

DRAFT LAND PROTECTION PLAN FOR THE EXPANSION OF **MOUNTAIN BOGS NATIONAL WILDLIFE REFUGE**

*Alleghany, Ashe, Henderson, Macon, McDowell, Rutherford, and Watauga Counties,
North Carolina*



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Southeast Region



TABLE OF CONTENTS

DRAFT LAND PROTECTION PLAN

EXECUTIVE SUMMARY	IV
LAND PROTECTION PLAN	1
I. INTRODUCTION AND PURPOSE	1
A. Project Description.....	3
B. Refuge Purpose(s).....	7
II. RESOURCES.....	8
A. Resources To Be Protected	8
B. Threats	8
C. Relationship of Project to Landscape Conservation Goals and Objectives	9
D. Partnership Efforts/Related Resources.....	10
III. LAND PROTECTION STRATEGY	12
A. Action and Objectives	12
B. Land Protection Priorities	13
C. Land Protection Options	19
D. Land Protection Methods.....	21
IV. COORDINATION.....	25
APPENDIX A. REFERENCES	28
APPENDIX B. INTERIM APPROPRIATENESS FINDINGS AND INTERIM COMPATIBILITY DETERMINATIONS.....	30
APPROPRIATE USE FINDINGS.....	30
INTERIM COMPATIBILITY DETERMINATIONS	31
APPENDIX C. INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION	32
APPENDIX D. INTERIM RECREATION ACT FUNDING ANALYSIS	38
APPENDIX E. PUBLIC INVOLVEMENT	40
APPENDIX F. INFORMATION ON PREPARERS.....	41

LIST OF FIGURES

FIGURE 1. LOCATION MAP OF CONSERVATION PARTNERSHIP AREAS (CPAS). 2

FIGURE 2. BOX CREEK EASEMENT DONATION AND CONSERVATION PARTNERSHIP AREA DESIGN 4

FIGURE 3. LOCATION OF BOX CREEK WITHIN THE MOUNTAIN BOGS NWR AREA OF INFLUENCE 5

FIGURE 4. LOCATION OF PROPOSED MOUNTAIN BOGS NWR EXPANSION SITES. 6

FIGURE 5. CONSERVATION PARTNER LANDS 11

FIGURE 6. LAND PROTECTION PRIORITIES 18

LIST OF TABLES

TABLE 1. MOUNTAIN BOGS NWR EXPANSION LAND PROTECTION PRIORITIES AND ACQUISITION OPTIONS 17

TABLE 2. ACQUISITION COSTS FOR MOUNTAIN BOG NWR EXPANSION..... 23

Executive Summary

This draft Land Protection Plan (LPP) proposing an increase in the acquisition boundary of Mountain Bogs National Wildlife Refuge (NWR) from 42,390 acres up to a maximum of 92,772 acres in western North Carolina, has been developed in accordance with U.S. Fish and Wildlife Service (Service) policy and the National Environmental Policy Act (NEPA). A companion draft Environmental Assessment has been prepared analyzing the effects of increasing the acquisition boundary and increasing potential fee-title ownership from 23,478 to a maximum of 64,478 (USFWS 2019 draft). The proposed refuge lands are located in Alleghany, Ashe, Henderson, Macon, McDowell, Rutherford, and Watauga Counties, North Carolina. The draft LPP outlines the options and methods that will be used to provide the minimum interests necessary to help preserve and protect the fish, wildlife, and plant resources in the area.

The Director of the U.S. Fish and Wildlife Service (Service) authorized Mountain Bogs NWR for establishment on January 17, 2014. On April 20, 2015, the Service accepted the donation of a conservation easement on 35 acres from The Nature Conservancy, establishing the refuge. Mountain Bogs NWR is authorized to protect up to 23,478 acres within an acquisition boundary encompassing 42,390 acres, including rare mountain bogs and surrounding fish and wildlife habitats. The proposed expansion would add acreage to five Conservation Partnership Areas (CPAs) that were authorized in 2014 – Bluff, Sparta, Pinnacle, Three Peaks, and Butt CPAs (Figure 1). The proposed expansion would also create two new CPAs – Box Creek and Blackrock (Figure 1). The location of the proposed Box Creek expansion area is within the western North Carolina portion of the area of interest in Rutherford and McDowell counties (Figure 2).

The planning team held six public scoping open houses in December 2016. Comments were received for an additional 30 days after public scoping and the input has been incorporated into the construction of the alternatives.

The Service developed and analyzed three alternatives: Alternative A (Expand 5 existing CPAs and add 2 new CPAs: Box Creek and Black Rock), Alternative B (No Action or status quo), and Alternative C (Expand 5 existing CPAs and add Core Box Creek CPA). The Service selected Alternative A as the Proposed Alternative. Under this alternative, up to an additional 50,382 acres of land will be added to the acquisition boundary of Mountain Bogs NWR with a maximum of 41,000 acres obtained from willing sellers through fee-title acquisition or easements.

The Service will continue the approach outlined with the establishment of the refuge of delineating Conservation Partnership Areas (CPAs) within which it will work with interested landowners and other conservation partners to help protect the region's imperiled mountain wetlands. 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. This expansion will further the attention to and protection of threatened and endangered species in the region and will improve connectivity between existing conservation lands. Whenever possible and when in agreement with the mission of the Service and the purpose of the refuge, recreation activities for the public will be available. Further, any cultural resources found within the refuge will be afforded protection by the Service.

LAND PROTECTION PLAN

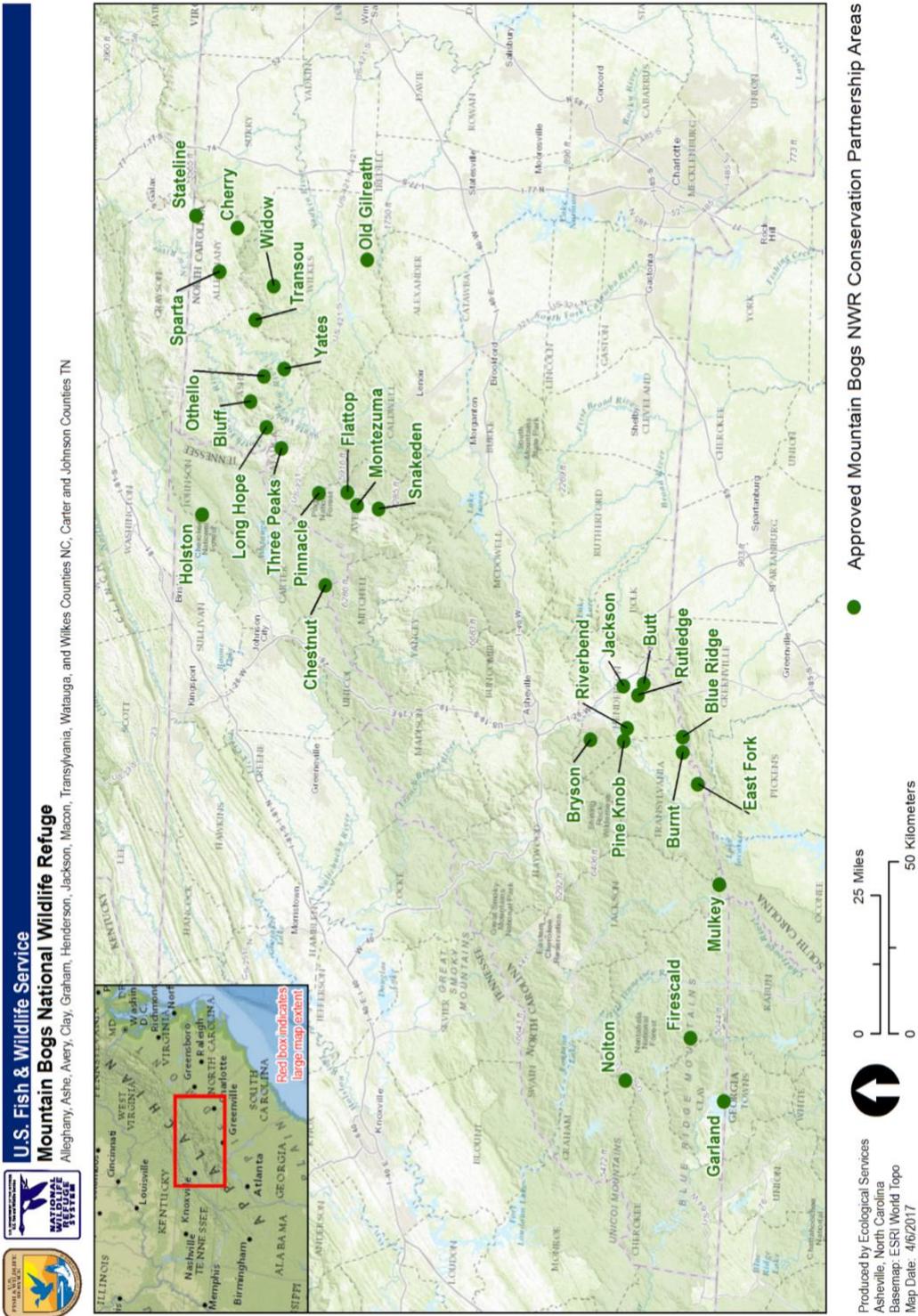
I. Introduction and Purpose

This Land Protection Plan (LPP) outlines how the U.S. Fish and Wildlife Service (USFWS or Service) will protect and manage rare and severely threatened wetlands in the Southern Appalachian Mountains of western North Carolina through the expansion of Mountain Bogs National Wildlife Refuge (NWR). The lands identified in this plan encompass a diverse system of bog and fen wetlands, streams, and surrounding upland buffers, including high mountain grasslands, spruce fir forests, and hardwood forests. Protection of mountain bogs is directly aligned with the Service's national priorities of threatened and endangered species recovery, migratory bird conservation, landscape-level conservation, and connecting people with nature. Protection of mountain bog habitats is identified as a priority action in the Service's Strategic Plan for the Asheville Ecological Services Field Office (2007, 2012), in the recovery plans for each of those federally listed species which occur within mountain bog habitats (USFWS 1983, 1984), and in the state wildlife action plans for both Tennessee and North Carolina (TWRA 2005, NCWRC 2005).

The Director of the U.S. Fish and Wildlife Service (Service) authorized Mountain Bogs NWR for establishment on January 17, 2014. On April 20, 2015, the Service accepted the donation of a conservation easement on 35 acres from The Nature Conservancy, establishing the refuge. Mountain Bogs NWR is currently authorized to protect, through fee-title acquisition or easements, up to 23,478 acres within an acquisition boundary encompassing 42,390 acres including rare mountain bogs and surrounding fish and wildlife habitats.

