

RECORDS OF INDIANA DRAGONFLIES—II¹

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This is the third series¹ of notes on Indiana dragonflies to be published since Williamson's annotated list² and it records captures made in 1925 and 1926.

Only captures of the less common species, or captures which extend the known range, either seasonal or regional, of species are given in this paper.

Little collecting was done in 1925, but during the dragonfly season in 1926 a party was in the field almost weekly. The object of each trip was usually to secure one or two of the rarer species but collections were made and notes made on almost all of those seen. The collecting party almost always included E. B. Williamson and J. H. Williamson, who were frequently accompanied by one or more of the following: Robert Engeler, Eli Captain, Paul Cook, and myself. Prof. J. J. Davis collected the specimens recorded from Crown Point. I made the captures recorded from the southwestern part of the state. A few specimens taken by other collectors are listed with the collector's name in parentheses following the record.

On September 3, 1926, Paul Cook collected the dragonflies found at a tile yard pond at Poneto, Wells County. The following species were secured: *Lestes forcipatus*, one male and six females; *Enallagma civile*, one male; *Enallagma signatum*, two males; *Ischnura verticalis*, five males and ten females; *Anomalagrion hastatum*, nine males and six females; *Sympetrum vicinum*, one male; *Celithemis elisa*, one male. A male of *Plathemis lydia* was seen. *Celithemis elisa* was probably a visitor and not a native of the pond.

The numbers of Williamson's annotated list are used in the following list of species.

3. *Agrion maculatum* Beauvois. Buttonwood swamp, near Cowan, Delaware County, July 11, 1926.

9. *Lestes forcipatus* Rambur. Common at pool in gravel pit near Lafayette, May 26, 1925. Several pairs were observed in copula. The female oviposites in the leaves of cattails, and the process is not essentially different from that which I have described for *Lestes congener*³ although the interesting co-ordinated movement of male and female noted in that species was not seen, the pair flying to another leaf after eggs had been placed at short intervals for several inches down the

¹ Williamson, E. B. Notes on Indiana Dragonflies. Proc. Ind. Acad. Sci. 1920, pp. 99-104.

Montgomery, B. Elwood. Records of Indiana Dragonflies. Proc. Ind. Acad. Sci. 1924, pp. 383-389.

² Williamson, E. B. An Annotated List of the Odonata of Indiana. Misc. Publ. No. 2 of the Uni. of Mich. Mus. of Zool. 1917. 12 pp. 1 map.

³ Proc. Ind. Acad. Sci. 1924, pp. 383-384.

leaf rather than walking up the same leaf to repeat the process. Swamp, near Cowan, Delaware County, July 11, 1926.

11. *Lestes rectangularis* Say. Swamp, near Cowan, Delaware County, July 11, 1926.

12. *Lestes uncatus* Kirby. Swamp, near Cowan, Delaware County, July 11, 1926.

15. *Argia apicalis* Say. Big Creek, Posey County, August 19, 1925; Foote's Lake, Gibson County, August 28, 1926; Wabash River, below Markle, Huntington County, August 29, 1926.

16. *Argia moesta* Hagen. Wabash River below Markle, Huntington County, August 29, 1926.

17. *Argia sedula* Hagen. Wabash River below Markle, Huntington County, August 29, 1926.

21. *Enallagma antennatum* Say. Near Vincennes, July 18, 1924; Pigeon River, Lagrange County, July 5, 1926; Wabash River below Markle, Huntington County, August 29, 1926.

25. *Enallagma civile* Hagen. Tile yard pond, Monroe, Adams County, September 15, 1925; Blackman Lake, Noble County, August 8, 1926.

27. *Enallagma divagans* Selys. Pigeon River, Lagrange County, and "Old Canal," Noble County, July 5, 1926.

29. *Enallagma exsulans* Hagen. Pigeon River, Lagrange County, July 5, 1926; Foote's Lake, Gibson County, August 28, 1926; Wabash River below Markle, Huntington County, August 29, 1926.

30. *Enallagma geminatum* Kellicott. Miller Lake, Noble County, July 5, 1926; Narrows Lake, Noble County, August 22, 1926.

33. *Enallagma vesperum* Calvert. Foote's Lake, Gibson County, August 28, 1926.

