
Appendix A. Draft Conceptual Management Plan

INTRODUCTION

The U.S. Fish and Wildlife Service (Service) proposes to protect southern Appalachian mountain bogs, one of the nation's rarest and most imperiled plant and wildlife habitats, through the creation of Mountain Bogs National Wildlife Refuge (NWR). This follows years of effort to conserve these areas on the part of the Service, other conservation organizations, and individual citizens. If established, a refuge 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. Federal trust species that would benefit include: federally listed mountain sweet pitcher plant, green pitcher plant, bunched arrowhead, swamp pink, and the bog turtle, as well as many species of migratory birds. Should the proposed action to establish a refuge be fully realized, it would be comprised of 23,478 acres scattered across as many as 30 sites in Alleghany, Ashe, Avery, Clay, Graham, Henderson, Jackson, Macon, Transylvania, Wilkes, and Watauga Counties, North Carolina, and Carter and Johnson Counties, Tennessee. The Service would work with partners and willing landowners to protect habitat through several methods, including fee simple purchases, conservation easements, leases, and/or cooperative agreements.

This document, the Draft Conceptual Management Plan (Draft CMP), provides further detail on the Service's proposed action and how the lands identified therein would be administered should the Mountain Bogs NWR be established.

PURPOSE OF CONCEPTUAL MANAGEMENT PLAN

The Draft Land Protection Plan and Draft Environmental Assessment (Draft LPP/EA) for the proposed Mountain Bogs NWR examines the feasibility of establishing a national wildlife refuge in the Blue Ridge Mountains of North Carolina and Tennessee. In Chapter III of the Draft EA, Alternative B (potential new refuge) is presented as the Service's proposed action. This alternative would not be implemented until it has been officially reviewed and authorized.

If approved, the Alternative B would allow the Service to proceed in negotiations with interested landowners within 30 Conservation Partnership Areas (CPAs), totaling 42,250 acres across the North Carolina and Tennessee portions of the Blue Ridge Mountains landscape. Out of these 42,250 acres, the Service would be authorized to protect 23,478 acres through various fee-title and less-than-fee-title methods. The methodology used to delineate CPAs is described in the Draft LPP, and provides a decision support tool to assist with prioritizing acquisition of parcels. The CPAs serve to help focus land conservation efforts, while providing the Service flexibility to negotiate with willing sellers, maintain and strengthen existing partnerships, and develop new partnerships (Figure 1). The Service concludes that acquiring these lands over time would provide the needed protection of Appalachian mountain bogs and other rare and unique habitats in the Blue Ridge Ecoregion of North Carolina and Tennessee, and build on the existing coalition of organizations and individuals that advocate bog conservation in the region. It would also provide opportunities for wildlife-dependent recreation.

The Service developed this Draft CMP to describe the management direction for a proposed Mountain Bogs NWR, as defined in Alternative B, and outlines possible interim habitat management priorities and compatible public uses on newly acquired lands, should a refuge be approved. The

activities described in this Draft CMP would direct the way we pursue and manage acquisitions, conservation easements, and other land interests until a comprehensive conservation plan (CCP) is developed. By Service policy, a CCP must be developed within 15 years of the actual establishment of a refuge (i.e., acquisition of first land parcel). Any major changes in the activities described in this Draft CMP, any new activities, and our development of the CCP would be subject to public review and comment in accordance with the provisions of Service refuge planning policy (602 FW 1, 2, and 3) and Service and U.S. Department of the Interior policy implementing the National Environmental Policy Act (NEPA) of 1969 (Department of the Interior Manual 516, Appendix 1).

MISSION OF THE SERVICE AND THE NATIONAL WILDLIFE REFUGE SYSTEM

U.S. Fish and Wildlife Service

The Service is responsible for conserving, enhancing, and protecting fish and wildlife and their habitats for the continuing benefit of people through federal programs relating to wild birds, endangered species, certain marine mammals, fisheries, aquatic resources, and wildlife management activities.

As part of its mission, the Service manages 560 national wildlife refuges and other units of the National Wildlife Refuge System (Refuge System), covering 150 million acres (60.7 million ha). These areas comprise the Refuge System, the world's largest collection of lands and waters set aside specifically for fish and wildlife. The majority of these lands, 77 million acres (31 million ha), is in Alaska, while 54 million acres (21.8 million ha) are part of three marine national monuments in the Pacific Ocean. The remaining acres/hectares are spread across the other 49 states and several United States territories. In addition to refuges, the Service manages thousands of small wetlands, 37 wetland management districts, 70 national fish hatcheries, 65 fishery resource offices, and 81 ecological services field stations. The Service enforces federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat, and helps foreign governments with their conservation efforts. It also oversees the Federal Aid program that distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to state fish and wildlife agencies.

National Wildlife Refuge System

The mission of the Refuge System, as defined by the National Wildlife Refuge System Improvement Act of 1997 is:

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

The wildlife and habitat vision for national wildlife refuges stresses that wildlife comes first; that ecosystems, biodiversity, and wilderness are vital concepts in refuge management; that refuges must be healthy and growth must be strategic; and that the Refuge System serves as a model for habitat management with broad participation from others.

Actions were initiated in 1997 to comply with the direction of this new legislation, including an effort to complete CCPs for all refuges. These CCPs, which are completed with full public involvement, help guide the future management of refuges by establishing natural resource and recreation/education programs. Consistent with the Improvement Act, approved CCPs serve as the guidelines for refuge management for a 15-year period. The Improvement Act states that each refuge shall be managed to:

- Fulfill the mission of the Refuge System;
- Fulfill the individual purposes of each refuge;
- Consider the needs of wildlife first;
- Fulfill requirements of CCPs that are prepared for each unit of the Refuge System;
- Maintain the biological integrity, diversity, and environmental health of the Refuge System;
- Recognize that wildlife-dependent recreation activities including hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation are legitimate and priority public uses; and
- Allow refuge managers authority to determine compatible public uses.

National wildlife refuges connect visitors to their natural resource heritage and provide them with an understanding and appreciation of fish and wildlife ecology to help them understand their role in the environment. Wildlife-dependent recreation on refuges also generates economic benefits to local communities. According to the report, *“Banking on Nature 2006: The Economic Benefits to Local Communities of National Wildlife Refuge Visitation,”* approximately 35 million people visited national wildlife refuges in 2006, generating almost \$1.7 billion in total economic activity and creating almost 27,000 private sector jobs producing about \$543 million in employment income (Carver and Caudill 2007). Additionally, recreational spending on refuges generated nearly \$185.3 million in tax revenue at the local, county, state, and federal levels (Carver and Caudill 2007). As the number of visitors grows, significant economic benefits are realized by local communities. In 2006, 87 million people, 16 years and older, fished (30 million), hunted (12.5 million), or observed wildlife (71 million), generating \$120 billion (U.S. Fish and Wildlife Service and U.S. Census Bureau 2006). In a study completed in 2002 on 15 refuges, visitation had grown 36 percent in 7 years. At the same time, the number of jobs generated in surrounding communities grew to 120 per refuge, up from 87 jobs in 1995, pouring more than \$2.2 million into local economies. The 15 refuges in the study were Chincoteague (Virginia); National Elk (Wyoming); Crab Orchard (Illinois); Eufaula (Alabama); Charles M. Russell (Montana); Umatilla (Oregon); Quivira (Kansas); Mattamuskeet (North Carolina); Upper Souris (North Dakota); San Francisco Bay (California); Laguna Atacosa (Texas); Horicon (Wisconsin); Las Vegas (Nevada); Tule Lake (California); and Tensas River (Louisiana), the same refuges identified for the 1995 study. Other findings also validate the belief that communities near refuges benefit economically. Expenditures on food, lodging, and transportation grew to \$6.8 million per refuge, up 31 percent from \$5.2 million in 1995. For each federal dollar spent on the Refuge System, surrounding communities benefited with \$4.43 in recreation expenditures and \$1.42 in job-related income (Caudill and Laughland, unpublished data). Visitation is growing with 41 million visitors to national wildlife refuges in 2008.

Volunteers continue to be a major contributor to the success of the Refuge System. In 2009, 42,918 volunteers donated 1,611,388 hours. The value of their labor was \$32,630,607, the equivalent of 775 full-time employees. More than 200 Friends organizations support the work of the Service (USFWS 2009).

BACKGROUND AND RATIONALE FOR THE ESTABLISHMENT OF THE PROPOSED MOUNTAIN BOGS NWR

The land being proposed for protection includes a diverse system of bog and fen wetlands (here collectively termed “mountain bogs” or “bogs”) and adjacent habitats. This proposal represents an unprecedented opportunity to protect and restore one of the rarest wetland community types in the Service’s Southeast Region, while also affording permanent protection and management to a number of federal trust species. 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 habitat is likewise identified as a priority action in the Service’s Strategic Plan for the Southern Appalachian Ecosystem, the Strategic Plan for the Asheville, North Carolina, Ecological Services Field Office, and in the recovery plans for each of those federally listed species occurring within mountain bog habitats.

Historically, small wetlands were found throughout the southern Appalachian Mountains, but past land use practices and increasing development and disruption of normal hydrologic processes have resulted in the destruction of most of these sites, with an estimated loss of 80-90 percent (Noss et al. 1995; Weakley and Schafale 1994). Furthermore, it has been estimated that the amount of remaining mountain bogs in private ownership in North Carolina, where the majority of these habitats still exist, is greater than 60 percent (NCWRC 2005). Mountain bogs continue to be some of the most threatened habitats, because they are likely to be converted to other uses and are sensitive to hydrologic changes within the watershed.

Mountain bogs are recognized hotspots for biodiversity and contain numerous rare and declining plant and animal species. This project is expected to aid in the recovery of 13 federally listed species and one candidate species and support conservation efforts for 83 state listed species. Mountain bogs offer essential feeding, wintering, and nesting habitat for numerous migratory bird species; and provide food and shelter for many important game species, including furbearers such as mink, muskrat, raccoon, and beaver, and game birds such as rails, woodcock, ruffed grouse, turkey, and wood duck. Bogs are breeding habitat for many species of amphibians, especially salamanders, for which the southern Appalachians have the greatest diversity in the nation. They support an incredibly high diversity of plant species and are important to invertebrates.

In addition to providing specialized habitat for wildlife, bogs provide important services to humans and wildlife downstream. Like other wetlands, bogs possess a natural capacity for regulating water flow, holding floodwaters like giant sponges then slowly releasing the water to minimize the effects of droughts and floods. Bogs also contribute to water quality by removing excess nutrients and many chemical contaminants. Mountain wetlands play an important role in many aquatic food chains, and contribute to the productivity and good water quality needed by downstream fishes, including native brook trout.

Bogs have long been recognized for their biological importance and the Service’s Asheville Field Office in North Carolina has worked since the early 1990s, in conjunction with federal, state, and non-governmental partners and private landowners, to develop a coordinated restoration and protection strategy for the mountain bogs in western North Carolina. Despite accomplishments to date, land protection and active, long-term management are still needed at the majority of all remaining mountain bog sites. This refuge would restore and protect mountain bog sites and upland buffers and corridors between select sites in the AOI, as well as associated water quantity and quality. Furthermore, placement of these mountain bog sites under unified ownership would provide for a coordinated, strategic approach to the restoration of these habitats.

The Service also sees a need to provide additional opportunities for wildlife-dependent recreation and education. It is well recognized that many of our youth no longer have an attachment to the outdoors and outdoor activities (Louv 2006); so much so that the America's Great Outdoors initiative focuses on providing increased opportunities for our nation's youth and population in general to engage with the outdoors. Establishing a new national wildlife refuge in this landscape would provide these additional opportunities.

It is envisioned that the proposed refuge would:

- Protect some of the last remaining examples of Appalachian Mountain bogs;
- Protect and maintain habitat for a diversity of fish, wildlife, and plant species;
- Provide habitat for nongame neotropical migratory birds;
- Conserve habitat for 13 federally listed species including the bog obligate mountain sweet pitcher plant, green pitcher plant, bunched arrowhead, swamp pink, and the bog turtle; 1 candidate species and 83 state listed species;
- Provide breeding, wintering, and migration habitat for the American woodcock;
- Provide opportunities for environmental education, interpretation, and wildlife-dependent recreation;

LAWS GUIDING THE NATIONAL WILDLIFE REFUGE SYSTEM

A number of laws, policies, and regulations govern the acquisition and management of land in the Blue Ridge Ecoregion, including the National Wildlife Refuge System Improvement Act, the National Wildlife Refuge System Administration Act, Endangered Species Act, and Migratory Bird Treaty Act.

