

NOTES ON THE DRAGONFLIES (ODONATA) OF NORTHWESTERN OHIO

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INTRODUCTION

Up until about ten years ago, when the writer first began collecting Odonata in northwestern Ohio, relatively little work had been done on the order in this section of the state. This is an interesting section as certain northern and western species occur here which do not occur elsewhere in the state. The Odonata collected by the writer in northwestern Ohio through 1942 are summarized by Montgomery (1943); this paper supplements Montgomery's list, and is based on six additional seasons of collecting, 1943 through 1948. These records cover the following northwestern counties: Auglaize, Defiance, Fulton, Hancock, Henry, Mercer, Paulding, Putnam, Shelby, Van Wert and Williams.

Montgomery's paper (1943) brought the list of Odonata recorded from Ohio to 133 species; five additional species are recorded in this paper, bringing the list to 138. These five species are *Somatochlora ensigera*, *Macromia wabashensis*, *Gomphus (Stylurus) laurae*, *Coenagrion resolutum*, and *Gomphus externus*. Previously (Borror, 1937) there was some doubt as to the occurrence of *Aeshna clepsydra* in Ohio; the collection of 22 specimens of this species by the writer in Williams Co. definitely establishes this species as occurring in the state.

The writer is deeply indebted to Dr. B. Elwood Montgomery, of Purdue University, for making or checking the determinations of most of the species recorded in this paper; he is also indebted to Mrs. L. K. Gloyd for checking the determinations of *G. (S.) laurae*. The majority of the specimens collected by the writer are in the writer's collection, but some specimens have been given to the Ohio State Museum collection in Columbus, the Experiment Station at Wooster, the U. S. National Museum, and the private collections of Dr. B. E. Montgomery and Dr. D. J. Borror.

Most of the records in the list below are new county records. Williams Co., with 74 species of Odonata, ranks second in the state in number of species (Franklin Co. is first with 80 species), while Paulding Co., with 70 species, is third. A few sight records were made which would have represented new county records had the specimens been collected; these are *Nasiaeschna pentacantha* in Paulding Co., and *N. pentacantha*, *Libellula incesta*, *Epicordulia princeps*, *Trapezostigma carolina*, and *Pantala flavescens* in Williams Co. It seems very likely that with additional collecting Williams Co., the extreme northwestern county in Ohio, will equal or exceed every other Ohio county in the number of species of Odonata; it is conceivable that as many as 100 species may eventually be taken there.

The localities at which the collections recorded in this paper were made are as follows:

Auglaize Co.—The State Fish Hatchery, near St. Mary's.

Defiance Co.—Little (Krill's), Lehman's, and Ladd's Lakes; the Maumee and Auglaize Rivers; Lost, Lick, Bee Tree, and Eagle Creeks; and the Miami Extension Canal, southwest of Defiance, near the Paulding Co. line. Little Lake is a fairly good collecting area in some seasons.

Fulton Co.—Mill Creek, and Harrison Lake. Harrison Lake is a newly created lake, formed by damming Mill Creek.

Hancock Co.—Haley's Pond (Blanchard Twp.).

Henry Co.—The Maumee River and the Miami Extension Canal.

Mercer Co.—Chickasaw Creek, the Wabash River, and Grand Reservoir (also called Celina Reservoir or Lake St. Mary's).

Paulding Co.—The Maumee, Auglaize, and Little Auglaize Rivers; the Flatrock, Blue, Six Mile, and Marie DeLarme creeks; the south loop of Gordon Creek; Bailey's gravel pit (Paulding Twp.), Klinger's gravel pit (Jackson Twp.), and old tile pond in Benton Twp., and a pool formed by an artesian well in Brown Twp.; also various fields, woods, ditches, streams, etc. The Maumee River, above the Forder Bridge, has a rather surprising odonate population for a stream so heavily polluted with sewage.

Putnam Co.—A large abandoned tile pond at Miller City, and the railroad reservoir at Continental.

