

NOTES  
ON THE  
BATRACHIANS AND REPTILES  
OF  
VIGO COUNTY, INDIANA.

II.

---

BY  
W. S. BLATCHLEY.

## NOTES ON THE BATRACHIANS AND REPTILES OF VIGO COUNTY, INDIANA—II.

---

BY W. S. BLATCHLEY.

---

In the Journal of the Cincinnati Society of Natural History, XIV, 1891, pages 22 to 35, was published a paper with the same title as the present one. In it were given brief notes concerning 22 batrachians and 24 reptiles which I had taken in Vigo County, Indiana, previous to 1891. I continued to reside in the county until November, 1894, and gave especial attention to the same groups of animals until my removal. Many notes were taken relative to their distribution, variation and habits. A lack of time has heretofore prevented the preparation of a paper embodying these notes. Believing, however, that they will add something of value to the knowledge of our batrachians and reptiles, and will, therefore, be of value to future observers, I have prepared from them the present paper. When the species has been taken by me in some other county of Indiana, I have incorporated any note concerning it in that county which I believed of interest. Species preceded by an asterisk were not mentioned in the previous paper.

Vigo County lies on the western border, and almost midway between the northern and southern boundaries of the State. The Wabash River flows through its northwestern part, and in many places its bottoms, which are usually overflowed each season, are one to two miles in width.

In these bottoms are a number of large ponds, some of them covering an area of forty to sixty acres, which are the favorite resorts of many of the batrachians, and not a few of the reptiles mentioned below. The city of Terre Haute is on the eastern bank of the river, on the edge of a prairie, about two miles in width, beyond which a low range of hills forms the western border of a tableland, which extends to the eastern limit of the county. At the point where the tableland meets the prairie the soil is a loose, black loam, containing a great deal of sand. Here, in a woodland pasture of about forty acres, rather thickly grown up with underbrush, and having near its center several shallow ponds, about the margin of which are numerous logs, have been collected no less than thirty-five of the fifty-two species found in the county. Of course, many of these have been taken elsewhere, but the sandy soil and other conditions of this woods seems to suit the salamanders and tree frogs, especially, as out of eleven species of the former and four of

the latter all but two have been seen here, and nine of the fifteen nowhere else in the county.

The nomenclature and order of the batrachians mentioned is that of Cope's "*Batrachia of North America*" (\*1). The same author's "*Critical Review of the Characters and Variations of the Snakes of North America*" (\*2), has been followed in the naming of the *Ophidia*; while Jordan's "*Manual of Vertebrates*" (Fifth Edition), has been the authority for the naming of the remaining forms.

## BATRACHIA:

### URODELA.

#### AMBLYSTOMIDÆ.

*AMBLYSTOMA OPACUM* (Gravenh.). Marbled Salamander.

Since my former record† a half dozen specimens of this batrachian have been taken in the county. It is always found singly, whereas other members of the genus are usually found associated together in small numbers. One very large individual had its entire tail wanting. The stub was wholly healed over, and the animal was as lively as any with the caudal appendage entire.

*AMBLYSTOMA TIGRINUM* Green. Tiger Salamander.

On October 21, 1892, and October 14, 1893, I took my zoology classes to the woodland pasture above mentioned. On each date more than 60 of this salamander were taken. Sometimes four to six were found beneath the same chunk or log. They varied in length from two to twelve inches, and in color from an almost uniform black or dark brown in the young, to largely yellow in the old. On December 24, 1893, a log was overturned in the same pasture, and a large *tigrinum* stuck its head out of the opening of its burrow, presumably to investigate the cause of the removal of its shelter. This goes to prove that their winter days are not passed in a wholly dormant condition.

On one occasion in June my letter carrier brought me in a fruit jar a live specimen  $10\frac{1}{2}$  inches in length, which he said had been in his cellar for more than a year. On account of its presence the members of his family had become afraid to venture into the cellar, and he finally pinned the intruder down with a forked stick and worked it into the jar. Its ground color was greenish yellow or olive with anastomosing or reticulating bands of black, 3 to 5 mm. wide, on the sides of body and tail,

\*1—Bull. 34, U. S. Nat. Mus., 1889.

\*2—Proc. U. S. Nat. Mus., XIV, 1892, pp. 589-694.

