
III. Alternatives, Including the Proposed Action

INTRODUCTION

This chapter presents the alternatives for the proposed Mountain Bogs NWR within the Blue Ridge Mountains, including the Proposed Action, which the Service believes best meets the outlined purposes, vision, and goals. The vision for the proposed refuge is as follows:

The Mountain Bogs National Wildlife Refuge 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 thirteen 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.

Several purposes were identified to further the vision for the refuge, as follows:

"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, 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)].

Four overarching goals were developed for the proposed refuge and CPAs. The goals are intentionally broad, descriptive statements of the desired future conditions. They provide the management direction to support the proposed refuge purposes and the proposed vision statement. Descriptions of the two alternatives address the goals, and offer an explanation of how each alternative addresses the proposed refuge's goals. The Proposed Action (Alternative B) is addressed in more detail in the conceptual management plan (Appendix A) and interim compatibility determinations (Appendix B). These documents would provide interim management direction for the proposed refuge until a more

detailed comprehensive conservation plan (CCP) could be developed. If the refuge is approved, the Service would develop a CCP within 15 years of approval. The goals established for this proposed refuge address habitat for fish and wildlife; landscape-level conservation, connecting people with nature (e.g., public use), and conservation partnerships, as listed.

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.

Under NEPA, the Service developed and evaluated a reasonable range of alternatives. The Proposed Action defines what the Service plans to do or recommend, but cannot implement without considering other reasonable, environmentally sensitive alternatives. Other reasonable alternatives to the Proposed Action that could also be viewed as fulfilling the proposed purposes of the refuge are described in this Draft EA, thereby offering the Service and the reviewing public an opportunity to consider a range of reasonable alternatives for the Proposed Action, and thus fulfilling one of the key tenets of NEPA.

The Service developed and evaluated a reasonable range of alternatives based on the issues raised during internal and public scoping by the Service, the public, other federal agencies, Native American tribal governments, state and local governmental agencies, organizations, and local businesses. Alternatives describe complementary management approaches for achieving the missions of the Service and Refuge System, the purposes for which the refuge would be established, and its vision and goals, while responding to issues and opportunities identified during the planning process.

Based on this process to identify and evaluate alternatives, the Service selected two alternatives, including the NEPA-required No Action Alternative, to provide a baseline for comparing the action alternative. The two alternatives evaluated in detail are listed.

- Alternative A. No Refuge (No Action Alternative)
- Alternative B. Proposed Refuge

DESCRIPTION OF ALTERNATIVES

In addition to the No Action alternative (Alternative A), one action alternative (Alternative B) was developed. Within each CPA, the Service identified lands which would be of high conservation value, based on criteria such as bog habitat, imperiled species, and other parameters. The process by which the CPAs were selected is detailed in this Draft LPP/EA. The description for each alternative also includes the possible management activities that would help meet each of the four overarching goals of the proposed Mountain Bogs NWR. Maps are used to illustrate lands that could be included under each alternative.

To help explain the alternatives, definitions for several terms are listed below.

Conservation Partnership Area: Defines the area within which the Service would have the authority to purchase in fee title or easement from willing sellers. Under Alternative B, the proposed Conservation Partnership Area (CPA) would be approximately 42,250 acres.

Refuge Boundary: Defines the management boundary of an approved refuge. Generally comprised of Service-owned property, it can include other properties through some sort of agreement with the landowner (e.g., management agreement, lease, and easement). Under Alternative B, the proposed Refuge Boundary would be approximately 23,478 acres.

Area of Influence: Defines a generalized area which contains CPAs and within which the Service would analyze environmental impacts of the proposed action. For the purposes of this Draft EA, the Area of Influence (AOI) for this project was limited to the North Carolina and Tennessee Blue Ridge Ecoregion in order to evaluate impacts to most abiotic resources (i.e., water quality, air quality, and climate) and biological resources. For socioeconomic impacts, the AOI was limited to the counties. The AOI does not convey authority to establish rules and regulations, and is only used to study the effects of this proposal on the human environment, including abiotic, biological, socioeconomic, and cultural resources.

ALTERNATIVE A – NO ACTION

The No Action Alternative required by NEPA serves as a baseline to which any other alternatives are compared. In this alternative, the Service would not approve any CPAs and a new refuge would not be established; there would be no comprehensive land conservation effort to protect mountain bogs and their immediate surrounding upland habitats. Under this alternative, the Service would continue activities it has pursued over the last several years, including partnership programs to restore rare habitats, control or eradicate invasive plants, and reestablish populations of globally imperiled plants. Habitat protection and management would continue by existing organizations and government programs. Hence, a comprehensive and landscape-level effort centered on protecting and managing mountain bog habitats and associated watershed buffers for the conservation of mountain bogs is unlikely to be achieved in the foreseeable future.

