

North Carolina's Coastal Plain



The coastal plain is North Carolina's largest physiographic province, covering 45 percent of the state. The province can be subdivided into two regions. The outer coastal plain (sometimes called the "tidewater" region) consists of the immediate coast, including barrier islands, sounds, marshes, lower river systems, and associated mainland generally less than 20 feet in elevation. The inner coastal plain includes the region from the outer coastal plain to the Fall Line. This province supports the state's most diverse natural habitats and the state's richest assemblage of birds with more than 400 species recorded.

As recently as 60 million years ago, the sea covered much of eastern North Carolina, reaching as far inland as the Fall Line, where the rolling hills of the Piedmont begin. Sediments carried by streams and rivers were deposited at the edge of the ancient sea forming a wide, gently sloping region known as the coastal plain. During the ice ages of the Pleistocene Epoch, which began 2 million years ago, sea levels fell dramatically as glaciers locked up more of the planet's

water. At the Pleistocene's lowest sea levels, the coastline was 20 to 50 miles east of today's beaches. When the last ice age ended, about 17,000 years ago, the ocean started to rise again, and today's coast began to form.

The Environment of the Coastal Plain and Its Birds

Today, the climate of North Carolina's coastal plain province is temperate. Average high temperature during summer months is in the mid- to upper 80s, while average lows are near 70 degrees. During winter, average highs are in the mid-50s, while average lows are in the mid-30s. Temperatures tend to be more moderate in the outer coastal plain. Average rainfall is about 51 inches. Snowfall is infrequent and generally averages less than 5 inches per year in the inner coastal plain and less than 2 inches per year in the outer coastal plain.

The ocean waters off the North Carolina coast harbor birds rarely seen elsewhere in the state. Seabirds thrive in the offshore waters of the outer continental shelf and Gulf Stream. An area off Cape Hatteras, where the cool waters from the Labrador Current and the warm waters of the Gulf

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Stream meet, forms one of the richest and most important areas for pelagic birds in the western Atlantic. Productive inshore ocean waters provide important foraging areas for a great variety of birds during all months of the year, including pelicans, loons, terns, and gulls. In winter, Northern Gannets are common, and one can often observe their spectacular plunges into the sea close to shore. Cape Point in Cape Hatteras National Seashore is an excellent location where one can observe both pelagic birds and other species typical of inshore ocean waters.

One of the most prominent features of the North Carolina coast is the long, thin chain of barrier islands that occur from the Virginia border to South Carolina. Because the islands in the northern part of this ribbon of sand lie far out to sea, 40 miles or so from the mainland, they are called the Outer Banks. Between them and the mainland are great estuaries—the Currituck, Albemarle, and Pamlico Sounds—where freshwater rivers meet salty sea. Smaller barrier islands hug the southern coast, where saltmarshes, tidal creeks, and shallow sounds separate the islands from the mainland. Most barrier islands have been altered by development, recreation activity, and stabilization projects. While these activities have resulted in a loss of habitats for birds, barrier islands continue to be critical to birds during all seasons. Least, Common and Gull-billed Terns, along with Black Skimmers, Wilson's Plovers, American Oystercatchers, and Piping Plovers nest on North Carolina beaches. Thousands of shorebirds stop during their long migrations to rest, forage, or spend the winter. Shrub thickets and forest abound with birds during migration and, in the southern coastal region, provide nesting habitat for species such as Painted Buntings.

Just inside North Carolina's chain of barrier islands are scattered smaller, natural estuarine islands and artificial islands built of dredged sand. These islands support the majority of the state's nesting colonial waterbirds, including herons, egrets, ibises, pelicans, and several species of terns. Among the best known are the Battery Island Audubon Sanctuary, which supports the state's largest colony of nesting wading birds, and Beacon Island, which is one of the state's most important nesting sites for Brown Pelicans.

The North Carolina coast has vast expanses of tidal marsh associated with barrier islands, sounds, and lower river systems. On the northern coast in Currituck Sound, the marsh is brackish and is a haven for typical marsh birds such as rails and Marsh Wrens, but it is best known for wintering waterfowl that once numbered in the hundreds of thousands.



Far fewer waterfowl winter on Currituck Sound today, but the sound and its marshes remain important for ducks, geese, and swans. The marshes of the Cedar Island peninsula, separating Pamlico Sound and Core Sound, support North Carolina's largest population of elusive Black Rails and nesting Seaside Sparrows, among others. On the southern coast, extensive saltmarshes and tidal creeks, flushed twice daily by tides, are important for birds such as rails, wading birds, shorebirds, waterfowl, and marsh sparrows.

When one encounters a pocosin for the first time, the word that will likely come to mind is "scraggly." Scraggly loblolly bay, sweet bay, wax myrtle, and titi with green-briar and cane cover the black soil, a uniformity interrupted only by a scattering of undersized scraggly pond pines. So thick is the brush that pocosins appear impassable on foot, but a few explorers have tried. The 19th-century surveyor Ebenezer Emmons said one could traverse a pocosin only "at the expense of a man's coat, pantaloons and shirt." Pocosins are unique to the Southeast and are especially common in North Carolina. They provide important habitats for neotropical migrant songbirds. Places like Alligator River National

Wildlife Refuge, Holly Shelter-Angola Bay, Croatan National Forest, and Green Swamp are good examples.

Swamp forests of North Carolina are home to the oldest trees in the East, with some bald cypress along the Black River estimated to be 1,600 years old. These trees escaped the saws that ravaged most of North Carolina's swamp forests during the past 150 years. Vast areas of swamp forests still exist along major river systems such as the Chowan, Roanoke, Pasquotank, Neuse, Cape Fear, Waccamaw and Lumber. The Roanoke is one of the state's best examples of bottomland hardwood forest and supports coastal plain rarities such as Mississippi Kite and Cerulean Warbler, along with other swamp forest birds such as Prothonotary Warbler, Northern Parula, and Wood Duck. The still, black waters of Merchants Millpond State Park studded with bald cypress trees is a prime example of this habitat where Prothonotary, Hooded, and Yellow-throated Warblers are abundant in season.

Imagine a savanna, a broad plain carpeted with yellow grass, flecked with colorful wildflowers, and intermittently shaded by towering, widely spaced pines. Small woodpeckers with black-and-white ladder-backs and white cheek pouches flit from tree to tree, pecking at the bark of the pines for insects. In the grass beneath the trees is a shy, nondescript sparrow that is visible only when it flutters into a bush to sing its song, an unusual clear whistle followed by a trill.

The setting is a pine savanna. The understory is wiregrass, the trees are longleaf pines, and the birds are the federally endangered Red-cockaded Woodpecker and the rare Bachman's Sparrow. Two hundred years ago this scene was common on the southeastern coastal plain. William Bartram wrote about one in 1791: "We next entered a vast forest of the most stately Pine trees that can be imagined, planted by nature at a moderate distance, on a level grassy plain, enameled with a variety of flowering shrubs."

Today, over 98 percent of the great swaths of longleaf pines that once covered the coastal plain from Virginia to Texas are gone. The pines were bled for their resin, which was used to make turpentine or tar, then logged. Among the state's best examples of longleaf pine forests are those in the Sandhills (in places like Fort Bragg, Camp MacKall, and Weymouth Woods State Park) and in the Croatan National Forest.

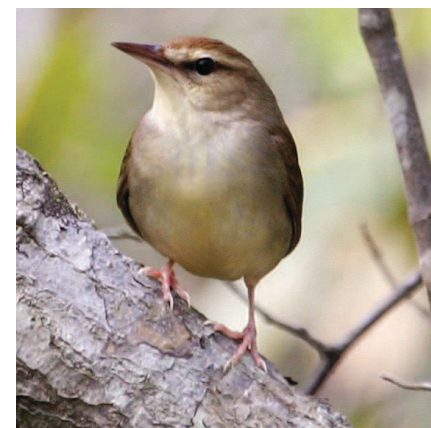
Conservation Concerns

One hundred years ago, the greatest conservation concern for birds in the coastal plain was that birds were shot in huge numbers for their meat, feathers, and body parts. By the turn

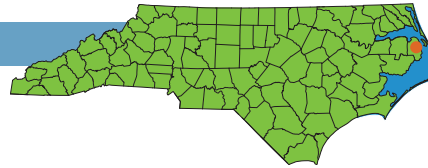
of the century, egrets and terns were rare along the coast, shot out by plume hunters, and many other species had been greatly reduced. The Least Tern, for example, had been "nearly extirpated," according to T. Gilbert Pearson, who counted water birds there in the early part of the 20th century.

Today, habitat loss, fragmentation, degradation, and human disturbances top the list of threats to coastal birds. More than a million acres of forested wetlands have been lost in the past few decades; cleared, cut, drained, mined, and converted to agriculture, silviculture, or other uses. In the last decade of the twentieth century, the coastal counties grew at twice the rate of the state as a whole. Consequently, undisturbed beaches are rare, which presents a problem for birds that rely on that habitat. And some species, such as the American Oystercatcher and other beach-nesting shorebirds, terns, and skimmers, are declining. These birds now depend almost entirely on federal and state governments and Audubon for the protection and management of the remaining beach habitats. The long-term impact of other activities, such as beach renourishment, inlet channelization, shoal removal, non-point source pollution, and chronic human disturbances are largely unknown.

On a brighter note, state and federal government agencies along with The Nature Conservancy, Audubon, and land trusts have dedicated much time, money, and resources to protecting habitats that are important for birds in the coastal plain. Hundreds of thousands of acres have been protected so far and will be protected forever. This is a trend that we hope and believe will continue.



Alligator River Lowlands



Location: Dare County

Total Size: 103,893.0 ha (256,725.1 acres)

Site Description: This site includes the Alligator River National Wildlife Refuge and the Dare County Bombing Range. The refuge, established in 1984, includes a vast area of dense pocosin and nonriverine swamp forest with small blackwater streams. Although the majority of the refuge is wild and inaccessible, the United States Fish and Wildlife Service has established several access areas where one can explore the refuge by canoe or on foot. The refuge is one of a few places in the United States where red wolves (*Canis rufus*) have been reintroduced successfully.

Habitats: Deciduous forest, coniferous forest, mixed forest, shrubland, pocosin, brackish marsh, lake or pond, and agricultural. Forest includes stands of Atlantic white cedar (*Chamaecyparis thyoides*), pond pine (*Pinus serotina*), loblolly pine (*Pinus taeda*), and cypress-gum swamp.

Land Use: Wildlife conservation, other conservation, recreation and tourism, hunting, agriculture and cultivation.

Primary Threats: Introduced plants and animals, natural pests and disease, sea level rise due to global climate change.

Protection Status: Most of the site is in federal ownership, protected and managed by the United States Fish and Wildlife Service and United States Department of Defense.

Conservation Issues: The peat soils and low elevation of the site make it especially vulnerable to the effects of sea level rise. Fire suppression has also had a detrimental impact on Red-cockaded Woodpecker populations here as well as on other fire-dependent species. The National Wildlife Refuge portion

of this Important Bird Area has a comprehensive conservation plan in place.

Birds: The site holds a significant suite of species associated with pocosin, Atlantic white cedar, and hardwood swamp forests (Criterion NC4), including several WatchList species. Anhingas and Red-cockaded Woodpeckers are found on the refuge, but no current population estimates are available. The Alligator River lowlands are one of North Carolina's most important sites for the coastal plain population of Black-throated Green Warblers. The creation and management of impoundments has increased waterfowl numbers dramatically in recent years and the refuge now attracts more than 6,000 Tundra Swans and almost 50,000 other waterfowl (winter 2008–9). Studies of bird migration using radar suggest the site is likely an important stopover for migrating landbirds. In 2002, an estimated 180 Northern Harriers and more than 24,000 birds utilized the agricultural plots in the refuge during winter, including several thousand wintering sparrows, Eastern Meadowlarks, and Sedge Wrens. The site was recently named a globally significant site for Northern Bobwhite, and it is one of our most significant sites for Prairie and Prothonotary Warblers.

Monitoring and Research: Midwinter waterfowl surveys, Christmas Bird Count and a Breeding Bird Survey are conducted annually. Red-cockaded Woodpecker and Northern Bobwhite surveys are needed.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2004–9
2b	Tundra Swan	W	3,468	2009	2,907
2b	Wood Duck	W	429	2009	324*
3b	Northern Pintail	W	32,215	2009	13,675
3b	Green-winged Teal	W	12,660	2009	4,042
2b	American Black Duck	W	240	2009	201
3b	Waterfowl totals	W	53,255	2009	24,235
1	Bald Eagle	W	18	2008	17
3a	Northern Harrier	W	181	2002	—
2a	Northern Bobwhite	all	75	2008	—
3a	Short-eared Owl	W	11	2002	—
1	Red-cockaded Woodpecker	all	5	2006	—
2b	Sedge Wren	W	770	2002	—
2a	Black-throated Green Warbler	B	102	2001	—
2b	Prairie Warbler	B	32	2007	76
2b	Prothonotary Warbler	B	46	2007	73
3a	Common Yellowthroat	all	43	2007	80
3a	Savannah Sparrow	W	14,410	2002	—
3a	Eastern Meadowlark	W	2,920	2002	—
3g	migratory landbirds	FM, SM	—	—	—

B = breeding; FM = fall migration; SM = spring migration; W = winter

*Wood Ducks were recorded only during 2008 and 2009 waterfowl surveys.

Bald Head Smith Island

Location: Brunswick County

Total Size: 5,021.9 ha (12,409.5 acres)

Site Description: The site is located on the eastern bank of the lower Cape Fear River, south of Wilmington and east of Southport. It includes an area from Fort Fisher State Recreation Area south to Cape Fear and west to the intertidal sand flats near Battery Island, including open water, sandflats, mudflats, marshes east of the main river channel, and adjacent waters of the Cape Fear River. Bald Head and Middle Islands have well-developed maritime forest and are among the best examples of this habitat type in North Carolina. The site also has a spectacular tidal creek and marsh system. The diversity of habitats found at this site supports a great diversity of bird life throughout the year. This site is part of the Southport Christmas Bird Count, which consistently logs one of the highest numbers of species for North Carolina counts.

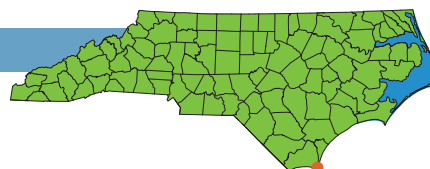
Habitats: Maritime forest, saltmarsh, barrier beach and dune, river, sandflat and mudflat.

Land Use: Wildlife conservation, other conservation, recreation and tourism, residential development.

Primary Threats: Residential and commercial development, recreational development and overuse, disturbance to birds, predation.

Protection Status: 4,047 ha (10,000 acres) are protected by the North Carolina State Parks system and the North Carolina Coastal Reserve program. Additional land is protected by the Bald Head Island Conservancy. This includes all marshes, Zeke's Island, Bluff Island, and portions of Bald Head Island and Middle Island. Most of the land on Bald Head Island and Middle Island is in private ownership.

Conservation Issues: Bald Head and Middle Islands are being developed, although tracts within both areas have been set aside for conservation. Most of the development will impact the maritime forest community. However, strict regulations on building sites have resulted in minimal impacts to the forest, which has helped to preserve habitat for species such as Painted Bunting. Raccoon and fox populations are unusually high, however, and are likely have a significant impact on ground-nesting birds. Also, the southern end of the Fort Fisher spit is open to vehicles, which increases recreational



disturbance to nesting birds and impacts migrating and wintering shorebirds. This activity, along with increased recreational use and mammalian predation, has contributed to the decline in beach-nesting birds in recent years. The possible construction of a new port facility near Southport could have profound effects on this Important Bird Area, depending on the final outcome of this project.

Birds: The site includes one of the state's largest and best examples of maritime forest and significant saltmarsh (Criterion NC4). On Bald Head Island, 210 species of birds have been documented. The forest supports the state's largest population of breeding Painted Buntings and provides excellent stopover habitat for migrant songbirds. Shorebirds abound on the extensive tidal flats, marshes, and beach. Wading birds from the nearby Battery Island colony forage in the marshes, freshwater ponds, and along tidal creeks. Waterfowl numbers have declined over the past decade, but at least 12 species of ducks are common in the river, tidal creeks, bays, and ponds. A few Least Terns, Black Skimmers, Willets, Wilson's Plovers, and American Oystercatchers nest on area beaches during most seasons, but total numbers are not known. The site supports North Carolina's largest wintering population of American Oystercatchers. Saltmarsh Sparrows, Nelson's Sparrows, Seaside Sparrows, and Clapper Rails are abundant in area marshes. Raptors, especially Peregrine Falcons, Merlins, American Kestrels, and Sharp-shinned Hawks, are regular visitors during migration. The Bald Head-Smith Island area has also recently been designated a globally significant site for Painted Bunting.

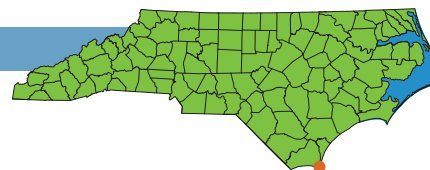
Monitoring and Research: The site is monitored by North Carolina State Parks, Audubon North Carolina, Bald Head Island Conservancy, and the North Carolina Coastal Reserve program. Anecdotal bird records for Fort Fisher and Bald Head-Smith Island are entered into the State Parks Natural Resource Inventory Database. Bald Head Island is a primary research area for the Painted Bunting Observer Team Project, and large numbers of birds have been color-banded and monitored there.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2005-9
1	Saltmarsh Sparrow	FM	14	2009	—
2a	American Oystercatcher	B	27 prs.	2009	—
2a	American Oystercatcher	W	207	2009	200
2a	Wilson's Plover	B	21	2007	—
2a	Red Knot	SM	102	2009	—
2a	Painted Bunting	B	40 prs.	2009	—
2a	Seaside Sparrow	FM	105	2009	—
3a	Common Goldeneye	W	19	2009	10
2b	Clapper Rail	FM	65	2009	—
3b	waterfowl	W	3,008	2009	2,167
3ei	waterbirds	W	12,144	2009	15,575
3d	shorebirds	W	4,575	2009	4,432
3g	migratory landbirds	FM, SM	—	—	—

B = breeding; FM = fall migration; SM = spring migration; W = winter

Battery Island



Location: Brunswick County (no detailed map shown)

Total Size: 93.6 ha (231.2 acres)

Site Description: Battery Island is a natural island guarding the mouth of the Cape Fear River. Many years ago, Battery Island received deposits of dredged sand, which formed the southern upland area of the island, commonly referred to as the “South Colony.” This is where the majority of wading birds gather to nest in the red cedars (*Juniperus virginiana*), yaupon (*Ilex vomitoria*), and other shrubs. During late spring and summer, visitors to the nearby Southport waterfront can witness the early-morning departure of thousands of White Ibises as they leave for inland foraging grounds. The sky over Southport is again filled with ibises during the last two hours of daylight as flocks from 20 to 200 ibises return to Battery Island for the evening. Battery Island supports North Carolina’s largest colony of wading birds, which include approximately 10 percent of North America’s White Ibises. The riverside beachfront is prime nesting habitat for American Oystercatchers, and the grassy uplands support nesting Willets.

Habitats: Coastal shrub thicket dominated by red cedar and yaupon, saltmarsh, upland sand beach.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to birds, erosion, invasive plants.

Protection Status: The site is protected and managed by Audubon North Carolina.

Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors. Disturbance to nesting birds is a

primary concern. Audubon wardens patrol the island throughout the nesting season and regularly during other times of the year. The island is also patrolled by North Carolina Wildlife enforcement officers. American Oystercatchers are susceptible to nest loss from erosion, high tides, and boat and ship wakes. In addition, the possible construction of a new port facility in Southport could have profound effects on this Important Bird Area, depending on the final outcome of this project.

Birds: Battery Island is the site of North Carolina’s largest colony of nesting wading birds, supporting 10–15,000 or more nesting pairs of nine wading bird species annually. The site is globally significant for White Ibis, which is the most abundant wading bird nesting on the island. The number of nesting ibises varies between 9–15,000 breeding pairs annually. In 2008 and 2009, most of the island’s White Ibises moved to North Pelican Island. The White Ibis have done this at least one time in the past two decades. At least 10 pairs of American Oystercatchers nest on the island annually, along with Willets, Clapper Rails, Seaside Sparrows, and Marsh Wrens. Research and monitoring projects have been undertaken since 1982 and have contributed significantly to the knowledge of wading birds and their habitats.

Monitoring and Research: This site is monitored by Audubon North Carolina. Waterbird or shorebird research has been conducted here for more than 20 years.

Key Bird Species

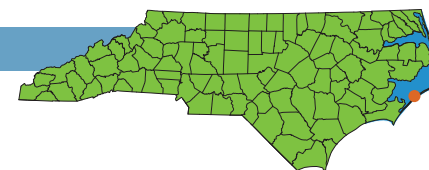
Criterion	Species	Season	Number	Year	% of NC Population 2007*	Average Number 2001–7	Avg % of NC Population 2001–7*
2b	White Ibis	B	13,749 prs.	2007	81.1	13,582 prs.	84.2
3a	Great Egret	B	107 prs.	2007	6.3	116 prs.	7.9
2a	Snowy Egret	B	0 prs.	2007	0.0	6 prs.	1.7
2a	Tricolored Heron	B	295 prs.	2007	30.1	183 prs.	21.5
2a	Little Blue Heron	B	75 prs.	2007	6.7	97 prs.	10.0
3a	Black-crowned Night Heron	B	12 prs.	2007	8.3%	27 prs.	11.2
2a	American Oystercatcher	B	10 prs.	2009	—	10 prs.**	3.0 **
3ei	waterbirds	B	14,238 prs.	2007	—	14,011 prs.	—

B = breeding

*Percentages are based on the coastal population of Great Egret, Yellow-crowned Night Heron, Cattle Egret, Snowy Egret, and Little Blue Heron. There is no recent estimate of the inland population for these species.

**Coastwide censuses of American Oystercatchers were conducted in 2004 and 2007.

Beacon Island



Location: Carteret County (no detailed map shown)

Total Size: 55.7 ha (137.7 acres)

Site Description: Beacon Island is a natural estuarine island located in southeastern Pamlico Sound, near Ocracoke Island. The island is small, low in elevation, and dominated by grassy vegetation. Extensive shallow water, sand, and seagrass flats surround the island. Beacon Island has a long history of use by nesting colonial waterbirds. The site is posted and patrolled by Audubon North Carolina staff, and is off limits to all visitors during the breeding season.

Habitats: High saltmarsh.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to nesting birds, erosion.

Protection Status: The site is protected and managed by Audubon North Carolina.

Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from March 1 until the last pelican chicks fledge in September or October. Human disturbance is a threat and can result in egg or chick loss, nest abandonment, and colony abandonment. Erosion of the island also is a concern.

Birds: Beacon Island has long been a nesting site for Brown Pelicans. It was here, in 1928, that the species was first recorded nesting in North Carolina. The island also supports a colony of Laughing Gulls that now ranges between 200 and 400 pairs. Formerly, more than 5,000 pairs nested here. One to three pairs of American Oystercatchers nest on the island every year, along with Clapper Rails, Herring Gulls, Great Black-backed Gulls, and Forster’s Terns in most years. The shallow water surrounding the island supports Brant during winter, along with several hundred diving and puddle ducks of various species.

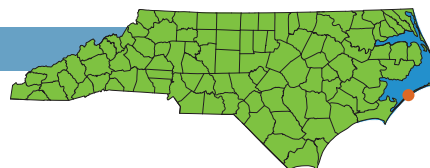
Monitoring and Research: This site is monitored by Audubon North Carolina. Shorebird and waterbird research is ongoing.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
2a	Brown Pelican	B	283 prs.	2007	8.2	441 prs.	8.9
2a	Brown Pelican	B	395 prs.	2009	—	—	—
2b	Brant	W	650	2001	—	—	—
3a	Laughing Gulls	B	400 prs.	2009	—	—	—

B = breeding; W = winter

Big Foot Island



Location: Hyde County (no detailed map shown)

Total Size: 5.0 ha (12.4 acres)

Site Description: Big Foot Island is an artificial island located in Pamlico Sound, near Ocracoke Island. The island was constructed of dredged sand from a nearby navigation channel. The highest point on the island is approximately 5 m (16 feet) in elevation, but most of the site is 3 m (10 feet) or lower. Periodic renourishment with “beach-quality” sand maintains the open, bare substrate, which provides good nesting habitat for several species of terns and sometimes Black Skimmers. This island is surrounded by shallow water and seagrass flats.

Habitats: Open, bare sand habitat created with dredged sand, sparse grasses.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to birds, erosion.

Protection Status: The site is protected and managed by the North Carolina Wildlife Resources Commission.

Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from April 1 to August 31. Big Foot Island needs periodic beach renourishment to maintain its size, shape, and habitats. This has been accomplished by the United States Army Corps of Engineers in cooperation with the North Carolina Wildlife Resources Commission and the North Carolina Colonial Waterbird Management Committee. Human disturbance is a significant threat and can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: Big Foot Island is an important nesting site for Royal and Sandwich Terns. Herring and Great Black-backed Gulls also nest on the site. In some years, Common and Gull-billed Terns, Black Skimmers, and American Oystercatchers nest on the island. During winter, the island serves as a resting area and roost for Double-crested Cormorants. The island supported the state's largest colony of Royal Terns in 2007.

