Seasonal Variation in Home Range of a Female Badger (*Taxidea taxus*)

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Home ranges of the North American badger, *Taxidea taxus*, are known to vary regionally from 60-1210 ha (Sargeant and Warner 1972, Lindzey 1978, Mesick and Hornocker 1981). Badgers also have been shown to have a seasonally flexible home range that decreases in size from summer to winter (Sargeant and Warner 1972, Mesick and Hornocker 1981). This paper reports the movement and activity of an adult female badger radio tracked during seven months in 1975 at the Cedar Creek Natural History Area in east-central Minnesota, the site of a previous study of badger movements (Sargeant and Warner 1972). Movements of this badger were distinctly seasonal, covered a larger area than previously noted for this species, and demonstrated that portions of the home range may have been excluded during certain seasons.

On 24 April 1975, a lactating 6.46 kg badger was trapped at a large west-facing den located in a raised fencerow, immobilized with ketamine hydrochloride, fitted with a radio-equipped harness of nylon straps similar to that described by Sargeant and Warner (1972), and released. Subsequent radio locations were recorded by an automatic tracking system (Cochran et al. 1965) or by a mobile unit. From data obtained from the automatic tracking system, an estimate of distance travelled during foraging was derived by accumulating straight line distances from the origin of activity to the center of each field in which the badger was located. This is a conservative estimate of total distance travelled because the badger moved within each field; however, because of error associated with radio locations (Springer 1979), within-field movements were not measurable. Averages are expressed ± 1 SD and sample size is reported in parentheses.

In late April and early May, the badger foraged in meadows adjacent to the den and returned to the den before sunrise each morning. In early May, distance travelled during foraging on three nights was 1.3, 1.3, and 2.9 km. Hunting between 7 and 30 May occurred in more distant meadows (Fig. 1). Average distance travelled was 2.5 ± 1.46 km (n=13). However, the badger minimized distance traveled each day by utilizing a different pattern of den use after 14 May. After foraging in an outlying meadow, she remained there during the next day, hunted

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ranges of female badgers in Utah (Lindzey 1978), and ten times larger than the mean home range of female badgers in Idaho (Mesick and Hornocker 1981).

Regional variation in home range size may be a response to habitat, and, in particular, to prey availability. Imposed upon geographic variation is the influence of age and sex. Population studies of badgers in Idaho (Mesick and Hornocker 1981) and Utah (Lindzey 1978) have shown that adults have larger home ranges than young and males tend to have larger home ranges than females. Although our badger and another studied at this site (Sargeant and Warner 1972) were both adult females, differences between their home ranges might be accounted for by reproduction and care of young (our badger raised a litter during the period of observation), annual fluctuations in prey abundance, or individual variation.

Seasonal changes in movements of badgers may be related to shifts in food habits and changes in reproductive status. The restricted spring home range of this badger coincided with rearing of young. As the area surrounding the initial den presumably was exploited, the female began to travel greater distance. To reduce energy expenditures or to begin weaning, the badger remained at the hunting site for two nights rather than returning to the young.

This badger and the female studied by Sargeant and Warner (1972) became sedentary in the fall. The shift of our badger to a new region of activity in September probably followed mating (Wright 1966, Davis 1946). After mating, contact between individuals may decrease. Correspondingly, less time involved in movement may mean more time available for food gathering and possibly greater food intake. During autumn, increased consumption (Lampe 1976) and increased nutritional values of prey (Jense 1968), would account for fall weight gain such as we observed.

LITERATURE CITED


