



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

# **Supawna Meadows National Wildlife Refuge**

## ***Hunting and Fishing Plan***

### ***August 2021***



*View of Supawna Meadows NWR – Gene Nieminen, USFWS*

***Appendix A – Hunting Compatibility Determination***  
***Appendix B – Fishing Compatibility Determination***  
***Appendix C – Environmental Assessment***  
***Appendix D – Intra-Service Section 7 Evaluation***  
***Appendix E – Finding of No Significant Impact***

# **Supawna Meadows National Wildlife Refuge Hunting and Fishing Plan**

**August 2021**

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

**Supawna Meadows National Wildlife Refuge  
199 Lighthouse Road,  
Pennsville, NJ 08070**

Submitted By:  
Project Leader

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Signature

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Date

Concurrence:  
Refuge Supervisor

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Signature

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Date

Approved:  
Regional Chief  
National Wildlife Refuge System

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Signature

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Date

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# **SUPAWNA MEADOWS NATIONAL WILDLIFE REFUGE HUNTING AND FISHING 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 and Fish and Wildlife Service Manual.

Supawna Meadows National Wildlife Refuge (NWR, refuge) was originally established as an addition to the Killcohook Migratory Bird Refuge. Killcohook Migratory Bird Refuge was established by Executive Order 6582 on February 3, 1934. The refuge was originally called the Goose Pond addition to the Killcohook Migratory Bird Refuge. On April 10, 1974, the Service renamed the Goose Pond addition as the Supawna Meadows NWR and officially separated it from Killcohook Migratory Bird Refuge. On October 30, 1998, the Service's jurisdiction over Killcohook was revoked.

The primary purposes of Supawna Meadows NWR are:

- “...as a refuge and breeding ground for wild birds and animals...with particular value in carrying out the national migratory bird management program...” (Transfer of Certain Real Property for Wildlife Conservation Purposes Act, as amended [16 U.S.C. §667b-667d; 62 Stat. 240]).
- “...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds....” (Migratory Bird Conservation Act [16 U.S.C. §715d]); and
- “...as a refuge suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species (Refuge Recreation Act, as amended [16 U.S.C. 460k-1]).

Supawna Meadows NWR is located along the shoreline of the Delaware River where it widens to become the Delaware Bay Estuary in Salem County, New Jersey. The refuge currently includes 3,506 acres of brackish tidal waters and marsh, freshwater impoundments, grassland, shrubland and forest habitats. The approved refuge acquisition boundary encompasses approximately 4,527 acres along the Upper Delaware Bay and Salem River in Pennsville Township, New Jersey. The refuge falls within the Mid-Atlantic/New England/Maritimes (MANEM) waterbird planning region, Bird Conservation Region (BCR) 30, and the New Jersey Southern Piedmont Plains Conservation Zone.

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

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

The 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 and fishing, when those opportunities are compatible with the purposes for which the refuge was established and the mission of the Refuge System.

The Service proposes to expand hunting and fishing opportunities at Supawna Meadows NWR to better align with New Jersey’s State programs. We propose the following changes to the existing hunting plan:

Species changes:

- Propose opening hunting to deer firearms seasons, turkey, grouse (when a State grouse season is permitted), pheasant, rabbit, squirrel, coyote, fox, groundhog (referred to as woodchuck by State regulations), crow, coot, gallinule, rail, and snipe hunting.
- Propose expanding waterfowl hunting to include the late portion of the snow goose hunting season and the light goose Conservation Order.

Huntable Acreage: Propose changing and expanding the migratory game bird hunting area to the 40 percent allowable acreage, by adding Miles Creek and larger areas of Mud and Mill Creeks.

**Table 1. Changes in Huntable Acres, by Species**

Species	Existing Huntable Acreage (2020)	Proposed Huntable Acreage (2021)
Deer	2,697	3,179
Turkey	0	3,179
Waterfowl/ Migratory Game Birds	664	1,380
Rabbit	0	3,179
Squirrel	0	3,179
Pheasant	0	3,179
Coyote/Fox	0	3,179
Woodchuck	0	3,179

Method of take changes:

- Propose aligning methods of take consistent with New Jersey regulations, and allowing firearm hunting for deer as well as newly added species.
- Propose allowing hunting with dogs per State regulations.
- Propose only federally approved, non-toxic ammunition to be used for upland game hunting (excluding turkey hunting).

Hunter orange: The refuge will align with the State on hunter orange requirements with newly added upland game hunting.

Fishing changes:

- Propose changing the fishing area from Baldrige Creek to Miles Creek and including the Xmas Tree Lane impoundment.
- Propose the use of lead fishing tackle to be prohibited on the refuge beginning September 2026.

## **II. Statement of Objectives**

The objectives of a multi-species hunting program on Supawna Meadows NWR are to:

- Manage wildlife populations consistent with approved refuge management plans and to the extent practicable, State fish and wildlife conservation plans;
- Promote visitor understanding of and increase visitor appreciation for America's natural resources;
- Provide opportunities for quality recreational and educational experiences;
- Encourage participation in this tradition;
- Minimize conflicts with visitors participating in other compatible wildlife-dependent recreational activities; and
- Effectively maintain healthy and diverse fish communities and aquatic ecosystems through the use of scientific management techniques.

Hunting and fishing are consistent with the refuge's Comprehensive Conservation Plan's (CCP 2011) goal to provide opportunities for compatible high-quality wildlife-dependent public uses.

## **III. Description of Hunting and Fishing Programs**

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

Of the refuge's total 3,506 acres, 3,179 total acres would be open to hunting (only 1,380 acres for migratory game bird hunting). The hunting area includes 378 acres of recently acquired land. The seasonally closed area is closed for hunting from January 1 to July 31. Fishing access would be provided on designated areas of Mill Creek, Mud Creek, Mannington Meadows, Miles Creek, and the impoundment on Xmas Tree Lane, prohibiting fishing from Baldrige Creek.

The Closed Area (327 acres) would not be open to hunting. The Seasonally Closed Area (147 acres) would be closed to hunting from January 1 to July 31. Fishing access would no longer be provided in Baldrige Creek or the Seasonally Closed Area to reduce impacts to wintering waterfowl and nesting bald eagles. Refer to Figure 1 for the map of the hunting and fishing areas. Portions of Supawna Meadows NWR were designated, acquired, reserved, or set apart as an inviolate sanctuary; therefore, hunting may only be allowed for migratory game birds on no more than 40 percent of the refuge. The waterfowl hunting zone would be reconfigured, and 1,380 acres would be open to migratory game bird hunting. By expanding and/or maintaining hunting and fishing opportunities, but retaining some closed areas to prevent conflicts, the refuge would promote a balance of wildlife-dependent recreational uses.

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

**Big Game** – Big game species would include white-tailed deer and wild turkey. The refuge would open for all six State Deer Management Zone 63 seasons including fall bow, permit bow, winter bow, 6-day firearm, permit shotgun, permit muzzleloader, and youth deer hunt days. Turkey hunting would be permitted during the spring and fall State seasons for all methods of take.

**Upland Game** – Coyote, fox, groundhog (referred to as woodchuck by New Jersey Division of Fish and Wildlife (NJDFW), rabbit, squirrel, grouse, and pheasant hunting would be permitted during the State seasons for all methods of take. Groundhog season would run concurrent with the State seasons for coyote and fox hunting. Grouse is currently not an open State season; though grouse hunting on the refuge will open if/when the State opens this season.

Nationwide, there is concern about the bioavailability of spent lead ammunition (bullets) and sinkers on the environment, endangered and threatened species, birds (especially raptors), mammals, and other fish and wildlife susceptible to biomagnification. Only federally approved, non-toxic shot would be permitted for upland game hunting (excluding turkey). We will continue to encourage use of non-toxic ammunition for other hunts and will educate hunters about lead and potential impacts.

**Migratory Game Bird** – Migratory game bird species would include light goose, dark goose, duck, sea duck, gallinule, coot, crow, rail, and snipe. Hunting these species would be permitted during the State seasons for all methods of take including the late portion of the snow goose hunting season and the light goose Conservation Order. The refuge would have 1,380 acres open for migratory game bird hunting. Portions of the Supawna Meadows NWR were designated, acquired, reserved, or set apart as an inviolate sanctuary; therefore, hunting for migratory game birds will be permitted on no more than 40 percent of the refuge.

**Fishing** – Fishing would be permitted in designated areas of Mill Creek, Mud Creek, Mannington Meadows, Miles Creek, and the freshwater impoundment on Xmas Tree Lane following State seasons and creel limits. Fish commonly found in the brackish tidal areas include white perch, striped bass, channel catfish, white catfish, carp, and American eel. Fish commonly found in the freshwater areas include largemouth bass, black crappie, bluegill, pumpkinseed sunfish, catfish, and carp. Fishing on the refuge would be permitted in accordance with all relevant State regulations. The use of lead fishing tackle would be prohibited on the refuge beginning September 2026. The lead restriction for fishing tackle on Supawna Meadows NWR will be implemented over a 5-year phase-in period, allowing anglers time to adapt to the new regulations without diminishing fishing opportunities. The refuge will conduct education programs and provide information during this transition period explaining the benefits to fish, wildlife, and people.

**Access** – Hunters and anglers may access the refuge from 1 hour before sunrise until 1 hour after sunset. Hunters and anglers may use four refuge parking lots for primary access to hunting and fishing areas by foot, and may also access hunting and fishing areas from boat



ramps at Stanton's Marina in Pennsville, New Jersey or Barber's Basin in Salem, New Jersey. Parking on Lighthouse Road is prohibited.

### **C. Permit Requirements**

Hunters are required to possess a State hunting license and all applicable stamps. Freshwater anglers are required to possess a State fishing license. Saltwater anglers are required to register with the State's saltwater registry program. There is no refuge-specific permit for hunting or fishing.

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

National wildlife refuges, including Supawna Meadows NWR, conduct their hunting and fishing programs within the framework of State and Federal regulations. The refuge has developed this hunting and fishing plan in coordination with New Jersey Division of Fish and Wildlife (NJDFW). In developing this plan, the refuge reviewed the operations and regulations for neighboring State wildlife management areas to find consistency where possible. Refuge leadership consulted with the NJDFW Director David Golden in August 2020 to discuss proposed changes to the refuge's hunting and fishing plans. In October 2020, NJDFW provided a letter with formal comments to the proposed changes and these comments were considered while drafting the hunt and fish plan expansions.

NJDFW stated they were supportive of expanding hunting and fishing opportunities on the refuge, allowing firearm hunting specifically at Supawna Meadows NWR without permits, and increasing consistency with state regulations. The NJDFW prefers the refuge to remain closed to ruffed grouse hunting. The State had questions around woodcock hunting at Supawna Meadows NWR and asked for clarification on a proposed lead fishing restriction. NJDFW also requested that the refuge allow hunting for coyote and fox while deer hunting, the State asked that the refuge consider allowing the use of dogs at Supawna Meadows NWR and Cape May if possible, addition of pheasant hunting, extend waterfowl hunting at Supawna Meadows NWR to include late season snow goose hunting and the Light Goose Conservation Order and provide outreach to anglers regarding the invasive species snakeheads and blue catfish.

Supawna Meadows NWR supported the suggestions of firearm hunting without permits, allowing dogs, pheasant, coyote and fox hunting and extending waterfowl hunting to include late season snow goose and the Light Goose Conservation Order. It will remain closed to ruffed grouse hunting in the meantime until the State opens a season. Woodcock hunting would have increased the migratory bird hunting area beyond 40/60 percent mandated in the Migratory Bird Conservation Act, therefore we are prohibiting woodcock hunting at Supawna Meadows NWR. We plan to clarify the proposal of a lead fishing ban for anglers and also provide outreach for invasive species.

Refuge staff will continue to consult and coordinate with NJDFW to maintain consistent regulations and programs, monitor populations of proposed target species, and set harvest goals. We will work together to ensure safe and enjoyable recreational hunting and fishing

opportunities, with law enforcement officers from both agencies working together to conduct patrols, safeguard visitors, and protect both game and nongame species.

## **E. Law Enforcement**

Refuge law enforcement officers work closely with State Conservation Officers (COs), as well as other State and local police departments. Federal Wildlife Officers patrol the refuge during hunting and fishing seasons. Refuge and hunt area boundaries are clearly mapped and will be clearly posted as resources allow. The refuge will answer questions from hunters and listen to feedback on the hunt program.

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

The Refuge Recreation Act requires that funds be available for the development, operation, and maintenance of hunting and fishing programs. Annual hunting and fishing administration costs for Supawna Meadows NWR including salary, equipment, law enforcement, brochures, collection of hunt and fish data, analysis of biological information, maintenance of sites and parking, communication with the public, etc. totals approximately \$24,500. Since Supawna Meadows NWR is an unstaffed satellite refuge, refuge staff are funded from the Cape May NWR's operational budget to support the hunting and fishing programs. Costs associated with updating signage and maintaining access are funded by the operational budget as well (through maintenance funds, as appropriate). A breakdown of estimated expenses follows:

**Table 2. Funding and Staffing Requirements for Hunting and Fishing Programs**

<b>Identifier</b>	<b>Cost</b>
Staff (Biologist, Maintenance Worker, and Refuge Manager)	\$10,000
Maintain roads, parking lots, trails*	\$2,500
Materials and handouts	\$1,500
Signs and boundary posting	\$3,500
Law Enforcement	\$7,000
<b>Total Annual Cost</b>	<b>\$24,500</b>

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

It is anticipated that funding within the regular Operations and Maintenance budget of Cape May NWR to conduct annual hunting and fishing programs at Supawna Meadows NWR would continue to be sufficient in the future.

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

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

No refuge-specific permit or fees will be required to hunt or fish at Supawna Meadows NWR. Hunters must have all the required State permits with them while hunting on the refuge. Check stations will not be established on the refuge, although hunters will be required to take their harvest to designated “check-in stations” as specified by NJDFW regulations. All freshwater anglers are required to possess a valid State fishing license. All saltwater anglers are required to register with the State’s saltwater registry program.

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

To ensure compatibility with refuge purposes and the mission of the Refuge System, hunting and fishing must be conducted in accordance with State and Federal regulations, supplemented by refuge-specific regulations (50 CFR §32.49) and information sheets/brochures. Stipulations are detailed in the Hunting and Fishing Compatibility Determinations (CD) (Appendix A and B). The following hunting and fishing procedures apply at Supawna Meadows NWR:

- Permanent stands and blinds are prohibited. Hunters must remove all hunting stands, blinds, hunting materials, and decoys at the end of the hunting day in alignment with New Jersey State Parks to reduce the impacts to the marsh. Deer hunting stands which must be removed at the end of the deer hunting season in alignment with state WMAs.
- Hunters may access hunting areas from 1 hour before sunrise until 1 hour after sunset. Night fishing and hunting is prohibited.
- Dog training is prohibited at all times.
- Falconry is prohibited.
- We prohibit the taking of frogs and turtles from all non-tidal waters and refuge lands.
- We prohibit bowfishing in non-tidal waters.
- Fishing on Lighthouse Road is prohibited.
- Shell fishing is prohibited.
- The use of lead fishing tackle will be prohibited on the refuge beginning September 2026. A lead restriction for fishing tackle will be implemented over a 5-year phase-in period.
- Only federally approved, non-toxic ammunition will be permitted while hunting for upland game (except for turkey hunting).

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

The refuge conducts its hunting and fishing programs within the framework of State and Federal regulations. We adopt all state regulations and, in some cases, further restrict uses as necessary to ensure compatibility with refuge purposes. Additionally, the refuge coordinates with the State as needed to maintain regulations and programs that are consistent with the State's management programs.

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

Motorized and non-motorized vehicles are prohibited on refuge lands. This includes but is not limited to vehicles, all-terrain vehicles, dirt bikes, motorcycles, and bicycles. This does not apply to designated public roads. Sunday hunting is prohibited.

## **V. Public Engagement**

### **A. Outreach for Announcing and Publicizing the Hunting and Fishing Programs**

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

### **B. Anticipated Public Reaction to the Hunting and Fishing Programs**

Hunting and fishing are longstanding recreational uses of refuges which have strong local support. Based on comments received during the 2011 CCP process, little negative public reaction is expected for the fishing program at Supawna Meadows NWR, although there might be local opposition to opening new hunting seasons with firearms.

This plan was coordinated with all interested and/or affected parties, including NJDFW staff. On April 14, 2021, we distributed a press release to news organizations and alerted the public about the availability of the draft Hunting and Fishing Plan, with the Compatibility Determinations (CD) and Environmental Assessment (EA). No public meetings were held due to restrictions on public gatherings due to COVID-19. The public comment period ended on July 6, 2021, a total of 83 days. A total of six comment letters were submitted that offered input to the refuge. Any comments and our responses can be found in the Finding of No Significant Impact (Appendix E).

