Canaan Valley National Wildlife Refuge
Hunting Plan

January 31, 2024

U.S. Fish and Wildlife Service

Canaan Valley National Wildlife Refuge
6263 Appalachian Highway
Davis, WV 26260

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CANAAN VALLEY NATIONAL WILDLIFE REFUGE
HUNTING PLAN

I. Introduction

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

The primary purposes of Canaan Valley National Wildlife Refuge (NWR) are:

- "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (a)(4));

- "... for the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and

- "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

Canaan Valley National Wildlife Refuge (NWR) was established as the nation's 500th NWR on August 11, 1994, with the purchase of 86 acres. Currently, the refuge spans 19,244 acres in West Virginia's Grant and Tucker Counties. At close to 8,500 acres, this is the largest wetland complex in West Virginia and in the central and southern Appalachian Mountains. Dominant habitats on the refuge include herbaceous and shrub wetlands, open water, old fields, grasslands, and Northern hardwood forests.

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

- Provide for the conservation of fish, wildlife, and plants, and their habitats within the Refuge System;

- Ensure that the biological integrity, diversity, and environmental health of the Refuge System are maintained for the benefit of present and future generations of Americans;

- Ensure that the mission of the Refuge System described at 16 U.S.C. 668dd(a)(2) and the purposes of each refuge are carried out;

- Ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the States in which the units of the Refuge System are located;

- Assist in the maintenance of adequate water quantity and quality to fulfill the mission of the Refuge System and the purposes of each refuge;

- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the Refuge System through which the American public can develop an appreciation for fish and wildlife;

- Ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses; and

- Monitor the status and trends of fish, wildlife, and plants in each refuge.

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

Public hunting at Canaan Valley NWR began in 1997. Prior to the refuge's establishment, the land that is now part of the refuge was open to hunting. Hunting is a traditional recreational activity on the refuge that provides quality big game, migratory game bird, upland game, and small game hunting opportunities. Access to most of the refuge's hunting units would be by vehicle. Some units have walk-in access from refuge trailheads. The Service proposes to expand hunting opportunities at Canaan Valley NWR to better align with State hunting regulations. In summary, we propose the following changes to the existing hunt plan:

- ***Huntable acreage*:** Previously, within the 2,466 acres approved acquisition boundary in the northern part of the refuge, only the Big Cove area (441 acres) was owned by the Service and was closed to the public because it was surrounded by private lands and lacked public access. On January 12, 2024, the Service acquired an additional 1,971 acres surrounding the Big Cove area. The combined 2,412 acres will now be open to public hunting and referred to as the Big Cove Unit.

- ***Species changes*:** Currently, the Big Cove Unit of the refuge is currently closed to hunting. When opened to hunting, it will align with State species that are found on Canaan Valley NWR.

- ***Method of take changes*:** Hunting for all legal species on the Big Cove Unit of Canaan Valley NWR will be only with non-lead ammunition.

- ***Hunter orange*:** No proposed changes. The refuge will continue to adhere to State regulations.

- ***Other changes*:** Hunter and archery education may be offered in coordination with partners such as the West Virginia Division of Natural Resources (WVDNR) and Canaan Valley Resort. The refuge will add another hunting blind along A Frame Road. In addition, hunters will be limited to one buck (antlered deer) annually Refuge wide.

II. Statement of Objectives

The objectives of a hunting program on the Big Cove Unit are to:

- Provide the public with a recreational opportunity to experience wildlife on more refuge lands and increase opportunities for hunters, especially for youth and families;

- Design a hunting program that is in alignment with refuge habitat management objectives;

- Design a hunting program that is administratively efficient and manageable with existing staffing levels;

- Provide wildlife-dependent public recreation as mandated by and according to Service law and policy; and

- Implement a hunting program that is safe for all refuge users.

Hunting is consistent with Goal 4 of the refuge's 2011 Comprehensive Conservation Plan (CCP). This goal identified a need to provide high quality wildlife-dependent recreational uses and opportunities to enhance public appreciation, understanding, and enjoyment of the refuge's habitat, wildlife, and cultural history. This goal also included Objective 4.1 to provide a high quality hunting experience for refuge visitors.

III. Description of Hunting Program

A. Areas to be Opened to Hunting

Big Cove Unit: This unit is made up of one large tract at the northern extent of the Refuge. The tract totals 2,212 acres in West Virginia's Tucker County. Hunting would be allowed on 100 percent of the Unit. All huntable species are open to hunting in this unit. We allow stalking for big game in this unit if an elevated stand is not used.

***Unit 2 - Rifle (from an elevated stand), Shotgun, Archery and Muzzleloader*:** There are three areas included in this unit, which is approximately 1,143 acres. Two of these areas are located north and south of Timberline road. The remaining area is located south of Canaan Heights. If a rifle is used in this area, it must be from an elevated stand.

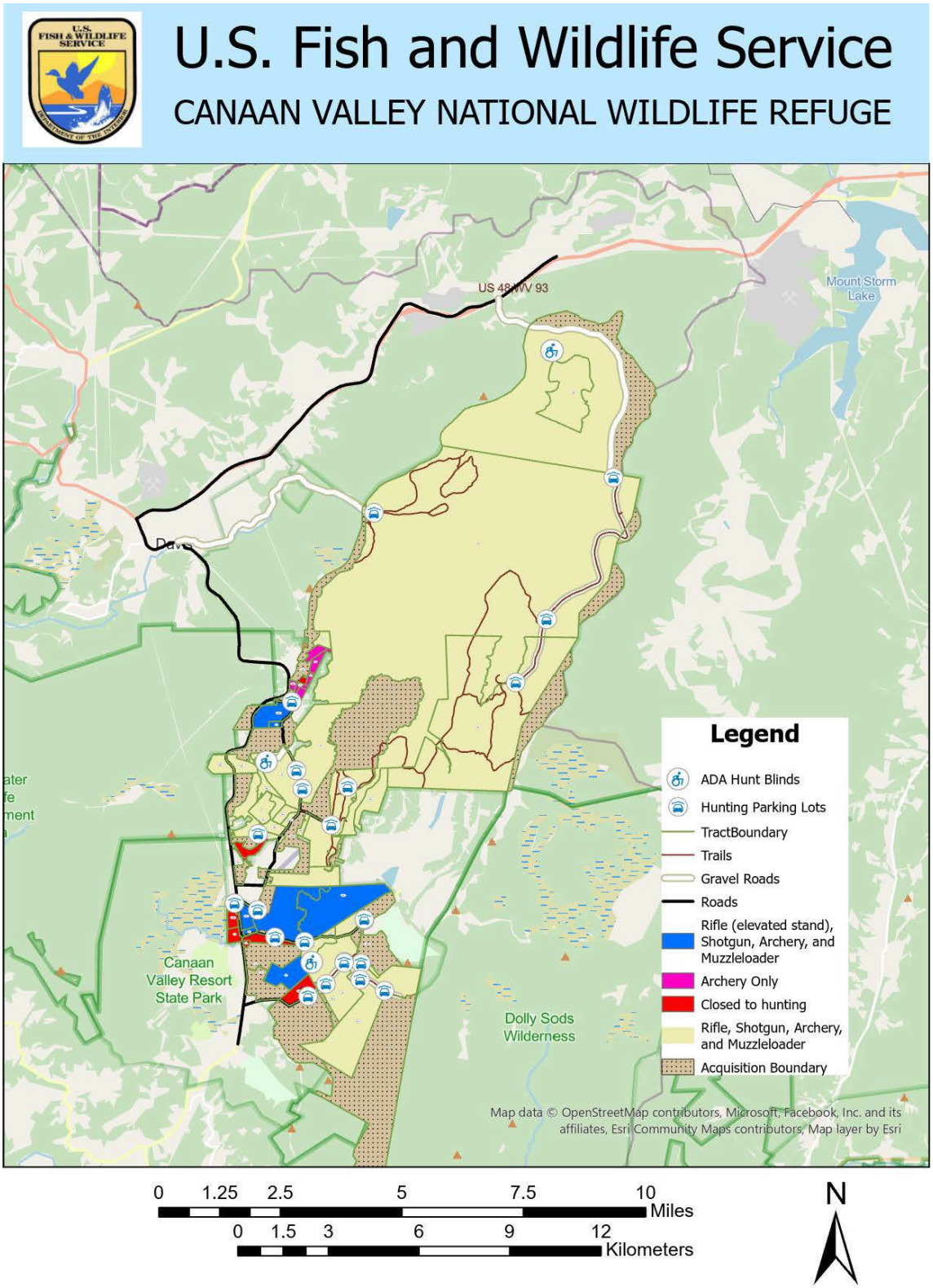
B. Species to be Taken, Hunting Periods, Hunting Access

***Big game*:** The refuge will be open to white-tailed deer, bobcat, black bear and wild turkey hunting. Big game hunting seasons are all in accordance with State hunting seasons with some exceptions for white-tailed deer. A 4-day special muzzleloader season will be held on Canaan Valley NWR in the beginning of November (dates are specified each year in the hunt brochure). Hunters will be limited to one buck (antlered deer) annually. In addition, all other season licensing and bag limit requirements will apply.

***Small/upland game*:** The refuge will be open to ruffed grouse, rabbit, hare, squirrel, coyote, fox, raccoon, woodchuck, opossum, and skunk hunting. Hunting seasons are in accordance with the State hunting seasons. Raccoon, coyote, and fox are open for night hunting with a special permit.

***Migratory game birds*:** The refuge will be open to waterfowl (lesser scaup, ring-necked duck, bufflehead, hooded merganser, green-winged teal, blue-winged teal, mallards, wood ducks, and Canada geese), mourning dove, coot, rail, gallinule, snipe, and woodcock hunting. Hunting seasons are in accordance with the State hunting seasons.

Figure 1. Map of Canaan Valley National Wildlife Refuge hunt areas.



Dogs may be used for migratory bird, black bear, raccoon, rabbit, and hare hunting on the refuge and in accordance with State regulations. The number of dogs, identification requirements, and other refuge-specific regulations concerning the use of dogs for hunting on the refuge will be updated annually and available in the refuge hunting brochure.

Refuge lands may be accessed through the following roads: State Route 32, Cortland Road, Beall Lane, Timberline Road, Freeland Road, Forest Road 80, Camp 70 Road, and A Frame Road. Hunter parking lots are stationed throughout the access roads.

C. Hunter Permit Requirements (if applicable)

Hunters will be required to follow State and Federal regulations for license and stamp requirements for hunting. Hunters must possess a signed refuge hunting brochure at all times to hunt on the refuge. The brochure can be obtained at a refuge kiosk, online, or at the Visitor Center.

D. Consultation and Coordination with the State

National wildlife refuges, including Canaan Valley NWR, conduct their hunting program within the framework of State and Federal regulations. The refuge has developed this hunting plan in coordination with WVDNR. In developing this plan, the refuge reviewed operations and regulations for neighboring State Wildlife Management Areas to find consistency where possible. Regional Refuge leadership consulted with WVDNR on January 29, 2024 to discuss proposed changes to the refuge's hunting plan. The State expressed interest in the expanded hunting opportunities from opening more lands on the Refuge to hunting.

E. Law Enforcement

Enforcement of refuge violations normally associated with management of a NWR is the responsibility of commissioned Federal Wildlife Officers (FWO). Other officers, Special Agents, State game wardens, and the local Sheriff's Department often assist the Canaan Valley NWR full-time FWO. In the event of a planned hunt, request for other officers may occur.

The following methods are used to enforce hunting regulations:

- Hunters must have a current refuge hunt brochure (signed) in their possession. This brochure contains refuge-specific regulations and provides a map of the areas open to hunting.

- Refuge boundaries and "no hunting" zones will be posted to the greatest extent possible.

- Law enforcement officers will randomly check hunters for compliance with Federal and State laws, as well as refuge-specific regulations pertinent to hunting.

- Information will be made available at the Canaan Valley NWR Visitor Center, individual kiosks located in designated hunter parking lots, and online on the refuge website at: https://www.fws.gov/refuge/canaan_valley/.

F. Funding and Staffing Requirements

Annual hunt administration costs for Canaan Valley NWR total approximately $9,910. Canaan Valley NWR funds are used to conduct hunts for big game, small game, upland game, and migratory game bird seasons. This includes staff time for planning and annual program preparation, outreach, public relations, permit administration, enforcement, posting, and road and parking lot maintenance. Other operating costs include signs, leaflets, equipment, and vehicle fuel and maintenance. Funding for the hunt programs is not specifically allocated but will be taken from station base funds on an annual basis. It is anticipated that funding would continue to be sufficient to continue the hunting program at Canaan Valley NWR in the future.

Table 1. Funding and Staffing Requirements

Identifier	Cost
Staff time to implement hunt program (Maintenance Workers, Biologist, and Refuge Managers)	$6,275
Maintain roads, parking lots, trails*	$2,360
News releases, fact sheets, reports for Hunt Program	$525
Maintain hunting signs	$750
Total Annual Cost	**$9,910**

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

IV. Conduct of the Hunting Program

A. Refuge-Specific Hunting Regulations

To ensure compatibility with refuge purposes and the mission of the Refuge System, hunting on Canaan Valley NWR must be conducted in accordance with State and Federal regulations, as supplemented by refuge-specific regulations (50 CFR 32.67) and with a signed hunt brochure.

Listed below are refuge-specific regulations that pertain to hunting on Canaan Valley NWR as of the date of this plan. These regulations may be modified as conditions change or if refuge expansion continues/occurs.

- Only temporary tree stands and blinds may be used on the refuge. The temporary blinds and stands must have the hunter's hunting license number or name and phone number printed on the blind or stand. They must be removed by the last day of the deer season.

- Access to the refuge for hunting may occur between 1 hour before sunrise and 1 hour after sunset. Legal shooting hours are in alignment with State regulations.

- Dog training and scouting are permitted 7 days prior to hunting seasons.

- We prohibit organized deer drives. We define a "deer drive" as an organized or planned effort to pursue, drive, chase, or otherwise frighten or cause deer to move in the direction of any person(s) who is part of the organized or planned hunt and known to be waiting for the deer.

- We prohibit the hunting of upland game species from March 1 through August 31.

- Hunters must report their harvests at www.wvhunt.com or by phone at 1 (844) 824-3251 (1 (844) UCheck1).

- Annual bag limit for antlered deer shall be limited to one.

- Hunters are encouraged to voluntarily use non-lead ammunition when hunting big and upland game. By 2026, we will eliminate use of all lead ammunition for hunting on Canaan Valley NWR.

B. Relevant State Regulations

The refuge conducts its hunting program within the framework of State and Federal regulations. Hunting regulations on the refuge are at least as restrictive as the State of West Virginia's and in some cases more restrictive. Additionally, the refuge coordinates with the State as needed to maintain regulations and programs that are consistent with the State's management programs. Refer to the annual WVDNR hunting and trapping regulations for more information (available at: https://www.wvdnr.gov/hunting/hunting_regs.shtm).

C. Other Refuge Rules and Regulations for Hunting

- Off-road vehicles, including all-terrain vehicles and snowmobiles, are prohibited.

- Overnight parking is prohibited.

- Driving a nail, spike, climbing screw, or other metal object into any tree is prohibited.

- Camping, fires, or cutting trees or vegetation are not permitted.

- No motorized vehicles are permitted off refuge roads.

- All accidents or injuries must be reported to the refuge headquarters or law enforcement officer as soon as possible.

V. Public Engagement

A. Outreach for Announcing and Publicizing the Hunting Program

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 seasons. In addition, information about the hunt will be available at Canaan Valley NWR headquarters or on the Canaan Valley NWR website.

B. Anticipated Public Reaction to the Hunting Program

Based on the comments received during the 2011 CCP review process and since hunting has already been allowed on Canaan Valley NWR for more than 25 years, little negative public reaction for hunting is expected. It is estimated that about 70,000 people visit Canaan Valley NWR annually. Visitors use the refuge to enjoy wildlife-dependent activities such as birdwatching, photography, hiking, biking, hunting, and fishing. Hunting is an important economic and recreational use of West Virginia's natural resources. Refuge staff will continue to educate non-consumptive users about hunting seasons and provide guidance on the importance of wearing hunter orange during critical hunter periods.