†Journ. Cin. Soc. Nat. Hist., loc. cit., p. 24.

and a few rounded spots of the same on the belly. These markings agreed almost exactly with those ascribed to Cope's *A. xiphias*, of which but a single specimen, from Columbus, Ohio, is known. This specimen was sent to Dr. Stejneger, of the United States National Museum, who compared it with Cope's type, and wrote me as follows: "Your specimen represents a color phase of *A. tigrinum*, which resembles very closely the type of *A. xiphias*, but the latter still remains unique in its most distinguishing characters, viz., the exceedingly long tail concomitant with the projecting lower jaw. In *A. xiphias* the tail, measured from the posterior end of the anus, is much longer than from that point to end of snout; in your specimen it is shorter, and the lower jaw is not projecting. \* \* \* It is difficult to express an opinion as to the status of *A. xiphias*. I am strongly inclined to the belief that the type specimen is only an individual variety of *A. tigrinum*. Yet, at the same time, I do not venture to reduce the name to a synonym as long as the gap between them shall not have been filled, or our knowledge of the batrachians of our country is as imperfect as at the present time." Cope, in his key separating the species\*, uses the color markings as part of the distinguishing characters separating the two species, so that the Vigo County specimen removes one feature of the "gap" to which Dr. Stejneger refers.

A number of beetles and caterpillars were one day dumped into the box in which the salamanders for class use were kept. A large *tigrinum* nabbed a hairy caterpillar which was crawling over its head, shook it several times, as a terrier does a rat, and then with an air of satisfaction gulped it down.

#### PLETHODONTIDÆ.

PLETHODON CINEREUS (Green). Ashy Salamander. Red-backed Salamander.

This species and its variety *erythronotus* are the most widely distributed and most common salamanders in Indiana. In Vigo County they can probably be found every month in the year, as on December 25, 1893, two very large specimens of *erythronotus* were taken, which ran actively about when the log beneath which they were hibernating was overturned. On October 6, 1894, beneath logs and chunks on some high wooded hills five miles northwest of Terre Haute, hundreds of the two forms, varying in length from one to four inches, were found. There were about six of the variety *erythronotus* to four of *cinereus*. This salamander has never been seen by me near water, but the eggs have often been found beneath logs and moist leaves between mid-April and June 1.

The nominal variety *dorsalis* Cope, has been taken by both Prof. Hay and myself near Wyandotte Cave, Crawford County. Two specimens

\*"Batrachia of North America," p. 51.

taken there on May 9, 1899, were three and one-half inches in length and had 17 costal grooves.

*PLETHODON GLUTINOSUS* (Green). Slimy Salamander.

I have taken this species in Vigo, Putnam, Marion, Crawford and Marshall counties. On one occasion in late autumn, six large ones were found beneath one chunk on a sloping hillside in an oak woods pasture. One of these had the tail a uniform olive gray without white marks, while the white spots on the sides were coalesced into a large lichen-gray patch. In another the white spots were no larger than pin heads and were distributed thickly and regularly over the entire upper surface and sides.

*SPELERPES BILINEATUS* (Green). Two-lined Triton.

Since my former paper this has been found to be frequent in the ravines among the wooded hills of Coal Creek in the northwestern part of Vigo County and very abundant in Putnam County. In the latter locality it was found by scores in early spring—March 22—and in August, beneath the flat limestone rocks of a branch. In the former place, in October, when all the pools were dry, it was found on the moist clay, beneath rocks and boulders. When its shelter was overturned it scampered away in a lively fashion, and endeavored to burrow in the mud or leaves. When in rapid motion upon land it wriggles its body and tail, as if swimming, thus proving its aquatic habits.

\**SPELERPES LONGICAUDUS* (Green). Long-tailed Triton.

Two small specimens were taken in Vigo County on September 20, 1894. A number of large ones were found associated with *S. bilineatus* in Putnam County in August. In both places they were in small pools of water beneath rocks in the bed of a branch. In the State it has been recorded heretofore with certainty only from Montgomery and Harrison counties. Specimens of *S. maculicaudus* were in my possession from Monroe County as early as 1884, six years before it was named by Cope, but, without specimens for comparison, were thought to be and labeled *S. longicaudus*.

#### PLEURODELIDÆ.

*DIEMYCTYLUS VIRIDESCENS MINIATUS* Hallow. Red Triton.

This variety, which Cope regards as a "seasonal form which may be, by reason of the environment, rendered permanent for a longer or shorter time," has been taken on a number of occasions in recent years. It is usually found beneath logs or brush in *very dry* places. One was taken on December 24, 1893, which was very active when its cover was disturbed. Another was dredged from a woodland pond on March 14.

It has also been taken in the months of May and October, while a single specimen of the form devoid of red spots, described in my former paper, was taken on September 27, 1893.

