1986

Colonial Bird Studies

M. A. Byrd
The Center for Conservation Biology

K. Terwilliger

R. A. Beck

R Cashwell

PERFORMANCE REPORT

STATE: VIRGINIA PROJECT NO.: W-77-R-3

PROJECT TITLE: NONGAME AND ENDANGERED SPECIES INVESTIGATIONS

STUDY TITLE: COLONIAL BIRD INVESTIGATIONS STUDY NO.: VI

JOB TITLE: COLONIAL BIRD STUDIES JOB NO.: VI-A,B,C,D, E,F,G

JOB VI-A OBJECTIVE: To coordinate the protection and management of colonial birds in the state.

JOB VI-B OBJECTIVE: To conduct surveys of colonial breeding birds in Virginia in order to detect changes in population numbers as well as population shifts.

JOB VI-C OBJECTIVE: To sample nesting success in colonies of selected species each year.

JOB VI-D OBJECTIVE: To compare photographic, aerial and ground census techniques to establish limits of error with these techniques.

JOB VI-E OBJECTIVE: To conduct detailed biological studies of species which appear to be declining or for species for which the status is unknown.

JOB VI-F OBJECTIVE: To conduct preliminary studies on the effects and extent of predation on colonial breeders.

JOB VI-G OBJECTIVE: To monitor known existing colonies of red-cockaded woodpeckers to determine colony size and reproductive success.

SUMMARY:

Censuses were conducted of all known colonies of birds in the state by aerial survey. Over 95 per cent of all colonies were rechecked by ground and water for verification of numbers. Experiments were conducted with models to attract least terns to newly created habitat. Red-cockaded woodpeckers have declined to 15 adults. Only three nests were located with a total production of 6 young. Total known population of the species is 21 individuals.

COLONIAL BIRD SURVEYS:

Colonial bird surveys were flown over Tidewater Virginia during the last two weeks of May. Great blue heron colonies were resurveyed during June and July as previous experience has indicated that many colonies continue to grow in size subsequent to the May date.

Numbers for all colonies were estimated from the aerial surveys and indicated on field copies of 7 1/2 minute topographic sheets. All colonies which were new in 1985 have been added to a permanent set of 7 1/2 minute topographic sheets.

Colonial species nesting on Virginia barrier islands and salt marshes of the Eastern Shore were also censused by boat and foot. Over 95 percent of the colonies were censused to verify colony numbers obtained by aerial survey. All colony data for 1985 are shown in Table 1. Data for 1986 have not been completely tabulated at this time.

Great blue heron colonies were censused by aerial survey a minimum of twice during the season.

Breeding populations of great blue herons were estimated to consist of 4214 pairs on the basis of these aerial and ground surveys conducted in Virginia during 1985. A total of 34 colonies was found during the aerial surveys.

Great blue herons begin to appear around the colony in late February and start to perch in the herony during the first week of March. Nest building and egg production follows and by the 4th week of March adults have eggs and are incubating. Many colonies have young by the last week in April after a 28-30 day incubation period. Young fledge within 70-90 days after hatching. Reproductive data were acquired at a number of colonies.

GREAT BLUE HERON SURVEY, 1985 and 1986

Great blue herons nest in bottomland hardwood and large, older pines. In 1985, seventy-seven percent of the great blue herons nested in bottomland hardwood while twenty-three percent nested in pines. Seven of the 31 1984 active heronries were found abandoned this year. One replacement heronry (Tunstall) was located and one reoccupancy noted (Beulahville-Webb Creek). The heronries were abandoned after exposure to some form of human disturbance such as drastic logging practices, housing developments, or development of recreational facilities. In addition, eight new heronries were located, bringing the total number of heronries in 1985 to 34. Great egret populations have increased substantially within the last 3 years from 43 pair in 1982 to 195 pair in 1985. This increase may only reflect improved survey technique rather than an actual increase. By surveying the heronries while the birds are in incubation stage, these great egret numbers are more accurate.

Table 1. Colonial Birds Nesting on the Eastern Shore of Virginia, 1985.

