

OBSERVATIONS ON THE MAMMALS OF JOHNSON AND CARTER COUNTIES, TENNESSEE, AND AVERY COUNTY, NORTH CAROLINA¹

C. H. CONAWAY AND J. C. HOWELL
The University of Tennessee, Knoxville

As a continuation of the University of Tennessee's program to survey the distribution of mammals in Tennessee (Howell and Conaway, 1952), field work was conducted in northeastern Tennessee and adjacent North Carolina, from March 20, 1951, to April 18, 1951. The majority of the collecting was done in the following areas:

1. March 20-April 3; Johnson County, Tennessee, Shady Valley and along Beaver Dam Creek and its tributaries (Fagall, Birch and Park branches) northeast to Backbone Rock. Some collecting was done at the head of Marshall Branch on the east slope of Holston Mountain and along U. S. Highway 421 on the west slope of Iron Mountain.
2. April 3-April 6; Avery County, North Carolina, Grandfather Mountain along U. S. Highway 221 and in the vicinity of Linville.
3. April 10-April 18; Carter County, Tennessee, Carvers Gap and the north slope of Roan Mountain.

Specimens collected from the Roan Mountain area on three other occasions are included in the present report. These collections were made as follows: Carvers Gap, October 28-29, 1949, by D. W. Pfitzer and C. H. Conaway; Carvers Gap, December 13-14, 1949, by D. W. Pfitzer and S. A. Dow; north slope of Roan Mountain, elevation 3900 to 4500 ft., December 28-30, 1950, by the authors.

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The terrain of northeastern Tennessee is marked by complex ridges and dissecting valleys. Johnson County and western Carter County lie in the Ridge and Valley physiographic province which is characterized by series of long, parallel ridges and intervening valleys running in a southwesterly direction.² Two of the major ridges are Holston Mountain in the western portions of both counties and Iron Mountain which runs through the west central parts. The elevations of these ridges are between 3,000 and 4,000 ft. In northwestern Johnson County, a rather unique valley called Shady Valley lies between these

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²There is disagreement with regard to the boundaries of the physiographic provinces in this region and other physiographic terminology here. He have followed Hayes (1895) rather than some of the other systems (Fenneman, 1938).

two ridges and is drained to the northeast through a narrow gorge by Beaver Dam Creek. This valley is roughly five miles long and two miles wide. The elevation is approximately 2900 ft. at the southwestern end and 2700 ft. at the northeastern end. The central part contains a considerable bog which has been subjected to extensive drainage. In a few places remnants of sphagnum bog remain. Hemlock and some of the original red spruce occur in these remnants.

The southeastern part of Carter County along the North Carolina boundary includes higher mountains belonging to the Roan Mountain group. This group is a part of the Unaka Range (Hayes, 1895) which forms the western boundary of the Blue Ridge physiographic province. The Unaka Range extends southwestward to almost west as a discontinuous chain which reaches maximum development in the Smoky Mountains. Most of the higher peaks of the Southern Appalachians are in this range. The elevation of Roan High Knob is 6286 ft. and a considerable area is above 5500 ft. Several large balds occur and a spruce-fir forest covers much of the area above 5500 ft. A detailed account of this area and its vegetation is given by Brown (1941).

Grandfather Mountain, twenty miles east of Roan Mountain in Avery County, North Carolina, reaches an elevation of 5964 ft. and is the highest peak in the Blue Ridge Mountains. Grandfather Mountain may be regarded as the point where the Unakas join the Blue Ridge (Hayes, 1895).

TABLE 1. *Trap night success*

	SHADY VALLEY	GRAND-FATHER MT.	ROAN MOUNTAIN	
			(SPRING, 1951)	(WINTER, 1950)
Total trap nights.	984	223	606	121
Total % of captures. . .	13.6%	16.6%	7.6%	20.8%
Sorex and Blarina.	1.2%	2.7%	1.9%	4.9%
Peromyscus (all species)	4.6%	9.4%	2.1%	8.3%
Microtinae (all species)	7.0%	4.0%	3.6%	7.5%

Data comparing the numbers of mammals taken in relation to the number of mouse traps nights are summarized in Table 1. The data represent only that portion of the collecting for which such records are complete. The trap night success figure may be considered as a crude index of abundance. However, it is impossible to determine to what extent differences in success represent real population differences and to what extent they reflect differences due to habitat, trapping technique, weather, and other factors. Probably some component of the difference between trapping success on Roan Mountain in December of 1950 and April of 1951 is due to an actual population decline, but evaluation of this seems to be impossible.

