

LAND PROTECTION PLAN FOR THE EXPANSION OF ROANOKE RIVER NATIONAL WILDLIFE REFUGE

Bertie, Washington, Martin, Halifax, and Northampton Counties, North Carolina



**NATIONAL
WILDLIFE
REFUGE SYSTEM**

U.S. Department of the Interior
Fish and Wildlife Service
Southeast Region
Atlanta, Georgia

February 2024

TABLE OF CONTENTS

SECTION A. LAND PROTECTION PLAN

EXECUTIVE SUMMARY	IV
LAND PROTECTION PLAN	1
I. INTRODUCTION AND PURPOSE	1
A. Project Description	1
B. Refuge Purpose(s)	2
II. RESOURCES	7
A. Resources to be Protected	7
B. Threats	8
C. Relationship of Project to Landscape Conservation Goals and Objectives	13
D. Partnership Efforts/Related Resources	15
III. LAND PROTECTION STRATEGY	17
A. Action and Objectives	17
B. Land Protection Priorities	19
C. Land Protection Options	21
D. Land Protection Methods	24
E. Service Land Acquisition Process	25
F. Funding	26
IV. COORDINATION	29
REFERENCES	30
APPENDIX A. CONCEPTUAL MANAGEMENT PLAN AND COMPATIBILITY DETERMINATIONS	33
APPENDIX B. INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION	34
APPENDIX C. INTERIM RECREATION ACT FUNDING ANALYSIS	47
APPENDIX D. RARE ANIMAL SPECIES RECORDED IN THE ROANOKE RIVER	

FLOODPLAIN 49
APPENDIX E. PUBLIC INVOLVEMENT, CONSULTATION, COORDINATION, AND
RESPONSE TO COMMENTS 63
APPENDIX F. FINDING OF NO SIGNIFICANT IMPACT 69

LIST OF TABLES

LPP Table 1. Fee Simple and Conservation Easement Land Sales Data by County..... 27

LIST OF FIGURES

LPP Figure 1. Roanoke River NWR lands and current approved acquisition boundary 5
LPP Figure 2. Full Roanoke River National Wildlife Refuge Conservation Partnership Area
(Alternative B) 6
LPP Figure 3: Map of Roanoke River Basin with the locations of the three dams: John H. Kerr Dam
(U.S. Army Corps of Engineers), Gaston Dam, and Roanoke Rapids Dam (Dominion Energy)
indicated along with proximity to Roanoke River NWR lands 10
LPP Figure 4. Map showing lands prioritized by location and significance to wildlife. 21

Executive Summary

In accordance with U.S. Fish and Wildlife Service (Service) policy and the National Environmental Policy Act, a Land Protection Plan and Environmental Assessment have been prepared analyzing the effects and describing the strategy of establishing a 287,090-acre Conservation Partnership Area along the Roanoke River from Weldon to the Albemarle Sound, with authority to acquire up to 50,000 acres in fee title and 100,000 acres in conservation easements and conservation partnerships as part of Roanoke River National Wildlife Refuge (NWR). Acquisitions will fall within Bertie, Washington, Martin, Halifax and Northampton Counties, North Carolina. The plan outlines the options and methods used to provide the minimum interests necessary to preserve and protect the area's fish, wildlife, and plant resources.

The Roanoke River riparian corridor is the largest, most intact, and least disturbed bottomland forest ecosystem remaining in the Mid-Atlantic Region. This expansion supports the restoration and protection of a contiguous, forested riparian corridor approximately 137 miles long, extending from Weldon to the Albemarle Sound. In addition, the expansion supports many of the goals of the North Carolina Wildlife Action Plan which calls for an increase of riparian buffers and connectivity of habitats through acquisition and easements specifically for brownwater, bottomland hardwood systems.

Within this riparian corridor, referred to as a Conservation Partnership Area (CPA), Service trust species, including American black ducks (*Anas rubripes*), swallow-tailed kite (*Elanoides fortificatus*), bald eagles (*Haliaeetus leucocephalus*), neotropical migratory birds, wild turkey (*Meleagris gallopavo*), and herons (*Ardeidae* sp.), will be managed for long-term species survival. Aquatic species, including American eel (*Anguilla rostrata*), American shad (*Alosa sapidissima*), blueback herring (*Alosa aestivalis*), and striped bass (*Morone saxatilis*), will benefit from habitat and water quality protection.

Between January 23 and January 26, 2017, the planning team held a public scoping meeting in each of the counties impacted by this expansion: Bertie, Washington, Martin, Halifax and Northampton. A 30-day public review and comment period was held from November 29, 2023, until January 4, 2024, with two meetings to solicit input on issues and areas of concern to consider in the draft Land Protection Plan and Environmental Assessment.

The Service developed and analyzed four alternatives, with each alternative taking into consideration lands already protected: Alternative A (No Action or status quo); Alternative B, a 287,090-acre CPA with 50,000 acres in fee-title ownership and up to 100,000 acres in conservation easements; Alternative C, a 195,119-acre CPA with 50,000 acres in fee-title ownership and up to 100,000 acres in conservation easements; and Alternative D, a 205,391-acre CPA with 50,000 acres in fee-title ownership and up to 100,000 acres in conservation easements. The Service has selected Alternative B as the Preferred Action. Under this alternative, up to 50,000 acres of land will be obtained through fee-title acquisition and up to

100,000 acres through conservation easements to become a part of the Roanoke River NWR. The Service's approach for this project was to delineate a CPA within which it will work with interested landowners and other conservation partners to help protect the aquatic resources and bottomland hardwood forests of the watershed. The Service believes this alternative best serves the purpose and need as well as the stated goals and objectives, vision, and purposes of the refuge.

With the expansion of Roanoke River NWR, the Service will be able to support more effectively and facilitate management and protection of the wildlife and habitats within the lower Roanoke River watershed. Bottomland hardwood forests will be more protected from fragmentation, and connectivity between existing conservation lands will be enhanced. The water resources of the river watershed will be maintained or improved. Opportunities for wildlife-dependent recreational activities will be increased. Further, any cultural resources found within the refuge will be afforded protection by the Service.

LAND PROTECTION PLAN

I. INTRODUCTION AND PURPOSE

This Land Protection Plan (LPP) outlines how the U.S. Fish and Wildlife Service (Service) will protect and manage the most extensive bottomland hardwood forest on the East Coast and associated habitats through a landscape-scale conservation initiative, focusing on the fragile habitats found in the North Carolina Coastal Plain, as part of the Roanoke River National Wildlife Refuge (NWR, refuge; U.S. Fish and Wildlife Service [USFWS] 2005). The refuge currently encompasses 21,313 acres (Figure 1) and has an acquisition boundary of 33,000 acres. Through this expansion, the Service will establish a Conservation Partnership Area (CPA), approximately 287,090 acres in size (Figure 2), within which the Service and our state, local, private, and fellow federal partners will work together toward a common vision for conservation with an additional 50,000 acres in Service fee-title ownership and up to 100,000 acres in conservation easements.

Management goals include improvement of water quality in the region, restoration of more natural flow and flood regimes along the Roanoke River, and conservation and overall creation of a functional landscape on the Albemarle-Pamlico (AP) peninsula. Within this riparian corridor, Service trust species, including American black ducks (*Anas rubripes*), swallow-tailed kite (*Elanoides fortificatus*), bald eagles (*Haliaeetus leucocephalus*), neotropical migratory birds, wild turkey (*Meleagris gallopavo*), and herons (Ardeidae sp.), will be managed for long-term species survival. Aquatic species, including American eel (*Anguilla rostrata*), American shad (*Alosa sapidissima*), blueback herring (*Alosa aestivalis*), and striped bass (*Morone saxatilis*), will benefit from habitat and water quality protection.

A. PROJECT DESCRIPTION

This refuge expansion represents a landscape-scale conservation initiative, focusing on the fragile habitats found in the North Carolina Coastal Plain, with Roanoke River NWR as a nucleus for land protection. The refuge covers a total of 21,313 acres (Figure 1) and has an acquisition boundary of 33,000 acres. The area of interest, referred to as the full CPA, is the greater AP Peninsula and the Roanoke River floodplain (Figure 2). This expansion focuses on the effective flood plain of the river, represented by the 35,000 cubic feet per second (cfs) release stage from the dam at Roanoke Rapids. This flow rate is the highest flow release from the John H. Kerr Dam and Reservoir authorized and implemented since its construction in 1953.

In pursuit of these goals, we will expand the current refuge acquisition boundary to a CPA of approximately 287,090 acres in size (Figure 3), within which the Service and our state, local, private, and fellow federal partners will work together toward a common vision. The CPA will include the current 33,000-acre acquisition boundary of Roanoke River NWR (Figure 1) and an additional 260,853 acres. The CPA will encompass the 100-year floodplain of the Roanoke River from Albemarle Sound to Weldon and connect Roanoke River NWR and Pocosin Lakes

NWR. We will acquire permanent less-than-fee-title interest in up to 100,000 acres within the CPA (through conservation easements and/or other means) and fee-title interest in up to 50,000 acres, the maximum fee-title-interest area, as part of Roanoke River NWR and in addition to the remaining 11,687 acres authorized for acquisition under the current acquisition boundary.

B. REFUGE PURPOSE(S)

Roanoke River NWR was established on August 9, 1989, to protect and conserve migratory birds and other wildlife resources through the protection of wetlands, in accordance with the following laws:

“the conservation of wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions” (Emergency Wetlands Resources Act of 1986, 16 U.S.C. § 3901(b), 100 Stat. 3583));

“for the use as an inviolate sanctuary, or for any other management purpose, for migratory birds” (Migratory Bird Conservation Act of 1929, 16 U.S.C. § 664);

“for the development, advancement, management, conservation, and protection of fish and wildlife resources” (Fish and Wildlife Act of 1956, 16 U.S.C. § 742f (b) (1)).

More specifically, the primary reason for acquisition and inclusion of the area into the National Wildlife Refuge System (Refuge System) was to conserve wintering habitat for mallards (*Anas platyrhynchos*), American black ducks, and wood ducks (*Aix sponsa*), as well as breeding habitat for wood ducks (USFWS, Southeast Region, Approval Memorandum 1988). The approval memorandum identified the following three objectives for which the area will be managed: (1) To conserve an area that has traditional high use for wintering waterfowl; (2) to provide additional waterfowl habitat through refuge management; and (3) to establish a waterfowl sanctuary. The Roanoke River NWR Comprehensive Conservation Plan, Final Environmental Impact Statement, and Record of Decision (CCP/FEIS/ROD) were completed in 2005 which developed a vision, goals, objectives, and strategies to guide refuge management based on the establishing purposes.

The vision for the Roanoke River NWR is:

“Roanoke River National Wildlife Refuge will protect, enhance, and manage high-quality habitat for a diversity of abundance of migratory birds, fish, and other wildlife. Through new and existing partnerships, the refuge will foster and practice sound conservation in land management and river flow management to assure the physical and biological integrity of the Roanoke River floodplain.

Roanoke River NWR will provide compatible wildlife-dependent public use opportunities, including recreation and environmental education and interpretation. The refuge will provide increased opportunities to learn about the ecological and cultural importance of the Roanoke River floodplain. The refuge will become a national destination, and activities will contribute to the local economy” (Roanoke River NWR CCP, USFWS 2005).

Refuge Goals

The Roanoke River NWR CCP has established a number of goals to guide management of the refuge (USFWS 2005), including:

Goal 1. Protect, maintain, and enhance healthy and viable populations of indigenous migratory birds, wildlife, fish, and plants, including federal and state threatened and endangered species.

Goal 2. Restore, maintain, and enhance the health and biodiversity of bottomland forested wetland habitats to ensure optimum ecological productivity.

Goal 3. Provide the public with safe, quality, wildlife-dependent recreational and educational opportunities that focus on the wildlife and habitats of the refuge and the Refuge System. Continue to participate in local efforts to sustain economic health through nature-based tourism.

Goal 4. Protect refuge resources by limiting the adverse impacts of human activities and development.

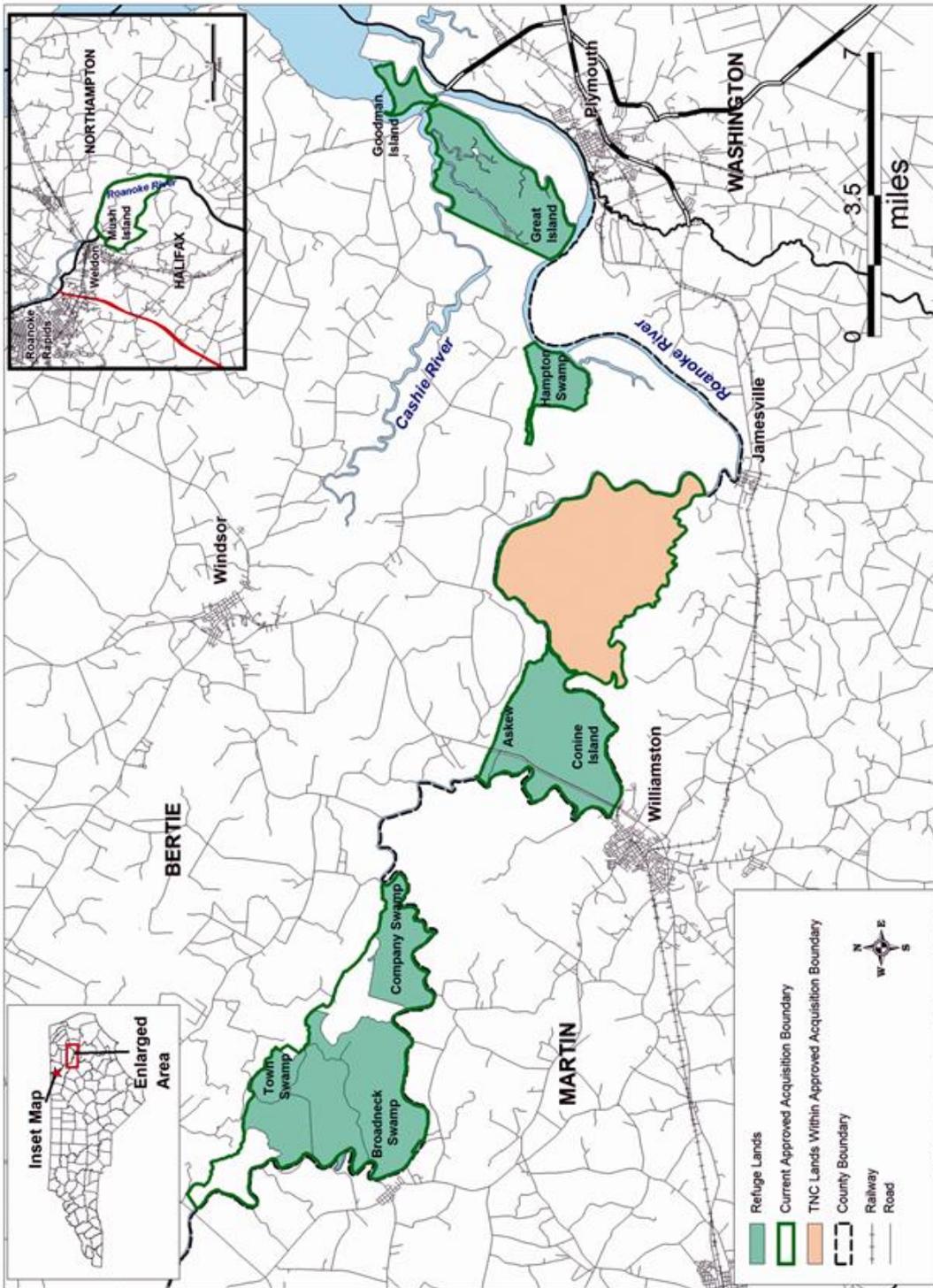
In addition, the following subgoals were set forth in the Roanoke River NWR Habitat Management Plan (USFWS 2013).

Subgoal 1. Bottomland Hardwood Goal covers Coastal Plain levee forests (brownwater subtype) and Coastal Plain bottomland hardwoods (brownwater subtype). Provide a sustainable and diverse bottomland hardwood forest community having the structural characteristics necessary to support a rich diversity of migratory birds and resident wildlife in an effort to maintain the ecological integrity of North Carolina’s Coastal Plain region.

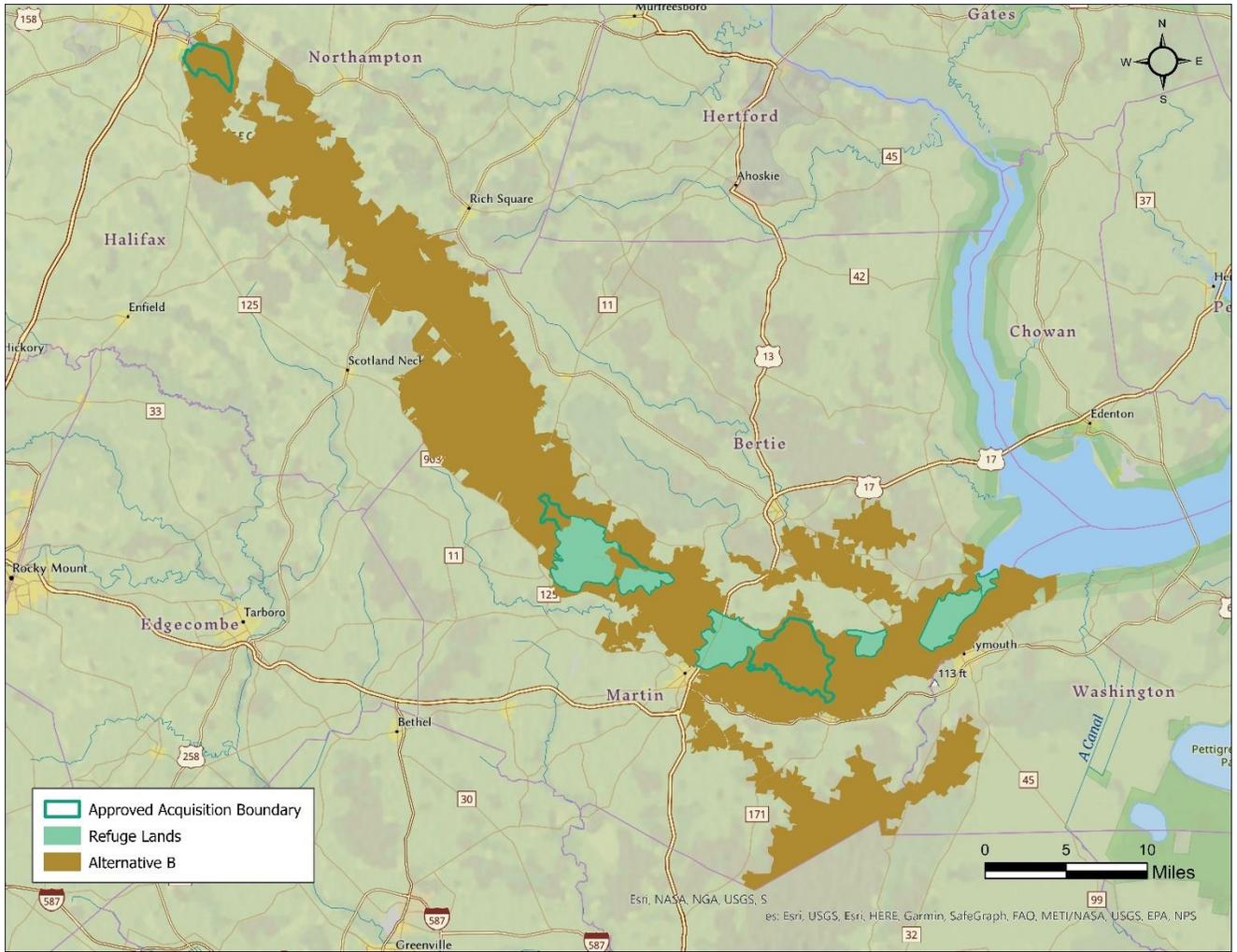
Subgoal 2. Cypress/Tupelo Swamp covers cypress-gum swamp (blackwater subtype), cypress-gum swamp (brownwater subtype). Enhance and protect healthy, functional, cypress/tupelo swamp habitat to maintain it as a natural community that fosters the ecological integrity of North Carolina’s Coastal Plain region.

