1989

Colonial Bird Studies

M. A. Byrd
The Center for Conservation Biology

K. Terwilliger

R. A. Beck

D. S. Bradshaw
The Center for Conservation Biology

A Wheeley

PERFORMANCE REPORT

STATE:	VIRGINIA	PROJECT NO.:	EW-2-1
PROJECT TITLE:	NONGAME AND ENDANGERED SPECIES INVESTIGATIONS	STUDY NO.:	VI
		JOB NO.:	A-D
STUDY TITLE:	COLONIAL BIRD INVESTIGATIONS		
JOB TITLE:	COLONIAL BIRD STUDIES		
PERIOD COVERED:	July 1, 1988 - June 30, 1989		

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 conduct preliminary studies on the effects and extent of predation on colonial breeders.

SUMMARY: Colonial bird surveys were conducted in both natural and urban environments. Total population numbers are presented and management problems presented.

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

Numerous management problems occurred during the year relative to colonial birds. Specific problems relative to Craney Island, Grandview Beach, and the Hampton Roads Tunnel are addressed under Job VI-B of the report.

The barrier island colonies continue to receive some disturbance as a result of human intrusion. Project personnel assisted the Nature Conservancy by posting colony boundaries on a number of islands. Discussions were held with the Natural Heritage Program regarding least tern colony management on New Point Comfort Island.

The location of large great egret - great blue heron and yellow-crowned night heron colonies in urban environments were monitored. These colonies still present serious management problems because of their location. At least one major great egret colony was disturbed enough to cause relocation.

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

EASTERN SHORE COLONIAL BIRD SURVEYS:

Colonial bird surveys were flown over Tidewater Virginia in May and in early June. Numbers for all colonies were estimated from aerial surveys and indicated on field copies of the 7 1/2 minute topographic sheets. Colony data for the barrier islands in 1989 are shown in Tables 1 and 2.

WESTERN SHORE COLONIAL BIRD SURVEYS:

Colonial bird colonies on the western shore were censused initially by air. Many colonies subsequently were recensused by car, foot, and boat.

A number of the colonies on the western shore occur in urban environments or on man-created habitats. The major species involved on these unique environments are yellow-crowned night herons, great egrets, least terns, black skimmers, and common terns. In view of the unique nesting nature of these colonies in specific or restricted habitats, each is considered separately below. The unique management problems of each are commented on.

GREAT BLUE HERON-GREAT EGRET COLONIES

The locations of great blue heron colonies by topographic quadrangle, river or drainage system, county or city, number of pairs and habitat have been tabulated for 1988 (Table 3). Each colony was checked during the breeding season by aerial survey. There was an increase of eight new colonies of great blue herons and an increase of 914 individuals (457 pairs) from 1987 to 1988. The great egret population survey was not comprehensive and incorporated only those great egrets nesting within great blue heron colonies. There was a decrease of 28 individuals (14 pairs) of great egrets in 1988.

Table 1. Summary of colonial birds on the barrier islands, 1989.

1989 Total No. Adults June 18-21	ASSAWOMAN	METOMPKIN	CEDAR	DAWSONSHOAL	PARRAMORE	SANDY	CHINCOTEAGUE	HOG	ROGUE	COBB	L. COBB	WRECK	SHIPSHOAL	GODWIN	MINK	MYRTLE	SMITH	FISHERMAN	TOTALS
Grn. Bk. Heron		16					8					8							32
Little Blue Her.								42				6						29	77
Cattle Egret								32				4						59	95
Great Egret								11				10						218	239
Snowy Egret		12					12	81				79						68	252
Tri-Color Her.								61				146						41	248
Blk.-Can. N. Her.		24						126				7						385	542
Yel.-Crown. Her.								5										16	21
Glossy Ibis								12				123						60	195
White Ibis																		4	4
Brown Pel.																		396	396
Herring Gull		99	33			422	628			164		828						410	2584
Laughing Gull												7360							7360
G. Blk-Bk. Gull			4			11	48			12		67						13	155
Gull-Billed Tern		14	80	4			40	22			41	94	34		8	2			339
Common Tern		84	671	21		2	72	250		2	1092	63	745		52	6			3060
Least Tern	6	259	171					33		34			100		10				613
Royal Tern																		5000	5000
Sandwich Tern																		32	32
Caspian Tern													6						6
Black Skimmer		102	540	324			52	334		8	857	84	954		177	17		2	3451
Forster's Tern																			0
Oystercatcher	12	284	97	6		28	39	80	21	59	14	92	116		38	79		60	1025
Totals	18	894	1596	355		463	879	1100	21	279	2004	8971	1955		285	104		6793	25726

Table 2. Total number of adult colonial birds on the barrier island, 1975-1989.