Species	Total # of Colonies	# of Seaside Colonies (# of individuals)			# of Bayside Colonies (# of individuals)		Total # of individuals
		Barrier Island	Marsh Isl.	Spoil	Marsh Isl.	Wooded Isl.	
Laughing Gull	76	1(19,056)	72(13,419)	2(180)	1(375)		33,030
Herring Gull	13	5(1,713)	5(526)	2(684)	1(50)		2,973
G. Black-backed Gull	5	4(128)		1(48)			176
Royal Tern	2	2(7,166)					7,166
Forsters Tern	40		36(2,035)		4(196)		2,231
Common Tern	32	21(1,843)	6(102)	2(75)	3(480)		2,500
Least Tern	21	21(750)					750
Gull-billed Tern	13	10(270)	1(1)	2(80)			351
Sandwich Tern	2	2(18)					18
Caspian Tern	1	1(2)					2
Black Skimmer	24	19(3,324)	2(149)	2(110)	1(20)		3,603
Yellow-Crowned Night Heron	3	3(60)					60
Black-Crowned Night Heron	7	5(1,082)	2(50)				1,132
Glossy Ibis	9	7(742)	2(80)				822
Snowy Egret	10	7(655)	3(835)				1,490
Great Egret	8	7(373)	1(50)				423
Tri-Colored Heron	9	7(389)	2(270)				659
Little Blue Heron	7	5(182)	2(25)				207
Cattle Egret	7	5(312)	2(186)				498
White Ibis	1	1(2)					2
Green Heron	4	3(21)	1(2)				23

*Watts Island not included

Great blue herons are large, conspicuous colonial nesters. Because of their nesting habits, they are particularly vulnerable to human interference. Preferred nesting sites are remote, usually well separated from urban areas. The wariness of the great blue heron has been specifically observed and documented by ground visits to each of the colonies in Virginia.

The nesting success of this species is dependent on food supply, weather, and human disturbance. The influence of food availability and weather is unpredictable and uncontrollable. Human disturbance in some areas has become a serious problem that can be detrimental to the breeding success of the great blue heron. This type of disturbance can be limited and controlled. Any type of harassment that causes the adult to leave the nest can increase the mortality rate of the young due to predation by other avian species or exposure to the elements, nest desertion, or complete abandonment of the colony.

Very little information is available on the specific parameters that the great blue heron uses in the selection of a nest site. In Virginia, about 75 percent of the known heronries have been located in bottomlands which have large hardwoods and timbered lanes to rivers or the Chesapeake Bay. The herons tend annually to return to their established rookeries if the site is undisturbed.

Efforts have been continued to determine property ownership, to inform landowners of the colony locations, and to recommend guidelines for management for this species. One such example of this type of arrangement occurred in November 1985 when the Chesapeake Corporation, based in West Point, Virginia, agreed to practice wildlife management as well as forest management. This corporation is protecting five heron rookeries found on its property in Virginia. Two of the rookeries are in Northumberland County, one in King and Queen County, one in Richmond County, and one in James City County. Considering the economic and land use goals of these areas which includes logging and clearing, it is essential to establish several management recommendations for this species. Each heron site should be considered individually to meet the specific requirements of the birds and to consider the goals of the landowners. In order to provide appropriate habitat, the following recommendations have been proposed:

1) establish a buffer zone around each rookery which may vary according to the site

2) confine human disturbance such as logging, clearing and road construction to the period, from August 1 to January 31, since the herons usually arrive by early February and establish territories by mid February

3) post specific signs around the peripheral boundary of the rookery to inform the reader of the sensitivity of the area and the requirements of the colonial nesters, thereby requesting no access to the area

