National Quail Symposium Proceedings

Volume 2 Article 5

1982

Efficiency of Dogs in Locating Bobwhites

Forest E. Kellogg
University of Georgia

Gary L. Doster
University of Georgia

EFFICIENCY OF DOGS IN LOCATING BOBWHITES[1]

FOREST E. KELLOGG, Southeastern Cooperative Wildlife Disease Study, Department of Parasitology, College of Veterinary Medicine, The University of Georgia, Athens, GA 30602
GARY L. DOSTER, Southeastern Cooperative Wildlife Disease Study, Department of Parasitology, College of Veterinary Medicine, The University of Georgia, Athens, GA 30602
WILLIAM R. DAVIDSON, Southeastern Cooperative Wildlife Disease Study, Department of Parasitology, College of Veterinary Medicine, The University of Georgia, Athens, GA 30602
W. MACK MARTIN, Southeastern Cooperative Wildlife Disease Study, Department of Parasitology, College of Veterinary Medicine, The University of Georgia, Athens, GA 30602

Abstract: The efficiency of dogs in locating bobwhites (Colinus virginianus) was studied on Tall Timbers Research Station, Leon County, Florida. Numbers of bobwhites present on two study areas were determined in six different years with the Lincoln Index method. Numbers of bobwhites found on bird dog censuses and numbers of bobwhites flushed while methodically hunting the study areas were recorded for comparison with Lincoln Index data. Numbers of bobwhites found with both methods involving bird dogs were substantially less than those numbers determined with the Lincoln Index census technique.

We examined the efficiency of dogs in locating bobwhites (Colinus virginianus) in order to (1) evaluate the use of dogs for censusing bobwhites and (2) determine the percentages of bobwhites found by hunters with dogs in relation to the number of bobwhites actually present. Quail population levels were estimated using the Lincoln Index method (Davis 1963, Kellogg et al. 1972). These population numbers were used as a base for comparison.

METHODS

This investigation was conducted at Tall Timbers Research Station, a 1300 ha area located in Leon County, Florida, in the Tallahassee Red Hills sub-region of the Coastal Plain. It is an area of rolling hills and open pine woodland, scattered fields, and some hardwood thickets in wetter areas. Two study sites, one of 202 ha and the other of 210 ha, were used. Almost all of the woodland portion of the study areas was burned annually in late winter. Small cornfields made up approximately 17 percent of the study areas (average = 0.9 ha each). The study areas are described in more detail by Smith (1980).

Bird dog censuses were made in February of 1976, 1977, and 1979. Each party of two men and two dogs was assigned a certain portion (approximately 40 ha) of one study site to cover and was instructed to see that dogs or men went within at least 25-30 m of all points on the property. Approximately 15 ha were covered per hour by a party. This would be considered intensive coverage by most hunters. Personnel were instructed to count birds in each covey as the covey flushed, to mark the location at which they landed, and to assure themselves that the birds were not counted twice during the census. This was not as difficult as it might seem, since a covey that has been flushed recently is usually spread out and does not flush the second time from a small area. There were five repetitions of the study, giving five sets of data for comparison with the Lincoln Index census figures.

Methodical hunting of both 200+ ha study areas was conducted annually each February from 1976 through 1982. There were 50 repetitions of hunts over the study sites, and in each year each study site was hunted three to five times. Successive hunts over the same ground were 24 to 72 hours apart. The information on hunting was gathered during the Lincoln Index census when birds were shot to get banded/unbanded ratios. To determine the number of birds left on the study area after

[1]This study was supported by Tall Timbers Research Station, Tallahassee, Florida, and by an appropriation from the Congress of the United States to the Southeastern Cooperative Wildlife Disease Study, The University of Georgia. Funds were administered and research coordinated under the Federal Aid in Wildlife Restoration Act (50 Stat. 917) and through Contract No. 14-16-0009-78-024, Fish and Wildlife Service, U.S. Department of the Interior.

each hunt, all birds in the bag, shot down and lost, or feathered were subtracted from the Lincoln Index estimate of total population.

