal (Sorvari et al. 2006; Rattner et al. 2008). Additionally, uptake of lead varies by plant species (Eisler 1998; Finster et al. 2004, U.S. Department of Health and Human Services 2007).

### ***Impacts on Affected Resource***

#### **ALTERNATIVE A – NO ACTION ALTERNATIVE**

The current management will not change the overall composition of the refuge vegetation and habitats. The largest impacts of current management on refuge vegetation and habitats are the control of the primary herbivore, deer, and the spread of invasive plants seeds sources by attachment to footwear, clothing, and tires. Hunters tend to park in improved lots and disperse across large areas in low density, resulting in minimal trampling of vegetation. Clearing or pruning of vegetation and use of screw-in steps or spikes for tree stands is prohibited. As currently implemented, very little damage to habitat and vegetation by hunters occur.

Although the amount of lead introduced, both annually and cumulatively to date, is unlikely to be enough in any particular area to negatively impact plants and habitats through soil contamination, under this alternative, there would be continued introduction of lead into the soils on refuge lands from deer hunting. In the long run, this increasing amount of lead could be taken up by plants, potentially causing direct negative impacts to vegetation and habitat on the refuge in areas with concentrated hunting activities. Although negative impacts from accumulated lead ammunition in soils remain a possibility in the future because continued use of lead ammunition would mean increasing lead levels over time, any potential impact is still likely a negligible impact to habitat and vegetation given the amount of lead annually introduced on the refuge from this activity.

#### **ALTERNATIVE B – PROPOSED ACTION ALTERNATIVE**

As discussed above, it is unlikely further introduction of lead into the soils on refuge lands that could be taken up by plants would occur once the non-lead ammunition requirement takes effect on September 1, 2026. Until the regulation takes effect, it is estimated the additional lead entering the environment from deer hunting will not reach a level that will negatively impact vegetation or habitat on the refuge. As current lead levels from hunting activities are likely not sufficient to negatively impact plants or their habitats over the long term, the proposed action would prevent future lead levels in the soil from becoming high enough to potentially negatively impact plants or habitat, reducing that future risk of impact or cumulative impacts even more.

### **VISITOR USE AND EXPERIENCE**

#### ***Description of Affected Resource***

PRR is open to all six of the priority public uses that are outlined in the Refuge System Improvement Act of 1997, which include hunting, fishing, wildlife photography, wildlife observation, environmental education, and interpretation. Based on the 2017 Banking on Nature Report, less than 1 percent of refuge visits were for hunting, 31 percent of refuge visits were for fishing, and 69 percent of refuge visits were for non-consumptive uses (USFWS 2017). Hunting is a traditional and popular outdoor activity that is permitted on portions of the refuge in accordance with State and Federal seasons and regulations. In 2020, 248,448 people visited the refuge and

5,826 of those visits were related to the refuge hunt program.

The refuge facilitates a variety of programs and walks, done by refuge staff, refuge volunteers, and Friends of Patuxent members. Activities include an Urban Refuge Day celebration, monthly bird walks, owl prowls, book walks, and others. Trails on the refuge also create opportunities for the public to enjoy and appreciate the refuge's abundant natural resources (USFWS 2007).

### ***Impacts on Affected Resource***

#### **ALTERNATIVE A – NO ACTION ALTERNATIVE**

Currently, refuge lands open to hunting generally follow Federal and State seasons and regulations, with some refuge-specific restrictions. Hunting, especially for species like waterfowl and deer, is a traditional activity during the fall in Maryland. As such, few conflicts among user groups have involved hunters or hunting on the refuge. The small number of hunter complaints or conflicts each year usually involve other hunters. Refuge visitors using trails (birdwatching, walking, photography) are the most affected by hunting activities. In order to address safety concerns of non-hunting visitors and trail users, the refuge staff has increased outreach and clearly posted trail signs and designated safety zones on the refuge. Additionally, the North Tract and South Tract trails are closed during the deer firearm season to reduce conflict between recreational users.

With the continued use of lead ammunition, there will be continued exposure to potential adverse risks to hunters' health by consuming game harvested with lead ammunition. Studies have found that wildlife hunted with lead ammunition and consumed by humans can increase exposure to potential risks to human health due to the accidental ingestion of lead fragments (Fisher et al. 2006; Tsuji et al. 2008; Iqbal et al. 2009; Hunt et al. 2009; Cornatzer et al. 2009; Kosnett 2009; Verbugge et al. 2009; Johnson et al. 2013; ATSDR 2020). A study done in North Dakota found that those who ate wild game had significantly higher levels of lead in their blood than those who did not (Iqbal et al. 2009).

Other users will likely not face risks associated with exposure to lead from lead ammunition on the refuge as the additional lead added is expected to stay under contaminated soil levels that would adversely impact human health. If continued, this could potentially negatively impact visitor health, although this impact is likely negligible.

#### **ALTERNATIVE B – PROPOSED ACTION ALTERNATIVE**

This alternative would not change any of the impacts to the non-hunting public. The opportunities for recreational hunting will continue to be available to hunters, and therefore meet the demand. Hunting on the refuge contributes to the State's wildlife management objectives, the management objectives of the refuge, and allows a traditional use to continue.

Under this alternative, it is estimated that there would be no substantial change to visitor uses and no change is expected to the experience of non-hunting refuge visitors from the non-lead requirement. Hunters would be required to use non-lead ammunition starting September 1, 2026, and although the activity of hunting would not change, hunters may have a harder time finding equipment that meets this new requirement, potentially reducing their quality of experience if they are not able to partake in the activity. However, quality of experience may increase over time as these resources become more available as demand for non-lead ammunition increases.

To minimize the impact on hunters, the transition approach over three years is proposed to allow deer hunters time to replace and find suitable ammunition alternatives. Hunters can purchase non-lead ammunition in most gun stores and sporting goods retailers. If the bullet size, caliber, or gauge is unavailable, most retail stores will special order ammunition or it can be ordered through the mail or online. If hunters are not able to find non-lead alternatives there may be a slight decrease in participation of these activities for a short time period after regulations take effect. However, non-lead ammunition is becoming more widely available for hunters to purchase so it is likely hunting visits will not appreciably decline due to this regulation change. The transition approach also allows hunters to acclimate and prepare for participating in hunting activities in compliance with the new regulations.

Long-term, this action could produce positive human health benefits for all visitors to the refuge with a decreased risk of exposure to lead ammunition discarded on refuge land and waters in the future. Thus, the proposed action will have a potentially positive effect, if any effect, on visitor health.

## **CULTURAL RESOURCES**

### ***Description of Affected Resource***

A total of 41 archaeological sites registered with the Maryland Historical Trust and Service are present within the refuge. Prehistoric archaeological resources date from the Early Archaic through Late Woodland periods. Native American archaeological resources dating to other time periods (e.g., Pre-Clovis, Paleo-Indian, Contact periods) may exist within the refuge. Historic sites include occupations dating from the 17th century to the 20th century (Richard Grubb and Associates 2011). The prehistoric archaeological resources within the refuge reflect over 9,000 years of occupation. A diversity of artifacts and sites has been documented. Most of the historic archaeological resources within the PRR are detailed in Pousson (1987) for the Central and South Tracts and within Joseph et al. (1991) for the North Tract.

Three National Register eligible historic districts are identified within the refuge:

- Duvall Mill Historic District, which includes resources significant to the history of Prince George's County and not associated with the development of the refuge.
- Patuxent Research Refuge Historic District, which includes resources significant to the development of the refuge.
- South Tract Forest Service Historic District, which includes resources significant to the development of the Forest Service research area within the Beltsville Agricultural Research Center.

Several cemeteries are located within the North Tract (Hileman 1988). A history of the Patuxent forks region notes that there were two cemeteries (possibly a family cemetery and a separate cemetery for enslaved people) on both the Anderson and Mullikan farms (Dulaney 1948). The North Tract includes 10 Fort Meade inholdings that are historic cemeteries. These have headstones

dating back to the 1700s, with some as recent as 1969 (Hileman 1988). They include graves and headstones of former landowners and their extended families. Four of the 10 cemeteries were part of the former Fort Meade lands transferred to the refuge in 1991 and 1992. These are the John Penn Cemetery and three others that are unknown or unmarked. The refuge performs minimal custodial work at the John Penn site.

The Service, as the lead Federal agency, has chosen to use the NEPA substitution process to fulfill obligations under the National Historic Preservation Act of 1966, as amended (NHPA). While obligations under NHPA and NEPA are independent, the regulations implementing NHPA allow for the use of NEPA review to substitute for various aspects of the NHPA section 106 (16 U.S.C. 470f) review to improve efficiency, promote transparency and accountability, and support a broadened discussion of potential effects that a project may have on the human environment (36 CFR 800.3 through 800.6). During preparation of the Supplemental EA, the Service will ensure that the NEPA substitution process will meet any NHPA obligations.

### ***Impacts on Affected Resource***

#### **ALTERNATIVE A – NO ACTION ALTERNATIVE**

No adverse impacts occur under this alternative. Hunting, regardless of method or target species, is a consumptive activity that does not pose any threat to prehistoric or historic properties on or near the refuge. No impacts to cultural resources are anticipated above what may be caused by any refuge visitor. Although hunters would be able to access parts of the refuges that are closed to other visitors, this access alone is not expected to increase vandalism or disturbance to cultural resources by individuals while they are hunting, nor is it likely that hunters would be more likely to engage in vandalism or disturbance than any other refuge visitor.

#### **ALTERNATIVE B – PROPOSED ACTION ALTERNATIVE**

No additional adverse impacts would occur under this alternative.

### **REFUGE MANAGEMENT AND OPERATIONS**

#### ***Description of Affected Resource***

There are 12 permanent full-time employee positions that oversee the refuge. At the North Tract, infrastructure includes a refuge Hunt Control Station, visitor contact station, impoundments, overlook observation area, environmental education (EE) building and two shop areas. The refuge also includes paved and gravel roads, trails, boardwalks, kiosks, interpretive signs, restrooms, and ample parking. The roads and trails support multiple uses by hikers, bikers, and horseback riders.

The Central Tract contains numerous buildings related to refuge administration, USGS offices and laboratories, 14 man-made impoundments managed for waterfowl, large pen complexes for environmental contaminant studies, residential buildings, and a 3-mile transmission power line right-of-way.

At the South Tract, infrastructure includes the National Wildlife Visitor Center, Cash Lake, a prominent seasonal fishing area, and a tram shop. This portion of the refuge also includes paved and gravel roads, trails, boardwalks, kiosks, interpretive signs, restrooms, and ample parking. In the fall of 2021, the refuge will be installing a new outdoor comfort station on the National

Wildlife Visitor Center grounds.

***Impacts on Affected Resource***

**ALTERNATIVE A – NO ACTION ALTERNATIVE**

Annual administrative costs for the refuge hunting program are shared between the Service and the MNHA. A large but necessary expense that falls upon the Service is staff time, especially that of law enforcement officers. During the hunting season, considerable staff time is spent on law enforcement activities, hiring and training hunt control station managers, maintaining or updating the hunter and harvest databases, and coordinating the lottery hunt. Other costs include staff time for annual planning and writing of the hunt regulations, preparing printed materials such as maps and hunt regulations, posting hunt area boundaries, prepping roads, preparing for parking and access, providing orientation, entering and analyzing harvest data, and coordination meetings.

Supplies such as Carsonite signs, posts, and laminate material for signage annually cost the refuge about \$2,500. Gravel road repairs and upkeep totals approximately \$20,000 per year, and printing hunting regulations costs MNHA about \$5,200 per year.