Certain mammals were not collected or directly observed but were either reported by local residents or their presence was indicated by tracks and signs. These species are: *Ursus americanus*, Black

Bear, whose tracks and feces were seen on Roan Mountain on October 28, 1949, and on April 15, 1951, (occasional individuals may wander into other areas); *Mustela frenata*, New York Weasel, generally distributed but uncommon (tracks were seen at Carvers Gap on December 29, 1950, and Kellogg (1939) lists one specimen each from Carter and Johnson counties); *Mustela vison*, Mink, generally distributed; *Vulpes fulva*, Red Fox, generally distributed but less common than the Gray Fox; *Urocyon cinereoargenteus*, Gray Fox, generally distributed and common; *Lynx rufus*, Wild Cat, uncommon; *Sciurus niger*, Fox Squirrel, uncommon and local in distribution; *Castor canadensis*, Beaver, one or two individuals occur on Laurel Creek, Johnson County where they have migrated from Virginia; *Ondatra zibethica*, Muskrat, uncommon, reported from the swamp in Shady Valley, Kellogg (1939) lists a specimen from the Watauga Valley, Carter County; *Sylvilagus floridanus*, Eastern Cottontail, common, Kellogg (1939) lists specimens from Shady Valley, Johnson County, and from Watauga Valley and Roan Mountain, Carter County; *Odocoileus virginianus*, White-tailed Deer, locally common where it has been introduced on the Kettlefoot Management Area in Johnson County and Laurel Fork Management Area in Carter County.

In addition to the above species, Kellogg (1939) lists the following species about which we have no information: *Condylura cristata*, Star-nosed Mole, one specimen from Shady Valley, Johnson County; *Felis concolor*, Cougar, recent reports from the Holston Mountains, Johnson County, and from Roan Mountain, Carter County; *Glaucomys sabrinus*, Northern Flying Squirrel, one specimen from Roan Mountain, Carter County.

In addition to positive records, it seems worthwhile to discuss briefly several negative records. The Rock Vole, *Microtus chrotorrhinus*, which is relatively common in the Smoky Mountains has not been recorded from Roan Mountain either by Kellogg (1939) or by us. We have found that instead the Pennsylvania Meadow Mouse, *Microtus pennsylvanicus*, occurs in habitats on Roan Mountain similar to habitats occupied by *M. chrotorrhinus* in the Smoky Mountains. *M. pennsylvanicus* has not been recorded from the Smoky Mountains. While in this area the two species appear to occupy mutually exclusive ranges, both are reported from the same general region in Cranberry Glades, West Virginia (Kellogg, 1937). The distribution, interspecific relationships, and habitat requirements of these two species in the Southern Appalachians seems to be a matter worthy of more investigation.

The Water Shrew, *Sorex palustris*, is known from the Smoky Mountains (Conaway and Pfitzer, 1952), but intensive collecting for this species along what appeared to be suitable streams on Grandfather and Roan Mountains failed to produce any specimens. Evaluation of these results is difficult since equally intensive trapping for the Gray Shrew, *S. dispar*, produced but one specimen. Furthermore, no specimens of the common shrew, *S. cinereus*, were taken during the spring collecting on Roan Mountain although this species had pre-

viously been collected from that area. In the light of these results, the failure to take any *S. palustris* may not indicate their absence but merely be a reflection of low populations or other factors which operated to produce a general lack of success (Table 1) in trapping all shrews during the spring of 1951.

For each species treated in the annotated list which follows, the total number of adult animals examined of each sex is given, followed by the standard measurements. We have omitted subspecific names in the annotated list since the material collected has not been studied thoroughly from this aspect. With some exceptions in the case of the more abundant species, the animals whose measurements and weights are given were prepared as study skins and are at present in the University of Tennessee Museum of Zoology Collection. The average for each standard measurement is given followed by the extremes which are enclosed in parentheses. Linear measurements are recorded in millimeters and weights in grams. The following abbreviations of standard measurements are used: total length, L; length of hind foot, HF; length of tail, T; and weight, Wt. Three additional measurements are recorded for some specimens of bats: length of ear, length of tragus from the notch, and length of radius.