Shelby Co.—The south shore of Lake Laramie, and woodland pools nearby.

Van Wert Co.—An abandoned stone quarry at Willshire.

Williams Co.—St. Joseph's River, Fish, Bear, and Nettle Creeks, Mud and Nettle Lakes, two unnamed ponds, and two gravel pits. Mud Lake is the most interesting of the lakes in this county; it is said to have been heavily dynamited by railroad laborers a number of years ago for its fish, and the present owner insists that it now contains very few fish. Its bog meadow, with tamarack, poison sumac, shrubby cinquefoil, cranberry, several species of orchids, and fringed gentian, has a nice population of unusual Odonata, butterflies, and Orthoptera. *Gomphus spicatus* fairly swarmed at this lake in June, 1948. Many afternoons were spent along Fish Creek east of Route 49, as well as at the St. Joseph's River near its confluence with the creek; the gomphine population there is excellent. Fish Creek is the outlet for Hamilton Lake (in Indiana).

On October 2, 1948, a special trip was made to Oxford, Ohio, to collect *Archilestes grandis* (Rambur). The weather was pleasantly cool. The creek just south of Miami University, where the collecting was done, was dry except for occasional shallow pools. The writer was there from 1:00 to 2:30 P. M., and collected six males and two females. All were easy to capture, and one pair in copulo was taken by hand. Some eighteen or twenty other individuals were seen. Some males had short abdomens. Pairs were in copulo among the short willows, well up from the water. No females were seen ovipositing, but Kennedy (in Needham and Heywood, 1929, p. 269) states that *A. californica* uses the stems of woody plants such as willows and alders for ovipositing; perhaps *A. grandis* may do the same. Only one male was seen hunting for prey. This species has been recorded from this locality by Williamson (1930), Cotterman (1930), and Montgomery (1943).

LIST OF SPECIES

The species in the following list are numbered according to Borror's list (1937), and the records are given by counties. Additional data are given for some species.

2. *Gomphoides obscura* (Rambur). Defiance, Paulding, Williams. This species is rather common along Fish Creek in Williams County and Lost Creek in Defiance County; it was also taken along the south loop of Gordon Creek and the ripples in the Maumee River one-half mile west of the Forder Bridge in Paulding County.

3. *Hagenius brevistylus* Selys. Paulding, Williams. This species seems to be uncommon. On August 1, 1946, at the St. Joseph's River in Williams County, I saw a *Hagenius* capture a *Calopteryx maculatum* and carry it to a barbed wire fence nearby where it seemed to roll the body of its prey into a ball. About five minutes later I tried to capture it but it boldly flew under the net and carried its prey to the upper branches of a tree where it was lost to view. At this time it had not removed the wings of the *Calopteryx*.

4. *Ophiogomphus rupinsulensis* (Walsh). Williams. Several specimens were taken along the St. Joseph's River.

7. *Gomphus (Stylurus) amnicola* Walsh. Paulding, Williams. Several were collected along Fish Creek and the St. Joseph's River in late August and early September. One Paulding County specimen taken. They were rather common at the ripples of the Maumee River west of the

Forder Bridge in Paulding County; a single male was secured on August 4, 1947. Four specimens were captured at the St. Joseph's River in Williams County: 1 ♀ 8/28/45, 1 ♂ 9/4/45, 1 ♀ 8/29/46, 1 ♀ 9/3/46.

9. *Gomphus exilis* Selys. Fulton, Williams. Several were collected along Nettle Creek in Williams County, where it was rather common. One specimen was taken at Mill Creek in Fulton County.

138. *Gomphus externus* Hagen. Paulding. This species is an addition to the Ohio list. Borror (1935) has shown that Kellicott's (1899) record of this species was really *Gomphus crassus*. Seven males were taken at the ripples of the Maumee River west of the Forder Bridge on August 3, 4, 10, and 14, 1947. Nearly all were taken on boulders near the middle of the stream, where the width is about 260 feet; they were quite wary and it was necessary to move slowly to secure them. One male was taken with prey, a Cabbage Butterfly (*Pieris rapae*). The weather was exceedingly hot, the days these specimens were collected.