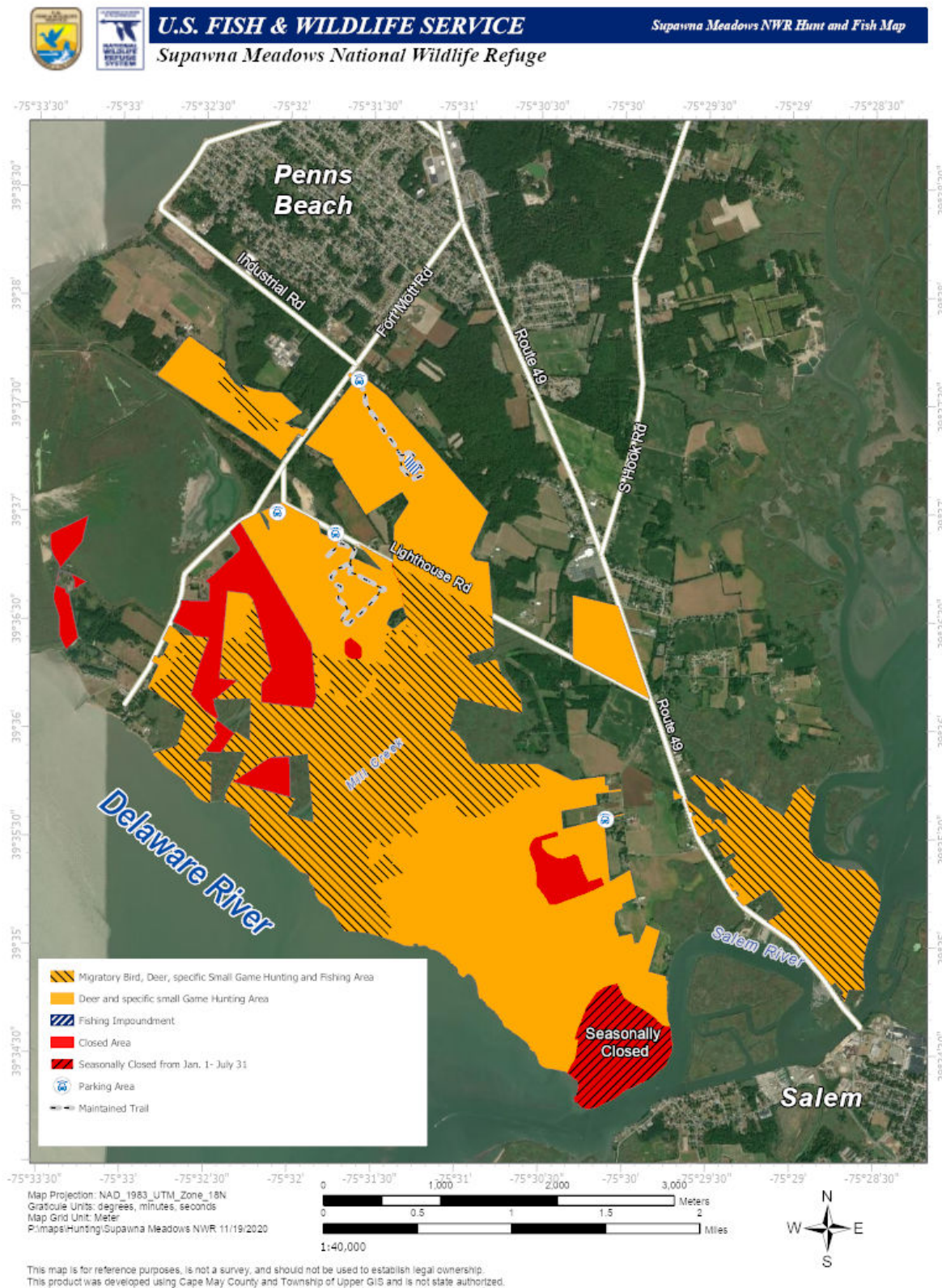
### **C. How Hunters and Anglers Will Be Informed of Relevant Rules and Regulations**

Maps and requirements about the hunt will be available on the station website at: [https://www.fws.gov/refuge/supawna\\_meadows/](https://www.fws.gov/refuge/supawna_meadows/). General information regarding hunting and other wildlife-dependent public uses can be obtained by calling (609) 463-0994 or at Cape May NWR headquarters at 24 Kimbles Beach Road, Cape May Court House, NJ 08210.

## **VI. Compatibility Determination**

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

***Figure 1: Supawna Meadows NWR Map***



## **COMPATIBILITY DETERMINATION**

**USE:** Hunting

**REFUGE NAME:** Supawna Meadows National Wildlife Refuge

**DATE ESTABLISHED:** April 10, 1974

### **ESTABLISHING and ACQUISITION AUTHORITY(IES):**

Supawna Meadows National Wildlife Refuge (NWR, refuge) was originally established as an addition to the Killcohook Migratory Bird Refuge. Killcohook Migratory Bird Refuge was established by Executive Order 6582 on February 3, 1934. The refuge was originally called the Goose Pond addition to the Killcohook Migratory Bird Refuge. On April 10, 1974, the U.S. Fish and Wildlife Service (Service) renamed the Goose Pond addition as the Supawna Meadows NWR and officially separated it from Killcohook Migratory Bird Refuge. On October 30, 1998, the Service's jurisdiction over Killcohook was revoked.

### **REFUGE PURPOSE(S):**

“...as a refuge and breeding ground for wild birds and animals...with particular value in carrying out the national migratory bird management program...” (Transfer of Certain Real Property for Wildlife Conservation Purposes Act, as amended [16 U.S.C. §667b-667d; 62 Stat. 240]).

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

“...as a refuge suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species” (Refuge Recreation Act, as amended [16 U.S.C. 460k-1]).

### **NATIONAL WILDLIFE REFUGE SYSTEM MISSION:**

The mission of the National Wildlife Refuge System (Refuge System) is “...to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (Refuge System Improvement Act of 1997, Public Law 105-57).

### **DESCRIPTION OF USE:**

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

The use is hunting of big game, upland game and migratory game birds on Supawna Meadows NWR. Hunting was identified as one of six priority public uses of the Refuge System by the 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.



Refuge lands were opened to white-tailed deer hunting in 1988 and waterfowl hunting in 1992. This Compatibility Determination (CD) amends and updates hunting areas, acreages, regulations and species available for hunting. We would continue to offer white-tailed deer and waterfowl hunting with expanded acreage, methods of take, expanded seasons and would open to turkey, coyote, fox, groundhog (referred to as woodchuck by the New Jersey Division of Fish and Wildlife (NJDFW)), rabbit, squirrel, crow, grouse, pheasant, gallinule, coot, rail and snipe hunting for the first time.

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

Of the refuge's total 3,506 acres, 3,179 total acres would be open to hunting (only 1,380 acres for migratory game bird hunting). The hunting area includes 378 acres of recently acquired land. The closed areas (314 acres) would remain closed to hunting. The seasonally closed unit would be closed to hunting from January 1 through July 31 (see Figure 1 in the Hunting and Fishing Plan).

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

Hunting would take place within the regulatory framework established by NJDFW and the Service. The refuge would be open for all six State Deer Management Zone 63 seasons including fall bow, permit bow, winter bow, 6-day firearm, permit shotgun, permit muzzleloader and youth deer hunt days. Wild turkey hunting would be permitted during the spring and fall State seasons for all approved methods of take. With the exception of groundhog, upland game hunting would be conducted during State seasons for all approved methods of take. The groundhog season would run concurrent with the State seasons for coyote and fox hunting. Migratory game bird hunting would be permitted during the State season for all approved methods of take. Access hours for hunting on the refuge would be from 1 hour before sunrise until 1 hour after sunset. Night hunting will not be allowed.

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

We would continue to conduct the hunting program according to State and Federal Regulations. Federal regulations in the Code of Federal Regulations (CFR) pertaining to the Refuge System, as well as refuge-specific regulations (50 CFR 32.49) would apply. However, the refuge manager may, upon annual review of the hunting program, take the necessary steps to impose further restrictions, recommend that the refuge be closed to hunting, or further liberalize hunting regulations up to the limits of State regulations. We would restrict hunting if it becomes inconsistent with other priority refuge programs or endangers refuge resources or public safety.

No refuge-specific permit or fees will be required to hunt on Supawna Meadows NWR. Hunters must possess all required State permits while hunting on the refuge. Check stations will not be established on the refuge. Hunters will be required to take their harvest to designated "check-in stations" as specified by NJDFW regulations. Primary access to hunting areas is by foot. Other hunt units can be accessed by boat from boat ramps at Stanton's Marina in Pennsville, New Jersey or Barber's Basin in Salem, New Jersey. Parking on Lighthouse Road is prohibited.

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. Only federally approved, non-toxic shot will be



permitted while hunting for upland game (except for turkey hunting). We will continue to encourage use of non-toxic ammunition for other hunts and will educate hunters and anglers about lead and potential impacts.

**(e) Why is the use being proposed?**

During the 2011 CCP process, Supawna Meadows NWR identified wildlife-dependent recreational uses as one of its objectives. Hunting is one of the priority public uses outlined in the Refuge Improvement Act. The Service supports and encourages priority uses when they are appropriate and compatible on national wildlife refuge lands. Hunting is a healthy and traditional recreational use of renewable natural resources that is deeply rooted in America's heritage. Hunting is also an important wildlife management tool.

The proposed action will further align the refuge with the Department of the Interior's Secretarial Order 3356, which directs the Service to enhance and expand public access to lands and waters on refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action will promote one of the priority public uses of the Refuge System.

**AVAILABILITY OF RESOURCES:**

The Refuge Recreation Act requires that funds be available for the development, operation, and maintenance of hunting programs. Annual hunt administration costs for Supawna Meadows NWR including salary, equipment, law enforcement, brochures, collection of hunt data, analysis of biological information, maintenance of sites/parking, communication with the public, etc. totals approximately \$17,500. Since Supawna Meadows NWR is an unstaffed satellite refuge, refuge staff are funded from the Cape May NWR's operational budget to support the hunting program. Costs associated with updating signage and maintaining access are funded by the operational budget and through maintenance funds, as appropriate. A breakdown of estimated expenses follows:

**Table A-1. Funding and Staffing Requirements for the Refuge Hunting Program**

Identifier	Cost
Staff (Biologist, Maintenance Worker, and Refuge Manager)	\$7,000
Maintain roads, parking lots, trails*	\$2,000
Materials and handouts	\$1,000
Signs and boundary posting	\$2,500
Law Enforcement	\$5,000
<b>Total Annual Cost</b>	<b>\$17,500</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 and fishing. Volunteers account for some maintenance hours and help to reduce overall cost of the program.*

It is anticipated that funding within the regular Operations and Maintenance budget of Cape May NWR to conduct an annual hunting program at Supawna Meadows NWR would continue to be sufficient in the future.

## **ANTICIPATED IMPACTS OF THE USE:**

Hunting has been permitted on the refuge since 1988 with no discernible adverse impacts to resources. Hunting provides wildlife-dependent recreational opportunities and can foster a better appreciation and more complete understanding of the wildlife and habitats associated with the southern New Jersey landscape. This could result in more widespread and stronger support for wildlife conservation, the refuge, the Refuge System, and the Service.

### **Vegetation and Soil**

Negative impacts of recreational hunting include the temporary trampling of vegetation and soil erosion. Most hunting activities occur during the fall, but impacts will be minimal. Some hunt seasons extend into winter when plants are dormant, and the ground is frozen or covered in snow.

Spring turkey hunters could trample some new growth, but the number of hunters on the refuge will be limited by a Statewide lottery hunt. Hunters use will be dispersed throughout the refuge during all seasons, minimizing the impact to any one area. Vehicles, including off-road vehicles, are prohibited. The refuge is accessible from the public road system. For these reasons, hunting is expected to have minimal adverse impacts on vegetation.

Positive, indirect effects on the vegetation will result from a reduction in the white-tailed deer population. The impacts of dense deer populations on forest regeneration and the composition and diversity of the herbaceous understory have been well-documented (Tierson et al. 1966, Behrend et al. 1970, Tilghman 1989, Cote et al. 2004, and White 2012). An abundance of deer can suppress native vegetation, facilitating the success of invasive species in forested habitats (Knight et al. 2009). Lessening the impact of excessive deer herbivory is a key forest management strategy (White 2012, Nuttle et al. 2013) and will likely become even more important as the climate warms (Galatowitsch et al. 2009).

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

Hydrology impacts from hunting would be minimal, and primarily result from the use of roads and trails. Unsurfaced trails are susceptible to a variety of impacts including loss of vegetation, compositional changes, soil compaction, erosion, muddiness, exposure of plant roots, trail widening, and the proliferation of visitor-created side trails (Marion and Leung 2001). Migratory game bird hunters are permitted to place temporary blinds on the marsh but must be removed at the end of the day, and permanent blinds are prohibited, which allows the tidal marsh daily recovery time and is in alignment with New Jersey State Parks. Some terrestrial wooded wetlands would be traversed to access hunting areas as well. If hunters use the same paths for access on a regular basis, impacts are still expected to be short-term and minor. Hunters are generally dispersed, which reduces the likelihood of soil erosion.

### **Non-target Species**

Hunting can impact both target and non-target species. These impacts include direct mortality of individuals, changes in wildlife behavior, changes in wildlife population structure, dynamics, and distribution patterns, and disturbance from hunting activities and from hunters walking on- and off-trail (Cole and Knight 1990, Cole 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 warier, staying closer to cover, and shifting feeding times (e.g., feeding more at night) (King and Workman 1986). For waterfowl species, hunting may also make them more skittish, more prone to disturbance, reduce the amount of time they spend foraging and resting, alter their habitat usage patterns, and disrupt their pair and family bonds (Raveling 1979, White-Robinson 1982, Madsen 1985, and Bartelt 1987).

In general, hunters 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, Kaiser and Fritzell 1984, Korschen et al. 1985, Kahl 1991, Klein 1993, Whittaker and Knight 1998), the use of suboptimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior or habituation to human disturbance (Burger 1981, Korschen et al. 1985, Morton et al. 1989, Ward and Stehn 1989, Havera et al. 1992, Klein 1993, Whittaker and Knight 1998), attraction (Whittaker and Knight 1998), and an increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990). The amount of disturbance tends to increase with decreased distance between visitors and birds (Burger 1986). Some bird species flee from human disturbance which can lower their nesting productivity and cause disease and death (Knight and Cole 1991). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. Bird communities in this study were apparently affected by the presence of recreational trails, where common species (i.e., American robins) were found near trails and more specialized species (i.e., grasshopper sparrows) were found farther from trails. Nest predation also was found to be greater near trails (Miller et al. 1998). Disturbance may affect the reproductive fitness of males by hampering territory defense, male attraction and other reproductive functions of song (Arcese 1987). Disturbance, which leads to reduced singing activity, makes males rely more heavily on physical deterrents in defending territories, which consumes time and energy (Ewald and Carpenter 1978). These disturbances would mostly be noticed on the refuge during the spring male-only turkey hunting in May. Hunters tend not to disperse very far from parking areas and roads, which leaves large areas of refuge land undisturbed.

Falconry may disrupt wildlife as an introduced predatory bird would cause additional disturbances to wildlife and therefore will be prohibited. While some disturbance to non-target wildlife species is expected, we anticipate that impact to be minimal, because the proposed hunting is regulated by the refuge and most of it occurs outside the breeding season (except for the spring turkey season). While spring turkey season occurs during the spring migration, we expect only a small percentage of hunters to hunt on the refuge. Turkey hunting is mostly sedentary and quiet, therefore would result in limited disturbance in localized areas. While many hunters hunt migratory game birds from boats, some hunters that hunt on refuge marshlands would disturb wintering birds like sparrows and small mammals that inhabit the areas. These impacts would be considered short-term and minor. The use of dogs while hunting will temporarily disturb wildlife and other hunters. Hunters engaging in all hunting types could disturb resident wildlife, which includes invertebrates, reptiles, amphibians, and non-hunted mammals, but negative impacts are expected to be minimal.

The taking of non-target hunt species will not be permitted during any hunting seasons. Non-toxic shot is required for all federally managed waterfowl hunting, which reduces negative impacts to wildlife using waterways and marshes. We propose to prohibit the use of lead ammunition for upland game hunting on the refuge. It is well known that lead is a potent neurotoxin for wildlife. Prohibiting the use of lead ammunition at Supawna Meadows NWR is consistent with the lead shot ban for waterfowl that inhabit the same pond, marsh and open water habitats where hunting may occur. This action is intended to reduce the unintentional introduction of a known neurotoxin into habitats, diving ducks, loons, eagles, and other wildlife species sensitive to the effects of lead. The requirement for use of non-toxic ammunition will apply to all upland game hunting opportunities. We will continue to encourage use of non-toxic ammunition for big game hunts and will educate hunters and anglers about lead and its impacts. Some scavenging of game shot on the ground or in carcasses left behind by hunters could occur, but the likelihood of poisoning of wildlife is low. Furthermore, to move towards reduction and future elimination of the threat from lead on the refuge, we will be implementing a lead tackle ban with fishing over a 5-year period to educate and work with anglers on non-toxic alternatives. The complete ban will begin in September 2026.

## **Big Game**

### *White-tailed deer*

The State's white-tailed deer population is estimated to be over 125,000 individuals. Hunting could result in direct mortality of individuals, changes in wildlife behavior, and changes in distribution patterns. Little additional acreage will be opening for deer hunting; however, additional methods of take will be opening. The annual take of approximately 173 deer from Zone 63 is not expected to change significantly. The NJDFW estimates that 14 deer are harvested on the refuge annually. Maintaining deer hunting opportunities at the refuge may have some additional impacts to local or regional deer populations due to the expanded hunting seasons. Hunting, in the context of an overabundant species like white-tailed deer is an important population management tool that can reduce habitat degradation and competition, yielding healthier populations in the long term.

### *Wild turkey*

The State's turkey population is estimated to be approximately 23,000 individuals. Hunting could result in direct mortality of individuals, changes in wildlife behavior, and changes in distribution patterns. With the opening of turkey hunting at Supawna Meadows NWR, the annual take of approximately 638 birds in Turkey Hunting Area 20 is expected to slightly increase based on an estimate from the NJDFW. Disturbance to turkeys in hunting areas will occur during the hunting season, but the impact of the disturbance is considered negligible, as flocks are prone to move regularly over large areas. Opening turkey hunting opportunities at the refuge is not expected to have any significant impacts to local or regional turkey populations.

## **Upland Game**

### *Coyote and Fox*

The presence of coyotes have been documented in all 21 counties of New Jersey. The coyote population appears to be increasing and is estimated at around 3,000 individuals. Foxes are also a common and abundant species and documented throughout the State. Hunting could result in direct mortality of individuals, changes in wildlife behavior, and changes in distribution patterns.

However, since coyotes and foxes are at their most active at night when hunting is prohibited on the refuge, impacts will be limited. NJDFW estimates that approximately 11,207 foxes and 88 coyote were hunted during the 2017-2018 hunting season across New Jersey. Although the refuge hunting program is anticipated to result in the direct mortality of individuals, this will not result in any long-term or significant negative impacts to the local or regional populations.

#### *Grouse and Pheasant*

As of June 2019, the New Jersey ruffed grouse population was deemed insufficient to support regulated hunting. NJDFW will continue to monitor the population and will adjust hunting opportunities accordingly. A grouse season would only be permitted on the refuge if the NJDFW opens a grouse season. Although stocking does not occur on the refuge, NJDFW stocks approximately 50,000 pheasants on Wildlife Management Areas Statewide. Hunting could result in direct mortality of individuals, changes in wildlife behavior, and changes in distribution patterns. However, grouse and pheasant are uncommon species on the refuge, which decreases the likelihood of disturbance. Considering the State's careful management of these species, any actualized hunting opportunities on the refuge will not have long-term negative impacts to local or regional grouse or pheasant populations.

#### *Small game*

Squirrels, rabbits, and groundhogs are common and abundant in New Jersey. Hunting could result in direct mortality of individuals, changes in wildlife behavior, disturbance from hunters or hunting dogs, and changes in distribution patterns. These species are typically hunted opportunistically, and due to anticipated low levels of harvest or small game on the refuge, impacts are expected to be limited. NJDFW estimates that 50 rabbit, 40 squirrel, and 5 groundhog will be harvested on the refuge. The use of dogs while hunting will temporarily disturb wildlife and other hunters. The proposed hunt will not result in any significant long-term impacts to local or regional small game populations due to the abundance of these species.

