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## SOME HERPETOLOGICAL RECORDS FROM MONMOUTH AND OCEAN COUNTIES, NEW JERSEY

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FOR seven summers it has been possible for us to pursue more or less continuous field work at two localities in New Jersey which are not far from one another. During the summers of 1924, 1925, 1927, and 1928, Conant was located on the Metedeconk River due north of Osbornsville, in Ocean County. This site is rather typical of the coastal plain pine-barrens with sandy soil, occasional white cedar (*Chamaecyparis*) bogs in the vicinity, and a dominant floral cover of pines and oaks.

Bailey was resident at Allaire, three miles southeast of Farmingdale, Monmouth County, during the summers of 1932 to 1934 inclusive. This locality is about nine miles north of Osbornsville in the Manasquan River Valley. Both to the north and south of Allaire the woods are similar to those at Osbornsville, but in the river valley itself the soil contains much humus and supports a mesophytic forest. The Manasquan River is a cold spring-fed stream averaging thirty feet in width at Allaire.

The bulk of the records are from these two localities, and observations on habitats and relative abundance refer to them

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and their immediate vicinities unless otherwise noted. Some work has been done elsewhere, and we include all our records for Monmouth and Ocean counties. Since there has been little collecting in the spring or fall there are doubtless a few species which have been overlooked, and hence the list should not be considered as complete.<sup>2</sup>

Specimens of all the forms obtained, with the exception of *Clemmys insculpta*, have been deposited in the University of Michigan Museum of Zoology. Additional specimens are preserved in the collections of the Toledo Zoological Society, the Academy of Natural Sciences of Philadelphia, and the Ohio State Museum.

We wish to express our indebtedness to the Monmouth Council, Boy Scouts of America, for its aid and coöperation in our work. We are especially obligated to Mr. Thomas Reichelderfer of Ocean Grove, New Jersey, who, in addition to collecting a number of specimens for us during the past few summers, has been responsible for most of our spring and fall records. We are also indebted to Mr. William Caulwell of Lakewood, New Jersey, Mr. John Marshall of Long Branch, New Jersey, Mr. Klaus Abegg of Laurelton, New Jersey, Mr. M. R. Carriker of Beachwood, New Jersey, Mr. Mark Robinson of Philadelphia, Pennsylvania, and to numerous boys and staff members of the Boy Scout camp, now located at Allaire, for their aid in collecting. We wish to thank Dr. Norman Hartweg of the Museum of Zoology, Ann Arbor, Michigan, for assistance in ascertaining the applicability of the name *Malaclemys terrapin terrapin*.

#### 1. *Triturus viridescens viridescens* (Rafinesque)

Two adults obtained in a small woodland pond at Allaire, August 5, 1933.

<sup>2</sup> A specimen of *Elaphe guttata* (Linné) was found dead on the road four miles northeast of Chatsworth on September 20, 1935. This locality is in Burlington County only two miles west of the Ocean County line.

*Leiopisma unicolor* (Harlan), reported as *Leiopisma laterale* (Say) by Burt, from 1 mile west of Lakehurst. Charles E. Burt, "A report on some amphibians and reptiles from New York and New Jersey," *Jour. Wash. Acad. Sci.*, 21 (9), 1931: 198-203.

2. *Ambystoma opacum* (Gravenhorst)

Three specimens taken at Allaire.

3. *Hemidactylium scutatum* (Schlegel)

Three specimens from Allaire.

4. *Plethodon cinereus* (Green)

Fifteen specimens, representing both the red-backed and dusky phases, collected under moist logs at Allaire.

5. *Pseudotriton ruber ruber* (Sonnini)

Three specimens taken at Allaire during the summer of 1933.

6. *Scaphiopus holbrookii holbrookii* (Harlan)

One found crossing a road in the rain four miles west of Adelphia the night of September 3, 1934.

7. *Bufo fowleri* Hinckley

This is apparently the only species of *Bufo* in the vicinity of Allaire and Osbornsville, for we have examined several hundred specimens in an unsuccessful search for *Bufo americanus*. Individuals have been heard singing on rainy nights throughout the summer. Also seen at Mantoloking, one mile north of Farmingdale, and eight miles west of Barnegat.

8. *Pseudacris nigrita feriarum* (Baird)

Six specimens collected March 6, 1935, three miles northwest of Farmingdale.

9. *Hyla andersonii* Baird

Six males were collected and about a dozen more were heard the evening of June 23, 1934, two miles south of Allaire. Twenty-four, including two females, were taken the evening of June 20, 1935, in another locality about a mile to the northwest. Both groups were in full chorus, and most of the specimens were found two to six feet above the ground in pine trees in the vicinity of bogs in which no *Chamaecyparis*

was present. In both instances the weather was warm and clear, but it had rained the night before. The first locality was revisited the two nights following, but no frogs were heard, possibly because there had been no further rain.

10. *Hyla crucifer* Wied

Four recently metamorphosed specimens were taken near a small pool one mile north of Farmingdale, June 22, 1934. Seven adults were collected three miles northwest of Farmingdale, March 6, 1935.

