

1980

Profile of Human-Rabid Skunk Contacts in Arkansas: 1977-1979

Dale V. Ferguson

University of Arkansas at Little Rock

Gary A. Heidt

University of Arkansas at Little Rock

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Recommended Citation

Ferguson, Dale V. and Heidt, Gary A. (1980) "Profile of Human-Rabid Skunk Contacts in Arkansas: 1977-1979," *Journal of the Arkansas Academy of Science*: Vol. 34 , Article 35.

Available at: <https://scholarworks.uark.edu/jaas/vol34/iss1/35>

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<i>Frontinella pyramitella</i>					<i>Nimetus pulchellus</i> Chamberlin	9/16/78	4	SN	Roadside
(Walckenaer)	9/16/78	4	F	Roadside		6/12/79	6	SN	Roadside
	5/7/78	1	SN	Roadside	<i>Eco furcator</i> (Villers)	8/24/79	8	SN	Roadside
	7/25/79	4	SN	Roadside		12/4/78	3	SN	Roadside
	10/18/79	5	F	Roadside					
	11/18/79	7	F	Roadside	Micryphantidae				
<i>Melonea micaria</i> Emerton	10/25/79	5	SN	Roadside	<i>Epelignone Esidentata</i> (Emerton)	7/15/79	7	S	Forest
<i>Melonea fabra</i> (Keyserling)	7/15/79	2	SN	Roadside	<i>Epelignone maculata</i> (Banks)	6/12/79	6	S	Forest
					<i>Epelignone autumnata</i> (Emerton)	10/15/78	1	S	Forest
					<i>Grammonata maculata</i> (Banks)	11/18/79	7	S	Forest
					<i>Grammonata inerta</i> (Emerton)	4/11/79	4	S	Forest
Mimetidae						10/25/79	5	S	Forest
<i>Nimetus intersector</i> Hentz	5/7/78	1	SN	Roadside	<i>Walckenaeta vigilax</i> (Blackwall)	7/15/79	2	S	Forest

* Species not published prior to the present collection.

** 1 Donaldson 5 Fulton
 2 Randall 6 White Oak Lake
 3 Columbus 7 Garland City
 4 Fordyce 8 El Dorado

*** S—Sieve
 SN—Sweep net
 P—Hand picking
 MD—Mud-dauber nests

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PROFILE OF HUMAN-RABID SKUNK CONTACTS IN ARKANSAS: 1977-1979

In recent years, rabies has become a serious problem in the striped skunk (*Mephitis mephitis*) population of Arkansas. With 98 positive cases in 1977, 140 in 1978 and 297 in 1979, Arkansas ranks first in the number of skunk rabies per square mile. The Arkansas Department of Health, in 1979, declared rabies in striped skunks to be of epidemic proportion. This paper presents a profile of human contacts with rabid skunks over this three-year period.

Using information gathered from the Arkansas Department of Health, those individuals who had contact with laboratory-confirmed rabid skunks were interviewed either by questionnaire or by telephone in an effort to determine the behavior of the skunk, the habitat in which the skunk was killed, time of day of the contact and whether or not other skunks had been seen behaving in a similar manner. Response to this poll varied from 40% in 1977, 80% in 1978 and 95% in 1979.

Table 1 summarizes the behavior of rabid skunks at the time contact was made. As can be seen, roughly half of the skunks behaved in an aggressive manner. Another one-third were either non-aggressive but unafraid or behaved in a sick or disoriented manner. These data agree with Richards' (1957, North Dakota Outdoors 20:4-5, 16) observations that rabid skunks are "most aggressive and determined" than any other form of wildlife in their attacks on humans and on other animals. Table 2 indicates that most rabid skunks in the acute state of infection are solitary.

Table 3 identifies habitats in which the skunks were killed. Over half of the skunks were killed in and around buildings in the country. The striped skunk is increasingly being found in close approximation to human habitation (Verts, 1967. The biology of the striped skunk. Univ. Ill. Press. 218 pp.). The fact that such a large number of the rabid skunks were killed in and around buildings, further demonstrates the potential danger of rabies to human and domestic animals.