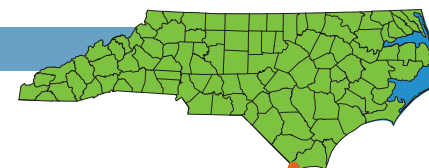
Monitoring and Research: This site is monitored by the North Carolina Wildlife Resources Commission. Royal and Sandwich Terns have been banded annually for many years.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
2b	Royal Tern	B	3,680 prs.	2007	34.4	3,964 prs.	33.9
2b	Sandwich Tern	B	457 prs.	2007	16.4	572 prs.	21.7
3a	Herring Gull	B	77 prs.	2007	12.2	54 prs.	7.5
3a	Great Black-backed Gull	B	10 prs.	2007	6.1	7 prs.	3.7
3eiv	Double-crested Cormorant	W	15,000	2007	—	—	—
3ei	waterbirds	B	4,137 prs.	2007	—	4,536 prs.	—

B = breeding; W = winter

Bird Island Twin Lakes



Location: Brunswick County

Total Size: 821.0 ha (2,028.6 acres)

Site Description: Bird Island is located on the North Carolina–South Carolina border (the southwestern end of Bird Island is in South Carolina). It is one of the few undeveloped barrier islands remaining in southern North Carolina. Luckily, Bird Island will remain undeveloped and will be protected forever as part of the North Carolina Coastal Reserve Program system, thanks to the determination and commitment of the Bird Island Preservation Society. The society worked hard for more than a decade to acquire and protect the island. In addition to barrier island beach and dunes, the Bird Island site includes extensive saltmarsh that supports a variety of bird species throughout the year. The Twin Lakes portion of this site consists of two freshwater ponds bounded by residential development and a golf course, and adjacent saltmarsh on the mainland. The lakes provide a resting area and roost for Wood Storks and other species of waterbirds.

Habitats: Freshwater pond, saltmarsh, barrier island beach and dunes, intertidal sandflat and mudflat.

Land Use: Residential development, recreation, and hunting.

Primary Threats: Human disturbance, residential and commercial development, introduced predators, and recreational development and overuse.

Protection Status: The barrier island and saltmarsh are part of the Bird Island Coastal Reserve protected and managed by the North Carolina Coastal Reserve Program. The lakes are in private ownership and are not afforded protection.

Conservation Issues: The ponds, surrounding trees, water quality, hydrology, and a sufficient buffer zone to roosts should be maintained. Nesting sites for beach-nesting birds such as Wilson's Plovers, American Oystercatchers, Willets, terns, and skimmers should be located, posted, patrolled, and monitored during the nesting season. Surveys of landbirds and waterfowl during breeding and migration, and over winter, are lacking and needed. Current surveys of shorebirds and wading birds need to continue.

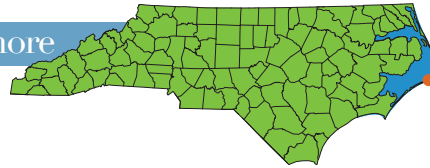
Birds: This site has one of North Carolina's few regularly occurring flocks of Wood Storks. No evidence of nesting has been found, but the Wood Storks have used the area regularly for more than a decade. The storks rest and roost in the trees bordering the freshwater ponds and then travel to the nearby saltmarsh to forage. This is the northernmost limit of the Wood Stork's range in North America.

Monitoring and Research: Adopt an Important Bird Area volunteers, with the Cape Fear Audubon Society and the Bird Island Preservation Society, conduct surveys of this Important Bird Area. This site is monitored by the North Carolina Coastal Reserve Program and the Bird Island Preservation Society.

Key Bird Species

Criterion	Species	Season	Number	Year
1	Wood Stork	all	46	2008

Cape Hatteras National Seashore



Location: Hyde and Dare Counties

Total Size: 25,139.5 ha (62,121.1 acres)

Site Description: Cape Hatteras National Seashore encompasses about 110 km (68 miles) of barrier islands, including much of the area known as the Outer Banks. The National Seashore represents approximately 20 percent of the coastline of North Carolina. It is a diverse landscape and a good example of a mid-Atlantic barrier island system. The area known as Buxton Woods is one of North Carolina's best examples of maritime forest and includes an extensive freshwater marsh system. The National Seashore is popular with tourists and attracts over 2 million visitors annually. It is vital to nesting, migrating, and wintering waterbirds and shorebirds on Atlantic Coast beaches.

Habitats: Maritime forest, shrubland, barrier beach and dune, sandflat and mudflat, saltmarsh, brackish marsh.

Land Use: Wildlife conservation, other conservation, recreation and tourism, water supply, hunting, fishing.

Primary Threats: Disturbance to birds, off-road vehicle use, predation, inadequate protection and management, recreational development and overuse, invasive plants and animals, artificial stabilization of the beach, other development.

Protection Status: The site is managed by the National Park Service. Current conservation and management efforts include monitoring and protection of colonial nesting birds and shorebirds. The development of a regulation for off-road vehicles within the Seashore is underway.

Conservation Issues: Significant off-road vehicle use and other recreational pursuits occur at this site. Presently, there is no year-round protection for migrating and wintering shorebirds that depend on ocean beaches. Predation from feral cats, foxes, and raccoons places significant stress on nesting shorebirds and colonial waterbirds. Areas of beach nesting bird habitat have been degraded by the construction and maintenance of an artificial dune that protects Highway 12. Migrating and wintering shorebirds face chronic threats from unregulated vehicle use and human disturbance. Sea level rise has resulted in erosion and loss of habitat, and how the National Park Service responds to this threat will influence the quantity and quality of remaining habitat.

Birds: Barrier beach and dune habitat and maritime forest are extensive and significant (Criterion NC4). This is one of the state's most important sites for coastal birds throughout the year; it is an important nesting, migratory, and wintering location for Piping Plovers, colonial waterbirds, migrating and wintering shorebirds of many species, and landbirds. The lack of science-based protection for birds contributed to significant declines in the populations of nesting shorebirds and waterbirds by 2007. Science-based protection for nesting, migrating, and wintering waterbirds and shorebirds is needed.

Monitoring and Research: This site is monitored by the National Park Service. Research is ongoing.

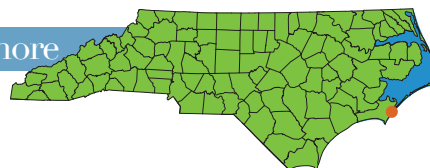
Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2001–9	Average Percentage of NC Population 2001–7*
1	Piping Plover	B	9 prs.	2009	6 prs.	15.4
1	Piping Plover	FM	104	2007	—	—
2a	Least Tern	B	464 prs.	2009	303 prs.	13.0
2a	Common Tern	B	31 prs.	2009	132 prs.	18.0
2a	Black Skimmer	B	40 prs.	2009	99 prs.	16.8
1	Gull-billed Tern	B	0 prs.	2009	31 prs.	20.8
2b	American Oystercatcher	B	23 prs.	2009	27 prs.	—
2a	Red Knot	SM	83	2009	—	—
3d	shorebirds	SM, W, FM	19,886	2006	—	—
3ei	waterbirds	B	544 prs.	2009	—	—
3g	migratory landbirds	FM, SM	—	—	—	—

B = breeding; FM = fall migration; SM = spring migration; W = winter

*The last statewide population estimates for colonial waterbirds, American Oystercatchers, and Wilson's Plovers was 2007; percentage NC population data is available only for 2001–7.

Cape Lookout National Seashore



Location: Carteret County

Total Size: 17,445.4 ha (43,108.6 acres)

Site Description: Cape Lookout National Seashore is located in the central coastal area of North Carolina between Beaufort and Ocracoke Inlets. Barden Inlet and New Drum Inlet divide the park into three barrier islands. The northernmost island, North Core Banks, is approximately 39 km (24 miles) long, extending from Ocracoke Inlet to New Drum Inlet. South Core Banks extends southward from New Drum Inlet 40 km (25 miles) to the Cape Lookout Bight area. Both islands have a northeast-to-southwest orientation, exhibit a low-profile landscape and are made up of low dunes, shrub zone, and saltmarsh. The third island, Shackleford Banks, is 14 km (9 miles) long and has an east-west orientation with a higher dune system, isolated freshwater marshes, and approximately 36 ha (89 acres) of maritime forest.

Habitats: Barrier beach and dune, saltmarsh, sandflat and mudflat, maritime forest.

Land Use: Conservation, recreation and tourism, fishing, hunting.

Primary Threats: Off-road vehicle use, recreational overuse, disturbance to birds, introduced animals, predators.

Conservation Issues: The number of people using the Cape Lookout National Seashore is a key concern. Off-road vehicle traffic, unleashed pets, and human disturbance of nesting, foraging, and resting birds are primary issues. These disturbances can have a significant impact on populations of waterbirds and shorebirds. Further strict measures to protect nesting waterbirds and shorebirds from human disturbances are needed. Migrating and wintering shorebirds face chronic threats from unregulated vehicle use and human disturbance. Sea level rise has resulted in erosion and loss of habitat and how the National Park Service responds to this threat in the future will influence the quantity and quality of remaining habitat.

Protection Status: The site is managed and protected by the National Park Service.

Birds: Cape Lookout National Seashore supports most of the nesting pairs of Piping Plovers in North Carolina; it is also an important wintering and migratory site for this species. The site is an excellent example of a barrier island with the associated bird species (Criterion NC4). The whole National Seashore is vital to migrating and wintering shorebirds of many species, and the beaches have a long history of use by nesting colonial waterbirds and shorebirds.

Monitoring and Research: This site is monitored by the National Park Service. Long-term research on shorebirds and waterbirds continues and has contributed significantly to the knowledge of these species.

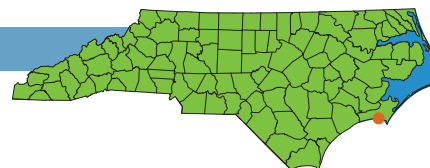
Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001-7	Avg % of NC Population 2001-7*
1	Piping Plover	B	37 prs.	2009	69.8	27 prs.	69.2
1	Piping Plover	FM	86	2008	—	—	—
1	Piping Plover	W	13	2008	—	—	—
1	Piping Plover	SM	22	2008	—	—	—
2a	Least Tern	B	285 prs.	2007	9.7	305 prs.	13.1
2a	Black Skimmer	B	169 prs.	2007	25.2	139 prs.	23.5
1	Common Tern	B	78 prs.	2007	15.6	40 prs.	5.6
1	Gull-billed Tern	B	59 prs.	2007	64.8	30 prs.	20.1
2a	American Oystercatcher	B	61 prs.	2007	18.1	—	—
2a	American Oystercatcher	B	60 prs.	2009	—	56 prs.	—
2a	American Oystercatcher	W	168	2006	—	—	—
2a	Wilson's Plover	FM	72 prs.	2009	—	70 prs.	—
2a	Red Knot	SM	1,224	2009	—	—	—
2a	Red Knot	W	358	2009	—	—	—
2a	Red Knot	FM	288	2009	—	—	—
3a	Sanderling	FM, W, SM	16,955	2006	—	—	—
3d	shorebirds	FM	26,750	2006	—	—	—
3ei	waterbirds	FM, SM	23,810	2006	—	—	—

B = breeding; FM = fall migration; SM = spring migration; W = winter

*Period covered for Piping Plover and American Oystercatcher is 2001-9.

Carrot Island Bird Shoal



Location: Carteret County

Total Size: 601.9 ha (1487.2 acres)

Site Description: Carrot Island and Bird Shoal are part of the Rachel Carson National Estuarine Research Reserve. The site sits immediately east of the town of Beaufort, between Beaufort and Shackleford Banks. The entire reserve consists of several contiguous islands and marsh areas—Carrot Island, Town Marsh, Bird Shoal, and Horse Island.

Habitats: Subtidal bottoms, eelgrass beds, tidal creeks, intertidal mudflats and sandflats, salt marshes, maritime shrub thickets, maritime forest, dredged-material areas, dunes, ocean beaches.

Land Use: Wildlife conservation, other conservation, dredged-material deposition.

Primary Threats: Feral horses, recreational development and overuse, human disturbance.

Protection Status: The Rachel Carson Estuarine Reserve is a component of the North Carolina National Estuarine Research Reserve.

Conservation Issues: Feral horses roam the uplands and marsh areas within the portion of the reserve that encompasses Carrot Island, Town Marsh, Bird Shoal, and Horse Island. Feral horses have been detrimental to nesting efforts by some species (e.g., Least Terns, Black Skimmers) because of nest trampling. Visitor use is increasing, and human disturbance of nesting birds is a concern.

Birds: The site has extensive intertidal mud- and sandflats, ideal foraging areas for waterbirds. In 1983 Fussell and Wilson wrote an account of this area that still holds true: “The Carrot Island–Bird Shoal complex is notable as a major roosting area for waterbirds, and having a rich diversity of shorebirds. It has probably the richest diversity of intertidal shorebirds of any area in North Carolina. Although there is relatively little waterbird nesting on the complex, it is an important feeding area for young birds from nesting sites near Cape Lookout, near Fort Macon, and in the lower Newport River. At certain times of the year, Carrot Island–Bird Shoal serves as a roosting area for thousands of birds. Particularly large concentrations exist in the fall. The narrow inlet beach is the main roosting area. Carrot Island–Bird Shoal may be extremely valuable to migrating species.” (J.O. Fussell, III, and J. Wilson, “Natural areas inventory of Carteret County, North Carolina,” N.C. Coastal Energy Impact Program, Report No. 9, 1983.) The area is an important wintering location for Piping Plovers.

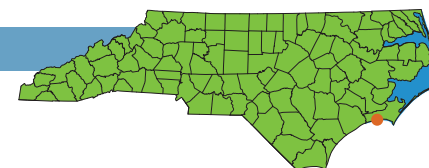
Monitoring and Research: This site is monitored by the North Carolina National Estuarine Research Reserve.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2001-8
1	Piping Plover	FM	19	2005	15
1	Piping Plover	SM	2	2008	7
1	Piping Plover	W	11	2008	16
2a	Wilson's Plover	B	13 prs.	2007	—
2a	American Oystercatcher	B	7 prs.	2007	—
2a	American Oystercatcher	W	183	2008	—

B = breeding; FM = fall migration; SM = spring migration; W = winter

Cat (Wood) Island



Location: Carteret County (no detailed map shown)

Total Size: 4.9 ha (12.1 acres)

Site Description: Cat Island is a forested, natural island located in Bogue Sound. The site is primarily shrub thicket and forest with a marsh fringe. It was once used as a target for aircraft from the nearby Cherry Point Naval Air Station. Signs warning of unexploded ordinance surround the island. For over a decade, the island has supported a significant colony of nesting wading birds. The site has sometimes been called Wood Island.

Habitats: Saltmarsh, maritime shrub thicket and forest.

Land Use: Other conservation, wildlife conservation.

Primary Threats: Disturbance to birds.

Protection Status: The site is under the jurisdiction of the United States Department of Defense and is posted by the North Carolina Wildlife Resources Commission.

Conservation Issues: Although the island is posted with “entry prohibited” and “unexploded ordinance” signs, trespassers have been encountered on the island. Human disturbance during the nesting season is a primary concern and can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: Cat Island has been a wading bird nesting site since the early 1990s. The island currently supports six species and several hundred nesting pairs of wading birds. It hosts the second largest colony of Great Egrets along the coast of North Carolina.

Monitoring and Research: This site is monitored by the United States Department of Defense and the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
3a	Great Egret	B	277 prs.	2007	16.3	316 prs.	17.3
2a	Snowy Egret	B	6 prs.	2007	1.6	17 prs.	4.2
3a	Cattle Egret	B	56 prs.	2007	11.7	83 prs.	18.2
2a	Little Blue Heron	B	65 prs.	2007	6.0	90 prs.	7.1
2a	Tricolored Heron	B	101 prs.	2007	10.3	186 prs.	14.3
3a	Black-crowned Night Heron	B	1 pr.	2007	0.6	12 prs.	4.9
3e	waterbirds	B	565 prs.	2007	—	772 prs.	—

B = breeding

Cedar Island Marsh

Location: Carteret County

Total Size: 11,220.5 ha (27,726.6 acres)

Site Description: Cedar Island is located on the northeastern tip of the Carteret County peninsula. This site includes all of the Cedar Island National Wildlife Refuge, along with adjacent marsh and uplands. The Cedar Island marsh consists of thousands of hectares of regularly and irregularly flooded saltmarsh dominated by black needlerush (*Juncus roemerianus*), saltmeadow hay (*Spartina patens*), and big cordgrass (*Spartina cynosuroides*). The adjacent woodlands are primarily pocosin and pine forest. This Important Bird Area also includes the adjacent portions of Core and Pamlico Sounds.

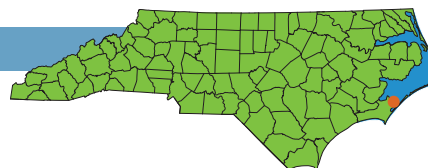
Habitats: Saltmarsh, shrubland, coniferous forest.

Land Use: Wildlife conservation, fishing, hunting, residential development.

Primary Threats: Sea level rise, global climate change, eutrophication from adjacent farmlands, low-elevation overflights by military aircraft.

Protection Status: Much of this site is part of the Cedar Island National Wildlife Refuge, protected and managed by the United States Fish and Wildlife Service.

Conservation Issues: Few studies of landbirds during breeding season, migration periods, or winter have been conducted. The impact of regular low-altitude flights by military aircraft is poorly understood. Overall numbers of waterfowl appear to be declining in recent years. The National Wildlife Refuge portion of this Important Bird Area has a comprehensive



conservation plan in place.

Birds: The Cedar Island Marsh is one of the state's best examples of irregularly flooded saltmarsh (Criterion NC4). It is probably best known for Black Rails, which can be heard calling from the marsh during late spring and early summer months. The site is widely thought to support the state's largest population of Black Rail, but there is no population estimate for this species. The marsh also supports Seaside Sparrows, Marsh Wrens, Clapper Rails, Virginia Rails, Common Yellowthroats, Northern Harriers, and waterfowl, among other species. Seaside Sparrows are abundant breeders throughout the marsh, and this site may support the state's largest breeding population of this species. This is one of the few areas in North Carolina where Northern Harriers have been found nesting. Songbirds are abundant in shrub thickets and forest on the refuge. Black Ducks and Gadwall breed on the refuge and on nearby marsh islands. Diving ducks and puddle ducks are often abundant during late fall and winter months. A total of 270 species of birds have been recorded on the refuge.

Monitoring and Research: More monitoring of wintering waterfowl and migrant and wintering shorebirds is needed. Data is gathered irregularly as part of United States Fish and Wildlife Service programs. Species-specific efforts should be implemented to assess populations of marsh birds.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2004-9
2b	American Black Duck	W	292	2009	188
3a	Gadwall	W	108	2009	42
3a	Bufflehead	W	76	2009	120
2a	Black Rail	all	—	2009	—
2a	Seaside Sparrow	B	—	2009	—
3a	Northern Harrier	B	1 pr.	2001	—
3b	waterfowl	W	814	2009	1,402

B = breeding; W = winter

Chainshot Island

Location: Carteret County (no detailed map shown)

Total Size: 2.0 ha (4.9 acres)

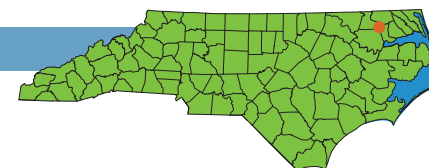
Site Description: Chainshot Island is a natural estuarine island located in Core Sound near Cedar Island. It is one of four islands in northern Core Sound protected and managed by Audubon North Carolina. The island is primarily marsh and small shrub thickets surrounded by shallow water and seagrass.

Habitats: Saltmarsh, shrub thicket.

Land Use: Wildlife conservation.

Primary Threats: Erosion, disturbance to nesting birds.

Protection Status: The site is managed and protected by Audubon North Carolina.



Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from April 1 to August 31. Disturbance to nesting birds is a concern and can result in egg or chick loss, nest abandonment, and colony abandonment. The island is also eroding, which jeopardizes its future.

Birds: The site supports a small mixed-species heron colony during most years. In some years the site may have 75 or more pairs of wading birds; in other years it may have very few. Black-crowned Night Herons are the most abundant species in most years. Forster's and Common Terns nest on the island in some years. One pair of nesting Black Ducks can be found during most years. The site usually supports at least one pair of breeding American Oystercatchers.

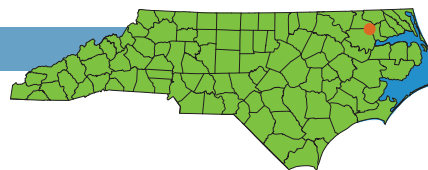
Monitoring and Research: This site is monitored by Audubon North Carolina.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001-7	Avg % of NC Population 2001-7
3a	Black-crowned Night Heron	B	7 prs.	2007	4.0	28 prs.	11.4

B = breeding

Chowan River Bottomlands



Location: Bertie, Chowan, Hertford, and Gates Counties

Total Size: 22,851.8 ha (56,466.1 acres)

Site Description: This site is located in northeastern North Carolina, near the town of Ahoskie. The Chowan River is a blackwater river that empties into Albemarle Sound near Edenton. Most of the Important Bird Area is in the riverine swamp forest along the Chowan River from Colerain to Parkers Ferry. The site also includes Merchants Millpond State Park, the Chowan Swamp Game Lands, and the Chowan River.

Habitats: Swamp forests with bald cypress (*Taxodium distichum*), red maple (*Acer rubrum*), tupelo (*Nyssa aquatica*), and loblolly pine (*Pinus taeda*); mixed forests with beech (*Fagus grandifolia*) and mesophytic oaks; lake with cypress-tupelo swamp and a diversity of floating and submerged aquatics.

Land Use: Wildlife conservation, hunting, recreation and tourism.

Primary Threats: Disturbance to birds, commercial development, logging and tree cutting on private lands.

Conservation Issues: Logging resulting in the fragmentation and loss of privately owned swamp forest is a primary concern. Buffer zones along the river and swamp forest should be established. Audubon North Carolina, The Nature Conservancy, and other organizations have formed the Albemarle-Pamlico Conservation and Communities Cooperative to plan for conservation in the region, including planning for sea level rise. More extensive surveys of landbirds, waterbirds, and waterfowl during breeding, migration, and winter are needed.

Protection Status: Approximately 50 percent of the site is in state ownership and includes Merchants Millpond State Park and Chowan Swamp Game Lands, which are protected and managed by North Carolina State Parks and North Carolina Wildlife Resources Commission respectively. Recent acquisitions from private industrial forestlands owners have added to the protected lands in this Important Bird Area. The remaining acreage is privately owned.

Birds: The site holds a significant diversity and abundance of species associated with cypress-tupelo-gum swamp forest (Criterion NC4). In addition, the site is significant for breeding landbirds, as well as swamp forest species such as Wood Ducks, Prothonotary Warbler, Northern Parulas, and more, and it is thought to be significant for Barred Owls and Pileated Woodpeckers, though more extensive surveys are needed to confirm this. At least two Great Blue Heron colonies are present near Merchant's Millpond.

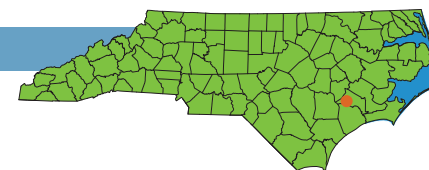
Monitoring and Research: North Carolina State Parks documents birds at Merchant's Millpond State Park (214 species detected), with data entered into the Natural Resource Inventory Database system. The Lloyd's Crossroads and California Breeding Bird Survey routes are partially contained within this Important Bird Area. Further inventory and monitoring are needed throughout.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2004-9
2b	Tundra Swan	W	7,316	2009	3,159
3a	Canada Goose	W	2,061	2009	1,604
3a	Scaup species	W	11,704	2009	4,989
2b	Wood Duck	all	50	2009	—
3b	Waterfowl	W	—	—	—
2a	Northern Bobwhite	all	25	2006	—
2b	Acadian Flycatcher	B	20+ prs.	2009	—
2b	Eastern Wood-Pewee	B	20+ prs.	2009	—
2b	Northern Parula	B	50+ prs.	2009	—
2b	Prothonotary Warbler	B	20+ prs.	2009	—
3g	migratory landbirds	all	—	—	—

B = breeding; W = winter

Clam Shoal



Location: Dare County (no detailed map shown)

Total Size: 267.0 ha (659.6 acres)

Site Description: Clam Shoal is a long, narrow, natural shoal located in Pamlico Sound, near Hatteras Island. This remote ribbon of sand and shell looks insignificant and is omitted from many maps. There is hardly a place on Clam Shoal above one meter in elevation and greater than 10 m (33 feet) in width, but it is used by large numbers of shorebirds and, in the winter, waterfowl. This shoal has endured many storms and overwash, but remains an important site for a variety of birds during breeding, migration, and winter. Waterbirds breed during the warmer months, shorebirds are present during migration and winter, and waterfowl are abundant during winter months. The site is bounded to the south by shallow seagrass flats and to the north by deeper waters of Pamlico Sound.

Habitats: Bare sand and shell.

Land Use: Wildlife conservation, hunting.

Primary Threats: Flooding during storm tides, disturbance to nesting birds, erosion, possible impacts of nearby wind energy development.

Protection Status: The site is not under the jurisdiction of a management agency or organization. Because of the remote location of this island, formal protection measures are not employed.

Conservation Issues: Clam Shoal is a very low island and is subject to flooding during storm events. Because of its remote location, the island receives few visitors during the breeding season, but disturbance remains a concern. One person walking the length of the shoal could cause significant disturbance to nesting birds that could result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: Clam Shoal has long been a nesting site for colonial waterbirds. Royal Terns, Sandwich Terns, and Common Terns have nested throughout, along with Forster's Terns and Black Skimmers. However, terns and Black Skimmers did not nest on the site in 2007. The last known nesting by Royal and Sandwich Terns was 2006. Shallow water and seagrass flats surrounding Clam Shoal support wintering diving and puddle ducks, Brant, and migrant Canada Geese, but no population estimates are available. Few migration and winter surveys of shorebirds have been conducted, but the sparse data that exist suggest that shorebirds can be abundant during migration and winter.

