

Notes on the Odonata of the Tippecanoe River State Park, Pulaski County, Indiana¹

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The general dragonfly fauna of Indiana has been thoroughly investigated by several authors, notably E. B. Williamson and B. E. Montgomery. However, nearly complete faunal lists for limited localities and habitats, representing specimens collected over a greater part of the season, are lacking for many areas. Published records of Odonata from Pulaski County (Montgomery 1937, 1941) list only 13 species, indicating that extensive collections from that region are not recorded in the literature. Accordingly, the author, while working with the Lake and Stream Survey of the Indiana Department of Conservation in the Tippecanoe River State Park during the summers of 1943, 1944 and 1945, collected and made observations on the odonate fauna of that locality. Specimens of 48 additional species were collected bringing the total for Pulaski County to 61.

The Tippecanoe River where it flows through the State Park averages, in times of normal water, 100 feet wide and three feet deep, although occasional "holes" at sharp bends may reach depths of nine or ten feet. Since its principal sources are lakes, the river has a relatively constant level and the water is generally quite transparent. Unusually heavy and widespread rainfalls were observed to bring about rises of as much as five feet with a corresponding considerable increase in turbidity. The fall of the river at this point is from 12 to 16 inches per mile and the current speed in midstream about two feet per second. Much of the river bottom is composed of shifting sand, but many of the shallower, swifter sections have gravel and boulder-covered bottoms. In shallow water, on favorable bottom, dense stands of *Vallisneria* and various species of *Potamogeton* develop. The river has evolved a series of broad meanders in this part of its course which has resulted in the formation of numerous quiet backwaters where heavy siltation occurs during periods of high water. The piles of drift that have accumulated about the many trees that have fallen into the stream form an important environmental factor. In addition, the matted masses of roots that hang into the water from the steeper banks offer situations suitable for many climbing aquatic invertebrates.

In the general habitat of the river valley, must be included those abandoned river channels containing water that have more or less lost connection with the river itself. During floods these are, of course, continuous with the river, but for a greater part of the summer they are completely isolated from the river and support independent fauna

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and flora. One such lagoon or bayou is to be found at Group Camp 1. Locally known as the Hoch Bayou, this body of water is a typical oxbow some 1300 feet long and 75 feet wide with a maximum depth of about five feet. Being well shaded in its shallower portions it supports only small stands of Nuphar and Nymphaea, but during favorable seasons luxuriant growths of Elodea and Cabomba develop. Unless removed by occasional high water, blankets of floating filamentous algae and Lemna form a dense surface mat.

Certain species of Odonata may be pointed out at being characteristic of these two environments. Among the zygopterans the following species might be listed as being typical of the river proper: *Calopteryx maculata*, *Hetaerina americana*, *Argia apicalis*, *A. sedula*, *A. moesta*, *A. tibialis*, and *Enallagma exsulans*. Of the anisopterans, the gomphines dominate the river. Those most commonly seen included: *Progomphus obscurus*, *Hagenius brevistylus*, *Gomphus lineatifrons*, *G. fraternus*, *G. quadricolor*, *G. vastus*, *Stylurus amincola*, *S. spiniceps*, and *Dromogomphus spinosus*. Three aeschinines were of frequent occurrence on the river: *Boyeria vinosa*, *Basiaeschna janata*, and *Nasiaeschna pentacantha*. *Macromia illinoensis* was the only libellulid commonly observed on the open river, but other species, among them *Holotania luctuosa* and *Neotetrum pulchellum*, were always to be found about quiet backwaters. *Sympetrum rubicundulum* was seen abundantly in woods and fields adjacent to the river; other libellulines occurred similarly, but not in great numbers.

The Hoch Bayou at Group Camp 1 supported a typical pond fauna including: *Enallagma geminatum*, *E. signatum*, *Ischnura posita*, *I. verticalis*, *Anax junius*, *Tetragoneuria cynosura*, *Holotania luctuosa*, *Neotetrum pulchellum*, *Plathemis lydia*, *Perithemis tenera*, *Erythemis simplicicollis*, and *Pachydiplax longipennis*.