National Wildlife Refuge System Improvement Act of 1997 (Improvement Act)

This Act guides the development and operation of the Refuge System. It clearly identifies the mission of the Refuge System, requires the Secretary of the Interior to maintain the biological integrity, diversity, and environmental health of refuge lands, mandates a "wildlife first" policy on refuges, and requires comprehensive conservation planning. It also designates the following six wildlife-dependent recreational uses as priority public uses of the Refuge System: hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation. This Act amended the National Wildlife Refuge System Administration Act of 1966, which continues to serve as the parent legislation for the Refuge System.

National Wildlife Refuge System Administration Act of 1966

This Act defines the Refuge System, including refuges, areas for the protection and conservation of fish and wildlife threatened with extinction, wildlife ranges, wildlife management areas, and waterfowl production areas. It also authorizes the Secretary of the Interior to permit any use of an area, provided the use is compatible with the major purposes for establishing the area.

Endangered Species Act of 1973 (as amended)

The Endangered Species Act directs all federal agencies to participate in endangered species conservation by protecting threatened and endangered species and restoring them to a secure status in the wild. Section 7 of the Act charges federal agencies to aid in the conservation of species listed as threatened or endangered under the Act, and requires federal agencies to ensure that their activities will not jeopardize the continued existence of listed species under the Act, or adversely modify designated, critical habitats.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act protects all migratory birds and their parts, including eggs, nests, and feathers, from illegal trade. The Migratory Bird Treaty Act is a domestic law that acknowledges the United States' involvement in four international conventions, Canada, Japan, Mexico, and Russia, for the protection of a shared migratory bird resource. The bird resource is considered shared because these birds migrate between countries at some point during their annual life cycle.

National Environmental Policy Act of 1969

The National Environmental Policy Act requires that all federal agencies consult fully with the public in planning any action that may significantly affect the quality of the human or natural environment.

Land and Water Conservation Fund Act

The Land and Water Conservation Fund uses monies from certain user fees, the proceeds from the disposal of surplus federal property, the federal tax on motor boat fuels, and oil and gas lease revenues (primarily Outer Continental Shelf oil monies) to fund matching grants to states for outdoor recreation projects and to fund land acquisition for various federal agencies.

Migratory Bird Conservation Act

The Migratory Bird Conservation Act provides for the acquisition of suitable habitats for use as migratory bird refuges, and the administration, maintenance, and development of these areas under the administration of the Secretary of the Interior.

Archaeological Resources Protection Act of 1979

This Archaeological Resources Protection Act provides protection for archaeological resources on public lands by prohibiting the "excavation, removal, damage, or defacing of any archaeological resource located on public or Indian lands," and sets up criminal penalties for those acts. It also encourages the increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having archaeological resources or data obtained before 1979.

National Historic Preservation Act of 1966

The National Historic Preservation Act requires all federal agencies to consider the effects of their undertaking on properties meeting criteria for the National Register of Historic Places, and ensures that historic preservation fully integrates into the ongoing programs and missions of federal agencies.

PURPOSE OF ESTABLISHMENT AND LAND ACQUISITION AUTHORITY

Refuge lands can be acquired under various legislative and administrative authorities for specified purposes. Establishment of and land acquisition for the proposed Mountain Bogs NWR would be authorized by the following: National Wildlife Refuge System Administration Act, Endangered Species Act, Emergency Wetlands Resources Act, and Fish and Wildlife Act, among others. The purposes of

a refuge guide its long-term management, prioritize future land acquisition, and play a key role in determining the compatibility of any public uses. The purposes of the proposed Mountain Bogs NWR are as follows:

"for the 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)); and the National Wildlife Refuge System Administration Act, as amended by the National Wildlife Refuge System Improvement Act of 1997);

"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);

"for the protection of migratory birds . . . or any part, nest, or egg of any such bird" (Migratory Bird Treaty Act (16 U.S.C. 703));

VISION FOR THE PROPOSED MOUNTAIN BOGS NATIONAL WILDLIFE REFUGE

The Mountain Bogs NWR will conserve critically endangered southern Appalachian Mountain bogs and portions of their surrounding landscapes for current and future generations. Refuge lands and waters will be managed for fish and wildlife populations, with an emphasis on the management of imperiled federal trust species, including 13 federally listed plants and animals, and will help protect and improve water quality and water quantity within the watersheds surrounding the refuge. As part of a system of public and private conservation lands, the refuge will expand outdoor recreational and educational opportunities, helping to support local economies.

GOALS OF THE PROPOSED MOUNTAIN BOGS NATIONAL WILDLIFE REFUGE

The following overarching goals were developed for the proposed Mountain Bogs NWR:

Goal 1. Protect, Restore, and Manage Habitats for Fish and Wildlife. The proposed Mountain Bogs NWR would conserve rare mountain bog habitat and associated species as well as adjacent upland habitats. The proposed refuge would 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 southern Appalachian brook trout.

Goal 2. Provide Landscape-Level Conservation. The proposed Mountain Bogs NWR, which would be within the Appalachian Landscape Conservation Cooperative, would 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

proposed refuge would 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 the proposed Mountain Bogs NWR would 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 would 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.

How each goal would be achieved through the proposed Mountain Bogs NWR is summarized as follows:

Goal 1. Protect, Restore, and Manage Habitats for Fish and Wildlife

Habitats

The proposed Mountain Bogs NWR would strive to protect some of the last remaining examples of mountain bogs in the southern Appalachian Mountains through fee-title acquisition, less-than-fee-title acquisition, and conservation easements. In addition to mountain wetlands, this proposed refuge would also protect other important habitats that buffer and connect the bogs, including spruce-fir forests, various types of hardwood forests (e.g., northern hardwood forests, oak forests, cove forests), riparian habitats, and early successional habitats. A full description of many of the habitat types included in the CPAs can be found in the Affected Environment section of the Draft EA.

Restoration and management would be needed to conserve these habitats. Wetland restoration is defined as active rehabilitation of a degraded wetland or hydric soil area to recover its natural attributes, and ecological functions and values (Somers et al. 2000). Due in part to their location in flat, low-lying areas, nearly every remaining example of mountain bog habitat shows some evidence of human alteration. The bottomlands, valleys, and easily accessible plateaus where these habitats occur were the first to be cleared and settled by Native Americans and Europeans. Numerous sites have been ditched and drained or turned into ponds or lakes and many other bogs have been destroyed by intensive agriculture and overgrazing, residential and commercial development, road and reservoir construction, and intensive silviculture. Stream channelization, which ultimately results in a lowering of the stream bed elevation and associated water table, would dewater adjacent wetlands, resulting in a drying out of bog habitat and acceleration of shrub succession. These activities have occurred at many sites. Fortunately, great strides have been made in techniques to reverse some of these land use practices and restore wetland habitat. Restoration activities should be a priority for land managers where feasible and beneficial and would undoubtedly be important for some of the bogs identified for inclusion in the Mountain Bogs NWR.

All bogs would require management, in part because we have lost historical disturbance regimes that once maintained and created these sites across the landscape. Continued long-term management, both on- and off-site (watershed-wide), is crucial to maintaining proper functioning conditions of these wetlands and their associated ecological communities. Management actions would need to balance the needs of the various plants and animals that reside in bogs or use bogs during some portion of their life cycle. In general, some bogs support a mix of open and closed canopy, maintained by

hydrology, elevation, and other natural factors. Others may be open canopied (dominated by herbaceous vegetation) due to active management of vegetation or other land uses (grazing). Over time, freshwater wetlands in the southeast succeed toward a closed forest canopy and the sunny microhabitats required by many imperiled wetland species gradually disappear as the interior surface becomes shady. Ultimately, this would result in a loss of those species unless management activities can maintain a mosaic of microhabitats.

Fish and Wildlife

Mountain bogs are recognized hotspots for biodiversity and endemism, containing numerous rare and declining plant and animal species (Murdock 1996, Weakley and Schafale 1994). There are 13 federally listed wildlife species, one candidate species, and 83 state listed species either as endangered, threatened, or species of special concern found within the proposed CPAs. Many of these species are dependent on bog habitats for their survival, while others can also be found in the adjacent upland habitats. The proposed refuge would also provide habitat for migratory birds and is situated along the Atlantic Flyway, lying within the North American Bird Conservation Initiative's Bird Conservation Region 28 and the Appalachian Mountain Joint Venture. It also would serve to protect water quality for many aquatic species of concern including the endangered Appalachian elktoe mussel and the southern Appalachian brook trout.

Recovery of Threatened and Endangered Species

The following is a brief description of the federally listed species expected to benefit from the proposed Mountain Bogs NWR:

Bunched Arrowhead

Bunched arrowhead is known from only two counties in the entire world, with eleven remaining populations across those two counties. The recovery criteria for this species are to protect at least three colonies in each of four bunched arrowhead populations (USFWS 1983). This proposed project would make important strides in permanently protecting one colony in each of two North Carolina populations.

Green Pitcher Plant

Green pitcher plant is a carnivorous perennial herb with yellowish-green, hollow, pitcher-shaped leaves. The hollow leaves contain liquid and enzymes. When insects fall into the pitchers, they're digested and the nutrients in the bodies are incorporated into the plant's tissues. At one time, green pitcher plants were found in North Carolina, Tennessee, Georgia, and Alabama and in landscapes as diverse as the coastal plain and the ridge and valley. It has disappeared from Tennessee, and is only found at a single site in North Carolina near Lake Chatuge. The recovery criteria state that 18 viable populations representing the diversity of habitats and the geographic range should be protected. Of the 18 populations, at least three colonies should be located within the Lake Chatuge geographic area (USFWS 1994). This proposed project would help protect the lone North Carolina site and aid in recovering the species.

Mountain Sweet Pitcher Plant

Mountain sweet pitcher plant is a carnivorous perennial herb with tall, hollow pitcher-shaped leaves and red sweet-smelling flowers. The entire known distribution of this plant is in three southern Appalachian counties, with a total of 12 populations. Creation of the refuge would help protect five North Carolina populations.

Swamp Pink

Swamp pink is a perennial herb in the lily family with flower stalks up to 4.5 feet tall. Though its range stretches from Georgia to New Jersey, its actual habitat within that range is rare. North Carolina is home to 10 populations and this proposal would help protect habitat for six of those, which aids in the recovery criteria to stabilize the range-wide status of the species and ensure the long-term regulatory protection of these populations (USFWS 1991).

Roan Mountain Bluet

Roan Mountain bluet, found on exposed mountain-top habitat, is easily distinguished from other bluets by its relatively large reddish purple flowers, small oval leaves, and compact growth form. Roan Mountain bluet would be considered recovered when there are at least nine self-sustaining populations in protection (USFWS 1996). This proposed project would aid in the protection of two populations.

Rock Gnome Lichen

One of two lichens on the federal list of threatened and endangered species, rock gnome lichen is the only member of the genus *Gymnoderma* to live in North America. Rock gnome lichen occurs in dense colonies of narrow strap-like lobes in moist, open sites on rock faces. Rock gnome lichen would be considered for downlisting when there are at least 30 populations stable over 5 years and within protective ownership (USFWS 1997). This proposed project would aid in the protection of two populations.

Heller's Blazing Star

Heller's blazing star is a perennial herb in the Aster family. It has one or more erect or arcing stems arising from a tuft of narrow, grass-like, pale green basal leaves. Its flowering stems reach up to 16 inches (40.6 cm) in height and are topped by a showy 3- to 8-inch (7.6 to 20.3 cm) long spike of lavender flowers. Heller's blazing star would be considered recovered when there are at least nine self-sustaining populations in existence and in protection (USFWS 1999). This proposed project would aid in the protection of one population.

Bog Turtle

The bog turtle is North America's smallest turtle. It lives in several different types of mountain wetlands, including fens, wet meadows and open swamps, and seems to prefer spring-fed wetlands with saturated soils and modest amounts of running water. These sites are typically sedge-dominated with little or no canopy. The southern Appalachians form the heart of the range for the southern population of the bog turtle. The turtle faces serious threats from habitat loss and destruction and poaching to fuel an illegal pet trade. The proposed Mountain Bogs NWR would protect 15 of the best bog turtle sites in the southeast, including several that are part of a larger bog complex or metapopulation. Establishment of a refuge would also enable the Service to expand anti-poaching efforts for this and other species.

Carolina Northern Flying Squirrel

Carolina northern flying squirrels are endemic to the southern Appalachians and inhabit spruce-fir and northern hardwood forests primarily above 4,000 feet in elevation. There are currently nine Geographic Recovery Areas (GRAs) listed in the recovery plan for the squirrel (USFWS 1990).