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

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

Dates, forms, hunting unit directions, maps, and permit requirements about the hunt will be available on the station website at: https://www.fws.gov/refuge/Canaan_Valley/. General information regarding hunting and other wildlife-dependent public uses can be obtained by calling (304) 866-3858. Information is also available at kiosks located in designated parking areas and at the refuge headquarters at:

6263 Appalachian Highway
Davis, West Virginia 26260

VI. Compatibility Determination

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

COMPATIBILITY DETERMINATION

USE: Hunting

REFUGE NAME: Canaan Valley National Wildlife Refuge

DATE ESTABLISHED: August 11, 1994

ESTABLISHING and ACQUISITION AUTHORITIES:

1. Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]
2. Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901b]
3. Migratory Bird Conservation Act of 1929 [16 U.S.C. 715d]

REFUGE PURPOSE(S):

- "...for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (a)(4));

- "...for the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and,

- "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

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

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?
The use is public hunting of big game (white-tailed deer, bobcat, black bear, and wild turkey), small and upland game (ruffed grouse, rabbit, hare, squirrel, coyote, fox, raccoon, woodchuck, opossum, and skunk), and migratory game birds (mourning dove, coot, rail, gallinule, snipe, woodcock, and waterfowl) on Canaan Valley National Wildlife Refuge (NWR). Hunting was identified as one of six priority public uses of the Refuge System by the National Wildlife Refuge System Administration Act (NWRSAA) of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57), when found to be compatible.

(b) Where would the use be conducted?

Hunting will occur throughout the refuge in both upland and wetland habitats. Canaan Valley NWR is currently comprised of one large tract of land with varying private property pieces found within the acquisition boundary. This tract is currently 19,244 acres in Davis, West Virginia in Tucker and Grant Counties. Hunting is allowed on 98 percent of the refuge.

Refuge units include the following:

***Research Natural Area*:** This unit is approximately 728 acres and located in the center of the refuge (Figure 1). In the Comprehensive Conservation Plan (CCP) (Goal 1, Objective 1.5), this area was designated for protecting the wetland plant communities and providing exemplary opportunities for research and education. In this designation, deer hunting will be allowed according to State regulations. This hunt unit is open to deer hunting only.

***Unit 1 - Rifle, Shotgun, Archery and Muzzleloader*:** This unit is currently 17,639 acres, located in the interior of the refuge plus the Big Cove area (441 acres). All species open to hunting as designated by State regulations can be hunted here. We allow stalking of big game with a rifle if an elevated stand is not used.

***Unit 2 - Rifle (from an elevated stand), Shotgun, Archery and Muzzleloader*:** There are three areas included in this unit, which is approximately 1,143 acres. Two of these areas are located north and south of Timberline road. The remaining area is located south of Canaan Heights. If a rifle is used in this area, it must be from an elevated stand. Stalking big game with a rifle is not allowed.

***Unit 3 - Archery Only Zone*:** This unit is approximately 113 acres located around the Canaan Heights area of the refuge. Because of the proximity to residences, archery (including crossbow) is the only permitted method of take. All species that are open to hunting by State regulations can be hunted in this area.

***Closed to Hunting*:** There are six areas of the refuge that are currently closed to hunting, totaling approximately 349 acres. These areas include a section in Canaan Heights (7 acres), a section between Cortland Road and Highway 32 (47 acres), a section south of Timberline Road beginning at Highway 32 (60 acres), a section North of Timberline Road and East of 32 (72 acres), a section west and south of Highway 32 near the center (75 acres), a section south of Cooper Road (65 acres), and a section of the Freeland tract located near Freeland Boardwalk (87 acres). There is no hunting in these areas due to proximity of highways and homes or limited access for the public. See map (Figure 1) for areas open and closed for public hunting on Canaan Valley NWR.

(c) When would the use be conducted?

***Big game*:** The refuge will be open to white-tailed deer, black bear, and wild turkey hunting. Big game hunting seasons and legal shooting hours are all in accordance with State regulations (with a few exceptions for white-tailed deer), which are approximately from September through December. The refuge is open for access to hunters from 1 hour before sunrise until 1 hour after sunset.

***Small/upland game*:** The refuge will be open to hunting for ruffed grouse, rabbit, hare, squirrel, fox, raccoon, bobcat, woodchuck, opossum, and skunk. Hunting seasons are in accordance with the State hunting seasons, with exceptions from March 1 until August 31 when all small and upland game hunting is closed on the refuge. Raccoon, coyote, and fox are open for night hunting with a special use permit (SUP) obtained from the refuge manager.

***Migratory game birds*:** The refuge will be open to waterfowl (mallards, wood duck, Canada geese, lesser scaup, bufflehead, hooded merganser, and blue wing teal), mourning dove, coot, rail, gallinule, snipe, and woodcock hunting. Hunting seasons and legal shooting hours are in accordance with the State hunting regulations. Hunters may access the refuge from 1 hour before sunrise until 1 hour after sunset.

(d) How would the use be conducted?
We will continue to conduct the hunting program according to State and Federal regulations. Federal regulations in 50 CFR pertaining to the Refuge System, as well as refuge-specific regulations will apply (50 CFR §32.67 and hunt brochure). The project leader could restrict hunting if it becomes incompatible with other priority public uses or endangers refuge resources or public safety. Stipulations are detailed later in this Compatibility Determination.

Refuge staff will explore implementation of special 3-day mentored deer archery hunts with the purpose to recruit non-hunters, and to educate them on the importance for which hunting provides in sound conservation management.

(e) Why is the use being proposed?
Hunting is one of the priority public uses outlined in the Refuge System Improvement Act of 1997. The Service supports and encourages priority uses when they are compatible on refuge lands. Hunting is a traditional activity and recreational use of renewable natural resources that is deeply rooted in America's heritage, and provides a connection to wildlife and conservation in a unique way.

This use will further align the refuge with the Department of the Interior's Secretarial Order 3356, which directs the Service to enhance and expand public access to lands and waters on national wildlife refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. Hunting would promote the stewardship of our natural resources and increase the public's appreciation and support for the refuge. Hunting was also identified as an area of interest for the refuge in its 2011 Comprehensive Conservation Plan (CCP), which can be found at: https://www.fws.gov/refuge/Canaan_Valley/what_we_do/finalccp.html

AVAILABILITY OF RESOURCES:

Annual hunt administration costs for Canaan Valley NWR total approximately $9,910. Canaan NWR funds are used to conduct hunts for big game, small game, upland game, and migratory bird seasons. This includes staff time for planning and annual program preparation, outreach, and public relations, permit administration, enforcement, posting, and road and parking lot maintenance. Other operating costs include signs, leaflets, equipment, and vehicle fuel and

maintenance. Funding for the hunt programs is not specifically allocated, but will be taken from station base funds on an annual basis. It is anticipated that funding would continue to be sufficient to continue the hunting program at Canaan Valley NWR in the future.

Table A-1. Funding for the hunt program at Canaan Valley NWR

Identifier	Annual Cost Estimate
Staff (Maintenance Workers, Biologist, and Refuge Managers)	$6,275
Maintain roads, parking lots, trails*	$2,360
News releases, fact sheets, reports for Hunt Program	$525
Maintain hunting signs	$750
Total Annual Cost	**$9,910**

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

ANTICIPATED IMPACTS OF THE USE:

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

Big Game (white-tailed deer, black bear, and turkey)
The proposed hunting program will not result in substantial changes to the amount of refuge land accessed for hunting or amount of hunter participation for these opportunities, therefore we anticipate only a slight increase in harvest of big game species. This increase is consistent with population management goals within the State of West Virginia. In recent years, West Virginia has shifted gears from increasing the bear population to stabilizing population growth or reducing bear numbers in some management units. West Virginia hunters harvested 3,099 bears statewide in 2019 (WVDNR 2020).

In West Virginia, the statewide turkey population is estimated at approximately 140,000 individuals, distributed throughout all 55 counties. Hunters harvested 11,215 bearded turkeys in West Virginia during the 2019 spring gobbler season and a total of 1,113 during the fall turkey season statewide (WVDNR 2020). Relative to State harvest numbers, refuge impacts on statewide populations are expected to be negligible. Studies examining the direct effects of hunting on turkey behavior and movement are limited. One study conducted in Louisiana tracked the movements of wild turkey during the hunting season and found that distances traveled by wild turkeys were only 8 percent greater during hunting days than non-hunting days (Gross et al. 2015). Although hunting made it more likely for a turkey to change their movement patterns, a small-scale increase in range is not biologically significant.

White-tailed deer populations remain high and above the carrying capacity for the habitat. During the 2019-2020 season, there were 99,437 total deer harvested statewide (WVDNR 2020). We anticipate that opening additional areas would increase the harvest white-tailed deer only

slightly. Hunting will affect deer movement and the local population. Although hunting will likely change a deer's movement patterns, the short-term disturbance is likely not biologically significant.

In the 2020-2021 hunting season, Canaan Valley NWR opened an additional 342 acres for big game in accordance with State and refuge-specific regulations. An additional 754 acres of refuge land already opened to hunting has expanded hunting opportunities to hunt with a rifle from an elevated stand. Impacts to local or regional black bear and wild turkey populations are not expected to change significantly. WVDNR sets the harvest limits for each county and may increase those limits to accommodate for the overabundance of deer based on distance sampling results. Hunting is an important tool that can reduce habitat degradation and competition, yielding healthier populations in the long term. Proposed refuge hunting program rules will be the same as, or more restrictive than, hunting regulations throughout the State of West Virginia. Refuge staff will regularly coordinate with the State and maintain hunting regulations that are the same as, or more restrictive, than the State for the protection of natural resources and the public. Relative to State harvest numbers, refuge impacts on statewide deer populations are expected to be negligible. The proportion of harvest on the refuge would be a very small portion of the total annual statewide harvest.

Upland Game (ruffed grouse, rabbit, hare, squirrel, fox, raccoon, bobcat, woodchuck, coyote, opossum, and skunk)

The refuge follows the State's regulations for hunting ruffed grouse, rabbit, hare, squirrel, fox, raccoon, and bobcat. We also follow State regulations for hunting, with the exception of hunting year-round, for woodchuck, coyote, opossum, and skunk. Hunting for these species will not occur from March through August on the refuge.

Raccoon, fox, and bobcat are considered abundant and there are no density estimates for any of these species currently available according to WVDNR (Rogers Pers. comm.). From 2015 to 2021, a total of 13 hunters with dogs participated in the raccoon hunt. Raccoon hunters often use dogs and hunt at night with a SUP. The SUP restricts dog numbers to minimize potential impacts to other wildlife. Night hunting for fox, raccoon, coyote, opossum, and skunk is allowed by obtaining a SUP. In 2020 when night hunting was allowed for these species, participation was low with 5 hunters participating for a total of 10 nights. The positive impacts of hunting these species, including the reduction of spring nest predation, resource competition, and direct consumption on other refuge wildlife outweigh the short-term negative impacts caused by hunters pursuing them with dogs at night (Fletcher et. al 2010).

Populations estimates of other upland game species (rabbits, hare, squirrel, woodchuck, and ruffed grouse) occurring in the valley are also unknown. Refuge staff do not conduct inventory of these species. Overall, the impacts to the local or regional upland game populations are not expected to change significantly. Refuge hunting program rules will be the same as or more restrictive than hunting regulations throughout the State of West Virginia. Refuge staff will regularly coordinate with the State and maintain hunting regulations that are the same as, or more restrictive, than the State for the protection of natural resources and the public.

Migratory game birds (waterfowl, mourning dove, coot, rail, gallinule, snipe, and woodcock)
Migratory birds are managed on a flyway basis and hunting regulations are established in each State based on flyway data. Federal and State regulations will apply to the refuge waterfowl hunt. Hunting migratory game birds on the refuge would reduce the total numbers of birds in the Atlantic Flyway, but harvest would be within allowable limits as determined by the Service annually. Migratory game bird hunting on the refuge would make birds more skittish and prone to disturbance, reduce the amount of time they spend foraging and resting, and alter their habitat usage patterns (Bartlet 1987, Zicus 1981). Disturbance to non-target birds and resident wildlife will likely occur from hunting and associated hunter activity but will be short-term and temporary.

American woodcock is a trust species managed by the Service and has been categorized as a "species of decline." The loss and degradation of early successional habitat is considered the most important factor for these population declines (Dessecker and McAuley 2001). Canaan Valley NWR has the largest population of woodcock in West Virginia. The number of woodcock hunters is not large enough to cause a decline in the overall population of American woodcock.

Overall, the effects on migratory birds are expected to be minimal. Proposed refuge hunting program rules will be the same as or more restrictive than hunting regulations throughout the State of West Virginia. Refuge staff will regularly coordinate with the State and maintain hunting regulations that are the same as or more restrictive than the State for the protection of natural resources and the public.

Other Wildlife and Non-target Species
Hunting on Canaan Valley NWR would likely affect other wildlife on the refuge to some degree. Increased hunting visitation may result in additional short-term disturbance to wildlife, especially in areas previously closed to hunting. This includes temporary displacement of resident wildlife from foot traffic moving through the area and increased disturbance. While resident and non-game wildlife in areas newly opened to hunters and hunting may be negatively impacted by disturbance, that impact is expected to be negligible. The degree of the impact from expanded hunting is not expected to be different from what may already occur (including temporary displacement of songbirds, raptors, and resident wildlife from foot traffic moving through the area).

Disturbances to non-game bird species have been minimal, since migrating and breeding activities occur from April to August when no hunting except for spring turkey season occurs. Turkey hunters utilize the refuge at low enough densities that they will not likely impact ground nesting songbirds. Species that are not allowed for take are mink, fisher, most migratory birds, and feral hogs. The current hunt season with the proposed additional hunting opportunities is not expected to increase impacts to refuge wildlife significantly.

Habitat and Vegetation
The three major types of habitat found on the refuge are wetlands, forest, and shrub land/grasslands. The physical effects on the refuge wetland and upland vegetation are expected to be minimal during most the hunting season. Most of the hunting takes place between

September and January when plants are dormant. Potential impacts would come from turkey hunters trampling on vegetation from mid-April to mid-May. These effects are expected to minimal and dispersed based on anticipated levels of participation in the hunt.

Positive effects on the vegetation would likely 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 documented and observed in Canaan Valley (Russell et al. 2001). Continuing to allow hunters on Canaan Valley NWR, specifically for white-tailed deer hunting, would maintain the habitat as it is now and prevent further degradation due to overbrowsing. Well-managed hunting can effectively control deer and produce dramatic changes in the forest vegetation (Behrend et al., 1970). The impact of deer hunting on the vegetation would be positive and result in better regeneration of forest canopy species and an increase in the diversity of the herbaceous understory. In summary, there will be few if any negative impacts from this use on the refuge's vegetation, but there will be beneficial impacts from the decrease of white-tailed deer browsing on the refuge's vegetation due to the decrease in the number of deer on refuge lands.

Threatened and Endangered Species, and Other Special Status Species
Three federally listed and one proposed bat species can be found on or adjacent to the refuge: endangered Indiana bat (*Myotis sodalis*), endangered Virginia big-eared bat (*Corynorhinus townsendii virginianus),* endangered Northern long-eared bat (*Myotis septentrionalis)* and the proposed endangered tricolored bat *(Perimyotis subflavus*). The federally listed (threatened) Cheat Mountain salamander (*Plethodon netting*) can also be found on or adjacent to the refuge. Monarch butterfly (*Danaus plexippus*) federal listing candidate species can be found on or adjacent to the refuge at certain times of year. Finally, the federally listed (threatened) small whorled pogonia has never been found on the refuge, but the refuge is within the range where the orchid species could occur.

Cheat Mountain salamanders can be found in high elevation forested habitat, and it is likely they are restricted to cooler mountain slopes and ridges. This species is not active during the time of day and year that hunting will occur, so the hunting activities are not likely to adversely affect this species.

Areas open to hunting are not likely to adversely affect Indiana bats, Virginia big-eared bats, Northern long-eared bats, or tricolored bats because hunters are accessing the refuge when the bats are not present.

Hunting is not likely to jeopardize monarch butterflies as they are not present on the refuge for most of the hunting seasons and are tolerant of human presence, and thus hunter foot traffic. Also, the milkweed that is an important food source in monarch habitat is senesced for most of the hunting seasons.

The small whorled pogonia is not likely to be adversely affected as it is not likely to be present on the refuge. However, even if the species were present, it is unlikely to be impacted because it can often remain dormant underground for multiple years and in years that it does flower it flowers outside of hunting seasons.

The potential for lead to adversely affect salamanders and bats is expected to be discountable due to the Cheat Mountain salamander's, as well as the Indiana, Virginia big-eared, northern long-eared, and tricolored bats' diets and foraging habits. The diet of the Cheat Mountain salamander is comprised of insects such as mites, flies, ants, and beetles, only some of which are herbivorous. The diets of all four species of bats are comprised of insects such as moths, flies, leafhoppers, caddisflies, wasps, and beetles, only some of which are herbivorous. Lead bullet fragments would have to break down in the soil in order to be taken up by plants near the area in which the fragments fall on or penetrate the soil surface. Typically, however, plants do not take heavy metals up until they have reached critical thresholds in the soil (Sharma Dubey 2005). If lead is taken up by plants, it is mainly through the root system and partly, in minor amounts through the leaves. Inside the plants lead accumulates primarily in the root, but a part of it is translocated to the aerial portions. However, the small amount of lead that is expected to enter the refuge, over the next two years before the non-lead requirement takes effect, is not expected to reach the critical thresholds in the soil necessary for uptake in plants. Thus, the herbivorous prey that these listed species eat are not expected to be exposed to lead through the consumption of plants. In addition, bats are transitory in nature and will not consume their entire diets on the refuge area. The Cheat Mountain salamander is also more likely to occur at higher elevations than those where hunting is expected to occur. Considering the unlikely chain of events that are necessary for exposure and the small amount of lead that would contribute to lead concentrations in the hunting expansion area's soils, it seems likely that salamanders and bats that occur on the refuge will not consume lead derived from ammunition fired by hunters on the refuge.