#### **Migratory Game Birds**

Migratory birds are managed on a flyway basis and hunting regulations are established in each State based on flyway data. Federal and State regulations would apply in the refuge waterfowl hunt. Hunting migratory game birds on the refuge would reduce the total numbers of birds in the flyway, but harvest would be within allowable limits as determined by the Service annually. NJDFW estimates that an additional 200 migratory game birds will be harvested on the refuge annually. Migratory game bird hunting on the refuge would make the birds more skittish, more prone to disturbance, reduce the amount of time they spend foraging and resting, and alter their habitat usage patterns (Raveling 1979, White-Robinson 1982, Madsen 1985, Bartelt 1987). Disturbance to non-target birds and resident wildlife would likely occur from hunting and associated activities but would be short-term and temporary. Overall, the effects on migratory birds are expected to be minimal.

#### **Threatened and Endangered Species**

A Section 7 analysis under the Endangered Species Act (ESA) of 1973, as amended was conducted in cooperation with the Service's New Jersey Field Office. Potential species include Northern long-eared bat, red knot, bog turtle, and sensitive joint-vetch.

The federally threatened plant species sensitive joint-vetch may potentially be growing in the Supawna Meadows NWR marsh. Sensitive joint-vetch, an annual legume, grows in fresh to slightly brackish tidal river systems within the intertidal zone where populations are subject to flooding twice daily. It typically grows at the outer fringe of marshes in localities where plant diversity is high and annual species are prevalent. Establishment and growth of this species relies on habitat containing bare or sparsely vegetated substrates (USFWS 2016a). There are only two documented populations of this species still in existence within southern New Jersey, one on the Wading River in Burlington County and one on the Manumuskin River in Cumberland County (USFWS 2012). Hunting generally occurs in open water and uplands. The majority of the marsh habitat is dominated by the invasive plant species phragmites where plant diversity is low; therefore, hunting should not have any significant effects to this plant species.

Bog turtles usually inhabit open-canopy emergent and scrub/shrub wetlands such as shallow spring-fed fens, sphagnum bogs, swamps, marshy meadows, and wet pastures bordered by wooded areas. They depend on microhabitats of interspersed wet and dry pockets with soft, muddy bottoms, vegetation dominated by low grasses and sedges, and a low volume of standing or slow-moving water (USFWS 2016b). Bog turtles have not been found on the refuge.

According to data records from the International Shorebird Survey eBird website on red knots (ACLO 2016), the nearest sighting of red knots migrating was on Pea Patch Island. They were not recorded as foraging or nesting in the area and their presence has not yet been documented on the refuge. The hunting area does not contain habitat sufficient to support these two species, so hunting is unlikely to adversely affect these species.

The federally threatened Northern long-eared bat uses mines and caves in the winter to hibernate and uses upland forests to forage and roost throughout the rest of the year. Bats may be temporarily impacted if disturbed by hunters walking through an area or setting up a tree stand in their roost tree, likely during spring turkey season and seasons in September and October but these impacts are expected to be minimal, temporary and unlikely to adversely affect the species.

### **Visitor Use and Experience**

Supawna Meadows NWR is open to all six priority wildlife-dependent recreational uses and some disturbance to other visitors is anticipated. Disturbance to other users could arise when hunters are travelling to or from hunting units or from the sounds during hunting hours. Hunting could be particularly disruptive to non-consumptive users because wildlife may temporarily avoid the areas adjacent to hunting units. Public outreach has been proposed to reduce conflicts among the different user groups. If conflicts arise among user groups, mitigation efforts can be implemented to ensure that the proposed use will not have significant impacts to other user groups. Impacts to other users will be limited to the hunting season and are minimized by time and space zoning that lessens the interactions between hunters and other wildlife dependent users. However, some short-term impacts are expected.

### **Other Impacts**

Because of the regulatory process for harvest management in place within the Service, hunting seasons have been set largely outside of the breeding seasons of resident and migratory wildlife. Individual refuge hunt programs have the ability to adopt refuge-specific hunting regulations to

changing local conditions. The refuge hunt program is designed to be sustainable, given relatively stable conditions, particularly because of close coordination with NJDFW. The proportion of the refuge's harvest of these species is negligible when compared to local, regional, and statewide populations and harvest. With these factors, we anticipate no significant impacts from hunting on resident wildlife, migratory birds and non-hunted wildlife on the refuge.

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

This Compatibility Determination (CD) is part of the Supawna Meadows NWR Hunting and Fishing Plan and the accompanying Environmental Assessment (EA). On April 14, 2021, we distributed a press release to news organizations and alerted the public about the availability of the draft Hunting and Fishing Plan, with the CDs and EA. We informed the public through local venues, the refuge website, and social media. No public meetings were held due to restrictions on public gatherings due to COVID-19. The public comment period ended on July 6, 2021, a total of 83 days. A total of six comment letters were submitted that offered input to the refuge. Any comments and our responses can be found in the Finding of No Significant Impact (Appendix E).

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

\_\_\_\_\_ Use is not compatible

\_\_\_X\_\_\_ Use is compatible, with the following stipulations

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

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

The following stipulations are necessary to ensure compatibility:

- Hunters may access refuge hunting areas from 1 hour our before sunrise until 1 hour after sunset.
- Permanent stands and blinds are prohibited. Hunters must remove all hunting stands, blinds, hunting materials, and decoys at the end of the hunting day in alignment with New Jersey State Parks to reduce the impacts to the marsh. Deer hunting stands must be removed at the end of the deer hunting season in alignment with state WMAs.
- Motorized and non-motorized vehicles are prohibited on designated refuge lands. This includes but is not limited to vehicles, all-terrain vehicles, dirt bikes, motorcycles, and bicycles. This does not apply to designated public roads.

- Only federally approved, non-toxic ammunition will be permitted while hunting for upland game.
- Falconry is prohibited.
- Dog training is prohibited at all times.
- Sunday hunting is prohibited.

**JUSTIFICATION:**

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

Hunting satisfies a recreational need, but hunting on national wildlife refuges is also an important, proactive management action that can prevent overpopulation and the deterioration of habitat. Disturbance to other species will occur, but this disturbance is generally short-term. Suitable habitat exists on refuge lands to support hunting as proposed.

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

**SIGNATURE:**

Refuge Manager

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

**CONCURRENCE:**

Regional Chief

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

**MANDATORY 15 YEAR RE-EVALUATION DATE:**

\_\_\_\_\_  
(Date)



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## **COMPATIBILITY DETERMINATION**

**USE:** Fishing

**REFUGE NAME:** Supawna Meadows National Wildlife Refuge

**DATE ESTABLISHED:** April 10, 1974

### **ESTABLISHING and ACQUISITION AUTHORITY(IES):**

Supawna Meadows National Wildlife Refuge (NWR, refuge) was originally established as an addition to the Killcohook Migratory Bird Refuge. Killcohook Migratory Bird Refuge was established by Executive Order 6582 on February 3, 1934. The refuge was originally called the Goose Pond addition to the Killcohook Migratory Bird Refuge. On April 10, 1974, the U.S. Fish and Wildlife Service (Service) renamed the Goose Pond addition as the Supawna Meadows NWR and officially separated it from Killcohook Migratory Bird Refuge. On October 30, 1998, the Service's jurisdiction over Killcohook was revoked.

### **REFUGE PURPOSE(S):**

- "...as a refuge and breeding ground for wild birds and animals...with particular value in carrying out the national migratory bird management program..." (Transfer of Certain Real Property for Wildlife Conservation Purposes Act, as amended [16 U.S.C. §667b-667d; 62 Stat. 240]).
- "...use as an inviolate sanctuary, or for any other management purpose, for migratory birds...." (Migratory Bird Conservation Act [16 U.S.C. §715d]); and
- "...as a refuge suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species" (Refuge Recreation Act, as amended [16 U.S.C. 460k-1]).

### **NATIONAL WILDLIFE REFUGE SYSTEM MISSION:**

The mission of the National Wildlife Refuge System (Refuge System) is "... to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (Refuge System Improvement Act of 1997, Public Law 105-57).

### **DESCRIPTION OF USE:**

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

The use is recreational fishing at Supawna Meadows NWR. Fishing was identified as one of six priority public uses of the Refuge System by the 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.

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

Fishing access would be provided on designated areas of Mill Creek, Mud Creek, Mannington Meadows, Miles Creek, and the impoundment on Xmas Tree Lane. A map is located in the Hunting and Fishing Plan accompanying this Compatibility Determination (CD).

*Freshwater Fishing*

Freshwater fishing is only permitted at the impoundment on Xmas Tree Lane and will occur year-round during regular refuge hours.

*Saltwater Fishing.*

Saltwater fishing on State waters is conducted during State seasons within regular refuge hours on of Mill Creek, Mud Creek, Mannington Meadows, and Miles Creek. Land-based saltwater fishing is prohibited from Lighthouse Road due to safety issues and a lack of parking.

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

Fishing would be conducted during the New Jersey Division of Fish and Wildlife (NJDFW) fishing seasons during open refuge hours. Fishing would be permitted on the refuge from 1-hour before sunrise until 1-hour after sunset. Night fishing is prohibited.

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

We would continue to conduct the fishing program according to State and Federal Regulations. Federal regulations in the Code of Federal Regulations (CFR) pertaining to the Refuge System, as well as existing refuge-specific regulations would apply. However, the refuge manager may, upon annual review of the fishing program, take the necessary steps to impose further restrictions, recommend that the refuge be closed to fishing, or further liberalize fishing regulations up to the limits of State regulations. We would restrict fishing if it becomes inconsistent with other priority refuge programs or endangers refuge resources or public safety.

No refuge-specific permit or fees will be required to fish on Supawna Meadows NWR. All freshwater anglers must possess a valid State fishing license. All saltwater anglers must register with the State's saltwater fishing registry. Fishing access may be available from boat ramps at Stanton's Marina in Pennsville, New Jersey, Barber's Basin in Salem, New Jersey, and by foot from refuge parking areas. All fishing on the refuge would be conducted in accordance with State regulations. Parking on Lighthouse Road is prohibited.

No fish of any species may be introduced onto the refuge without appropriate State and refuge permits, including baitfish and eggs. Unauthorized introductions of both non-native and native fish can disrupt aquatic ecosystems and destroy natural fisheries. Fishing for commercial purposes is prohibited.

Nationwide, there is concern about the bioavailability of spent lead sinkers on the environment, endangered and threatened species, birds (especially raptors), mammals, and other fish and wildlife susceptible to biomagnification. We propose to restrict the use of lead tackle on the refuge for fishing. This action is intended to reduce the unintentional introduction of a known

neurotoxin into habitats used by fish and other wildlife species sensitive to the effects of lead. The lead restriction will begin September 2026, implemented over a 5-year phase-in period, allowing anglers time to adapt to the new regulations without diminishing fishing opportunities. The refuge will conduct education programs and provide information to anglers and the public on non-toxic alternatives, which may assist during the transition period in detailing benefits to fish, wildlife, and people.

**(e) Why is the use being proposed?**

During the 2011 CCP process, Supawna Meadows NWR identified expanding wildlife-dependent recreational uses as one of its objectives. Fishing is one of the priority public uses outlined in the Refuge Improvement Act. The Service supports and encourages priority uses when they are appropriate and compatible on refuge lands. Fishing is a popular and healthy recreational use of renewable natural resources that is deeply rooted in America’s heritage.

The purpose of the proposed action will further align the refuge with the Department of the Interior’s Secretarial Order 3356, which directs the Service to enhance and expand public access to lands and waters on refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action will promote a priority public use of the Refuge System.

**AVAILABILITY OF RESOURCES:**

The Refuge Recreation Act requires that funds be available for the development, operation, and maintenance of fishing programs. Annual fishing administration costs for Supawna Meadows NWR including salary, equipment, law enforcement, brochures, collection of fishing data, analysis of biological information, maintenance of sites and parking, communication with the public, etc. totals approximately \$7,000. Since Supawna Meadows NWR is an unstaffed satellite refuge, refuge staff are funded from Cape May NWR’s operational budget to support the fishing program. Costs associated with updating signage and maintaining access are funded by the operational budget as well and through maintenance funds, as appropriate. A breakdown of estimated expenses follows:

**Table B-1. Funding and Staffing Requirements for the Refuge Fishing Program**

Identifier	Cost
Staff (Biologist, Maintenance Worker, and Refuge Manager)	\$3,000
Maintain roads, parking lots, trails*	\$500
Materials and handouts	\$500
Signs and boundary posting	\$1,000
Law Enforcement	\$2,000
<b>Total Annual Cost</b>	<b>\$7,000</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 and fishing. Volunteers account for some maintenance hours and help to reduce overall cost of the program.*

It is anticipated that funding within the regular Operations and Maintenance budget of Cape May NWR to conduct an annual fishing program at Supawna Meadows NWR would continue to be sufficient in the future.

## **ANTICIPATED IMPACTS OF THE USE:**

### **Hydrology (Water Resources)**

Paths used by anglers can affect the hydrology of an area by altering drainage patterns. Additional impacts to water resources could arise from illegal littering, the use of lead tackle, or from the use of boats which could accidentally leak polluting substances or carry diseases and invasive species. However, with regulations, enforcement and educational outreach, we anticipate the fishing program to have no significant impacts to water resources on the refuge.

### **Vegetation and Soil**

Negative impacts of recreational fishing include the temporary trampling of vegetation and soil erosion. Anglers travelling to and from fishing areas by foot and boat may create paths that result in damage to vegetation, soil compaction, and erosion. Such impacts would be limited to the fishing season. Fishing is expected to have minimal impacts on vegetation and soil on the refuge.

### **Fish**

Recreational fishing could potentially cause negative impacts to fish populations if it occurs at unsustainably high levels or is not managed properly. Potential impacts include direct mortality from harvest, catch and release injury, changes in age and size class distribution, changes in reproductive capacity and success, loss of genetic diversity, altered behavior, and changes in ecosystems and food webs (Lewin et al. 2006, Cline et al. 2007). Fishing generally removes individuals from a population at high levels and can lead to reduced population sizes and loss of genetic diversity. The loss of genetic diversity can ultimately reduce a population's fitness, resilience and ability to adapt to environmental changes and stressors. The higher the fishing mortality, the greater these types of impacts will be (Lewin et al. 2006).

We propose to restrict the use of lead tackle on the refuge for fishing. This action is intended to reduce the unintentional introduction of a known neurotoxin into habitats used by fish and other wildlife species sensitive to the effects of lead. The lead restriction will begin September 2026, implemented over a 5-year phase-in period, allowing anglers time to adapt to the new regulations without diminishing fishing opportunities. The refuge will conduct education programs and provide information to anglers and the public on non-toxic alternatives, which may assist during the transition period in detailing benefits to fish and wildlife.

Baitfish or other species introduced to the water may become invasive and displace native fish and are therefore prohibited from the refuge.

While fishing removes individuals from the population, we do not anticipate that projected fishing pressure will affect the coastal fish population as a whole. NJDFW strives to ensure maintenance of healthy and diverse fish species populations. Anglers must abide by the State's seasons, catch limits, and regulations to protect the State's fish populations. The refuge fishing program is designed to be sustainable through time, given relatively stable conditions, particularly because of

close coordination with NJDFW. Because fishing programs are conducted in alignment with regulations set by the State, fishing on the refuge is not expected to have significant negative impacts on fish populations on or around the refuge.

### **Wildlife**

Fishing at Supawna Meadows NWR could potentially disturb birds, small mammals and aquatic species near fishing areas. People fishing may leave trash such as fishing line and bobbers that may entangle or kill wildlife. Use of baitfish or other species introduced to the water, would become invasive and displace native fish, creating a lack of food for native wildlife. However, we anticipate this disturbance would be minimal, short-term and confined to the fishing season.

Fishing has the potential to increase disturbance to other wildlife that use fishable waters, including waterfowl and wading birds. Human activity, including walking trails and boat use, has the potential to affect the behavior, distribution, and abundance of waterbirds due to disturbance. Several studies have examined the effects of recreation on birds using habitats adjacent to trails and roads through wildlife refuges and coastal habitats in the Eastern United States. Overall, the existing research demonstrates that disturbance from recreational activities has at least temporary effects on the behavior and movement of birds and other animals within a habitat or localized area (Burger 1981, Klein et al. 1995).

*Presence:* Birds avoided places where people were present and when visitor activity was high (Burger 1981, Klein et al. 1995, Burger and Gochfeld 1998). Birds developed more slowly during periods of increased public use (Remacha et al. 2016). Mammalian use of trails in eastern forests was not impacted by hikers (Kays et al. 2017).

*Trail Density:* Bird nesting density decreased with increased trail density within a forested patch (Thompson 2015).

*Approach Angle:* Visitors directly approaching birds on foot caused more disturbance than visitors driving by in vehicles, stopping vehicles near birds, and stopping vehicles and getting out without approaching birds (Klein 1993). Direct approaches may also cause greater disturbance than tangential approaches to birds (such as along trails) (Burger and Gochfeld 1981, Knight and Cole 1991, Rodgers and Smith 1995, Rodgers and Smith 1997, Smith-Castro and Rodewalk 2010).

*Noise:* Noise caused by visitors resulted in increased levels of disturbance (Burger 1986, Klein 1993, Burger and Gochfeld 1998), though noise was not correlated with visitor group size (Burger and Gochfeld 1998).

### **Threatened and Endangered Species**

A Section 7 analysis under the Endangered Species Act (ESA) of 1973, as amended was conducted in cooperation with the Service's New Jersey Field Office. Potential species include sensitive joint-vetch, Northern long-eared bat, bog turtle, and red knot,

The federally threatened plant species sensitive joint-vetch can potentially grow in the Supawna Meadows marsh. Sensitive joint-vetch, an annual legume, grows in fresh to slightly brackish

tidal river systems within the intertidal zone where populations are subject to flooding twice daily. It typically occurs at the outer fringe of marshes in localities where plant diversity is high and annual species are prevalent. Establishment and growth of this species relies on habitat containing bare to sparsely vegetated substrates (USFWS 2016a). There are only two documented populations of this species still in existence within Southern New Jersey: one on the Wading River in Burlington County and one on the Manumuskin River in Cumberland County (USFWS 2012). Fishing generally occurs in open water so it will not have any significant effect to this plant species.

Northern long-eared bats use mines and caves in the winter to hibernate and uses upland forests to forage and roost throughout the rest of the year. Bog turtles usually inhabit open-canopy emergent and scrub/shrub wetlands such as shallow spring-fed fens, sphagnum bogs, swamps, marshy meadows, and wet pastures bordered by wooded areas. They depend on microhabitats of interspersed wet and dry pockets with soft, muddy bottoms, vegetation dominated by low grasses and sedges, and a low volume of standing or slow-moving water (USFWS 2016b). Bog turtles have not been found on the refuge. The fishing area does not contain habitat sufficient to support Northern long-eared bats or bog turtles. According to data records from the International Shorebird Survey eBird website on red knots (ACLO 2016), the nearest sighting of red knots migrating was on Pea Patch Island. They were not recorded foraging or nesting in the area and have not yet been on the refuge.