## TRACHYSTOMATA.

### SIRENIDÆ.

SIREN LACERTINA Linn. Siren. Mud Eel.

On June 20, 1894, I visited the site of a large pond in southern Vigo County, which, having been drained the fall before, was being plowed for corn. Walking in the furrow behind the plowman, I happened upon a siren, which I captured. I then waited until the plowman caught up with me on the next round, when he said that he had unearthed "thousands of them" during the plowing of the sixty or more acres already broken. I had little cause to doubt his word, as, following him five times around, I captured eight of the batrachians, varying in length from six to sixteen inches. The plow broke the soil to a depth of five inches, and as none of those taken were injured by the plow, they were evidently above this depth, probably three to four inches below the surface. Most of them were wriggling like worms in the furrow when discovered, but one was taken from a burrow, or hole, in a large clod. The sides of this burrow, which was but little larger in diameter than the body of the siren, were worn smooth, and were bluish gray in color. It had evidently extended down deeper into the ground, but I could not find at what point. The animals were found in the moister ground plowed, and not in a sandy strip which had to be passed over. The gills of none were fully developed, being merely slightly lobed excrescences covered with skin without rami or branches of any kind. When put into water (at home) they were very active, but came to the surface to breathe. The plowman said that I could have gathered them "by the bushel" from the moist land already broken, but that he had noted none over 15 inches in length, though he had given no especial attention to them.

Although the siren is reputed to be very scarce, there is little doubt but that it is plentiful enough in certain localities which are suitable to its habits of life. Atkinson records\* the taking, in late autumn, of 11 in one bunch, which were uncovered while cleaning a lot near Syracuse Lake, Kosciusko County.

\*Proc. Ind. Acad. Sci., 1895, 258.

## SALIENTIA.

## HYLIDÆ.

## \*ACRIS GRYLLUS GRYLLUS (Le Conte). Cricket Frog.

After the draining of the large pond, noted above under *Siren lacertina*, thousands of tadpoles and small frogs were left for a short period in some shallow pools. From these a number of cricket frogs were secured on October 8, 1893, which I refer to this variety. They were smoother skinned, a fourth larger in size, and with the stripes on hind femora much more distinct than in the variety *crepitans*, which is abundant throughout the State. *A. g. gryllus*, as limited by Cope, is a southern form, but has been taken at Mt. Carmel, Ill., about fifty miles below the pond mentioned.

## CHOROPHILUS TRISERIATUS (Wied.). Swamp Tree Frog.

A number of specimens of this little frog have been secured in recent years. One was found on December 25, 1893, hibernating beneath a rail in open woods. It was squatted in a little burrow, and though the mercury had previously been to zero, it leaped away in a lively manner when touched. Others have been secured in May, September and November from beneath logs or under the bark of fallen trees.

The heel of all Vigo County specimens reaches only to the tympanum. The width of head is contained in total length 3.5 times. The stripes of back and sides are often broken up into small dots or blotches.

On the tall grasses near the margin of a tamarack swamp in Fulton County, I found a variety of this same frog to be plentiful. It is more slender-bodied with all the stripes unbroken and with heel reaching to posterior border of orbit. This form I take to be *C. feriarum* Baird.

## HYLA PICKERINGII (Storer). Pickering's Tree Frog.

This handsome little tree frog has been taken by me in Vigo, Putnam, Fulton, Lake and Marion counties. It is often found at quite a distance from water, on stalks of wheat or weeds. On March 13, 1898, one was taken from the surface of a woodland pond in Marion County, to which it had evidently found its way for the purpose of ovipositing.

## HYLA VERSICOLOR Le Conte. Common Tree Frog.

On July 5, 1892, I found in the woodland pasture, mentioned in the introduction, hundreds of the young of this species, on the leaves of the iron weed—*Vernonia fasciculata* Michx. Almost every weed had two or more individuals on it. They were resting on the upper surface of the leaves, and their colors were correspondingly green.

## RANIDÆ.

\**RANA AREOLATA CIRCULOSA* Rice and Davis. Hoosier Frog. Ring Frog.

After hunting in vain over most of northern Indiana for this species, which heretofore has been recorded in the State only from Benton County, I was agreeably surprised to have Charles Stewart, one of my pupils, bring in a large male on October 9, 1893. He had captured it and a specimen of *Rana virescens* Kalm the day before from the manhole of a sewer in the south part of the city of Terre Haute. The female of *circulosa*, which escaped capture the first day, was taken on the second day after by letting a basket down into the manhole and causing her to jump into it. On May 9, 1894, a second male was taken by H. McIlroy from the side of a coal shaft three miles west from where the others were secured. These are the only specimens I have ever seen, but others could doubtless be found by a careful search of similar locations.