Mountain bogs are relatively isolated from one another and spread across the landscape. Conservation Partnership Areas (CPAs) have been incorporated into the land protection planning for this Refuge to target the habitats critical to conservation while ensuring that minimal property interests are acquired by the Service. Thirty CPAs are distributed across an area of interest in North Carolina and Tennessee (Figure 1). The CPAs are comprised of bog sites and surrounding upland habitats.

Figure 1. Location map of Conservation Partnership Areas (CPAs).



A. PROJECT DESCRIPTION

The Service proposes expanding the Mountain Bogs NWR acquisition boundary and increasing the amount of land authorized for potential acquisition. The refuge is currently authorized to protect, through fee-title acquisition or easements, up to 23,478 acres within an acquisition boundary encompassing 42,390 acres, including rare mountain bogs and surrounding upland habitats. The proposed expansion would increase the amount of area authorized for protection to 64,478 acres within an acquisition boundary encompassing 92,772 acres. Proposed expansion would occur in Alleghany, Ashe, Henderson, Macon, McDowell, Rutherford, and Watauga counties, North Carolina; including lands on which the Service already holds conservation easements in McDowell and Rutherford counties, North Carolina.

In November of 2016, the Service received a donation of a 7,000-acre conservation easement in the Box Creek Wilderness of the Southern Appalachian Mountains located in Rutherford and McDowell Counties in western North Carolina (Figure 2). The area of the donated easement (referred to as Box Creek) contains Southern Appalachian Mountain bogs, an increasingly imperiled habitat type. Due to the location of the easement within the area of interest assessed during the establishment of Mountain Bogs NWR, the Service is proposing to include the easement within this expansion (USFWS 2015) (Figure 3).

In addition, the Service proposes expanding five existing CPAs and creating an additional CPA to include key habitats brought to our attention since the establishment of the refuge. The South Mountain gray-cheeked salamander, an at-risk species, occurs at Box Creek. A number of species of plants on the North Carolina State list of species of concern are located in the proposed expansion areas:

- Bog oatgrass
- Divided-leaf ragwort
- Fraser's loosestrife
- Granite dome goldenrod
- A liverwort
- Small-leaved meadowrue
- Sweet pinesap
- Worthy shield lichen

The proposed expansion would create two new CPAs – Box Creek and Blackrock; and expand Bluff, Sparta, Pinnacle, Three Peaks, and Butt CPAs (Figure 4).

The protection and management of these resources in western North Carolina can be achieved through a combination of fee-title purchases from willing sellers; leases, conservation easements, and cooperative agreements from willing landowners; and other options, such as donations. All lands and waters acquired would be managed by the Service or in partnership with other conservation organizations as the Mountain Bogs NWR.

Figure 2. Box Creek Easement Donation and Conservation Partnership Area Design

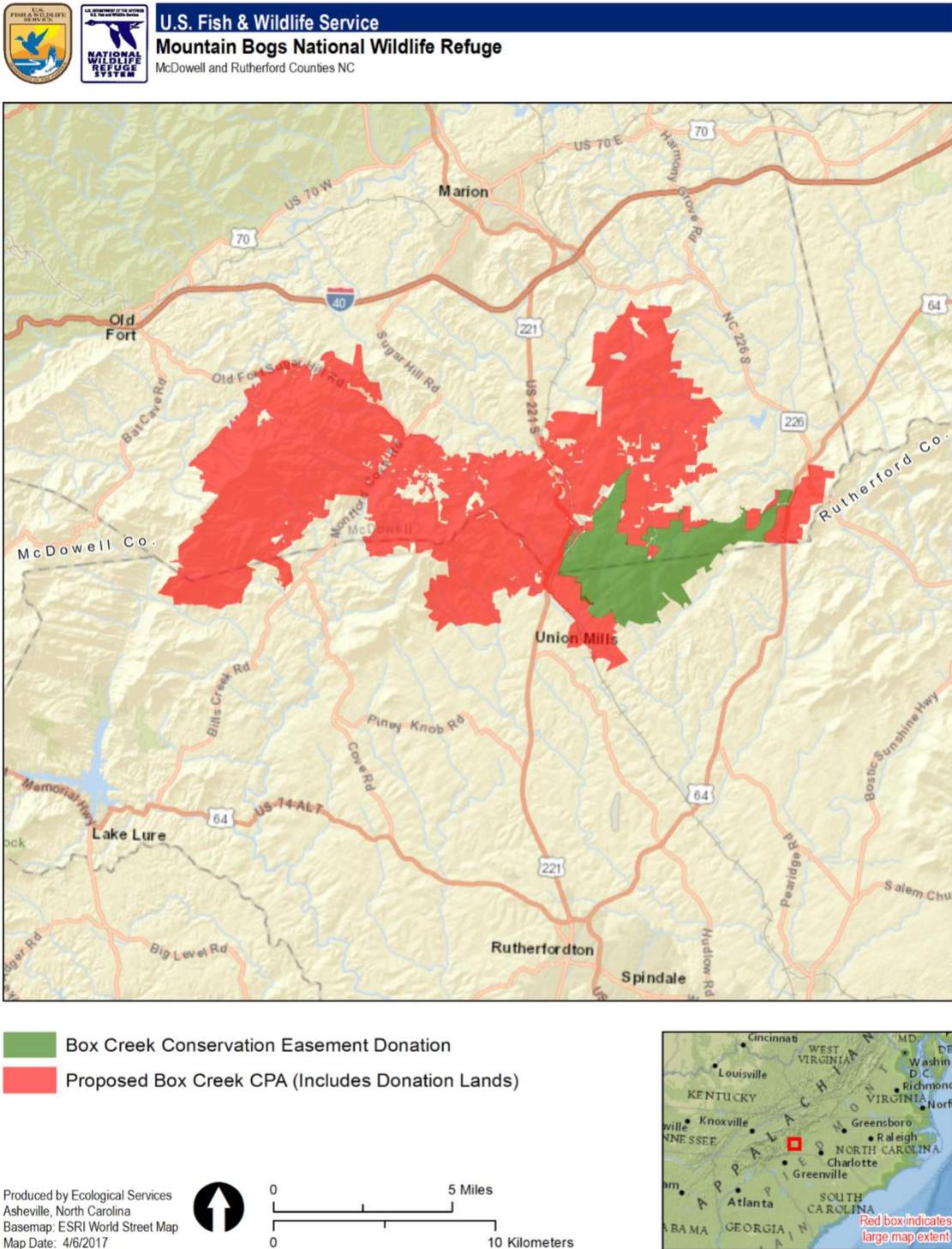


Figure 3. Location of Box Creek within the Mountain Bogs NWR Area of Influence

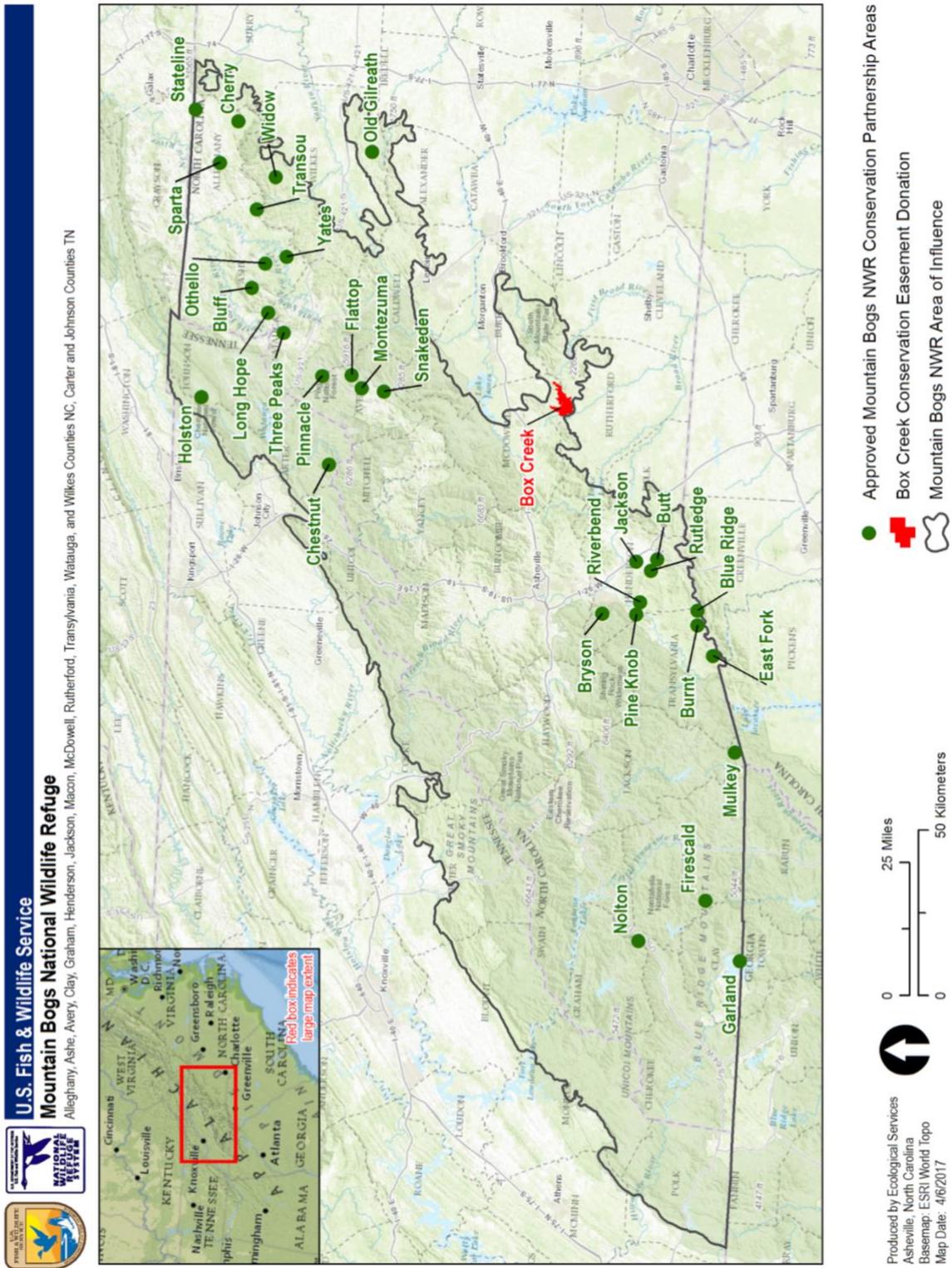
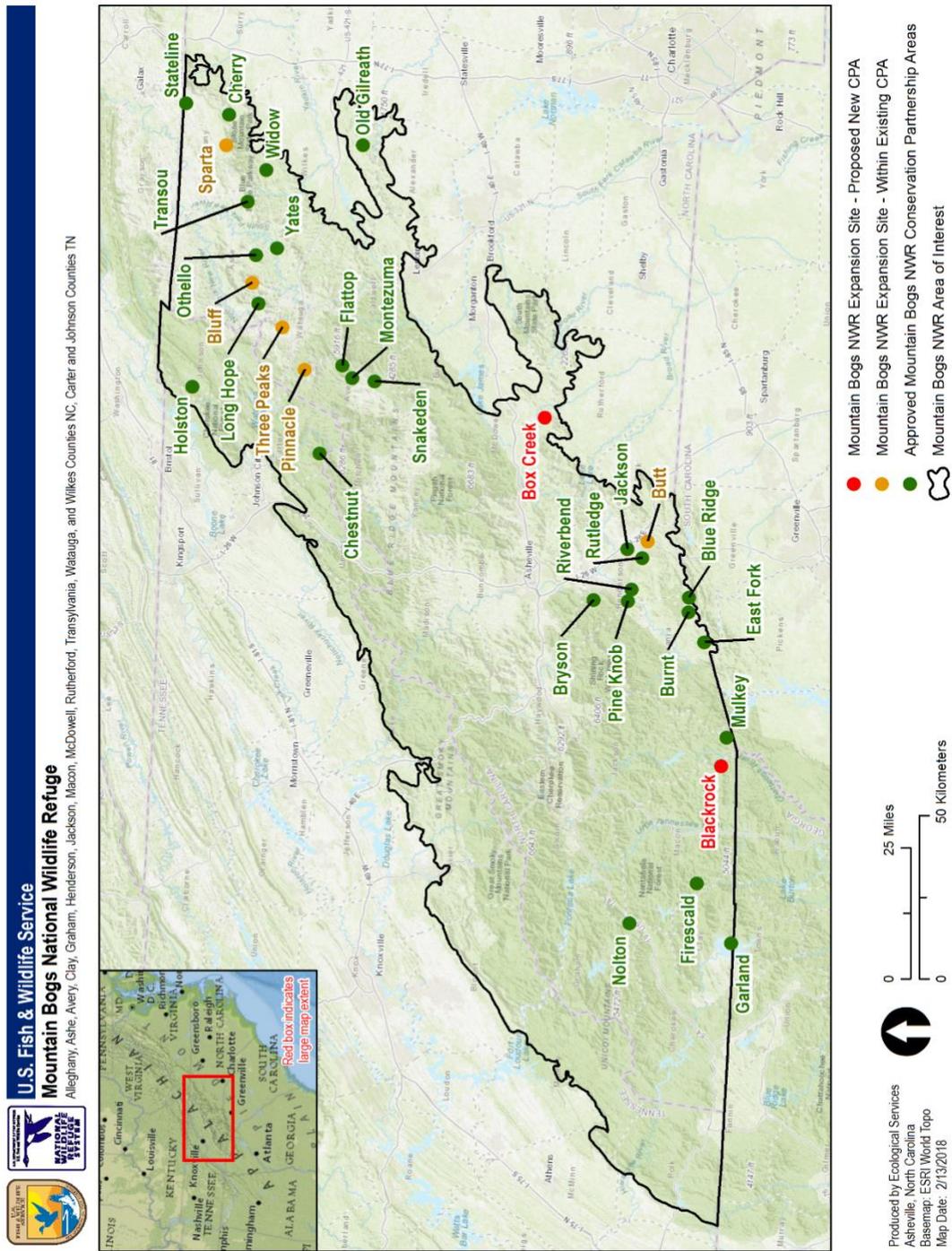