The potential for lead impacts to monarchs is also expected to be discountable due to their diets. Adult monarch butterflies feed on nectar, and larvae consume the leaves and stems of milkweed. If lead reaches the critical thresholds in the soil for uptake in plants, it is first absorbed through the roots and only makes its way into other plant parts if concentrations are high enough (e.g., leaves and stems). Nectar typically carries less lead contaminants than other parts of the plant (if lead is absorbed through the plant). This means that, as with salamanders and bats, bioaccumulation through the plant to the monarch butterfly or larvae could potentially occur. However, as with salamanders and bats, it relies on the very unlikely occurrence that lead concentrations in the soil from hunting activities reach high enough levels for uptake by plants, and in this case, it would further require uptake by milkweed and the specific plants that monarchs rely on for nectaring sources.

Lead shot and bullet fragments found in animal carcasses and gut piles are the most prevalent source of lead exposure (Kelly et al. 2011). Many hunters do not realize that the carcass or gut pile they leave in the field usually contains lead bullet fragments. Research on the effects of lead ammunition and the fragments it can deposit in killed game continues to be conducted. Avian predators and scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition (the result of lead's brittle quality causing fragmentation upon impact) or pellets in the tissues of animals killed or wounded by lead ammunition (Platt 1976; Redig et al. 1980; Pattee et al 1981; Craig et al. 1990; Church et al. 2006; Hunt et al. 2006; Cade 2007; Pauli and Buskirk 2007; Stroud and Hunt 2009; Finkelstein et al. 2012; Rideout et al 2012; Warner et. al 2014; Cruz-Martinez et al. 2015; Herring et al. 2016). Lead poisoning may weaken raptors by reducing their strength and

coordination, increasing muscle and weight loss, reducing motor skill function and making them lethargic, which may make them more susceptible to disease, vehicle strikes or power line accidents and increases mortality rates by leaving them unable to hunt (Kramer and Redig 1997; O'Halloran et al. 1989; Kelly and Kelly 2005; Golden et al. 2016). Furthermore, nestlings of raptors have impaired survival and growth when parents bring food that is embedded with lead fragments (Hoffman 1985a, 1985b; Pattee 1984).

Recent modeling has even indicated that lead poisoning suppresses population growth in eagles (Slabe et al. 2022). The extent to which elevated levels of lead have been documented in raptors admitted for rehabilitation can be found in a study of bald eagles and golden eagles in the Raptor Rehabilitation Program at the College of Veterinary Medicine at Washington State University from 1991 to 2008, where 48 percent of bald eagles and 62 percent of golden eagles tested had blood lead levels considered toxic by current standards. Of the bald and golden eagles with toxic lead levels, 91 percent of bald eagles and 58 percent of golden eagles were admitted to the rehabilitation facility after the end of the general deer and elk hunting seasons in December (Stauber et al. 2010).

Visitor Use and Experience

Canaan Valley NWR is open to all six priority public uses outlined in the Refuge Improvement Act of 1997 (hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation). Total recreation visits were 73,501, creating a total economic output of $2.65 million dollars. According to a study conducted by the Service, roughly 3 percent of all refuge visits were for hunting, 48 percent of refuge visits were for hiking or biking, and 58 percent of refuge visitation was for other non-consumptive uses (USFWS 2019).

The number of hunters using the refuge has been consistently around 2,300 to 2,700 annually. Continued hunter presence and use, during the regular refuge hunting timeframe (September through February, and mid-April through mid-May) is not expected to significantly increase the number of conflicts among user groups. Most hunter-to-hunter conflicts are expected to be minor and can be managed by law enforcement. Conflicts that arise with other user groups are expected to be minor, and can be managed through outreach, trail closures, messaging about importance of hunter orange during hunting season, and signage. If conflicts do arise, mitigation efforts will be designed and implemented to lessen impacts to other wildlife-dependent user groups. Acquisition of additional acreage that will be acquired would follow the same guidance.

There is some possibility of negative economic impacts for hunters who must comply with the non-lead requirements beginning in 2026. While non-lead ammunition continues to increase in availability, we recognize that the cost difference between lead and lead alternatives may pose a barrier to hunters. In order to reduce the negative impacts to hunters making this switch, the refuge has begun and will continue specific outreach about the requirement to these groups and has put in place measures to mitigate the economic impact beyond the phased implementation, which already affords hunters time to gradually transition their supplies of ammunition. In order to mitigate economic impacts to hunters who previously used lead ammunition, in addition to implementing the requirement gradually, the Service will continue educating hunters on the use

of non-lead ammunition during the phased in time period, provide resources on companies that produce non-lead ammunition for purchase and work with partner organizations on non-lead ammunition giveaways or incentives where possible.

PUBLIC REVIEW AND COMMENT:

This CD is a part of the Canaan Valley NWR hunting package. This plan was coordinated with all interested and/or affected parties, including WVDNR staff, and incorporated their comments as possible into the documents.

DETERMINATION (CHECK ONE BELOW):

_____ Use is not compatible

__X___ Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

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

The following stipulations are necessary to ensure compatibility:

- Raccoon, coyote, and fox are open for night hunting with a SUP obtained from the refuge manager.

- Hunting seasons and legal shooting hours are in accordance with the State hunting regulations with some exceptions for white-tailed deer. Hunters may only access the refuge from 1 hour before sunrise until 1 hour after sunset.

- Only persons possessing a current, signed Canaan Valley NWR hunting permit, a government-issued photo ID, and a West Virginia State hunting license are authorized to hunt on the refuge.

- Non-lead ammunition will be required for hunting all species beginning in fall of 2026.

JUSTIFICATION:

Canaan Valley NWR is in a rural area where hunting is an established, traditional activity that predates the refuge opening. Some disturbance to the habitats, vegetation, and wildlife is expected in areas open to hunting, but impacts would be negligible to overall habitat and wildlife conservation. Since the refuge is already open to hunting, we do not expect any significant

impacts to occur on current acreage, including the newly acquired acres that are the subject of the hunting expansion, or on additional acreage within the acquisition boundary onto which we may expand hunting in the future.

Hunting is a priority wildlife-dependent use for the Refuge System through which the public can develop an appreciation for fish and wildlife. In addition, the Department of the Interior Secretarial Order 3356 directs the Service to enhance and expand public access to lands and waters on NWRs. 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.

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

SIGNATURE:
Refuge Manager _____ _____
(Signature) (Date)

CONCURRENCE:
Regional Chief _____ _____
(Signature) (Date)

MANDATORY 15 YEAR RE-EVALUATION DATE: _____
(Date)

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Canaan Valley National Wildlife Refuge
Hunting
Environmental Assessment

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

Proposed Action

Canaan Valley National Wildlife Refuge (NWR) was established as the nation's 500th national wildlife refuge on August 11, 1994, with the purchase of 86 acres. Currently, the refuge spans 19,244 acres in West Virginia's Grant and Tucker Counties. At close to 8,500 acres, this is the largest wetland complex in West Virginia and in the central and southern Appalachian Mountains. Dominant habitats on the refuge include herbaceous and shrub wetlands, open water, old fields, grasslands, and Northern hardwood forests.

The U.S. Fish and Wildlife Service (Service) proposes to open and expand hunting opportunities on current acreage and an additional 1,971 acres. Hunting would be in accordance with the West Virginia Division of Natural Resources (WVDNR) programs and regulations. In summary, we propose the following updates for the 2024 Canaan Valley NWR Hunting Plan:

- Within the 2,466 acres approved acquisition boundary in the northern part of the refuge, only the Big Cove area (441 acres) was owned by the Service. Big Cove area is currently closed to the public because it was landlocked and lacked access. However, 1,971 acres surrounding the Big Cove area was recently acquired. The total 2,412 acres would now be open to hunting for all current species. The Big Cove area is currently closed to the public because it is landlocked.

- The Service would initially promote voluntary use of non-lead ammunition where not already required by existing regulations. This process will involve education about the impacts of lead on non-target species and the use of non-lead alternatives.

- To move towards reduction and future elimination of this threat on the refuge, we will eliminate the use of lead over a 2-year period to educate and work with hunters on the use of non-lead alternatives. The phased transition to non-lead ammunition will minimize the inadvertent exposure and potentially subsequent lethal or sub-lethal impacts to wildlife.

- Hunter and archery education may be offered through partnerships with WVDNR and Canaan Valley Resort.

- Increase accessibility for disabled hunters by building an additional accessible hunt blind at the end of A Frame Road.

- In addition, the annual bag limit for antlered deer shall be limited to one.

This proposed action may evolve during the NEPA process as the Service refines its proposal and gathers feedback from the public, Tribes, and other agencies. Therefore, the final proposed action may be different from the original. The proposed action will be finalized at the conclusion of the public comment period for the EA.

Background

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

The primary purposes of Canaan Valley NWR are:

- "... for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (Fish and Wildlife Act of 1956; 16 U.S.C. 742f (a)(4));

- "... for the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions." (Emergency Wetlands Resources Act of 1986; 16 U.S.C. 3901(b)); and

- "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act of 1929; 16 U.S.C. 715d).

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

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

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

- Provide for the conservation of fish, wildlife, and plants, and their habitats within the Refuge System;

- Ensure that the biological integrity, diversity, and environmental health of the Refuge System are maintained for the benefit of present and future generations of Americans;

- Ensure that the mission of the Refuge System described at 16 U.S.C. 668dd(a)(2) and the purposes of each refuge are carried out;

- Ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the States in which the units of the Refuge System are located;

- Assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the Refuge System and the purposes of each refuge;

- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the Refuge System through which the American public can develop an appreciation for fish and wildlife;

- Ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses; and

- Monitor the status and trends of fish, wildlife, and plants in each refuge.

Hunting has been a long-time traditional activity in the Valley before the refuge was established in 1997 and Canaan Valley NWR continues that tradition for the public. Hunting for migratory birds, big game, and upland game has been a part of the experience of getting people outside and connecting people with nature. Access to most refuge units is by vehicle and by foot to get to the desired hunting locations.

Purpose and Need for the Action

Hunting is identified as one of the six priority public uses legislatively mandated by the NWRSAA of 1996, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57), and reinforced as priority uses by Department of the Interior Secretarial Order 3356 (September 15, 2017). The need for action revolves around hunting as a priority use. The refuge is required to allow hunting that is compatible with the purposes of the refuge and consistent with State regulations where possible. Additionally, hunting is a healthy, traditional recreational use of renewable natural resources deeply rooted in America's heritage and can be an important wildlife management tool.

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

The purpose of the refuge's hunting program is to provide opportunities for hunters to enjoy the refuge, to increase their understanding of the regional environmental importance of the refuge, and to be consistent with refuge management goals and objectives. Expanding hunting access on

the refuge provides an opportunity to motivate visitors to value, support, and contribute to the refuge and the Refuge System and ultimately become better environmental stewards.

Department of the Interior Secretarial Order 3356, signed in 2017, directs the Service to enhance and expand public access to lands and waters on refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action would also promote priority public uses of the Refuge System and stewardship of our natural resources. It would increase public appreciation and support for the refuge by providing opportunities for visitors to hunt. To address the needs stated above, the proposed action would bring the refuge into compliance with the management guidance detailed in the orders, policy, and Federal law to "recognize compatible wildlife-dependent recreational uses as the priority general uses of the Refuge System" and "ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses" (16 U.S.C. 668dd (a)(4)). Finally, the proposed action would help to meet the statement of objectives detailed in the Hunting Plan.

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

Alternatives

Alternative A – No Action – Maintain Current Hunting Opportunities

The No Action Alternative would continue the current refuge hunt program started in 1997. The refuge would continue to provide hunting opportunities for big game (white-tailed deer, black bear, and wild turkey), small/upland game (ruffed grouse, rabbit, hare, squirrel, coyote, fox, raccoon, bobcat, woodchuck, opossum and skunk) and migratory birds (waterfowl including ducks and geese, mourning dove, coot, rail, gallinule, snipe, and woodcock). No expansion or reduction of hunting programs would occur, and the program would be conducted as it currently is.

Alternative B – Expand Hunting Opportunities – Proposed Action Alternative

The refuge has prepared a hunt plan which is presented in this document as the Proposed Action Alternative.

The refuge is currently open in alignment with State species that are found in Canaan Valley NWR. The main tract at Canaan Valley NWR totals 19,244 acres in West Virginia's Tucker and Grant Counties. Hunting is allowed on 98 percent of the refuge. Previously, within the 2,466 acres approved acquisition boundary in the northern part of the refuge, only the Big Cove area (441 acres) was owned by the Service and was closed to the public because it was landlocked and lacked access. On January 12, 2024 the Service acquired an additional 1,971 acres surrounding the Big Cove area. The combined 2,412 acres would be open to public hunting.

The refuge currently has two hunt blinds available for use by people with disabilities. One blind is located on Timberline Road, which has a gate and lock located on a small access road that leads to the hunt blind. The other hunt blind is located on Plant Road. Another accessible hunt blind would be installed at the end of A Frame Road, which is mentioned in the 2011 Comprehensive Conservation Plan (CCP) as a photography/observation blind under Objective

4.3. Utilizing this blind for hunting as well would maximize use during most of the year and during hunt seasons.

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

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

Recent modeling has even indicated that lead poisoning suppresses population growth in eagles (Slabe et al. 2022). The extent to which elevated levels of lead have been documented in raptors admitted for rehabilitation can be found in a study of bald eagles and golden eagles in the Raptor Rehabilitation Program at the College of Veterinary Medicine at Washington State University from 1991 to 2008, where 48 percent of bald eagles and 62 percent of golden eagles tested had blood lead levels considered toxic by current standards. Of the bald and golden eagles with toxic lead levels, 91 percent of bald eagles and 58 percent of golden eagles were admitted to the rehabilitation facility after the end of the general deer and elk hunting seasons in December (Stauber et al. 2010).

The requirement of non-lead ammunition on the refuge after Fall 2026 will help address concerns about the bioavailability of lead on the refuge. (Throughout this document, the EA will analyze as a baseline the continued use of lead, where applicable; we may also mention the possible effects from the 2026 lead ban.)

The refuge would engage with partners such as Canaan Valley State Park and WVDNR to create a hunter/archer education course. A more detailed description of the Proposed Action Alternative can be found in the Hunting Plan.

We would continue to conduct hunting according to State and Federal regulations. Federal regulations pertaining to the Refuge System are in 50 CFR and found on the refuge hunt brochure. 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 the State regulations. We would restrict hunting if it became incompatible with other priority refuge programs or endangered refuge resources or public safety.

Measures to Avoid Conflicts:

Hunters must have a current refuge hunt brochure/permit (signed) in their possession. This brochure contains rules specific to the refuge and provides a map of the areas to be hunted.

- Refuge boundaries and "no hunting" zones will be posted to the greatest extent possible;

- Law enforcement officers will randomly check hunters for compliance with Federal and State laws, as well as refuge specific regulations pertinent to hunting; and

- Information will be made available at the Canaan Valley NWR visitor center, at individual kiosks located in designated hunter parking lots, and online on our website at: https://www.fws.gov/refuge/canaan_valley/.

The specific regulations listed under the Proposed Action Alternative were designed to prevent conflicts and negative impacts on refuge habitat while expanding opportunities on the refuge for hunting. Careful oversight by refuge staff would also mitigate impacts of implementing this expanded hunting program. The refuge manager reserves the right to close a unit to hunting or completely cease hunting should any adverse effects occur.

Hunting is a well-established activity at Canaan Valley NWR. Only minimal disturbances to most wildlife are expected since hunting occurs during the non-breeding season for birds, and most migratory species are already gone. Refuge hunting occurs from September through February, with the exception of minimal turkey hunting mid-April through mid-May, and the greatest number of hunters are anticipated in November and December.

Conflicts can arise between sportspeople and other refuge visitors, but are not substantial at the current levels of use. Some trail users, birdwatchers, and photographers may be impacted by the presence of hunters or noise, but public outreach and signs at trailheads are used to address most user group conflicts. Visitors utilizing the trails will be informed of the importance of wearing hunter orange during the firearms portion of the deer hunting season in the fall. Overall, refuge hunting is expected to have a continued positive impact by increasing community participation of distinct user groups at the refuge.