Table 2. Location of Great Blue Heron colonies in Virginia, 1985

Tropographic Quadrangle	Location on Quadrangle	County or City	Great Blue Heron Pairs	Great Egret Pairs	Habitat	Lat.	Long
Beulahville	Herring Creek	King William	8	1	Dead bottomland Hardwood	37°48'	77°09'
Beulahville	Webb Creek	King William	Abandoned				
Claybank	Queen Creek	York County	24		Pine	37°18'	76°30'
Claybank	Catlett Islands	York County	21		Pine	37°17'	76°32'
Gloucester	Fox Mill Run	Gloucester	56		Bottomland Hardwood	37°24'	76°32'
Franktown	Barlow Creek	Northampton	22	1	Pine	37°23'	75°57'
Hylas	Tuckahoe Creek	Goochland	5		Dead trees Swamp	37°38'	77°40'
Indian Head	Mason Neck	Fairfax	395		Hardwood Pine	38°37'	77°11'
Knots Island	Cedar Island	Virginia Beach City	90	30	Pine	36°36'	75°55'
Lancaster	Great Wicomico	Northumberland	26		Hardwood bottom	37°49'	76°27'
Lancaster	Bush Mill Stream	Northumberland	310		Swamp bottomland	37°52'	76°28'
Loretto	Stillwater Creek River	Essex	Abandoned		Pine	38°05'	77°02'
Dendron	Blackwater River	Sussex	37	9	Bottomland Hardwood	37°03'	76°59'
Dendron	Blackwater River	Sussex-Surry	42	4	Bottomland Hardwood	37°03'	77°01'
Montross	Cat Point Creek	Richmond County	Abandoned		Bottomland Hardwood	38°02'	76°50'
Mount Landing	Quioccasin Creek	Essex	5		Hardwood	37°59'	76°57'
Moyock	Northwest River	Chesapeake City	Abandoned		Bottomland Hardwood	36°35'	76°14'

Table 2 (cont.)

Tropographic Quandrangle	Location on Quadrangle	County or City	Great Blue Heron Pairs	Great Egret Pairs	Habitat	Lat.	Long
New Point Comfort	Peppers Creek	Mathews	308		Pine	37°20'	76°18'
Norge 2	Powhatan Creek	James City County	110		Bottomland Hardwood	37°17'	76°47'
Norge 1	Powhatan Creek	James City County	Abandoned		Bottomland Hardwood	37°16'	76°47'
Passapatanzy	Potomac Creek	Stafford County	448		Bottomland Hardwood	38°15'	77°07'
Pleasant Ridge	Intracoastal Waterway	Virginia Beach City	235	10	Bottomland Hardwood	36°44'	76°07'
Providence Forge	Collins Run	New Kent County	87		Bottomland Hardwood	37°25'	77°01'
Richmond	Chickahominy River	Hanover	2		Dead snag	37°35'	77°23'
Richmond	Chickahominy River	Hanover	27		Bottomland Hardwood	37°37'	77°24'
Seven Pines	Mechanicsville Chickahominy River	Hanover	105	5	Bottomland Hardwood	37°34'	77°21'
Roxbury	White Oak Swamp Chickahominy River	New Kent County	380	41	Bottomland Hardwood	37°29'	77°10'
Shackelford	Burnt Mill Creek	King and Queen	440		Bottom Hard-wood	37°33'	76°43'
Surry	Jamestown Island	James City County	21		Pine woods	37°11'	76°45'
Tangier	Watts Island	Accomac	208	89	Hardwood	37°48'	75°53'
Toano	France Swamp	James City County	88		Bottomland Hardwood	37°24'	76°46'
Tunstall	Elsing Green	New Kent	57		Pine & Bottom-land Hardwood	37°37'	77°03'
Tunstall	Little Island	New Kent	Abandoned		Pine	37°35'	77°04'

Table 2 (cont.)

Topographic Quandrangle	Location on Quadrangle	County or City	Great Blue Heron Pairs	Great Egret Pairs	Habitat	Lat.	Long
Tunstall	Big Island	New Kent	Abandoned		Pine	37°35'	77°03'
Yorktown	Beaver Dam Creek	York County	350	6	Pine	37°11'	76°30'
Ware Neck	Burke Mill Stream	Gloucester	167		Bottomland Hardwood	37°28'	76°28'
Port Royal	Mill Creek-A.P.	Caroline County	23		Bottomland Hardwood	38°07'	77°13'
Lively	Lancaster Creek	Richmond County	63		Dead snag	37°51'	76°37'
Brandon	Morris Creek	Charles City County	39		Bottomland Hardwood	37°19'	76°56'
Courtland	Nottoway River	South Hampton	13		Bottomland Hardwood	36°39'	77°02'
Pleasant Ridge	Pocaty River	Virginia Beach	3		Bottomland Hardwood	36°41'	76°05'

Very limited information has been published on the habitat requirements of the great blue heron. Observations in Virginia since 1983 has shown a shifting of nesting activity away from areas of disturbance. It is through cooperative agreements and implementation of management recommendations that the habitat may be preserved to maintain the present great blue heron colonies and to ensure habitat for future use.

