PERFORMANCE REPORT

STATE:	VIRGINIA		
PROJECT TITLE:	NONGAME & ENDANGERED SPECIES INVESTIGATIONS	PROJECT NO:	EW-2-3
STUDY TITLE:	BALD EAGLE INVEST.	STUDY NO:	I
JOB TITLE:	BALD EAGLE STUDIES	JOB NO:	A-F
DURATION:	JULY 1, 1990 - JUNE 30 1991		

SUMMARY:

Aerial and ground surveys resulted in the location of 111 active nests and 3 additional occupied territories. Of the 111 nests of known outcome, 94 were productive and 17 were unproductive. A total of 157 young was produced with an average production of 1.41 fledglings per active nest and 1.67 fledglings per productive nest.

Shoreline surveys were conducted of summering populations on the James and Potomac Rivers. Studies of environmental variables along the James River foraging area were completed.

All active nests were ranked in accordance with threats. Complete landowner lists for both foraging sites and roost areas were completed.

An aerial mid winter survey of eagles was conducted in January, resulting in the location of 443 birds. This wintering population consisted of 271 (64%) immatures and 151 (36%) adults.

JOB I-A OBJECTIVE: To conduct a winter inventory of bald eagle numbers including age composition of this population.

WINTER SURVEYS

Project personnel conducted an aerial survey throughout Eastern Virginia in January to locate wintering eagles. All major tributaries in Eastern Virginia were covered. For purposes of comparison, data for 1989 and 1990 are included with those for 1991. Data for inland impoundments, the Eastern Shore and lower Tidewater, were provided by volunteers.

Table 1. Bald eagles observed during mid-winter surveys, January, 1989, 1990, and 1991.

Area Immatures				Adults		
	1989	1990	1991	1989	1990	1991
James-Chickahominy Rivers	47	32	34	72	28	103
Rappahannock-Piankantank Rivers	54	71	47	51	107	75
Potomac River	57	21	39	20	19	43
York, Pamunkey, Mattaponi Rivers	6	12	17	5	6	23
Eastern Shore - Lower Tidewater	8	9	5	6	4	8
Inland Impoundments	6	7	9	4	8	19
	178 (53%)	152 (47%)	151 (36%)	158 (47%)	172 (53%)	271 (64%)

The mid-winter count showed an increase in both total number of birds and immatures. During the course of the survey, eagles commonly were seen flying overhead from one river system toward another. It is likely that the unusually mild weather prevented a stablization.

<u>JOB I-B OBJECTIVE:</u> To determine hatching and fledgling success of eagles in Virginia.

Aerial surveys were conducted in February, March, and May to locate active nesting territories and to determine the number of young produced. May surveys were conducted after young were large enough to be observed with more certainty from the air. Surveys were conducted throughout Tidewater Virginia and the Eastern Shore.

Aerial surveys resulted in the location of 110 active nests. All active nests were plotted on 7 1/2 minute topographic sheets. Data on 111 nests of known outcome are presented in Tables 2 and 3.

Of the 111 nests of known outcome, 94 were productive and 17 were unproductive. The total number of young produced was 157. Assuming that all young fledged successfully, average production was 141 young per active nest. The number of fledglings per productive nest was 1.67, lowest since 1982. The percentage of successful nests (85%) was the highest yet achieved, hence the lower number of young per prodctive nests was attributable to a large number of one young nests. Of the 94 productive pairs, 7 produced 3 young each, 49 produced 2 young each, and 38 produced 1 young each.

Data on productivity for 1991 and productivity trends for 1977-1991 are summarized in Table 2. Productivity by river systems and area are shown in Table 3.

Table 2. Bald eagle productivity in Virginia for the period 1977-1991.

