

# PRESENCE OF FAWN REMAINS AND OTHER FOOD ITEMS IN COYOTE SCATS FROM SOUTHERN ILLINOIS

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## ABSTRACT

From mid April to mid November, 1980, 123 scats were collected on Crab Orchard National Wildlife Refuge and examined for vegetation, insects, feathers, and hair. Persimmon was the most common plant food at a frequency of 13.8%. Small mammals were the most common animals found, at a combined frequency of 51.2%. Fawn remains were found in scats collected from June 1 to August 15, peaking at a frequency of 38.1% in late June.

## INTRODUCTION

The food habits of coyotes in Illinois are not well known, but research has begun in recent years (D. E. Birkenholz, Illinois State University, pers. comm.). One area of importance for these investigations is the interaction between white-tailed deer (*Odocoileus virginianus*) and coyotes (*Canis latrans*) or feral dogs (*C. familiaris*), hereafter referred to as canids. Much controversy exists concerning the impact of these predators on deer reproduction.

## MATERIALS AND METHODS

From mid April to mid October, 1980, 123 scats were collected from roads on Crab Orchard National Wildlife Refuge. Date and location were recorded for each. The scats were oven dried at 84°C for 5-8 hours and then examined for food remains (vegetation, insects, birds, mammals). A hair sample from each was soaked in xylene for 30-45 minutes to permit identification by comparison of medullar and cortical characteristics with photographs (Spence 1963) and laboratory slides of known species. No attempt was made to identify orders, families, or species of birds and insects.

## RESULTS

Contents were segregated into 13 categories (Table 1). The most frequently occurring item was vegetation at 69.9%; however, its contribution of biomass to the diet was relatively small because the material consisted primarily of bits of grass and leaves. Persimmon (*Diospyros virginiana*), the most important plant item, appeared from mid August to mid November. The importance of this fruit in the diet of coyotes has been noted by other authors (Gipson 1974, Michaelson and Goertz 1978).

The largest group of animals found were small mammals (rats, mice, voles, and shrews) at 51.2%. Cottontails (*Sylvilagus floridanus*) occurred in 21.1% of the scats. There was little evidence of avian prey; feathers occurred at a frequency of 4.9%, and only one scat contained eggshell fragments. Although insects occurred at a higher frequency (19.5%), they contributed little biomass.

Fawn remains occurred in scats collected from June 1 to August 15, reaching a peak in late June with a frequency of 38.1% (Figure 1). The absence of fawn remains between July 1 and July 15 is probably due to small sample size (N = 5). Adult deer remains occurred at a frequency of 14.6%; they were present throughout the study period.

Intermediate-sized mammals were recorded at relatively low frequencies—woodchuck (*Marmota monax*) 8.9%, opossum (*Didelphis virginiana*) 2.4%, raccoon (*Procyon lotor*) 8.1%. Species appearing only once—fox squirrel (*Sciurus niger*), gray squirrel (*S. carolinensis*), muskrat (*Ondatra zibethicus*), beaver (*Castor canadensis*)—were grouped with unidentified animals not included in the small mammals groups; this category had a composite frequency of 6.5%. Miscellaneous items (paper, plastic, cloth) occurred in 12.2% of the scats.

## DISCUSSION

These data suggest that small mammals are the most important food item of wild canids in southern Illinois. This has been well documented in other areas (Fichter et al. 1955, Meinzer et al. 1975, Ferrel et al. 1953). Weaver and Hoffman (1979) reported that detection of prey weighing less than 107 g is underestimated by scat analysis; therefore, small mammals may be more important than indicated.