Data on the testes of the males are given following the standard measurements. The average of the lengths and widths are given followed in each case by the extremes in parentheses. All measurements are in millimeters. Reproductive data on the females follows the standard measurements. Following the heading "pregnancies" is given the number of visibly pregnant females, followed in parentheses by the number of embryos separated by a hyphen from the number of females which had this many embryos. Thus three pregnant females one with three embryos and two with four embryos would be indicated as follows: Pregnancies: 3(3-1, 4-2). Standard measurements for mammals collected on Roan Mountain during any of the periods other than from April 10-18, 1951, are listed separately under each species concerned.

ANNOTATED LIST OF SPECIES COLLECTED OR OBSERVED

Didelphis virginiana. Opossum. Tracks and reports indicated that this species is common throughout the area. A dead opossum was observed along Fagall Branch on March 22. One specimen was collected along Birch Branch, Johnson County, by Clarence Gentry on March 29. Kellogg (1939) lists a specimen from Carvers Gap, Carter County.

1 female: L-629, HF-59, T-313, Wt-1490. Eleven 68 mm.-young in pouch.

Parascalops breweri. Hairy-tailed Mole. Tunnels attributed to this species were generally observed through the area. One mole was collected in a pasture in Shady Valley on March 21. Molt was evident dorsally and ventrally on the skin. One individual was noted dead on a road five miles southeast of Linville, Avery County, on April 6.

1 female: L-155, HF-17, T-23, Wt-51.7. Pregnancies: 1(4-1).

One specimen was collected at Carvers Gap on October 29, 1949.

1 female: L-147, HF-19, T-28, Wt-45.

Sorex cinereus. Cinerous Shrew. Two specimens were secured at Carvers Gap, one on October 28 and the other on December 14, 1949. Both animals were taken in spruce thickets.

2 males: L-92 and 95, HF-11 and 11, T-40 and 40, Wt-3.5 (wt not taken for December 14 specimen).

Sorex fumeus. Smoky Shrew. These shrews were most commonly taken in moist woods and on wooded talus slopes. Specimens procured were as follows: Johnson County, Shady Valley, 1; Fagall Branch, 4; Carter County, Roan Mountain, 9; Avery County, two miles N.E. of Linville, 2.

11 males: L-117 (108-123), HF-13.8 (13-14), T-45 (42-47), Wt-8.8 (5.4-9.9). Testes: 6 (5-8) x 4 (3.5-5.0).

1 female: L-118, HF-13, T-47, Wt-8.3. Not visibly pregnant.

Sorex dispar. Gray Shrew. One specimen was trapped in the crevices between rocks beside Little Cove Creek, Roan Mountain, Carter County, on April 5. The elevation was approximately 4900 ft. This species has previously been recorded in Tennessee only from the Smoky Mountains (Conaway and Pfitzer, 1952).

1 male: L-125, HF-16, T-58, Wt-5.7. Testis: 5.5 x 3.5.

Blarina brevicauda. Short-tailed Shrew. This species is generally distributed through the region and it was the most commonly collected shrew. A specimen collected in Shady Valley on March 21 was pregnant. Specimens collected were as follows: Johnson County, Shady Valley, 5, Fagall Branch, 5; Avery County, two miles N. E. of Linville, 4; Carter County, Roan Mountain, 1.

11 males: L-115 (108-123), HF-15 (14-15.5), T-24 (20-26), Wt-18.8 (14.4-20.4). Testes: 9.3 (8-11) x 5.5 (5-6.5).

3 females: L-111 (105-116), HF-14.7 (14.5-15), T-26.3 (26-27), Wt-15.1 (12.9-17.2). Pregnancies: 1 (4-1).

Nine specimens taken on the north slope of Roan Mountain December 28-30, 1950, had the following measurements:

5 males: L-119 (116-124), HF-14.3 (13.5-15), T-26.6 (25-29), Wt-14.8 (12.9-16.9). Testes: (two specimens) 3 x 1.5 and 3 x 1.5.