Figure 4. Location of Proposed Mountain Bogs NWR Expansion Sites.



B. REFUGE PURPOSE(S)

The purposes of Mountain Bogs NWR are to:

- Protect some of the last remaining examples of Southern Appalachian Mountain bogs;
- Provide habitat for nongame neotropical migratory birds;
- Conserve habitat for 13 federally listed species, including the bog dependent mountain sweet pitcher plant, green pitcher plant, bunched arrowhead, swamp pink and bog turtle; and 83 state-listed species;
- Provide breeding, wintering, and migration habitat for the American woodcock; and
- Provide opportunities for environmental education, interpretation, and wildlife-dependent recreation (USFWS 2015).

Four overarching goals have been developed for Mountain Bogs NWR:

Goal 1: Protect, Restore, and Manage Habitats for Fish and Wildlife. Mountain Bogs NWR will conserve rare mountain bog habitat and associated species as well as adjacent upland habitats. The refuge will aid in the recovery of 13 federally listed species and one candidate species, and benefit many other state-listed and imperiled species, including migratory birds and the Southern Appalachian brook trout (*Salvelinus fontinalis*).

Goal 2: Provide Landscape-Level Conservation. Mountain Bogs NWR will contribute to a more connected and functional conservation landscape by reducing habitat fragmentation, and protecting and restoring a network of exceptionally rare wetland types and their surrounding landscapes. This refuge will also protect and enhance water quality and quantity within multiple watersheds, benefiting both humans and wildlife.

Goal 3: Connect People with Nature. Visitors of all abilities to Mountain Bogs NWR will enjoy opportunities for compatible hunting, fishing, wildlife observation and photography, and environmental education and interpretation, while increasing knowledge of and support for conservation of Southern Appalachian Mountain bogs.

Goal 4: Promote Conservation Partnerships. Collaboration in science, education, and research will strengthen and develop partnerships with bog conservation organizations, private landowners, government agencies, and others to help inform land management decisions and encourage continued responsible stewardship of mountain bogs and other associated natural resources (USFWS 2015).

II. Resources

A. RESOURCES TO BE PROTECTED

The proposed expansion sites are in the Southern Blue Ridge Ecoregion (Ecoregion) - one of the most biologically significant ecoregions in the United States due to its unique geology, topography, and floristics (The Nature Conservancy and Southern Appalachian Forest Coalition 2000). At least 136 natural terrestrial communities have been identified in the region and more than 90 percent of these are considered endemic or limited to the Ecoregion. Its forests are some of the most diverse in the United States and include nearly 400 species of rare plants. The Ecoregion is the center of the world's salamander diversity and has the highest number of terrestrial snail species of any ecoregion in the United States. A high diversity of bird species breed and winter in the Southern Appalachian Mountains and the region is very important for birds during migration. Additionally, the freshwater systems are exceptionally rich in species diversity, with 66 at-risk aquatic species occurring in the Ecoregion, 20 of which are federally listed as threatened or endangered (The Nature Conservancy and Southern Appalachian Forest Coalition 2000). Thorough descriptions of habitats and species are provided in the Environmental Assessment associated with this project (USFWS 2019 draft) and the Land Protection Plan and Environmental Assessment for the establishment of the Mountain Bogs NWR (USFWS 2015).

B. THREATS

It is estimated that bog habitats have been reduced by some 80-90 percent (Noss et al. 1995; Weakley and Schafale 1994). Most of this habitat loss is the result of decades of converting bogs to agricultural, industrial, commercial, or residential development and the accompanying disruption of natural water flow and pooling patterns. Many of the remaining mountain bogs are in close proximity to agricultural fields, pastures, orchards, Christmas tree farms, and nurseries. Increased nutrients from fertilizer runoff and accidental pesticide drift/runoff from surrounding agricultural lands threaten these sites.

Another potential threat to mountain bogs in an agricultural landscape is grazing. Overgrazing can be detrimental, though light to moderate grazing of wetland habitats serves to keep woody succession in check thereby benefiting many rare species (particularly the bog turtle). Intensive grazing can result in direct harm to rare plants, and provides another source of nutrients, which can result in the decline of the sphagnum.

Fragmentation, another threat to bog habitats, occurs when habitat is divided; for example, an impoundment divides stream habitat into two sections, or a road divides forest habitat. With fragmentation, movement and migration corridors are destroyed, or made significantly more challenging; and populations can be divided, limiting gene flow and perhaps long-term viability of each portion of the divided population.

Plant communities tend to develop through a process called succession. Generally, succession begins when sun-loving, herbaceous plants (pioneer species) colonize a bare area of earth. Over time, shrubs and small trees begin to grow. As mature forests develop, pioneer species decrease and shade-loving plants increase beneath the forest canopy. This is a very general trend and can be altered by fire, flood, nutrient or water availability, and a host of other conditions. It is believed that vegetative succession is occurring at an accelerated rate at some

remaining bog sites because of fire suppression, hydrologic diversion, or other disturbance factors (NCWRC 2005).

Invasive, exotic species are defined as plants and animals that are not native to an area but have been introduced and subsequently reproduce and spread to the detriment of native species. Some bogs are subject to invasion by exotic plants such as Japanese stiltgrass (*Microstegium vimineum*), multiflora rose (*Rosa multiflora*), and Asiatic dayflower (*Commelina communis*). The accumulation of debris, sediments, water, and nutrients in wetlands helps facilitate invasions by creating canopy gaps, accelerating the growth of opportunistic plant species, and through direct input of invasive seeds (Zedler and Kercher 2004).

Periods of drought and intense rainfall events are both predicted to increase in the mountain and piedmont regions of North Carolina (North Carolina Department of Environment and Natural Resources 2010; Schultheis et al. 2010). Overall, the effects of climate change are expected to have a negative effect on mountain bogs, as summarized below (excerpt taken from the Draft North Carolina Ecosystem Response to Climate Change: DENR Assessment of Effects and Adaptation Measures (North Carolina Department of Environment and Natural Resources 2010)):

“The effect of an expected increase in both droughts and intense rainfall events may be particularly important for these systems. Many bogs are located in bottomland locations that do not regularly flood, but which would flood in extreme events. Besides stream flooding, overland runoff from adjacent uplands during severe storms would be a problem in many bogs. The nutrient input and potential scouring of severe floods would be detrimental to bog communities. While plants in bogs are probably never truly limited by moisture, droughts would have significant effects on competitive relationships among species and on the community as a whole. Droughts in the present climate appear to have exacerbated the ongoing invasion of upland and generalist wetland plants in some bogs.”

Dominant vegetation is likely to shift from sphagnum to woody shrubs because shrubs are better able to handle drought and higher nutrient levels (Schultheis et al. 2010).

C. RELATIONSHIP OF PROJECT TO LANDSCAPE CONSERVATION GOALS AND OBJECTIVES

Protection of mountain bogs is directly aligned with the Service’s national priorities of threatened and endangered species recovery, migratory bird conservation, landscape-level conservation, and connecting people with nature. Several planning efforts related to Service priorities and ecosystem management have identified the importance of conserving the proposed expansion areas.