Total No. Adults	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Green Heron	34	32	24	4	13	43	80	44	75	60	21	12	48	7	32
Little Blue	148	296	173	57	110	206	326	100	115	213	150	150	75	111	77
Cattle Egret	482	476	540	93	278	278	306	89	35	87	242	142	134	123	95
Great Egret	252	364	330	99	291	255	406	551	606	659	373	411	329	423	239
Snowy Egret	1192	2330	1196	245	364	332	722	776	376	731	655	611	728	313	252
Louisiana Heron	860	1364	956	293	497	382	700	1004	275	415	389	436	664	254	248
Blk.-Crn. N. Heron	1138	2780	2317	765	1143	836	840	1456	639	973	1082	850	540	314	542
Yel.-Crn. N Heron	46	108	78	68	105	74	113	75	119	93	60	63	39	24	21
Glossy Ibis	772	2534	628	320	481	389	705	964	578	637	742	556	463	304	195
White Ibis	-	-	4	0	6	0	2	2	2	0	2	2	0	4	4
Brown Pel.	-	-	-	-	-	-	-	-	-	-	-	-	345	92	396
Herring Gull	1320	3932	2950	936	1429	2785	2312	3772	3489	1985	2403	8306	3662	3959	2584
Laughing Gull	3730	9810	10920	9151	17027	4920	13608	18188	9466	16383	19624	22286	18440	20680	7360
Gr. Blk.-Back. Gull	0	6	0	6	13	24	56	74	128	109	186	561	386	280	155
Gull-Billed Tern	2228	2000	1092	955	737	959	1122	970	712	578	270	475	267	498	339
Common Tern	5218	6710	8496	3605	3347	5003	5260	3001	5219	5135	1843	2220	2240	2885	3060
Least Tern	766	886	1013	429	407	795	1869	550	1381	1217	717	1413	884	731	613
Royal Tern	4800	1330	9360	5962	3866	7326	5738	5200	8500	5772	7166	5910	6886	3656	5000
Sandwich Tern	18	28	30	80	2	34	34	4	140	24	18	80	20	24	32
Caspian Tern	2	2	2	2	2	4	2	6	4	6	2	8	8	8	6
Black Skimmer	7520	8811	10708	4824	5577	6970	9598	6303	5809	5233	3406	3780	3491	4448	3451
Forster's Tern	0	436	294	6	139	96	234	166	292	484	59	0	0	0	0
Totals	30525	40275	51214	28016	35781	31615	43913	43521	37945	40937	39473	48252	39649	39138	24707

Table 3. Location of Great Blue Heron Colonies in Virginia 1988.

TOPO CHART NAME	LOCATION BY TERRAIN FEATURE & CITY/COUNTY	GREAT BLUE HERON PAIRS	GREAT EGRET PAIRS	HABITAT TREE TYPE
AYLETT	Mattaponi River King William Co.	Not found in 1988		Pine
BEULAHVILLE	Herring Creek King William Co.	11		Dead Bottomland
BRANDON I	Portsmouth, VA Morris Creek Charles City Co.	6		Bottomland Hardwood
BRANDON II	Barrows Creek Charles City Co.	6		Snags
CLAYBANK I	Catlett Islands York Co.	18		Pine
CLAYBANK II	Queens Creek York Co.	59		Pine
COURTLAND	Nottaway River South Hampton Co.	55	12	Bottomland Hardwood
DENDRON I	Blackwater Sussex Co.	28	8	Bottomland Hardwood
GLOUCESTER	Fox Mill Run Gloucester Co.	78		Bottomland Hardwood
GLOUCESTER	Beaverdam Swamp Gloucester Co.	8		Snags
HOG ISLAND I	Hog Island State Waterfowl Refuge Surry Co.	202	11	Pine
HOG ISLAND II	College Run Surry Co.	43		Cyprus
HYLAS	Tuckahoe Creek Goochland Co.	48		Dead trees Swamp

