

THE MAMMALS OF INDIANA. BY A. W. BUTLER.

One of the advantages of a work upon the natural history of a region is the opportunity it affords for criticism, correction and for the accumulation of additional material. One's friends after going over the paper will say they had not thought the occurrence of a given species of any importance. They are common in the neighborhood. A fruitless search for that fact has required much time in the investigation. Yet here is a person who has had all the time the information sought, but thought it of no consequence. If we could only get together in a proper place the facts known by our members which are not considered of any special importance, what a great help it would be to our investigators. These meetings are the place for such a deposit of facts—a clearing-house in the various fields of research, especially in zoölogy, botany, geology, and anthropology. Since the publication of the papers on Indiana mammals by Prof. Evermann and myself, quite a number of notes which would have been very acceptable a year ago have come into my hands. Many of these were called out by the paper mentioned. From them I select some which may be of interest to the Academy, and possibly to the public generally.

1. *Didelphis virginiana* Shaw. Common Opossum.

I am enabled through the kindness of Mr. W. W. Pirimmer, to report their occurrence in Jasper and Newton counties. In 1869 when he first knew them there, they were rare, and so continued until 1880. He recalls but two specimens that he had seen in that period. They have been increasing since, and are now tolerably common. Several have been reported the present winter from the vicinity of Lafayette by Messrs. L. A. and C. D. Test. Among them were three young.

Mr. E. J. Chansler, of Knox County, says: 'possums are becoming rare in that locality. About 1859, he notes, as an illustration of the abundance of the animal, one evening, after they had killed hogs, they killed eight opossums in the door-yard before bed time. They had probably been attracted by the offal of the slaughter. In those days, in that land of the persimmon, the edges of the prairies were the places where, in the fall and winter, the two were found together—the persimmon and the opossum.

2. *Erethizon dorsatus* (L.). Canada porcupine.
Knox County. Formerly found here, but rare. Stafford reports having seen two, the last one about 1834 (Chansler). Mr. Bruce reports seeing one that had been killed in Daviess County in 1837 (Chansler).
3. *Zapus hudsonius* (Zimm.). Jumping mouse.
Newton County (Pfrimmer).
Mahoning County (Ellsworth). O. (E. W. Vickers).
Sandusky, O. (E. W. Vickers).
4. *Geomys bursarius* (Shaw). Pocket gopher.
Newton County (Pfrimmer).
5. *Mus rattus*, (L.) Black rat.
Knox County. At one time numerous, but now extinct. Reported that it was last seen here in 1845 (Chansler).
6. *Mus decumanus*, Pallas. Brown rat; Norway rat.
Knox County. Very numerous; our common rat. Said to have been first seen in 1840 (Chansler).
7. *Castor fiber* (L.). Beaver.
Newton County. Formerly abundant. The remains of their work is yet seen (Pfrimmer).
Bartholomew County. About one mile from the intersection of the Decatur and Jennings County line is a place called the Beaver Pond. There they formerly built their houses (Miss Elizabeth Wright).
Tippecanoe County. Beaver skull taken from Goose Island, Wabash River, in the spring of 1894 by C. A. Schott (Prof. Stanley Coulter).
Knox County. Formerly found. Reported in 1839. Mr. Dubois reports seeing one that had been caught in a trap in 1840. Dams across some of our streams are still visible. Some claim that Montours Pond was caused by Beavers damming Pond Creek (Chansler).
8. *Spermophilus tridecemlineatus* (Mitchill). Striped Gopher.
Newton County. Abundant along hedges and banks. Also in the grassy margins of the fields (Pfrimmer).
Tippecanoe County, 1894. L. A. and C. D. Test.
9. *Spermophilus franklini* (Sabine). Gray Spermophile.
Newton County. Think they are rare. Have seen two. Had one for a pet. They are called "Prairie Squirrels" (Pfrimmer).
10. *Sciurus hudsonicus* (Erxleben). Red Squirrel; Chickaree.
Lake County. Rare.
Newton County. Heard of; not seen (Pfrimmer).

11. *Condylura cristata* (L.). Star-nosed Mole.