The role of Alternative A in terms of its ability to meet each of the four overarching conservation goals is detailed below.

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

Under this alternative, efforts to conserve bog habitats and adjacent watershed buffer areas would likely continue at current levels. The Service would continue to work with the natural resource agencies, non-profit organizations, universities, and others to leverage site-specific grants for bog restoration and protection and offer management guidance for federally listed species. The Service would continue to participate in outreach and educational opportunities at select sites involving universities, school groups, and special interest groups; and would work to identify funding for and continue projects involving monitoring and research associated with bog habitats, flora, and fauna.

Additionally, several non-profit conservation organizations having been actively working with interested landowners to protect, restore, and manage habitats on several bogs. Efforts include controlling invasive plants, using prescribed fire, restoring hydrology, working with law enforcement to address poaching, and providing exclusion fencing and alternate water sources for livestock.

Goal 2. Provide Landscape-Level Conservation

Conservation lands in this landscape would continue to be managed by their respective agencies and organizations under the No Action Alternative, but a comprehensive, Service-led approach at the proposed scale to protect bogs would likely not occur in the foreseeable future. Within the AOI, there are about 229 known bog sites (North Carolina Natural Heritage Program 2012 and Tennessee Natural Heritage Inventory Program 2012). Of these, about 146 sites (63 percent) are offered some level of conservation protection, through government-managed lands (tribal, federal, state, and local government), non-profit conservation organizations, and private landowners (e.g., easements). Many of these 146 sites were part of past, larger land protection efforts not specifically focused on conserving bogs.

In more recent times, the State of North Carolina and others have worked specifically to include bogs in their overall conservation efforts. Over the past decade, North Carolina has acquired about 10 bogs and adjacent watershed buffers through the North Carolina Natural Heritage and North Carolina Clean Water Management Trust Funds (NHTF 2012 and North Carolina Clean Water Management Trust Fund 2010). Combined, these projects have acquired or otherwise protected about 250 acres of bogs and adjacent lands (NHTF 2012). Statewide, there is a growing need for a range of land protection efforts, and although NHTF funding has increased since 1996, NHTF has been unable to keep pace with appreciating land costs and with the amount of open space on the market. Typically, NHTF receives twice the number of applications that it can fund and since 2008, funding has declined (NHTF 2012).

Although state agencies and private organizations provide an ability to assist in the protection of bogs and associated watershed buffers of the area, they are unlikely to provide increased long-term protection from the anticipated changes in land use in this part of the Blue Ridge ecoregion. The current rate of urbanization in the area is likely to continue, with resulting conversion of land, changes in the hydrology, and other impacts as further detailed in Chapter IV.

Goal 3. Connect People with Nature

The Service seeks opportunities to promote appropriate and compatible wildlife-dependent recreation on national wildlife refuges. There would be no refuge-based recreational opportunities under the No Action alternative. A number of wildlife-dependent recreational activities exists within the landscape and would

continue. Hunting and fishing occur under regulations administered by state agencies. Public hunting occurs on several state-managed lands within the area. Hunting also occurs on private lands.

Fishing is recreationally important to the local population and draws visitors from afar. The region is also known for its trout fishing. Areas throughout the watershed would continue to provide recreational fishing opportunities.

Other outdoor wildlife-dependent recreation and educational opportunities abound. Federal and state agencies, as well as private organizations, provide biking, hiking, and equestrian trails. The Blue Ridge Parkway provides opportunities to photograph and observe wildlife. Kayaking and canoeing occur on the water resources found in the area. State agencies sponsor fishing events, various workshops, youth camps, and other outdoor wildlife-dependent programs and activities. These wildlife-dependent activities would continue under the No Action Alternative.

Goal 4. Promote Conservation Partnerships

Although there is management occurring on sites by state staff and non-governmental organizations, depending on staff levels and funding, there currently is no agency or non-governmental organization focusing only and specifically on bog conservation. There is neither an individual nor a team identified as a leader for this effort.