Table 3 (continued)

INDIAN HEAD	Mason Neck Fairfax Co.	404		Hardwood Pine
KNOTS ISLAND	Cedar Island Va. Beach City	110	27	Pine
LANCASTER I	Great Wicomico Northumberland Co.	abandoned		Bottomland Hardwood
LANCASTER II	Bush Mill Stream Northumberland Co.	233		Swamp Bottomland
LIVELY	Lancaster Creek Richmond Co.	21		Dead Snag & Hardwood
LORETTO	Occupacia Creek Essex Co.	10		Snags
MONTROSS I	Cat Point Creek Richmond Co.	7		Snags
MONTROSS II	Cat Point Creek Richmond Co.	41		Pine & Snags
MORATTICO	Laton Swamp Richmond Co.	17		Snags
MOUNT LANDING	Quioccasin Creek Essex Co.	12		Hardwood
MOYOCK	Northwest River Chesapeake City	9		Bottomland
NEW POINT COMFORT	Peppers Creek Mathews Co.	271		Pine
NORGE	Longhill Swamp James City Co.	39		Snags
PASSAPATANZY	Potomac Creek Stafford Co.	237		Bottomland Hardwood
PLEASANT RIDGE I	Pocaty River Va. Beach City	9	3	Bottomland Hardwood
PLEASANT RIDGE II	Intracoastal Waterway	322	27	Bottomland Hardwood
PORT ROYAL	Mill Creek-A.P. Hill	Not found in 1988		Bottomland Hardwood

Table 3 (continued)

PROVIDENCE FORGE	Collins Run New Kent Co.	Not found in 1988		Bottomland Hardwood
QUINTON	Chickahominy River New Kent/ Hanover/Henrico line	30		Snags
RICHMOND	Chickahominy River Hanover Co.	22		Dead Snag
RICHMOND	Chickahominy River Hanover Co.	91		Bottomland Hardwood
ROXBURY	White Oak Swamp Chickahominy River New Kent Co.	471	37	Bottomland Hardwood
ROXBURY	Chickahominy River New Kent/ Charles City line	3		Snags
SEVEN PINES	Mechanicsville Chickahominy River Hanover Co.	70	4	Bottomland Hardwood
SEVEN PINES	Chickahominy River Hanover Co.	17		Snags
SHACKELFORDS I	Burnt Mill Creek King and Queen Co.	534		Bottomland Hardwood
SHACKELFORDS II	Poropotank River Gloucester/King and Queen Line	13		Dead Snags
SURRY I	Jamestown Island James City Co.	13		Pine
SURRY II	Black Duck Gut Surry Co.	29		Dead Snags
TANGIER	Watts Island Accomac Co.	177	58	Hardwood
TOANO	Frances Swamp York River James City Co.	89		Bottomland Hardwood

Table 3 (continued)

TUNSTALL	Elsing Green New Kent Co.	71		Pine & Bottomland Hardwood
TUNSTALL	Macon Creek New Kent Co.	32	7	Pine
TUNSTALL	Matton Creek New Kent Co.	12	4	Snags
WALKERS	Tonyham Swamp Charles City Co.	15		Snags
WARE NECK	Burke Mill Stream Gloucester Co.	91		Bottomland Hardwood
YELLOW TAVERN	Virginia Country Club	18		Snags
YORKTOWN	Beaver Dam Creek York Co.	470	15	Pine
	TOTAL PAIRS OF ADULTS:	4640	213	

LEAST TERN POPULATIONS - WESTERN SIDE OF CHESAPEAKE BAY:

The least tern population of the western shore of the Chesapeake Bay continues to expand. Least terns at Grandview Beach, Hampton, and Craney Island, Portsmouth, were active and productive during the 1989 breeding season. Each colony was visited weekly from April 15 through August. No nesting success was observed at the New Point Comfort colony site mostly due to the high level of human disturbance. Bethel Beach, Mathews County; "Sandy Island", located at the southeast end of Gwynn's Island, Mathews County; and Willoughby Spit, Norfolk are also included since least tern colonies were observed in 1989. A summary of the number of adults for the colonies is found in Table 1.