4 females: L-109 (103-117), HF-14.4 (14-15), T-23.6 (23-25), Wt-12.7 (11.5-14.3). Reproductive tracts inactive.

Myotis lucifugus. Little Brown Bat. Approximately six of these bats were observed in a cave at the edge of the town of Hampton, Carter County, on April 3. Three specimens were collected.

1 male: L-88, HF-10.5, T-33, Wt-5. Radius-36, Ear-13.5, Tragus-5. Testis 3 x 2.

2 females: L-91 and 90, HF-10.5 and 11, T-39 and 36, Wt-5.2 and 5.8. Radius-38 and 39, Ear 14 and 14.5, Tragus-5 and 5.

Lasionycteris noctivagans. Silver-haired Bat. One specimen was shot at 5:45 p.m. on March 29 at Backbone Rock, Johnson County.

1 female: L-97, HF-9.5, T-35, Wt-8.1, Radius-39.5, Ear-15, Tragus-4.

Pipistrellus subflavus. Georgian Bat. About 15 of these bats were seen in the cave at the edge of Hampton, Carter County, on April 3. None were collected.

Eptesicus fuscus. Big Brown Bat. These bats were observed on numerous occasions between March 21 and 31 emerging from crevices below the top of Backbone Rock at dusk. One specimen was shot at this location on March 29.

1 male: L-116, HF-11, T-35, Wt-14.9. Radius 39.5, Ear-15, Tragus-4.

Procyon lotor. Raccoon. Tracks and reports indicate the raccoon is generally distributed in the area. One specimen was trapped along Beaver Dam Creek, Johnson County, on March 30.

1 male: L-692, HF-104, T-225, Wt-3423. Testis 13 x 8.

Spilogale putorius. Alleghenian Spotted Skunk. Reported by local residents to be generally distributed in the more heavily wooded areas but probably relatively uncommon. One individual was collected by Clarence Gentry on the Kettlefoot Game Management Area, Johnson County, about April 5.

1 male: L-521, HF-49, T-197, Wt-578. Testis: 20 x 17.

Mephitis mephitis. Striped Skunk. Reports indicated this species was common. Two specimens were collected along Birch Branch, Kettlefoot Game Management Area, Johnson County, by Clarence Gentry on March 30 and 31.

1 male: L-621, HF-64, T-261, Wt-1231. Testis 21 x 14.

1 female: L-612, HF-67, T-271, Wt-1610. Pregnancies 1 (6-1).

Marmota monax. Woodchuck. Reported uncommon in this area. Kellogg (1939) lists two specimens obtained at Carvers Gap, Carter County. Several were observed at various points along U. S. Highway 221 north of Linville, Avery County, between April 3-5.

Tamias striatus. Chipmunk. This species did not appear to be common

except on Roan Mountain during the period of October 28-30, 1949, when large numbers were observed. A specimen was collected in Shady Valley, Johnson County, March 28.

1 female: L-240, HF-35.5, T-88, Wt-103.9. Placental scars 5 and lactating.

Two specimens were taken on Roan Mountain on October 28, 1949.

1 male: L-219, HF-39, T-71, Wt-90.

1 female: L-222, HF-39, T-79, Wt-101.

Tamiasciurus hudsonicus. Red Squirrel. During the period of October 28-30, 1949, red squirrels were seen or heard commonly on Roan Mountain at elevations of 4000 ft. and above. Red squirrels were also seen along U. S. Highway 221 north of Linville, Avery County. Reports indicated they occurred but were uncommon on the Laurel Fork Management Area in Carter County. Kellogg (1939) reports a sight record from Shady Valley and specimens from Roan Mountain. One specimen was collected on Roan Mountain, Carter County, on October 28, 1949.

1 female: L-310, HF-50, T-125, Wt-158.

Sciurus carolinensis. Gray Squirrel. This species appeared to be generally distributed and common through most of the area. They were seen at various places in the Kettlefoot Management Area and on Roan Mountain. Kellogg (1939) reports a specimen collected from Holston Mountain, Johnson County.

Glaucomyz volans. Flying Squirrel. A single specimen was collected on March 24 at the head of Park Branch, Johnson County.