Mountain Bogs NWR lies within the geographic region covered by the Appalachian Partnership (formerly Appalachian Landscape Conservation Cooperative, AppLCC 2011). The geographic boundary of the Appalachian Partnership spans a total of 15 states; from southern New York and the Hudson River down along the Appalachian Mountains to the northern-forested areas of Alabama, Georgia, and South Carolina. It extends westward to the central hardwoods of Tennessee, Kentucky and parts of Indiana and Illinois – including the two major river drainage basins that flow into the Ohio River Basin. The Service is a partner in the Appalachian Partnership and is coordinating through its membership to further landscape scale conservation.

The proposed expansion compliments existing Southern Appalachian conservation by the U.S. Forest Service, National Park Service, and other agencies and land conservancies. Through their land holdings, these organizations have made significant strides in conserving key Southern Appalachian habitats, including spruce-fir forests, grassy balds, and river headwaters. Within this context, Mountain Bogs NWR fills the role of helping ensure bogs will be conserved at the landscape level. Additionally, the proposed expansion would make significant strides in establishing a natural corridor connecting the South Mountains with the Blue Ridge Mountains.

D. PARTNERSHIP EFFORTS/RELATED RESOURCES

Figure 5 depicts the current conservation lands and waters within the area. Many of the Service's partners already own or have future plans to protect lands in the project area through conservation or agricultural easements. Still others have completed on-the-ground habitat restoration projects throughout the area. Taken together, these efforts have aided the protection of state- and federal-listed threatened and endangered species, mountain forests, farmlands, and recreational areas that contribute to the long-term ecological health, economy, and way of life in the region.

Agencies and organizations active in conservation in the Southern Appalachian region include:

Federal agencies

- National Park Service
- U.S.D.A. Natural Resources Conservation Service
- U.S. Forest Service

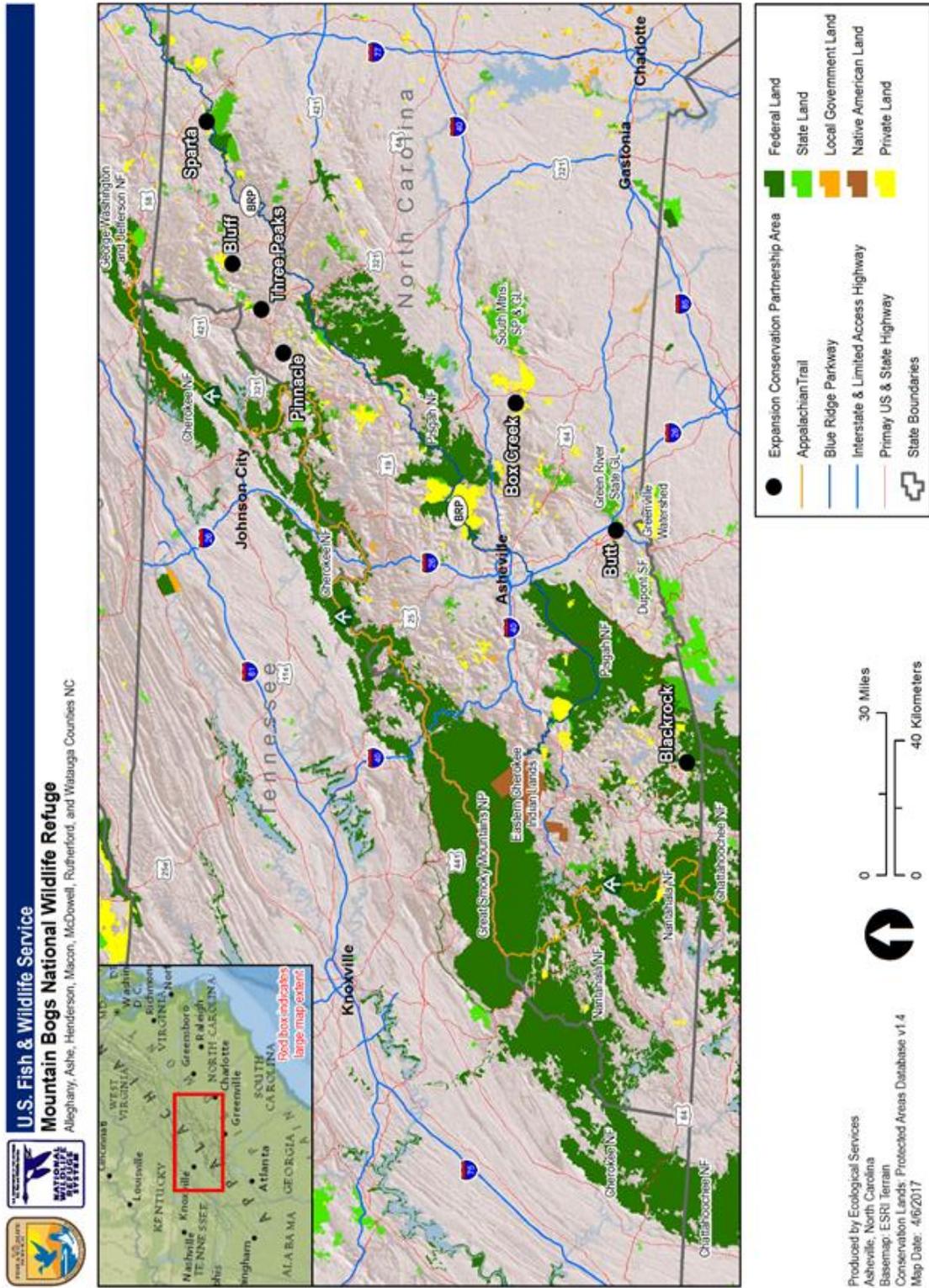
State agencies

- N.C. Department of Transportation
- N.C. Division of Parks and Recreation
- N.C. Forest Service
- N.C. Museum of Natural Sciences
- N.C. Natural Heritage Program
- N.C. Plant Conservation Program
- N.C. Wildlife Resources Commission
- University of North Carolina at Asheville
- University of North Carolina at Greensboro

Non-government organizations and individuals

- Blue Ridge Conservancy
- Conserving Carolina
- Foothills Conservancy
- Highlands-Cashiers Land Trust
- Mountain True
- Private landowners
- The Nature Conservancy

Figure 5. Conservation Partner Lands



III. Land Protection Strategy

A. ACTION AND OBJECTIVES

The Service considered and evaluated three alternatives for conserving mountain bog habitats and associated species through the expansion of Mountain Bogs NWR. Alternative A, as presented in the Environmental Assessment, is the Service's proposed alternative because it provides increased protections for habitats and wildlife through Service programs and partnerships while acquiring the minimum interest necessary to achieve the stated goals and objectives, vision, and purpose(s) of the Refuge. This Land Protection Strategy clearly outlines the priorities for land protection, the options available for acquisition, the methods for acquisition, costs for acquisition and maintenance, and funding sources available.

The Service's objectives in this land conservation project are to:

1. Significantly enhance the recovery of two federally listed plants and two federally listed animals

The recovery plans for bunched arrowhead and Virginia big-eared bat identify land acquisition as a priority one task for the recovery of those species (USFWS 1983, 1984). The specific recovery tasks found within species recovery plans that would be addressed by implementation of this proposal are listed in the Environmental Assessment for the Proposed Expansion of Mountain Bogs NWR (2019). The conservation of listed species and their habitat has also been identified as a priority in the Service's Southern Appalachian Management Plan and Asheville Field Office Strategic Plan (2007). In particular, this project would:

- a. **Bunched arrowhead (E)** – The proposed expansion would help protect a bunched arrowhead colony that is part of a population already partially within Butt CPA. The bog at this site was recently restored using technical and financial support from the Service's Partners for Fish and Wildlife program.
- b. **White irisette (E)** – Creating the Box Creek CPA could help permanently conserve a population of white irisette.
- c. **Virginia big-eared bat (E)** – The proposed expansion would protect a primary maternity colony and other roost sites for the only population of Virginia big-eared bats in North Carolina. The hibernaculum for these bats is already protected as part of Grandfather Mountain State Park.

The global distribution for this species covers four states – West Virginia, Virginia, Kentucky, and North Carolina. North Carolina is home to two known hibernacula that are already under conservation ownership as part of Grandfather Mountain State Park. Recent research has identified the primary maternity roosting site and other summer roost sites for the bats that use the Grandfather Mountain hibernacula. Expanding the Pinnacle CPA would allow us to bring these vital roost sites within the acquisition boundary.

- d. **Bog turtle (T s/a^{*})** – The creation of Box Creek CPA and expansion of Sparta and Bluff CPAs would strengthen the Service’s ability to conserve sites known to have bog turtles.

There are two populations of bog turtles, a northern one centered in New Jersey, members of which are listed as threatened; and a southern one, centered in North Carolina, members of which are listed as threatened due to similarity of appearance. Despite the different conservation status, some in the bog turtle conservation community suspect that the southern population may currently or soon warrant protection in their own right. Conserving additional bog turtle bogs could help prevent that need.

^{*}Threatened due to similarity of appearance.

2. Support the prelisting recovery of six at-risk plant and animal species

The acquisition of key habitat may preclude listing or assist in the prelisting recovery of little brown bat, tri-colored bat, South Mountains gray-cheeked salamander, and Mountain purple pitcher plant. Several of these species are primarily threatened with habitat loss or alteration – a primary factor in listing decisions under the Endangered Species Act.

3. Develop opportunities for wildlife-related recreation

Wildlife-based recreation is a key component of the National Wildlife Refuge System. Mountain Bogs NWR is designed to conserve Southern Appalachian Mountain bogs, a rare and sensitive habitat type for which public use may not be suitable. The Service’s strategy to provide for future public use opportunities has been to include upland areas within the acquisition boundary, providing opportunities for public use, and also protecting the bog proper from detrimental outside influences. The significant amount of upland habitat at the proposed Box Creek CPA has the potential to provide ample public use opportunities, depending on landowner interest in the cases of conservation easements and Service management capacity in those areas where the Service acquires fee-simple interest.

B. LAND PROTECTION PRIORITIES

Under the proposed alternative (Alternative A) expansion of Mountain Bogs NWR, the acquisition boundary of the refuge would expand by 50,382 acres and the area authorized for acquisition in fee-title would increase by 41,000 acres. The acquisition boundary would then encompass 92,772 acres, within which the Service would be authorized to acquire up to 64,478 acres. The expansion will focus on creating two new Conservation Partnership Areas (CPAs), Box Creek and Black Rock, and expand five existing CPAs; Bluff, Butt, Pinnacle, Sparta and Three Peaks.

