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Fall Deer Food Selection in the Ouachita National Forest

James D. Fenwood
US Forest Service

David A. Saugey
US Forest Service, dasnightwing@gmail.com

Carl A. Racchini
US Forest Service

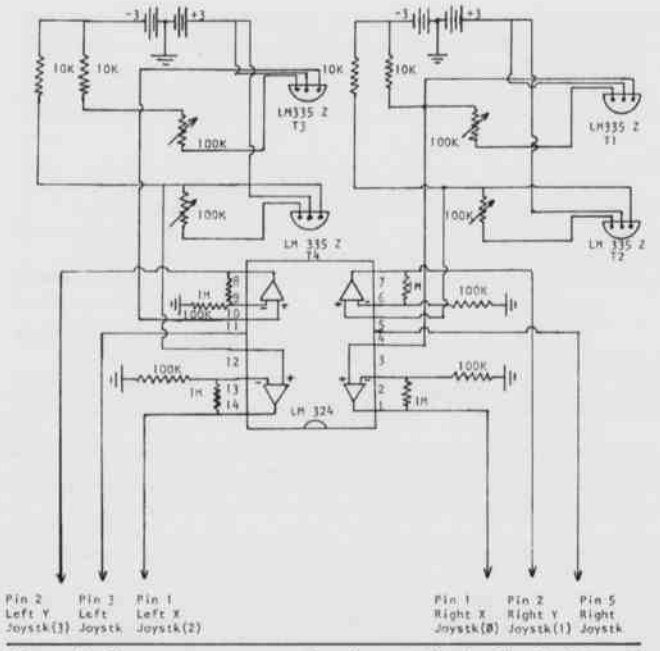

Figure 1. Temperature sensor interface to Radio Shack Color II microcomputer.

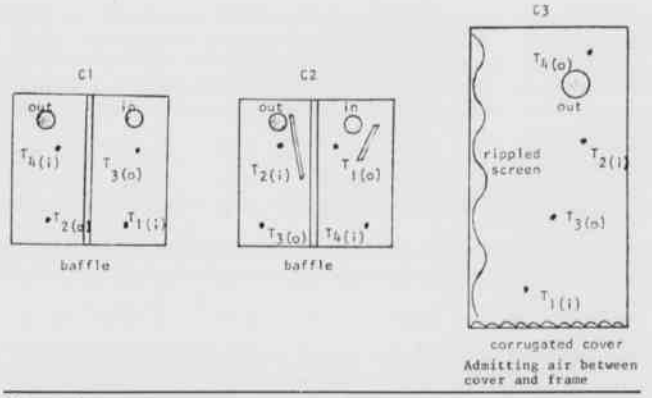

Figure 2.

Table 1.

COLLECTOR	AVERAGE EFFICIENCY	AVERAGE THERMAL* POWER OUTPUT/m²	COVER PLATE
C1	40%	175 watt	Filon-Vinyl Film
C2	60%	268 watt	Double Glaze Polycarbonate
C3	59%	243 watt	Single Glaze Filon

*Averages were for clear to partly cloudy days from February 12 to April 4, 1985. All collectors were operated and data collected concurrently on measurement days.

RUDOLPH J. EICHENBERGER, Physics-Engineering Dept., Southern Arkansas University, Magnolia, AR 71753.

FALL DEER FOOD SELECTION IN THE OUACHITA NATIONAL FOREST

A five-year study of fall food habits was undertaken in an attempt to fill substantial gaps in our knowledge about white-tailed deer populations in the Ouachita National Forest. Previously, no such data were available for the Ouachitas. In nearby Clark County, Adams and Harris (Seventh Ann. Southeast Deer Study Group Conf., 1984, Unpubl.) identified 46 food items in deer rumina. Of these, the dominant items were acorns of white oak *(Quercus alba)* and red oak *(Q. falcata, Q. nigra, Q. phellos),* Japanese honeysuckle *(Lonicera japonica),* fungi, dry leaves, and red mulberry *(Morus rubra).* Studies by Harlow et al. (Harlow, J. Wildl. Manage., 28:562-567, 1984) and Lay (Lay, J. Wildl. Manage., 29:370-375, 1965) have also shown that fruits are an important constituent of fall deer diets throughout forests in the South.

