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PREDATION BY EUROPEAN WILD HOGS ON DUMMY NESTS OF GROUND-DWELLING BIRDS[1]

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The object of this study was to determine the effect European wild hogs *(Sus scrofa)* have on ruffed grouse *(Bonasa umbellus)* and wild turkey *(Meleagris gallopavo)* populations. This effect was determined through enumeration of predation on birds' nests. The recent increased interest in transplanting wild hogs to other state areas containing native game bird populations has created a need for information on interactions between the hog and native game bird species.

The study was conducted on the Tellico Wildlife Management Area in the Appalachian Mountains of southeastern Tennessee. This area contains a herd of European wild hogs plus huntable populations of wild turkeys and ruffed grouse.

Jim Lewis, Supervisor of Game Research, contributed encouragement and support to this research approach.

PROCEDURE

Fifty dummy nest sites were selected in areas thought to be likely nesting places for turkey and grouse. The selection was based on descriptions of nest sites in the literature and experience with nests found previously in the wild state. Nests were placed in the different types of cover occurring alongside old logging roads, foot trails, and food plots and in areas of both high and low populations. A small depression was made in the leaves and five fresh, brown, pullet eggs were placed in it. The eggs were then covered with leaves of the same type as that used for the nest. The literature indicates that both grouse and turkeys lightly cover the eggs with leaves and other material when not incubating.

The classification of low and high hog populations was based on field signs such as rooting, tusking, and wallowing. In the area of low population these signs were scarce and attempts to trap hogs in this area during the study were unsuccessful. The high-use area exhibited a large amount of the signs previously listed and many hogs were trapped.

Marking tape was placed in the general area to locate the nests for checking. Nests were not approached directly during the checking period but were observed from a distance. Examinations for predation were conducted either two or three times a week.

The study was conducted in the spring during the normal turkey and grouse nesting season and extended over a period of 45 days. Forty-three days were thought sufficient to permit a hen turkey 16 days to lay the clutch of eleven eggs, the average size of the turkey clutch, and 29 days for incubating and hatching (Mosby and Handley, 1943). Grouse require 41 days to lay and incubate a clutch (Bump, 1947). A nest that survived 43 days was considered a successful nest.

Predation by animals other than hogs was also recorded. Predators were identified by the characteristic sign left at the nest (Davis, 1959).

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Positive identification of nests destroyed by hogs was made possible through signs characteristic of this species left about the nest. Rooting, eggs scattered within a distance of three feet from the nest, and pulverized shells are the most prominent examples.

RESULTS

The results of the study are summarized in Table 1.

Hogs, skunks, and snakes were identified as the principal predators. The hogs and skunks destroyed the nests throughout the study, but snakes were active only in the warm weather prevailing during the latter half of the study.

Nest survival was almost equal between the two areas. Hogs were the number one predator in the highly populated area, destroying five times as many nests as the next highest predator, the skunk; whereas, in the low populated area skunks and snakes destroyed four times as many nests as hogs.

DISCUSSION

Nests were not randomly destroyed throughout the study (Figure 1). During the first week 16.0 per cent of the nests constructed were destroyed, whereas during the second week the percentage of existing nests destroyed dropped to 7.1. During the last four weeks the percentage of existing nests destroyed increased weekly. Early losses were probably due to scent left during nest construction which attracted predators. The heavy late losses of nests imply that odors were emitted from the decaying eggs which attracted the predators.

It is not inferred that dummy nests are destroyed in the same proportions as real nests. However, it is assumed that the per cent predation by each of the various predators would remain the same for real and dummy nests, but over-all the percentage of real nests destroyed would probably be lower.

As a species the hogs destroyed the most nests; however, when a comparison of nest survival is made between the areas of high and low populations the high hog area had a survival rate of 21.4 per cent as compared to 27.3 per cent for the low hog area. Without being able to measure the population of native predators in the two areas it cannot be determined from this study if the hog is more proficient in locating nests than the native predators. By their habits, the hogs may have either driven off or preyed upon the native predators, causing a lowering of the native predator population. Thus, hogs in the high area may have just replaced the native predators. This may explain why grouse and turkey populations maintain their numbers despite the introduction of European wild hogs into this area more than 50 years ago.

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Table 1. Survival of Dummy Nests in Areas of Low and High Hog Populations.

	High		Low		Total of both areas	
	No.	%	No.	%		%
Total nests	28	— –	22	— –	50	100.0
Total nests destroyed	22	78.6	16	72.7	38	76.0
Hogs	16	72.7	2	12.5	18	47.4
Skunks	3	13.6	9	56.2	12	31.6
Snakes	2	9.2	5	31.3	7	18.4
Unidentified	1	4.5			1	2.6
Nest surviving	6	21.4	6	27.3	12	24.0

Fig. 1. Percentage of Existing Nests Destroyed at Weekly Intervals.