

## 1 **Critical Habitats**

2 It is critical that specific habitats are considered and protected for the benefit of wildlife. The  
3 Southeastern Association of Fish and Wildlife Agencies identified bottomland hardwood forest  
4 conservation and longleaf pine ecosystem restoration as regional priorities (SEAFWA 2006).  
5 Bottomland forests are important habitats for a variety of wildlife species, including neotropical  
6 migratory birds, bats, waterfowl, wild turkeys, game mammals, reptiles, and amphibians. This  
7 general habitat type includes linear or small-patch communities such as canebrakes, floodplain  
8 pools, riparian forests, and hardwood and pine-dominated hammocks. Maintenance of mature,  
9 intact and contiguous bottomland forests is important for conservation of South Carolina's  
10 wildlife diversity. In particular, old-growth canopy trees, snags, large woody debris, and diverse  
11 midstory and understory vegetation are important elements to maintain in these forests.  
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13 Longleaf pine forests once covered a vast range from Texas to Virginia, but have been reduced  
14 to three percent of historical acreage due to conversion to other land uses and forest types.  
15 Longleaf pine forests are highly valued for their resistance to damage by insects, diseases,  
16 wildfire, and storms, and for their yield of high quality wood products, biological diversity, and  
17 beauty. This ecosystem is so significant that a group of conservationists assembled in 2005  
18 and developed a 15-year plan designed to increase the acreage of longleaf pine across the  
19 South from 3.4 million to 8 million (America's Longleaf 2009).  
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21 Caves, sinkholes, and springs (both karst- and fault-related) represent some of the most  
22 sensitive natural habitats in South Carolina and are susceptible to impacts from a wide variety of  
23 land-use practices, including forestry. Karst environments harbor many of the state's rarest and  
24 most imperiled species such as salamanders in the Four Hole Swamp area, and provide habitat  
25 to game animals in areas of intense agriculture. Fault-related springs in the Piedmont flow even  
26 during periods of drought and represent specific habitats to other rare species. These springs  
27 also provide water to game animals and birds, as well as other fauna. Protection of karst  
28 environments, springs, and related wetlands is essential for maintenance of South Carolina's  
29 biological diversity and water quality (personal communication Dr. C.W. Clendenin, Jr., State  
30 Geologist, SCDNR, January 21, 2010).  
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32 Open canopy forests with diverse grass-forb-shrub groundcover characterize pine savannas.  
33 Prior to European settlement this habitat type dominated as much as three-fourths of the  
34 Southeastern Coastal Plain landscape (Platt 1999). These forests were predominately two-  
35 layered with an overstory of widely spaced pines (Plummer 1975) and an herbaceous ground  
36 cover that was maintained by frequent fire (Frost 1998). Restoration of this habitat type,  
37 especially the longleaf pine savanna, is a high priority in a variety of conservation plans  
38 developed by federal, state and non-governmental conservation organizations. Examples  
39 include: America's Longleaf Initiative; South Carolina DNR's Comprehensive Wildlife  
40 Conservation Strategy (CWCS) (<http://www.dnr.sc.gov/cwcs/species.html>); Northern Bobwhite  
41 Conservation Initiative (NBCI); Partners in Flight North American Landbird Conservation Plan;  
42 and Partners in Amphibian and Reptile Conservation's Habitat Management Guidelines for  
43 Amphibians and Reptiles of the Southeastern United States.  
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45 The widespread loss of pine savanna, resulting primarily from conversion to other land use  
46 types and reduction in fire, has contributed to the severe decline of numerous wildlife species  
47 that rely fully, or in part, on savanna habitats to meet their life requisites. Noss et al (1995)  
48 ranked longleaf pine forests the third most endangered ecosystem in the United States. South

49 Carolina's CWCS identifies several plant and animal species associated with Pine Savanna that  
50 are threatened or are species of concern.

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52 The Northern Bobwhite serves as one example of a species in conservation need that is largely  
53 dependent on pine savanna restoration. South Carolina's bobwhite population has declined by  
54 well over 70 per cent since 1966. Research has shown that closed canopy pine stands provide  
55 poor quality habitat for bobwhites and may also serve as ecological sinks thereby negatively  
56 impacting bobwhite populations on adjacent grassland habitats. Establishing and maintaining  
57 high quality pine savanna is a priority focus of bobwhite quail habitat restoration efforts.