10. *Gomphus fraternus* (Say). Defiance, Paulding, Williams. Common; I have more specimens of this species in my collection than of any other *Gomphus*.

11. *Gomphus jurcifer* Hagen. Defiance. Collected at Little (Krill's) Lake; not nearly as common as *Gomphus spicatus*.

12. *Gomphus grasinellus* Walsh. Fulton, Mercer, Williams. Common at the gravel pits and creeks, but taken sparingly along the larger rivers.

136. *Gomphus (Stylurus) lauræ* Williamson. Williams. An addition to the Ohio list. Previous captures have been recorded by Williamson (1932) for Indiana, Virginia, Georgia and South Carolina. This species was collected near the confluence of Fish Creek and the St. Joseph's River about one mile northeast of Edgerton, Ohio. Most specimens were swept down from the foliage of trees overhanging the river or were taken as they flew by me over the shallow water by dropping the net over them quickly. The following specimens were taken: 1 ♂ 8/28/45, 1 ♀ 9/21/45, 1 ♂ 8/1/46, 1 ♂ and 1 ♀ 9/3/46, 2 ♂ and 1 ♀ 9/5/46, 1 ♂ 9/8/46. No specimens were taken in 1947 or 1948 and it is believed that the colony may have been wiped out by too much collecting. They are readily distinguished in flight from *Gomphus spiniceps* by the brighter color of the yellow on the last abdominal segments.

14. *Gomphus lividus* Selys. Williams. Collected only at Nettle Creek near Nettle Lake. Several specimens were taken.

16. *Gomphus (Stylurus) plagiatus* Selys. Paulding, Williams. A single female was collected at Nettle Creek in Northwest Township, Williams County, on July 17, 1947. One male was captured at ripples in the Maumee River in Paulding County west of the Forder Bridge on August 5, 1947. This species had a very erratic flight on the Maumee, where its zigzag maneuvers distinguished it from the long straight sweeps of *Gomphus spiniceps*. Many hours were spent in securing these two males.

17. *Gomphus quadricolor* Walsh. Williams. Collected sparingly at Fish Creek.

18. *Gomphus spicatus* Hagen. Defiance, Williams. Common at Ladd's and Little lakes in Defiance County and at Mud Lake in Williams County.

19. *Gomphus (Stylurus) spiniceps* (Walsh). Paulding, Williams. Only one specimen was taken at the ripples on the Maumee River in Paulding County. Numerous specimens of this large trim species were taken from 1945 to 1948 at Fish Creek and the St. Joseph's River in Williams County. A few were taken in August, but the majority were taken in September. Some were swept down from the foliage of trees overhanging the river, but more were taken by dropping the net over them suddenly as they approached me in their low flight over the rippling water. Several were seen as they captured their prey and some were taken with prey, but by the time they were secured the prey was lost; often they plunged into the water after prey, and one was seen to plunge entirely under the surface. One habit repeatedly observed was that of dipping into the water two or three times in succession and then flying up to the higher branches of the trees. The females oviposited much like the other species of *Gomphus*. I have seen them ovipositing in early October and have taken this species later in the season than any other gomphine. Williamson's statement (1932), "A good series of *Stylurus spiniceps* has never been taken," will no longer apply as I have taken a series of more than 85 specimens and have at the present time 69 specimens in my collection. Some specimens have a reddish bloom on the thorax; this may have been caused by cyanide. Fresh specimens have a faint pinkish bloom on the

under side of the thorax but not on the sides or above. Most specimens appear to have changed color but little in drying.

20. *Gomphus vastus* Walsh. Defiance, Paulding. Common at the ripples on the Maumee River above the Forder Bridge.