Year	Total Active Nests	Total Prod. Nests	Total Unprod. Nests	Percent Nest Prod.	Total Young Fledged	Fledglings Productive Nest	Fledglings Active Nest
1977	33	13	20	39	18	1.38	0.54
1978	37	14	23	38	18	1.29	0.54
1979	33	15	18	45	20	1.33	0.61
1980	35	23	12	66	35	1.52	1.00
1981	39	27	12	69	40	1.48	1.02
1982	45	28	17	62	41	1.52	0.93
1983	52	31	21	60	51	1.68	0.98
1984	60	34	26	57	58	1.68	0.97
1985	65	47	18	72	84	1.79	1.29
1986	66	43	23	65	83	1.93	1.26
1987	73	61	12	84	107	1.75	1.47
1988	81	65	16	80	118	1.82	1.46
1989	92	52	40	57	88	1.69	0.96
1990	99	75	24	76	142	1.89	1.43
1991	111	94	17	85	157	1.67	1.41

Data on productivity of bald eagles in Virginia by river systems from 1989-1991 are indicated in Table 3.

Table 3. Bald eagle productivity in Virginia for 1989-1991 by River system or Area.

River System or Area	No. of Active Nests			Percent Nests Productive			No. of Fledglings Produced			Fledglings per Productive Nest			Fledgings per Active Nest		
	1989	1990	1991	1989	1990	1991	1989	1990	1991	1989	1990	1991	1989	1990	1991
York, Pamunkey, and Mattaponi Rivers	12	10	12	50	90	92	12	19	20	2.00	2.11	1.82	1.00	1.90	1.67
James, Chickahominy Rivers	16	18	20	50	89	80	11	32	28	1.38	2.00	1.75	0.69	1.78	1.40
Potomac River	29	31	32	65	61	84	31	37	43	1.63	1.95	1.59	1.07	1.19	1.34
Rapahannock and Piankatank Rivers	26	32	37	62	75	54	29	44	52	1.19	1.83	1.70	1.12	1.38	1.47
Eastern Shore-Reservoirs (interiors	9	8	10	44	88	80	5	10	12	1.25	1.43	1.50	0.56	1.00	1.25
Totals	92	99	111	57	76	85	88	142	157	1.69	1.89	1.67	0.96	1.43	1.41

JOB I-C OBJECTIVE: To identify ownership of nesting areas and concentration areas of bald eagles during the summer and winter season and to develop management agreements and protection strategies where possible for these areas. These areas will be monitored regularly as deemed necessary.

A land ownership list and address list was compiled fo rall active nests for the 1990 breeding season. Ownership plats of properties surrounding each active nest were identified in court records and drewn on a map for each 1990 nest site. These maps reflect nest location as well as surrounding properties in order that management plans reflect all properties involved in protection of a nest site.

In 1991, there were 31 new nest locations, including 7 new pairs and 24 relocated pairs. Maps showing land ownership and surrounding ownership for 24 of these sites have been completed. Of the 24 relocations, four appear to be related to new housing, nine to forestry activities, and 11 showed no obvious source of disturbance.

All 111 active nests from the 1991 season have been given a numerical ranking from 103 indicating possible levels of disturbance. These rankings will be utilized to prioritize the development of management plans for nest sites. Letters have been mailed to landowners regarding nests on their property and indicating the options available to them in the development of management plans.

Land ownership lists for significant foraging areas on the James, Rappahannock, and Potomac Rivers have been completed. Because of numerous ownership changes on the Potomac River, this list needs to be revised to reflect current conditions.

JOB I-D OBJECTIVE: To monitor eagle concentration areas on the James, Rapahannock, and Potomac Rivers and to determine the influence of human activity where possible.

James River - A census route was established several years ago to determine primary foraging areas adjacent to the James River roost. Over the years, these areas have been delineated on an outline map of this section of the river. In 1991, several surveys were conducted to determine numbers of birds using the foraging area during the peak season. Data for these surveys are indicated in Table 4. Data on numbers for essentially similar dates in 1990 are provided.

Table 4. Bald eagle survey results for the James River roost area, 1991

Date	Adults	Immatures Eagles	Unknown Eagles	Total
05/29/91	70	67		137
05/30/90	31	34	4	69
06/17/91	39	47		86
06/17/90	55	40	5	100
06/24/91	49	58		107
07/01/90	34	26	2	62
07/16/91	54	55		109
07/15/90	40	33	20	93
07/22/91	56	50		106
07/19/90	32	43		75

The count of 137 was the highest seen since the inception of surveys. Numbers for the past three surveys consistently have been over 100 individuals. It appears that the James Riber roost may presently be supporting one of the largest populations since discovery of the roost. This probably is a reflection of an increasing eagle population in the east.