Most of the rabid skunks encountered in these three years (75%) were active during daylight hours (Table 4). To some degree, this may reflect human activity patterns. However, it clearly illustrates that the rabid skunk's activity often deviates drastically from the normal nocturnal or crepuscular pattern.

Table 1. General Behavior of Rabid Skunk

BEHAVIOR	1977	1978	1979	TOTAL
Aggressive	12(37) ¹	63(60)	122(46)	197(48)
Unafraid but not aggressive	6(18)	14(13)	54(20)	74(18)
Disoriented or sick	11(33)	15(14)	62(23)	88(22)
Normal	1(3)	4(4)	6(2)	11(3)
Dead	3(9)	10(9)	25(9)	38(9)

¹ - Parenthesis indicates percentage

Table 2. Have Other Skunks Been Seen Behaving in a Similar Manner?

	1977	1978	1979	TOTAL
YES	9(29) ¹	28(27)	69(26)	106(26)
NO	22(71)	76(73)	199(74)	297(74)

¹ - Parenthesis indicate percentage

Table 3. Habitat Skunk Killed

HABITAT	1977	1978	1979	TOTAL
Woodland	3(8) ¹	20(14)	51(13)	74(13)
Open Field or Pasture	3(8)	20(14)	68(17)	91(16)
Buildings in Country	17(71)	88(61)	199(51)	314(55)
Inside City Limits	4(10)	10(7)	29(8)	43(8)
Along Railroad	0(0)	0(0)	15(4)	15(3)
Edge of Water Source	1(3)	5(4)	25(7)	31(5)

1 - Parenthesis indicate percentage

Table 4. Time of Day Skunk Killed

TIME	1977	1978	1979	TOTAL
6:00-12:00 A.M.	19(58) ¹	44(42)	131(48)	194(47)
12:00-6:00 P.M.	6(18)	29(28)	81(29)	116(28)
6:00-12:00 P.M.	5(15)	15(15)	35(13)	55(14)
12:00-6:00 A.M.	3(9)	15(15)	28(10)	46(11)

1 - Parenthesis indicate percentage

While these data are based on observations made by untrained persons, we feel that they are consistent enough to draw the following profile: the rabid skunk coming in contact with humans generally will be solitary, aggressive or unafraid and found around buildings in the country during the daylight hours (usually in the morning). Since over 85% of skunks tested by the Arkansas Department of Health are positive for rabies, 90% of the total cases of rabies are attributable to skunks and because of the epidemic of skunk rabies, any skunk seen during daylight hours in Arkansas should be assumed rabid and treated accordingly. Also, Parker (1962, Proc. U.S. Livestock Sanit. Assoc. 65:273-280) stated that in areas where rabies in skunks is prevalent, sighting a skunk during daylight hours is "reasonable grounds to suspect the animal of being infected with the disease." The characteristics outlined herein demonstrate the effectiveness of the skunk as a perpetuator and disseminator of rabies.

DALE V. FERGUSON and GARY A. HEIDT, Dept. of Biology, University of Arkansas at Little Rock, Little Rock, Arkansas 72204.

SIGNIFICANT ADDITIONS TO THE MOLLUSCAN FAUNA OF THE ILLINOIS RIVER, ARKANSAS

In Gordon et al. (1980a), the molluscan fauna of the Illinois River in northwestern Arkansas was described. Thirty-nine taxa were listed. This faunal assemblage was compared to Branson (1967), the only other available report on the molluscan fauna of an Ozarkian west slope drainage, and some aspects of the local distribution of species endemic to the Interior Highlands were discussed. The distribution and identification of endemic forms and the Arkansas unionacean fauna have been further discussed in Gordon et al. (1980b). During the past year, additional samples were collected from the Illinois River and west slope drainages in Missouri (tributaries of the Neosho River). Methods were previously described (Gordon et al. 1980a).