There was very little difference in method between the bird dog census studies and hunting operations, except that hunting parties occasionally had as few as one hunter and as many as three. Dogs ranged in number from one to four, the usual situation being two. Hunters were asked to count number of birds on a covey rise and to avoid recounting the same birds if they were flushed the second time. In this portion of the study, hunters often pursued singles after a covey rise but were required to cover the entire area thoroughly. Most often hunters were not permitted to kill more than two to four birds per covey. A wide variety of dogs and hunters was used, but at least one person and one dog in each party was an experienced quail hunter.

RESULTS

Table 1 compares numbers of birds found on the bird dog census and numbers of birds actually present as determined by the Lincoln Index census method. Numbers of quail found on bird dog censuses averaged 53 percent of Lincoln Index population estimates and ranged from 46 percent to 68 percent.

Table 2 shows the numbers of birds found with dogs while hunting over the study areas. Numbers of quail flushed while hunting averaged 40 percent of Lincoln Index population estimates and ranged from 17 to 71 percent. The Kruskal-Wallis test on the proportion of bobwhites found during first, second, third, and fourth/fifth hunts disclosed significant differences ($P < 0.05$). The proportion of birds found declined with succeeding hunts. The numbers of birds found in the morning by hunting parties were compared to the numbers of birds located in the afternoon. A paired t test disclosed a tendency for finding more bobwhites in the afternoon than in the morning ($t = 1.944$; $t_{0.10} = 1.943$; $df = 6$).

Table 1. Numbers of bobwhites found during bird dog census compared with Lincoln Index estimates of populations on two study areas.

Year	Site	Lincoln Index Estimate	Number Bobwhites Found	Percentage of Bobwhites Found
1976	1	461	248	54
1977	1	335	225	67
1977	2	134	91	68
1979	1	501	230	46
1979	2	502	239	48

Table 2. Numbers of bobwhites found by hunters compared with Lincoln Index estimates of populations on two study areas from 1976 through 1982.

Year	Study Site	Repetition	Lincoln Index Estimates	Number Found	Percent Found
1976	1	1	461	191	41
		2	418	92	22
		3	394	73	19
		4	377	87	23
		5	366	143	39
	2	1	222	117	53
		2	203	71	35
		3	187	36	19
1977	1	1	335	123	37
		2	305	160	52
		3	272	167	61
	2	1	134	70	52
		2	115	65	57
		3	104	63	61
1978	1	1	366	224	61
		2	328	232	71
		3	299	136	45
	2	1	204	113	55
		2	187	99	53
		3	168	54	32
1979	1	1	501	212	42
		2	467	244	52
		3	429	148	34
		4	403	88	22
	2	1	502	247	49
		2	448	193	43
		3	423	178	42
		4	385	112	29
1980	1	1	577	241	42
		2	537	184	34
		3	496	194	39
	2	1	544	134	25
		2	514	202	39
		3	481	137	28
1981	1	1	625	278	44
		2	576	213	37
		3	543	193	36
		4	510	161	32
	2	1	360	182	51
		2	317	176	56
		3	286	122	43
1982	1	1	303	154	51
		2	263	112	43
		3	237	86	36
		4	218	37	17
		5	214	84	39
	2	1	217	92	42
		2	198	103	52
		3	180	109	61
		4	155	82	53

DISCUSSION

The use of bird dogs for census work appears to yield more variable results than does a walk census as described by Dimmick (1982). We suggest that this is related to (1) adding the dog as another variable and (2) the less methodical coverage of study areas when using dogs. Data gathered by actual hunting parties show an even wider range of percentages of birds located in relation to numbers present. In this situation we added the extra task of shooting and made coverage of the area even less methodical. The percentage of birds found by hunters was normally distributed about the mean of 40 percent (Figure 1).

