

THE STATUS OF THE BALD EAGLE IN FLORIDA 1972-1975¹

by

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ABSTRACT

During a three year study 282 successful nesting pairs of southern bald eagles (*Haliaeetus leucocephalus leucocephalus*) produced 404 young at a rate of 1.43 young per successful nest, and 0.82 per active territory. This is similar to productivity report by Sprunt *et al* (1973) for a 12 year study of eagles nesting in the Everglades. Production of young per active territory in the South Florida Region (report by Sprunt *et al* 1973) was 0.73, for this survey it was 0.65. Statewide eagles used pine (*Pinus sp*) as nesting sites (60.5 percent), over cypress (*Taxodium sp*) (14.3 percent), and red, white, and black mangrove (*Rhizophora mangle*, *Laguncularia racemosa*, and *Avicennia germinans*) (22.9 percent). During the three seasons studied, eagles nesting in the Central Florida Region produced a total of 221 young (54.7 percent of statewide production) at a rate of 1.47 young per successful nest. Eagles nesting in the South Florida Region produced 105 young (26.0 percent of the statewide production) at a rate of 1.44 young per successful nest and birds nesting in the North Florida Region produced 78 young (19.3 percent of the statewide total) at a rate of 1.32 young per successful nest.

¹ This study is the result of the combined efforts of the Florida Cooperative Bald Eagle Survey Committee which, in addition to the authors, was composed of: S. B. Fickett, Fla. Game and Fresh Water Fish Commission; M. J. Fogarty, formerly with the Fla. Game and Fresh Water Fish Commission; the late George Heinzmann, H. V. Hines, U. S. Fish and Wildlife Service; Doris Mager, Fla. Audubon Society; D. W. Peterson, U. S. Fish and Wildlife Service; and B. A. Sanders, U. S. Forest Service.

INTRODUCTION

The status of the southern bald eagle has been of concern for many years. Charles L. Broley first noticed a decline in the productivity of bald eagles in southwest Florida in the late 1940's (M. J. Broley 1952). In an area where he found 73 active eagle nests in 1946, he found only 43 in 1957 (C. L. Broley 1958). Howell (1968) reported a similar reduction in the Merritt Island area on the east coast. In 1935, he observed 20 occupied territories, while in 1966 he observed only 6 in the same area. Broley was also first to suggest a correlation between the increased use of DDT and the drop in eagle productivity (Laycock 1973). Other factors have also been suggested as contributing to the eagles' decline including shooting, loss of suitable nesting areas, and the reduction of food supplies caused by water pollution (Chamberlain 1973).

The reported population of eagles for Florida has varied greatly. The Office of Endangered Species, U. S. Fish and Wildlife Service (1973) estimated the total nesting population of the southern bald eagle throughout its range at about 235 active nests in 1965 and declared the southern bald eagle an endangered species. Nickerson (1973) reported that an estimated 500 to 1,000 nesting pairs of southern bald eagles may exist in Florida, while Chamberlain (1973) indicated that the population was only half that size. Laycock (1973) indicated that in 1962, Florida had about 14 percent of the wintering population in the lower 48 states with a total population of nearly 500 eagles. Clearly there is much confusion regarding the status of the bald eagles in Florida. For this reason the Florida Cooperative Bald Eagle Survey Committee comprised of personnel from the U. S. National Park Service, U. S. Fish and Wildlife Service and U. S. Forest Service, Florida Game and Fresh Water Fish Commission and Florida Audubon Society was organized in the fall of 1972 to gather information on the bald eagle in Florida.

Established pairs of eagles return to their nesting territories in Florida and begin nesting activities in early fall. Females may begin laying by late October, and a few active nests with eggs may be found as late as February or early March. Nearly all young have left the nest by mid-May.