The author is greatly indebted to Dr. B. E. Montgomery of Purdue University since he identified or verified some specimens of each species recorded. Mr. Paul Thompson who worked with the author on the Lake and Stream Survey in 1945 collected many of the specimens listed below, three of which were new to the locality, having never been taken by the author. The periods over which collections and observations were made extended from July 25 to August 18, 1943; from April 26 to August 12, 1944; and from May 7 to August 26, 1945. Collecting was done along the river in the vicinity of Group Camp 1 and for about two miles downstream in all three summers, also along about a half mile of river just north of the Shelter House at the Park Picnic Area in 1945. Collections were made about the Hoch Bayou in all three summers and about some of the bayous in the vicinity of the Shelter House in 1945. A total of 691 specimens referable to 59 species are listed. Most of these have been retained by the author; however, some are now in the collection of Dr. B. E. Montgomery, while others of the commoner species which were damaged or lacking in data have been discarded. Records of the discarded material have been included in the list in order to give a more complete picture of seasonal distribution.

Annotated List of Species

1. *Calopteryx aequabile* Say. 1 ♂, vii.4.44 (sight record).

The single specimen of this species was seen at a weedy riffle on the river. Identification was positive since the specimen was nearly taken by hand.

2. *C. maculata* (Beauvois). 1 ♀, vii.2.45; 1 ♂, vii.27.43; 2 ♂ 3 ♀, vii.28.43; 1 ♂, viii.2.43; 1 ♀, viii.12.43.

First observed in the middle of June, this species was quite abundant by early July and remained so until observations ceased in late August. Exuviae were found on trees as high as six feet above the river and an equal distance back from the bank. Adults were most frequently observed about grass or bushes along the water's edge. Oviposition occurred on floating masses of twigs and stems.

3. *Hetaerina americana* (Fabricius). 1 ♂ (teneral), vi.27.45; 1 ♂ (teneral) 2 ♀, vi. 28.45; 4 ♂ (3 teneral) 2 ♀, vii.2.45; 1 ♂ (teneral) 1 ♀, vii.3.45; 4 ♂ 4 ♀, vii.5.44; 1 ♂ 3 ♀, vii.7.44; 1 ♀, vii.11.45; 1 ♂, vii.17.45; 1 ♂ (teneral) 1 ♀, vii.19.45; 3 ♂ 1 ♀, vii.27.43; 1 ♂ (teneral) 3 ♀, vii.28.43; 1 ♂, vii.28.44; 1 ♂ (teneral) 1 ♀, vii.29.43; 1 ♂ 1 ♀, vii.30.43; 1 ♀, vii.31.43; 1 ♂ 1 ♀, viii.1.43; 2 ♂ (1 teneral) 2 ♀, viii.10.43.

A common species, first observed in numbers in late June. The adults of both sexes congregate about willows that hang over into fast water, about brush that emerges from fast water, and in grass at the very edge of the water.

4. *Lestes disjunctus* Selys. 1 ♂ 1 ♀, vii.28.44.

5. *L. forcipatus* Rambur. 2 ♀, vii.28.43.

6. *L. inaequalis* Walsh. 1 ♂ 1 ♀, vii.11.45; 1 ♀, vii.28.43.

7. *L. rectangularis* Say. 1 ♂, vii.2.45; 1 ♂ 1 ♀, vii.8.45; 7 ♂, vii.10.45; 2 ♂, 5 ♀, vii.11.45; 1 ♂, vii.13.44; 1 ♀, vii.19.45; 1 ♂, vii.20.45; 1 ♂, vii.28.45.

8. *L. dryas* Kirby. 1 ♀, vii.11.45.

9. *L. unguiculatus* Hagen. 1 ♀, vii.7.44; 1 ♀, vii.19.45; 8 ♂ 6 ♀, vii.27.43; 6 ♂, viii.23.45.

The six species of *Lestes* recorded above were all taken in grass or bushes within a few hundred feet of the river or one of the bayous. *L. unguiculatus* and *L. rectangularis* were the only species that were at all common. The latter seemed to prefer the shade of wooded areas along the river while *L. unguiculatus* was more often seen in clearings.