Anglers will generally be walking along refuge trails or using boats. Given the habitat types near fishing areas and observations from staff, anglers would have minimal effect on any nesting birds. Endangered bird species have not been observed nesting in areas that are utilized by anglers. We would close refuge areas, as needed, to fishing and boating if sensitive nest sites were to occur. Impacts to threatened and endangered species are expected to be minimal and unlikely to adversely affect any species.

### **Visitors and Other Uses**

The refuge is open to all six of the Refuge System's priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education and environmental interpretation). Each year, the refuge gets about 15,000 visitors including hunters, anglers and other kinds of users. Expanded fishing opportunities could positively contribute to appreciation and protection of fish and wildlife both on and off the refuge. One beneficial impact of providing this wildlife-dependent activity with modest increases is helping the refuge meet the existing and future demands for outdoor recreation and education. Only negligible and short-term impacts to other user groups have occurred and are anticipated to occur in the future.

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

This CD is part of the Supawna Meadows NWR Hunting and Fishing Plan and the accompanying Environmental Assessment (EA). The plan was coordinated with all interested and/or affected parties, including NJDFW staff. On April 14, 2021, we distributed a press release to news organizations and alerted the public about the availability of the draft Hunting and Fishing Plan, with the CDs and EA. We informed the public through local venues, the refuge website, and social media. No public meetings were held due to restrictions on public gatherings



due to COVID-19. The public comment period ended on July 6, 2021, a total of 83 days. A total of six comment letters were submitted that offered input to the refuge. Any comments and our responses can be found in the Finding of No Significant Impact (Appendix E).

**DETERMINATION (CHECK ONE BELOW):**

\_\_\_\_\_ Use is not compatible

  X   Use is compatible, with the following stipulations

**STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

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

The following stipulations are necessary to ensure compatibility:

- Fishing is permitted from 1 hour before sunrise until 1 hour after sunset. Night fishing is prohibited.
- Shell fishing is prohibited.
- We prohibit the taking of frogs and turtles from all non-tidal waters and refuge lands.
- We prohibit bowfishing in non-tidal waters.
- Bait fishing is prohibited.
- Fishing is prohibited on Lighthouse Road.
- A restriction on lead fishing tackle will begin September 2026, implemented over a 5-year phase-in period, allowing anglers time to adapt to the new regulations without diminishing fishing opportunities. Until then, we will encourage the use of non-toxic alternatives.

**JUSTIFICATION:**

The Refuge System Improvement Act of 1997 identifies fishing as a priority public use. Priority public uses are to receive enhanced consideration when developing goals and objectives for refuges if they are determined to be compatible. Providing fishing opportunities will promote public appreciation and support for the refuge. Recreational fishing will not materially interfere with or detract from the mission of the Refuge System or the purposes for which the refuge was

established. We, therefore, find that public fishing conducted according to the State of New Jersey seasons and limits, and in accordance with the stipulations provided above, will be compatible with the principles of sound wildlife management and otherwise in the public interest (50 CFR § 32.1.)

**SIGNATURE:**

Refuge Manager

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

**CONCURRENCE:**

Regional Chief

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

**MANDATORY 15 YEAR RE-EVALUATION DATE:**

\_\_\_\_\_  
(Date)

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# **Environmental Assessment for Hunting and Fishing at Supawna Meadows National Wildlife Refuge**

This Environmental Assessment (EA) is being prepared to evaluate the effects associated with this proposed action and complies with the National Environmental Policy Act (NEPA) in accordance with Council on Environmental Quality regulations (40 CFR 1500-1509), Department of the Interior (43 CFR 46; 516 DM 8) and U.S. Fish and Wildlife Service (Service) regulations (550 FW 3) and policies. NEPA requires examination of the effects of proposed actions on the natural and human environment. A list of laws and executive orders evaluated through this EA is included at the end of this document.

## **Proposed Action**

The Service is proposing to open or expand opportunities for big game, upland game, and migratory game bird hunting at Supawna Meadows National Wildlife Refuge (NWR, refuge) in accordance with the refuge's Comprehensive Conservation Plan (CCP; 2011). The refuge was previously open to white-tailed deer and waterfowl hunting, but would expand the hunting program to include turkey, grouse, pheasant, rabbit, squirrel, coyote, fox, groundhog (referred to as woodchuck by State regulations), crow, coot, gallinule, rail, and snipe hunting. The refuge would also adjust the opportunities open for migratory game bird hunting, saltwater fishing and freshwater fishing.

This proposed action is often iterative and evolves over time during the process as the Service refines its proposal and learns more from the public, Tribes, and other agencies. Therefore, the final proposed action may be different from the original. The final decision on the proposed action will be made 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, 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.

Supawna Meadows NWR was originally established as an addition to the Killcohook Migratory Bird Refuge. Killcohook Migratory Bird Refuge was established by Executive Order 6582 on February 3, 1934. The refuge was originally called the Goose Pond addition to the Killcohook Migratory Bird Refuge. On April 10, 1974, the Service renamed the Goose Pond addition as the Supawna Meadows NWR and officially separated it from Killcohook Migratory Bird Refuge. On October 30, 1998, the Service's jurisdiction over Killcohook was revoked.

The primary purposes of Supawna Meadows NWR are:

- "...as a refuge and breeding ground for wild birds and animals...with particular value in carrying out the national migratory bird management program..." (Transfer of Certain

Real Property for Wildlife Conservation Purposes Act, as amended [16 U.S.C. §667b-667d; 62 Stat. 240]).

- “...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds....” (Migratory Bird Conservation Act [16 U.S.C. §715d]).
- “...as a refuge suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species” (Refuge Recreation Act, as amended [16 U.S.C. 460k-1]).

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.

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

Hunting and fishing are healthy, traditional, recreational uses of renewable natural resources deeply rooted in America's heritage, and can be important wildlife management tools. National wildlife refuges, including Supawna Meadows NWR, conduct hunting and fishing programs within the framework of Federal, State, and refuge regulations. The NWRSA of 1966, the Refuge System Improvement Act of 1997, and Service policy permit hunting and fishing on a refuge as a priority wildlife-dependent recreational opportunity when it is compatible with the purposes for which the refuge was established and acquired. Hunters and anglers on the refuge are expected to be ethical and respectful of other users, wildlife species, and the environment while on refuge lands.

The purpose of the proposed action is to provide compatible wildlife-dependent recreational opportunities on Supawna Meadows NWR. The need of the proposed action is to meet the Service's priorities and mandates as outlined by the NWRSA 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)). Furthermore, the proposed action should bring the refuge more into compliance with current management objectives noted in the refuge CCP to provide for and where possible, expand, opportunities for recreational fishing, big game hunting, small game hunting, and migratory game bird hunting. Department of the Interior Secretarial Order 3356 directs the Service to enhance and expand public access to lands and waters on national wildlife refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action will also promote one of the priority public uses of the Refuge System, and providing opportunities for visitors to hunt and fish can promote stewardship of our natural resources and increase public appreciation and support for the refuge.

The EA serves as the NEPA document which analyzes the impacts on environmental, cultural, and historical resources of providing additional hunting and fishing opportunities on the refuge.

### **Alternatives**

#### **Current Management – No Action Alternative**

The No Action Alternative would continue the refuge's current hunting and fishing programs. Under current management, 2,697 acres of the refuge are open to hunting. White-tailed deer hunting is open on all 2,697 acres, and waterfowl hunting is allowed on 664 acres. White-tailed deer hunting is conducted during the State archery seasons and waterfowl hunting is conducted during the State waterfowl seasons. Under this action, the refuge would not open to upland game hunting or expand its big game or migratory game bird hunting programs or hunting areas. White-tailed deer hunting would remain limited to an archery-only hunt. Fishing access would be provided on designated areas of the Mill Creek, Mud Creek, Baldrige Creek and Mannington Meadows.

#### **Expanded Hunting and Fishing Opportunities – Proposed Action Alternative**

The refuge has prepared a Hunting and Fishing Plan, which is presented in this document as the Proposed Action Alternative. Under this alternative, the refuge would open and expand its big game, upland game, and migratory game bird hunting programs. Big game species would include

white-tailed deer and turkey. White-tailed deer would be hunted on 3,179 acres of the refuge. The refuge would be open for all six State Deer Management Zone 63 seasons including fall bow, permit bow, winter bow, 6-day firearm, permit shotgun, permit muzzleloader, and youth deer hunt days. Hunting in the seasonally closed area would be closed to hunting from January 1 to July 31. Turkey would be hunted on 3,179 acres of the refuge during the spring and fall State seasons. Turkey would be opened for the first time on refuge lands. Upland game hunting on the refuge would include coyote, fox, groundhog, rabbit, squirrel, grouse and pheasant hunting. Upland game hunting would be opened for the first time on refuge lands. These species would be hunted on 3,179 acres with the exception of groundhog. The groundhog season would run concurrent with the State coyote and fox hunting seasons. Migratory game bird hunting would be expanded to include coot, gallinule, rail, snipe and crow. These seasons would be opened for the first time on refuge lands. Migratory game bird hunting would be conducted on 1,380 acres of the refuge during the State seasons. Migratory game bird hunting would include the late portion of snow goose season as well as the Conservation Order.

Fishing access would be expanded to new areas and would be permitted in designated areas of Mill Creek, Mud Creek, Mannington Meadows, Miles Creek, and the impoundment on Xmas Tree Lane, coinciding with the migratory game bird hunting areas. Fishing would no longer be allowed in Baldrige Creek.

Nationwide, there is concern about the bioavailability of spent lead ammunition (bullets) and sinkers on the environment, endangered and threatened species, birds (especially raptors), mammals, and other fish and wildlife susceptible to biomagnification. Only federally approved, non-toxic shot will be permitted while hunting for upland game (except for turkey hunting). We will continue to encourage the use of non-toxic ammunition for big game hunts and will educate hunters and anglers about lead and its impacts. Furthermore, to move towards reduction and future elimination of the threat from lead on the refuge, we will be implementing a lead tackle restriction with fishing over a 5-year period to educate and work with anglers on non-toxic alternatives. The complete restriction will begin in September 2026.

#### *Measures to Avoid Conflicts*

- The refuge would limit the groundhog hunting season to prevent impacts to nesting birds and other wildlife-dependent recreational users during summer.
- The refuge would limit hunting and fishing in the seasonally closed area to prevent impacts to nesting bald eagles from January 1 to July 31.
- The refuge would clearly post information about the hunting season at the refuge headquarters and on the website for awareness of other refuge visitors.
- The refuge would encourage all, visitors, including non-hunters, to wear blaze orange during the hunting season to minimize potential safety issues.
- The refuge will not be open to Sunday hunting.



The Closed Area (327 acres) would not be open to hunting. The Seasonally Closed Area (147 acres) would be closed to hunting from January 1 to July 31. Fishing access would no longer be provided in Baldrige Creek or the Seasonally Closed Area to reduce impacts to wintering waterfowl and nesting bald eagles. Portions of Supawna Meadows NWR were designated, acquired, reserved, or set apart as an inviolate sanctuary; therefore, hunting may only be allowed for migratory game birds on no more than 40 percent of the refuge. The waterfowl hunting zone would be reconfigured and 1,380 acres would be open to migratory game bird hunting. By expanding and/or maintaining hunting and fishing opportunities, but retaining some closed areas to prevent conflicts, the refuge would promote a balance of wildlife-dependent recreational uses. This alternative offers increased opportunities for hunting and fishing and fulfills the Service's mandate under the Refuge System Improvement Act of 1997.

#### **Alternative(s) Considered, But Dismissed From Further Consideration**

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 and fishing plan as described in the "purpose and need" section of this EA. Closing the refuge to hunting would conflict with the Refuge System Improvement Act, which provides that hunting is an appropriate and priority use of the Refuge System, 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 close 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 New Jersey Division of Fish and Wildlife (NJDFW), a division of the New Jersey Department of Environmental Protection, to develop the current proposed hunting and fishing plan. Supawna Meadows NWR supported the States suggestions of firearm hunting without permits, allowing dogs, pheasant hunting, coyote and fox hunting, and extending waterfowl hunting to include late season snow goose and the Light Goose Conservation Order. It will remain closed to ruffed grouse hunting until the state opens. Woodcock hunting was also proposed by the state, but the hunt would increase the migratory bird hunting area beyond 40/60 percent mandated in the Migratory Bird Conservation Act, therefore we are prohibiting woodcock hunting at Supawna Meadows NWR. We plan to clarify the proposal of a lead fishing tackle restriction for anglers and also provide outreach for invasive species.

There are no unresolved conflicts about the proposed action with respect to the alternative uses of available resources. Additionally, the proposed action builds on existing hunting and fishing programs, and includes the addition of some areas that were acquired through development 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 both (1) the existing environmental and socioeconomic baseline in the action area for each resource and (2) the 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. This EA focuses on the written analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible and therefore considered an "affected resource." Resources that will not be more than negligibly impacted by the action may be dismissed from further analyses (see Table C-1). We determine significance by considering the degree of effects to that environment, and connected actions are used to assist in determining significance.

The refuge consists of approximately 3,506 acres in Salem County, New Jersey (see Figure 1 of the Hunting and Fishing Plan). The refuge is located on the southeastern tidal shore of the Delaware River Estuary. It is on the western edge of the New Jersey Inner Coastal Plain in the North Atlantic Coast Ecoregion. The refuge has a flat terrain typical of Delaware estuary tidal areas. Elevations on the refuge range from 0 to 10 feet above mean sea level (msl) (USFWS 2005a).

More than seventy percent of the refuge is slightly brackish tidal marsh occurring along the upper Delaware Bay and the southern edge of Mannington Meadows. This unique habitat includes a mixture of fresh and saltwater plants and wildlife and is an important resting and feeding area for waterfowl, shorebirds, and other wildlife. The extensive marshlands on the site are critical to the thousands of waterfowl and shorebirds that use the Atlantic Flyway.

Almost 390 acres of upland forest and forested wetlands provide habitat for a diversity of wildlife on the refuge. Amphibians such as Southern leopard frogs, New Jersey chorus frogs, and spring peepers rely on ephemeral vernal pools for breeding habitat. The forest along the Forest Habitat Trail is considered one of the best examples of a high quality, healthy forest in southern New Jersey. Songbirds such as wood thrush, Baltimore oriole, and Eastern wood-pewee breed in this area. White-tailed deer are often seen as well.

The 80-acre grassland area is used by Northern harriers and American kestrels as they fly over the fields looking for small rodents to eat. Mammals, reptiles, and amphibians use the site throughout the year. The grassland provides important nesting habitat for the Northern diamondback terrapin, a species of special concern in New Jersey. Remaining refuge habitat consists of approximately 240 acres of wetland and upland shrub habitat and 110 acres of open water. The shrub habitat supports a variety of birds including American woodcock, indigo bunting, and field sparrow.

**TABLE C-1. POTENTIAL FOR ADVERSE IMPACTS FROM PROPOSED ACTION AND ALTERNATIVES**

<b>Resources</b>	<b>Not Applicable:</b> Resource does not exist in project area	<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 and Other Special Status Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Habitat and Vegetation (includes vegetation of special management concern)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Geology and Soils	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air Quality	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Water Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 Experiences	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cultural Resources	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Refuge Management and Operations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Socioeconomics and Environmental Justice	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**White-tailed Deer***Affected Resource Description*

Supawna Meadows NWR is located in the New Jersey Deer Management Zone (DMZ) 63. During the 2018-2019 season, 173 deer were harvested in DMZ 63. During the same season, 50,861 total deer were harvested Statewide. The total deer population in New Jersey is over 125,000 individuals. The State deer population has declined since it reached a peak at over 200,000 individuals in 1995 but has been increasing steadily since 2014. The population remains at a problematic and overpopulated level in many areas of the State. NJDFW will adjust seasons and limits to maintain healthy populations.

### *Anticipated Impacts*

#### No Action

White-tailed deer hunting would continue to be permitted on 2,697 acres of the refuge. Deer hunting would remain archery-only. It is estimated that during the 2019-2020 hunt season, 1,000 white-tailed deer hunt visits were made to the refuge. Under the No Action Alternative, we expect current levels of use and impacts would occur, as no new opportunities would be added.

#### Proposed Action

Under the proposed action, 3,179 acres of the refuge would be open for white-tailed deer hunting. The method of take for deer hunting would be expanded from archery-only to include all six State Deer Management Zone 34 seasons including fall bow, permit bow, winter bow, 6-day firearm, permit shotgun, permit muzzleloader, and youth deer hunt days. The annual take of deer on the refuge comprises a fraction of the DMZ 63's annual total, which during the 2018/2019 season was 173 deer. The refuge expects approximately 200 deer will be harvested in the DMZ 63 hunt zone during the upcoming season with a commensurate fraction of that total harvested on the refuge. Although impacts are expected to increase, the hunting program is not expected to result in any long-term or significant negative impacts to local or regional deer populations. It is unlikely hunter numbers will increase considerably, though some increase is expected with expanded opportunities for new seasons. Disturbance to individuals will be spread out across a wider area. Increasing the seasons should result in a small influx of new users to the refuge. With the expanded hunt opportunity, the refuge expects some positive impacts from managing the overabundant deer population including decreased damage to vegetation and habitat and less disease and competition within the deer population.

### **Wild Turkey**

#### *Affected Resource Description*

New Jersey Statewide turkey population is estimated at approximately 23,000 individuals. From 1985 to 2000, turkey populations in New Jersey steadily increased from approximately 6,200 birds to approximately 23,000 birds. The Statewide turkey population has remained stable at approximately 21,000 to 23,000 individuals since 2000. The annual Statewide turkey harvest is estimated at approximately 3,000 individuals. Supawna Meadows NWR is located in New Jersey Turkey Hunting Area (THA) 20. During the 2019 spring season, 638 turkeys were harvested in THA 20. NJDFW will adjust seasons and limits to maintain healthy populations.

### *Anticipated Impacts*

#### No Action

Under the No Action Alternative, wild turkey would not be hunted on the refuge. No additional impacts to this species would be expected as no new hunting opportunities would be provided.

#### Proposed Action

Under the proposed action, 3,179 acres of the refuge would be open for turkey hunting. The annual take of turkey on the refuge comprises a fraction of THA 20's annual total, which during the 2018-2019 season was 638 individuals. The refuge expects approximately 675 birds will be harvested in the THA during the upcoming season with NJDFW estimating 1 turkey would be harvested on the refuge. The THA would overlap the refuge deer hunting area. The State does not intend to change the number of permits issued for turkey hunting under this alternative

(NJDFW pers. comm.), so there would be no increased potential for more birds to be harvested statewide. The hunt program is anticipated to result in the direct mortality of individuals and may result in short-term disturbance, changes in wildlife behavior or avoidance of these hunting areas. Considering statewide limitations on turkey hunting, impacts to local or regional populations are expected to be minor.