This Proposed Action Alternative offers increased opportunities for public hunting and fulfills the Service's mandate under the NWRSAA. The Service has determined that the hunt plan is compatible with the purposes of Canaan Valley NWR and the mission of the Refuge System.

Other Alternatives Considered but Eliminated from Further Analysis:

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

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

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

Affected Environment and Environmental Consequences

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

The refuge consists of approximately 27 square miles in Tucker and Grant Counties, West Virginia. Canaan Valley NWR is composed of three main habitat types: wetlands, upland early successional habitat, and upland forest. Habitat types found on the refuge are classified as 34 percent freshwater wetlands, 1 percent open water and riverine, and 65 percent upland forest. Hunting would occur in the northern portion of the refuge within mixed wetland and upland forest. (See map of the general area and proposed hunting area on the refuge in the Hunting Plan, Figure 1).

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

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

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

Big Game

Affected Resource Description

White-tailed Deer

In West Virginia, during the 2020 and January 2021 hunt seasons, deer hunters harvested a total of 106,861 deer in the combined deer seasons. This combined deer season harvest is the 30th highest total deer harvested on record for West Virginia. Canaan Valley NWR is in Tucker County, which is in District 1 and hunters in District 1 harvested 1,646 deer in West Virginia during the 2020 combined seasons. According to the report, the deer harvest per square mile of habitat is 4.09 for Tucker County (WVDNR 2020). WVNDR and the Service conducted a distance sampling survey in 2020. The results of that survey indicated that the average density on Canaan Valley NWR is 58 deer per square mile. According to WVDNR biologists this data collected this year and last year suggests a density of deer and proportional to habitat composition on the refuge as a whole (Skelly 2020).

Wild Turkey

The statewide turkey population is estimated at approximately 140,000 individuals in 2020. Hunters harvested 11,320 bearded turkeys in West Virginia during the 2020 spring gobbler season. In District 1, 86 wild turkeys were harvested during spring season and 18 wild turkeys were harvested during the fall season (WVDNR 2020).

Black Bear

In recent years, West Virginia has shifted management strategies from increasing the bear population to stabilizing population growth or reducing bear numbers in some management units. West Virginia hunters harvested 3,541 bears during the combined 2020 archery and firearms season. In District 1, 98 black bears were harvested during the combined 2020 seasons (WVDNR 2020).

Anticipated Impacts

No Action Alternative

Current hunting of white-tailed deer, wild turkey, and black bear would continue to be permitted in designated areas of the refuge in accordance with State seasons and regulations. It is estimated that during the 2020-2021 hunt season, 3,500 big game hunt visits were made to the refuge. Under the No Action Alternative, current levels of hunter participation and harvest would be expected to remain the same as no new opportunities would be provided.

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

Proposed Action Alternative

Under the Proposed Action Alternative, the refuge would continue to provide the public with the opportunity to hunt on Canaan Valley NWR. An additional 2,412 acres would be open to hunting of white-tailed deer, wild turkey, and black bear. These lands include Big Cove, 441 acres which has been landlocked and not accessible to the public. With the acquisition of 1,971 acres surrounding it, hunters would have access to this area. Expanded hunting opportunities for white-tailed deer would enhance the experience and allow for more deer to be harvested. Estimations of big game visits are 1,548 hunters per year according to the 2019 Refuge Annual Performance Plan (RAPP). An estimated additional 200 deer, 12 turkeys, and 20 bears would be harvested as the result of this expansion. The estimated additional number of hunters would be around 50.

This alternative will also reduce the potential for adverse lead impacts, given that it includes a non-lead ammunition requirement that takes effect in 2026. Regarding possible additional lead in the environment during the transition period, the proposed hunting is expected to cause insignificant or discountable effects to individuals given the minimal chance of overlap in species presence with potential hunting activities and minor amounts of residual lead left in the environment from these activities. Lead from hunting activities between now and September 1, 2026 and lead from previous activities will still be present in the environment and may impact wild species. However, the impact after 2026 from residual lead is likely negligible given the low amount of lead that would be in the environment from hunting activities and the breakdown of residual lead over time. Resulting in a negligible risk of bioaccumulation over the next several years.

Refuges, including Canaan Valley NWR, conduct the refuge hunting program within the framework of State and Federal regulations. WVDNR sets hunting frameworks based on species' populations and monitored harvests. The proposed refuge hunting regulations will be the same as, or more restrictive than, hunting regulations throughout the State. By maintaining hunting regulations that are the same as or more restrictive than the State, the refuge can ensure that they

are maintaining seasons that are supportive of management on a more regional basis. Such an approach also provides consistency with large-scale population status and objectives.

Small/Upland Game

Affected Resource Description

Ruffed Grouse

The population status of ruffed grouse is declining according to WVDNR and neighboring states. Pennsylvania is coming up on the last year of a 10-year grouse population management plan. The decrease in amount of early successional habitat favored by grouse and impacts from West Nile Virus are major factors affecting grouse populations (Stauffer et. al. 2018). The research has shown that the impact to be greater in lower elevations versus the mountainous areas of Tucker County.

Rabbits and Hare

The population status of the species of lagomorphs occurring in the Valley is varied. The Eastern cottontail population is stable, but the Appalachian cottontail population is less known, and the snowshoe hare is at the southern end of its range (USFWS 2011). Studies were conducted on these species around 1974 and refuge staff conducted harvest surveys from 2002 to 2005 (only 16 rabbits and one hare were harvested). Information on population levels of this species is limited due to lack of surveys or inventory on the refuge. Hunters occasionally hunt snowshoe hare but harvest information is not obtained.

Squirrels

Red squirrels are the most common species of squirrel on the refuge. Most squirrels, like gray and fox squirrels, prefer habitats with oak and hickory forests which are not present on Canaan Valley NWR. Upland forests on the refuge have black cherry, hawthorn, sugar maple, and birch trees. Local population data are not available for these species.

Raccoons, Foxes (Red and Gray), and Bobcats

Raccoons, red fox and gray fox, and bobcats occur in the Valley. Relative abundances are considered common, more so for raccoon and bobcat. There are no density estimates for any of these species (Roger, Pers. comm. 2021). Refuge staff have observed the presence of all these species on the refuge.

Coyote

The estimated statewide coyote population according to WVDNR is 11,000 to 12,000 individuals. Several visual and auditory observations of coyote have been observed by refuge staff, but local population data are unavailable.

Opossum, Woodchuck, and Skunk

Hunting for opossum, woodchuck, and skunk in the Valley or elsewhere in West Virginia is almost always incidental to hunting other species. Skunk populations in the valley are small and not frequently seen by refuge staff. The populations of opossum and woodchuck are unknown in the valley.

Anticipated Impacts

No Action Alternative
Under this alternative, hunting of small/upland game as described above would continue to be permitted in designated areas of the refuge in accordance with State regulations. Refuge staff do not have an accurate description of the number of hunters per species, but ruffed grouse hunters are more numerous than others. Total number of hunters for all species using the refuge is estimated to be 2,300 to 2,700 annually. Estimations of upland game visits are 132 hunters which include some of these species based on the 2019 RAPP. Hunting for all species will continue to be in accordance with State regulations for seasons and harvest limits for all species listed here. Under the No Action Alternative, current levels of harvest would be expected to be maintained annually.

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

Proposed Action Alternative
Under the Proposed Action Alternative, the refuge would continue to provide the public with the opportunity to hunt on Canaan Valley NWR. An additional 2,412 acres would be open to hunting of all game species described above. These lands include Big Cove which has been landlocked and not accessible to the public. With the acquisition of 1971 acres surrounding it, this would give hunters access to the area.

According to the State, these species are common (WVDNR, personal communication). While following State regulations, hunting would continue in accordance with State seasons and regulations. Harvest information has been difficult to obtain due to limited refuge staff and reporting efforts for certain species. Opening additional lands to hunting would likely result in only a small increase in hunter participation and harvest, so the Proposed Action Alternative is unlikely to have any significant impact to local or regional populations.

This alternative will also reduce the potential for adverse lead impacts, given that it includes a non-lead ammunition requirement that takes effect in 2026. Regarding possible additional lead in the environment during the transition period, the proposed hunting is expected to cause insignificant or discountable effects to individuals given the minimal chance of overlap with potential hunting activities and minor amounts of residual lead left in the environment from these activities. There is a negligible risk of bioaccumulation from residual lead.

Migratory Game Birds
Affected Resource Description
Waterfowl are managed by flyways which follow the major migratory routes. Their population trends are monitored by the Service through the collection of data including band recoveries, hunter questionnaires, wing returns, breeding population and habitat surveys, and mid-winter

waterfowl surveys (Caithhamer and Dobovsky, 1995). The migratory waterfowl in Canaan Valley are a very small part of a large population of birds that are managed by the Service on a flyway basis under the Migratory Bird Treaty Act.

American Woodcock

The American woodcock is a popular migratory game bird for hunting in West Virginia and throughout the northeastern United States. Woodcocks are managed by the Service with data collected from annual wing collection surveys, Harvest Information Program (HIP), and singing ground surveys. The Service divides the woodcock into populations or management units (Eastern and Central) in North America. The boundary between the two regions is the boundary between the Atlantic and Mississippi flyways. The refuge is in the Eastern unit and serves as one of West Virginia's largest concentrations of woodcock (USFWS 2019).

Waterfowl

The refuge has small numbers of breeding waterfowl including American black duck, mallard, wood duck, and Canada goose. Of the species present on the refuge, black ducks are the only species of management concern listed by the Service. Black ducks have been surveyed in the Eastern Survey Area of the United States. Recent average population size estimates of 701,000 were recorded between 2008 and 2017 (USFWS 2018). Black ducks are also listed by the WVDNR as a species of special concern (S2B: very rare or imperiled) due to the restricted habitat available for this species in the State.

Rails, Gallinule, and Coot

Different rail species are occasionally observed on the refuge, but accurate population numbers are unknown. Breeding records on the refuge are available only for Virginia rail. The harvest of these species is likely incidental when waterfowl hunting.

Mourning Dove and Snipe

The occurrence of either of these species is dependent upon habitat conditions, weather patterns, and factors affecting their migratory behavior. In Canaan Valley, neither of these species are abundant and few hunters target these species intentionally.

Anticipated Impacts

No Action Alternative

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 Atlantic Flyway, but harvest would be within allowable limits as determined by the Service annually. Disturbance to non-target birds and resident wildlife would likely occur from hunting and associated hunter activity but would be short-term and temporary.

The number of woodcock hunters is large enough to cause a decline in the overall population of American woodcock. Harvest limits are set in collaboration with the Service, Migratory Birds, State wildlife agencies, and other partners to ensure the number of hunters would not have negative impacts to the population.

Under this alternative, hunting of migratory game birds as described above would continue to be permitted in designated areas of the refuge. Refuge staff do not have an accurate number of hunters pursuing each species, but American woodcock hunters are more numerous than the other species overall. Total number of hunters for all species listed above is estimated to be 10 waterfowl visits and 216 other migratory game bird visits in 2019, based off the 2019 RAPP. Hunting regulations would continue to be in accordance with State regulations on seasons and harvest limits for all species listed here. Under the No Action Alternative, current levels of harvest would be expected to be maintained.

Lead shot was banned for hunting waterfowl and coots in North America in 1991 and exposure for these birds from spent lead shot in wetlands has declined (Samuel et al. 1992; Anderson et al. 2000; Samuel and Bowers 2000; Lewis et al. 2021). However, exposure to lead has not broadly declined in this manner for game birds in uplands where lead shot and ammunition are still used (Kendall et al. 1996; Fisher et al. 2006; Larsen et al. 2007; Rattner et al., 2008; Franson 2009; Haig et al. 2014). For birds, this typically occurs through direct ingestion of lead through soil, sediment or directly from food items (Rattner et al., 2008). Upland game birds and waterfowl may be exposed to lead when they ingest spent shot or ammunition fragments along with grit or pebbles that they need to fill their gizzards, a specialized organ involved in breaking down food (Bellrose 1959; Anderson 1975; Clark and Scheuhammer 2003; Kreager et al. 2008; Franson et al. 2009).

Proposed Action Alternative

Under the proposed action, more acreage would be opened to migratory bird hunting. Expanded hunting opportunities for migratory game birds would allow for more opportunities for a quality hunt experience. An estimated 15 waterfowl, 12 American woodcock, and minimal harvest of rails, gallinules, coots, mourning doves, or snipes would be harvested as the result of this expansion. Opening of additional lands to hunting would likely result in only a small increase in hunter participation and harvest of any of the species.

The Service believes that due to the time of year in which it is allowed, hunting on the refuge will not add significantly to the cumulative impacts of migratory bird management on local, regional, or flyway populations because the percentage likely to be taken on the refuge, though possibly additive to existing hunting takes, would be a tiny fraction of the estimated populations. In addition, overall populations will continue to be monitored and future harvests will be adjusted as needed under the existing flyway and State regulatory processes. Several points support this conclusion: (1) the proportion of the national waterfowl harvest that occurs on national wildlife refuges is only 6 percent (Service 2013); (2) there are no populations that exist wholly and exclusively on national wildlife refuges; (3) annual hunting regulations within the United States are established at levels consistent with the current population status; and (4) refuges cannot permit more liberal seasons than provided for in Federal frameworks. As a result, changes or additions to hunting on the refuge will have minor impacts on wildlife species in West Virginia. Although the Proposed Action Alternative will increase hunting opportunities compared to the No Action Alternative A, the slight increase in hunter activity will not rise to a significant cumulative impact locally, regionally, or nationally.

This alternative will also reduce the potential for adverse lead impacts for upland bird species, given that it includes a non-lead ammunition requirement that takes effect in 2026. Lead from hunting activities between now (from previous hunting activities) and September 1, 2026 will still be present in the environment and may impact wild species. However, the impact is likely negligible given the low amount of lead that would be in the environment from hunting activities and the minor adverse risk of bioaccumulation over the next several years.

Non-Target Wildlife and Aquatic Species

Affected Resource Description

Canaan Valley is home to a diversity of wildlife in meadow, forest, riparian, and wetland habitats. There are 286 fish, amphibian, reptile, mammal and bird species that are known or expected to occur. Most of the wildlife on the refuge are associated with boreal forested habitats typical of northern latitudes. High elevation and expansive wetland complexes provide habitat for species like fisher, saw whet owl, and mink. Some of the species found here that are non-target wildlife include raptors, non-passerines, passerines, reptiles, amphibians, invertebrates, and numerous fish.

A total of 30 species of fish occur in the rivers, streams, and beaver ponds of the refuge and the Blackwater River drainage. Large-mouth bass, rainbow trout, brook trout, brown trout, bluegill, creek chub, and various kinds of minnows make up most of the population of fish.

A total of 18 species of amphibians and 10 species of reptiles are known to occur on the refuge. Wetland habitats are great areas for wood frogs, American toads, and spotted salamanders to breed, reproduce, and thrive. Several amphibians such as the spotted, red-backed, Northern slimy and Wehrle's salamanders are found in the wooded habitat.

A total of 50 species of mammals occur on the refuge. In the upland habitats of Canaan Valley, several species such as the long-tailed weasel, fisher, southern rock vole, and various voles can be found. In the wetland habitats, such species as muskrat, mink, and Southern bog lemming can be found living here. In addition, species listed above for hunting are found here as well. Migratory birds are known to pass through the valley and have been well documented by point counts, bird banding stations, and recreational birders. There are at least 181 bird species recorded to occur on the refuge. Through refuge land bird point counts, a total of 104 bird species have been recorded breeding on the refuge. The refuge lies within Bird Conservation Region (BCR) 28 located in the Appalachian Mountain region. One third of these species have been documented in the sparrow family.

The best available science indicates that lead ammunition may have negative impacts on fish and wildlife. This broad potential for adverse impacts to non-target wildlife and aquatic species and the overall environment is not inherent to the activities of hunting, but specifically to the use of lead ammunition. Those potentially adverse impacts can be prevented by requiring non-lead ammunition for hunting activities. Currently there are manufacturers that offer non-lead ammunition, and some states have either implemented restrictions on the use of lead or offer incentives to use non-lead ammunition (Center for Biological Diversity 2007; Arizona Game and Fish Department 2018; Washington Department of Fish and Wildlife 2022). In areas where non-

lead ammunition are used, there have been declines in adverse effects to wildlife (Anderson et al. 2000; Samuel and Bowers 2000; Sieg et al. 2009, Kelly et al. 2011; Lewis et al. 2021).

Bird species, such as birds of prey and other scavenger species, are susceptible to indirect ingestion of lead from consuming animals shot with lead ammo. Multiple such species, including bald eagles, are present on the refuge. Birds of prey ingest fine fragments of lead when eating the carcasses and gut piles of animals hunted with lead ammo. These fragments are embedded in the meat and other animal tissues being scavenged and enter the digestive systems and blood streams of the birds of prey.

