U.S. Fish and Wildlife Service

Rappahannock River Valley National Wildlife Refuge

Environmental Assessment
Cat Point Creek Unit Public Opening

January 2023

U.S. Fish and Wildlife Service

Headquartered at
336 Wilna Drive
Warsaw, Virginia 22572

Submitted By:
Project Leader

_____ _____
Signature Date

Concurrence:
Refuge Supervisor

_____ _____
Signature Date

Approved:
Regional National Wildlife Refuge Chief

_____ _____
Signature Date

Table of Contents

I. Introduction 2
II. Statement of Objectives 4
III. Background for the Environmental Assessment 5
A. Description of the Cat Point Creek Unit 5
B. Recent Site History 8
C. Purpose and Need for the Proposed Action 8
D. Funding and Staffing Requirements 9
IV. Affected Environment and Environmental Consequences 10
V. Public Engagement 20
Outreach for Announcing and Publicizing the Cat Point Creek Unit Public Opening 20
Public Reaction to the Cat Point Creek Unit Public Opening 20
How the Public will be Informed on Relevant Rules and Regulations . 20
VI. Additional Figures 21
Figure 2. 21
Figure 3. 22
VII. Literature Cited 23
VIII. Other Applicable Statues, Executive Orders, and Regulations 24
IX. Draft Compatibility Determinations 26
A. Environmental Education 26
B. Wildlife Observation and Photography 34
C. Boating 43
D. Natural Resource Collection 49

I. Introduction

National Wildlife Refuges (NWRs) are guided by the mission and goals of the National Wildlife Refuge System (NWRS), the purposes of an individual Refuge, U.S. Fish and Wildlife Service (Service) policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act (NWRSAA) of 1966, as amended by the National Wildlife Refuge 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 Rappahannock River Valley National Wildlife Refuge is part of the Eastern Virginia Rivers National Wildlife Refuge Complex (EVRNWRC, Complex). The complex is comprised of four individual Refuges. Each Refuge is established under specific legislation. Similarly, each Refuge has one or more specific legal purposes for which it was established. The establishing legislation and purposes for the Rappahannock River Valley NWR are as follows:

The 1996 establishing authorities for Rappahannock River Valley NWR were under the Fish and Wildlife Act, the Emergency Wetlands Resources Act (16 U.S.C. §3901(b), 100 Stat. 3583), the Endangered Species Act, and the Migratory Bird Conservation Act.

"...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))

"...the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations..." 16 U.S.C. §3901(b), 100 Stat. 3583 (Emergency Wetlands Resources Act of 1986)

"to conserve...fish or wildlife which are listed as endangered species or threatened species" 16 U.S.C. §1534 (Endangered Species Act of 1973), and

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

The Rappahannock River Valley NWR (Refuge) contains multiple units (20) along the Rappahannock River, from the area around Port Royal, Virginia southeast to Farnham, Virginia. The Refuge encompasses 10,000 acres of agricultural lands, early successional habitat, mixed forests, tidal marsh, wooded swamp, open water, and coastal plains. The Refuge is located within the Chesapeake Bay Estuary and was established to conserve and protect fish and wildlife resources, including endangered and threatened species, and wetlands.

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

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

A. Proposed Action

The Service proposes to open public access to the Cat Point Creek Unit of the Rappahannock River Valley NWR to specific compatible uses and to transfer ownership of a two-story, 7,520 ft^2 structure on the property (referred to as the "Lodge") to the Rappahannock Tribe.

In summary, specific actions would include:

- Open the Cat Point Creek Unit to the public for recreational opportunities including canoeing, kayaking and boating (non-motorized and electric motors only), hiking, environmental education, interpretation, wildlife observation, photography, a children's nature-themed discovery area called Wild in the Woods, and, for members of the Federally Recognized Rappahannock Tribe, a natural resource collection opportunity with a special use permit (SUP). Hunting and fishing at the Cat Point Creek unit were evaluated and opened to the public in the 2021 Environmental Assessment (Eastern Virginia Rivers NWRC Hunting and Fishing Plan, 2021).

- Transfer ownership of the Cat Point Creek Lodge to the Rappahannock Tribe, who will use the Lodge for public outreach, environmental education, interpretation, facilitating their "Return to the River" program for tribal youth, and various other outreach, cultural resource, and environmental programs for the public. The Service has been working with the Rappahannock Tribe to enhance access to the Refuge including the potential for a transfer of the Cat Point Creek Lodge. Transfer of the ownership of the Lodge would provide an opportunity for the Rappahannock Tribe to develop educational exhibits and to use a large indoor meeting space for events, with access to the 243-acre Cat Point Creek Unit acquired by the Refuge in 2017. This lays the groundwork for future opportunities to collaborate on stewardship efforts in the Rappahannock River Valley and provide relevant, meaningful interpretive and environmental educational programming. This opportunity follows ongoing collaboration with FWS, the Tribe, and The Conservation Fund to support the Tribe's "Return to the River" initiative including a national effort for refuges to implement Secretarial Order 3403, Director's Order 227, and all relevant Service regulation, policy, and guidance.

II. Statement of Objectives

- Promote enjoyment and stewardship of the Refuge's natural resources by providing quality, wildlife-dependent recreation and environmental education and interpretation opportunities on Refuge lands and waters.

- Provide wildlife-dependent public recreation and environmental education and interpretation as mandated by and according to Service law and policy.

- Continue building our partnership with the Rappahannock Tribe through the transfer of the Lodge to facilitate shared environmental education programs, and cultural resource interpretation goals and objectives.

- Provide wildlife-dependent recreational and environmental education opportunities while building partnerships with those who promote the conservation of natural resources in the lower Rappahannock River watershed consistent with the Comprehensive Conservation Plans (CCP) for the Refuge, and the NWRS.

- Provide the public with a quality recreational experience on Refuge lands and waters and increase opportunities and access for consumptive and non-consumptive users of the Refuge. The Refuge System Improvement Act of 1997 identified fishing, where

compatible, as one of the six priority public uses on Refuges.

III. Background for the Environmental Assessment

A. Description of the Cat Point Creek Unit

The Cat Point Creek (CPC) Unit was acquired in 2017 and contains 243 acres (**Figure 1**). The property is bounded by Menokin Bay (Cat Point Creek) in the north, creating approximately 0.75 miles of riparian habitat including three separate freshwater marshes. The southern boundary of the property is formed by Newland Road with private property on both the east and west. Forest is dominant with hardwoods accounting for 129 acres (53%) and pines 60 acres (25%). Early successional habitats (grasslands, shrubs, and former vineyards) are 35 acres (14%). Freshwater marshes and wetlands comprise 11 acres (5%). The remaining 8 acres (3%) consist of current structures, two parking lots, and roads or former infrastructure sites from the former use of the property as a vineyard and resort (e.g., buildings, roads, pool, tennis courts, baseball field, and basketball courts). The majority of these sites have been removed and the area is in the process of being restored to native habitats.

Open areas persist near the Lodge where former buildings and a pool were located. Seven acres of land formerly cultivated for vineyards and several mowed fields are naturally reverting to scrub-shrub habitat and young forest. The properties along Cat Point Creek near this Refuge unit contain conservation easements and two properties downstream are also portions of the Refuge. Combined, easements and Refuge lands protect more than six miles of the riparian shoreline in this watershed that drains directly into the Rappahannock River, five miles downstream from this property.

Infrastructure currently existing on the property are as follows: approximately three miles of dirt, gravel, and paved roads/trails; two gravel parking areas; a two-story structure (Lodge), a pavilion, an ADA accessible restroom, an ADA-accessible fishing pier, a wooden boat ramp, an automatic entrance gate, and three resident volunteer RV/camping spots. A historic cemetery is present and is located near the Lodge.

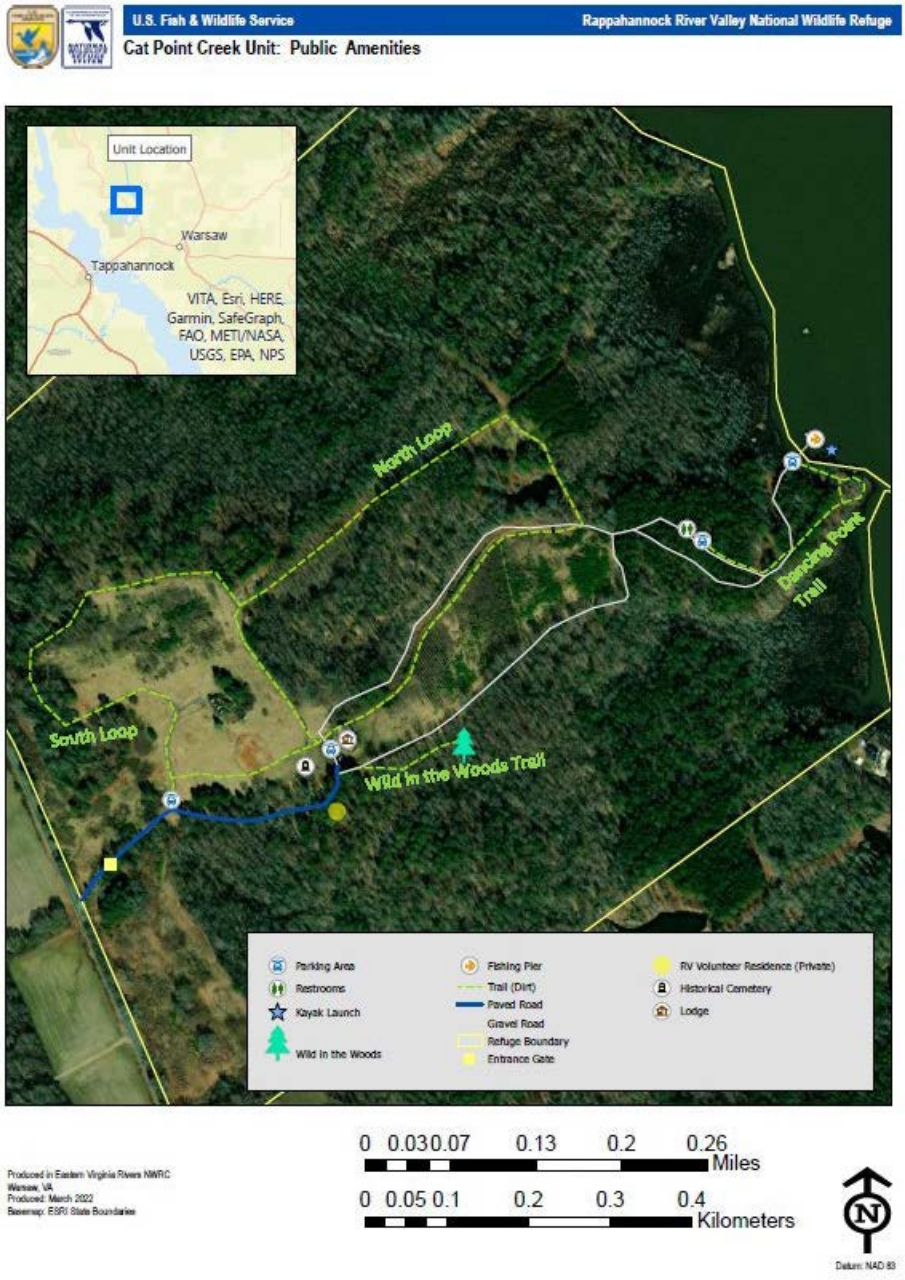
In 2017, the Service acquired the Lodge and other infrastructure associated with the CPC Unit at the Refuge. The Lodge is reported to have been constructed in 1983. The 7,500 square foot building contains a main level with an expansive “great hall” and a lower level with a walk-out patio. The Service subsequently determined that this building is excess to its needs; however, the Rappahannock Tribe has expressed interest in acquiring the Refuge building. The Refuge has a solid working relationship with the Rappahannock Tribe and continues to seek opportunities for further collaboration. Under authority of the Indian Self-Determination and Education Assistance Act of 1975 (ISDEAA), Pub. L. 93-638, as amended, the Secretary has authority to approve such a donation to an Indian Tribe.

This action would remove a sizable structure from the Service’s real property inventory, thereby contributing to efforts to reduce our collective building footprint and annual maintenance costs. The Rappahannock Tribe has expressed a desire to receive this excess federal property for use as a gathering space and location to offer cultural and environmental education programming. The ISDEAA authorizes the Secretary to approve the donation of excess property to an eligible

tribe, tribal organization, or tribal consortium, so long as the Department determines that the property is appropriate for the purpose for which an ISDEAA contract or self-governance compact is authorized. 25 U.S.C. §§ 450j(f), 458ff(c). If the Secretary approves the transfer, the Service will convey the Lodge to the Bureau of Indian Affairs (BIA), who will then convey it to the Rappahannock Tribe. Consistent with 25 C.F.R. §900.104(c), the Secretary's approval should include a waiver of any applicable fees.

The portion of the creek that borders the property and the existing boat launch are part of the Cat Point Creek Water Trail (https://www.northernneck.org/MAPS/rc_cat_point_creek_water_trail_guide_web.pdf). Also, existing trails on the property are part of the Virginia State wildlife and birding trail system (https://dwr.virginia.gov/vbwt/coastal-trail/CNN/). Both the water trail and wildlife and birding trails will provide visitor opportunities for wildlife-dependent recreation and will be promoted once opened for public use.

Figure 1: Cat Point Creek Unit. Map showing hiking and driving trails and various amenities including restrooms, a fishing pier, the Lodge, and a non-motorized/electric only boat launch of the Cat Point Creek Unit.



B. Recent Site History:

This site was a time-share resort in the early 1980s. From 1990-2017 it served as a winery, events center, and campground with a public swimming pool and boat ramp with a dock. The property has previously been utilized by local residents for outdoor recreation. In 2021, through a separate Environmental Assessment (EA), Cat Point Creek was approved for archery hunting (white-tailed deer), waterfowl (to begin in fall 2022), and fishing (when the unit opens to the Public) (Eastern Virginia Rivers NWRC Hunting and Fishing Plan, 2021).

In recent years, Refuge staff have engaged with the Rappahannock Tribe based in Indian Neck, VA. Although long displaced from their homeland, the Rappahannock Tribe retains memories of the river's waterways and works with the Refuge to develop programs that include tribal access and participation. These programs have generated a meaningful partnership between the Tribe and the Refuge.

In June 2017, the Rappahannock Tribe was returned to the Rappahannock River via a donation of less than an acre by the late Senator Mark Warner's daughter. This constituted a "Return to the River" for the Tribe, as it has been approximately 350 years since they were displaced by expanding English Settlements from the watershed that bears their name.

C. Purpose and Need for the Proposed Action

The additional uses are being proposed in order to expand the range of visitor opportunities on the Refuge and are consistent with wildlife dependent recreation including environmental education, interpretation, wildlife observation, photography, and boating. There remains a scarcity of public lands in the Northern Neck and Middle Peninsula of Virginia for wildlife-oriented recreation, in particular environmental education and interpretation. The Refuge has the opportunity to offer compatible public uses in a manner and location that will consist of high quality, wildlife dependent recreation, while maintaining the integrity of the NWRS. Due to an administrative error, boating was only included in the 2009 Comprehensive Conservation Plan (CCP 2009) as a mode of transportation to conduct priority public uses such as wildlife observation, photography, hunting or fishing. In this environmental assessment, we evaluate the use of boating on designated areas of the Refuge as a separate use and propose to allow this use for the first time on the CPC Unit. In addition, we evaluate the compatibility of boating on designated areas of the Rappahannock River Valley NWR.

Besides the new proposed uses, many other public uses occur on the Refuge that are generally associated with environmental education, interpretation, wildlife observation, and photography. The Refuge is actively acquiring new parcels of land and is expected to continue doing so in the future. The alternative selected in this EA will be applied to newly acquired lands within the approved acquisition boundary accordingly.