## **Upland Game**

### *Affected Resource Description*

#### **Coyote and Fox**

Coyotes have been documented in all 21 counties of New Jersey. The coyote population appears to be increasing and is estimated at around 3,000 individuals. NJDFW estimates that approximately 11,207 foxes and 88 coyotes were harvested during the 2017-2018 hunting season across New Jersey. NJDFW will adjust seasons and limits to maintain healthy populations.

#### **Grouse and Pheasant**

As of June 2019, the New Jersey ruffed grouse population was deemed insufficient to support regulated hunting. NJDFW will continue to monitor the population and will adjust hunting opportunities accordingly. Although stocking does not occur on the refuge, NJDFW stocks approximately 50,000 pheasants on Wildlife Management Areas statewide. NJDFW will adjust the stocking schedule, hunting seasons, and bag limits annually to maintain a huntable population. NJDFW estimates that 62,948 pheasant and 233 grouse were harvested during the 2017-2018 hunting season across New Jersey.

### *Anticipated Impacts*

#### **No Action**

Under the No Action Alternative, coyote, fox, grouse, and pheasant would not be hunted on the refuge. No additional impacts to these species would be expected as no new hunting opportunities would be provided.

#### **Proposed Action**

Under the proposed action, 3,179 acres would be open for coyote and fox hunting on the refuge. Coyote and fox hunting would overlap with the refuge deer hunting area. While a large number of acres will be open for these hunting seasons, high quality habitat is limited on the refuge, and impacts on coyote and fox by hunting activities will be limited. These species are abundant throughout the State and have relatively high reproductive rates, which limits the impact of additional hunting. NJDFW has estimated that 5 coyote and fox could be harvested on the refuge.

When reopened by the State, grouse hunting would be permitted on 3,179 acres of refuge property. Pheasant hunting would also be conducted on 3,179 acres of refuge property. The grouse and pheasant hunting area would overlap the refuge deer hunting area. Grouse hunting would only be permitted once statewide populations were deemed sufficient for regulated hunting. The negative impacts of lead on wildlife are documented and clear (Golden et al. 2016, Grade et al. 2019, and Hunt et al. 2009). To move towards reduction and future elimination of this threat on the refuge, the requirement to use non-toxic ammunition is proposed for upland game hunting opportunities and will be required upon implementation of this plan in 2021. We

will continue to encourage use of non-toxic ammunition for other hunts and will educate hunters and anglers about lead and its impacts.

The hunt program is anticipated to result in the direct mortality of individuals and may result in short-term disturbance or avoidance of hunting areas. Considering the abundant statewide population, impacts to local or regional populations are expected to be minor in the long-term. Based on anticipated hunter participation and proposed design of the hunt program, we expect the following harvest numbers annually on Supawna Meadows NWR for upland game species: 5 coyote and fox, trace pheasant.

### **Small Game**

#### *Affected Resource Description*

Small game hunting on the refuge would include rabbit, groundhog and squirrel. For squirrel, the current bag limit is 5 per day with no annual limit. For rabbit and hare, the current bag limit is 4 per day for cottontail and 1 per day for hare with no annual limit. There is no bag limit for groundhog. These species are common and abundant in the State of New Jersey with high reproductive success. NJDFW will adjust seasons and limits to maintain healthy populations. NJDFW estimates that approximately 28,619 rabbits, 60,735 squirrels and 32,035 groundhog were harvested during the 2017-2018 hunting season across New Jersey.

#### *Anticipated Impacts*

##### **No Action**

Under the No Action Alternative, rabbit, squirrel and groundhog would not be hunted on the refuge. No additional impacts to these species would be expected as no new hunting opportunities would be provided.

##### **Proposed Action**

Under the proposed action, 3,179 acres would be open for rabbit, squirrel and groundhog hunting on the refuge. Rabbit, squirrel and groundhog hunting would overlap the refuge deer hunting area. While a large number of acres will be open for these hunting seasons, high quality habitat is limited on the refuge, and impacts on rabbits, squirrels and groundhogs from hunting activities will be limited. These species are abundant throughout the State and have a high reproductive rate, which limits the impact of hunting. The hunt program is anticipated to result in the direct mortality of individuals and may result in short-term disturbance but impacts to local or regional populations are expected to be minor. Under the proposed action, the refuge expects that approximately 40 squirrels, 50 rabbits, and 5 groundhogs will be harvested on the refuge annually.

### **Migratory Game Birds**

#### *Affected Resource Description*

Annual waterfowl assessments are based upon the distribution, abundance, and flight corridors of migratory birds. An Annual Waterfowl Population Status Report is produced each year and includes the most current breeding population and production information available for waterfowl in North America (USFWS 2017). An Annual Adaptive Harvest Management Report (AHM) provides the most current data, analyses, and decision-making protocols (USFWS 2017b).

Populations of these species have remained relatively stable. NJDFW estimates that approximately 31,300 dabbling ducks, 28,000 sea ducks, 5,200 brant, 26,600 Canada geese, and 1,500 light geese were harvested during the 2016-2017 hunting season across New Jersey.

#### *Anticipated Impacts*

##### No Action

Under the No Action Alternative, coot, gallinule, rail, crow and snipe would not be hunted on the refuge. No additional impacts to these species would be expected as no new hunting opportunities would be provided. Waterfowl hunting would continue to be permitted on 664 acres of the refuge. Species open to hunting under this alternative include dark geese, light geese, duck, and sea duck. It is estimated that during the 2019-2020 hunt season, 500 waterfowl hunt visits were made to the refuge. Current levels of harvest would be expected under this action as no new opportunities would be provided.

Historically, the principal cause of lead poisoning in waterfowl was the collection of high densities of lead shot in wetland sediments associated with migratory bird hunting activities (Kendall et al. 1996). In 1991, as a result of high bird mortality, the Service instituted a nationwide ban on the use of lead shot for hunting waterfowl and coots (50 CFR 32.2(k)). Prohibition of lead shot for hunting waterfowl and coot would remain in place under the no action alternative.

##### Proposed Action

Under the proposed action, 1,380 acres would be open for migratory game bird hunting. In addition to the expansion in acreage, the refuge would open to coot, gallinule, rail, crow and snipe hunting for the first time. The new hunting areas and additional species being proposed would increase opportunities for hunters. This could result in increased hunter numbers and harvest, which could have minor negative impacts to migratory bird populations locally. With the exception of crow, migratory bird hunting seasons and bag limits would continue to be set on a flyway level. Crow hunting is regulated by the State.

The proposed hunting program is anticipated to result in the direct mortality of individuals and may result in some stress, temporary disturbance, and avoidance of the hunting area. However, due to the management of migratory birds on a State and flyway level, impacts will be controlled. There are no anticipated long-term negative impacts on a local, regional, or flyway level. In addition, overall populations will continue to be monitored and future harvests will be adjusted as needed under the existing processes.

Fishing has the potential to increase disturbance to other wildlife that use fishable waters, including waterfowl and wading birds. Human activity, including walking trails and boat use, has the potential to affect the behavior, distribution, and abundance of waterbirds due to disturbance. Several studies have examined the effects of recreation on birds using habitats adjacent to trails and roads through wildlife refuges and coastal habitats in the Eastern United States. Overall, the existing research demonstrates that disturbance from recreational activities has at least temporary effects on the behavior and movement of birds and other animals within a habitat or localized area (Burger 1981, Klein et al. 1995).

## **Fish**

### *Affected Resource Description*

In accordance with the Atlantic States Marine Fisheries Commission's Fishery Management Plans (FMPs) (<http://www.asmf.org/fisheries-management/program-overview>) for these species, the State of New Jersey is required to demonstrate that harvest of a given species under the current management regime is sustainable (i.e. will not diminish the potential future stock reproduction and recruitment). The State accomplishes this by conducting multiple fishery-dependent and independent surveys throughout New Jersey marine waters. State regulations regarding recreational fishing in all marine waters, including minimum sizes, open seasons, and bag limits, should prevent the recreational harvest of target species from negatively affecting target species abundance, and have only minor accumulative impacts. The refuge can be more restrictive but cannot be more liberal than the FMPs allow. Freshwater fish have limited geographic range because ponds and lakes have limited flows in or out of the system, so any accumulative impacts to freshwater fish are limited to individual ponds and lakes.

The refuge contains limited freshwater sites that support fish populations. Fish commonly found in the freshwater areas include largemouth bass, black crappie, bluegill, pumpkinseed sunfish, catfish, and carp. The refuge does not provide direct saltwater fishing opportunities, as all saltwater fishing occurs in State waters. However, the refuge provides areas that saltwater fishing may be permitted in the same area as the migratory game bird hunting area. Fish commonly found in the brackish tidal areas include mummichog, white perch, striped bass, channel catfish, white catfish, carp, and American eel.

### *Anticipated Impacts*

#### **No Action**

Under the No Action Alternative, no new locations would be added to those currently available for saltwater fishing. Current impacts include the direct loss of fish in the system, with regulations determined by State and Federal officials to ensure stable populations. Freshwater fishing would not be permitted on the refuge; thus, no additional impacts to these species would be expected, as no new fishing opportunities would be provided. No new impacts to saltwater finfish populations would occur from this alternative.

#### **Proposed Action**

We conduct the refuge fishing program within the framework of State regulations. Harvest rates are established by NJDFW. By aligning with State regulations, we can ensure that we are maintaining seasons that support regional management and maintain consistent with large-scale population status and objectives. The refuge regularly coordinates with the State about the fishing program.

Fishing at the impoundment on Xmas Tree Lane would be added in this alternative. The site is in a populated area, so opening will likely increase the number of anglers on the refuge. The areas open to saltwater fishing would be modified to align with the migratory game bird hunting area. A larger area would be opened to saltwater fishing. Impacts to freshwater and saltwater fish may also include direct mortality to individuals, injury or changes in wildlife behavior. Anglers must abide by the State's seasons, catch limits, and regulations to protect the State's fish populations. While fishing removes individuals from the population, we do not anticipate that projected



fishing pressure will affect the refuge's fish population as a whole.

The negative impacts of lead on people and wildlife is documented and clear (Golden et al., Grade et al.). A concern related to fishing is the use of lead sinkers and jigs for fishing. Because sinkers and jigs are generally much larger than shot pellets, a single lead sinker may induce acute lead poisoning. We will implement a phased approach for prohibition of lead ammunition that will allow anglers and the public additional time to understand and adapt to the new regulations. Conversion to non-toxic tackle will phase-in over the next 5 years. The refuge staff will be working with hunters to move toward the required use of non-toxic alternatives for deer and bear hunting by 2026.

### **Non-Target Wildlife and Aquatic Species**

#### *Affected Resource Description*

The refuge is home to many resident and migratory wildlife species. Non-target bird species common on and around the refuge include king rail, American black duck, marsh wren, osprey, tundra swan, least and semi-palmated sandpiper, great blue heron, glossy ibis, snowy and great egret, and black-crowned night heron. The refuge supports the wading bird colony that nests on Pea Patch Island, the largest rookery on the East Coast. Nine species of wading birds feed on the refuge.

Other common wildlife species on the refuge include the marsh rice rat, common snapping turtle, Eastern painted turtle, Eastern garter snake, and Southern leopard frog. Common aquatic species on and around the refuge include mummichog, striped bass, white perch, American eel, blueback herring, alewife, American shad, and blue crab.

There remains concern about the bioavailability of spent lead ammunition and sinkers on the environment, endangered and threatened species, birds (especially raptors), mammals, and humans or other fish and wildlife susceptible to biomagnification. Lead shot and bullet fragments found in animal carcasses and gut piles are the most likely 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. Research continues on the effects of lead ammunition and the fragments it can deposit in killed game. Avian predators and scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition. A concern related to fishing is the use of lead sinkers and jigs for fishing. Because sinkers and jigs are generally much larger than shot pellets, a single lead sinker may induce acute lead poisoning. The use of non-toxic ammunition is proposed for upland game hunting opportunities and will be required upon implementation of this plan in 2021. Furthermore, to move towards the reduction and future elimination of the threat from lead on the refuge, we will be implementing a lead tackle ban with fishing over a 5-year period to educate and work with anglers on non-toxic alternatives. The complete ban will begin in September 2026. The refuge staff will provide information to assist in a valuable transition period that benefits fish, wildlife, and people. We will continue to encourage use of non-toxic ammunition for other hunts and will educate hunters and anglers about lead and potential impacts

### *Anticipated Impacts*

#### No Action

Under this alternative, the current hunting and fishing programs would be maintained, with a total of 2,697 acres of refuge lands currently open to hunting. Fishing access would be provided on designated areas of the Mill Creek, Baldrige Creek, Mud Creek, and Mannington Meadows. Under this alternative, it is estimated that approximately 1,500 hunt and 750 angler visits are expected on the refuge annually. Impacts from hunting could include changes in wildlife behavior, injury, avoidance of hunting areas, or direct mortality of individuals. However, hunting pressure is spread over the duration of the hunting season for multiple species which minimizing the impacts. Impacts from recreational fishing are expected to be minor, but may result in the direct mortality or injury of individuals and short-term disturbance to other wildlife species near the fishing areas. This alternative may result in some short-term but minor negative impacts to small mammals, birds, and other wildlife due to disturbance in areas where human access for hunting and fishing occurs.

#### Proposed Action

Under the proposed action, 3,179 acres would be open for hunting on the refuge. Fishing access would be provided on designated areas of the Mill Creek, Mud Creek, Mannington Meadows, Miles Creek, and the impoundment on Xmas Tree Lane. It is estimated that approximately 1,500 hunt and 750 angler visits are made to the refuge annually, and with the additional seasons and acres open, it is expected that approximately 2,000 hunt and 900 angler visits would be made annually. Increased hunting and fishing visitation may result in additional short-term disturbance to wildlife, especially in areas previously closed to hunting or fishing. This includes temporary displacement of resident wildlife from foot and boat traffic moving through the area, increased mortality of target fish species, and increased disturbance. Resident and non-game wildlife in areas newly opened to hunting may be negatively impacted by disturbance, but the impact is expected to be negligible. The degree of the impact is not expected to be very different from what may already occur (including temporary displacement of songbirds, raptors, and resident wildlife from foot traffic moving through the area). Generally, deer and waterfowl hunting areas are in separate locations due to the suitable habitat of each target species, which would result in no negative impacts between hunting types. Turkey hunting is largely a motion-limited activity and impacts are expected to be minimal. The use of dogs while hunting will temporarily disturb wildlife and other hunters. The taking of non-target hunt species will not be permitted during any hunting seasons.

Non-toxic shot is required for all federally managed waterfowl hunting, which reduces negative impacts to wildlife using waterways and marshes. The refuge is not requiring the use of non-toxic shot for other seasons, but encourages hunters to utilize it to reduce unintended negative impacts to wildlife. Some scavenging of game shot on the ground or in carcasses left behind by hunters could occur, but the likelihood of poisoning of wildlife is low. We will continue to encourage use of non-toxic ammunition, and will educate hunters about lead and potential impacts.

## **Threatened and Endangered Species**

### *Affected Resource Description*

An Intra-Service Section 7 analysis under the Endangered Species Act was conducted in cooperation with the Service's New Jersey Field Office (see Appendix D). Listed species include Northern long-eared bat, red knot, bog turtle, and sensitive joint-vetch.

The federally threatened plant species sensitive joint-vetch may potentially be growing in the Supawna Meadows marsh. Sensitive joint-vetch, an annual legume, grows in fresh to slightly brackish tidal river systems within the intertidal zone where populations are subject to flooding twice daily. It typically grows at the outer fringe of marshes in localities where plant diversity is high and annual species are prevalent. Establishment and growth of this species relies on habitat containing bare or sparsely vegetated substrates (USFWS 2016a). There are only two documented populations of this species still in existence within southern New Jersey, one on the Wading River in Burlington County and one on the Manumuskin River in Cumberland County (USFWS 2012).

Bog turtles usually inhabit open-canopy emergent and scrub/shrub wetlands such as shallow spring-fed fens, sphagnum bogs, swamps, marshy meadows, and wet pastures bordered by wooded areas. They depend on microhabitats of interspersed wet and dry pockets with soft, muddy bottoms, vegetation dominated by low grasses and sedges, and a low volume of standing or slow-moving water (USFWS 2016b). Bog turtles have not been found on the refuge.

According to data records from the International Shorebird Survey eBird website on red knots (ACLO 2016), the nearest sighting of red knots migrating was on Pea Patch Island. They were not recorded as foraging or nesting in the area and their presence has not yet been documented on the refuge.

### *Anticipated Impacts*

#### **No Action**

We have observed no adverse impacts to these species under current management.

#### **Proposed Action**

Hunting generally occurs in open water and uplands. The majority of the marsh habitat is dominated by the invasive plant species phragmites where plant diversity is low; therefore, hunting should not have any significant effects to sensitive joint-vetch. Fishing generally occurs in open water so it will also not have any significant effect to this plant species.

The hunting and fishing areas do not contain habitat sufficient to support bog turtles or red knots; thus, hunting or fishing would unlikely have any adverse effect on these species.

The federally threatened Northern long-eared bat uses mines and caves in the winter to hibernate and uses upland forests to forage and roost throughout the rest of the year. Bats may be temporarily impacted if disturbed by hunters walking through an area or setting up a tree stand in their roost tree, likely during spring turkey season and seasons in September and October but these impacts are expected to be minimal, temporary and unlikely to adversely affect the species.

Anglers will generally be walking along refuge trails or using boats. Given the habitat types near fishing areas and observation from staff, anglers would have minimal effect on any nesting birds. No endangered bird species have been observed nesting in areas that anglers would utilize. We would close refuge areas, as needed, to fishing and boating if sensitive nest sites were to occur.

There may be some avoidance of the hunting and fishing areas by these animal species due to increased noise, boat traffic, and human activity; however, these impacts are expected to be minimal, temporary and unlikely to adversely affect any species.

### **Habitat and Vegetation**

#### *Affected Resource Description*

Vegetation varies throughout the refuge, although hunt areas are generally upland and wetland habitat. Common species of vegetation on the refuge marsh habitats include smooth cordgrass, water hemp, wild rice and rice cutgrass. Common species in other habitats include orchard grass, switchgrass, goldenrod, red maple, willow oak, red oak, black cherry, sweet gum, sour gum, arrowwood, sweet pepperbush, blackberry, and bayberry. Dominant invasive plants on the refuge include phragmites, Japanese honeysuckle, Japanese stiltgrass, and mile-a-minute vine.

#### *Anticipated Impacts*

##### **No Action**

Under current levels of use, some impacts to vegetation observed are likely due to trampling, walking off trail, creating foot paths, the use of tacks and other materials in trees, and the installation of waterfowl blinds in the marsh habitat. Damage to wetland vegetation may also occur from the use of boats including erosion, pollution or the spread of invasive species from improperly sanitized vessels. Most impacts from hunting are limited and short-term because the majority of hunting takes place when plants are dormant or about to be. Impacts from fishing only occur in areas adjacent to the designated fishing areas and are not expected to result in significant long-term impacts.