**Table 4. Funding and Staffing Requirements**

<b>Identifier</b>	<b>Cost</b>
Hunt Program Staff	\$12,000
Maintain roads, parking lots, trails*	\$20,000
Maintain hunting signs	\$2,500
<b>Total Annual Cost</b>	<b>\$34,500</b>

*\*Refuge trails and roads are maintained for a variety of activities. Costs shown are a percentage of total costs for trail/road maintenance on the refuge and are reflective of the percentage of trail/road use for hunting. Volunteers account for some maintenance hours and help to reduce overall costs of the program.*

The refuge and facility management staff coordinate the budget each year to ensure funds are available. Hunters use refuge infrastructure, such as parking areas and refuge trails, to gain access to refuge lands. There would be no new adverse impacts to refuge facilities or staff time observed under this alternative.

**ALTERNATIVE B – PROPOSED ACTION ALTERNATIVE**

Annual administrative costs for the refuge hunting program will not be adversely impacted by this proposed action. The proposed non-lead ammunition requirement will not impact infrastructure or facilities. For the proposed action, hunters would continue to use existing refuge infrastructure (parking areas, trails, roadways, etc.) to access hunting areas. Education and outreach related to the transition to non-lead would increase, along with additional law enforcement to ensure compliance with new non-lead requirements.

**SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE**

***Description of Affected Resource***

The refuge is located in Anne Arundel and Prince George’s Counties in Maryland. As of May 1, 2021, the populations of Anne Arundel and Prince George’s Counties are estimated at 586,656 and 911,986. There was a 5.62 percent change in population from 2010 to 2021 for Prince George’s



County. This increase can still be attributed to the county's close proximity to the Washington, DC and Baltimore, Maryland metro areas. The two counties' combined population has been steadily growing since 1940 (Vanasse Hangen Brustlin, Inc. 2010). Prince George's is the second most populous county in Maryland and Anne Arundel County is the sixth largest (USCB 2020; USFWS 2021).

As of April 2021, the median household income in Anne Arundel County is \$94,502. The ACS 1-year data shows the median family income for Prince George's County was \$100,654 in 2019. Compared to the median Maryland family income, Prince George's County median family income is \$5,025 lower. In South Laurel 4.75 percent of families are below poverty level, in Laurel 5.8 percent of families are below poverty level, and in Bowie 1.4 percent of families are below the poverty level (USCB 2020; USFWS 2021).

The populations surrounding the refuge are overwhelmingly made up of minorities, from 86.22 percent in South Laurel, MD to 78.77 percent in Laurel, MD, and 68.91 percent in Bowie, Maryland (which are the three cities in closest proximity to the refuge).

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all Federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities.

### ***Impacts on Affected Resource***

#### **ALTERNATIVE A – NO ACTION ALTERNATIVE**

Population growth will continue to place stress upon the ecosystems of Maryland and the Patuxent River Watershed, both through direct loss of remaining habitats and indirect loss through fragmentation and degradation of the region's remaining parcels of wildlife habitat and demands on water. Management can do nothing to stem this trend, but refuges and other tracts of habitats will become even more important as repositories of biodiversity.

There is a possibility of human health impacts from the current hunting program allowing and continuing to allow the use of certain types of lead ammunition for the harvest of deer. However, minority and/or low-income communities are not disproportionately at risk or impacted. The Service has found these impacts minor for all opportunities in the current hunting program.

#### **ALTERNATIVE B – PROPOSED ACTION ALTERNATIVE**

The Proposed Action Alternative would have a positive, but negligible, effect on human health. It would reduce the risk of potential exposure to increased blood lead levels for deer hunters engaged in the activity on the refuge through reduced incidental consumption or handling of lead (Frank et al. 2019, Fisher et al. 2006, Tsuji et al. 2008, Iqbal et al. 2009, Grade et al. 2019, Sahmel et al. 2015). Under this alternative, where use of lead ammunition will be banned after 3 years, deer hunters will experience decreased exposure and risk of elevated blood lead levels due to incidental consumption or handling of lead ammunition from the activity. The Service has found these impacts negligible for all opportunities in the current hunting program.

There is, however, some possibility of negative economic impacts for socioeconomically disadvantaged hunters who must comply with the requirements. For some calibers and gauges the difference between cheaper lead ammunition and nonlead ammunition can be less than \$10 per box (State of California, 2022). Even though non-lead ammunition can cost the same, or up to 30 percent more expensive, as lead, the cost of several boxes per year is minor compared to the other expenses involved such as firearm cost. Deer hunting also requires less ammunition than small game. The minor economic burden involved in transitioning between ammunition types could be more impactful to low-income hunters.

To prevent negative impacts of this switch, the refuge will continue specific outreach about the requirement to hunters, and has put in place measures to mitigate the economic input beyond the non-lead requirement, which already affords hunters time to gradually transition their supplies of ammunition. The Service provide links to resources on companies that produce non-lead ammunition for purchase, and work with partner organizations on non-lead ammunition issues. With these mitigation measures, underrepresented and/or low-income communities are not disproportionately impacted from this alternative.

While the populations surrounding the refuge are overwhelmingly made up of minorities, we expect no disproportionate effects or impacts to these communities from this proposed action or any of the alternatives. The refuge will reach out to underserved communities to generate awareness of hunting opportunities and to engage these communities through the proposed action.

### **Monitoring**

Many game species populations are monitored by MDDNR through field surveys and game harvest reports, which provide an additional means for monitoring populations. Refuge hunters will be required to check in and submit harvest reports before leaving hunt areas. The State has determined that populations of game species are at levels acceptable to support hunting and these assessments are reviewed and adjusted periodically.

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

The refuge will be adaptive towards harvest management under the hunt program to ensure species and habitat health. Refuge-specific hunting regulations may be altered to achieve species-specific harvest objectives in the future.

### **Summary of Analysis**

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

#### ALTERNATIVE A – NO ACTION ALTERNATIVE

There would be no additional costs to the refuge and no change to the 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.

Effects on wildlife and habitat would likely not be significant in the short term, although there may be some potential negative effects under this alternative due to lead being present and bioavailable for wildlife and aquatic species to ingest, and could have negative impacts if lead accumulates to high levels over time. Given that increasing the amount of lead in the environment could lead to negative effects over time, this alternative could ultimately have some negative impacts on certain endangered, threatened, and special status species over time with continued use of lead ammunition. The refuge would still be able to manage for species of concern and meet the refuge purpose to manage for migratory birds. Water quality and soil impacts are likely negligible from continued use of lead ammunition, as the addition of lead from these activities in a given hunting season are small. There will be no impacts to special designations of the refuge. There would be no effect to cultural resources and impacts to the socioeconomics of the area are negligible.

While this alternative provides wildlife-dependent recreation opportunities on the refuge, in line with the Service’s priorities and mandates, it does not meet the purpose and needs of the Service as described above because it would allow for continued lead use in hunting activities, which would continue to pose a threat to human health and the environment. Nevertheless, we are analyzing it as the No Action Alternative as it is the baseline needed to evaluate the proposed action. The nature of discarded lead means that continuing to allow the use of lead ammunition on Service lands and waters would mean adding newly deposited lead to the current amount of lead already in the environment on Service lands and waters. This would mean the risk of adverse impacts from lead available in the environment would continue and even increase for natural resources and for human health under the No Action Alternative, as described throughout this document. If the current hunting program were to continue under the No Action Alternative, the Service would have to reevaluate the hunting opportunities expanded in the 2022 Rule that permitted the use of lead ammunition, since these expansions were previously analyzed and adopted with the expectation of implementing the planned non-lead ammunition requirement beginning September 1, 2026.

**ALTERNATIVE B – 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 NWRSA and Secretarial Order 3356. The proposed requirement to use non-lead ammunition beginning September 1, 2026, will have a positive impact in reducing the potential for lead to affect wildlife health and preventing accumulation of lead at higher levels beyond 2026.

Economic impacts to hunters due to proposed required use of non-lead ammunition will be mitigated by a transition approach and outreach programs. This alternative best meets the purpose and need stated earlier.

**List of Sources, Agencies and Persons Consulted**

Karina Stonesifer	Associate Director, Game Management
Bill Harvey	Game Bird Project Leader
Harry Spiker	Game Mammal Project
Brian Eyler	Deer Project Leader

Josh Tabora	Furbearer Biologist
Jonathan McKnight	Associate Director, Natural Heritage Program
Nick Sagwitz	Southern Region Manager
Chris Markin	R3 Coordinator
Amy Wood	Cultural Resources
Tim Binzen	Tribal Liaison

**List of Preparers**

Jennifer Greiner, Refuge Manager, Patuxent Research Refuge  
 Sandy Spencer, Wildlife Biologist, Patuxent Research Refuge  
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 Laura Howard, Former Visitor Services Assistant, Regional Office  
 Wilson Darbin, Former Visitor Services Assistant, Regional Office  
 Stacey Lowe, Acting Refuge Supervisor – South Zone, Regional Office  
 Tom Bonetti, Hunting and Fishing Coordinator, Regional Office  
 Laura Kelly, Former Intern, Regional Office (Covered Graphics)  
 John Saluke, Former Visitor Services Assistant, Regional Office  
 George Molnar, Contaminants Biologist, Great Swamp NWR

**State Coordination**

National wildlife refuges, including PRR, conduct hunting programs within the framework of State and Federal regulations. The refuge has developed this hunting plan based upon formal coordination with the MDDNR (meeting held July 28, 2021) and with input from the MNHA as well as intervening informal discussions.

Refuge staff will continue to annually consult and coordinate with MDDNR and Chesapeake Marshlands NWR Complex to maintain consistent regulations and programs, monitor populations of hunt species, and set harvest goals. We will work to ensure safe and enjoyable recreational hunting opportunities by working together with law enforcement officers from both agencies to conduct patrols, safeguard hunters and visitors, and protect both game and nongame species.

**Tribal Consultation**

The refuge does not have any federally recognized resident Tribal Nations or federally recognized interested Tribal Nations to notify of our intent to expand the hunting program.

**Public Outreach**

The public will be notified of the availability of the Patuxent Research Refuge Hunting Plan, EA and Compatibility Determination for review and will include no less than a 60-day comment period. We will inform the public through local venues, the refuge website, and social media. Comments received from the public will be considered, and modifications may be incorporated into the final plan and decision documents.

**Determination**

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

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

Preparer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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

## References

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## **OTHER APPLICABLE STATUTES, EXECUTIVE ORDERS AND REGULATIONS**

### **CULTURAL RESOURCES**

- American Indian Religious Freedom Act, as amended, 42 U.S.C. 1996 - 1996a; 43 CFR Part 7.
- Antiquities Act of 1906, 16 U.S.C. 431-433; 43 CFR Part 3.
- Archaeological Resources Protection Act of 1979, 16 U.S.C. 470aa-470mm; 18 CFR Part 1312; 32 CFR Part 229; 36 CFR Part 296; 43 CFR Part 7.
- National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470-470x-6; 36 CFR Parts 60, 63, 78, 79, 800, 801, and 810.
- Paleontological Resources Protection Act, 16 U.S.C. 470aaa-470aaa-11.

- Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001-3013; 43 CFR Part 10.
- Executive Order 11593 – Protection and Enhancement of the Cultural Environment, 36 Fed. Reg. 8921 (1971).
- Executive Order 13007 – Indian Sacred Sites, 61 Fed. Reg. 26771 (1996).

#### **FISH AND WILDLIFE**

- Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. 668-668c, 50 CFR 22.
- Endangered Species Act of 1973, as amended, 16 U.S.C. 1531-1544; 36 CFR Part 13; 50 CFR Parts 10, 17, 23, 81, 217, 222, 225, 402, 450.
- Fish and Wildlife Act of 1956, 16 U.S.C. 742a-m.
- Lacey Act, as amended, 16 U.S.C. 3371 et seq.; 15 CFR Parts 10, 11, 12, 14, 300, and 904.
- Migratory Bird Treaty Act, as amended, 16 U.S.C. 703-712; 50 CFR Parts 10, 12, 20, 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.
- Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq.