Alternative A – No Action Alternative

The No Action Alternative would keep the CPC Unit closed to the public, not open the Refuge to boating, and not allow the opportunity for natural resource collection for the Federally

Recognized Rappahannock Tribe via SUP. The No Action Alternative would also not allow the ownership transfer of the Lodge to the Rappahannock Tribe, requiring the Service to continue paying for its upkeep or pay to demolish the structure. This alternative is not in line with the CCP goals, specifically Goal 4, by limiting, where an opportunity exits, the promoting of enjoyment and stewardship of our public natural resources by providing high-quality, wildlife-dependent recreational, and environmental opportunities on Refuge lands and waters. This alternative also limits Goal 5 by not taking advantage of a trusted partner to further natural resource conservation efforts and the mission of the Service in the lower Rappahannock River Watershed.

Alternative B –Proposed Action Alternative

This proposed alternative would open the CPC Unit to the public by allowing parking and access to the fishing pier located on the CPC Unit, and the priority public uses of environmental education, wildlife observation, interpretation, and photography at the unit. This proposed alternative would also allow for Refuge-wide uses of boating from established ramps and launches on multiple Refuge units, and for members of the Federally Recognized Rappahannock Tribe, a natural resource collection opportunity with a special use permit (SUP).

This alternative would also result in the transfer of ownership of the Lodge to the Rappahannock Tribe. This would continue to foster a partnership between the Refuge and the Tribe providing for additional opportunities for public education and engagement on the site related to natural and cultural resources. The transfer of the Lodge on the CPC Unit will continue to foster various partnerships for wildlife and habitat conservation while providing public outreach, interpretation, and educational opportunities regarding cultural resources.

With the proposed action alternative ("Alternative B") we anticipate offering all "big six" uses at the CPC Unit, similar to the Wilna and Hutchinson Units of the Refuge (Environmental Education, Hunting, Fishing, Wildlife Observation, Interpretation, and Photography). Existing roads, trails, and structures (public restroom) would be repurposed to support wildlife-dependent recreation. Any infrastructure deemed not in alignment with wildlife dependent recreation or in support of the FWS mission has been removed and those areas are being restored to native wildlife habitat.

Some wildlife habitat restoration work has already occurred since the property was acquired. Approximately seven (7) acres of vineyards have been transformed into native scrub/shrub and young forest habitats. An area that contained a degraded and unusable basketball court, baseball diamond, and three-hole golf course have been restored to native habitat. A tennis court area containing four full-size tennis courts has been removed. Finally, one campground area has been repurposed for a nature themed children's discovery area to provide opportunities for wildlife themed interpretation for younger visitors.

D. Funding and Staffing Requirements

Providing public access to the CPC Unit would be accomplished using existing staff. Additional assistance would come from the Rappahannock Wildlife Refuge Friends Group, seasonal staff

(including partnerships with the Student Conservation Association (SCA), and our Youth Conservation Corps (YCC) crews). The Refuge Friends group provides upwards of 50 volunteers per year who put in a total of over 5,000 hours (rate equivalent for volunteers per hour = $29.95) which is equivalent to $149,750 or 2-4 FTEs (full time employees). Additional maintenance resources in the form of equipment and staff time will be needed for the approximately 1.5 miles of gravel roads that will be retained and the 1.5 miles of hiking trails. Additional costs will exist with the preferred alternative, some of which would be ongoing, and others, a one-time cost.

IV. Affected Environment and Environmental Consequences

This section is organized by affected resource categories and for each affected resource discusses both (1) the existing environmental and socioeconomic baseline in the action area for each resource and (2) the effects and impacts of the proposed action and any alternatives on each resource. The effects and impacts of the proposed action considered here are changes to the human environment, whether adverse or beneficial, that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives. This EA focuses on the written analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible and therefore considered an "affected resource." Resources that will not be more than negligibly impacted by the action have been dismissed from further analyses. We determine significance by considering the degree of effects to that environment, and connected actions are used to assist in determining significance. The following components of the preferred alternative to be considered include:

Boating
Environmental Education and Interpretation
Wildlife Observation and Photography
Transfer of the Lodge building to the Rappahannock Tribe
Natural Resource Collection opportunity (Federally Recognized Rappahannock Tribe) via SUP

Finfish

Affected Resource Description

Permitting boating on the Refuge has the potential to increase current finfish take. According to the 2015-2016 Angler Survey, two-thirds of anglers partake in catch-and-release and rarely take. The most popular species targeted by anglers include blue catfish, largemouth bass, striped bass, and crappie (VDWR 2016). Catch rates varied over all months and by species throughout the survey time-period. Harvest rates of all species were very low except for hickory shad and white perch (VDWR 2016). Blue catfish were caught and harvested the most (VADWR 2018b). High numbers of channel catfish, hickory shad, and white perch were also harvested (VADWR 2016). Largemouth bass were caught in very high numbers but were rarely harvested. Largemouth bass (Figures D-10 and D-11) and blue catfish (Figure D-12) are common and have increasing numbers found in James River and Rappahannock River waters (VDWR 2016).

A 1993 report by the Virginia Fisheries Program Leader stated that the Rappahannock River fisheries resources are very diverse with at least 62 fish species identified (Spells 1993). The common species at the Hutchinson, Toby's Point, and CPC Units are channel and blue catfish,

croaker, and white, and yellow perch. Fish present in Wilna and Laurel Grove Ponds include largemouth bass, bluegill, flier, yellow bullhead, and American eel.

With fishing being an approved activity on the refuge, finfish could be caught pertinent to State and Refuge regulations.

Anticipated Impacts

No Action Alternative

Not allowing boating or natural resource collection opportunities for the Federally Recognized Rappahannock Tribe via SUP in addition to the priority public uses of environmental education, wildlife observation, interpretation, and photography would keep finfish take at current levels since access to the unit is not currently open to the public. Current levels of finfish are acceptable and show no sign of decreasing populations of finfish in the ponds and creeks of the Refuge.

Proposed Action Alternative

Allowing boating on the Refuge will likely increase the number of visitors participating in fishing. Boating access on the Refuge includes ponds and creeks. Ponds have additional regulations for largemouth bass, a popular species, where only catch-and-release is permitted. Boat access on the Refuge to creeks would permit additional fishing in State waters, which are already open to fishing and fishing from a boat. We expect a slight increase in fishing pressure due to the access point where a watercraft could be launched. However, we only expect pressure to increase slightly because we would only permit paddle craft or small boats with electric motors. Minimal noise disturbance to birds is anticipated due to the restrictions on types of boats allowed within the Refuge. A slight increase in fishing pressure will also take place at the fishing pier located on the CPC Unit but is expected to have limited impacts to the resource as all state fishing regulations will be in place and enforced.

Threatened and Endangered Species and Other Special Status Species

Affected Resource Description

Federally endangered and threatened species at Rappahannock River Valley NWR include Atlantic sturgeon (*Acipenser oxyrhynchus oxyrhynchus*), Yellow lance (*Elliptio lanceolata*), Indiana bat (*Myotis sodalis*), sensitive joint-vetch (*Aeschynomene virginica*), small whorled pagonia (*Isotria medeoloides*), and Northern long-eared bat (*Myotis septentrionalis*). Proposed candidate species to be listed include the Monarch butterfly (*Danaus plexippus*).

The Chesapeake Bay Atlantic sturgeon population is listed as federally endangered. Atlantic sturgeon utilizes large coastal rivers and estuaries including the Rappahannock River as important spawning grounds. Virginia Commonwealth University and Virginia Institute of Marine Science have conducted trawl surveys and confirmed fry and adult Atlantic sturgeon offshore of Rappahannock River Valley NWR.

Yellow lance is a freshwater mussel located in both the Rappahannock River basins. This bright yellow elongate mussel is approximately three inches long and tends to be found in medium to coarse sand or gravel substrates. The main threats to this species include water pollution, sedimentation, and disruptions from damming (USFWS 2019).

Indiana bats have a maternity colony in Fort A.P. Hill, less than 10 miles from Rappahannock River Valley NWR. Virginia Tech Cooperative Extension predicts that Indiana bat use the Rappahannock River and tributaries as foraging and possible nesting sites. They have conducted acoustic work on the Wilna Unit in 2016 and 2017 and have received a possible Indiana bat detection. Indiana bats form maternity colonies during the summer and return to their hibernacula in western Virginia in winter months (Germain et al. 2017).

Northern long-eared bats have summering colonies in the Washington, DC area and are believed by researchers at Virginia Tech to move to southeast Virginia in the summer months where they roost alone or in colonies underneath bark, in cavities or in crevices of both live trees and snags, or dead trees (USFWS 2015).

Sensitive joint-vetch is an annual plant that typically flowers July through early October in the intertidal zone of coastal marshes where plants are flooded twice daily. The species seems to prefer the marsh edge at an elevation near the upper limit of tidal fluctuation, where soils may be mucky, sandy, or gravelly (USFWS 2010).

Small whorled pagonia grows under canopies that are relatively open or near features that create long-persisting breaks in the forest canopy such as a road or a stream. It grows in mixed-deciduous or mixed-deciduous/coniferous forests. They require overwintering with mycorrhizal fungi to germinate and form above ground in late August to September (USFWS 2011b).

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. Monarch butterflies use Refuge grasslands, old fields and roadsides during spring and fall migration as well as during the spring breeding season.

Although not listed federally, the pink lady's slipper (*Cypripedium acaule*) is protected by the Native Plant Protection Act and considered Culturally Significant by the U.S. Department of Agriculture. They rely on mycorrhizal fungi in the soil and bloom in late June into July.

Additional at-risk species include frosted elfin (*Callophrys irus*) and spotted turtle *(Clemmys guttata*). Frosted elfin lay eggs on their host plant blue lupine along riverbanks in early spring. Spotted turtles are most active in early spring in ephemeral pools and wetlands and burrow deep into the mud in the winter and late summer months.

Bald eagles (*Haliaeetus leucocephalus*) are numerous throughout the Complex and are protected by the Bald and Golden Eagle Protection Act. They nest from December 15 through July 15 when their chicks are fully fledged.

Anticipated Impacts

No Action Alternative

Not opening the CPC Unit to boating or natural resource collection opportunities for the Federally Recognized Rappahannock Tribe via SUP in addition to the priority public uses of environmental education, wildlife observation, interpretation, and photography would keep any risks to these species at present levels since the unit is not currently open to the public.

Proposed Action Alternative

This proposed alternative would open the CPC Unit to the public by allowing access to additional sites for fishing in addition to the other priority public uses. Under this alternative the possibility exists that Refuge visitors could encounter some of these species, but adherence to posted rules and regulations, such as staying on marked trails and roads, would limit any negative effects on individuals or local populations of these species. Species identified for potential use would include, tuckahoe (*Peltandra virginica*), wild rice (*Zizania palustris*), and other wild native edibles. Other specific use requests will be coordinated with the Tribe and the Project Leader or Refuge Manager. Natural resource collections would not be permitted for listed threatened or endangered species, species of special concern, or state listed species. The Refuge intends to follow policy 603 FW1.10 D(6) Native American ceremonial, religious, medicinal, and traditional gathering of plants and animal parts. Natural resource collections would not be permitted for threatened or endangered listed species, or species of special concern.

Sensitive joint-vetch is an annual legume that, in the Refuge area, occurs only along the edges of freshwater tidal creeks and marshes of the Rappahannock River. It is unlikely that boaters would attempt to navigate through these edge areas in a way that would have an impact on this species. As a result, it is unlikely that the proposed action would have any impact on this local population.

The greatest threats to Atlantic sturgeon are unintended catch in some commercial fisheries, dams that block access to spawning areas, poor water quality (which harms development of sturgeon offspring), dredging of spawning areas, water withdrawals from rivers, and vessel strikes. While Atlantic sturgeon are protected by the State and the Endangered Species Act, recreational anglers have caught few migrating sturgeon in their nets while catfishing. However, this is much less than commercial fisherman bycatch and boat strikes which are not negligible (Brittle 2020). However, anglers are not allowed to target them. Boat access to the Refuge will allow for small boats with electric motors, canoes, and kayaks which would limit the potential for boat strikes with sturgeon. As it is unlikely but possible for incidental take of this species to occur, we continue to coordinate with the Virginia Department of Wildlife Resources, and do not anticipate any impacts to Atlantic Sturgeon as a result of any increased fishing associated with boating or fishing that may occur from the dock.

Indiana bats utilize the Rappahannock River during summer months and return to their hibernacula in the western part of the state during winter. Opening to these uses are not expected to impact bats since visitors are not permitted on the Refuge after sunset when bats are most active.

Northern long-eared bats roost alone or in colonies underneath bark, in cavities, or in crevices of

both live and dead trees during the summer months. They spend winter hibernating in caves and mines, called hibernacula. They typically use large caves or mines with large passages and entrances; constant temperatures; and high humidity with no air currents. These hibernacula are located in the western part of the state. The proposed uses are not expected to impact bats since visitors are expected to stay on designated trails and public use areas during the day and are not permitted on the Refuge after sunset when bats are most active.

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. Natural resources collection of milkweed would be monitored to make sure overharvest of the host plant does not have negative cumulative impacts.

Spotted turtles are most active in the early spring and summer months in ephemeral pools and wetlands. These turtles might be seen by visitors on foot or in a car if the turtle is crossing a trail, but very few trails run along wetlands, limiting the chance of encounters. Areas with higher concentrations of turtles observed will have signs posted to alert visitors to suitable habitat for migration corridors.

Frosted elfin's host plant blue lupine has been documented on the Refuge and occurs on steep edges in early spring. Due to the occurrence of lupine on steep topography, it is unlikely that visitors would trample through these areas and thus, we do not anticipate negative impacts for the frosted elfin. The known blue lupine occurrences at the Refuge are in areas not proposed to be opened to the public.

Bald eagle nesting season starts around December 15 and continues throughout the spring. The Service has taken precautions to decrease disturbance to bald eagles by limiting how close trails may be to a nest at the CPC Unit. One trail may be within sight of a current nest and would be an opportunity for educating the public about eagles. The minimum distance to avoid disturbance to nesting bald eagles is 330 feet and will be observed by Refuge staff and the public during nesting season (USFWS, 2007). If a nest occurs within the 330 feet of the trail, the trail may be closed during nesting season to limit disturbance.

Habitat and Vegetation (including vegetation of special management concern)

Affected Resource Description

Vegetation and habitat on the Refuge includes mixed hardwood forest, pine forest, tidal fresh, bottomland forests, beaches, shrubland, and grassland. The plants of conservation protection include sensitive joint-vetch, small whorled pagonia, and pink lady's slipper as stated in the previous section.

Anticipated Impacts

No Action Alternative

Negligible effects on vegetation have occurred as the unit is currently closed to the public. This alternative would have no additional impacts on habitats and vegetation.

Proposed Action Alternative
The increased human presence on the Refuge with this alternative is not expected to result in significant increases in negative effects on habitat and vegetation. There exists the ever-present concern of the spread of invasive species by foot traffic, vehicles, and boats. Visitors can reduce the spread of invasive species by parking in designated parking spaces and staying on marked trails. Information about aquatic invasive plants will be posted at the boat launch areas at the following units: Cat Point Creek; Wilna; Hutchinson; and Laurel Grove.

Human disturbance to habitat would be limited during boating and while walking along marked trails. Listed species, or species of special concern, will not be permitted for take related to the Tribe's natural resources collection. Specific uses would include, tuckahoe (*Peltandra virginica*), wild rice (*Zizania palustris*), and other wild native edibles. Other specific uses will be coordinated with the Tribe and the Refuge Manager. Natural resource collections would not be permitted for listed threatened or endangered species, species of special concern, or state listed species. Increased human presence on the Refuge may introduce or increase the cover and distribution of invasive and/or exotic species, especially in those areas where new opportunities are available.

