

(from postal survey data) for each management area or hunt unit where archery hunts were held in 1969.

DISCUSSION AND CONCLUSION

The information presented in this article is by no means an attempt to de-emphasize the importance and validity of postal surveys. Instead it is intended to point out that some discrepancies could occur when postal surveys are delayed for a considerable length of time after the close of activities for which the survey was designed. Perhaps it is not unlike the fisherman or hunter whose "catch" or "kill" increases with "time".

Also, there exists the possibility that some of the individual archery hunters contacted in the survey are very positive about the ability of archery hunters alone to control an expanding deer herd. Such arguments have been presented on numerous occasions when attempting to persuade the South Carolina Wildlife Resources Department to set aside certain deer management areas exclusively for archery hunters.

Regardless of the reasons for the exaggerated data received and reported in this paper, the authors are of the opinion that all postal surveys and perhaps telephone surveys should be planned well in advance and executed as soon as possible after the close of the specific event.

SUMMER FOOD ITEMS OF JUVENILE WILD TURKEYS¹

By WILLIAM J. HAMRICK and JAMES R. DAVIS

ABSTRACT

Food items were identified from crop contents of 21 juvenile wild turkeys (*Meleagris gallopavo silvestris*, Vieillot) collected in Clarke County, Alabama during July, August and September of 1965, 1966 and 1967. Estimated ages ranged from 45 days to 105 days with an average of 75 days. By volume, vegetable materials comprised 73.2 percent and animal materials 26.8 percent of the diet. Grasses, primarily seeds, represented 61.5 percent of the total volume with bahia grass (*Paspalum notatum*) seed comprising 48.6 percent. Grasshoppers were the most important animal food representing 15.5 percent of the total volume. Grasses and grasshoppers made up 77 percent of the total volume, indicating the importance of openings as a source of summer foods.

INTRODUCTION

Limited wild turkey populations during the past three decades in most areas have discouraged collection of young birds for study; as a result, food and feeding habit information for young turkeys has been gained by observation (Korschgen 1967). This paper presents results from food habits analysis of contents of 21 juvenile wild turkey crops. Sixteen of these crops were obtained from birds collected for parasite and disease study in cooperation with the Southeastern Cooperative Wildlife Disease Study. The other five were obtained as a result of casualties which occurred during trapping and banding operations. The sixteen collected for parasite and disease study were taken during the last week of July 1965, 1966 and 1967. The five trap casualties occurred during August and early September 1965 and 1966.

Turkeys were obtained from three areas in southern Clarke County, Alabama (Figure 1). All of these areas lie in the Tombigbee or Alabama river flood plains and adjoining uplands. Vegetation is primarily mature bottomland hardwoods in the flood plains and mixed pine and hardwoods in the uplands. For more detail on vegetation types see

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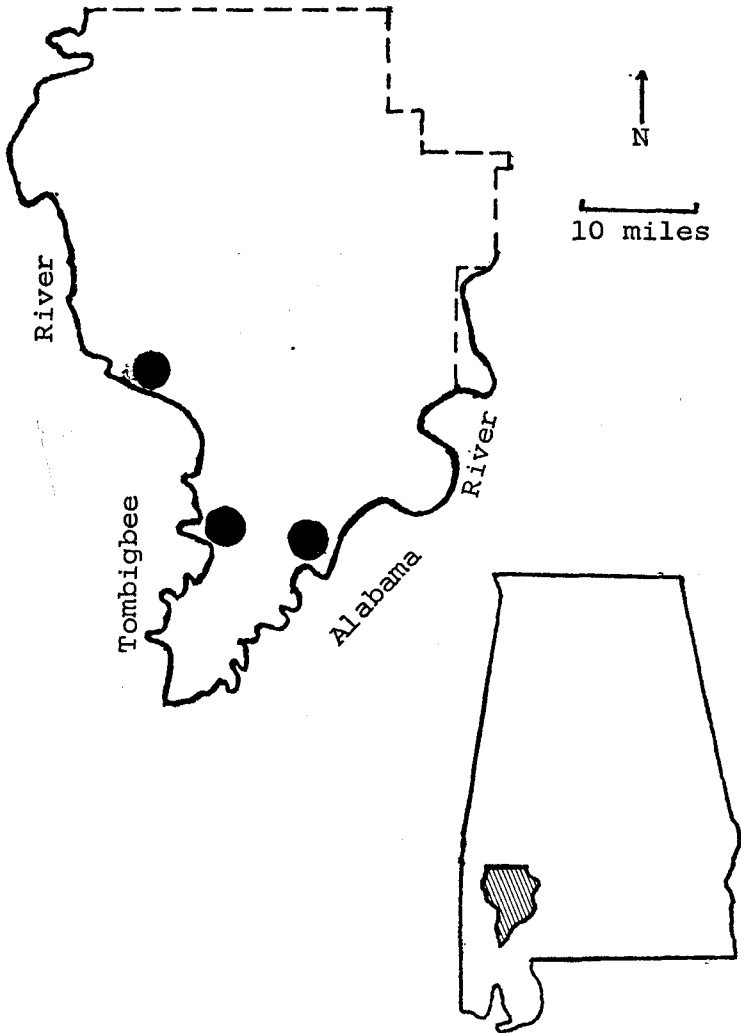