## COMPATIBILITY DETERMINATION

### Refuge Use Category

Hunting

### Refuge Use Type(s)

Public hunting of big game (white-tailed deer and wild turkey), upland game (gray squirrel, woodchuck, and eastern cottontail rabbit), and migratory game birds (mourning dove, ducks, sea ducks, light geese, and dark geese).

### Refuge

Patuxent Research Refuge

### Refuge Purpose(s) and Establishing and Acquisition Authority

“...as a wildlife experiment and research refuge” – Executive Order 7514, dated December 16, 1936.

“...recreation, conservation, wildlife preservation, and related scientific and educational activities” – Executive Order 11724, dated June 27, 1973.

“...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” – 16 U.S.C. 715d, dated February 18, 1929 (Migratory Bird Conservation Act).

“...to conserve fish, wildlife and plants, including those which are listed as endangered species or threatened species” – 16 U.S.C. 1534, dated December 28, 1973 (Endangered Species Act).

“...particular value in carrying out the national migratory bird management program.” – 16 U.S.C. 667b, dated May 19, 1948 (An Act Authorizing the Transfer of Certain Real Property for Wildlife, or other purposes).

“...the Secretary of the Interior shall administer the property transferred pursuant to subsection (a) consistent with wildlife conservation purposes and shall provide for the continued use of the property by Federal agencies to the extent such agencies are using it on the date of the enactment of this Act.” – Public Law 101-519 Sec. 216, 104 Stat. 2247, dated November 5, 1990 (Defense Appropriation Act – including transfer of the North Tract from Fort Meade).

### National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System, otherwise known as the Refuge System, is to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111



Stat. 1252).

### Description of Use

The use is public hunting of big game (white-tailed deer and wild turkey), upland game (gray squirrel, woodchuck, and eastern cottontail rabbit), and migratory game birds (mourning dove, ducks, sea ducks, light geese, and dark geese) at Patuxent Research Refuge (PRR, refuge). Hunting is identified as one of six priority public uses of the Refuge System by the National Wildlife Refuge System Administration Act (NWRSA) of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57), when found to be compatible.

### Is this an existing use?

Yes. This compatibility determination reviews and replaces the 2013 compatibility determination (CD) for hunting.

### What is the use?

The use is hunting. It is a priority public use of the Refuge System under the NWRSA of 1966 (16 U.S.C. 668dd-668ee) and the Refuge System Improvement Act of 1997 (Public Law 105-57).

### Is the use a priority public use?

Yes

### Where would the use be conducted?

The use would be conducted in designated management units of the refuge. Hunting will be conducted on approximately 11,083 acres divided into three tracts with multiple hunting units/zones within each tract.

North Tract consists of 7,954 acres open for hunting from September to May in accordance with Maryland Division of Natural Resources (MDDNR) regulations. The North Tract is made up of 20 hunting areas.

Central Tract, partially separated from the North Tract by Patuxent River to its north and from South Tract by Route 197 to its south, is largely fenced in and consists of three separate hunt areas totaling 1,793 acres. The Central Tract Lottery Hunt Area provides approximately 1,048 acres of deer habitat, but hunters are required to use stands at 33 designated points because of all the offices, residences, and U.S. Geological Surveys (USGS) operations facilities (excluded from hunt acreage) on this Tract. Central Tract's Schafer Farm Hunt Area (467 acres) is available for hunting from September to May in accordance with MDDNR regulations. Central Tract's M to R area (278 acres) is available for turkey hunting in April and May and deer hunting via lottery in November and December.

South Tract consists of four areas available for hunting from September to May in accordance with

MDDNR. Areas A, B, C, and D total 1,336 acres. One of the mentored hunts will be held in December on the South Tract Area D (Loblolly Area) for deer. See Figures B-1 to B-6 in the Hunting Plan for maps of the hunt units and zones.

When would the use be conducted?

Public hunting is conducted in accordance with the State of Maryland's big game, upland game, and migratory game bird hunting seasons and in accordance with Federal and refuge-specific regulations (50 CFR 32.39). Hunting generally occurs from September 1 through February 5, except for spring turkey season. The spring turkey season is in April and May.

Hunting is conducted in accordance with state regulations and legal shooting times during daylight hours. Public hunting access is from 5:00 AM to 1 hour after sunset, Monday through Saturday. Hunting is not allowed on Sundays or Federal holidays.

How would the use be conducted?

Public hunting is conducted in accordance with State and Federal regulations. The hunt program is operated through partnership with the MNHA, a cooperating association. The refuge manager may, upon review of the hunting program, impose further restrictions on hunting activity, open or close certain seasons or areas or amend the conduct of the hunt if hunting becomes inconsistent with other higher priority refuge programs or endangers refuge resources or public safety.

After purchasing a hunting permit from MNHA, hunters check in at the Hunting Control Station (HCS) on the North Tract and select an open zone for hunting. All harvested animals are checked through HCS, and biological data is recorded. All hunters must check out through HCS when they are finished hunting for the day.

A lottery-style spring turkey hunt will be held mid-April through May. Two special out-of-season deer shotgun and archery harvest authorizations are obtained from the Maryland DNR annually for controlled hunts on the Central Tract that take place in November and December to maintain deer populations at or below carrying capacity and to protect habitat and wildlife health. In collaboration with multiple partners, the refuge will host mentored hunts where possible. Mentored hunts will target providing opportunities for underrepresented groups of hunters (women, minorities, veterans, youth, and disabled hunters) with a goal of contributing to recruitment, retention, and reactivation of hunters (State of MD R3 efforts).

More information on mentored hunts being offered each year will be made available on the refuge website, at the refuge Visitor Center, at the North Tract Hunter Control Station, and at the Visitor Contact Station.

The use of non-lead ammunition for deer hunting will initially be voluntary and will be required after a 3-year transition period beginning September 1, 2026. This transition period will allow hunters time to adapt to the new regulations without diminishing hunting opportunities on the refuge. The refuge staff will provide information to assist in this transition that benefits wildlife.

The hunting program will be reviewed annually or as needed, in consultation with MDDNR, to assess its effectiveness and ensure wildlife populations and habitat quality are managed appropriately. In addition, refuge-specific regulations listed under “Stipulations Necessary to Ensure Compatibility” will apply.

**North Tract:** Some hunting areas may be closed due to active firing ranges on the refuge. Big game (white-tailed deer and wild turkey), upland game (rabbit, woodchuck, gray squirrel), and migratory game bird (mourning dove and waterfowl, including ducks, sea ducks, light geese, and dark geese like Canada goose) hunting will be permitted during their respective State seasons, except in areas closed to hunting, or when the refuge hunt season has ended.

Shotgun, muzzleloader, archery, and primitive seasons are allowed for deer hunting. Upland game (gray squirrel, woodchuck, and eastern cottontail rabbit), migratory game bird (mourning dove, ducks, sea ducks, light geese, and dark geese), and wild turkey seasons will be permitted during their respective seasons, except in areas where no hunting is outlined, or refuge hunt season has ended. Open meadow, river, water impoundments, and hunting blinds are available for waterfowl hunters during the respective waterfowl seasons.

**Central Tract:** Deer hunting occurs in the refuge headquarters area and M through R areas. These hunts occur by lottery in November and December, and are for shotgun and archery only during special, controlled harvest dates. Use of designated tree stand sites is mandatory for the refuge headquarters area lottery hunts.

On Schafer Farm shotgun, muzzleloader, archery, and primitive seasons are allowed for deer hunting. Upland game (gray squirrel, woodchuck, and Eastern cottontail rabbit), migratory game bird (mourning dove), and wild turkey seasons will be permitted on Schafer Farm during their respective seasons except in areas where no hunting is outlined, or refuge hunt season has ended.

**South Tract:** Shotgun, muzzleloader, archery, and primitive seasons are allowed for deer hunting. Upland game (gray squirrel, woodchuck and, eastern cottontail rabbit), migratory game bird (mourning dove, ducks, sea ducks, light geese, and dark geese like Canada goose), and wild turkey seasons will be permitted during their respective seasons, except in areas where no hunting is outlined, or refuge hunt season has ended.

The Service will make a reasonable effort to allow hunters access to all portions of the refuge. The intention is to provide safe, quality hunting opportunities that consider the welfare of the refuge wildlife resources. Access points are delineated on the annual refuge hunt maps available at check in.

#### Why is the use being proposed or reevaluated?

This use is a priority public use and being reevaluated to meet the 15-year mandatory requirement for reevaluation. Hunting is a healthy, traditional recreational use of renewable natural resources deeply rooted in America’s heritage and can be an important wildlife management tool. Public hunting on the refuge accommodates one of the priority public uses of the Refuge System. Hunting is used to assist in managing wildlife populations for the protection of wildlife habitat and health

and, in some instances, to protect habitat for research. Hunting is critical to regulating and maintaining populations of deer at the carrying capacity of the habitat, thus reducing excessive damage to vegetation caused by over-browsing, maintaining understory habitat for other species, and maintaining habitat integrity for current and future wildlife related research.

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

Availability of Resources

Public hunting occurs over a 7-month period and requires considerable staff time. Annual administrative costs for the refuge hunting program are shared between the Service and MNHA. During the hunting season, staff time is spent on the annual planning and writing of the hunt regulations, preparing printed materials such as maps and hunt regulations, posting hunt area boundaries, prepping roads, preparing for parking and access, providing orientation, entering and analyzing harvest data, coordination meetings with range partners, law enforcement activities, hiring and training hunt control station managers, maintaining or updating the hunter and harvest databases, and coordinating the lottery hunts. Expenditures on hunt-related activities in 2020-2021 season were approximately \$22,500. Supplies such as Carsonite signs, posts, and laminate material for signage cost the refuge about \$2,500 annually. Gravel hunt road repairs and upkeep cost approximately \$20,000 per year. The refuge is fortunate to have volunteers from MNHA to assist with hunt check station duties on hunt days, maintain the hunt check station and related outbuildings and premises, sell the permits, assist with publications or advertising, oversee hunter qualifications, and many other services all of which amount to a considerable cost savings to the refuge.

**Table A-1.** Funding and Staffing Requirements

<b>Identifier</b>	<b>Cost</b>
Staff time to implement hunt program (Maintenance Workers, Biologist, Park Rangers, and Refuge Managers)	\$12,000
Maintain roads, parking lots, trails*	\$20,000
Maintain hunting signs	\$2,500
<b>Total Annual Cost</b>	<b>\$34,500</b>

*\*Refuge trails and roads are maintained for a variety of activities. Costs shown are a percentage of total costs for trail/road maintenance on the refuge and are reflective of the percentage of trail/road use for hunting. Volunteers account for some maintenance hours and help to reduce overall costs of the program.*

The fees charged for hunting permits and memberships help fund administrative costs for the services MNHA provides to the hunt program, such as payroll for three hunt control station managers, employment insurance, waste management, Hunters for the Hungry carcass processing, utilities for the check station and grounds, and communications by web and mail. The fees were

increased in September 2017 – hunt permits cost \$70 for adults, \$35 for youth and seniors.

### Anticipated Impacts of the Use

Potential impacts of a proposed use on the refuge's purpose(s) and the Refuge System mission

Impacts of hunting to refuge resources, whether adverse or beneficial, are those that are reasonably foreseeable and have a reasonably close causal relationship to the use. This CD includes the written analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible and therefore considered an “affected resource.” The following are anticipated impacts for hunting on PRR. This section predicts foreseeable impacts of implementing the hunting program on refuge resources. When detailed information may be deficient or unavailable, we base our evaluation on professional judgment and experience. We usually identify potential impacts within a long-range timeframe (i.e., 15 years) and beyond that timeframe, they become more speculative. The overall impacts of this use are fully reviewed and discussed in the Patuxent Research Refuge Hunting Plan (Appendix B - Environmental Assessment).

#### Short-term impacts

Potential 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 (Bell and Austin 1985; Cole 1990; Cole and Knight 1990). 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 more wary, staying closer to cover, and shifting feeding times (like 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 (Bartelt 1987; Madsen 1985; Owen 1973; Raveling 1979; White-Robinson 1982).