Regarding natural resource collections by the Federally Recognized Rappahannock Tribe, the Refuge intends to follow policy 603 FW1.10 D(6) Native American ceremonial, religious, medicinal, and traditional gathering of plants. Refuge staff will review SUP requests and provide reasonable access to Native Americans to Refuge lands and waters for gathering plants (that are not listed as threatened or endangered or a species of special concern) and the potential for animal parts such as sheds, or other Tribal requests discussed with Refuge staff for ceremonial, religious, medicinal, and traditional purposes when the activity is appropriate and compatible. Specific uses would include, tuckahoe (*Peltandra virginica*), wild rice (*Zizania palustris*), and other wild native edibles. Other specific uses will be coordinated with the Tribe and the Refuge Manager. All SUP participants will coordinate with Refuge staff agree on approved areas for natural resource collection and staff will also review guidelines with SUP applicants and coordinate quantities of plant or animal products that will be allowed for removal ensuring cumulative impacts do not occur and threatened and endangered and special of special concern are avoided. At the end of each year before a new permit is issued, species and amounts from the year before will be discussed to make sure no cumulative impacts take place.

Water Quality
Affected Resource Description
Water quality has a substantial influence on the ability of aquatic habitats to support the vast biodiversity found on the Refuge. These aquatic habitats include freshwater wetlands, both tidal and non-tidal, freshwater streams, rivers and isolated wetlands. This vast diversity of aquatic habitats can be degraded by activities which introduce large amounts of sediments and associated nutrients. This could include poorly maintained trails and roads near wetlands and/or increased bank erosion from large number of wake-producing vessels. Direct water pollution (like gasoline boat engines) can be especially toxic in small or isolated water bodies.

Anticipated Impacts

No Action Alternative

The Cat Point Creek Unit is currently closed to the public, therefore, there are no current visitor activities at the Refuge that degrade water quality on or around waterways associated with Refuge properties. Refuge water bodies would only permit non-motorized boats or electric motor-powered boats, thereby eliminating potential petroleum-based pollution at Wilna or Laurel Grove ponds, or into State waters in Cat Point Creek.

Proposed Action Alternative

We do not anticipate water quality issues associated with additional public use opportunities or with the opening of the CPC Unit, transfer of the building to the Tribe, or with the children's nature-themed interpretation area. Access to, nor the use of, current or proposed Refuge fishing piers or boat launches would ~~not~~ degrade water quality since only electric motors are authorized to be used by the public; therefore, there is a reduced potential for gas and oil spills into the water.

Geology and Soils

Affected Resource Description

Most tracts at the Refuge have sediment types that are representative of riparian habitats and fall within the Virginia Coastal Plain Physiographic Province of the Atlantic Coastal Plain, as delineated by U.S. Geological Survey~~s~~. The primary province consists of Holocene and Pleistocene Age sedimentary deposits of sand, clay, marl, and shell. VDCR's Division of Natural Heritage further divides the region into northern, southern, inner and outer sections to account for the area's rich variety and distinction of natural community types. The Refuge is part of the northern inner area.

Anticipated Impacts

No Action Alternative

There are no current visitor programs and opportunities at the Cat Point Creek, so there is no effect on soils or roads, parking areas, and trails since the unit is not currently open to the public.

Proposed Action Alternative

With increased visitor numbers on the Refuge, the impact to soils would also increase. However, the anticipated impacts would likely remain negligible. Impacts may include erosion and trampling of plants that support sediment retention. Many of the visitor trails and amenities are focused on upland areas where soils are more resilient and less likely to be easily manipulated by foot or vehicular traffic. In the limited areas where moist soils and the public may intersect, use of structures (i.e., boardwalks, platforms, etc.) will help to limit impacts on highly erodible soils. Boating and fishing access would be permitted at existing structures only. Bank fishing, except in designated areas that are actively managed, would be prohibited. New and expanded opportunities would concentrate impacts towards parking areas and gravel and paved roads that are designed to absorb the heavy use at the CPC Unit. Permeable surfaces would continue to be utilized to limit runoff and the need to channelize water (ditches, culverts, drains). Recent roadwork at the CPC Unit has corrected surface water runoff issues that existed when the property was first acquired. Transfer of the Lodge would see additional vehicle use associated

with the parking lot, but the current size of infrastructure would support this increase with no adverse effects.

Visitor Uses and Experiences

Affected Resource Description

The Refuge currently has five (5) units open to the public, located in three (3) counties, and the Refuge averages approximately 11,000 visitors annually. The overwhelming majority of those visits occur on two units: The Hutchinson Unit (Essex County) and The Wilna Unit (Richmond County). Those two units provide the pubic with water access for fishing and to launch boats, canoes and/or kayaks. Cat Point Creek is a very pristine watershed with good fishing and natural scenery. Opening the CPC Unit to the public provides fishing and boating access to a navigable tributary of the Rappahannock River, and is expected to be popular with the public. Partnering with the Tribe on environmental education, in conjunction with the Lodge transfer, would build on our limited capacity for providing environmental education opportunities at the Refuge. The visiting public will have the opportunity to learn about the Refuge, the NWRS mission, all while fostering an existing partnership with the Rappahannock Tribe providing environmental education and interpretation experiences to the public.

Anticipated Impacts

No Action Alternative

Not opening the CPC Unit to the public would not lead to any increases in visitor use associated with the opening of an additional unit. It would also limit an opportunity to engage with the public at what we believe would be a popular area, and one that, when privately owned, provided the public with access to trails and the creek. This alternative would not take advantage of sharing the Lodge as a resource for environmental education and wildlife interpretation.

Proposed Action Alternative

This alternative would increase the visitation to the Refuge, providing more opportunities to the public to experience natural resources on a national wildlife refuge. The public could also learn about the Rappahannock Tribe and how we work together on both conservation and environmental education. A beneficial impact of offering a diversity of consumptive and non-consumptive priority public opportunities at this Refuge and the CPC Unit is the promotion and introduction of the suite of public uses to new visitors.

Cultural Resources

Affected Resource Description

At Rappahannock River Valley NWR, 36 archaeological sites have been recorded to date. Of those, 16 are Native American sites that date prior to European contact. The remaining 20 date from the late 17th to the early 20th century and are mostly farm sites, but not located on the Cat Point Creek Unit. The standing house and detached kitchen-laundry building of the Wilna Plantation were both built in the early 19th century. Both structures have been determined eligible for inclusion on the National Register of Historic Places (NRHP). During the planning stage of any possible management action that may affect cultural resources, the Regional Historic Preservation Officer is consulted.

Anticipated Impacts

No Action Alternative

The unit is currently not open to the public to disturb archeological sites or adversely affect existing known cultural resources.

Proposed Action Alternative

Section 106 of the National Historic Preservation Act of 1966, as amended, requires the Service to evaluate the effects of any of its actions on cultural resources (historic, architectural and archeological properties) that are listed or eligible for listing in the NRHP. It is believed the proposed actions (transfer of the Lodge building, opening to boating, and enhancing visitor amenities at the Cat Point Creek Unit) would not negatively affect any cultural resources found on the Refuge. We expect that the ethical behavior of users and Service regulations would prevent visitors from removing or disturbing any cultural resources. Transferring the non-historical building to the Rappahannock Tribe would not adversely affect cultural resources since the land would remain part of the Refuge, subject to our rules and regulations except for the immediate areas adjacent to the Lodge. Ongoing construction/rehabilitation activities that support public access at the CPC Unit of the Refuge have been cleared by the Regional Cultural Resource staff. Any future projects requiring ground disturbance would require clearances from our Regional Cultural Resource program.

Land Use on the Refuge

Affected Resource Description

Refuge operations are most affected by the management of multiple priorities, including consumptive and non-consumptive recreational uses in conjunction with the protection of species and active management of their associated habitats. Wildlife observation, photography, environmental education and interpretation, and hunting and fishing are offered at the Refuge. Like other units at Rappahannock River Valley NWR, the CPC Unit is accessible by public roads and will contain Refuge roads, parking lots, gates, structures, trails, or other associated infrastructure.

Habitat management, including prescribed fire, mowing, forest management (including tree planting), and invasive plant control occur annually at all Refuge units. Current habitat management and infrastructure repair work is scheduled and completed with the minimal amount of disturbance to priority visitor uses, whenever possible.

Anticipated Impacts

No Action Alternative

Under this alternative, current visitor activities do not impact land use on the CPC unit of the Refuge since it is not currently open to the public.

Proposed Action Alternative

Transferring the Lodge building to the Rappahannock Tribe has no effect on land use since only the building is transferring. Any increase in visitation or traffic will be handled by existing roads and trails. Allowing boating on the Refuge at existing ramps and launches, would utilize infrastructure that had already been created and is being maintained. Opening the CPC Unit to the public is not expected to have a negative impact on land use. Existing trails and roads, from

when the property was a resort and campground, will be repurposed to support wildlife dependent recreation.

Refuge Management and Operations

Affected Resource Description

The costs of administering wildlife dependent recreation at an additional location at Rappahannock River Valley NWR and allowing boating refuge-wide would be paid for out of the annual budget and accomplished with existing staff. Expenses include program management, staff resources, signage, brochures, parking lots, entrance gate, facility maintenance, and mowing access areas associated with wildlife dependent visitor activities. The potential for conflict with management activities occurs in areas where habitat treatments are conducted, (e.g. invasive species treatments).

There are currently six (6) permanent full-time employee positions that oversee the Eastern Virginia Rivers NWR Complex, five (5) of which are stationed at the Warsaw, VA office on the Wilna Unit. In recent years, seasonal assistance has been provided by an Environmental Education and Visitor Services intern (SCA) and a summer Youth Conservation Corps (YCC) crew. Significant assistance each year also comes in the form of dedicated Refuge volunteers. Management, biological, and maintenance staff work together with select volunteers to ensure the Refuge's wildlife dependent recreation programs are safe, successful, and biologically sound.

Anticipated Impacts

No Action Alternative

The current visitor services and wildlife dependent recreation programs have known annual costs in terms of what resources are needed to continue providing safe, accessible and high-quality opportunities. Under this alternative, Refuge management and operations continue for habitat and wildlife, but the CPC Unit would not be open to the public. The Refuge would continue conversations about divestiture or removal of the Lodge on the property if not transferred to the Tribe.

Proposed Action Alternative

Under this alternative, additional costs are expected in opening the CPC Unit. Opening for boating would only be a minimal expense as this activity has existing infrastructure in place. Current fishing/boating access requires annual maintenance of piers, floating canoe/kayak launches and traditional boat launches, and sign maintenance. Natural resource collection in addition to the priority public uses of environmental education, wildlife observation, interpretation, and photography will include staff time with additional interactions with visitors partaking in hunting and fishing activities. Operations and maintenance of the Lodge would fall to the Tribe if transferred to the Rappahannock Tribe.

We estimate both the annual and one-time costs of this alternative at approximately $12,000/year. Annual operational costs after year one would be approximately $8,500. These new costs would include boundary signs and signs delineating interior boundaries for the CPC Unit, and road and trail repairs and upgrades.

V. Public Engagement

A. Outreach for Announcing and Publicizing the Cat Point Creek Unit Public Opening

Within a year of acquiring the property, the Refuge and the Friends Group invited interested neighbors and other conservation partners to tour the property and provide any input on future uses. The Refuge will continue to reach out to various user groups to encourage appreciation for natural resources. The Refuge also maintains a mailing list, for news release purposes, to local newspapers, radio stations, and partners' websites. In addition, information will be available at Eastern Virginia NWRC headquarters and on Refuge websites, Friends website, and relevant social media sites. Presentations may be given to interested user groups if requested.

B. Public Reaction to the Cat Point Creek Unit Public Opening

Wildlife-dependent recreation was addressed in the CCP for Rappahannock River Valley NWR (2009). Most of the public comments at that time supported the increased access to wildlife-dependent recreation.

In January 2023, staff distributed a press release to news organizations and alerted the public about the availability of the draft CPC Unit Public Opening Plan and Environmental Assessment (EA), with postings on the respective Refuge's websites and social media. Notices were also sent directly to partners, as well as presented to the board of the Rappahannock Wildlife Refuge Friends.

After the 14-day comment period ending in January 2023, we will compile and review all comments. We also received comments from the Federally Recognized Rappahannock Tribe of Virginia, State entities, including Virginia Department of Wildlife Resources and Virginia Department of Conservation and Recreation.

C. How the Public will Be Informed of Relevant Rules and Regulations

General information regarding the CPC Unit will be posted on informational kiosks at the Unit. Additional information will be present on our Refuge website.
https://www.fws.gov/refuge/rappahannock-river-valley/map or by contacting Rappahannock River Valley NWR 336 Wilna Dr., Warsaw, VA, or by calling (804) 333-1470.
A unit map, similar to the ones for the Wilna, Hutchinson and Port Royal Units, will be developed for the CPC Unit.

VI. Additional Figures

Figure 2. Eastern Virginia Rivers NWR Complex Map. Map is showing the 19 units of the Refuge and other three National Wildlife Refuges within the Complex.