One GRA, Long Hope Valley, currently has no protections. The refuge seeks to offer some protection to this important site. Flying squirrels are also believed to utilize a number of other bogs sites in separate GRAs. In addition, the landscape-level approach of this proposed refuge could help protect habitat corridors between some GRAs. This is important to the recovery of the squirrel, given that many of the populations are isolated from one another. One recovery objective for the squirrel requires that GRAs be managed in perpetuity to ensure sufficient habitat for population maintenance/expansion and habitat corridors, where appropriate elevations exist to permit migration among GRAs (USFWS 1990).

Virginia Big-eared Bat

Several of the proposed bog sites lie in close proximity to known Virginia big-eared bat hibernacula in North Carolina and a Virginia big-eared bat was captured during the summer at one of these sites. Given the propensity for big-eared bats to forage in open areas and the proximity of known hibernacula to several of the proposed bog sites, these areas could provide important foraging habitat for this species. The Virginia big-eared bat recovery plan identifies the need to protect foraging habitat for the species (USFWS 1984). Establishment of a refuge would also afford opportunities for research on this and other bat species. Due to White-nose Syndrome, additional species (eastern small-footed bat, northern long-eared bat, and little brown bat) have been petitioned or proposed for listing and this proposed refuge could also offer foraging and roosting habitat for those species.

Conserving Migratory Birds in Decline

A high diversity of bird species breed and winter in the Appalachian Mountains and the region is very important for birds during migration. Mountain bogs, associated streams, and adjacent uplands provide important habitat for many of these species. Breeding birds associated with these wetlands include golden-winged warbler, alder flycatcher, willow flycatcher, and Canada warbler. Game birds such as American woodcock, ruffed-grouse, Virginia rail, wild turkey, and wood duck can also be found utilizing these habitats. These species and others have been identified as priorities in national and regional bird plans and in state wildlife action plans (Hunter et al. 1999, Rich et al. 2004, NCWRC 2005, TNWRA 2005). Nearly all of the proposed refuge sites fall within either golden-winged warbler focal areas or Audubon Important Bird Areas.

Establishment of a refuge would protect several habitat types important to conserving migratory birds in decline including high-elevation forests, early successional habitat, and riparian woodlands. Priority species dependent on riparian habitats include cerulean warbler and Swainson's warbler. Riparian areas also serve as optimal habitat for transient neotropical migratory birds. Some of the higher elevation sites support several at-risk species, including red crossbill, blackburnian warbler, and northern saw-whet owl. Many of the species that utilize bogs and surrounding lands are early successional species; a suite of birds that have been declining. One of the main objectives for early successional species is to protect, maintain, and where necessary, restore sensitive early successional habitats, such as mountain wetlands and high elevation balds (Hunter et al. 1999). Given the distribution of refuge sites, the establishment of a refuge would also address several landscape-scale objectives for many of the species it poses to protect.

Several CPAs currently provide habitat for breeding golden-winged warblers and additional CPAs might also provide habitat or could provide habitat with appropriate management. The basis for the breeding grounds conservation strategy for golden-winged warblers is the delineation of focal areas where stabilizing and ultimately restoring golden-winged warbler populations would occur. These are areas where the conservation community has recommended targeting conservation actions and where the maintenance of core populations would be important for sustaining and growing the current

distribution (Roth et al. 2012). Ten of the CPAs occur within golden-winged warbler focal areas. The acquisition of habitat in these CPAs would contribute to goals outlined in the Golden-winged Warbler Conservation Plan of maintaining 3,000 pairs of golden-winged warblers in southwestern North Carolina, plus an additional 500 pairs in west-central and northwestern North Carolina through acquisition and management.

Other Wildlife

These habitats also provide habitat for small mammals including bats such as eastern small-footed myotis, which utilize wetlands for foraging and drinking, and meadow voles, which build nests from grasses along the margins of wet areas. Fur-bearing mammals such as mink, muskrat, raccoon and beaver also utilize bogs.

There are 50 species of salamanders in western North Carolina, twenty of which are listed as priority species (NCWRC 2005). Priority salamander species associated with bogs include mole salamander, marbled salamander, four-toed salamander, three-lined salamander and spotted salamander. These salamanders require pools of water for breeding purposes and bogs often contain appropriate pools. Green salamander and hellbender, both federal species of concern, and likely many other species of salamanders, would also benefit from the protection of additional habitat types found adjacent to the bogs (e.g., forests, rock outcrops, streams). Common reptile species often found in these wetlands include queen snake, eastern kingsnake, and eastern box turtle.

Mountain bogs support high plant diversity. Twenty-one plant species associated with mountain bogs are listed by NCPCH, with another 41 plant species proposed for state listing. Almost one-fifth of the 722 rare plant species monitored by the North Carolina Natural Heritage Program occur in bogs, fens, and other non-alluvial mountain wetlands, and most of them are limited to these habitat types (Murdock 1994).

Plant diversity of these sites translates into a high diversity of invertebrates including pollinators. Some important butterflies found in bogs include the Baltimore checkerspot, regal fritillary, two-spotted skipper, and Monarch butterfly. It is important to note that systematic faunal surveys for rare species in these habitat types are needed, particularly for invertebrates. Additional surveys are also needed to document occurrences of reptiles, amphibians, small mammals, and birds at these sites.

Goal 2. Provide Landscape-Level Conservation

Mountain Bogs NWR, within the Appalachian Landscape Conservation Cooperative, would 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 proposed refuge would also protect and enhance water quality and quantity within multiple watersheds, benefiting both humans and wildlife.

The Service would work with the public and private partners to restore and maintain habitat connectivity throughout the landscape in part by working to reduce habitat fragmentation by connecting and buffering lands that are already protected. Many bog sites are hydrologically connected, and these connections support important movement corridors for wildlife from one small site to another, thus creating local populations of particular species not associated with a single site, but a larger complex of sites within the drainage (NCWRC 2005). Populations of plants and animals are becoming increasingly isolated as more wetlands are destroyed. This proposed refuge would work to connect disjunct populations by protecting corridors. It is vital to retain and recreate these connections to facilitate movement of wildlife and gene flow between populations. Connections to

nearby streams and forests would help maintain/create healthy populations and would also allow certain species to migrate and adapt to changes in habitats such as those that might result from climate change. Furthermore, this proposed refuge would work to buffer existing bogs and associated streams to improve water quality/quantity not only for the bogs and associated flora and fauna, but also for wildlife and humans downstream. These efforts would allow for a more intact and functional landscape.

Proposed management would complement the management of adjacent and nearby conserved lands, both public and private, thus enhancing the Service's wildlife management contribution to the region and helping to create a more functional conservation landscape. The proposed Mountain Bogs NWR would provide local and regional benefits to wildlife by working in concert with existing conservation areas and partners, including Nantahala, Pisgah and Cherokee National Forests, The Nature Conservancy, North Carolina Wildlife Resources Commission, (NCWRC), North Carolina Plant Conservation Program, North Carolina State Parks, and area land trusts. Restoration and management activities at degraded sites would assist in accomplishing the goal of providing landscape-level conservation by making sites more resilient and contributing to ecological resiliency across the landscape.

Goal 3. Connect People with Nature

Refuge visitors of all abilities would 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.

Creation of the proposed Mountain Bogs NWR would increase wildlife-dependent recreation and education opportunities. While some of the parcels proposed for acquisition may be unsuitable for public access due to the potential for poaching of the rare species found there, other sites would be well-suited to these activities. The Service would work cooperatively with NCWRC, TWRA, and other partners to provide public hunting and fishing opportunities and interpretive and educational programs. Elevated boardwalks could be used to enable public entry at sites where trampling of sphagnum mats or other sensitive habitat is a concern. The proximity of several of the proposed sites to Asheville, Hendersonville, and Boone would make these sites easily accessible to the general public and their proximity to numerous area schools would make them ideal for educational opportunities targeting younger children.

The Improvement Act established six priority public uses on refuges. Those priority uses depend on the presence, or the expectation of the presence, of wildlife. These uses are: hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation. Although these priority uses must receive consideration in planning for public use, they also must be compatible with the purposes for which a refuge is established and the mission of the Refuge System. One additional use, research, would also be considered. Compatibility determinations, which evaluate the effects of a particular use or activity in the context of species or habitats on a refuge, aid in making those decisions. If refuge lands were acquired, compatibility determinations would be used to decide which, where, and how public use opportunities would be permitted.

Public use opportunities contribute to the long-term protection of wildlife resources by promoting understanding, appreciation, and support for wildlife conservation. The six priority public uses and research would be accommodated to the maximum extent possible, where they would not have significant negative effects on wildlife or habitat. All of the proposed public use activities are contingent upon availability of staff and funding to develop and implement these programs. The Service would promote opportunities for volunteers and develop community interpretive materials and

programs to enhance awareness of and appreciation for the area's resources. School and other group programs would be considered. If a refuge is established, an increase in public use would be expected from new facilities and programs such as new hunts, new trails, new parking areas, new fishing access, new interpretive overlooks, and new observation platforms that would potentially be a part of a new refuge. The Service would allow public access for day use on many newly acquired lands, provided there are no expected negative effects on sensitive species (e.g., federally listed species) or habitats, and would consider overnight access as a component of other public use activities (e.g., hunting in remote locations). See Appendix B for the interim compatibility determinations for the proposed action.

Hunting and Fishing

Where appropriate, the Service would open newly acquired lands for hunting and fishing; biologically, ecologically, and safely accommodating these activities within the state's regulation framework. The Service would work with NCWRC, TWRA, and others to develop an understanding of hunting and fishing activities for a particular site during the acquisition process and regarding the co-management opportunities of the hunting and fishing activities associated with this proposal. If possible, the Service would provide Americans with Disabilities Act (ADA)-compliant and youth hunting opportunities. Generally, the Service would allow hunting, based on state hunting seasons and consistent with the refuge's CCP and Hunt Plan (once developed).

Wildlife Observation, Wildlife Photography, Environmental Education and Interpretation, and Research

Beyond hunting and fishing, the proposed refuge would also provide opportunities for wildlife observation, wildlife photography, environmental education and interpretation, and research (see Appendix B for the interim compatibility determinations addressing these uses).

Environmental education and interpretation would incorporate on-site, off-site, and distance-learning materials, activities, programs, and products that address the audience's course of study, the mission of the Refuge System, and the management purposes of the proposed refuge. The goal of environmental education is to promote an awareness of the basic ecological foundations of the interrelationship between human activities and natural systems. Through curriculum-based environmental education, refuge staff, educators, and partners hope to motivate students and other persons interested in learning about bogs and associated wildlife; and the role of management in the maintenance of healthy ecosystems, working landscapes, and conservation of our fish and wildlife resources

President Obama launched the America's Great Outdoors (AGO) Initiative to develop a 21st Century conservation and recreation agenda for our nation. AGO takes as its premise that lasting conservation solutions should rise from the American people – that the protection of our natural heritage is a non-partisan objective shared by all Americans. The vision of the AGO Initiative involves connecting Americans to the great outdoors and conserving and restoring America's great outdoors. AGO seeks to empower all Americans—citizens, young people, and representatives of community groups; the private sector; nonprofit organizations; and local, state, and tribal governments—to share in the responsibility to conserve, restore, and provide better access to our lands and waters in order to leave a healthy, vibrant outdoor legacy for generations to come. The proposed refuge serves the conservation initiative outlined by the AGO Initiative and one of the CPAs is also an AGO site. (For more information about the AGO Initiative, please visit: <http://americasgreatoutdoors.gov/>.)

For years, national wildlife refuges have been connecting children with the land and with the agencies' conservation mission. It is now apparent that such connections are of immense importance. New information shows that instead of being outdoors enjoying self discovery of wild things, most children spend their time indoors glued to their televisions, video games, computers, and cell phones, rather than experiencing nature. Author Richard Louv's (2005) book, Last Child in the Woods: Saving Our Children from Nature Deficit Disorder, documents this trend. In his book, Louv argues that increased urbanization, parental anxiety, residential development restrictions, and structured play have kept children inside rather than out (Louv 2005). This separation from the natural world can result in a host of physical and mental ailments Louv warns, from childhood obesity to Attention Deficit Hyperactivity Disorder, and can erode future support for conservation (Louv 2005). As the nation's primary conservation agency, the Service has a role in addressing this concern.

