TELEMETRICALLY DETERMINED MOVEMENTS OF TWO WHITE-TAILED DEER FAWNS IN SOUTHWESTERN ALABAMA[1]

By JAMES L. BYFORD[2]

ABSTRACT

While studying deer movements in the floodplain of the Mobile River in southwestern Alabama, two fawns (of different ages) were radio-instrumented and their movements compared. The interim of the study period was from December, 1967 until July, 1968.

A spotted fawn (between 1 and 2 months old) that was radio-tracked had a home range comparable to that of adult deer in the area, but diel movements were much less. Another fawn (approximately 4 months old) and her mother were captured and instrumented with radio transmitters at the same time. During the first 16 days of intensive tracking (39 locations of each deer) they were never located together. For the remainder of the study period, they were located together 22 out of 23 times. Even though the two deer were separated during most of the tracking period, the fawn's home range was only slightly smaller than the dam's. Both ranges were in the same area, about the same shape, oriented in the same direction, and diel movement parameters of these deer were practically identical. This similarity of range even though they were separated 40 out of 62 times, seems to indicate that home range familiarity can be conveyed from one generation to another, and in a relatively short time (under 4 to 5 months of age).

INTRODUCTION

The study area was located in the floodplain of the Mobile River in southwestern Alabama (Baldwin County). The floodplain, which is characterized by bottomland hardwoods, is covered annually by floodwaters which remain for protracted periods, usually 2-4 months. The study area was further described by Byford (1969).

While radio-tracking white-tailed deer (*Odocoileus virginianus*) from December 1967 until July 1968, the investigator radio-instrumented one spotted fawn and an unspotted fawn-dam pair. Telemetric data of these animals were compared. This information is presented for record, since information on deer fawns (especially fawn movements) is found infrequently in the literature.

METHODS

Radio tlelmetry and tagging were employed to study deer movements. Instrumented animals were radio-tracked from one to two 24-hour periods (diel periods) each week until transmitters failed. Occasional locations were determined between diel tracking periods. During a diel period, the animal was located once every one to three hours, usually once every two hours. Signal reception was obtained by use of a portable receiver and a hand-held antenna.

[1]A contribution of the Alabama Cooperative Wildlife Research Unit, Auburn University, Game and Fish Division of the Alabama Department of Conservation, the U. S. Fish and Wildlife Service and the Wildlife Management Institute, cooperating. Presented at the 24th Annual Conference of the Southeastern Association of Game and Fish Commissioners, September 27-30, 1970, Atlanta, Georgia.

[2]Currently Extension Wildlife Specialist, University of Georgia.

MOVEMENT PARAMETERS

In this paper the following movement parameters are used as defined by Marchinton (1966) with a slight modification by Byford (1969):

1. Minimum home range.
2. Home range major axis.
3. Home range minor axis.
4. Distance between extreme diel locations (DBE).
5. Minimum total distance moved in diel period (MTD).

RESULTS AND DISCUSSION

Movements of Fawn and Dam

On February 3, 1968, a doe and a female fawn (3062 and 3066 respectively) were caught in the same trap at the same time and instrumented with radio transmitter collars. The adult weighed approximately 80 pounds, and the fawn was about one-third adult-size; both were in fair condition. The fawn was unspotted and was estimated to be 4 to 5 months old. Movements and behavior of the two deer, determined by radio telemetry and visual observation, supported the assumption that the fawn was the doe's offspring.

The doe was radio-tracked from February 3 until March 1, and the fawn until February 25. Subsequent visual observation continued to provide data, however. During the first 16 days after instrumentation the deer were located 39 times each, during three complete diel tracking periods, and were never found together (Figure 2a, b and c). Beginning February 19, however, they were almost constantly found together during a diel tracking period (Figure 2d). Before the fawn's transmitter failed, they were found together 19 out of 20 times. After transmitter failures the deer were observed three times until March 8, 1968. Each time they were together.