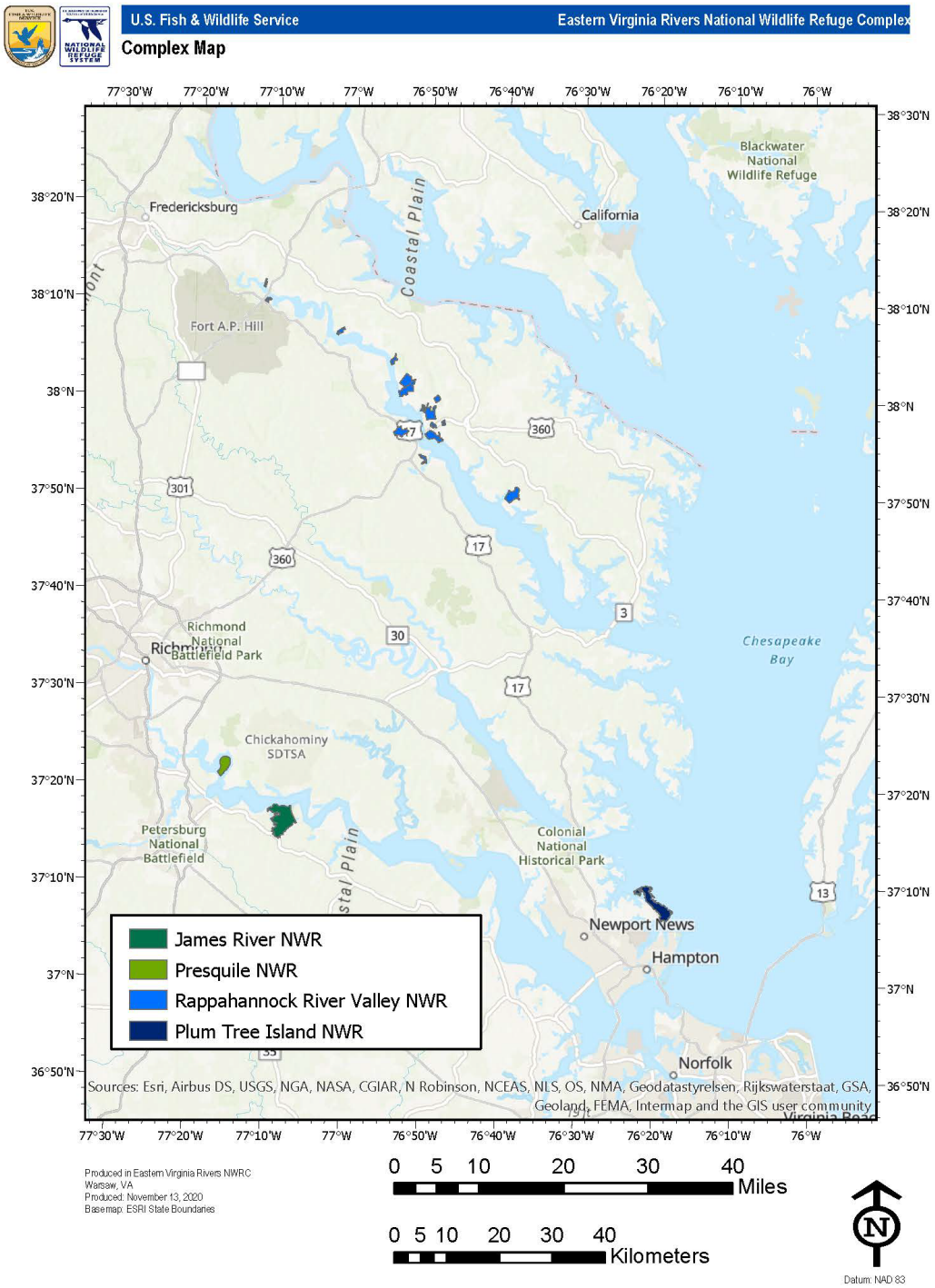
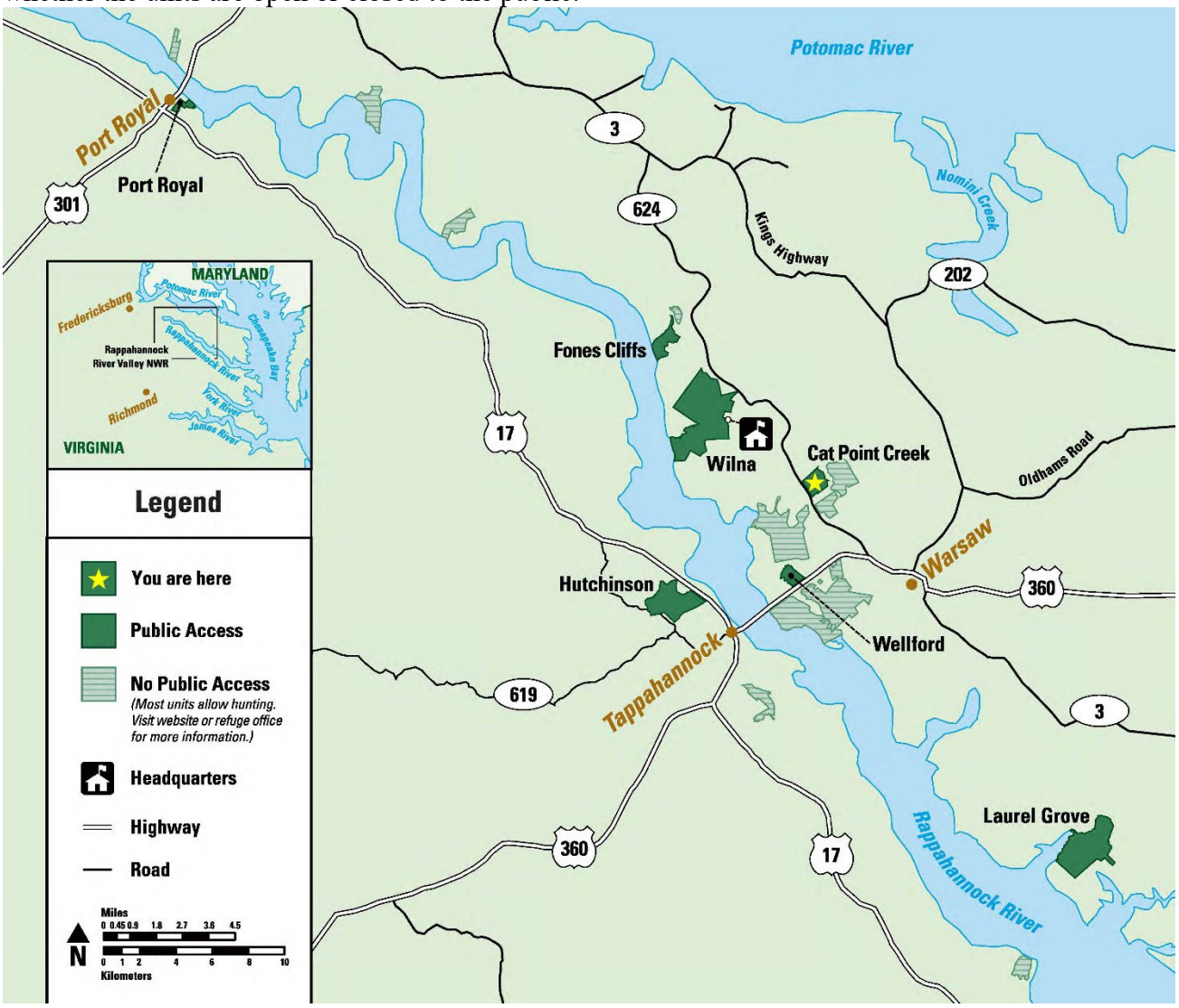


Figure 3. Rappahannock River Valley NWR Map. Map shows a portion of the 19 units associated with the Refuge and if they are owned in fee title vs conservation easement and whether the units are open or closed to the public.



VII. Literature Cited

Germain M., A. Kniowski, A. Silvis, and W. Ford (2017). Who Knew? First Myotis sodalis (Indiana Bat) Maternity Colony in the Coastal Plain of Virginia. Northeastern Naturalist. 24. N5-N10. 10.1656/045.024.0110.

Lewis, B. 2020. Waterfowl Biologist. Personal Communication. Virginia Department of Wildlife Resources.

Spells, A. 1993. Report on fi sheries value in the Rappahannock River, Va. LAPS project. USFWS R5 Realty document, June 18, 1993.

U.S. Fish and Wildlife Service. 2007. National bald eagle management guidelines. Washington, DC. 25 pp.

U.S. Fish and Wildlife Service. 2010. Sensitive Joint-Vetch. Available online at: Lhttps://www.fws.gov/northeast/pdf/Sensitive_jointvetch.pdf.

U.S. Fish and Wildlife Service. 2011a. Northeastern Beach Tiger Beetle. Available online at: https://www.fws.gov/northeast/Endangered/tiger_beetle/pdf/Tigerbeetle2_92711.pdf

U.S. Fish and Wildlife Service. 2011b. Small-whorled pagonia. Available online at: https://www.fws.gov/southeast/pdf/fact-sheet/small-whorled-pogonia.pdf

U.S. Fish and Wildlife Service. 2013. Issuance of Annual Regulations Permitting the Hunting of Migratory Birds: Final Supplemental Environmental Impact Statement. Available online at: https://www.fws.gov/migratorybirds/pdf/policies-and-regulations/FSEISIssuanceofAnnualRegulations.pdf.

U.S. Fish and Wildlife Service. 2015. Northern long-eared bat. Available online at: https://www.fws.gov/mountain-prairie/ea/Northernlongearedbatfactsheet_March2015.pdf

U.S. Fish and Wildlife Service. 2019. Swamp Pink. Available online at: https://www.fws.gov/southeast/wildlife/plants/swamp-pink/

U.S. Fish and Wildlife Service. 2019. Yellow Lance. Available online at: https://www.fws.gov/southeast/wildlife/mussels/yellow-lance/

U.S. Fish and Wildlife Service. 2021. Eastern Virginia Rivers NWRC Hunting and Fishing Plan. Available online at: https://www.fws.gov/refuge/rappahannock-river-valley

Virginia Department of Wildlife Resources (VADWR). 2010. 2010 Virginia Waterfowl Hunter Survey. https://VADWR.virginia.gov/wp-content/uploads/2010-Waterfowl-Hunter-Survey-Report.pdf

Virginia Department of Wildlife Resources (VADWR). 2014a. Virginia Wild Turkey Management Plan (2013-2022. Virginia Department of Wildlife Resources, Richmond, Virginia, USA. https://dwr.virginia.gov/wp-content/uploads/turkey-management-plan.pdf

Virginia Department of Wildlife Resources (VADWR). 2014b. Results of Virginia Hunter Mail-in Survey 2013-2014. https://VADWR.virginia.gov/wp-content/uploads/2013-14-Hunter-Survey-Report.pdf

Virginia Department of Wildlife Resources (VADWR). 2016. James and Chickohominy River Angler Survey 2015-2016.

Virginia Department of Wildlife Resources (VADWR). 2016. 2005-2016 Survey of Virginia Hunters. https://VADWR.virginia.gov/wp-content/uploads/2005-16-Hunter-Survey-Report.pdf

Virginia Department of Wildlife Resources (VADWR). 2018a. Bowhunters Survey 2018. https://VADWR.virginia.gov/wp-content/uploads/media/2018-Bowhunter-Survey-Report.pdf

Virginia Department of Wildlife Resources(VADWR). 2018b. Tidal River Blue Catfish Outlook. https://VADWR.virginia.gov/wp-content/uploads/tidal-river-blue-catfish-report.pdf

Virginia Department of Wildlife Resources (VADWR). 2018c. Tidal River Largemouth Bass Outlook. https://VADWR.virginia.gov/wp-content/uploads/tidal-river-largemouth-bass-outlook.pdf

Virginia Department of Wildlife Resources (VADWR). 2019. Waterfowl Hunters and Harvests. https://dwr.virginia.gov/wp-content/uploads/waterfowlfactsheets.pdf#page=2

Virginia Department of Wildlife Resources (VADWR). 2020a. 2019-2020 Deer Kill Data. https://VADWR.virginia.gov/wildlife/deer/harvest/

Virginia Department of Wildlife Resources (VADWR). 2020b. Spring Gobbler Report. https://VADWR.virginia.gov/wildlife/turkey/springharvestsummary/

Virginia Department of Wildlife Resources (VADWR). 2020c. Website accessed: September 4, 2020. Coyotes. https://dwr.virginia.gov/wildlife/nuisance/coyotes/

VIII. OTHER APPLICABLE STATUTES, EXECUTIVE ORDERS AND REGULATIONS

Cultural Resources

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

- Paleontological Resources Protection Act, 16 U.S.C. 470aaa – 470aaa-11.
- Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001-3013; 43 CFR Part 10.
- Executive Order 11593 – Protection and Enhancement of the Cultural Environment, 36 Fed. Reg. 8921 (1971).

Fish and Wildlife

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

Natural Resources

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

Water Resources

- Coastal Zone Management Act of 1972, 16 U.S.C.1451 et seq.; 15 CFR Parts 923, 930, 933.
- Federal Water Pollution Control Act of 1972 (commonly referred to as Clean Water Act), 33 U.S.C. 1251 et seq.; 33 CFR Parts 320-330; 40 CFR Parts 110, 112, 116, 117, 230-232, 323, and 328.
- Rivers and Harbors Act of 1899, as amended, 33 U.S.C. 401 et seq.; 33 CFR Parts 114, 115, 116, 321, 322, and 333.Safe Drinking Water Act of 1974, 42 U.S.C. 300f et seq.; 40 CFR Parts 141-148.
- Executive Order 11988 – Floodplain Management, 42 Fed. Reg. 26951 (1977).
- Executive Order 11990 – Protection of Wetlands, 42 Fed. Reg. 26961 (197).

IX. Compatibility Determinations

A. Draft Compatibility Determination: Environmental Education

Title

Draft Compatibility Determination for Environmental education (NWRS staff and authorized agents), Environmental education (not conducted by NWRS staff or authorized agents), Environmental education (general), Interpretation (NWRS staff and authorized agents), and Interpretation (not conducted by NWRS staff or authorized agents), Rappahannock River Valley National Wildlife Refuge.

Refuge Use Category

Environmental Education and Interpretation

Refuge Use Type(s)

Environmental education (NWRS staff and authorized agents), and Environmental education (not conducted by NWRS staff or authorized agents), Environmental education (general), Interpretation (NWRS staff and authorized agents), Interpretation (not conducted by NWRS staff or authorized agents), Refuge Rappahannock River Valley National Wildlife Refuge

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

... for the development, advancement, management, conservation, and protection of fish and wildlife resources ... 16 U.S.C. § 742f(a)(4)

"... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ..." 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

"... 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 ..." 16 U.S.C. § 3901(b), 100 Stat. 3583 (Emergency Wetlands Resources Act of 1986)

"... to conserve (A) fish or wildlife which are listed as endangered species or threatened species .... or (B) plants ..." 16 U.S.C. § 1534 (Endangered Species Act of 1973)

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System, otherwise known as Refuge System, is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife,and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

Description of Use

Is this an existing use?

Yes

The use is consistent with the 2009 Comprehensive Conservation Plan for Rappahannock River Valley National Wildlife Refuge (Refuge) and associated Environmental Assessment (30

December 2009) and Finding of No Significant Impact (14 December 2009).

What is the use?

Environmental education and interpretation will continue to be offered at Rappahannock River Valley NWR through a variety of programs including: FWS personnel; school teachers; partner organizations and agencies; the Refuge Friends group; and the nature themed trail for children at the Cat Point Creek Unit-Wild in the Woods.

Is the use a priority public use?

Yes

Where would the use be conducted?

For at least the past 15 years, environmental education and interpretation activities have been centered at two Refuge units, Wilna and Hutchinson, where a diversity of aquatic and terrestrial habitats occur. Existing facilities and amenities support this activity including an ADA-accessible modular building containing a classroom area, which is located next to Wilna Pond where a fishing pier, photo blind, and numerous trails provide access to Wilna Creek and freshwater marshes and surrounding terrestrial habitats (grasslands, scrub-shrub, and forests). The Wilna unit is where the headquarters and most of the staff are located. At the Hutchinson Unit, environmental education occurs in proximity to a large pavilion that serves as an outdoor classroom. Next to this pavilion are restroom facilities and nearby an osprey platform and grassland habitats. Hutchinson contains more than 2 miles of trails, a fishing pier on Mount Landing Creek, and several distinct habitat types including tidal freshwater marsh, scrub-shrub and mature hardwood forest. Wilna (Richmond County) and Hutchinson (Essex County) serve two different school systems.

With the opening of the Cat Point Creek Unit (CPC), the Refuge now has an additional area where facilities exist to support environmental education and interpretation. These areas include hiking trails through a variety of habitats, interpretive kiosks with history and natural resource information about the Refuge, a nature themed trail with eight stations geared towards younger children (Wild in the Woods), a covered pavilion for future events, restroom facilities, and a fishing pier on Cat Point Creek. In addition, this Unit contains a large building (Lodge) that will be transferred in partnership to the Rappahannock Tribe for the main purpose of environmental education and interpretation facilitating their “Return to the River” program for tribal youth along with various other outreach, cultural resource, and environmental programs for the public. The Lodge would provide an opportunity for the Rappahannock Tribe to develop educational exhibits and a large indoor meeting space for events, with access to the 243-acre Cat Point Creek Unit acquired by the Refuge. This lays the groundwork for future opportunities to collaborate with the Rappahanock Tribe on stewardship efforts in the Rappahannock River Valley and provide relevant, meaningful interpretive and environmental educational and interpretive programming.

Once the transfer is complete, the Rappahannock Tribe will own the building, and in parternership with the Refuge will allow environmental education and interpreation events as requested by stakeholders. This opportunity allows for increased partnership and collaboration with natural resource education and programing. The Lodge can easily fit up to 75 students, if needed, along with an appropriately sized parking lot for busses.

When would the use be conducted?

Environmental education and interpretation could occur year-round, during Refuge open hours, or with prior coordination between teachers/schools/partners and the Refuge.

How would the use be conducted?