FIGURE 1. Clarke County, Alabama with dots indicating collection areas. Small map shows location of county.

Johnson's (1970) description of Fred T. Stimpson Game Sanctuary, one of the collection areas. Openings containing bahia grass (*Paspalum notatum*) and native grasses or annual plantings of chufa (*Cyperus esculentus*), oats (*Avena sativa*) and/or wheat (*Triticum aestivum*) comprised two to three percent of each area.

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METHODS

Contents from each crop were stored in containers of 70 percent ethyl alcohol until analyzed. Crop contents were air dried, sorted, identified and their volumes measured in cc. All items measuring less than 1 cc were recorded as trace.

Scratch grain was used as bait to facilitate collection of turkeys in 1965 and for trapping in 1965 and 1966. Volumes of bait material were recorded for each crop but were not included in preparing tables of food items.

All turkeys were aged using a table of estimated age of molt of juvenile primary feathers (Nixon 1962).

RESULTS AND DISCUSSION

Crops were obtained from 21 turkeys with an age range of 45 to 105 days and a mean age of 75 days. A total of 1148 cc of crop contents were analyzed. Volume per crop ranged from 5 cc to 179 cc averaging 54.7 cc. Vegetable foods made up 73.2 percent of the total volume with six species of grasses contributing 61.5 percent of the total food (Table 1). Animal foods comprised 26.8 percent with insects 23.6 percent of the total volume.

Insects probably make up a higher percentage of the diet of turkeys younger than those in this sample. This is indicated by food habits reported for the young of other gallinaceous birds. Insects were 70 percent of the food of ruffed grouse (*Bonasa umbellus*) chicks during the first two weeks; dropping to 5 percent by August (approximately 2 months old) (Bump et al. 1947). Bobwhite quail (*Colinus virginianus*) chicks under two weeks of age utilized 83.7 percent animal matter (75.2 percent insects), changing to the usual high vegetable diet of the adult during the third week (Handley 1950). Similar results were reported for juvenile sage grouse (*Centrocercus urophasianus*) (Peterson 1970) and spruce grouse (*Canachites canadensis*) (Pendergast and Boag 1970).

Wheeler (1948), Bailey et al. (1951) and Stoddard (1963) all considered openings as important sources of food for poults and especially as sources of insects. Speake et al. (1969) reported that, "most turkeys, regardless of sex and age, seemed to be strongly attracted to permanent pastures from March through October." Hillestad and Speake (1970) using radio telemetry in Lee County, Alabama stated that, "the spring and summer ranges of hens and poults on the study area were all located within the permanent pasture and grazed woodland habitat types, and it was obvious that this was due to preference and not to chance." And that, "the ability of the pastures to furnish much of the turkeys' food requirements was indicated by the relatively small sizes of the ranges and the restricted daily movements of turkeys within these ranges." In the present study, grasses—primarily seeds—and grasshoppers made up 77 percent of the total volume of foods. This indicates that openings are very important as a source of food.