Many studies have looked at the impacts of this lead exposure to eagle health (see, *e.g.,* Kramer and Redig 1997; O'Halloran et al. 1989; Kelly and Kelly 2005; Golden et al. 2016; Hoffman 1985a, 1985b; Pattee 1984; Stauber 2010). A 2022 USGS study by Slabe et al. found that lead poisoning is "causing population growth rates to slow for bald eagles by 3.8 percent and golden eagles by 0.8 percent annually." These growth-slowing impacts to populations are statistically significant and, in the case of bald eagles, are occurring for a species that was previously endangered and is still in the process of recovering to historical levels. Eagles have been studied the most, but the exposure path and similar impacts hold for all birds that scavenge, for example lead exposure for ravens has been studied (Legagneux et al. 2014).

This exposure pathway and its impacts are less studied in mammalian scavengers, but there is evidence that it occurs for such species, including studies that looked at wolves (Kelly et al. 2021) and bears (Legagneux et al. 2014).

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

Anticipated Impacts

No Action Alternative

Under this alternative, the current hunting program would be maintained with 16,302 acres of refuge lands open to hunting, according to Federal, State, and refuge regulations. Some wildlife may be disturbed, displaced, or distressed as hunters walk, discharge firearms, or use hunting dogs on the refuge. Disturbance to birds is expected to be minimal, since most breeding activities occur from April to August when only a small number of turkey hunters are hunting. Short-term disruptions to wildlife including frogs, bats, and some mammals are expected to be minor. This alternative results in some short-term but negligible negative impacts to species mentioned where human access for hunting occurs.

Proposed Action Alternative

Under the Proposed Action Alternative, the refuge would continue to provide the public with hunting opportunities in alignment with State regulations. Some wildlife may be disturbed, displaced, or distressed as hunters walk, discharge firearms, or use hunting dogs on the refuge.

Disturbance to birds is expected to be minimal, since most breeding activities occur from April to August when only a small number of people are hunting turkey. Short-term disruptions to wildlife including frogs, bats, and some mammals are expected to be minor.

As noted earlier, this alternative will also reduce the potential for adverse lead impacts, given that it includes a non-lead ammunition requirement that takes effect in 2026. Regarding possible additional lead in the environment during the transition period, the proposed hunting is expected to cause insignificant or discountable effects to non-target wildlife given the minimal chance of overlap with potential hunting activities and minor amounts of residual lead left in the environment from these activities. There is a negligible risk of bioaccumulation from residual lead.

Positive impacts from harvesting fox, raccoon, and coyote include reduced nest predation and improved resource competition for other refuge wildlife (Fletcher et al 2010, Pieron, M.R. et al 2012). This alternative would result in some short-term but negligible negative impacts to species mentioned where human access for hunting occurs.

Threatened and Endangered Species, and Other Special Status Species

Affected Resource Description

Service lands and waters are essential to the recovery and conservation of hundreds of threatened and endangered fish and wildlife species, as well as other special status species. In the case of species that are federally listed as threatened or endangered species under the Endangered Species Act of 1973 (ESA), the Service is primarily responsible for ensuring the federal government's protection of these species, not only on Service lands and waters but in general. Endangered means a species is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The Service works to conserve and recover listed species. In accordance with ESA Section 7, the Service evaluates each hunting or fishing opportunity on Service lands or waters before authorization to determine whether it is likely to adversely affect any listed species or their critical habitat. This includes evaluation of the effects from hunters using lead ammunition and the potential for bioaccumulation. As explained below, the Service has preliminarily determined that the proposed actions are not likely to adversely affect ESA-listed species.

Canaan Valley NWR uses both the Information for Planning and Consultation tool (IPaC) and ECOS databases to identify threatened and endangered species. However, 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 review and finalization of this document.

Three federally listed endangered and one proposed endangered bat species can be found on or adjacent to the refuge: the endangered Indiana bat (*Myotis sodalis),* endangered Virginia big-eared bat (*Corynorhinus townsendii virginianus),* endangered Northern long-eared bat (*Myotis septentrionalis*) and proposed endangered tricolored bat (*Perimyotis subflavus*). The federally threatened Cheat Mountain salamander (*Plethodon netting)* can be found on and adjacent to the

refuge, and the candidate monarch butterfly (*Danaus plexippus*) have been documented on the refuge. The small whorled pogonia (*Isotria medeoloides*) is threatened and its range overlaps with the refuge, but it has not been documented on the refuge.

The West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*) which occurs in refuge forests was delisted as an endangered species in March 2013. The bald eagle (*Haliaeetus leucophalus*), delisted in August 2007, uses the refuge during the breeding and migration seasons.

Finally, impacts to migratory birds and eagles from use of lead and hunting activities, mentioned in the section above about wildlife, are likely negligible. As impacts are negligible to migratory birds and gold and bald eagles legal mandates under the Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. 668-668c, 50 CFR 22, Migratory Bird Treaty Act, as amended, and Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, are met through the analysis above. Even though inputs of lead are low, as an agency we are concerned about the potential effects of lead on refuge resources, particularly scavenging birds, as illustrated in the purpose and need for this environmental assessment.

Anticipated Impacts

Effects of lead are evaluated below in more detail under the two alternatives proposed in this environmental assessment. It should be noted, as land is reviewed for expanding hunting and fishing opportunities in the future through the annual rule making process, each proposal will be reviewed for compliance with National Environmental Policy Act (NEPA) requirements, Endangered Species Act and other laws, regulations, and policies. If it is determined that future actions of opening new land to hunting or fishing would conflict with recovery and/or protection of these species, those lands proposed for expansion would not be open for hunting and/or fishing.

No Action Alternative

Under this alternative, the current hunting program would be maintained with 18,895 acres of refuge lands open to hunting, according to Federal, State, and refuge regulations. In most cases, it is unlikely that there will be overlap between hunters and the species of concern on the refuge. For example, hunters typically access the refuge when listed bats are not active or present, and when Cheat Mountain Salamanders are found beneath the surface and are torpid. In the unlikely event that there is overlap between hunters and species of concern on the refuge, any potential disturbance from hunters walking, discharging firearms, and/or using hunting dogs is expected to be temporary, minimal, and considered insignificant. In the past, the Service has determined that each individual hunting opportunity is likely to have a minimal effect on these species, given the time of year the activities take place and where generally hunting occurs.

Also under the No Action Alternative, lead ammunition would still be permitted for hunting on refuge lands into the future, which would mean a continued and increasing risk to listed species and special status species from lead present in the environment over time. The Service has

determined, in the past, for each individual hunting opportunity that use of lead ammunition is not likely to adversely affect such species. Nevertheless, the Service continues to seriously consider the effects of the accumulation of lead in the environment on certain refuge lands from these activities over time. For example, scavenging raptors (e.g., eagles) may eat discarded gut piles from animals harvested with lead ammunition. Given that increasing the amount of lead introduced into the environment could lead to more serious impacts over time, the Service concludes that the No Action Alternative would ultimately present a potential risk to these natural resource in the long run with continued use of lead ammunition.

Proposed Action Alternative

In accordance with ESA Section 7, the refuge has completed an initial analysis of the effects of the proposed action alternative. Given that the proposed action could change in light of the public comment period for the proposed rulemaking, the initial section 7 documentation is considered to be a draft and will not be finalized until the Service publishes the final rulemaking. Although the finalized ESA section 7 documentation will accompany the final rule and NEPA decision documentation, only a summary of the initial section 7 analysis is reported here. The section 7 documentation evaluated two actions and two respective action areas. The first area and action were specific to the 2,412 acres, where the proposed hunting expansion is for the 2024-2025 seasons, including the addition of the hunting blind along A Frame Road. As part of this analysis, continued use of lead ammunition during the interim period and the action of opening new acres within the refuge to hunting activities were evaluated. For the second part of the proposed action (i.e., the proposed non-lead requirement which, if adopted, would take effect in the 2026-2027 seasons), the action area includes all applicable acres currently in refuge management. The effects of the proposed non-lead ammunition requirement were evaluated within this action area.

Under the first action of expanding hunting to 2,412 acres and adding a hunting blind on A Frame Road, a preliminary determination of "may affect, but not likely to adversely affect" was made for small whorled pogonia, Cheat Mountain salamander, Indiana bat, northern long-eared bat, Virginia big-eared bat, and tricolored bat, as well as a "not likely to jeopardize" determination for the candidate monarch butterfly. We expect only insignificant or discountable effects to individuals from the hunting expansion, given the species' foraging behaviors, lifecycles, and habitat needs of these species; the minimal chance of overlap with potential hunting and fishing activities; and the minor amounts of residual lead left in the environment from these activities. For each species, the potential impacts from hunting activities were considered temporary in nature and likely to be limited in overlap, if they occur at all, given that the potential use of the expansion area is limited to 20 additional use days and that the species are not likely to be present or active on the acres when the use is occurring in the fall and early spring. The construction of a hunting blind along A Frame Road is also unlikely to adversely affect these species because the area where the hunt blind will be located is not considered suitable habitat for these species, and they are unlikely to occur at this location. These species are also unlikely to occur near the proposed blind site given that this area was previously used as a hunting camp, construction area, and thoroughfare for hunters. Finally, opening this hunting

blind may also draw hunters to this area, thereby lowering the amount of hunting in other portions of the action area, reducing any potential impacts to the species even further.

Effects of residual lead left in the environment are not likely to adversely affect these species, given the small amount of lead expected to be added to the environment from these activities over the next two years. The amount of lead introduced to the environment because of hunting on the 2,412 acres over the next two years is expected to be negligible given the relatively low anticipated participation levels, encouragement to remove gut piles and spent shells, and potential use rates of non-lead ammunition as some hunters may make the transition earlier than the required date. We estimate that each year only 10 deer and 3 turkeys will be harvested on these new acres. For most target species, the entire carcass is removed from the premises and deer hunters are encouraged to remove gut piles as well, reducing the amount of potential lead entering the refuge environment. The amount of lead that could enter the environment until the non-lead requirement takes effect would be from two years of hunting, including up to 20 deer and 6 turkey harvested. Lead that would enter the environment from these activities would be fragments from ammunition that has left the body of harvested animals. Given the hunting practices and amount of take estimated using lead ammunition, the lead that would enter the environment is considered insignificant. Waterfowl hunting that would occur on these acres is lead-free, so no additional lead would enter the environment from those activities. At this time, opening the 2,412 acres for hunting is not likely to adversely affect listed species.

For the second part of the proposed action (i.e., the proposed non-lead requirement which, if adopted, would take effect for the 2026-2027 hunting seasons), the action area includes all huntable acres within the refuge approved boundary and lands that are in current ownership, which is 21,307 acres, including the 2,412 acres of the proposed expansion. Small whorled pogonia, Cheat Mountain salamander, Indiana bat, northern long-eared bat, Virginia big-eared bat, tricolored bat, and the monarch butterfly could all potentially be present on the refuge, and therefore, potentially within this action area. As such, each species was initially evaluated for impacts associated with the proposed requirement for use of non-lead ammunition (which if adopted, would become effective for the 2026-2027 hunting seasons) and the continued use of lead ammunition over the next two years. The draft intra-service Section 7 preliminarily determined that the proposed non-lead requirement was not likely to adversely affect all listed species (small whorled pogonia, Cheat Mountain salamander, Indiana bat, Northern long-eared bat, Virginia big-eared bat, tricolored bat) and not likely to jeopardize the monarch butterfly candidate species, as summarized below.

The potential for lead to adversely affect salamanders and bats is expected to be discountable due to the Cheat Mountain salamander's, as well as the Indiana, Virginia big-eared, northern long-eared, and tricolored bats' diets and foraging habits. The diet of the Cheat Mountain salamander is comprised of insects such as mites, flies, ants, and beetles, only some of which are herbivorous. The diets of all four species of bats are comprised of insects such as moths, flies, leafhoppers, caddisflies, wasps, and beetles, only some of which are herbivorous. Lead bullet fragments would have to break down in the soil in order to be taken up by plants near the area in which the fragments fall on or penetrate the soil surface. Typically, however, plants do not take heavy metals up until they have reached critical thresholds in the soil (Sharma Dubey 2005). If

lead is taken up by plants, it is mainly through the root system and partly, in minor amounts through the leaves. Inside the plants lead accumulates primarily in the root, but a part of it is translocated to the aerial portions. However, the small amount of lead that is expected to enter the refuge, over the next two years before the non-lead requirement takes effect, is not expected to reach the critical thresholds in the soil necessary for uptake in plants. Thus, the herbivorous prey that these listed species eat are not expected to be exposed to lead through the consumption of plants. In addition, bats are transitory in nature and will not consume their entire diets on the refuge area. The Cheat Mountain salamander is also more likely to occur at higher elevations than those where hunting is expected to occur. Considering the unlikely chain of events that are necessary for exposure and the small amount of lead that would contribute to lead concentrations in the hunting expansion area's soils, it seems likely that salamanders and bats that occur on the refuge will not consume lead derived from ammunition fired by hunters on the refuge.

The potential for lead impacts to monarchs is also expected to be discountable due to their diets. Adult monarch butterflies feed on nectar, and larvae consume the leaves and stems of milkweed. If lead reaches the critical thresholds in the soil for uptake in plants, it is first absorbed through the roots and only makes its way into other plant parts if concentrations are high enough (e.g., leaves and stems). Nectar typically carries less lead contaminants than other parts of the plant (if lead is absorbed through the plant). This means that, as with salamanders and bats, bioaccumulation through the plant to the monarch butterfly or larvae could potentially occur. However, as with salamanders and bats, it relies on the very unlikely occurrence that lead concentrations in the soil from hunting activities reach high enough levels for uptake by plants, and in this case, it would further require uptake by milkweed and the specific plants that monarchs rely on for nectaring sources.

Furthermore, this alternative would eliminate the potential long-term risk from the introduction of additional lead ammunition onto refuge lands, after lead restrictions take effect in 2026. Additional lead would no longer enter the environment and potentially impact scavenging raptors (e.g., eagles), migratory birds, or any threatened and endangered species that occur on the refuge. Residual lead in the environment from these activities may affect wildlife health; however, impacts are expected to be negligible from residual lead left in the environment, and any potential risk of impacts will decrease over time. Under this alternative, the fact that no additional lead from ammunition will be added to the environment once the non-lead ammunition requirement takes effect could have some beneficial effects on threatened and endangered species, migratory birds and bald and golden eagles, and reduce the overall effects of lead in the environment. In addition, the continued use of lead in the 2-year time period of phasing out is not likely to cause adverse effects to the listed species, since the additional lead added to the environment over this time period is expected to be minimal given expected early adoption of non-lead ammunition, encouragement to remove gut piles of deer, and use of non-lead hunting methods of take, such as archery.

Habitat and Vegetation

Affected Resource Description

Canaan Valley has three major types of habitats that make up the largest percentage of refuge habitats including wetlands, upland early successional habitat, and upland forest. Within wetlands, there are shrub wetlands, open water, and herbaceous wetlands. Common species

found here are speckled alder, meadowsweet shrub, chokeberry, bushy St. John's wort, soft stem bulrush, rice cutgrass, star sedge, and cottongrass fen. Within upland early successional habitat, there are grasslands, shrublands, and old fields. Common species found here are meadowsweet spiraea, bushy St. John's wort, hawthorns, goldenrod, and sheep fescue. Within upland forests, there are Northern hardwoods and conifer/mixed forests. Common species found here are black cherry, striped maple, red spruce, hemlock, yellow birch, and mountain laurel. With the diversity of plant species within the refuge, there are finer habitat types located within these broader habitat types. All hunting of big game, small/upland game and migratory game birds occur in these three habitat types on the refuge.

Anticipated Impacts

No Action Alternative

Some impacts to vegetation include hunters walking off-trail, setting up temporary tree stands, and scouting for deer. Different hunters, like ruffed grouse hunters, will usually stick to upland and grassland habitats. Most of the hunting for both white-tailed deer and ruffed grouse occurs during the time when plants are entering dormancy. Spring turkey hunting could result in some trampling of vegetation not in dormancy, but this impact is unlikely given the expected low levels of participation in spring turkey hunting. Positive effects on the vegetation would result from a reduction in the white-tailed deer population. Continuing to allow hunters on Canaan Valley NWR, specifically for deer hunting, would at least maintain the habitat as it is now and prevent further degradation due to overbrowsing. Well-managed hunting can effectively control deer and produce dramatic changes in the forest vegetation (Behrend, et. al., 1970). In summary, there would be few if any negative impacts from this use on the refuge's vegetation, but there would be beneficial impacts from the decrease of deer browsing on the refuge's vegetation.