##### **Proposed Action**

The anticipated number of hunters and anglers would comprise a small fraction (i.e., 15 percent) of the refuge's total visitation. With expanded hunting and fishing programs, additional impacts to vegetation are expected. Hunters and anglers may create trails in new areas and affect vegetation on new areas of the refuge. While impacts are expected to increase slightly, overall effects on refuge vegetation from hunting and fishing are expected to be minor and short-term.

### **Wetlands, Soils and Water Resources**

#### *Affected Resource Description*

Supawna Meadows NWR has both tidal surface waters, managed and unmanaged impoundments, forested wetlands, scrub/shrub wetlands, and herbaceous wetlands. These habitats are located throughout the hunt areas. Soils on the refuge predominantly consist of mucky peat and silty loams, and vary from being poorly to moderately drained and are either basic or slightly acidic.

### *Anticipated Impacts*

#### No Action

Potential impacts from current hunting and fishing programs to wetlands and water resources would include bank erosion, damage to wetland vegetation, and impacts from boats. Boats may leak polluting substances or, if not properly sanitized, contribute to the spread of diseases and invasive species. Hunters are dispersed over large areas, but cause soil compaction in off-trail areas. The use of trails and creation of foot paths by hunters and anglers further contribute to soil compaction and erosion throughout the refuge. Boat wake can erode marsh habitat and waterfowl blinds can impact sensitive native marsh habitat. However, these impacts are currently minimal and are spread out across the refuge.

#### Proposed Action

The proposed action is expected to have minor impacts on wetlands and water resources. The amount of lead shot in the local landscape could increase due to the addition of gun seasons for deer, turkey, coyote, fox, groundhog, rabbit, squirrel, grouse, and pheasant hunting. This could result in localized accumulations of lead in some portions of the refuge, including small wooded wetlands. The accumulation of lead could incur negative impacts if it is consumed by wildlife, but the likelihood of that resulting in poisoning is low. Only federally approved, non-toxic shot will be permitted while hunting for upland game (except for turkey hunting). We will continue to encourage use of non-toxic ammunition for other hunts and will educate hunters and anglers about lead and impacts. Furthermore, to move towards reduction and future elimination of the threat from lead on the refuge, we will be implementing a lead tackle ban with fishing over a 5-year period to educate and work with anglers on non-toxic alternatives. The complete ban will begin in September 2026.

Additionally, the expansion of hunting and fishing areas throughout the refuge could lead to impacts like soil compaction, bank erosion and damage to wetland vegetation over a greater geographic area. Under the Proposed Action, the refuge expects approximately 500 additional hunt visits and 150 additional fishing visits annually although hunters will be dispersed across the refuge.

### **Visitor Use and Experiences**

#### *Affected Resource Description*

Supawna Meadows NWR is open to all six priority public uses (hunting, fishing, wildlife observation, photography, environmental education, and interpretation). In 2019, the State of New Jersey issued 73,009 total hunting licenses (USFWS 2017). According to the National Ocean and Atmospheric Administration (NOAA), there were approximately 506,843 marine anglers and 31,623 freshwater anglers in New Jersey in 2016 (NOAA 2020). The refuge estimates that 15,000 total recreational visits were received in 2019. Of this total, 1,500 visits were for hunting and 750 visits were for fishing.

Hunting and fishing occur on public and private lands that are found adjacent to the refuge. Recent recreational use of lands adjacent to or near the refuge has included waterfowl hunting, deer hunting, fishing, trapping, wildlife observation, photography, horseback riding, and all-terrain vehicle/off-road vehicle use. All of these lands are in private ownership; general public access to these lands is rare. Other national wildlife refuges in New Jersey that allow hunting

include Edwin B. Forsythe NWR, Cape May NWR, Great Swamp NWR, and Wallkill River NWR. Other refuges in New Jersey that allow fishing include Edwin B. Forsythe NWR, Wallkill River NWR, and Cape May NWR.

The refuge is also a popular destination for other wildlife-dependent and non-consumptive recreational users. In 2019, over 4,200 individuals visited the refuge for wildlife observation, environmental education, wildlife photography, and interpretation.

### *Anticipated Impacts*

#### No Action

Hunting and fishing are popular recreational activities on and around the refuge, and we expect no change under this alternative. Hunters and non-consumptive users will be using the same spaces and some disturbance to other users is expected. While the refuge does implement time and space zoning to prevent conflicts between priority public users, some disturbance to other users is expected to continue.

#### Proposed Action

With expansion of the hunting and fishing programs, we anticipate approximately 500 additional hunt visits and 150 additional angler visits each year. With this expansion, approximately 2,000 hunter visits and 900 angler visits would be made annually. With an increase in hunting and fishing acreage and seasons, use is likely to increase and some additional conflicts are possible. Conflicts may arise between hunters and anglers over space and disturbance or between consumptive and non-consumptive users over safety and disturbance, especially in commonly used areas like parking lots, roads and trails. Disturbance may increase during spring and fall migration when more bird watchers are in the area. Conflicts between users may arise but will primarily be confined to the hunting season.

### **Cultural Resources**

#### *Affected Resource Description*

Prior to European contact, the Lenni Lenape Tribe inhabited the land that is now the refuge and its surrounding area. A 1992 archaeological study conducted on the refuge identified four sites inhabited during the late Woodland period, circa A.D. 700 to A.D. 1600. Permanent settlement by Europeans began during the 17th century. There are 20 historic period archaeological sites recorded on the refuge. In addition to those sites, there is a small family cemetery containing three gravestones from the 1800s located on the refuge. There are also structures that are on or may be eligible for the National Register of Historic Places, including the Finns Point Rear Range Light.

There are no federally recognized Indian Tribes in the State of New Jersey. There are, however, three State-recognized Tribes: the Nanticoke Lenni-Lenape Tribal Nation, the Ramapough Lenape Nation, and the Powhatan Renape Nation.

### *Anticipated Impacts*

#### No Action

No adverse impacts would occur under this alternative.

### Proposed Action

Section 106 of the National Historic Preservation Act of 1966, as amended, requires the Service to evaluate the effects of any of its actions on cultural resources (historic, architectural and archeological properties) that are listed or eligible for listing in the National Register of Historic Places (NRHP). It is believed the Proposed Action would not likely affect any cultural resources found on the refuge.

Hunting and fishing, regardless of method or target, are consumptive activities that do 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 and anglers would be able to access parts of the refuge that are closed to non-hunters, 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 will be more likely to engage in vandalism or disturbance than any other refuge visitor.

### **Refuge Management and Operations**

#### *Affected Resource Description*

Since 2006, Supawna Meadows NWR has been classified as an unstaffed satellite of Cape May NWR and still has no staff currently. Cape May NWR currently has four full-time staff members. Annually, about 20 percent of each full-time employee's time from Cape May NWR is spent providing management, maintenance or support to Supawna Meadows NWR. On the refuge, infrastructure includes an unoccupied building previously used as the refuge headquarters office, a four-bay garage used to store equipment, and three outbuildings. Hunters on the refuge utilize four parking lots, refuge roads, and a network of trails.

#### *Anticipated Impacts*

##### No Action

Current levels of use of refuge infrastructure are short-term and have negligible impact. Approximately \$5,900 of the Cape May NWR's budget is spent on the current Supawna Meadows NWR hunting program and the same amount is spent on the current fishing program. The Refuge Manager coordinates the budget each year to ensure funds are available. The refuge receives assistance from State Conservation Officers and local police departments. The refuge does not charge the public any permit fees or any other kind of funding to hunt or fish on the refuge.

##### Proposed Action

While there may be more hunters throughout the refuge, impacts to local public roads are expected to be negligible. The office building is closed, but visitors may stop to gather hunting regulations or read informational kiosks. The refuge is crisscrossed with well-traveled roads owned by local municipalities and counties. There may be slightly more traffic on the roads as hunters drive to access the refuge. Impacts to local public roads and refuge infrastructure are expected to be negligible.

Estimated costs to implement this alternative are an additional \$12,700. This is largely due to the increased time to manage the expansion into gun seasons for deer, turkey, grouse, pheasant, rabbit, squirrel, coyote, fox, groundhog, crow, coot, gallinule, rail, and snipe hunting and to alter

the fishing area. It will require approximately 20 percent of the detailing Service officer's time to enforce hunting and fishing, as well as 15 percent of the refuge biologist's time for coordination of the hunt program and assessment of the impact of hunting and fishing on refuge wildlife and habitat. The Refuge Manager will spend 5 to 10 percent of their time overseeing and implementing the program. Some visitor services manager (part time) and maintenance time will also be needed. This would affect the administration of the refuge. The impact would be moderately adverse because other priority actions and obligations would still be necessary in meeting the purpose of the refuge and the mission of the Refuge System, such as habitat restoration and management and environmental education programs. Large projects will require funding from sources other than the annual refuge operating budget.

### **Socioeconomics and Environmental Justice**

#### *Affected Resource Description*

The refuge is approximately 10 miles south of Wilmington, Delaware and 35 miles south of Philadelphia, Pennsylvania. Agriculture is declining, leaving some lands fallow while others are replaced by development. The economy in Salem County employs 29,400 people. The median household income in Salem County is \$63,934 (Data USA 2019). As of 2015, 33.4 percent of the State is developed, 52.9 percent is conserved, and 13.7 percent of State lands could still be developed (Evans 2020). Although trends are declining, new development does put pressure on wildlife species seeking refuge from expanding industrial, transportation and residential developments in Southern New Jersey and the lower Delaware Basin.

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.

#### *Anticipated Impacts*

##### **No Action**

Under current management, the refuge sees approximately 1,500 visits for hunting and 750 visits for fishing. Although this sum is minimal compared to the annual output of tourism in the area, it represents a negligible but positive impact. These wildlife dependent recreational visits to the refuge has a minor, long-term beneficial impact to the local economy.

##### **Proposed Action**

Under the proposed action, the refuge is expected to attract approximately 160 additional hunters and a slight increase in anglers each year. While still minimal, this means the expanded hunting program would have a greater positive impact on the local economy, boosting the overall economic value of the refuge for the local Salem County economy.

Hunting may have some minor positive impacts on agriculture in the surrounding area by reducing the possibility of crop damage or depredation by target species such as white-tailed deer, wild turkeys, groundhogs, and game birds. Based on a survey conducted during the 2000 growing season, crop depredation in Southern New Jersey resulted in an average economic loss of \$1,297 per acre of cultivated land (Drake et al. 2002). Therefore, controlling these target



species could result in an economic benefit to farms adjacent to the refuge. Fishing on the refuge is not anticipated to have any impacts on agriculture in the local area.

The Service has not identified any potential high and adverse environmental or human health impacts from this proposed action or any of the alternatives. Minority or low income communities would not be disproportionately affected by any impacts from this proposed action or any of the alternatives.

### **Monitoring**

Many game species populations are monitored by NJDFW through field surveys and game harvest reports, which provide an additional means for monitoring populations. The State has determined that populations of game species are at levels acceptable to support hunting and these assessments are reviewed and adjusted periodically. 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. The refuge is in the process of drafting a Habitat Management Plan (HMP). The refuge conducts regular monitoring of target and non-target species, habitats, and environmental conditions.

### **Summary of Analysis**

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

### **No Action Alternative**

There would be no additional costs to the refuge under this alternative. There would be no change to the current public use and wildlife management programs on the refuge. There would not be an increase in economic impacts to local economies. New hunting and fishing opportunities would not be created under this alternative, including new access sites to refuge lands for other users. This alternative has the least short-term impacts to physical and biological resources; however, long-term impacts on habitat quality could be more adverse. In addition, this alternative would reduce our actions as mandated under the NWRSA and Secretarial Order 3356.

### **Proposed Action Alternative**

As described above, this alternative is the Service's proposed action because it offers the best opportunity for public hunting and fishing that would result in a minimal impact on physical and biological resources, while meeting the Service's mandates and Secretarial Order 3356. The Service believes that hunting and fishing on the refuge will not have a significant impact on local or regional wildlife populations because the percentage likely to be harvested on the refuge, though possibly additive to existing hunting harvest, would be a small fraction of the estimated populations. Additional hunting would not add more than slightly to the accumulative impacts to wildlife from hunting at the local or regional levels, and would only result in minor, negative impacts to wildlife populations.

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

David Golden, Lisa Barno, Ted Nichols, Joe Leskie, Andrew Burnett, Carole Stanko, Heather Corbett, Peter Clarke, and Matthew Heyl of NJDFW

## **List of Preparers**

Tom Bonetti, Regional Hunting and Fishing Coordinator  
Stacey Lowe, Regional Hunting and Fishing Chief  
Laura Howard, Visitor Services Assistant  
Heidi Hanlon, Wildlife Biologist  
Josh Baker, Park Ranger

## **State Coordination**

National wildlife refuges, including Supawna Meadows NWR, conduct their hunting and fishing programs within the framework of State and Federal regulations. The refuge developed this hunting and fishing plan based on coordination with NJDFW. In developing this plan, the refuge reviewed the operations and regulations for neighboring State wildlife management areas to find consistency where possible. Refuge leadership consulted with the NJDFW Director David Golden in August 2020 to discuss proposed changes to the refuge's hunting and fishing plans. In October 2020, NJDFW provided a letter with formal comments to the proposed changes and these comments were considered while drafting the hunt and fish plan expansions.

NJDFW stated they were supportive of expanding hunting and fishing opportunities on the refuge, allowing firearm hunting specifically at Supawna Meadows NWR without permits, and increasing consistency with state regulations. The NJDFW prefers the refuge to remain closed to ruffed grouse hunting. The State had questions around woodcock hunting at Supawna Meadows NWR and asked for clarification on a proposed lead fishing restriction. The NJDFW also requested that the refuge allow hunting for coyote and fox while deer hunting, the state asked that the refuge consider allowing the use of dogs at Supawna Meadows NWR and Cape May if possible, addition of pheasant hunting, extend waterfowl hunting at Supawna Meadows NWR to include late season snow goose hunting and the Light Goose Conservation Order and provide outreach to anglers regarding the invasive species snakeheads and blue catfish.

Supawna Meadows NWR supported the suggestions of firearm hunting without permits, allowing dogs, pheasant, coyote and fox hunting and extending waterfowl hunting to include late season snow goose and the Light Goose Conservation Order. It will remain closed to ruffed grouse hunting in the meantime until the state opens a season. Woodcock hunting would have increased the migratory bird hunting area beyond 40/60 percent mandated in the Migratory Bird Conservation Act; therefore, we are prohibiting woodcock hunting at Supawna Meadows NWR. We plan to clarify the proposal of a lead fishing ban for anglers and also provide outreach for invasive species.

Refuge staff will continue to consult and coordinate with NJDFW, to maintain consistent regulations and programs, monitor populations of proposed hunt species, and set harvest goals. We will also work together to ensure safe and enjoyable recreational hunting and fishing opportunities, with law enforcement officers from both agencies cooperating to conduct patrols, safeguard hunters and visitors, and protect both game and nongame species.

### **Tribal Consultation**

There are no local tribes in the vicinity of the refuge and; therefore, tribal consultation was not conducted for this plan.

### **Public Outreach**

The public will be notified of the availability of the Supawna Meadows NWR Hunting and Fishing Plan, EA and CDs for review and will include no less than a 30-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.

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

### **Determination**

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

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

Preparer Signature:  Date: 8/12/2021

Name/Title/Organization: Thomas Bonetti, Hunting and Fishing Coordinator

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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).

### ***Fish and Wildlife***

- Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. 668-668c, 50 CFR 22.
- Endangered Species Act of 1973, as amended, 16 U.S.C. 1531-1544; 36 CFR Part 13; 50 CFR Parts 10, 17, 23, 81, 217, 222, 225, 402, and 450.
- Fish and Wildlife Act of 1956, 16 U.S.C. 742 a-m.
- Lacey Act, as amended, 16 U.S.C. 3371 et seq.; 15 CFR Parts 10, 11, 12, 14, 300, and 904.
- Migratory Bird Treaty Act, as amended, 16 U.S.C. 703-712; 50 CFR Parts 10, 12, 20, and 21.
- Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Fed. Reg. 3853 (2001).

### ***Natural Resources***

- Clean Air Act, as amended, 42 U.S.C. 7401-7671q; 40 CFR Parts 23, 50, 51, 52, 58, 60, 61, 82, and 93; 48 CFR Part 23.
- Wilderness Act, 16 U.S.C. 1131 et seq.
- Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq.
- Executive Order 13112 – Invasive Species, 64 Fed. Reg. 6183 (1999).

### ***Water Resources***

- Coastal Zone Management Act of 1972, 16 U.S.C. 1451 et seq.; 15 CFR Parts 923, 930, 933.
- Federal Water Pollution Control Act of 1972 (commonly referred to as Clean Water Act), 33 U.S.C. 1251 et seq.; 33 CFR Parts 320-330; 40 CFR Parts 110, 112, 116, 117, 230-232, 323, and 328.

- Rivers and Harbors Act of 1899, as amended, 33 U.S.C. 401 et seq.; 33 CFR Parts 114, 115, 116, 321, 322, and 333. Safe Drinking Water Act of 1974, 42 U.S.C. 300f et seq.; 40 CFR Parts 141-148.
- Executive Order 11988 – Floodplain Management, 42 Fed. Reg. 26951 (1977).
- Executive Order 11990 – Protection of Wetlands, 42 Fed. Reg. 26961 (1977).

## Intra-Service Section 7 Evaluation Form

<b>Project Name:</b>	Supawna Meadows NWR Hunting and Fishing Plan	<b>Originating Person:</b>	Heidi Hanlon
<b>County:</b>	Salem County	<b>Email</b>	heidi_hanlon@fws.gov
<b>Date:</b>	08/12/2021	<b>Address:</b>	

- I. Region:** 5
- II. Service Activity (Program):** NWRS, Supawna Meadows National Wildlife Refuge
- III. Pertinent Species and Habitat:**

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

Northern long-eared bat (*Myotis septentrionalis*)  
Red knot (*Calidris canutus rufa*)  
Bog turtle (*Clemmys muhlenbergii*)  
Sensitive joint-vetch (*Aeschynomene virginica*)

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

None

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

Monarch (*Danaus plexippus*)

**D. Include species/habitat occurrences on a map.**

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

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



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

Supawna Meadows NWR proposes to modify the current hunting and fishing plan. Currently, the Refuge permits bow only deer seasons, waterfowl hunting, and fishing in portions of the refuge. Hunting areas would expand to lands recently acquired, and 3,097 of the refuge's 3,485 acres would be open to hunting. Deer hunting would be expanded to all seasons. Thirteen additional species would be opened including turkey, coyote, fox, groundhog, rabbit, squirrel, crow, grouse, pheasant, gallinule, coot, rail, and snipe. Hunting with dogs would be permitted.

The fishing areas would change to: Mill Creek, Mud Creek, Mannington Meadows, Miles Creek, and the impoundment on Xmas Tree Lane. Maps are attached showing the current seasons and locations as well as the proposed seasons and locations.