10. *Argia apicalis* (Say). 1 ♀, vii.25.43; 3 ♂, vii.26.45; 6 ♂ 2 ♀, vii.28.44; 2 ♂, 4 ♀, vii.29.43; 1 ♀, vii.30.43; 1 ♂, viii.10.43; 3 ♂ 1 ♀, viii.26.45.

The habits of this species are similar to those of the much more abundant *A. tibialis*. It did not appear commonly, until late July and maintained only a moderate abundance until observations ceased in late August.

11. *A. moesta* (Hagen). 1♂, vii.26.45; 8♂, vii.28 to viii.5.44; 1♀, vii.29.43; 2♂, undated 1944.

This *Argia* differs in habits from the other common species recorded. It was most often encountered flying along a few inches above the water in midstream and showed little tendency to be gregarious. While of moderate abundance, it was relatively difficult to capture.

12. *A. sedula* (Hagen). 1♀ (teneral), vii.20.45; 2♂, vii.26.43; 2♂, vii.27.43; 3♂ 7♀, vii.27 to viii.3.44; 1♀, vii.29.43; 1♂, viii.12.43; 2♂ 1♀, viii.26.45.

The habits of *A. sedula* are similar to those of *A. apicalis*. It was found over the same seasonal range as that species but somewhat less commonly.

13. *A. tibialis* (Rambur). 4♂ (3 teneral), vi.20.45; 1♂ 1♀, vi.23.45; 4♂ 3♀, vi.26.45; 1♂ 1♀, vi.28.45; 3♀, vii.2.45; 3♂ 4♀, vii.3.45; 5♂ 1♀, vii.6.44; 3♂ 1♀, vii.8.45; 1♂ 2♀, vii.11.45; 2♂ 2♀, vii.19.45; 2♂, vii.27.43; 9♂ 11♀, vii.27 to viii.3.44; 2♂ 2♀, vii.28.43; 1♂, viii.2.43; 1♂, viii.10.43; 1♂, viii.26.45.

A. tibialis was the first species of this genus to emerge, appearing shortly after mid-June and becoming exceedingly abundant by the first week in July. Large groups of mating and ovipositing pairs were observed throughout July and into August. These aggregations were always found where quantities of floating debris had been trapped within drifts, usually in moderate current.

14. *A. violacea* (Hagen). 1♂, vii.31.43.

Although watched for rather carefully, this species was taken only once and must be considered rare for this locality.

15. *Enallagma antennatum* (Say). 1♀, vii.10.45.

The single specimen recorded was collected at the Picnic Area by Paul Thompson.

16. *E. exsulans* (Hagen). 1♂, 1♀, vi.23.45; 1♂, vi.27.45; 1♂ (teneral), vii.1.45; 2♂ 1♀, vii.2.45; 1♂, vii.7.44; 5♂ 1♀, vii.11.45; 1♂, vii.11.44; 2♂ 2♀, vii.13.44; 3♀, vii.19.45; 1♂, vii.28.43; 5♂ 3♀, vii.28 to viii.5.44; 1♂, viii.1.43.

Quite abundant both on the river and the Hoch Bayou throughout a rather long flying season from late June through August

17. *E. geminatum* Kellicott. 3♂ 1♀, vii.28.43.

The specimens recorded were taken on the Hoch Bayou where this species was not common.

18. *E. hageni* (Walsh). 1♂, vii.10.45; 1♂, undated 1945.

One specimen of this species was collected along one of the bayous near the Shelter House by Paul Thompson; the undated one by the author at the Hoch Bayou.

19. *E. signatum* (Hagen). 2♂ 2♀, vii.28.44; 1♀, viii.12.43.

A fairly common species on the Hoch Bayou and occasionally seen over quiet backwaters of the river.

20. *Nehalennia irene* Hagen. 1♀, vii.11.45.

Apparently quite scarce. A single specimen collected in 1944 has been lost. The one recorded above was caught in grass along the river.

21. *Chromagrion conditum* (Hagen). 2♂, v.28.44.

Both of the above specimens were collected by I. Owen Foster Jr. along one of the ditches which flank the road leading to Group Camp 1. Although probably not a part of the fauna of the river or its flood plain, this species is here included because of the scarcity of Indiana records of it.