Proposed Action Alternative

The effects of hunting the same species on additional acres for vegetation and soils would be minimal as hunters are dispersed widely across the refuge with many entry points. Only minor effects to vegetation from walking off-trail or trampling are expected. Since all-terrain vehicles and tree cutting are not allowed, and most plants are entering dormancy, minimal impacts are expected. There may be an increase in the potential spread of invasive plant species as a result of their existence on the newly acquired areas, including garlic mustard and Japanese stilt grass. This is expected to impact native vegetation and would need to be managed yearly to reduce the impact. The physical effects on the refuge wetland and upland vegetation are expected to be minimal during the majority of the hunting season. Most of the hunting takes place between September and January when plants are dormant. Potential impacts would come from turkey hunters trampling on vegetation from mid-April to mid-May if hunter participation is numerous. We anticipate these effects would be minimal given anticipated levels of use.

Geology and Soils

Affected Resource Description

Canaan Valley NWR lies in the high plateau zone of the Allegheny Mountains. It has an average elevation of 3,200 feet above sea level. Pottsville sandstone forms the ridges surrounding the Valley with younger sandstones, shale, and coal of the Mauch Chunk and Pottsville groups lying underneath (USFWS 2011). There are several types of soils divided into five physiographic categories. The majority of the soils vary from well drained or excessively drained to very poorly

drained. Canaan Valley has the largest expanse of wet terrace land and muck and peat soils in Tucker County (USFWS 2011).

Anticipated Impacts

No Action Alternative

Under this alternative, the current hunting program would be maintained with 18,895 acres of refuge lands open to hunting, according to Federal, State, and refuge regulations. The physical effects of hunting on refuge geology and soils are expected to be minimal during the majority of the hunting season. The physical impacts of hunters and hunting dogs trampling refuge soils is expected to be insignificant due to the soil being partially or completely frozen or snow-covered.

Proposed Action Alternative

Under the Proposed Action Alternative, hunting would continue to be allowed on Canaan Valley NWR. The physical effects of hunting on refuge geology and soils are expected to be minimal during the majority of the hunting season. The physical impact of hunters and hunting dogs trampling refuge soils on the additional land proposed to open for hunting is expected to be insignificant due to the soil being partially or completely frozen or snow-covered.

Visitor Use and Experience

Affected Resource Description

Canaan Valley NWR is open to all six priority public uses outlined in the Refuge Improvement Act of 1997 (hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation). Based on the 2017 Banking on Nature Report, less than 1 percent of refuge visits were for hunting, 38 percent of refuge visits were for hiking or biking, and 98 percent of refuge visits were for non-consumptive uses (USFWS 2017).

The number of hunters using the refuge has been consistently around 2,300 to 2,700 annually. As mentioned in the 2011 CCP, the refuge would maintain two accessible hunt blinds for persons with disabilities. A reservation system would continue to be used to monitor the number of hunters, time spent in the blind, and the overall quality of access for all hunters. The blinds are currently located on Timberline Road and Plant Road. Another potential blind location is at the end of A Frame Road as a photography/observation blind along the trail at the end of the road. The location will be evaluated by refuge staff to utilize it as an accessible hunt blind as well. Since hunting season goes from September through February, this blind could serve two purposes based on the time of year it would be utilized for hunting purposes.

Anticipated Impacts

No Action Alternative

Hunting, especially for species like white-tailed deer and American woodcock, is a traditional activity during the fall in West Virginia. Typical complaints received are associated with conflicts arising with other hunters. In addition, another concern was lack of hunter orange worn by other visitors utilizing the trails. To address safety concerns of both hunters and other visitors using the trails, refuge staff have increased signage, messaging, and even provided hunter orange vests upon request for use by refuge visitors. With the precautionary measures in place, minimal impacts to visitor use and experience are expected.

Proposed Action Alternative
Under the Proposed Action Alternative, the refuge would continue to provide the public with the opportunity to hunt on Canaan Valley NWR. Continued hunter presence and use during the regular refuge hunting timeframe (September through February, mid-April to mid-May) is not expected to significantly increase the number of conflicts among user groups. Most hunter-to-hunter conflicts are expected to be minor and can be managed by law enforcement. Conflicts that arise with other user groups are expected to be minor and can be managed through outreach, trail closures, messaging about importance of wearing hunter orange during hunting season, and signage. If conflicts do arise, mitigation efforts would be designed and implemented to lessen impacts to other wildlife-dependent user groups. Acquisition of additional acreage that will be acquired will follow the same guidance as stated in this hunting plan.

Cultural Resources

Affected Resource Description
Canaan Valley is Massawomeck ancestral land. The Massawomeck people were avid travelers and used this large territory to cultivate food and trap animals. In the 1500s and early 1600s, European colonization and regional tribal conflict caused their population to decline. The last documented mention of the Massawomecks occurred in the mid-1600s. In 2002, the Mid-Atlantic Archaeological Research, Inc. located the only known prehistoric archaeological site on the refuge. This site yielded sparse chert flakes. These chert flakes will be placed in the visitor center for display for the public providing an opportunity to learn about the indigenous people that first inhabited this landscape. A reconnaissance overview was completed in 2007 which notes that due to extensive timbering, farming, and fire history of Canaan Valley, many sites on the valley floor may be heavily disturbed. In collaboration with Tucker County Highlands History and Education Project, refuge staff conducted several investigations on Canaan Valley and early settlement history. That field research resulted in the identification of several headstones, foundations, and old home sites that are on refuge lands.

Anticipated Impacts
No Action Alternative
It is Service policy to preserve the cultural, historic, and archaeological resources in the public trust, and avoid any adverse effects wherever possible. Section 106 of the National Historical Preservation Act of 1966, as amended, required the Service to evaluate the effects of any of its actions on cultural resources (historic, architectural, and archaeological properties) that are listed or eligible for listing in the National Register of Historic Places. Current hunting programs on the refuge do not have any adverse impacts to cultural resources on the refuge.

Proposed Action Alternative
Although hunters would be able to access parts of the refuge that are otherwise closed to the public, this access is not expected to increase disturbance to cultural resources. Since the new acreage, if acquired, is new to the Service but hunting has been allowed prior to Service ownership, consultation with the Regional Archaeologist would occur. After consultation, if cultural resources are expected in the area, then refuge staff would ensure they are protected, following Service policy.

Refuge Management and Operations

Affected Resource Description

Canaan Valley NWR is located along Highway 32 in Tucker County, Davis, West Virginia. The facilities located here include an administrative office/visitor center, shop, pole shed, above-ground fuel tanks, and parking areas. Along Freeland Road are the Freeland Boardwalk and the three-bedroom house used for seasonal interns. Along the 31 miles of trails are wooden kiosks located at the trail heads for information for hunters and other visitors. An additional building is located on Promise Land Road and is used for cold storage. Located on River's Edge Trail, off the Brown Mountain parking lot is a canoe/kayak launch called Laurel Landing. Several parking areas are located along roads such as A Frame Road, Camp 70, Forest Road 80, Timberline Road and Beall Lane.

Anticipated Impacts

No Action Alternative

Hunters currently use refuge infrastructure such as parking areas, trails, and roads to gain access to a portion of refuge lands. Most refuge lands are accessible by road, while the canoe/kayak launch allows for access to the interior of the refuge without having to walk far. The impacts to refuge infrastructure from hunting are short-term and negligible under the existing program.

Proposed Action Alternative

While increased hunter opportunity is anticipated, impacts to the local public roads are expected to be negligible. A Frame Road has a three-way roadway use agreement between the owners. The understanding is that each owner will contribute fairly to the repairs as needed for the road. Refuge staff maintain the roads on the refuge. Additional operating costs are expected to be minimal for expanding refuge hunting opportunities as the infrastructure are already in place. The total estimated costs to implement the proposed action remains relatively unchanged at $9,910.

Socioeconomics and Environmental Justice

Affected Resource Description

The refuge is in a rural area with smaller towns like Oakland, Maryland (1,745 people) and Elkins, West Virginia (7,072 people) less than 40 miles away. Larger metropolitan areas like Pittsburgh, Pennsylvania, Washington DC, and Charleston, West Virginia are within driving distance of Canaan Valley NWR. With newly constructed road systems like Corridor H, access to the refuge is within a day's drive of these metropolitan areas. The refuge contributes directly to the local economy through annual revenue shared payments to each county, based on Congressional appropriations, land acquisition, and proceeds.

The refuge contributes indirectly to the local economy by providing invaluable recreational opportunities to residents, tourists, and travelers. A NWR visitor survey from 2018 showed that the top three activities visitors participated in during the prior 12 months were hiking (89 percent), wildlife observation (66 percent), and bird watching (39 percent). According to a report titled "The Economic Contributions of Recreational Visitation at Canaan Valley National Wildlife Refuge," the contribution of recreational spending in local communities was associated with about 33 jobs, $705,000 in employment income, $251,000 in total tax revenue, and $2.7 million in economic output (USFWS 2019).

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 mission by identifying and addressing disproportionately high or adverse environmental effects of their programs and policies on minorities and low-income populations and communities.

Anticipated Impacts

No Action Alternative

The current program has a long-term beneficial impact to the local economy. It also serves the public with hunting opportunities that are free of charge and a method of providing food for low-income families.

Proposed Action Alternative

For the proposed alternative, hunters would continue to use the existing infrastructure to access hunting areas and there would be little, if any, additional impact to the local economy as a result of expanding the acreage open to hunting.

There is some possibility of negative economic impacts for socioeconomically disadvantaged hunters who must comply with the requirements. While non-lead ammunition has increased in availability, certain types can cost more than comparable types of lead ammunition. For some calibers and gauges, the difference between cheaper lead ammunition and non-lead ammunition can be less than $10 per box (State of California, 2022). We recognize that in some locations the price gap is larger and may pose a barrier for hunters. The economic burden involved in transitioning between ammunition could be more impactful to low-income hunters. In order to reduce the negative impacts to hunters making this switch, the refuge has begun and will continue specific outreach about the requirement to these groups and has put in place measures to mitigate the economic input beyond the phased implementation, which already affords hunters time to gradually transition their supplies of ammunition. In order to mitigate economic impacts to hunters who previously used lead ammunition, in addition to implementing the requirement gradually, the Service will continue educating hunters on the use of non-lead ammunition during the transition period, provide resources on companies that produce non-lead ammunition for purchase and work with partner organizations on non-lead ammunition giveaways or incentives where possible. With these mitigation measures, minority and/or low-income communities are not disproportionately impacted from this alternative.

Monitoring

Many game species populations are monitored by the State agencies through field surveys and game harvest reports if collected, which provide an additional means for monitoring populations. The State has determined that populations of these 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 current hunt program to ensure species and habitat health. Refuge-specific hunting regulations may be altered to achieve species-specific harvest objectives in the future.

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

Alternative A – No Action Alternative

There would be no additional costs to the refuge 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 opportunities would not be created under this alternative. This alternative has negligible short-term impacts to physical and biological resources. This alternative would reduce our actions as mandated under the NWRSAA and Secretarial Order 3356.

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

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

Alternative B – Proposed Action Alternative
As described above, this alternative is the Service's preferred action because it offers the best opportunity for public hunting that would reduce the potential impacts on physical and biological resources from lead entering the environment, while meeting the Service's mandates under NWRSAA and Secretarial Order 3356. This action is not likely to adversely affect endangered or threatened species or their critical habitat. Effects on other wildlife and habitat would be negligible, and could be slightly positive.

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

estimated populations. In addition, overall populations will continue to be monitored and future harvests will be adjusted as needed under the existing flyway and State regulatory processes.

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

List of Sources, Agencies and Persons Consulted
West Virginia Division of Natural Resources
CJ Bowman – Refuge Liaison to WVDNR
Holly Morris – Furbearer Program Coordinator (District 4)
Thomas Pratt– District I Wildlife Biologist

List of Preparers
Robert Frank, Refuge Manager
Vacant, Wildlife Biologist
Matthew Boarman, Assistant Refuge Manager
Wilson Darbin, Visitor Services Assistant
Stacey Lowe, Regional Hunting and Fishing Chief
Laurence Levesque, Planning Chief and Regional Hunting and Fishing Coordinator
Kathryn Minchuk, Regional Planner John Saluke, Visitor Services Assistant
Laura Kelly, Visitor Services Assistant

State Coordination
Canaan Valley NWR and WVDNR staff work together to ensure safe and enjoyable recreational hunting opportunities. In the past 4 years, these staff have expanded hunting opportunities on over 700 acres of refuge property, reduced redundancy in regulations, increased awareness to hunter education, and created avenues for work in the future. On May 5, 2021, the refuge manager met with WVDNR liaison to coordinate the draft proposed hunt plan. The draft hunt plan will incorporate any further comments received from the State.

Public Outreach
The refuge maintains a mailing list of local newspapers, radio, television stations, and websites for news releases. Special announcements and articles may be released in conjunction with hunting seasons. In addition, information about the hunt program will be available at our visitor center and on the Canaan Valley NWR website and Facebook page.

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

___ The Service's action will not result in a significant impact on the quality of the human environment. See the attached **"Finding of No Significant Impact".**

___ The Service's action **may significantly affect** the quality of the human environment and the Service will prepare an Environmental Impact Statement.

Preparer Signature: _____Date:_____

Name/Title/Organization: _____

_____

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CULTURAL RESOURCES

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- 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.
- 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, 450.
- Fish and Wildlife Act of 1956, 16 U.S.C. 742a-m.
- Lacey Act, as amended, 16 U.S.C. 3371 et seq.; 15 CFR Parts 10, 11, 12, 14, 300, and 904.
- Migratory Bird Treaty Act, as amended, 16 U.S.C. 703-712; 50 CFR Parts 10, 12, 20, and 21.
- Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Fed. Reg. 3853 (2001).

NATURAL RESOURCES

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

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Person: Matthew Boarman
Telephone Number: (304) 866-3858 **Email:** matthew_boarman@fws.gov
Date: January 31, 2024

Project Name: Canaan Valley National Wildlife Refuge Hunting Plan

I. Service Program:

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

II. State/Agency:
West Virginia/USFWS, National Wildlife Refuge System

III. Station Name:
Canaan Valley National Wildlife Refuge

IV. Description of Proposed Action (attach additional pages as needed):
The first part of the Service's proposed action is focused on expanding existing hunting opportunities as described in the updated hunting plan to the Big Cove area and the newly acquired surrounding acres, for a total of 2,412 acres newly opened to public hunting. Opening these lands to hunting will provide additional opportunities for the public to enjoy wildlife-oriented recreation. The refuge will allow the use of lead ammunition on these acres, and continue to allow lead use on acres already open to public hunting, until the refuge-wide non-lead ammunition requirement takes effect during the 2026-2027 hunting seasons, as described in the second part of this proposed action. There will be no changes to targeted species for hunting activities, method of take, or timing on hunting. We will also analyze the effects of constructing a hunting blind along A Frame Road. Second, when the non-lead regulation takes full effect at the start of the 2026-2027 hunting season, the entire refuge will be completely lead-free for all hunting activities, and non-lead ammunition and shot will be required to conduct these activities. This analysis evaluates the effects of the continued use of lead on the 2,412 acres that will be opened for hunting and the effects of the 2026-2027 non-lead ammunition requirement.

The Refuge Manager may establish specific regulations for an individual unit to ensure the above requirements are met. Certain units or portions of units may remain closed or

be periodically closed to hunting or fishing, pursuant to 50 C.F.R. § 25.21(e), if the Refuge Manager determines that there are specific habitat, wildlife protection (including ESA-listed species), and/or public safety needs that require establishing sanctuary areas. Hunting and fishing are also conducted in accordance with all applicable State, Refuge, and Federal regulations.

- ***Species changes:*** Currently, the refuge is open to hunting in alignment with State species that are found on Canaan Valley NWR. There are no new species proposed as part of this plan.
- ***Huntable acreage:*** Previously, within the 2,466 acres approved acquisition boundary in the northern part of the refuge, only the Big Cove area (441 acres) was owned by the Service, and it was closed to the public because it was surrounded by private lands and lacked public access. On January 12, 2024, the Service acquired an additional 1,971 acres surrounding the Big Cove area. The combined 2,412 acres will now be open to public hunting.
- ***Method of take changes:*** The refuge will require the use of non-lead ammunition for hunting all species at the start of the 2026-2027 hunting season. Hunters will be encouraged to use non-lead ammunition voluntarily until 2026. Beginning in fall 2026, only non-lead ammunition will be allowed for all hunting by regulation.
- ***Hunter orange:*** No proposed changes. The refuge would continue to adhere to State regulations.
- ***Other changes:*** Hunter and archery education may be offered in coordination with partners such as the West Virginia Division of Natural Resources (WVDNR) and Canaan Valley Resort. The refuge would add another hunting blind along A Frame Road.