Other workers report no separation of dam and fawn pairs that were trapped and radio-tracked simultaneously. Marshall and Whittington (1968) reported the simultaneous trapping and instrumenting of a doe and her 6-month-old fawn. They state, "The animals were never separated during the tracking period" (about 1½ months). Smith (1970), while simultaneously radio-tracking a doe and her 6-9-month-old buck fawn, found that the two were separated only twice during sixteen 24-hour tracking periods and numerous random readings.

Even though the two deer were separated during most of the tracking period, the fawn's home range was only slightly smaller than the dam's. Both ranges were in the same area, about the same shape, oriented in the same direction, and diel movement parameters of these deer were practically identical (Figures 1 and 2 and Table 1). This similarity of range even though they were separated 40 out of 62 times, seems to indicate that home range familiarity can be conveyed from one generation to another, and in a relatively short time (under 4 to 5 months of age). If this fawn had not already learned her mother's home range before the separation period, the probability is great that the home range attributes of these two animals would not have been so similar during the period of separation.

Dasmann and Taber (1956) in writing about mule deer, state that the persistence of young in the family group during the first two years of life gives opportunity for them to learn much from the mother. They further state that it is likely that many activities, particularly those related to home range and migration behavior, are learned rather than inherited behavior patterns. Russell (1932) and Grinnel and Storer as cited by Russell (1932) suggest that the habit of migrating in mule deer as well as the tendency to follow certain routes of travel are transmitted to successive generations through the teaching by mothers of experience.

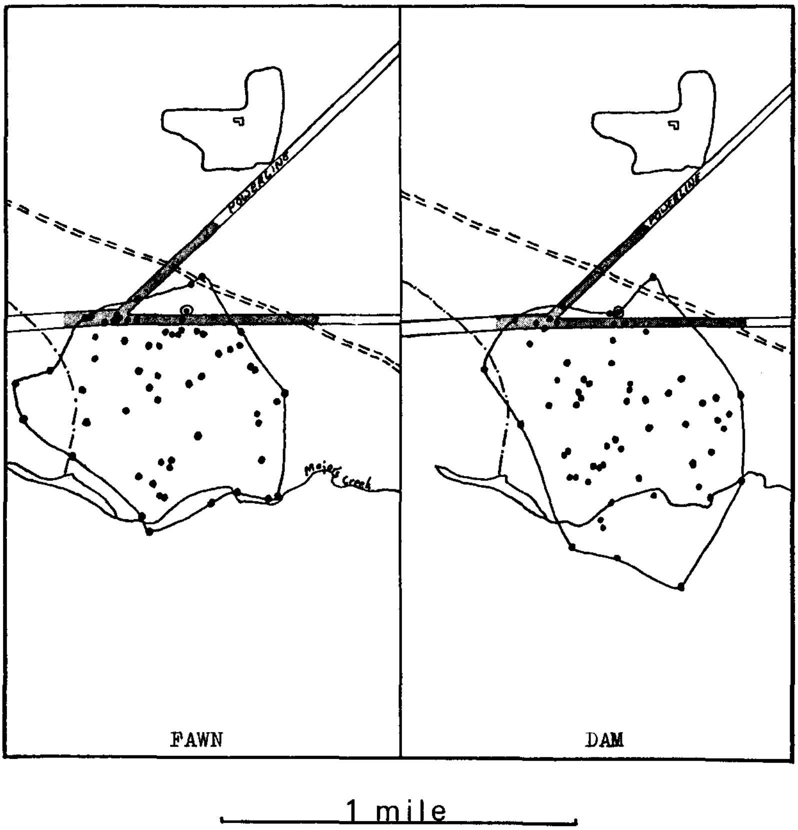

Fig. 1. The minimum home ranges of a fawn and dam (nos. 3066 and 3062) as determined by radio-tracking from February 3 until February 25 and March 1, 1968 respectively. The shaded area is a food plot.

Table 1. A comparison of movement parameters of a female fawn and her dam (numbers 3066 and 3062 respectively), being radio-tracked simultaneously in the vicinity of a floodplain in southwestern Alabama.