#### **V. Determination of effects:**

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

##### **A, B, and C (attach additional pages as needed):**

Bog turtles usually inhabit open-canopy emergent and scrub/shrub wetlands, such as shallow spring-fed fens, sphagnum bogs, swamps, marshy meadows, and wet pastures, bordered by wooded areas. They depend upon microhabitats of interspersed wet and dry pockets, with soft muddy bottoms, vegetation dominated by low grasses and sedges, and a low volume of standing or slow-moving water (USFWS). Bog turtles have not been found to use the refuge. Fall and winter represent periods of low or no activity for bog turtles, minimizing the likelihood that they would be encountered by hunters. If they were to occur, bog turtles would be hibernating during the hunting season, protecting them from disturbance. Bog turtles are most often found in boggy, open habitats where there is little cover for wild game and which are difficult for people to walk through. Thus, it is extremely unlikely that any hunters would venture into bog turtle habitat. The greatest threats to bog turtles are the loss, degradation, and fragmentation of its 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 not rise to the level of take. It is unlikely that bog turtles would become exposed to lead because their habitat is not conducive to hunting, so contamination from gut piles would be unlikely. Because hunters would likely not hunt in their habitat and bog turtles are inactive during the hunting seasons, it is unlikely that lead ammunition would affect bog turtles. The small, semi-aquatic species consumes a varied diet including insects, snails, worms, seeds, and carrion. These eating behaviors likely preclude lead impacts, as the soils on the refuge do not have high concentrations of lead, and unlikely to have increases based on the amount of hunting allowed and the fact that all or most hunting is on other portions of the refuge. Because bog turtles hibernate during the hunting season and have not been found on the refuge, hunting or fishing activities would not have any impact on them.

Sensitive joint-vetch, an annual legume, grows in fresh to slightly brackish tidal river systems within the intertidal zone, where populations are subject to flooding twice daily. It typically occurs at the outer fringe of marshes in localities where plant diversity is high and annual species are prevalent. Establishment and growth of this species relies on

habitat containing bare to sparsely vegetated substrates (USFWS). There are only two documented populations of this species still in existence within southern New Jersey, one on the Wading River in Burlington County and one on the Manumuskin River in Cumberland County (USFWS 2012). The majority of the marsh habitat is dominated by the invasive species, phragmites, where plant diversity is low; therefore, sensitive joint-vetch is unlikely. If sensitive joint-vetch occurs on the refuge, plants could be impacted by boats, hunting, or fishing actions. Because the population would be small and disparate, we do not expect any significant adverse impact.

Negative impacts of recreational hunting and fishing 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 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. Off-road vehicles are prohibited on the refuge.

Data records from the International Shorebird Survey eBird website on red knots (ACLO 2016) revealed the nearest sighting was from Pea Patch Island, which is near the refuge, from a single survey day in which the observers documented them migrating overhead. They were not recorded foraging or nesting in the hunt area and have not yet been on the refuge. Red knots could be temporarily impacted, though would probably fly to another area to avoid the immediate impact from hunting or fishing. Potential disturbances may be from hunters and anglers making noise or traversing their habitat. Red knots will likely avoid areas with more human activity, so the presence of hunters and anglers may prevent them from nesting and foraging on the refuge. Since red knots have not been seen nesting or foraging on the refuge, it is very unlikely that the hunters and anglers would disturb them.

Northern long-eared bats use mines and caves in the winter to hibernate and use upland forests to forage and roost throughout the rest of the year. Northern long-eared bats have been detected at Supawna Meadows NWR during the maternity season. Northern long-eared bats may be disturbed if hunters walk through an area or use their roost trees for stand placement, but bats are typically nocturnal and inactive during hunting seasons and times, and not present for most of the hunting seasons; therefore, disturbance would be highly unlikely. Potential disturbances from expanded hunting, such as an increase in gun noise or additional portable tree stands, would likely not rise to the level of take. Tree climbing and placing portable tree stands, or noise from firearms, could flush roosting bats from the trees, but it is more likely that the bats would remain in the tree than be flushed, and instances of flushing would not result in bat mortality. There is no hunting near any cave or mine where bats could hibernate (i.e., hibernaculum), and hunting programs would not result in any tree cutting or other habitat alteration.

Bats could be present during fishing seasons; however, the open waters conducive to fishing are located in the open water marsh habitat or impoundments where trees are sparse.

The monarch butterfly caterpillars are likely to be present at Supawna NWR during the spring and summer months on milkweed plants. Caterpillars and their milkweed host plants could be trampled by hunters while walking off-trail; however, the likelihood of this occurring is largely discountable because the density of hunters across the Refuge will remain low. Adult monarch butterflies are not vulnerable to trampling and are not expected to be affected.

Lead can be used on the refuge for hunting and fishing as detailed in the Hunting and Fishing Plan. Lead will be phased out in the fishing program over 5 years, by 2026. The amount of lead introduced to the environment as a result of hunting and fishing activities will be negligible, given the restriction on lead ammunition for all upland and migratory game bird hunting, and a short hunting window of September to January. Lead shot and bullet fragments found in animal carcasses and gut piles are the most likely source of lead exposure. Many hunters do not realize that the carcass or gut pile they leave in the field usually contains lead bullet fragments. Research continues on the effects of lead ammunition and the fragments it can deposit in killed game. Avian predators and scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition. Lead poison may weaken raptors and increase mortality rate by leaving them unable to hunt, or more susceptible to vehicles or power line accidents. The bioaccumulation of lead is a potential concern, but it does not present a significant issue for these activities on this refuge, as the refuge strongly encourages use of non-toxic alternatives and will educate hunters, anglers and the public to the potential adverse impacts of lead. Some hunters will choose non-lead methods of take such as archery. Moreover, the scarce amount of lead introduced on this refuge is not likely to adversely affect the Northern long-eared bat or red knot because those species will not be present or active in the refuge hunting areas during the hunting seasons. Furthermore, these species are not scavengers, and therefore will not be impacted by bioaccumulation of lead, or fragments in gut piles left on the refuge after hunting seasons.

As the foraging ecology of the bats (i.e., eating flying insects) is known, the only way the species would be exposed to lead from hunting is through bioaccumulation from herbivorous insects. Such prey (and only some of their prey are herbivorous) could eat plants that have taken up lead from the soil, but it is unlikely because plants only uptake lead when it is in soil in highly concentrated levels and the proposed hunting expansions would not introduce enough lead for that possibility. Current and proposed levels of hunting and fishing, along with non-lead alternative education, would not result in lead levels toxic to any threatened or endangered species that occur on the refuge.

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

The refuge-specific regulations detailed in the Hunting and Fishing Plan are measures that will reduce or avoid conflicts. Detailing refuge and State law enforcement officers enforce hunting and fishing regulations. Providing hunting and fishing information through various forums will ensure the public is aware of applicable laws and policies.

To minimize conflict, refuge-specific hunt regulations and hunt unit maps (brochures) will be made available to hunters at kiosks, refuge website, and at refuge office in Pennsville, NJ. To help reduce interaction between refuge hunters, other user groups on the refuge, and adjacent landowners, refuge boundaries and hunt areas will be clearly mapped.

The use of dogs would limit the loss of wounded animals.

Hunters are encouraged to use non-toxic ammunition for all hunting. We will encourage the use of non-toxic ammunition and fishing gear and will educate hunters and anglers about lead and its impacts.

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

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

**Determination**

**Response requested**

no effect/no adverse modification

(species: \_\_\_ bog turtle \_\_\_)

  X   Concurrence

may affect, but is not likely to adversely affect species/adversely modify critical habitat

(species: Northern long-eared bat, red knot, sensitive joint-vetch)

  X   Concurrence

may affect, and is likely to adversely affect species/adversely modify critical habitat

(species: \_\_\_\_\_)

\_\_\_ Formal Consultation

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

no effect on proposed species/no adverse modification of proposed critical habitat

(species: \_\_\_\_\_)

\_\_\_ Concurrence

is likely to jeopardize proposed species/adversely modify proposed critical habitat

(species: \_\_\_\_\_)

\_\_\_ Concurrence

**C. Candidate species:**

no effect

(species: \_\_\_ monarch \_\_\_)

  X   Concurrence

is likely to jeopardize candidate species

(species: \_\_\_\_\_)

\_\_\_ Concurrence

**HEIDI HANLON**

Digitally signed by HEIDI HANLON  
Date: 2021.08.12 13:33:10 -04'00'

Project Biologist/Supervisor (Requestor)

\_\_\_\_\_  
Date

## VII. Reviewing ESFO Evaluation:

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

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

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

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

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

**ARIEL POIRIER** Digitally signed by ARIEL POIRIER  
Date: 2021.08.12 13:48:04 -04'00'

Endangered Species Biologist (Reviewer),  
New Jersey Field Office

Date \_\_\_\_\_

RONALD POPOWSKI  
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POPOWSKI  
Date: 2021.08.12 14:12:41 -04'00'

Assistant Supervisor, New Jersey Field Office

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Date

## **FINDING OF NO SIGNIFICANT IMPACT**

### **ENVIRONMENTAL ASSESSMENT for HUNTING and FISHING**

## **Supawna Meadows National Wildlife Refuge**

The U.S. Fish and Wildlife Service (Service) is proposing to open or expand opportunities for big game, upland game, and migratory game bird hunting at Supawna Meadows National Wildlife Refuge (NWR, refuge) in accordance with the refuge's Comprehensive Conservation Plan (CCP; 2011), and the Hunting and Fishing Plan. The refuge was previously open to white-tailed deer and waterfowl hunting, but would expand the hunting program to include turkey, grouse, pheasant, rabbit, squirrel, coyote, fox, groundhog (referred to as woodchuck by State regulations), crow, coot, gallinule, rail, and snipe hunting. The refuge would also adjust the opportunities open for migratory game bird hunting, saltwater fishing and freshwater fishing.

### **Selected Action**

#### **Proposed Action Alternative**

Supawna Meadows NWR is located along the shoreline of the Delaware River where it widens to become the Delaware Bay Estuary in Salem County, New Jersey. The refuge currently includes 3,506 acres of brackish tidal waters and marsh, freshwater impoundments, grassland, shrubland and forest habitats.

Under this alternative, the refuge would open and expand its big game, upland game, and migratory game bird hunting programs. Big game species would include white-tailed deer and turkey. White-tailed deer would be hunted on 3,179 acres of the refuge. The refuge would be open for all six State Deer Management Zone 63 seasons including fall bow, permit bow, winter bow, 6-day firearm, permit shotgun, permit muzzleloader, and youth deer hunt days. Hunting in the seasonally closed area would be closed to hunting from January 1 to July 31. Turkey would be hunted on 3,179 acres of the refuge during the spring and fall State seasons. Turkey would be opened for the first time on refuge lands. Upland game hunting on the refuge would include coyote, fox, groundhog, rabbit, squirrel, grouse and pheasant hunting. Upland game hunting would be opened for the first time on refuge lands. These species would be hunted on 3,179 acres with the exception of groundhog. The groundhog season would run concurrent with the State coyote and fox hunting seasons. Migratory game bird hunting would be expanded to include coot, gallinule, rail, snipe and crow. These seasons would be opened for the first time on refuge lands. Migratory game bird hunting would be conducted on 1,380 acres of the refuge during the State seasons. Migratory game bird hunting would include the late portion of snow goose season as well as the Conservation Order.

Fishing access would be expanded to new areas and would be permitted in designated areas of Mill Creek, Mud Creek, Mannington Meadows, Miles Creek, and the impoundment on Christmas Tree Lane, coinciding with the migratory game bird hunting areas. Fishing would no longer be allowed in Baldrige Creek.

Nationwide, there is concern about the bioavailability of spent lead ammunition (bullets) and sinkers on the environment, endangered and threatened species, birds (especially raptors), mammals, and other fish and wildlife susceptible to biomagnification. Only federally approved, non-toxic shot will be permitted while hunting for upland game (except for turkey hunting). We will continue to encourage the use of non-toxic ammunition for big game hunts and will educate hunters and anglers about lead and its impacts. Furthermore, to move towards reduction and future elimination of the threat from lead on the refuge, we will be implementing a lead tackle restriction with fishing over a 5-year period to educate and work with anglers on non-toxic alternatives. The complete restriction will begin in September 2026.

We would continue to conduct hunting and fishing according to State and Federal regulations. Hunters would also have to comply with additional refuge-specific regulations, including but not limited to those contained in the Code of Federal Regulations (50 CFR §32.49), which are revised or updated annually as needed. However, the refuge manager may, upon annual review of the hunting and fishing programs, take the necessary steps to impose further restrictions, recommend that the refuge be closed to hunting or fishing, or further liberalize hunting or fishing regulations up to the limits of the State. We would restrict hunting if it became incompatible with other priority refuge programs or endangered refuge resources or public safety.

No refuge-specific permit or fees will be required to hunt or fish at Supawna Meadows NWR. Hunters must have all the required State permits with them while hunting on the refuge. Check stations will not be established on the refuge, although hunters will be required to take their harvest to designated “check-in stations” as specified by New Jersey Department of Fish and Wildlife (NJDFW) regulations. All freshwater anglers are required to possess a valid State fishing license. All saltwater anglers are required to register with the State’s saltwater registry program.

Refuge staff have worked closely with stakeholders and State agency staff to develop this plan, and ensure safe and enjoyable recreational hunting opportunities. There are no unresolved conflicts about the proposed action with respect to alternative uses of available resources, because the changes proposed by this action are not expected to have harmful impacts to the ecological, aesthetic, historic, cultural, economic, social, or health aspects of the refuge and surrounding communities. Additionally, the proposed action builds on an existing program, and includes measures to better meet goals and objectives developed, in part, from the refuge’s Comprehensive Conservation Plan (CCP). Therefore, the Service does not need to consider additional alternatives (43 CFR 46.310(b)).

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

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

### **Other Alternatives Considered and Analyzed**

#### **No Action Alternative**

The No Action Alternative would continue the refuge’s current hunting and fishing programs. Under current management, 2,697 acres of the refuge are open to hunting. White-tailed deer hunting is open on all 2,697 acres, and waterfowl hunting is allowed on 664 acres. White-tailed deer hunting is conducted during the State archery seasons and waterfowl hunting is conducted during the State waterfowl seasons. Under this action, the refuge would not open to upland game hunting or expand its big game or migratory game bird hunting programs or hunting areas. White-tailed deer hunting would remain limited to an archery-only hunt. Fishing access would be provided on designated areas of the Mill Creek, Mud Creek, Baldridge Creek and Mannington Meadows.

This alternative has the least short-term impacts to physical and biological resources; however, long-term impacts on habitat quality could be adverse with greater deer browsing. In addition, it would not fulfill the Service’s mandate under the NWRSA and Secretarial Order 3356 as well as the proposed action.

### **Summary of Effects of Selected Action**

An Environmental Assessment (EA) was prepared in compliance with the National Environmental Policy Act of 1969, as amended (NEPA) to provide a decision-making framework that: (1) explored a reasonable range of alternatives to meet project objectives; (2) evaluated potential issues and impacts to the refuge, resources and values; and (3) identified mitigation measures to lessen the degree or extent of these impacts. The EA evaluated the effects associated with expansion of hunting opportunities at Supawna Meadows NWR, as well as the effects of a no-action alternative. It is incorporated as part of this finding.

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



Affected Environment	Potential Impacts of Selected Action
White-tailed deer	<p>Minor, short-term adverse impacts. The method of take for deer hunting would be expanded from archery-only to include all six State Deer Management Zone 34 seasons including fall bow, permit bow, winter bow, 6-day firearm, permit shotgun, permit muzzleloader, and youth deer hunt days. The annual take of deer on the refuge comprises a fraction of the DMZ 63's annual total, which during the 2018/2019 season was 173 deer. The refuge expects approximately 200 deer will be harvested in the DMZ 63 hunt zone during the upcoming season with a commensurate fraction of that total harvested on the refuge. Although impacts are expected to increase, the hunting program is not expected to result in any long-term or significant negative impacts to local or regional deer populations. Disturbance to individuals will be spread out across a wider area. With expanded hunt opportunity, we expect some positive impacts from managing the overabundant deer population, including decreased damage to vegetation and habitat, and less disease and competition within the deer population.</p>
Wild turkey	<p>Minor, short-term adverse impacts. Hunting could result in direct mortality of individuals, changes in wildlife behavior, and changes in distribution patterns. With opening of turkey hunting at Supawna Meadows NWR, the annual take of approximately 638 birds in Turkey Hunting Area 20 is expected to slightly increase based on an estimate from NJDFW. Disturbance to turkeys in hunting areas will occur during the hunting season, but the impact of the disturbance is considered negligible, as flocks are prone to move regularly over large areas.</p>
Upland game	<p>Minor, short-term adverse impacts. These species are abundant throughout the State and have relatively high reproductive rates, which limits the impact of additional hunting. Hunting could result in direct mortality of individuals, changes in wildlife behavior, and changes in distribution patterns. While a large number of acres will be open for these hunting seasons, high quality habitat is limited on the refuge, and since coyotes and foxes are at their most active at night when hunting is prohibited on the refuge, impacts will be limited. NJDFW has estimated that five coyote and fox could be harvested on the refuge.</p>
Small game	<p>Minor, short-term adverse impacts species. Potential impacts could include greater disturbance to habitat and landscape, changes in wildlife behavior, changes in species distribution, and temporary reductions to local populations. Injury and mortality</p>

Affected Environment	Potential Impacts of Selected Action
	<p>of individuals is an anticipated impact of the hunt program. All impacts would be localized to the refuge area and are not expected to result in long-term negative impacts. In the case of nocturnal species, impacts would be lessened as hunting is only permitted during the daytime. For all species, impacts will be lessened as hunting is spread out over a large geographic area, preventing concentrated impacts in any one area. Under the proposed action, the refuge expects that approximately 40 squirrels, 50 rabbits, and 5 groundhogs will be harvested on the refuge annually.</p>
Migratory game birds	<p>Minor, short-term adverse impacts species. NJDFW estimates that an additional 200 migratory game birds will be harvested on the refuge annually. Migratory game bird hunting on the refuge would make the birds more skittish, more prone to disturbance, reduce the amount of time they spend foraging and resting, and alter their habitat usage patterns (Raveling 1979, White-Robinson 1982, Madsen 1985, Bartelt 1987). Disturbance to non-target birds and resident wildlife would likely occur from hunting and associated activities but would be short-term and temporary. The refuge also requires use of non-toxic ammunition when hunting migratory game birds to minimize risk of lead poisoning to waterfowl and other wildlife; therefore, there would likely be no adverse impacts. Overall, the effects on migratory birds are expected to be minimal.</p>
Fish	<p>Minor, short-term adverse impacts species. Impacts to freshwater and saltwater fish may also include direct mortality to individuals, injury or changes in wildlife behavior. While fishing removes individuals from the population, we do not anticipate that projected fishing pressure will affect the refuge's fish population as a whole. Baitfish or other species introduced to the water may become invasive and displace native fish and, are therefore, prohibited from the refuge.</p> <p>A concern related to fishing is the use of lead sinkers and jigs for fishing. Because sinkers and jigs are generally much larger than shot pellets, a single lead sinker may induce acute lead poisoning. We will implement a phased approach for prohibition of lead ammunition that will allow anglers and the public additional time to understand and adapt to the new regulations. The refuge staff will be working with hunters to move toward the required use of non-toxic alternatives for deer and bear hunting by 2026.</p>