34. *Enallagma signatum* Hagen. Foote's Lake, Gibson County, August 28, 1926.

35. *Enallagma traviatum* Selys. Foote's Lake, Gibson County, June 12, 1925; Miller Lake, Noble County, July 5, 1926.

36. *Nehalennia gracilis* Morse. This rare species which has been recorded from the state but once previously was taken on two occasions in 1926. Eleven males and four females were captured at Lane Lake (formerly called Case Lake), Lagrange County, July 18; 21 males and three females of the more common *Nehalennia irene* were taken at the same time and place. August 8, 14 males and five females of *gracilis* and one male of *irene* were captured along a creek flowing into Oliver Lake, Lagrange County. In freshly killed specimens the females, which may be distinguished by the form of the prothorax, may be more readily separated by color differences—the sides of the thorax are greenish-yellow in *irene*, blue in *gracilis*.

38. *Amphigrion saucium* Burmeister. Creek flowing into Oliver Lake, Lagrange County, August 8, 1926.

39. *Chromagrion conditum* Hagen. "Old Canal," Noble County, July 5, 1926.

41. *Ischnura posita* Hagen. Gravel pit, near Lafayette, May 26, 1925; Wabash River below Markle, Huntington County, August 29, 1926.

43. *Ischnura verticalis* Say. Gravel pit, near Lafayette, May 26, 1925; tile yard pond, Monroe, Adams County, September 15, 1925; swamp, near Cowan, Delaware County, July 11, 1926; Crown Point, August 5, 1926; Wabash River below Markle, Huntington County, August 29, 1926.

45. *Tachopteryx thoreyi* Hagen. Clifty Falls, Jefferson County, May 13, 1925, attracted to light about 7 p. m. (H. F. Dietz.)

51. *Ophiogomphus rupinsulensis* Walsh. Pigeon River, one mile east of Mongo, Lagrange County, July 5, 1926; Cedar Creek, Allen County, July 25, 1926, (Eli Captain).

52. *Erpetogomphus designatus* Hagen. In cultivated fields and less commonly in waste land grown up with giant ragweed and other plants, along Wabash River, Gibson County, nearly opposite Grayville, Illinois, August 31 and September 2, 1926. On the latter date *Gomphus plagiatus* was found associated with it in the fields grown up with weeds.

56. *Gomphus fraternus* Say. Cedar Creek, Allen County, July 25, 1926, (Eli Captain).

59b. *Gomphus plagiatus* Selys. See note under 52, *Erpetogomphus designatus*.

63. *Gomphus submedianus* Williamson. Foote's Lake, Gibson County, June 12, 1925. A few individuals of this species were noted flying about over the edge of the water, and alighting on sticks protruding from the water or resting on bare rocks along the shore. Two males and one female were captured.

65. *Gomphus ventricosus* Walsh. West Lafayette, May 20, 1925. A male picked up from a walk on Purdue University campus at noon, (R. W. Montgomery).

68. *Dromogomphus spinosus* Selys. Pigeon River, near Mongo, Lagrange County, July 18, 1926. Hovering over stream and alighting on leaves of bushes overhanging or at edge of water.

71. *Basiaeschna janata* Say. Near West Lafayette, May 12, 1926, (H. W. Li); Miller Lake, Noble County, July 5, 1926.

72. *Anax junius* Drury. Several individuals of this species were seen at "Happy Hollow," a wooded glade about a mile north of West Lafayette, March 24, 1925. A pair was captured at a gravel pit near Lafayette a week later. This date extends the known seasonal range of this species in the state to about six and one-half months—a greater period than the range of any other dragonfly in Indiana. Tile yard pond, Monroe, Adams County, September 15, 1925; Crown Point, August 5, 1926.

78. *Aeshna umbrosa* Walker. At pools along Pigeon River, Lagrange County, September 19, 1926, and in glade along Wabash River below Markle, Huntington County, August 29, 1926.

79. *Aeshna verticalis* Hagen. Marshy grass and sedge flat along creek flowing into Oliver Lake, Lagrange County, August 8, 1926.