Subgoal 3. Hydrologically Disconnected Floodplain Forest covers mesic mixed hardwood forests (Coastal Plain subtype). Restore and enhance to create a mosaic that reflects the habitat requirements for a mixed, uneven-aged deciduous hardwood forest having the structural characteristics necessary to support a rich diversity of migratory birds and resident wildlife in an effort to maintain the ecological integrity of North Carolina's Coastal Plain region.

LPP Figure 1. Roanoke River NWR lands and current approved acquisition boundary



LPP Figure 2. Full Roanoke River National Wildlife Refuge Conservation Partnership Area (Alternative B)



II. RESOURCES

A. RESOURCES TO BE PROTECTED

The Roanoke River, in northeastern North Carolina, flows through an extensive floodplain of national significance. This forested wetland area is considered to be the largest intact, and least disturbed, bottomland forest ecosystem remaining in the Mid-Atlantic Region (North Carolina Natural Heritage Program 1988). The active floodplain of the Roanoke River below Roanoke Rapids Dam encompasses about 150,000 acres (235 square miles) and meanders 137 miles before it reaches the Albemarle Sound. Some of the best remaining known examples of brownwater river floodplain ecological communities are present in this system. Important habitat types in the conservation partnership area consist of upland hardwoods, alluvial forested wetlands, and in-stream habitats.

An important aspect of this expansion is connecting Roanoke River NWR lands with other protected areas nearby, including Pocosin Lakes NWR, State of North Carolina Lower and Upper Roanoke River Gamelands, and areas under management by The Nature Conservancy (TNC). The CPA will connect the Roanoke River floodplain to Pocosin Lakes NWR, creating a corridor that will provide emigration routes for plant and wildlife species. The placement of this corridor is influenced by several factors. The first factor is the need to connect two large conservation areas, Roanoke River NWR and Pocosin Lakes NWR. The second factor is the need to design a corridor that does not overlap current municipalities and encompasses as much forested land as possible. The third factor is an attempt to accommodate the habitat needs of a variety of animals, from the very small space required by many insects and amphibians to larger territories required by mammals, like black bears (*Ursus americanus*), that may use areas as big as 50 square miles or more.

Habitat and Wildlife Resources

Habitat

The refuge lies within the Coastal Plain reach of the Roanoke River watershed, a largely rural area that has a long history of agriculture, forestry, hunting, and fishing. The Roanoke River is a fifth order brownwater alluvial stream that originates in the Blue Ridge Mountains of western Virginia, passes through the Piedmont and Coastal Plain Geological Provinces, and eventually empties into the Albemarle Sound. Rice and Peet (1997) studied the vegetation patterns of the lower Roanoke River and recognized eight alluvial forest and three swamp forest vegetation types, consistent with units in the U.S. National Vegetation Classification (U.S. Federal Geographic Data Committee 2008, Jennings et al. 2009). The distributions of these vegetation types are strongly correlated with geomorphic position (levee, alluvial flats, low ridge, high ridge, back-swamp) and soil fertility. In addition to extensive mature bottomland hardwood and swamp forests, other natural features found within the CPA are beaver ponds, blackwater streams and oxbow lakes. Together, these habitats support a rich array of diverse and abundant fish and wildlife species. For detailed information on fish and wildlife resources found in the lower Roanoke River, refer to the refuge CCP and the Affected Environment and

Environmental Consequences - Natural Resources Section in the Environmental Assessment (EA; USFWS 2005, USFWS 2022).

Within the corridor to connect Pocosin Lakes NWR to the riparian corridor of the Roanoke River, residential and agricultural development, forestry practices, and water management have resulted in the alteration of what was once a continuous forested floodplain. Fragmentation has created a system less equipped to support wildlife species dependent on large, forested tracts of land and less prepared for the gradual changes and buffering service needed to deal with sea level rise and population growth in the future. This conservation strategy is designed to conserve and maximize the benefits of what remains.

Wildlife

The area's variety of habitats supports a range of wildlife, including various amphibians and reptiles, that tend to stay in localized areas to wide-ranging species, such as black bear. Numerous species of birds, both resident and migratory, utilize the area's habitats for foraging, resting, and nesting. Common mammal species include white-tailed deer (*Odocoileus virginianus*), raccoons (*Procyon lotor*), opossums (*Didelphis virginiana*), various rodents, and bats. The watershed provides habitat for a number of resident and migratory fish species. A more detailed description of wildlife found within the CPA can be found in the Terrestrial Wildlife and Aquatic Species section under Affected Environment and Environmental Trends – Natural Resources in the EA (USFWS 2022).

B. THREATS

Several large-scale issues pose threats to the Roanoke River riparian ecosystem: surface hydrology alterations, forest fragmentation, and sea level rise. Two of these threats, surface hydrology alterations and sea level rise resulting from climate change, involve all-encompassing processes that impact every aspect of the system.

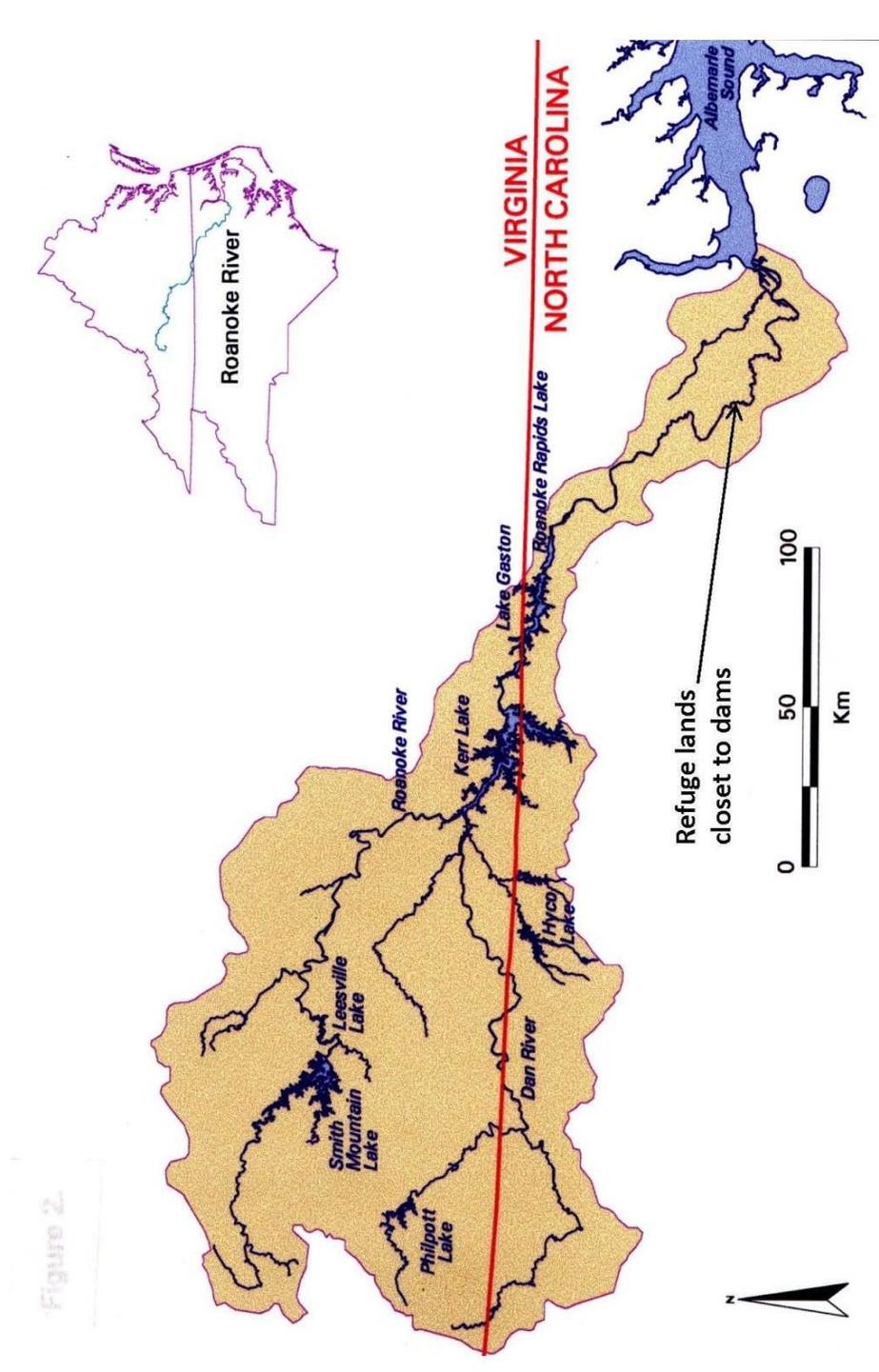
Surface Hydrology

Three dams in the upper reach of the Roanoke River Basin directly affect the flows on the River's Coastal Plain hydrology. From downstream to upstream, they are the Roanoke Rapids, Gaston, and John H. Kerr Dams (Figure 3). The Roanoke Rapids and Gaston Dams are owned and operated by Dominion Power and are licensed by the Federal Energy Regulatory Commission to produce hydropower. The John H. Kerr Dam is operated by the U.S. Army Corps of Engineers (USACE) and functions to generate electricity and to control flooding below it.

From 1954 to 2016, the USACE's flood control project at the John H. Kerr Dam was managed to reduce the magnitude of short-duration floods, resulting in longer, less extensive floods. The flood control project changed the timing and magnitude of flows. As a result, some areas that will flood under natural conditions no longer flood, and others that will naturally be flooded for a short time now remain under water for extended periods. This, in turn, adversely affects the plant and animal species that occupy the floodplain, reduces water quality of the river, impacts

fish spawning in the river and floodplain, and increases erosion of the riverbanks.

After years of research to demonstrate that releases from the USACE's John H. Kerr Dam were causing a decline in the integrity of the downstream ecosystem, a major collaborative effort with multiple stakeholders celebrated a milestone achievement in 2016 with the adoption of a Quasi-Run-of-River flow regime. The new flow releases will more closely mimic the natural hydrograph by allowing higher releases more frequently, based on the weekly inflows into the reservoir. This improvement in hydrology will improve vegetative diversity and distribution in over 150,000 acres of bottomland hardwood floodplain forest. Although the changes to the flood operations have improved the downstream ecosystem, the Coastal Plain reach is still being deprived of the major scouring floods. These scouring floods are necessary to keep the guts and creeks cleansed of debris; to expose soil on the forest floor to promote tree regeneration; and to create river and floodplain features (e.g., levees, ridges, and point bars). The river is still constrained and is by no means a free-flowing river, but the change to flood control operations through the Quasi-Run-of-River flow regime is a significant step in the right direction.



LPP Figure 3: Map of Roanoke River Basin with the locations of the three dams: John H. Kerr Dam (U.S. Army Corps of Engineers), Gaston Dam, and Roanoke Rapids Dam (Dominion Energy) indicated along with proximity to Roanoke River NWR lands.

Climate Change

Climate change is already having visible impacts in the United States and its coastal waters--reduced sea ice in the Arctic, longer summer droughts, reduced availability of water, rapidly retreating glaciers, earlier springs resulting in certain plants and animals moving further north, fish arriving earlier on the spawning grounds and departing sooner, and changes in salinity and the distribution of algae and fish in oceans, lakes, and streams. In North Carolina, the greatest concern will be sea level rise, increase in temperatures, and changes in precipitation patterns. Climate change is a real threat to the natural communities that we know today. The challenge of the Service and its conservation partners is to plan for how these natural communities will change and to ensure that sufficient habitat is available for species moving to new locations to find more favorable habitat conditions.

Sea Level Rise

Sea level rise is primarily caused by two factors related to global warming: the added water from melting land ice and the expansion of sea water as it warms. All signs indicate that sea level rise is accelerating. A study by the University of Pennsylvania has found the rate of sea level rise along the Atlantic coast of the United States to be greater now than it has been at any other point in the past two millennia (Kemp et al. 2011). Conservative estimates from the Intergovernmental Panel on Climate Change (IPCC) indicate that coastal North Carolina has over one million acres of land below one meter of elevation—making North Carolina the third largest low-lying region in the U.S., after Louisiana and Florida (IPCC 2007).

The North Carolina Coastal Resources Commission Science Panel predicts a sea level rise for North Carolina from a minimum of 0.5 meters to a maximum of 1.4 meters by 2100 (North Carolina Department of Environment and Natural Resources 2010). Ongoing human emissions affect sea level rise estimates. Sea level rise by 2100 in Wilmington, North Carolina is projected to be between 24 and 94cm under a reduced emissions scenario (RCP2.6) and between 42 and 132cm under a high emissions scenario (RCP8.5; Kopp et al. 2015, Bhattachan et al. 2018). One meter of sea level rise will convert hundreds of thousands of acres of conservation lands in eastern North Carolina to open water or marsh habitats, losing habitat for terrestrial species. In addition to large areas of the Albemarle-Pamlico Peninsula, much of the lower Roanoke River floodplain up to Jamesville may be inundated, along with significant areas in Bertie County in the vicinity of Williamston. If the influence of the Outer Banks is lost, the Roanoke River may be further influenced by higher lunar tides and increases in salinity. This will have profound implications for aquatic and terrestrial resources in the lower Roanoke River. It is estimated that 7,800 acres of current refuge lands will be affected by sea level rise. Maps of predicted inundation at 1.0 meters of sea level rise on the Albemarle-Pamlico Peninsula and along the lower and middle reaches of the Roanoke River can be found in the EA (USFWS 2022).

Increased Temperatures

Increased temperatures may also cause shifts in the geographic distribution of species in places where temperature increases exceed a species' physiological tolerances. Species at the southern limits of their range in northeastern North Carolina may die out or move north. At the same time, species more typical to the southern latitudes will likely move into North Carolina as the summers become longer and warmer to the south. Species such as wood stork, white ibis, and roseate spoonbills may become a common occurrence along the Roanoke River as winters become milder, especially as sea level rise brings wetter, marsh-like conditions. In addition, those species of reptiles and amphibians currently common to more southern states may work their way to North Carolina, displacing current native species; local species may be lost as they shift north in response to climate change. It is expected that there will be significant shifts in ecosystem type, dynamics, and structure.

Changes in Precipitation Patterns

Climate change is expected to increase extremes of precipitation, leading to more severe rainfall events and droughts. These changes can harm wildlife and habitats that cannot tolerate these extremes. In North Carolina, rainfall maxima are expected to increase in intensity and frequency, especially in association with tropical cyclones (Paerl et al. 2019). This increased precipitation could translate to more frequent and prolonged flood events being released from the USACE's John H. Kerr flood control project (Lin et al. 2021), further changing the hydrologic regime in the floodplain from the historic pattern of short, high-intensity flood events. Populations of wildlife and plants that are not tolerant of long periods of inundation will decline and may be outcompeted or replaced by more hydrologically tolerant species. This is expected to cause a major shift in ecosystem dynamics and structure.

Forest Fragmentation

Across the southeastern United States, forest fragmentation is primarily the result of residential and agricultural development. As is the case for many southeastern rivers and streams, the Roanoke River no longer has an uninterrupted riparian corridor. Lands around the river have been cleared, drained, and filled for use as farm fields, residential and commercial development, and forestry. The result is a fragmented matrix of forests, farms, timber farms, and housing. Habitat fragmentation also occurs due to large scale clearcuts (greater than 100 acres) of mature forestlands. New advancements in the logging industry have made it easier and more economically feasible for landowners to cut forest tracts that normally would not have been cut in the past, including many bottomland hardwood tracts along the Roanoke River. While some commercial timber harvesting can be conducted in a sustainable, managed way, large-scale clearcuts completely remove large areas of habitat that can take more than fifty years to regrow.

Fragmentation influences all forest-dwelling species, especially those that require large unfragmented acreages and forest interior species. Avian species that are affected include Swainson's warbler (*Limnothlypis swainsonii*), prothonotary warbler (*Protonotaria citrea*), swallow-tailed kite, wood thrush (*Hylocichla mustelina*), and the state Special Concern cerulean warbler (*Setophaga cerulea*). The loss of connectivity between the remaining forested tracts hinders the movement of wildlife and reduces the functional value of remaining smaller forest tracts. The lost connections also result in a loss of gene flow, further endangering the viability of native species populations. Restoring the connections to allow gene flow and re-establish travel corridors is particularly important for some wide-ranging species, such as the black bear. Fragmentation also increases the amount of artificial edge, increasing the risk of many interior forest dwelling bird species to brood parasitism of the brown-headed cowbird (*Molothrus ater*).

C. *RELATIONSHIP OF PROJECT TO LANDSCAPE CONSERVATION GOALS AND OBJECTIVES*

The expanded Roanoke River NWR and CPA is designed in the spirit of America's Great Outdoors Initiative. It represents a long-standing partnership with the State of North Carolina, TNC, and other federal agencies to develop a landscape-scale conservation strategy, of which this expansion is a part. The CPA builds wildlife corridors and establishes long-term connectivity between the habitats of the Coastal Plain. In addition, this initiative draws attention to the impacts of climate change, also a focus of America's Great Outdoors, and more specifically to the Service's Climate Change Strategic Plan.

The Climate Change Strategic Plan challenges us to be a leader in national and international efforts to address climate change through coordination, collaboration, scientific excellence, and professionalism. This new conservation strategy is designed to encourage partnerships and collaboration to affect change greater than the staff of a single refuge could do. The Service brings scientific expertise to each partnership through staff biologists, South Atlantic Landscape Conservation Cooperative (SALCC) staff, and staff from Ecological Services, Fisheries and Migratory Bird Programs.