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MATERIALS AND METHODS

Nests were located by aerial survey using single engine light aircraft. At least two searches were made for nesting eagles during each nesting season. The first during the early part of the season, December to late January; the last, late in the season, late March to April or May. Data were collected on nest history and nesting habitat and recorded on field forms. Nests were recorded as inactive nest or active territories: a pair of eagles present during the breeding season in a territory which contained a nest (Sprunt *et al* 1973). If active, nest were categorized as successful or unsuccessful. A successful nest was one from which young fledged. The number of young produced from each successful nesting was also noted.

For purposes of analysis the state was divided into three regions; North Florida with the southern boundary along the northern border of Citrus, Sumter, Lake and Volusia counties, Central Florida with the southern boundary along the northern border of Collier, Hendry, and Palm Beach counties and South Florida including Monroe and portions of Dade and Collier Counties (Fig. 1). No systematic search for eagle nests was made in the Florida panhandle or in Palm Beach, Hendry, Broward, eastern Collier, and northeastern Dade counties because little or no nesting was expected in these areas due to extensive human development of most of the historic or potential eagle nesting habitat. Since survey resources were limited the survey was concentrated in areas where nesting was more significant.

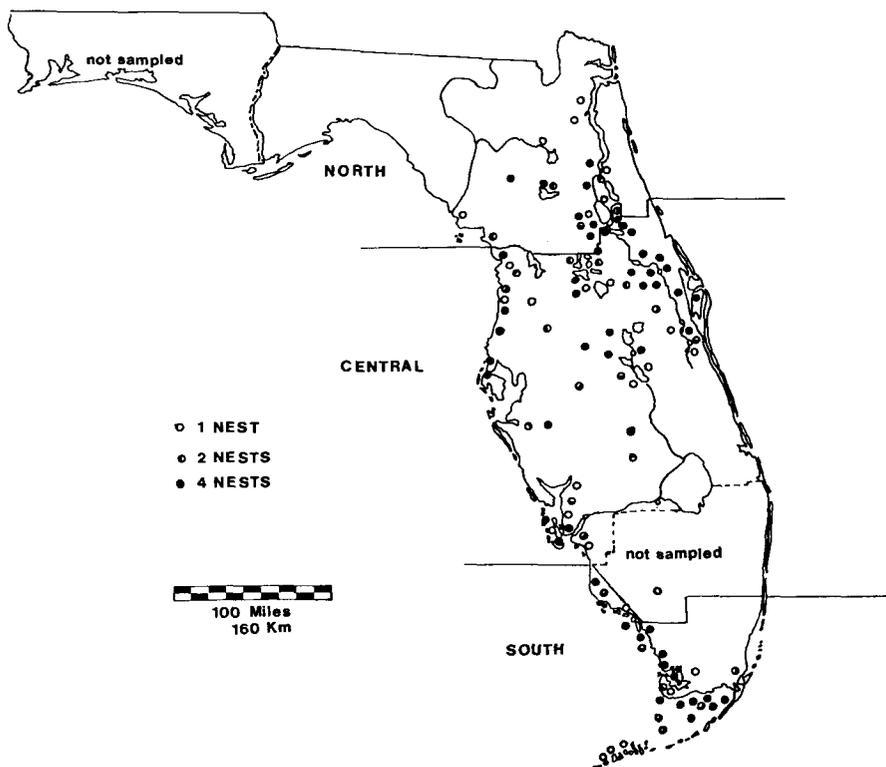


Figure 1. Survey regions and approximate location of 286 bald eagle nests inspected in Florida 1972-1975.

RESULTS AND DISCUSSION

Nesting Habitat

Habitat data were recorded and analyzed on a total of 286 nests inspected during this study (Table 1). Fifty (17.5 percent) of these were in the North Florida Region, 159 (55.6 percent) were in the Central Region, and 77 (28.9 percent) were in the South Florida Region. Figure 1 shows the approximate locations of the nests analyzed during this study. State-wide the most frequently used nest site was pine where 60.5 percent of the nests were located. Cypress and three species of mangrove were used about equally at 14.3 and 22.7 percent respectively. In the North and Central Regions, pine was used 78.0 and 79.9 percent of the time respectively, with cypress accounting for 22.0 and 17.0 percent of the sites respectively. In the South Florida Region nesting was concentrated on or near the coast where pine and cypress were generally unavailable. In this situation 84.4 percent of the nests were in mangrove, 1.3 percent were located on the ground, and 14.3 percent were in unidentified dead trees or other locations.

