1979

# Bald Eagle Investigations

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PERFORMANCE REPORT

STATE: Virginia PROJECT NUMBER: E-3

PROJECT TYPE: Research and/or Inventory STUDY NUMBER: VI

PROJECT TITLE: Endangered Species Investigations JOB NUMBER: VI-E1, VI-E2, VI-E3

PERIOD COVERED: July 1, 1978 - June 30, 1979

JOB VI-E1 OBJECTIVE: To obtain a winter inventory of Bald Eagle numbers and determine range of these birds in Virginia.

JOB VI-E2 OBJECTIVE: To determine hatching and rearing success of Bald Eagles in Virginia.

JOB VI-E3 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.

SUMMARY:

Aerial surveys resulted in the location of 33 active bald eagle nests in which 20 fledglings were produced for an average production of 0.61 young per active nest and 1.33 young per productive nest. Three young were successfully introduced from the Patuxent Wildlife Research Center Program into two nests in the wild. All three introduced young fledged successfully. A mid-winter survey of bald eagles resulted in the location of 114 birds.

Radio-transmitters were successfully placed on seven pre-fledgling eagles, all of which fledged successfully. All telemetered birds currently are being followed. A video camera system was installed at one nest and activities taped during the nesting season.

Twenty-two young eagles (3 introduced) were banded and marked with numbered orange vinyl band tags.

SURVEYS:

(a.) Breeding Surveys--Aerial surveys were conducted during March, April, May, and June to locate active bald eagle nests and to determine the fate of each nest. Several flights also were made to follow the fate of young in manipulation and transplant experiments.

Although reports of wintering bald eagles on some of the inland lakes were again received, these areas were not covered by aerial survey in the breeding season of 1979. Intensive surveys of inland lakes in 1977 revealed no evidence of nesting eagles nor have any sightings of adult birds been made during the normal breeding season.

Surveys in the Tidewater Area resulted in the location of 33 active nests. Location by county and the fate of each nest are indicated in Table 1. All nest locations were plotted on 7 1/2 minute series topographic sheets.

TABLE 1: LOCATION AND PRODUCTIVITY OF ACTIVE BALD EAGLE NESTS IN VIRGINIA 1979

| County | (Nest No.) | Reproductive Success | No. of Young Fledged |
|---|---|---|---|
| Accomac | 70-1 | Productive | 1 |
| Fairfax | 78-1 | Productive | 1 |
| King George | 75-2 | Unproductive | 0 |
| | 78-4 | Unproductive | 0 |
| | 79-1 | Unproductive | 0 |
| | 79-2 | Productive | 2 |
| | 79-4 | Productive | 1[1] |
| King William | 71-1 | Unproductive | 0 |
| | 77-1 | Unproductive | 0 |
| | 79-1 | Unproductive | 0 |
| Lancaster | 75-1 | Unproductive | 0 |
| | 79-2 | Productive | 1 |
| Middlesex | 77-1 | Unproductive | 0 |
| | 77-3 | Unproductive | 0 |
| | 78-1 | Productive | 1 |
| New Kent | 77-1 | Unproductive | 0 |
| | 79-4 | Unproductive | 0 |
| Northumberland | 70-1 | Unproductive | 0 |
| | 79-1 | Productive | 1 |
| Prince George | 61-1 | Productive | 1 |
| Richmond | 70-1 | Productive | 2 |
| | 74-1 | Unproductive | 0 |
| | 78-1 | Productive | 2 |
| | 78-2 | Unproductive | 0 |
| | 79-2 | Unproductive | 0 |
| Stafford | 75-1 | Productive | 2 |
| | 79-1 | Unproductive | 0 |
| Westmoreland | 71-4 | Productive | 1 |
| | 77-4 | Productive | 2 |
| | 78-1 | Productive | 1[2] |
| | 78-5 | Unproductive | 0 |
| | 79-1 | Productive | 1[3] |
| York | 78-1 | Unproductive | 0 |

[1]--Received two young from Patuxent captive birds. Natural young moved to We 79-1.

[2]--Received one young from Patuxent captive birds.

[3]--Received natural young from We 79-1.

Of the 33 active nests, 15 were productive and 18 were unproductive, for a success rate of 45 percent. Total production (fledglings) was 20 or an average of 0.61 young per active nest and 1.33 young per productive nest.

These figures compare with a 39 per cent success rate in 1977 and a 38 percent success rate in 1978. Average production of 0.61 young per active nests in 1979 compares respectively with 0.54 and 0.49 in 1977 and 1978. The production of 1.33 young per productive nest compares with 1.38 and 1.29 respectively in 1977 and 1978.

Productivity has remained remarkably stable in all three years of 1977, 1978, and 1979, even though total nests as well as nest locations have fluctuated somewhat from one year to the next.

Two additional known young which hatched in 1979 succumbed to unknown causes during the first few weeks of nestting life. As in previous years, there were a number of nest losses or relocations in 1979. Replacement nests were not located for seven pairs active in 1978. Three newly located nests brought the total active nest sites in 1979 to 33, four less than in 1978. The observation of adult eagles, in three cases pairs of eagles, in sites where nests were not located, suggests a breeding population higher than the thirty-three known active pairs.

One of the more interesting new nests in 1979 was a nest on the upper James River. This river once supported a relatively large and viable population. Active pairs existed well into the decade beginning in 1960 although no nest has been known to be successful since 1960. The last known active nest was in 1973. The new nest in 1979 contained two young, one of which fledged successfully. This would, therefore, represent the first nesting success for eagles in approximately 20 years on this river.

(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. Most of the area of the state was covered by aerial survey and many areas by ground parties during a two week period in January. All data were considered carefully to avoid overlapping observations. Results of the survey are presented in Table 2.