11. *Hyla versicolor versicolor* (Le Conte)

Seen only from Allaire. One taken June 24, 1934, fifteen feet above the ground from a burl on a black walnut tree. Four singing males collected in a marshy pool July 24, 1934.

12. *Rana catesbeiana* Shaw

Numerous in the larger streams and ponds near Allaire and Osbornsville. Also recorded from Red Bank and one mile north of Farmingdale.

13. *Rana clamitans* Latreille

Common in brooks, ponds, and along the larger streams. Taken at Allaire, Osbornsville, and one mile north of Farmingdale.

14. *Rana palustris* Le Conte

Found infrequently near the cool woodland rills at Allaire. Three specimens collected along Toms River four miles northeast of Lakehurst.

15. *Rana pipiens* Schreber

Common in meadows, ponds, and grassy streams. Specimens have been seen from Red Bank, Allaire, Osbornsville, one mile north of Farmingdale, and six, eight, and ten miles west of Barnegat.

16. *Rana sylvatica* Le Conte

Several specimens taken each summer in the moist woods along the Manasquan River at Allaire.

17. *Rana virgatipes* Cope

One specimen collected in a swamp at Beachwood and another obtained near Toms River during the latter part of June, 1935. A series of nine collected September 20, 1935, along the Oswego River, eight miles west of Barnegat.

18. *Sceloporus undulatus* (Latreille)

Common at Osbornsville and in pine woods near Allaire. Also taken eight and ten miles west of Barnegat.

19. *Carphophis amoena amoena* (Say)

One taken at Ocean Grove, May 17, 1934, and another eight miles west of Barnegat, September 7, 1935.

20. *Diadophis punctatus edwardsii* (Merrem)

Six obtained at Allaire during the summers of 1932 to 1934.

21. *Heterodon contortrix* (Linné)

A common snake in dry sandy situations. Two to six collected each year at Osbornsville. Seven taken at Allaire, two at Toms River, and two a mile west of Asbury Park.

22. *Opheodrys aestivus* (Linné)

One specimen obtained three miles west of Asbury Park during October, 1932. Three others found respectively three, three and one-half, and seven and one-half miles west of Barnegat, September 20, 1935.

23. *Coluber constrictor constrictor* (Linné)

Three collected near Osbornsville during the four summers of residence there; an average of two each season at Allaire. We have also seen specimens from Point Pleasant, three miles north of Tuckerton, and from four and one-half, six, eight, and nine miles west of Barnegat.

24. *Pituophis melanoleucus* (Daudin)

We have seen one specimen from Laurelton, one from Lakehurst, one from Forked River, two from Lakewood, and one from five miles south of Lakewood.

A female, 1372 mm. in length, collected at Lakewood during the spring of 1934, laid nine eggs on July 9, 1934. The first four of these were abnormal in that each was attached to the adjacent egg. The first and fourth eggs were normal in size ( $58.0 \times 26.4$  mm. and  $56.5 \times 31.8$  mm. respectively) but were discolored with yellow, the second was an irregular yellowish mass, and the third was ruptured when discovered. Measurements of the last five eggs, which were white with soft leathery shells and which we have considered normal, are:

$55.0 \times 28.5$	$56.3 \times 32.4$
$53.5 \times 32.5$	$61.0 \times 32.2$
$54.1 \times 31.0$	(average $56.0$ mm. $\times$ $31.3$ mm.)

25. *Lampropeltis getulus getulus* (Linné)

Three specimens taken at Osbornsville, one at Allaire, one at Long Branch, two at Lakewood, and one a mile west of Manasquan.

26. *Lampropeltis triangulum triangulum* (Lacépède)

One individual collected at Osbornsville, two at Asbury Park, and seven at Allaire. That these snakes are more common in the latter locality is indicated by the fact that several charred specimens were observed there by Reichelderfer after the forest fire of 1930.

27. *Natrix sipedon sipedon* (Linné)

One of the most abundant snakes of the region. It is common at Allaire, and fifty or more specimens were collected along the Metedeconk River at Osbornsville during each of the summers of residence. We have also seen specimens from Allenwood, Asbury Park, Farmingdale, Freehold, Long Branch, Red Bank, and two miles west of Eatontown. A large captive specimen was observed to eat an adult *Sceloporus undulatus*.

28. *Storeria dekayi* (Holbrook)

Two or three taken each summer at Allaire from 1932 to 1934 inclusive. Recorded also from Red Bank, Bradley

Beach, and common at Long Branch. A female from the latter locality died July 24, 1934, and was found to contain fifteen well developed embryos. Another had eight embryos, and a specimen from Allaire 290 mm. in length gave birth to twelve young on August 14, 1932. These measured from 81 to 90 mm., average 86 mm., in length.

29. *Storeria occipito-maculata* (Storer)

One specimen collected at Lake Carosaljo, Lakewood, August 5, 1935.

30. *Thamnophis sauritus sauritus* (Linné)

One taken near a marshy meadow at Allaire, July 31, 1932. Another, collected at Toms River during June, 1935, gave birth to fifteen young August 26, 1935. These measured 210 to 230 and averaged 222 mm. in length and from 1.3 to 1.5, average 1.4 grams in weight.