V. Pertinent Species and Habitat:

A. Include species/habitat occurrence map:

B. Complete the following table:

Species/Critical Habitat	Status
Indiana bat	E
Virginia big-eared bat/CH	E
Northern long-eared bat	E
Tricolored bat	PE
Cheat mountain salamander	T
Monarch Butterfly	C
Small Whorled Pogonia	T

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

VI. Location (attach map):

A. Ecoregion Number and Name:

Ohio River Valley Ecosystem

B. County and State:

Grant and Tucker Counties, West Virginia

C. Section, Township, and Range (or latitude and longitude):

Davis, WV

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

Varies, see Hunt Maps

E. Species/habitat occurrence: See map

Canaan Valley NWR uses the Information for Planning and Consultation tool (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 you 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 activities will have no effect on the species.

The Refuge and the Canaan Valley area provides habitat for two threatened, two endangered, and one candidate species. The threatened Cheat Mountain salamander (*Plethodon netting*); the endangered Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and Virginia big-eared bat (*Plecotus townsendii virginianus*); the proposed tricolored bat (Perimyotis subflavus); and the candidate monarch butterfly (*Danaus plexippus*) have all been documented on the Refuge.

The West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*) which occurs in Refuge forests was delisted as an endangered species in March 2013. The bald eagle

(*Haliaeetus leucophalus)*, delisted in August 2007, uses the Refuge during the breeding and migration seasons. Both the West Virginia northern flying squirrel and the bald eagle, although delisted, remain priority species for Service protection and management. The small whorled pogonia (*Isotria medeoloides)* is threatened and its range overlaps with the refuge, but it has not been documented on the refuge.

The upland habitat associated with the additional hunt area consists of northern hardwood forest with black cherry (*Prunus serotina*), American beech (*Fagus grandifolia*), yellow birch (*Betula alleghaniensis*), red maple (*Acer rubrum*) and sugar maple (*Acer saccharum*). These habitats also have a component of eastern hemlock (*Tsuga canadensis*) and red spruce (*Picea rubens*) in scattered locations. These forests have been cut over many times and are approximately 50 years old, although there are some that have been cut in the last 5 years and are starting to develop into early successional forests. Open upland areas include shrublands and old field types that begin as the forest fades out before the wetlands begin.

There are many wetland communities associated with these additional hunt areas, some of which are rare. Forested wetlands are comprised of Canaan fir (*Abies balsamea var phanerolepis*) and quaking aspen (*Populus tremuloides*). Shrub wetlands include speckled alder, spiraea, viburnum, blueberry and willow. Herbaceous wetlands surround the Little Blackwater River as it winds through the valley bottom along with all its small tributaries once they come off the mountain.

Indiana Bat

The Indiana bat is a federally listed endangered species and a trust resource of the Fish and Wildlife Service. Primary foraging habitats include wetland and riparian areas, bottomland forests and edge habitats. Roost trees are typically in wooded wetlands, bottomland and floodplain forests, as well as upland habitats. Habitat loss and degradation, overutilization for scientific purposes, disease and predation, environmental contaminants, and the inadequacy of existing regulatory mechanisms for summer habitat threaten the population viability of the Indiana bat across its range.

The Indiana Bat Draft Recovery Plan (USFWS 2007) calls for the conservation and management of hibernacula and adjacent lands, summer habitat, and winter populations, for the monitoring of populations, and for the development of public outreach and information programs (Recovery Actions 1, 2, and 4). Indiana bats are still using the Refuge for foraging and roosting and therefore the refuge is committed to protecting, maintaining, and improving habitat quality on the refuge that would contribute to the viability of the species and its recovery. The conservation of this endangered species is now more important than ever as white-nose syndrome spreads across the range of the Indiana bat.

Acoustical recordings from 2003, 2006, 2007, 2008, 2009, 2012 and 2013 suggest Indiana bats are using riparian corridors and beaver ponds on the Refuge for summer foraging habitat. They were also detected within four miles of the project area in 2009 during a driving route survey. Recordings from 2012 and 2013 suggest that Indiana bats are using openings in the forest on the Refuge for summer foraging habitat as well. Summer use indicates a potential for maternity colonies to be located on or near the refuge. As a key stage in the life cycle of the species, it is imperative to know the location of maternity colonies and protect them from disturbance. The Refuge will continue acoustical monitoring to detect potential presence of Indiana bats along all suitable habitats.

Virginia Big-eared Bat

The Virginia big-eared bat (VBEB) is a federally listed endangered species and a trust resource of the Fish and Wildlife Service. More Virginia big-eared bats occur in West Virginia than any other state. Caves are very important for this bat and most caves of significance are protected for this reason. They use caves in the winter as well as the summer.

VBEB principally feed on moths but will feed on other insects as well. Their foraging habitat consists of a variety of habitats including old fields, hay field, and forested areas. These bats are known to travel up to 6.5 miles from a cave to roost and feed and often return to the same feeding area night after night.

The major cause of the decline of Virginia big-eared bats is disturbance. The number of Virginia big-eared bats have declined sharply from the 1950s to the early 1980s due to

human disturbance in their cave roosts. They are easily awakened and are more sensitive than most bats to disturbance during the winter months. With disturbance in the summer months, females can panic which results in the dropping of young that may never be recovered. Cave protections have increased their populations since the 1980s.

The Refuge initiated acoustical bat surveys in 2012 as a regional initiative in response to white-nose syndrome. Up until then VBEB were not detected on the Refuge. After discussions with the WV Ecological Services Office the Refuge was made aware of a hibernaculum in an abandoned coal mine only a few miles from the northern most Refuge management unit and an old trailer west of the Refuge. Data analysis has been slow, but most recently with the help of the WV DNR we were able to get many years of data analyzed and summarized. From this analysis we have determined that VBEB are indeed using the Refuge to forage. The Refuge is also included in the VBEB critical habitat designation area.

Northern Long-eared Bat

The northern long-eared bat (NLEB) is federally listed as an endangered species under the Endangered Species Act and is a trust resource of the Fish and Wildlife Service. Primary foraging habitats are the understory of forested areas, where they feed on moths, flies, leafhoppers, caddisflies, and beetles, which they catch while in flight using echolocation or by gleaning motionless insects from vegetation. During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags. Males and non-reproductive females may also roost in cooler places, like caves and mines. Northern long- eared bats seem to be flexible in selecting roosts, choosing roost trees based on suitability to retain bark or provide cavities or crevices.

Although, white-nose syndrome is the primary threat to the NLEB, habitat loss and degradation, predation and wind farm operations threaten the population viability of the northern long-eared bat across its range. NLEB are using the Refuge for foraging and roosting, and therefore, protecting, maintaining, and improving habitat quality on the Refuge would contribute to the viability of the species and its recovery. The conservation of this threatened species is now more important than ever as white-nose syndrome spreads across its range.

Acoustical recordings from ANABAT detectors and driving routes in 2003, 2006, 2007, 2008, 2009, and 2012 suggest NLEB bats are using riparian corridors and beaver ponds on the Refuge for summer foraging habitat as well as forested areas. The Refuge will continue acoustical monitoring to detect potential presence of northern long-eared bats along all suitable habitats.

Tricolored Bat

The tricolored bat (TCB) was proposed to be federally listed as an endangered species under the Endangered Species Act on September 14, 2022 (87 FR 56381) and is a trust

resource of the Fish and Wildlife Service. Primary foraging habitats are the overstory and above of forested areas, where they feed on moths, flies, wasps, caddisflies, and beetles. During the active season, female TCBs will roost in small colonies within leaf clusters of hardwood trees or needles clusters of evergreens. Male TCBs roost singly in the same types of roost habitat. Culverts, buildings, and bridges are also used as roost sites.

Although white-nose syndrome is the primary threat to the TCB, wind farm operation and habitat loss and degradation also threaten the population viability of the tricolored bat across its range. TCB are using the Refuge for foraging and roosting, and therefore, protecting, maintaining, and improving habitat quality on the Refuge would contribute to the viability of the species and its recovery. The conservation of this threatened species is now more important than ever as white-nose syndrome spreads across its range.

Acoustical recordings from ANABAT detectors and driving routes in 2009, 2017, 2018, 2019, and 2020 suggest TCB bats are using riparian corridors, beaver ponds, early successional habitat, and forested habitat on the Refuge for summer foraging habitat. The Refuge will continue acoustical monitoring to detect potential presence of tricolored bats along all suitable habitats.

Cheat Mountain Salamander

The Cheat Mountain Salamander (CMS) is a federally threatened species and a priority for Service protection and management. They are only found in five counties in West Virginia and are limited to approximately 80 fragmented populations in only five counties in the State. The Refuge's population represents one of the most northern for this species. Being a federally threatened species that is tied to highly restricted plant communities, they are also considered a priority for conservation by the State of WV as detailed in the State Wildlife Conservation Action Plan.

Only one management unit, Idlemans, at the south end of the Refuge has documented occupied habitat for this species. Habitat requirements include a cool moist forest floor with adequate coarse woody debris and typically with a spruce or mixed spruce-hardwood forest overstory. The main threat to the CMS is degradation of high-elevation red spruce and spruce/northern hardwood forests. Since the CMS requires moist, cool habitats, any alteration of the habitat that reduces soil moisture and/or relative humidity can lead to adverse effects such as reduced reproductive success through nest desiccation (USFWS 1991). Other threats include competition with other salamanders, drought, pollution, and climate change.

Typically, CMS habitat consists of stands of conifers such as red spruce and occasionally eastern hemlock at elevations above 2,000' in the northern part of the known range to above 3,500' in the southern part of the range. The forest floor is usually cool and moist and covered with the liverwort (*Bazzania trilobata*) and the habitat typically contains rock outcrops, emergent rocks, boulder fields, or narrow ravines lined with great rhododendron (*Rhododendron maximum*).

CMS habitat on the Refuge is predominately a northern hardwood forest with scattered eastern hemlock and red spruce. No CMS have been found below 3900' in elevation on the Refuge. The proposed hunt area does not occur in documented CMS habitat; however, Brown Mountain has been listed in the recovery plan as a potential area for CMS. In addition, there is a moderate chance of them occurring at the highest elevations of the new hunt areas based on the new model completed by Rucker (Rucker 2021). Surveys will need to be completed in these areas to determine if CMS are present.

Monarch Butterfly

The monarch butterfly is a candidate species under the Endangered Species Act of 1973. The two North American populations have been monitored since the mid-1990s and the data shows long-term declines in the population's abundance at the overwintering sites in both populations. The petition to the USFWS to list the monarch butterfly for protection under the ESA was due to this decline.

Adult monarch butterflies' migration north in the spring requires a diversity of blooming nectar resources along the way. This is necessary throughout their breeding grounds as well, from spring to fall. Milkweed is also needed for both oviposition and larval feeding that is within this nectaring habitat.

The major cause of decline in the eastern North American population is overwintering habitat loss. However, as more information is gathered there are many other causes that could lead to catastrophic losses as well including disease, widespread drought, extreme storm events and widespread insecticide spray events. In the eastern North American population, the availability, spatial distribution and quality of milkweed will be the largest contributor to the monarch's decline followed by availability and quality of overwintering habitat, climate (storms, drought, temperatures), availability, quality and spatial distribution of migration resources, disease and natural enemies, and insecticides.

The eastern North American population has been systematically surveyed annually since 1994. Based on the past annual censuses, this population has been generally declining over the last 26 years. While the numbers at the overwintering sites have declined, the spatial extent of the population during the breeding season has not changed. Therefore, the probability of extinction over the next 60 years is 61 percent given its current population size and population growth rate.

The Refuge is used by monarch butterflies from spring to fall, during their breeding season. We have not completed any census of monarchs using the Refuge during this season. Habitat used includes managed grasslands, old fields, shrublands and roadsides. Management of Refuge early successional habitats is tailored toward the monarch. For example, grasslands can be mowed beginning on August 15, but milkweed pods do not open until the fall. Therefore, we have moved our mowing to later in the season to help spread mature milkweed seeds in these grassland areas.

Small Whorled Pogonia

While this species' range is within the Refuge boundary, it is not known to occur on the Refuge.

VII. Determination of Effects:

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

The description of effects is divided into two sections as the proposed rulemaking will include two proposed actions: (1) the opening of the 2,412 acres for hunting and the constructing of a hunting blind along A Frame Road, and (2) the requirement to use non-lead ammunition, which will take effect across the entire refuge beginning with the 2026-2027 hunting season. Voluntary use of non-lead ammunition will be encouraged during the two-year period for phase out of the use of lead. Under the first proposed action, we evaluate the effects of the expansion of hunting activities, including the use of lead ammunition for the next two years when hunting species that are present on the 2,412 acres of the hunting expansion; we will also evaluate the effects of the hunting blind. The second proposed action focuses solely on the evaluation of the effects of the non-lead ammunition requirement taking effect on the refuge beginning in the 2026-2027 season.

(A) Opening 2,412 acres for hunting

(1) Analysis of Impacts to Listed Species from Lead Use on 2,412 Acres Before Non-Lead Requirement Takes Effect for 2026-2027 Season

We estimate that on an annual basis an additional 20 days of use for hunting will occur from the hunting and fishing expansion on the 2,412 new acres. These acres will be fully open to all species currently hunted on the refuge, consistent with refuge-specific and State of West Virginia regulations. The refuge staff, using their best professional judgment, estimate that these acres will be hunted predominately for white tailed deer, turkey, and waterfowl (waterfowl hunting already requires non-lead ammunition). Night hunting of coyote, raccoon opossum, skunk, and fox is allowed but requires a Special Use Permit. Only shotgun, muzzleloader, or archery (including crossbow) are permitted in designated No Rifle Zones. Lead ammunition can be used for upland and big game hunting during hunting seasons until the second part of this action takes effect in the fall of 2026. The amount of lead introduced to the environment because of big game and upland game hunting on the 2,412 acres over the next two years, however, is expected to be minimal, given the relatively low anticipated participation levels, encouragement to remove gut piles and spent shells, and potential use rates of non-lead ammunition as some hunters may make the transition earlier than the required date. We estimate that each year only 10 deer and 3 turkeys will be harvested on these new acres. For most target species the entire carcass is removed from the premises and deer hunters are encouraged to remove gut piles as well, reducing the amount of lead entering the refuge environment. The amount of lead that could enter the environment until the non-lead requirement takes effect would be from two years of hunting including up to 20 deer and

6 turkey harvested. Potential lead that could enter the environment from these activities would be from missed shots and fragments from ammunition that has left the body of harvested animals. Expanding these areas for hunting activities may not result in much additional lead ammunition use because the Service encourages hunters to transition early to non-lead ammunition. We anticipate that the amount of hunting using lead ammunition in the 2,412 acres will be low, so the amount of lead ammunition entering the environment over the next two years is expected to be insignificant. As mentioned, waterfowl hunting already requires non-lead ammunition, so no additional lead would enter the environment from those hunts. Effects of the newly opened hunting activities and the use of lead ammunition until the lead-free requirement takes effect is outlined below for species that are found on or could use the 2,412 acres.

(a) *Small whorled pogonia*
Staff present on the refuge and conducting this evaluation generally have the best available information about the presence of species within the action area. 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 consider that in our analysis. Small whorled pogonia has an estimated range that extends within the boundaries of the Refuge, but it is not known to occur within the refuge and has not been documented on the refuge, including within the newly acquired acres and the entire 2,412 acres of the hunting expansion. Thus, the chance of this species encountering lead from use of the new 2,412-acre area is extremely unlikely and, therefore, considered discountable. In the unlikely event that a small whorled pogonia is growing in the action area, the amount of lead in the environment is so small that any potential effects to the pogonia are expected to be insignificant. Lead ammunition would have to be added to the soil in substantial amounts that pass critical thresholds before uptake by plants, including the small whorled pogonia, would occur (Sharma and Dubey 2005). Thus, the potential effects from opening these acres and allowing the use of lead ammunition for the next two years is not likely to adversely affect the small whorled pogonia.

(b) *Indiana bat, Virginia big-eared bat, northern long-eared bat, tricolored bat, Cheat Mountain salamander, and monarch butterflies*
Lead ammunition can be used during upland and big game hunting on the 2,412 acres until the beginning of the 2026-2027 hunting season. The amount of lead introduced to the environment due to these hunting activities, however, is expected to be minimal, given the reasons described in the previous section. We will also encourage the use of non-lead ammunition and educate hunters about the impacts of lead during the two-year transition period. The bioaccumulation of lead is a potential concern, but it does not present a significant issue for hunting on the 2,412 acres because the lead added to the environment from these activities is expected to be such small quantity that there is a low probability of accumulation of lead from food sources of bats, salamanders, and monarchs, and there would be no direct consumption of lead by these species. Lead bullets typically retain 90-95% of their weight after being shot from a weapon. Only a small portion of the lead bullets enter the environment, in part because lead bullets and

fragments often remain in harvested animals that are removed from the area, and missed shots by hunters where the entire bullet enter the environment are infrequent.