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 (Burger 1981; Kahl 1991; Kaiser and Fritzell 1984; Klein 1993; Korschen et al. 1985; Owen 1973; Whittaker and Knight 1998), the use of suboptimal habitat (Erwin 1980; Williams and Forbes 1980), altered behavior or habituation to human disturbance (Burger 1981; Havera et al. 1992; Klein 1993; Korschen et al. 1985; Morton et al. 1989; Ward and Stehn 1989; Whittaker and Knight 1998), attraction (Whittaker and Knight 1998), and an increase in energy expenditure (Belanger and Bedard 1990; Morton et al. 1989). The amount of disturbance tends to increase with decreased distance between visitors and birds (Burger 1986).

#### **White-tailed Deer**

White-tailed deer is the most intensely hunted of all game species offered at the refuge, and likely will remain so. For PRR to meet the State's preferred density, the deer population would need to

be limited to about 374 deer for the refuge's suitable deer habitat of 11,981 acres (18.72 square miles). Based on harvest data from 2009 to 2016, the deer population ranged from 278 to 794, and density ranged from 22.1 to 63.2. There could be temporary, localized population reductions for white-tailed deer. We estimate that with 5,000 to 6,000 hunt visits, an average annual harvest of more than 200 deer is expected.

As non-lead requirements for ammunition take full effect after September 1, 2026, lethal and sublethal impacts to huntable wildlife species from discarded lead in the environment and the potential for exposure to lead that may result in adverse human health impacts decreases substantially and becomes negligible. Lead that could enter the environment from proposed hunting activities would include fragments from ammunition that has left the body of harvested animals or left behind in discarded gut piles in the field. Given the estimated numbers of hunters and amount of take estimated using lead ammunition, the lead that would enter the environment is likely very small.

Lead from previous hunting activities will still be present in the environment and may impact wild species; however, the impact is likely negligible given the likely low amount of lead currently present and availability in the environment from hunting activities and minor adverse risk of bioaccumulation. The transition to non-lead ammunition is not expected to impact harvest of big game species.

### **Wild Turkey**

The MDDNR conducts an annual observation survey during the months of July and August of wild turkey reproductive success (Long 2017). Overall, estimated production has declined in the past 2 years with a reproductive index of 1.9 poults per hen in 2020 compared to 2.8 in 2019, and 2.7 on average over the last 15 years. The harvest rate of wild turkey on the refuge over the past decade has been low, ranging from a total of 20 harvested in 2021 and the lowest in 2008 of 4 turkeys. With a restriction on the number of turkey hunt dates offered, a lower hunter density, and a reduced bag limit of 1 turkey per year, we anticipate that the refuge turkey population will not be negatively impacted and should remain viable and resilient for the foreseeable future.

### **Upland and Small Game**

Squirrel harvests over the past 20 years since 2000 ranged from 196 in 2001 to a low 14 in 2006. However, 14 out of 20 harvests during the period remained above 60. While no formal surveys have been conducted to assess current Eastern gray squirrel population abundance on refuge lands, we assume that, given the supportive habitat and their reproductive potential, expected hunting pressure is insufficient to have a significant adverse impact on the population.

Rabbit hunting has not received high participation on the refuge in the past due to scattered habitat and a prior refuge regulation that did not allow for the use of dogs while hunting. In most years, fewer than 10 rabbits were harvested each year. We anticipate a slight increase in rabbit hunting and harvest with allowing the use of dogs for this activity. Woodchuck hunting has received very little or no participation since it was opened. We anticipate fewer than 10 harvested each year, and this will likely result in a negligible impact on the local populations. The refuge is primarily forested, and most rabbits and woodchuck occur on the Central Tract where hunting is more restricted due to office complexes, residences, and USGS captive species research pens. This will

limit the overall harvest of these species due to where they are found on the refuge.

### **Migratory Game Birds**

Waterfowl on the refuge are present in numbers sufficient to allow hunting while not compromising other refuge objectives. Waterfowl hunts have been conducted on the North Tract since prior to transfer to the Service in 1991-1992. The PRR hunt season for waterfowl opens in alignment with the State's season and closes after the second State special hunt waterfowl day (usually the first weekend in February). Migratory game bird hunting is suspended on the refuge during the firearms season and early deer muzzleloader season except in a few locations. The refuge adheres to State and Federal regulations with respect to daily bag limits.

The number of individuals harvested on the refuge, though additive to local, regional, and Atlantic Flyway harvest, is negligible to their populations. As migratory game bird species populations continue to be monitored, future harvests will be adjusted as needed under the existing processes. Canada goose is the most numerous waterfowl species harvested on the refuge, followed by wood duck and mallard partly due to establishing and growing resident populations. The number of geese harvested in each year is too low relative to the average population on the refuge or in the State to have a significant impact. Other waterfowl species harvested on the refuge but often in very small numbers annually (some less than 1 bird) include hooded merganser, American black duck, American green-winged teal, bufflehead, ring-necked duck, ruddy duck, lesser scaup, Atlantic brant, gadwall, Northern shoveler, and redhead.

Canada geese, mallard, wood duck, and mourning dove harvests are expected to slightly increase with the addition of allowing the use of dogs and expansion of hunting areas (i.e., South Tract and Schafer Farm).

### **Non-target Species**

Non-target wildlife includes any forest-dependent species of the Mid-Atlantic portion of the Eastern biome. PRR provides habitat for at least 38 mammal species, 55 amphibians and reptiles, 25 orders of insects, 248 bird species, and 55 species of fish. A comprehensive list of species known to occur at PRR can be obtained from the refuge's 2013 Comprehensive Conservation Plan (CCP).

Impacts expected to result from fall and winter hunting on the refuge include trampling of vegetation, flushing of wildlife, spread of invasives via clothing, footwear, and tires, and road mortality from vehicles on back roads. In general, the presence of humans will disturb most animals, which typically results in short-term adverse impacts without long-term effects on individuals and populations. Because of the low density and dispersed nature of people hunting on the refuges, chronic adverse impacts on wildlife populations from hunting-related disturbances would be negligible in most instances.

Flushing of Eastern red bats roosting in leaf litter during winter may occur, especially where dogs are permitted for hunting. Trampling of vegetation or flushing breeding birds may be moderately higher risk during the spring turkey season (April to May). The refuge has an extensive road system maintained primarily for hunting. Although vehicles are only allowed on paved or gravel roads and no off-road vehicles are allowed, there remains risk to wildlife crossing roads in late

spring or early fall during hunting or scouting, and extensive graveling, paving, or daylighting of roads may cause isolation of populations of environmentally sensitive amphibians such as salamanders that cannot cross such substrates.

As discussed above for big game, lead from previous hunting activities will still be present in the environment and may impact non-target species, though the impact is likely negligible given the likely low amount of lead currently present and availability in the environment from hunting activities and minor adverse risk of bioaccumulation. Lead ammunition can be used on the refuge for hunting as detailed in the Hunting Plan. The best available science indicates that lead ammunition may have negative impacts on wildlife and the environment (Golden et al. 2016; Hanley et al, 2022; Slabe et al, 2022). To move towards reduction and future elimination of this threat on the refuge, we will be eliminating the use of lead ammunition over a 3-year period to educate and work with deer hunters on the use of non-lead alternatives. A transition to non-lead ammunition for all hunting will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to bald and golden eagles, as well as other scavenging species. Eagles and other scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition. Recent modeling has even indicated that lead poisoning suppresses population growth in eagles (Slabe et al. 2022). It is unlikely that the amount of lead entering the environment from hunting activities would cause additional direct mortality of wildlife and non-target species.

The best available science indicates that lead ammunition may have negative impacts on wildlife and the environment (Golden et al. 2016; Hanley et al, 2022; Slabe et al, 2022). To move towards reduction and future elimination of this threat on the refuge, we will be eliminating the use of lead ammunition after a 3-year period to educate and work with hunters on the use of non-lead alternatives. The transition to lead-free ammunition for all hunting will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to bald and golden eagles, as well as other scavenging species. Eagles and other scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition.

### **Habitat and Vegetation**

About 10,000 acres of the total 12,841 acres are forested. Refuge forests contribute to one of the largest blocks of contiguous forested habitat in the Baltimore-Washington region of Maryland. Other habitat types include grasslands/old fields, emergent freshwater marshes, shrub and early succession forest communities, and constructed impoundments. Plant species assembled from historical data and recent updates provides 985 total plant species including 554 herbs/forbs, 209 graminoids, 165 trees/shrubs, 65 sedges, and 39 vines (Harms 2019; Hotchkiss and Stewart 1979; Perry and Bond 2011).

Negative impacts of recreational hunting could include the temporary trampling of vegetation and light soil erosion. Most hunting activities occur during the fall and winter, when plants become dormant, and the ground is often frozen and/or covered in snow. Hunters would have minimal impacts on plants during this period. Additionally, hunter use during all seasons will be dispersed throughout the refuge, minimizing the impact to any one area.

Controlling the deer population is a strategy that directly supports the goals and objectives for



floodplain and upland forest habitats in the refuge CCP (USFWS 2013a).

### **Threatened and Endangered Species**

The refuge provides habitat for forest-dependent threatened or endangered species such as the Northern long-eared bat (*Myotis septentrionalis*, federally threatened). The Patuxent and Little Patuxent Rivers which flow through the refuge support at least three mussel species and may support the federally threatened yellow lance (*Elliptio lanceolata*), which requires healthy and intact floodplain forest for stream and river water quality.

The NLEB may occur in some hunting zones but are not likely to experience any disturbance even if bats and hunters may briefly overlap in time and space. This species is not known to winter in this region; it is only present in spring and summer (April to September). The only overlap with hunting that may occur is with the May turkey hunting and/or September bow season. With a restriction on the number of turkey hunt dates offered, a lower hunter density, and a reduced bag limit of 1 turkey per year, we anticipate that turkey hunting will occur in locations that are very unlikely to overlap with the presence of bats, and any potential disturbance effects from turkey hunting are extremely unlikely to occur and are therefore considered discountable.

Bats are typically nocturnal and inactive during most hunting seasons and times, and not present for most of the hunting seasons; therefore, disturbance would be highly unlikely. The species roosts in spring and summer in exfoliating bark of snags, downed logs, or dense leaf clumps in trees. During the fall hunting season, gunshots could result in flushing of bats from roosting trees; however, bats are more likely to remain in the trees during daylight hours. Such disturbances are temporary and last only for the duration of the noise, not fundamentally unlike other temporary disturbances that bats may naturally experience without long-term effects, and therefore any potential effects are expected to be insignificant. Other possible disturbances include hunters climbing and placing portable tree stands on trees. However, hunters typically select live trees for safety reasons while bats are most often in dead or dying trees with large slabs of peeling bark. Further, hunting activities would not result in any roost tree destruction as no tree cutting or other habitat alteration is permitted on the refuge.

Because the potential for overlap in time or space between hunters and bats is very low; because the expected impacts to roosting bats, even if there is overlap, are insignificant; and because the potential for lead impacts are discountable, the proposed hunting activities are not likely to adversely affect the NLEB.

Hunters are most likely to use tracts through forested parts of the refuge, where monarchs and their nectaring plants generally do not occur. Furthermore, given that only light foot travel from hunters accessing the area is expected to occur on these acres, we anticipate that any potential damage to nectaring plants from foot traffic disturbance will be extremely unlikely, and therefore considered discountable. While hunters are walking through habitat used by monarchs, there could be some impacts including flushing while resting or feeding. This disturbance is minimal as the monarchs easily move to another spot when disturbed. Furthermore, hunting does not result in the removal of vegetation, including nectaring sources or milkweed, and so it would have negligible impacts to habitat resources important for monarchs. Noise disturbance from discharging of a firearm while hunting may startle the species resulting in change in flight pattern or a startle response in

caterpillars, but this impact will not result in long-term negative impacts and is considered discountable as this type of noise is not frequent enough to result in habituation to noise that could cause butterfly to not respond to natural threats like parasitism (Taylor and Yack, 2019).