Table 1. Nesting Habitat for 286 Bald Eagle Nests, 1972-1975.

	<i>Number (Percent of Total)</i>			Total
	North Florida	Central Florida	South Florida	
No. of Nests with habitat data recorded	50 (17.5)	159 (55.6)	77 (28.9)	286
<i>Nest Site Species</i>				
Pine	39 (78.0)	127 (79.9)	7 (9.1)	173 (60.5)
Cypress	11 (22.0)	27 (17.0)	3 (3.9)	41 (14.3)
Mangrove (Red, White & Black)	—	—	65 (84.4)	65 (22.9)
Oak (<i>Quercus sp</i>)	—	1 (0.6)	—	1 (0.3)
Australian Pine (<i>Casuarina equisetifolia</i>)	—	1 (0.6)	—	1 (0.3)
Strangler fig (<i>Ficus aurea</i>)	—	—	1 (1.3)	1 (0.3)
Ground	—	—	1 (1.3)	1 (0.3)
Unspecified	—	3 (1.9)	—	3 (1.0)
<i>Condition of Site</i>				
Alive	45 (90.0)	113 (71.1)	33 (42.9)	191 (66.8)
Dying	3 (6.0)	12 (7.5)	6 (7.8)	21 (7.3)
Dead	2 (4.0)	17 (10.7)	37 (48.1)	56 (19.6)
Ground	—	—	1 (1.3)	1 (0.3)
Unspecified	—	17 (10.7)	—	17 (5.9)
<i>General Cover</i>				
Dense	26 (52.0)	52 (32.7)	9 (11.7)	87 (30.4)
Intermediate	—	—	14 (18.2)	14 (4.9)
Open	24 (48.0)	95 (59.7)	54 (70.1)	173 (60.5)
Unspecified	—	12 (7.5)	—	12 (4.2)

Overall approximately two-thirds, 66.8 percent, of the nests were placed in living sites, 19.6 percent were in dead trees, and 7.3 percent of the sites were judged to be dying. A majority (60.5 percent) of the sites were classed as open as compared to 30.4 percent which were classed as dense, 4.9 percent were classed intermediate and 4.2 percent were unspecified. This somewhat subjective determination doubtless varied from observer to observer but it probably does reflect a tendency for birds to use open situations such as pasture and water edges or large "sentinel" trees and to avoid dense areas. Where available eagles also seemed to prefer sites providing shade over the nest.

Table 2. Nesting Success of Bald Eagles in Florida, Fall 1972 - Spring 1975.