The Service would attempt to work with school districts and teachers to develop environmental education programs featuring unique species and communities of the proposed refuge and the Blue Ridge Mountains. The Service would work with the partners to promote environmental education, thereby maximizing the use of resources and time commitments for each partner organization. The Service would also consider the role of the proposed refuge in other potential opportunities such as small habitat restoration projects through the use of our Partners for Fish and Wildlife program, docent-led trail walks, birding festivals, guest lectures, youth hunting and fishing efforts, and even simple monitoring of various forms of wildlife on and off the refuge.

Important research and monitoring projects are already underway at several of the sites recommended for inclusion in the proposed refuge (e.g., hydrology study, bog turtle monitoring/research, and rare plant monitoring/research). These research projects are expected to continue and the Service would promote and support additional research that contributes to refuge goals and objectives, increases understanding of refuge resources, and/or facilitates resource management.

Goal 4. Promote Conservation Partnerships

Collaboration in science, education, and research would 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.

The Service is proposing a partnership approach to help protect mountain bogs within 13 counties in western North Carolina and eastern Tennessee. The Service would work with the public and private partners to restore and maintain key habitat connections throughout the landscape; restore and maintain native habitat for resident and migratory species; and promote and protect the historical, cultural, and active farming community in this area. This conservation effort would entail land acquisition and administration/operation of sites by some or all parties in the partnership. Most lands acquired by the Service would be included in the Mountain Bogs NWR; however, as appropriate, other acquired lands could be evaluated and proposed as coordination areas and administered/ managed by other partners. Some lands within the CPAs are already owned, administered, and managed by other partners, at least some of which is unlikely to be transferred to the Service, and these could also be evaluated and proposed as coordination areas where the Service could assist with management.

The Service is fortunate to already have strong partnerships in the bog conservation community. The proposed Mountain Bogs NWR would assist in strengthening these partnerships and creating new partnerships. The Service is currently working with The Nature Conservancy and other partners to

establish a Bog Learning Network modeled after the successful Fire Learning Network. This would promote collaboration efforts between partners, particularly in management. This network of bog managers and subject matter experts (e.g., hydrologists, biologists, ecologists) would share information and experiences and provide bog managers with the knowledge and resources they need to manage bogs in the best possible way for a diversity of species.

The importance of working with local landowners cannot be overstated. Without the stewardship of local landowners, the opportunity to conserve the multiple species and habitats found in this landscape would likely not exist today. A large percentage of remaining southern Appalachian bogs are on private lands. Neighbors of an established refuge could assist in buffering bogs, maintaining habitat on their own property and serving as eyes to watch for unlawful activities such as poaching. The Service would strive to work closely with and assist private landowners in their conservation efforts through our Partners for Fish and Wildlife program and through the work of other agencies and non-governmental organization conservation partners. This partnership approach to conserving the habitat and wildlife resources described above is a key to successfully meeting this goal and is fundamental to the philosophy of how the Service envisions the management of the proposed Mountain Bogs NWR.

ADMINISTRATION

Initially, the proposed refuge would be managed by the area supervisor for the Refuge System from the Service's Regional Office in Atlanta, Georgia, until funding for a refuge manager is identified. Once funding is identified and a refuge manager is hired, the new manager would report to the area supervisor. The proposed refuge may be managed as a stand-alone refuge or as part of a refuge complex. Generally, a stand-alone refuge has a dedicated staff and equipment and is managed locally. As part of a complex, the proposed Mountain Bogs NWR could likely have less on-site staff initially and would share staff and equipment with one or more other refuges. Sometimes, refuges initially are part of a complex, but as they grow in size and complexity, are then separated to become stand-alone refuges. Under the refuge complex scenario, the refuge staff of a sub-complex would have the responsibility for managing the newly established refuge. During the interim period, the Service would seek funding for refuge staff within the project boundary. Initially, staff would likely consist of a refuge manager, refuge biologist, and law enforcement officer. Other staff such as maintenance workers and visitor service specialists would be phased in over time. In the long term, the Service's Southeast Regional Office would evaluate the need for additional full-time staff based on management needs, project loads, public use activities, and other factors, and could move forward with providing additional staff when justified. The ability to fill staff positions would depend on availability of funds and regional priorities.

Throughout the remainder of this document the reader will be introduced to several terms, including "compatibility" and "compatible uses." A "compatible use" is a proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, would not materially interfere with or detract from the fulfillment of the Refuge System mission or the purposes of the proposed refuge. The refuge manager would not initiate or permit a new use of a national wildlife refuge or expand, renew, or extend an existing use of a national wildlife refuge unless it had been determined that the use was consistent with the mission of the Refuge System and the purposes of each specific refuge. Further, the same use may be deemed compatible on some refuges, but not on others due to refuge-specific differences. (See Appendix B for the interim compatibility determinations that outline the uses authorized to occur during the interim period between acquisition of a property and the development of appropriate management plan(s) for a particular property.)

Facilities

Because no actual lands have been acquired as of yet, it is difficult to discuss specifics of facilities and improvements that may be appropriate to effectively manage the proposed refuge. This document will discuss general approaches adopted elsewhere when establishing a new refuge, as well as unique partnership opportunities that may present themselves in this landscape. As such, the Service may opt for the listed facilities when and where compatible.

The proposed Mountain Bogs NWR would have good access via state and local roads. Existing access roads on acquired properties would be evaluated for use depending on access needs, presence of sensitive species and/or habitats, public use, and other potential future needs. Conversion of existing trails and farm roads to public use and/or refuge management access corridors may occur. Such roads may also be abandoned to limit access to sensitive habitats and protected species. Legal access to inholdings and homes would be maintained. Roads and trails may only be open during certain times of year, or may have other restrictions to protect wildlife resources or to provide access for visitor programs, such as hunting activities. Vehicle access to refuge resources would only be allowed on designated roads and trails.

Because of the potential wide geographic distribution of proposed refuge lands across this landscape, one or more facilities obtained through land acquisition may be converted to another use. Other potential future on-site improvements, including additional trails, improved access roads, observation platforms, photography blinds, and parking areas may be discussed in a future CCP. The construction of new facilities or conversion of existing structures is contingent upon availability of funds and acquisition of appropriate land. In the unlikely event facility construction, operation, or maintenance conflicts with the conservation of federally listed species, appropriate measures (e.g., buffers and seasonal restrictions) would be identified and implemented to avoid adverse effects. This would be done in consultation with the Service's Endangered Species Program.

Generally, public use areas would be open from dawn to dusk and habitat management areas would be closed to the public and others (except for emergency, fire, and police response). Special use permits would be issued to researchers, educational groups, and others on an as needed basis, provided that the activities would be compatible with refuge purposes, goals, and objectives and contribute to the ecological understanding, biological survey, or baseline data needs. Habitat management areas, although normally closed to public access, may at times be opened to meet refuge goals. Hunting, environmental education, and interpretive walks are some examples of activities that may be allowed in these areas.

Funding

We would maintain a current inventory of management needs in appropriate Service database(s) and update the associated costs and priorities annually. Those databases provide a mechanism for each unit of the Refuge System to identify its essential staffing, mission-critical projects, and major needs and form a realistic assessment of the funding needed to meet each refuge's goals, objectives, and strategies.

Since this refuge is only proposed and is not yet approved, no funding has been identified to support management activities and no budget has been developed and approved. Any funding for the proposed refuge would be dependent upon a variety of factors, including Southeast Region budget priorities and allocations.

Staffing

As mentioned above, the staffing situation on national wildlife refuges is based on a number of factors, including refuge size and complexity, proximity to other refuges, and funding. Based on these and other factors, the proposed refuge may be managed as a stand-alone refuge or as a unit of a refuge complex. A stand-alone refuge has a dedicated staff and equipment and is managed locally, whereas a unit of a complex of refuges would share staff and equipment with other refuge units. Typically, as new refuges are established, they operate as a unit of the complex until such time that sufficient land has been acquired to warrant a dedicated staff. At this time, it is difficult to delineate staffing specifics for the proposed refuge because of the uncertainties associated with its size, complexity, resource issues, funding, and other factors. Because of this uncertainty, two staffing models that depict both staffing scenarios have been evaluated to better illustrate how these variables interact to determine levels of staffing (see description below). These models may serve to guide how this proposed refuge may grow in staff over time. Initially, however, the proposed refuge would likely be managed as a unit under the supervision and management of the nearest refuge.

Refuge Complex Staffing Strategy

The initial staffing strategy for the proposed refuge under the refuge complex scenario identifies three new positions. A refuge manager would provide direction, supervision, and coordination for all management activities and ensure the effective oversight and community outreach for the successful management of acquisitions and easements. A law enforcement officer would ensure the safety of the visiting public and assure that wildlife laws are enforced to protect an ever-increasing federal interest. A biologist would assist in delivering the full range of wildlife conservation and restoration projects on public land, provide technical assistance, assist in the restoration and management of new acquisitions, and monitor and inventory wildlife and habitat use and conditions. All other refuge functions, such as law enforcement, outreach, or prescribed fire, would be provided by the overlying refuge complex staff.

Refuge Stand-alone Staffing Strategy

As refuge lands would be acquired, an independent, stand-alone refuge staff would build upon the refuge complex staffing strategy. An administrative office assistant would also be required to handle an increasing budget and work load. A visitor services staff (park ranger) would provide the needed link with local community educational institutions for wildlife-dependent education and oversee plans for any public use activities, such as the implementation of a hunting program. A maintenance worker would assure that management projects are completed, such as invasive species control, mowing, maintaining fence, and other general maintenance activities. An assistant refuge manager and private lands program biologist would be hired. Additionally, collaborative staffing, such as a co-located multi-agency/organization visitor services facility and program, would also be under the direction of the refuge manager. In the long term, the Service's Southeast Regional Office would evaluate the need for additional full-time staff based on management needs, project loads, public use activities, and other factors, and could move forward with providing additional staff, if justified.

PARTNERSHIPS

Partnerships would be a vital component of the proposed Mountain Bogs NWR. The Service is fortunate to already have strong partnerships with the bog conservation community and we would utilize these and establish new partnerships to assist with the administration of this proposed refuge. Examples of partnership activities include management, law enforcement, and monitoring. The Service would work with the refuge zone officer to establish formal, cooperative agreements with local

law enforcement agencies, the county sheriffs' departments, and NCWRC/TWRA to assist with protection and appropriate law enforcement response for the proposed refuge. Conservation law enforcement personnel from the Service and NCWRC/TWRA would also likely patrol intermittently and monitor hunting, fishing, and other public use activities. There may also be the opportunity to work with state agencies to identify and manage lands that the Service might acquire as game lands in North Carolina or wildlife management areas in Tennessee.

We recognize the inability of any one organization to solve the problems of habitat fragmentation and land acquisition. Therefore, we would work to combine our efforts with those of many partners including NCWRC, North Carolina Plant Protection Program, The Nature Conservancy, area land trusts, North Carolina Natural Heritage Program, Project Bog Turtle, USDA Forest Service, National Park Service, as well as numerous other partners yet to be identified. Staff would also look for opportunities to work with farmers and other landowners to manage the land in ways that benefit the goals and interests of the refuge and its neighbors.

MANAGEMENT OF MOUNTAIN BOGS NATIONAL WILDLIFE REFUGE

The previously listed goals are intentionally broad, descriptive statements of the desired resource condition of proposed refuge land in the Blue Ridge Mountain area. They were developed to support the proposed refuge purposes, and the proposed vision statement. They provide general, interim management direction for a new refuge until a considerably more detailed comprehensive conservation plan is developed and approved.

Goals are descriptive, open-ended, and broad statements of desired future conditions. More descriptive statements related to the goals are termed objectives. Objective statements contain the distinctive characteristics of being specific, measurable, achievable, realistic, and time sensitive. The following organizes goal statements with their respective objectives, and provides the rationale used in their development. The listed objectives would be revisited and revised during the planning process to develop a comprehensive conservation plan, if the refuge were to be approved.

Goal 1. Protect, Restore, and Manage Habitats for Fish and Wildlife. The proposed Mountain Bogs NWR would conserve rare mountain bog habitat and associated species as well as adjacent upland habitats. The proposed refuge would 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 southern Appalachian brook trout.

Objectives:

- Complete baseline inventory and document degraded and high-quality habitat necessary for trust species on all refuge and easement lands within 10 years of acquisition.
- Create a restoration management plan for the restoration of bog hydrology and vegetation for each bog on refuge or easement lands within 5 years of acquisition.
- Initiate restoration and management activities (e.g., plugging ditches that drain portions of bog sites, eradicating nonnative invasive vegetation, setting back succession by removing native woody vegetation) within 5 years of refuge establishment.
- Where appropriate, create (if not already present) a forested buffer around bog sites to protect sites from pesticide drift, runoff containing nutrients, and nonnative invasive plants within 5 years of refuge establishment.
- Protect and manage the only extant North Carolina population of the federally endangered green pitcher plant (*Sarracenia oreophila*).

