PERFORMANCE REPORT

STATE:	Virginia		
PROJECT TYPE:	Research and/or Survey	PROJECT NUMBER:	EW-1-6
PROJECT TITLE:	Virginia Endangered Species Investigations	STUDY NUMBER:	II
STUDY TITLE:	Bald Eagle Investigations	JOB NUMBER:	II-A-1, II-A-2, II-A-3, II-A-4, II-A-5
PERIOD COVERED:	July 1, 1981-June 30, 1982		

JOB II-A-1 OBJECTIVE: To obtain a winter inventory of Bald Eagle numbers and determine range of these birds in Virginia.

JOB II-A-2 OBJECTIVE: To determine hatching and rearing success of Bald Eagles in Virginia.

JOB II-A-3 OBJECTIVE: To develop and utilize techniques to introduce Bald Eagles into formerly occupied habitat through hacking techniques and to introduce captivity reared bald eagle young into foster parent nests.

JOB II-A-4 OBJECTIVE: To determine post nesting dispersal and other movements of young eagles through the use of radio-telemetry equipment.

JOB II-A-5 OBJECTIVE: To monitor activities at two active eagle nest sites from egg laying through fledging of young through the use of video equipment. In addition, all aspects of incubation and post incubation behavior will be observed from blinds at two additional sizes.

SUMMARY:

Aerial and ground surveys resulted in the location of 45 active bald eagle nests from which 43 young were produced and 41 fledged. This resulted in a production of 0.93 fledglings per active nest and 1.52 fledglings per productive nest.

Thirty-five young eagles of the 41 produced were banded and also marked with a new plastic-type band with an alpha-numeric code on each.

Analyses were completed of foraging data from television observation at three nest sites.

One eaglet was fitted with a back-pack radio-transmitter and monitored until dispersal.

SURVEYS:

(a) Breeding surveys - aerial surveys were conducted during March, April and May to locate active nests and to monitor the fate of each located nest.

As in both 1980 and 1981, aerial surveys were not conducted on any of the inland lakes as there had been no evidence to suggest nesting birds in these areas.

Aerial surveys in the Tidewater Area resulted in the location of 45 active nests. One additional nest was located as a result of a report from a Game Commission Warden. All nest locations were plotted on 7 1/2 minute topographic sheets. The fate of each active nest is shown in table 1.

Table 1. Location and Productivity of Active Bald Eagle Nests in Virginia, 1982.

County	Nest Number	Reproductive Success	No. of Young Fledged
Accomac	80.01	Productive	1
Caroline	82.01	Unproductive	0
Charles City	81.01	Productive	1
Essex*	78.01	Productive	0
Fairfax	81.01	Unproductive	0
Gloucester	81.01	Productive	2
James City	82.01	Productive	2
James City	82.02	Productive	1
King George	80.04	Unproductive	0
King George	80.05	Productive	2
King George	81.01	Unproductive	0
King George	81.02	Productive	2
King George	82.02	Unproductive	0
King William	79.01	Productive	1
King William	80.01	Unproductive	0
Lancaster	82.01	Productive	1
Middlesex	80.02	Productive	2
Middlesex	81.01	Productive	2
Middlesex	77.01	Productive	2
Northampton	82.01	Productive	2
Northumberland	70.01	Unproductive	0
Northumberland	79.01	Productive	1
New Kent	79.04	Unproductive	0
New Kent	80.01	Unproductive	0
New Kent	77.01	Unproductive	0
Prince George	61.01	Unproductive	0
Prince William	82.01	Unproductive	0
Richmond	74.01	Productive	1
Richmond	78.01	Productive	1
Richmond	78.02	Productive	1
Richmond	79.02	Productive	2
Richmond	81.02	Productive	2
Suffolk	82.01	Productive	1
Stafford	82.01	Unproductive	0
Stafford	82.02	Unproductive	0
Surry	81.01	Productive	2
Surry	82.01	Productive	1
Westmoreland	77.03	Productive	1
Westmoreland	78.01	Unproductive	0
Westmoreland	78.05	Productive	2
Westmoreland	79.01	Unproductive	0
Westmoreland	79.04	Productive	1
Westmoreland	79.05	Productive	2
Westmoreland	80.01	Productive	2
Westmoreland	82.01	Unproductive	0

* Produced two young which were lost in storm

Of the 45 active nests, 28 were productive and 17 were unproductive for a success rate of 62 per cent. Total production was 43 young of which two were lost in a storm prior to fledging. Forty one young successfully fledged for an average of 0.91 fledglings per active nest. This success rate of 62 per cent for nests compares favorably with the 1981 rate of 69 per cent. The number of fledglings per active nest (0.91) compares favorably with 1.02 fledglings per active nest in 1981.

