

STATUS OF THE OPOSSUM IN TENNESSEE

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This paper deals with the status of the opossum (*Didelphis marsupialis*) in Tennessee, particularly its distribution and density. The literature is sadly lacking in reports on the fauna of Tennessee and the opossum is not an exception. This paper was prepared primarily to place on record data collected on the opossum during a wildlife survey of Tennessee.

Current literature on the distribution of Tennessee mammals, primarily that of Hamilton (1943) and Burt and Grossenheider (1952), relies chiefly upon the reports of Rhoads (1896) and Kellogg (1939) for information on Tennessee mammals. Rhoads' report which is based on limited field work, contains the statement that he did not see the opossum, but it was reported common throughout the State below elevations of 2,000 feet. Kellogg (1939), stated, "The opossum seems to be distributed over the whole State, occurring most frequently in the timbered bottomlands and in the rock ledges on the bluffs bordering the stream valleys. In the mountainous sections of eastern Tennessee, the vertical range of the opossum goes at least to 3,700 feet." Kellogg's report was based on personal contact with the residents of Tennessee. He examined specimens from the following counties: 1 - Benton; 1 - Carter; 2 - Grainger; - 1 Houston; 1 - Humphreys; 1 - Lincoln; 3 - Montgomery; 1 - Sumner. Apparently these are the specimens currently in the joint collection of the U. S. Fish and Wildlife Service and National Museum, as it was reported to me that the following Tennessee opossum specimens were in this collection: 1 - Big Sandy; 3 - Clarksville; 1 - Danville; 1 - Frankwing; 1 - Roan Mountain; 1 - Rockland; 1 - Tennessee River; 2 - Thornhill. The University of Tennessee Museum of Zoology contains one opossum specimen each from Johnson and Knox Counties.

Hamilton (1943) and Burt and Grossenheider (1952) merely show by means of maps that the distribution of the opossum in Tennessee is statewide.

In addition to the above, some minor reports on the opossum appear in the literature. Miller and Kellogg (1955) make no specific comment on Tennessee but they do imply that the opossum is distributed over the entire State. They designate the subspecies as *Didelphis marsupialis virginiana* Kerr. Howell (1909) makes no comment on the opossum in Tennessee. Ganier (1928) remarks that, ". . . the opossum being very productive, holds its own." Wing (1940), reporting on a game survey en-

compassing an area roughly between the Holston River and the Tennessee-Kentucky state line, merely remarked that the opossum was present. Goodpaster and Hoffmeister (1952) reported the opossum common in the vicinity of Reelfoot Lake. In regard to the Cumberland Plateau, Howell and Conaway (1952) remarked, "Tracks indicated that this species was generally distributed over the region." Although they saw five opossum dead on the highway, specimens were not collected. Conaway and Howell (1953) reporting on some observations of mammals in Johnson and Carter Counties make no reference to the opossum.

Lack of specific information concerning the distribution of the furbearers and other fauna of Tennessee resulted in the Tennessee Game and Fish Commission conducting a statewide wildlife survey. Primary field work on this project was begun in September, 1950, and was completed approximately thirteen months later. The survey procedure (Schultz, 1952; 1954) included a method of sampling known as "area sampling" which permitted computation of sampling errors. In brief, the sampling scheme consisted of a proportionate stratified random sample of 1,000 "sampling areas" in Tennessee which averaged five dwellings per area as indicated on state highway maps. This was a sampling rate of 1 in 51. Heads of farm households dwelling upon these areas were interviewed concerning the opossum utilizing their farms and the "sampling areas." Data collected on this furbearer are presented in this paper and Schultz *et al.* (1954). The relative sampling errors (R.S.E.) indicate the adequacy of sampling for all interviewees and also all respondents reporting this animal on their farm. Ninety-five per cent confidence limits on an estimated total (obtained by multiplying the number of respondents by the sampling rate) of either all heads of farm households or all such persons with the animal utilizing their farm in a farming-type are obtained as follows:

$$\pm (\text{Estimated Total}) (\text{R.S.E.}) (2).$$

Farmer hunters were requested to furnish information on animals hunted and trapped with the intent that such information would assist in delineation of the range of the animal and possibly population densities.

Data obtained by personal interview have been tabulated on a farming-type basis (Table 1). The farming-types (revised from Luebke *et al.*, 1947) or strata represent physiographic regions as follows: Mississippi Bottoms, 1; Plateau Slope of West Tennessee, 2, 3, 4, 5, 6; Highland Rim, 7, 8, 9, 11; Central Basin, 10; Cumberland Plateau, 12; Valley of East Tennessee, 13, 14; Sequatchie Valley, 14A; Unaka Range, 15.