LEAST TERN POPULATIONS, 1986

The least tern populations at Craney Island and Grandview Beach were successful during the 1986 breeding season. Both populations of least terns were from 10 to 14 days later than usual. Both populations were asynchronous. A summary of the colonies follows:

Table 3. Least tern populations at Grandview Beach and Craney Island.

Location	Number of Adults	Nest Count	Number of Young Banded
Craney Island Portsmouth, VA	200	74	0
Grandview Beach Hampton, VA	950	378	135

Even though both populations have been successful, several factors have influenced productivity. Human disturbance, inclement weather and high tides have been documented.

GRANDVIEW BEACH:

The Grandview Beach colony has frequent beach visitors and unleashed pets. The area was posted with 25 least tern signs to mark the entire boundary of the colony. Although vehicular traffic is usually restricted, the traffic on the beach parallel to the nesting area has increased by 100 percent. Much of the disturbance of the area was due to the workers repairing a charter boat that ran aground on May 30, 1986. Additional disturbance occurred during the first week in July, when the wooden planks from the wreckage were burned. When an area has been subjected to greater disturbance during nesting, the parent birds tend to leave their nests. This may result in the death of eggs and young. Twenty-one dead chicks, one to three days old, were recorded June 14, 1986.

This area should have increased protection. In addition to posting, the area could be roped off. All marinas should be informed of the presence of these threatened species at the site. As a final suggestion for protecting the terns located at Grandview, educational materials should be available to the public at the local marinas.

In addition to the least terns, other colonial nesters and beach nesters have been observed at the Grandview site. The following table summarizes the diversity observed at Grandview, a condition which did not exist in the past.

Table 4. Colonial and other species at Grandview Beach.

Species	Nests	Eggs	Young
Least Tern	378	592	300+
Common Tern	3	8	0
Piping Plover	4	16	8
Oystercatcher	2	4	0
Blackskimmer	8	8	0

Brown pelicans were observed during each visit. Both adults and immatures were observed feeding in the area.

CRANEY ISLAND:

Craney Island disposal area represents an area in a state of transition. The least tern population has been monitored for the past sixteen years. During these years there has been an increased demand of the Craney island disposal area to accept dredged material at an accelerated pace. Much of this dredging is done during the spring and summer months. Heavy equipment, construction, dike development, and pumping of dredged materials have all influenced the nesting success of the least tern.

In 1985, the Army Corps of Engineers, in cooperation with the Virginia Game Commission and personnel from the College of William and Mary, agreed to consider management techniques for the least terns on Craney Island. To reduce the possibility of disturbance of the nesting terns, three areas within the Dike System were created. Each area was a broad, flat, exposed sandy area with small bits of shells to simulate the nesting habitat of least terns. These areas were established in late winter. Fifty least tern decoys were also constructed. Each was painted to resemble the least tern in breeding

plumage. In early May, the decoys were placed within each of the three sites selected to encourage courtship and nesting behavior. The least terns returned two weeks later than usual. About 100 pairs began to set up territories within two of the three selected sites. Seventy-five nests were located later in the season. Productivity was not determined, but the survival rate of the young appeared to be low. The boundaries of each area were posted with least tern signs to prevent contractors with heavy equipment from traversing the area.

In general the tern population consisted of about 50 percent fewer adult birds than in 1985. Subsequently, one additional colony was located on a new spoil area at the end of the Hampton Road Bridge. Birds arrived here earlier than the Craney Island birds, and twenty-five nests were counted. This area provided suitable habitat and is owned by the U.S. Navy. Hauling and dumping of sand was observed in this area in late June. Steps to work out an agreement for protection of the habitat and appropriate management recommendations should be pursued before the 1987 breeding season. It is believed that this area attracted some of the Craney Island birds.

Another concentration of least terns was observed in the Little Creek Amphibious Base area. Forty to fifty pairs were observed in early may, but no nesting occurred. The area was under construction during the breeding period. This area also could be managed effectively with cooperation from Federal authorities.

In order to insure the population recovery of the least tern, it is recommended that all of the known nesting areas within the state be protected and managed through cooperative agreements.

COMMON TERN AND BLACK SKIMMER POPULATIONS AT THE SOUTH END OF THE HAMPTON ROADS TUNNEL, 1986

The number of common terns and black skimmers at this site has increased greatly since 1983. It appears likely that both black skimmers and common terns may have been attracted to this site from the Eastern Shore.