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- Protect four North Carolina colonies (three populations) of the federally endangered bunched arrowhead (*Sagittaria fasciculata*).
 - Protect five of five extant North Carolina populations of the federally endangered mountain sweet pitcher plant (*Sarracenia jonesii*).
 - Protect six of ten extant North Carolina populations of the federally threatened swamp pink (*Helonias bullata*).
 - Protect one of nine geographic recovery areas for the federally endangered Carolina northern flying squirrel (*Glaucomys sabrinus coloratus*).
 - Protect one population of the federally endangered rock gnome lichen (*Gymnoderna lineare*).
 - Protect 15 North Carolina and Tennessee populations of the federally threatened bog turtle (*Glyptemys muhlenbergii*).
 - Protect one extant North Carolina population of the federally threatened small whorled pogonia (*Isotria medeoloides*).
 - Protect one extant North Carolina population of the federally threatened Virginia spirea (*Spirea virginiana*).
 - Protect one extant North Carolina population of the federally endangered spreading avens (*Geum radiatum*).
 - Implement activities to protect rare species from poaching on refuge lands as soon as the refuge is established.
 - Where surveys are needed, work with partners to inventory and monitor species of concern.

Rationale:

Although the existing conservation lands are well-surveyed, we have not documented the quality of all available habitats on all proposed CPAs. Much of what is known of wetland restoration potential on private land is derived from aerial photography. As properties come into ownership, initial evaluations would be required to document restoration opportunities and design restoration activities.

Many southern Appalachian Mountain bogs have been degraded by landowners draining the bogs or through the construction of dams which turn the bogs into ponds or lakes. The initiation of restoration activities would take the history of the site into account when making management decisions.

Vegetation succession is a significant threat to the bog sites remaining in the southern Appalachian Mountains. Historical disturbance regimes (e.g., grazing, browsing, beaver activity, fire) have been eliminated or reduced across the landscape. Bog wetlands may have been maintained by Pleistocene herbivores in the distant past and by American elk and bison prior to the 18th century when they were extirpated from eastern North America. Setting back succession in bogs through the removal of woody vegetation would reduce evapotranspiration within the system, leading to an increase in soil saturation. Some tools for managing woody wetland vegetation would be through fire, the introduction of grazers and browsers, and the mechanical and chemical removal of woody vegetation.

Goal 2. Provide Landscape-Level Conservation. The proposed Mountain Bogs NWR, which would be within the Appalachian Landscape Conservation Cooperative, would 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 proposed refuge would also protect and enhance water quality and quantity within multiple watersheds, benefiting both humans and wildlife.

Objectives:

- Work with the Appalachian Landscape Conservation Cooperative (LCC), within which the proposed refuge would occur, to develop a plan for the refuge that would coincide with the Appalachian LCC's landscape scale goals within 2 years of refuge establishment.
- Create a watershed management plan that would address nonpoint source pollution and the restoration of water quantity for each CPA on refuge or easement lands within 5 years of acquisition.
- Create a public outreach and education plan to reduce nonpoint source pollution and encourage voluntary landowner action to restore and protect surrounding hydrology within 5 years of refuge establishment.
- Initiate a public outreach and education plan to reduce nonpoint source pollution and encourage voluntary landowner action to restore and protect surrounding hydrology within 2 years of refuge establishment.
- Create (if not already present) a forested buffer within the proposed refuge and easement land located along the streams that connect bog sites within 5 years.
- Work to conserve a minimum of one corridor for wildlife movement between bogs within 5 years of refuge establishment, with particular emphasis on the bog turtle where metapopulations are likely to exist.

Rationale:

The Appalachian LCC is a science and management partnership to protect the valued resources and biological diversity of the Appalachian region, sustain the benefits provided by healthy and resilient ecosystems to human communities, and help natural systems adapt to large landscape-level stressors and those stressors that may be magnified by the changing climate.

Within the bog watershed, protection of water quality and quantity is essential to long-term conservation of these sites. Watershed management for the bog sites should address public outreach and education to reduce nonpoint source pollution and encourage voluntary landowner action to restore and protect water quantity (e.g., rain gardens, rain barrels, using native vegetation in landscaping, construction of green roofs on buildings, water conservation, and a reduction in impervious cover).

A riparian buffer along the streams that connect bog sites would serve as habitat for wildlife as well as corridors for species that have had their habitat fragmented by various land uses.

Goal 3. Connect People with Nature. Visitors of all abilities to the proposed Mountain Bogs NWR would 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.

Objectives:

- Within 2 years of any land acquisition, identify up to two sites appropriate for outdoor recreation and education programs and initiate development of facilities to engage the public in these activities if needed/appropriate.
- Within 3 years of refuge establishment, develop step-down management plans to address all aspects of outdoor wildlife-dependent recreation identified in the interim compatibility determinations.

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- Develop opportunities for volunteer involvement in refuge management and outreach efforts within 3 years of refuge establishment
 - Work with school districts and teachers to develop an environmental education program featuring unique species or communities within 5 years of refuge establishment.

Rationale:

Public use opportunities contribute to the long-term protection of wildlife resources by promoting understanding, appreciation, and support for wildlife conservation. Public uses would be accommodated where they do not have a significant negative impact on wildlife. All proposed public use activities are contingent upon availability of staff and funding to develop and implement these programs. We would promote opportunities for volunteers and develop community appreciation and public support for the proposed refuge. We would work with school districts and teachers to develop an environmental education program which would feature unique species or communities. We would open any newly acquired lands for hunting if they can biologically, ecologically, and safely accommodate hunting within state guidelines.

Goal 4. Promote Conservation Partnerships. Collaboration in science, education, and research would 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.

Objectives:

- Develop a Bog Learning Network within 5 years of refuge establishment where researchers, educators, and managers can share resources and information about southern Appalachian bog management and research.
- Reach out to neighboring private landowners within one year of land acquisition to educate the landowners about the ecosystem and what they can do to assist with conservation and management activities, as well as to allow for better communication between the Service and neighboring landowners.

Rationale:

The Service is working with partners to establish the Bog Learning Network, with the goal of providing southern Appalachian Mountain bog managers with the knowledge and resources they need to do the best possible job at managing their bogs. The network would bring together bog managers with subject matter experts, such as hydrologists, biologists, and ecologists, once a year to address a particular management issue. Beyond this annual meeting, the intention is that bog managers would form a community to support each other in their approach to the management topic at hand. Additionally, the subject matter experts would make themselves available to the bog managers as questions and issues arise.

Acquisition Management

Protection of lands would be accomplished by targeting 23,478 acres in fee-title interest or conservation easements within the 42,250-acre CPA. The reader is referred to Section A for more specific details regarding the Service's land acquisition program.

Public Use Management

The initial decision-making process a refuge manager follows when first considering whether or not to allow a proposed use on a refuge involves an evaluation of the appropriateness of a given activity on a national wildlife refuge. The refuge manager must find a use to be appropriate before undertaking a compatibility review of the use. If a proposed use is not found to be appropriate, the refuge would not allow the use and would not prepare a compatibility determination. By screening out proposed uses that are not appropriate to the refuge, the refuge manager avoids unnecessary compatibility reviews. By following the process for finding the appropriateness of a use, we strengthen and fulfill the Refuge System mission. The collection of interim appropriateness reviews for this proposed project can be found in Appendix B.

The Improvement Act establishes six priority public uses on refuges. Those priority uses depend on the presence, or the expectation of the presence, of wildlife. These uses are: hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation. A seventh use, research, would be evaluated for appropriateness and compatibility. Although these priority uses must receive our consideration in planning for public use, they also must be compatible with the purposes for which a refuge is established and the mission of the Refuge System. Compatibility determinations, which evaluate the impacts of a use that has been determined to be appropriate in the context of species or habitats, aid in making those decisions. As lands are acquired for the proposed Mountain Bogs NWR, compatibility determinations would be used to decide what public use opportunities are compatible and can be permitted. The interim compatibility determinations for these priority public uses, which would allow existing uses to continue until such time that a more comprehensive management plan is developed, can be found in Appendix B.

Table 1. Interim public uses

Public Use Activity	Would this use be provided during the interim phase?
Hunting	Yes, but limited by available hunting areas and potentially by wildlife management area restrictions.
Fishing	Yes, but limited by available fishing areas and potentially by wildlife management area restrictions.
Environmental Education	Yes, but limited due to refuge staffing, partnership development, and refuge facilities.
Interpretation	Yes, but limited due to refuge staffing, partnership development, and refuge facilities.
Wildlife Observation	Yes, but limited due to refuge staffing, partnership development, and refuge facilities.
Wildlife Photography	Yes, but limited due to refuge staffing, partnership development, and refuge facilities.
Research	Yes, but limited due to refuge staffing, partnership development, and refuge facilities.

Hunting

Hunting is a popular and traditional activity for many residents of and visitors to the AOI. Hunting on private lands within the AOI is typically limited to those with hunting leases or reserved by family members for their own hunting activities, thus largely limiting public hunting access. Select and appropriate lands that become part of the refuge would likely be open for public hunting as part of the gamelands/wildlife management area program administered by NCWRC/TWRA. Once an adequate, manageable land base is acquired, the Service would conduct a more detailed hunt program beyond the initial interim effort. Beyond the interim compatibility determinations, the Service would work with partners and the public to develop long-term plans to provide opportunities for hunting on the proposed Mountain Bogs NWR.

Fishing

The cold mountain waters of the southern Appalachians support several fisheries including an important trout fishery. The Service, likely working through programs administered by NCWRC/TWRA, would provide fishing opportunities compatible with the reasons for which the proposed refuge would be established. The Service would work with partners and the public to develop long-term plans to evaluate and provide opportunities for fishing on the proposed Mountain Bogs NWR.

Environmental Education

The Service would work with local schools and conservation groups to create environmental education opportunities. Until a detailed visitor services plan is written and based on the interim compatibility determination, environmental education would be allowed to continue on an interim basis on parcels acquired by the Service at the same level of activity that existed prior to Service acquisition of the land. The Service would work with partners and the public to develop long-term plans to provide opportunities for environmental education on the proposed Mountain Bogs NWR.

Interpretation

The Service would work with local schools and conservation groups to create interpretation opportunities. Until a detailed visitor services plan is written, and based on the interim compatibility determination, interpretation would be allowed to continue on an interim basis on parcels acquired by the Service at the same level of activity that existed prior to Service acquisition of the land. The Service would work with partners and the public to develop long-term plans to provide opportunities for interpretation on the proposed Mountain Bogs NWR.

Wildlife Observation

The southern Appalachian Mountains provide a wealth of opportunities for wildlife observation; however, safe viewing opportunities are limited by state and county roads that do not provide adequate pull-offs. Until such time as better wildlife observation opportunities can be provided and a detailed visitor services plan can be written, and based on the interim compatibility determinations, wildlife observation would be allowed to continue on an interim basis on parcels acquired by the Service at the same level of activity that existed prior to Service acquisition of the land. Beyond the interim compatibility determinations, the Service would work with partners and the public to develop long-term plans to provide opportunities for wildlife observation on the proposed Mountain Bogs NWR.

Wildlife Photography

Until such time as better wildlife photography opportunities can be provided and a detailed public use plan can be written, and based on the interim compatibility determination, wildlife photography would be allowed to continue on an interim basis on parcels acquired by the Service at the same level of activity that existed prior to Service acquisition of the land. Beyond the interim compatibility determinations, the Service would work with partners and the public to develop long-term plans to provide opportunities for photography on the proposed Mountain Bogs NWR.

Research

The refuge would likely host research from a variety of research institutions, including various universities, Native American tribes, and private research groups. All research activities, whether conducted by governmental agencies, public research entities, universities, private research groups, or any other entity, would be required to obtain special use permits from the refuge. Where any of the priority public uses may conflict with the conservation of federally listed threatened and/or endangered species, appropriate measures would be identified and implemented to avoid adverse effects. This would be done in consultation with the Service's Endangered Species program. Additionally, research use must pass the same standards of appropriateness, compatibility, and planning.

Operations and Planning

Refuges are managed according to an annual work plan that summarizes goals and objectives for the upcoming year. Specific actions for on the ground work, such as operation procedures, wildlife inventory plans, habitat management actions, public use, and other management activities are covered in detail in specific management plans. An annual work plan may generally state, for example, that 1,000 acres of invasive plant species would be controlled on the refuge, thus setting a target and goal for invasive species, control methods, timing of control, monitoring of effectiveness of the application, retreating areas, monitoring, and other actions for the year. Long-term planning, outlined earlier, includes the preparation of a CCP. A CCP describes the desired future conditions of a refuge and provides long-range guidance and management direction to achieve its purposes.