31. *Thamnophis sirtalis sirtalis* (Linné)

Found commonly in meadows and woods at Allaire, Atlantic Highlands, Middletown, Red Bank, and two miles west of Eatontown. In typical pine woods it appears to be uncommon; one specimen has been taken in such a habitat a mile south of Allaire, but none were seen at Osbornsville.

32. *Crotalus horridus horridus* Linné

Two large gravid females collected July 5, 1933, in a gravel pit two miles south of Allaire and another specimen taken July 22, 1935, in a similar habitat about one-half mile west of the first locality. Although it is occasionally reported by residents, this species is apparently rare in the vicinity of Allaire and Osbornsville.

33. *Sternotherus odoratus* (Latreille)

Common in the shallow, muddy parts of the Metedeconk River between Osbornsville and Laurelton. Frequently taken in association with *Chrysemys picta picta* and *Kinosternon*

*subrubrum subrubrum*, but less common than the former and about three times as abundant as the latter during the seasons of 1924, 1925, 1927, and 1928. Recent collecting (1934 and 1935), done in the same general area since the water has become brackish as a result of the opening of the canal between the Manasquan River and Barnegat Bay, has shown *Kinosternon* to be abundant while no *Sternotherus* were taken. Occasional at Allaire; one specimen from Bamber (nine miles south of Lakehurst), and one from four miles northeast of Lakehurst.

34. *Kinosternon subrubrum subrubrum* (Lacépède)

Common in the Metedeconk River between Osbornsville and Laurelton; two specimens taken at Allaire, two from ten miles west of Barnegat, and skeletal remains from two miles west of Point Pleasant.

35. *Chelydra serpentina* (Linné)

Taken commonly in muddy streams and ponds and in brackish water. Specimens from Allaire, Allenwood, Long Branch, Middletown, Osbornsville, Red Bank, and six miles west of Barnegat.

36. *Clemmys guttata* (Schneider)

Common in bogs and marshes along the Metedeconk River near Osbornsville and in the river and ditches at Allaire. About thirty specimens were observed in a flooded woodland near Middletown during April, 1926. Specimens also taken at Atlantic Highlands, Lakewood, Long Branch, and ten miles west of Barnegat.

37. *Clemmys insculpta* (Le Conte)

One collected on the highway three miles east of Allentown. Caulwell informs us that he has seen two specimens from cedar bogs in the vicinity of Lakewood. It is possible that *C. insculpta* and *Storeria occipito-maculata* occur in the pine barrens only as relicts and are restricted to such bogs.



38. *Clemmys muhlenbergii* (Schoepff)

Not uncommon at Allaire where twenty-one were secured, thirteen during a single summer. One collected at Long Branch during April, 1934; none seen from Osbornsville. At Allaire most of the specimens were taken in sluggish meadow and lowland ditches which averaged a few inches in depth and about two feet in width; occasional individuals were found in the Manasquan River. Our notes indicate that near Allaire this turtle is more or less restricted to streams and ditches with a muddy bottom.

39. *Terrapene carolina* (Linné)

Common throughout the region; from twenty to sixty specimens were secured each summer at both Osbornsville and Allaire. While unrestricted in habitat it appears to be most numerous in moist woods along the river valleys and about the bogs. Specimens also were taken at Allenwood, Atlantic Highlands, Lakewood, nine miles south of Lakehurst, and three and one-half, six, and eight miles west of Barnegat.

40. *Malaclemys terrapin terrapin* (Schoepff)

As Lindholm (1929)<sup>3</sup> has indicated, Lacépède's *Testudo terrapen* cannot be considered as a homonym of *Testudo terrapin* Schoepff. This latter name, proposed in 1792, has priority over *Testudo Concentrica* Shaw, 1802, and must replace it.

An adult female collected at Toms River, June 20, 1935. The carapace length of this specimen is 185 mm.

41. *Chrysemys picta picta* (Schneider)

Found abundantly in ponds and slow-moving streams especially where there is considerable aquatic vegetation. Common at Allaire and Osbornsville and in brackish and tidal waters of both the Manasquan and Metedeconk rivers. Collected also at Allenwood, Atlantic Highlands, Farmingdale, Lakewood, Long Branch, Middletown, two miles east of Eaton-

<sup>3</sup> W. A. Lindholm, "Revidiertes Verzeichnis der Gattungen der rezenten Schildkröten nebst Notizen zur Nomenklatur einiger Arten," *Zool. Anz.*, 81, Nr.11/12, 1929: 275-295.

town, five miles west of Laurelton, nine miles south of Lakehurst, and eight miles west of Barnegat.

42. *Pseudemys rubriventris* (Le Conte)

A large female measuring 290 mm. in carapace length collected at Toms River, June 26, 1935. Reichelderfer observed this specimen to lay six eggs on July 21, 1935, and twelve eggs on August 10, 1935. An excavation was made in each case, and the eggs were buried about four inches beneath the surface of the ground. The eggs of the second group, which were somewhat larger than those of the first, varied from 34 to 37 mm. in length.