The ring frog is the most handsome of our *Ranidæ*. The male, of those in hand, is 67 mm., and the female 78 mm. in length. The head of female is 25 mm. long by 26 mm. wide. The heel reaches half way between eye and nostril. The tympanum is three-fourths the diameter of eye. Instead of being uniform yellowish below, as mentioned by both Cope and Hay, both specimens have numerous small dark spots, almost forming a band, across the front of breast, and on the lower lips are a number of similar spots. Otherwise the colors agree exactly. The circular spots on back, from which it takes its varietal name, and which Cope says are reddish brown, are in life black.

## REPTILIA.

## OPHIDIA.

## COLUBRIDÆ.

\**CARPHOPIOPS AMÆNUS* (Say). Worm Snake. Ground Snake.

Two specimens of this little snake having both prefrontals present have been taken in the county. They measure respectively 11 and 11½ inches in length. Both were taken in autumn; one from beneath a rotten log on the top of a high wooded hill—the other from beneath leaves by the side of a log in the sandy woods, noted in the introduction to my former paper. It is more sluggish and apparently more fearless than any of our larger snakes, making no attempt to escape when exposed to view and, beyond twisting tightly about one's finger, no attempt at defense when taken in hand.

Cope unites with *amœnus* the form without prefrontals, which I called *C. heleneæ* Kennicott in my former paper (p. 35); having, as he states, seen



individuals with one prefrontal present. Of two specimens without prefrontals before me from Vigo County, the head is more slender and pointed and the color of back darker than in the typical *amœnus*. The abdomen in life was also of a deeper salmon red than that of *amœnus*. One of them has on one side but one scale—a large crescent-shaped scute—in the second row of temporals. On the other side there are two normal scales present. These specimens were taken from beneath logs and measure respectively nine and one-half and seven and one-half inches.

Two specimens without prefrontals and with slender pointed snout were taken near Wyandotte Cave, in Crawford County, on May 9, 1899. One was coiled up beneath a flat rock and had its head hidden beneath the coils, so that I took it at first to be a large earth-worm. It was freshly moulted and was a lustrous purplish black in color, instead of chestnut brown as in the typical *amœnus*. This color extended down the sides to cover all but one and one-half rows of scales. *C. vermis* (Kennicott) with prefrontals present, is distinguished from *C. amœnus* chiefly by the difference in color, being iridescent purplish, as was the specimen mentioned above. In typical examples of *vermis* this color is said to extend on each side only to the third row of dorsal scales. A large series of specimens will probably show *C. vermis* to be but a color form of *C. amœnus*.

**OPHIBOLUS DOLIATUS TRIANGULUS** (Boie). Milk Snake. House Snake.

Several small specimens of the milk snake are annually taken from beneath the loose bark of logs and stumps, while the larger ones appear to become scarcer every year. Cope in his recent paper separates a form known as *clericus* Baird and Girard, which he states is found only southward, from *triangulus* by the position of the alternate spots on the sides, stating that in the former variety they are largely on the gastrosteges, while in the latter they are entirely on the scales. The specimens in Vigo County, according to this, mostly belong to the form *clericus*, though the spots merge into each other in every conceivable way.

\***OPHIBOLUS DOLIATUS COLLARIS** Cope.

One large and three small specimens from this county in my collection possess the yellow band posteriorly from orbit and the yellow half-collar touching occipitals, which distinguish this variety. According to Cope it has been known heretofore only from "the Carolinian district." Some of the forms of this species when disturbed, or held by the forward part of the body, vibrate the tail very rapidly, after the manner of the rattle-snake.

**OPHIBOLUS GETULUS SAYI** (Holbrook). King Snake.

Three specimens of this handsome snake have been taken in the county. One is the small specimen with narrow cross bands of white, noted in my first paper. Another is three feet four inches long and approaches closely the form *niger* of Yarrow. The yellow spots on head are few in number and no larger than pinheads. Those on the body are of the same size and are found only occasionally near the middle portion of the body on the three or four lower lateral rows of scales, while the dorsal portion of body and tail, as well as sides of latter, are shining black without spots.

The third specimen is but twelve inches long and approaches the typical *O. getulus* in that the cross bands of white have a tendency to fork on the flanks. This specimen was taken on May 27, and has protruding from its mouth four and one-half inches of the tail of a specimen of *Eutania sirtalis*,  $13\frac{1}{2}$  inches in length, the remaining nine inches being within the body of the king snake, and reaching to within one inch of the vent of the latter. When captured, it tried to disgorge its prey, but the *Eutania* was too deeply lodged, and the two were quickly consigned to a bottle of alcohol, there to serve as a forcible illustration that the king snake is truly a king and a cannibal among its kind.