Utilization of deer has been found to be both high (Ferrel et al. 1953, Ozoga and Harger 1966) and low (Michaelson and Goertz 1978, Gipson 1974, Meinzer et al. 1975) in coyote food habits studies. Most investigators attribute the presence of deer to scavenging, although Cahalane (1947) observed an incident in which 3 coyotes killed and ate a young doe. Ozoga and Harger (1966), combining scat analysis with tracking and observations, found that coyotes primarily obtain deer by scavenging, but occasionally attack small, weak deer. Phillips and Hubert (1977) found deer in 6.3% of coyote stomachs collected in southeastern Illinois during the winter period. In our study, the relatively low occurrence of deer remains in an area of high deer density suggests that canids obtain the animals by scavenging.

The distribution of fawn remains in scats was identical to that Salwasser (1974) recorded in California. The peak fawn drop on Crab Orchard National Wildlife Refuge was approximately 1 week prior to the highest occurrence of fawn remains. Although wild canids are generally believed to exert a major effect on deer productivity (Cook et al. 1971), considerable information has accumulated to indicate that this is not necessarily true (Gavitt et al. 1974, Perry and Giles 1970). Knowlton (1976) found that coyotes in Texas have a compensatory effect on fawn survival. Exclusion of coyotes from a portion of the study herd resulted in greater fawn survival for the first 3 months, but other mortality factors levelled the population afterwards. Gavitt et al. (1974) noted that dogs are unable to scent fawns less than 3 days old, and cannot catch those over 2 weeks of age. On Crab Orchard National Wildlife Refuge, the increased frequency of fawn remains

immediately following peak fawn drop and the limited period when they occurred in scats suggest that fawns are most available to predators or scavengers during a short period after birth.

### SUMMARY

The summer diet of wild canids in southern Illinois consists primarily of small mammals (rats, mice, voles, and shrews). Persimmon is the most commonly used plant food. Adult deer are probably taken as carrion. The frequency and distribution of fawns in the diet suggest that the animals are most vulnerable to predators or scavengers during a short time following parturition.

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Table 1. Contents of 123 scats collected from April to October, 1980, Crab Orchard National Wildlife Refuge.

Item	Percent Frequency
Vegetation	69.9
Persimmon ( <i>Diospyros virginiana</i> )	13.8
Insects	19.5
Birds	4.9
Adult White-tailed deer ( <i>Odocoileus virginianus</i> )	14.6
White-tailed deer fawns	11.4
Cottontail ( <i>Sylvilagus floridanus</i> )	21.1
Woodchuck ( <i>Marmota monax</i> )	8.9
Raccoon ( <i>Procyon lotor</i> )	8.1
Opossum ( <i>Didelphis virginiana</i> )	2.4
Small mammals	51.2
Other	6.5
Miscellaneous	12.2

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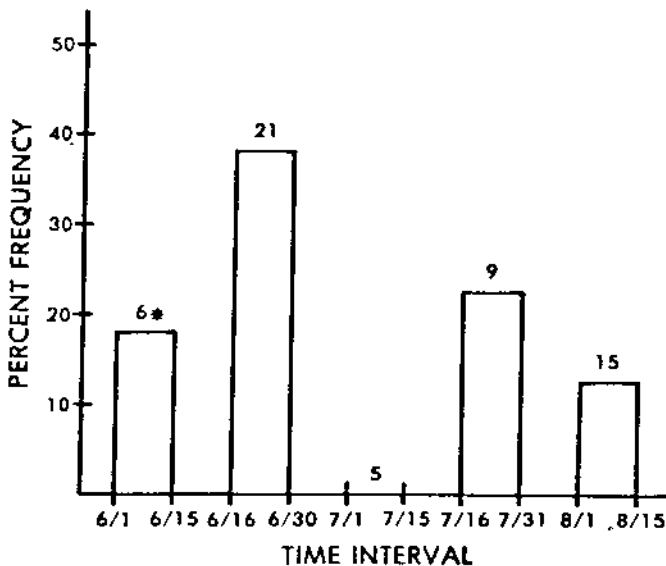


Figure 1. Frequency of fawn remains in scats during 2-week intervals, June 1 to August 15, 1980.

\*Number of scats collected during the two-week period.