22. *Ischnura posita* (Hagen). 2♂, v.26.44; 1♂ 1♀ (1♀ teneral), v.26.45; 2♂, .27.45; 1♂ 1♀, vii.28.44; 1♂, vii.29.43.

A rather uncommon species, collected in grass along the river and about the Hoch Bayou.

23. *I. verticalis* (Say). 1♀, v.24.44; 3♂ 3♀, v.25.44; 1♀, v.26.44; 1♂ (teneral), v.26.45; 1♂ 1♀ (both teneral), v.27.45; 1♀, vii.11.44; 1♂, vii.11.45; 1♂ 1♀, vii.26.43; 1♂ 1♀ (♀ teneral), vii.28.43; 4♂ 3♀, vii.28.44; 3♂ 2♀, vii.29.43.

A very abundant species along the river banks and around all bayous visited.

24. *Progomphus obscurus* (Rambur). 2♀ (tenerals), vii.1.45; 2♀, vii.2.45; 1♂ vii.3.45; 1♂ 1♀, vii.5.44; 1♀, vii.18.44; 1♂, vii.18.45; 1♂, vii.20.44.

This midsummer gomphine was moderately common. It was often observed cruising up and down the river a few inches above the water or resting on sand bars.

25. *Hagenius brevistylus* Selys. 1♂ (emerging) 1♀, vi.21.45; 1♀, vi.23.45; 1♂, vi.27.45; 1♂, vii.1.45; 1♀, vii.3.45; 1♀, vii.6.44; 1♀, vii.8.45; 1♂, vii.11.44; 1♀, vii.11.45; 1♂, vii.18.45; 1♂, vii.27.43; 1♂, viii.2.43; 1♂, viii.6.43; 1♂, viii.9.43; 2♂, viii.10.43; 1♂, viii.12.43.

Hagenius was one of the few gomphines which could be seen almost every day all summer long. Despite its size and flying ability it was not very difficult to take, partly because of its fearlessness and partly because of its habit of flying a "beat" with definite perches along it. A female of this species was observed ovipositing late in the afternoon of July 14, 1945. She faced a bank of the stream which rose abruptly about four feet from the water. The bank was hung with a mass of roots and rootlets of a nearby silver maple. She would hover for an instant a few feet from the bank and about a foot above the water, then flying toward the bank and dropping, she would dip her abdomen at the water's edge, rise a few feet and return to her original position

without turning around. This action was repeated several dozen times without interruption.

26. *Ophiogomphus rupinsulensis* (Walsh). 1 ♀ (emerging), vi.1.45; 1 ♂ (teneral), vi.9.45.

The emerging female was taken on a root a few inches above the water about nine a. m. The teneral male was floating down midstream, helpless. Besides these recorded specimens, one adult was seen in mid-June of 1945. A rather rare species for the locality.

27. *Erpetogomphus designatus* Hagen. 1 ♀ (emerging), vii.11.45.

The single specimen taken was found by Paul Thompson at his camp near the Shelter House. The mature nymph was ascending some roots along the river bank. Only one additional specimen was seen in late July hence this too must be considered a rare species.

28. *Gomphus lineatifrons* Calvert. 1 ♂, vi.4.44; 1 ♂, vi.19.45; 1 ♀, vi.21.45; 3 ♂ 1 ♀, vii.1.45; 3 ♀, vii.2.45; 1 ♂ 2 ♀, vii.4.45; 1 ♂ 1 ♀, vii.5.45; 1 ♀, vii.6.44; 1 ♂, undated 1944.

A very common member of the genus *Gomphus* from early June to mid-July, seen occasionally over the Hoch Bayou. A female captured July 2, 1945, was in the act of eating a specimen of *Progomphus obscurus*.