Table 1. Least Tern Populations on the Western Shore of the Chesapeake Bay.

LOCATION	NUMBER OF ADULTS
Grandview Beach Hampton, VA	650
Craney Island	600

Table 1 (continued)

Portsmouth, VA	
New Point Comfort Mathews, County, VA	0
Bethel Beach Mathews, County, VA	0
"Sandy Island" (southeast end of Gwynn's Island) Mathews County, VA	150
Willoughby Spit Norfolk, VA	10
Total:	1410

GRANDVIEW BEACH:

The nesting species summary (Table 2) indicates the Grandview beach area provides excellent habitat for beach nesting species.

The boundaries of the least tern colony, located at the north end of grandview Beach Preserve, were posted with 30 signs. During the course of the breeding season two signs were removed and replaced as needed. The signs will be removed in late August.

The area provided nesting habitat for a mixed colony of beach nesters but was utilized predominantly by least terns. Weekly visits were conducted throughout the breeding season. There were two peak nesting periods due to washouts from severe storms early in the breeding season.

Five pairs of piping plovers were observed on territory. Each pair attempted to nest, but four nests were successful. Ten fledged young were observed in mid-July.

Table 2. Beach Nesting Species at Grandview Beach, Hampton, Virginia.

SPECIES	NUMBER OF ADULTS	PEAK NUMBER OF NESTS	NUMBER OF FLEDGED YOUNG
Least Tern	650	280	180 plus (estimated)

Table 2 (continued

Common Tern	6	4	0
Black Skimmer	66	27	unknown
Piping Plover	10	5	10
Oystercatcher	4	1	1

PROBLEMS:

Birds are attracted annually to the Grandview Beach area, but disturbance continues to increase. Boating activity, including picnickers who have boated to the area and stay for several hours, is a common occurrence during the entire breeding season. Unleashed pets often accompany the picnickers. A large pile of eggs, 15 plus, were found during one visit. Posting does keep the majority of individuals out of the colony, but prolonged disturbance by any of the above types of activities can be detrimental. Herring gulls and great black-backed gulls are increasing around the colony. Two peregrine falcons were regularly observed on Plum Tree Island. At least twelve dead adults, each with a notched sternum, were observed at one area indicating a natural predation process.

CRANEY ISLAND:

In January 1989, Hank Williamson, site manager of Craney Island, and Ruth Beck met to determine potential nesting habitat within Craney Island. One large area on the north end would be prepared with shell and pebble to create least tern habitat.

A total of four different least tern colonies on Craney Island were observed during the 1989 breeding season, three small areas along beaches and dikes and the one large newly created site. The majority of nesting activity occurred within this area. A total of 300 pairs was observed nesting.

One pair of piping plovers nested in the area of the newly created habitat with the largest least tern colony. This pair was observed on territory in mid-June. The nest was found, and subsequently produced three young. This is the first breeding record of the piping plover on Craney island. The young were observed in a pre-fledgling stage in mid-July.

Over 150 brown pelicans were regularly observed during June. A flock of 50-75 royal terns were mixed in with the brown pelicans.

80-100 black skimmers were observed weekly, however no nesting attempts were recorded.

Two common tern nests were observed among the smallest least tern colony.

Two adult black-necked stilts were observed throughout June. No nesting activity was observed.

PROBLEMS:

Great black-backed gull and herring gull numbers continue to increase around the nesting habitat. Various types of stabilization for the artificially created habitat also will be explored to prevent excessive washing during severe summer storms.

NEW POINT COMFORT:

No evidence of least tern occupancy was observed at New Point Comfort. The area was instead heavily utilized by boaters and campers. Various efforts are in progress to work with Mathews County to consider assisting with the protection of the area for colonial nesting species.

PROBLEM:

Negotiation for permission to protect and manage the area for colonial beach nesters should continue.