Potomac River

The Potomac River concentration area was monitored in collaboration with the Division of Parks. Data from these surveys cover only the Caledon shoreline, hence are not comparable to original census information from studies at Caledon. Data for 1990 and 1991 for comparable periods are provided for comparison in Table 5.

Table 5. Bald eagle survey results for the Caledon Natural Area shoreline survey.

Date	Adults	Immatures	Total Eagles
04/24/90	6	3	9

04/30/91	8	6	14
05/09/90	5	12	17
05/07/91	3	5	8
05/14/90	2	11	13
05/14/91	4	6	10
05/23/90	2	5	7
05/20/91	4	8	12
06/01/90	4	6	10
05/26/91	5	2	7
06/06/91	2	2	4
05/27/91	6	1	7
06/01/91	4	5	9
06/10/91	7	8	15
06/17/91	7	12	19
06/24/91	4	6	10
07/03/91	8	2	10
07/09/91	5	10	15
07/16/91	3	2	5

Rappahannock River

The Rappahannock River area between Fones Cliffs and Portobago Bay is primarily a winter concentration area although it is used to a lesser extent in the summer. An aerial survey of this area on January 15 provided a count of 26 adult and 18 immature eagles using the area. No summer census was completed.

JOB I-E OBJECTIVE: To make an intensive study of the bald eagle population and occupied habitat on the James River and to develop an overall management strategy for the area.

Game Department personnel monitor the James River eagle concentration area for communal roost site this summer. The largest single roost area was located on the new James River National Wildlife Refuge where high counts of 65 and 63 eagles were recorded during their pre-dawn departure on two occasions in early June. This large roost appears to have taken the place of several smaller roost sites from previous years.

One other roost site was located on private land approximately two mile downriver form the major roost. This secondary roost site was supporting 40 and 43 eagles respectively on those days immediately following the high counts at the major roost site. This suggests that boat surveys exceeding total of

100 individuals are probably very accurate and not a result of counting many individuals more than once.

Both roost sites shared similar habitat characteristics dominated by open stands of large mature hardwoods. Although pines and dead snags are also used, these birds seemed to prefer the live hardwoods, especially the larger oaks. VDGIF personnel will be working closely with U.S. Fish and Wildlife Service refuge staff to generate a viable management plan for eagles on the new refuge.

Kennedy Clark, in association with the College of William and Mary, is investigating shoreline foraging habitat utilization by bald eagles in the James River bald eagle concentration area surrounding the newly acquired James River NWR. The objectives of this project are to make a quantitive site-specific analysis of shoreline use in the concentration area, establish which habitat, temporal, and environmental factors most significantly effect the distribution and abundance of individuals along the shore, and to monitor abundance and age structure of the population. Based on the results, specific recommendations will be made for protection and management of bald eagle habitat in the concentration area and general recommendations will be made for the Chesapeake Bay region.

Data collection for the project was completed in August of 1990. The project is currently in the data analysis phase. Completion of the project thesis dissertation is expected by December of 1991 with technical reports being submitted to VDGIF and the U.S. Fish and Wildlife Service subsequently.

JOB I-F OBJECTIVE: To provide consultation in conjunction with the Department of Game and Inland Fisheries to landowners, state, and federal agencies on each developing issue dealing with bald eagle management in Virginia.

A number of meetings were held by project personnel with both private landowners and public agencies. Project personnel participated also in a series of meetings with a group promoting responsible development.

Meetings were held with the U.S. Fish and Wildlife Service personnel to discuss long-range strategies for the James River Bald Eagle National Wildlife Refuge.

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TARGET DATE FOR COMPLETION: Continuing

<u>STATUS OF PROGRESS:</u>	On schedule
<u>SIGNIFICANT DEVIATIONS:</u>	None
<u>RECOMMENDATIONS:</u>	Complete observation plan and continue to focus on cooperative landowner plans.
<u>COST THIS SEGMENT:</u>	$19,351 total $16,180 federal $ 3,171 state
<u>APPROVED BY:</u>	Bob Duncan Wildlife Div. Chief Jerry Sims PR Coordinator