Affected Environment	Potential Impacts of Selected Action
Non-target species	<p>Minor, short-term adverse impacts (disturbance) of non-target wildlife species may occur. The refuge would limit hunting seasons and provide “no hunting areas” that would disperse impacts. Impacts could include temporary displacement of resident wildlife from foot and boat traffic moving through the area, increased mortality of target fish species, and increased disturbance. Resident and non-game wildlife in areas newly opened to hunting may be negatively impacted by disturbance, but the impact is expected to be negligible. The degree of the impact is not expected to be very different from what may already occur (including temporary displacement of songbirds, raptors, and resident wildlife from foot traffic moving through the area). Generally, deer and waterfowl hunting areas are in separate locations due to the suitable habitat of each target species, which would result in no negative impacts between hunting types.</p>
Threatened and Endangered Species	<p>For more detail, see the completed Intra-Service Section 7 Biological Evaluation (Appendix D). Fall and winter represent periods of low or no activity for bog turtles, minimizing the likelihood they would be encountered by hunters. Bog turtles are most often found in boggy, open habitats where there is little cover for wild game and which are difficult for people to walk through. Thus, it is likely that few hunters will venture into bog turtle habitat.</p> <p>Red knots have not been recorded foraging or nesting in the hunt area. Red knots could be temporarily impacted, though would probably fly to another area to avoid the immediate impact from hunting or fishing.</p> <p>Northern long-eared bats may be found within the refuge (maternity season only). The bats hibernate in caves and mines from October through April (majority of the hunting season) and would not be impacted by hunting. They are unlikely to be disturbed by hunter activity as they are nocturnal species. Any disturbance would likely not rise to the level of take.</p>
Habitat and Vegetation	<p>Negligible to minor, short-term impacts to vegetation. Negative impacts of recreational hunting and fishing include the temporary trampling of vegetation and soil erosion. Most hunting activities occur during the fall, but impacts will be minimal. Some hunt seasons extend into winter when plants are dormant, and the ground is frozen or covered in snow.</p>

Affected Environment	Potential Impacts of Selected Action
	<p>Hunters will be dispersed throughout the refuge during all seasons, minimizing the impact to any one area. Vehicles, including off-road vehicles, are prohibited. The refuge is accessible from the public road system. For these reasons, hunting is expected to have minimal adverse impacts on vegetation. Positive, indirect effects on the vegetation will result from a reduction in the white-tailed deer population. Overall, only minor localized impacts are expected.</p>
Wetlands, Soils, and Water resources	<p>Negligible to minor, short-term impacts. With more hunters traversing the landscape, impacts including erosion, changes to drainage patterns, and wetland habitat damage may increase slightly. Only federally approved, non-toxic shot will be permitted while hunting for upland game (except for turkey hunting). Migratory game bird hunters are permitted to place temporary blinds on the marsh but must be removed at the end of the day, and permanent blinds are prohibited, which allows the tidal marsh daily recovery time and is in alignment with New Jersey State Parks. Some terrestrial wooded wetlands would be traversed to access hunting areas as well. If hunters use the same paths for access on a regular basis, impacts are still expected to be short-term and minor. Hunters are generally dispersed, which reduces the likelihood of soil erosion.</p>
Visitor Use and Experience	<p>Minor, short-term adverse impacts to other public uses. With expansion of the hunting and fishing programs, we anticipate approximately 500 additional hunt visits and 150 additional angler visits each year. With an increase in hunting and fishing acreage and seasons, use is likely to increase and some additional conflicts are possible. Conflicts may arise between hunters and anglers over space and disturbance or between consumptive and non-consumptive users over safety and disturbance, especially in commonly used areas like parking lots, roads and trails. Disturbance may increase during spring and fall migration when more bird watchers are in the area. Conflicts between users may arise but will primarily be confined to the hunting season.</p> <p>If deemed necessary, we would mitigate visitor use conflicts through additional time and space zoning, safety regulations, and clearly posted information on the hunting program.</p>
Cultural Resources	<p>No adverse impacts. Hunting and fishing, regardless of method or target, are consumptive activities that do not pose a threat to</p>

Affected Environment	Potential Impacts of Selected Action
	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.
Refuge Management and Operations	Minor, short-term and minor, long-term impacts to refuge management and operations. While there may be more hunters throughout the refuge, impacts to local public roads are expected to be negligible. The refuge is crisscrossed with well-traveled roads owned by local municipalities and counties. Impacts to local public roads and refuge infrastructure are expected to be negligible. Estimated costs to implement this alternative are an additional \$12,700. This is largely due to the increased time to manage the expansion and to alter the fishing area.
Socioeconomics and Environmental Justice	Negligible, short-term and long-term benefits. While hunting visitation may increase due to increased opportunities, hunting accounts for a fraction of expenditures related to the refuge. The Service identified no minority or low-income communities within the impact area. Minority or low-income communities would not be disproportionately affected by any impacts from this proposed action.

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

1. In the context of local and State hunting programs, the selected action will only result in a tiny fraction of the estimated populations and harvest. The Service works closely with the States to ensure that additional species harvested on a refuge are within the limits set by each state to ensure healthy populations of the species for present and future generations of Americans.
2. The Refuge System uses an adaptive management approach to all wildlife management on refuges, monitoring and re-evaluating hunting opportunities on an annual basis to ensure that the program continues to contribute to the biodiversity and ecosystem health of the refuge, and that impacts from these opportunities do not add up to significant impacts in combination with the environmental trends and planned actions on and near the refuge.
3. The adverse effects of the selected action on air, water, soil, habitat, wildlife, aesthetic/visual resources, and wilderness values are expected to be non-existent, minor and/or short-term. The benefits to long-term ecosystem health from the selected action, in conjunction with other existing refuge programs, will far outweigh any of the short-term adverse impacts discussed in the EA and document. The action will result in beneficial

impacts to the human environment, including the biodiversity and ecological integrity of the refuge, as well as the wildlife-dependent recreational opportunities and socioeconomics of the local economy, with only negligible adverse impacts to the human environment as discussed above.

4. The refuge-specific regulations detailed in 50 CFR are measures that will reduce or avoid impacts. Hunting and fishing regulations will be enforced by Federal and State law enforcement officers. Providing information through various forums will ensure the public is aware of applicable laws and policies.
5. The selected action, along with the proposed mitigation measures, will ensure that there is low danger to the health and safety of refuge staff, visitors, and hunters themselves.
6. The action is not in an ecologically sensitive area.
7. The action is not likely to adversely affect any threatened or endangered species; and will have no effect to federally designated critical habitat.
8. The action will not impact any cultural or historical resources.
9. The action will not impact any wilderness areas.
10. There is no scientific controversy over the impacts of this action, and the impacts of the proposed action are relatively certain.
11. The proposal is not expected to have any significant adverse effects on wetlands and floodplains, pursuant to Executive Orders 11990 and 11988 because hunters and anglers must use established access points that will not be located near sensitive habitats.

Additionally, the following stipulations are necessary to ensure compatibility:

- Permanent stands and blinds are prohibited. Hunters must remove all hunting stands, blinds, hunting materials, and decoys at the end of the hunting day in alignment with New Jersey State Parks to reduce the impacts to the marsh. Deer hunting stands which must be removed at the end of the deer hunting season in alignment with state WMAs.
- Hunters may access hunting areas from 1 hour before sunrise until 1 hour after sunset. Night fishing and hunting is prohibited. Sunday hunting is prohibited.
- Dog training is prohibited at all times.
- Falconry is prohibited.
- We prohibit the taking of frogs and turtles from all non-tidal waters and refuge lands.
- We prohibit bowfishing in non-tidal waters.

- Fishing on Lighthouse Road is prohibited.
- Shell fishing is prohibited, and bait fishing is prohibited.
- Motorized and non-motorized vehicles are prohibited on designated refuge lands. This includes but is not limited to vehicles, all-terrain vehicles, dirt bikes, motorcycles, and bicycles. This does not apply to designated public roads.
- The use of lead fishing tackle will be prohibited on the refuge beginning September 2026. A lead restriction for fishing tackle will be implemented over a 5-year phase-in period.
- Only federally approved, non-toxic ammunition will be permitted while hunting for upland game (except for turkey hunting).

These measures to mitigate and/or minimize adverse impacts have been incorporated into the proposal. The proposal is compatible with the purpose of the refuge and the mission of the Refuge System (see the Compatibility Determinations, Appendix A and Appendix B, in the Hunting and Fishing Plan). Furthermore, the action is consistent with applicable laws and policies regarding the establishment of hunting on national wildlife refuges.

### **Public Review**

The plan has been thoroughly coordinated with all interested and/or affected parties, including NJDFW staff. On April 14, 2021, we distributed a press release to news organizations and alerted the public about the availability of the draft Hunting and Fishing Plan, with the Compatibility Determinations (CD) and Environmental Assessment (EA). No public meetings were held due to restrictions on public gatherings due to COVID-19. The public comment period ended on July 6, 2021, a total of 83 days. A total of six comment letters, primarily from neighboring landowners, were submitted that offered input to the refuge:

#### **Commenters**

1. Samuel Loveland (Supawna Meadows Farm)
2. Mike Mesogianes
3. James Conklin
4. John Jaeger Jr.
5. Jordan Schlump
6. Stan Kite III

We grouped similar substantive comments together, and organized them by subject in the discussion below.

#### **Comment – Safety concerns, trespassing, and property damage: 1 through 6 (all)**

**Response:** Enforcement of refuge violations, normally associated with management of a national wildlife refuge, is the responsibility of commissioned Federal Wildlife Officers

(FWO). We want to emphasize that ensuring the safety of refuge visitors and resources is a top priority. We have FWOs that patrol the Refuge Complex year-round. When needed, we are often able to rely on State law enforcement to assist in enforcement of hunting and fishing regulations. Federal Wildlife Officers and State conservation officers will patrol public hunting areas to enforce game laws and address trespass issues. The local police department should be called first if there is any trespass onto private property or property damage.

Hunting activities are limited by statewide hunting safety zones as set by NJDFW. This includes a firearm safety zone of 450 feet from a building or school playground, even if not occupied, and a 150 feet from a building safety zone for bowhunters. Hunters cannot carry a loaded firearm or nocked arrow within the safety zone unless they have written permission in hand from the landowner. The safety zone was established by legislation in 1946 as an area to place some physical distance, a buffer, between hunters and homeowners. Hunters will be provided hunting brochures, which describes the regulations and maps to aid in navigation. All hunters must have in their possession a valid State hunting license, which requires new hunters to pass a hunter education course that includes safety. The plan allows for adjustment to the hunt program should problems or safety issues arise, including season length and methods of take. It is worth noting that injuries and deaths related to hunting are extremely rare, both for hunters themselves and for the non-hunting public. The Service feels the hunting plan can be conducted safely.

We expect all of our visitors and user groups, including hunters and anglers, to adhere to set rules and regulations. Federal and partnering agency law enforcement staff will randomly check hunters and anglers for compliance with Federal, State, and refuge regulations. It is anticipated that funding within the regular Operations and Maintenance budget of Cape May NWR to conduct an annual hunting program at Supawna Meadows NWR would continue to be sufficient in the future.

Estimated costs to implement this alternative are \$24,500. This is mainly due to the increased time to manage the land expansion as well as the expanded seasons. It may require up to approximately 20 percent of the detailing FWO's time to monitor and enforce hunting and fishing, as well as 15 percent of the refuge biologist's time for coordination of the hunting program and assessment of the impact of hunting and fishing on wildlife and habitat. The Refuge Manager will spend 5 to 10 percent of their time overseeing and implementing the program. Some visitor services manager (part time employee) and maintenance time will also be needed.

**Comment – Concern with decreasing species populations, particularly deer, and the increased disturbance from hunters would affect the ecosystem: 2**

**Response:** The State deer population has declined since it reached a peak at over 200,000 individuals in 1995 but has been increasing steadily since 2014. The population remains at a problematic and overpopulated level in many areas of the State. NJDFW will adjust seasons and limits to maintain healthy populations. With the proposed changes, little additional acreage will be opening for deer hunting; however, additional methods of take



will be opening. The annual take of approximately 173 deer from Zone 63 is not expected to change significantly. NJDFW estimates that 14 deer are harvested on the refuge annually. Maintaining deer hunting opportunities at the refuge may have some additional impacts to local or regional deer populations due to the expanded hunting seasons. Hunting, in the context of an overabundant species like white-tailed deer is an important population management tool that can reduce habitat degradation and competition, yielding healthier populations in the long term.

We allow hunting on refuge lands only if such activity has been determined compatible with the established purpose(s) of the refuge and the mission of the Refuge System as required by the Refuge Improvement Act. Hunting of resident and migratory wildlife species on refuges generally occurs consistent with State regulations, including seasons and bag limits. Secretarial Order 3356 also directs “greater collaboration with state, tribes, and territorial partners” which encourages better alignment of refuge-specific regulations with State regulations.

Service biologists and wildlife professionals, in consultation with the State, carefully consider how a proposed hunt fits with individual refuge goals, objectives, and strategies before allowing the hunt. None of the known, estimated, or projected harvests of migratory game birds, upland game, or big game species in the plan is expected to have significant adverse direct, indirect, or cumulative impacts to hunted populations, non-hunted wildlife, endangered or threatened species, plant or habitat resources, wildlife-dependent recreation, air, soil, water, cultural resources, refuge facilities, or socio-economics.

**Comment – Focus on invasive species management (“Exotic plants are taking over and fields are growing with trees that aren’t as valuable to wildlife and we just keep taking more from the refuge by allowing more animals to be taken”): 2, 3**

**Response:** Invasive plant species management is a focus of the Refuge System. With the proposed changes to the hunting program. We do not anticipate a huge increase in hunters, nor an increase in invasive species spread. An abundance of deer can suppress native vegetation, facilitating the success of invasive species in forested habitats. The majority of hunting occurs in November and December while vegetation is dormant and less likely to spread.

**Comment – “Parking has always been an issue and will be a huge issue with the plans you have proposed. The current archery only seasons have been working without a lot of conflict and seem to be accepted by the residents”. 4**

**Response:** Hunters and anglers may use four refuge parking lots for primary access to hunting and fishing areas by foot, and may also access hunting and fishing areas from boat ramps at Stanton’s Marina in Pennsville, New Jersey or Barber’s Basin in Salem, New Jersey. Parking on Lighthouse Road is prohibited.

Refuge-specific hunting regulations can be more restrictive (but not more liberal) than State regulations and often are more restrictive in order to help meet specific refuge objectives. These objectives include resident and migratory wildlife population and habitat objectives, minimizing disturbance impacts to wildlife, maintaining high-quality opportunities for hunting and other wildlife-dependent recreation, eliminating or minimizing conflicts with other public uses and/or refuge management activities, and protecting public safety.

Hunting is proposed from September through April each year leaving five months open for visitors to solely engage in wildlife observation, photography, and environmental education and interpretation activities. By expanding and/or maintaining hunting and fishing opportunities, but retaining mitigation measures to prevent conflicts, the refuge would promote a balance of wildlife-dependent recreational uses. This alternative offers increased opportunities for hunting and fishing, and fulfills the Service's mandate under the Refuge System Improvement Act of 1997. Therefore, facilitating hunting opportunities is an important aspect of the Service's roles and responsibilities as outlined in the legislation establishing the Refuge System, and the Service will continue to facilitate these opportunities where compatible with the purpose of the specific refuge.

**Comment – Hunting expansion does not align with the refuge's specific purpose of species protection (“By opening this up to the hunting that you have proposed it no longer can be considered a refuge”): 4**

**Response:** Hunting of resident and migratory wildlife species on refuges generally occurs consistent with State regulations, including seasons and bag limits. Secretarial Order 3356 also directs “greater collaboration with state, tribes, and territorial partners” which encourages better alignment of refuge-specific regulations with State regulations. Refuge-specific hunting regulations can be more restrictive (but not more liberal) than State regulations and often are more restrictive in order to help meet specific refuge objectives. These objectives include resident and migratory wildlife population and habitat objectives, minimizing disturbance impacts to wildlife, maintaining high-quality opportunities for hunting and other wildlife-dependent recreation, eliminating or minimizing conflicts with other public uses and/or refuge management activities, and protecting public safety.

The word “refuge” includes the idea of providing a haven of safety for wildlife, and as such, hunting might seem an inconsistent use of the Refuge System. However, the Refuge Improvement Act stipulates that hunting, if found compatible, is a legitimate and priority general public use of a refuge which should be facilitated.

On refuges designated as an inviolate sanctuary for migratory birds, hunting can be allowed, provided that hunting of migratory gamebirds cannot exceed 40 percent of the land base at any one time unless shown to be beneficial to the populations. Other species can be hunted throughout the area as determined compatible.

Hunting would not occur during summer season to minimize impacts to nesting birds and other wildlife-dependent recreational users. By expanding and/or maintaining hunting and fishing opportunities, but retaining mitigation measures to prevent conflicts, the refuge would promote a balance of wildlife-dependent recreational uses. This alternative offers increased opportunities for hunting and fishing and fulfills the Service's mandate under the Refuge System Improvement Act of 1997.

**Comment – Prohibition on baiting should be clearly stated in the plan: 6**

**Response:** The refuge prohibits baiting, which is stated on the hunting handout. The NJDFW Hunting Digest states that “Hunters should check with the landowner or administrative agency before placing bait on their hunting area as baiting is not allowed on properties such as national wildlife refuges.” The Special Areas- U.S. Fish and Wildlife Service, National Wildlife Refuge System section also states that “1. Hunting over bait or distributing bait is prohibited on all refuges.” Hunters must know where they are hunting and the regulations associated. Any violations should be reported to the refuge, NJDFW, or local police.

No significant changes have been made between the draft and final versions of the Hunting and Fishing Plan.

**Determination**

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

The Service has decided to select the proposed action as described in the EA, and implement the Hunting Plan for Supawna Meadows NWR upon publication of the final 2021-2022 Station-Specific Hunting and Sport Fishing Regulations. This action is compatible with the purpose of the refuge and the mission of the Refuge System, and consistent with applicable laws and policies. See attached Compatibility Determinations (Appendix A and Appendix B).

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Regional Chief  
National Wildlife Refuge System

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Date