Data on productivity for the period, 1977-1982, are summarized in Table 2. Productivity remained relatively stable in each of the three years, 1977-1979. In both 1980 and 1981, productivity increased dramatically as did the percentage of nests which were productive. This trend essentually was continued in 1982.

Severe winds occurred throughout the eastern part of the state in late March or early April, times at which eagles would be incubating or would have very small chicks. These winds were sustained at 50-60 m.p.h. in some areas. Two young are known to have been lost in storms and three nests with histories of reproductive success were unsuccessful in 1982. All three nests suffered considerable wind damage. It is believed that bad weather may have played a role in lowering productivity in 1982 although this role may not have been substantial.

Table 2. Bald Eagle Productivity in Virginia for the Period 1977-1982.

Year	Total Active Nests	Total Prod. Nests	Total Unprod. Nests	Percent Nests 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[A]	12	69	40[B]	1.48	1.02
1982	45	28[C]	17	62	41[D]	1.52	0.93

A. Includes nest from which young was lost in storm

B. Does not include one young lost in storm

C. Includes nest from which two young were lost in a storm

D. Does not include two young lost in storm

Several new nesting territories were occupied in the state in 1982. The reoccupancy of the James River which began in 1979 continued. Two additional pairs occupied the James River in 1981 as well as a single pair on the Chickahominy River, a tributary of the James. In addition, two new sites were occupied on the James in 1982, and one new site on the Chickahominy River. Birds were observed at this last nest site but were not observed incubating, hence this nest is not included in the active nest totals.

The James River still includes some of the best bald eagle nesting habitat in the state. The return in 1982 to this river system of six breeding pairs of eagles, four of which were successful, is a highly encouraging sign.

Two sites on the Potomac River with eagles having long histories of reproductive failure also had productive pairs in 1982.

(b) Winter survey - Personnel on the project, in conjunction with cooperators, participated in the mid-winter bald eagle survey sponsored by the Raptor Information Center, National Wildlife Federation. The James River, Chickahominy River, York River, Rappahannock River, and Eastern Shore were all covered by aerial survey. These areas were also covered less extensively by ground and water parties. The Potomac River was covered only by land parties.

Raw data forms were submitted to the Federation, hence total counts are not available at this time.

Of particular interest was the occurrence of 60 bald eagles and one golden eagle on the James River system. These birds appear to occupy the river until March at which time numbers begin to decline as birds disperse to other areas.

(c) Summer concentrations - A concerted effort was made during the year to locate concentrations of summering eagles in the state. Two such areas have been located and attempts are continuing to evaluate the significance of these areas.

One of the areas is the Caledon State Park - Cedar Grove Farm area in King George County. This area is a known concentration point for eagles and has been the site of foraging, telemetry and other studies in previous years. In 1981, a car census route was conducted with stops at 10 locations with access to water. All eagles observed at each stop were tabulated and the results are shown below in table 3.

Table 3. Bald Eagles Observed on Census Route, Caledon-Cedar Grove, 1981.

WEEK	EAGLES OBSERVED	ADULTS	IMMATURES
JULY 5	28	2	26
JULY 12	36	5	31
JULY 19	42	4	38
JULY 26	37	5	32
AUGUST 2	21	3	18
AUGUST 9	13	1	12
AUGUST 16	22	4	18
AUGUST 23	25	3	22

The figures shown in table 3 suggest that numbers peak on this area about mid-July, a fact suggested by casual observation in previous years. Of considerable interest is the high percentage of immature birds of all age classes which occur on this area. Marked birds from South Carolina, New York and Massachusetts as well as individuals from other parts of the Chesapeake Bay Region were observed in 1981. The origin of this large summer population is unknown but the limited observations of marked birds would suggest that birds arrive there from both northern and southern areas. A second summering concentration was located in June 1982, on the James River just east of Hopewell. It has been determined that the eagles use a cut-over area just off the river as a nocturnal roost and then disperse along the James River shoreline at dawn.