Bartholomew County. A specimen described by Miss Elizabeth Wright, appears to be this species. It was taken in their garden near Grammer. In this connection I might quote from a recent letter from Mr. Ernest W. Vickers, of Ellsworth, Mahoning County, O., on the occurrence of this species in that state: "I have found the Star-nosed Mole at Canton, Stark County. One specimen. Another reported, Berea, Cuyahoga County. Common in onion muck, Weymouth, Medina County: Reported. Cuyahoga Falls, Summit County: Specimen found along Cuyahoga River during meeting of Ohio State Academy of Science, in 1892. Portage County: "I took a specimen near Suffield in June, 1894. In this township I collected six specimens in an area of less than four acres in the summer of 1893. This year, 1894, I have found none." (Richland County Geological Survey of Ohio, Zoölogy and Botany, Vol. IV., p. 179, foot-note.

12. *Blarina platyrhinus* (DeKay). Common Shrew.

Although no additional specimens have been reported in this state, I desire to call attention to its occurrence in Ohio. Mr. E. W. Vickers, of Ellsworth, Mahoning County, says: "I found one specimen last year, 1893. This year I collected five of this species on one farm in this township."

13. *Cervicus virginianus* (Bodd). Virginia deer.

Newton County. Extinct. Last deer killed was twenty years ago (1874). One was seen three years ago (1891).

Jasper County. Deer killed about 1890 (Pfirmer).

Knox County. Found at one time in countless numbers. Now only met with occasionally in the cypress swamps of this county (Chansler).

14. *Cervus canadensis* (Erxleben). Wapiti; elk.

Knox County. Still found here in early part of this century. Mr. Brad. Thompson reports seeing a wild elk in 1830. Mr. Stafford says that he saw an elk that was killed on Pond Creek in 1829 (Chansler).

Daviess County. Mr. Bruce reports seeing elk horns in Daviess County as late as 1850 (Chansler).

15. *Bison bison* (L.). Bison; buffalo.

Knox County. The buffalo in an early day were very numerous. The trail along which they used to travel between the blue grass region of Kentucky and the prairies crossed the Wabash River near Vincennes. George Rogers Clark, writing from Vincennes, mentions the buffalo.

Mr. B. Thompson says his father reported buffalo here in 1808. Mr. A. Stafford tells me of finding buffalo horns on Collins' Prairie (Chansler).

Daviess County. Mr. Bruce reports finding horns that had been dug up by hogs in a marsh in 1840 (Chansler).

16. *Procyon lotor* (L.). Raccoon.

Newton County. Abundant. Have been known to bed up like hogs, two in a bed, on the edge of the marshes. Hunters follow along the marshes, and when the raccoons are found they at once take to the water to escape the dogs (Pfrimmer).

Knox County. Not so common as formerly. The fur traders say they generally get two or three black 'coons each winter (Chansler).

17. *Ursus americanus* (Pallas). Black bear.

Knox County. Moderately common within the memory of a few of our oldest citizens. An old friend told me that when a boy he met with bear quite often. He saw the last one in this county in 1845. The *Vincennes Commercial* in 1882 reported two young black bears having been killed at Montours Swamp that year (Chansler).

Daviess County. Mr. Bruce says the last black bear in this county was killed in 1837 (Chansler).

Newton County. Extinct.

Jasper County. About ten years ago (Pfrimmer).

18. *Lutra hudsonica* (Lacépède.) American otter.

Newton County. Reported within six months. One caught last winter (1893-4). I have seen signs within three years (Pfrimmer).

Lake County. Reported within last few years (Pfrimmer).

Porter County. Reported within last few years (Pfrimmer).

Tippecanoe County. One killed on Goose Island, Wabash River, by C. A. Schott spring of 1894. Skin sold in Lafayette for \$9. The specimen has been seen and identification verified. Mr. Schott reports another slide in the same locality. He says he has seen several other otters. They are extremely shy and difficult to get (Prof. Stanley Coulter).

Knox County. Rare if not extinct. Hunters used to kill them in winter in the snow with clubs as they travelled from one pond to another. Older men remember a familiar slide (Chansler).

19. *Taxidea americana* (Bodd). American badger.

Newton County. Occasionally found.

Benton County. One killed about 1874 (Pfrimmer).