Hunting activities are not likely to adversely affect yellow lance or other mussel species because they are an aquatic species living in flowing waters, largely isolated from hunting activity. Therefore, the proposed activities are not likely to overlap in space with the yellow lance mussel, so any potential effects from disturbance are extremely unlikely, and therefore considered discountable.

Due to the inaccessibility of hunters to the lone suitable habitat of beetles, and because the species likely isn't even present on the refuge, the proposed hunting activities are not likely to adversely affect Puritan tiger beetles.

There have been many botany forays throughout the refuge's 85-year history, and to date swamp pink and sensitive joint vetch have not been found. There are no known occurrences of swamp pink or sensitive joint vetch, and any impacts from hunting or the associated use of lead ammunition would be considered discountable because they are extremely unlikely to occur. Therefore, the proposed activities are not likely to adversely affect either species.

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

For more detail, see the completed Intra-Service Section 7 Evaluation (Appendix C). Species evaluated are: Northern long-eared bat, yellow lance mussel, Puritan tiger beetle, sensitive joint vetch, swamp pink, and monarch butterfly. Hunting activities may affect, but are not likely to adversely affect, any threatened or endangered species at PRR. However, if there is a potential for hunting activities to have a negative impact on such species, or a new species of concern is identified on refuge lands, we will reevaluate our programs and implement program changes as necessary.

### **Other Species of Concern**

Other species of concern include the bald eagle, spotted turtle (at-risk species), and the monarch butterfly (candidate species for listing). Deer hunting occurs from September through the end of January, with the most participation from October through early December when eagles are not nesting. The refuge only has one known bald eagle nest; however, it does support a small group of foraging eagles during the hunting season. To avoid flushing during nest building or adults incubating, the road nearest to the nest is closed from December 1 to July 1. Fall mowing for waterfowl hunt preparation or roadside mowing destroys host plants and nectar plants for the migrating monarch butterfly. These minor impacts are primarily from September to mid-

November, when monarchs have passed, and plants have senesced.

Spotted turtles usually prefer shallow water habitats, such as swamps, ponds, bogs, marshy wetlands, creeks (including tidal ones) or ephemeral pools, but at times may be found in forested areas some distance from water. Depending upon population location, seasonal activity begins in the late winter to early spring, and turtles are most active during the day. The greatest threats to spotted turtles are the loss, degradation, and fragmentation of habitat from wetland alteration, development, pollution, invasive species, and natural vegetational succession. The few potential disturbances of hunting, such as foot traffic of hunters or gun noise, would be a temporary inconvenience and likely only result in negligible impacts to the population. If there is a potential for hunting activities to have a negative impact on such species, or a new species of concern is identified on refuge lands, we will reevaluate our programs and implement program changes as necessary.

### **Visitor Use**

PRR is open to all six of the priority public uses that are outlined in the Refuge System Improvement Act of 1997, which include hunting, fishing, wildlife photography, wildlife observation, environmental education, and interpretation. In 2020, 248,448 people visited the refuge and 5,826 of those visits were for hunting.

Hunting, especially for species like waterfowl and deer, is a traditional activity during the fall in Maryland. As such, few conflicts among user groups have involved hunters or hunting on the refuge. The small number of hunter complaints or conflicts each year usually involve other hunters. Refuge visitors using trails (birdwatching, walking, photography) are the most affected by hunting activities. In order to address safety concerns of non-hunting visitors and trail use, the refuge staff has increased outreach and clearly posted trail signs and designated safety zones on the refuge. The number of hunters and the amount of time spent hunting is expected to slightly increase due to expanded refuge hunting opportunities on the South Tract and Schafer Farm areas of the refuge. It is likely that 40 to 50 additional hunters will use the South Tract and Schafer Farm areas for hunting. Novice deer hunters and their mentors may increase hunting pressure during the mentored deer hunt on the South Tract (Loblolly Area), but the only anticipated conflicts will likely be from other hunters.

The refuge takes several measures to avoid public use conflicts and to ensure public and hunter safety while accommodating multiple user groups. For example, zones are closed to all other uses during the morning or afternoon turkey hunt dates; during deer firearms season, all public use is confined to roads or no-hunt zones; and all visitors to the North Tract are required to check in at the Hunter Contact Station at the beginning of their visit, which affords an opportunity to inform them of hunt safety restrictions. Hunters are assigned to areas, stands or zones in the field at check in at the Hunt Control Station and required to wear hunter fluorescent orange/pink according to refuge hunt regulations.

With few exceptions, hunting is not allowed on or across any road (paved, gravel, dirt, opened and/or closed), within 50 yards of any road, within 150 yards of any building or shed, and within 25 yards of any designated “No Hunting” or “Safety Zone” area. The 50-yard buffers around public roads or public use wildlife viewing areas are marked to aid hunters in avoiding these areas.

On the Central Tract, hunters are required to use 10-foot-high stands at designated points which have directional markers to control direction of fire. Hunting units can be opened or closed to accommodate any special needs.

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

Further details pertaining to hunting safety are published in the refuge's annual hunt regulations booklet. Assessed and adjusted annually, these measures enable staff to ensure separation of conflicting uses so that hunting will have little interference and direct impact on other ongoing public use activities.

#### Long-term impacts

Cumulative impacts on the environment result from incremental impacts of a proposed action when these are added to other past, present, and reasonably foreseeable future actions. While cumulative impacts may result from individually minor actions, they may, viewed as a whole, become substantial over time.

The potential for adverse impacts to human health due to the inadvertent consumption of lead in individual animals that are successfully harvested with lead ammunition would still exist during the next 3 years; however, it will likely be reduced as some hunters adopt early use of non-lead ammunition. As non-lead requirements for ammunition take full effect in 2026, lethal and sublethal impacts to huntable wildlife species from discarded lead in the environment and the potential for adverse human health impacts decreases substantially and becomes negligible. Lead from previous hunting activities will still be present in the environment and may impact wild game species, however, the impact is likely negligible given the likely low amount of lead currently present and available in the environment from hunting activities and minor adverse risk of bioaccumulation.

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 refuges, though possibly additive to existing hunting takes, would be a tiny fraction of the estimated populations. In addition, overall populations will continue to be monitored and future harvests will be adjusted as needed under the existing flyway and State regulatory processes.

Economic impacts to hunters due to required use of non-lead ammunition will be mitigated by a transition approach and outreach programs. Additional hunting would not add more than slightly to the cumulative impacts stemming from hunting at the local, regional, or Atlantic flyway levels.

### Public Review and Comment

This Compatibility Determination (CD) is part of the Patuxent Research Refuge Hunting Plan and the accompanying NEPA compliance. The plan was coordinated with all interested and/or affected parties, including State partners. We released the original draft plan, CD and EA for public review and comment from May 3 through August 8, 2022, a total of 97 days. A total of four comment letters were submitted that offered input to the refuge. Any comments and our responses can be found in the Finding of No Significant Impact (Appendix D of the 2022 EA).

### Determination

Is the use compatible?

Yes

### Stipulations Necessary to Ensure Compatibility

To ensure compatibility with refuge purpose(s) and Refuge System mission, hunting can occur at PRR in accordance with State and Federal regulations and special refuge-specific restrictions (50 CFR 32.39) to ensure that wildlife and habitat management goals are achieved, and that the program provides a safe, high quality hunting experience for participants. This hunting program will be monitored and potentially modified or eliminated if any of the program's components are found not compatible.

The following stipulations are necessary to ensure compatibility:

1. We allow the hunting of rabbit, woodchuck, and gray squirrel in designated areas of the refuge in accordance with regulations and seasons set forth by the State from September 1 to January 31 only. Upland hunting for these species is closed on the refuge the remainder of the Maryland State season.
2. Hunters are required to check in and out at the HCS every time they enter or exit the refuge, change hunting methods of harvest, or change hunting areas including North Tract, Central Tract and M-R Lottery Hunts, and Schafer Farm hunting areas.
3. Non-lead ammunition is required for hunting upland game, migratory birds, and turkey. Beginning September 1, 2026, we will require the use of non-lead ammunition for hunting deer.

### Justification

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

Hunting will not materially interfere with or detract from the research purpose of the refuge, because wildlife research can occur throughout the year, while hunting is limited to hunting seasons. In addition, there are certain days of the week and areas of the refuge that are not open to hunting where research can occur. These uses will not materially interfere with or detract from the two purposes related to wildlife conservation because hunting seasons reduce deer populations to levels that reduce the intensity of grazing which provides improved wildlife habitat, a healthier deer population, and increased plant diversity. The other target species also are hunted at levels to protect their regional populations. Hunting will occur on a portion of the refuge; as a result, some habitat will not be impacted at all. Hunting will not materially interfere with or detract from the two refuge purposes related to migratory bird conservation because bag limits and seasons for waterfowl hunting are set at a flyway scale such that these limits will not impact regional populations. In addition, deer hunting will reduce the size of the deer population, which will improve forest interior habitat quality for migratory land birds.

Since the land transfer of the North Tract from the Department of Defense to the Service in 1991, public hunting has been a wildlife-dependent priority public recreational use that is consistent with the purposes for which the refuge was established, the Service policy on hunting, the Improvement Act, and the broad management objectives of the Refuge System. The former U.S. Army/Fort Meade land (North Tract) has had a successful history of public hunting for over 30 years. At the time of transfer, hunting was continued as a public use that the military had previously allowed for the public.

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

Signature of Determination

Refuge Manager Signature and Date

Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date

Delete this text and insert year for reevaluation

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

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**Patuxent Research Refuge  
Hunting Plan**

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

**Patuxent Research Refuge  
12100 Beech Forest Road, Suite 138  
Laurel, Maryland 20708**

Submitted By:  
Project Leader

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Concurrence:  
Refuge Supervisor

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Approved:  
Regional Chief (Acting),  
National Wildlife Refuge System

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

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# PATUXENT RESEARCH REFUGE HUNTING PLAN

## **I. Introduction**

National wildlife refuges are guided by the mission and goals of the National Wildlife Refuge System (Refuge System), the purposes of an individual refuge, U.S Fish and Wildlife Service (Service) policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act (NWRSA) 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 Fish and Wildlife Service Manual.

Patuxent Research Refuge (PRR, refuge) was established on December 16, 1936, pursuant to Executive Order 7514 by President Franklin D. Roosevelt “to effectuate further the purposes of the Migratory Bird Conservation Act” and to serve “as a wildlife experiment and research refuge.” Dedicated on June 3, 1939, Secretary of Agriculture Henry A. Wallace stated that, “The chief purpose of this refuge is to assist in the restoration of wildlife—one of our greatest natural resources.”

The refuge is unique within the Refuge System by having both a research and wildlife conservation mission and by being co-located with the U.S. Geological Survey (USGS) to comprise the Patuxent Wildlife Research Center (PWRC). The PWRC purpose is to develop the scientific information needed to provide the biological foundation for effective conservation and management of the nation’s biological resources and to conduct priority research for Department of the Interior agencies and other Federal and State partners. The Service’s Division of Migratory Bird Management also has offices located at the refuge.

The refuge has grown from 2,679 acres in 1936 to 12,841 acres today. The most consequential growth in the refuge land holdings occurred in 1991, when 8,100 acres in Anne Arundel County transferred from Fort Meade to PRR, which at the time was 4,700 acres. This transferred property is now called the “North Tract.” The North Tract is bounded on the north by Maryland Routes 198 and 32 and Tipton Airport, on the west by the Baltimore-Washington Parkway, on the east by AMTRAK train lines, and on the south by the Patuxent River. Historically, the land was cleared for agriculture and then used by the military for extensive small arms, artillery, and tank training. Most of the land has regenerated to form large stands of forest (approximately 6,400 acres) that lie contiguous with the Central Tract, but many open grassland areas remain as remnants of old firing ranges, paratrooper training sites, and related administrative areas. One of the largest sycamores and black gum trees in Maryland and a natural stand of white pine occur on the North Tract. Oak hybridization, sandy soils, sphagnum bog plant communities, oxbow wetlands from the Little Patuxent River, a 5 1/2-mile transmission power line right-of-way managed for shrub habitat, remnant unexploded ordnance, and gunnery ranges used by Federal agencies for law enforcement and security training are among the many management challenges of this tract.