	<i>Number (Percent of Total)</i>						
	<i>North Florida</i>		<i>Central Florida</i>		<i>South Florida</i>		<i>Total</i>
<i>1972-1973</i>							
No. of Nests Inspected	31	(19.1)	80	(49.4)	51	(31.5)	162
No. of Active Territories	18	(20.5)	22	(25.0)	48	(54.5)	88
No. of Successful Nests	14	(25.5)	19	(34.5)	22	(40.0)	55
No. of Young Produced	19	(25.7)	23	(31.1)	32	(43.2)	74
Young per Successful Nests	1.36		1.21		1.45		1.35
Young per Active Territory	1.06		1.05		0.67		0.84
<i>1973-1974</i>							
No. of Nests Inspected	59	(20.3)	174	(59.8)	58	(19.9)	291
No. of Active Territories	27	(17.2)	72	(45.9)	58	(36.9)	157
No. of Successful Nests	19	(23.2)	36	(43.9)	27	(32.9)	82
No. of Young Produced	22	(18.8)	57	(48.7)	38	(32.5)	117
Young per Successful Nests	1.16		1.58		1.41		1.43
Young per Active Territory	0.82		0.79		0.66		0.75
<i>1974-1975</i>							
No. of Nests Inspected	80	(18.5)	292	(67.4)	61	(14.1)	433
No. of Active Territories	45	(18.3)	145	(58.9)	56	(22.8)	246
No. of Successful Nests	26	(17.9)	95	(65.5)	24	(16.6)	145
No. of Young Produced	37	(17.4)	141	(66.2)	35	(16.4)	213
Young per Successful Nests	1.42		1.48		1.46		1.47
Young per Active Territory	0.82		0.97		0.63		0.87
<i>3 Year Total</i>							
Active Territories	90	(18.3)	239	(48.6)	162	(33.1)	491
Successful Nests	59	(20.9)	150	(53.2)	73	(25.4)	282
Young Produced	78	(19.3)	221	(54.7)	105	(26.0)	404
Young per Successful Nests	1.32		1.47		1.44		1.43
Young per Active Territory	0.87		0.93		0.65		0.82

Nesting Success

Data were collected during this three year survey on 282 successful nests which produced 404 young at a rate of 1.43 young per successful nest (Table 2). This productivity is equivalent to the rate of 1.45 young per successful nest reported by Sprunt *et al* (1973) for 296 successful nests from a 12 year study in coastal areas in and around Everglades National Park (1961-1972). A total of 491 active territories produced 404 young or 0.82 young per active territory. This again is similar to the 0.73 young per active territory reported by Sprunt *et al* (1973).

For the three seasons surveyed the population nesting in the North Florida Region produced 1.32 young per successful nest and 0.87 young per active territory. Compared to 1.47 young per successful nest and 0.93 young per active territory for the Central Florida Region and 1.44 young per successful nest and 0.65 young per active territory for the South Florida Region.

A comparison of the three survey years shows the 1972-73 season and 1973-74 season to be almost identical; 1.35 young produced per successful nest and 0.84 young per active territory in 1972-73 compared to 1.43 young produced per successful nest and 0.75 young per active territory for the 1973-74 nesting season. In 1974-75 there was a slight increase to 1.47 young per successful nest but the young per active territory remained fairly constant at 0.87. The total number of nests investigated increased between 1972 and 1975 as the survey area was expanded and as the survey personnel gained experience.

SUMMARY AND CONCLUSION

Eagles nesting in the northern three-fourths of the state used nesting sites in live pine and cypress in a fairly open situation. Nesting sites used most frequently by eagles in south Florida (Monroe and Dade counties) were live and dead mangrove. Eagles generally nested in close proximity to the coast or near large inland bodies of water (Fig. 1).

Based on the study by Sprunt *et al* (1973) in the Everglades and the present statewide study, eagle nesting success in recent years has remained relatively constant, producing 1.43 young per successful nest and 0.82 young per active territory between the fall of 1972 and spring 1975. Birds nesting in the Central Region produced 221 young (54.7 percent of the statewide total) at a rate of 1.47 young per successful nest and produced the highest number of young per active territory (0.93) during the survey. The North Florida Region produced 78 young (19.3 percent of the statewide total) at a rate of 1.32 young per successful nest and produced 0.87 young per active territory. Birds nesting in South Florida produced 105 young (26.0 percent of the statewide total) at a rate of 1.44 young per successful nest and produced 0.65 young per active territory. Though this was a slight decline from the 0.73 young per active territory reported by Sprunt *et al* (1973) for the same general area, it is not believed to be significant.

It is perhaps premature at this time to attempt to make a definite statement on the population of southern bald eagles in Florida, however, considering the active territories found during the 1974-75 survey, 246 representing 492 adults, and the approximate number of young produced that year 212 (0.86 per active territory), the post breeding population of bald eagles in Florida in 1975 including adults, sub-adults, and young of the year was at least in the range of 800 to 1000 birds.

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