Analysis of information in Table 2 revealed a general decline on successive hunts in percentage of birds found in relation to numbers of birds present. The average percentage of birds found declined from 46 percent on first hunts to a 32 percent average on fourth/fifth hunts over the same area. Unpublished information from radio-telemetry studies on Tall Timbers Research Station suggests that bobwhites quickly adopt evasive techniques when hunted regularly. In examining the success of morning hunts as opposed to afternoon hunts, we found that in five of the seven years more birds were found per hunting hour in the afternoon than in the morning. Approximately 20 percent more bobwhites were found per party hour afield in the afternoon than in the morning. Hours hunted in the morning usually fell between 0900 and 1200, and hours hunted in the afternoon fell between 1530 and 1830.

In summary, dogs are often not as efficient as their owners might think in locating birds. When hunting an area similar to our study sites in a rigorous and methodical manner, one should probably expect to find approximately 40 percent of the coveys actually present on the area. In comparing this type of hunting to typical hunters' methods, we suspect that most hunters spend a great part of their time hunting only areas that they think will be most productive. By hunting the most productive spots they probably flush more birds per hour of hunting than one would by methodically hunting the entire area. A person methodically hunting an entire area, however, will find a greater percentage of the birds that are actually present on the area.

LITERATURE CITED

Davis, D. E. 1963. Estimating the numbers of game populations. Pages 89-118 in H. S. Mosby, ed. Wildlife investigational techniques. The Wildl. Soc., Washington, D. C.

Dimmick, R. W., F. E. Kellogg, and G. L. Doster. 1982. The Lincoln Index and flush census as population estimates for bobwhites. Pages 13-18 in F. Schitoskey, Jr., E. C. Schitoskey, and L. G. Talent, eds. Proc. 2nd Natl. Bobwhite Quail Symp. Okla. State Univ., Stillwater.

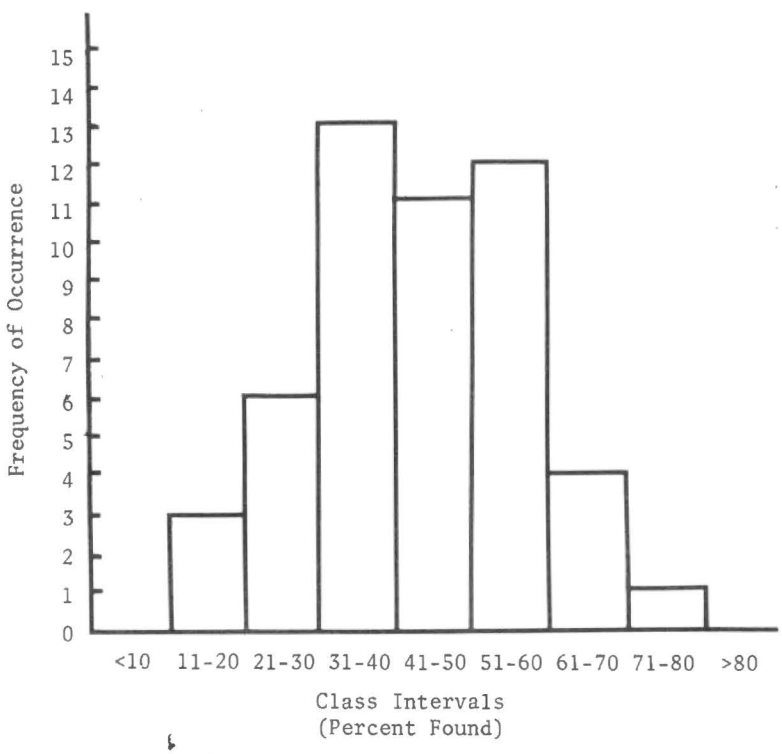

Fig. 1. Frequency distribution of the percentage of bobwhites found by hunters.

Kellogg, F. E., G. L. Doster, E. V. Komarek, and R. Komarek. 1972. The one quail per acre myth. Pages 15-20 in J. A. Morrison and J. C. Lewis, eds. Proc. 1st Natl. Bobwhite Quail Symposium. Okla. State Univ., Stillwater.

Smith, G. F. 1980. A ten-year study of bobwhite quail movement patterns. M. S. Thesis, Univ. Georgia, Athens. 56pp.