Monitoring and Research: Royal and Sandwich Terns are banded in most years when present.

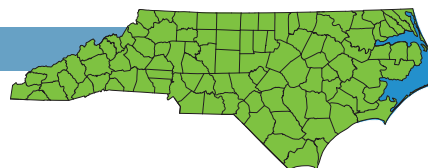
Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2004	Average Number 2001-4	Avg % of NC Population 2001-4
2b	Royal Tern	B	338 prs.	2006	—	152 prs.*	2.6 *
2b	Sandwich Tern	B	46 prs.	2006	—	99 prs.*	3.8 *
2a	Common Tern	B	47 prs.	2004	8.3	108 prs.	12.7
1	Gull-billed Tern	B	4 prs.	2004	4.0	14 prs.	7.8
2a	Black Skimmer	B	11 prs.	2004	1.8	10 prs.	1.6
3a	Caspian Tern	B	1 pr.	2004	6.3	3 prs.	15.8
3a	Herring Gull	B	20 prs.	2007	3.2	25 prs.	3.4
3a	Great Black-backed Gull	B	10 prs.	2007	6.1	6 prs.	3.6
1	Piping Plover	W	4	2006	—	—	—
2a	Red Knot	W	350	2007	—	—	—

B = breeding; W = winter

*The last known breeding by Royal and Sandwich Terns was 2006. Calculations were based on 2001-6.

Cora June Island



Location: Dare County (no detailed map shown)

Total Size: 7.3 ha (18.0 acres)

Site Description: Cora June Island is a dredged-sand island located in eastern Pamlico Sound near Hatteras Village. The island was created entirely of sand from the nearby navigation channel and was placed in open water, in the vicinity of a preexisting dredged-material island. When the island was first created, it eroded away after just a couple of years. Dredged sand was again deposited on the site, raising the island above mean high water sufficiently for it to be more stable. It has become a very important nesting site for terns and skimmers.

Habitats: Almost entirely bare sand, with very scattered grasses and herbaceous vegetation.

Land Use: Conservation.

Primary Threats: Disturbance to nesting birds, erosion.

Protection Status: The site is protected and managed by the North Carolina Wildlife Resources Commission. Like other state-owned waterbird nesting sites, the island is posted and patrolled, and off limits to all visitors from April 1 to August 31. These measures are essential to the protection of nesting waterbirds.

Conservation Issues: Even though the island is posted, disturbance to nesting birds remains a concern. Maintenance of the island with dredged sand is important to the continued viability of the site as a nesting site for terns and skimmers.

Birds: Cora June Island has become an important nesting site for terns and skimmers in Pamlico Sound. The last census data available for the site was 2007, but the island was known to support nesting terns and skimmers in 2009. It requires periodic deposits of dredged sand to maintain the island and the habitats that support nesting terns and skimmers. The site supports the third largest Common Tern colony and fourth largest Black Skimmer colony in North Carolina.

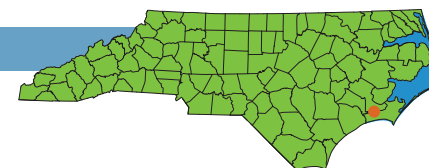
Monitoring and Research: The site is monitored by the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007
1	Gull-billed Tern	B	3 prs.	2007	3.3
2a	Black Skimmer	B	78 prs.	2007	14.1
2a	Common Tern	B	79 prs.	2007	15.9
2a	Least Tern	B	55 prs.	2006	1.9
2b	Royal Tern	B	413 prs.	2007	3.9
2b	Sandwich Tern	B	334 prs.	2007	12.0
3e	waterbirds	B	962 prs.	2007	—

B = breeding

Croatan Forest



Location: Craven, Jones, and Carteret Counties

Total Size: 92,053.7 ha (227,469.7 acres)

Site Description: The Croatan Forest Important Bird Area is a large and diverse natural area in eastern North Carolina. This site is bounded on three sides by rivers: the White Oak to the south, the Neuse to the north, and the Trent to the west. Highway 24 forms the eastern boundary. The Croatan includes one of North Carolina's largest and best examples of pocosin habitat and a diverse array of habitat types that support a corresponding diversity of bird life. A system of roads, mostly unpaved, and hiking trails allow access to many areas of the Croatan National Forest.

Habitats: Longleaf pine forest, pine savannah, Carolina bays, pocosin, cypress and hardwood swamp forest, Atlantic white cedar stands, upland hardwood forest, natural lakes, blackwater creeks, managed impoundment, freshwater marsh, saltwater marsh.

Land Use: Wildlife conservation, other conservation, hunting, forestry, recreation.

Primary Threats: Introduced species, alteration of hydrology, logging.

Protection Status: Much of this site is in federal ownership, managed by the National Forest Service. Four areas of the Croatan National Forest are designated wilderness areas.

Conservation Issues: Maintaining the integrity of the wetland habitats throughout the National Forest and beyond its boundaries is key to conserving habitats critical to North Carolina's birds. More extensive surveys of landbirds and waterfowl during breeding season, migration periods, and winter are needed.

Birds: The site is one of the state's most important sites for pine savannah and Carolina Bay and pocosin habitats (Criterion NC4). Lake Ellis Simon supports North Carolina's largest nesting colony of nesting Double-crested Cormorants. This and other lakes also support nesting Anhingas, Ospreys, and Great Blue Herons. In addition to the species listed below, the site provides important habitat for Yellow-breasted Chat, wintering Brown Creeper, and several species of owls. The site has been designated as a globally significant Important Bird Area for Red-cockaded Woodpecker.

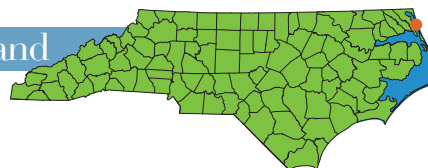
Monitoring and Research: Three Breeding Bird Survey routes lie within or alongside this extensive Important Bird Area. Averages presented in the table are a compilation of the average number of birds detected on the three Breeding Bird Survey routes within or adjacent to this area. Red-cockaded Woodpecker clusters are monitored by the United States Fish and Wildlife Service.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number
2a	Double-crested Cormorant	B	135	2002	—
2a	Northern Bobwhite	all	—	—	39
1	Red-cockaded Woodpecker	B	60	2003	—
2b	Acadian Flycatcher	B	—	—	28
2b	Brown-headed Nuthatch	all	—	—	36
2b	Prairie Warbler	B	—	—	26
2b	Prothonotary Warbler	B	—	—	23
2a	Bachman's Sparrow	B	—	—	3
2a	Bachman's Sparrow	W	24	—	—

B = breeding; W = winter

Currituck Marshes Pine Island



Location: Currituck County

Total Size: 7,159.7 ha (17,692.1 acres)

Site Description: Currituck Sound is a shallow, brackish water system located between the northern Outer Banks and mainland, in the northeastern region of North Carolina. The Important Bird Area includes the extensive system of brackish marshes, creeks, channels, open water, and the adjacent Donal C. O'Brien, Jr. Audubon Sanctuary and Center at Pine Island. The Currituck Banks region of North Carolina has experienced rapid residential and commercial development in the past decade. In just a few years the 5 km (3 miles) of maritime shrub thicket, forest, and ponds on the Audubon Sanctuary will be one of the few natural areas remaining south of Corolla. The maritime shrub thickets of Pine Island are among the largest areas of this type remaining in the region.

Habitats: Maritime shrub thicket, mixed forest, estuary, brackish marsh, open water, shallow-water impoundments.

Land Use: Wildlife conservation, recreation and tourism, hunting, fisheries.

Primary Threats: Water pollution, disturbance to birds, natural pests, residential and commercial development.

Protection Status: Audubon North Carolina protects approximately 2,023 ha (4,999 acres). A private hunting club holds much of the remaining marsh acreage.

Conservation Issues: Water quality is an issue of concern for all of Currituck Sound. Declines in submerged aquatic vegetation and subsequent declines in waterfowl and fisheries have been attributed to increased salinity, turbidity, and non-point source pollution. With increased development and

increased recreational activity on Currituck Sound, disturbance to birds has become a great concern in recent years. Audubon North Carolina, The Nature Conservancy, and other organizations have formed the Albemarle-Pamlico Conservation and Communities Cooperative to plan for conservation in the region, including planning for sea level rise. Surveys of waterbirds, landbirds, and marsh birds during breeding, migration, and winter are needed.

Birds: Currituck Sound has long been recognized for the great numbers of waterfowl that use the sound during fall and winter. In the 1970s, Currituck Sound supported an estimated 300,000 waterfowl. Today, numbers have declined considerably, but the sound still supports a few thousand ducks, geese, and swans annually. The shrub thicket and forest provide good habitat for migrant songbirds, and marshes support rails, bitterns, and wading birds. 170 bird species have been recorded on the Pine Island Audubon Sanctuary. The site has significant maritime shrub thicket and forest habitat, and brackish marsh (Criterion NC4).

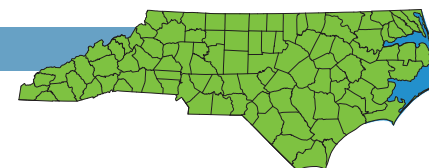
Monitoring and Research: The United States Fish and Wildlife Service conducts annual midwinter waterfowl surveys in Currituck Sound. The Pine Island Audubon Sanctuary, the associated marsh, and the marsh associated with Narrows Island are monitored by Audubon North Carolina. More study is needed for migrant landbirds, especially priority sparrow species.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2004-9
3a	Canada Goose	W	1,595	2009	1,536
3a	Snow Goose	W	1,800	2009	1,898
2b	Tundra Swan	W	2,715	2009	2,004
3a	Mallard	W	449	2009	420
2b	Black Duck	W	770	2009	480
3a	American Green-winged Teal	W	534	2009	1,100
3b	waterfowl	FM, W	9,126	2009	9,545

FM = fall migration; W = winter

DOT Island



Location: Dare County (no detailed map shown)

Total Size: 59.4 ha (146.7 acres)

Site Description: DOT (Department of Transportation) Island is a dredged-sand island located near Hatteras Inlet. The island serves as a disposal site for sand taken from the ferry channel that runs from Hatteras Island to Ocracoke Island. Some areas of the island have not received deposits of dredged sand in more than a decade, which has resulted in the formation of shrub thickets along the western fringe. The shrub thickets support nesting wading birds. The marsh on the western edge of the island has nesting Forster's Terns in some years. American Oystercatchers also nest on the island. Grassy areas on the upper slope of the island provide nesting habitat for Laughing Gulls.

Habitats: Shrubland, bare sand, grass.

Land Use: Wildlife conservation, dredged-sand disposal site.

Primary Threats: Erosion, disturbance to birds.

Protection Status: The site is protected and managed by the North Carolina Wildlife Resources Commission.

Conservation Issues: The island is posted and is entirely off limits to visitors during the nesting season, from April 1 through August 31. Human disturbance is a significant concern and can result in egg or chick loss, nest abandonment, and colony abandonment. The site has eroded significantly over the past decade.

Birds: DOT Island supports a significant colony of nesting colonial waterbirds each season. The site has supported one of the state's largest colonies of Great Black-backed Gulls, but recently numbers have been declining. Many of the wading bird species (Great Egret, Snowy Egret, Little Blue Heron, and Tricolored Heron) and Forster's Tern that were once common here have declined in recent years. Forster's Terns were last known to nest on the site in 2004.

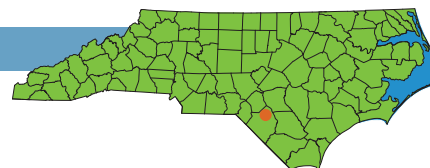
Monitoring and Research: This site is monitored by the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001-7	Avg % of NC Population 2001-7
2a	Brown Pelican	B	345 prs.	2007	10.0	234 prs.	5.5
2a	Glossy Ibis	B	4 prs.	2007	1.1	19 prs.	4.2
3a	Great Black-backed Gull	B	4 prs.	2007	2.4	21 prs.	11.9
3a	Herring Gull	B	14 prs.	2007	2.2	16 prs.	2.4
3ei	waterbirds	B	378 prs.	2007	—	469 prs.	—

B = breeding

Dunahoe Bay



Location: Robeson County (no detailed map shown)

Total Size: 37.7 ha (93.3 acres)

Site Description: Carolina bays are unique landscape features found primarily in the southeastern United States. They are generally shallow, elliptical depressions with a northwest-southeast axis and an elevated sandy rim along the southern edge. They vary in size from less than half a hectare to several thousand hectares and can be predominantly open water or entirely covered by dense, woody vegetation. Carolina bays can be hard to distinguish on the ground but, viewed from the air, can easily be picked out on the landscape. Carolina bays have received much attention from scientists in many different fields, but only very limited attention from ornithologists or others interested in birds. Dunahoe Bay is an undisturbed and permanently flooded Carolina bay located near the town of Red Springs. It is an excellent example of a Carolina bay and supports a significant colony of nesting colonial waterbirds.

Habitats: Permanently flooded Carolina bay dominated by pond cypress (*Taxodium ascendens*) and black gum (*Nyssa biflora*). Open water areas are dominated by water lily (*Nymphaea odorata*) and bladderworts (*Utricularia inflata* and *U. purpurea*).

Land Use: Wildlife conservation, other conservation.

Primary Threats: Water pollution, agriculture conversion, water diversion, disturbance to birds.

Protection Status: The Nature Conservancy currently owns the entire Carolina Bay and a partial buffer zone.

Conservation Issues: Efforts should be made to prevent human disturbance during the nesting season (March–August) and secure a buffer sufficient to maintain the integrity of the bay. Numbers of breeding wading birds have plummeted since 1999, including most of the Cattle Egrets, Snowy Egrets, and Little Blue Herons. Few studies of birds during breeding season, migration periods, or winter have been conducted.

Birds: This site supports North Carolina's largest known colony of nesting Anhingas and is one of the state's largest inland waterbird colonies. The site is also an excellent example of a Carolina bay and its associated suite of bird species (Criterion NC4).

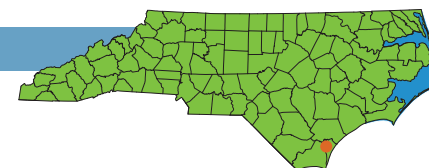
Monitoring and Research: In 2008 inland heronry surveys were completed by the North Carolina Wildlife Resources Commission using aerial counts followed by ground surveys. Inland heron surveys are conducted at approximately five-year intervals, and the years do not coincide with the coastwide colonial waterbird surveys.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 1999-2008
3a	Cattle Egret	B	40 prs.	2008	480 prs.
3a	Anhinga	B	45 prs.	2008	97 prs.
3ei	waterbirds	B	95 prs.	2008	1,781 prs.

B = breeding

Eagles Island



Location: Brunswick County

Total Size: 1,631.6 ha (4,031.6 acres)

Site Description: Eagles Island is a large expanse of brackish marsh and swamp forest located between the Brunswick and Cape Fear Rivers near Wilmington. The southern half of the island is brackish marsh with diked, dredged-material disposal impoundments. The impoundments support shorebirds, waterfowl, and waterbirds. The impoundments comprise approximately 356 ha (880 acres).

Habitats: Brackish marsh, impoundments, small patches of pine and mixed forest. Interior areas of the impoundments consists of patchy, monotypic stands of Phragmites communis, shallow water and mudflat. The area outside of the impoundments is brackish marsh consisting of cattail (*Typha spp.*), threesquare (*Scirpus spp.*), and cordgrass (*Spartina spp.*) with scattered bald cypress.

Land Use: Conservation, disposal of dredged material, hunting.

Primary Threats: Timing of disposal of dredged material, pesticides from mosquito spraying, control of water levels, sea level rise.

Protection Status: The impoundments are gated and restricted by the United States Army Corps of Engineers. The rest of the site is in public and private ownership. The Eagles Island coalition is working to protect the marsh.

Conservation Issues: Control of water levels in the impoundments is a concern, along with spraying for mosquitoes and contaminants in dredged material deposited in the impoundments.

Birds: The site supports great numbers and a great diversity of shorebirds during migration. It is the only known breeding site for Black-necked Stilts in southern North Carolina and one of only a few North Carolina breeding sites for this species. As many as 33 adults and 15 young have been recorded in the past. The site is a good area for winter sparrows; with more than 1,000 present during some winters. Nesting Anhinga, Painted Buntings, and Tree Swallows have been recorded. Large numbers of Bobolink (>1,000) and mixed flocks of Red-winged Blackbirds and Common Grackles (>50,000) roost in the marsh during winter and migration. King Rails are present throughout the marsh, but no population estimates are available. Shorebirds can be abundant in the impoundments. No recent breeding season data is available.

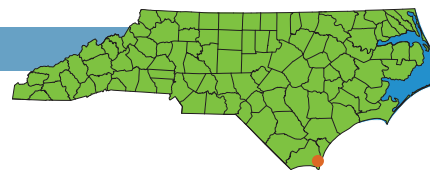
Monitoring and Research: The site is within the Wilmington Christmas Bird Count circle. It is occasionally surveyed at other times of the year. Structured bird surveys at both the impoundments and marsh, especially at peak shorebird migration and breeding seasons, are needed.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2005-9
3a	Rusty Blackbird	W	100	2009	229

W = winter

Ferry Slip Island



Location: New Hanover County (no detailed map shown)

Total Size: 25.1 ha (62.1 acres)

Site Description: Ferry Slip Island is an artificial, undiked, dredged-material island in the lower Cape Fear River south of Wilmington. The island consists entirely of dredged sand and is periodically renourished when suitable beach-quality sand is available. The sand provides excellent habitat for a variety of waterbird species, as well as nesting American Oystercatchers.

Habitats: Dredged sand, sparse to moderate-density vegetation.

Land Use: Wildlife conservation.

Primary Threats: Human disturbance to nesting birds, erosion, vegetation encroachment, lack of suitable dredged sand available for restoration of early-succession habitat.

Protection Status: The site is protected and managed by Audubon North Carolina and the North Carolina Wildlife Resources Commission.

Conservation Issues: The availability of sand to maintain the island and early-succession nesting habitat is a concern. There is a growing trend to place all clean, beach-quality sand on local beaches, thus reducing the sand available to renourish this and other critical nesting sites for colonial wading birds and seabirds. This sand has not been available in recent years, which jeopardizes habitat for nesting terns. The island is posted and patrolled throughout the nesting season to prevent disturbance to nesting birds. Human disturbance can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: Ferry Slip supports a large colony of Royal and Sandwich Terns, nesting Laughing Gulls, and 9–10 breeding pairs of American Oystercatchers. The island also supports a significant colony of Brown Pelicans.

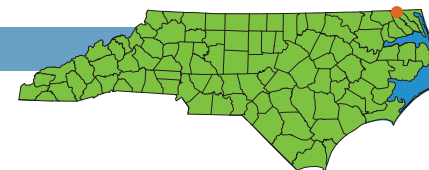
Monitoring and Research: This site is monitored by Audubon North Carolina in cooperation with the North Carolina Wildlife Resources Commission. Monitoring of American Oystercatchers extends beyond the breeding season to include migratory and wintering surveys. Royal Terns, Sandwich Terns, and Brown Pelicans have been banded annually for many years. Studies of nesting shorebirds and waterbirds are ongoing. This site supports the largest colony of nesting Sandwich Terns and the third largest colony of Royal Terns in North Carolina.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
2b	Royal Tern	B	2,014 prs.	2007	10.9	1,965 prs.	9.9
2b	Sandwich Tern	B	912 prs.	2007	17.2	633 prs.	21.6
2a	Brown Pelican	B	296 prs.	2007	8.6	344 prs.	8.1
3a	Laughing Gull	B	820 prs.	2007	4.1	777 prs.	3.5
2a	American Oystercatcher	B	9 prs.	2009	—	—	—
3ei	waterbirds	B	4,042 prs.	2007	—	—	—

B = breeding

Great Dismal Swamp



Location: Gates, Camden, and Pasquotank Counties

Total Size: 21,936.0 ha (54,204.9 acres)

Site Description: The Great Dismal Swamp encompasses more than 40,470 ha (100,004 acres) of wilderness and largely inaccessible swamp forest on the border of North Carolina and Virginia. This Important Bird Area includes the North Carolina portion of the Great Dismal Swamp National Wildlife Refuge and Dismal Swamp State Natural Area on the Virginia–North Carolina line. The area contains significant nonriverine swamp forest, pond pine woodland, and pocosin, and some of the larger stands of Atlantic white cedar remaining in North Carolina.

Habitats: Nonriverine swamp forest, nonriverine forested wetland, pocosin, Atlantic white cedar (*Chamaecyparis thuyoides*).

Land Use: Other conservation, wildlife conservation, recreation and tourism.

Primary Threats: Succession and fire suppression, hydrology.

Protection Status: Most of the Great Dismal Swamp is in public ownership and under the jurisdiction of the United States Fish and Wildlife Service or North Carolina Division of Parks and Recreation. However, there are significant private tracts adjoining the public lands that support significant habitat and birds.

Conservation Issues: Acquisition of important tracts, such as the “Green Sea” is needed. The National Wildlife Refuge portion of this Important Bird Area has a comprehensive conservation plan in place. More extensive surveys of landbirds during breeding, migration, and winter are needed.

Birds: Great Dismal Swamp is a very important site for nesting neotropical migrant birds. It may support one of the state’s largest populations of Swainson’s Warblers but more study is needed. The Wayne’s race of the Black-throated Green Warbler was once thought to be quite common here, but recent work by the Center for Conservation Biology suggests that they are greatly reduced in the Area (Watts and Paxton 2002). This warbler still persists within the State Natural Area. The site also has large numbers of other warblers uncommon near the coast, such as American Redstart and Louisiana Waterthrush. It is one of the state’s best examples of bird communities of nonriverine swamp forest, nonriverine forested wetland, pocosin, and Atlantic white cedar forest (Criterion NC4).

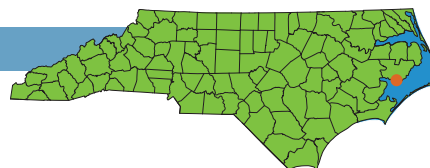
Monitoring and Research: The Dismal Swamp Breeding Bird Survey route includes a portion of the perimeter of this area but is limited to where there is road access.

Key Bird Species

Criterion	Species	Season	Average Number
2b	Eastern Wood-Pewee	B	31
2b	Acadian Flycatcher	B	36
2b	Wood Thrush	B	28
2b	Prothonotary Warbler	B	42
2a	Swainson’s Warbler	B	—
2a	Black-throated Green Warbler	B	—
3g	migrant landbirds	FM, SM	—

B = breeding; FM = fall migration; SM = spring migration

Great Island



Location: Hyde County (no detailed map shown)

Total Size: 255.5 ha (631.2 acres)

Site Description: Great Island is a remote natural island located in northern Pamlico Sound. The island is primarily saltmarsh. Wrack deposited in the marsh during storm tides provides ideal nesting habitat for Forster's Terns.

Habitat: Saltmarsh.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to nesting birds, erosion, sea level rise.

Protection Status: The site is protected and managed by the North Carolina Wildlife Resources Commission.

Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from April 1 through August 31. Human disturbance is a significant concern, because disturbances can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: Great Island is a nesting site for Forster's Terns and supports the state's largest colony of this species. The number of nesting Forster's Terns has varied but has shown a steady increase in recent years. A few pairs of Common Terns also nest at the site in some years.

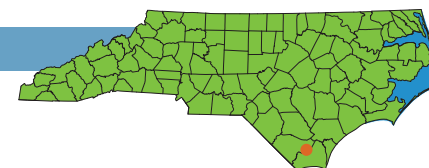
Monitoring and Research: This site is monitored by the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001-7	Avg % of NC Population 2001-7
3a	Forster's Tern	B	258 prs.	2007	25.0	100 prs.	10.2

B = breeding

Green Swamp



Location: Columbus and Brunswick Counties

Total Size: 6,402.3 ha (15,820.4 acres)

Site Description: The Green Swamp is a vast area of southeastern North Carolina between Supply and Lake Waccamaw. The Green Swamp is an area of open longleaf pine savannah interspersed with areas of dense, nearly impenetrable, shrubby pocosin. The longleaf pine savannahs of the Green Swamp are among the best examples of this community type in the United States. The pocosins are also exceptional. The area is known for its great diversity of plants, many of which are significantly rare, but it also harbors a great diversity of bird species.

Habitats: Pocosin, longleaf pine savannah.

Land Use: Wildlife conservation, other conservation, forestry, hunting.

Primary Threats: Drainage, tree cutting, conversion to agriculture and silviculture, water diversion, channelization, industrial and commercial development.

Protection Status: The Nature Conservancy has protected about 6,475 ha (16,000 acres) in its Green Swamp Preserve. Recent acquisitions of 7,284 ha (17,999 acres) by The Nature Conservancy have essentially connected the protected lands of the Waccamaw River basin with the Green Swamp. Much of the rest of the Green Swamp is in private holdings.

Conservation Issues: The Green Swamp area once extended approximately 80,940 ha (200,007 acres), but much of this has disappeared in the past few decades. Alteration of hydrology by ditching and draining threatens the entire system. Also of great concern are logging, conversion to agriculture, silviculture, industrial development, and commercial development. Concerns were raised in 2007 with the announcement of a regional landfill proposed nearby. This issue remains unresolved as the state implemented a moratorium to allow for further study of all so-called mega-dumps.