Conclusion

Should the proposal for the Mountain Bogs NWR go forward, the Service would work towards achieving the overarching goals outlined in this Draft LPP/EA. Partnerships with landowners; neighbors; conservation organizations; and local, state, tribal, and other federal government agencies would be a crucial component of the proposed Mountain Bogs NWR.

REFERENCES

- Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979.** Classification of wetlands and deep-water habitats of the United States. Fish and Wildlife Service, U.S. Department of the Interior, FWS/OBS-79-31.
- Hunter, Chuck, Robert Katz, David Pashley, and Bob Ford. 1999.** Partners in Flight Bird Conservation Plan for The Southern Blue Ridge (Physiographic Area 23). Atlanta, GA.
- Murdock, N.A. 1994.** Rare and endangered plants and animals of the southern Appalachian wetlands. *Water, Air and Soil Pollution* 77: 385-405.
- North Carolina Wildlife Resources Commission. 2005.** North Carolina Wildlife Action Plan. Raleigh, NC.
- Noss, R.F., E.T. LaRoe III, and J.M. Scott. 1995.** Endangered ecosystems of the United States: a preliminary assessment of loss and degradation. Biological Report 28, USDI national Biological Service, Washington, D.C., USA.
- Rich, T.D., C.J. Beardmore, H. Berlanga, P.J. Blancher, M.S. Bradstreet, G.S. Butcher, D.W. Demarest, E.H. Dunn, W.C. Hunter, E.E. Inigo-Elias, J.A. Kennedy, A.M. Martell, A.O. Panjabi, D.N. Pashley, K.V. Rosenberg, C.M. Rustray, J.S. Wendt, T.C. Will. 2004.** Partners in Flight North American Landbird Conservation Plan. Cornell Lab of Ornithology. Ithaca, NY.
- Roth, A.M., R.W. Rohrbaugh, T. Will, and D.A. Buehler, editors. 2012.** Golden-winged Warbler Status Review and Conservation Plan.
- Schafale, M. P. and A. S. Weakley. 1990.** The Classification of Natural Communities of North Carolina. Third Approximation. North Carolina Natural Heritage Program, Raleigh, NC.
- Somers, A.B., K.A. Bridle, D.W. Herman and A.B. Nelson. 2000.** The Restoration & Management of Small Wetlands of the Mountains & Piedmont in the Southeast: A Manual Emphasizing Endangered & Threatened Species Habitat with a Focus on Bog Turtles. The Watershed Science and Wetland Science Institutes of the Natural Resources Conservation Service, the University of North Carolina at Greensboro, and the Pilot View Resource Conservation and Development, Inc.
- Tennessee Wildlife Resources Agency. 2005.** Tennessee's Comprehensive Wildlife Conservation Strategy. Nashville, TN.
- U.S. Fish and Wildlife Service. 1983.** Bunched Arrowhead Recovery Plan. U.S. Fish and Wildlife Service, Atlanta, GA. 37 pp.
- U.S. Fish and Wildlife Service. 1984.** A Recovery Plan for the Ozark Big-eared bat and the Virginia Big-eared bat. Fort Snelling, MN. 119pp.
- U.S. Fish and Wildlife Service. 1990.** Appalachian Northern Flying Squirrels (*Glaucomys sabrinus fuscus* and *Glaucomys sabrinus coloratus*) Recovery Plan. Newton Corner, MA. 53pp.

U.S. Fish and Wildlife Service. 1990. Mountain Sweet Pitcher Plant Recovery Plan. Atlanta, GA. 39 pp.

U.S. Fish and Wildlife Service. 1991. Swamp Pink (*Helonias bullata*) Recovery Plan. Newton Corner, MA. 56 pp.

U.S. Fish and Wildlife Service. 1994. Green Pitcher Plant Recovery Plan. U.S. Fish and Wildlife Service, Jackson, MS. 23 pp.

U.S. Fish and Wildlife Service. 1996. Roan Mountain Bluet Recovery Plan. Atlanta, GA. 46 pp.

U.S. Fish and Wildlife Service. 1997. Recovery Plan for Rock Gnome Lichen (*Gymnoderma lineare*) (Evans) Yoshimura and Sharp. Atlanta, GA. 30 pp.

U.S. Fish and Wildlife Service. 1999. Recovery Plan for *Liatris helleri* Porter (Heller's Blazing Star). First Revision. Atlanta, GA. 25 pp.

Weakley, A.S. and Schafale, M.P. 1994. Non-alluvial wetlands of the southern Blue Ridge - diversity in a threatened ecosystem. *Water, Air, and Soil Pollution* 77, 359-383.

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.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: **Proposed Mountain Bogs National Wildlife Refuge**

Use: **Research**

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✓	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✓	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?	✓	
(h) Will this be manageable in the future within existing resources?	✓	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. **Yes** ✓ **No** ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____

Appropriate ✓

Refuge Manager: _____

Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use. If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence. If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____

Date: _____

A compatibility determination is required before the use may be allowed.

COMPATIBILITY DETERMINATIONS

Introduction: The U.S. Fish and Wildlife Service reviewed several uses for compatibility during the development of the proposal to establish the Mountain Bogs NWR. The descriptions, anticipated impacts, and approval of each use are addressed separately. These interim compatibility determinations are used during the time period when land is first acquired and continuing until such time, no later than 15 years, when a comprehensive conservation plan and/or when an appropriate step-down management plan is/are developed, so that public use activities can occur during this interim. If the proposal were to be approved and during the acquisition of a particular property, the Service would develop an understanding of the types, conditions, and levels of use that previously occurred on that property to determine which uses would continue to occur under these interim compatibility determinations.

Uses: Several uses were evaluated to determine their compatibility with the mission of the National Wildlife Refuge System and the purposes of the proposed refuge: hunting, fishing, environmental education and interpretation, wildlife observation and photography, and research.

Proposed Refuge Name: Mountain Bogs NWR

Date Established: Currently Proposed

Establishing and Acquisition Authorities:

Endangered Species Act of 1973 (16 U.S.C. 1534, Endangered Species Act)
National Wildlife Refuge System Improvement Act of 1997 [16 U.S.C. 668dd (a)(2), National Wildlife Refuge System Administration Act of 1966]

Proposed Refuge Purposes:

"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 specie" 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].

National Wildlife Refuge System Mission: The mission of the System, as defined by the National Wildlife Refuge System Improvement Act of 1997, is:

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

Other Applicable Laws, Regulations, and Policies:

- Antiquities Act of 1906 (34 Stat. 225)
- Migratory Bird Treaty Act of 1918 (15 U.S.C. 703-711; 40 Stat. 755)
- Migratory Bird Conservation Act of 1929 (16 U.S.C. 715r; 45 Stat. 1222)
- Migratory Bird Hunting Stamp Act of 1934 (16 U.S.C. 718-178h; 48 Stat. 451)
- Refuge Trespass Act of June 25, 1948 (18 U.S.C. 41; 62 Stat. 686)
- Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j; 70 Stat.1119)
- Refuge Recreation Act of 1962 (16 U.S.C. 460k-460k-4; 76 Stat. 653)
- Wilderness Act of 1964 (16 U.S.C. 1131-1136; 78 Stat. 890)
- Land and Water Conservation Fund Act of 1964
- National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, et seq.; 80 Stat. 915)
- National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd, 668ee; 80 Stat. 927)
- National Environmental Policy Act of 1969, NEPA (42 U.S.C. 4321, et seq; 83 Stat. 852)
- Use of Off-Road Vehicles on Public Lands (Executive Order 11644, as amended by Executive Order 10989)
- Endangered Species Act of 1973 (16 U.S.C. 1531 et seq; 87 Stat. 884)
- Refuge Revenue Sharing Act of 1935, as amended in 1978 (16 U.S.C. 715s; 92 Stat. 1319)
- The Property Clause of the U.S. Constitution Article IV 3, Clause 2
- The Commerce Clause of the U.S. Constitution Article 1, Section 8
- The National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57, U.S.C.668dd)
- Executive Order 12996, Management and General Public Use of the National Wildlife Refuge System, March 25, 1996

Definitions:

Appropriate Use - A proposed or existing use on a refuge that meets at least one of the listed four following conditions:

1. The use is a wildlife-dependent recreational use as identified in the Improvement Act.
2. The use contributes to fulfilling the refuge purpose(s), the Refuge System mission, or goals or objectives described in a refuge management plan approved after October 9, 1997, the date the Improvement Act was signed into law.
3. The use involves the take of fish and wildlife under state regulations.
4. The use has been found to be appropriate as specified in 603 FW 1 1.11.

Native American - American Indians in the conterminous United States and Alaska Natives (including Aleuts, Eskimos, and Indians) who are members of federally recognized tribes.

Priority General Public Use - A compatible wildlife-dependent recreational use of a refuge involving hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation.

Quality - The criteria used to determine a quality recreational experience include:

- Promotes safety of participants, other visitors, and facilities.
- Promotes compliance with applicable laws and regulations and responsible behavior.
- Minimizes or eliminates conflicts with fish and wildlife population or habitat goals or objectives in a plan approved after 1997.
- Minimizes or eliminates conflicts with other compatible wildlife-dependent recreation.
- Minimizes conflicts with neighboring landowners.
- Promotes accessibility and availability to a broad spectrum of the American people.
- Promotes resource stewardship and conservation.
- Promotes public understanding and increases public appreciation of America's natural resources and the Service's role in managing and protecting these resources.
- Provides reliable/reasonable opportunities to experience wildlife.
- Uses facilities that are accessible and blend into the natural setting.
- Uses visitor satisfaction to help define and evaluate programs.

Wildlife-Dependent Recreational Use - As defined by the Improvement Act, a use of a refuge involving hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation.

Compatibility Determinations for the Proposed Refuge:

Compatibility determinations for each use listed were considered separately. Although the preceding sections from "Uses" through "Definitions" and the final signatures are only written once within the plan, they are part of each descriptive use and become part of each compatibility determination.

Description of Use: Hunting (big game, upland game, and waterfowl)

This pre-acquisition compatibility determination serves as our commitment to allow hunting activities, where possible, on lands that would be acquired by the Service, should the refuge proposal go forward.

Hunting is a traditional use in this landscape. Hunting has been identified as a priority wildlife-dependent activity under the Improvement Act. With the implementation of the Land Protection Plan, the Service, in cooperation with the state, would take the steps necessary (e.g., develop needed regulations and publish the appropriate *Federal Register* notice) to open the refuge to upland hunting for deer, feral hog, turkey, waterfowl, and other small game in accordance with state regulations. Hunting may consist of refuge-sponsored sponsored or State-managed Game Land (in North Carolina) and Wildlife Management Area (in Tennessee) hunts. Any or all hunt programs may be administered as part of the State Wildlife Management Area program and would be in accordance with state regulations.

Availability of Resources: The cost of administering a hunt program is unknown at this time, but revenue may be generated from fees collected from hunters. Refuge law enforcement, public use, administrative, managerial, and biological staff may allocate a portion of their time to support this program (e.g., with existing staff from existing refuges). Maintenance of roads and potential building of hunt check stations also are costs that could be absorbed within the refuge operating budget. There is the potential for the Service to partner with the North Carolina Wildlife Resources Commission (NCWRC) and the Tennessee Wildlife Resources Agency (TWRA) to share responsibilities of administering the hunt program as part of the State's Wildlife Management Area program or through some similar management agreement.

Anticipated Impacts of the Use: By policy, all activity addressed by this interim compatibility determination would not exceed the current use occurring on the land. Therefore there would be no additional anticipated impacts. Existing impacts would be identified and evaluated based on best professional judgment and published scientific papers. Many of the impacts associated with small game hunting are similar to those considered for other public use activities, such as waterfowl hunting and wildlife viewing and photography, with the exception of direct mortality to game species, short-term changes in the distribution and abundance of game species, and unrestricted travel through the hunt area. Direct mortality can impact isolated, resident game species populations by reducing breeding populations to a point where the isolated population can no longer be sustained. This can result in localized extirpation of isolated populations. The structure and length of hunt seasons can minimize or eliminate these anticipated impacts.