Weekly counts have been conducted in this roost since mid-June. Results of these counts through July 14, 1982, are shown in Table 4.

Table 4. Eagle Counts In and Near a Nocturnal Roost on the James River, 1982.

Date	Time	Type of Survey	Weather	Eagles Adults	Observed Immatures	Total Eagles
06-19-82	5:20 -7:30 a.m.	Boat	Rain	7	11	18
06-24-82	6:30-9:30 a.m.	Foot	P. Cloudy	11	16	27
06-30-82	5:00-7:20 a.m.	Foot	Clear	17	12	29
07-07-82	5:00-7:30 a.m.	Foot	Clear	14	13	27
07-14-82	5:00-7:00 a.m.	Foot	Cloudy	14	22	36

These counts suggest that the numbers increase toward mid-July as on the Caledon-Cedar Grove area. Of particular interest is the large number of adults relative to immatures, a ratio never observed at the Caledon-Cedar Grove area. One adult marked with a patagial marker in South Carolina, was observed in the roost.

Radio-Telemetry Studies

One nestling was marked during the period with a back-pack radio transmitter of the type previously used. This bird was monitored one day per week from mid-July to September 16, 1982. After this later date, it was no longer located and was presumed to have departed the area. The pattern of movement prior to dispersal was consistent with that of eight other telemetered nestlings.

This marked nestling was one of two young on the only successful nest on the Mattaponi River. The sibling of the telemetered young was extremely emaciated and was subsequently found dead in January on the Chickahominy River.

Complete analysis of data on all radio-telemetered birds is in progress.

Television Monitoring Studies

Analysis of data on the television monitoring studies was continued during the year. Most of these data can be found in (Wallin, D. O. 1982. The influence of environmental conditions on the breeding behavior of the Bald Eagle (Haliaeetus leucocephalus) in Virginia. M. A. Thesis, College of William and Mary, Williamsburg, Virginia.)

Contaminant Analysis

Contaminant analysis were received on three eggs collected in the summer of 1981. The contaminant levels were among the lowest reported in recent years for bald eagles from Virginia.

Two adult eagles collected respectively in September and October on the

Potomac River were diagnosed as having fowl pox. After the collection of these birds, the areas were searched thoroughly for additional evidence of the disease but none was found.

Banding and Marking Program

In collaboration with the Raptor Information Center, National Wildlife Federation, banding and color marking activities were conducted. Results of the banding activities are summarized in table 5.

Table 5. Summary of 1982 Bald Eagle Banding Activities

No. of Active Nests	No. of Active Nests Visited	No. of Successful Nests	No. of Successful Nests Visited	No. Aband. Nests	No. of Aband. Nests Visited
45	39	28[1]	23	17	16
No. of Eaglets	**No. of Eaglets Banded**	**No. of Eggs Collected**	**No. of Eaglets Not Banded**		
41[2]	35	3	6		

1. Includes one nest from which two young were lost in a storm.
2. Does not include two eaglets lost in a storm.

As may be seen in Table 5, 35 of 41 fledglings were banded with Aluminum Fish and Wildlife Service Bands. In addition, a new type of plastic leg band with an alpha numeric code was affixed to the leg of each bird. Six known young were not banded, one being too old, two being in an unsafe tree, and one being in a tree for which there was no landowner permission for visitation. (Banding activities are reported on more completely in a separate report.)

TARGET DATE FOR COMPLETION: June 30, 1983

STATUS OF PROGRESS: On Schedule

SIGNIFICANT DEVIATIONS IN PROGRESS: None

RECOMMENDATIONS: Continue with remaining project plans

COST THIS SEGMENT: Federal $15,999.75: State $5,333.25: Total $21,333.00

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DATE: August 1, 1982

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