I have also seen this species in Putnam County, Indiana. It frequents rocky hillsides and the vicinity of streams.

**\*OPHIBOLUS CALLIGASTER** (Say). Chain Snake.

A single specimen, 34 inches long, was taken June 10, 1893, in an open woods two miles east of Terre Haute, at a point where the prairie meets the upland. It was crawling slowly over the ground and did not quicken its speed when pursued, though it struck rather viciously when caught. This, I believe, is its first Indiana record. Cope gives its range as "Illinois and Kansas to Texas." Garman states that in Illinois it "occurs on prairies throughout the State—not common."

**DIADOPHIS PUNCTATUS** (Linn.). Ring-necked Snake.

According to Cope, this species is distinguished from *D. amabilis* Baird and Girard, by having eight instead of seven labials, and by having the labials, throat and belly unspotted, or the belly with a median row of spots, whereas in *amabilis* the throat, labials and belly are irregularly spotted.

Of the three specimens in my collection two were taken in Vigo County and one in Putnam County. The latter and one of the former are, as far as color goes, typical *punctatus*, having the labials and throat unspotted and with traces of a median row of spots upon the belly; but the superior labials are in both seven on one side and eight on the other. The larger of the two is  $14\frac{3}{4}$  inches in length.

The third specimen is the one which in my former paper I called *Diadophis punctatus amabilis*. It has the superior labials also  $7 + 8$ , but has the labials and throat spotted, the occiput collar very narrow and a median row of spots on belly complete to anus. The lateral spots on gastrosteges are quite large and toward the anus meet the median, forming bars across the belly. I conclude, therefore, that the two are but color forms of one species, and I believe that the species *amabilis* will not stand. The Putnam County specimen, taken on July 10, 1894, was found beneath some flat limestone rocks on a damp, shady hillside. It appeared neither active nor vicious, but, when captured, coiled up contentedly in my hand. In life the belly was a very bright orange.

From the same hillside, in the latter part of September, 1898, Mr. J. S. Michaels took from the dirt thrown out from a quarry, eight eggs and one young of this species. The eggs were placed in a tool box and most of them hatched within a week. The young were about five inches in length and very lively.

*COLUBER OBSOLETUS* Say. Pilot Snake. Black Racer.

Several of the young of a *Coluber*, which I refer to this species, are in my collection from Vigo County. They are from 14 to 20 inches in length, and vary much from the adult in characters other than size. The scales are in 25 rows with only about nine of the median rows faintly keeled, whereas in full-grown specimens the number of keeled rows is 17. One has the temporals  $3 + 2$ , the others  $2 + 2$ . All have the ground color, ashy gray. A curved U-shaped, blackish band extends over the hind margin of post-frontals, the lower post-oculars and the seventh and eighth labials. There is a row of squarish, chocolate colored spots—about 45 in number—along the back. Below these, on each side, are two rows of similarly colored blotches, the upper more or less elongated, especially in front; the lower squarish or irregular in shape on side of abdomen and partially covering the first and second row of scales. The vertical and occipital plates bear also some small dark spots.

Of five specimens, which I found unlabeled in the State Museum, three have the temporal plates  $2 + 3$  and the others  $2 + 2$ . The third temporal varies much in size and position. In two instances it is small and wedged in obliquely below the upper plate and back of the lower one. In the other the upper temporal is divided into two equal plates. The carinated scales are in nine or eleven rows. The upper row of lateral blotches also varies much. In one specimen they are united anteriorly into a long line. The markings of the head, however, are constant.

In color and markings all these young agree almost exactly with the description of *Coluber conifinis* as given by Baird and Girard,\* and the

\*Cat. Serpt., N. Amer., 1853, 76.

first one taken was labeled as that species. *C. obsoletus* is, however, a common snake in Vigo County, and no other young have been seen or taken which could belong to it. On the other hand, *C. confinis* is, according to Cope, a southern form, with but one temporal on each side. It is my opinion that a careful examination of a large series of specimens will show that *C. confinis*, as well as *C. spiloides* Dam. Bibr., are but forms, perhaps the young, of *C. obsoletus*. In fact, the young of most if not all of our dark colored snakes are spotted, and as they grow older and shed their skin a number of times, they gradually grow darker, until finally they become almost wholly black.\* This has, in the past, been the cause of much confusion in the naming of the reptiles, many of the young having been thought to be distinct species.