With the release of President Biden's Executive Order 13990 and the 2021 report, [Conserving and Restoring America the Beautiful](#), there's a new emphasis across the United States on collaborating locally with partners to conserve and restore the lands, waters and wildlife that support and sustain the nation. The [Southeast Conservation Adaptation Strategy \(SECAS\) plan](#), embodies this initiative by collaborating with state and private conservation stakeholders to collectively come together to create a conservation landscape of the future for the southeastern United States and Caribbean. The Southeast Conservation Blueprint is the primary product of the SECAS. The Blueprint identifies priority areas based on a suite of natural and cultural resource indicators representing terrestrial, freshwater, and marine ecosystems. The Blueprint prioritizes 78% of the Roanoke River NWR and CPA as a regionally important area for a connected network of lands and waters. A large percentage (68%) of the expanded Roanoke River NWR and CPA falls within a key hub and corridor for connectivity in

the Blueprint contributing to numerous intact habitat cores. The Roanoke CPA scores above average 34%, on resilient terrestrial sites suggesting continued support of species diversity and ecosystem function in the face of climate change predictions (SCAS 2023).

The South Atlantic Coastal Plain (Figure 8) serves as primary migration habitat for migratory songbirds returning from Central and South America. Maintenance and stabilization of the area's forested wetland patches are important goals of cooperative private-state-federal partnerships under the North American Waterfowl Management Plan, Partners in Flight, the Atlantic Coast Joint Venture (ACJV), and the Roanoke River Joint Venture. The Partners in Flight Bird Conservation Plan for the South Atlantic Coastal Plain has habitat objectives for landbird species protection and management of forested wetland sites including habitat patches in the following quantities and sizes: 10 patches over 100,000 acres; 15 patches over 20,000 acres; 7 patches over 10,000 acres; and 30 patches over 6,000 acres. These objectives were recommended to meet the habitat needs of swallow-tailed kite, cerulean warbler, Wayne's black-throated green warbler (*Dendroica virens waynei*), and Swainson's warbler, all of which occur on Roanoke River NWR and the CPA (Hunter et al. 2001).

The North American Waterfowl Management Plan of 1986 brought together international teams of biologists from private and government organizations from Canada and the United States to address long-term conservation of waterfowl populations. To implement the goals of the North American Waterfowl Management Plan, Joint Venture partnerships were formed to restore waterfowl populations to the levels of the early 1970s, by enhancing, restoring, and protecting about 6 million acres of priority wetland habitats from the Gulf of Mexico to the Canadian Arctic. The Roanoke River NWR falls within the ACJV, which spans from Maine to Florida, including Puerto Rico. This ACJV has designated the Roanoke River system as its primary American black duck focus area for habitat conservation.

The Roanoke River NWR is designated as a globally important bird area (Audubon's Important Bird Areas Program). The Roanoke River Bottomlands Important Bird Area is 149,328 acres in size. This vast area begins near the small community of Weldon and continues downriver more than 100 miles to Albemarle Sound, and the CPA includes this Important Bird Area.

The National Fish Habitat Action Plan (Association of Fish and Wildlife Agencies 2006) focuses on protecting, restoring, and enhancing the nation's fish and aquatic communities through partnerships that foster fish habitat conservation and improve the quality of life for the American people. Under the plan, Fish Habitat Partnerships have been established on a regional basis and focus on the plan's mission, objectives, and goals. Two such partnerships, the Southeast Aquatic Resources Partnership and the Atlantic Coastal Fish Habitat Partnership, overlay the refuge and are potential sources of funding for on-the-ground restoration focused on aquatic habitat.

Maintenance and sustainability of the diadromous fishery resources which use the Roanoke River as a migratory pathway, as a spawning area, and as nursery habitat is the goal of the Atlantic States Marine Fisheries Commission (ASMFC), which regulates those species when

they are in state waters. When the species are in Atlantic Ocean waters, they are under the regulatory authority of the federal Fishery Management Councils (New England, Mid-Atlantic, and South Atlantic) and the National Marine Fisheries Service. Service participation in these regulatory institutions is the responsibility of the Service's Fisheries Program. The ASMFC has prepared Fishery Management Plans for most of the diadromous species using refuge waters, and the New England and Mid-Atlantic councils are currently considering amendments which would affect the bycatch of the two river herring species in the ocean. The ASMFC Fishery Management Plans establish the management targets and thresholds for each species, in some cases on a watershed basis (e.g., for American shad and river herring, see ASMFC 2009, 2010).

D. PARTNERSHIP EFFORTS/RELATED RESOURCES

An overview of related resources within the CPA, including landscape conservation goals and objectives as well as partner efforts, is outlined below. The refuge will enhance the contribution of many of these, including the SALCC; the North Carolina Wildlife Action Plan; Wetlands Reserve Program of the Natural Resources Conservation Service, U.S. Department of Agriculture (USDA); Southeast Conservation Adaptation Strategy, nongovernmental conservation lands; and international, national, and regional conservation plans and initiatives. Several of these are listed below.

International

- Partners in Flight, North American Landbird Conservation Plan (Rich et al. 2004)
- The North American Waterfowl Management Plan

National

- America's Great Outdoors Initiative (2011)
- Forest Stewardship Program (USDA 2011a)
- Partners for Fish and Wildlife (USFWS 2012)
- Wetlands Reserve Program of the Natural Resources Conservation Service of USDA (2011b)
- North American Waterbird Conservation Plan

Important Bird Areas – National Audubon Society

Regional

- The South Atlantic Migratory Bird Initiative Implementation Plan
- SALCC
- Threatened and Endangered Species Recovery Plans
- SECAS

State

- North Carolina Wildlife Action Plan (North Carolina Wildlife Resources Commission 2005, 2015)

In this landscape, the Service works with several federal, state and nongovernment key partners, including but not limited to: North Carolina Wildlife Resources Commission, North Carolina Chapter of The Nature Conservancy, U.S. Geological Survey, USACE, North Carolina Department of Environmental Quality, Dominion Power, National Marine Fisheries Service, North Carolina Division of Marine Fisheries, North Carolina Wildlife Federation, Roanoke River Basin Association, and multiple universities.

III. LAND PROTECTION STRATEGY

A. ACTION AND OBJECTIVES

The nucleus of this project is Roanoke River NWR, which is in Bertie County, North Carolina. Within the 287,090-acre CPA, centered on Roanoke River NWR, the Service will have the ability to work with willing landowners and partners on conservation programs and agreements. Within the CPA, the Service will be authorized to acquire up to 100,000 acres of less-than-fee-title interest and 50,000 acres of fee-title-interest from willing landowners.

Though the river follows its historic channel, upstream dams manage water flows. The nearest dam to the refuge is located 70 miles upstream at Roanoke Rapids. River levels and flow rates are managed primarily for energy production and, on a less-frequent basis, for flood control. The result is a flood regime that does not accurately mimic the scale and timing of historic floods. The CPA is based on a water release value of 35,000 cfs, which is the highest flow rate implemented to this date (since construction of John H. Kerr Dam and Reservoir in 1953) and which captures the bottomland hardwood forests, swamps, and marshes that need to be conserved. The CPA represented in Figure 3 encompasses all areas between the river and the 35,000 cfs demarcation line and those parcels of land intersected by that line.

Refuge managers and planners, in determining the CPA along the river, employed a suite of criteria. Those criteria are as follows:

- All land from Weldon, starting at the northern extent of the current acquisition boundary at Mush Island, and within the 35,000 cfs flood level of the river extending to the Albemarle Sound will be included.
- When a tract of land is intersected by the 35,000 cfs level and the entire tract does not fall below the 35,000 cfs level, the entire tract will be included.
- When a tract of land is intersected by a major road or highway, only the area on the river side of the thoroughfare will be included, even if there is only one owner for the tract.
- When an entire tract does not fall within the 35,000 cfs level and has points of road egress that do not require crossing project, it will be excluded.
- When a tract is not within the 35,000 cfs level but is entirely surrounded by areas that are and has no egress other than through potential refuge lands, it will be included.
- No tracts along the Cashie River upstream of the Bertie Game Lands will be included.
- Larger tracts of land that are currently forested or are being managed for timber along the Cashie River corridor and the corridor towards Pocosin Lakes NWR will be included.
- Include tracts between the 35,000 cfs and Sweetwater Creek tributary to the extent of Sweetwater Creek.
- Where the 35,000 cfs flood extent ends on the Roanoke River, an effort will be made to avoid as many tracts with residential and municipal development as possible within the

corridor towards Pocosin Lakes NWR while maintaining a corridor width of no less than 0.75 miles.

For planning purposes, a “tract” refers to property recognized as one unit on county tax records. A single tract may have one owner or multiple owners.

The total CPA is approximately 287,090 acres. Within the CPA are approximately 93,000 acres that are currently under conservation, including the 21,313 acres within the Roanoke River NWR (Figure 1).

Maximum Fee-Title Interest

The Service proposes a maximum fee-title interest in approximately 50,000 acres acquired in properties from willing landowners only. Landowners within the area will be under no obligation to sell their properties to the Service. Lands acquired by the Service from willing landowners will be included within the boundary of the Roanoke River NWR and managed as part of the refuge under the current CCP (USFWS 2005). Any proposal to expand beyond the authorized 50,000 acres will require an additional separate planning effort by the Service, including public involvement, in accordance with applicable laws and policies.

Public uses that will likely occur on newly acquired properties are hunting, fishing, environmental education and interpretation, wildlife observation and photography, research, hiking, horseback riding, bicycling, boating, and kayaking, following appropriate use and compatibility determination processing. Other potential public uses and activities supporting these uses could also be considered, depending on the specifics of a particular property acquired. Existing uses of the current Roanoke River NWR will continue to occur under existing appropriate use findings and compatibility determinations in accordance with the refuge’s CCP. The refuge was established as part of a Joint Venture with the State of North Carolina and, therefore, all refuge lands are incorporated into the Commission’s Permit Hunt Program. All future lands that the Service will purchase in fee-title will likewise be incorporated into this program.

For properties that the Service will own in fee-title, habitat restoration and management will provide threatened, endangered, and resident wildlife with suitable habitat. Where appropriate, prescribed fire will be used to remove excess vegetation and restore native plant communities. Invasive species will be controlled through manual, mechanical, and chemical means. Cultural and historical resources will be protected, and interpretive programs and materials will allow the public to better understand and appreciate these important resources.

Less-than-Fee-Title Acquisition

The Service will limit acquisition of less-than-fee-title interests to only 100,000 acres of the total CPA. Participation by landowners in the easements and agreements will be voluntary.

Landowners within an approved CPA will be under no obligation to sell interest in their properties to the Service. If less-than-fee-title interests in lands within the CPA were to be acquired, they will reflect the vision, purposes, and goals of the overall project, and will be subject to the terms and conditions of whatever easement, agreements, and/or other tool(s) used for less-than-fee-title acquisition. Less-than-fee-title acquisitions (e.g., conservation easements) will be acquired in perpetuity.

These less-than-fee-title interests will provide important opportunities for conservation, while at the same time maintaining private ownership rights and responsibilities. Landowners in the CPA may voluntarily choose to participate, and participating lands will remain in private ownership. Private landowners who elected to participate will continue to control activities on their lands in accordance with the easement or agreement they negotiated. Once 100,000 acres were acquired in less-than-fee-title interest, any proposal to expand beyond the authorized 100,000 acres will require an additional separate planning effort by the Service, including public involvement, in accordance with applicable laws and policies.

B. LAND PROTECTION PRIORITIES

The Service's Preferred Action (Alternative B) will result in the acquisition of up to an additional 50,000 acres in fee-title and 100,000 acres in conservation easements or agreements of wildlife habitat as an expansion of Roanoke River NWR. The Service believes these are the minimum interests necessary to preserve and protect the fish and wildlife resources in the area.

Property will be prioritized for acquisition using the following criteria:

- biological significance;
- existing and potential threats;
- significance of the area to refuge management and administration; and
- existing commitments to purchase or protect land.

The CPA was delineated after engaging numerous stakeholders in the area and considering a variety of conservation and public benefits. The considerations included but were not limited to key wildlife species and habitats, habitat diversity, landscape resiliency, public recreation potential, flooding frequency and duration, water quality, infrastructure development within and outside the CPA, community expansion and economics, past expansion proposals, current data and trends, working lands, potential for working partnerships, wildlife corridor opportunities, existing land conservation projects, industry, etc. The CPA strives for wildlife habitat conservation and restoration for the benefit of wildlife and people. A variety of landowners within the acquisition boundary exist including state agencies, non-profit organizations, trusts, corporations and private individuals. A priority system of land acquisition is described below. Actual method and timing of acquisition are dependent on willing sellers and agency funding. Flexibility is important in order to take advantage of opportunities and maximize conservation efforts.

PRIORITY GROUP I

The most important resources within this proposal are those parcels of land upstream of the Highway 17 bridge at Williamston that touch the Roanoke River and are composed of bottomland hardwood habitat types or are adjacent to other lands in conservation status (Figure 4). The lands upstream of the Williamston bridge have been selected as priority I because they are projected to remain relatively free of impacts from sea level rise. Lands adjacent to the river and composed of bottomland forest types are critical habitats for a large variety of wildlife and form the core of the migration corridor strategy that we are trying to promote with this land protection plan.

PRIORITY GROUP II

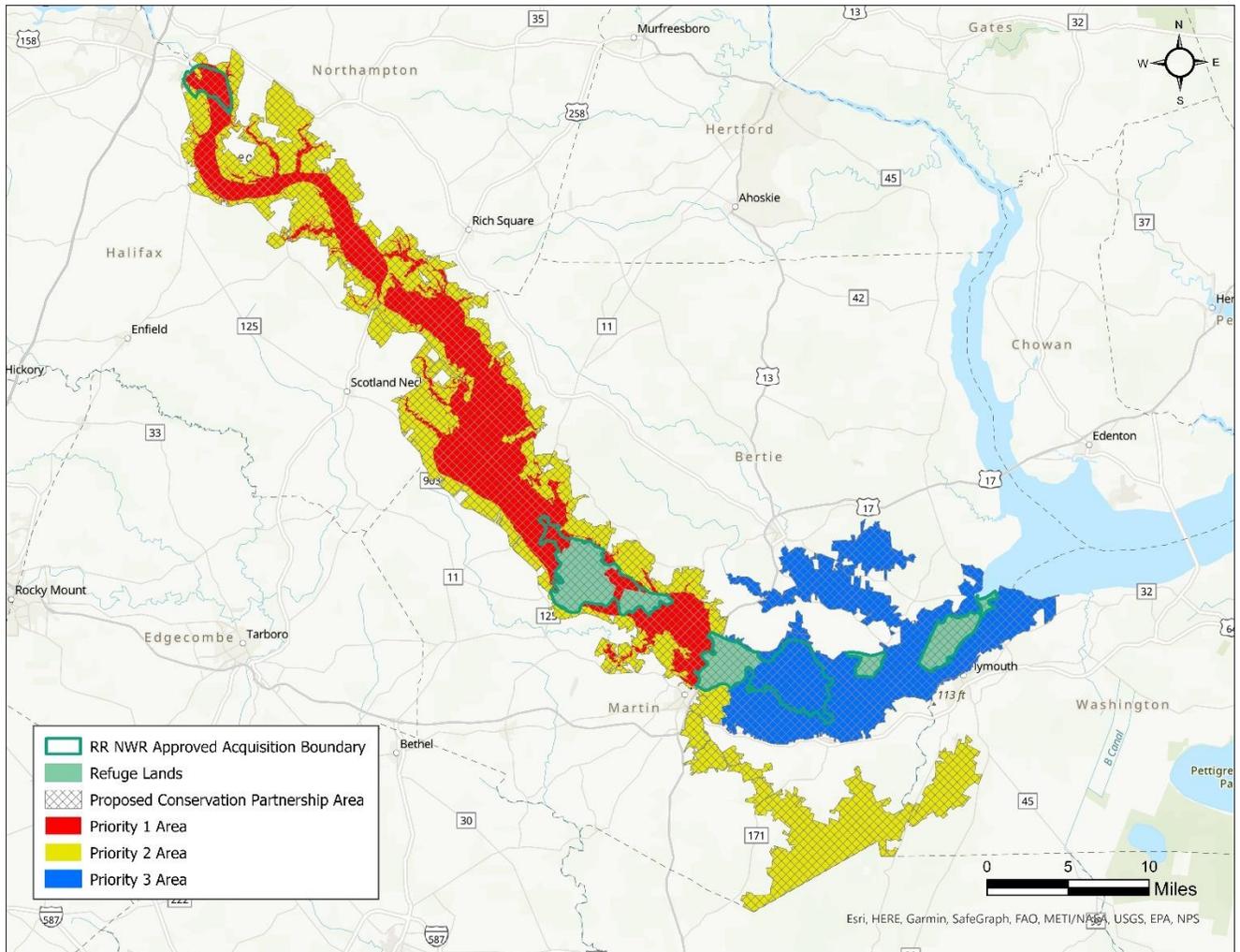
This group represents land parcels that are upstream of the Highway 17 bridge at Williamston and do not actually touch the river or are within the corridor connecting to Pocosin Lakes NWR (Figure 4). Priority will be given to lands that are adjacent to areas already in conservation status. Lands that form the corridor connecting this project to Pocosin Lakes NWR are important to create connected pathway of habitat for species to migrate away from rising sea levels. Lands in this section may be in agricultural or silvicultural status but are outside of human population centers. Parcels in this group that are located upstream of the Williamston bridge will be prioritized for; bottomland hardwood forest types, other forest types, proximity to lands already in conservation status, all other lands. While not in the highest priority group, these lands are important to the conservation strategy because they provide habitat that is not routinely flooded and maintain the width of the corridor such that it suits the needs of the greatest variety of wildlife.

PRIORITY GROUP III

This group represents parcels of lands that are downstream of the highway 17 bridge at Williamston and adjacent to the Roanoke River and adjacent to the Cashie River between the

town of Windsor and the Roanoke River (Figure 4). All of the lands in this group will be significantly impacted by sea level rise. We expect these habitats to change to open marsh or marsh-like habitats with varying salinity levels. We anticipate that open marsh and marsh-like habitats will not be in short supply as sea levels rise all along the NC coast, therefore these areas are of lowest priority."

LPP Figure 4. Map showing lands prioritized by location and significance to wildlife.



C. LAND PROTECTION OPTIONS

The Service acquires lands and interests in lands, such as easements, and management rights in lands through leases or cooperative agreements consistent with legislation or other congressional guidelines and executive orders for the conservation of fish and wildlife and to provide wildlife-dependent public use for recreational and educational purposes. These lands include national wildlife refuges, national fish hatcheries, research stations, and other areas.