20. *Vulpes vulpes* (L.). Red fox.
 Newton County. Along Iroquois River plentiful; elsewhere rare (Pfirimmer).
 Knox County. Common in last fifteen years; before that rare (Chansler).
21. *Urocyon cinereo-argentatus* (Sehr). Gray fox.
 Knox County. Common to fifteen years ago. Now rare (Chansler).
22. *Canis lupus* (Say). Wolf.
 Newton County. One killed two years ago (Pfirimmer).
 Knox County. Numerous in the early days. Last one was killed on Birch Run, between Bicknell and Edwardsport by Henry Maclin in 1853. One was killed within one and one-half miles of Vincennes, in Illinois in 1882 (Chansler).
 Daviess County. Last seen in 1850, according to Mr. Bruce (Chansler).
23. *Canis latrans* (Say). Coyote, prairie wolf.
 Newton County. One killed in November, 1894, along Monon Railroad. Observed in all parts of Newton County within last three years. More numerous in northern portion. A ride of half a dozen miles through the higher marshes will probably reveal two or three. Last year (1893) saw three at one time. They are destructive to poultry, pigs and sheep. This county paid over \$100 bounty for wolves killed last year. The rate was \$5 for each old one and \$2.50 for each young one (Pfirimmer).
 Knox County. Not so common as the gray wolf. Found as late as 1854. One authority reports seeing one near Vincennes in 1858. The species has not been authentically reported from the state before (Chansler).
24. *Felis concolor* (L.). American panther.
 Knox County. Formerly found. Mr. A. Stafford reports seeing the last one in 1833. Mr. Thompson reports seeing one in 1825. Mr. Bruce reports it in Daviess County as late as 1830 (Chansler).
25. *Lynx rufus* (Guldenstadt). American wild-cat.
 Knox County. Rare. One killed near Bicknell in 1832 by Mr. Robert M. Kinsley. Reported about Montours Swamp spring of 1894.
 Wells County. One taken near Bluffton early in November, 1894. It weighed 56 pounds (F. M. Noe).
26. *Lepus aquaticus* (Bachman). Water Hare.
 Knox County. Mr. Chansler says a brown rabbit has been seen there by different persons. It is said to be much larger than the common gray rabbit. It seems probable that two forms of swamp hares will be found in the lower Wabash valley, the one above noted, which

ranges southwest to the Gulf of Mexico, and the smaller, *Lepus palustris*, Bachman, which ranges to the south and southeast. Careful investigation of the rabbits of southern Indiana is requested.

27. *Corynorhinus macrotis* (LeConte). Big-eared bat.

December 26, 1894, Dr. L. M. Underwood brought to me at the Denison House, Indianapolis, a specimen of this species taken from a cave five miles southwest of Greencastle, Ind., a few days before by Prof. J. P. Naylor. There was another with it, which was not taken. Returning to the cave another time no more could be found. The specimen is now in my collection.

SOME CASES OF MIMICRY IN FISHES. BY W. J. MOENKHAUS.

There are four different species of fish that show a most interesting similarity in their color pattern. They are *Etheostoma blennioides*, *Etheostoma oranidea*, *Cottus richardsoni* and *Catostomus nigricans*. They belong to three different families, the first two, darters, to the *Percidae*; the third, the *miller's thumb*, to the *Cottidae*, and the last, the black sucker, to the *Catostomidae*.

The color-pattern consists of four broad transverse bars extending downward and forward. The similarity of this pattern in the darters and the *miller's thumb* is almost perfect. The black sucker has this pattern only when young. The resemblance here is less perfect.

This remarkable coincidence of color-pattern can be explained on the principle of protective mimicry. The *miller's thumb* is a very horny, spiny and uninviting fish for food to any enemy that may live on small fish. It may, therefore, have found it advantageous to develop these four prominent bars as a mark to enable its enemy to recognize it and thus make fewer mistakes in capturing undesirable food. The darter and the young sucker on the other hand would be most excellent food for these same enemies. Thus they have found it to their advantage to mimic this *miller's thumb* and live off its reputation as an undesirable food fish.

This seems all the more probable from the fact that these fish inhabit the same streams.