21. *Gomphus ventricosus* Walsh. Defiance, Williams. Numerous specimens were collected along Fish Creek and the St. Joseph's River in 1946.

25. *Dromogomphus spoliatus* (Hagen). Henry. Kellicott's statement, "Common in northwestern Ohio along the Maumee River and its tributaries and the Ohio Canal" (1899, p. 73), still holds true in part. I have found it common along the Auglaize River but have failed to observe it along the St. Joseph's River. In August, 1945, I captured a male *Macromia taeniolata* a few seconds after it had been knocked into the water by one of these insects. It is easily taken at times and very wary at other times. It is a very interesting species. Many specimens were taken.

28. *Basiaeschna janata* (Say). Williams. A single specimen was taken near Mud Lake on May 5, 1948.

30. *Boyeria vinosa* (Say). Auglaize, Defiance, Paulding, Williams. I have spent afternoons in September along the St. Joseph's River at the mouth of Fish Creek when one or more of this species would be in sight almost constantly. It is fairly common along Lost Creek in Defiance County, and is uncommon or rare in Paulding County where only one specimen has yet been captured. On September 8, 1945, at Fish Creek I collected 3 males and let 5 escape in a period of 15 minutes (timed). The streams of Paulding County seem to be too muddy and sluggish for this species. I captured two specimens with their prey (*Hetaerina americana*) and saw them carry away this species on numerous occasions. One was once seen feeding on a *Calopteryx maculatum*.

31. *Anax junius* (Drury). Defiance, Fulton, Henry, Williams.

33. *Nasiaeschna pentacantha* (Rambur). Defiance. A male and female were collected along the Miami Extension Canal southwest of Defiance. Difficult to take. This species was seen (but not collected) in Paulding and Williams Counties.

34. *Epiaeschna heros* (Fabricius). Defiance, Williams. At various times in May and early June, females have been seen ovipositing in rotten logs and bits of wood lying in water in a swampy woods along the Miami Extension Canal in Defiance County. One was observed at different times to alight on a large rusty metal container and try to oviposit. One alighted on my wet boots and tried to oviposit. They were also seen ovipositing on the trunks of small trees well above the water line as well as in mud. Five were seen at one time, all ovipositing near each other on a small badly rotted log. This species was very common in 1943; it has not been so plentiful since. These giant darners were fairly common along a slough of Flatrock Creek in Paulding County in June, 1948. I captured only one, and couldn't help noticing how inconspicuous they were when they flew up from the ground, practically at my feet. One who was not interested in Odonata probably would not have noticed them.

35. *Aeshna clepsydra* Say. Williams. A total of 20 ♂ and 2 ♀ were taken at Mud Lake: 3 ♂ and 1 ♀ 8/22/48, 2 ♂ 8/24/48, 8 ♂ 9/3/48, 4 ♂ 9/16/48, 3 ♂ and 1 ♀ 10/1/48. This species was partial to a bed of yellow water lilies and pickerel weed on the east side of the lake. Both females were captured there, one while ovipositing and the other just after a male had seized her. The female taken on October 1 was very dark (almost entirely brown). The color pattern on the side of the thorax was faint but similar to that of all others collected. She was ovipositing by extending her abdomen into mud and water while perched on a fallen plant. Another female (not collected) was observed on an earlier date ovipositing in a small knob of wet mud projecting out of the water; there were no plants of any kind on the knob. The males have a faded blue appearance in flight, much lighter than *A. constricta* or *A. mutata*. One was seen about 10 feet up on a tree trunk, but none were flushed from weeds or shrubs as was the case with *A. mutata* in June.

36. *Aeshna constricta* Say. Defiance, Mercer, Williams. More than 70 specimens of this species were taken in 1943. Most of them were taken at a slough of Flatrock Creek in Benton Township, Paulding County; sweet flag (*Calamus*) was abundant there and the females oviposited in its tissues. The males seemed to be looking for females. The majority were taken in September. Some were taken on chilly days.