Although the data collected do not permit comments on relative densities, it is believed that they do establish the present range of the opossum in Tennessee.

Table 1. Status of the opossum in Tennessee as determined by personal interview of heads of farm households.

	1	2	3	4	5	6	7	Farming-type			12	13	14	15	Total
								8	9	10					
FARM: Number of Respondents	27	97	489	69	131	261	200	139	116	538	306	57	862	131	3560
Number reporting opossum on farm	21	91	463	68	118	251	184	137	110	497	292	55	794	120	3323
Per cent reporting opossum on farm	78	94	95	99	90	96	92	99	95	92	95	96	92	92	93
R.S.E. ¹ for estimate total of: All heads of farm households	16.4	7.6	5.0	6.7	6.8	4.6	5.9	6.7	8.8	3.2	5.7	7.7	10.2	3.0	6.5
Heads of farm households with opossum on farm	15.8	7.7	5.3	7.0	6.8	4.5	6.0	6.6	8.5	3.5	5.6	9.1	11.1	3.1	7.1
SAMPLING AREA: Number of respondents ²	16	78	341	58	94	184	158	120	95	417	239	45	724	122	2807
Number reporting opossum on sampling area	15	76	337	57	91	183	156	120	94	413	237	44	714	122	2773
Per cent reporting opossum on sampling area	94	97	99	98	97	99	99	100	99	99	99	98	99	100	99

¹ Relative sampling errors (R.S.E.) computed by use of analysis of variance, with computations by the Iowa State College Statistical Laboratory.

² Includes only respondents who have lived on area; or not over 2 miles from area, during the last five years.

The opossum was reported as occurring on farms of 3,323 of the 3,560 respondents (Table 1). It is quite obvious that the opossum is quite common in all farming types and that it is impossible to make a rational comment on the relative densities throughout the State on the basis of the data in Table 1.

Of the 3,560 heads of farm households interviewed, 44.7 per cent hunted with an estimate of 16 per cent of these hunters hunting opossum. The 167 farmer opossum hunters interviewed hunted a total of 1,058 trips and killed 1,747 opossum. It is estimated that all farmer hunters captured 138,100 opossum on 83,635 trips during the study period. The success ratio (animals per trip) was 1.65, ranging from 0.81 to 6.00 in the farming types. The average number of opossum taken by the farmer hunter was 10.7 ranging from 1.3 to 23.9 in the farming-types. These data are presented in detail in Schultz *et al.*, 1954.

A total of 211 trappers dwelling in the country were contacted and 43 per cent of these trapped opossum. Of the 4,060 animals reported trapped by these 211 trappers, 649 were opossum. From these data it was established that all trappers of this group trapped 16,550 opossum during the study period.

Opossum population trends on the sampling areas during the five years preceding this study were reported as: up 39 per cent; down, 6 per cent; no change, 30 per cent; unknown, 25 per cent.

It can be concluded that the opossum is commonly distributed throughout Tennessee and is relatively important to the farmer hunter and trapper.

Acknowledgements

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ERRATA

The following errors appeared in the paper "New Cave Beetles (Carabidae, Trechini) from Tennessee and Kentucky", vol. 34, no. 1, pp. 5-30.

Page	Line	
7	6	For "Aereagus" read "Aedeagus"
7	15	For "O paratypes" read "60 paratypes"
7	27	For "Allotypes" read "Allotype"
7	39	For "graduations" read "gradations"
10	25	For "elliptical" read "elliptical"
10	35	For "steae" read "setae"
10	52	For "Pseudanoprthalmus" read "Pseudanophthalmus"
11	3	For "Orconevtes" read "Orconectes"
20	43	For "Pseudanaphthalmus" read "Pseudanophthalmus"
21		The following was omitted, and should be inserted after line 9: <i>Holotype</i> : T1 4.12; h1 0.88; hw 0.73; pl 0.83; pw 0.88; el 2.21; ew 1.47; ant 2.60. <i>Allotype</i> : T1 3.82; h1 0.78; hw 0.78; pl 0.73; pw 0.83; el 2.11; ew 1.32; ant 2.30.
21	10	For "Holotype" read "Description:"
21	44	For "larges" read "large"
22	36	For "Peannel" read "Jeannel"
26	21	For "ovbiously" read "obviously"

The magnifications of beetles and aedeagi in Figs. 1, 2, 4, and 6 should be corrected as follows:
 Fig. 1. X29; Fig. 2. X72; Fig. 4. (1), (2), and (3) X72; (4), X105; Fig. 6. X87