Parameters	Fawn	Dam
Telemetric Study Period	Feb. 3 - Feb. 25	Feb. 3 - Mar. 1
Minimum Home Range (Acres)	225	269
Major Axis (Miles)	0.80	0.89
Minor Axis (Miles)	0.65	0.62
Range of DBE (Miles)	0.58 - 0.78	0.58 - 0.76
Mean DBE (Miles)	0.67	0.68
Range of MTD (Miles)	1.93 - 2.37	1.48 - 2.87
Mean MTD (Miles)	2.11	2.12

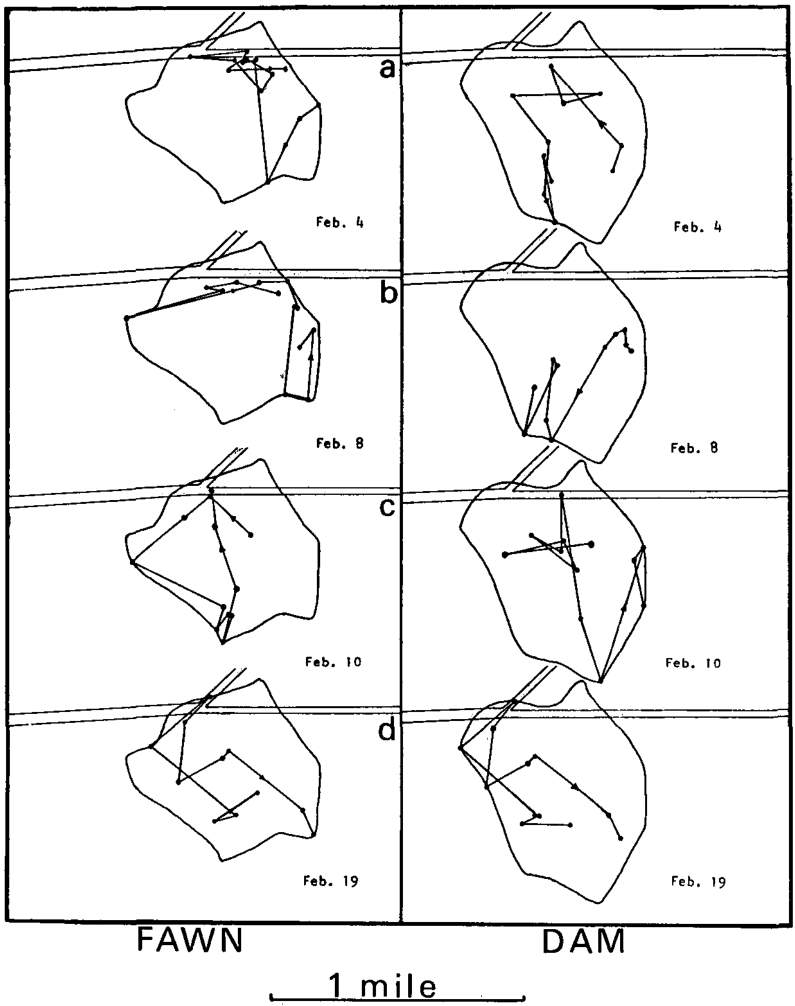

Fig. 2. Sequence of four diel movements of both fawn and dam (nos. 3066 and 3062) as determined by radio-tracking them simultaneously. Note the consistent separation of the two until February 19, when they were almost constantly found together.

Movements of a Spotted Fawn

On October 19, 1968, a spotted female fawn in fair condition and weighing 23 pounds was captured with a tranquilizing gun and instrumented with a radio transmitter collar. She was last located by telemetry on November 20, 1968.

This fawn's home range size was found to be smaller than the average for adult deer in the area, but still within the range of variation of adult home range sizes. It is especially noteworthy, however, that her mean diel movement parameters fall out of the range of those values for adult deer (Table 2). Stated differently, her total home range size was similar to that of adult deer (probably a reflection of her mother's), but her daily movements were much smaller. This suggests that she probably followed her mother to various portions of her home range, and was left in one area to move very little, while her mother ranged much wider. This is further evidenced by examination of four diel movements shown in Figure 4. Typically, her movement pattern appeared to be concentrated in a restricted area, except possibly on November 6. On this date she may have followed her mother from one portion of her range to another, and then proceeded to move about in a restricted area.