We will use the following options to implement this LPP.

Option 1: Management or land protection by others

Option 2: Less-than-fee acquisition by the Service

Option 3: Fee acquisition by the Service

When land is needed to achieve fish and wildlife conservation objectives, the Service seeks to acquire the minimum interest necessary to meet those objectives and acquire it only from willing sellers. Our proposal includes a combination of options 1, 2, and 3, above. We believe this approach offers a cost-effective way of providing the minimal level of protection needed to accomplish refuge objectives while also attempting to meet the needs of local landowners.

OPTION 1. MANAGEMENT OR LAND PROTECTION BY OTHERS

A great deal of land within the project area is already owned by our partners or managed by our partners through conservation easements and ownership. It should also be emphasized that the protection of this area represents a large landscape-scale wildlife and habitat corridor which, in combination with other Service initiatives, represents the Service's response to climate change and sea level rise for eastern North Carolina. This project will serve as an important keystone in this conservation effort. The following partners both manage and own property in, or ecologically associated, with the project area:

TNC has a long history of working with the Service to protect wildlife habitat. They own in fee title several tracts of land which total approximately 30,000 acres of bottomland hardwood habitat adjacent to the Roanoke River. As a stakeholder, TNC was a vital partner in the conservation community's effort to change the USACE water management plan for the J. H. Kerr Dam to benefit downstream ecosystems.

The North Carolina Wildlife Resources Commission owns approximately 53,000 acres within the project area that they manage as state game lands. The Roanoke River NWR was established as part of a Joint Venture with the State of North Carolina and, therefore, all refuge lands are incorporated into the Commission's Permit Hunt Program. All future lands that the Service will purchase in fee-title will likewise be incorporated into this program.

OPTION 2. LESS-THAN-FEE ACQUISITION BY THE SERVICE

Under option 2, we will protect and manage land by purchasing only a partial interest, typically in the form of a conservation easement. This option leaves the parcel in private ownership while allowing Service control over the land use in a way that enables us to meet our goals for the parcel or that provides adequate protection for important adjoining parcels and habitats. The structure of such easements will provide permanent protection of existing wildlife habitats while also allowing habitat management or improvements and access to sensitive habitats, such as for endangered species or migratory birds. We will determine, on a case-by-case basis, and negotiate with each landowner the extent of the rights we will be interested in buying. The extent of the negotiated rights may vary, depending on the configuration and location of the parcel, the current extent of development, the nature of wildlife activities in the immediate vicinity, the needs of the landowner, and other considerations.

In general, any less-than-fee acquisition will maintain the land in its current configuration with no further subdivision. Easements are a property right and typically are perpetual. If a landowner later sells the property, the easement continues as part of the title. Properties subject to easements generally remain on the tax rolls, although the change in market value may reduce the assessment. The Service does not pay refuge revenue sharing on easement rights. Where we identify conservation easements, we will be interested primarily in purchasing development and some wildlife management rights. Easements are best when:

- only minimal management of the resource is needed, but there is a desire to ensure the continuation of current, undeveloped uses and to prevent fragmentation over the long-term and in places where the management objective is to allow vegetative succession;
- a landowner is interested in maintaining ownership of the land, does not want it to be further developed, and would like to realize the benefits of selling development rights;
- current land use regulations limit the potential for adverse management practices;
- the protection strategy calls for the creation and maintenance of a watershed protection area that can be accommodated with passive management; and/or
- only a portion of the parcel contains lands of interest to the Service.

The determination of value for purchasing a conservation easement involves an appraisal of the rights to be purchased based on recent market conditions and structure in the area. The LPP Methods section further describes the conditions and structure of easements.

OPTION 3. FEE ACQUISITION BY THE SERVICE

Under Option 3, we will acquire parcels in fee title from willing sellers, thereby purchasing all rights of ownership. This option provides us the most flexibility in managing priority lands and ensuring the protection in perpetuity of nationally significant trust resources.

Management of Service lands is guided by the mission of the Service and the purpose(s) for which a refuge is established. These goals may require active management techniques such as controlling invasive species, mowing, timber management, prescribed burning, planting, and managing for the six priority public uses. We only propose fee acquisition when adequate land protection is not assured under other ownerships, active land management is required, or we determine the current landowner will be unwilling to sell a partial interest like a conservation easement.

In some cases, it may become appropriate to convert a previously acquired conservation easement to fee acquisition, such as when an owner is interested in selling the remainder of interest in the land on which we have acquired an easement. We will evaluate that need on a case-by-case basis.

D. LAND PROTECTION METHODS

We may use several methods of acquiring either full or partial interest in parcels identified for Service land protection: (1) purchase (e.g., complete title or a partial interest, like a conservation easement), (2) leases and cooperative agreements, (3) donations, and (4) exchanges.

PURCHASE

The method we ultimately use to protect a given tract depends partly on the landowner's wishes; however, for most of the tracts in the boundary, it is expected that the method will be fee title or easement purchase.

Fee Title Purchase

A fee title interest is normally acquired when (1) the area's fish and wildlife resources require permanent protection not otherwise assured, (2) land is needed for visitor use development, (3) a pending land use could adversely impact the area's resources, or (4) it is the most practical and economical way to assemble small tracts into a manageable unit.

Fee title acquisition conveys all ownership rights to the federal government and provides the best assurance of permanent resource protection. A fee title interest may be acquired by donation, exchange, transfer, or purchase (as availability of funding allows).

Easement Purchase

Easement purchase refers to the purchase of limited rights (less than fee) from an interested landowner. The landowner will retain ownership of the land but will sell certain rights identified and agreed upon by both parties. The objectives and conditions of our conservation easements will recognize lands for their importance to wildlife habitat or outdoor recreational activities and any other qualities that recommend them for addition to the Refuge System. Land uses that are normally restricted under the terms of a conservation easement include:

- development rights (agricultural, residential, etc.);
- alteration of the area's natural topography;
- uses adversely affecting the area's floral and faunal communities;
- excessive public access and use; and
- alteration of the natural water regime.

LEASES AND COOPERATIVE AGREEMENTS

Potentially, the Service can protect and manage habitat through leases and cooperative agreements. Management control on privately owned lands could be obtained by entering into long-term renewable leases or cooperative agreements with the landowners. Short-term leases can be used to protect or manage habitat until more secure land protection can be negotiated.

DONATION

We encourage donations in fee title or conservation easement in the approved areas.

EXCHANGE

We have the authority to exchange land in Service ownership for other land that has greater habitat or wildlife value. Inherent in this concept is the requirement to get dollar-for-dollar value with, occasionally, an equalization payment. Exchanges are attractive because they usually do not increase federal land holdings or require purchase funds; however, they also may be very labor-intensive and take a long time to complete.

E. SERVICE LAND ACQUISITION PROCESS

Once a land protection (refuge acquisition) boundary has been approved, we contact landowners within the boundary to determine whether any are interested in selling. If a landowner expresses an interest and gives us permission, a real estate appraiser will appraise the property to determine its market value. Once an appraisal has been approved, we can present an offer for the landowner's consideration.

Appraisals conducted by Service or contract appraisers must meet federal as well as professional appraisal standards. In all fee title acquisition cases, the Service is required by federal law to offer 100 percent of the property's appraised market value, which is typically based on comparable sales of similar types of properties.

We based the boundary expansion on the biological importance of key habitats. The expansion of this boundary gives the Service the approval to negotiate with landowners that may be interested or may become interested in selling their land in the future. With this internal approval in place, the Service can react more quickly as important lands become available. Our long-established policy is to work with willing sellers as funds become available, and we continue to operate under that policy. Lands within this boundary do not become part of the refuge unless their owners willingly sell or donate them to the Service.

F. FUNDING

The most likely sources of appropriated dollars for the purpose of land acquisition are the Land and Water Conservation Fund (LWCF) and the Migratory Bird Conservation Fund (MBCF). The primary source of income to the LWCF is fees paid by companies drilling offshore for oil and gas, as well as oil and gas lease revenues from federal lands. Additional sources of LWCF income include the sale of surplus federal real estate and taxes on motorboat fuel. The primary source of income to the MBCF is revenue from the sale of Migratory Bird Hunting and Conservation Stamps, commonly known as Duck Stamps. Additional major sources of MBCF income include appropriations from the Wetlands Loan Act of 1961, import duties collected on arms and ammunition, and receipts from the sale of refuge admission permits. In its effort to meet the goals of this refuge, the Service will seek appropriations from the LWCF and the MBCF for fee-title acquisition and conservation easements.

The cost-per-acre values used in Table 1 and the estimations below are based on data derived from recent land sales information provided by the Tax Assessment Offices for the five counties spanning the project area, as well as data obtained from a non-profit organization working to conserve land within these counties.

LPP Table 1. Fee Simple and Conservation Easement Land Sales Data by County.

County	Current Countywide Average Fee-Per-Acre Values	Conservation Easement Per-Acre Examples	Fee-Per-Acre Examples
Bertie	Not Available	Land and Timber: \$1,260	Mixed Upland Timber, Cropland, Floodplain: \$2,000-3,500 Land and Timber: \$1,600
Halifax	Cropland: \$2,600 Woodland (Timber not valued): \$1,040	Not Available	Mixed Upland Timber, Cropland, Floodplain: \$2,000-3,500
Martin	Cropland: \$3,800 Woodland (Timber not valued): \$950-1,800	Not Available	Mixed Upland Timber, Cropland, Floodplain: \$2,000-3,500
Northampton	Cropland: \$3,000 Woodland (Timber not valued): \$950	Land and Timber: \$1,600	Mixed Upland Timber, Cropland, Floodplain: \$2,000-3,500
Washington	Not Available	Land and Timber: \$535	Land and Timber: \$850

At this point in time, the Service is unable to predict where and when refuge lands will be acquired within the CPA. Because the cost of acquisition varies widely depending on the characteristics of the tract and the method of acquisition, it is impossible to pre-determine the precise cost of acquisition and easements on all 150,000 acres. The total estimated cost to acquire 50,000 acres in fee title and 100,000 acres in conservation easements ranges from \$225,000,000 to \$375,000,000, based on fee title costs of \$2000-3000 per acre and conservation easement costs of \$1250-1750 per acre. These per-acre estimates can be considered an *average* per-acre-cost of all size tracts and various land uses; both of these factors can greatly affect value. This provides the Service with a high/low range of value for acquisition of the entire acreage. The range in value is affected by the following factors:

- The various land uses within the CPA, with the vast majority currently forested. There are approximately 51,210 acres in agricultural use and 203,924 acres categorized as forested.
- The various percentages of the counties' per-acre values represented in the overall CPA acreage.
- Tract size within the CPA ranges from less than 1 acre to 11,960 acres. Per-acre estimates were generated based on countywide averages as well as specific recent sale examples of various sized tracts encompassing floodplain habitats.
- Limited data for conservation easement values are available.

It is important to note that these costs are only provided as an *approximation based on current market value*. Donations, the ratio of fee title to conservation easement purchases, and land value fluctuations over time are among the factors that will likely influence the costs associated with completion of the refuge.

IV. Coordination

Methods of outreach to private landowners, state and federal elected officials, other state and federal natural resource agencies, nongovernmental conservation organizations, and the general public included direct mailings, e-mails, digital media (a link on the Roanoke River NWR website), and press releases to local media.

For public scoping, the Service held five open houses from 6:00-8:00 pm on each evening of the week of January 23-27, 2017. The meeting locations for each county were as follows: TJ Recreation Center, Roanoke Rapids, North Carolina (Halifax County) on January 23, 2017; Martin County Extension Office, Williamston, North Carolina (Martin County) on January 24, 2017; Windsor Community Building, Windsor, North Carolina (Bertie County) on January 25, 2017; Northampton Recreation Center, Jackson, North Carolina (Northampton County) on January 26, 2017; and Washington County Extension Office, Plymouth, North Carolina (Washington County) on January 27, 2017.

Each two-hour open house provided the public with an opportunity to interact individually with Service experts in fish and wildlife management, recreational opportunities, real estate, aquatic biology, private land stewardship, and refuge planning. The open house meetings were announced in advance through a press release, as well as in letters and e-mails sent to CPA landowners, state and local elected officials, and other state and federal natural resource agencies. A total of approximately 108 people attended the meetings over the 5 days: 19 in Halifax, 35 in Martin, 36 in Bertie, 10 in Northampton, and 8 in Washington. The purpose of public scoping was to seek input regarding the expansion of Roanoke River NWR and to identify the issues that needed to be addressed in the planning process. The public scoping period was from January 1 through March 3, 2017. The issues and comments identified during the scoping process helped guide revisions of this LPP and EA.

References

- America's Great Outdoors. 2011. America's Great Outdoors: A Promise to Future Americans. Retrieved December 2011 from <http://americasgreatoutdoors.gov/>.
- Association of Fish and Wildlife Agencies. 2006. National Fish Habitat Action Plan. Washington, D.C. Retrieved June 2022 from https://www.fishhabitat.org/files/uploads/National_Fish_Habitat_Action_Plan_2006.pdf
- Atlantic States Marine Fisheries Commission. 2009. Amendment 2 to the Interstate Fishery Management Plan for SHAD AND RIVER HERRING (River Herring Management). ASMFC, Arlington, Virginia. 166 pp.
- Atlantic States Marine Fisheries Commission. 2010. Amendment 3 to the Interstate Fishery Management Plan for SHAD AND RIVER HERRING (American Shad Management). ASMFC, Arlington, Virginia. 158 pp.
- Bhattachan, A., M. D. Jurjonas, A. C. Moody, P. R. Morris, G. M. Sanchez, L. S. Smart, P. J. Taillie, R. E. Emanuel, and E. L. Seekamp. 2018. Sea Level Rise Impacts on Rural Coastal Social-Ecological Systems and the Implications for Decision Making. *Environmental Science & Policy* 90:122–34. doi: [10.1016/j.envsci.2018.10.006](https://doi.org/10.1016/j.envsci.2018.10.006).
- Hunter, W.C., Peoples, L., and J. Collazo. 2001. SOUTH ATLANTIC COASTAL PLAIN PARTNERS IN FLIGHT BIRD CONSERVATION PLAN (Physiographic Area #03). Retrieved June 21, 2022 from <https://partnersinflight.org/wp-content/uploads/2017/03/Phys-Area-03-S-Atlantic-Coastal-Plain.pdf>
- Intergovernmental Panel on Climate Change. 2007. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007. M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (eds.) Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- Jennings, M., D. Faber-Langendoen, O. Loucks, R. Peet, and D. Roberts. 2009. Characterizing Associations and Alliances of the U.S. National Vegetation Classification. *Ecological Monographs* 79: 173-199.
- Kemp, A.C., B.P. Horton, J.P. Donnelly, M.E. Mann, M. Vermeer, and S. Rahmstorf. 2011. Climate related sea-level variations over the past two millennia. *PNAS* 108(27): 11017-11022.
- Kopp, Robert E., Benjamin P. Horton, Andrew C. Kemp, and Claudia Tebaldi. 2015. Past and Future Sea-Level Rise along the Coast of North Carolina, USA. *Climatic Change*

132(4):693–707. doi: [10.1007/s10584-015-1451-x](https://doi.org/10.1007/s10584-015-1451-x).

Lin, X., G. Huang, J. M. Piwowar, X. Zhou, and Y. Zhai. 2021. Risk of hydrological failure under the compound effects of instant flow and precipitation peaks under climate change: A case study of Mountain Island Dam, North Carolina. *Journal of Cleaner Production* 284. <https://doi.org/10.1016/j.jclepro.2020.125305>

North Carolina Department of Environment and Natural Resources. 2010. North Carolina Sea-Level Rise Assessment Report. March 2010. Prepared by the N.C. Coastal Resources Commission's Science Panel on Coastal Hazards. 15pp.

North Carolina Natural Heritage Program. 1988. Letter of comment on draft environmental assessment for Roanoke River National Wildlife Refuge. Division of Parks and Recreation. North Carolina Department of Natural Resources and Community Development. Raleigh, NC. 2 pp.

North Carolina Wildlife Resources Commission. 2005. North Carolina Wildlife Action Plan. Raleigh, NC.

North Carolina Wildlife Resources Commission. 2015. North Carolina Wildlife Action Plan. Raleigh, NC.

Paerl, Hans W., Nathan S. Hall, Alexandria G. Hounshell, Richard A. Luettich, Karen L. Rossignol, Christopher L. Osburn, and Jerad Bales. 2019. Recent Increase in Catastrophic Tropical Cyclone Flooding in Coastal North Carolina, USA: Long-Term Observations Suggest a Regime Shift. *Scientific Reports* 9(1):10620. doi: [10.1038/s41598-019-46928-9](https://doi.org/10.1038/s41598-019-46928-9).

Rice, S. and R. Peet. 1997. Vegetation of the lower Roanoke River floodplain. Component report from The Roanoke River Bioreserve: a preliminary assessment of flow modifications on hydrology, geomorphological processes, and vegetation. The Nature Conservancy, North Carolina Chapter, Durham, North Carolina, 154 pp.

Rich, T. D., C. J. Beardmore, H. Berlanga, P. J. Blancher, M. S. W. Bradstreet, G. S. Butcher, D. W. Demarest, E. H. Dunn, W. C. Hunter, E. E. Iñigo-Elias, J. A. Kennedy, A. M. Martell, A. O. Panjabi, D. N. Pashley, K. V. Rosenberg, C. M. Rustay, J. S. Wendt, and T. C. Will. 2004. Partners in Flight North American Landbird Conservation Plan. Cornell Lab of Ornithology. Ithaca, NY

Southeast Conservation Adaptation Strategy (SCAS), Southeast Conservation Blueprint summary for Roanoke River NWR CPA, custom report generated June 9, 2023 from The Southeast Conservation Blueprint <https://secassoutheast.org/blueprint.html>

- U.S. Department of Agriculture. 2011a. Forest Stewardship Program. Retrieved December 2011 from <http://www.fs.fed.us/spf/coop/programs/loa/fsp.shtml>
- U.S. Department of Agriculture. 2011b. Wetlands Reserve Program (WRP). USDA Natural Resource Conservation Service. Retrieved December 2011 from <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/wetlands>
- U.S. Federal Geographic Data Committee. 2008. National Vegetation Classification Standard, Version 2. FGDC-STD-005. 2008 (Version 2).
- U.S. Fish and Wildlife Service. 2005. Roanoke River National Wildlife Refuge Comprehensive Conservation Plan and Final Environmental Impact Statement. Atlanta, GA. 257 pp.
- U.S. Fish and Wildlife Service. 2014. Roanoke River National Wildlife Refuge Habitat Management Plan. Atlanta, GA. 208 pp.
- U.S. Fish and Wildlife Service. 2012. Partners for Fish and Wildlife Program - Habitat and Resource Conservation. <http://www.fws.gov/partners/> Accessed: August 2012.
- U.S. Fish and Wildlife Service. 2013. Habitat Management Plan for Roanoke River NWR. <https://ecos.fws.gov/ServCat/Reference/Profile/48752>
- U.S. Fish and Wildlife Service. 2023. Draft Land Protection Plan and Environmental Assessment for Proposed Expansion of the Roanoke River National Wildlife Refuge. Atlanta, GA. 162 pp.