This expansion would protect critically rare mountain bogs and surrounding fish and wildlife habitats through a combination of fee-title purchases from willing sellers, less-than-fee-title purchases (e.g., conservation easements and cooperative agreements) from willing participants, and donations. The Service believes these are the minimum interests necessary to conserve and protect the fish and wildlife resources associated with mountain bogs and their surrounding habitats in the area.

Land included in the CPAs has important resource values and a high potential for helping support a range of bog-dependent species in accordance with fulfilling the purpose of the refuge. The CPAs also have high potential for ensuring habitat connectivity between the refuge and surrounding conservation lands and in providing wildlife movement corridors between individual bog sites.

The expansion has been prioritized for acquisition using the following criteria:

- Biological significance;
- Existing and potential threats;
- Significance of the area to refuge management and administration; and,
- Unique opportunities to partner with private landowners to protect lands meeting all of the first three criteria.

Two categories of land acquisition have been established, with the highest priority being the Priority 1 lands. A description of the lands within each of the priority groups is given below. Table 1 summarizes the Service's land protection priorities and proposed methods of acquisition. Figure 6 shows the locations of the included areas and their respective priority groups.

PRIORITY GROUP 1

Priority Group 1 includes those lands considered to best meet the criteria identified. This group includes the Box Creek Wilderness Area, which is 48,225 acres in size (Figures 2, 3). Box Creek Wilderness has been recognized as a significant Natural Heritage Area. It contains several important bogs, bog turtles, white irisette (E) and several at-risk and federal species of concern. Inclusion of Box Creek will help to establish a corridor between protected areas in the South Mountains (e.g. South Mountains Game Lands and South Mountains State Park) and Hickory Nut Gorge (e.g. Chimney Rock State Park, TNC preserves). It also includes three natural communities previously undescribed by Michael Schafale in Guide to the Natural Communities of North Carolina: montane oak-hickory forest – basic dry variant, low elevation basic glade (basic subtype), and headwater stream forest. Previously described but unknown from the region are Southern Mountain pine-oak forest (previously only known in North Carolina near Murphy and Andrews); and montane oak-hickory forest – low dry subtype (known primarily from the Brevard, North Carolina region). Other communities include acidic cove forest, chestnut oak forest, Southern Mountain pine-oak forest, low elevation seep, low elevation rocky summit, and pine/oak heath.

Biologists under contract with the majority landowner have documented 1,106-plant and wildlife species onsite, including 13 currently undescribed or new-to-science species (Caldwell and Raleigh 2014). Numerous first-in-the-state or first-in-the-county species occurrence records were also discovered in the proposed Box Creek CPA (Caldwell and Raleigh 2014):

- three new-to-the-state moth species;
- the second known location in the state of an undescribed mountain dusky (*Desmognathus cf. carolinensis*) salamander;
- the state's first and only known location of Allegheny plum (*Prunus allegheniensis*);
- the first county records for the mole, *Ambystoma talpoideum* (state listed species of special concern);
- the four-toed salamander (*Hemidactylium scutatum*) (state listed species of special concern),
- the marbled salamander (*Ambystoma opacum*).

Listed species at the site include bog turtle (*Glyptemys muhlenbergii*, threatened due to similarity of appearance, T s/a), Northern long-eared bat (*Myotis septentrionalis*, T), and white irisette (*Sisyrinchium dichotomum*, Endangered - E). Box Creek is known to have four at-risk species: South Mountain gray-cheeked salamander (*Plethodon meridanus*), little brown bat (*Myotis lucifigus*), Eastern small-footed bat (*Myotis leibii*), and tri-colored bat (*Perimyotis subflavus*). Federal species of concern at the site are: divided-leaf ragwort (*Packera millefolium*), Appalachian Adder's-mouth (*Malaxis bayardii*), Broad River stream crayfish (*Cambarus lenati*) and Carolina foothills crayfish (*Cambarus johni*).

The Service currently owns a 7,000-acre conservation easement within the Box Creek area and including it in the expansion improves the Service's ability to manage the easement. In addition, the owner is a willing partner with the Service in managing the landscape for conservation purposes.

PRIORITY GROUP 2

Priority Group 2 includes those areas important to meeting the criteria but which have less significance in meeting those than Group 1. Included in this group are the CPA expansions and Black Rock CPA. Values achieved through the inclusion of each are detailed below.

Pinnacle expansion would conserve the primary maternity roost (300 bats), other summer roost sites, and foraging habitat for North Carolina's only population of the endangered Virginia big-eared bat (*Corynorhinus townsendii virginianus*, E). This is one of just 14 major (>200 bats) maternity colonies known throughout the range of the species (USFWS 2008). The hibernacula for this population is known and already conserved as part of Grandfather Mountain State Park. This expansion would also conserve habitat for tri-colored bat, an at-risk species. The expansion would protect approximately one mile of frontage along Beech Creek and Pond Creek, tributaries of the Watauga River, which is home to two federal at-risk aquatic species: green floater and Eastern hellbender. Native brook trout (*Salvelinus fontinalis*) are present in Beech Creek and Pond Creek. The site also has a liverwort (*Plagiochila sullivantii* var. *sullivantii*) that is a federal species of concern. The expansion would connect to the bog in the existing Pinnacle CPA, approximately one mile away, via Beech Creek.

The Pinnacle expansion is a mixture of Southern Appalachian forests types, including chestnut oak forest; rich cove forest, acidic cove forest, and pine-oak heath. Most notably, the site is home to numerous block-fault caves, other small caves and crevices, which provide roosting sites for the bat species listed above.

Habitat types included in the Bluff expansion are southern and central Appalachian oak forest; southern and central xeric oak forest, southern and central Appalachian cover forest and central and southern Appalachian montane oak forest. The current Bluff CPA boundary bisects a bog turtle-occupied bog, and this expansion would bring the bog entirely into the CPA. In addition to providing additional bog turtle conservation opportunities, the Bluff expansion could protect habitat for several at-risk species, including: eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), golden-wing warbler (*Vermivora chrysoptera*), and green floater (*Lasmigona subviridis*), found immediately downstream of proposed expansion area.

This expansion would include a portion of the Amphibolite Mountains Audubon Important Birds Area (National Audubon Society 2013) and migratory birds that would benefit include field sparrows (*Spizella pusilla*), chestnut-sided warbler (*Setophaga pensylvanica*), black-throated blue warbler (*Setophaga caerulescens*), yellow-breasted chat (*Icteria virens*), wood thrush (*Hylocichla mustelina*), scarlet tanager (*Piranga olivacea*), and hooded warbler (*Setophaga citrina*).

The Butt expansion is composed of pasture and southern and central Appalachian cover and oak forest. The significance of this expansion is that it would protect an additional colony of the endangered bunched arrowhead (*Sagittaria fasciculata*, E), which, when combined with the colony in the existing CPA boundary, would increase the protection to roughly 100% of the East Flat Rock population, thus helping FWS work toward meeting the most appropriate and highest protection for each population. The bog in this proposed expansion area was recently restored, an effort funded in part by the Service's Partners for Fish and Wildlife Program.

Sparta expansion includes bog habitat, pasture, southern and central Appalachian oak and xeric oak forest. This wetland is a very good example of a southern Appalachian bog with a diverse plant community, including well-formed sphagnum mats and several state-listed plants. The bog contains a significant population of bog turtles and is within four miles of four additional populations, thereby providing potential for movement of turtles between sites. This expansion would also include a portion of the Bullhead Mountain-Mahogany Rock Audubon Important Bird Area (National Audubon Society 2013).

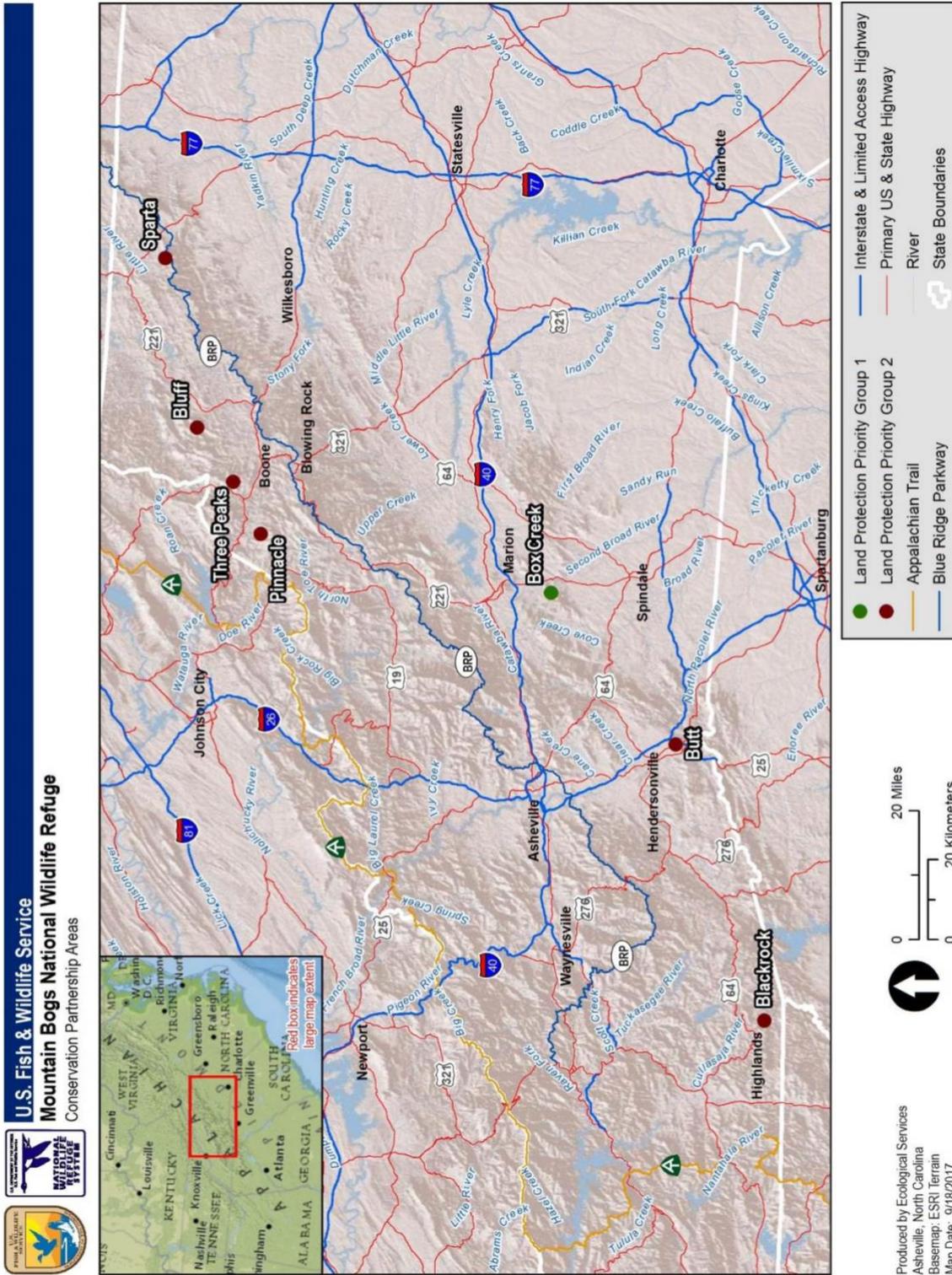
Creating the Blackrock CPA would help conserve another population of mountain purple pitcher plant (*Sarracenia purpurea* var. *montana*), an at-risk species, within a CPA. There are ten known populations of this plant, five of which are currently protected. This proposed expansion would place a second unprotected population within a CPA. The site also includes Fraser's loosestrife (*Lysimachia fraseri*), divided-leaf ragwort, and granite dome goldenrod (*Solidago simulans*), all federal species of concern. There are also historical bog turtle and rusty-patched bumblebee (*Bombus affinis*) records here.