29. *G. fraternus* (Say). 2 ♂ (1 teneral) 1 ♀ (teneral), v. 28.44; 1 ♂, vi.1.44; 1 ♂ (teneral), vi.10.45; 1 ♂, vi.12.45; 2 ♀ (tenerals), vi.14.45; 1 ♂, (teneral), vi.15.45; 2 ♂ (teneral), vi.18.45; 1 ♀, vi.20.44; 1 ♀, vi.21.45; 1 ♂, vi.22.44; 1 ♂, vi.22.45; 1 ♂ 1 ♀, vii.1.45; 1 ♀, vii.3.45; 1 ♂, vii.8.45; 1 ♂, vii.25.45; 1 ♀, vii.30.44; 1 ♂, undated 1944.

The commonest gomphine observed, with a flight season extending from late May through late July. A peak of abundance was reached in the first week of July when many copulating pairs were seen in a meadow by the river.

30. *G. lividus* Selys. 1 ♂, v.24.44; 1 ♂ (teneral), v.27.45; 2 ♂ 1 ♀, v.28.44.

A rather scarce species.

31. *G. quadricolor* Walsh. 3 ♂ (tenerals), v.24.44; 1 ♀, v.28.44; 1 ♂, vi.24.44; 1 ♂ (teneral), vi.2.45; 1 ♀, vi.3.44; 2 ♂, 1 ♀, vi.4.44; 1 ♂ 3 ♀ (all tenerals), vi.6.45; 1 ♂, vi.20.44; 2 ♂ 1 ♀, vi.21.44; 1 ♀, 22.44; 1 ♀, vi.28.45; 1 ♀, vii.1.45; 1 ♀, vii.3.45; 1 ♀, vii.4.45; 1 ♀, vii.6.45.

Very common in late May and early June.

32. *G. vastus* Walsh. 1 ♀, vii.1.45; 1 ♀, vii.2.45; 1 ♀, vii.3.45; 1 ♀, vii.4.45; 1 ♀, vii.6.44; 1 ♀ vii.8.45.

Not a very common species with a rather limited seasonal range.

33. *G. ventricosus* Walsh. 1 ♀ (teneral), vi.6.45; 1 ♀ (teneral), vi. 8.45; 1 ♀, vi.27.45; 1 ♀, vii.13.45.

A rather scarce species, but apparently one with a rather long seasonal range.

34. *Stylurus amnicola* (Walsh). 1♂, vi.27.45; 1♂ (teneral), vi.28.45; 1♂, vi.30.45; 3♂ 3♀, vii.2.45; 1♂ 2♀, vii.3.45; 3♀ (tenerals), vii.5.45; 1♀, vii.6.45; 1♂ 1♀, vii.9.45; 2♂, vii.10.45; 1♂, vii.13.45.

Although first recorded in the state from Knox County in 1924 (Montgomery 1925) and taken in but two additional localities (Tippecanoe County, Montgomery 1937 and Warren County, Montgomery 1941) since that time, this species was one of the most abundant gomphines encountered on the river.

35. *S. spiniceps* (Walsh). 1♂ (emerging) 2♀ (1 emerging, 1 teneral), vii.23.45; 1♂ (teneral), vii.25.45; 1♀ (teneral), vii.no date.45; 1♂, viii.no date.44; 1♀, viii.27.45.

This gomphine was the last to appear in the summer and was never very common.

36. *Dromogomphus spinosus* Selys. 1♂ 1♀ (both teneral), vi.21.45; 1♂ (teneral), vi.23.45; 1♂ (teneral), vi.27.45; 1♂ (teneral), vi.28.45; 2♂ (1 teneral), vii.3.45; 1♀, vii.5.45; 1♂, vii.6.44; 1♂, vii.7.44; 1♂, vii.9.44; 1♂, vii.20.44; 1♀, vii.22.45; 1♀ (teneral), vii.27.45; 3♂, viii.10.43; 2♂, viii.12.43; 1♀, viii.23.45.

A very common species first observed in late June and still flying when observations ended in late August.

37. *Boyeria vinosa* (Say). 1♂, vii.19.45; 1♂, vii.29.44; 1♀, viii.16.45; sight record, ix.20.45.

This species is much more common than the above records show. It emerges in late July and flies at least until late September. All individuals observed were flying "beats" a foot or two above the water along the edges of the river, usually in late afternoon or evening.