Birds: The site supports a great diversity of landbirds throughout the year. In addition to those species usually found in longleaf pine systems (see table), Prothonotary, Pine, Yellow-throated and Hooded Warblers are also relatively common. Henslow's and Bachman's Sparrows have been reported from this location, and it has been suggested as a good area for the coastal plain population of Black-throated Green Warbler, but more study is needed. This is one of the state's best examples of longleaf pine savannah and pocosin, and supports birds typical of both habitats (Criterion NC4).

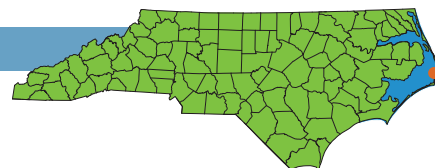
Monitoring and Research: The Green Swamp Breeding Bird Survey route lies mostly within this Important Bird Area. More extensive surveys of landbirds during breeding season, migration periods, and winter are needed.

Key Bird Species

Criterion	Species	Season	Number	Year
1	Red-cockaded Woodpecker	all	5 active clusters	2006
2b	Prairie Warbler	B	42	2006

B = breeding

Gull Island



Location: Dare County (no detailed map shown)

Total Size: 32.6 ha (80.5 acres)

Site Description: Gull Island is a remote, natural island in Pamlico Sound. It was previously the site of the Gull Island hunting club. The clubhouse burned in the early 1990s and was not reconstructed. The island is primarily marsh with small areas of shrub thicket. For at least three decades, this island has been a haven for nesting colonial waterbirds of many species, including terns, gulls, wading birds, and pelicans. Records of birds on this island date back to T. Gilbert Pearson's surveys, conducted in the early 1900s, of birds along the North Carolina coast.

Habitats: Low saltmarsh, high saltmarsh, shrubland.

Land Use: Hunting, wildlife conservation.

Primary Threats: Erosion, disturbance to nesting waterbirds.

Protection Status: The island is protected and owned by the North Carolina Wildlife Resources Commission. The island is posted and is entirely off limits to visitors during the nesting season, from April 1 to August 31.

Conservation Issues: The island is remote and not easily accessible, so human disturbance to nesting waterbirds is a minor concern. The primary concern is erosion.

Birds: The site has supported nesting colonial waterbirds for many years. It has one of the state's largest colonies of Laughing Gulls and a long history of nesting Forster's Terns. Brown Pelicans were first recorded nesting in 1993 and then throughout the 1990s, but have been absent in recent years. A few wading birds nest on the island every year, Great Egrets being the most abundant.

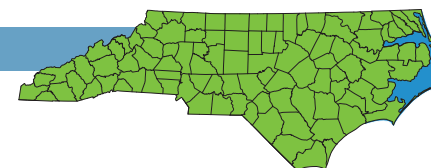
Monitoring and Research: This site is monitored by the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
3a	Great Egret	B	24 prs.	2007	1.4	18 prs.	1.0
3a	Black-crowned Night Heron	B	7 prs.	2007	4.0	3 prs.	1.4
3a	Laughing Gull	B	5,000 prs.	2007	25.0	5,155 prs.	23.2
3a	Forster's Tern	B	89 prs.	2007	8.6	45 prs.	4.5
3a	Great Black-backed Gull	B	4 prs.	2007	2.4	6 prs.	3.4
3ei	waterbirds	B	5,124 prs.	2007	—	—	—

B = breeding

Henslow's Fields



Location: Beaufort County

Total Size: 2,661.7 hectares (6,577.3 acres)

Site Description: This site is within the Voice of America installation. Habitat for breeding Henslow's Sparrows is maintained by the mowing regime implemented by the managers of the Voice of America site. This mowing regime is important for maintenance of the Voice of America site and for the Henslow's Sparrows. Access is restricted, and the area is maintained as early-successional habitat around the site.

Habitats: Wet meadow, grassland, shrubland.

Land Use: Communication towers.

Primary Threats: Disturbance to birds; suspension or diminution of consistent and regular mowing of the site outside of the nesting season.

Protection Status: About 90 percent of the site is owned and managed by the International Broadcasting Bureau for the Voice of America program.

Conservation Issues: Human use of the site is a major concern where it causes disturbance to nesting birds. Another concern is grasslands management, which should include well-timed mowing cycles.

Birds: These two fields are the best-known sites for Henslow's Sparrows in North Carolina.

Monitoring and Research: For many years, volunteer surveys have been conducted by John Wright. It is important that regular surveys continue.

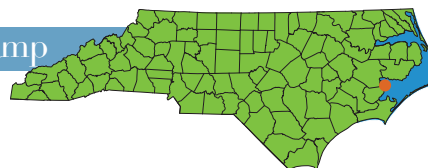
Key Bird Species

Criterion	Species	Season	Field	Number	Year	Average Number 2000–7
1	Henslow's Sparrow	B	1	45*	2007	60.3*
1	Henslow's Sparrow	B	2	23*	2007	43.3*

B = breeding

*Singing males detected on surveys

Hobucken Marshes Gum Swamp



Location: Pamlico County

Total Size: 24,447.0 ha (60,409.9 acres)

Site Description: The Hobucken Swamp–Gum Swamp site is located on the western side of Pamlico Sound, near the town of Hobucken. This site consists of a diverse array of habitat types, including longleaf pine forest, pond pine flatwoods, cypress ponds, saltmarsh (black needlerush and *Spartina*), brackish water impoundments, and nonriverine hardwood swamps. About half of the site is part of the North Carolina Wildlife Resources Commission Game Lands Program, which provides wildlife habitat and public recreational opportunities.

Habitats: Coniferous forests, deciduous forests, impoundments, and brackish marsh.

Land Use: Wildlife conservation, recreation, hunting, and forestry.

Primary Threats: Low-elevation training flights by military aircraft, introduced plants, water pollution, lead contamination near the bombing target, and residential and commercial development.

Protection Status: The North Carolina Wildlife Resources Commission protects and manages a portion of the site. The remainder is privately owned, most of it in the form of managed waterfowl impoundments, extensive irregularly flooded marsh, and adjacent forest land.

Conservation Issues: Low-elevation military training flights over marsh and impoundments present a serious threat to waterfowl and other birds. Invading plants, especially *Phragmites*, are a serious threat to the impoundments and marsh as they compete with other native plant species that

provide important food and shelter benefits to waterfowl and other shorebirds. Declines in diving and sea ducks in the area could be the result of chronic disturbance from military training activities. Another conservation issue is a great potential for water quality degradation from nearby phosphate mining, agricultural uses, and residential development (e.g., septic systems). As residential development increases in areas adjacent to the game land, some management activities (e.g., prescribed burning) will become more difficult to implement.

Birds: The site is a key area for migrating and wintering waterfowl, especially the managed impoundments. It is also important for diving and sea ducks and Horned Grebe and Common Loon. There have been significant declines in diving and sea ducks in the past 20 years. Canvasback and Scaup (spp.) once numbered in the thousands, but few remain. The causes of the declines are largely unknown, but could be related to degradation of food supply and chronic disturbance from low-flying military aircraft training at the nearby BT-9 open-water target site. Shorebirds utilize the impoundments when water levels are low. Very few bird surveys have been conducted during spring and summer months, thus breeding birds are poorly understood. It is likely that the site is significant for additional species, but spring and summer surveys need to be conducted.

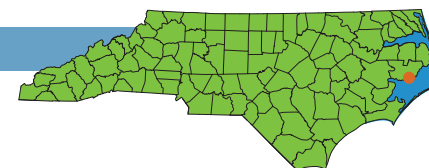
Monitoring and Research: A portion of the site is monitored by the North Carolina Wildlife Resources Commission. Midwinter waterfowl surveys are conducted by the United States Fish and Wildlife Service.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2006-9
2b	American Black Duck	FM, W	157	2009	63
3a	Gadwall	FM, W	1,735	2009	817
3a	American Wigeon	FM, W	1,890	2009	1,264
3a	Surf Scoter	W	276	2009	—
3a	Black Scoter	W	106	2009	—
3ei	American Coot	FM, W	2,724	2009	2,053
3a	Common Loon	W	419	2009	—
3a	Horned Grebe	W	79	2009	—
3b	waterfowl	FM, W	7,745	2009	5,936

FM = fall migration; W = winter

Hog Island



Location: Hyde County (no detailed map shown)

Total Size: 6.0 ha (14.7 acres)

Site Description: Hog Island is a natural estuarine island located on the northwestern side of Pamlico Sound. The island is primarily a regularly and irregularly flooded saltmarsh with a few small upland areas. Forster's Terns have used the site for many years and typically nest on wrack left in the marsh during storm tides.

Habitat: Saltmarsh.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to nesting birds.

Protection Status: The site is protected and managed by the North Carolina Wildlife Resources Commission.

Conservation Issues: Disturbance to nesting birds is a primary concern. The island is posted and patrolled to discourage disturbances, and is entirely off limits to visitors from April 1 to August 31. Human disturbance is a significant concern because disturbances can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: Hog Island is one of North Carolina's most important nesting sites for Forster's Terns and supports one of the state's largest colonies of this species. Common Terns nest here in some years. Numbers of nesting wading birds have increased in recent years, likely because of birds leaving Judith Point or Rawls Island due to erosion or changes in the plant communities on those islands. The island supports the state's second largest colony of Tricolored Herons.

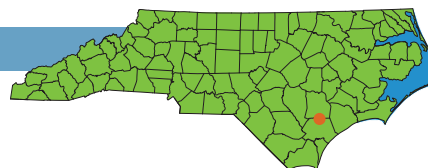
Monitoring and Research: This site is monitored by the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001-7	Avg % of NC Population 2001-7
3a	Forster's Tern	B	153 prs.	2007	14.8	156 prs.	15.9
2a	Glossy Ibis	B	82 prs.	2007	23.0	37 prs.	8.3
2b	White Ibis	B	743 prs.	2007	4.4	255 prs.	1.5
2a	Tricolored Heron	B	163 prs.	2007	16.6	69 prs.	6.5
2a	Snowy Egret	B	101 prs.	2007	25.4	36 prs.	1.4
2a	Little Blue Heron	B	66 prs.	2007	6.1	26 prs.	2.3
3eii	Laughing Gull	B	1,950 prs.	2007	9.8	1,995 prs.	9.0
3ei	waterbirds	B	3,258 prs.	2007	—	—	—

B = breeding

Holly Shelter Angola Bay



Location: Pender and Duplin Counties

Total Size: 71,673.1 ha (177,108.2 acres)

Site Description: The Holly Shelter–Angola Bay site is an area of extensive forested habitats, including pine savannahs, pocosin, and cypress swamp. Most of the site is part of the state-owned game lands system managed by the North Carolina Wildlife Resources Commission. The site has one of the state's most important longleaf pine communities and is one of the state's best examples of pocosin habitats. The site is managed primarily to provide wildlife habitat and recreational opportunities for the public (primarily hunting). Much of the site is remote and inaccessible, but a series of roads are open to the public during fall and winter seasons.

Habitats: Coniferous forest, deciduous forest, shrubland, nontidal wetland, swamp forest, river.

Land Use: Wildlife conservation, hunting, forestry.

Primary Threats: Fire suppression, introduced species.

Protection Status: The site is protected and managed by the North Carolina Wildlife Resources Commission.

Conservation Issues: Surrounding residential and commercial development isolates the state-owned game land from other habitat units. The area is subject to encroachments, due to many surrounding landowners and amount of boundary. Degradation of water quality from development and industrial uses may impact the Northeast Cape Fear River and other tributaries of the Cape Fear. This area continues to grow in conserved lands as tracts are added to state game lands and other parcels are added for conservation.

Birds: The site supports at least 36 breeding groups (2006 data) of Red-cockaded Woodpecker and has recently been recognized as a globally significant site for this species. Additional groups are suspected to exist within inaccessible pocosin habitats. The swamp forest along the Northeast Cape Fear River is thought to support significant populations of Prothonotary Warblers, Northern Parulas, Yellow-throated Warblers, and others, along with Wood Ducks and Barred Owls, but recent data is not available for these species. Much of the area is composed of pocosin habitat and support bird species associated with this habitat type (Criterion NC4). Breeding Bird Survey and eBird data indicate small populations of all three nesting nightjar species (Whip-poor-will, Chuck-will's-widow, and Common Nighthawk), but more study is needed.

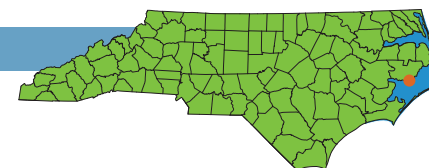
Monitoring and Research: Two Breeding Bird Survey routes are adjacent to this Important Bird Area. Species-specific surveys are needed for Bachman's Sparrow, possible breeding Henslow's Sparrow, and nightjars. Active management of longleaf pine and monitoring continues and is coordinated by the North Carolina Wildlife Resources Commission. Additional research on Red-cockaded Woodpeckers, among other species, is conducted by state agencies and universities. Surveys of breeding songbirds in the swamp forest along the Northeast Cape Fear River are needed.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2004–7
2a	Northern Bobwhite	B	54	2007	57.0
1	Red-cockaded Woodpecker	all	36+ (active clusters)	2006	—
2a	Red-headed Woodpecker	all	10	2005	4.0
2b	Brown-headed Nuthatch	all	23	2007	14.5
2b	Prairie Warbler	B	19	2007	22.0
2a	Bachman's Sparrow	all	5+	2009	—
3g	migratory landbirds	all	—	—	—

B = breeding

Judith Island Point



Location: Hyde County (no detailed map shown)

Total Size: 26.0 ha (64.2 acres)

Site Description: Judith Island Point is a natural island located in northern Pamlico Sound. The site is primarily low saltmarsh dominated by salt grass (*Distichlis spicata*) and saltmeadow cordgrass (*Spartina patens*). Forster's Terns have used the site for many years, generally nesting on wrack deposited on the marsh during storm tides.

Habitat: Saltmarsh.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to nesting birds, erosion, sea level rise.

Protection Status: The site is protected and managed by the United States Fish and Wildlife Service.

Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from April 1 to August 31. Human disturbance is a significant concern, because disturbances can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: Judith Island Point is a nesting site for Forster's Terns. Common Terns have been recorded nesting in some years. Some birds appear to be moving over to Hog Island as Judith Island continues to erode.

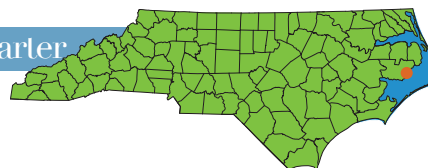
Monitoring and Research: This site is monitored by the United States Fish and Wildlife Service.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
3a	Forster's Tern	B	85 prs.	2007	8.2	57 prs.	5.8

B = breeding

Lake Mattamuskeet Swanquarter



Location: Hyde County

Total Size: 68,747.7 ha (169,879.2 acres)

Site Description: Lake Mattamuskeet National Wildlife Refuge, established in 1934, is located in Hyde County near the town of New Holland. Lake Mattamuskeet is approximately 16,200 ha (40,031 acres) in size. An additional 4,120 ha (10,181 acres) make up the rest of the refuge. Lake Mattamuskeet is best known for waterfowl. Canada Geese, Tundra Swans, and 22 species of ducks winter on and around the refuge. The lake, managed impoundments, and nearby agricultural lands provide important habitat for foraging and resting. The site has approximately 1,050 ha (2,595 acres) of managed impoundments that support waterfowl and shorebirds. The site also includes the Swanquarter National Wildlife Refuge, Gull Rock Game Lands, and privately owned tracts.

Habitats: Lake, managed impoundments, freshwater marsh, agriculture, deciduous forest, coniferous forest.

Land Use: Wildlife conservation, hunting, recreation and tourism.

Primary Threats: Alteration of lake water levels, saltwater intrusion, climate change, water pollution.

Protection Status: Most of this site is protected and managed by the United States Fish and Wildlife Service and the North Carolina Wildlife Resources Commission. The site also

includes significant private lands.

Conservation Issues: The National Wildlife Refuge portion of this Important Bird Area has a comprehensive conservation plan in place. Recent changes to lake levels have prompted the adoption of a water control plan to maintain levels high enough for recreation, vegetation growth for waterfowl forage, and for fisheries. The area around the refuges has been explored for commercial wind development.

Birds: Lake Mattamuskeet is one of North Carolina's most important sites for wintering waterfowl, especially migratory populations of Canada Geese. The forests along the fringe of the lake are excellent for landbirds during migration and winter. The extensive marshes and impoundments provide habitat for a variety of marsh birds including wintering Clapper, King, and Virginia Rails, and Sora. During low lake levels, the site supports a wide variety of migrant and wintering shorebirds, often numbering in the thousands.

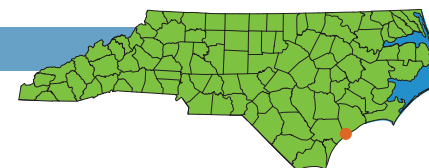
Monitoring and Research: The site is monitored by the United States Fish and Wildlife Service. Midwinter waterfowl surveys are conducted by the United States Fish and Wildlife Service. The Mattamuskeet Breeding Bird Survey route and Christmas Bird Count are within this Important Bird Area.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2004-9
3a	Canada Goose	W	7,970	2009	4,488
3a	Snow Goose	W	7,600	2009	3,483
2b	Tundra Swan	W	29,094	2009	26,470
3a	Mallard	W	1,087	2009	1,523
3a	Gadwall	W	4,497	2009	2,164
3a	Green-winged Teal	W	33,596	2009	37,910
3a	American Wigeon	W	8,881	2009	7,800
2b	American Black Duck	W	2,911	2009	3,022
3a	Northern Pintail	W	27,941	2009	25,084
3a	Northern Shoveler	W	956	2009	457
3a	Ring-necked Duck	W	25,394	2009	11,254
2b	Wood Duck	W	72	2008	232
3ei	American Coot	W	934	2009	8,091
3b	waterfowl	FM, W	151,665	2009	137,524
3d	shorebirds	FM, W	11,834	2009	—
1	Bald Eagle	all	39	2008	37
3a	Northern Harrier	W	52	2008	49
3a	American Kestrel	W	53	2008	43

FM = fall migration; W = winter

Lea-Hutaff Island



Location: Pender County

Total Size: 2,201.6 ha (5,440.7 acres)

Site Description: Lea and Hutaff Islands are undeveloped barrier islands and associated saltmarsh located between Figure 8 Island and Topsail Island. The islands were joined following the closure of Old Topsail Inlet and are characterized by dunes, swales, and overwash fans. The marsh is a tidally flooded saltmarsh and creek system with intertidal mud flats. Lea-Hutaff Island represents one of North Carolina's best barrier island habitats.

Habitats: Beach, saltmarsh, sandflat and mudflat, dune.

Land Use: Recreation and tourism, wildlife conservation, fishing.

Primary Threats: Human and dog disturbance to nesting, migratory, and wintering birds, residential development, predation.

Protection Status: The Lea Island State Natural Area, established in 2003, includes most of Lea Island. The remaining area of Lea-Hutaff Island is privately owned. The protection of Lea Island is part of a long-standing partnership between Audubon North Carolina, North Carolina Coastal Land Trust, and the State of North Carolina. In 2010, Audubon North Carolina acquired a 35.7-acre tract on Lea

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007**	Average Number 2001-7**	Avg % of NC Population 2001-7**
2a	Least Tern	B	290 prs.	2009	1.8	169 prs.	7.8
2a	Black Skimmer	FM	3,200	2009	—	—	—
2a	Black Skimmer	B	45 prs.	2009	4.5	61 prs.	9.9
2a	Common Tern	FM	1,250	2008	—	—	—
2a	Common Tern	B	13 prs.	2009	0.2	5 prs.	2.1
1	Piping Plover	FM	39	2008	—	—	—
1	Piping Plover	B	4 prs.	2009	6.3	4 prs.	—
3d	shorebirds	FM, SM, W	2,400	2008	—	—	—
2a	Wilson's Plover	B	14 prs.	2009	2.4	25 prs.	14.0
2a	Wilson's Plover	FM	32	2008	—	—	—
2a	American Oystercatcher	B	12 prs.	2009	1.8	10 prs.	3.2
2a	Red Knot	SM	113	2009	—	—	—
2a	American Bittern	FM, W	7-12	2008	—	—	—
2b	Nelson's Sparrow	FM, W	82	2007	—	—	—
1	Saltmarsh Sparrow	FM, W	41	2007	—	—	—
2a	Seaside Sparrow	FM, W	51	2007	—	—	—

B = breeding; FM = fall migration; SM = spring migration; W = winter

**2007 was the last coastwide census and thus the last state population estimate. Data presented are the most recent (2009), but the population and averages cover only 2001-7, for which statewide population estimates were available.

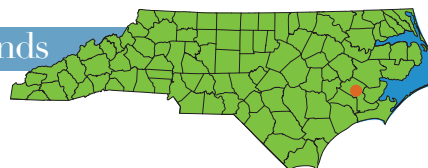
Island that nearly doubled the acreage already protected. Audubon North Carolina monitors the site year round.

Conservation Issues: Both islands have heavy recreational use during the warmer months, especially during breeding season. Audubon posts and patrols the waterbird and shorebird nesting areas.

Birds: This excellent example of a barrier island system hosts a complete assemblage of species associated with that habitat type (Criterion NC4). The site supports thousands of shorebirds during migration and winter, hundreds of beach-nesting seabirds and shorebirds, wading birds, waterfowl, and marsh birds. It is the southernmost regular breeding site for Piping Plover; six individually banded plovers from the Great Lakes population have been recorded during migration and winter. Clapper Rails, Saltmarsh Sparrow, Nelson's Sparrow, and Seaside Sparrow are abundant. This Important Bird Area is a globally significant site for Saltmarsh Sparrow.

Monitoring and Research: Audubon North Carolina monitors the site. Studies of Seaside, Nelson's, and Saltmarsh Sparrows are conducted by the University of North Carolina at Wilmington. Shorebird surveys are ongoing.

Lower Neuse River Bottomlands



Location: Craven County

Total Size: 17,700.7 ha (43,739.3 acres)

Site Description: The Neuse River originates in Person County and flows approximately 320 km (199 miles) to Pamlico Sound. The lower Neuse River Bottomlands Important Bird Area includes the area along the Neuse in Craven County between New Bern and Grifton. The site consists of extensive cypress and bottomland hardwood forest bordered by pine forest along the Neuse River. Weyerhaeuser's Cool Springs Environmental Education Center is also part of the site. The lower Neuse is among the most diverse areas on the North Carolina coast.

Habitats: Bottomland hardwood forest, cypress-tupelo-gum swamp forest, pine forest, mixed hardwood forest, agriculture.

Land Use: Wildlife conservation, other conservation, education, hunting, and logging.

Primary Threats: Water quality (pollution, sedimentation, disease), introduced species, cowbird parasitism.

Protection Status: The site includes an area of approximately 690 ha (1,705 acres) called Cool Springs, which is protected and managed by Weyerhaeuser, Inc. It also includes the Neuse River Game Lands. The majority of the site is privately owned. Organizations such as the Neuse River Foundation are working to protect and improve water quality throughout the Neuse River basin.

Conservation Issues: The Neuse River has been listed among the 10 most threatened rivers in North America (2007). Excessive nutrients, primarily nitrogen, in addition to organics and sediments from runoff and other sources, threaten water quality in the river. Swamp forests within this Important Bird Area are essential to North Carolina's birds. More extensive surveys of landbirds, waterbirds, and waterfowl during breeding season, migration periods, and winter are needed. As recently as late summer 2009, over 20 million fish died from low oxygen levels along the lower Neuse.

Birds: This site has significant acreage of cypress-tupelo-gum swamp forest and supports the suite of species associated with these natural communities (Criterion NC4). It also supports a significant concentration and diversity of neotropical migrant landbirds. Over 100 species have been recorded at Weyerhaeuser's Cool Springs Environmental Education Center, including 20 species of warbler, 12 of which breed on the site. Recent data on the abundance of birds is not available.

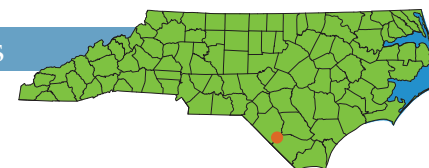
Monitoring and Research: A portion of this site is monitored as part of Weyerhaeuser's Cool Springs Environmental Education Center. Some general inventories of breeding birds have been conducted in the past, but more detailed surveys for birds are needed.

Key Bird Species

Criterion	Species	Season	Number
2b	Prothonotary Warbler	B	—
2a	Swainson's Warbler	B	—
3a	Summer Tanager	B	—
2b	Wood Duck	all	—
2b	Wood Thrush	B	—
2b	Northern Parula	B	—
2b	Hooded Warbler	B	—
3g	migratory landbirds	SM, FM	—

B = breeding; FM = fall migration; SM = spring migration

Lumber River Bottomlands



Location: Robeson and Columbus Counties

Total Size: 30,234.9 ha (74,712.0 acres)

Site Description: The Lumber River is a winding blackwater river that originates in the Sandhills region of North Carolina then flows through the southern coastal plain and into the Pee Dee River in South Carolina, and eventually to the Atlantic. The river is designated a State Natural and Scenic River and a National Wild and Scenic River [130 km (81 miles)]. The Lumber River has a long history of habitation by pre- and post-Columbian Native Americans, who apparently called the river "Lumbee." It was not until 1809 that the river's name was officially changed to "Lumber," likely reflecting the heavy use of the river for transportation of timber products. Like many riverine forests in the coastal plain of North Carolina, the forest along the Lumber River was heavily logged in the early 1900s. Nevertheless, the river's extensive second-growth forest is important to birds associated with the various habitat types within the floodplain.