ALTERNATIVE B – PROPOSED ACTION

Under the proposed action, 30 CPAs would be authorized, within which up to 23,478 acres of fee-title or less-than-fee-title lands (such as easements) would be approved for the establishment of the Mountain Bogs NWR (Figures 9a and 9b). If this proposal were to be approved, lands would be added to the Refuge System, depending on factors such as willing landowners, funding, etc. The acquisition process could take years before the majority of the 23,478 acres were to be realized. However, each tract protected would be a needed component to the overall conservation of mountain bogs. Furthermore, the protection of the entire proposed acreage to be protected would represent a very important effort to providing long-term, landscape-level conservation of these vulnerable and rare wetlands.

Figure 9a. Existing area conservation lands and proposed CPAs

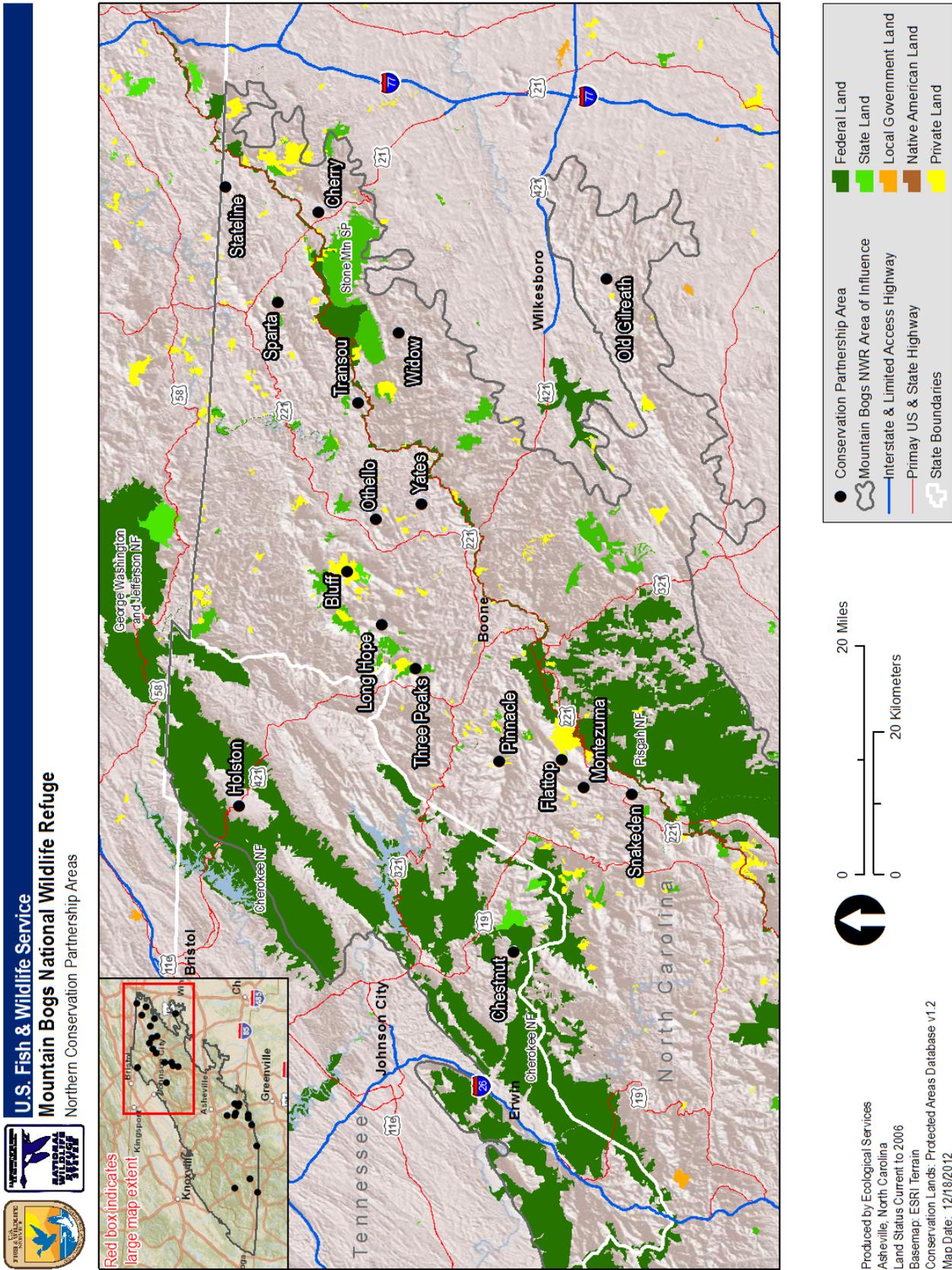
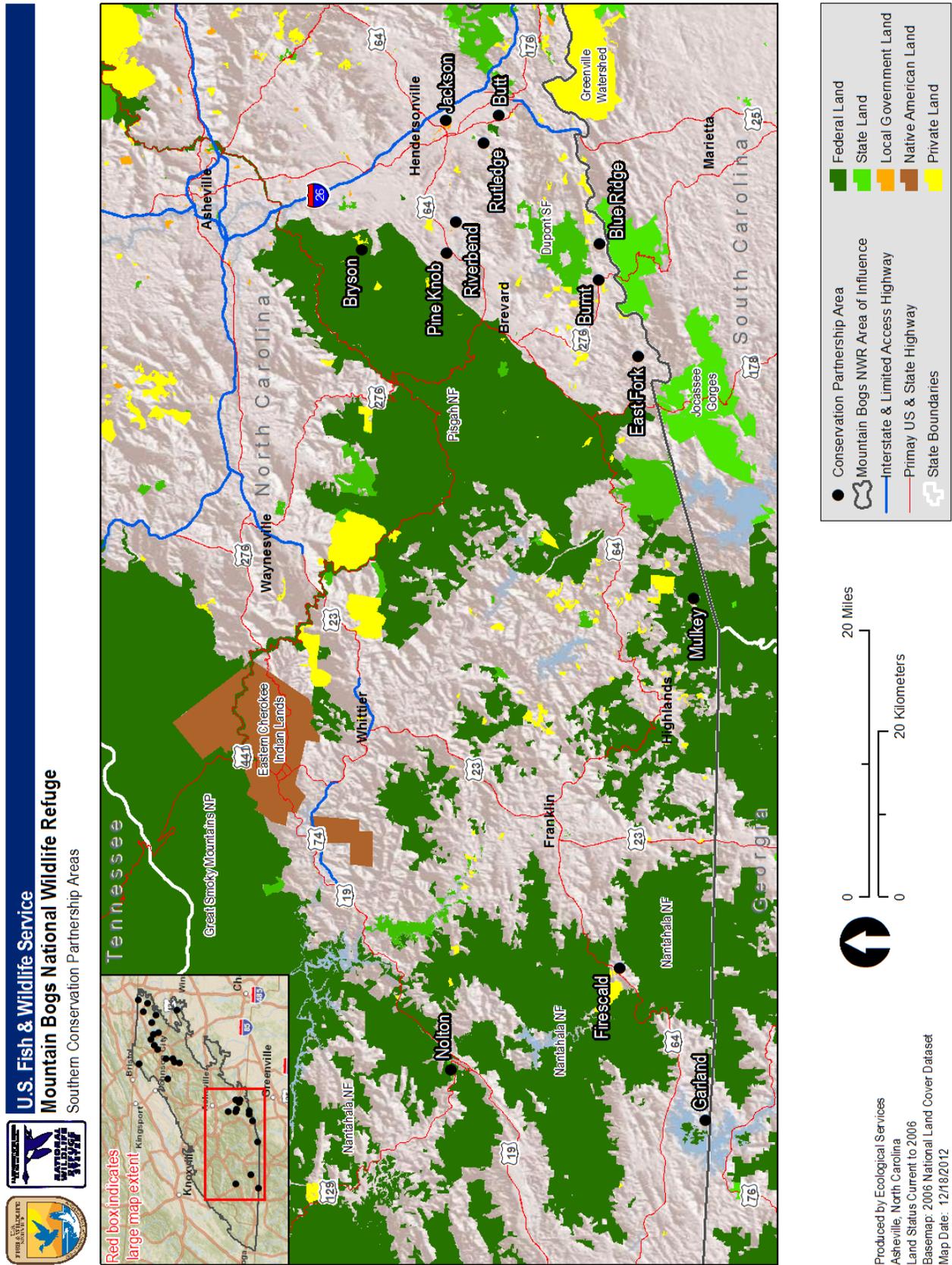