38. *Basiaeschna janata* (Say). 1♀ (teneral), v.25.44; 1♂ (teneral), v.26.44; 1♀, v.28.44; 1♂, vi.1.45; 2♂, vi.2.44; 1♂ (teneral), vi.7.45; 1♂, vi.10.45; 1♂, vi.29.45.

A fairly common species over the river and the Hoch Bayou, but seldom seen after July 1.

39. *Anax junius* (Drury). 1♀, vi.19.45; 1♀, vi.20.45; sight record, ix.20.45.

Although seen frequently over the Hoch Bayou and fields adjacent to the river, this species was taken only once on the river proper. The female collected June 20, 1945, was taken on a grapevine a few inches above swift water.

40. *Nasiaeschna pentacantha* (Rambur). 2♂ 1♀, vi.2.44; 1♂ 3♀, vi.3.44; 1♂, vi.19.45; 1♂ 2♀, vi.27.45; 1♀, vii.2.45; 1♀, vii.26.45.

This species followed *Basiaeschna* in emergence by a week or ten days and like that species was seen hawking over both the river and bayou. It was fairly common in both habitats in mid-June and a few were seen as late as mid-August. The female captured July 2, 1945, was eating a specimen of *Gomphus vastus*.

41. *Macromia illinoiensis* Walsh. 1 ♀ (emerging), vi.10.45; 1 ♀ (emerging), vi.14.45; 1 ♂ 1 ♀ (both teneral), vi.21.45; 1 ♀, vi.29.45; 1 ♀ (emerging), vii.2.45; 1 ♀ (teneral), vii.5.44; 1 ♀, viii.1.45; 1 ♂, viii.14.45; 1 ♀, viii.17.45.

Common from mid-June through August but difficult to capture. Females were frequently seen cruising up and down the river a foot or so above the middle of the stream occasionally dipping their abdomens. Individuals of both sexes often patrolled the paths about the camp, more than a quarter of a mile from the river.

42. *Epicordulia princeps* (Hagen). 1 ♂, vii.3.45.

A few specimens were seen about the parking lot at the Shelter House by Paul Thompson, but only one was taken. They evidently had come there to hunt from a nearby bayou.

43. *Tetragoneuria c. cynosura* (Say). 1 ♂ (teneral), v.24.44; 1 ♂, v.26.44; 4 ♂ (1 teneral) 1 ♀, v.28.44.

This libelluline was very common over the Hoch Bayou early in the season, but after mid-June its place in the fauna seemed largely taken by *Pachydiplax longipennis*.

44. *T. c. simulans* Muttkowski. 1 ♀, v.28.44; 1 ♂, vi.1.44.

This form was taken flying with typical *T. c. cynosura* over the Hoch Bayou.

45. *Holotania luctuosa* (Burmeister). 1 ♂ (teneral), vii.2.45; 1 ♂, vii.5.44; 2 ♀ (both teneral), vii.7.45; 4 ♂, vii.27.43; 1 ♀, viii.1.43; 2 ♀, viii.2.43.

Very abundant over the bayous and quieter parts of the river.

46. *H. vibrans* (Fabricius). 1 ♀, viii.9.43.

The single specimen was taken over a meadow adjacent to the river.

47. *Eolibellula semifasciata* (Burmeister). 1 ♂, vii.30.43.

Taken in the same habitat as the preceeding species.

48. *Neotetrum pulchellum* (Drury). 2 ♀, v.25.44; 1 ♂, v.28.44; 1 ♂ 1 ♀, vi.3.44; 1 ♂, vii.4.45; 1 ♂, vii.5.45; 1 ♂ 1 ♀, vii.18.45; 1 ♂, vii.30.43.

Very common over the bayous and quiet parts of the river.

49. *Plathemis lydia* (Drury). 1 ♀, v.24.44; 1 ♂, v.28.44; 1 ♂ 1 ♂, vi.1.44; 1 ♂, vi.22.45; 1 ♂, vi.27.5; 1 ♀, vii.2.45; 1 ♀, vii.5.45; 1 ♂, vii.11.44; 1 ♀, viii.1.43; 1 ♂ ♀, viii.2.43; 1 ♂ 1 ♀, viii.5.43.

A very common species on meadows along the river, about the bayous and still parts of the river. Often seen about the paths and buildings at the camp.