Fusconaia ozarkensis (Call) and *Pisidium fallax* Sterki have been identified from the Illinois River. Additionally, *F. ozarkensis* is reported for the first time from Kansas (Spring River), and the Kansas records of Call (1885-1887) and Scammon (1906) are confirmed for *Actinonaias ellipsiformis ellipsiformis* (Conrad) (see Murray and Leonard, 1962) which appears to have been recently misinterpreted as *Villosa iris* (Lea) by Schuster and DuBois (1979). Within the larger drainage systems of the west slope of the Ozark Plateaus, the unionid fauna appears to be fairly similar (Table 1).

The Interior Highlands are composed of two separate geological assemblages which have been shown to possess a distinct endemic molluscan fauna (van der Schalie and van der Schalie, 1950; Gordon et al. 1980b). Of the eight endemic taxa of Unionidae, six are known to occur in the Ozark Plateaus, four of these six are restricted to the Ozark Plateaus, and the other two are distributed throughout the region (*Ptychobranchius occidentalis* [Conrad] and *Cyprogenia aberti* [Conrad]). The remaining two species, *Arkansia wheeleri* Ortmann and Walker and *Villosa arkansensis* (Lea), are restricted to the Ouachita Mountains (Gordon et al. 1980b). Collections from the areas adjacent to the Illinois River have shown *Lampisilis reeveiana* (Lea) and *Actinonaias ellipsiformis pleasi* (Marsh) to be present in the southern Ozarkian drainage of the White River but not the west slope drainages represented by the Illinois, Elk, and Spring rivers. Likewise, *L. rafinesqueana* Frierson occurs throughout the west slope drainages (Table 1) but not in the White River. *Fusconaia ozarkensis* is common to both the south and the west slope drainage systems.

Three natural unionacean faunal subdivisions appear to be present in the Ozark Plateaus. The west slope fauna is typified by *F. ozarkensis* and *L. rafinesqueana*. The fauna south of the Ozark Crest is composed of *F. ozarkensis*, *A. ellipsiformis pleasi*, and *L. reeveiana*. North of the Ozark Crest, the only endemic unionid is *L. reeveiana*. The overlap within these subdivisions and the presence of the two wide-spread species illustrates the close affinity of the fauna.

Further observations of the unionid fauna suggest some additional associations. *Cyprogenia aberti* is generally distributed throughout the Interior Highlands and west into Oklahoma and Kansas (Gordon et al. 1980b) and has been found throughout the Spring River system. For these reasons, it is highly probable that *C. aberti* is present in the Illinois River, although it may occur only downstream in Oklahoma. Similar distribution patterns are reflected in the occurrence of several other species listed by Branson (1967) for the lower Spring River (see Table 1). Also, *Alasmidonta marginata* Say and *A. calceola* (Lea) have been recorded from the Elk and Spring rivers (Table 1). They are known historically from the White River (Gordon et al. 1980b). Baker (1928) has noted a close distributional association between these two species of *Alasmidonta*. The small size and habit of burrowing into the substrate by *A. calceola* make it difficult to find (Utterback, 1915; Baker, 1928). *Alasmidonta marginata* was found in the Illinois River; therefore, it is postulated that *A. calceola* also occurs in the Illinois River.

Pisidium fallax generally has been considered a northern species. With exception of a single record from Alabama, it had not been found south of the extent of maximum glaciation. Its presence in the Illinois River and several adjacent drainages represents a new regional record for this species (Gordon et al. 1980c). These records and Wheeler's (1918) observations on the Ouachita Mountains molluscan assemblage illustrate the need for further study of the Sphaeriidae within the Interior Highlands. *Pisidium fallax* easily may be mistaken for *P. casertanum* or *P. compressum*. Its designation as the "deceptive" (from the Latin, *fallax*) *Pisidium* appears to have been appropriate.