1 female: L-226, HF-30.5, T-97, Wt-65.6.

Peromyscus maniculatus. White-footed Mouse. In Shady Valley and along Beaver Dam Creek, it was less common than *P. leucopus*. In these areas it was usually taken in cool and moist situations in the woods. At higher elevations it was encountered in all habitats and was much more common. Specimens were collected in the following areas: Johnson County: Shady Valley, Fagall Branch, Marshall Branch, Backbone Rock, Green Mountain Branch, and McQueens Knob; Avery County: two miles N. E. of Linville and Grandfather Mountain; Carter County: Roan Mountain.

19 males: L-169 (156-181), HF-20.4 (19.5-21), T-86 (76-94), Wt-17.4 (13.3-24.2). Testes: 7.2 (5.5-11) x 4.6 (3.5-6).

13 females: L-170 (154-191), HF-20.3 (19.5-21), T-88 (79-97), Wt-(11 specimens)-18.0 (14.4-22.6). Pregnancies: 2 (3-2). Placental scars and lactating: 4 (3-3, 2-1).

The standard measurements for nine specimens collected on Roan Mountain on December 30, 1950, are as follows:

7 males: L-163 (154-177), HF-20 (19-21), T-83 (75-96), Wt-15.9 (13.1-17.9). Testes: 2.3 (1-3) x 1.4 (1-2).

2 females: L-183 and 172, HF-21 and 19.5, T-92 and 89.5, Wt-20 and 17.6.

Peromyscus leucopus. Deer Mouse. In general this species was taken at lower elevations and in more open types of woods than *P. maniculatus*. Along Beaver Dam Creek and in the cut over woods and field edges in Shady Valley, *P. leucopus* was the predominant species of the genus. However, no specimens were collected in the brief trapping done in Avery County and only four were taken on Roan Mountain. These individuals all came from an elevation of slightly below 4000 feet along Toms Creek.

12 males: L-163 (145-177), HF-20 (19-22), T-75 (61-86), Wt-22.3 (16.7-27.6). Testes: 10.7 (7-14) x 6.4 (4-9).

7 females: L-168 (155-184), HF-20 (19-21), T-78 (67-86), Wt-24.3 (17.6-36.7). Pregnancies: 6 (3-1, 4-4, 6-1).

Peromyscus nuttalli. Golden Mouse. Specimens were collected in a dense hemlock woods in Shady Valley and in a brushy clearing at the mouth of Fagall Branch. Kellogg (1939) records specimens from the Holston Mountains in Johnson County and from an altitude of 2,500 ft. on Roan Mountain, Carter County.

1 male: L-163, HF-18, T-72, Wt-23.6. Testis: 14 x 9.

4 females: L-171.5 (146-191), HF-19.4 (19-20), T-80.7 (66-92), Wt-24.1 (16.7-34.3). Pregnancies: 2 (3-2).

Neotoma sp.? Wood Rat. Evidence of wood rats was much less frequently seen in this area than in the Cumberland Mountains. Indications of their presence were noted in the talus at the head of Marshall Branch and in several rock outcroppings in the vicinity of Backbone Rock. Wood rat "sign" was also seen on a ridge in the deciduous woods between the heads of Birch and Park Branches. The latter habitat was unusual in that no rock outcropping occurred in the vicinity. Numerous feces containing seeds of Solomonsal were noted on the top of a two-foot chestnut stump. A nest was located in the hollow of an eight-foot chestnut snag which was about three feet from the stump. A hole in the base of the snag appeared to be used by the rats to gain access to the nest. We were informed by local chestnut woodcutters that Wood Rats were occasionally found in similar situations.

Two specimens were taken. A female which was lactating and pregnant was trapped on March 30 in a drain running beneath State Highway 133 near the mouth of Fagall Branch in the Kettlefoot Management Area, Johnson County. A second specimen was taken on April 5 in a cave at the edge of Hampton, Carter County. Abundant evidence of Wood Rat activity was found in this cave.