Appendix A. Conceptual Management Plan and Compatibility Determinations

The Comprehensive Conservation Plan (CCP) and Habitat Management Plan (HMP) for Roanoke River NWR (USFWS 2005 and 2013) have been completed along with compatibility determinations. These lands covered under this Environmental Assessment will be brought into the National Wildlife Refuge System and will be managed as current lands on Roanoke River NWR under the current CCP (USFWS 2005; <https://ecos.fws.gov/ServCat/DownloadFile/1492>) and HMP (USFWS 2013; <https://ecos.fws.gov/ServCat/DownloadFile/48984>). Lands purchased to expand Roanoke River NWR have the following uses already found appropriate and compatible: hunting, fishing, wildlife observation, photography, environmental education, interpretation, trapping of selected furbearers for nuisance animal management, forest management program, and refuge resource research studies (USFWS 2005; <https://ecos.fws.gov/ServCat/DownloadFile/1492> and USFWS 2013; <https://ecos.fws.gov/ServCat/DownloadFile/48984>).

Appendix B. Intra-Service Section 7 Biological Evaluation

Originating Person: Jean Richter

Date Submitted: January 30, 2024

Telephone Number: 252-794-3808

Project Name: Roanoke River National Wildlife Refuge (NWR) Conservation Partnership Area and Acquisition Boundary Expansion

I. Service Program:

- Ecological Services
- Federal Aid
- Clean Vessel Act
- Coastal Wetlands
- Endangered Species Section 6
- Partners for Fish and Wildlife
- Sport Fish Restoration
- Wildlife Restoration
- Fisheries
- Refuges/Wildlife

II. State/Agency: North Carolina / US Fish and Wildlife Service

III. Station Name: Roanoke River National Wildlife Refuge

IV. Description of Proposed Action:

The U.S. Fish and Wildlife Service (Service or We) prepared a Land Protection Plan and Environmental Assessment to protect and manage up to an additional 150,000 acres in Bertie, Washington, Martin, Northampton and Halifax Counties in North Carolina, through the expansion of the Roanoke River National Wildlife Refuge (NWR, refuge) in accordance with the refuge's Comprehensive Conservation Plan (CCP; U.S. Fish and Wildlife Service 2005). The Service will establish a 287,090-acre Conservation Partnership Area along the Roanoke River from Weldon to the Albemarle Sound, with authority to acquire up to 50,000 acres in fee title and 100,000 acres in conservation easements and conservation partnerships in addition to the current acquisition boundary and as part of Roanoke River NWR (Figure 1). The plan outlines the options and methods used to provide the minimum interests necessary to preserve and protect the area's fish, wildlife, and plant resources.

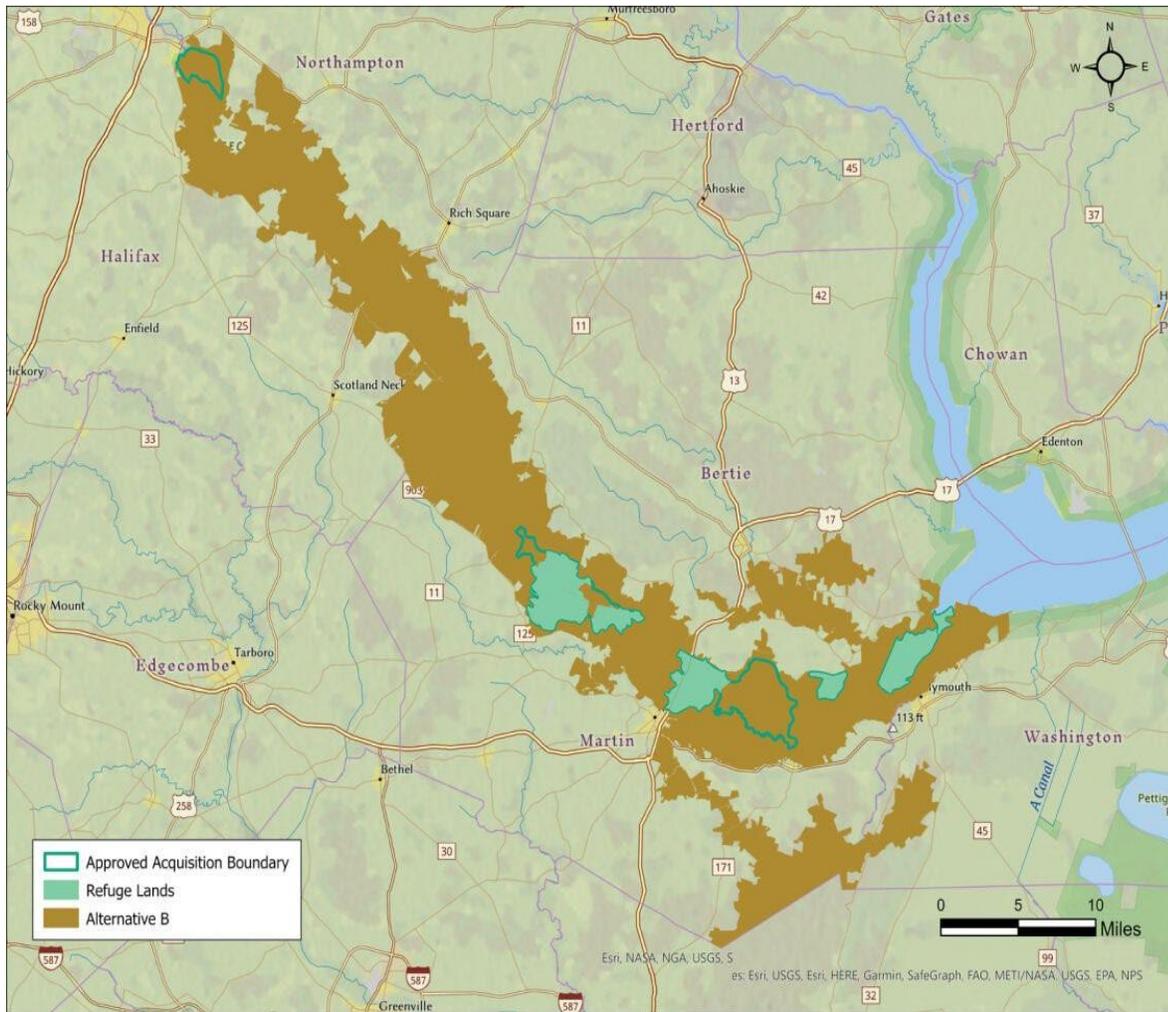


Figure 1. Conservation Partnership Area (CPA) of the Roanoke River NWR expansion plan. The expansion boundary was set by rules outlined in the Environmental Assessment for the Roanoke River NWR Expansion Plan. The map below shows the footprint of the preferred alternative. The rules which govern this alternative are outlined. Rule 1: Everything within the 35,000 cfs footprint plus the Sweetwater Creek corridor that extends towards Pocosin Lakes NWR. Rule 2: all the parcels that touch the 35000 cfs line and as per the rules does not break parcels, it contains lands outside the 35000 cfs (shown as light green on map). Rule 3: Tracts along the Cashie River southeast of Windsor.

V. **Pertinent Species/Critical Habitat:**

A. Include species/critical habitats.

Listed species and habitat occurrence on the refuge are based on the expert opinion of Service biologists, supplemented with site-specific information and information from the Environmental Conservation Online System (ECOS, <https://ecos.fws.gov/ecp/>) and Information for Planning and Consultation (IPaC, <https://ecos.fws.gov/ipac/>) databases.

B. **Listed Species and Any Designated Critical Habitat:**

SPECIES/CRITICAL HABITAT (IPaC List)	STATUS*
Northern Long-Eared Bat (<i>Myotis septentrionalis</i>)	E
Tricolored Bat (<i>Perimyotis subflavus</i>)	PT
West Indian Manatee (<i>Trichechus manatus</i>)	T
Red Wolf (<i>Canis rufus</i>) - Non-Essential Experimental Population	E, EXP, NE
Red-cockaded Woodpecker (<i>Picoides borealis</i>)	E
Red Knot (<i>Calidris canutus rufa</i>)	T
Green Sea Turtle (<i>Chelonia mydas</i>)	E
Kemp's Ridley Sea Turtle (<i>Lepidochelys kempii</i>)	E
American Alligator (<i>Alligator mississippiensis</i>)	SAT
Atlantic Sturgeon (<i>Acipenser oxyrinchus oxyrinchus</i>)	E
Shortnose Sturgeon (<i>Acipenser brevirostrum</i>)	E
Monarch Butterfly (<i>Danaus plexippus</i>)	C
Atlantic Pigtoe (<i>Fusconaia masoni</i>)	T
Green Floater (<i>Lasmigona subviridis</i>) under review	C
Rough-leaved Loosestrife (<i>Lysimachia asperulaefolia</i>)	E
Sensitive Joint-vetch (<i>Aeschynomene virginica</i>)	T

*STATUS: E=endangered; T=threatened; PE=proposed endangered; PT=proposed threatened; CH=critical habitat; PCH=proposed critical habitat; EPNE= Experimental Population, Non-Essential; C=candidate species; UR=under review; SAT=Similarity of appearance Threatened.

Mammals

Northern Long-eared Bat (*Myotis septentrionalis*) - Endangered

The northern long-eared bat is a medium-sized bat about 3 to 3.7 inches in length but with a wingspan of 9 to 10 inches. As its name suggests, this bat is distinguished by its long ears, particularly as compared to other bats in its genus, *Myotis*, which are bats noted for their small ears (myotis means mouse-eared). The northern long-eared bat is found across much of the eastern and north central United States and all Canadian provinces from the Atlantic coast west to the southern Northwest Territories and eastern British Columbia. The species' range includes 37 states. White-nose syndrome, a fungal disease known to affect bats, is currently the predominant threat to this bat, especially throughout the Northeast where the species has declined by up to 99 percent from pre-white-nose syndrome levels at many hibernation sites. Although the disease has not yet spread throughout the northern long-eared bat's entire range (white-nose syndrome is currently found in at least 25 of 37 states where the northern long-eared bat occurs), it continues to spread. Experts expect that where it spreads, it will have the same impact as seen in the Northeast. The species' historical range included Alabama, Arkansas, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming. The endangered Northern Long-Eared Bat (*Myotis septentrionalis*) and proposed endangered Tricolored Bat (*Perimyotis subflavus*), have both been found on the refuge and are likely located throughout much of the CPA.

Tri-colored Bat (*Perimyotis subflavus*) -Proposed Endangered

The tricolored bat is one of the smallest bats native to North America. The once common species is wide-ranging across the eastern and central United States and portions of southern Canada, Mexico, and Central America. During the winter, tricolored bats are found in caves and mines, although in the southern United States, where caves are sparse, tricolored bats are often found roosting in road-associated culverts. During the spring, summer and fall, tricolored bats are found in forested habitats where they roost in trees, primarily among leaves.

White-nose syndrome is also the predominant threat to this bat. Positive acoustic detections have been documented on Sandy Island during summer surveys. The endangered Northern Long-Eared Bat (*Myotis septentrionalis*) and proposed endangered Tricolored Bat (*Perimyotis subflavus*), have both been found on the refuge and are likely located throughout much of the CPA.

West Indian Manatee (*Trichechus manatus*) - Threatened

Manatees are protected under the Marine Mammal Protection Act, which prohibits the take (i.e., harass, hunt, capture, or kill) of all marine mammals. Manatees are found in marine, estuarine, and freshwater environments. The West Indian manatee, *Trichechus*

manatus, includes two distinct subspecies, the Florida manatee (*Trichechus manatus latirostris*) and the Antillean manatee (*Trichechus manatus manatus*). While morphologically distinctive, both subspecies have many common features. Manatees have large, seal-shaped bodies with paired flippers and a round, paddle-shaped tail. They are typically grey in color (color can range from black to light brown) and occasionally spotted with barnacles or colored by patches of green or red algae. The muzzle is heavily whiskered and coarse, single hairs are sparsely distributed throughout the body. Adult manatees, on average, are about nine feet long (3 meters) and weigh about 1,000 pounds (200 kilograms). At birth, calves are between three and four feet long (1 meter) and weigh between 40 and 60 pounds (30 kilograms).

The species historical range included Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, Puerto Rico, South Carolina, Texas. Manatees are documented infrequently when there is salt wedge moving upstream near a tributary off of the Roanoke River into the bay.

Red Wolf (*Canis rufus*) – Non-Essential Experimental Population

Red wolves are known for the characteristic reddish color of their fur most apparent behind the ears and along the neck and legs, but are mostly brown and buff colored with some black along their backs. Intermediate in size to gray wolves and coyotes, the average adult red wolf weighs 45-80 pounds, stands about 26 inches at the shoulder and is about 4 feet long from the tip of the nose to the end of the tail. The species historical range included North Carolina, Tennessee, Texas.

Red wolves in eastern North Carolina use a wide variety of habitats; however, besides Washington County, the lands proposed for inclusion in the CPA are outside of the defined Red Wolf non- Essential Experimental Population Area. No red wolves are released outside of the Non- Essential Experimental Population Area, and there are no plans to release red wolves on Roanoke River NWR.

Birds

Red-cockaded Woodpecker (*Picooides borealis*) -Endangered.

Red-cockaded woodpeckers are rather small (22 cm) black-and-white woodpecker with longish bill. Above black barred white. Below white with black spots on flanks. Black crown, nape and moustachial stripe border white cheeks and side of neck. Male has small red mark on the side of nape. Juvenile browner with variable extent of red on crown. The species historical range included Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Texas, Virginia. The Red-cockaded Woodpecker (*Picooides borealis*) are not on the refuge, but potential acquisitions in the expanded CPA could include suitable longleaf pine or pond pine pocosin habitats.

Red Knot (*Calidris canutus rufa*) - Threatened

Length: 25-28 cm. Adults in spring: Above finely mottled with grays, black and light ochre, running into stripes on the crown; throat, breast, and sides of head cinnamon-brown; dark gray line through the eye; abdomen and undertail coverts white; upper tail coverts white, barred with black. Adults in winter: Pale ashy gray above, from crown to rump, with feathers on back narrowly edged with white; underparts white, the breast lightly streaked and speckled, and the flanks narrowly barred with gray. Adults in autumn: Underparts of some individuals show traces of the "red" of spring.

The species historical range included Alabama, Arkansas, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Puerto Rico, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, Virgin Islands, West Virginia, Wisconsin, Wyoming. There are no known locations of this bird species on the refuge.

Reptiles

Green Sea Turtle (*Chelonia mydas*)- Threatened

The green sea turtle grows to a maximum size of about 4 feet and a weight of 440 pounds. It has a heart-shaped shell, small head, and single-clawed flippers. Color is variable. Hatchlings generally have a black carapace, white plastron, and white margins on the shell and limbs. The adult carapace is smooth, keelless, and light to dark brown with dark mottling; the plastron is whitish to light yellow. Adult heads are light brown with yellow markings. Identifying characteristics include four pairs of costal scutes, none of which borders the nuchal scute, and only one pair of prefrontal scales between the eyes. There are no known locations of this sea turtle species on the refuge.

Kemp's Ridley Sea Turtle (*Lepidochelys kempi*)- Endangered

The Kemp's ridley turtle is the smallest of the sea turtles, with adults reaching about 2 feet in length and weighing up to 100 pounds. The adult Kemp's ridley has an oval carapace that is almost as wide as it is long and is usually olive-gray in color. The carapace has five pairs of costal scutes. In each bridge adjoining the plastron to the carapace, there are four inframarginal scutes, each of which is perforated by a pore. The head has two pairs of prefrontal scales. Hatchlings are black on both sides. The Kemp's ridley has a triangular-shaped head with a somewhat hooked beak with large crushing surfaces. This turtle is a shallow water benthic feeder with a diet consisting primarily of crabs.

The species historical range included Alabama, Connecticut, Delaware, Florida, Georgia, Louisiana, Maryland, Massachusetts, Mississippi, New Jersey, New York, North Carolina, Rhode Island, South Carolina, Texas, Virginia. There are no known locations of this sea turtle species on the refuge.

American Alligator (*Alligator mississippiensis*)- SAT

The American alligator is a large, semi-aquatic, armored reptile that is related to crocodiles. Their body alone ranges from 6 - 14 feet long. Almost black in color, it has prominent eyes and nostrils with coarse scales over the entire body. It has a large, long head with visible upper teeth along the edge of the jaws. Its front feet have 5 toes, while rear feet have 4 toes that are webbed.

Amphibian

Neuse River Waterdog (Necturus lewisi) - Threatened

The Neuse River Waterdog is a permanently aquatic salamander that is endemic to the Atlantic Slope drainages of the Tar-Pamlico and Neuse River basins in North Carolina.

Fish

Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus) - Endangered

Atlantic sturgeon live in rivers and coastal waters from Canada to Florida. Hatched in the freshwater of rivers, Atlantic sturgeon head out to sea as sub-adults, and return to their birthplace to spawn, or lay eggs, when they reach adulthood. National Oceanic and Atmospheric Administration estimates that the Roanoke River has 3-36 individuals (<https://www.fisheries.noaa.gov/national/endangered-species-conservation/atlantic-sturgeon-population-estimates>). The Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) and Shortnose Sturgeon (*Acipenser brevirostrum*) are found in the river's mainstem of the CPA. Atlantic sturgeon spawning in the river was confirmed in fall of 2012.

Shortnose Sturgeon (Acipenser brevirostrum) - Endangered

Shortnose sturgeon live in rivers and coastal waters from Canada to Florida. They hatch in the freshwater of rivers and spend most of their time in the estuaries of these rivers. Unlike Atlantic sturgeon, shortnose sturgeon tend to spend relatively little time in the ocean. The Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) and Shortnose Sturgeon (*Acipenser brevirostrum*) are found in the river's mainstem of the CPA. Atlantic sturgeon spawning in the river was confirmed in fall of 2012. The last shortnose sturgeon sighting was in 1998 in Western Albemarle Sound. Protecting more land within the CPA would improve water quality improving spawning and nursery habitat.

Insects

Monarch Butterfly (Danaus piexippus)-Candidate

Adult monarch butterflies are large and conspicuous, with bright orange wings surrounded by a black border and covered with black veins. The black border has a double row of white spots, present on the upper side of the wings. Adult monarchs are sexually dimorphic, with males having narrower wing venation and scent patches. The bright coloring of a monarch serves as a warning to predators that eating them can be toxic.