One of the young of *C. obsoletus*, 16 inches in length, taken June 11, 1894, contained a large shrew, which was partially digested.

#### EUTÆNIA SAURITA (Linn.). Ribbon Snake.

In proportion to its length, this is our most slender-bodied snake. The largest of numerous examples at hand is 29 inches long—the tail nine and one-half inches. Its superior labials are seven on one side and eight on the other, the second from the rostral being divided. When freshly moulted this is a very handsome reptile.

#### EUTÆNIA PROXIMA (Say).

This is the *E. faireyi* B. & G. of my former paper. It is closely allied to *E. saurita* (Linn.) and a large series of specimens will doubtless reveal all intermediate forms. In *saurita* the sides below the lateral stripes are dark brown, shading to lighter for about the width of two scales on the gastrosteges. In *proxima* the sides below the lateral stripes are black with the greenish of gastrosteges abrupt. The length of two specimens at hand is sixteen and one-half inches each, the tail five and one-half inches. Superior labials 8 + 8. Less common than *E. saurita*.

#### EUTÆNIA SIRTALIS (Linn.). Garter Snake.

According to Cope, five varieties of this species are to be looked for in Indiana, viz.: *graminea* Cope, *semifasciata* Cope, *sirtalis* (L.), *ordinata* (L.) and *obscura* Cope. The last three have been taken in Vigo County, and in addition a fourth, which, in my former paper, was called *parietalis* (Say).

Of these, *E. s. sirtalis* (L.) is by far the most common. In all specimens of this variety examined the lateral stripes are on the first, second

\*This is especially true of *Bascanion constrictor* and *Ophibolus getulus sayi*, and, as shown above, also *Cotuber obsoletus*. The form *niger* of *Heterodon platyrhinos* has never been seen by the writer in the juvenile stage, though hundreds of the young of the more common form have been noted. *Niger* is, therefore, we believe, but a mature form of the species. The same is probably true of the form *niger* of *Ophibolus getulus*.

and third rows of scales, instead of on second and third as mentioned by Baird and Girard. The lower stripe becomes a greenish blue after immersion in alcohol.

*E. s. ordinata* is scarce, but two small specimens having been taken.

*E. s. obscura* is a form without dorsal spots. In Vigo County specimens the dorsal band is greenish yellow and the gastrosteges are greenish with two black spots on each margin. In Indiana this form has heretofore been recorded only from Wabash County.

Cope, *loc. cit.*, states that *E. s. parietalis* occurs only in the Central and Pacific regions, and *E. s. dorsalis*, the only other form with red interspaces, he limits also to the Central region. We have, however, a very common form in central and western Indiana, which Dr. Hay, in his "Batrachians and Reptiles of Indiana," and I in my former paper both called *E. s. parietalis*. It has numerous brick-red spots intermingled with blackish ones on the anterior third of body. It possesses the power of flattening the body more than any of the other forms, and when so flattened shows numerous small bluish white spots between the black and red ones. The gastrosteges have a black dot on each margin. It ranks next to *E. s. sirtalis* in abundance, and reaches a length of three feet.

On March 29, 1894, I observed a sparrow-hawk fly across a meadow bearing a wriggling snake in its talons. I slipped up beneath the thorn tree in which it alighted and giving a sudden whoop caused it to drop its prey, which proved to be an example of *E. s. parietalis*, as above limited. The varieties of *E. sirtalis* occurring in Indiana are so numerous and grade so insensibly into one another, that it is better, in my opinion, to regard them all as mere forms of the one species than to attempt to give a trinomial cognomen to each individual happened upon.

**NATRIX FASCIATA SIPEDON (Linn.).** Spotted Water Snake.

This, the *Tropidonotus sipedon* of my former paper, when disturbed, often flattens the head and anterior third of the body, even to a greater extent than *H. platyrhinos*. At the same time it exudes its disgusting odor, and then begins to strike vigorously at the intruder.

**\*NATRIX RHOMBIFERA (Hallow.).** Diamond Water Snake.

This species occurs in the large ponds of the annually overflowed bottom lands of southern Vigo County. It may be known by its 27 rows of strongly keeled scales, and by the squarish brown spots on the back alternating with those on the sides and connecting with them at the angles. A specimen in the State Museum was labeled "Copperhead—A Poisonous American Serpent—*Trionocephalus contortrix*—called also copper-bell and red viper, from Morgan County, Indiana." A second specimen was labeled "*Heterodon platyrhinos*, Clay County, Indiana." It is four feet

two inches in length, five inches in circumference, has 143 gastral plates, 65 urosteges, three postorbitals, 27 rows of strongly keeled scales and 31 lateral blotches before the anus.