50. *Perithemis tenera* (Say). 1 ♂, vii.28.43; 1 ♂, vii.28.44; 1 ♀, vii.29.44; 3 ♂, vii.31.43.

Not very common over the Hoch Bayou and only occasional over backwaters along the river.

51. *Erythemis simplicicollis* (Say). 1♂, vii.6.44; 1♂, vii.26.43; 1♀, vii.29.44; 1♀, viii.1.43; 1♀, viii.10.43.

Moderately common, particularly over grassy clearings along the river.

52. *Sympetrum ambiguum* (Rambur). 1♀ (teneral), vii.4.45; 1♀, vii.8.45; 1♂, viii.23.45 (W. side).

Rather rare but widespread. The July 4 specimen was taken at the Picnic Area, the July 8 specimen at Group Camp 1, and the August 23 specimen in a swampy area in the northwest corner of the park.

53. *S. obtrusum* (Hagen). 1♂, vi.30.45; 1♂, vii.2.45; 1♀, vii.9.45; 1♀, vii.13.45; 1♂, vii.29.44; 1♀, viii.22.45; 1♂, viii.23.45 (W. side).

Not common, sharing the same habits as *S. rubicundulum*.

54. *S. rubicundulum* (Say). 1♀, vi.21.44; 3♂ 9♀ (tenerals), vi.30.45; 2♂ 5♀ (3 teneral), vii.1.45; 2♂ (teneral) 1♀ (teneral), vii.2.45; 2♀, vii.4.45; 1♂ 4♀, vii.5.45; 3♂ 2♀, vii.6.44; 3♀, vii.6.45; 2♂ (tenerals) 3♀ (2 tenerals), vii.8.45; 1♂ 2♀ (1 teneral), vii.10.45; 1♂ 4♀ (1 teneral), vii.11.45; 1♂ 5♀, vii.13.45; 2♂ 1♀, vii.19.45; 1♂, vii.26.44; 1♀, vii.28.43; 1♂, vii.28.44; 1♀, vii.29.43; 1♂, vii.29.44; 1♀, vii.30.44; 1♀, viii.no date.44; 9♂ 4♀, viii.23.45 (W. side).

This species was abundant everywhere, often quite far from water; it was most often taken, however, on bushes about the edges of fields and over grassy areas.

In the series collected, two specimens (1♀, vii.8.45 and 1♀, vii.30.44) very definitely fitted the description of the form *assimulatum*. Ten other specimens, six males and four females, showed more or less tendency toward *assimulatum* in their wing coloration.

55. *S. vicinum* (Hagen). 1♀, vii.10.45; 2♀, vii.28.44.

Rare, at least during the periods when collections were made.

56. *Pachydiplax longipennis* (Burmeister). 3♂ 1♀, vi.1.45; 1♂, vi.20.44; 1♂, vi.21.44; 1♀, vi.22.44; 1♀, vii.2.45; 1♀, vii.8.45; 2♀, vii.26.43; 1♂ (teneral) 2♀, viii.2.43; 2♂, viii.10.43.

Very abundant over the Hoch Bayou from the first of June through August, but only occasional over the quieter parts of the river.

57. *Leucorrhinia intacta* (Hagen). 1♂, v.24.44; 1♂, v.25.44; 1♀, v.26.44; 1♂, v.28.44; 1♂, vi.3.44; 1♀, vi.4.44; 1♀, vii.10.45.

Only of moderate abundance along the quieter waters of the river. About dusk early in the season five or six individuals of this species would gather about the author as he stood by the river. They would dance about a few feet away, but every few moments one would dash up, snatch a mosquito from the flock attracted to the writer, and then return to hover with his fellows.

58. *Tramea carolina* (Linnaeus). 1♂, vii.11.45.

This was the only specimen seen, it was hovering above grass at the edge of the river.

59. *T. lacerata* Hagen. 1♂, viii.24.45.

Captured flying along a path in Group Camp 1. It was the only specimen seen.

Of the 13 species recorded from the county by Montgomery, two, *Enallagma civile* and *Sympetrum corruptum*, were not taken by the author.

Literature Cited

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