

A HISTORY OF SOME BALD EAGLE NEST SITES IN EAST-CENTRAL FLORIDA

BY JOSEPH C. HOWELL

BETWEEN 1928 and 1935 the writer became concerned at the apparent decrease in numbers of the Bald Eagle (*Haliaeetus leucocephalus*) in east-central Florida. In 1935 a study was initiated to determine the population trend of this bird in this area. Careful note was taken of the location of the nests of 24 pairs of eagles in Brevard and Volusia counties. The plan adopted was to revisit the nest sites of these pairs of eagles at intervals of five years and count the number of pairs remaining. Earlier reports on this study have appeared as follows: Auk, 54: 296-299, 1937; Auk, 58: 402-403, 1941; and Auk, 66: 84, 1949.

Revisits to these nest sites have always been made during the latter half of December since at this season most pairs of eagles are at their nests. The status of each nest site is recorded in one of the following three categories: 1. occupied, 2. active, 3. unoccupied. Occupied nest sites are those at which the nest is thought to contain eggs or young. Such nests nearly always have an adult sitting on them. This category is the least arbitrary of the three and nearly always represents a currently breeding pair of eagles. The second category includes those nest sites at which an adult or a pair of adults is seen, but at which no nest is found or at which the nest is judged not to contain eggs or young. The third category, the unoccupied nest sites, includes those at which no adult is seen.

The procedure used at each nest site is to observe first the tree in which was located the most recently used nest. If the nest is no longer present a search is made of all or as many as possible of the suitable nest trees within a radius of one mile. Usually three days have been available for making the rounds of these 24 nest sites.

With the cooperation of the Florida Game and Fresh Water Fish Commission, it was possible at the close of the 1951 count to check the efficiency of my search from the ground by studying the same nest sites from the air. The Commission patrols much of the state from light, cub-type planes. On December 19, I accompanied Conservation Officer Beville on his patrol. We flew over the sites at which an occupied nest had not been found. At one site where a bird had been seen but no nest could be located, we found an occupied nest from the plane. At another site which had been listed as unoccupied we found a nest. Later I learned that this nest was occupied.

Searching for eagle nests from the air proved to be more efficient than ground searching. From a plane it is possible to search a great

deal more area in much less time. With the exception of a few nests located in the dense tops of living pines it was possible to see an eagle that was on or near a nest. It was found necessary to fly at an altitude of about 500 feet during the course of each search.

One important assumption underlies the results obtained in this study. It is assumed that a pair of eagles will not move more than one mile from its original nest site. This assumption rests on the observation that individual eagles are very strongly attached to the immediate area around the nest. When a nest is destroyed or the eagles driven away from it, the pair will usually construct a new nest within a mile, and often within a few hundred yards of the original nest site.

It seems unlikely that both members of many pairs of eagles survived over the duration of this study. The continued occupation of a particular nest site may depend on the continuing survival of one member of the pair using the site, or upon the use of it, on maturity, of young birds raised at the nest site. An alternative possibility is that a particular nest site is so located in relation to the environmental features of the region that it fits particularly well the territorial requirements of this species and is thus continually reoccupied in the event of a mishap to one or both members of the original pair.

Unfortunately there are no data on the nesting habits of banded adult Bald Eagles. There is however some suggestive evidence indicating that the same individual eagles use a particular nest site for more than one year. The pair at nest site 16 was for a number of years the earliest of these 24 pairs to lay its eggs. It was the only pair which was known to have laid its eggs in October. Later the pair at this nest laid consistently later in the season, presumably due to a change in at least one member of the pair since a plumage peculiarity appeared in one member. Other pairs were, for a number of consecutive years, later than the average in laying their eggs.

Following the reassessment of all the data in 1951, it was decided to reinterpret them in terms of percentage of occupied nest sites. This is also a percentage of surviving pairs and is determined by dividing the number of currently occupied nest sites by 24. In the earlier analyses of these data a percentage of decrease was determined by dividing the currently unoccupied number of nest sites by the original number of nest sites (24). The new method has the advantage of presenting positive information. It states that a certain percentage of the original number of nest sites is currently occupied by a pair of eagles.

In the earlier reports of this study it is now thought certain inaccuracies existed. It was decided after carefully restudying all the data that what in one instance had been considered two pairs was in reality only one; and two pairs included in earlier calculations have been omitted because their histories are incomplete and two pairs with complete histories have been used instead.

TABLE 1
A SUMMARY OF THE HISTORIES OF 24 BALD EAGLE NEST SITES

<i>Site Number</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1935	O	O	O	O	O	O	O	O	A	U	O	O	O	U
1940	O	O	A	O	A	U	O	O	A	O	U	A	U	U
1946	U	O	O	U	A	A	O	U	O	U	U	U	O	O
1951	U	O	O	U	A	A	O	O	O	U	U	U	O	O

<i>Site Number</i>	15	16	17	18	19	20	21	22	23	24	<i>Per cent of Sites Occupied</i>
1935	O	O	O	O	O	A	O	O	O	O	83
1940	A	O	O	O	O	U	U	A	O	U	46
1946	O	O	O	U	O	U	U	O	O	O	54
1951	O	O	O	A	O	O	U	O	O	U	58

A—sites at which at least one adult was seen but at which there was not a nest judged to contain eggs or young.

O—sites at which there was a nest judged to contain eggs or young.

U—sites at which no adult was seen.

Table 1 above summarizes the histories of these 24 nest sites for each of the years during which they were visited. While each of the original nest sites was selected because of the presence of a well-built nest, it should be noted that not all of these were occupied even in 1935. The percentage of sites occupied varied only between 46 and 58 from 1940 to 1951. It is unlikely that these differences are actually significant. It is likely that each year some occupied nests are overlooked. As reported above the 1951 air search showed that two nests that were not found during the ground search were occupied. In the above table these two nest sites are reported as unoccupied (10) and as active (18) in order that the data for 1951 can be compared with those of earlier years. It is thus true that in 1951 at least 67 per cent of the nest sites were actually occupied and this is but 16 per cent less than the figure at the start of the study. Furthermore, if two new sites occupied in 1951, but established after the start of this study, are taken to be replacements of nest sites which are unoccupied, they indicate that the actual population in the study region may have decreased very little since 1935.

It is apparent from the above discussion that the use of percentages above gives a false sense of exactness to the data secured during this study. By way of summary, I would interpret the data as probably indicating that this group of nest sites was occupied in 1951 by from 70 to 90 per cent of the pairs occupying these sites in 1935.

Contribution No. 65, Department of Zoology and Entomology, University of Tennessee, Knoxville, Tennessee, June, 1952.