Comparisons of these two specimens with *Neotoma magister* from the Cumberland Mountains and with specimens of *Neotoma floridana haematoreia* in the Great Smoky Mountains National Park collection were made. The specimen from Fagall Branch is indistinguishable from *N. magister* from the Cumberland Mountains. The specimen from Hampton Cave, however, appears to be intermediate in skull characteristics between the two forms. The length of the nasals and rostrum is closer to *N. f. haematoreia* but yet these measure longer than those of any comparable material from the Smoky Mountains. It is unfortunate that only one specimen is available from this area. It has been pointed out by Burt and Barkalow (1942) that there is little justification for the wide separation commonly given these two forms and that "... *magister* and *floridana* might be shown eventually to be conspecific." Further collections in this general area might provide critical material for determination of these relationships.

Fagall specimen: L-396, HF-40, T-190, Wt-272. Lactating and 3 embryos (gestation sacs 9 mm. in diameter).

Hampton specimen: L-394, HF-43, T-176, Wt-256. Lactating heavily and 2 placental scars.

Synaptomys cooperi. Lemming Mouse. Specimens were trapped in runways in a sphagnum bog on the Carl Berry farm in Shady Valley, Johnson County. Other specimens were taken in runways in the blue grass at the mouth of Fagall Branch. Although no specimens were taken on Roan Mountain, a skull was found in fox feces picked up near Roan High Bluff. Characteristic runways of this species were also noted in the bald at Carvers Gap, Oct. 28-30, 1949.

3 males: L-125 (121-127), HF-19.5 (19-20), T-18.3 (18-19), Wt-29.9 (28.5-30.8). Testes: 6 (6-6) x 3.7 (3-4).

3 females: L-124 (117-130), HF-19 (18.5-19.5), T-18.7 (15-22), Wt-30.0 (28.5-31.9).

One individual lactating and three placental scars.

Clethrionomys gapperi. Red-backed Mouse. This species was common at all places where collections were made. Many specimens were taken in traps placed in talus which was covered with vegetation. Specimens preserved are as follows: Johnson County: Shady Valley 1, Iron Mountain 1, Kettlefoot Management Area 3; Avery County: Grandfather Mountain 2; Carter County: Roan Mountain II.

28 males: L-144.0 (130-160), HF-19.4 (18-21), T-39.4 (32-48), Wt-31.9 (24.6-36.3). Testes: 10.4 (9-13) x 6.6 (5-9).

20 females: L-145.8 (135-154), HF-19.6 (18-21), T-40.8 (37-44), Wt-30.4 (22.2-38.8). Pregnancies 7 (3-1, 4-4, 5-1, 6-1).

Nine specimens were taken on Roan Mountain on December 29-30, 1950.

5 males: L-139.6 (132-149), HF-19.7 (18.5-20.5), T-39.6 (37-44), Wt-24.3 (23-25.9). Testes: 2.8 (2-3) x 1.8 (1-2).

4 females: L-140.2 (132-150), HF-19.7, (19-20), T-40.7 (37-45), Wt-25.5 (24.6-27.2). Reproductive tracts inactive.

Five specimens were taken at Carvers Gap, Roan Mountain on October 28-30, 1949.

1 male: L-142, HF-20.5, T-40, Wt-28.9. Testes: 11 x 6.

4 females: L-145.2 (140-149), HF-19.4 (18-21), T-42.2 (40-46), Wt-31.9 (31.0-34.0). Pregnancies: 2 (4-2).

Microtus pennsylvanicus. Pennsylvania Meadow Mouse. This species has apparently not previously been recorded from Tennessee although Kellogg (1939) cites Rhoads as having taken specimens on the North Carolina side of Roan Mountain and as having seen evidence of their activity on the Tennessee slope. It has also been recorded from Washington and Grayson counties, Virginia (Hadley and Patton, 1947) which border Johnson County to the north. We have collected this species in both Carter and Johnson counties. Runways attributed to *M. pennsylvanicus* were abundant in a swamp habitat in Shady Valley and at various places in the grass along the edge of State Highway 133 in the Kettlefoot Management Area. Evidence of their activity was also observed in wet places at several points on Roan Mountain along the road ascending to Carvers Gap as well as in the bald at Carvers Gap. Similar evidence was noted in a marshy place beside the road at Linville. Specimens preserved are as follows: Johnson County: Shady Valley 4, Fagall Branch 3, Birch Branch 2; Carter County: Roan Mountain, elevation 3800 ft.—1, 4000 ft.—1, 5000 ft.—2.