Environmental education and interpretation with school groups has typically occurred with prior coordination with teachers, schools and partner agencies, and organizations for field trips. Some environmental education and interpretation activities occur unscheduled during Refuge open hours. The Refuge requires Special Use Permit applications for groups of 10 or more. The growing partnership between the Refuge and the Rappahannock Tribe is expected to result in additional environmental education and interpretation opportunities, especially associated with the Lodge. In addition, hiking trails through a variety of habitats, interpretive kiosks with history and natural resource information about the Refuge, a nature themed trail with eight stations geared towards younger children (Wild in the Woods), a covered pavilion for future events, restroom facilities, and a fishing pier on Cat Point Creek will be available.

Why is this use being proposed or reevaluated?

This reevaluation is occurring due to the new requirement to evaluate compatibility separately for Environmental Education/Interpretation and Wildlife Observation/Photography (previously evaluated within the same compatibility determination), and the upcoming mandatory re-evaluation date (December 2024). This use will also open for the first time on the Cat Point Creek unit of the Refuge.

Availability of Resources

Existing facilities and infrastructure have been supporting environmental education and interpreation. The small number of permanent staff is a limiting factor in how many environmental eduation and interpretation programs the Refuge can support, which is why working with others (Friends group, non government organization partners, and the Rappahannock Tribe) is essential to providing high quality opportunities. Providing opportunities for environmental education and interpretation for visitors will not result in need for additional funding or resources to administer this use.

Anticipated Impacts of the Use

<u>Potential impacts of a proposed use on the Refuge's purpose(s) and the Refuge System mission</u>

Wildlife Interpretation (WI) and Environmental Education (EE) uses can result in varying impacts to wildlife resources, both positive and negative. Two of the big six priority public uses, these wildlife-dependent uses promote public understanding and appreciation of the National Wildlife Refuge System. Recreational visitation and associated economic contributions made to local and state economies provide a powerful catalyst for conserving public lands (Marion 2019). Recreation including wildlife interpretation and environmental education, enhances stewardship values.

Visitors engaging in WI and EE activities will be expected to use and stay on trails or roads to access the interior of the Refuge. Tolerance to human disturbance varies among species and depends on multiple factors, including adaptation to urbanization and body mass (Samia et al. 2015). Disturbances associated with these two public uses vary with the wildlife species involved

and the type, level, frequency, duration, and the time of year such activities occur. The primary responses of wildlife to human activities includes: avoidance or departure from the site (Owen 1973, Burger 1981, Kaiser and Fritzell 1984, Korschen et al. 1985, Henson and Grant 1991, Kahl 1991, Klein 1993, Whittaker and Knight 1998) and use of sub-optimal habitat (Erwin 1980, Williams and Forbes 1980, Knight and Cole 1991). Multiple recreational activities occurring simultaneously may result in a combined negative impact on wildlife. Hammitt and Cole (1998) conclude that the frequent presence of humans in wildland areas can dramatically change the normal behavior of wildlife mostly through "unintentional harassment." These responses can have negative impacts to wildlife such as mammals becoming habituated to humans making them easier targets for hunters. Human induced avoidance by wildlife can prevent animals from using otherwise suitable habitat. Seasonal sensitivities can compound the effect of disturbance on wildlife. Examples include regularly flushing birds during nesting or causing mammals to flee during winter months, thereby consuming large amounts of stored fat reserves. Some uses, such as bird observation, are directly focused on viewing certain wildlife species and can cause more significant impacts during the breeding season and winter months.

Short-term impacts

Trails used to facilitate environmental education and interpretation can disturb wildlife outside the immediate trail corridor (Trails and Wildlife Task Force 1998, Miller et al. 2001). Pedestrian travel has the potential to impact shorebirds, waterfowl, and other migratory bird populations feeding and resting near the trails and on beaches, especially during nesting season. Birds avoided places where people were present and when visitor activity was high (Burger 1981, 1986; Klein et al. 1995). Noise caused by visitors resulted in increased levels of disturbance, though noise was not correlated with visitor group size (Burger 1986, Klein 1993, Burger and Gochfeld 1998). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. Nest predation was also found to be greater near trails (Miller et al. 1998).

For songbirds, Gutzwiller et al. (1994) found that singing behavior of some species was altered by low levels of human intrusion. Several studies have found that some bird species habituate to repeated intrusion; frequently disturbed individuals of some species have been found to vocalize more aggressively, have higher body masses, or tend to remain in place longer (Cairns and McLaren 1980). Disturbance may affect the reproductive fitness of males by hampering territory defense, male attraction, and other reproductive functions of song (Arcese 1987).

Noise produced by wildlife interpretation and environmental education programming has the potential to impact fish and other aquatic species. For example, during noise events, bass and bull head fish spent less time guarding nests and fry exposing eggs and young to potential predators (MacLean et al. 2020, Maxwell et al. 2018, Mickle et al. 2019).

There is evidence to suggest that mammal species most likely to be adversely affected are those where available habitat is limited, constraining them to stay in disturbed areas and suffer the costs of reduced survival or reproductive success (Gill et al. 2001). Wildlife disturbance may be compounded by seasonal needs. For example, disturbances causing mammals to flee during winter months could consume stored fat reserves that are necessary to get through the winter. Hammitt and Cole (1998) found that white-tailed deer females with young are more likely to flee from disturbance than those without young.

Environmental education and interpretation use has the potential to impact wildlife habitats on a short-term basis. Immediate effects can include soil compaction, changes to vegetation structure, and accumulating waste. Modes of transportation along roads and trails and at established environmental education and interpretation sites can compact soil leading to increased erosion and sedimentation (Cooke and Xia 2020).

Quantitative research documenting the impacts of environmental education and wildlife interpretation uses on other user groups such as hunters and anglers in the literature is scant. Crowding may deter some recreationists; these individuals may alter their time or location of visitation or develop other coping mechanisms, such as rationalization or shifting their understanding of the activity or place (Manning and Valliere 2001, Marcouiller 2008). Potential positive impacts of environmental education and interpretation include a deepened sense of place, heightened appreciation for the Refuge's habitat and wildlife, and inspired engagement in conservation efforts (Ardoin 2006, Kudryavtsev et al. 2012).

Long-term impacts

The long-term impacts of wildlife interpretation and environmental education public uses may alter species composition in certain areas or habitats. Generalist species are more abundant near trails, whereas specialist species are less common. Within grassland ecosystems, birds are less likely to nest near trails. Within both ecosystems, nest predation is greater near trails. Bird watchers and birds can coexist amicably but only when careful consideration is given, controlling the duration and closeness of the encounters. Most birds will adapt and habituate to the presence of people, but there is a distance beyond which closer interactions will cause disturbance or disruption, and may lower reproductive success, decrease foraging efficiency, or force birds to abandon suitable habitats (Burger et al. 1995). Each situation requires observation, continued monitoring and mitigation to avoid undue stress and long-term impacts. Negative impacts of birdwatchers and other ecotourism can be curtailed with careful management and consideration of the needs of both the birds and the people (Burger et al. 1995). Disturbance can cause shifts in habitat use, abandonment of habitat, and increased energy demands on affected wildlife (Knight and Cole 1991).

Trails may block movements of small mammals, therefore a trail network could decrease gene flow within and among the population. Fragmentation also may reduce potential habitat for dispersal, as well as decrease availability to water and food (Whitney 2000). Fragmentation may ultimately lead to smaller population size within each fragment, and increased vulnerability to population decline and extinction (Bennett 1990; Fahrig and Merriam 1994). Reducing survival could cascade into the higher trophic levels that utilize these animals as prey (Whitney 2000). These impacts are anticipated to be minimal.

With respect to mammalian carnivores, Baker and Leberg (2018) found that coyotes and bobcats had higher occupancy in protected areas with more human disturbance (i.e. trails) but overall, protected areas with less human disturbance had greater carnivore community diversity. Their results varied among species, however, the general trend showed that carnivores are impacted by human activity. Reed and Merenlender (2008) found that human activity decreased carnivore density and shifted community composition significantly from native species to non-native species. Consistently, protected areas that did not allow recreation maintained higher levels of native species versus those which did permit recreation.

Access paths to sites necessary to support environmental education and interpretation activity can lead to habitat fragmentation, loss, and heterogeneity (Brock and Green 2003, Lewin et al. 2006). Visitors can introduce invasive plants, animals, and pathogens to habitats (Anderson et al. 2015, Brock and Green 2003, Davies and Sheley 2007, Marion et al. 2006). Once present, invasive species can out-compete native plants and animals, thereby altering habitats (Anderson et al. 2015, Marion et al. 2006). Invasive species can alter animal and plant composition, diversity, and abundance (Davies and Sheley 2007, Eiswerth et al. 2005). These changes may reduce native forage, cover, and water sources (Brock and Green 2003, Eiswerth et al. 2005). Certain invasive species may even impede access to environmental education and wildlife interpretation sites such as hydrilla blocking waterways. We anticipate long term impacts associated with the use of environmental education and interpretation to be minimal.

Public Review and Comment

The draft compatibility determination will be available for public review and comment for 14 days. The public will be made aware of this comment opportunity through posting at Refuge headquarters, posting on Refuge website, social media, and sending a letter to the Refuge email list. State and Tribes have been asked to review and comment on the draft compatibility determination. A hard copy of this document will be posted at the Refuge Headquarters or Visitor Center located at 336 Wilna Road Warsaw, Virginia 22572. It will be made available electronically on the refuge website *https://www.fws.gov/refuge/rappahannock_river_valley/*. Please contact the Project Leader if you need the documents made available in an alternative format. Concerns expressed during the public comment period will be addressed in the final document.

Determination

Is the use compatible?

Yes

Stipulations Necessary to Ensure Compatibility

Continued environmental education and interpretation programs will be monitored as needed to ensure continued contributions to Refuge objectives. Environmental education and interpretation could occur year-round, during Refuge open hours, or with prior coordination between teachers/schools/partners and the Refuge. Visitors engaging in WI and EE activities will be expected to use and stay on trails or roads to access the interior of the Refuge. Environmental education and interpretation with school groups has typically occurred with prior coordination with teachers, schools and partner agencies, and organizations for field trips. Some environmental education and interpretation activities occur unscheduled during Refuge open hours. The Refuge requires Special Use Permit applications for groups of 10 or more.

Justification

Conducting the use as outlined above would help ensure that the use is compatible at Rappahannock River Valley NWR. Interpretation (Not conducted by NWRS staff or authorized agents), Interpretation (NWRS staff and authorized agents), Environmental education (general), Environmental education (NWRS staff and authorized agents), and Environmental education (not conducted by NWRS staff or authorized agents), as outlined in this compatibility determination, would not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the Refuge. Based on available science and best professional judgement,

the Service has determined that environmental education and interpretation, would not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose of the Rappahannock River Valley NWR. Rather, appropriate and compatible environmental education and interpretation would be the use of the Rappahannock River Valley NWR through which the public can develop an appreciation for wildlife and wild lands.

Signature of Determination

Project Leader Signature and Date

Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date: 2036

Literature Cited/References

Anderson, L. G., S. Rocliffe, N. R. Haddaway, and A.M. Dunn. 2015. The role of tourism and recreation in the spread of non-native species: a systematic review and meta-analysis. PloS one, 10(10), p.e0140833.

Ardoin, N. M. 2006. Toward an Interdisciplinary Understanding of Place: Lessons for Environmental Education. Canadian Journal of Environmental Education. 11(1), 112-126.

Baker, A. D., and P.L. Leberg. 2018. Impacts of human recreation on carnivores in protected areas. PloS one, 13(4) 13(4): e0195436.

Brock, J. H., and D. M. Green. 2003. Impacts of livestock grazing, mining, recreation, roads, and other land uses on watershed resources. Journal of the Arizona-Nevada Academy of Science, 35(1), 11-22.

Burger J. 1981. The Effect of Human Activity on Birds at a Coastal Bay. Biological Conservation, 21(3), 231-241.

Burger, J., M. Gochfeld, and L.J. Niles. 1995. Ecotourism and Birds in Coastal New Jersey: Contrasting Responses of Birds, Tourists, and Managers. Environmental Conservation, 22(1), 56–65.

Cooke, M. T. and L. Xia. 2020. Impacts of land-based recreation on water quality. Natural Areas Journal, 40(2), 179-188.

Davies, K. W. and R. L. Sheley. 2007. A conceptual framework for preventing the spatial dispersal of invasive plants. Weed Science, 55(2), 178-184.

Eiswerth, M. E., T. D. Darden, W. S. Johnson, J. Agapoff, and T. R, Harris. 2005. Input–output modeling, outdoor recreation, and the economic impacts of weeds. Weed Science, 53(1), 130-137.

Gutzwiller, K. J., R.T. Wiedenmann, K. L. Clements, and S. H. Anderson. 1994. Effects of Human Intrusion on Song Occurrence and Singing Consistency in Subalpine Birds. The Auk, 111(1), 28-37.

Klein, M. L. 1993. Waterbird Behavioral Responses to Human Disturbances. Wildlife Society Bulletin. 21(1), 31–39.

Kudryavtsev, A., R. C. Stedman, and M. E. Krasny. 2012. Sense of place in environmental education. Environmental Education Research, 18(2), 229–250.

Lewin, W. C., R. Arlinghaus, and T. Mehner. 2006. Documented and potential biological impacts of recreational fishing: insights for management and conservation. Reviews in Fisheries Science, 14(4), 305-367.

Manning, R. E. and Valliere, W. A. 2001. Coping in outdoor recreation: Causes and consequences of crowding and conflict among community residents. Journal of Leisure Research, 33(4), 410–426.

Marcouiller, D. W. 2008. Outdoor Recreation Planning: A comprehensive approach to understanding use interaction. CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources, 3(090).

Marion, J. L., Y. F. Leung, and S. K. Nepal. 2006. Monitoring trail conditions: new methodological considerations. The George Wright Forum, 23(2), 36-49.

Miller, S. G., R. L. Knight, and C. K. Miller. 2001. Wildlife Responses to Pedestrians and Dogs. Wildlife Society Bulletin (1973-2006), 29(1), 124–132.

Miller, S. G., R. L. Knight, and C. K. Miller. 1998. Influence of Recreational Trails on Breeding Bird Communities. Ecological Applications, 8(1), 162–169.

Reed, S. E. and A, M. Merenlender. 2008. Quiet, nonconsumptive recreation reduces protected area effectiveness. Conservation Letters, 1(3), 146–154.

Samia, D., S. Nakagawa, F. Nomura, T. Rangel and D. T. Blumstein. 2015. Increased tolerance to humans among disturbed wildlife. Nature Communications. 6(8877). https://doi.org/10.1038/ncomms9877.

USFWS. 2009. Rappahannock River Valley NWR Comprehensive Conservation Plan.

B. Draft Compatibility Determination: Wildlife Observation and Photography

Title

Draft Compatibility Determination for Wildlife Observation, Photography, Photography (commercial), Photography (news and educational), Rappahannock River Valley National Wildlife Refuge.

Refuge Use Category

Wildlife Observation and Photography

Refuge Use Type(s)

Wildlife Observation, Photography, Photography (commercial), Photography (news and educational)

Refuge

Rappahannock River Valley National Wildlife Refuge

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

... for the development, advancement, management, conservation, and protection of fish and wildlife resources ... 16 U.S.C. § 742f(a)(4)

"... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ..." 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

"... 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 ..." 16 U.S.C. § 3901(b), 100 Stat. 3583 (Emergency Wetlands Resources Act of 1986)

"... to conserve (A) fish or wildlife which are listed as endangered species or threatened species .... or (B) plants ..." 16 U.S.C. § 1534 (Endangered Species Act of 1973)

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System, otherwise known as Refuge System, is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife,and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

Description of Use

Is this an existing use?