Habitats: Bottomland hardwood forest, cypress-tupelo-gum swamp forest, blackwater river.

Land Use: Wildlife conservation, other conservation, hunting, fishing, recreation.

Primary Threats: Introduced species, logging, water pollution.

Protection Status: The site includes Lumber River State Park, other conservation lands, and extensive private holdings.

Conservation Issues: Logging and conversion of forest to other uses is a threat to birds and bird habitats. Water quality, including point and non-point source pollution, is a concern. Recent additions to Lumber River State Park have protected important habitats for birds.

Birds: This bottomland system provides excellent habitat for breeding and migrating songbirds, breeding Wood Ducks, and waterbirds associated with bottomland forest habitats. The bottomland hardwood forest and cypress-tupelo-gum swamp forest are extensive and excellent examples of these habitat types (Criterion NC4). Recent surveys have documented over 120 species of birds for the site and more than 70 species during the breeding season. Northern Parula, Prothonotary, and Yellow-throated Warblers are well represented at high densities, as well as other species typical of this habitat type.

Monitoring and Research: A portion of this site is monitored by North Carolina State Parks. In 2008, inland heronry surveys were completed by the North Carolina Wildlife Resources Commission via aerial counts followed by ground-truthing.

Key Bird Species

Criterion	Species	Season	Number	Year
1	Wood Stork	Spring, summer nonbreeding	21	2008
3a	Anhinga	B	100+	2008
3a	Cattle Egret	B	295	2008
2b	Wood Duck	all	350	2008
2b	Northern Parula	B	34	2009
2b	Prothonotary Warbler	B	54	2009

B = breeding

Mackay Island

Location: Currituck County

Total Size: 3,059.0 ha (7,559.0 acres)

Site Description: This site includes the Mackay Island National Wildlife Refuge, located on Knotts Island, and privately owned tracts outside of the refuge. The refuge was established in 1960 for migrant and wintering waterfowl, but it provides habitat for many species of marsh birds and wading birds as well. The key feature of the refuge is Great Marsh, which is brackish marsh dominated by cattail (*Typha spp.*), black needlerush, and giant cordgrass. Managed impoundments provide additional habitat for birds.

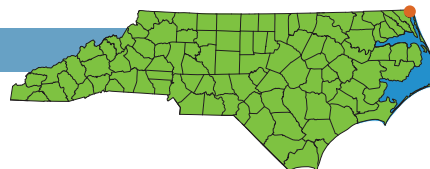
Habitats: Brackish marsh, managed impoundments, mixed forest, agricultural lands.

Land Use: Wildlife conservation.

Primary Threats: Nonnative plants, water quality, sea level rise.

Protection Status: Most of the site is protected and managed by the United States Fish and Wildlife Service.

Conservation Issues: The refuge itself has few conservation issues. Water levels in the managed impoundments are maintained at optimum levels for waterfowl and other birds. The marsh is burned periodically to improve habitat for waterfowl. Outside of the refuge, water quality associated with increased turbidity and introduction of salt water is one



of the greatest issues. Audubon North Carolina, The Nature Conservancy, and other organizations have formed the Albemarle-Pamlico Conservation and Communities Cooperative to plan for conservation in the region, including planning for sea level rise. The National Wildlife Refuge portion of this Important Bird Area has a comprehensive conservation plan in place. Further studies of water quality in northern Currituck Sound are warranted.

Birds: Mackay Island National Wildlife Refuge supports significant concentrations of wintering waterfowl. Snow Goose is the most abundant species. The site is probably one of the state's best sites for brackish marsh birds such as King Rails, Virginia Rails, and Least Bitterns.

Monitoring and Research: This site is monitored by the United States Fish and Wildlife Service. Midwinter waterfowl surveys are conducted intermittently at this refuge. Staff with the Southeast GAP program have been field-testing methods used to predict distribution of cryptic and hard-to-detect species using King Rail as the study species here since 2007.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2004-7
3b	Snow Goose	W	1,400	2007	7,783
3b	American Black Duck	W	1,057	2007	1,282
3b	Green-winged Teal	W	108	2007	1,315
3b	Northern Pintail	W	329	2007	1,051
2b	Tundra Swan	W	475	2007	343
3b	waterfowl	W	5,297	2007	14,917
2b	King Rail	all	—	2009	—
2b	Least Bittern	B, SM	—	2009	—
3a	Virginia Rail	all	—	2009	—

B = breeding; SM = spring migration; W = winter

Masonboro Island

Location: New Hanover County

Total Size: 1,955.4 ha (4,831.9 acres)

Site Description: Masonboro Island is a low-lying, undeveloped barrier island 13 km (8 miles) long, located between Wrightsville Beach and Carolina Beach. It is one of the few remaining undeveloped and relatively undisturbed barrier islands along North Carolina's coast. The barrier island and associated tidal marshes, creeks, and bays provide a diverse array of habitats for many species of birds throughout the year. A jetty built to maintain a navigable channel in Masonboro Inlet is one of the few places in North Carolina with wintering Purple Sandpipers and often a Great Cormorant or two. At the same time, the jetty causes accelerated erosion on the beachfront, which must receive dredged sand periodically to replace sand lost to erosion. Masonboro Island is a popular destination for recreational pursuits throughout the year.

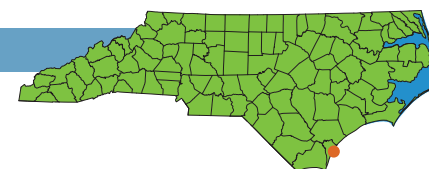
Habitats: Barrier beach and dune, saltmarsh and estuary, sandflat and mudflat, maritime shrub thicket, dredged-sand disposal areas.

Land Use: Conservation, recreation, wildlife conservation, dredged-material deposition.

Primary Threats: Disturbance to birds, recreational overuse, introduced and overabundant mammalian predators.

Protection Status: The site is protected and managed by the North Carolina National Estuarine Research Reserve program.

Conservation Issues: Disturbance to nesting birds is a critical



concern. The island has heavy recreational use during the warmer months, especially on the northern and southern ends. This use has displaced nesting birds. In recent years, recreational use and unleashed pets appear to be increasing in the more remote areas of the island. This presents a significant problem for beach-nesting birds that have already abandoned the more heavily used areas of the island. Abundant raccoons and red foxes threaten nesting shorebirds and waterbirds. Most nesting shorebirds and waterbirds are not successful at fledging chicks.

Birds: Masonboro Island supports the suite of bird species typically associated with barrier island habitats (Criterion NC4). It is a key site for migrating and wintering shorebirds. Wilson's Plover, American Oystercatcher, and Willets are abundant and nest throughout the site; no formal surveys have been conducted for these species. It is an important site for migrating and wintering Seaside, Nelson's, and Saltmarsh Sparrows. Clapper Rails are abundant throughout the marsh year-round; Sora and Virginia Rails are present as well.

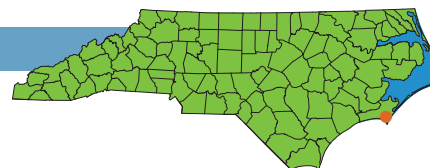
Monitoring and Research: This site is managed and monitored by the North Carolina National Estuarine Research Reserve, with periodic monitoring by Audubon North Carolina. Research on marsh sparrows continues through the University of North Carolina at Wilmington. In addition, research on water quality, sea turtle monitoring, and invasive plant species is conducted through the North Carolina National Estuarine Research Reserve program and other partners.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001-7	Avg % of NC Population 2001-7
1	Piping Plover	W	3	2009	—	—	—
2a	Wilson's Plover	B	21 prs.	2007	—	—	—
2a	Red Knot	SM	27	2009	—	—	—
2a	Black Skimmer	FM	2,500	2009	—	—	—
2a	Black Skimmer	B	0 prs.	2007	0	18 prs.	2.80
2a	Least Tern	B	2 prs.	2007	—	81 prs.	3.00
3d	shorebirds	FM, W, SM	3,000	2007	—	—	—
2a	American Oystercatcher	B	42 prs.	2007	—	—	—
2b	Seaside Sparrow	FM, W	100	2007	—	—	—
2b	Nelson's Sparrow	FM	70	2007	—	—	—
1	Saltmarsh Sparrow	FM, W	27	2007	—	—	—

B = breeding; FM = fall migration; SM = spring migration; W = winter

Middle Marsh



Location: Carteret County (no detailed map shown)

Total Size: 311.6 ha (769.9 acres)

Site Description: Middle Marsh is a series of marsh islands located between Beaufort and Harkers Island. The entire marsh complex is a component of the Rachel Carson Estuarine Reserve. Most of the site is regularly flooded saltmarsh dominated by smooth cordgrass (*Spartina alterniflora*). The site has two elevated areas with shrub thickets.

Habitats: Shrub thicket, saltmarsh.

Land Use: Wildlife conservation, fishing, hunting.

Primary Threats: Disturbance to birds.

Protection Status: The site is protected and managed by the North Carolina National Estuarine Research Reserve program.

Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from April 1 to August 31. Disturbance to nesting birds is a primary concern. Surveys for marsh birds during migration and winter are needed.

Birds: The site has long supported nesting waterbirds. For many years, shrub thickets supported a mixed species colony of wading birds, but numbers have dwindled to just a few in recent years. Forster's Terns have nested on wrack in the marsh for about 20 years. The site supports the third largest colony of Forster's Terns in North Carolina.

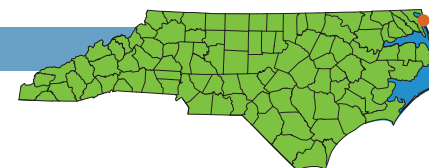
Monitoring and Research: This site is monitored by the North Carolina National Estuarine Research Reserve program.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
2a	American Oystercatcher	all	11 prs.	2007	3.2	6 prs.	1.7
3a	Forster's Tern	B	105 prs.	2007	10.2	58 prs.	5.9
3a	Black-crowned Night Heron	B	10 prs.	2007	5.6	—	—
3a	Great Egret	B	38 prs.	2007	1.8	18 prs.	2.3

B = breeding

Monkey Island



Location: Currituck County (no detailed map shown)

Total Size: 6.0 ha (14.8 acres)

Site Description: Monkey Island is a remote natural island located in the middle of Currituck Sound. The island was once the site of the Monkey Island Hunting Club, whose building remains standing. Approximately half of the island is forest dominated by pine, live oak, red cedar, and yaupon. The site has long supported a large colony of wading birds.

Habitats: Shrub thicket.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to birds, erosion, and recreational development and overuse.

Protection Status: The site is currently under the jurisdiction of the North Carolina National Estuarine Research Reserve program.

Conservation Issues: The island is surrounded by a wooden bulkhead that protects it from erosion. The bulkhead is in need of repair: it has collapsed in many places, and in those places the shore is eroding. A second issue is human disturbance, which can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: Monkey Island supports a mixed-species wading bird colony that includes Great Egret, Snowy Egret, Little Blue Heron, Tricolored Heron, Cattle Egret, and Glossy Ibis. It is North Carolina's northernmost wading bird colony and the only such colony in Currituck Sound. The site supported the state's largest colony of Little Blue Herons and Great Egrets in 2007, and the third largest colony of Snowy Egrets and Glossy Ibis.

Monitoring and Research: This site is monitored by the United States Fish and Wildlife Service and the North Carolina National Estuarine Research Reserve program.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
3a	Great Egret	B	751 prs.	2007	36.4	635 prs.	34.8
2a	Little Blue Heron	B	332 prs.	2007	29.6	307 prs.	24.5
2a	Snowy Egret	B	69 prs.	2007	17.4	86 prs.	22.2
3a	Cattle Egret	B	74 prs.	2007	6.8	96 prs.	19.2
2a	Glossy Ibis	B	80 prs.	2007	22.5	69 prs.	16.1
2a	Tricolored Heron	B	20 prs.	2007	2.0	19 prs.	1.6
3ei	waterbirds	B	1,327 prs.	2007	—	1,183 prs.	—

B = breeding

Morgan Island

Location: Carteret County (no detailed map shown)

Total Size: 22.5 ha (55.5 acres)

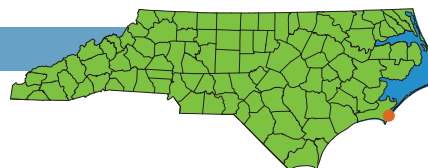
Site Description: Morgan Island is a small island near Cape Lookout. The upland portion of the island was built of dredged sand. Because more than 10 years have elapsed since the last deposit of dredged sand, significant shrub thickets have developed. These thickets support several thousand nesting wading birds annually.

Habitats: Shrubland, bare sand, grassland, saltmarsh.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to birds.

Protection Status: The site is protected by the National Park Service.



Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from April 1 to August 31. It is in an area of high watercraft usage, so human disturbances are a concern. Human disturbance can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: Morgan Island has long supported nesting wading birds and other waterbirds. The site currently has 10 species of nesting colonial waterbirds and approximately 2,000–2,500 nesting pairs. The site supports the state's second largest colony of White Ibis and Little Blue Herons.

Monitoring and Research: This site is monitored by the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
2a	Little Blue Heron	B	307 prs.	2007	27.6	412 prs.	25.1
2a	Tricolored Heron	B	84 prs.	2007	8.5	326 prs.	22.0
3a	Cattle Egret	B	113 prs.	2007	10.5	102 prs.	15.4
3a	Great Egret	B	128 prs.	2007	6.2	180 prs.	9.9
2a	Snowy Egret	B	5 prs.	2007	1.3	40 prs.	10.2
2b	White Ibis	B	1,442 prs.	2007	8.5	955 prs.	5.9
3a	Herring Gull	B	73 prs.	2007	11.6	56 prs.	8.2
2a	Glossy Ibis	B	10 prs.	2007	2.8	15 prs.	3.3
3a	Black-crowned Night Heron	B	54 prs.	2007	30.5	67 prs.	27.5
3ei	waterbirds	B	2,216 prs.	2007	—	2,820 prs.	—

B = breeding

New Dump Island

Location: Carteret County (no detailed map shown)

Total Size: 29.2 ha (72.0 acres)

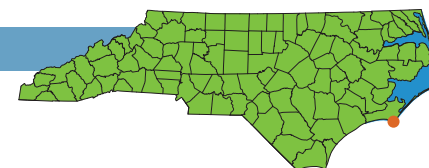
Site Description: New Dump Island is an artificial, undiked, dredged-material island in Core Sound. The island has supported a wide variety of colonial waterbirds over the years, depending on sand renourishment frequency. In recent years, storms and management by the North Carolina Wildlife Resources Commission have created ideal early-successional habitat that supports nesting pelicans, terns, and skimmers.

Habitats: Dredged sand, sparse to moderate-density vegetation.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to birds, erosion.

Protection Status: The site is protected and managed by the North Carolina Wildlife Resources Commission.



Conservation Issues: The availability of sand to maintain the island and early-succession nesting habitat is a concern. The island is posted and patrolled from April 1 to August 31 to prevent disturbance to nesting birds. Human disturbance is a significant concern, because disturbances can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: New Dump Island has experienced significant changes in recent years. The island has supported large colonies of ground-nesting waterbirds including Brown Pelicans, terns, and skimmers, but few terns and skimmers nested in 2007. This was likely the result of vegetation succession. This is still one of the state's most frequented islands for nesting waterbirds. It supported the state's second-largest colony of Brown Pelicans in 2007.

Monitoring and Research: This site is monitored by the North Carolina Wildlife Resources Commission. Royal Tern and Sandwich Tern chicks have been banded annually for many years.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
2b	Royal Tern	B	10 prs.	2007	<0.1	1,076 prs.	9.2
2b	Sandwich Tern	B	0 prs.	2007	0.0	347 prs.	10.9
2a	Brown Pelican	B	617 prs.	2007	17.9	827 prs.	17.2
1	Gull-billed Tern	B	1 pr.	2007	1.1	31 prs.	13.2
2a	Common Tern	B	2 prs.	2007	0.4	22 prs.	2.5
2a	Black Skimmer	B	16 prs.	2007	2.4	21 prs.	3.5
3a	Great Egret	B	20 prs.	2007	1.0	6 prs.	0.3
3a	Herring Gull	B	33 prs.	2007	5.2	12 prs.	1.9
2a	Snowy Egret	B	16 prs.	2007	4.0	7 prs.	1.9
3a	Black-crowned Night Heron	B	7 prs.	2007	4.0	2 prs.	1.4
3a	Cattle Egret	B	20 prs.	2007	1.9	6 prs.	0.6
3ei	waterbirds	B	773 prs.	2007	—	2,275 prs.	—

B = breeding

North Pelican Island

Location: New Hanover County (no detailed map shown)

Total Size: 81.3 ha (200.9 acres)

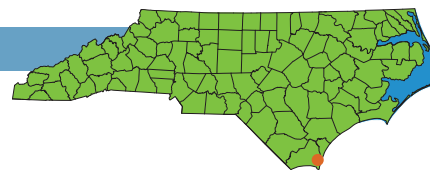
Site Description: North Pelican Island comprises in fact several islands, located in the lower Cape Fear River, south of Wilmington. The cluster is located along the Cape Fear River channel and has received deposits of dredged sand in the distant past. No recent deposit of dredged sand has occurred, as a result of which shrub thickets have formed on the uplands. These shrub thickets have supported nesting wading birds for many years. The site is posted and patrolled, and is off limits to all visitors.

Habitats: Saltmarsh, shrubland.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to nesting birds.

Protection Status: The site is protected and managed by Audubon North Carolina and the North Carolina Wildlife Resources Commission.



Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from April 1 to August 31. Human disturbance is a significant concern, because disturbances can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: The North Pelican Island complex supports nesting wading birds, Brown Pelicans, and Laughing Gulls. Nine species of wading birds nest on the site. In 2007 the site supported the state's largest colony of nesting Brown Pelicans. In 2008 and 2009, White Ibis from the Battery Island colony moved to this site. The uplands are surrounded by contiguous high and low saltmarsh forming one island. Marsh Wrens nest in the marsh, along with Clapper Rails. Several pairs of Willets and American Oystercatchers also breed on the site.

Monitoring and Research: This site is monitored by Audubon North Carolina in cooperation with the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
2a	Brown Pelican	B	723 prs.	2007	20.9	713 prs.	16.8
3a	Great Egret	B	76 prs.	2007	4.5	133 prs.	7.3
2a	Snowy Egret	B	40 prs.	2007	19.2	59 prs.	15.0
2a	Tricolored Heron	B	72 prs.	2007	7.4	90 prs.	6.9
3a	Black-crowned Night Heron	B	10 prs.	2007	5.6	16 prs.	6.4
3a	Cattle Egret	B	207 prs.	2007	43.2	89 prs.	19.5
3ei	waterbirds	B	1,136 prs.	2007	—	1,126 prs.	—

B = breeding

North Rock Island

Location: Carteret County (no detailed map shown)

Total Size: 55.3 ha (136.6 acres)

Site Description: North Rock Island is a natural estuarine island located in southeastern Pamlico Sound. The island is a National Audubon Society Sanctuary and has a long history of use by nesting colonial waterbirds.

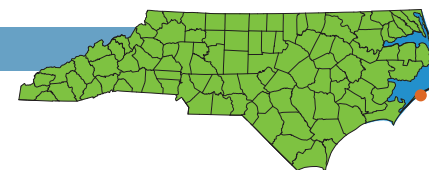
Habitats: High saltmarsh, oyster shell “rakes.”

Land Use: Wildlife conservation.

Primary Threats: Erosion, disturbance to nesting birds.

Protection Status: The site is protected and managed by the Audubon North Carolina.

Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from March 15 to September 1. Erosion and disturbance to nesting birds are primary concerns. The number of nesting Herring and Great Black-backed Gulls continues to increase. The impact of these gulls on other nesting waterbirds should be studied.



Birds: North Rock Island has long been a nesting site for wading birds, terns, and gulls. Forster's Terns nest in most seasons, but did not nest in 2007. American Oystercatchers breed and winter on the island, with eight nesting pairs in 2009. The island has eroded significantly and broken into fragments in recent years. It is progressively becoming less suitable for wading birds as shrub thickets disappear. This has likely contributed to the decline in the number of nesting wading birds in recent years. Royal and Sandwich Terns nest on the island inconsistently. The intertidal sand and mud flats surrounding the island support many shorebirds and waterbirds during migration. Shallow grass flats surrounding the island support one of the state's largest concentrations of wintering Brant.

Monitoring and Research: This site is monitored by Audubon North Carolina. Research is ongoing on waterbirds and shorebirds.

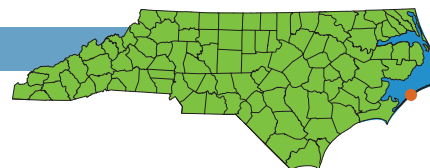
Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
2b	Brant	W	582	2009	—	—	—
3a	Forster's Tern	B	18 prs.	2004	2.2 *	13 prs.	1.3
1	Common Tern	B	43 prs.	2007	8.6	—	—
3a	Great Black-backed Gull	B	3 prs.	2007	1.8	5 prs.	2.7
3a	Herring Gull	B	14 prs.	2007	2.2	32 prs.	4.4
2a	American Oystercatcher	B	8 prs.	2009	—	—	—

B = breeding; W = winter

*Percentage of NC population 2004

Ocracoke Village Heronry



Location: Hyde County (no detailed map shown)

Total Size: 4.0 ha (9.9 acres)

Site Description: The Ocracoke Village Heronry is located on the outskirts of Ocracoke Village at Horse Pen Point. The original Ocracoke Village heronry colony was discovered near Springer's Point in the late 1980s. For more than two decades wading birds nested at this site, a stand of red cedars and wax myrtle with scattered pines surrounded by low and high marsh. The colony had been declining for several years and, in 2007, most wading birds from the Springer's Point site moved to the northeastern side of the village at Horse Pen Point. In 2009, the Horse Pen Point colony remained active.

Habitats: Shrub thicket, saltmarsh.

Land Use: Wildlife conservation, recreation and tourism.

Primary Threats: Disturbance to birds, predation, recreational overuse.

Protection Status: The North Carolina Coastal Land Trust purchased about half of the Springer's Point colony site for conservation in 2003. The remaining acreage is privately owned. The site was difficult to reach and was not posted or protected from human disturbances. The new location at Horse Pen Point is privately owned in part, and in part National Park Service property. It is not posted.

Conservation Issues: Disturbances from local tours and others visiting the heronry is a concern. The colony site should be posted, and human disturbances should be strongly discouraged. In addition, the portion of the site in private ownership should be acquired and protected. Predation from raccoons and possibly feral cats has never been investigated, but both are present in the vicinity and could have contributed to the decline in the Springer's Point colony. These predators may eventually threaten the colony at Horse Pen Point.

Birds: The Springer's Point colony has supported a mixed-species wading bird colony since at least 1989. The wading birds moved to the new site at Horse Pen Point in 2007, where they continue to nest. The number of nesting wading birds increased through the 1990s, but has declined in the past five years. Nevertheless, the new site remains important for nesting wading birds.

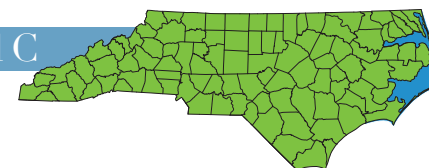
Monitoring and Research: This site is monitored by local volunteers.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
3a	Great Egret	B	23 prs.	2007	1.1	23 prs.	1.2
2a	Snowy Egret	B	11 prs.	2007	2.8	15 prs.	3.5
2a	Tricolored Heron	B	14 prs.	2007	1.4	21 prs.	1.4
2a	Little Blue Heron	B	61 prs.	2007	5.5	46 prs.	3.7
3a	Black-crowned Night Heron	B	12 prs.	2007	6.8	15 prs.	6.1

B = breeding

Old House Channel, Island C



Location: Dare County (no detailed map shown)

Total Size: 54.1 ha (133.6 acres)

Site Description: Island C is an undiked, dredged-material island located in northeastern Pamlico Sound, near Oregon Inlet. The site consists of fairly dense shrub thickets dominated by wax myrtle. It is rarely used for the deposition of dredged material and depositing any would jeopardize the existence of nesting habitat for wading birds.

Habitats: Shrubland, bare sand, grassland.

Land Use: Hunting, recreation.

Primary Threats: Disturbance to birds, erosion.

Protection Status: The site is in undetermined ownership and is not afforded protection.

Conservation Issues: Protection of habitats used by nesting waterbirds should be a priority for this island. Human disturbance is a significant concern, because disturbances can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: In the past, the site supported a large colony of nesting wading birds. It was the second largest colony of White Ibises in the state in 2001. After 2001, the number of wading birds on this site began to decline. By 2007, White Ibis, Great Egret, Tricolored Heron, Snowy Egret, and Little Blue Heron had disappeared. The shoals northeast of the island are sometimes used by wintering Piping Plovers.

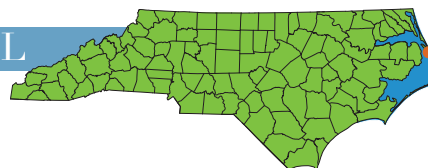
Monitoring and Research: This site is monitored by the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
3a	Black-crowned Night Heron	B	15 prs.	2007	8.5	8 prs.	4.1
2b	White Ibis	B	509 prs.	2001	3.0	170 prs.	1.0
2a	Tricolored Heron	B	85 prs.	2001	7.0	28 prs.	2.3
2a	Snowy Egret	B	5 prs.	2001	1.4	—	—
2a	Little Blue Heron	B	91 prs.	2001	6.7	—	—

B = breeding

Old House Channel, Island L



Location: Dare County (no detailed map shown)

Total Size: 47.4 ha (117.2 acres)

Site Description: Island L is an undiked, dredged-material island located in northeastern Pamlico Sound. The island consists of two or more high domes of dredged sand, grass, and a fringe of shrubs. It has long been used by nesting waterbirds.

