

**NATURAL AREA INVENTORY**  
**OF**  
**BLADEN COUNTY, NORTH CAROLINA**

by

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Office of Conservation and Community Affairs  
North Carolina Natural Heritage Program

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## **ABSTRACT**

This inventory of the natural areas, biological communities, and rare species of Bladen County was funded by the North Carolina Natural Heritage Trust Fund. This inventory identifies the most significant natural areas in the county, describes their features, and documents all known natural communities and rare species of plants and animals associated with them. Habitat conditions, natural processes, and threats are also described. This inventory is intended to provide guidance for land use decisions by the county government, conservation and land management organizations, private land owners, and interested citizens. Field work was supervised by the North Carolina Natural Heritage Program (NC NHP), and carried out in 2003 and 2004. The inventory identifies and describes 39 standard sites and two macrosites of natural significance at the national, state, or regional level, as determined by criteria developed by the NC NHP. Ten standard sites of county significance have also been identified.

## **ACKNOWLEDGMENTS**

Many agencies and individuals contributed to the planning, progress, and completion of this inventory. We are particularly indebted to Michael Chestnut, Chris Williams, and Hans Rohr of Bladen Lakes State Forest. Important contributions were also made by Greg Schneider and Kelly Thompson of Jones Lakes State Park; Angela Allcox of Singletary Lake State Park; Kenneth Shughart of Suggs Millpond Wildlife Management Area; and Keith Ashley and Tom Padgett of Wildlife Resources Commission. Valuable assistance was also provided by Janice Allen and Jessica Blake, N.C. Coastal Land Trust; Mike Jackson, DuPont Fayetteville Works; Thomas Starling, U.S. Farm Service Agency; Tom Howard, N.C. Division of Parks and Recreation; Craig Morrison, American Forest Management; and Hervey McIver, The Nature Conservancy. Many citizens and Bladen County landowners provided assistance and knowledge that substantially contributed to the quality and thoroughness of the inventory, including David Adams, Dohn Broadwell, A.J. Bullard, Carl Clark, Dr. C.M. Johnson, Terry Macon, Robert Meeker, Kathrine Munroe, Scott Shaw, and Jim Waller. Cover illustration from USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. Illustrated flora of the northern states and Canada. Vol. 3: 390.

## Bladen County Natural Area Inventory

### JOHNSON MILL POND NATURAL AREA Significant Natural Heritage Area

**Site significance:** state

**Size:** 888 acres: 874 acres within primary boundary, 14 acres within secondary boundary

**Quadrangles:** Elizabethtown North, White Lake   **Ownership:** State of North Carolina, private

**SIGNIFICANT FEATURES:** Johnson Mill Pond Natural Area is a moderately large example of a peat-filled Carolina bay complex, and one of the best quality examples of this unusual geological formation in the state. The site includes four different pocosin natural communities, including the uncommon Bay Forest and Low Pocosin. Four rare invertebrate animals have been recorded from this site, including Hessel's hairstreak (*Callophrys hesseli*) and grisatra underwing (*Catocala grisatra*). The site also supports populations of two state rare plants: geniculate hawthorne (*Crataegus geniculata*) and white wicky (*Kalmia cuneata*).

**LANDSCAPE RELATIONSHIPS:** This natural area is located in northeastern Bladen County, in the northwestern portion of Bladen Lakes Macrosite. The macrosite extends from southeastern Cumberland County through eastern Bladen County into southwestern Pender County. The natural area consists of Johnson Mill Bay, which is part of the headwaters for Little Colly Creek, flowing southeastward by way of Colly Creek and Black River to the Cape Fear River. To the southwest, the site is immediately adjacent to Tatum Mill Pond/Cypress Bay natural area. A good landscape connection exists northward to Charlie Long Mill Pond/Big Colly Bay and Suzy Hill Natural Area. This landscape connection is interrupted by some cleared land and roadbeds, but benefits the movement of several groups of animals. The connection southeastward to Addie Barnes Pine Natural Area is interrupted by paved roads, farms, and rural residences. Within the natural area, the primary boundary includes habitat in good natural condition and/or with other exceptional biological values, while the secondary boundary includes areas of lesser natural value, but which buffer primary habitat and/or have good restoration potential. This site includes a small portion of former natural area Little Colly Cedar Swamp.

**SITE DESCRIPTION:** Johnson Mill Pond Natural Area comprises a moderately large Carolina bay named Johnson Mill Bay. Much of the sand ridge habitat surrounding the bay basin is managed as timberland (pine plantations) and has been excluded from the natural area. The large wetland basin within Johnson Mill Bay is in excellent condition and supports four pocosin communities: Low Pocosin, High Pocosin, Bay Forest, and Pond Pine Woodland. The Low Pocosin community occurs on the deepest peats in the central areas of the bay basins. Due to the difficulty of access, the Low Pocosin community at this site has been observed only from air. It typically has a dense shrub layer 3-5 feet high that is usually dominated by honeycups (*Zenobia pulverulenta*). Pond pine (*Pinus serotina*) are present, but are too small and scattered to form a canopy. The High Pocosin community occurs where the peats are less deep than those found beneath the Low Pocosin. High Pocosin is characterized by a dense shrub layer 6-10 feet

high and slightly taller and more frequent pines, but still too small and scattered to form a canopy.

The Bay Forest community has a moderately mature canopy of loblolly bay (*Gordonia lasianthus*) and swamp red maple (*Acer rubrum* var. *trilobum*) over an understory of sweet bay (*Magnolia virginiana*) and swamp red bay (*Persea palustris*). The Pond Pine Woodland community occurs on mineral soils that may be shallowly overlain with peat. It is often the dominant community on the outer portions of the basin, closer to the surrounding rim. The canopy is well-developed and dominated by pond pine with loblolly bay and swamp red maple also present. Fetterbush (*Lyonia lucida*) and blaspheme-vine (*Smilax laurifolia*) are prominent in the dense shrub layer.