Comparison of Fawn Movements

Nichol as cited by Severinghaus and Cheatum (1956) stated that white-tailed deer fawns approximately quadruple their weight in 30 to 40 days. Since 3092 weighed 23 pounds when captured, it was estimated that she was about 1 month old when captured and about 2 months old when last monitored. As stated previously, 3066 was estimated to be from 4 to 5 months old. It would appear, then, that deer (at least in this area) adopt movements which are adult-like in magnitude sometime between the ages of 2 and 5 months.

Severinghaus and Cheatum (1956) state:

> During their first month, fawns do not wander far. For the most part they remain hidden. In a few weeks the fawns begin to accompany the doe farther afield, and by early summer they may be seen trotting by her side.

Michael (1965) stated:

> Fawns spent most of their time bedded and seldom moved except when their mothers came to nurse them, until they reached the age of approximately 2 months. At that time they began accompanying their mothers and thereafter ranged over larger areas.

The above reports are based on visual observations.

LITERATURE CITED

Byford, J. L. 1969. Movement responses of white-tailed deer to changing food supplies. Proc. 23rd Conf. S. E. Assn. Game and Fish Comm. October 19-22, Mobile, Alabama. In press.

Dasmann, R. F., and R. D. Taber. 1956. Behavior of Columbian black-tailed deer with reference to population ecology. J. Mamm. 37(2):143-164.

Marchinton, R. L., and L. K. Jeter. 1966. Telemetric study of deer movement-ecology in the Southeast. Proc. Conf. S. E. Assn. Game and Fish Comm. 20:189-206.

Marshall, A. D., and R. W. Whittington. 1968. A telemetric study of deer home ranges and behavior of deer during managed hunts. Proc. Conf. S. E. Assn. Game and Fish Comm. 22:30-46.

Michael, E. D., 1965. Movements of white-tailed deer on the Welder Wildlife Refuge. J. Wildl. Mgmt. 29(1):44-52.

Russell, C. P. 1932. Seasonal migration of mule deer. Ecol. Monogr. 2:1-46.

Severinghaus, C. W., and E. L. Cheatum. 1956. Life and times of the white-tailed deer. p. 57-186. In W. P. Taylor, The deer of North America. The Stackpole Co., Harrisburg, Pennsylvania.

Smith, F. H., Jr. 1970. Daily and seasonal variations in movements of white-tailed deer on Eglin Air Force Base, Florida. Master's Thesis, Univ. of Ga. 99 pp.

Table 2. A comparison of telemetrically determined movement parameters of deer number 3092 (a female spotted fawn) with those of some adult does tracked in the same area (a floodplain in southwestern Alabama)

Deer No.	Months Monitored	Minimum Home Range(Ac)	Mean DBE(mi)	Mean MTD(mi)
3071	Feb. - Apr.	346	0.67	1.79
3086	Oct. - Dec.	283	0.86	2.59
3062	Feb. - Mar.	269	0.68	2.12
3092	Oct. - Nov.	112	0.47	1.16
3094[3]	Aug. - Sept.	104	0.58	1.83

[3]Deer no. 3094 was tracked during the fawning season, during which she had a fawn. This may account for her small movement parameters.