Cope says of this species: "It remains within the boundaries of the Austroriparian district, not extending north of southern Illinois and Indiana." Hay, however, records it from Lafayette, Wheatland and New Harmony, Indiana.

*STORERIA OCCIPITOMACULATA* (Storer). Red-bellied Snake. Storer's Brown Snake.

But two additional specimens of this scarce reptile have been seen since my former paper was printed. One was taken from beneath a log in damp upland woods, on October 14. A week later, while driving in the northern part of the county, I saw a chicken running along the roadside with a squirming snake in its bill. After a sharp chase of the fowl through a rail fence and a blackberry patch, its prey was dropped and proved to be a fine specimen of Storer's snake. As soon as it found itself free it wrapped its tail about a small bush and, when approached, flattened itself very much after the manner of a spreading viper. The row of brown dots bordering the pale band along the back then became much more prominent than they are when the body is in its normal shape.

## LACERTILIA.

### SCINCIDÆ.

*EUMECES FASCIATUS* (Linn.). Red-headed Lizard. Blue-tailed Skink.

June 11, 1894, one of my pupils, Harley McIlroy, of Macksville, found two of these lizards in a crow's nest in the top of a beech tree. The male escaped. The female,  $10\frac{1}{2}$  inches in length and heavy with eggs, was captured, but unfortunately was immediately killed. The eggs were almost ready for extrusion, and dissection showed them to be 18 in number. They were circular in outline, 11 mm. in diameter and the outer integument was of a leathery consistency.

The only record of its reproductive habits which I can find is by Smith, who states that "it lays nine oval eggs at a time."\*

This species, which is blue-tailed when young and red-headed when old, is much more common in the southern than in the central and northern part of the State. Two specimens which were taken near Wyandotte Cave, May 11, 1897, were respectively 12 and 13 inches in length. One of them bit me in the index finger, but the bite was not as painful as that of a mouse.

\*Geol. Surv. of Ohio, IV, 1882, 651.

## TESTUDINATA.

## KINOSTERNIDÆ.

## \*KINOSTERNON PENNSYLVANICUM (Bosc.). Mud Turtle.

A male of this species, five and one-half inches in length, was taken from the margin of a large pond in the southern part of the county on June 18, 1892. It has been recorded in Indiana only from Knox County, where, according to Ridgeway, it is common about Monteur's Pond.

## EMYDIDÆ.

## \*PSEUDEMYIS ELEGANS (Wied.). Elegant Terrapin.

One small and one large specimen of this turtle were found dead by the margin of a large pond five miles north of Terre Haute, on July 6, 1892. No living specimens have been seen, and hence nothing distinctive of its habits can be recorded. It is said by Hay to be frequent in Posey County, and a single specimen was taken by him near Winamac in the northwestern part of the State.

## CISTUDO CAROLINA (Linn.). Box Turtle.

This continues to be quite a common species, especially in sandy woodlands, and many very old specimens, judging from their appearance, have been noted. The smallest one yet seen was taken in September, 1891, and measured but two inches across. I have twice surprised adults feeding upon ripe papaws. In one instance more than two-thirds of a large-sized one had been devoured.

\* \* \*

The following is a list of all species of *Batrachia* and *Reptilia* taken in Vigo County. Examples of all are now in my private collection. Those recorded in my former paper are followed by parenthesis enclosing the letter I and number of page in Vol. XIV of the Journal of the Cincinnati Society of Natural History in which mention of them was made.

## BATRACHIA.

1. *Necturus maculatus* Raf. Water Dog. Mud Puppy. (I. p. 23).
2. *Amblystoma opacum* (Gravenh.). Marbled Salamander. (I p. 24, 35).
3. *Amblystoma punctatum* (Linn.). Spotted Salamander. (I. p. 24).
4. *Amblystoma tigrinum* (Green). Tiger Salamander. (I. p. 24).
5. *Amblystoma jeffersonianum jeffersonianum* (Green). Jefferson's Salamander. (I. p. 24).