## Banding and Marking Program

In collaboration with the Raptor Information Center, National Wildlife Federation, banding and color marking activities were conducted. Of 34 active nests, thirty-one were visited as part of the banding activities. Permission was denied to visit two nests.

A total of 19 young from a production of 20 young was banded with regular Fish and Wildlife Service bands. One young was found to be too old for safe handling. In addition, these young introduced into nests (KG79-04 and We 78-01) from the Patuxent Wildlife Research Center captive rearing program, also were banded.

In addition, all 22 young eagles were marked with numbered orange vinyl band tags. Orange tags were used in Maryland and Delaware as well as in Virginia. This represented a departure from previous years in which each state utilized a different color code. This change was made to reduce the number of color codes being used in the country and to emphasize consideration of Chesapeake Bay eagles as a population. (Banding activities are reported on more completely in a different report).

Patagial markers were used on four young eagles in 1978, but this marking technique was discontinued in 1979. Several observations have been made of at least two of these young during the past year. Birds with patagial markers were observed at Cedar Grove Farm in the late summer of 1978, the mid-winter of 1979, and on several occasions during the summer of 1979. Patagial numbers could not be clearly read but these likely were birds marked near the point of observation. If so, it appears that those juveniles have remained near the natal site for one year.

## Radio-Telemetry Studies

In order to gain more information on juvenile eagle movements and dispersal, seven, 8-10 week old eaglets were fitted with backpack transmitters applied with a harness.

The movements of juvenile bald eagles, both locally and during dispersion, have not been studied adequately. This lack of study relates primarily to the relatively small population with which to work and the corresponding difficulty of confidently obtaining continuous or repeated observations of the same individual.

The above mentioned banding and color marking programs have provided limited but useful information. The use of transmitters should provide more information on movements and habitat utilization of the Chesapeake Bay population.

The seven transmitters were put on birds at five different nest sites. Two sites were located on the Potomac River, two on the Rappahannock River, and one on the James River.

Young were lowered to the ground where transmitters were attached, using a backpack type harness. The harness attachment was designed to deteriorate and allow the package to fall free of the bird at sometime after the transmitter had ceased functioning.

All birds are being monitored at least two full days per week and several environmental parameters are periodically measured during monitoring. Data are being collected on time budgets, habitat utilization, and movements.

All seven birds receiving transmitters fledged successfully and have been free flying for approximately five weeks at that time. All invidividuals have remained within three miles of the nest site and all appear still to be fed by the adults.

Egg and Young Transplants

No eggs from captive birds at the Patuxent Wildlife Research Center were utilized in the transplant program in 1979.

Three young eaglets from Patuxent were introduced into Virginia nests in 1979. Captive young were approximately four weeks of age at the time of introduction. All introductions were made into wild nests in which pairs already had natural young.

Two young birds from Patuxent were introduced into nest K6-79-4 on the Dahlgren Naval Service Weapons Station. In order to assure better size compatibility, the natural young from this nest were moved into a nest which contained one young of the same size. This nest is located at Coles Point on the Potomac River (We-78-1).

A third young from Patuxent was introduced into nest We-79-1 which contained one wild young of the same size.

Nests were monitored by aerial survey periodically until it was determined that all introduced chicks,as well as adoptive siblings, successfully had fledged.

Transplanting of eggs and young into Virginia nests has been an activity of the Patuxent Wildlife Research Center with cooperation through this project. Future activities under this program will be determined by that agency. On the basis of experience in 1977 and 1978, it would appear that introduction of captive-reared young into nests containing wild young is the most likely technique to be successful.

Nest Site Selection

During the fall of 1978, data on the physical structure of the habitats in the immediate proximity of 24 nest sites were collected. Of these, 10 were sites which were not active during the 1978 nesting season, 10 were active but abandoned, and 4 were successful. Nine Potomac River nests, six Rappahannock River nests, and nine York River nests comprised this group.

In May and June, 1979, habitat measurements were made at an additional group of nest sites. These visitations were made in conjunction with activities of the Chesapeake Bay Bald Eagle Banding team. Activities in 1979 were concentrated on active nest sites. A total of sixteen sites was studied

of which eleven were successful and five were active but unproductive. Seven Potomac River sites, six Rappahannock River sites, one York River site, one James River site, and one site in Accomac County on the Eastern Shore comprised the sample.

A total of forty nest sites (15 successful, 15 unsuccessful and 10 inactive) have been analyzed during the course of the project. Data analysis presently is being completed with the objective of quantifying critical bald eagle habitat in Virginia.

Foraging Behavior

Although studies of bald eagle foraging behavior have been conducted in different parts of the country, little work has been done in this area in the Chesapeake Bay area. A study of bald eagle foraging behavior was begun in 1978 and has been continued in 1979 in order to determine hunting methods, hunting efficiency, success of immatures versus adults, and the influence of various environmental parameters on time and success of hunting forays. The primary study area was a cliff overlooking the Potomac River at Caledon State Park in King George County. This area was chosen because it is one of the most significant concentration areas for bald eagles in the Chesapeake Bay area. Several hundred hours of observation have been completed. Data will be analyzed in the fall, 1979.

Contaminant Analyses

Five inviable bald eagle eggs were collected. Shell measurements indicated 16-21 percent thinning below the pre-1946 norm. Contaminant analyses have not been completed.

TARGET DATE FOR COMPLETION: June 30, 1981

STATUS OF PROGRESS: On Schedule

SIGNIFICANT DEVIATIONS IN PROGRESS: None

RECOMMENDATIONS: Continue with Remaining Projects Plans

COST THIS SEGMENT: FEDERAL: STATE: TOTAL:

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DATE: August 1, 1979

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