Three Peaks expansion site is composed of natural and degraded bog habitat, pasture, southern and central Appalachian oak and montane oak forest, and southern and central Appalachian cove forest. The significance of expanding Three Peaks is to protect significant bog habitat, help conserve Gray's lily (*Lilium grayi*), a federal species of concern, as well as a portion of the Amphibolite Mountains Audubon Important Bird Area (National Audubon Society 2013).

Table 1. Mountain Bogs NWR Expansion Land Protection Priorities and Acquisition Options

Expansion Area	Acres	Priority	Acquisition Options
Box Creek CPA	48,485.55	1	Conservation Easement/Fee-title Purchase/Cooperative Agreement, Donation
Pinnacle CPA Expansion	469.2	2	Conservation Easement/Fee-title Purchase/Cooperative Agreement
Bluff CPA Expansion	477.85	2	Conservation Easement/Fee-title Purchase/Cooperative Agreement
Butt CPA Expansion	42.20	2	Conservation Easement/Fee-title Purchase/Cooperative Agreement
Sparta CPA Expansion	477.35	2	Conservation Easement/Fee-title Purchase/Cooperative Agreement
Blackrock CPA	304.41	2	Conservation Easement/Fee-title Purchase/Cooperative Agreement
Three Peaks CPA Expansion	125.46	2	Conservation Easement/Fee-title Purchase/Cooperative Agreement

Figure 6. Land Protection Priorities



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 Land Protection Plan.

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

Bogs have long been recognized for their biological importance (Weakley and Schafale 1994). The Service has worked since the early 1990s in conjunction with federal, state, and nongovernmental partners and private landowners to develop a coordinated restoration and protection strategy for mountain bogs in the Southern Appalachians. A portion of the land adjacent and ecologically important to the refuge is already owned by partners or managed by partners through conservation easements. Protection of these sites fits well into a large landscape-scale bog protection effort in the area. Management and protection of lands by others would continue, and this plan would complement and expand on those efforts.

The following partners provide assistance to manage or own property in or that are ecologically associated with the project area:

- Blue Ridge Conservancy
- Conserving Carolina
- North Carolina Department of Environment and Natural Resources, Division of Parks and Recreation
- North Carolina Department of Transportation
- North Carolina Forest Service
- North Carolina Plant Conservation Program
- North Carolina Wildlife Resources Commission
- The Conservation Fund
- The Nature Conservancy
- U.S. Highlands Biological Foundation

OPTION 2. LESS-THAN-FEE ACQUISITION

Under Option 2, the Service 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 meets the 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 those important to endangered species or migratory birds. The Service will determine, on a case-by-case basis, and negotiate with each landowner, the extent of the rights it will be interested in buying. Those 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-title acquisition by the Service 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 the Service identifies conservation easements, the Service 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; 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 Land Protection Methods section further describes the conditions and structure of easements.

OPTION 3 FEE-TITLE ACQUISITION BY THE SERVICE

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

Generally, the lands the Service will purchase require more than passive management (e.g., controlling invasive species, mowing or prescribed burning, planting, or managing for the six priority public uses). The Service only uses fee-title acquisition when adequate land protection is not assured under other ownerships, when active land management is required, or when it is determined that a landowner is unwilling to sell a partial interest like a conservation easement.

In some cases, it may become necessary to convert a previously acquired conservation easement to fee-title acquisition: for example, when an owner is interested in selling the remainder of interest in the land on which the Service has acquired an easement. The Service would evaluate that need on a case-by-case basis.

D. LAND PROTECTION METHODS

The Service may use several methods of acquiring either a full or a partial interest in the 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; and (3) donations.

PURCHASE

The preferred acquisition methods for protecting land within the CPAs are fee-title acquisition and conservation easements; however, the method ultimately used depends partly on the wishes of the landowners.

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 affect 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 the availability of funding allows).

Easement Purchase

Easement purchase refers to the purchase of limited rights (less-than-fee-title) from an interested landowner. The landowner would retain ownership of the land, but would sell certain rights identified and agreed upon by both parties. The objectives and conditions of any conservation easements would 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 (unless for restoration);
- Uses adversely affecting the area's floral and faunal communities;
- Excessive public access and use; and
- Alteration of the natural water regime.

COOPERATIVE AGREEMENTS

Management control on privately owned lands could be obtained by entering into cooperative agreements with the landowners.

DONATIONS

The Service encourages donations in fee-title or conservation easement in the approved areas.

E. SERVICE LAND ACQUISITION POLICY

This section provides a brief overview of the Service's land acquisition process. First, the Service will contact landowners within the CPAs to determine whether any are interested in selling. If a landowner expresses an interest and gives permission to the Service, a real estate appraiser will appraise the property to determine its market value. Once an appraisal has been approved, the Service 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.

Lands acquired in fee-title or less-than-fee (e.g., conservation easement) become part of the refuge.

F. FUNDING

Though at this writing authorization has lapsed, the most likely source of appropriated dollars for the purpose of land acquisition is the Land and Water Conservation Fund (LWCF). The primary source of income to this fund 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 income include the sale of surplus federal real estate and taxes on motorboat fuel. In its effort to meet the goals of this refuge and pending reauthorization, the Service will seek appropriations from the LWCF for fee-title acquisition and conservation easements.

The estimated cost to acquire in fee-title the entire 50,382 acres for the Mountain Bogs NWR proposed expansion is \$201.5 million. The cost-per-acre values used in this rough estimation are based on data derived from recent land sales information provided by the Tax Assessment Offices for the seven counties spanning the project area, as well as data obtained from land trusts working in those areas. Table 2 provides by breakdown by county and CPA of the costs for fee-title and conservation easement purchase.

Table 2. Acquisition Costs for Mountain Bog NWR Expansion

County	Proposed New or Expanded CPAs Located in the County	Current Countywide Per Acre Values	
		Fee	Conservation Easements
Alleghany	Sparta	\$3,500- \$4,000/ \$3,600 - \$4,800*	\$3,500
Ashe	Bluff	\$3,750/ \$4,800 - \$7,500*	\$3,500
Henderson	Butt	\$71,000**/ \$3,800 - \$15,000*	\$3,500 - \$5,000
Macon	Blackrock	\$5,000	\$1,500 - \$2,000 \$31,000 - \$32,000*
McDowell	Box Creek	Not Available	\$1,500 - \$2,500
Rutherford	Box Creek	\$4,000	\$1,500 - \$2,500
Watauga	Pinnacle, Three Peaks	\$4,000/ \$5,000 - \$10,000*	\$3,000 - \$3,500/ \$4,000*

* Data from land known to be within the boundaries of the CPAs.

** This county contains less than 4% of the total proposed expansion acreage. This area is an extremely popular area for retirees and for vacation and/or second homes.

Because the method of acquisition will be determined on a case-by-case basis, for each landowner, it is impossible to pre-determine how many acres will be acquired in fee-title and how many will be in a conservation easement. The total estimated cost to acquire in fee-title all 50,382 acres is \$201,528,000 at \$4,000 per acre. The total estimated cost to acquire conservation easements on 50,382 acres is \$125,955,000 at \$2,500 per acre. The total estimated cost per acre values for fee-title and conservation easements were heavily weighted by the Box Creek CPA, as this CPA composes approximately 96% of the total proposed expansion acreage. Both estimates are based on an *average* per-acre-cost of all size tracts and various land uses. This provides the Service with a high/low range of value for acquisition of the entire acreage. This range in value is affected by the following factors:

- The per-acre value is affected by the various land uses within the CPA. There are approximately 4,000 acres in agricultural use and 770 being affected by development. Of the remaining acreage, there are approximately 36 acres in open water with the majority of the area being categorized as a variety of forested habitats.
- The size of the tracts within the CPAs range from less than one acre to 480 acres.

- It should also be noted that within and adjacent to the Refuge expansion boundary there are multiple areas where land values are far higher than the surrounding areas. These areas have been, and continue to be, popular areas for retirees and for vacation and/or second homes. These factors along with others, such as waterfront acreage, can drive per acre prices into the \$10,000 - \$71,000 average range. However, these economic anomalies are in small areas scattered across the area and represent a very small percentage of the total area within the Refuge expansion boundary.

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 would likely influence the costs associated with completion of the refuge.

ANNUAL OPERATING AND MAINTENANCE COSTS

The annual operational and maintenance costs would include boundary posting and signage, law enforcement patrols, and limited habitat management in coordination with existing partners and possibly new ones. Annual costs would be in the range of \$10,000 - \$20,000. The Service would also seek to defray management costs through expansion of existing cooperative management agreements with State conservation agencies or other conservation organizations, many of whom regard mountain bog conservation as a priority that directly supports their respective mandates or missions. Staff from the Asheville Ecological Services Field Office would help develop these agreements and assist with on-the-ground management efforts.

IV. Coordination

In the initial stages of planning, the Service solicits input from stakeholders who may be affected by or interested in the proposed federal action, in this case the expansion of Mountain Bogs NWR. This phase of the process is termed public scoping. Scoping is essential to identify issues that need to be addressed in the planning process. Personal contact, direct mail, email and public meetings are some of the avenues through which input is received. Public scoping for this expansion incorporated the mechanisms discussed below. The issues and comments submitted by the public during scoping are summarized in Appendix E, Public Involvement.

ELECTED OFFICIALS

The Service contacted by letter the U.S. congressional offices representing the affected areas; North Carolina 11th, 10th, and 5th Congressional Districts; and the two U.S. Senators, Richard Burr and Thom Tillis. In addition, county administrators from the affected areas were mailed letters describing the project. The Service offered to brief all on the proposed project in person.