6. *Chondrotus microstomus* (Cope). Small-mouthed Salamander. (I. p. 24).
7. *Hemidactylium scutatum* Tschudi. Scaly Salamander. (I. p. 25).
8. *Plethodon cinereus* (Green). Ashy Salamander. Red-backed Salamander. (I. p. 25).
- 8a. *Plethodon cinereus erythronotus* (Green). Red-backed Salamander. (I. p. 25).
9. *Plethodon glutinosus* (Green). Slimy Salamander. (I. p. 25).
10. *Spelerpes bilineatus* (Green). Two-lined Triton. (I. p. 25).
11. *Spelerpes longicaudus* (Green). Long-tailed Triton.
12. *Diemyctylus viridescens* Raf. Green Triton. Newt. (I. p. 26).
13. *Siren lacertina* Linn. Siren. Mud Eel. (I. p. 26).
14. *Bufo lentiginosus americanus* Le Conte. American Toad. (I. p. 27).
15. *Acris gryllus gryllus* (Le Conte). Cricket Frog.
- 15a. *Acris gryllus crepitans* Baird. Cricket Frog. Peeper. (I. p. 27).
16. *Chorophilus triseriatus* (Wied.). Swamp Tree Frog. (I. p. 27).
17. *Hyla pickeringii* (Storer). Pickering's Tree Frog. (I. p. 27).
18. *Hyla versicolor* Le Conte. Common Tree Frog. (I. p. 28).
19. *Rana virescens virescens* Kalm. Leopard Frog. (I. p. 28).
20. *Rana palustris* Le Conte. Pickerel Frog. Swamp Frog. (I. p. 28).
21. *Rana areolata circulosa* Rice and Davis. Hoosier Frog. Ring Frog.
22. *Rana clamata* Daudin. Green Frog. Spring Frog. (I. p. 28).
23. *Rana catesbiana* Shaw. Bull Frog. (I. p. 28).
24. *Rana sylvatica* Le Conte. Wood Frog. (I. p. 28).

## REPTILIA.

1. *Carphophiops amœnus* (Say). Worm Snake. Ground Snake. (I. p. 35, Var. *helenæ*).
2. *Ophibolus doliatus* (Linn.). Red Snake. Corn Snake. (I. p. 32).
- 2a. *Ophibolus doliatus triangulus* (Boie). House Snake. Milk Snake. (I. p. 32).
- 2b. *Ophibolus doliatus collaris* Cope.
3. *Ophibolus getulus sayi* (Holbrook). King Snake. (I. p. 32).
4. *Ophibolus calligaster* (Say). Chain Snake.
5. *Diadophis punctatus* (Linn.). Ring-necked Snake. (I. p. 32).
6. *Cyclophis æstivus* (Linn.). Summer Green Snake. (I. p. 31).
7. *Bascanion constrictor* (Linn.). Black Snake. Blue Racer. (I. p. 31).
8. *Coluber obsoletus* Say. Pilot Snake. Black Racer. (I. p. 31).
9. *Heterodon platyrhinos* Latreille. Spreading Adder. Blowing Viper. (I. p. 32).
10. *Eutania saurita* (Linn.). Ribbon Snake. (I. p. 29).
11. *Eutania proxima* (Say). Say's Garter Snake.



12. *Eutania sirtalis* (Linn.). Garter Snake. (I. p. 30).
13. *Natrix leberis* (Linn.). Queen Snake. Leather Snake. (I. p. 30).
14. *Natrix fasciata sipedon* (Linn.). Spotted Water Snake. (I. p. 30).
15. *Natrix rhombifera* (Hallow.). Diamond Water Snake.
16. *Clonophis kirtlandi* (Kenn.). Kirtland's Snake. (I. p. 29).
17. *Storeria occipitomaculata* (Storer). Red-bellied Snake. Storer's Brown Snake. (I. p. 29).
18. *Storeria dekayi* Holbrook. DeKay's Brown Snake. (I. p. 29).
19. *Eumeces fasciatus* (Linn.). Red-headed Lizard. Blue-tailed Skink). (I. p. 33).
20. *Amyda mutica* (Le Sueur). Leather Turtle. (I. p. 33).
21. *Aspionectes spinifer* (Le Sueur). Common Soft-shelled Turtle. (I. p. 34).
22. *Chelydra serpentina* (L.). Common Snapping Turtle. (I. p. 34).
23. *Kinosternon pennsylvanicum* (Bosc.). Mud Turtle.
24. *Malaclemmys geographicus* (Le Sueur). Map Turtle. (I. p. 34).
25. *Malaclemmys lesueuri* (Gray). Le Sueur's Map Turtle. (I. p. 34).
26. *Pseudemys elegans* (Wied.). Elegant Terrapin.
27. *Chrysemys marginata* (Agassiz). Painted Turtle. (I. p. 34).
28. *Cistudo carolina* (Linn.). Box Turtle. (I. p. 35).