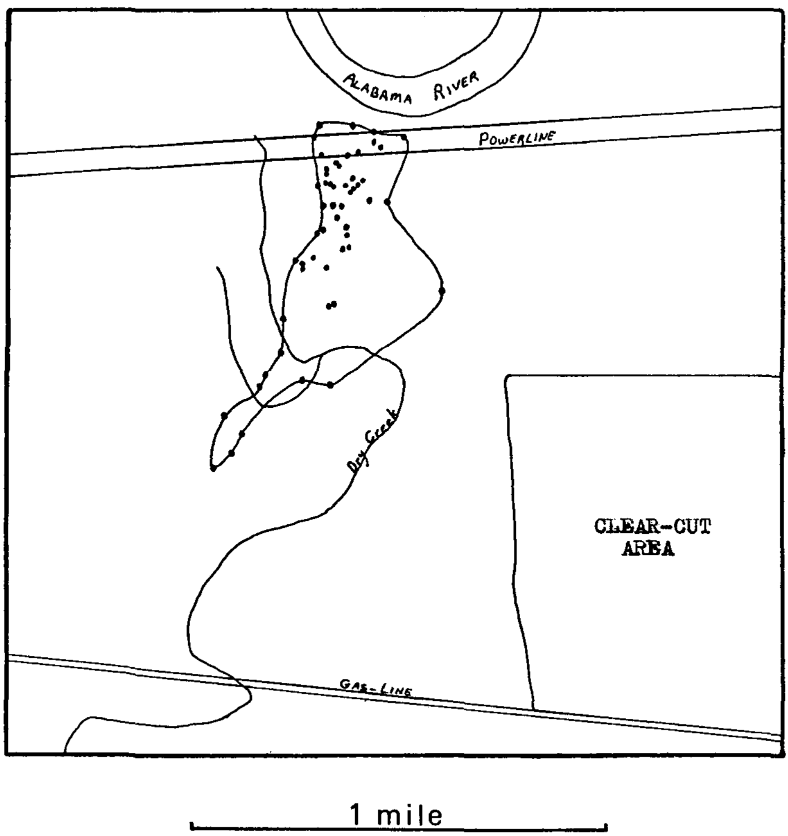

Fig. 3. The minimum home range of a spotted fawn, no. 3092, as determined by radio-tracking from October 19 until November 20, 1968.

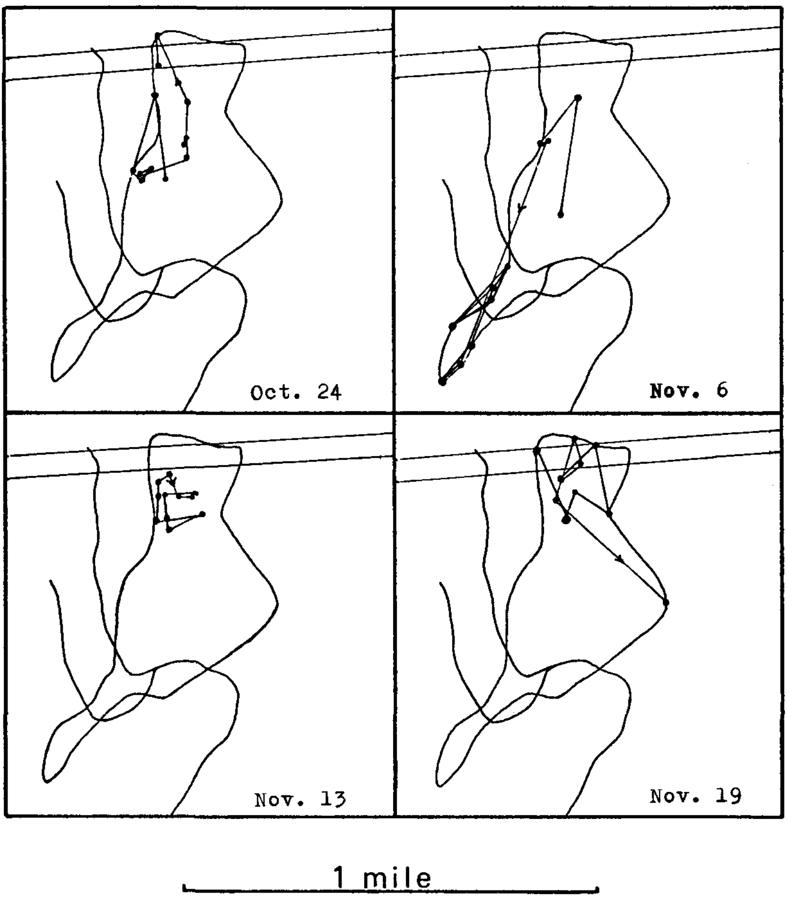

Fig. 4. A sequence of four diel movements of a spotted fawn, no. 3092, from October 24 until November 19, 1968.