The potential for lead impacts to salamanders and bats is expected to be discountable due to the Cheat Mountain salamander's, Indiana, Virginia big-eared, northern long-eared, and tricolored bats' diets and foraging habits. The diet of the Cheat Mountain salamander is comprised of insects such as mites, flies, ants, and beetles, only some of which are herbivorous. The diets of all four species of bats are comprised of insects such as moths, flies, leafhoppers, caddisflies, wasps, and beetles, only some of which are herbivorous. Lead bullet fragments would have to break down in the soil in order to be taken up by plants near the area in which the fragments fall on or penetrate the soil surface. Typically, however, plants do not take heavy metals up until they have reached critical thresholds in the soil (Sharma and Dubey 2005). If lead is taken up by plants, it is mainly through the root system and partly, in minor amounts through the leaves. Inside the plants lead accumulates primarily in the root, but a part of it is translocated to the aerial portions. However, as explained above, the small amount of lead that is expected to enter the 2,412 acres as a result of the proposed hunting expansion is not expected to reach the critical thresholds in the soil necessary for uptake in plants. Thus, the herbivorous prey that these listed species eat are not expected to be exposed to lead through the consumption of plants. In addition, bats are transitory in nature and will not consume their entire diets on the refuge area. The Cheat Mountain salamander is also more likely to occur at higher elevations than those within the 2,412 acres of hunting expansion. Considering the unlikely chain of events that are necessary for exposure and the small amount of lead that would contribute to lead concentrations in the hunting expansion area's soils, it seems likely that salamanders and bats that occur on the refuge will not consume lead derived from ammunition fired by hunters on the refuge.

The potential for lead impacts to monarchs is expected to be discountable due to their diets. Adult monarch butterflies feed on nectar, and larvae consume the leaves and stems of milkweed. If lead reaches the critical thresholds in the soil for uptake in plants, it is first absorbed through the roots and only makes its way into other plant parts if concentrations are high enough (e.g., leaves and stems). Nectar typically carries less lead contaminants than other parts of the plant (if lead is absorbed through the plant). This means that, as with salamanders and bats, bioaccumulation through the plant to the monarch butterfly or larvae could potentially occur. However, as with salamanders and bats, it relies on the very unlikely occurrence that lead concentrations in the soil from hunting activities reach high enough levels for uptake by plants, and in this case, it would further require uptake by milkweed and the specific plants that monarchs rely on for nectaring sources.

In conclusion, the lead ammunition introduced on these 2,412 acres as a result of hunting activities over the next two years is not likely to adversely affect the Indiana bat, Virginia big-eared bat, northern long-eared bat, and tricolored bat because these species only have a transitory presence on the refuge, and the potential effects of lead exposure through consumption are discountable, as explained above. This proposed action is also not likely to adversely affect the Cheat Mountain salamander because it is more likely to occur at

higher elevations than those within the 2,412 acres of hunting expansion, and the potential lead exposure is discountable, as provided above. This proposed action is also not likely to jeopardize the monarch butterfly because the potential effects of lead exposure through consumption are discountable.

(2) Analysis of Other Impacts from Opening 2,412 Acres to Hunting and Constructing a Hunting Blind on A Frame Road

(a) Small whorled pogonia
The small whorled pogonia has not been documented on the refuge, including the 2,412 acres of the action area, but it's range overlaps with the refuge. If a plant were present in the action area, any potential effects from hunter activity would still be highly unlikely. First, intentional destruction of vegetation is prohibited for hunters on the refuge. Second, accidental damage resulting from foot traffic would be highly unlikely because small whorled pogonia only extend flowering buds vulnerable to foot traffic outside of the hunting seasons in late May to June and because small whorled pogonia do not flower every year, often remaining dormant underground for multiple consecutive years.

The construction of a hunting blind along A Frame Road is unlikely to adversely affect the small whorled pogonia for multiple reasons. First, although the range of the small whorled pogonia overlaps with the refuge, no small whorled pogonia have been documented in the immediate vicinity of the proposed hunting blind, even with the area already having high human visitation from previous use as a hunting camp site. Also, the location provides poor habitat for the plant, since small whorled pogonia tend to grow near small streams or on the edge of long-persisting breaks in the forest canopy. Finally, opening this hunting blind may draw hunters to this area, thereby lowering the amount of hunting in other portions of the action area, reducing any potential impacts to small whorled pogonia, if any were to be present on the refuge, even further. Therefore, the proposed action is not likely to adversely affect the small whorled pogonia.

(b) *Indiana bat, Virginia big-eared bat, northern long-eared bat, tricolored bat,*
All four bat species may be present in the 2,412 acres. However, the proposed hunting expansion to new acres is not likely to adversely affect bats because bats are less active in the months during which hunting occurs on the refuge, September through February and mid-April to mid-May, and there are no hibernacula in the new hunting area. During the peak of hunting use from October through the winter, all four bat species are expected to be in hibernation in caves and mines outside the action area. Even in September, April, and May, where overlap in presence with roosting or foraging bats is possible, bats are most active at night, and most hunting will occur during daylight hours. Night hunting is allowed for designated furbearer species, but a Special Use Permit is required and typically fewer than 10 are issued annually. Thus, disturbances to bats from hunting are unlikely to occur. When there is daytime overlap in bat and hunter presence in September and April to May, there may be temporary disturbance to bats roosting in trees from the noise of dog barking or gun use. This type of disturbance is expected to have insignificant effects as it is temporary in nature and lasts only for the duration of the noise; it is likely that the effects will be limited to bats vocalizing and not flushing from roost trees during

daylight hours. Although hunter presence on these acres could disturb the bats during roosting times, any potential disturbance from hunting activity is expected to have discountable or insignificant effects. Trees that bats select for roosting typically are dead or dying, with large, thick slabs of peeling bark. These trees are typically not the same trees that hunters will select to put tree stands in for safety reasons or lack of coverage for camouflage. Thus, the likelihood of bats and hunters using the same trees is very low and therefore considered discountable. If a hunter used a tree that a bat happened to be roosting in to put their tree stand on, the bats would likely not leave the roost tree during daylight hours. If night hunting overlaps with bat presence in September, the foraging bats are still unlikely to be adversely affected by hunter activity because of the small number of hunters (fewer than 10 at any time) within the large area (2,412 acres) and because bats tend to forage for insects over open fields and open bodies of water, while night furbearer hunting tends to take place in more wooded areas. In the unlikely event that there is overlap, any potential effects are also likely to be insignificant, as foraging bats are already on the move over a wide area and can easily relocate to avoid temporary noise disturbance from hunting activity. In summary, the potential for overlapping presence is discountable, and the impacts if bats and hunters are both present in the action area are expected to be insignificant.

The construction of a hunting blind along A Frame Road is not likely to adversely affect these bat species for multiple reasons. First, this area was chosen for a hunting blind because there is no roosting habitat present at the site, and the potential for the site to be used by bats for foraging is discountable; bats are also unlikely to be found in this area because it was previously used as a hunting camp, construction area, and thoroughfare for hunters, and already has pre-existing hunter noise, foot traffic, and vehicle traffic. Finally, opening this hunting blind may draw hunters to this area, thereby lowering the amount of hunting in other portions of the action area, reducing any potential impacts to bats in even further.

(c) *Cheat Mountain salamander*

The action area of the hunting expansion does not include known Cheat Mountain Salamander (CMS) habitat. However, there is habitat in this area that has greater than 50 percent spruce or hemlock in the overstory, which is one important condition for CMS habitat given their need for a tree canopy that substantially blocks light from reaching the forest floor. Based on the new models completed by Rucker, it is possible that CMS could occur at the highest elevations of the new public hunting acres (Rucker 2021). Also, the Brown Mountain area at the western edge of the newly acquired acres has been identified as a possible CMS habitat in the species' recovery plan. We anticipate that overlap between CMS and hunting activities in the expansion acres is very unlikely to occur. One reason is that CMS must stay moist to survive, and thus, the species avoids exposure to the sun, remaining under dense tree cover and avoiding even small clearings or walking trails cleared of overhead trees. CMS are also most active at night, and there is very limited night hunting on the Refuge, with fewer than 10 permits issued yearly for night hunts of specific upland game. Low temperatures also cause CMS to go underground from roughly mid-October to early April each year. This means that the already unlikely hunter overlap between hunters and above-ground CMS is only possible

to occur during a small portion of hunting seasons in the early fall and spring (hunting on the refuge occurs from September to February and during a short spring turkey season from mid-April to mid-May). Therefore, the proposed hunting expansion is not likely to adversely affect CMS.

The construction of a hunting blind along A Frame Road is unlikely to adversely affect CMS for multiple reasons. First , although there is suitable habitat for CMS within the acres newly opened to hunting, the habitat in the immediate vicinity of the proposed hunting blind is unsuitable for CMS. Cheat Mountain salamanders are only found on the southern portion of the Refuge at higher elevations, whereas the hunting blind would be at a location in the northern portion of the Refuge at an elevation much lower than CMS occur. The potential for the site to be used by salamanders is also unlikely because it was previously used as a hunting camp, construction area, and thoroughfare for hunters, and already has pre-existing hunter noise, foot traffic, and vehicle traffic. Finally, opening this hunting blind may draw hunters to this area, thereby lowering the amount of hunting in other portions of the action area, reducing any potential impacts to salamanders even further.

(d) *Monarch Butterfly*

Monarch butterflies that spend the spring and summer in the area use the Refuge grasslands, old fields, and roadsides during their late spring into summer breeding season, and additional monarchs that summer farther north use these locations during their fall migration south. Hunting is allowed from September to February, with a short spring turkey season from mid-April to mid-May. Thus, monarchs are wintering far south of the refuge during the majority of the hunting seasons, and the spring turkey hunt occurs long before the peak monarch egg laying season in July. Additionally, milkweed plants that are important food sources for monarchs are senesced at the peak of hunting activity from late fall through winter, reducing the likelihood of overlap between hunters and milkweed plants. While hunters and their dogs (used only during some bird and bear seasons) are walking through habitat used by monarchs, there could be some insignificant disturbance. Even during these periods of early fall or late spring, foot traffic from hunters is expected to be light, and hunting does not result in the removal of vegetation. As there will be limited hunters present in any given area throughout the new 2,412 acres, encounters with monarch butterfly or caterpillars will be infrequent, and presence of humans will likely not disturb the monarchs, given that they are fairly tolerant of human presence. Noise disturbance from discharging of a firearm while hunting may startle the species resulting in change in flight pattern or temporary pause of movement in caterpillars, but this impact will not result in long-term negative impacts and is considered insignificant as this type of noise is not frequent enough to result in habituation to noise that could cause butterfly or caterpillar to not respond to natural threats like parasitism (Taylor and Yack, 2019). Adults change flight patterns and caterpillars momentarily stop in response to many other natural stimuli throughout a typical day. Therefore, the proposed expansion for hunting is not likely to jeopardize monarch butterflies.

The construction of a hunting blind along A Frame Road is also not likely to jeopardize monarchs for multiple reasons. First, as the hunting blind is in a relatively open area, no

suitable foraging plants or milkweed are found at or near the site, making it unlikely that Monarchs would be found in the vicinity of the hunting blind. The potential for the site to be used by monarchs is also unlikely because it was previously used as a hunting camp, construction area, and thoroughfare for hunters, and already has pre-existing hunter noise, foot traffic, and vehicle traffic. Finally, opening this hunting blind may draw hunters to this area, thereby lowering the amount of hunting in other portions of the action area, reducing any potential impacts to monarchs even further. Therefore, the effects of the proposed hunting blind along A Frame Road are not likely to jeopardize monarch butterflies.

The Service anticipates that expanding the hunt program acreage is not likely to adversely affect these threatened, endangered, or candidate species. Rather, we expect to see a positive habitat response by reducing the deer herd. Overbrowsing by deer decreases native vegetation cover and often allows invasive plants to take hold, potentially degrading the habitat of the species above. The refuge-specific regulations detailed in the Hunting Plan (attached) are measures that will reduce or avoid conflicts. Detailing refuge and State law enforcement officers enforce hunting regulations. Providing hunting information through various forums will ensure the public is aware of applicable laws and policies. To minimize conflict, refuge-specific hunt regulations and hunt unit maps (brochures) will be made available to hunters at kiosks, refuge website, and at the refuge office. The refuge will also continue to enforce all hunting rules and regulations, including those regarding use of tree stands and not cutting vegetation; strictly advertise and enforce the no ATV/UTV policy for the newly acquired properties; monitor T&E species and population patterns; and encourage hunters to participate in the expanded hunting opportunities using non-lead ammunition, until it is required for the 2026-2027 hunting season.

(B)Analysis of Impacts to Listed Species After Non-lead Ammunition Requirement Takes Effect for 2026-2027 Season

The best available science indicates that lead ammunition may have negative impacts on wildlife and the environment (Golden et al. 2016). To move towards reduction and future elimination of this threat on the refuge, we will be eliminating the use of lead ammunition over a 2-year period to educate and work with hunters on the use of non-lead alternatives. The proposed transition to lead-free ammunition for all hunting will minimize the inadvertent exposure of lead to these listed species.
Small whorled pogonia has a range that overlaps with the refuge, but has not been documented on the refuge. Indiana bat, Virginia big-eared bat, northern long-eared bat, tricolored bat, Cheat Mountain salamander, and monarch butterfly could each be present on the refuge. For this second portion of the analysis, the action area is the entire refuge, not only the 2,412 acres of the hunting expansion. Therefore, we evaluated each species for impacts associated with the required use of non-lead ammunition, effective beginning in the 2026-2027 hunting seasons. Until the refuge requires lead-free ammunition starting in fall 2026, lead can enter the environment through lead-ammunition use for big game

and upland game hunting. Lead typically enters the environment as fragments from bullets or from gut piles being left on the refuge. Lead-free shot has been required nationally for waterfowl hunting since 1991, reducing the amount of lead entering the environment through shotgun shell use over the years. Over the next few years, the refuge will encourage all hunters to adopt lead-free ammunition use, prior to the 2026-2027 hunting season, when it will be a requirement to use lead-free ammunition to participate in any hunting activity on the refuge. This could result in hunters reducing lead entering the environment earlier. There may be some effect on all species in the two-year interim, as discussed below for each species, but non-lead ammunition will be required by 2026-2027. Therefore, by 2026-2027, there will be no new introduction of lead, and the only potential effects after that point would be from the bioaccumulation of lead from previous years.

Impacts to these species during the interim period, before the non-lead requirement takes effect, are similar to those described above in the section analyzing the effects of opening the 2,412 acres to hunting., Any potential increase in lead in the environment as a result of hunting on the refuge over the next two years is not likely to adversely affect these species due to the unlikely chain of events that would be necessary for bioaccumulation to occur; these effects are therefore considered discountable. It is extremely unlikely that the small amount of lead that is expected to enter the refuge from hunting over the next two years will reach the critical thresholds in the soil necessary for uptake in plants. Therefore, the small whorled pogonia, if actually present on the refuge, is not likely to be adversely affected because substantial amounts of lead ammunition would have to accumulate in the soil before the lead content passed the critical thresholds necessary to be taken up by pogonia plants. The listed salamander and bat species are also not likely to be adversely affected for similar reasons. Given that the small amount of lead expected to enter the environment over the next two years is not expected to reach critical thresholds in the soil for uptake in plants, the herbivorous prey that these listed species eat are not expected to be exposed to lead through the consumption of plants. In addition, given the transitory nature of bats and their foraging behaviors, it is unlikely that bats will consume their entire diets on the refuge area. Similarly, given that monarch butterflies are also herbivorous insects, they are also unlikely to be exposed to lead through bioaccumulation because uptake of lead by milkweed plants is unlikely.

After the non-lead requirement goes into effect in the fall of 2026, any potential effects from lead will continue to be reduced to an even further discountable level, as no new lead from ammunition will be introduced, and existing discarded lead ammunition will slowly break down over time. In fact, there is a potential for beneficial impacts from the non-lead requirement because the proposed action would prevent additional lead ammunition from entering the environment. Therefore, the proposed action to ultimately require lead free ammunition is not likely to adversely affect these salamander and bat species and is not likely to jeopardize the monarch butterfly candidate species.

We understand that reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law), and if: (1) the amount or extent of incidental take is exceeded; (2) new information

reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

VIII. References:

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IX. Effects Determination and Response Requested:

Species/Critical Habitat	Determination	Response Requested
Indiana bat	NA	Concurrence
Virginia big-eared bat/CH	NA	Concurrence
Northern long-eared bat	NA	Concurrence

Tricolored bat	NA	Concurrence
Cheat mountain salamander	NA	Concurrence
Monarch Butterfly	Not likely to jeopardize	Concurrence
Small Whorled Pogonia	NA	Concurrence

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

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

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

_____ _____
Signature (Originating Station) Date

_____
Title

IX. Review Ecological Services Office Evaluation

A. Concurrence _____ Nonconcurrence _____

B. Formal consultation required

C. Conference required

D. Informal conference required

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

_____ _____
Signature Date

Title	Office