BETHEL BEACH:

Bethel Beach, Mathews County, Virginia, was posted with five signs indicating the sensitive nature of the area and requesting no entry or disturbance during the breeding season. This was accomplished through the efforts of Anne Lewis of The Nature Conservancy.

PROBLEM:

This area should continue to be posted and protected. It is potentially a good site for colonial beach nesters.

"SANDY ISLAND":

A least tern colony of about 65-75 pairs was observed on Sandy Island, located near the southeast point of Gwynn's Island in Mathews County. Nesting activity was first reported in early July by Chris Pague of the Natural Heritage Program. The terns located here may be renesting attempts from the other Mathews County locations, New Point Comfort and Bethel Beach, as well as other areas where washouts may have occurred. Annual monitoring, posting, and managing for beach nesters should continue.

WILLOUGHBY SPIT:

One small least tern colony of 5-10 pairs was reported in early July. Three downy young and two fledged young were observed by Steve Martin, Department of the Navy, Norfolk, Virginia. Communication and requests have been established to observe the area year-round for two years to determine the use of this area by beach nesters and other migratory species.

Cooperative efforts among appropriate agencies should continue to protect and manage for colonial beach nesters.

COMMON TERN - BLACK SKIMMER POPULATIONS - HAMPTON ROADS TUNNEL:

The south end of the Hampton Roads Tunnel continues to be one of the largest common tern colonies in Virginia. The area was posted in early April with signs indicating the sensitive nature of the site. Weekly visits were made during the breeding season. The number of adult common terns was 2,580 individuals. The black skimmer total was 224 individuals.

No evidence of mammalian predation was observed. In 1988, a large number of rats were observed during the breeding season. Removal of rats on the Hampton Roads Tunnel Island by the Virginia Department of Highways and on Fort Wool by the Hampton Department of Parks between October, 1988 and February, 1989 was successful. The continuation of this type of control is recommended for 1989-1990.

In order to prevent hitting and killing the young with vehicular traffic, a fence was recommended and approved for the 1989 breeding season. The cost of such a fence was prohibitive. An alternate recommendation is to stake black erosion mesh along the edge of the roadway to prevent young from sitting in the road. This will be explored for the 1989-1990 breeding season.

Removal of vegetation at specifically selected sites should continue to provide habitat for black skimmers.

Of the 5,700 common tern indivduals observed in Virginia in 1989, 2,580 were located on this man-made island. The cooperation between the Virginia Department of Highways, Ruth Beck, College of William and Mary, and the Virginia Department of Game and Inland Fisheries continues to provide the protection necessary for appropriate nesting habitat for this large colony of colonial nesters.

HERON COLONIES IN URBAN ENVIRONMENTS:

Surveys were conducted again this year in the Hampton Roads and Tidewater areas to monitor urban heron and egret colonies and address citizen concerns. Survey results and population trends are shown in Tables 5, 6, and 7.

Prior to the nesting season, the Department of Game & Inland Fisheries together with the Department of Agriculture and Consumer Services sent out

approximately two dozen letters to homeowners who were requesting assistance with the upcoming problem. As with last year, it was agreed that harassment would be acceptable prior to nest construction to prevent nesting in certain areas.

Great Egrets

Perhaps the most significant event this year within the great egret population was the complete disappearance of the historical Thoroughgood colony in VA Beach. After destruction of the original colony site in 1987, the birds had successfully relocated nearby in 1988. However, this year the birds did not return to the relocation site of '88 and were never located anywhere this nesting season. Although another colony in Norfolk did experience a 50^{+} pair increase, we could not account for the $200\pm$ pairs that represented the Thoroughgood colony.

Of equal importance this year, may be the knowledge that harrassment seems not to be a dependable tool for initiating colony relocation. The Norfolk great egret colony has been harassed continually each spring for the last 3 years by several homeowners using various forms of pyrotechnics. However, even with constant pre-nesting harassment, the colony size has at least doubled each year in number of breeding pairs (see Table 6). This creates the unfortunate situation that unless other techniques are discovered, homeowners may elect habitat removal as the only proven method for colony displacement.

The only other known great egret colonies exist in Portsmouth and Hampton. Both of these colonies are stable or increasing in size, however both are also subject to human intervention in the near future. The Game Department is currently working with the Natural Heritage Program and the Nature Conservancy to attempt to secure long term protection for these sites.