Yes

The use is consistent with the 2009 Rappahannock River Valley NWR Comprehensive Conservation Plan and associated Environmental Assessment (USFWS 2009) and Finding of No Significant Impact (USFWS 2009).

What is the use?

We propose to continue permitting Wildlife Observation and Photography at the publicly-open units of Rappahannock River Valley NWR as well as open for these uses for the first time at the Cat Point Creek Unit. With the opening of the Cat Point Creek Unit (CPC), the Refuge now has an additional area where facilities exist to support wildlife observation and photography. These areas include hiking trails through a variety of habitats, a canoe and kayak launch, a nature themed trail with eight stations geared towards younger children (Wild in the Woods), a covered pavilion for future events including guided tours, and a fishing pier on Cat Point Creek. In addition, this Unit contains a large building (Lodge) that will be transferred in partnership to the Rappahannock Tribe for the main purpose of environmental education and interpretation facilitating their "Return to the River" program for tribal youth along with various other outreach, cultural resource, and environmental programs for the public including wildlife observation and photography.

Is the use a priority public use?

Yes

Where would the use be conducted?

At Rappahannock River Valley NWR (Refuge), wildlife observation and photography would continue to be allowed at the publicly open units of the Refuge: Hutchinson, Wilna, Wellford, Port Royal, and Laurel Grove. With the opening of the Cat Point Creek Unit (CPC), the Refuge now has an additional area where facilities exist to support wildlife education and photography. These uses will be allowed on any future publicly open units. These uses on closed units of the Refuge and any commercial photography, at either public or closed units of the Refuge, would require a Special Use Permit (SUP).

When would the use be conducted?

Wildlife Observation and Photography would continue to be allowed at publicly open units and areas including designated trails from dawn until dusk year round, provided those units are open to the general public (at times, some units are closed due to hunting or other management or maintenance activities).

How would the use be conducted?

Wildlife observation and photography visitors to the Refuge would continue to engage in self-guided opportunities along trails and roads, and any other areas open to the public (e.g. fishing piers, wildlife observation platforms, photo blinds). For visitors who wish to go off-trail, or to closed portions of the Refuge, a SUP would be required. For guided tours by partners where more than 10 participants will be present, we would require a SUP.

Why is this use being proposed or reevaluated?

This reevaluation is occurring due to the new requirement to evaluate compatibility separately for Environmental Education/Interpretation and Wildlife Observation/Photography (previously evaluated within the same compatibility determination), and the upcoming mandatory re-evaluation date (December 2024). This use will also open for the first time on the Cat Point Creek unit of the Refuge.

Availability of Resources

Resources for wildlife observation and photography have been sufficient for administering these uses on the Refuge. Since then, additional acreage has been acquired by the Refuge, some of which has been opened to the public. Additionally, visitor infrastructure has expanded or upgraded to support these uses. We do not anticipate that additional resources will be necessary to continue to administer these uses on the Refuge.

Anticipated Impacts of the Use

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

Wildlife may employ a variety of avoidance strategies in response to human disturbance that may result from visitors participating in wildlife observation or photography, often including departures from a site, use of suboptimal habitat, altered behavior and increased energy expenditure. Tolerance to human disturbance varies among species and depends on multiple factors, including adaptation to urbanization and body mass (Samia et al. 2015). Overall, recreational activities tend to have at least temporary effects on the behavior and movement of birds and other animals within a habitat or localized area. However, Gill (2007) maintains that conservation of public areas depends on public interest and public education and that restricting such access should only occur when those impacts are considered severe. Burger (Burger et al. 1995) determined that with careful planning people and birds can exist without undue disturbance.

Short-term impacts

Among activities considered as disturbing to wildlife, Korschen (1992) determined that bird-watching was among the least disturbing, but Klein (1993) noted that approaching birds on foot was the most disruptive of usual Refuge activities. Some photographers are more likely to cause disturbance by lingering in a sensitive area, using recorded calls, and even altering the vegetation at a site to gain a better view (Glinski 1976). However, photography can be useful as a tool to engage others and develop support for wildlife with images that appeal to people’s emotions (Hanisch 2017). There are many recommendations for reducing impacts to wildlife: provide visitor education, require staying on trails, closing areas during sensitive periods such as nesting, require minimum set back distances for approach to areas such as rookeries, etc. (Boyle et al. 1985, Erwin 1989, Haverra 1992, Klein 1993, Miller 2001, Morton 1989, Rodgers 1995, Taylor 2003).

Human disturbance to avifauna has been thoroughly documented around the world. Several studies have examined the effects of trail-based recreation on birds inhabiting wildlife refuges and coastal habitats in the eastern United States. McNeil et al. (1992) found that many waterfowl species avoid disturbance by feeding at night instead of during the day. Similarly, Martín et al. (2015) found that human presence caused resident shorebird species to spend less time feeding and more time displaying avoidance behavior, and that the number of shorebirds and gulls within their study site dramatically decreased in response to increased recreation of the area. Disturbance can increase the risk of predation when individuals are forced to forage in more dangerous habitats and can increase intraspecific competition when avoiding humans necessitates movement into suboptimal habitats (Frid and Dill 2002). Some uses, such as bird observation, are directly focused on viewing certain wildlife species and can cause more significant impacts during the breeding season and winter months. Research has shown that as the intensity of human disturbance increased, avoidance response by birds increased, and that out-of-vehicle activity was more disruptive than vehicular

traffic (Klein 1993, Freddy et al. 1986, Vaske et al. 1983). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased, in both grassland and forested habitats. Some studies have found that some songbird species habituate to repeated intrusion. Frequently disturbed individuals of some species vocalize more aggressively, have higher body masses, or tend to remain in place longer (Cairns and McLaren 1980). Disturbance may affect the reproductive fitness of males by hampering territory defense, mate attraction, and other reproductive functions of song (Arcese 1987, Ewald and Carpenter 1978).

Overall, the existing research clearly demonstrates that disturbance from recreation activities always has at least temporary effects on the behavior and movement of birds within a habitat or localized area (Burger 1981, Burger 1986, Klein 1993, Burger et al. 1995, Klein et al. 1995, Rodgers and Smith 1997, Burger and Gochfeld 1998). The location of recreational activities and the size of participating groups are also important factors affecting the magnitude of disturbance. A number of species have shown greater reactions when pedestrian use occurred off-trail (Miller et al. 2001, Samia et al. 2015), and when pedestrians traveled in large groups (Beale and Monaghan 2004). Bald eagle nesting season starts around December 15 and continues throughout the spring. The Service has taken precautions to decrease disturbance on bald eagles by limiting how close trails may be to a nest. The minimum distance to avoid disturbance to nesting bald eagles is 330 feet and will be observed by Refuge staff and the public during nesting season (USFWS, 2007). If a nest occurs within the 330 feet of the trail, the trail may be closed during nesting season to limit disturbance.

Some maintenance actions necessary to providing public use may have direct negative impacts on amphibians and reptiles. Mowing grassy access roads and public use trails during warmer months will occasionally result in the mortality of turtles, snakes, or frogs. Conflict among users tends to arise only when visitors disregard the established refuge rules and regulations.

Long-term impacts

Engaging in activity associated with wildlife observation and photography can be done with very little impact to wildlife (Burger et al. 1995). However, if measures are not taken to reduce disturbance, wildlife can suffer from being displaced to less desirable habitat, forced to use important energy reserves, cause the animal to change behaviors from, for example, breeding to seeking cover, and much more (Arcese 1987, Belanger et al. 1990, Burger et al. 1995, Burger 1996, Burger and Gochfeld 1998, Henson et al. 1991, Kaiser et al. 1984, Korschen 1992, Taylor et al. 2003, Yalden et al. 1990).

Considering the important role of mammals in an ecosystem, the refuges will benefit from careful attention to the impacts of proposed activities on this taxonomic group. We evaluated these proposed public uses for their potential to benefit or adversely affect the aerial, terrestrial, and wetland mammals within the refuges. The activities described in this determination should have no long-term impact on mammal use of the Refuge.

Opening or allowed continued public use of the refuge can affect habitats in various ways. Damage to ecosystems is known to occur when informal trails are created and used by the public (Barros and Pickering 2017). The uses described herein are only permitted in areas that are generally hard-

surface roads and trails, and no informal or off-trail activity is permitted. Impacts to vegetation and soil should therefore be minimal.

Within the Refuge, human disturbance most commonly results in temporary displacement of wildlife, without long-term effects on individuals or populations. Careful, strategic placement of trails and viewing areas is critical to minimizing negative impacts of these uses, while emphasizing the positive results of recreational access.

Public Review and Comment

The draft compatibility determination will be available for public review and comment for 14 days. The public will be made aware of this comment opportunity through posting at refuge headquarters, posting on refuge website, send letter to refuge email list, and social media. State and Tribes have been asked to review and comment on the draft compatibility determination. A hard copy of this document will be posted at the Refuge Headquarters or Visitor Center located at 336 Wilna Road Warsaw, Virginia 22572. It will be made available electronically on the refuge website *https://www.fws.gov/refuge/rappahannock_river_valley/*. Please contact the Project Leader if you need the documents made available in an alternative format. Concerns expressed during the public comment period will be addressed in the final document.

Determination

Is the use compatible?

Yes

Stipulations Necessary to Ensure Compatibility

Wildlife observation and photography could occur year-round, during Refuge open hours, or with prior coordination with the Refuge. Visitors engaging in wildlife observation and photography activities will be expected to use and stay on trails or roads to access the interior of the Refuge and to observe Refuge signage with rules and regulations. The Refuge requires Special Use Permit applications for groups of 10 or more.

- All activities will comply with the Bald Eagle Protection Guidelines for Virginia and USFWS guidelines.
- Disturbance and potential impacts to migratory birds will continue to be monitored through annual surveys in the breeding and wintering times of year to ensure the continued health and vitality of these populations.

Justification

The stipulations outlined above would help ensure that the use is compatible at Rappahannock River Valley NWR. Photography, photography (commercial), photography (news and educational), and wildlife observation, as outlined in this compatibility determination, would not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the Refuge. Based on available science and best professional judgement, the Service has determined that the hotography, photography (commercial), photography (news and educational), and wildlife observation at Rappahannock River Valley NWR, in accordance with the stipulations provided here, would not materially interfere with or detract from the fulfillment of the National Wildlife

Refuge System mission or the purpose of the Rappahannock River Valley NWR. Rather, appropriate and compatible wildlife observation and photography would be the use of the Rappahannock River Valley NWR through which the public can develop an appreciation for wildlife and wild lands.

Signature of Determination

Project Leader Signature and Date

Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date

2037

Literature Cited/References

Arcese, P. 1987. Age, intrusion pressure, and defense against floaters by territorial male song sparrows. Animal Behavior, 35,773-784.

Barros, A. and C.M. Pickering. 2017. How Networks of Informal Trails Cause Landscape Level Damage to Vegetation. Environmental Management 60, 57–68.

Beale, C. M. and P. Monaghan. 2004. Human disturbance: people as predation-free predators? Journal of Applied Ecology 41:335-343.

Belanger, L. and Bedard, J. 1990. Energetic cost of man-induced disturbance to staging snow geese, Journal of Wildlife Management, 54, 36-41. https://www.jstor.org/stable/pdf/3808897.pdf

Boyle, S.A. and F.B. Samson. 1985. Effects of non-consumptive recreation on wildlife: a review. Wildl. Soc. Bull. 13:110-116
https://www.jstor.org/stable/3781422?seq=1#metadata_info_tab_contents

Burger, J. 1981. The Effect of Human Activity on Birds at a Coastal Bay. Biological Conservation, 21(3): 231-241.

Burger, J. 1986. The effect of human activity on shorebirds in two coastal bays in northeastern United States. Biological Conservation, 13, 123-130.
https://www.jstor.org/stable/44517911?seq=1#metadata_info_tab_contents

Burger, J., Gochfeld, M., and Niles, L.J. 1995. Ecotourism and birds in coastal New Jersey: Contrasting responses of birds, tourists, and managers. Environmental Conservation, 22, 56-65. https://www.jstor.org/stable/44519042?seq=1#metadata_info_tab_contents

Burger, J. and Gochfeld, M. 1998. Effects of ecotourists on bird behavior at Loxahatchee National Wildlife Refuge, FL. Environmental Conservation, 25, 13-21. https://www.cambridge.org/core/journals/environmental-

conservation/article/abs/effects-of-ecotourists-on-bird-behaviour-at-loxahatchee-national-wildlife-refuge-florida/8A19BD366D23A7D1AF4D2E4A417CBC79

Cairns, W.E. and McLaren, I.A. 1980. Status of the piping plover on the east coast of North America. American Birds, 34, 206-208. https://sora.unm.edu/sites/default/files/journals/nab/v034n02/p00206-p00208.pdf

Erwin, M.R.1989. Responses to human intruders by birds nesting in colonies: Experimental results and management guidelines, Colonial Waterbirds, 12(1), 104-108. https://www.jstor.org/stable/1521318?seq=3#metadata_info_tab_contents

Ewald, P,W. and Carpenter, F.L. 1978. Territorial responses to energy manipulations in the Anna hummingbird. Oecologia, 31, 277-292.

Freddy, D.J., Bronaugh, W.M., and Fowler, M.C. 1986. Responses of mule deer to disturbance by persons afoot and in sowmobiles, Wildlife Society Bulletin, 14, 63-68. https://www.jstor.org/stable/3782468?seq=4#metadata_info_tab_contents

Frid, A. and L. M. Dill. 2002. Human-caused disturbance stimuli as a form of predation risk. Conservation Ecology, 6(1): 11. [online] URL: http://www.consecol.org/vol6/iss1/art11/.

Gibson, D., M. K. Chaplin, K. L. Hunt, M. J. Friedrich, C. E. Weithman, L. M. Addison, V. Cavalieri, S. Coleman, F. J. Cuthbert, J. D. Fraser, W. Golder, D. Hoffman, S. M. Karpanty, A. Van Zoeren, and D. H. Catlin. 2018. Impacts of anthropogenic disturbance on body condition, survival, and site fidelity of nonbreeding Piping Plovers. The Condor 120:566–580.

Gill, J.A. 2007. Approaches to measuring the effects of human disturbance on birds. IBIS-International Journal of Avian Science, 149 (1), 9-14. https://onlinelibrary.wiley.com/doi/full/10.1111/j.1474-919X.2007.00642.x

Glinski, R.L. 1976. Birdwatching etiquette: the need for a developing philosophy. Am. Bird 30(3):655-657. https://sora.unm.edu/sites/default/files/journals/nab/v030n03/p00655-p00657.pdf

Hanisch, E. 2017. Cameras for Conservation: How Photographing Wildlife Affects Engagement with Biodiversity. Centre for Science Communication, University of Otago, Dunedin, New Zealand. Pp. 182 https://ourarchive.otago.ac.nz/bitstream/handle/10523/8089/HanischEmmaKN2017MSciComm.pdf?sequence=1&isAllowed=y

Haverra, S.P., Boens, L.R., Georgi, N.M., and Shealy, R.T. 1992. Human disturbance of waterfowl on Keokuk Pool, Mississippi River. Wildlife Society Bulletin, 20, 290-298. https://www.jstor.org/stable/3783033?seq=8#metadata_info_tab_contents

Henson, P.T., and Grant, A. 1991. The effects of human disturbance on trumpeter swan breeding behavior. Wildlife Society Bulletin, 19, 248-257. https://www.jstor.org/stable/3782513?seq=1#metadata_info_tab_contents

Kaiser, M.S. and Fritzell, E.K. 1984. Effects of river recreationists on green-backed heron behavior. Journal of Wildlife Management. 48, 561-567. https://www.jstor.org/stable/3801189?seq=6#metadata_info_tab_contents

Klein, M.L. 1993. Waterbird behavioral responses to human disturbance. Wildlife Society Bulletin, 21, 31-39. https://www.jstor.org/stable/3783357?seq=7#metadata_info_tab_contents

Klein, M.L., Humphrey, S.R., and Percival, H.F. 1995. Effects of ecotourism on distribution of waterbirds in a wildlife refuge, Conservation Biology, 9, 1454-1465. https://www.jstor.org/stable/2387190?seq=8#metadata_info_tab_contents

Korschen, C.E., and Dahlgren, R.B. 1992. 13.2.15. Human disturbances of waterfowl: causes, effects, and management. Waterfowl Management Handbook. Lafeyette, LA: U.S. Geological Survey National Wetlands Research Center. https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1011&context=icwdmwfm

Martín, B., S. Delgado, A. de la Cruz, S. Tirado, and M. Ferrer. 2015. Effects of human presence on the longterm trends of migrant and resident shorebirds: Evidence of local population declines. Animal Conservation 18:73–81.