7 males: L-158.9 (150-165), HF-21 (20-22), T-41.7 (34-47), Wt-48.8 (34.6-60.2). Testes: 13.6 (11-16) x 8.6 (7 x 10).

4 females: L-160.5 (154-167), HF-20.6 (20-22), T-39 (35-43), Wt-(3 specimens) 48.4 (37.6-55.2). Pregnancies: 3 (4-1, 5-2).

Pitymys pinetorum. Pine Mouse. These mice were abundant in a brushy field at the mouth of Fagall Branch. Here they were closely associated with *Synaptomys*, *Microtus*, and to a lesser extent, *Clethrionomys*. One female obtained at this locality on March 24 was lactating fully as well as having two embryos (diameter of gestation sac 3.5 mm.). This would indicate a post partum heat had occurred. A specimen was obtained under a corn shock on the Carl Berry Farm in Shady Valley. Kellogg (1939) records a specimen from Watauga Valley in Carter County.

3 males: L-117 (116-118), HF-15.7 (15.5-16), T-22.8 (20-25), Wt-23.3 (22.5-23.8). Testes: 6.3 (4-9) x 4.8 (4-6).

3 females: L-118.7 (116-123), HF-16.7 (16-17), T-23.7 (21-26), Wt-26.1 (22.0-30.0). Pregnancies: 3 (2-3).

Rattus norvegicus. Norway Rat. One was collected by hand under a corn shock on the Carl Berry farm in Shady Valley on March 29. Others were seen in the same field.

1 female: L-382, HF-40, T-179, Wt-241.

Mus musculus. House Mouse. Specimens were obtained in corn shocks on the Carl Berry Farm in Shady Valley and the Gentry Farm on Birch Branch in Johnson County.

1 male: L-137, HF-17, T-68, Wt-10. Testes: 5 x 3.

Sylvilagus transitionalis. New England Cottontail. The single specimen of the New England cottontail obtained was a road kill which was found on State Highway 133 about one mile south of Backbone Rock in the Kettlefoot Management Area, Johnson County. Additional work will be necessary before the status and distribution of this species in Tennessee are clarified. Kellogg (1939) records a specimen from Cocke County in the Unaka Mountains and one from Hamilton County in the Cumberland Mountains. He also cites Rhoads as having examined a series of rabbits from Roan Mountain which were all *S. floridanus*. Although Komarek and Komarek (1938) collected no

S. transitionalis in the Great Smoky Mountains National Park, they found that local residents spoke of two kinds of rabbits, one of which occurred at higher elevations and was referred to as the "woods rabbit." Several residents of northeast Tennessee also told us that a "woods rabbit" which was smaller in size and with shorter ears than the common rabbit occurred on some of the ridges in Carter County.

1 male: L-391, HF-89, T-50. Testis: 29 x 16.

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BOOK REVIEWS

Sun, Moon, and Planets. By Dr. Roy K. Marshall. Pp. 129. Price \$2.50. Henry Holt and Company, New York City. A charmingly written book that should prove interesting to everyone from school children in the upper grades to adults. The language is non-technical and the material presented is of the type that laymen might be expected to like. A desirable book for both the high school and the grade school library.—*Jesse M. Shaver*

Man and the Biological World. 2nd ed. By James S. Rogers *et al.* Pp. 704. Price \$5.75. McGraw-Hill Book Co., New York City. This revised edition, like its predecessor, is concerned with some of the basic principles that have been found to apply to the world of living things and that help us better to understand ourselves and the world in which we live. It is especially suited for use as a textbook in the general education program of colleges.—*Jesse M. Shaver*

Functional Anatomy of the Mammal, A Guide to the Dissection of the Cat and an Introduction to the Structural and Functional Relationship between the Cat and Man. 2nd Ed. By W. James Leach. Pp. 276. Price \$4.50. McGraw-Hill Book Co., New York City. A concise and clear guide to the dissection of the cat. The fine drawings, suggested problems, topics for discussion and review, and the careful pointing out of differences and similarities between the anatomy of the cat and that of man, increase greatly the usefulness of the book. I regard it as one of the most valuable manuals on the cat.—*Jesse M. Shaver*