37. *Aeshna mutata* Hagen. Williams. Rather common at Mud Lake in June, 1948. A single male was taken on July 4; by that time they had nearly disappeared. The blue face and compound eyes add to the beauty of this species.

38. *Aeshna umbrosa* Walker. Auglaize, Defiance, Fulton, Paulding, Williams. Probably less common in Paulding County than any of the above named counties.

39. *Aeshna verticalis* Hagen. Mercer, Paulding, Williams. Not nearly as common as *A. constricta*.

44. *Macromia illinoiensis* Walsh. Paulding, Williams. Many specimens were taken at the ripples in the Maumee River above the Forder Bridge; the species was not observed in numbers elsewhere. I find this a difficult species to see in flight. Most specimens have been collected in the first half of August.

128. *Macromia pacifica* Hagen. Paulding. One female was taken along Flatrock Creek in Benton Township on August 14, 1943. The silky sheen of the alternating bands of golden yellow and rich brown on the abdomen make this a beautiful species in life.

45. *Macromia taeniolata* Rambur. Paulding. Kellicott's observation, "Common in the northwestern part of the state along the Maumee River" (1899, p. 87) still holds true. I have observed and collected it most commonly at favored places along the Auglaize River and its lagoons. Thus far I have not seen it along the St. Joseph's River. Its habit of remaining in trees on some days makes it appear scarce when the opposite is true. I have collected as many as 20 specimens in an afternoon. It is a large and beautiful insect that is not too easy to collect.

135. *Macromia wabashensis* Williamson. Defiance. This species is an addition to the Ohio list. It has previously been recorded only from Wells County, Indiana. A single male was taken June 17, 1944, at the Miami Extension Canal, southwest of Defiance near the Paulding County line. The costa of the wings is yellow to the tip and the wings are largely flavescent.

49. *Epicordulia princeps* (Hagen). Defiance, Paulding (not collected). Observed at Ladd's and Little lakes in Defiance County, and at Klinger's Gravel Pit in Paulding County. Four beautiful specimens were taken in one afternoon at Little Lake in 1947. In my opinion this species is one of our most beautiful insects.

50. *Tetragoneuria cynosura* (Say). Defiance, Paulding, Williams. I have not seen this species as abundant in Ohio as at some of the Indiana lakes, where it virtually swarms in some seasons.

134. *Somatochlora ensigera* Martin. Paulding. A new state record. On June 20, 1943, a female was taken along a dirt road about 40 rods from a ditch in Benton Township. All specimens since have been taken along ditches at some distance from woods. On July 9, 1948, 8 ♂ and 1 ♀ were taken from 5:00 to 6:00 P. M. along a ditch near my home. A female was taken from this ditch on August 16, 1947; she was easily taken by hand while she was hovering and ovipositing in about one-half inch of water. She was nearly concealed from above by grasses and sedges that arched over the narrow trench at the bottom of the ditch. I have found the female of *S. linearis* difficult to take with a large net while in the act of ovipositing; its erratic flight in deep shade contrasts sharply with the hovering flight of *S. ensigera* in sunlight.

133. *Somatochlora linearis* (Hagen). Defiance. Most of the 60 specimens at hand (57 ♂ and 3 ♀) were taken in Paulding County along little streams flowing through woods; these streams were well shaded and were dry except for occasional pools. By walking slowly in the bed of the stream and watching carefully, one can sweep some specimens from roots or dead branches overhanging the stream. The middle of August is an excellent time to collect them in this region. This species is more plentiful in Ohio than is generally believed.

54. *Perithemis tenera* (Say). Defiance, Putnam, Williams. On August 24, 1948, a pair was seen in copulo on a leaf of the yellow water lily at Nettle Lake in Williams County. Still in copulo, they flew down to the water where the male released the female but fluttered attentively near while she oviposited like a *Libellula*: after two or three minutes they coupled and flew up to the leaf of another lily. This procedure was repeated twice while I was about 10 feet away. Williamson states (1932, p. 36), "It remains for some sympathetic observer to record the sexual antics of *P. tenera*, the act of oviposition. . . ."