80. *Nasiaeschna pentacantha* Rambur. This species was found in numbers at Foote's Lake, Gibson County, June 12, 1925. Not less than 15 individuals were seen patrolling the shores or darting about among the leaves of spatterdock. A female, unaccompanied, was observed

ovipositing in the upper surface of a spatterdock leaf. Pigeon River, three miles east of Mongo, Lagrange County, and "Old Canal," south of Rome City, Noble County, July 5, 1926.

85. *Macromia taeniolata* Rambur. Foote's Lake, Gibson County, August 28, 1926. This species has been noted at this lake, which is apparently an old river channel, during July and August for the last three years.

94. *Somatochlora linearis* Hagen. Two males and one female were taken at a small creek in Lafayette Township, Allen County, July 25, 1926. Almost 30 specimens of this species were captured along this creek in 1924, but during the winter of 1924-1925 the trees were cut from along the better portion of the creek. On July 25 the stream was very small at the place from which the trees were not cut and contained only small pools of water with no above ground flow.

99. *Libellula luctuosa* Burmeister. Lane Lake, Lagrange County, July 18, 1926; Crown Point, Lake County, August 5, 1926; Wabash River below Markle, Huntington County, August 29, 1926.

100. *Libellula pulchella* Drury. While collecting along "Old Canal," Noble County, July 5, 1926, a male of this species with a defective wing was noticed. E. B. Williamson watched the insect in flight for several minutes but could see no disadvantage arising from the defect. Upon capture about two-thirds of the right rear wing was found to be missing and the condition of the broken edges and veins indicated that the defect had existed from emergence. Crown Point, August 5, 1926; pond, two miles north of Poseyville, August 27, 1926.

104. *Plathemis lydia* Drury. Tippecanoe County, near Lafayette, May 26, 1925; "Old Canal," Noble County, July 5, 1926.

106. *Nannothemis bella* Uhler. Fourteen males and seven females of this rare species were taken at Lane Lake, Lagrange County, July 18, 1926.

114. *Sympetrum vicinum* Hagen. Tile yard pond, Monroe, Adams County, September 15, 1925; Wabash River below Markle, Huntington County, August 29, 1926.

115. *Pachydiplax longipennis* Burmeister. Swamp, near Cowan, Delaware County, July 11, 1926.

118. *Celithemis elisa* Hagen. Associated with *Celithemis eponina*, along the edge of a small lake, Crown Point, Lake County, August 5, 1926.

119. *Celithemis eponina* Drury. See note under 118, *Celithemis elisa*.

121. *Panatala flavescens* Fabricius. Posey County, August, 1925, (R. W. Montgomery); Eel River, southeast of Churubusco, Allen County, August 22, 1926.

125. *Tramea onusta* Hagen. A recent study of the Indiana specimens of *Trameas* in the Williamson Collection revealed the fact that two specimens of *onusta* had been assigned to *carolina* and recorded as that species. The specimens were collected at Vanemon Swamp, Wells County, May 30, 1913, and June 17, 1923. Correspondents who have received *Trameas* from the Williamson Collection should check this

material for the determination of these two species. Corrections may involve changes in the geographical and seasonal ranges given for the two species in Indiana.

The addition of this species to the list from Vanemon Swamp brings the total number of species known from that locality to 35. This swamp, which has been studied by E. B. Williamson for over 25 years as a representative woodland swamp habitat of northern Indiana, was visited several times during the season of 1926 and the following note for June 16 may be taken as typical. Dragonflies were comparatively rare; *Anax junius* was common, a few individuals of each of *Libellula pulchella*, *Pachydiplax longipennis*, *Ischnura posita*, and *Ischnura verticalis* were seen. *Aeshna mutata*, represented by a single individual, was present for the second time in 12 years. Lestes were numerous, but no *eurinus* were found. Enallagmas, Trameas, and *Libellula quadrimaculata* were absent. The water was deep. Spatterdock was unusually large and the clumps were spreading. Several clumps of *Scirpus lacustris* have apparently become established in the northwestern part of the swamp, where a few clumps of Sparganium have also become established, (25 years ago almost the entire swamp was covered with Sparganium). The swamp smartweed was less vigorous and of lesser quantity than during recent years. The painted turtle was present in conspicuous numbers for the first time in many years.