TRIBES

The Service directly contacted the leaders of each Tribe with interest in the proposed expansion area including the Cherokee Nation of Oklahoma, United Keetoowah Band of Cherokee, Catawba Indian Nation, and Eastern Band of Cherokee Indians. An offer was presented to each for a briefing on the project at their convenience.

LANDOWNERS WITHIN THE POTENTIAL EXPANSION AREAS

The Service contacted 530 landowners directly, sending letters describing the potential expansion and inviting feedback and attendance at one of six open houses.

GENERAL PUBLIC

Open Houses

Six open houses, each lasting two hours, provided the public with an opportunity to interact individually with Service experts in real estate, bog biology, private land stewardship, and refuge expansion. All events were held in the early evening at the local library. These open houses were announced in advance through a press release, as well as in letters and e-mails sent to landowners; county administrators; bog conservation partners; and other state and federal natural resource agencies. The dates and locations of the open houses were:

- December 12, 2016 - Franklin, Macon County, North Carolina
- December 12, 2016 - Hendersonville, Henderson County, North Carolina
- December 13, 2016 - Lake Lure, Rutherford County, North Carolina
- December 14, 2016 - Boone, Watauga County, North Carolina
- December 14, 2016 - West Jefferson, Ashe County, North Carolina
- December 15, 2016 - Marion, McDowell County, North Carolina

Press Release

The Service distributed a press release on November 22, 2016 to the following media outlets, representing both regional outlets (Asheville Citizen Times, WNCW, WLOS) and local outlets serving the communities of the potential expansion:

- Asheville Citizen Times (Asheville, North Carolina)
- The Daily Courier (Forest City, North Carolina)
- McDowell News (Marion, North Carolina)
- Hendersonville Times –News (Hendersonville, North Carolina)
- Franklin Press (Franklin, North Carolina)
- Alleghany News (Sparta, North Carolina)
- Ashe Mountain Times (West Jefferson, North Carolina)
- Watauga Democrat (Boone, North Carolina)
- WNCW (Spindale, North Carolina)
- WLOS (Asheville, North Carolina)

Digital media

- Posted to the “Fish and Wildlife Service in North Carolina” Facebook page on November 22, 2016
- Posted to the Asheville ES Field Office website November 22, 2016
- Posted to Fish and Wildlife Service Region 4 website November 22, 2016

Radio

- Commentary on WNCW during December, 2016.

STATE AND FEDERAL AGENCIES

The Service contacted the following agencies directly, sending letters describing the potential expansion and inviting feedback and attendance at one of six open houses.

- Federal Highways Administration
- U.S. Army Corps of Engineers, Asheville Regulatory Office
- U.S. Forest Service, National Forests of North Carolina
- National Park Service, Blue Ridge Parkway
- National Park Service, Great Smoky Mountains National Park
- Natural Resources Conservation Service – District conservationists covering Macon, Henderson, Rutherford, McDowell, Watauga, Ashe, and Alleghany counties.
- North Carolina Wildlife Resources Commission
- North Carolina Plant Conservation Program
- North Carolina Natural Heritage Program
- North Carolina Museum of Natural Sciences
- North Carolina Department of Agriculture and Consumer Sciences
- North Carolina Department of Transportation
- North Carolina Division of Environmental Quality

NON-GOVERNMENTAL ORGANIZATIONS

The Service contacted the following NGOs directly, sending letters describing the potential expansion and inviting feedback and attendance at one of six open houses.

- Audubon
- Conserving Carolina

- The Conservation Fund
- Defenders of Wildlife
- Foothills Land Conservancy
- The Nature Conservancy
- North Carolina Farm Bureau
- North Carolina Forestry Association
- Ruffed Grouse Society
- Trout Unlimited
- Wild Turkey Federation

FOR-PROFIT CORPORATIONS

The Service contacted the following corporations directly, sending letters describing the potential expansion and inviting feedback and attendance at one of six open houses.

- Duke Energy
- Rutherford Electric Membership Corporation

Appendix A. References

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Appendix B. Interim Appropriateness Findings and Interim Compatibility Determinations

APPROPRIATE USE FINDINGS

An appropriate use finding is the initial decision-making process a refuge manager follows when considering whether to allow a proposed use on a refuge. An interim appropriate determination is used between when land is first acquired and until such time, no later than 15 years, when either a Comprehensive Conservation Plan or step down management plan is developed. The refuge manager must find that a use is appropriate before undertaking a compatibility review of the use. This process clarifies and expands on the compatibility determination process by describing when refuge managers should deny a proposed use without determining compatibility. If a proposed use is not appropriate, it will not be allowed and a compatibility determination will not be undertaken.

Except for the uses noted below, the refuge manager must decide if a new or existing use is an appropriate refuge use. If an existing use is not appropriate, the refuge manager will eliminate or modify the use as expeditiously as practicable. If a new use is not appropriate, the refuge manager will deny the use without determining compatibility. Uses that have been administratively determined to be appropriate are:

- Six wildlife-dependent recreational uses - As defined by the National Wildlife Refuge System Improvement Act of 1997, the six wildlife-dependent recreational uses (i.e., hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation) are determined to be generally appropriate for refuges. However, a refuge manager must still determine if these uses are compatible on a particular refuge.
- Take of fish and wildlife under state regulations - States have regulations concerning the take of wildlife that includes hunting, fishing, and trapping. The Service considers take of wildlife under such regulations appropriate. However, the refuge manager must determine if the activity is compatible before allowing it on a refuge.

An appropriate use determination was conducted for research in the Land Protection Plan establishing Mountain NWR (USFWS 2015). That appropriate use determination is incorporated by reference to this Land Protection Plan for the expansion of Mountain Bogs NWR and applies to all lands acquired through the expansion, if approved, and will serve until a Comprehensive Conservation Plan is developed for the refuge.

INTERIM COMPATIBILITY DETERMINATIONS

When a use is found to be appropriate at a refuge, the refuge manager then assesses the use to determine if it is compatible with the purpose of the refuge and the purpose and mission of the National Wildlife Refuge System. During the establishment of Mountain Bogs NWR, the Service determined that the six wildlife dependent public uses, environmental education, interpretation, wildlife observation, photography, hunting and fishing were compatible with the purpose of the refuge and the purpose and mission of the National Wildlife Refuge System. In addition, research was also found to be compatible, with certain stipulations. Those compatibility determinations are hereby incorporated by reference into this Land Protection Plan and will apply to all lands acquired through this expansion until a Comprehensive Conservation Plan and/or when appropriate step-down management plans are developed, so that public use activities can occur during this interim (USFWS 2015). During the acquisition of a particular property, the Service will develop an understanding of the types, conditions, and levels of use that previously occurred on that property to determine which uses will continue to occur under the interim compatibility determinations.

References:

U.S. Fish and Wildlife Service. 2015. Land Protection Plan and Final Environmental Assessment for the Establishment of Mountain Bogs National Wildlife Refuge. Atlanta, GA. 223pp.

Appendix C. Intra-Service Section 7 Biological Evaluation

Intra-Service Section 7 Biological Evaluation has been initiated and will run concurrently with the public review and comment period for the Environmental Assessment.

SOUTHEAST REGION INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

[Federally endangered, threatened, and candidate species]

[Note: This form provides the outline of information needed for intra-Service consultation. If additional space is needed, attach additional sheets, or set up this form to accommodate your responses.]

Originating Person: Anita Goetz
Telephone Number: 828-258-3939
E-Mail: anita_goetz@fws.gov
Date: August 28, 2019

PROJECT NAME (Grant Title/Number): Proposed Expansion of Mountain Bogs National Wildlife Refuge and Conservation Partnership Area

I. **Service Program:**

II.

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: N/A**

III. **Station Name: Mountain Bogs National Wildlife Refuge, NC**

IV. **Description of Proposed Action:**

The Service is proposing to expand the acquisition boundary of Mountain Bogs National Wildlife Refuge (NWR) and Conservation Partnership Area (CPA) in order to protect and conserve Southern Appalachian Mountain bogs. If approved, this action would increase the acquisition boundary from 42,390 acres up to a maximum of 92,772 acres with an increase in fee-title ownership from 23,478 to a maximum of 64,478 acres in western North Carolina and eastern Tennessee. The proposed refuge lands are located in Alleghany, Ashe, Henderson, Macon, McDowell, Rutherford, and Watauga Counties, North Carolina.

The proposed expansion would protect a diverse system of bog and fen wetlands and surrounding upland buffers, including high-mountain grasslands, spruce-fir forests, and hardwood forests. It would contribute to the recovery of 13 federally listed species, one candidate species and assist in the conservation of numerous state listed and imperiled species.

The purposes of this proposed expansion are to:

- Enhance the recovery of three federally-listed plants and three federally-listed animals identified in Table 1 (below).
- Support the pre-listing recovery of four at-risk plant and animal species (little brown bat, tri-colored bat, South Mountains gray-cheeked salamander, and mountain purple pitcher plant).
- Develop opportunities for wildlife-related recreation on Mountain Bogs NWR.
- Help establish a corridor between ecologically significant and protected areas in the South Mountains (e.g. South Mountains Game Lands and South Mountains State Park) and Hickory Nut Gorge (e.g. Chimney Rock State Park, The Nature Conservancy preserves).

The scope of the Final LPP/EA is limited to the proposed acquisition, in fee-title and in less-than-fee-title, of lands for inclusion in the Mountain Bogs NWR and CPA. The Final LPP/EA is not intended to cover the development and/or implementation of detailed, specific programs for the administration and management of those lands. The Service will develop a CCP, a 15-year management plan, and needed step-down management plans when land are purchased for inclusion in the refuge. These plans would be developed and reviewed in accordance with the Departmental requirements of the National Environmental Policy Act. Intra-Service biological evaluations or assessments (under Section 7 of the Endangered Species Act) for individual management activities, or groups of activities, would be conducted at the time those activities would be proposed.

V. Pertinent Species and Habitat:

Listed and/or proposed species, and/or critical habitat that occur or may occur within the project area are found in the table below.