Habitats: Shrubland, bare sand, grassland.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to birds.

Protection Status: Part of the site is protected and managed by the North Carolina Wildlife Resources Commission and part is privately owned.

Conservation Issues: The island is posted during the nesting season, from April 1 to August 31. Disturbance to nesting birds is a primary concern.

Birds: The site has been a key nesting site for Brown Pelicans and other waterbirds. Brown Pelicans have moved to Old House Channel, Island MN. This island supported the state's second largest colony of Herring Gulls and largest colony of Great Black-backed Gulls in 2007. This is one of only three sites where Caspian Terns nested in 2007.

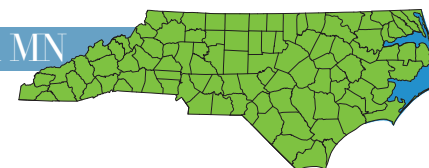
Monitoring and Research: This site is monitored by the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
2b	Royal Tern	B	666 prs.	2004	4.9	742 prs.	4.1
2b	Sandwich Tern	B	8 prs.	2004	<0.1	129 prs.	4.0
2a	Caspian Tern	B	2 prs.	2007	13.3	12 prs.	58.0
3a	Black-crowned Night Heron	B	2 prs.	2007	1.1	12 prs.	1.0
3a	Great Black-backed Gull	B	53 prs.	2007	32.1	27 prs.	15.9
3a	Herring Gull	B	100 prs.	2007	15.9	227 prs.	28.7
3ei	Waterbirds	B	157 prs.	2007	—	1,172 prs.	—

B = breeding

Old House Channel, Island MN



Location: Dare County (no detailed map shown)

Total Size: 44.0 ha (106.6 acres)

Site Description: The site is an undiked, dredged-material island located in northeastern Pamlico Sound. Island MN was once two separate islands that were joined by the deposition of dredged material. It consists of two or more high domes of dredged sand, grassland, and a fringe of shrubs. The island has long been used by nesting waterbirds.

Habitats: Shrubland, bare sand, grassland.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to birds.

Protection Status: The site is protected and managed by the North Carolina Wildlife Resources Commission.

Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from April 1 to August 31. Disturbance to nesting birds is a primary concern.

Birds: The site is a key nesting site for Brown Pelicans and supports the state's largest colony of this species. When habitat is appropriate, usually following the deposition of dredged sand, the site has supported a large colony of Royal and Sandwich Terns. American Oystercatchers nest on the island. This is one of only three nesting sites for Caspian Terns. It supported the state's largest colony of nesting Herring Gulls in 2007.

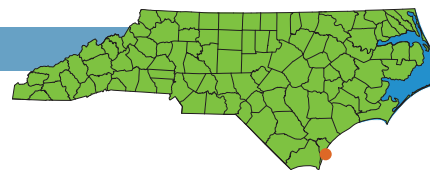
Monitoring and Research: This site is monitored by the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
2a	Caspian Tern	B	6 prs.	2007	40.0	2 prs.	13.3
2a	Brown Pelican	B	757 prs.	2007	32.5	1,220 prs.	24.5
3a	Herring Gull	B	125 prs.	2007	19.8	54 prs.	7.4
3a	Great Black-backed Gull	B	25 prs.	2007	15.2	29 prs.	16.7
3ei	waterbirds	B	1,153 prs.	2007	—	1,385 prs.	—

B = breeding

Onslow Bay



Location: Inshore Atlantic Ocean waters between Topsail Inlet and Cape Fear

Total Size: 32,730.4 ha (80,878.6 acres)

Site Description: This site includes the inshore waters along the southern coast of North Carolina between Topsail Inlet and Cape Fear, the southernmost portion of an area known as Onslow Bay. The eastern and western boundaries of the site include an area of ocean from the surf zone to approximately 5 km (3 miles) offshore. The ocean area supports a diverse assemblage of birds and other marine life throughout the year.

Habitat: Inshore open ocean.

Land Use: Commercial and recreational fishing.

Primary Threats: Bycatch of birds in commercial fishing gear, entanglement of birds in discarded monofilament fishing line, offshore wind energy development.

Protection Status: The site is currently afforded no formal protection. North Carolina Marine Fisheries and the National Marine Fisheries Service govern fishing activities.

Conservation Issues: Commercial fishing activity (primarily gill nets) peaks during fall months, typically from September to late December. Studies in other areas of the mid-Atlantic coast have indicated that commercial fishing activities are responsible for the death of thousands of diving birds annually. The primary species impacted include Northern Gannet and Common Loon. Observations of commercial

fishing activities and the timing of dead birds washing ashore on local beaches suggest that bycatch of birds in commercial fishing gear should be examined. Studies of the impact of commercial fishing activities on diving and fish-eating birds in the area are needed. Surveys of waterbirds using the site during breeding and migration seasons are needed. North Carolina is forming a task force to work with the United States Office of Minerals and Mines to formulate guidelines for offering leases for wind energy development and natural gas exploration that could impact this area.

Birds: This site is important for coastal birds throughout the year. During spring and summer months, the site is a key foraging area for terns nesting on nearby beaches and islands. During migration, the site is a foraging area for many species of gulls and terns, as well as a key migration corridor for loons and sea ducks. During winter months, the site may support North Carolina's largest population of Common Loons and a significant number of wintering Red-throated Loons. These birds move throughout the site depending on the location of forage fish.

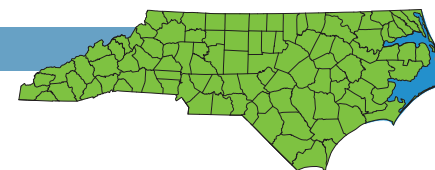
Monitoring and Research: A portion of this area is included in the Wilmington Christmas Bird Count circle. More research is needed.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2005-9
3a	Black Scoter	W	67	2009	1,038
3a	Red-breasted Merganser	W	239	2009	1,124
3a	Red-throated Loon	W	2,189	2009	2,099
3a	Common Loon	W	357	2009	1,183
3a	Northern Gannet	W	691	2009	1,350
3a	Brown Pelican	W	1,388	2009	1,698
3a	Double-crested Cormorant	W	2,667	2009	2,338
3a	Bonaparte's Gull	W	211	2009	1,110
3a	Herring Gull	W	620	2009	1,314
3a	Great Black-backed Gull	W	93	2009	1,051

W = winter

Oregon Inlet Shoals



Location: Dare County (no detailed map shown)

Total Size: 139.5 ha (344.7 acres)

Site Description: The Oregon Inlet shoals (also known as Green Island) are located immediately southwest of Oregon Inlet in Dare County. These shoals change shape and even location every year, depending on storms. Nevertheless, as long as some portion of the shoal remains exposed during the nesting season, the exposed sand becomes ideal for nesting terns and skimmers. Because this type of habitat has become increasingly in short supply, these dynamic shoals have become exceedingly important for nesting birds.

Habitats: Sandflat, exposed sand shoal.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to birds, erosion.

Protection Status: The site is posted and monitored by the National Park Service.

Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from March 15 until two weeks after nesting is completed. Disturbance to nesting birds remains a concern. Another serious concern is the alteration of natural sand transport through Oregon Inlet by construction of a terminal groin and channelization of the inlet.

Birds: These shoals change often depending on storms, but are generally present every year. The site provides ideal early-succession habitat for nesting terns and migrating Piping Plovers. The site supported North Carolina's second largest colonies of Common Terns in 2007. American Oystercatchers also nest at the site.

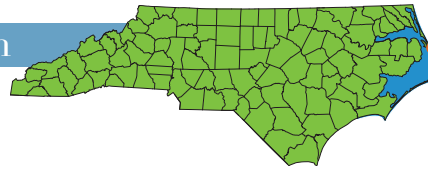
Monitoring and Research: This site is monitored by the National Park Service in cooperation with the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001-7	Avg % of NC Population 2001-7
1	Gull-billed Tern	B	6 prs.	2007	6.7	7 prs.	6.9
2a	Black Skimmer	B	10 prs.	2007	1.8	31 prs.	5.4
2a	Common Tern	B	87 prs.	2007	17.5	156 prs.	22.5
1	Piping Plover	W	5	2007	—	—	—

B = breeding; W = winter

Outer Banks, Inshore Ocean



Location: Inshore Atlantic Ocean waters between Cape Hatteras and Virginia

Total Size: 80,595.4 ha (199,155.6 acres)

Site Description: This site includes the inshore waters along the northern Outer Banks between Cape Hatteras and the North Carolina–Virginia state line. The eastern and western boundaries of the site include an area of ocean from the surf zone to approximately 5 km (3 miles) offshore. This is a rich and productive area of ocean that supports a diverse assemblage of birds and other marine life throughout the year.

Habitat: Inshore open ocean.

Land Use: Commercial and recreational fishing.

Primary Threats: Bycatch of birds in commercial fishing gear, entanglement of birds in discarded monofilament fishing line, oil spill from ship traffic offshore, offshore wind energy development, natural gas and oil extraction.

Protection Status: The site is currently afforded no formal protection. North Carolina Marine Fisheries and the National Marine Fisheries Service govern fishing activities.

Conservation Issues: Commercial fishermen set nets throughout the area. Studies have indicated that these commercial fishing activities are responsible for the death of more than a thousand diving birds annually. The primary species impacted include Northern Gannet, Common Loon, Red-breasted Merganser, and Double-crested Cormorant.

Studies of the use of this area by migrating waterbirds are needed. Also needed are studies of the impact of commercial fishing activities on diving and fish-eating birds in the area. North Carolina is forming a task force to work with the United States Office of Minerals and Mines to formulate guidelines for offering leases for wind energy development and natural gas exploration.

Birds: This site is important for coastal birds throughout the year. During spring and summer months, the site is a key foraging area for terns nesting on nearby beaches and islands. During migration, the site is a foraging area for many species of gulls and terns, as well as a key migration corridor for loons and sea ducks. During winter months, the site supports North Carolina's largest population of Northern Gannets and Red-breasted Mergansers. These birds move throughout the site depending on the location of forage fish. The large concentration of gulls at Cape Point on the Cape Hatteras National Seashore routinely uses this Important Bird Area for its primary foraging area.

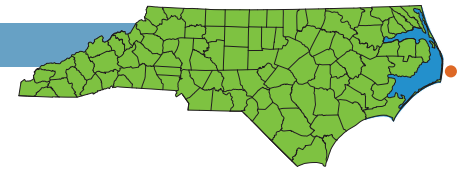
Monitoring and Research: Four Christmas Bird Count circles include the inshore ocean within this Important Bird Area: Kitty Hawk, Cape Hatteras, Ocracoke Island, and Bodie–Pea Island counts.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2004–8
3a	Surf Scoter	W	377	2008	804
3a	Black Scoter	W	490	2008	976
3a	Red-breasted Merganser	W	424	2008	653
3a	Red-throated Loon	W	3,631	2008	938
3eiii	Northern Gannet	W	16,693	2008	10,100
2a	Brown Pelican	W	2,164	2008	4,318
3eiv	Double-crested Cormorant	W	15,449	2008	73,890
3a	Bonaparte's Gull	W	2,198	2008	2,244
3a	Herring Gull	W	4,725	2008	5,290
3a	Ring-billed Gull	W	2,541	2008	4,377
3a	Great Black-backed Gull	W	1,826	2008	1,710

W = winter

Outer Continental Shelf



Location: Atlantic Ocean, offshore of Cape Hatteras

Total Size: 245,621.3 ha (606,943.4 acres)

Site Description: This site is unique in that it is the open ocean of the Atlantic. The Outer Continental Shelf site includes an area with water depth of 90–915 m (295–3,000 feet) on the western boundary of the Gulf Stream, offshore of Cape Hatteras. This is a site where two major Atlantic currents mix, forming a very rich marine environment. Large mats of Sargassum form surface reefs and concentrate rare and endangered seabirds, marine mammals, marine turtles, and fish. The site is an important commercial and sport fishing area, as well as an important commercial bird-watching area.

Habitats: Open ocean, Sargassum along frontal boundaries.

Land Use: Commercial and recreational fishing, ship traffic.

Primary Threats: Oil and natural gas exploration, Sargassum harvest, overfishing, commercial long-lining, offshore wind energy development.

Protection Status: The site is currently afforded no formal protection.

Conservation Issues: Oil companies hold offshore leases in the area of peak concentrations of seabirds. Past attempts to obtain permits for oil and natural gas exploration have met great public opposition and have not yet been successful. North Carolina is forming a task force to work with the United States Office of Minerals and Mines to formulate guidelines for offering leases for wind energy development and natural gas exploration.

Birds: This site has the greatest diversity of seabirds and marine mammals in the southeastern United States. For tropical species, the site probably has the greatest density of seabirds in the southeastern United States. Birds and other marine life concentrate here because of upwelling and currents. An important percentage of the global populations of Black-capped and Bermuda Petrels may be present in this Important Bird Area.

Monitoring and Research: The only regular monitoring that occurs is through commercial pelagic trips offered by Patteson Tours.

Key Bird Species

Criterion	Species	#	Year	Average Number 2004–9	Criterion	Species	#	Year	Average Number 2004–9
3a	Northern Fulmar	51	2008	14	3a	White-tailed Tropicbird	3	2006	1
2a	Black-capped Petrel	312	2007	150	3a	Red-billed Tropicbird	2	2009	1
1	Bermuda Petrel	3	2009	1	3a	Pomarine Jaeger	11	2009	8
3a	Trinidad Petrel	6	2007	2	3a	Long-tailed Jaeger	11	2009	4
3a	Fea's Petrel	2	2009	2	3a	Parasitic Jaeger	5	2009	2
2b	Cory's Shearwater	130	2009	221	3a	South Polar Skua	20	2009	4
2b	Greater Shearwater	130	2007	65	3a	Great Skua	2	2008	<1
2b	Sooty Shearwater	166	2009	67	3a	Bridled Tern	39	2007	17
2b	Manx Shearwater	8	2009	15	3a	Sooty Tern	10	2009	50
2b	Audubon's Shearwater	80	2009	71	3a	Arctic Tern	6	2009	1
3a	Wilson's Storm Petrel	554	2007	472	3a	Red Phalarope	1,151	2008	233
3a	European Storm Petrel	1	2009	1	3a	Red-necked Phalarope	81	2007	31
3a	Swinhoe's Storm Petrel	1	2009	<1	3a	Dovekie	106	2008	18
1	Band-rumped storm Petrel	16	2009	17	3a	Razorbill	78	2008	70
3a	Leach's Storm Petrel	36	2009	18	3a	Atlantic Puffin	3	2008	<1
					3c	pelagic seabirds	7,904	2009	10,129

Outer Green Island

Location: Hyde County (no detailed map shown)

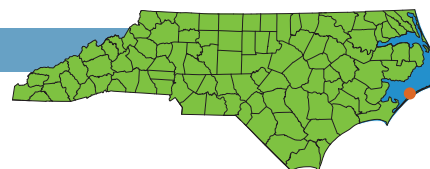
Total Size: 64.7 ha (160.0 acres)

Site Description: Outer Green Island, not to be confused with Green Island, is located in Pamlico Sound near the northern end of Ocracoke Island. The site is a small, natural island. Outer Green Island has a long history of use by nesting Forster's Terns and occasionally other species of colonial waterbirds.

Habitats: Primarily low marsh and high marsh with scattered shrubs, surrounded by shallow water and extensive seagrass flats.

Land Use: The site is privately owned and appears to have no regular visitors or other use.

Primary Threats: The site can be reached by canoe or kayak or by small motor boat during high tides. Otherwise it is remote and has no primary threats. Like most small natural islands in Pamlico Sound, erosion is occurring and is a concern.



Protection Status: The site is currently afforded no formal protection.

Conservation Issues: There are no immediate conservation issues for this site.

Birds: Outer Green Island supports a large colony of Forster's Terns. Occasionally other species of colonial waterbirds nest on the site.

Monitoring and Research: The site is not monitored regularly. It is included in the periodic statewide waterbird census.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001-7	Avg % of NC Population 2001-7
3a	Forster's Tern	B	50 prs.	2007	4.8	50 prs.	7.6

B = breeding

Palmetto-Peartree and Buckridge

Location: Tyrell County

Total Size: 37,238.9 ha (92,019.3 acres)

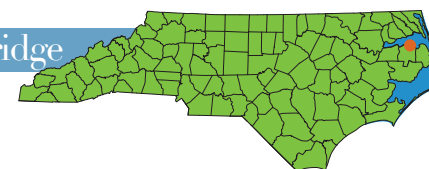
Site Description: The site is located in northeastern North Carolina, about 19 km (12 miles) northeast of Columbia, on the edge of Albemarle Sound. It includes the Palmetto-Peartree Preserve and the Emily and Richardson Preyer Buckridge Coastal Reserve. Palmetto-Peartree is 3,938 ha (9,731 acres) of habitat managed as a "working forest." The site was purchased by The Conservation Fund in 1999 with funds provided by the North Carolina Department of Transportation as mitigation for the loss of Red-cockaded Woodpecker habitat in other areas of the state. The Conservation Fund is working with the local communities and others to enhance ecotourism in northeastern North Carolina. The Emily and Richardson Preyer Buckridge Coastal Reserve comprises more than 7,280 ha (17,989 acres). The site also includes a portion of the Pocosin Lakes National Wildlife Refuge, as well as private land.

Habitats: Nonriverine swamp forest, tidal brackish marsh.

Land Use: Wildlife conservation, recreation and tourism, forestry, hunting.

Primary Threat: Disturbance to nesting birds.

Protection Status: The site includes tracts protected and managed by The Conservation Fund, the North Carolina Estuarine Research Reserve program, and the United States Fish and Wildlife Service. The site also includes privately owned land.



Conservation Issues: Audubon North Carolina, The Nature Conservancy, and other organizations have formed the Albemarle-Pamlico Conservation and Communities Cooperative to plan for conservation in the region, including planning for sea level rise. Surveys of all bird species during breeding, migration, and winter are needed throughout. Areas outside of the Palmetto-Peartree Preserve should be surveyed for Red-cockaded Woodpeckers.

Birds: The Palmetto-Peartree site supports at least 28 clusters of Red-cockaded Woodpeckers. The Conservation Fund is employing sustainable management practices to manage timber and enhance habitat for Red-cockaded Woodpeckers. The site supports high-priority landbird species such as Prothonotary Warbler, Worm-eating Warbler, Swainson's Warbler, and Brown-headed Nuthatch. The Emily and Richardson Preyer Buckridge Coastal Reserve includes extensive nonriverine swamp forest, along with Atlantic white cedar and cypress swamp. This Important Bird Area was recently recognized as a globally significant site for Red-cockaded Woodpecker. Over 125 species of birds have been recorded.

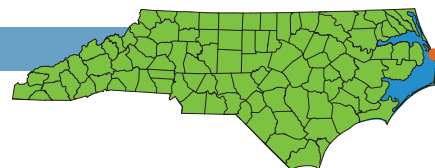
Monitoring and Research: Surveys for Red-cockaded Woodpecker are conducted periodically in accordance with the management agreement by The Conservation Fund. Data are entered regularly for all birds into eBird. More structured surveys are needed, especially outside of the Palmetto-Peartree Preserve portion of this Important Bird Area.

Key Bird Species

Criterion	Species	Season	Number	Year
2b	Wood Duck	all	30+	2009
1	Bald Eagle	all	2	2009
2a	Red-headed Woodpecker	all	12+	2009
1	Red-cockaded Woodpecker	all	28 clusters	2009
2b	Prothonotary Warbler	B	35+	2009

B = breeding

Parnell Island



Location: Dare County (no detailed map shown)

Total Size: 16.6 ha (41.0 acres)

Site Description: Parnell Island is a dredged-sand island located in northeastern Pamlico Sound near Oregon Inlet. The island was created entirely of sand dredged from the nearby navigation channel. From 2000 to 2005, the island received regular deposits of dredged sand, placed so as to create the right slope, elevation, and dredged material for an ideal nesting site, and eventually it was high enough to support nesting birds. Since 2005, the site has supported many terns and Black Skimmers.

Habitats: Bare sand, scattered grasses, and herbaceous vegetation.

Land Use: Conservation.

Primary Threats: Disturbance to nesting birds is a serious concern.

Protection Status: The site is protected and managed by the North Carolina Wildlife Resources Commission. Like other state-owned waterbird nesting sites, the island is posted and patrolled, and off limits to all visitors from April 1 to August 31.

Conservation Issues: Even though the island is posted, disturbance to nesting birds remains a concern. Maintenance of the island with dredged sand is important to the continued viability of the site as a nesting site for terns and skimmers. The impact of Great Black-backed Gulls on nesting terns should be monitored.

Birds: Parnell Island has become an important nesting site for terns and skimmers in Pamlico Sound. The site supported the state's second largest colony of Black Skimmers in 2007 and one of the state's largest colonies of Least Terns in 2006 (Least Terns did not nest on the island in 2007). The island is one of three nesting sites for Caspian Terns. One to two pairs of American Oystercatchers also nest on the island. One pair of Great Black-backed Gulls began nesting there in 2007. Parnell Island requires periodic deposits of dredged sand to maintain habitats.

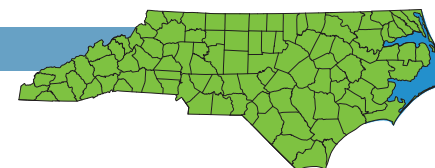
Monitoring and Research: The site is monitored by the North Carolina Wildlife Resources Commission. Royal and Sandwich terns have been banded annually for several years, and other research is ongoing.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2005–7
1	Gull-billed Tern	B	2 prs.	2007	2.2	10 prs.	6.9
2a	Black Skimmer	B	135 prs.	2007	24.3	75 prs.	7.6
2a	Common Tern	B	33 prs.	2007	6.6	122 prs.	16.7
2a	Least Tern	B	610 prs.	2006	—	—	—
2b	Royal Tern	B	1,846 prs.	2007	17.3	665 prs.	5.7
2b	Sandwich Tern	B	674 prs.	2007	24.2	—	—
2b	Caspian Tern	B	7 prs.	2007	43.8	8 prs.	41.7
3ei	waterbirds	B	2,727 prs.	2007	—	1,571 prs.	—

B = breeding

Pea Island



Location: Dare County

Total Size: 3,052.0 ha (7,541.7 acres)

Site Description: This site includes Pea Island National Wildlife Refuge, which is located on North Carolina's Outer Banks. Three water impoundments that vary in salinity from brackish to fresh are managed for shorebirds, waterfowl, and other migratory birds. The site includes a cross-section of the Outer Banks from ocean to sound and the associated habitats. This is one of North Carolina's most popular birding destinations and one of the state's premier sites for shorebirds, waterfowl, and landbirds.

Habitats: Ocean beach, brackish-freshwater impoundments, ocean dune, maritime shrub thicket.

Land Use: Wildlife conservation, recreation and tourism.

Primary Threats: Introduced plants and animals, predation, recreational development and overuse, replacement of Bonner Bridge, global climate change, erosion, human disturbance to nesting birds.

Protection Status: The site is protected and managed by the United States Fish and Wildlife Service.

Conservation Issues: The National Wildlife Refuge has a comprehensive conservation plan in place. The key conservation issue for the refuge is artificial (soft) stabilization

of the beach with artificial dunes to protect Highway 12, and the resulting adverse impacts to shorebird and colonial waterbird habitats. The eventual fate of the Bonner Bridge and its replacement are of concern for this refuge and Important Bird Area. Of the many options considered, the construction of a bridge parallel to the existing bridge would be the most damaging to the refuge and would impact habitats for birds.

Birds: Pea Island is one of North Carolina's most important sites for shorebirds and waterfowl. It is important for several species of conservation concern. North Carolina's largest regularly occurring flock of American Avocets winters here. The site also has nesting American Oystercatchers and Least Terns; Common Terns and Black Skimmers have nested in previous years.

Monitoring and Research: This site is monitored by the United States Fish and Wildlife Service. Regular surveys for waterfowl, shorebirds, and other species are conducted throughout the year. Numerous birders contribute data to the United States Fish and Wildlife Service for this Important Bird Area.

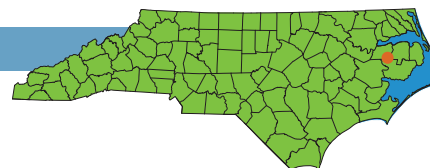
Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2004–9
2b	Tundra Swan	W	1,048	2009	—	920
3a	Snow Goose	W	500	2009	—	2,375
3a	Bufflehead	W	498	2009	—	308
3a	Redhead	W	6,064	2009	—	2,959
3a	Northern Pintail	W	836	2009	—	3,023
3a	American Coot	W	453	2009	—	943
2b	American Black Duck	W	1,226	2009	—	759
2b	American Black Duck	B	238	2007	—	—
3b	waterfowl	FM, W	11,578	2009	—	12,637
2a	Least Tern	B	174	2007	3.60	198*
2a	Common Tern	B	0	2007	0	47*
1	Gull-billed Tern	B	0	2007	0	48*
2a	Black Skimmer	B	0	2007	0	9*
3a	American Avocet	W	210	2004	—	117
1	Piping Plover	FM, W, SM	7	2006	—	—
1	Peregrine Falcon	FM	145	2007	—	—

B = breeding; FM = fall migration; SM = spring migration; W = winter

*Average 2001–7

Pungo-Pocosin Lakes



Location: Hyde, Tyrrell, and Washington Counties

Total Size: 128,133.7 ha (316,625.4 acres)

Site Description: The site includes two large natural lakes—Phelps and Pungo—extensive agricultural lands, and forest, which provide habitat for a wide variety of birds. The agricultural lands provide foraging habitat in the winter months for tens of thousands of Tundra Swans and Snow Geese. Also included are several flooded fields and impoundments, mature hardwood forests along the north shore of Lake Phelps, and pocosin. The site encompasses Pocosin Lakes National Wildlife Refuge, Pettigrew State Park, including Lake Phelps, and private farmland west of these two lakes.