The Central Tract consists of 2,670 acres located in Prince George’s and Anne Arundel Counties. This tract is bordered on the north by the Patuxent River and on the south by Maryland 197. This

tract contains numerous buildings related to refuge administration, USGS offices and laboratories, 14 man-made impoundments managed for waterfowl, large pen complexes for environmental contaminant studies, residential buildings, and a 3 1/2-mile transmission power line right-of-way. Surrounding the open areas of mixed use are approximately 1,500 acres of hardwood floodplain forest or upland mixed forest.

The South Tract, located in Prince George's County, consists of 2,200 acres, and is bordered by the inactive Sandy Hill Landfill, the Beltsville Agriculture Research Center (BARC), and several residential areas. The South Tract contains the National Wildlife Visitor Center, Cash Lake, a prominent seasonal fishing area, and Lake Redington that is favored by water birds. Further to the south are former crop fields adjacent to those of University of Maryland and BARC, forming some of the most important early succession habitat on the refuge.

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

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

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

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

Several recent changes were made to the refuge hunting program in 2018 including greater alignment with State of Maryland regulations and offering a mentored hunt program. We opened additional acreage on the North and South tracts to the hunting program, opened to sea duck, light goose and dark goose as huntable species, and opened to a primitive firearm hunt season. In summary, the following additional changes are proposed as part of this new plan:

New proposed changes include:

- Aligning with State regulations for mourning dove hunting;
- Permitting use of dogs for waterfowl, rabbit, and mourning dove hunting;
- Expanding spring turkey hunting on 1,812 acres to include the South Tract and Schafer Farm;
- Expanding rabbit, gray squirrel, mourning dove and woodchuck hunting on the South Tract (1,336 acres) and Schafer Farm unit (476 acres);
- Aligning with the State for all deer hunting days and seasons (including those at the South tract);
- Facilitating additional mentored hunts where possible; and
- Use of non-lead ammunition is currently required for upland game, turkey, migratory bird and waterfowl hunting at Patuxent. Hunters are encouraged to voluntarily use non-lead ammunition when hunting deer. Beginning September 1, 2026, we will require non-lead ammunition for all hunting that occurs on the refuge.

## **II. Statement of Objectives**

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

Hunting is consistent with the refuge's 2013 Comprehensive Conservation Plan (CCP), which stated as Goal 6 to "provide high quality hunting and fishing experiences for hunters and anglers." Objective 6.1 further clarified to "provide robust and diverse, quality hunting

opportunities to hunters of all ages while promoting hunter and visitor safety and wildlife health and accommodating other public use opportunities.” We provide hunting opportunities on the assumption that, when properly regulated, it will also serve as a viable management tool for controlling populations and protecting habitat, although for some species there are inherent difficulties in achieving such an objective.

### **III. Description of Hunting Program**

#### **A. Areas to be Opened to Hunting**

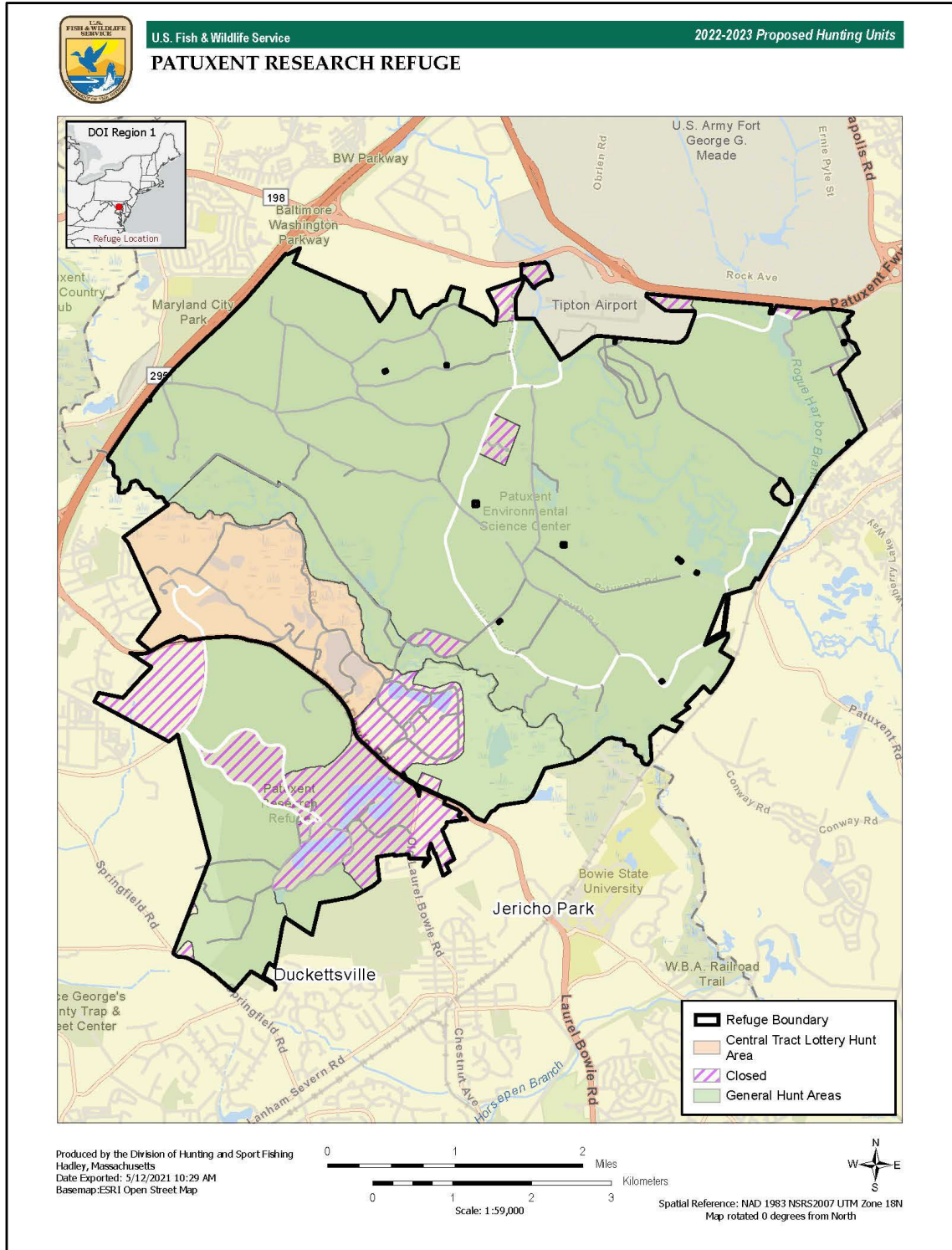
Hunting will be allowed on approximately 11,083 acres divided into three tracts with multiple hunting units/zones within each tract.

The North Tract consists of 7,954 acres available for hunting from September to May in accordance with Maryland Department of Natural Resources (MDDNR). The North Tract is made up of 20 hunting units/zones. White-tailed deer, migratory birds (ducks, sea ducks, light geese, dark geese), mourning dove, and upland game (rabbit, woodchuck, gray squirrel) hunting will be permitted during their respective State seasons except in areas closed to hunting where range activities prohibit it or if the refuge hunt season has ended earlier than the State season.

The Central Tract consists of 1,793 acres available for hunting in November and December in accordance with MD DNR. The Central Tract is made up of the refuge headquarters hunt area (1,048 acres), Schafer Farm Hunt Area (467 acres) and the Millrace Hunt Area (278 acres). White-tailed deer hunting will be permitted in the refuge headquarters hunt area and Millrace Hunt area via special lottery hunts only. Schafer Farm Hunt area will be open for white-tailed deer, turkey, mourning dove, and upland game (rabbit, woodchuck, gray squirrel) hunting during their respective seasons, except in areas closed to hunting or where the refuge hunt season has ended earlier than the State season.

The South Tract consists of 1,336 acres available for hunting from September to May in accordance with MDDNR. The South Tract is made up of the four South Tract units A, B, C, and D (1,336 acres). White-tailed deer, turkey, mourning dove, and upland game (rabbit, woodchuck, gray squirrel) hunting will be permitted during their respective seasons, except in areas closed to hunting or where the refuge hunt season has ended. See Figure B-2 in Section VIII. Hunt Maps.

Figure B-1. Map of Patuxent Research Refuge hunt units.



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

Hunting seasons will be set annually by the MDDNR and will be updated in the refuge's annual guidelines which may contain refuge regulations that further restrict season dates or harvest limits.

- **MIGRATORY BIRD HUNTING (waterfowl):** We allow the hunting of ducks, sea ducks, light geese, dark geese (e.g., Canada geese) in designated areas of the refuge in accordance with regulations and seasons set forth by the State. Use of non-lead ammunition is already required.
- **OTHER MIGRATORY BIRD HUNTING (mourning dove):** We allow the hunting of mourning dove in designated areas of the refuge in accordance with regulations and seasons set forth by the State. Use of non-lead ammunition is already required.
- **UPLAND GAME HUNTING:** We allow the hunting of rabbit, woodchuck, and gray squirrel in designated areas of the refuge in accordance with regulations and seasons set forth by the State from September 1 to January 31 only. Upland hunting for these species is closed on the refuge the remainder of the Maryland State season. Use of non-lead ammunition is already required.
- **BIG GAME HUNTING:** We allow the hunting of white-tailed deer and wild turkey (winter and spring) on designated areas of the refuge in accordance with regulations and seasons set forth by the State. Upon implementation of this plan, non-lead ammunition is already required for turkey hunting on the refuge. Use of non-lead ammunition for deer hunting will initially be voluntary but will be required after September 1, 2026.

Hunting Access: Hunters must check in at the Hunter Control Station (HCS) Monday through Saturday (closed Sundays and all Federal holidays) beginning at 5:00 AM during the hunting season (September 1 to January 31). The refuge follows all State regulations for legal shooting hours.

## **C. Hunter Permit Requirements (if applicable)**

Hunters will be required to have a State license as well as a refuge-specific permit provided by the Meade Natural Heritage Association (MNHA). Hunting permits (PRR Hunt Cards) are purchased in person through the MNHA in partnership with PRR through a cooperative agreement. Permits will be sold at the Service HCS on Bald Eagle Drive, located on the refuge's North Tract starting in August on Saturdays from 9:00 AM to 3:00 PM. Permits will be sold daily from September 3 through January 31, except on Sundays and Federal holidays. See "Hunter Permit Application and/or Registration Procedures" in Section IV (A).

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

The refuge consulted with State partners (MDDNR) extensively while writing this hunting plan. The refuge held conference calls and virtual meetings with the MDDNR Deer Project Leader in



January and February 2021 regarding the proposed changes. The refuge also consulted with MDDNR's Upland Game Bird Project Leader, Waterfowl Project Leader, Game Bird Section Leader and the South Region Manager in April 2021 and June 2021. In addition, the refuge discussed proposed changes in further detail during a virtual coordination meeting with the MDDNR staff on July 28, 2021. The MDDNR fully supported the proposed changes and increasing the refuge's alignment with State hunting programs and regulations where possible.

#### **E. Law Enforcement**

Enforcement of refuge violations normally associated with management of a NWR is the responsibility of commissioned Federal Wildlife Officers (FWO), other officers, Special Agents, and State game wardens who often assist PRR's full-time FWO.

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

- Refuge and hunt area boundaries will be clearly posted;
- The refuge will provide hunting guidelines that detail all refuge procedures and rules;
- The HCS will have maps of all hunting areas, hunting guideline booklets and additional information as needed, and;
- Information will be made available at the PRR's visitor center, North Tract Hunter Contact Station, and on the refuge's website.