McNeil, Raymond; Pierre Drapeau; John D. Goss-Custard. 1992. The occurrence and adaptive significance of nocturnal habitats in waterfowl. Biological Review. 67: 381-419.

Miller S.G., Knight, R.L., and Miller, C.K. 1998. Influence of recreational trails on breeding bird communities. Ecological Society of America, 8 (1), 162-169. https://esajournals.onlinelibrary.wiley.com/doi/full/10.1890/1051-0761%281998%29008%5B0162%3AIORTOB%5D2.0.CO%3B2

Miller, S.G., Knight, R.L., and Miller, C.K. 2001. Wildlife responses to pedestrians and dogs. Wildlife Society Bulletin, 29, 124-132. https://www.jstor.org/stable/3783988?seq=1#metadata_info_tab_contents

Morton, J.M., Fowler, A.C., and Kirkpatrick, R.L. 1989. Time and Energy budgets of American black ducks in winter. Journal of Wildlife Management, 53, 401-410. https://www.jstor.org/stable/3801143?seq=10#metadata_info_tab_contents

Rodgers, J.A., and Smith, H.T. 1995. Set-back distances to protect nesting bird colonies from human disturbance in Florida. Conservation Biology, 9, 89-99. https://www.jstor.org/stable/2386390?seq=9#metadata_info_tab_contents

Rodgers, J.A., and Smith, H.T. 1997. Buffer zone distances to protect foraging and loafing waterbirds from human disturbance in Florida. Wildlife Society Bulletin, 25, 139-145. http://obpa-nc.org/DOI-AdminRecord/0048818-0048824.pdf

Samia, D., S. Nakagawa, F. Nomura, T. Rangel and D. T. Blumstein. 2015. Increased tolerance to humans among disturbed wildlife. Nature Communications. 6(8877). https://doi.org/10.1038/ncomms9877.

Taylor, A.R., and Knight, R.L. 2003. Wildlife responses to recreation and associated visitor perceptions, Ecological Applications, 13(4), 951-963. https://esajournals.onlinelibrary.wiley.com/doi/full/10.1890/1051-0761%282003%2913%5B951%3AWRTRAA%5D2.0.CO%3B2

U.S. Fish and Wildlife Service. 2007. National bald eagle management guidelines. Washington, DC. 25 pp

Vaske, J.J., Graefe, A.R., and Kuss, F,R, 1983. Recreation impacts: a synthesis of ecological and social research. Transactions of North American Wildlife and Natural Resources

Yalden, P.E. and Yalden D. 1990. Recreational disturbance of breeding golden plovers (Pluvialis apricarius), Biological Conservation, 51, 243-262. https://www.sciencedirect.com/science/article/abs/pii/0006320790901112

C. Draft Compatibility Determination: Boating

Title

Draft Compatibility Determination for Boating (human-powered), Boating (electric motorized), Rappahannock River Valley National Wildlife Refuge.

Refuge Use Category

Boating

Refuge Use Type(s)

Boating (human-powered), Boating (electric motorized)

Refuge

Rappahannock River Valley National Wildlife Refuge

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

... for the development, advancement, management, conservation, and protection of fish and wildlife resources ... 16 U.S.C. § 742f(a)(4)

"... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ..." 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

"... 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 ..." 16 U.S.C. § 3901(b), 100 Stat. 3583 (Emergency Wetlands Resources Act of 1986)

"... to conserve (A) fish or wildlife which are listed as endangered species or threatened species .... or (B) plants ..." 16 U.S.C. § 1534 (Endangered Species Act of 1973)

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System, otherwise known as Refuge System, is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife,and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

Description of Use

Is this an existing use?

Yes

Boating has been permitted on three units of the Refuge that are open to the public since approximately 2005 (USFWS CCP 2009). The use was re-evaluated in conjunction with the Environmental Assessment for the opening of the Cat Point Creek Unit and found to be compatible as with past Refuge units that were opened.

What is the use?

We propose to allow boating on Refuge waters and from launches on Refuge lands. This use has been occurring at the Refuge for many years at Wilna Pond, Laurel Grove Pond, and Mount Landing Creek (Hutchinson Unit). We propose to maintain the boating restrictions listed in the 2005 Fishing in Wilna Pond brochure, which allow for canoes, kayaks, and small jon boats that are powered by oars/paddles, or by electric motors. We will continue to prohibit gasoline powered engines, sailboats, and paddle-wheeled vessels on Refuge waters and from Refuge launches.

Is the use a priority public use?

No

Where would the use be conducted?

Boating would occur on Refuge waters, and via access provided from Refuge launches, including, but not limited to: Wilna Pond, Laurel Grove Pond, Mount Landing Creek (Hutchinson Unit), and Cat Point Creek (Cat Point Creek Unit).

When would the use be conducted?

Boating would be allowed in accordance with the days and times that the Refuge is open to the public, which is typically dawn until dusk, seven days a week. Boating may be restricted during specific activities, for example, if a unit was having a prescribed burn, or closed to the general public during a hunt.

How would the use be conducted?

This use would be most impactful to Refuge operations at the launch/ramp locations. Over the past 17 years during which boating has been occurring at the Refuge, staff have maintained these locations so that they are functional and serve the public for this use.

Why is this use being proposed or reevaluated?

Boating is being proposed as one of several new public uses on the Cat Point Creek unit of the Refuge in addition to areas on other units of the Refuge that already allow boating on Refuge waters or via access provided on a Refuge boat launch (USFWS 2009).

Availability of Resources

Current Refuge resources and personnel are available and sufficient to administer this use. The Refuge would not require additional resources to allow this use.

Anticipated Impacts of the Use

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

Boating at current use levels, in accordance with established Federal regulations, has not resulted in significant long-term adverse impacts to natural resources on the Refuge. Frequency of this activity may rise in the next several years if visitation of the Refuge increases and the number of local residents' increases. If it is found during monitoring that the level of use has significantly increased and/or impacts to wildlife have significantly increased, Refuge staff will reevaluate this use and

consider implementing additional measures to reduce wildlife impacts and/or the use may be reevaluated for compatibility. Impacts to natural resources from this activity at present levels are minimal.

Short-term impacts

The use of canoes, kayaks, and small jon boats that are powered by oars/paddles, or by electric motors in Refuge pools, lakes, ponds and waterways will not adversely impact Refuge resources as only a small percentage of the Refuge is affected. Short term impacts may include wildlife disturbance, littering, vandalism, and aquatic vegetation disturbance. Damage to habitat by walking or dragging a canoe or kayak to and from the launch sites is typically minimal and temporary. At current levels of use, we do not expect increased impacts from boating activities. Several enforcement issues may result from the use, including trampling vegetation, trespass into closed areas, utilizing boating as a mechanism for illegal taking of fish (i.e. undersized or over harvest limit), and disorderly conduct.

Disturbances to wildlife and other users by non-motorized boats are generally less than motorized activities due to the quiet nature of paddling, and generally low volume of use in any given area. This disturbance is temporary and generally localized and may vary depending on wildlife species or type of bird (e.g., Batten 1977). Accessing boat launching facilities utilizing Refuge roads may cause a minor amount of wildlife disturbance. While it is clear that temporary impacts such as disturbance to wildlife may occur, Refuge staff will monitor this use to quickly identify any changes that lead to significant adverse impacts to wildlife and habitat.

In a study by Graham and Cook (2008), it was determined that canoe paddles create the least amount of noise compared to combustion engines and electric motors and produced approximately half of the cardiac output compared to the effects of a combustion engine in largemouth bass. When analyzing combustion engines, electric motors and paddling, the study also determined that "Recovery time for cardiac output and heart rate was similar for all three treatments and slightly longer than stroke volume" (Graham and Cook, 2008). Paddling creates less noise compared to motorized boating, and thus will result in faster recovery times for largemouth bass and other fish species compared to other methods of boating.

Temporary disturbance to wildlife, such as the flushing of feeding or resting birds, is inherent to boating activities. Non-motorized boats have the potential to affect birds in multiple ways including but not limited at launch sites, during operation, and while mooring. Much disturbance is focused at launch areas or boaters/visitors moving too close to birds. It is recommended to provide at least 300 feet of distance to prevent disturbance to nesting and roosting birds (University of Florida, 2021). Kayaks, canoes and other small vessels have the ability to "approach much closer and greatly disturb roosting and nesting birds" (University of Florida, 2021). Mitigation will include education to the public participating in these activities to increase prevention, establish zones that restrict boating near known nesting sites, and enforcement of these closure areas.

Recreational boating offers opportunities for wildlife dependent recreation including wildlife photography, wildlife observation, fishing, and interpretation. Boating is frequently supported as a mechanism to participate in these other activities. Multiple user groups such as birders, anglers, and boaters all attempting to utilize the same launch area for their individual interests can cause

conflict, but it will be limited due to the length of time each user needs the area and educating the public of shared space. Enforcement of activities is expected to limit conflict.

Long-term impacts

Hansen et al. (2019) determined that "Recreational boating and related moorings are associated with altered species composition and reduced cover and height of aquatic vegetation that constitute important habitats for juvenile fish." Individual fish may be impacted if coming in contact directly with a boat propeller which can have long term impacts on that individual if wounds are sublethal or lethal.

Boating can negatively affect wildlife through minor effects including water pollution from exhaust gases and spilled fuel. Measures should be implemented by boaters to prevent small spills such as proper maintenance on outboards/inboards and carrying appropriate supplies to effectively clean up unintended spills or leaks. These impacts are not expected to occur as we will require the use of electric motors which will limit the impacts from accidental discharge from the outboard motors.

Sim et al. (2019) found that boating infrastructure alters local environmental conditions. Areas near marinas, jetties, and boat ramps were found to have increased fine and moderate metal concentrations. Sediment faunal assemblages were also found to have changed when adjacent to these boating structures. However, these effects were only observed within the structure's local vicinity and did not impact reference sites. Refuges can mitigate the effects of boating infrastructure by concentrating infrastructure to fewer areas (i.e., use of designated ramps and launch sites).

Boats are common vessels for transporting aquatic invasive species from one waterbody to another if not properly cleaned in-between uses. Boating may potentially introduce new aquatic invasive species to the Refuge that could have severe impacts on local flora and fauna. To prevent the spread of plants and animals to unwanted places, the Stop Aquatic Hitchhikers organization recommends cleaning all vessels and rinsing trailers with high pressure hot water when possible. Boats should also be drained of any excess water before leaving the water access area. Drying boats and equipment for at least 5 days in-between uses may also help prevent the spread of aquatic invasive species. These measures will be encouraged for visitors to implement voluntarily.

Without mitigations in place, boating can cause direct impacts for bird populations, especially during nesting season. Audubon (2022) recommends landing and anchoring watercraft in a location away from nesting birds to prevent disturbance. Disturbance causing a bird to move away from its nest, "makes chicks and eggs more vulnerable to predators and overheating" (Audubon 2022). The Refuge does not permit anchoring of boats and all launch sites are in areas currently experiencing disturbance. This use is not expected to cause additional stress to resting birds at launch sites due to disturbance already taking place.

Birds are indirectly affected by boating when users participate in other activities such as fishing. If not disposed of properly, excess fishing line and netting can become hazards for birds when used as nesting material or when individuals get caught in the remnants unintentionally (Guertin 2019). Education and communication are key in spreading awareness and thus prevention of behaviors that can be unsafe to wildlife species.

By participating in the proposed activities, visitors are likely to be more supportive of the Refuge System's priority uses of wildlife observation, wildlife photography, hunting, fishing, environmental education, and interpretation. These activities may increase the viewers' understanding and appreciation of fish and wildlife, their habitat needs and the role of the Refuge System in conservation. The long term impacts to other user groups are anticipated to be minimal.

Public Review and Comment

The draft compatibility determination will be available for public review and comment for 14 days. The public will be made aware of this comment opportunity through posting at Refuge headquarters, posting on Refuge website, social media, sending letter to Refuge email list, and contacting Friends group and Refuge partners. State and Tribal partners have been asked to review and comment on the draft compatibility determination. A hard copy of this document will be posted at the Refuge Headquarters or Visitor Center located at 336 Wilna Road Warsaw, Virginia 22572. It will be made available electronically on the Refuge website *https://www.fws.gov/Refuge/rappahannock_river_valley/*. Please contact the Project Leader if you need the documents made available in an alternative format. Concerns expressed during the public comment period will be addressed in the final document.

Determination

Is the use compatible?

Yes

Stipulations Necessary to Ensure Compatibility

Boating will be allowed with the following restrictions to ensure compatibility:

- Launching boats will only be permitted at designated Refuge locations;
- We will only allow the use of boats with an electric motor only, or paddlecraft such as canoes or kayaks. No gasoline powered vessels, sailboats, or paddlewheels will be permitted;
- Boaters must adhere to instructions provided on aquatic invasive species signs posted at the launch locations.

Justification

The stipulations outlined above would help ensure that the use is compatible at Rappahannock River Valley NWR. Boating (human-powered and electric motorized), as outlined in this compatibility determination, would not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the Refuge. Based on available science and best professional judgement, the Service has determined that boating (human-powered and electric motorized), at Rappahannock River Valley NWR, in accordance with the stipulations provided here, would not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose of the Rappahannock River Valley NWR. Rather, appropriate and compatible boating, would be the use of the Rappahannock River Valley NWR through which the public can develop an appreciation for wildlife and wild lands.

Signature of Determination

Project Leader Signature and Date

Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date

2032

Literature Cited/References

Audubon. 2022 March 14. Audubon Alliance Guide to Boating with Birds: Sharing the Waterways. Audubon. https://www.westportct.gov/home/showpublisheddocument/43965/637571082181170000

Batten, L.A. 1977. Sailing on reservoirs and its effects on water birds. Biological Conservation, 11, 49-58.

Graham, A. L. and Cooke, S. J. 2008. The effects of noise disturbance from various recreational boating activities common to inland waters on the cardiac physiology of a freshwater fish, the largemouth bass (Micropterus salmoides). Aquatic Conservation: Marine and Freshwater Ecosystems, 18, 1315-1324.

Hansen, J.P., Sundblad, G., Bergstrom, U., Austin, A.N., Donadi S., Eriksson, B.K., & Eklof, J.S. 2019. Recreational boating degrades vegetation important for fish recruitment. Ambio. 48, 539-551.

Sim V.X.Y., Dafforn K.A., Simpson S.L., Kelaher B.P., Johnston E.L. (2015) Sediment Contaminants and Infauna Associated with Recreational Boating Structures in a Multi- Use Marine Park.