Removal of feral hogs on proposed refuge lands would help support NCWRC's/TWRA's statewide eradication efforts. The harvest of feral hogs on the refuge may have a beneficial impact to native wildlife and habitat, since hogs compete for mast; destroy native plants; and prey upon bird nests, small vertebrates, and invertebrates. Deer hunting can maintain herd size and sex ratios at a healthy population level commensurate with available habitat. Spring turkey hunting can disrupt nesting. Impacts of recreational small game hunting include harvest of target species, such as gray squirrels, rabbits, and raccoons. In addition to the harvest of legal game, killing of non-target species, such as snakes, is known to occur. Other impacts of hunting may include littering, disturbing wildlife, trampling vegetation, and removing dead/down wood.

Determination (check one below):

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

Hunting would be in accordance with applicable state regulations and would not exceed the scope of current hunting activity until such time as a refuge Hunt Plan or CCP is developed. Hunting would avoid sensitive sites and threatened or endangered wildlife and plant populations (establishing buffer zones that minimize disturbance around sensitive areas and establishing no-entry zones during refuge approved events and opportunities would help minimize impacts). Hunting programs may be administered as a State-managed Wildlife Management Area unit or a refuge-sponsored management program. For all hunts, weapon restrictions would be in accordance with NCWRC/TWRA regulations. Vehicles would be restricted to existing designated roads and trails. All-terrain vehicle use may be allowed for access along designated roads and trails. Camping may be allowed to access remote areas during the hunting season. All hunts would be designed in cooperation with state biologists and managers to provide quality user opportunities based upon estimated wildlife population levels and biological parameters. Hunt season dates and bag limits would be adjusted to meet current hunter densities and activities, and may be adjusted as needed to achieve balanced population levels within carrying capacities, regardless of impacts to user opportunities. As additional data are collected and a Hunt Plan or CCP is developed, additional refuge-specific regulations or changes to the game lands and/or wildlife management areas could be implemented. These refuge-specific regulations could include, but may not be limited to, season dates that differ from those in surrounding state zones; refuge permit requirements; and closed areas on a permanent or seasonal basis to reduce disturbance to specific wildlife species or habitats, such as bird rookeries, wintering waterfowl, or threatened or endangered species, as well as to provide for public safety.

Justification: Under the Improvement Act, hunting is a priority public use. Hunting is an acceptable form of wildlife-dependent recreation compatible with the purposes for which the refuge would be established. The harvest of surplus animals is one tool used to maintain wildlife populations at a level compatible with habitat. Overabundance of animals, such as hogs and deer, can have detrimental impacts to native habitats. In addition to recreational opportunities, hunting to control populations of feral hogs and deer would be beneficial to native species and habitats, and would therefore be considered compatible with proposed refuge purposes.

Mandatory 15-year Re-evaluation Date:

Description of Use: Fishing

This pre-acquisition compatibility determination serves as our commitment to allow fishing activities, where possible, on lands that would be acquired by the Service, should the refuge proposal go forward.

Fishing is a traditional use in this landscape. Fishing has been identified as a priority wildlife-dependent activity under the Improvement Act and is a traditional use on refuges. Recreational freshwater fishing may be allowed on refuge lakes, rivers, and/or ponds. The refuge would not have jurisdiction over state navigable waters, thus boating and access to navigable waters would continue according to state regulations. There may be the potential for visitors to fish from the banks of the refuge or by boat. This wildlife-dependent recreational use is supported by boating; therefore, boating impacts which are associated with fishing are also considered in this review. Boating activities support fishing. The Service would work with the TWRA, NCWRC, and others to develop an understanding of fishing activities for a particular site during the acquisition process.

Availability of Resources:

The cost of administering a fishing program is unknown, but revenue may be generated from potential access fees. Refuge law enforcement, public use, administrative, managerial, and biological staff may allocate a portion of their time to this program (e.g., with existing staff from existing refuges).

Anticipated Impacts of the Use:

The primary impacts of this use are disturbance to and the taking of non-target wildlife species, vandalism (e.g., removal of stoplogs from water control structures), littering, and habitat disturbance (e.g., trampling of bank vegetation). Some wildlife may be injured or killed by discarded fishing lines and hooks.

Determination (check one below):

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

Fishing within state navigable waters would continue. Fishing would adhere to state fishing laws and regulations should help maintain fish populations at a healthy, sustainable level. Fishing programs may be administered as a component of a State-managed Wildlife Management Area unit or a refuge-sponsored management program.

Justification:

Fishing is a priority public use under the Improvement Act and a wildlife-dependent activity that would be compatible with proposed refuge purposes.

Mandatory 15-year Re-evaluation Date:*Description of Uses: Environmental Education and Interpretation*

This pre-acquisition compatibility determination serves as our commitment to allow environmental education and interpretation activities, where possible, on lands that would be acquired by the Service, should the refuge proposal go forward.

Formal and informal environmental education and interpretation continue to occur in this landscape. Environmental education and interpretation comprise a variety of activities and facilities that seek to increase the public's knowledge and understanding of wildlife and to promote wildlife conservation. These are tools used to inform the public of resource values and issues. Examples of environmental education activities include staff or teacher-led events, student and teacher workshops, and nature studies. Interpretive programs and facilities could include special events, visitor center displays, interpretive trails, visitor contact stations, auto tour routes, and signs.

Environmental education and interpretation consist primarily of youth and adult education and interpretation of the natural resources of the refuge. Activities may include on-site refuge-led or refuge-approved environmental education programs; teacher workshops; and interpretation of wildlife, habitat, other natural features, and/or management activities occurring on the refuge. These activities seek to increase the public's knowledge and understanding of wildlife and their habitats and to contribute to wildlife conservation and support of the refuge. Environmental education and interpretation were identified in the Improvement Act as priority public uses on national wildlife refuges, provided they are appropriate and compatible with the purposes for which the refuge was established.

Environmental education and interpretation programs may be conducted by the Service or by a Service-approved provider. Any non-Service environmental education and interpretation activities must be reviewed and approved by the Service through a special use permit issued by the refuge. These permits would contain conditions to minimize impacts and ensure compatibility. The Service would work with the local schools and others to develop an understanding of existing environmental education and interpretation activities for particular sites during the acquisition process.

Availability of Resources:

Annual refuge operation and maintenance funds provided for the refuge would be used to support the visitor services programs, including environmental education and interpretation opportunities, during planned programs and events.

Facilities, such as visitor centers, trails, and environmental education shelters would require funding to build and staff to maintain them, but they are a necessary expense to carry-out the refuge's mission. The management of a volunteer program would be essential to implement environmental education and interpretation programs.

Anticipated Impacts of the Use:

Disturbance promulgated by refuge specific, limited programs, managed through and with direct oversight by refuge or refuge-approved members would be considered short-term and discrete disturbances due to the low anticipated frequency of use; the utility of existing infrastructure, such as fire lines and unimproved access roads; and the ability to move sites to new areas if the habitat shows signs of impact. It is anticipated that by utilizing existing resources and guiding all aspects of use, vegetation trampling, alteration of structure and species composition, and temporal wildlife impacts to species would be minimal. The minimal impact associated with conducting limited environmental educational and interpretation programs is generally determined to be acceptable. Specific sites would be evaluated on a case-by-case basis following acquisition.

The use of the refuge for on-site, hands-on, action-oriented activities by large groups to accomplish environmental education objectives may impose low-level impacts on the sites used for the activities. Impacts may include trampling of vegetation and temporary disturbance to wildlife species in the immediate use area. Such impacts would not be permanent or long-lasting. Most of the interpretive activities would be self-guiding and would pose minimal threat to wildlife and habitat.

Determination (check one below):

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

While the anticipated impacts are expected to be minimal, stipulations are required to ensure that wildlife resources are adequately protected. The environmental education program and interpretation activities would avoid sensitive sites and vulnerable wildlife and plant populations. Environmental education and interpretation programs and activities would be held and conducted at or near disturbed areas, including, but not limited to fire lines and unimproved access roads where impacts can be minimized.

Activities would be held on sites where minimal impact would occur. Establishing buffer zones that minimize disturbance around sensitive areas and establishing no-entry zones during refuge-approved events and opportunities would help minimize impacts. Periodic evaluation of the sites and programs would be conducted to assess whether the program objectives are being met and whether resources are being degraded. If adverse impacts become evident, environmental education and interpretation activities may need to be rotated or moved. Certain areas of the refuge may be restricted seasonally for breeding or nesting purposes or to protect habitat.

As long as stipulations to ensure compatibility are followed, the programs should remain compatible with the purposes of the proposed refuge. The refuge would modify or eliminate any use that results in unacceptable impacts.

Justification: Environmental education and interpretation represent two priority wildlife-dependent recreational activities under the Improvement Act. Environmental education and interpretation are key components of the Service's initiative to connect children with nature and are used to encourage all citizens to act responsibly in protecting natural resources. Both would be compatible with proposed refuge purposes.

Mandatory 15-year Re-evaluation Date:

Description of Uses: Wildlife Observation and Photography

This pre-acquisition compatibility determination serves as our commitment to allow wildlife observation and photography activities where possible on lands that would be acquired by the Service, should the refuge proposal go forward.

Wildlife observation and photography are traditional uses in this landscape. For the purposes of this compatibility determination, non-consumptive wildlife observation uses include wildlife watching and nature photography. Foot travel would generally be allowed on refuge roads, levees, and trails.

Wildlife observation and photography are considered simultaneously in this compatibility determination. Wildlife observation and photography have been identified in the Improvement Act as priority wildlife-dependent recreational uses provided they are compatible with the purposes of the refuge. This compatibility determination applies only to personal photography and videography and not to commercial photography or videography. If allowed, these would be covered under a separate Commercial Services compatibility determination (not being considered at this time) and would require a special use permit issued by the refuge and would contain specific restrictions. The Service would develop an understanding of wildlife observation and photography activities for a particular site during the acquisition process.

Availability of Resources: Annual refuge operation and maintenance funds provided for the refuge would be used to support the visitor services program, including wildlife observation and photography opportunities.

Anticipated Impacts of the Use: The purpose of this section is to critically and objectively evaluate the potential effects that wildlife observation and photography could have on wildlife and habitat based on available information and best professional judgment. Each activity has the potential to have impacts, but the focus is to minimize impacts to levels within acceptable limits. This would be based on the impacts at the projected levels of use.

Even the most controlled wildlife observation and photography programs designed in-part to limit wildlife disturbance have the potential for disturbing wildlife species. In general, activities that occur outside of vehicles tend to increase the disturbance potential for most wildlife species (Klein 1993; Gabrielson and Smith 1995; Burger 1981; Pease et al. 2005) as compared to similar activities conducted within vehicles. Refuge-led visitors or refuge-approved visitors would typically access refuge habitats on foot via fire lines and/or unimproved roads and foot trails. Although this type of access could potentially disturb wildlife, it is expected to be minimal as a result of the limited and controlled character of such events and opportunities. Among wetland habitats, out-of-vehicle approaches can reduce wildlife foraging times and can cause water birds to avoid foraging habitats adjacent to the out-of-vehicle disturbance (Klein 1993). One possible reason for this result is that vehicle activity is usually brief, while walking requires a longer period of time to cover the same distance. Similarly, walking on wildlife observation trails tends to displace birds and can cause localized declines in the richness and abundance of wildlife species (Riffell et al. 1996). Wildlife photographers tend to have the largest disturbance impacts (Klein 1993; Morton 1995; Dobb 1998). While wildlife observers frequently stop their vehicles to view wildlife, wildlife photographers are much more likely to leave their vehicles and approach wildlife on foot (Klein 1993). Even a slow approach by wildlife photographers tends to have behavioral consequences to wildlife (Klein 1993). Other impacts include the potential for photographers to remain close to wildlife for extended periods of time (Dobb 1998) and the tendency of casual photographers with low power lenses to get much closer to their subject than other activities would require (Morton 1995).

Determination (check one below):

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

By design, wildlife observation and photography should have minimal species and habitat impacts. Nonetheless, as use increases, species impacts are more likely to occur. Wildlife observation and photography would avoid sensitive sites and threatened or endangered wildlife and plant populations. Evaluation of the sites and programs would be conducted annually to determine if objectives are being met, if habitat impacts are minimized, and if wildlife populations are being adversely affected. If evidence of unacceptable impacts begins to appear, it may be necessary to change the activity or the program, relocate the activity or program, or eliminate the program.

Stipulations that may be employed include:

- Providing limited refuge-led and/or refuge-approved wildlife observation and photography opportunities during refuge events and/or through special use permit would lessen species impacts.
- Providing access only on designated roads and trails would lessen species impacts.
- Vegetation that effectively conceals visitors and provides cover for birds can help minimize impacts of people in busy areas.
- Establishing buffer zones that minimize disturbance around sensitive areas and establishing no-entry zones during refuge approved events and opportunities would help minimize impacts.
- Rerouting, modifying, or eliminating activities which have demonstrated direct species impacts should be employed.
- Education is critical for making visitors aware that their actions can have negative impacts on plants and wildlife.

