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SUMMER FOOD HABITS OF COYOTES IN IDAHO'S RIVER OF NO RETURN WILDERNESS AREA

Charles L. Elliott¹ and Richard Guetig²

ABSTRACT.—Summer food habits of coyotes (*Canis latrans*) in the River of No Return Wilderness Area, Idaho, were determined. Analysis of 51 scats (fecal samples) revealed that Columbian ground squirrels (*Spermophilus columbianus*), mule deer (*Odocoileus hemionus*), and deer mice (*Peromyscus maniculatus*) exhibited the greatest frequency of occurrence for identified food items, being detected in 57%, 27%, and 16%, respectively, of scats examined.

One of the most ubiquitous and adaptable predators of the American West is the coyote (*Canis latrans*). As man altered habitats in the western states, the coyote adapted its behavior and diet to take advantage of these new environments. Being generally dietary opportunists (Johnson and Hansen 1977), coyotes have found prey to their liking on man's rangeland (Murie 1951, Short 1979, Green and Flinders 1981) and farms (Gipson 1974), and in his cities (MacCracken 1982). Although many aspects of coyote ecology in man-altered or man-impacted areas of the West have been investigated, less is known of the role of the coyote in relatively undisturbed wilderness. The objective of this study was to determine the summer food habits of coyotes in Idaho's River of No Return Wilderness Area (RNRWA).

STUDY AREA AND METHODS

The study was conducted in the Big Creek Ranger District, RNRWA (formerly the Idaho Primitive Area). A description of the RNRWA and Big Creek area has been provided by Hornocker (1970).

Canid scats were collected from trails located in the Big Creek drainage of the RNRWA. Trails were surveyed the beginning of May 1977 and 1978, and all scats encountered were removed. After the initial clearing, trails were surveyed at least once a month for newly deposited scats. Scat collection concluded at the end of August 1977 and 1978. Collected scats were air-dried and weighed,

and diameter at the widest point was determined. Using criteria established in other western studies (Weaver and Fritts 1979, Green and Flinders 1981, Danner and Dodd 1982), we classified all scats ≥ 20 mm in diameter as coyote. Scats were washed, separated, and prepared for analysis in a manner similar to that described by Johnson and Hansen (1979). Prepared scats were analyzed following the procedure of Green and Flinders (1981). Hair was identified by medullary characters (Moore et al. 1974). Teeth were also used to verify the animal species consumed. Each coyote scat was treated as an individual observation. No attempt was made to determine the density of potential prey items in the Big Creek area; hence, it was not possible to determine preference indices for the items identified in the scats examined.

RESULTS AND DISCUSSION

Fifty-one scats collected met the ≥ 20 -mm-diameter criterion and were classified as coyote. The average dry weight (\pm SD) of individual coyote scats was 15.3 ± 5.9 g. Soluble endogenous material accounted for an average 3.9 ± 2.3 g (25%) of dry weight/scat. Thirteen mammal species were identified as food items consumed by coyotes during the summer in the RNRWA (Table 1). Percent occurrence of identified food categories was as follows: rodents 100%, Cervidae 41.4%, insects 39.2%, birds 27.4%, reptiles 3.9%,

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TABLE 1. Percent occurrence of material identified in 51 coyote scats, River of No Return Wilderness Area, Idaho, May–August 1977 and 1978.

| Species identified | Month | | | | Total (51) |
|---|----------------------|-----------|-----------|-------------|------------|
| | May (9) ¹ | June (14) | July (15) | August (13) | |
| Columbian ground squirrel (<i>Spermophilus columbianus</i>) | | 42.9 | 73.3 | 92.3 | 56.8 |
| Mule deer (<i>Odocoileus hemionus</i>) | 33.3 | 35.7 | 13.3 | 30.7 | 27.4 |
| Deer mouse (<i>Peromyscus maniculatus</i>) | 22.2 | 14.2 | 20.0 | 7.6 | 15.6 |
| Moose (<i>Alces alces</i>) | 33.3 | 21.4 | | 7.6 | 13.7 |
| Northern pocket gopher (<i>Thomomys talpoides</i>) | 11.1 | 14.2 | 20.0 | | 11.7 |
| Montane vole (<i>Microtus montanus</i>) | 22.2 | 21.4 | 6.6 | | 11.7 |
| Golden-mantled ground squirrel (<i>Spermophilus lateralis</i>) | 22.2 | | 6.6 | | 5.8 |
| Audubon's cottontail (<i>Sylvilagus audubonii</i>) | 11.1 | | | 7.6 | 3.9 |
| Horse (<i>Equus caballus</i>) | 11.1 | 7.1 | | | 3.9 |
| Long-tail weasel (<i>Mustela frenata</i>) | | 7.1 | | | 1.9 |
| Northern water shrew (<i>Sorex palustris</i>) | | 7.1 | | | 1.9 |
| Water vole (<i>Arvicola richardsoni</i>) | | 7.1 | | | 1.9 |
| Snowshoe hare (<i>Lepus americanus</i>) | | 7.1 | | | 1.9 |
| Unknown Mammals | | 7.1 | 13.3 | | 5.8 |
| Reptiles | 22.2 | | | | 3.9 |
| Arthropods | 11.1 | 21.4 | 53.3 | 61.5 | 39.2 |
| Birds | 11.1 | 7.1 | 33.3 | 53.8 | 27.4 |
| Plant matter | 11.1 | 7.1 | 40.0 | 23.0 | 21.5 |

¹Number of scats examined

domestic livestock 3.9%, and other carnivores 1.9%. The results of this study correspond favorably with those of Ribic (1978), Johnson and Hansen (1979), and Short (1979), in that rodents were the most frequently identified food category in the summer diet of western coyotes.

The Columbian ground squirrel (*Spermophilus columbianus*) was the most frequently occurring food item identified in summer coyote scats, being found in 29 (56.8%) of the 51 scats examined. The percent occurrence of Columbian ground squirrel remains in summer scats reflects the seasonal availability of the squirrel as a prey item. *Spermophilus columbianus* within the RNRWA emerge from hibernation in late May and remain active above ground until late August–

early September (Elliott and Flinders 1980). The seasonal importance of Columbian ground squirrels as a prey species for other predators (i.e., mountain lions [*Felis concolor*]) in the RNRWA was noted by Seidensticker et al. (1973). Increased mountain lion activity during the day in summer was felt to be related to the availability of Columbian ground squirrels as a food item (Seidensticker et al. 1973). The presence of lesser species in the summer diet of lions was thought to hold down any increases over the lion's winter kill rate of elk (*Cervus elaphus*) and mule deer (*Odocoileus hemionus*) (Hornocker 1970).

Although coyotes and mountain lions utilize a common food resource, it is doubtful that they are serious summer dietary competitors. Elk and mule deer are the major food

items consumed by mountain lions during the summer in the RNRWA (Hornocker 1970), whereas rodents comprise the bulk of summer items consumed by coyotes (see Table 1). In the hierarchy of predators in the RNRWA, the coyote appears to occupy a trophic level below that of the mountain lion.

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