Bahia grass seed occurred in 10 of the 21 crops (47.6 percent occurrence) and made up 48.6 percent of the total volume. For the 10 crops in which it occurred, bahia grass seed comprised 72.5 percent of the volume, averaging 55.8 cc per crop. This indicates that bahia grass is readily utilized where available and since it is a hardy, prolific seed producer is a desirable species for management.

Obviously baiting is not desirable in a food habits study, but since crop contents were obtained as a by-product of other studies it was unavoidable. It is not considered that baiting significantly affected the food habits results. Experience in baiting for trapping purposes indicates that bait will not attract nor hold turkeys unless it is within the range being utilized. Seven crops contained bait; the five from trap casualties and two from birds collected for parasite and disease study during July 1965.

The present study of juvenile turkey food habits is the only one known to the authors that utilizes crop contents from birds collected during the summer months. Though the sample size is small it supports previous

TABLE 1. Summer Food Items from Crops of 21 Juvenile Wild Turkeys Collected in Clarke County, Alabama.

	Percent By		Percent By		
	Volume	Occurrence	Volume	Occurrence	
Vegetable Foods (total)	73.2	100.00	Sloe Plum (<i>Prunus umbellata</i>)	4	4.8
Grasses (total)	61.5	81.0	fruit		
Bahia Grass (<i>Paspalum notatum</i>)	48.6	47.6	Beggarweed (<i>Desmodium</i> sp.)		9.5
seed			seed		
Crabgrass (<i>Digitaria</i> spp.)	6.1	28.6	Hackberry (<i>Celtis laevigata</i>)	tr.	14.3
seed and leaves			seed		
Bristlegrass (<i>Setaria</i> sp.)	2.4	4.8	Animal Foods (total)		100.00
seed			Insects (total)	26.8	90.5
Oats (<i>Avena sativa</i>)	2.1	4.8	Orthoptera (total)	15.5	76.2
seed			Grasshoppers	15.5	76.2
Panicgrass (<i>Panicum</i> spp.)	1.3	9.5	Praying Mantis	tr.	4.8
seed			Hymenoptera—Carpenter Ants	2.9	42.9
Bermuda Grass (<i>Cynodon dactylon</i>)	.7	4.8	Homoptera (total)	1.7	33.3
seed			Cicadas	1.7	19.0
Other Vegetable Foods (total)	11.7	85.7	Leafhoppers	tr.	14.3
Muscadine (<i>Vitis rotundifolia</i>)	2.5	23.8	Coleoptera—Beetles	1.5	76.2
fruit			Hemiptera—Stinkbugs	.6	23.8
Hopclover (<i>Trifolium dubium</i>)	2.1	4.8	Lepidoptera (total)	.5	23.8
leaves and seed heads			Caterpillars	.3	23.8
Huckleberries (<i>Vaccinium</i> spp.)	1.5	9.5	Moths	.2	9.5
fruit			Odonata—Damselflies	.4	23.8
Poison Ivy (<i>Rhus radicans</i>)	1.3	19.0	Unidentified Insect Larvae and Pupae	.3	28.6
fruit			Diptera—Crane Flies	tr.	4.8
Mushroom	1.1	19.0	Other Animal Matter (total)	3.2	81.0
Greenbrier (<i>Smilax</i> spp.)	.9	19.0	Spiders	2.4	81.0
fruit			Millipedes	.8	9.5
Trumpet-creeper (<i>Campsis radicans</i>)	.7	4.8	Snails	tr.	4.8
corolla			Grit and Gravel	tr.	100.00
Wood-sorrel (<i>Oxalis</i> sp.)	.6	4.8			
seed and seed pods					
Unidentified vegetable material and debris	.4	61.9			

¹ Grass names are from Hitchcock (1950). Other plant names are from Fernald (1950) or Small (1933).

observations on the importance of grassy openings as a food source for young turkeys. More research is needed on the food habits of poults, especially of birds younger than those represented here and of food habits in relation to habitat types.

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