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59 When appropriately applied, frequent prescribed burning and forest thinning mimics the  
60 ecosystem processes that once occurred naturally across the landscape to create and maintain  
61 woodland savannas. Without thinning, tree canopies close and shade-out ground cover.  
62 Without frequent prescribed burning, grasses and forbs are replaced by woody species.  
63 Through active management, functional pine savanna systems, including the associated wildlife  
64 species, can be restored in existing loblolly, shortleaf, slash and longleaf stands. Necessary  
65 management includes periodic thinning to maintain at least 60 percent of the ground in direct  
66 sunlight followed by prescribed burning on a two to three year rotation; and on many sites  
67 chemical control of exotic grasses and/or planting of native ground cover.

68 Large landscape, multi partnerships and conservation efforts provide a means to restore critical  
69 habitats and increase populations of declining wildlife. In 2004, the SC Forestry Commission  
70 signed an MOU with the SC Department of Natural Resources, the USDA Natural Resources  
71 Conservation Service, the USDA Forest Service, the Newberry Soil and Water Conservation  
72 District, the East Piedmont RC&D Council, the State and Newberry Chapters of Quail Unlimited,  
73 the National Wild Turkey Federation, and Clemson Cooperative Extension Service; to  
74 implement a restoration of woodland savannas on national forest lands as well as private lands  
75 in Newberry County. The Indian Creek Wildlife Habitat Restoration Initiative (Initiative) has  
76 been very successful in obtaining cost share assistance for private landowners as well as  
77 technical assistance in establishing management practices. Thinning has been and will  
78 continue to be conducted on national forest lands to a basal area of 60 square feet per acre.

79 In 2004, eighteen counties in the upper and lower coastal plain of South Carolina were identified  
80 as high priority areas for bobwhite restoration. Within these counties there are 293,661 acres of  
81 longleaf/slash pine and 1,825,374 acres of loblolly/shortleaf pine that potentially could be  
82 restored to functional pine savanna (USFS 2008). Additionally, there are over 1.8 million acres  
83 of harvested cropland, a portion of which might be restored to longleaf pine. If achieved, this  
84 could contribute as much as 50 percent toward South Carolina's NBCI recovery goals. NBCI is  
85 the first-ever landscape-scale habitat restoration and population recovery plan for northern  
86 bobwhites (*Colinus virginianus*) in the United States.

87  
88 The plan focuses on population and habitat objectives needed to achieve the overall goal of  
89 recovering bobwhite densities to 1980 levels on remaining improvable portions of the  
90 landscape. The plan's building blocks are the Bird Conservation Regions (BCRs) developed for  
91 and utilized by the North American Bird Conservation Initiative (NABCI). The plan consists of  
92 separate chapters for each of 15 BCRs, with population and habitat objectives for each. Another  
93 important foundation of NBCI is the land-use data collected and analyzed every five years by

94 the National Resources Inventory (NRI), a database of the USDA Natural Resources  
95 Conservation Service. The goal of the NBCI is to restore northern bobwhite populations range  
96 wide to an average density equivalent to that which existed on improvable acres in 1980. This  
97 will necessitate impacting habitat on about 7 percent of 81.1 million acres of farm, forest, and  
98 rangeland so as to increase the current quail population by 2.7 million coveys. The plan is  
99 currently under revision.

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101 Additional private lands programs, practices and funding are needed for longleaf and other pine  
102 savanna restoration, especially for lands that do not have a recognized cropping history.  
103 Specifically, funding is needed to cost share longleaf planting, prescribed burning, herbicide  
104 application, planting of native ground cover and heavy thinning of existing pine stands.  
105 Additionally, new and emerging restoration programs, biofuels, for example, need to be assessed for  
106 potential impacts to longleaf restoration efforts. When formulating or providing input on forest  
107 policy, landowner subsidies and program delivery, consideration should be given to long-term  
108 ecological impacts and desired future landscape conditions as it relates to pine savanna  
109 ecosystem restoration and management.

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