55. *Celithemis elisa* (Hagen). Defiance, Paulding, Putnam, Williams.

56. *Celithemis eponina* (Drury). Defiance, Henry, Paulding, Putnam, Williams.

57. *Celithemis monomelaena* Williamson. Williams. Two specimens were taken at Mud Lake, in 1947 and 1948.
60. *Ladona julia* (Uhler). Williams. A good series (58 specimens) was taken from May 23 to June 30, 1948, at Mud Lake. They were abundant and easily taken. The height of their abundance seemed to be about May 30. On June 30 only one was seen.
62. *Libellula (Holotania) cyanea* Fabricius. Defiance, Williams. Common at Little Lake in 1945; uncommon or rare since then. Common at Mud Lake in 1947 and 1948.
63. *Libellula (Holotania) incesta* Hagen. Defiance, Williams (seen, not collected). Common at Little Lake in 1945; uncommon since.
64. *Libellula (Holotania) luctuosa* Burmeister. Defiance, Putnam.
65. *Libellula (Plathemis) lydia* Drury. Hancock, Putnam.
66. *Libellula (Neotetrum) pulchella* Drury. Henry, Hancock, Paulding.
68. *Libellula (Eolibellula) semifasciata* Burmeister. Defiance, Van Wert, Williams.
69. *Libellula (Holotania) vibrans* Fabricius. Defiance, Paulding. This species was observed in numbers at woodland pools in Paulding County and at swampy woods beside the Miami Extension Canal in Defiance County in 1943; numerous beautiful specimens taken. It is easily taken on some days and very hard to secure at other times. Several females were noted ovipositing by dipping the tip of the abdomen in water in the shade while one or more males fluttered above. Only one specimen has been taken since 1943. I have yet to see this species at a lake; woodland pools and swampy places seem to be its habitat.
70. *Sympetrum ambiguum* (Rambur). Defiance, Henry, Mercer. Many specimens were taken of this green-faced species.
71. *Sympetrum corruptum* (Hagen). Paulding. This species, the largest of our Sympetrum, was taken at artificial ponds. Several were taken in late July and early August at a waste pool of the Paulding Sugar Company at Paulding. It was taken sparingly at a large abandoned tile pond at Miller City in Putnam County. It is far more wary than our other Sympetrum. Some specimens looked like *Pantala flavescens* while flying.
72. *Sympetrum obtusum* (Hagen). Defiance, Henry, Mercer, Paulding.
73. *Sympetrum rubicundulum* (Say). Henry, Hancock, Van Wert.
74. *Sympetrum semicinctorum* (Say). Defiance, Paulding. All specimens from Defiance County were taken at a slough of Lost Creek on the Bricker Stock Farm northeast of Hicksville. Several were taken in 1948 at a pool formed by an artesian well in Brown Township, Paulding County. This pool has already been ruined by drainage.
76. *Sympetrum vicinum* (Hagen). Defiance, Putnam, Williams.
77. *Leucorrhinia intacta* (Hagen). Defiance, Fulton, Hancock, Paulding, Williams.
78. *Pachydiplax longipennis* (Burmeister). Fulton, Hancock, Putnam, Williams.
79. *Erythemis simplicicollis* (Say). Defiance, Hancock, Paulding, Putnam.
80. *Pantala flavescens* (Fabricius). Paulding, Williams (seen, not collected). Difficult to capture.
81. *Pantala hymenaea* (Say). This species tires quickly in a stiff breeze. Many specimens were collected in Paulding County in 1943.
82. *Trapezostigma carolina* (Linnaeus). Williams (seen, not collected).
83. *Trapezostigma lacerata* (Hagen). Defiance, Hancock, Putnam, Williams. Common.
84. *Trapezostigma onusta* (Hagen). Paulding. Two males and one female were taken on July 23, 1948, at a waste pool of the Paulding Sugar Company at Paulding. The basal fourth of the hind wings was brown; the hamules of the males were much longer than the genital lobes. The vulvar lamina of the female was bilobed for the entire length. All were somewhat teneral; otherwise I probably would not have been able to capture them.
85. *Calopteryx aequabile* Say. Williams. Three males were captured and one teneral seen at Nettle Creek on June 8, 1948. A few days later another search was made for them at the same station but none were seen.
87. *Calopteryx maculatum* (Beauvais). Defiance, Fulton. This species is usually rather common along Fish Creek in Williams County in early September, after it has disappeared elsewhere in this area.
88. *Hetaerina americana* (Fabricius). Defiance, Fulton, Henry, Mercer, Williams.