Figure 9b. Existing area conservation lands and proposed CPAs



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

Compared to the No Action Alternative, Alternative B would substantially increase opportunities to conserve bog habitats and the imperiled species dependent on them. If approved, this proposal would authorize the Service to work with willing landowners to purchase, outright or as easements, lands and waters within the CPAs. On fee-title interest tracts, where the Service would become the land manager, bog habitats would be restored and managed, with a focus towards land management improving overall habitat conditions, including those for federally listed plants as well as state listed and rare plants.

Working with partners and with landowner permission, the refuge would conduct a baseline inventory and habitat assessment on each bog and their surrounding tracts included within the CPAs, to document species present, existing habitat conditions, and restoration and management needs. For each CPA, a management plan would be developed to ensure the protection and recovery of trust species and other rare species within the sites, and restoration and management needs would be addressed, with a focus on hydrology and vegetation. Types of potential restoration would include restoring bog hydrology by plugging ditches that drain portions of bog sites and controlling nonnative invasive plants. Long-term management may include setting back succession by controlling native woody vegetation through herbivory, mechanical and chemical means, and prescribed fire. Establishment and protection of a forested buffer around sites would protect sites from pesticide drift, runoff containing nutrients, and nonnative invasive plants.

Working with partners, the refuge would work to protect the following trust species: green pitcher plant (*Sarracenia oreophila*), bunched arrowhead (*Sagittaria fasciculata*), mountain sweet pitcher plant (*Sarracenia jonesii*), swamp pink (*Helonias bullata*), Carolina northern flying squirrel (*Glaucomys sabrinus coloratus*), rock gnome lichen (*Gymnoderna lineare*), white fringeless orchid (*Platanthera integrilabia*), and bog turtle (*Glyptemys muhlenbergii*). Activities would be implemented on refuge lands to help safeguard rare species from poachers. Such activities could include law enforcement and involvement and education of neighboring landowners. For areas in need of surveys, we would work with partners to inventory and monitor species of concern.

Goal 2. Provide Landscape-Level Conservation

Under this alternative, the refuge would contribute to the landscape-level conservation of mountain bogs by helping to protect a series of bogs, stretching from western North Carolina into eastern Tennessee. The selection criteria used to generate the list of CPAs included the need to connect with or bridge existing conservation lands. Currently, about 38 percent (2.6 million acres) of the landscape within the AOI is protected through various federal, state, non-governmental, and private ownerships and management (Figure 11). We would work with the Appalachian LCC to incorporate this LCC's landscape goals into refuge planning efforts.

Water resources important to sustaining bogs would be further protected and enhanced under this alternative. For each CPA where a bog is acquired, the refuge would develop plans addressing protection, restoration, and management of water quality and quantity. We would also conduct public outreach and education efforts, including those aimed at reducing runoff volume and pollutants and encourage voluntary landowner action to restore and protect the surrounding hydrology. Establishing and restoring a forested landscape, especially surrounding bogs and within stream corridors, would aid in the protection of habitat and hydrology at bog sites and would aid in establishing wildlife movement corridors between sites established or corridors for bog turtle metapopulations.

Goal 3. Connect People with Nature

Under this alternative, opportunities for wildlife-dependent recreation would be increased, helping to connect people with nature, with the aim of promoting a conservation ethic and stewardship. 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 its conservation partners to determine what areas are suitable to provide public use opportunities, including interpretive and educational programs. Where needed and appropriate, we would initiate development of facilities to engage the public in these activities. More specific management plans would be developed to address all aspects of outdoor wildlife-dependent recreation identified in the interim compatibility determinations. We would develop opportunities for volunteer involvement in refuge management and outreach efforts, and would work with school districts and teachers to develop an environmental education program featuring unique species or communities on the refuge.

Goal 4. Promote Conservation Partnerships

This alternative would increase and strengthen our collaborative efforts with conservation partners focused on improving an understanding of bog habitat and associated species, and their related drivers and stressors. This would increase knowledge and understanding of how best to manage these sites to ensure their long-term protection and continued existence. Together with partners, we would take a leadership role in development of the Bog Learning Network, where researchers, educators, and managers can share resources and information about southern Appalachian bog management and research. We would also work to foster better communication between the Service and neighboring landowners, and provide them with information on how to manage their lands for the benefit of bog habitat and associated species. The creation of the refuge would provide opportunities for the Service to become a leader in bog conservation, which could help focus the efforts of other partners towards strategic habitat conservation (SHC). Using the SHC model, the establishment of Mountain Bogs NWR would coordinate and link actions that various programs and partners perform at individual sites, so that their combined effects would achieve conservation of species and their habitats on a landscape-level scale. In addition, this leadership role would assist with collaboration among partners to learn from one another.

SUMMARY

Compared to the No Action Alternative, the Service believes that implementing Alternative B (Proposed Action) would provide a more collaborative, comprehensive, landscape-level approach to the conservation of mountain bogs. This alternative would help increase the protection and restoration of those imperiled habitats, benefitting numerous priority species, including those that are state and federal listed, or that are rare and declining. Additionally, if implemented, this proposal would increase wildlife-dependent recreational opportunities in the area, helping to foster a greater appreciation for the natural resources of the region, while increasing support for the Refuge System.