The 637,520-ha Ouachita National Forest, located in west central Arkansas and southeastern Oklahoma, is intensively managed for timber and wildlife. The terrain varies from nearly flat to rolling hills and steep ridges. Soils are of sandstone, shale, novaculite, and chert origin and range from low to moderate in productivity for pine timber. Shortleaf pine *(Pinus echinata)* and loblolly pine *(Pinus taeda)* predominate in association with a hardwood midstory of white oak, northern red oak *(Q. rubra),* black oak *(Q. velutina),* southern red oak *(Q. falcata),* blackgum *(Nyssa sylvatica),* post oak *(Q. stellata),* hickories (*Carya* spp.), and sweetgum *(Liquidambar styraciflua).* Common understory species include blueberry (*Vaccinium* spp.), poison ivy *(Rhus radicans),* dogwood *(Cornus florida),* red maple *(Acer rubrum),* with young sprouts of hickories, oaks, and blackgum. Mixed red oak-white oak-hickory stands are common on north facing slopes and along stream bottoms.

During November of 1979 and 1981-84, rumina from 64 hunter-killed deer were collected throughout a 7-county area (Garland, Montgomery, Perry, Polk, Sebastian, Scott, Yell). Rumen contents were preserved in 10% formalin for later study. Yearly sample size ranged from 6-24. Hunter participation was encouraged by offering to photograph cooperators with their kills and later mailing a photo to those who made deer available for the study.

Using the techniques of Harlow and Hooper (Harlow, Proc. Ann. Conf. Southeast. Assoc. Fish and Wildl: Agencies, 25:18-46, 1971), rumen samples were washed through a 9.51 mm sieve. Selection of this mesh size was based on Harlow and Hooper's findings that smaller mesh sizes resulted in excessive processing time while use of a 9.51 mm sieve gave the true occurrence for 68% of food items. Food items were sorted and their volumes determined by the water displacement method. Any item accounting for < 1% was recorded as a trace.

Mean volume (%) and frequency of occurrence (%) by food item are presented by year in Table 1. Two trends are readily apparent. First, although many food items were present in small amounts, relatively few items accounted for most of the volumes. Second, there was great variation among years. Acorns for example, were found to average 65% by volume and were present in 83% of the samples taken in 1979. However, no acorns were found in 1983, and few (5%) in 1984, years of poor hard mast crops. Sumac seed heads were likewise important in most years, occurring in 100% of rumina sampled in 1982 and averaging 37% of the volume. In other years, sumac averaged at least 13% by volume and occurred in 33% of samples.

Greenbriar was found in 63-100% of our samples, including all rumina sampled in 1983 and 1984. About half (41%, 53%) of average rumina volumes for these years consisted of greenbriar leaves and stems. Use of greenbriar coincided with the lack of hard mast in these years indicating

General Notes

SPECIES	YEAR									
	1979		1981		1982		1983		1984	
	vol.	freq.	vol.	freq.	vol.	freq.	vol.	freq.	vol.	freq.
acorns (Quercus spp.)	65	83	18	31	27	80	0	0	5	33
muscadine fruit (Vitus rotundifolia)	5	17	31	77	5	20	11	55	3	33
sumac seed heads (Rhus spp.)	19	50	30	85	37	100	23	82	13	33
greenbriar leaves (Smilax spp.)	8	63	19	69	9	80	47	100	53	100
fungi	8	67	3	77	10	90	24	92	17	100
(Viburnum spp.)										
huckleberry fruit (Vaccinium spp.)	t	4	t	8	5	10	0	0	0	0
honeysuckle leaves and stems (Lonicera japonica)	t	13	t	8	1	10	0	0	0	0
unidentified leaves (Nyssa sylvatica)	0	0	4	8	0	0	0	0	0	0
Poke berries (Phytolacca americana)	T	4	1	8	0	0	0	0	0	0

Additional species found in trace amounts (t) in 1 or more samples:

oak leaves (Quercus spp.)
muscadine leaves
Virginia creeper leaves (Parthenocissus quinquefolia)
grass
elm leaves (Ulmus spp.)
rose hip (Rosa spp.)
rattan vine leaves (Berchemia scandens)
haw leaves

Table 1. Mean volume (%) and frequency of occurrence of rumen contents of deer from The Ouachita National Forest, 1979-84.

that greenbriar was a substitute food when mast was unavailable.