89. *Hetaerina titia* (Drury). Williams. Common in September at Fish Creek. On September 8, 1945, a female was observed for perhaps thirty seconds while she crawled and oviposited on a board about two inches under water at Fish Creek. In September, 1946, a male and female in tandem alighted on a rotten stump in the St. Joseph's River near me. The female began backing down into the water, and when the tip of the abdomen of the male touched the water he released her; she then disappeared from sight. Several minutes later I rolled the stump over and found the female still ovipositing in the stump about four inches under water.

91. *Lestes congener* Hagen. Paulding, Williams. Fairly common in autumn.

92. *Lestes disjunctus* Selys. Several males were taken at a slough of Flatrock Creek in Benton Township, Paulding County, on April 21, 1946.

94. *Lestes forcipatus* Rambur. Defiance, Paulding, Williams.

95. *Lestes inaequalis* Walsh. Defiance, Williams. Taken in small numbers at Little Lake in Defiance County and at Mud Lake in Williams County.

96. *Lestes rectangularis* Say. Defiance, Hancock, Henry.

97. *Lestes dryas* Kirby. Defiance, Hancock, Shelby.

98. *Lestes unguiculatus* Hagen. Defiance, Henry, Mercer, Williams.

99. *Lestes vigilax* Hagen. Williams. Several specimens were taken at Mud Lake in 1948.

100. *Argia apicalis* (Say). Henry, Williams.

102. *Argia moesta* (Hagen). Fulton, Henry, Mercer, Paulding.

103. *Argia sedula* (Hagen). Auglaize, Defiance, Paulding, Van Wert, Williams. Taken in small numbers, usually but one specimen a day.

104. *Argia tibialis* (Rambur). Defiance, Fulton, Paulding, Van Wert.

105. *Argia violacea* (Hagen). Defiance, Fulton.

108. *Nehalennia irene* (Hagen). Paulding, Williams.

137. *Coenagrion resolutum* (Hagen). Paulding. A new state record. A single male was taken in Benton Township at a slough of Flatrock Creek on July 16, 1945.

109. *Chromagrion conditum* (Hagen). Fulton, Paulding, Williams.

110. *Enallagma antennatum* (Say). Fulton, Henry, Putnam, Van Wert, Williams.

111. *Enallagma aspersum* (Hagen). Defiance, Williams.

112. *Enallagma boreale* Selys. Defiance, Williams. Four males of this species were collected: 1 ♂ Miami Extension Canal (Defiance Co.), 6/19/46; 1 ♂ 5/28/48 and 2 ♂ 5/30/48, Mud Lake (Williams Co.).

129. *Enallagma basidens* Calvert. Defiance, Putnam, Van Wert, Williams. Well distributed over this area, especially at gravel pits.

114. *Enallagma civile* (Hagen). Auglaize, Henry, Mercer, Putnam, Williams.

117. *Enallagma ebrium* (Hagen). Defiance, Henry, Williams.

118. *Enallagma exsulans* (Hagen). Fulton, Henry, Mercer, Williams.