#### **F. Funding and Staffing Requirements**

The hunt program is operated through a partnership with MNHA, and some of the annual administrative costs for the refuge hunting program are shared between the Service and MNHA.

During the hunting season, considerable staff time is spent on the annual planning and writing of the hunt regulations, preparing printed materials such as maps and hunt regulations, posting hunt area boundaries, prepping roads, preparing for parking and access, providing orientation, entering and analyzing harvest data, coordination meetings with range partners, law enforcement activities, hiring and training hunt control station managers, maintaining or updating the hunter and harvest databases, and coordinating the lottery hunts. Refuge dollars spent on hunt related activities in 2020-2021 were approximately \$22,500. Supplies such as Carsonite signs, posts, and laminate material for signage cost the refuge about \$2,500 annually. Gravel hunt road repairs and upkeep cost approximately \$20,000 per year. The refuge is fortunate to have volunteers from MNHA to assist with hunt check station duties on hunt days, maintain the hunt check station and related outbuildings and premises, sell the permits, assist with publications or advertising, oversee hunter qualifications, and many other services all of which amount to a considerable cost savings to the refuge.

The fees charged for hunting permits and memberships fund administrative costs for the services MNHA provides to the hunt program, such as payroll for three hunt control station managers,

employment insurance, waste management, Hunters for the Hungry carcass processing, utilities for the check station and grounds, and communications by web and mail. The fees were increased in September 2017 (hunt permits cost \$70 for adults, \$35 for youth and seniors).

Since the fall of 2017, MNHA has covered all salaries for hunt control station managers, averaging between \$3,200 and \$3,600 per month. Payroll expenses are estimated to total about \$20,000 during the 7-month hunt season (MNHA Treasurer's Report, April 2021).

#### **IV. Conduct of the Hunting Program**

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

Due to the complexities of ongoing activities and other uses at the refuge, it is mandatory for hunters to check in and out every visit.

Hunters are required to purchase a PRR Hunting permit. To purchase a permit and hunt specific species, hunters are required to complete a NWRS Hunt Application (FWS Form 3-2439, OMB 1018-0140), and Statement of Hunter Ethics (FWS Form 3-2516). They must also present the following documents:

1. Current Maryland Hunting License;
2. Hunting stamps as required by the State of Maryland and Federal regulations; and
3. Hunters with a disability participating in the lottery hunt for turkey must present a Federal or Maryland State documentation of disabled eligibility when purchasing a permit for this hunt.

The use of a permit system allows the refuge to minimize habitat disturbance and to provide a high quality, safe hunt experience. Permits are sold for a fee to defray the costs of operation, with special discounts for senior and youth hunters. The schedule of fees is posted at various locations (HCS, Hunter Info hotline, and on the refuge website). The permit system enables the refuge to control the number of hunters on the refuge at any given time. Hunters are assigned to use specific hunting areas for North and South Tracts, and a lottery hunt is offered for the Central Tract units for special hunts.

##### **Special Hunt Programs:**

###### *Mentored Hunts*

In collaboration with multiple partners, the refuge will seek to provide mentored hunting opportunities for groups that are traditionally underrepresented in hunting. More information on mentored hunt opportunities will be made available on the refuge website, at the refuge Visitor Center, at the North Tract HCS, and the Visitor Contact Station.

###### *Spring Turkey Lottery Hunts*

Applications for the spring turkey hunt will be submitted to the refuge by January 31. Separate lottery hunts will be available for youth, disabled, and other hunters. Saturdays are reserved for

youth hunts where three youth hunters will be drawn per hunt date. Mondays are for disabled and all other hunters. Two disabled and four other hunters will be drawn per hunt date.

Hunters can only submit their names into one of the following categories:

1. Youth Hunters: Individuals that possess a refuge youth hunting permit.
2. Disabled Hunters: Individuals with a physical or intellectual impairment, as defined by the Americans with Disabilities Act, that have met the requirements to hunt on the refuge may enter the lottery for the zone(s) reserved for hunters with disabilities. The refuge requires hunters with disabilities to provide National Park Service (NPS) Form 10-597 when submitting for lottery.
3. Other Hunters: Individuals who do not qualify as a Youth or Disabled hunter.

Selected hunters will be notified through the mail with an official refuge letter indicating their status as being drawn for the hunt.

#### *Central Tract and M-R Lottery Hunts*

1. This is a deer management hunt, and the lesser firearm rule does not apply. Muzzleloaders are not permitted for the lottery hunts.
2. There are two separate lottery hunts: November TBD and December TBD.
3. Signup occurs for the lottery hunts at the HCS at least 2 weeks prior to the hunting date.
4. Hunters may place their names in each lottery (shotgun and archery) one time per hunt. If drawn for both, the hunter must choose one; the other will be assigned to an alternate.
5. Selection for participation in the Central Tract and M-R lottery hunts will be by lottery. There are 3 archery and 39 shotgun slots. Nine of the shotgun slots are in the M-R area and are not assigned to a specific site. Two shotgun sites are reserved for disabled hunters.
6. The use of a tree stand, a minimum of 10 feet off the ground, and a full-body harness is mandatory, except for the two disabled shotgun sites when used by a disabled hunter.
7. Lists of selected hunters and check-in times will be posted at the HCS at least 1 week prior to the scheduled hunt.
8. Selected hunters must check in by the time specified on the letter of notification. After the specified time, any available hunting slots will be issued to alternate

hunters, prior to standby hunters, by random drawing. Drawings will be performed at the HCS.

9. Access for all lottery-selected hunters for Central Tract and M-R will be via Gate 1 on American Holly Drive, opposite the intersection of MD Route 197 and Powder Mill Road.
10. All selected hunters are required to attend a pre-hunt orientation provided by refuge staff on Central Tract prior to going afield.
11. Shotgun stand sites 1 to 30 and archery stand sites 31 to 33 are marked with a reflective band on the assigned tree. Zones of fire are marked with arrows. All weapon firing must be within the zone of fire. Only shotguns with slugs may be used at sites 1 to 30 and in M-R 1 to 9. Only archery equipment may be used at sites 31 to 33. Zones of fire are marked at each tree stand location with arrows on stakes in that ground that show the safe line of fire for each stand location. The zones of fire are used on the Central Tract due to the close proximity of refuge roads, research structures, office buildings, residences and the main public road Route 197.

Hunters must leave the field by 12:00 PM. on the morning hunt or by 1 hour after sunset on the evening hunt. Check-in for the morning hunt is 5:00 AM. at the HCS, and 11:00 AM. check in for the evening hunt. The refuge adheres to all legal shooting hours set forth by State regulation for the Lottery Hunts.

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

Relevant refuge-specific regulations are annually listed in 50 CFR 32.39. These guidelines may be modified as conditions change or if refuge expansion continues/occurs.

Hunters are encouraged to voluntarily use non-lead ammunition when hunting big game. Beginning September 1, 2026, we will eliminate all lead ammunition on PRR for deer hunting.

### **C. Relevant State Regulations**

The refuge conducts its hunting program within the framework of State and Federal regulations. Hunting at the refuge is at least as restrictive as the State of Maryland and, in some cases, more restrictive. Additionally, the refuge coordinates with the State as needed to maintain regulations and programs that are consistent with the State's management programs. Relevant refuge-specific regulations are annually listed in 50 CFR 32.39.

### **D. Other Refuge Rules and Regulations for Hunting**

- Hunters are required to check in and out at the HCS every time they enter or exit the refuge, change hunting methods of harvest, or change hunting areas including North Tract, Central Tract and M-R Lottery Hunts, and Schafer Farm hunting areas.

- Hunters will be restricted to the selected area and specified method of harvest until they check out at the HCS. Upon checking into an area, the hunter must report directly to the area they are checked into. Hunters leaving their designated hunt zone for any reason must proceed directly to the HCS to check out. Hunters must check back in when returning. No hunting spots will be reserved.
- Hunters may check into the South Tract for hunting via calling into the HCS. The hunter must provide vehicle description and license plate number to the HCS Manager. Hunters must physically check out at the HCS if a deer is harvested. If no deer are harvested, the hunter may check out via calling the HCS manager. Hunters are required to check in and out every time they enter or exit the South Tract, change areas on the South Tract, or change hunting methods of harvest.

## **V. Public Engagement**

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

The refuge maintains the hunting program information on its website and MNHA website both of which are updated as needed. The refuge has a Hunt Outreach Plan that maintains mailing lists schedules of communication events for news release purposes to local papers and providing postings to community activity boards/calendars. Information may also be released in the form of special announcements, social media posts and articles in conjunction with hunting seasons when needed. In addition, information about all of the hunts will be available at NWVC, HCS, North Tract Visitor Contact Station and the Service's Find Your Hunt website at: <https://www.fws.gov/refuges/hunting/map/>.

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

Overall, hunting has been allowed on PRR for over 20 years and little negative reaction is expected for most of the proposed changes put forth in this plan. There may be some concerns about the lack of furbearer hunting opportunities, as additional opportunities for furbearer hunting were considered but not added at this time. We will consider the addition of these opportunities in the future.

The refuge anticipates some public concern about obtaining non-lead ammunition given the transition from lead use on the refuge. It is for this reason that the proposed requirement to use non-lead ammunition will not be put into place until fall 2026, providing hunters time to transition their supplies.

A total of four comment letters were submitted on the 2022 plan that offered input to the refuge. Any comments and our responses can be found in the Finding of No Significant Impact (2022 EA, Appendix D).

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

Hunters are required to pick up the refuge hunting guidelines when they pick up their hunting permit. General information regarding hunting and other wildlife-dependent public uses can be

obtained by calling (301) 497-5770. Dates, forms, hunting unit directions, maps, applications, and permit requirements about the hunts will be available on the station website at: <https://www.fws.gov/refuge/patuxent-research/visit-us/activities/hunting> and at the NWVC – 10901 Scarlet Tanager Loop Laurel, MD 20708, North Tract Contact Station - 230 Bald Eagle Drive Laurel, MD 20708 and the Hunt Control Station located on the North Tract.

## **VI. Compatibility Determination**

Hunting and all associated program activities proposed in this plan are compatible with the purposes of the refuge. See attached PRR Hunting Compatibility Determination (CD, Appendix A).

## **VII. References**

U.S. Fish and Wildlife Service. September 2013. Patuxent Research Refuge Comprehensive Conservation Plan.