During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (primarily *Asclepias* spp.), and larvae emerge after two to five days. Larvae develop through five larval instars (intervals between molts) over a period of 9 to 18 days, feeding on milkweed and sequestering toxic chemicals (cardenolides) as a defense against predators. The larva then pupates into a chrysalis before emerging 6 to 14 days later as an adult butterfly. There are multiple generations of monarchs produced during the breeding season, with most adult butterflies living approximately two to five weeks; overwintering adults enter into reproductive diapause (suspended reproduction) and live six to nine months.

In many regions where monarchs are present, monarchs breed year-round. Individual monarchs in temperate climates, such as eastern and western North America, undergo long-distance migration, and live for an extended period of time. In the fall, in both eastern and western North America, monarchs begin migrating to their respective overwintering sites. This migration can take monarchs distances of over 3,000 km and last for over two months. In early spring (February-March), surviving monarchs break diapause and mate at the overwintering sites before dispersing. The same individuals that undertook the initial southward migration begin flying back through the breeding grounds and their offspring start the cycle of generational migration over again. Monarch butterflies are commonly seen on the refuge during the summer and fall and breeding has been documented on the refuge within forested wetland habitats. The Monarch Butterfly has been documented within the current refuge boundary and CPA. While the refuge's hardwood swamps do not provide much pollinator habitat, potential acquisitions in the expanded CPA could include suitable habitat or could be restored with pollinator food sources for this species.

Clams

Atlantic Pigtoe (Fusconaia masoni) – Threatened

The species historical range included Georgia, North Carolina, South Carolina, Virginia. See below for information about where the species is known or believed to occur.

Green Floater (Lasmigona subviridis) – Candidate (Proposed Threatened)

The green floater is a small, greenish brown freshwater mussel historically native to the District of Columbia and 10 states including Alabama, Georgia, Maryland, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Virginia, and West Virginia. Green floaters are typically found in small streams to large rivers with slow to moderate flows (not high currents), in areas that provide flow refugia (i.e., eddies and ponded areas in streams), with stable sand and gravel substrate and good water quality. Connectivity between populations (free flowing streams and rivers without barriers) is necessary for periodic genetic exchange. The range of the Candidate Green Floater mussel (*Lasmigona subviridis*) falls within the upper and middle reach of the CPA along the Roanoke River. Protecting more land within the CPA would improve water quality that would be favorable for the species.

Flowering Plants

Rough-leaved Loosestrife (*Lysimachia asperulaefolia*) - Endangered

The species historical range included North Carolina, South Carolina. Rough-leaved Loosestrife has the potential to occur in the CPA specifically in the southern reaches of the wildlife corridor that links the Roanoke River to Pocosin Lakes NWR.

Sensitive Joint-vetch (*Aeschynomene virginica*) - Threatened

The species' historical range included Delaware, Georgia, Maryland, North Carolina, and South Carolina. There are no historical records that Canby's dropwort has ever been documented on the refuge.

VI. Location:

See Figure 1 for the location of the Refuge and the Proposed hunt unit.

A. Ecoregion Number and Name: Roanoke River

B. County and State: Bertie, Washington, Martin, Northampton and Halifax Counties in North Carolina

C. Section, township, and range: Location WINDSOR North 35° 59' 54.564" N East - 76° 56' 45.816" E Latitude 35.99849000 Longitude -76.94606000

D. Distance (miles) and direction to nearest town: Along the Roanoke River from Weldon to the Albemarle Sound, near the town of Windsor, North Carolina.

E. Species/ habitat occurrence: See above Section V.B.

VII. Determination of Effects:

A. Description of Effects:

Beneficial effects to listed or candidate species are expected to improve habitat for listed and candidate species.

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
Northern Long-eared Bat	Not likely to adversely affect.
Tricolored Bat	Both bats have been found on the refuge and will benefit from further land protection within the CPA. Therefore, the Proposed Action is not likely to adversely affect these species.

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
Red Wolf	<p>Not likely to Adversely Affect.</p> <p>Red wolves will not be released outside of the NEEP Area. Protecting more land within the CPA would be favorable for the species. Therefore, the Proposed Action is not likely to adversely affect this species.</p>
West Indian Manatee	<p>Not likely to Adversely Affect.</p> <p>Manatees are documented infrequently in the Roanoke River in early fall as they begin migrating back to Florida for the winter. Although they may infrequently follow the salt wedge near the bay, the CPA will provide increased habitat options as the climate changes. Protecting more land within the CPA would improve water quality and more areas that would be favorable for the species. Therefore, the Proposed Action is not likely to adversely affect this species.</p>
Red-cockaded woodpecker	<p>Not likely to adversely affect.</p> <p>Red-cockaded woodpeckers may or have the potential to occur on lands within the CPA. Protecting more land within the CPA would be favorable for the species. Therefore, the Proposed Action is not likely to adversely affect this species.</p>
Red Knot	<p>No likely to adversely affect.</p> <p>The known locations of the species are outside of the boundaries of the Proposed Action and outside of the area of potential effect of the Proposed Action. Protecting more land within the CPA would be favorable for the species. Therefore, the Proposed Action is not likely to adversely affect this species.</p>
Green Sea Turtle Kemp’s Ridley Sea Turtle American Alligator	<p>Not likely to adversely affect.</p> <p>These species do not occur on the refuge and consequently not within the CPA. Protection of lands near the bay may benefit these species. Protecting more land within the CPA would improve water quality and more areas that would be favorable for the species. Therefore, the Proposed Action is not likely to adversely affect this species.</p>

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
Monarch Butterfly	<p>Not likely to jeopardize.</p> <p>Monarch butterflies will benefit from the protection and management of land within the CPA. Therefore, the Proposed Action is not likely to jeopardize this species.</p>
Atlantic Sturgeon Shortnose Sturgeon	<p>Not likely to adversely affect.</p> <p>Protecting more land within the CPA would improve water quality and more areas that would be favorable for the species. Therefore, the Proposed Action is not likely to adversely affect this species.</p>
Rough-leaved Loosestrife	<p>Not likely to adversely affect.</p> <p>Protecting more land within the CPA would improve water quality and more areas that would be favorable for the species. Therefore, the Proposed Action is not likely to adversely affect this species.</p>
Atlantic Pigtoe Green Floater Neuse River Waterdog Sensitive Joint-vetch	<p>Not Likely to adversely affect.</p> <p>These muscels, amphibian, and flowering plants are not known to be on the refuge. Even if these species were found in the area of the Proposed Action, the protection and management of lands within the CPA will likely benefit these species, increasing water quality. Further, the Service prohibits the take of plants on the refuge. Protecting more land within the CPA would improve water quality and more areas that would be favorable for these species. Therefore, the Proposed Action is not likely to adversely affect this species.</p>

VII. Effect Determination and Response Requested: Determine the anticipated effects of the project on species and critical habitat lists in item IV. Check all applicable boxes and list the species associated with each determination.

	Determination
<p><i>No Effect:</i> This determination is appropriate when the proposed project will not directly or indirectly affect (neither negatively nor beneficially) individuals of</p>	

	Determination
<p>listed/proposed/candidate species or designated/proposed critical habitat of such species. No concurrence from FIELD OFFICE required.</p> <p>All species and critical habitat identified in section IV</p>	
<p><i>May Affect but Not Likely to Adversely Affect:</i> This determination is appropriate when the proposed project is likely to cause insignificant, discountable, or wholly beneficial effects, to individuals of listed species and/or designated critical habitat. Concurrence from FIELD OFFICE required.</p> <p>All species and critical habitat identified in section IV</p>	X
<p><i>May Affect but Likely to Adversely Affect:</i> This is determination is appropriate when the proposed project is likely to adversely effect individuals of listed species and/or designated critical habitat.</p> <p>Formal consultation with FIELD OFFICE required.</p>	
<p><i>May Affect but Not Likely to Jeopardize candidate or proposed species or adversely modify proposed critical habitat:</i> This determination is appropriate when the proposed project may affect, but is not expected to jeopardize the continued existence of a species proposed for listing or a candidate species, or adversely modify an area proposed for designation as critical habitat. Concurrence from FIELD OFFICE optional. Monarch Butterfly</p>	X
<p><i>Likely to Jeopardize candidate or proposed species/adversely modify critical habitat:</i> This determination is appropriate when the proposed project is reasonably expected to jeopardize the continued existence of a species proposed for listing or a candidate species, or adversely modify an area proposed for designation as critical habitat. Concurrence from FIELD OFFICE required.</p>	

Signature: MATTHEW CONNOLLY Digitally signed by MATTHEW CONNOLLY
Date: 2024.01.30 15:13:39 -0500
[Supervisor at originating station]

Date _____

Reviewing Ecological Services Office Evaluation (check all that apply):

A. Concurrence Nonconcurrence

i. Explanation of nonconcurrence:

- B. Formal Consultation Required _____
 - i. List species or critical habitat unit:

- C. Effects are addressed in the Programmatic Consultation _____
 - i. On Region's Recovery Program – no further consultation needed

- D. Conference required _____
 - i. List species or critical habitat unit:

Name of Reviewing ES Official: _____

Signature: **JOHN HAMMOND** Digitally signed by JOHN HAMMOND
Date: 2024.02.01 14:30:24 -05'00' Date _____

Appendix C. Interim Recreation Act Funding Analysis

INTERIM RECREATION ACT FUNDING ANALYSIS

Station Name: Roanoke River NWR

Date Refuge Established: 1991

Purposes for which the Refuge was Established:

The purpose of Roanoke River National Wildlife Refuge, as reflected in the refuge's authorizing legislation, is to protect and conserve migratory birds, and other wildlife resources through the protection of wetlands, in accordance with the following laws:

"...the conservation of 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., Sec. 3901(b), 100 Stat. 3583) (Emergency Wetlands Resources Act of 1986);

"...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds..." (16 U.S.C. Sec. 664) (Migratory Bird Conservation Act of 1929);

"...for the development, advancement, management, conservation, and protection of fish and wildlife resources..." (6 U.S.C. Sec 742f(a)4); and

"...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services..." (16 U.S.C. Sec. 742f(b)1) (Fish and Wildlife Act of 1956).

(1) Recreational uses evaluated for the expansion of Roanoke River NWR: Recreational hunting of resident game and migratory birds in accordance with federal and state regulations; recreational fishing of freshwater fish species in accordance with state regulations; wildlife observation; photography; environmental education; and interpretation.

(2) Funding required for management of the recreational uses: The Service will use existing staff at the refuge to administer recreational uses. The refuge hunt program is administered by the North Carolina Wildlife Resources Commission permit hunt program and requires minimal staff time.

(3) Availability of funding: Based on a review of the refuge budget allocated for recreational use management, I certify that funding is adequate to ensure compatibility and to administer and manage the recreational uses.

Project Leader: _____

Refuge Supervisor: _____

Chief, National

Wildlife Refuge System,

Southeast Region: _____

Appendix D. Rare Animal Species Recorded in the Roanoke River Floodplain

Adapted from A Natural Heritage Inventory of the Roanoke River Floodplain, North Carolina (LeGrand and Hall 2014).

Explanation of Status and Rank Codes for Animals

Global Rank:

- G1 = Critically imperiled globally because of extreme rarity or because of some factor making it especially vulnerable to extinction throughout its range. Typically 5 or fewer occurrences globally.
- G2 = Imperiled globally because of rarity or because of some factor making it very vulnerable to extinction throughout its range. Typically 6-20 occurrences globally.
- G3 = Either vulnerable and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range or because of other factors making it vulnerable to extinction throughout its range. Typically 21-100 occurrences.
- G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
- G5 = Secure globally, though it may be quite rare in parts of its range, especially at the periphery.
- T = The rank of a subspecies or variety. As an example, G4T1 will apply to a subspecies or variety of a species with an overall rank of G4, with the subspecies or variety warranting a rank of G1.
- ? = Unranked, or rank uncertain.
- GNR = Not Ranked. Global rank of the species or subspecies not yet assessed.

State Rank:

- S1 = Critically imperiled in North Carolina because of extreme rarity or because of some factor making it especially vulnerable to extirpation from the state. Typically 1-5 populations.
- S2 = Imperiled in North Carolina because of rarity or because of some factor making it very vulnerable to extirpation from the state. Typically 6-20 populations.
- S3 = Vulnerable in North Carolina. Typically 21-100 populations.
- S4 = Apparently secure in North Carolina, with many occurrences.
- An S or G rank involving two numbers indicates uncertainty of rank. For example, a G2G3 rank indicates that the species appears to warrant either a G2 or a G3 ranking, but that existing data do not allow that determination to be made.
- SU = Currently unrankable in the state due to lack of information or substantially conflicting information about status or trends. Need more information.

- B = Rank of the breeding population in the state. Used for migratory species only.
- N = Rank of the non-breeding population in the state. Used for migratory species only.

U.S. Status:

- E = Endangered. An animal that is in danger of extinction throughout all or a significant portion of its range.
- T = Threatened. An animal that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
- FSC = Federal Species of Concern. A species under consideration for listing, for which there is insufficient information to support listing at this time. "...The Service remains concerned about these species, but further biological research and field study are needed to resolve the conservation status of these taxa. Many species of concern will be found not to warrant listing, either because they are not threatened or endangered or because they do not qualify as species under the definition in the [Endangered Species] Act. Others may be found to be in greater danger of extinction than some present candidate taxa. Such species are the pool from which future candidates for listing will be drawn." (Federal Register, February 28, 1996).
- U.S. Status is determined by the U.S. Fish and Wildlife Service and the U.S. National Marine Fisheries Service in accordance with the U.S. Endangered Species Act of 1973, as amended (U.S. ESA). Plants and plant varieties, (including fungi and lichens), animal species and subspecies, and vertebrate populations are considered for Endangered or Threatened status according to the criteria established under the U.S. ESA. Consult the Asheville or Raleigh Ecological Services Field Offices for more information.

State Status:

- E = Endangered. Any native or once-native species of wild animal whose continued existence as a viable component of the State's fauna is determined by the Wildlife Resources Commission to be in jeopardy or any species of wild animal determined to be an 'endangered species' pursuant to the Endangered Species Act. (Article 25 of Chapter 113 of the General Statutes; 1987).
- T = Threatened. Any native or once native species of wild animal which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, or one that is designated as a threatened species pursuant to the Endangered Species Act. (Article 25 of Chapter 113 of the General Statutes 1987).
- SC = Special Concern. Any species of wild animal native or once-native to North Carolina which is determined by the Wildlife Resources Commission to require monitoring but which may be taken under regulations adopted under the provisions of this Article. (Article 25 of Chapter 113 of the General Statutes 1987).

- SR = Significantly Rare. Any species which has not been listed by the North Carolina Wildlife Resources Commission as an Endangered, Threatened, or Special Concern species, but which exists in the state (or recently occurred in the state) in small numbers and has been determined by the North Carolina Natural Heritage Program to need monitoring. (This is a North Carolina Natural Heritage Program designation.) Significantly Rare species include “peripheral” species, whereby North Carolina lies at the periphery of the species’ range (such as hermit thrush, *Catharus guttatus*), as well as species of historical occurrence with some likelihood of re-discovery in the state.
- Species considered extirpated in the state, with little likelihood of re-discovery, are given no State Status (unless already listed by the North Carolina Wildlife Resources Commission as E, T, or SC).
- WL = Watch List. Any other species believed to be rare and of conservation concern in the state, but not warranting active monitoring at this time. (This is a North Carolina Natural Heritage Program designation.)
- D = Depleted

Table 1. Table of Rare Animal Species of the Roanoke River Floodplain.

Taxonomic Group	Scientific Name	Common Name	Global Element Rank	State Element Rank	Federal Status	State Status	IPaC*
MAMMALS	<i>Corynorhinus rafinesquii macrotis</i>	Rafinesque's Big-eared Bat – Coastal Plain Population	G3G4 TNR	S3	FSC	SC	
MAMMALS	<i>Myotis austroriparius</i>	Southeastern Myotis	G3G4	S2	FSC	SC	
MAMMALS	<i>Myotis septentrionalis</i>	Northern Long-Eared			E		X
MAMMALS	<i>Perimyotis subflavus</i>	Tricolored Bat	G2G3		C		
MAMMALS	<i>Sciurus niger</i>	Eastern Fox Squirrel	G5	S3	-	WL	
BIRDS	<i>Ammodramus savannarum</i>	Grasshopper Sparrow	G5	S3B, S1N	-	WL	
BIRDS	<i>Anhinga anhinga</i>	Anhinga	G5	S3B	-	WL	
BIRDS	<i>Euphagus carolinus</i>	Rusty Blackbird [winter season only]	G4	S3N	-	WL	X
BIRDS	<i>Haliaeetus leucocephalus</i>	Bald Eagle	G5	S3B, S3N	-	T	
BIRDS	<i>Lanius ludovicianus</i>	Loggerhead Shrike	G4	S3B, S3N	-	WL, SC	
BIRDS	<i>Nyctanassa violacea</i>	Yellow-crowned Night-Heron	G5	S2B	-	SR	

Taxonomic Group	Scientific Name	Common Name	Global Element Rank	State Element Rank	Federal Status	State Status	IPaC*
BIRDS	<i>Setophaga cerulea</i>	Cerulean Warbler	G4	S2B	FSC	SC	
BIRDS	<i>Vireo gilvus</i>	Warbling Vireo	G5	S2B	-	SR	
BIRDS	<i>Picoides borealis</i>	Red-cockaded Woodpecker	G3	S2	E	E	X
REPTILES	<i>Virginia valeriae</i>	Smooth Earth Snake	G5	S3	-	WL	
FISHES	<i>Carpionodes cyprinus</i>	Quillback	G5	S2?	-	SR	
FISHES	<i>Etheostoma vitreum</i>	Glassy Darter	G4G5	S3	-	WL	
FISHES	<i>Alosa aestivalis</i>	Blueback herring	W		FSC	D	
FISHES	<i>Acipenser oxyrinchus</i>	Atlantic sturgeon	G3		E	E	
MUSSELS	<i>Alasmidonta undulata</i>	Triangle Floater	G4	S2	-	T	
MUSSELS	<i>Anodonta implicata</i>	Alewife Floater	G5	S1	-	T	
MUSSELS	<i>Elliptio roanokensis</i>	Roanoke Slabshell	G3	S1	-	T	
MUSSELS	<i>Fusconaia masoni</i> *	Atlantic Pigtoe	G2	S1	FSC	E	
MUSSELS	<i>Lampsilis cariosa</i>	Yellow Lampmussel	G3G4	S1	FSC	E	
MUSSELS	<i>Lampsilis radiata</i>	Eastern Lampmussel	G5	S1S2	-	T	
MUSSELS	<i>Lasmigona subviridis</i>	Green Floater	G3	S1	FSC	E	
MUSSELS	<i>Leptodea ochracea</i>	Tidewater Mucket	G3G4	S1	-	T	