Habitats: Natural lakes, nonriverine forested wetland, agricultural land, pocosin.

Land Use: Wildlife conservation, agriculture (cultivation for waterfowl), recreation and tourism, hunting.

Primary Threats: Current threats include invasive species (*Phragmites*), groundwater extraction, drought, drainage, disturbance to birds, and global climate change impacts.

Protection Status: The majority of the site is under state or federal protection.

Conservation Issues: Phragmites is starting to appear at Pungo. The National Wildlife Refuge portion of this Important Bird Area has a comprehensive conservation plan in place.

Birds: The site supports 80,000 to 100,000 waterfowl during an average winter. It has North Carolina's largest wintering concentration of Snow Geese and one of the largest concentrations of Tundra Swans in the state. Common Mergansers winter on Lake Phelps. The fields west of Lake Phelps have a good wintering population of Short-eared Owl; sometimes 5 to 10 have been reported. Pocosin habitat likely provides very good habitat for species such as Worm-eating Warbler, Swainson's Warbler, Prothonotary Warbler, and other landbirds, but no population estimate is available. The site has one of the state's highest counts for Northern Harrier during Christmas Bird Counts.

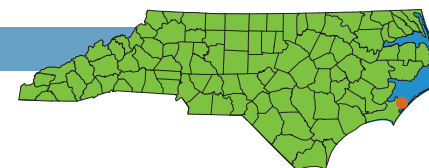
Monitoring and Research: Midwinter waterfowl surveys are conducted by the United States Fish and Wildlife Service. The Pettigrew Christmas Bird Count is centered at Pettigrew State Park and includes much of this Important Bird Area. Regular surveys of landbirds during the breeding season are needed.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2004-9
2b	Tundra Swan	W	15,219	2009	13,684
3a	Snow Goose	W	79,660	2009	60,232
2b	American Black Duck	W	392	2009	428
3a	Canada Goose	W	590	2009	605
3a	Ring-necked Duck	W	1,538	2009	377
3a	Green-winged Teal	W	9,039	2009	4,241
3a	Northern Pintail	W	120	2009	308
3a	Mallard	W	762	2009	1,236
3a	American Wigeon	W	555	2009	283
2b	Wood Duck	W	253	2008	212
3a	Canvasback	W	29	2008	335
3a	Common Merganser	W	3	2008	82
3b	waterfowl	W	108,100	2009	—
1	Bald Eagle	W	28	2008	24
3a	Northern Harrier	W	60	2008	72
3a	American Kestrel	W	27	2008	33
2a	American Woodcock	W	41	2008	15
3a	Red-winged Blackbird	W	688,285	2008	219,277
3a	Common Grackle	W	16,195	2008	25,310
3a	Rusty Blackbird	W	525	2008	130

W = winter

Raccoon Island



Location: Carteret County (no detailed map shown)

Total Size: 46.3 ha (119.3 acres)

Site Description: Raccoon Island is a natural, high-marsh island located in a remote area of Pamlico Sound. Nesting Forster's Terns used the site for more than a decade. In recent years, wading birds have nested.

Habitats: Saltmarsh, high brackish marsh.

Land Use: Wildlife conservation.

Primary Threats: Disturbance from military training; other disturbances are a minor threat.

Protection Status: The site is not currently afforded formal protection.

Conservation Issues: Disturbance by low-elevation military aircraft and the proposed expansion of the training zone for Bombing Target 11 (Piney Island) is a serious concern. The expansion will include this island and likely increase significantly the disturbance to nesting birds. The island is remote and not easily accessible, so human disturbance during the nesting season is otherwise a minor concern.

Birds: Raccoon Island has supported a variety of nesting colonial waterbirds for many years. In 2007, the state's largest colony of Laughing Gulls and Glossy Ibis was at this site, as was the third-largest colony of Tricolored Herons, and a significant colony of nesting Forster's Terns.

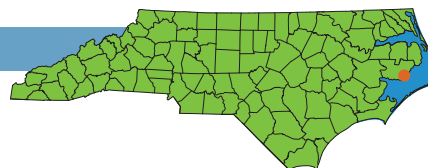
Monitoring and Research: This site is included in the periodic coastwide colonial waterbird survey, but it is not regularly monitored.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
3a	Forster's Tern	B	103 prs.	2007	10.0	113 prs.	11.5
2a	Glossy Ibis	B	151 prs.	2007	42.4	177 prs.	39.9
2a	Tricolored Heron	B	120 prs.	2007	12.3	178 prs.	13.7
3a	Laughing Gull	B	6,750 prs.	2007	33.8	5,917 prs.	26.6
2a	Snowy Egret	B	92 prs.	2007	23.8	69 prs.	17.4
2a	Little Blue Heron	B	24 prs.	2007	2.2	13 prs.	0.9
3a	Black-crowned Night Heron	B	5 prs.	2007	2.8	4 prs.	1.4
3a	Great Black-backed Gull	B	10 prs.	2007	6.1	3 prs.	2.0
3a	Great Egret	B	6 prs.	2007	0.3	21 prs.	1.1
3ei	waterbirds	B	7,323 prs.	2007	—	6,531 prs.	—

B = breeding

Rawls Island



Location: Dare County (no detailed map shown)

Total Size: 2.8 ha (7.0 acres)

Site Description: Rawls Island is located on the northwest side of Pamlico Sound, near Engelhard. It is a remote, natural, estuarine island dominated by wax myrtle, morning glory, and saltmarsh.

Habitats: Saltmarsh, shrubland.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to birds, erosion.

Protection Status: The site is in private ownership.

Conservation Issues: Erosion of the island appears to be having a big impact on the numbers of birds nesting. Human disturbance during the nesting season is a serious concern, because disturbances can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: Rawls Island was a newly discovered and important nesting site for wading birds in 2001. In that year, 783 nests of eight different species of colonial waterbird were found on the site. Of particular importance were the 198 Glossy Ibis nests and the 251 Little Blue Heron nests. The site supported North Carolina's largest colony of Little Blue Herons and Glossy Ibis at that time. Since that time, nesting pairs have plummeted on this island, and many of these birds appear to have moved to the nearby Hog Island.

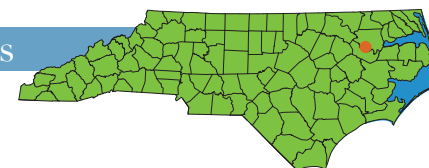
Monitoring and Research: The site is surveyed as part of the period colonial waterbird census, but otherwise is not regularly monitored.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–776
2a	Little Blue Heron	B	139 prs.	2004	10.3	130 prs.	10.3
2a	Glossy Ibis	B	37 prs.	2004	9.8	78 prs.	14.3
3a	Great Egret	B	44 prs.	2007	2.1	57 prs.	2.9%
2a	Tricolored Heron	B	15 prs.	2004	1.0	16 prs.	1.2
2a	Snowy Egret	B	1 pr.	2007	0.3	22 prs.	5.3
3a	Cattle Egret	B	31 prs.	2004	5.7	50 prs.	25.2
3a	Great Black-backed Gull	B	4 prs.	2007	2.4	2 prs.	11
3a	Black-crowned Night Heron	B	3 prs.	2007	1.7	3 prs.	1.2
3ei	waterbirds	B	52 prs.	2007	—	390 prs.	—

B = breeding

Roanoke River Bottomlands



Location: Martin, Halifax, Bertie, and Northampton Counties

Total Size: 65,042.5 ha (160,723.4 acres)

Site Description: This vast Important Bird Area begins near the small community of Weldon and continues downriver more than 160 km (99 miles) to Albemarle Sound. The bottomland hardwood forest stretches nearly 8 km (5 miles) wide in places and is the best example of this habitat type in North Carolina. The site abounds with birds and other wildlife.

Habitats: Bottomland hardwood forest (bald cypress and water tupelo along the lower reaches of the river and mixed bottomland hardwood species in other areas).

Land Use: Wildlife conservation, other conservation, recreation, hunting, fishing.

Primary Threats: Regulated water flow, logging.

Protection Status: About 20,600 ha (50,904 acres) of the site is protected and managed by both public and private groups including the United States Fish and Wildlife Service, North Carolina Wildlife Resources Commission, and The Nature Conservancy. The remaining acreage is in private ownership.

Conservation Issues: The potential impact of regulated water flows on aquatic life downriver is a significant concern, but very little is known about how this would affect the area. Logging is also a concern, as a major timber company has significant holdings here. Industrial development along the river and associated activities, if permitted, could also threaten the entire system. Audubon North Carolina, The Nature

Conservancy, and other organizations have formed the Albemarle-Pamlico Conservation and Communities Cooperative to plan for conservation in the region, including planning for sea level rise. The National Wildlife Refuge portion of this Important Bird Area has a comprehensive conservation plan in place. More extensive surveys of landbirds, waterbirds, and waterfowl during breeding, migration, and winter are needed, especially for Cerulean Warbler.

Birds: With 214 bird species recorded, 88 of which are known to breed, this site is one of the most diverse in the coastal plain. Forty-four species of neotropical migrants are known to breed within the site. Several colonies of wading birds are present. The site supports a significant diversity and abundance of neotropical migrant songbirds, as well as a large number of breeding Wood Ducks. The site holds a significant diversity and abundance of species associated with bottomland hardwood forests (Criterion NC4). It has recently been identified as a globally significant Important Bird Area for Cerulean Warbler.

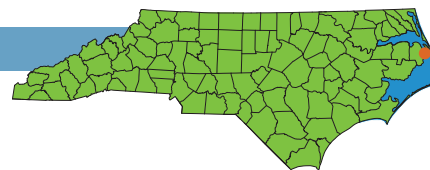
Monitoring and Research: Cerulean Warbler surveys have been conducted in the past and need to be repeated on a more regular basis. Research on Swainson's Warbler use of the bottomland forest is ongoing. The Speed and Jackson Breeding Bird Survey routes lie within or adjacent to this Important Bird Area.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2005–9
3a	Canvasback	W	752	2009	711
3a	Ring-necked Duck	W	533	2009	1,156
3a	Canada Goose	W	3,482	2009	1,948
2b	Tundra Swan	W	2,882	2009	2,748
3a	American Coot	W	1,738	2009	2,490
3b	waterfowl	W	9,907	2009	10,155
2a	Northern Bobwhite	B	29	2007	17
1	Cerulean Warbler	B	35	2005	—
2a	Swainson's Warbler	B	50	2009	—

B = breeding; W = winter

Roanoke Sound, Island G



Location: Dare County (no detailed map shown)

Total Size: 50.0 ha (123.5 acres)

Site Description: Island G is an undiked, dredged-material island located in Roanoke Sound, near Manteo. The site has relatively dense shrub thickets. It has not received dredged sand since the early 1980s. Waterbirds have nested on this island since the early 1970s.

Habitats: Shrubland, saltmarsh.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to nesting birds, erosion.

Protection Status: The site is protected and managed by the North Carolina Wildlife Resources Commission.

Conservation Issues: The island is posted and is entirely off limits to visitors during the nesting season, from April 1 to August 31. Disturbance to nesting birds is a concern. The shrubland habitat used by nesting wading birds should be maintained.

Birds: Island G is an important nesting site for seven species of wading birds. In 2007 the site supported the state's second-largest colony of Black-crowned Night Herons, third-largest colony of Little Blue Herons, and fourth-largest colonies of White Ibis and Great Egrets.

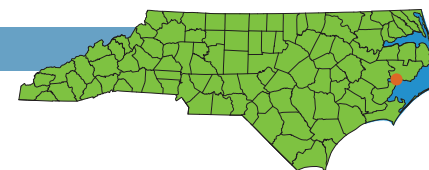
Monitoring and Research: This site is monitored by the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
3a	Great Egret	B	175 prs.	2007	10.3	159 prs.	8.7
2a	Little Blue Heron	B	110 prs.	2007	10.1	40 prs.	3.1
2a	Tricolored Heron	B	90 prs.	2007	9.2	38 prs.	2.9
3a	Black-crowned Night Heron	B	23 prs.	2007	13.0	15 prs.	6.3
2b	Snowy Egret	B	8 prs.	2007	2.0	9 prs.	2.0
3a	White Ibis	B	625 prs.	2007	3.7	697 prs.	4.3
2a	Glossy Ibis	B	22 prs.	2007	6.2	12 prs.	2.6
3ei	waterbirds	B	1,053 prs.	2007	—	—	—

B = breeding

Roos Point



Location: Hyde County (no detailed map shown)

Total Size: 4.0 ha (9.9 acres)

Site Description: Roos Point is located on the northwest side of Pamlico Sound, near the mouth of the Pamlico River. The site is a natural estuarine island dominated by regularly and irregularly flooded saltmarsh. Forster's Terns nest on wrack deposited on the marsh during storm tides.

Habitats: Saltmarsh.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to birds, erosion.

Protection Status: The site is in private ownership.

Conservation Issues: Human disturbance during the nesting season is a concern.

Birds: This site has supported a significant colony of nesting Forster's Terns during most seasons, but the species has abandoned the site for unknown reasons. The last known nesting by Forster's Terns was in 2004.

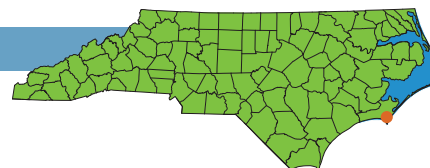
Monitoring and Research: This site is included in the periodic colonial waterbird census, but otherwise is not regularly monitored.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
3a	Forster's Tern	B	55 prs.	2004	6.6	42 prs.	4.3

B = breeding

Sand Bag Island



Location: Carteret County (no detailed map shown)

Total Size: 16.4 ha (40.5 acres)

Site Description: Sand Bag Island is a dredged-sand island located near Cape Lookout. The island is managed for nesting waterbirds that require bare to sparse vegetation habitats, such as terns. Royal Terns and Sandwich Terns are the dominant species.

Habitats: Bare sand, sparse to moderate-density grasses and herbs.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to birds, erosion, loss of bare sand habitats.

Protection Status: The site is protected and managed by the North Carolina Wildlife Resources Commission.

Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from April 1 to August 31. Sand Bag Island needs periodic sand renourishment to maintain its size, shape, and habitats. This has been accomplished by the United States Army Corps of Engineers in cooperation with the North Carolina Wildlife Resources Commission, and the North Carolina Colonial Waterbird Management Committee.

Birds: Sand Bag Island is one of North Carolina's most important nesting sites for Royal and Sandwich Terns. In 2007, the site supported the state's second-largest colony of Royal Terns. In some years, the island has supported nesting Brown Pelicans.

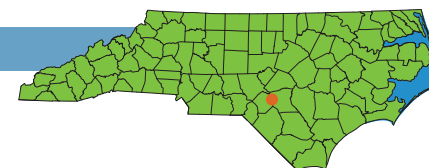
Monitoring and Research: This site is monitored by the North Carolina Wildlife Resources Commission. Royal and Sandwich Terns have been banded annually for many years.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
3a	Laughing Gull	B	500 prs.	2007	2.5	2,129 prs.	10.4
2b	Royal Tern	B	2,226 prs.	2007	20.8	1,280 prs.	10.9
2b	Sandwich Tern	B	451 prs.	2007	16.2	298 prs.	11.3
3a	Great Black-backed Gull	B	8 prs.	2007	7.5	4 prs.	2.1
3a	Herring Gull	B	47 prs.	2007	7.5	49	6.8
3ei	waterbirds	B	3,232 prs.	2007	—	4,271 prs.	—

B = breeding

Sandhills East



Location: Hoke and Cumberland Counties

Total Size: 62,896.2 ha (155,419.8 acres)

Site Description: This site includes the extensive sandhills east of the Lumber River, near Fayetteville. Within the Important Bird Area is Fort Bragg, a military installation used extensively for military training, Weymouth Woods State Park, and the newly established Carver's Creek State Natural Area. This Important Bird Area, together with the Sandhills West site, encompasses extensive longleaf pine-wiregrass forests, hardwood bottomlands, riparian areas and lakes, and large specially managed grasslands. This is one of the best examples of this community type in the eastern United States.

Habitats: Longleaf pine forest, mixed forest, deciduous forest, riparian forest.

Land Use: Military training, wildlife conservation, water supply, and hunting.

Primary Threats: Disturbance to birds, soil erosion, predation, residential and commercial development, drought, and hurricanes.

Protection Status: An extensive management program to monitor and reduce land use impacts and enhance habitats for wildlife is in place on the military installation. The Department of Defense, United States Fish and Wildlife Service, and North Carolina Wildlife Resources Commission are signatory partners on an Integrated Natural Resource Management Plan.

Conservation Issues: Avian threats are limited mostly to direct or indirect impacts from military training and infrastructure. Outside the military base, threats include conversion of the

sandhills to residential, commercial, and industrial development. Additional avian threats may include parasitism and predation.

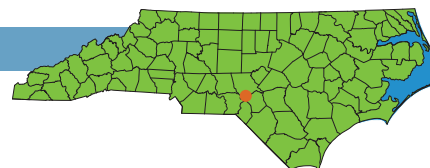
Birds: The site consists of extensive longleaf pine forest-sandhills habitat (Criterion NC4). The site supports one of the largest groups of nesting Red-cockaded Woodpeckers in the United States. This focus area has already met its recovery goal (2008) for this endangered species. It was recently designated a globally significant site for Red-cockaded Woodpecker. Healthy populations of birds that frequent longleaf-forested grassland, such as Brown-headed Nuthatch, Northern Bobwhite, Bachman's Sparrow, Prairie Warbler, Pine Warbler, and Summer Tanager, also occur here.

Monitoring and Research: Avian monitoring and research includes Monitoring Avian Productivity and Survivorship banding projects, BBIRD, more than 200 point counts, winter foraging flock studies, fire and avian community studies, and landscape ecology studies conducted on the military installation. State Parks data is entered into Natural Resource Inventory Database, and the Weymouth Woods data are some of the most extensive in that system. Weymouth Woods is also the home base of operations for Susan Campbell, who coordinates winter hummingbird studies within North Carolina. Regular monitoring of the Red-cockaded Woodpecker population also occurs. The South Pines Breeding Bird Survey route lies almost completely within this Important Bird Area.

Key Bird Species

Criterion	Species	Season	Number	Year
2a	Northern Bobwhite	all	18+	2002
1	Red-cockaded Woodpecker	all	464 active clusters	2009
2b	Brown-headed Nuthatch	all	30+	2005
2a	Bachman's Sparrow	all	6+	2005

Sandhills West



Location: Richmond, Scotland, and Moore Counties

Total Size: 47,817.3 ha (118,159.1 acres)

Site Description: This site includes the Sandhills Game Lands and Camp Mackall, as well as adjacent private lands. This site, together with the Sandhills East, has extensive longleaf pine forests, hardwood bottomlands, riparian areas and lakes, and large specially managed grasslands. This is one of the best examples of this community type in the eastern United States.

Habitats: Coniferous forest, mixed forest, deciduous forest, riparian.

Land Use: Military training, wildlife conservation, water supply, hunting.

Primary Threats: Disturbance to birds, soil erosion and degradation, predation, residential and commercial development, drought and hurricanes, cowbird parasitism, predation.

Protection Status: An extensive management program is in place to monitor and reduce land use impacts and enhance habitats for wildlife. The Department of Defense, United States Fish and Wildlife Service, and North Carolina Wildlife Resources Commission are signatory partners on an Integrated Natural Resource Management Plan.

Conservation Issues: Avian threats on the installation are limited mostly to direct threats (disturbance, facilities development) or indirect ones (erosion impacts from military training). Additional avian threats may include parasitism and predation.

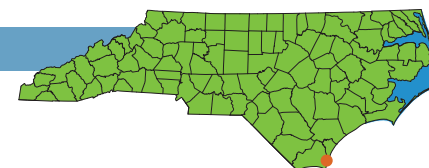
Birds: The site comprises extensive longleaf pine-sandhills habitat (Criterion NC4). Red-cockaded Woodpecker, Bachman's Sparrow, Brown-headed Nuthatch, Loggerhead Shrike, American Kestrel and Lark Sparrow all occur here. Substantial populations of birds such as Brown-headed Nuthatch, Prairie Warbler, Pine Warbler, and Summer Tanager, which frequent longleaf-forested grassland, are also plentiful.

Monitoring and Research: The primary regular monitoring here is conducted on the Sandhills Game Lands and includes point counts, Bachman's Sparrow monitoring, and calling Northern Bobwhite surveys. In addition, the Raeford Breeding Bird Survey route is almost completely within this Important Bird Area. Red-cockaded Woodpecker surveys are regularly conducted by Department of Defense and United States Fish and Wildlife Service personnel.

Key Bird Species

Criterion	Species	Season	Number	Year
2a	Northern Bobwhite	all	52	2006
2a	Red-headed Woodpecker	all	58	2006
1	Red-cockaded Woodpecker	all	178 active clusters	2007
2b	Brown-headed Nuthatch	all	62	2006
2a	Bachman's Sparrow	all	20	2006

South Pelican Island



Location: Brunswick County (no detailed map shown)

Total Size: 13.4 ha (33.2 acres)

Site Description: South Pelican Island is a dredged-sand island located in the lower Cape Fear River south of Wilmington. The island has been a haven for nesting pelicans, gulls, and terns for more than two decades. The site is posted and patrolled, and is off limits to all visitors.

Habitats: Bare sand, sparse, moderate-density, and dense grasses and herbs.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to nesting birds, vegetation succession resulting in loss of habitat for nesting terns.

Protection Status: The site is protected and managed by Audubon North Carolina and the North Carolina Wildlife Resources Commission.

Conservation Issues: The availability of sand to maintain the island and early-succession nesting habitat is a concern. This island has gone a decade or longer without sand, during which time the habitat for nesting terns has been greatly reduced. The island needs sand every four to seven years to maintain habitats. The island is posted and patrolled throughout the nesting season to prevent disturbance to nesting birds. Human disturbance can result in egg or chick loss, nest abandonment, and colony abandonment.

Birds: South Pelican Island is an important nesting site for Royal Terns, Sandwich Terns, and a few Gull-billed Terns. Sandwich Terns did not nest in 2007, but returned to nest in 2008 and 2009. It is not uncommon for Royal and Sandwich Terns to nest on either or both South Pelican Island and Ferry Slip Island in the lower Cape Fear River. An average of 10 to 11 breeding pairs of American Oystercatchers nest there annually. Snowy Egret, Tricolored Heron, and Cattle Egret nest on the site in some years.

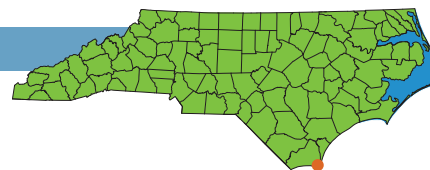
Monitoring and Research: This site is monitored annually by Audubon North Carolina in cooperation with the North Carolina Wildlife Resources Commission. Monitoring of American Oystercatchers extends beyond the breeding season to include migratory and wintering surveys. Royal and Sandwich Terns have been banded at this site for many years. Research on other waterbird and shorebird species has been conducted for many years.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
2a	Brown Pelican	B	332 prs.	2007	9.6	480 prs.	11.3
2b	Royal Tern	B	35 prs.	2007	<0.1	1,244 prs.	10.6
2b	Sandwich Tern	B	10 prs.	2006	—	407 prs.	15.4
2b	Sandwich Tern	B	211 prs.	2009	—	—	—
3a	Laughing Gull	B	649 prs.	2007	3.3	375 prs.	1.7
1	Gull-billed Tern	B	11 prs.	2007	12.2	13 prs.	6.4
2b	American Oystercatcher	B	11 prs.	2007	3.3	—	—
3ei	waterbirds	B	1,038 prs.	2007	—	1,129 prs.	—

B = breeding

Striking Island



Location: Brunswick County (no detailed map shown)

Total Size: 23.8 ha (58.9 acres)

Site Description: Striking Island is a natural marsh island located in the lower Cape Fear River south of Wilmington. The site consists primarily of intertidal and high saltmarsh with small islands of upland washed oyster shell banks, shrubs, and grassy areas.

Habitats: Saltmarsh, shrubland, oyster shell “rakes.”

Land Use: Wildlife conservation.

Primary Threats: Disturbance to nesting birds.

Protection Status: The site is protected and managed by the National Audubon Society. The site is posted and patrolled, and is off limits to all visitors.

Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from April 1 to August 31. Disturbance to nesting birds is a primary concern.

Birds: Striking Island is an important foraging site for wading birds from the nearby Battery Island Audubon Sanctuary. The site supports nesting Laughing Gulls, American Oystercatchers, Willets, and Clapper Rails. The number of nesting Laughing Gulls varies annually, but typically ranges between 100 and 300 nesting pairs. The site is also important to the lower Cape Fear River population of breeding and wintering American Oystercatchers.