119. *Enallagma geminatum* Kellicott. Defiance, Williams.

120. *Enallagma hageni* (Walsh). Paulding, Williams.

121. *Enallagma signatum* (Hagen). Defiance, Mercer, Putnam.

122. *Enallagma traviatum* Selys. Defiance, Williams.

123. *Enallagma vesperum* Calvert. Defiance, Williams. Abundant at Little Lake, Defiance County, in late afternoons in the summer of 1945. Scarce at Mud Lake in Williams County, in 1948.

124. *Ischnura posita* (Hagen). Defiance, Putnam, Williams.

126. *Ischnura verticalis* (Say). Fulton, Hancock, Putnam, Williams.

127. *Anomalagrion hastatum* (Say). Paulding.

The collections of the writer in northwestern Ohio have extended the seasonal range of many species in the state. The new late dates are given below (the species are numbered as in the preceding list).

2. *Gomphoides obscura* (Rambur). Sept. 1, 1945.

3. *Hagenius brevistylus* Selys. Sept. 1, 1945.

7. *Gomphus (Stylurus) amnicola* Walsh. Sept. 3, 1946.

10. *Gomphus fraternus* (Say). Aug. 10, 1947.

11. *Gomphus fuscifer* Hagen. July 8, 1945.

12. *Gomphus grasinellus* Walsh. Aug. 5, 1943.
16. *Gomphus (Stylurus) plagiatu*s Selys. Aug. 5, 1947.
19. *Gomphus (Stylurus) spiniceps* (Walsh). Oct. 7, 1945.
21. *Gomphus ventricosus* Walsh. July 12, 1946.
25. *Dromogomphus spoliatus* (Hagen). Sept. 27, 1945.
30. *Boyeria vinosa* (Say). Oct. 1, 1944.
33. *Nasiaeschna pentacantha* (Rambur). July 8, 1943.
36. *Aeshna constricta* Say. Oct. 10, 1943.
44. *Macromia illinoiensis* Walsh. Sept. 4, 1945.
128. *Macromia pacifica* Hagen. Aug. 14, 1943.
45. *Macromia taeniolata* Rambur. Sept. 1, 1945.
133. *Somatochlora linearis* (Hagen). Aug. 24, 1945.
64. *Libellula (Holotania) luctuosa* Burmeister. Sept. 21, 1945.
65. *Libellula (Plathemis) lydia* Drury. Sept. 18, 1942.
66. *Libellula (Neotetrum) pulchella* Drury. Sept. 5, 1943.
68. *Libellula (Eolibellula) semifasciata* Burmeister. Aug. 9, 1943.
69. *Libellula (Holotania) vibrans* Fabricius. Sept. 10, 1943.
72. *Sympetrum obtrusum* (Hagen). Sept. 27, 1945.
73. *Sympetrum rubicundulum* (Say). Oct. 7, 1945.
76. *Sympetrum vicinum* (Hagen). Nov. 18, 1945.
87. *Calopteryx maculatum* (Beauvais). Sept. 21, 1945.
88. *Hetaerina americana* (Fabricius). Oct. 18, 1944.
89. *Hetaerina titia* (Drury). Oct. 1, 1944.
91. *Lestes congener* Hagen. Nov. 1, 1944.
94. *Lestes forcipatus* Rambur. Sept. 15, 1943.
96. *Lestes rectangularis* Say. Oct. 10, 1945.
98. *Lestes unguiculatus* Hagen. Sept. 26, 1948.
100. *Argia apicalis* (Say). Oct. 1, 1944.
102. *Argia moesta* (Hagen). Oct. 1, 1944.
104. *Argia tibialis* (Rambur). Sept. 27, 1945.
105. *Argia violacea* (Hagen). Sept. 21, 1945.
129. *Enallagma basidens* Calvert. Sept. 21, 1945.
127. *Anomalagrion hastatum* (Say). Sept. 3, 1944.

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