Taxonomic Group	Scientific Name	Common Name	Global Element Rank	State Element Rank	Federal Status	State Status	IPaC*
MUSSELS	<i>Ligumia nasuta</i>	Eastern Pondmussel	G4	S1	-	T	
MUSSELS	<i>Succinea unicolor</i>	Squatty Ambersnail	G3G4	S1S2	-	SR	
MUSSELS	<i>Xolotrema caroliniense</i>	Blunt Wedge	G4	S3?	-	WL	
CRUSTACEAN S	<i>Orconectes virginianus</i>	Chowanoke Crayfish	G3	S3	-	SC	
DRAGONFLIES	<i>Arigomphus villosipes</i>	Unicorn Clubtail	G5	S3	-	WL	
DRAGONFLIES	<i>Gomphus dilatatus</i>	Blackwater Clubtail	G5	S3?	-	WL	
DRAGONFLIES	<i>Gomphus hybridus</i>	Cocoa Clubtail	G4	S3	-	WL	
DRAGONFLIES	<i>Stylurus amnicola</i>	Riverine Clubtail	G4	S3	-	WL	
KATYDIDS	<i>Montezumina modesta</i>	Montezuma Katydid	GU	SU	-	WL	
BUTTERFLIES	<i>Amblyscirtes carolina</i>	Carolina Roadside-Skipper	G3G4	S3S4	-	WL	
BUTTERFLIES	<i>Danaus plexippus</i>	Monarch Butterfly			C		X
MOTHS	<i>Acrapex relictus</i>	a canebrake moth	G4	S3	-	WL	
MOTHS	<i>Anacamptodes cypressaria</i>	an inchworm moth	G2G4	SU	-	SR	
MOTHS	<i>Apameine new genus 2 sp. 3</i>	an undescribed cane moth	GNR	S2S3	-	SR	
MOTHS	<i>Argillophora furcilla</i>	a cane moth	G3G4	S2S3	-	WL	

Taxonomic Group	Scientific Name	Common Name	Global Element Rank	State Element Rank	Federal Status	State Status	IPaC*
MOTHS	<i>Caripeta aretaria</i>	Southern Pine Looper	G4	S3S4	-	WL	
MOTHS	<i>Catocala lincolnana</i>	Lincoln Underwing	G3	S2S3	-	SR	
MOTHS	<i>Catocala marmorata</i>	Marbled Underwing	G3G4	S1S3	-	SR	
MOTHS	<i>Catocala orba</i>	Orb Underwing	G4	S2S3	-	SR	
MOTHS	<i>Cerma cora</i>	a bird-dropping moth	G3G4	S2S3	-	SR	
MOTHS	<i>Cisthene kentuckiensis</i>	Kentucky Lichen Moth	G4	SU	-	WL	
MOTHS	<i>Gondysia smithii</i>	Smith's Darkwing	G4	S3?	-	WL	
MOTHS	<i>Hypomecis longipectinaria</i>	a wave moth	G2G4	S3S4	-	WL	
MOTHS	<i>Idea scintillularia</i>	Diminutive Wave	GNR	SU	-	WL	
MOTHS	<i>Leucania calidior</i>	Cane Wainscot	G2G4	S1S2	-	SR	
MOTHS	<i>Lithacodia sp. 1</i>	a bird-dropping moth	G1G3	S1S3	-	WL	
MOTHS	<i>Lithacodia sp. 2</i>	a bird-dropping moth	G1G3	S1S3	-	WL	
MOTHS	<i>Orgyia detrita</i>	a tussock moth	G3G4	S2S3	-	WL	
MOTHS	<i>Papaipema araliae</i>	Aralia Shoot Borer Moth	G3G4	S2S4	-	WL	
MOTHS	<i>Papaipema sp. 3</i>	Southeastern Cane Borer Moth	G4	S3S4	-	WL	

Taxonomic Group	Scientific Name	Common Name	Global Element Rank	State Element Rank	Federal Status	State Status	IPaC*
MOTHS	<i>Properigea tapeta</i>	an owlet moth	GNR	SU	-	WL	
MOTHS	<i>Rivula stepheni</i>	Stephen's Grass Moth	GNR	SU	-	WL	
MOTHS	<i>Tornos abjectarius</i>	a gray moth	GNR	S2S4	-	WL	
MOTHS	<i>Tripudia flavofasciata</i>	an owlet moth	GNR	SU	-	WL	
MOTHS	<i>Zale sp. 3 nr. buchholzi</i>	an owlet moth	G3G4	S2S3	-	WL	
MOTHS	<i>Zanclognatha atrilineella</i>	an owlet moth	GU	S1S3	-	WL	
PLANTS	<i>Lysimachia asperulaefolia</i>	Rough-leaved Lossestrife	G3	S3x	E	E	X
PLANTS	<i>Aeschomene virginica</i>	Sensitive Joint-vetch	G2	SH	E	E	X

- IPAC- Information for Planning and Consultation (IPaC) is a project planning tool that streamlines the USFWS environmental review process.

Table 2. Major species guilds found along the coastal plain reach of the Roanoke River with an abbreviated list of wildlife species associated with each. Column 4 lists the priority species that are referenced in the respective conservation plan(s) footnoted at the end of the table. Focal species are identified along with the landowner constituency that can provide a significant amount of habitat for a given guild.

Taxa	Species Guild	Species (Examples)	Priority Species Within Guild	Focal Species	Stakeholder Contribution to Resources of Concern
Avian	Ground, Near ground Nesters, and Ground Foragers	Northern bobwhite, wild turkey, Kentucky warbler, Swainson's warbler, ovenbird	^{1,6,7} Kentucky warbler, ^{1,2,6,7} Swainson's warbler, ⁶ ovenbird, ^{1,2,6} American Woodcock	Swainson's Warbler	USFWS, NCWRC, TNC, private
Avian	Forest Interior	Worm-eating warbler, Wood thrush, Cerulean warbler, Scarlet tanager, Acadian flycatcher, Hooded warbler, Yellow-throated vireo, American redstart,	^{1,2} Worm-eating warbler, ^{1,2,6,7} Wood thrush, ^{1,2,6,7} Cerulean warbler, ⁶ Scarlet tanager, ⁶ Acadian flycatcher, ^{1,2,6} Hooded warbler, ⁶ Yellow-throated vireo, ^{2,6,7}	Wood thrush, Cerulean warbler	USFWS, NCWRC, TNC, private (less likely to sustain)

		Eastern wood peewee, Northern parula warbler, Yellow-throated warbler	Northern parula warbler, ² Yellow-throated warbler, ¹ Eastern woodpeewee		
Avian	Cavity Nesters	Woodpeckers: red bellied, pileated, red-headed, downy, hairy; northern flicker; Wood duck; Hooded merganser; Great crested flycatcher; Prothonotary warbler; Carolina chickadee; Barred owl	¹ Red-headed woodpecker, ¹ Hairy woodpecker, ³ Wood duck, ^{3,6} Hooded merganser, ^{2,6,7} Prothonotary warbler, ¹ Northern flicker	Wood duck	USFWS, NCWRC, TNC, private (less likely to sustain)
Avian	Edge Species	Indigo bunting, Blue grosbeak, White-eyed vireo, Summer tanager, Common yellowthroat	² Eastern towhee	N/A - River corridor and agricultural edges provide abundant edge habitat along 138 miles of river	USFWS, NCWRC, TNC, private

		warbler, Eastern towhee, Brown thrasher			
Avian	Open woodland	Mississippi kite, Yellow-billed cuckoo, Orchard oriole	^{2(local)} Mississippi kite, ¹ Yellow-billed cuckoo, ^{1,7} Orchard oriole	N/A - Sufficient habitat is available in surrounding area.	USFWS, NCWRC, TNC, private
Avian	Early succession, scrub-shrub	Yellow-breasted chat, Prairie warbler, Indigo bunting, White-eyed vireo, American woodcock	^{1,2} Prairie warbler, ² White-eyed vireo	N/A-Surrounding lands will support in the long term. Spot analysis of regional early successional habitat for next 15 years indicates that of the 850K acres of habitat in LRR Basin, 250K is early successional.	USFWS (less likely to sustain), NCWRC (less likely to sustain), TNC (less likely to sustain), private
Avian	Swamp	Rusty blackbird (winter), Prothonotary warbler, Yellow-crowned night	^{2,6,7} Rusty blackbird (winter), ^{1(local)} Yellow-crowned night heron,	Yellow-crowned night heron (spring/summer)	USFWS, NCWRC, TNC, private (less likely to sustain)

		heron, Great egret, Green heron, Louisiana waterthrush, Wood duck, Hooded merganser	⁶ Louisiana waterthrush, ^{2,6,7} Prothonotary warbler, ³ Wood duck	Rusty black bird (winter)	
	Flooded Forest (winter and spring)	Wintering American black duck, Mallard, American wigeon, Ring-necked duck, Gadwall, Green-winged teal, Wood duck (year-round)	^{2,3} American black duck (winter), ^{2,3} Wood duck (year-round), ^{2,3} Mallard (winter), ² Ring-necked duck (winter),	Wood duck (spring) and American black duck (winter)	USFWS, NCWRC, TNC, private (less likely to sustain)
Avian	Riverine	Bald eagle, Osprey, Spotted sandpiper (nonbreeding), Louisiana waterthrush	^{1,7} Bald eagle, ⁶ Louisiana waterthrush	N/A - habitat in great abundance	USFWS, NCWRC, TNC, private
Aquatic	Migratory fish (floodplain utilizers)	American eel, Blueback herring, Alewife,	⁵ American eel, ⁵ River herring (Blueback/	River herring	USFWS, NCWRC, TNC,

		Hickory shad, Striped bass	Alewife), ⁵ Hickory shad, ⁵ Striped bass		private (less likely to sustain)
Aquatic	Resident fish (floodplain utilizers)	Black crappie, Bluegill, Warmouth, Largemouth bass, Yellow bullhead, Bowfin, Long-nose gar, Creek chubsucker, Flier, Mosquito fish,		N/A - species guild covered by migratory fish and swamp guild	USFWS, NCWRC, TNC, private
Resident Wildlife Non- Avian	Downed woody debris with seasonally flooded water body nearby	Salamanders: Marbled, Slimy, Mud, Eastern newt; Spadefoot toad, Green tree frog, Squirrel tree frog, Gray tree frog	¹ Marbled salamander, ¹ Slimy salamander, ¹ Spadefoot toad,	Marbled salamander	USFWS, NCWRC, TNC, private (less likely to sustain)
Resident Wildlife Non- Avian	Standing water	Spotted turtle, Green frog, Eastern cottonmouth, Crayfish sp.	¹ Spotted turtle,	N/A - species covered by swamp guild	USFWS, NCWRC, TNC, private

Resident Wildlife Non- Avian	Flooded and nonflooded woodlands	Golden mouse, Short-tailed shrew, Marsh rabbit, White-footed mouse	¹ Golden mouse, ¹ Marsh rabbit,	N/A-species covered by several avian guilds	USFWS, NCWRC, TNC, private
Resident Wildlife Non- Avian	Cavity dwellers	Black bear, Southeastern myotis bat, Rafinesque's big-eared bat,	¹ (NC species of concern) Southeastern myotis, ¹ (NC threatened) Rafinesque's big-eared bat	Rafinesque's big-eared bat	USFWS, NCWRC, TNC, private (less likely to sustain)

¹**North Carolina Wildlife Action Plan (NCWRC 2005)** - identified if species was listed as a priority or higher.

²**South Atlantic Coastal Plain Partners In Flight Bird Conservation Plan (Hunter et. al. 2001)** - identified if species is of high or extremely high priority.

³**Atlantic Coast Joint Venture (Atlantic Coast Joint Venture 2004)** - identified if species is of moderately high to high priority.

⁴**Southeast United States Regional Waterbird Conservation Plan (Hunter et al. 2006)** - identified if species of immediate or high management concern.

⁵**Atlantic States Marine Fisheries, Fisheries Management Reports (ASMFC 1999, 2000, and 2003)** - identified if management plan has been developed.

⁶**North Carolina Bird Species Assessment, Coastal Plain of NC (Johns 2006)** - identified if species of moderate to extremely high conservation concern within the South Atlantic Coastal Plain physiographic region.

N/A - habitat within this guild is in great abundance or there is adequate protection of the habitat for species within the guild by focal species designated in other guilds.

Appendix E. Public Involvement, Consultation, Coordination, and Response to Comments

This appendix summarizes the efforts taken to solicit public comments, the results of the public consultation process, the public comments (both oral and written) that were received on the Draft Land Protection Plan and Environmental Assessment (Draft LPP/EA), and the Service responses to the public comments.

SUMMARY OF PUBLIC SCOPING IN THE PLANNING PROCESS

Public Scoping

The public scoping period for the Roanoke River National Wildlife Refuge (NWR) Expansion Plan was from January 1 through March 3, 2017. The Service held five open houses on each evening of the week of January 23-27, 2017. Each two-hour open house provided the public with an opportunity to interact individually with Service experts in fish and wildlife management, recreational opportunities, real estate, aquatic biology, private land stewardship, and refuge planning. The open house meetings were announced in advance through a press release, as well as in letters and e-mails sent to CPA landowners, state and local elected officials, and other state and federal natural resource agencies. Methods of outreach to private landowners, state and federal elected officials, other state and federal natural resource agencies, nongovernmental conservation organizations, and the general public included direct mailings, e-mails, digital media (a link on the Roanoke River NWR website) and press releases to local media. Approximately 108 people attended the meetings over the 5 days. The purpose of public scoping was to seek input regarding the expansion of Roanoke River NWR and to identify the issues that needed to be addressed in the planning process.

In-person meetings were also held with U.S. congressional staffers, conservation planners with the NC Chapter of The Nature Conservancy, and senior staff with the NCWRC. Service Planners and Refuge Staff gave in-person presentations on the expansion plan at county commissioner meetings in all five counties and letters were sent to those federal and state representatives and senators whose districts fell within the CPA. The Service coordinated with the following:

- Elected County Commissioners, Mayors, and others in the Five Counties of the CPA
- CPA Landowners
- Martin County Tourism Department
- NC State Elected Senators and Representatives for the Area
- NC Wildlife Resources Commission

- U.S. Army Corps of Engineers
- NC Natural Heritage Program
- Roanoke River Mayors Association
- Federal and State Elected Senators and Representatives for the Area
- The Nature Conservancy
- The Conservation Fund
- Affected Tribes including Catawba Indian Nation and Tuscarora Nation of New York
- Rick Kanaski, Regional Archaeologist, Southeast Region, USFWS

The issues and comments identified during the scoping process helped guide development of the draft LPP and EA. Public comments on the draft LPP and EA were accepted from November 29, 2023, until January 4, 2024. Two public meetings were held, one at 7 p.m. on December 14, 2023, at the Windsor Community Building, 201 S. Queen Street, Windsor, N.C., 27983, and the other virtual, at 2 p.m. ET, on December 15, 2023. Information on both meetings, was posted at: <https://www.fws.gov/project/proposed-expansion-roanoke-river-national-wildlife-refuge>. All interested parties had the opportunity to participate and provide comments during the open 30-day comment period. Comments were submitted to: Roanokeriver@fws.gov via email, during the public meetings, and by mail until Jan 4, 2024.

SUMMARY OF PUBLIC DRAFT CCP COMMENTS

The 37-day public review and comment period for the Roanoke River NWR Draft LPP/EA began on November 29, 2023, with a U. S. Fish and Wildlife Service news release requesting comments through January 4, 2024. Announcements were sent to 762 affected landowners and over 75 federal, state, county, city, and other stakeholders within the CPA. Affected Tribes, the Tuscarora Nation of New York, United Keetoowah Band of Cherokee, and Catawba Indian Nation, were sent letters to request comments on the Draft LPP/EA. The news release was distributed to over 176 North Carolina media outlets, 76 Southeast Environmental Media Outlets, and 20 Bloggers in the Southeast. Two public meetings occurred during the public review and comment period, including one in-person meeting on December 14, 2023, from 6:30-8:30 p.m. at the Community Center, Windsor, NC, and one virtual meeting on December 15, 2023 from 2-4 p.m. Attendance at the public meetings on December 14 and 15, 2023, were 21 and 25, respectively.

The North Carolina State Clearinghouse coordinated State agency review of the Draft LPP and EA (24-E-0000-0157) under Presidential Executive Order 12372; Coastal Zone Management Areas, 16 U.S.C. 1451-1464; and the National Environmental Policy Act, 42 U.S.C 4321-4347. The State Historic Preservation Review found the project to be consistent and provided minor comments.

Comments on the Draft LPP/EA were submitted in a variety of ways (e.g., at the public meeting and by mail and email). We received a total of 44 comments between the public

meetings and by email during the comment period. The substantive comments fell into roughly 5 categories: Easements (9); Fee title (3); Taxes (3); Flooding (3), and; Miscellaneous (3). Letters of support were received from five non-governmental organizations and four members of the General Public.

Under NEPA, the Service must respond to substantive comments. For purposes of this LPP, a substantive comment is one that was submitted during the public review and comment period which is within the scope of the proposed action (and the other alternatives outlined in the EA), is specific to the proposed action, has a direct relationship to the proposed action, and includes reasons for the Service to consider it. The comments submitted during the public review and comment period were evaluated and summarized. Comments on like topics were grouped together. The Service's responses to the comments are provided.

Easements

Comment: What exactly are conservation easements?

Service Response: Conservation Easement refers to the purchase of limited rights (less than fee) from an interested landowner. Easements are a property right and typically are perpetual. If a landowner later sells the property, the easement continues as part of the title. A detailed easement plan will be drawn up prior to purchase so expectations are clear up front. The structure of such easements would provide permanent protection of existing wildlife habitats while also allowing agreed upon habitat management or improvements. Properties subject to easements generally remain on the tax rolls, although the change in market value may reduce the assessment. The Service does not pay refuge revenue sharing on easement rights. Land uses that are normally restricted under the terms of a conservation easement include: development rights (agricultural, residential, etc.), alteration of the area's natural topography, uses adversely affecting the area's floral and faunal communities, excessive public access and use, and alteration of the natural water regime.

Comment: Can a landowner harvest timber on a conservation easement?

Service Response: The beauty of a conservation easement is that it can be tailored to the specific needs of the landowner and the Service. An easement can be drafted that allows timber management based on a plan approved by the Service.

Comment: Can a landowner still hunt and fish on an easement?

Service Response: Yes. A detailed conservation easement plan will be drawn up prior to purchase so expectations are clear up front. The value of a conservation easement that has consumptive uses may be less than those without such uses.

Comment: Asked who dictates the price paid for the conservation easement?

Service Response: The price that the Service pays for a conservation easement is based on the fair market value for the interest that the Service is acquiring. For example, if the Service is purchasing an easement that does not allow any timber harvesting, then the purchase price would include the fair market value of the timber at the time of the sale.