In 1981, a year of good muscadine production, 77% of samples contained muscadine fruits. Mean volume was 31%. In other years muscadine was present in at least 17% of samples.

Although fungi averaged no more than 24% by volume, and averaged only 31% in 1981, frequency of occurrence ranged from 67-100%. Since field observations indicate that total biomass of fungi present throughout the Forest is low, these data demonstrate that fungi constituent a preferred constituent of deer diets.

It is apparent that a variety of hard and soft mast species are important components of fall deer diets in the Ouachita National Forest. Because of annual fluctions of some mast-producing species, management should be directed towards perpetuating a variety of mast-producers in Forest timber stands. Other research needs include measuring the effects of silvicultural and wildlife stand improvement practices on mast-production, determination of food preferences during other seasons (particularly the late-summer stress period), and relating this data to habitat capability indices already developed for Ouachita Forest pine stands (Fenwood, Proc. Annu. Conf. Southeast Assoc. Fish and Wildl. Agencies, 38, 1983, in press).

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JAMES D. FENWOOD[1], DAVID A. SAUGEY[2], CARL A. RACCHINI[2]; [1]USDA Forest Service, P.O. Box 2227, Columbia, SC 29202; [2]USDA Forest Service, P.O. Box 1270, Hot Springs, AR 71902.

REPORTS OF ALBINO BIRDS IN ARKANSAS SINCE 1968

It is the purpose of this paper to record the results of reports made on albino birds in the state of Arkansas since 1968. Sight identification and museum specimens were used for this study. A previous paper (Hanebrink, 1968b) recorded albino birds from Arkansas up to 1968. All records of the descriptions of albino birds are kept in a card catalogue in the biology department at Arkansas State University.

There are several papers and notes recording albino birds from North America in the literature. Some of which include papers by Deane (1876, 1879 and 1880), McGregor (1900), Edson (1928), Hicks (1934), Hunter (1939), Lee and Keeler (1951), Phillips (1954), Nero (1954), Lincoln (1958), Weller (1959), Whitaker (1960), Ross (1963) and Hanebrink (1968a, 1968b, 1969 and 1971). In Europe Sage (1962, 1963) and Glegg (1931) made extensive studies.

Since the 1968 publication of albino birds recorded in Arkansas, I have continued to collect information on sight records and museum specimens from throughout the state. These records were forwarded to me by several Arkansas Audubon Society members and the information was placed in a card catalogue and filed. The data which appears in this paper is a compilation from the card catalogue housed in the biology department at Arkansas State University.

The term albinism has generally applied to animals showing some degree of abnormal white or depigmentation. Pettingill (1970) recognizes four degrees of albinism in birds. (1) Total Albinism, when all pigments are completely absent from the plumage, irises, and skin, (2) Incomplete Albinism, when the pigments are completely absent from the plumage, or irises, or skin, but not from all three, (3) Imperfect Albinism (Dilute) when all the pigments are reduced or diluted, and (4) Partial Albinism, when the pigments are reduced, or one or more is absent, from the parts of any or all three areas. Of the four degrees of albinism, partial is the most common type.

A total of 78 individuals of 26 species were reported by the writer in 1968. The 26 species were represented in 16 different families and from four orders. In this paper another 78 individuals of 16 species were added. The 16 species are represented in 10 different families and four orders.

Sage (1963) stated that the great bulk of the records of British birds (67%) have occurred in the Turdidae, Corvidae, Hirundinidae, Passeridae, Sturnidae and Fringillidae in that order. Glegg's (1931) data shows that the families he found most affected were in order of frequency, the Turdidae, Sturnidae, Fringillidae, Passeridae, Corvidae and Phasianidae. Lee and Keeler (1951) tabulated records of plumage variations of the