## VIII. Hunt Maps

Figure B-2. Map of North Tract Hunt Area on Patuxent Research Refuge

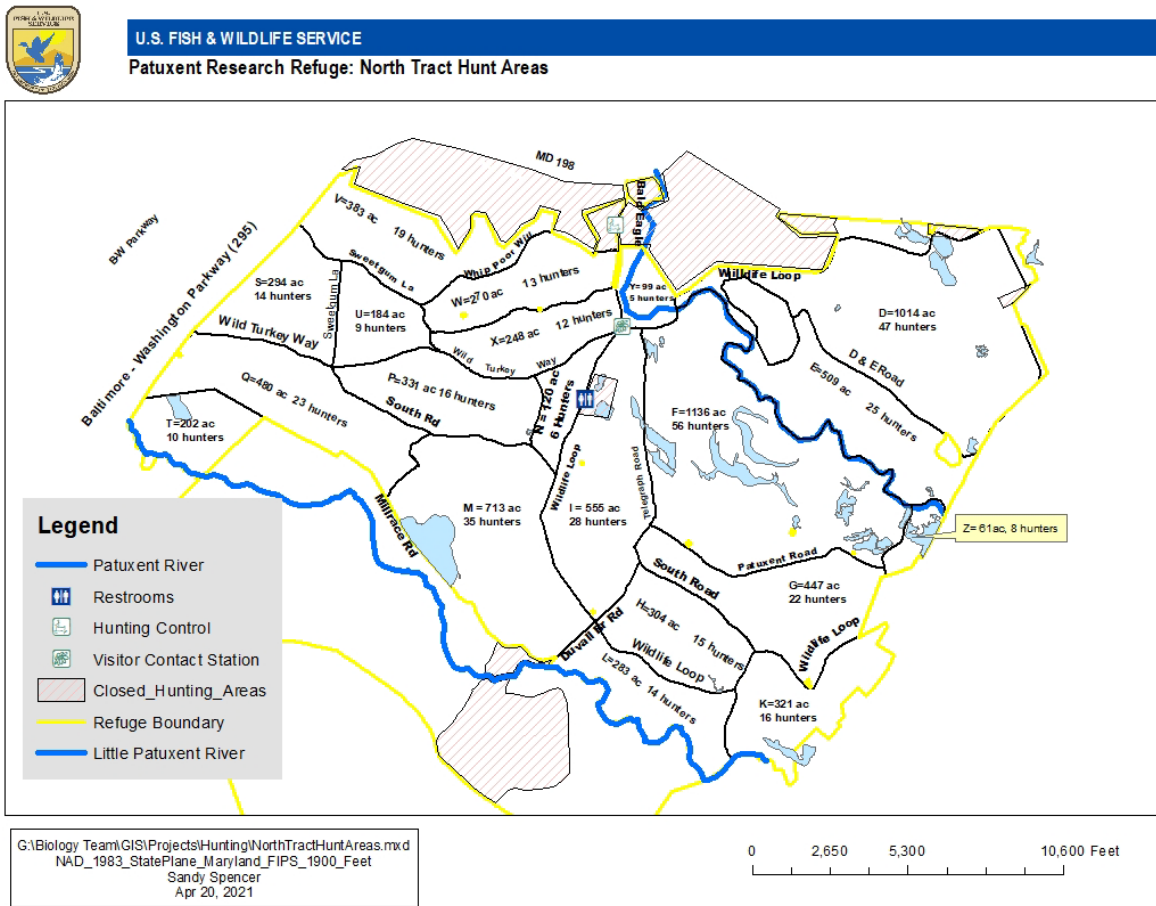


Figure B-3. Map of Central Tract Controlled Deer Hunt Sites on Patuxent Research Refuge

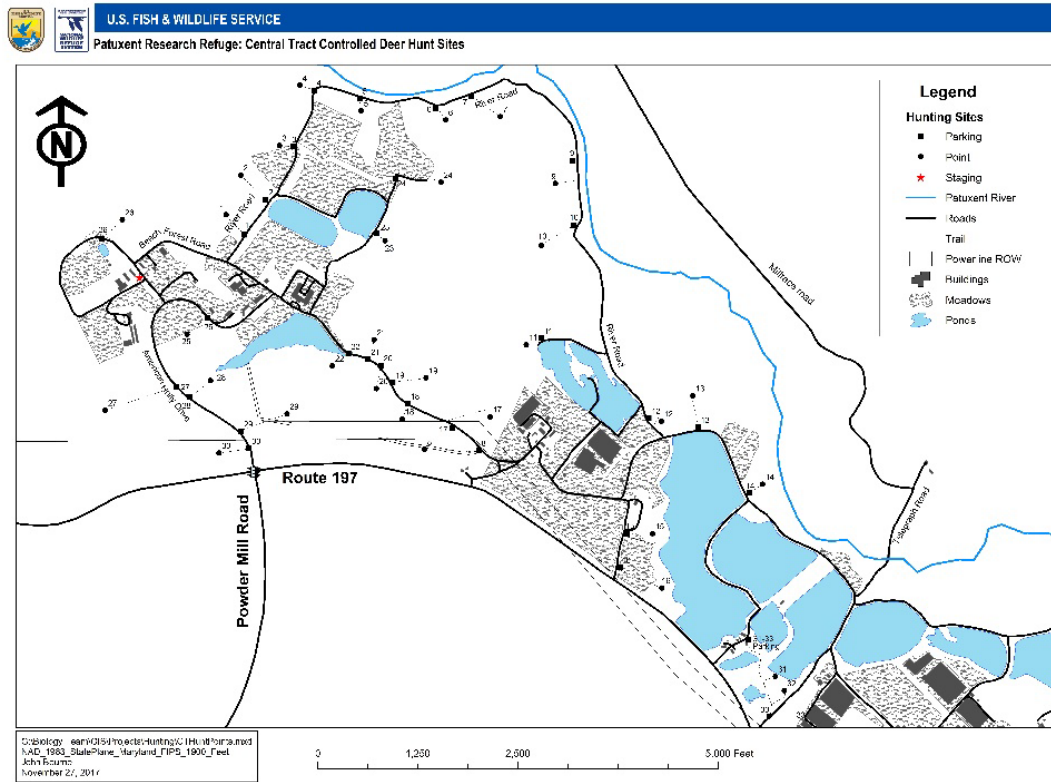




Figure B-4. Map of Millrace Hunt Area on Patuxent Research Refuge

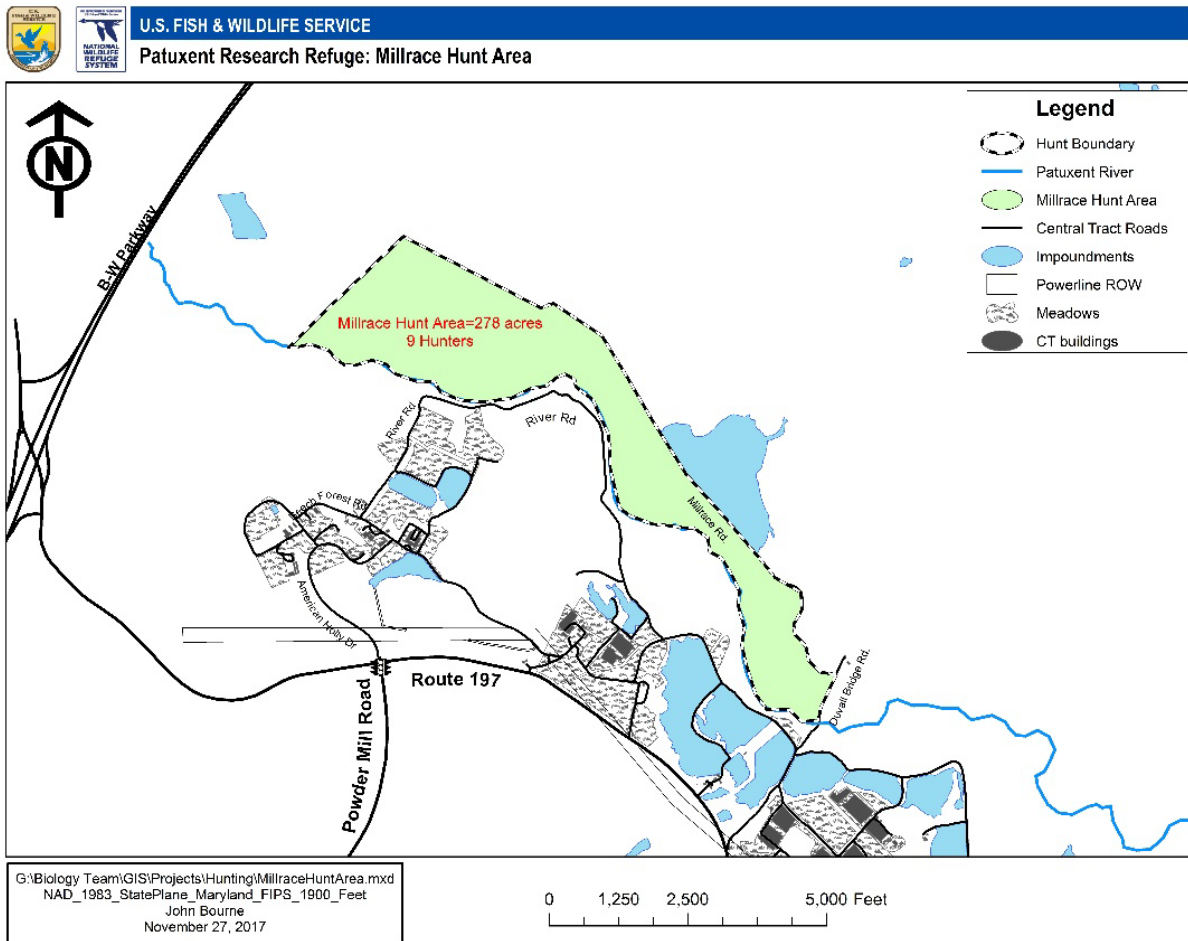


Figure B-5. Map of Schafer Farm Hunt Unit on Patuxent Research Refuge

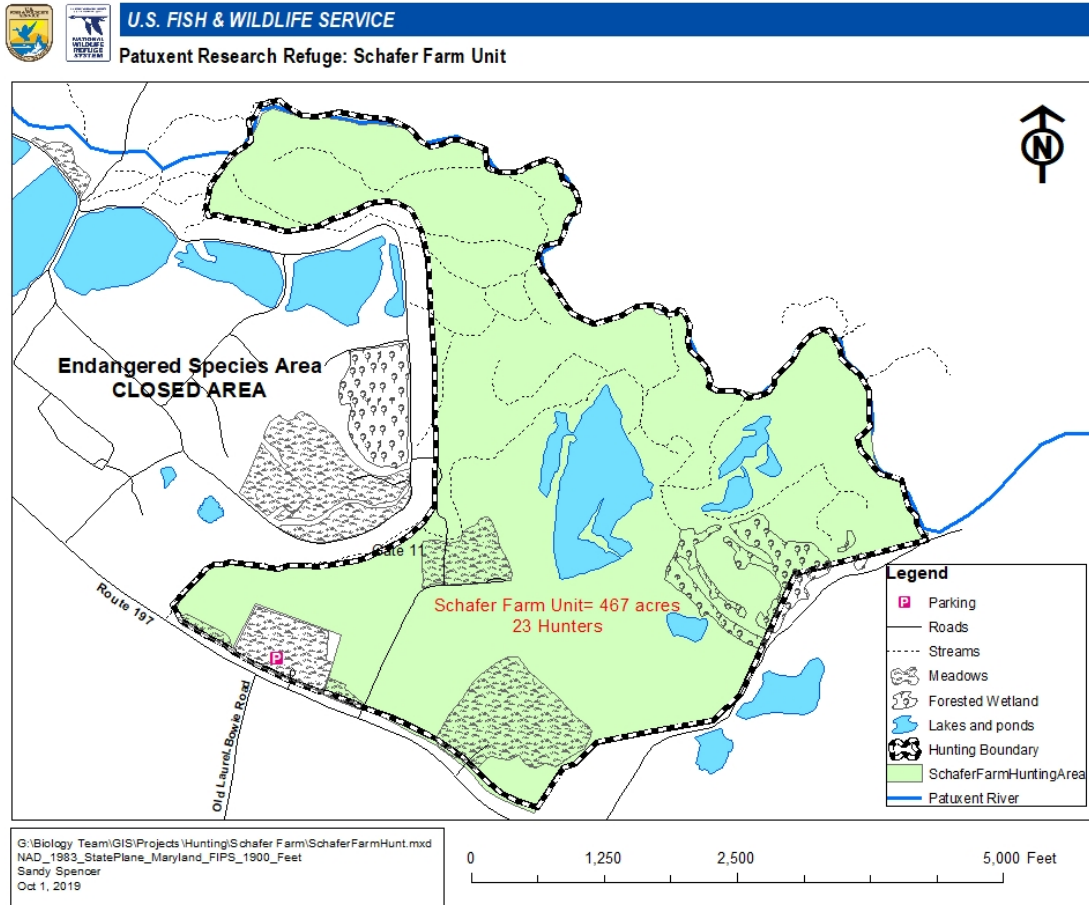


Figure B-6. Map of South Tract Hunt Unit on Patuxent Research Refuge