Fee Title

Comment: My property has a building on it. would the value of the building be considered in a purchase offer price?

Service Response: Yes. Once a land protection (refuge acquisition) boundary has been approved, we contact neighboring landowners to determine whether any are interested in selling. If a landowner expresses an interest and gives us permission, a real estate appraiser will appraise the property to determine its market value. Once an appraisal has been approved, we can present an offer for the landowner's consideration. Appraisals conducted by Service or contract appraisers must meet federal as well as professional appraisal standards. In all fee title acquisition cases, the Service is required by Federal law to offer 100 percent of the property's appraised market value, which is typically based on comparable sales of similar types of properties. Fee title acquisition conveys all ownership rights to the federal government and provides the best assurance of permanent resource protection.

A fee title interest may be acquired by donation, exchange, transfer, or purchase (as availability of funding allows). The most likely sources of appropriated dollars for the purpose of land acquisition are the Land and Water Conservation Fund (LWCF) and the Migratory Bird Conservation Fund (MBCF). The primary source of income to the LWCF is fees paid by companies drilling offshore for oil and gas, as well as oil and gas lease revenues from federal lands. Additional sources of LWCF income include the sale of surplus federal real estate and taxes on motorboat fuel. The primary source of income to the MBCF is revenue from the sale of Migratory Bird Hunting and Conservation Stamps, commonly known as Duck Stamps. Additional major sources of MBCF income include appropriations from the Wetlands Loan Act of 1961, import duties collected on arms and ammunition, and receipts from the sale of refuge admission permits. In its effort to meet the goals of this refuge, the Service will seek appropriations from the LWCF and the MBCF for fee-title acquisition and conservation easements.

Comment: If a landowner didn't want their land in Federal ownership but would sell it to a non-governmental organization (NGO) such as The Nature Conservancy (TNC), could the landowner stipulate this in the land sale and keep it out of federal ownership?

Service Response: The Service often uses NGOs such as TNC or the Conservation Fund

to help them purchase property in a timely manner. When the Service has an interest in a property and an NGO offers to buy it, they will always inform the landowner that they are purchasing it with the intent to transfer it to the Service.

Comment: Which partners are you working with to acquire land? How do those transactions proceed?

Service Response: The Service often uses a NGO such as The Nature Conservancy or the Conservation Fund to help purchase property in a timely manner. When the NGO approaches the landowner, they will offer to purchase the property at fair market value based on the similar properties in the local area. The NGO will maintain ownership of the property until the Service can get the funding and all of the associated documents are completed. Once this process is finished, the property is then transferred to the Service for inclusion into the Refuge.

Flooding

Comment: The current water management plan that allows Kerr dam to release 35,000 cubic feet per second was being reconsidered by the courts. How does this affect the plan?

Service Response: The current water management plan was adopted because the U.S. Army Corps of Engineers (USACE) determined that the old plan was causing harm to the downstream ecosystem. By policy, the USACE has to mitigate to their best ability any negative impacts to the ecosystem. Therefore, we do not expect any changes to the current plan.

Comment: Will overall level of Roanoke River rise?

Service Response: Flows on the Roanoke River are controlled by USACE. The current water management plan will remain the same.

Taxes

Comment: Will the purchase of land for the Refuge increase property taxes of surrounding properties?

Service Response: The Revenue sharing payments made by the federal government to counties that have land owned by the USFWS is meant to help offset loss of tax revenue. The Refuge Revenue Sharing Act, as amended, requires that payments be made to counties, for all land purchased by the Service in fee title. These payments will be based on the greatest of:

- ❖ $\frac{3}{4}$ of 1 percent of the fair market value, or

- ❖ 25 percent of the net receipts collected for products or services on the land,
or
- ❖ 75 cents per acre

The revenue sharing appraisal is based upon current fair market values of the various land types in the county or counties where each refuge is located. This appraisal values the refuge land by comparing it to the same, or similar, sales of land in the local area. As a result, refuge land is valued at its highest economic potential based on the surrounding real estate market. That means refuge land is valued on a variety of potential uses, including commercial property, timberland and farmland. The revenue sharing appraisal compiles all the values found on each refuge to produce an overall per acre value for that refuge. The source of funds for refuge revenue sharing payments are derived from the net receipts collected from the sale of various products or privileges from all refuge lands such as grazing leases or timber sales, plus additional appropriated funds.

Numerous studies have shown the NWR's generate income for local communities that offset any losses to the tax base.

Comment: What would tax revenue be for an easement?

Service Response: The tax value of an easement is determined by the county. Landowners should consult with local officials or a tax attorney to determine what the tax implications would be for their specific property. In general, easements are taxed at a lower rate than other types of property.

Miscellaneous

Comment: Would any of the lands in the expansion area qualify for Carbon Sequestration?

Service Response: These types of credits are determined by the State and county governments. Landowners should check with their state and local officials to determine if they are eligible for these credits.

Comment: How many cultivated acres are included in the proposed area?

Service Response: There are 51,210 acres of cultivated cropland in the Conservation Partnership Area.

Comment: What is the timeline for consideration and potential approval of the expansion?

Service Response: The Service plans to have final approval of the plan by the end of March 2024.

Appendix F. Finding of No Significant Impact

INTRODUCTION

The U.S. Fish and Wildlife Service (Service) will expand Roanoke River National Wildlife Refuge's acquisition boundary allowing for the conservation of about 287,090 contiguous acres of habitat for wildlife, spanning 137 miles along the Roanoke River in Bertie, Washington, Martin, Halifax and Northampton Counties, North Carolina. An Environmental Assessment (EA) was prepared to inform the public of the possible environmental consequences of implementing the Land Protection Plan (LPP) for Roanoke River NWR. A description of the alternatives, the rationale for selecting the preferred alternative, the environmental effects of the preferred alternative, the potential adverse effects of the action, and a declaration concerning the factors determining the significance of effects, in compliance with the National Environmental Policy Act of 1969 (NEPA), are outlined below. The supporting information can be found in the EA for the expansion of Roanoke River NWR, as outlined in the LPP.

ALTERNATIVES

In developing the LPP for Roanoke River NWR, the Service developed and analyzed four alternatives, with each alternative taking into consideration lands already protected:

- Alternative A (No Action or status quo);
- Alternative B, a 287,090-acre CPA with 50,000 acres in fee-title ownership and up to 100,000 acres in conservation easements;
- Alternative C, a 195,119-acre CPA with 50,000 acres in fee-title ownership and up to 100,000 acres in conservation easements; and
- Alternative D, a 205,391-acre CPA with 50,000 acres in fee-title ownership and up to 100,000 acres in conservation easements.

The Service adopted Alternative B as the preferred alternative, as detailed in the LPP and the supporting documents, including the Conceptual Management Plan (Roanoke River NWR Comprehensive Conservation Plan (CCP USFWS 2005)) and the associated compatibility determinations (USFWS 2005, 2013), to guide the expansion, acquisition, and management of Roanoke River NWR. Management of the refuge will continue under the (CCP) and/or step-down management plan(s) (e.g., Habitat Management Plan) for the refuge. The primary goals for the expansion of the refuge are to:

- Protect, maintain, and enhance healthy and viable populations of indigenous migratory birds, wildlife, fish, and plants, including federal and state threatened and endangered species.

- Restore, maintain, and enhance the health and biodiversity of forested wetland habitats to ensure improved ecological productivity.
- Provide the public with safe, quality wildlife-dependent recreational and educational opportunities that focus on the wildlife and habitats of the refuge and the Refuge System. Continue to participate in local efforts to achieve a sustainable level of economic activity, including nature-based tourism.;
- Protect refuge resources by limiting the adverse impacts of human activities and development.

Alternative A: No Refuge (No Action Alternative)

The No Action Alternative, as required by the NEPA, serves as a baseline to which the other alternatives are compared. Under Alternative A, the Service would not expand the existing acquisition boundary for Roanoke River NWR and no additional lands would be available for inclusion in the refuge either through fee-title ownership, conservation easement, or cooperative agreement. No change from the current authorized acquisition boundary would be made. Roanoke River NWR currently has 21,313 acres within its 33,000-acre acquisition boundary. Land within the acquisition boundary is authorized for purchase in fee-title, conservation easement or cooperative agreement.

Alternative B: Establish Full Conservation Partnership Area (Preferred Alternative)

Under Alternative B, the Preferred Alternative, the Land Protection Plan will be approved and the Roanoke River NWR acquisition boundary will be expanded to 287,090 acres to create a Conservation Partnership Area (CPA) in which the Service could add up to 50,000 acres in fee-title and 100,000 acres in conservation easements to Roanoke River NWR, in addition to the remaining 11,687 acres authorized under the current acquisition boundary.

Within the CPA, the Service will work with state, local, private, and fellow federal partners toward a common vision for conservation of the bottomland hardwood habitats of the Roanoke River. The CPA will include the current 33,000-acre acquisition boundary of Roanoke River NWR and an additional 260,853 acres (Figure 3). The CPA will approximate the 100-year floodplain of the Roanoke River from Albemarle Sound to Weldon, provide additional protection to the Cashie River lands south of Windsor, and create a corridor from Roanoke River NWR toward Pocosin Lakes NWR. A full description of the Alternative is described in the draft Land Protection Plan (Section A).

Alternative C – 35,000 cfs Core River Area, Cashie River, and Wildlife Corridor CPA

Alternative C would incorporate into the CPA only those lands that fall below the 35,000 cfs line along the Roanoke River from Weldon to the Albemarle Sound, plus the lands that extend up the Cashie River to Windsor and along Sweetwater Creek south, continuing as

a corridor to Pocosin Lakes NWR (Figure 4). The significant distinction between this alternative and the preferred alternative (Alternative B) is that no lands outside of the 35,000 cfs line would be included. In the preferred alternative, where tracts are crossed by this line, the entire tract would be included within the CPA. Under this alternative, the Roanoke River NWR acquisition boundary would be expanded to 195,119 acres to create a Conservation Partnership Area (CPA) in which the Service could add up to 50,000 acres in fee-title and 100,000 acres in conservation easements to Roanoke River NWR in addition to the remaining 11,687 acres authorized under the current acquisition boundary. This alternative would exclude some farmland from the CPA; however, it would also preclude a landowner from selling an entire tract to the Service if that tract were divided by the 35,000 cfs line.

Alternative D – Northern Reaches and Wildlife Corridor CPA

Alternative D focuses the expansion on the northern reach of the Roanoke River from Williamston north to Weldon and incorporates a wildlife corridor extending south toward Pocosin Lakes NWR (Figure 5). This alternative design focuses more significantly on the projected impacts due to sea-level rise.

As noted earlier, the impacts of sea level rise on terrestrial habitats in northeastern North Carolina have become increasingly evident. It is projected that approximately 741,151 acres to the east of the Roanoke River NWR will convert to either open water or marsh habitats (Figure 2). Of proximate concern is loss of habitat for terrestrial dwelling trust species, including waterfowl and migratory bird species.

Alternative D takes a longer view of conservation and sets the stage for conservation in 50 to 100 years when sea level has risen. The priority is placed on the upper reaches of the Roanoke River within North Carolina that will remain riverine in the future but also are important to conservation in the present. In addition, the corridor along Sweetwater Creek south towards Pocosin Lakes NWR to the Washington County line provides a path of migration for those animals retreating along with habitat as sea level rises. Under this alternative, the Roanoke River NWR acquisition boundary would be expanded to 205,391 acres to create a Conservation Partnership Area (CPA) in which the Service could add up to 50,000 acres in fee-title and 100,000 acres in conservation easements to Roanoke River NWR in addition to the remaining 11,687 acres authorized under the current acquisition boundary.

SELECTION RATIONALE

Alternative B is selected for implementation because it directs the development of programs in coordination and consultation with the Service's partners and the public to best achieve the vision, purposes, and goals, which are outlined in the EA and detailed in the LPP. With the expansion of this refuge, the Service will be able to fully participate with other conservation partners in the management and protection of habitats and

wildlife within the CPA. This action will best achieve national, ecosystem, and refuge-specific goals and objectives. In addition, the action positively addresses the priority issues and concerns, as well as opportunities, expressed by the public and governmental partners.

ENVIRONMENTAL EFFECTS

Based on the nature of the proposal, the location of the CPA, and current land use, the Action will not have any significant adverse effects on the quality of the human environment including public health and safety. Further, because the purpose of the proposal is to protect, maintain, and where possible, enhance the natural habitat of the lands within the acquisition area, the project is not expected to have any significant adverse effects on the area's wetlands and floodplains, pursuant to Executive Orders 11990 and 11988.

Implementation of the Action will not involve any highly uncertain, unique, unknown, or controversial effects on the human environment. The Action will not establish a precedent for future actions with significant effects, nor will it represent a decision in principle about a future consideration. No cumulatively significant impacts on the environment will be anticipated.

In addition, the proposal will not significantly affect any unique characteristic of the geographic area, such as historical or cultural resources, wild and scenic rivers, or ecologically critical areas. The proposal will not significantly affect any site listed in or eligible for listing in the National Register of Historic Places, nor will it cause loss or destruction of significant scientific, cultural, or historic resources. The area's cultural resources will be protected under the regulations of the National Historic Preservation Act of 1966, as amended, the Archaeological Resources Protection Act, and the Advisory Council on Historic Preservation (36 CFR 800). The KY State Historic Preservation Offices will be contacted whenever any future management activities have the potential to affect cultural resource sites.

All tracts acquired by the Service in fee-title will be removed from local real estate tax rolls because federal government agencies are not required to pay state or local taxes. However, the Service makes annual payments to local governments in lieu of real estate taxes, as required by the Refuge Revenue Sharing Act (Public Law 95-469). No measures will be taken that will lead to a violation of federal, state, or local laws imposed for the protection of the environment.

COORDINATION

The land expansion action has been thoroughly coordinated with all interested and/or affected parties. The Service and the North Carolina Wildlife Resources Commission coordinated with the following partners:

1. Local Tribal Members from the following Tribes:
 - o Tuscarora Nation of New York
 - o Tuscarora Nation
 - o United Keetoowah Band of Cherokee
 - o Catawba Indian Nation Henderson County Elected Officials
2. NC Natural Heritage Program
3. Partnership for the Sound - Roanoke/Cashie River Center
4. Affected Area Hunt Clubs and Farms
5. Albemarle-Pamlico National Estuarine Partnership
6. NC Division of Water Resources
7. NC Division of Mitigation Services
8. Natural Resource Conservation Service
9. The Conservation Fund
10. Coastal Forest Resources Company
11. Forest Investment Associates
12. Roanoke River Partners
13. Roanoke River Basin Association
14. Croatan National Forest
15. Cape Lookout National Seashore
16. Cape Hatteras National Seashore
17. Dare County Bombing Range
18. Camp Lejeune Marine Air Station
19. Cherry Point Marine Air Station
20. US Environmental Protection Agency
21. NC Farm Bureau Insurance Group
22. CPA Landowners
23. County Tourism and Chamber Departments
24. County NRCS
25. County FSA
26. NC Wildlife Resources Commission
27. State and County Elected Representatives for the Area
28. Federal Elected Representatives for the Area
29. The Nature Conservancy
30. Southern Conservation Corporation

FINDINGS

It is my determination that this land acquisition action does not constitute a major federal action significantly affecting the quality of the human environment under the meaning of Section 102(2)(c) of the National Environmental Policy Act of 1969 (as amended). As such, an environmental impact statement is not required. This determination is based on the listed factors (40 C.F.R. 1508.27), as addressed in the Environmental Assessment of the Land Protection Plan for the expansion of Roanoke River National Wildlife Refuge.

1. Both beneficial and adverse effects have been considered and this action will not

- have a significant effect on the human environment (Environmental Assessment, Chapter IV Environmental Consequences).
2. The actions will not have a significant effect on public health and safety (Environmental Assessment, Chapter IV Environmental Consequences).
 3. The project will not significantly affect any unique characteristics of the geographic area such as proximity to historical or cultural resources, wild and scenic rivers, or ecologically critical areas (Environmental Assessment, Chapter IV Environmental Consequences).
 4. The effects on the quality of the human environment are not likely to be highly controversial (Environmental Assessment, Chapter IV Environmental Consequences).
 5. The actions do not involve highly uncertain, unique, or unknown environmental risks to the human environment (Environmental Assessment, Chapter IV Environmental Consequences).
 6. The actions will not establish a precedent for future actions with significant effects nor do they represent a decision in principle about a future consideration (Environmental Assessment, Chapter IV Environmental Consequences).
 7. There will be no cumulatively significant impacts on the environment. Cumulative impacts have been analyzed with consideration of other similar activities on adjacent lands, in past action, and in foreseeable future actions (Environmental Assessment, Chapter IV Environmental Consequences).
 8. The actions will not significantly affect any site listed in, or eligible for listing in, the National Register of Historic Places, nor will they cause loss or destruction of significant scientific, cultural, or historic resources (Environmental Assessment, Chapter IV Environmental Consequences).
 9. The actions are not likely to adversely affect threatened or endangered species, or their habitats (Environmental Assessment, Chapter IV Environmental Consequences).
 10. The actions will not lead to a violation of federal, state, or local laws imposed for the protection of the environment (Environmental Assessment, Chapter IV Environmental Consequences).

SUPPORTING REFERENCES

U.S. Fish and Wildlife Service. 2005. Roanoke River National Wildlife Refuge Comprehensive Conservation Plan and Final Environmental Impact Statement. Atlanta, GA. 257 pp.

U.S. Fish and Wildlife Service. 2014. Roanoke River National Wildlife Refuge Habitat

Management Plan. Atlanta, GA. 208 pp.

U.S. Fish and Wildlife Service. 2023. Draft Land Protection Plan and Environmental Assessment for the Proposed Expansion of Roanoke River National Wildlife Refuge, Bertie, Washington, Martin, Halifax and Northampton Counties, North Carolina. U.S. Department of the Interior, Fish and Wildlife Service, Southeast Region. Atlanta, GA.

U.S. Fish and Wildlife Service. 2024. Land Protection Plan for the Expansion of Roanoke River National Wildlife Refuge, Bertie, Washington, Martin, Halifax and Northampton Counties, North Carolina. U.S. Department of the Interior, Fish and Wildlife Service, Southeast Region. Atlanta, GA.

DOCUMENT AVAILABILITY

The Draft Land Protection Plan and Environmental Assessment for the Expansion of Roanoke River National Wildlife Refuge was developed from information gathered during public scoping and was made available for public review and comment from November 29, 2023, to January 4, 2024. The Land Protection Plan was revised, based on the input received during public review and comment. Additional copies of the final documents are available by writing: Branch Chief, U.S. Fish and Wildlife Service, Branch of Planning, 1875 Century Boulevard, Atlanta, Georgia 30345.

Michael Oetker
Acting Regional Director

Date