Table 1. Listed/proposed species/critical habitat that occur or may occur within the proposed expansion project area:

Species	Status
Plants	
<i>Sagittaria fasciculata/Bunched arrowhead</i>	E
<i>Sisryinchium dichotomum/White irisette</i>	E
<i>Platanthera integrilabia/White fringeless orchid</i>	T (Historical)
<i>Sarracenia jonesii/Mountain-sweet pitcher plant</i>	E (Historical)
Mammals	
<i>Corynorhinus townsendii virginianus/Virginia big-eared bat</i>	E
<i>Myotis septentrionalis /Northern long-eared bat</i>	T-4(d)
Reptiles	
<i>Clemmys muhlenbergii/Bog turtle</i>	T(S/A)
Insects	
<i>Bombus affinis/Rusty-patched bumble bee</i>	E (Historical)

¹STATUS: E=endangered, T=threatened, PE=proposed endangered, PT=proposed threatened, CH=critical habitat, PCH=proposed critical habitat, C=candidate species

VI. Location:

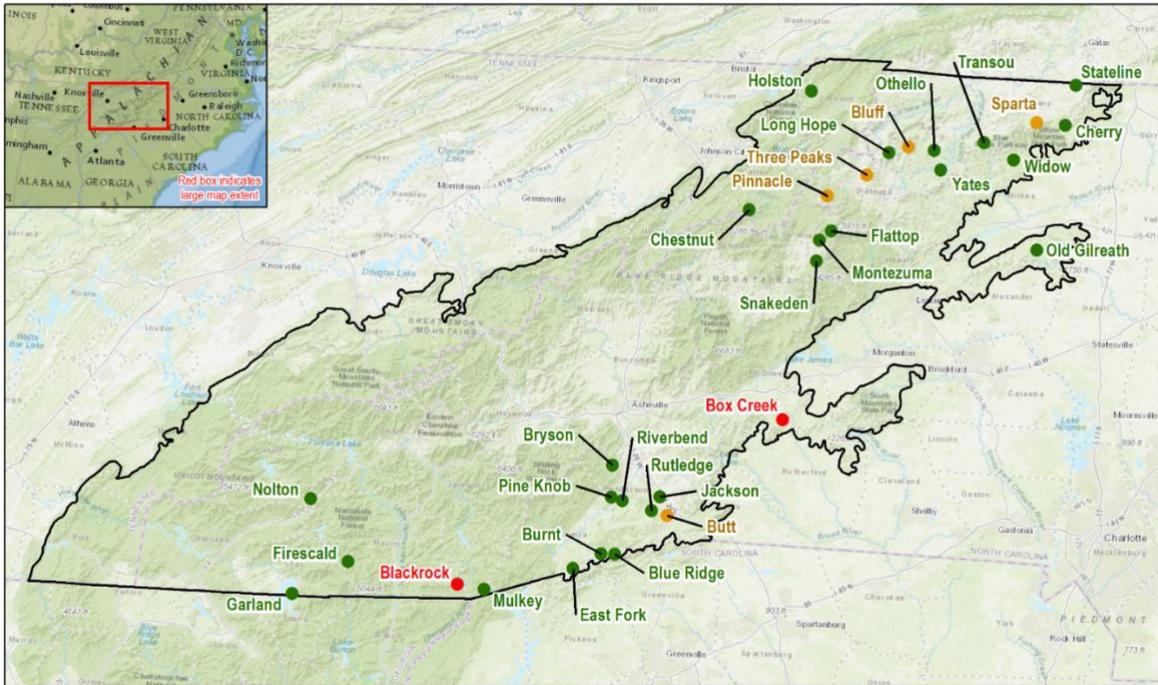
The proposed expansion would be comprised of approximately 50,400 acres scattered across Alleghany, Ashe, Henderson, Macon, McDowell, Rutherford, and Watauga Counties, North Carolina.



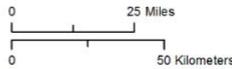
U.S. Fish & Wildlife Service

Mountain Bogs National Wildlife Refuge

Alleghany, Ashe, Avery, Clay, Graham, Henderson, Jackson, Macon, McDowell, Rutherford, Transylvania, Watauga, and Wilkes Counties NC, Carter and Johnson Counties TN



Produced by Ecological Services
Asheville, North Carolina
Basemap: ESRI World Topo
Map Date: 2/13/2018



- Mountain Bogs NWR Expansion Site - Proposed New CPA
- Mountain Bogs NWR Expansion Site - Within Existing CPA
- Approved Mountain Bogs NWR Conservation Partnership Areas
- ⬭ Mountain Bogs NWR Area of Interest

VII. Determination of Effects:

The Service concurs that the inclusion of these properties in Alleghany, Ashe, Henderson, Macon, McDowell, Rutherford, and Watauga Counties, North Carolina in the Mountain Bogs NWR, is not likely to adversely affect any federally listed species nor candidate species. There is no critical habitat within the Study Area for any federally listed species. Any construction, survey, acquisition, or management activities associated with the proposed refuge will undergo Endangered Species Act consultation when those activities become more clearly defined and the locations are known. In the future, we anticipate that surveys for listed species may need to occur on project lands in association with acquisition. We also anticipate that habitat management activities such as fire management, nonnative plant removal, etc., would occur and may require Intra-Service consultation. Future construction, outreach, or public use activities may also require Intra-Service consultation.

VIII. Effect Determination and Response Requested:

SPECIES/ CRITICAL HABITAT	DETERMINATION ¹			RESPONSE ¹ REQUESTED
	NE	NA	AA	
<i>Sagittaria fasciculata</i>		X		Concurrence
<i>Sisryinchium dichotomum/White irisette</i>		X		Concurrence
<i>Platanthera integrilabia/White fringeless orchid</i>		X		Concurrence
<i>Sarracenia jonesii/Mountain-sweet pitcher plant</i>		X		Concurrence
Mammals				
<i>Corynorhinus townsendii virginianus</i>		X		Concurrence
<i>Myotis septentrionalis /Northern long-eared bat</i>		X		Concurrence
Reptiles				
<i>Clemmys muhlenbergii/Bog turtle</i>		X		Concurrence
Insects				
<i>Bombus affinis/Rusty-patched bumble bee</i>		X		Concurrence

¹DETERMINATION/RESPONSE REQUESTED:

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

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

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

Signature (originating station)

Date

Title

If the project description changes or incidental take exceeds that which has been exempted under Section 9 of the Act, then the Ecological Services Field Office must be contacted.

IX. Reviewing Ecological Services Office Evaluation:

A. Concurrence _____ Non-concurrence _____

B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks (attach additional pages as needed):

Signature

Date

Title

Office

Appendix D. Interim Recreation Act Funding Analysis

Refuge Name: Mountain Bogs National Wildlife Refuge

Date Established: April 20, 2015

Purpose(s) for Which the Refuge was Established:

"conservation, management, and ... restoration of the fish, wildlife, and plant resources and their habitats ... for the benefit of present and future generations of Americans" 16 U.S.C. 668dd(a)(2) (National Wildlife Refuge System Administration Act of 1966).

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

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

"for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude" 16 U.S.C. 742f(b)(1); "for the development, advancement, management, conservation, and protection of fish and wildlife resources" 16 U.S.C. 742f(a)(4); (Secretarial powers to implement laws related to fish and wildlife) (Fish and Wildlife Act of 1956).

"suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species" 16 U.S.C. 460k-1; "the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors" 16 U.S.C. 460k-2 (Refuge Recreation Act (16 U.S.C. 460k-460k-4), as amended).

Recreational Use(s) Evaluated: (1) Recreational hunting of resident game (e.g., deer, turkey, and small game) and migratory birds (i.e., waterfowl) in accordance with federal and North Carolina and Tennessee regulations; (2) recreational fishing of freshwater fish species (e.g., trout, largemouth bass, bream, catfish, and crappie) in accordance with North Carolina and Tennessee regulations; (3) environmental education and interpretation; and (4) wildlife observation and photography.

Funding Required to Administer and Manage the Proposed Recreational Uses: The Service would use existing staff from nearby refuges, where feasible. Funding to support the proposed refuge would be made available to implement initial protection activities, hunt implementation, data collection, and non-consumptive uses. The Service would also cooperate with North Carolina Wildlife Resources Commission (NCWRC) to support initial public use activities on the proposed refuge, including the provision of law enforcement support. The Service would continue discussions with NCWRC regarding opportunities for State Game Lands designation(s) and management, co-management, and joint activities.

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.

Refuge Manager: _____
Signature/Date

Refuge Supervisor: _____
Signature/Date

Regional Chief, National
Wildlife Refuge System,
Southeast Region: _____
Signature/Date

Appendix E. Public Involvement

Efforts to inform and involve stakeholders in this expansion proposal are detailed in the Coordination and Consultation sections of the draft Land Protection Plan and Environmental Assessment above. Below is a summary of public comments and the Service's response.

SUMMARY OF PUBLIC SCOPING ISSUES

The Service received 22 comments during the public scoping period submitted through various means. Eleven were submitted at the open houses, 2 came via email and the remainder was provided over the telephone.

Comments received during public scoping for the Proposed Expansion of Mountain Bogs NWR were submitted by individuals, businesses, and organizations. The comment period closed on January 31, 2017.

Comments fell into 5 basic categories, those interested in the project and interested in Service acquisition of their property, those supportive of the project, those interested in technical support for habitat management, those not supportive of the project, and those wanting to learn more or stay informed.

The Service received five comments from parties interested in learning more about the project and potential acquisition of their property. Service acquisition methods and procedures are detailed in the draft Land Protection Plan. Each acquisition is investigated and negotiated individually with the property owner. One comment received expressed interest in influencing the areas to be included in the expansion.

Four comments were received supporting the expansion project.

Seven comments were received expressing interest and requesting more information on the project and future developments.

Two comments were received requesting future technical assistance in managing bog habitats.

Two comments were received expressing concern over the expansion of federal land ownership in the area and indicating they did not support the project.

Appendix F. Information on Preparers

This document was prepared by:

- Sue Cameron, Conservation Biologist, Asheville Ecological Services Field Office, Southeast Region, USFWS
- Susan Cielinski, Assistant Area III Supervisor, Southeast Region, National Wildlife Refuge System, USFWS
- Justin Dewey, Realty Specialist, Southeast Region, USFWS
- Mark Endries, Geographic Information Systems Analyst, Asheville Ecological Services Field Office, Southeast Region, USFWS
- Anita Goetz, Conservation Biologist, Asheville Ecological Services Field Office, Southeast Region, USFWS
- Andrew Hammond, Project Leader, Piedmont National Wildlife Refuge Complex, USFWS
- Laura Housh, Senior Planner, Southeast Region, USFWS
- Carolyn Johnson, Deputy Project Leader, Piedmont National Wildlife Refuge Complex, USFWS
- Alice Lawrence, Realty Specialist, Southeast Region, USFWS
- Janet Mizzi, Project Leader, Asheville Ecological Services Field Office, Southeast Region, USFWS
- Gary Peeples, Public Affairs Officer, Asheville Ecological Services Field Office, Southeast Region, USFWS
- Pamala Wingrove, Regional Planning Coordinator, Southeast Region, National Wildlife Refuge System, USFWS