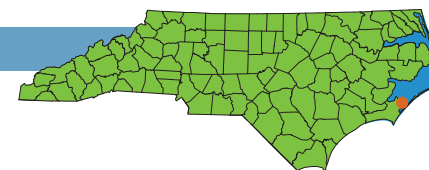
Monitoring and Research: This site is monitored by Audubon North Carolina and is included in the periodic Colonial Waterbird Atlas project in cooperation with the North Carolina Wildlife Resources Commission.

Key Bird Species

Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001–7	Avg % of NC Population 2001–7
3a	Laughing Gull	B	115 prs.	2007	0.6	251 prs.	1.1
2a	American Oystercatcher	B	5 prs.	2009	—	—	—

B = breeding

Tump Island



Location: Carteret County (no detailed map shown)

Total Size: 8.0 ha (19.8 acres)

Site Description: Tump Island is a small, remote island located on the western side of the Cedar Island peninsula. It is part of the Cedar Island National Wildlife Refuge. The island is primarily marsh, with small areas of shrub thicket and bare sandy habitat. It supports nesting waterbirds during most seasons.

Habitats: Shrubland, bare sand, grass.

Land Use: Wildlife conservation.

Primary Threats: Erosion, disturbance to birds.

Protection Status: The site is protected and managed by the United States Fish and Wildlife Service.

Conservation Issues: The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from April 1 to August 31. Human disturbance during the nesting season is a serious concern.

Birds: Tump Island has supported a mixed-species colony of nesting waterbirds for nearly two decades, but no waterbirds nested on the site in 2007. This is likely due to erosion on the island and the loss of suitable nesting habitat for waterbirds.

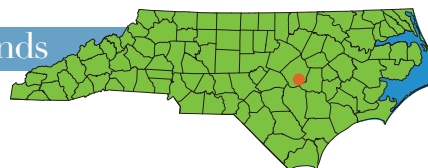
Monitoring and Research: This site is monitored by the United States Fish and Wildlife Service.

Key Bird Species

Criterion	Species	Season	Number	Year	Average Number 2001–7	Avg % of NC Population 2001–7
1	Gull-billed Tern	B	40 prs.	2004	17 prs.	14.9%
2a	Black Skimmer	B	14 prs.	2004	7 prs.	1.2
2a	Common Tern	B	3 prs.	2004	19 prs.	1.8
3a	Forster’s Tern	B	65 prs.	2004	45 prs.	4.7

B = breeding

Upper Neuse River Bottomlands



Location: Johnston County

Total Size: 17,624.1 ha (43,550.1 acres)

Site Description: The upper Neuse River Bottomlands Important Bird Area is located along the Neuse River between Goldsboro and Smithfield. The site consists of extensive bottomland hardwood forest, cypress-gum swamp bordered by longleaf and loblolly pine, mixed hardwoods, and agriculture lands. A central feature of the Important Bird Area is Howell Woods Environmental Learning Center. This 1,156 ha (2,857 acres) complex, established by Johnston Community College, has implemented long-term bird monitoring programs, conducts regular bird identification workshops, and works to protect, manage, and restore habitats for birds.

Habitats: Bottomland hardwood forest, cypress-tupelo-gum swamp forest, pine forest, mixed hardwood forest, agriculture.

Land Use: Wildlife conservation, other conservation, agriculture and cultivation, education.

Primary Threats: Logging, introduced species, water pollution.

Protection Status: The Howell Woods Environmental Learning Center protects and manages approximately 7 percent of the Important Bird Area. The remaining acreage is in private holdings.

Conservation Issues: The bottomland forests within this Important Bird Area are essential to North Carolina's birds, but these forests are also prime targets for timber harvest. Protecting the swamp forests in this area is vital for the species of birds that depend on this habitat type. In 2007, the Neuse was named one of the ten most endangered rivers in the United States.

Birds: This site has significant acreage of bottomland hardwood forest and cypress-tupelo-gum swamp forest and supports the suite of species associated with these natural communities (Criterion NC4). It has a significant diversity of landbirds, with a recent checklist naming 173 species. This is likely one of North Carolina's most important sites for Mississippi Kites. The Howell Woods Environmental Learning Center manages agricultural lands and grassland habitats that support species such as Northern Bobwhite, Eastern Meadowlark, and Grasshopper Sparrow.

Monitoring and Research: The Howell Woods facility is the site of a Monitoring Avian Productivity and Survivorship banding station and also conducts migration period banding. The director, Jamie Sasser, conducts master workshops about banding on a regular basis. Records are now being entered into eBird on a fairly regular basis.

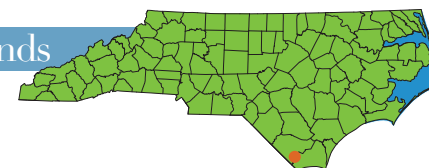
Key Bird Species

Criterion	Species	Season	Number*	Year*
2b	Acadian Flycatcher	B	63	2000–7
2b	Brown-headed Nuthatch	all	9	2000–7
3a	Blue-gray Gnatcatcher	B	23	2000–7
2b	Wood Thrush	B	61	2000–7
2b	Prothonotary Warbler	B	33	2000–7
2b	Kentucky Warbler	B	65	2000–7
3a	Ovenbird	B	52	2000–7
2a	Swainson's Warbler	B	63	2000–7
2b	Hooded Warbler	B	62	2000–7
3a	American Redstart	B	64	2000–7
3a	Mississippi Kite	B	8	2009

B = breeding

*"Number" is the number of unique individual birds banded at Howell Woods Environmental Education Center.

Waccamaw River Bottomlands



Location: Brunswick and Columbus Counties

Total Size: 48,906.2 ha (120,849.9 acres)

Site Description: The Waccamaw River Bottomlands Important Bird Area begins in the Red Hull Swamp area, north of the town of Lake Waccamaw and Whiteville, and continues south to include the bottomlands associated with Lake Waccamaw and the Waccamaw River to the South Carolina line. This is an extensive area of bottomland hardwood forest and cypress-gum swamp forest. As with most North Carolina forests, much of the Waccamaw River bottomland forests were logged in the early half of the 20th century. Nevertheless, this site is one of the largest areas of bottomland forest in North Carolina and is critical to North Carolina birds.

Habitats: Bottomland hardwood forest, cypress-tupelo-gum swamp forest, blackwater river, lake.

Land Use: Wildlife conservation, other conservation, hunting, fishing, recreation.

Primary Threats: Introduced species, logging, water quality degradation.

Protection Status: This site includes the Lake Waccamaw State Park, which encompasses 4,227 ha (10,445 acres). The majority of the Important Bird Area is in private holdings.

Conservation Issues: Because the forest habitat along the Waccamaw River is critical to birds, it is essential to maintain the integrity of the forest. More attention should be given to further changes in ownership of private industrial forest lands in this Important Bird Area since forest management and ownership are undergoing rapid changes.

Birds: This drainage supports an excellent assemblage of bottomland species, including high densities of Prothonotary Warbler and Northern Parula. Yellow-throated Warbler, Blue-gray Gnatcatcher, Wood Duck, and woodpecker species are abundant here as well. Some White Ibis from Battery Island travel to the Waccamaw River swamps to forage during the nesting season. In 2009 an emaciated Snail Kite was recovered here. Swallow-tailed Kites have also been observed during late April, but no evidence of nesting has been found. The bottomland hardwood forest and cypress-tupelo-gum swamp forest are extensive and excellent examples of these habitat types (Criterion NC4).

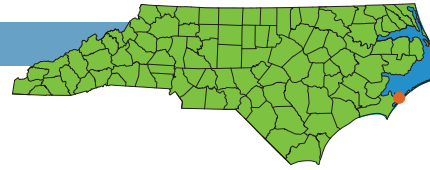
Monitoring and Research: Audubon North Carolina conducted regular bird surveys within this Important Bird Area during 2008 and 2009. Bird records for Lake Waccamaw State Park are entered in the Natural Resource Inventory Database. In 2008 inland heronry surveys were completed by the North Carolina Wildlife Resources Commission using aerial and ground surveys.

Key Bird Species

Criterion	Species	Season	Number	Year
3a	Anhinga	B	21	2008
2a	Little Blue Heron	B	35	2008
1	Wood Stork	B	149	2008
3a	Cattle Egret	B	341	2008
2a	Little Blue Heron	B	35	2008
3a	Great Egret	B	78	2008
3ei	Waterbirds	B	1360+	2008
1	Bald Eagle	all	4	2007
2b	Northern Parula	B	33	2009
2b	Prothonotary Warbler	B	46	2009
3g	migrant and wintering songbirds	FM, W, SM	—	—

B = breeding; FM = fall migration; SM = spring migration; W = winter

Wainwright Island



Location: Carteret County (no detailed map shown)

Total Size: 46.7 ha (115.4 acres)

Site Description: Wainwright Island is a natural estuarine island that sits at the junction of Core and Pamlico Sounds. The site has received deposits of dredged sand sporadically since the 1970s. Dredged sand has enlarged the island and created suitable habitat for a variety of waterbirds. At the present time, the island is eroding and has lost a significant amount of upland habitat.

Habitats: Bare sand, areas with moderate-density grasses and herbs, and saltmarsh, seagrass flats.

Land Use: Wildlife conservation.

Primary Threats: Disturbance to nesting birds, lack of availability of dredged sand.

Protection Status: The site is protected and managed by Audubon North Carolina as the Wainwright Island Audubon Sanctuary. The island is posted, patrolled, and entirely off limits to visitors during the nesting season, from April 1 to August 31.

Conservation Issues: Disturbance to nesting birds is a primary concern. Storms of recent years have caused significant erosion on the island. Maintenance of the island with dredged sand is important to the continued viability of the site as a nesting site for colonial waterbirds. Nesting Great Black-backed Gulls and Herring Gulls have increased in number in recent years. The impact of these species on nesting terns should be studied. The placement of dredged sand on this island once every 7 to 10 years is important to the maintenance of the habitat for nesting terns and pelicans.

Birds: Wainwright Island has long been a nesting site for Brown Pelicans and other colonial waterbirds. In past years, this site has supported one of the state's largest colonies of Royal and Sandwich Terns. Erosion had reduced the size of the island and eliminated much of the habitat by 2006. In the winter of 2007, dredged sand was deposited on the island. Royal and Sandwich Terns returned to the island to nest in 2007 and have nested ever since. The island also supports a small colony of Black-crowned Night Herons, Great Egrets, and Forster's Terns.

Monitoring and Research: This site is monitored by Audubon North Carolina. Royal and Sandwich Terns have been banded annually at the site for many years.

Key Bird Species

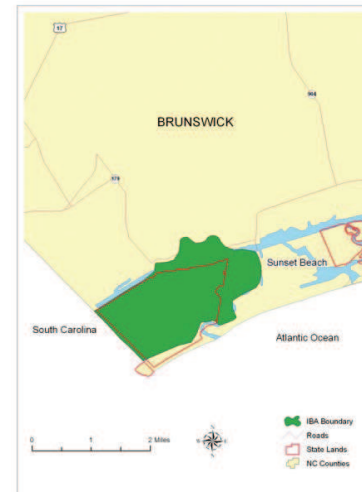
Criterion	Species	Season	Number	Year	% of NC Population 2007	Average Number 2001-7	Avg % of NC Population 2001-7
3a	Forster's Tern	B	52 prs.	2007	5.0	21 prs.	2.4
2b	Sandwich Tern	B	64 prs.	2007	2.3	21 prs.	0.4
2b	Royal Tern	B	619 prs.	2007	5.8	206 prs.	1.1
3a	Herring Gull	B	8 prs.	2007	1.3	32 prs.	4.4
3ei	waterbirds	B	743 prs.	2007	—	339 prs.	—

B = breeding

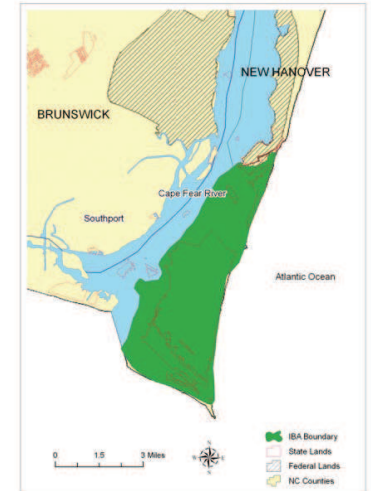
Alligator River Lowlands



Bird Island-Twin Lakes



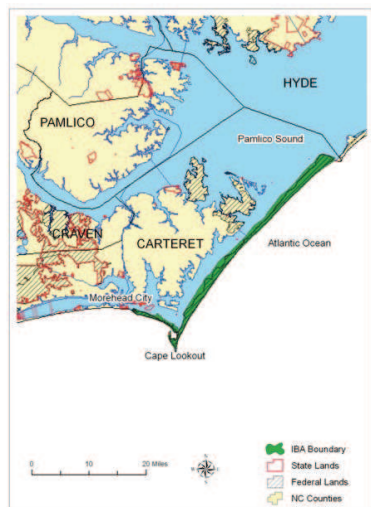
Bald Head-Smith Island



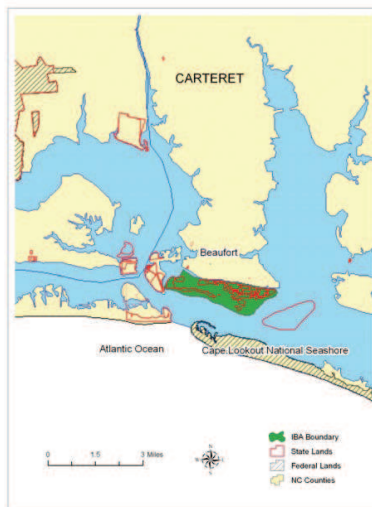
Cape Hatteras National Seashore



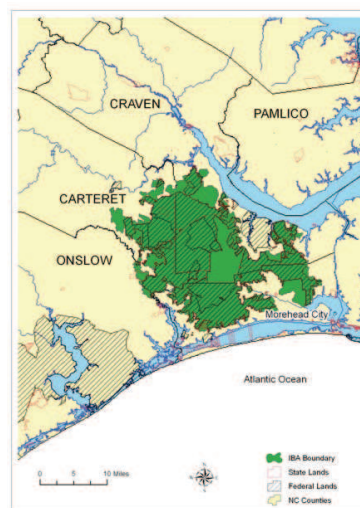
Cape Lookout National Seashore



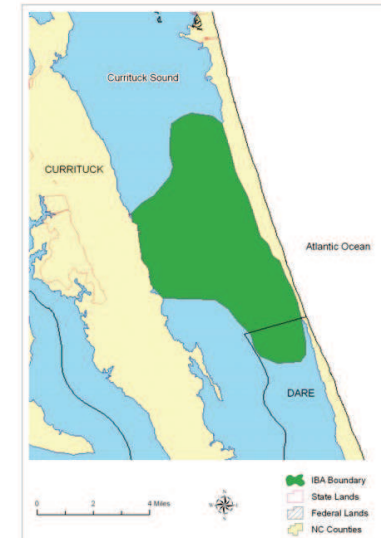
Carrot Island–Bird Shoal



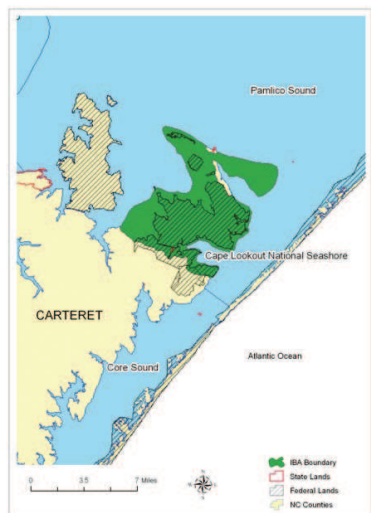
Croatan Forest



Currituck Marshes–Pine Island



Cedar Island Marsh



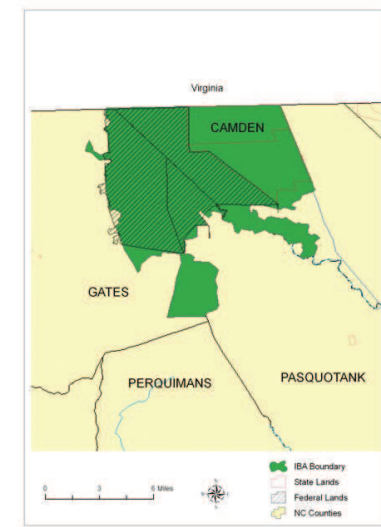
Chowan River Bottomlands



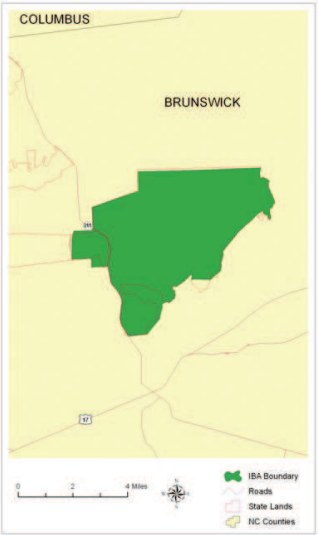
Eagles Island



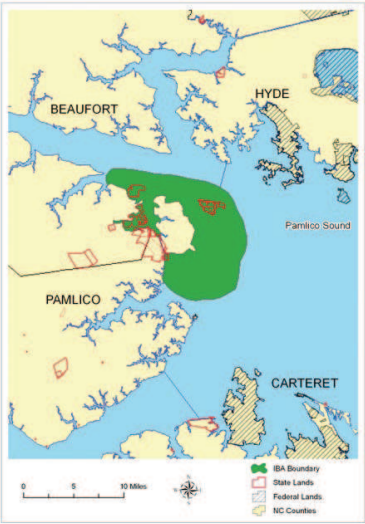
Great Dismal Swamp



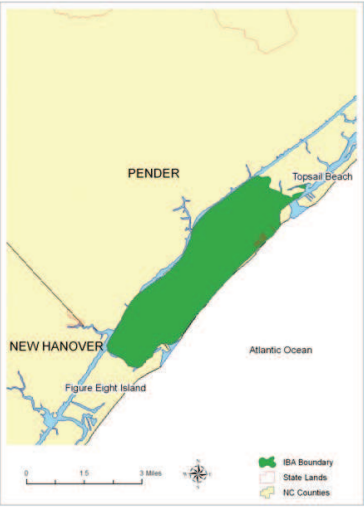
Green Swamp



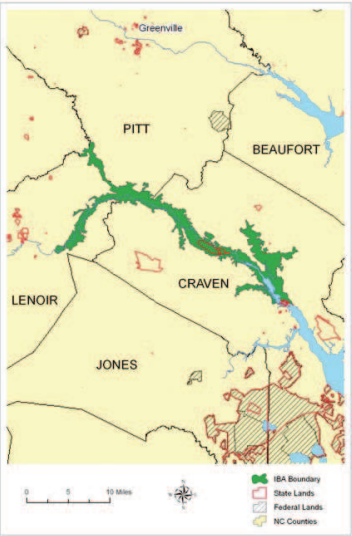
Hobucken Marshes–Gum Swamp



Lea-Hutaff Islands



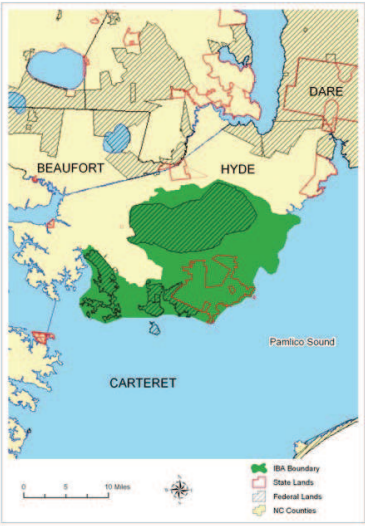
Lower Neuse River Bottomlands



Holly Shelter–Angola Bay



Lake Mattamuskeet–Svanquarter



Lumber River Bottomlands



Mackay Island



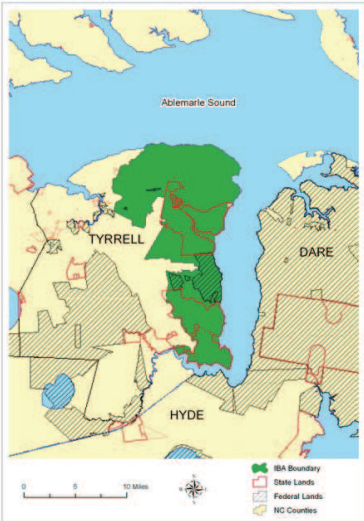
Masonboro Island



Onslow Bay



Palmetto-Peartree and Buckridge



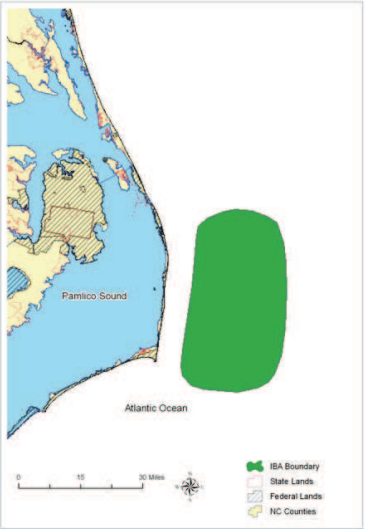
Pea Island



Outer Banks, Inshore Ocean



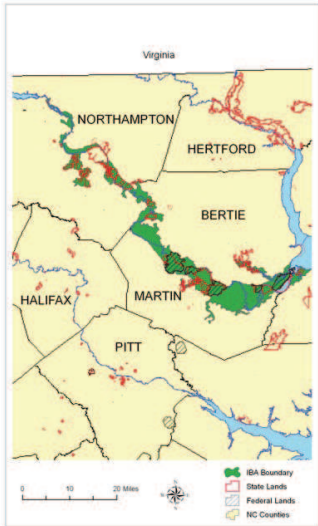
Outer Continental Shelf



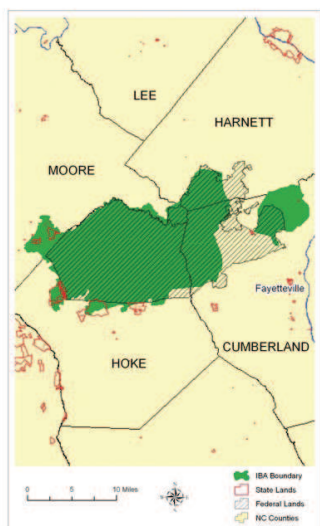
Pungo-Pocosin Lakes



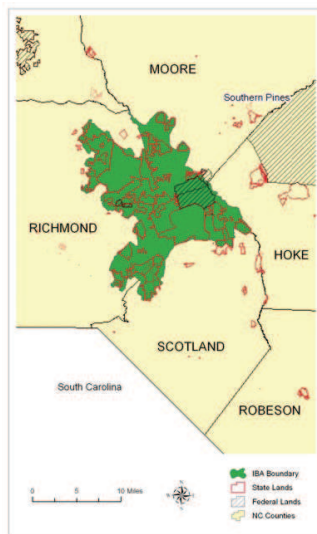
Roanoke River Bottomlands



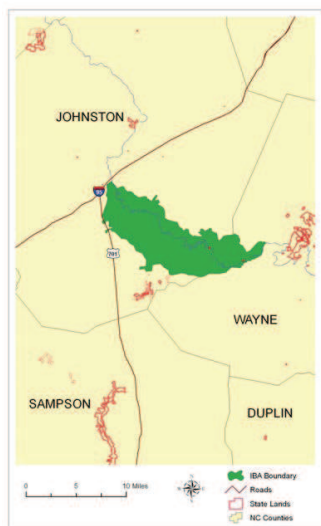
Sandhills East



Sandhills West



Upper Neuse River Bottomlands



Waccamaw River Bottomlands



The physiographic province known as the Piedmont occupies roughly 35 percent of the state, extending from the coastal plain Fall Line, on the east, to the Blue Ridge escarpment at the base of the mountain region, on the west.

The Piedmont is considered a “plateau,” though it is really a gradually descending (in elevation) plain from west to east, about 457 m (1,500 feet) at the base of the escarpment ranging down to 61 to 91 m (200–300 feet) above sea level near the Fall Line. Metamorphic rocks underlie nearly all of the Piedmont, though a few regions known as Triassic basins were later formed that filled with younger sediments (now sedimentary rocks). As one would expect, the Piedmont does have irregular landforms. In the western section there are outlier “mountain ranges”: these are, from north to south, the Sauratown, the Brushies, and the South Mountains. East of these are other distinct montane outliers, such as Kings Mountain, the Uwharrie Mountains, and a scattering of other exposed hills, such as Oconee Mountain. These outliers, called “monadnocks,” consist of areas of rocks that are more

resistant than the surrounding sediments.

The Piedmont is drained by numerous rivers and streams, generally flowing east and south. Quite a few of them have been dammed in recent decades, such that many dozens of reservoirs now cover the region’s floodplains.

The province’s climate is generally one of warm to hot summers (high temperatures averaging in the upper 80s in midsummer) and cool winters, with midwinter temperatures averaging 50°F for highs and 30°F for low temperatures. Rainfall is rather evenly distributed throughout the year, typically in the range of 102 to 127 cm (40–50 inches) per year. Snowfall is light, typically averaging close to 10 cm (4 inches) near the Fall Line to 25 to 30 cm (10–12 inches) near the mountains.

The Piedmont contains, by far, the largest human population of the state’s three provinces. The Piedmont Crescent extends from Raleigh on the east and runs through Greensboro, Winston-Salem, and Charlotte, continuing south through upper South Carolina to Atlanta, Georgia. Fortunately, other portions of the state’s Piedmont are more thinly settled, and