Table 5. Common tern and black skimmer populations, Hampton Roads Bridge Tunnel.

Species	Total Number of Adults			
	1983	1984	1985	1986
Common Tern	700	900	1600	2000
Black Skimmer	118	122	564	746

During a visit to the nesting area in the late summer of 1985, evidence of a mammalian predator was observed. The presence of rats was confirmed throughout the nesting area. The Department of Highways instigated an eradication program during the fall and winter. No evidence of rat predation of eggs or young was observed during the 1986 breeding season.

The management recommendations of 1985 have been accepted by the Department of Highways, and the cooperation among the tunnel personnel has been outstanding.

The nesting area was again posted with fourteen signs to mark the colony boundaries. These signs are to inform the reader of the sensitive nature of the area and the effects of human disturbance on the eggs and the young.

URBAN HERON COLONIES

A number of colonies have been suspected to occur in the urban areas of Norfolk, Newport News, Hampton, and Virginia Beach. Searches were made in likely habitat in Norfolk for active colonies, particularly of yellow-crowned night herons. Results of this survey are shown in Table 3.

Table. Location of Urban Colonies of Herons

Colony Number	Species	No.of Pairs	No. of Young	No. of Young Per Active Nest
1	Yellow-crowned-	4	8	2.00
2	Night heron	4	11	2.75
3	Night heron	2	6	3.00
4	Night heron	4	9	2.25[1]
5	Night heron	5	17	3.40
6	Night heron	2	7	3.50
7	Night heron	2	5	5.00[2]
8	Night heron	2	5	2.50
9	Great Egret	3	5	1.67
10	Great Egret	2	3	1.50
11	Great Egret	85	Unknown	Unknown

[1,2] One pair still incubating.

The lower Tidewater cities probably support a substantial population of yellow-crowned night herons. In view of the uncertain status of this species, further effort will be devoted to clarifying the population status of this species.

Urban heron colonies create some unusual management complications. Most of these colonies are in residential areas where residents resent the presence of the birds.

Colony 9, for example, consisted of 30 pairs in 1985. A local resident mounted owl decoys in the tops of the pines accompanied by shooting firecrackers and blanks.

Colony 11 has been known for several years where the breeding population consistently has numbered over 100 pairs. Expansion of the housing development has reduced the colony nesting area to 1/8 of the original size.

These urban colonies probably support more yellow-crowned night herons than do the mixed heron colonies on the Eastern Shore of Virginia. Efforts will be made next year to locate additional colonies and to develop good working relationships with the landowners.

RED-COCKADED WOODPECKER STUDIES

The major accomplishment for this breeding season was the completion of the essential parameters necessary to maintain each clan's survival. The boundaries of each of these areas have also been marked with special sensitive wildlife signs to inform the reader of the affects of human disturbance on this endangered species.

Fifteen adults were observed during the breeding season. Three clans successfully nested, producing six young. All six young were observed feeding with the adults in July. Reproductive data are shown in Table.

Table 6. Red-cockaded Woodpecker Productivity 1986.

Topographic Quadrangle	Location	Number of Adults	Successful Nests	Number of Young
Manry	Route 460 Wakefield	2	0	0
Manry	Union Camp Preserve	0	0	0
Manry	Union Camp Route 622	2	0	0
Manry	Intersection Routes 606 and 604	3	X	2
Yale	Intersection Routes 609 and 635	2	0	0
Sebrell	Route 608	2	X	2

Table 6 (cont.)

Sussex	Sussex School Tract Route 40	2	X	2
Buckhorn	Perry Lumber Tract	1	0	0
Yorktown	Brandywine Development	1	0	0
	Totals	15 adults	3 nests	6 young

TARGET DATE FOR COMPLETION: Continuing

STATUS OF PROGRESS: On Schedule

SIGNIFICANT DEVIATIONS IN PROGRESS: None

RECOMMENDATIONS: Continue Study

COST THIS SEGMENT: FEDERAL $13,425: STATE $4,475 : TOTAL $17,900 :

PREPARED BY: Mitchell A, Byrd
Karen Terwilliger
Ruth Beck
Rudy Cashwell

APPROVED BY: J. W. Raybourne
Chief, Division
of Game

DATE: August 1, 1986