**MANAGEMENT AND PROTECTION:** Almost all of this natural area is located within Bladen Lakes State Forest, and is managed by the State Division of Forest Resources. All of the extensive pocosin habitat contained within Johnson Mill Bay is managed by the State Forest staff to protect the natural ecosystem. The surrounding sand rim has been altered primarily by management for timber production. A portion of the rim at the northwest end of Johnson Mill Bay has been included within the secondary boundary of the site because of its buffering and restoration potential, and because of its potential to provide habitat for rare plants and animals. It is recommended that this area be managed with fire for restoration of the longleaf pine sandhill community that originally occurred in this area.

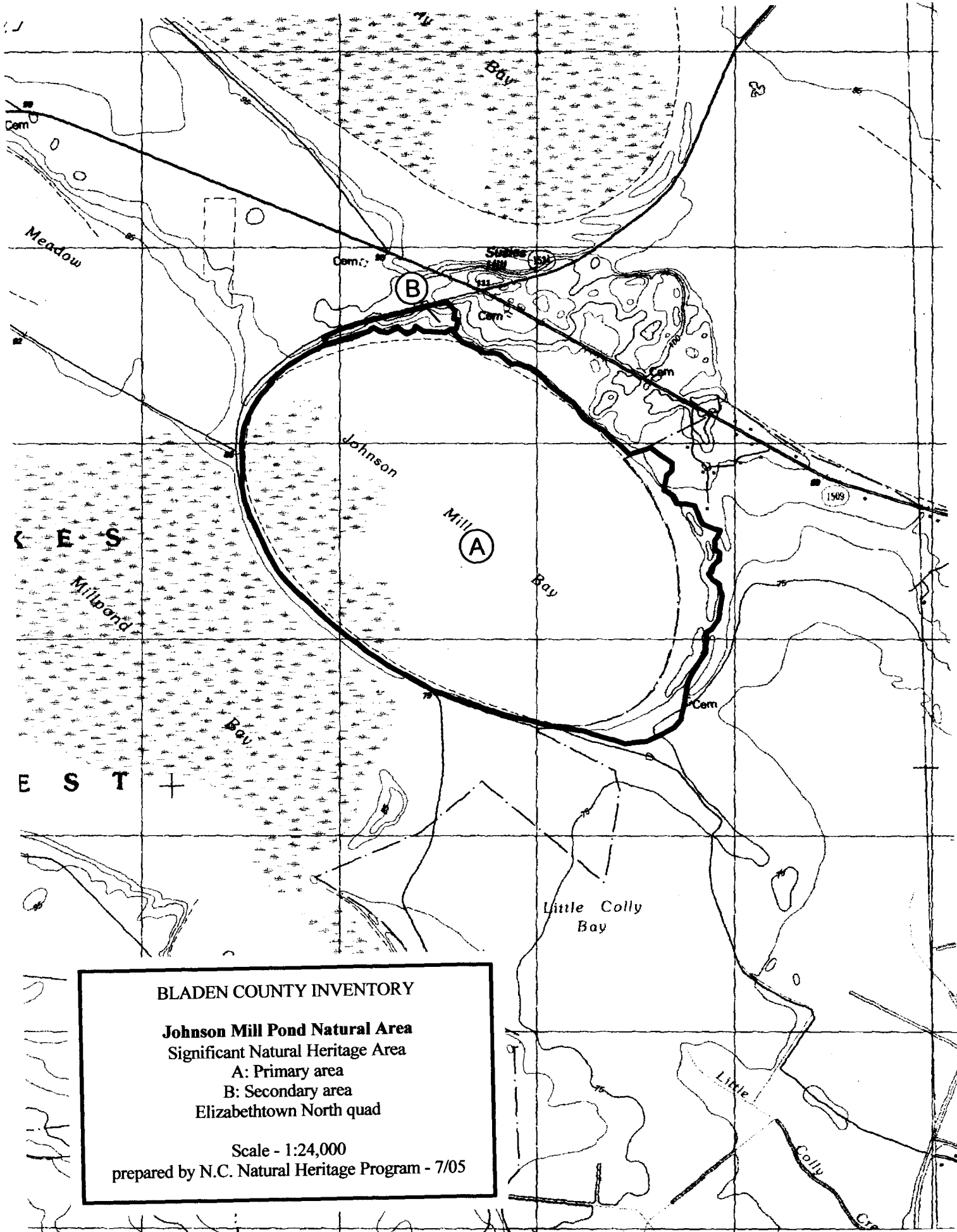
**NATURAL COMMUNITIES:** Bay Forest, High Pocosin, Low Pocosin, Pond Pine Woodland.

**RARE PLANTS:** geniculate hawthorne (*Crataegus geniculata*), white wicky (*Kalmia cuneata*).

**RARE ANIMALS:** invertebrates - Hessel's hairstreak (*Callophrys hesseli*), grisatra underwing (*Catocala grisatra*), jair underwing (*Catocola jair*), an owlet moth (*Pangrapta* new species).

**REFERENCES:**

- Eerden, B. van. 1994. Status Survey of *Kalmia cuneata* Michaux. N.C. Natural Heritage Program, Office of Conservation and Community Affairs, DENR, Raleigh, N.C.; and U.S. Fish and Wildlife Service, Asheville, N.C.
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**BLADEN COUNTY INVENTORY**

**Johnson Mill Pond Natural Area**  
Significant Natural Heritage Area

A: Primary area

B: Secondary area

Elizabethtown North quad

Scale - 1:24,000

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