Table 5. Status of urban great egret colonies.

	Colony	Drainage	Status/Cause
01	Thoroughgood Colony Virginia Beach	Lynhaven River	Relocated - habitat Loss (87) Abandoned - (89)
02	Giordano Colony Virginia Beach	Eastern Branch Elizabeth River	Abandoned - harrassment (87)
03	Mariner Colony Portsmouth	Western Branch Elizabeth River	Abandoned - habitat loss (87)

Table 5 (continued)

04	Winston Colony Portsmouth	Western Branch Elizabeth River	Increasing
05	Brown Colony	Lafayette River	Increasing
06	Hampton Colony	Hampton River	Increasing

Table 6. Colony size of great egrets over time.

Time	01	02	03	04	05	06	Total
1986	80	110	110^{+}	70	8	-	368
1987	320	30	0	73	26	-	449
1988	237	0	0	121	55	241	554
1989	0	0	0	122	110	296	528

Yellow-crowned night herons

Only Hampton and Norfolk were surveyed extensively this year in view of the significance of these areas to the yellow-crowned population. The Hampton population seems stable compared to 1988, although over 40% of the nesting pairs were located in different sites than were used in 1988. Some of these relocations are expected in view of different pairs being present, but most relocations appear to be a result of either human harassment or fish crow nest predation. At least one large yellow-crowned colony free of human disturbance was disbanded after crows began to nest within the colony. Crow nests are turning up with increasing frequency in areas where yellow-crowneds are found.

The Norfolk population has fluctuated significantly over the last three years with this year reaching a recent high of 64 nesting pairs. Rather than being an exact measure of population stability, this may more closely represent survey intensity. With increasing media attention, more Norfolk residents are being educated about the options of harassment. As a result there is considerably more heron harassment in Norfolk than in Hampton creating an even greater annual displacement of nesting pairs. This in turn increases the difficulty of locating all the nesting pairs each spring. Increased nest displacement also potentially predisposes the birds to reduced nesting success. A pilot project to band and color-mark young from several distinct populations was attempted this year, but was postponed until 1990 for logistical reasons. Through such a project,

surveyors hope to better assess long term breeding success and productivity.

Table 7. Yellow crowned night heron nest survey results.

	Active nest sites		
	1987	1988	1989
Hampton	79	64	65
Norfolk	62	42	64
	141	106	129

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

Nesting success of several least tern colonies was commented upon in Job VI-B. Nineteen nests of great blue herons in 2 colonies were followed through the breeding season. One of these colonies of 13 pairs was located in abnormal habitat in that it was found on the end of an old pier. These 13 nests produced 39 young for an average production of 3.0 young per active nest. The remaining small colony of 6 nests produced 14 young for a production of 2.33 young per nest. Aerial surveys indicated that production of great blue herons in 1989 was excellent despite severe winds and heavy rains.

Breeding success on the barrier beaches generally was poor, probably because of inclement weather and high tides. Production was excellent on the east end of Fisherman Island and on the sand bars adjacent to Metomkin and Assateague Islands.

JOB VI-D - To conduct preliminary studies on the effects and extent of predation on colonial birds.

At least 12 least terns at Grandview Beach were killed by the resident pair of peregrine falcons.

Virtually all colonial birds, including the large herring gull colony, abandoned Metomkin Island in 1989. In 1988, extensive evidence of mammalian predation on Metomkin Island was noted. There is evidence of both raccoon and fox predation on Metomkin Island. Both of these predators have reached other barrier islands. The future of colonial birds on these island will be dependent upon control of these predators.

TARGET DATE FOR COMPLETION: Continuing

STATUS OF PROGRESS: On Schedule

SIGNIFICANT DEVIATIONS IN PROGRESS: None

RECOMMENDATIONS: Continue Study

COST THIS SEGMENT: Federal $16,875 State $5,625 Total $22,500

PREPARED BY: Mitchell A. Byrd
Karen Terwilliger
Ruth Beck
Dana Bradshaw
Anne Wheeley

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

R. W. Duncan
P. R. Coordinator

DATE: August 1, 1989