Stop Aquatic Hitchhikers. 2022 March 11. How You Can Help. Stop Aquatic Hitchhikers. https://stopaquatichitchhikers.org/prevention/#clean-drain-dry

University of Florida. 2022 April 14. Sustainable Human-Bird Interactions. Bird-Friendly Fishing and Boating. https://ncbs.ifas.ufl.edu/sustainable-human-bird-interactions/

USFWS. 2009. Rappahannock River Valley National Wildlife Refuge Comprehensive Conservation Plan. 396pp.

USFWS. 2021. Eastern Virginia Rivers National Wildlife Refuge Complex Hunting and Fishing Plan. 140pp.

D. Draft Compatibility Determination: Natural Resource Collection

Title

Draft Compatibility Determination for Plant gathering (non-commercial) and Animal product gathering (non-commercial), Rappahannock River Valley National Wildlife Refuge.

Refuge Use Category

Natural Resource Collection for the Federally Recognized Rappahannock Tribe

Refuge Use Type(s)

Plant gathering (non-commercial), Animal product gathering (non-commercial)

Refuge

Rappahannock River Valley National Wildlife Refuge (Refuge)

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

... for the development, advancement, management, conservation, and protection of fish and wildlife resources ... 16 U.S.C. § 742f(a)(4)

"... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ..." 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

"... 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 ..." 16 U.S.C. § 3901(b), 100 Stat. 3583 (Emergency Wetlands Resources Act of 1986)

"... to conserve (A) fish or wildlife which are listed as endangered species or threatened species .... or (B) plants ..." 16 U.S.C. § 1534 (Endangered Species Act of 1973)

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System, otherwise known as Refuge System, is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife,and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

Description of Use

Is this an existing use?

No

What is the use?

Refuge staff will review specific requests and provide reasonable access to members of the Federally Recognized Rappahannock Tribe through a Special Use Permit (SUP) to Refuge lands and waters for gathering plants and (deceased) animal(s)/animal parts for ceremonial, religious, medicinal, and traditional purposes when the activity is appropriate and compatible or when existing

treaties allow or require such access. Species identified for potential use would include, tuckahoe (*Peltandra virginica*), wild rice (*Zizania palustris*), and other wild native edibles. Other specific use requests will be coordinated with the Tribe and the Project Leader or Refuge Manager. Natural resource collections would not be permitted for listed threatened or endangered species, species of special concern, or state listed species. The Refuge intends to follow policy 603 FW1.10 D(6) Native American ceremonial, religious, medicinal, and traditional gathering of plants and animal parts.

Is the use a priority public use?

No

Where would the use be conducted?

The use will be Refuge-wide on fee-title lands which currently total approximately 8,500 acres. The use will not be conducted on Refuge easements unless it related to a Service easement on fee-title owned Tribal lands. Refuge staff and the permit applicant will discuss and agree on areas and units that will be allowed if off-trail access is requested for natural resource collection.

When would the use be conducted?

The use will be year-round, or during times which the Refuge is generally open to the public, daylight hours, subject to reasonable access and so as to not interfere with ongoing habitat management, nor priority public uses.

How would the use be conducted?

Natural Resouce Collection requests would be considered through a Special Use Permit (SUP) application and approval process, followed by special conditions attached to the allowance, which aim to protect natural resources. This process provides the Refuge an opportunity to carefully review the collection request for specific plants and animals and to involve subject matter experts both inside and outside the FWS, if needed. It is also designed to avoid any potential conflicts between the natural resource collections and any ongoing habitat management, priority public uses, and/or work by other SUP holders.

The Federally Recognized Rappahannock Tribal representative(s) will comply with all Refuge regulations and conditions of the SUP as provided by the Refuge and must carry a copy of the permit when conducting natural resource collection activities on the Refuge, and display it upon request of Refuge staff.

Why is this use being proposed or reevaluated?

This use is being proposed due to the current inquiries by the Federally Recognized Rappahannock Tribe in Virginia. The Rappahannock Tribe, has been working closely with the Refuge on cultural resource interpretation, environmental education, and land protection efforts. The Refuge recognizes the importance of natural resource collection for the intended purposes of exercising ceremonial, medicinal, and traditional activities recognized by the Rappahannock Tribes.

Availability of Resources

We do not anticipate significant resources being needed to administer this activity. Current Refuge staff provide access to SUP holders without distruption of daily management responsibilities.

Anticipated Impacts of the Use

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

There are both positive and negative anticipated impacts from allowing Tribal members to participate in the gathering of natural materials on the Refuge (i.e., plant collection or berry picking). In general, Tribal members engaged in these uses would be traveling by foot, either by walking or hiking, in Refuge staff approved designated areas and along designated trails and roads. Engaging in traditional uses provides tribal members with a way to reconnect with the land. This can translate into more widespread and stronger support for the Refuge, the National Wildlife Refuge System, and the U.S. Fish and Wildlife Service (Service), our Federally Recognized Tribal partners as well as wildlife conservation and the importance of tribal heritage and traditions.

Any negative impacts of this use include direct impacts to plants, soils, hydrology, and wildlife from pedestrians walking and hiking on the Refuge and removal of potential food sources for wildlife. We do not anticipate any impacts associated with this use to be additive and impacts to food sources would also be minimal. The amount of species collection would be discussed with the Refuge Manager during the development of the SUP and monitored through the use of conditions agreed upon in the SUP to ensure cumulative impacts are minimized. At the end of each year, Refuge staff and the Tribe will communicat what has been harvested and how much to determine development of the next years SUP.

Short-term impacts

Pedestrian travel can have indirect impacts to plants by compacting soils and diminishing soil porosity, aeration, and nutrient availability that affect plant growth and survival (Kuss 1986). Hammitt and Cole (1998) note that compaction limits the ability of plants to re-vegetate affected areas. Repeated foot travel can directly impact plants by crushing the plants themselves. Rare plants with limited site occurrence are particularly susceptible to such impacts. Plants growing in wet or moist soils are the most sensitive to disturbance from trampling effects (Kuss 1986). Where moist and wet soil conditions are present at the Refuge, particularly during spring and early summer, sensitive wetland plants would be protected from collection as well as traversing wetland areas by permit holders.

It is anticipated that allowing this use would cause some vegetation loss on designated routes. Some species are very commonly harvested and foraging may be damaging to the plant’s survival when roots, stems, or seeds are removed (Giraud 2020; Giraud et al. 2021). Foraging practices are sustainable when local knowledge exists to ensure that a specimen’s bark or sap is not too heavily foraged or that the removal of individuals to harvest their roots does not compromise the health of the plant community (Giraud 2020; Giraud et al. 2021). Foot travel may increase root exposure and trampling effects; however, it is anticipated that under current levels of use, the incidence of these problems would be minor. Designated routes for pedestrian travel consist of existing trails, many with hardened surfaces or are existing trails that have been used for many years. Tribal members engaging in natural resource collection activities will be encouraged to stay on designated roads, trails, and any other areas discussed with the Refuge Manager through the SUP process. Signs may be useful to let the public know that collection and foraging are for the Rappahannock Tribe only and issued via a SUP; not for general use.

People can be vectors for invasive plants when seeds or other propagules are moved from one area to another (Giraud 2020; Giraud et al. 2021). Once established, invasives can out-compete native plants, thereby altering habitats and indirectly impacting wildlife. The threat of invasive plant establishment would always be an issue requiring annual monitoring, and when necessary, treatment. Staff would work to educate tribal members to reduce introductions and would also monitor and control invasives plants and other species.

Disturbances vary with the wildlife species involved and the type, level, frequency, duration and the time of year such activities occur. The responses of wildlife to human activities includes: avoidance or departure from the site (Owen 1973, Burger 1981, Kaiser and Fritzell 1984, Korschen et al. 1985, Henson and Grant 1991, Kahl 1991, Klein 1993, Whittaker and Knight 1998), use of sub-optimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior or habituation to human disturbance (Burger 1981, Korschen et al. 1985, Morton et al. 1989, Havera et al. 1992, Klein 1993), attraction (Whittaker and Knight 1998), and an increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990). Due to the limited nature of this use, we do not anticipate significant short-term impacts.

Long-term impacts

Roads and trails can affect the hydrology of an area, primarily through alteration of drainage patterns. It is anticipated that existing roads and trails would continue to influence hydrology regardless of increased pedestrian travel. Maintenance would be required to create adequate and proper drainage to avoid hydrologic impacts. Trail construction may also cause erosion and run-off of sediment into nearby waterways from exposed soils. To minimize these impacts, we would properly site trails, encourage tribal members to stay on designated roads and trails; however, other areas may be considered through the SUP process. Walking through sensitive wetland areas will be discouraged.

Visitors engaged in this use have the potential to impact waterfowl and other migratory bird populations feeding and resting near the trails during certain times of the year. Human disturbance to migratory birds has been documented in many studies in different locations. Conflicts arise when migratory birds and humans are present in the same areas (Boyle and Samson 1985). McNeil et al. (1992) found that many waterfowl species avoid disturbance by feeding at night instead of during the day. Flight in response to disturbance can lower nesting productivity and ultimately cause disease and death. Nevertheless, there may be a threshold at which disturbance has a demographic consequence (Sproat et al. 2020) and should be monitored. We do not anticipate this use to have significant negative long-term impacts.

Public Review and Comment

The draft compatibility determination will be available for public review and comment for 14 days. The public will be made aware of this comment opportunity through posting at Refuge headquarters, posting on Refuge website, publication of notice in the Federal Register, and social media. State and Tribes have been asked to review and comment on the draft compatibility determination. A hard copy of this document will be posted at the Refuge Headquarters or Visitor Center located at 336 Wilna Road Warsaw, Virginia 22572. It will be made available electronically on the Refuge website *https://www.fws.gov/refuge/rappahannock_river_valley/*. Please contact the Project Leader if you need the documents made available in an alternative format. Concerns expressed during the public comment period will be addressed in the final document.

Determination

Is the use compatible?

Yes

Stipulations Necessary to Ensure Compatibility

To ensure compatibility with Refuge purposes and the mission of the Service, the Refuge Manager will issue a SUP to permit the use of natural resource collections at certain locations, dates, and times so as not to conflict with other uses permitted on the Refuge. Natural resource collections will occur during regular Refuge hours (typically sunrise to sunset) and will avoid overlap or interference with Refuge operations (e.g. habitat management, biological data collections, public events, hunt dates), and avoidance of other SUP-holders' locations/study areas to ensure the safety of tribal members while actively engaged in natural resource collections.

Stipulations necesessary to ensure compatibility that will be included in special conditions of the SUPs include:

- Valid for a specific period of time, but not longer than one year;
- Permit holders must provide at least 48 hours notice prior to conducting activities within the boundaries of the Refuge to ensure safety relative to Refuge operations, removal of any equipment or trash from the Refuge at the end of every collection day; ensure minimal disturbance of collection areas;
- Providing the Refuge Manager with a short summary of the natural resources collected annually to assist with monitoring of the use; and adherence to all regulations consistent with treaties, judicial mandates, or Federal and Tribal law.

Justification

The stipulations outlined above would help ensure that the use is compatible at the Refuge. Plant gathering (non-commercial) and animal product gathering (non-commercial) as outlined in this compatibility determination, would not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the refuge. Based on available science and best professional judgement, the Service has determined that the plant gathering (non-commercial) and animal product gathering (non-commercial) by Federally recognized Tribes at the Refuge, in accordance with the stipulations provided here, would not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose of the Rappahannock River Valley NWR. Rather, appropriate and compatible plant and animal product gathering (non-commercial) would be a use of the Refuge through which the public can develop an appreciation for wildlife and wild lands.

Signature of Determination

Project Leader Signature and Date

Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date

2032

Literature Cited/References

Belanger, L. and J. Bedard. 1990. Energetic cost of man-induced disturbance to staging snow geese. Journal of Wildlife Management, 54, 36-41.

Boyle, S.A. and F.B. Samson. 1985. Effects of non-consumptive recreation on wildlife: A review. Wildlife Society Bulletin, 13, 110-116.

Burger, J. 1981. The effect of human activity on birds at a coastal bay. Biological Conservation.

Burger, J. 1986. The effect of human activity on shorebirds in two coastal bays in Northeastern United States. Biological Conservation, 13, 123-130.

Cole, D.N., and P.B. Landres. 1995. Indirect effect of recreation on wildlife. In Knight, R.L, and K.J. Gutzwiller, eds. 1995. Wildlife and Recreationists—Coexistence Through Management and Research. Washington, DC. Island Press.

Erwin, R.M. 1980. Breeding habitat by colonially nesting water birds in two mid-Atlantic U.S. regions under different regimes of human disturbance. Biological Conservation, 18, 39-51.

Giraud, N.J. 2020. Sustainable Foraging of Wild Edible Plants in Norway: A Biocultural Approach. Master of Science thesis, Faculty of Biosciences, Norwegian University of Life Sciences (NMBU) and Institut supérieur d'agriculture Rhône-Alpes (ISARA-Lyon). 1-167.

Giraud, N.J., A. Kool, P. Karlsen, A. Annes, and I. Teixidor-Toneu. 2021. From trend to threat? Assessing the sustainability of wild edible plant foraging by linking local perception to ecological inference. bioRxiv, 1-35. https://doi.org/10.1101/2021.09.27.461499

Hammitt, W.E. and D.N. Cole. 1998. Wildland Recreation. John Wiley & Sons, New York, 361.

Havera, S.P., L.R. Boens, M.M. Georgi, and R.T. Shealy. 1992. Human disturbance of waterfowl on Keokuk Pool, Mississippi River. Wildlife Society Bulletin, 20, 290-298.

Henson, P.T. and A. Grant. 1991. The effects of human disturbance on trumpeter swan breeding behavior. Wildlife Society Bulletin, 19, 248-257.

Kahl, R. 1991. Boating disturbance of canvasbacks during migration at Lake Poygan, Wisconsin. Wildlife Society Bulletin, 19, 242-248.

Kaiser, M.S. and E.K. Fritzell. 1984. Effects of river recreationists on green-backed heron behavior. Journal of Wildlife Management, 48, 561-567.

Klein, M.L. 1993. Waterbird behavioral responses to human disturbance. Wildlife Society Bulletin, 21, 31-39.

Knight, R.L., and D.N. Cole. 1991. Effects of recreational activity on wildlife in wildlands. Trans. 56th National Association of Wildlife and Natural Resources Conference. 238-247.

Korschen, C.E., L.S. George, and W.L. Green. 1985. Disturbance of diving ducks by boaters on a migrational staging area. Wildlife Society Bulletin, 13, 290-296.

Kuss. F. 1986. A review of major factors influencing plant responses to recreation impacts Environmental Management. 10, 638-650.

McNeil, R., P. Drapeau, and J.D. Goss-Custard. 1992. The occurrence and adaptive significance of nocturnal habitats in waterfowl. Biological Review, 67, 381-419.

Morton, J.M., A.C. Fowler, and R.L. Kirkpatrick. 1989. Time and energy budgets of American black ducks in winter. Journal of Wildlife Management, 53, 401-410. (also see corrigendum in Journal of Wildlife Management 54:683).

Owen, M. 1973. The management of grassland areas for wintering geese. Wildfowl, 24, 123-130.

Sproat, K.K., N.R. Martinez, T.S. Smith, W.B. Sloan, J.T. Flinders, J.W. Bates, J.G. Cresto, and V.C. Bleich. 2020. Desert bighorn sheep responses to human activity in south-eastern Utah. Wildlife Research, 47, 67-24. https://doi.org/10.1071/WR19029

Whittaker, D. and R.L. Knight. 1998. Understanding wildlife responses to humans. Wildlife Society Bulletins, 13, 110-116; 13 290-296; 19, 242-248; 19 248-257; 20, 290-298; 21, 31-39; 26, 312–317.

Williams, G.J. and E. Forbes. 1980. The habitat and dietary preferences of dark-bellied brant geese and widgeon in relation to agricultural management. Wildfowl, 31, 151-157.