Justification:

Wildlife observation and photography are priority public uses of the National Wildlife Refuge System. Providing quality, appropriate, and compatible opportunities for these activities help fulfill the provisions of the Improvement Act. Wildlife observation and photography would provide excellent forums for promoting increased awareness, understanding, and support of refuge resources relative to wildlife/human interactions. The stipulations outlined above should minimize potential impacts relative to wildlife/human interactions. Under a controlled level of limited visitation, these wildlife-dependent uses would not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the refuge and would be determined to be compatible with proposed refuge purposes.

Mandatory 15-year Re-evaluation Date:

Description of Use: Research

This pre-acquisition compatibility determination serves as our commitment to allow research activities, where possible, on lands that would be acquired by the Service, should the refuge proposal go forward.

Research is the planned, organized, and systematic gathering of data to discover or verify facts. In principle, research conducted on the refuge by universities, cooperative units, non-profit organizations, partners, and other research entities furthers refuge management and serves the purposes, vision, and goals of the refuge. The refuge would likely host research from a variety of research institutions, including various universities, Native American tribes, and private research groups. All research activities, whether conducted by governmental agencies, public research entities, universities, private research groups, or any other entity, would be required to obtain special use permits from the refuge. Approved refuge special use permits would contain conditions under which researchers must operate to help minimize negative impacts to refuge resources. All research activities would be overseen by the wildlife biologist/botanist, refuge manager, or refuge staff member as assigned by the refuge manager or designee. Projects that are fish and wildlife management-oriented, which would provide needed information to refuge operation and management, would receive priority consideration and may even be

solicited. A research policy would be established to provide guidance for the refuge's research program. The types of research activities conducted on the refuge might cover wildlife, habitat, climate change, water resources, cultural resources, and/or public use activities. The Service would work with area researchers and others to develop an understanding of the research activities associated with a particular site during the acquisition process.

Availability of Resources:

Other than the administration of associated special use permits, no refuge resources are generally required for this use. The refuge may provide some type of housing for researchers if resources were available.

Anticipated Impacts of the Use:

Generally, adverse impacts from research are minimal. An anticipated method of accessing research sites throughout the refuge may include all-terrain vehicles (ATVs) or similar vehicles. A critical and objective evaluation of the potential effects that ATVs could have on wildlife and habitat would be based on the most current information available and best professional judgment. Although ATVs have the potential to impact refuge resources, the focus is to minimize their negative effects. This would be based on the impacts at the existing and projected levels of use. Occasionally, slight or temporary wildlife or habitat disturbances may occur (e.g., minor trampling of vegetation may occur when researchers access monitoring plots). However, these impacts are not considerable, nor are they permanent. Also, a small number of individual plants or animals might be collected for further scientific study, but these collections would be anticipated to have minimal impact on the populations from which they came. All collections would adhere to the Service's specimen collection policy (Director's Order 109, March 28, 2005) and have all requisite permits.

Determination (check one below):

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

All research conducted on the refuge must further the purposes of the refuge and the mission of the National Wildlife Refuge System. All research would adhere to established refuge policy on research and policy on collecting specimens (Directors Order Number 109). To ensure that research activities are compatible, the refuge would require that a special use permit be obtained before any research activity may occur. Research proposals and/or research special use permit applications would be required to be submitted in advance of the activity to allow for review by refuge staff to ensure minimal impacts to the resources, staff, and programs of the refuge. Each special use permit may contain conditions under which the research would be conducted. Each special use permit holder would submit annual reports or updates to the refuge on research activities, progress, funding, and other information. Further, each special use permit holder would provide copies of findings, final reports, publications, and/or other documentation at the end of each project. Limiting use of ATVs primarily to designated trails and roads would minimize anticipated impacts. The refuge would deny permits for research proposals that are determined

to not serve the purposes of the refuge and mission of the Refuge System. The refuge would also deny permits for research proposals that are determined to negatively impact resources or that materially interfere with or detract from the purposes of the refuge. All research activities would be subject to the conditions of their respective permits.

Justification:

Research activities provide benefits to the refuge and to the natural resources supported by the refuge. Research conducted on the refuge can lead to new discoveries, new facts, verified information, and increased knowledge and understanding of resource management, as well as track current trends in fish and wildlife habitat and populations to enable better management decisions. Research has the potential to further the proposed purposes and goals of the refuge and the mission of the Refuge System.

Mandatory 10-year Re-evaluation Date:

REFERENCES

- Burger, J. 1981.** The effects of human activity on birds at a coastal bay. *Biological Conservation*. 21: 231-241.
- Dobb, E. 1998.** Reality check: the debate behind the lens. *Audubon*, January-February 1998.
- Gabrielson, G.W. and E.N. Smith. 1995.** Physiological responses of wildlife to disturbance. Pages 95-107 in R. L. Knight and K. J. Gutzwiller, eds., *Wildlife and Recreationists: Coexistence through Management and Research*. Island Press, Washington, D.C. 372 pp.
- Klein, M.L. 1993.** Waterbird behavior responses to human disturbances. *Wildlife Society Bulletin* 21: 31-39.
- Morton J.M. 1995.** Management of human disturbance and its effects on waterfowl. Pages F59-F86 in W. R. Whitman, T. Strange, L. Widjeskog, R. Whittemore, P. Kehoe and L. Roberts, eds., *Waterfowl Habitat Restoration, Enhancement and Management in the Atlantic Flyway*. Third Edition. Environmental Management Committee, Atlantic Flyway Council Technical Section, and Delaware Division of Fish and Wildlife. Dover, Delaware. 1114 pp.
- Pease, M.L., R.K. Rose and M.J. Butler. 2005.** Effects of human disturbances on the behavior of wintering ducks. *Wildlife Society Bulletin* 33(1): 103-112. Riffell, S.K., J. Gutzwiller and S.H. Anderson. 1996. Does repeated human intrusion cause cumulative declines in avian richness and abundance? *Ecological Applications* 6(2): 492-505.
- Riffell, S.K., K.J. Gutzwiller and S.H. Anderson. 1996.** Does repeated human intrusion cause cumulative declines in avian richness and abundance? *Ecol. Appl.* 6:492-505.

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 Draft LPP/EA.

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: _____

Telephone Number: _____ E-Mail: _____

Date: _____

PROJECT NAME (Grant Title/Number): Proposed 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 establish the Mountain Bogs National Wildlife Refuge (NWR) and Conservation Partnership Area (CPA) in order to protect and conserve southern Appalachian Mountain bogs. If established, this refuge 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 Service is

evaluating a proposal to acquire fee-title purchases and conservation easements of up to approximately 24,000 acres within an approximately 43,000-acre CPA, all from willing sellers. The scope of the Draft LPP/EA is limited to the proposed acquisition, in fee-title and in less-than-fee-title, of lands for the establishment of the Mountain Bogs NWR and CPA. The Draft LPP/EA is not intended to cover the development and/or implementation of detailed, specific programs for the administration and management of those lands. If the refuge is established and the needed lands or interests in lands are acquired, the Service would develop a comprehensive conservation plan, a 15-year management plan, and needed step-down management plans. 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:

- A. Include species/habitat occurrence map:
- B. Complete the following table:

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

Species	Status
Plants	
<i>Geum radiatum</i>	E
<i>Gymnoderma lineare</i>	E
<i>Houstonia Montana</i>	E
<i>Sagittaria fasciculata</i>	E
<i>Sarracenia jonesii</i>	E
<i>Sarracenia oreophila</i>	E
<i>Helonias bullata</i>	T
<i>Isotria medeoloides</i>	T
<i>Liatris helleri</i>	T
<i>Spirea virginiana</i>	T
<i>Platanthera integrilabia</i>	C
Mammals	
<i>Glaucomys sabrinus coloratus</i>	E
<i>Corynorhinus townsendii virginianus</i>	E
Reptiles	
<i>Glyptemys muhlenbergii</i>	T(S/A)

Key: E=endangered, T=threatened, PE=proposed endangered, PT=proposed threatened, CH=critical habitat, PCH=proposed critical habitat, C=candidate species, T(S/A)=threatened due to similarity of appearance

Appendix D. Interim Recreation Act Funding Analysis

Proposed Refuge Name: Mountain Bogs National Wildlife Refuge

Date Established: Currently Proposed

Purpose(s) for Which the Refuge is Proposed to be 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, (4) wildlife observation and photography, and (5) research.

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 and conservation area would be made available to implement initial protection activities, hunt implementation, data collection, and non-consumptive uses. The Service would also cooperate with NCWRC/TWRA to support initial public use activities on the proposed refuge, including the provision of law enforcement support. The Service would continue discussions with FWC regarding opportunities for State Wildlife Management Area 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.

Project Leader: _____
Signature/Date

Refuge Supervisor: _____
Signature/Date

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

Appendix E. Public Involvement

Direct mailings

- CPA landowner letters (approximately 620) mailed May 29-30, 2012
- State and local elected official and county manager letters mailed May 29-30, 2012
- Natural resource non-governmental organizations; local, state, and federal natural resources agency letters mailed May 29-30, 2012

E-mails

- Traditional bog conservation partners (various state natural resource agency employees, non-profit conservation organizations, and others that the Service has worked in partnership with to protect bogs) 5/30/2012

Digital media

- Web site uploaded May 29, 2012
- Posted to National Wildlife Refuge System Facebook page June 7, 2012
- Posted to USFWS Southeast (R4) webpage, June 7, 2012
- Posted to USFWS Washington Headquarters (R9) webpage, June 7, 2012

Press release

- Distributed June 6, 2012

Open houses

These events, each two hours, provided the public with an opportunity to interact individually with Service experts in real estate, bog biology, private land stewardship, and refuge creation. All events were held in the early evening at the local library. These were announced in the press release announcing the project, as well as in letters and e-mails sent to Conservation Partnership Area landowners, state and local elected officials, bog conservation partners, and other state and federal natural resource agencies.

- July 11, 2012 - Boone
- July 10, 2012 - Franklin
- June 26, 2012 - Hendersonville
- June 27, 2012 - West Jefferson

Radio commentaries

Broadcast on WNCW.

- Commentary on refuge proposal aired in June 2012
- Commentary on poaching threats aired in August 2012

Known media coverage (listed by outlet) related to the projects includes:

- Hendersonville Times-News
Nathaniel H. Axtell
“Mountain bogs could be preserved in Henderson, Transylvania”
7/12/2012 at 4:30 a.m.
- CarolinaOutdoorsGuide.com
“Mountain Bogs National Wildlife Refuge Proposed”
- Watauga Democrat
“New wildlife refuge proposed for Western NC”
Kellen Moore
6/22/12
- The Naturalist Corner
(blog and published in Smoky Mountain News)
Don Hendershot
6/14/2012
- Broadcast Media: WLOS
6/20/2012
Viewable at <http://www.youtube.com/watch?v=nK9gknesLdA>
- Homagetoappalachia.wordpress.com
Blog
7/12/2012
- High Country Press
“Proposed Mountain Bogs Refuge Encompasses High Country; Open House at Watauga Library on July 11”
Jesse Wood
6/25/2012
- MountainXpress.com
“Feds seek to protect Southern Appalachian bogs, need public input”
Margaret Williams
6/8/12
- Hendersonville Times-News
“Wildlife Service wants to improve management of bogs”
Diane Norman
6/10/2012 at 4:30 a.m.
- WUNC 91.5 (public radio)
“New Wildlife Refuge Proposed for Western NC”
Asma Khalid
6/12/2012
Viewable at <http://wunc.org/programs/news/archive/SAK061212.mp3/view>

Appendix F. Information on Preparers

Contributors to the documents:

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- Brett Hunter, Realty Chief, Southeast Region, USFWS
- Pam Horton, Compatibility Determination Coordinator, Southeast Region, USFWS
- Chuck Hunter, Chief, Division of Strategic Resource Management Chief, Southeast Region, USFWS
- Pete Jerome, Refuge Supervisor, Area 3, Southeast Region, USFWS
- Richard Warner, NEPA Coordinator, Southeast Region, USFWS

DRAFT LAND PROTECTION PLAN AND
ENVIRONMENTAL ASSESSMENT FOR
THE PROPOSED ESTABLISHMENT OF
MOUNTAIN BOGS NATIONAL WILDLIFE REFUGE

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March 2013

