

## NEW KNOWLEDGE OF THE ODONATA OF TENNESSEE

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The present status of our knowledge of the Odonata of Tennessee is due largely to the efforts of the late Mike Wright (Kormondy, 1955). In a review of the literature, Wright (1938a) recorded fifty Anisoptera and twenty-five Zygoptera from Tennessee. Subsequent to this *Gomphus pallidus* Rambur, *Dromogomphus spoliatus* Hagen and *Enallagma vesperum* Calvert were added from Reelfoot Lake (Wright, 1938b); *Tachopteryx thoreyi* (Hagen) and *Archilestes grandis* (Rambur) from miscellaneous sources (Wright, 1943); *Cordulegaster* sp., *Basiaeschna janata* (Say) and *Tetragoneuria cynosura* (Say) from studies on the Obey River (Wright and Shoup, 1945); *Neurocordulia virginiensis* Davis, *Platycordulia* sp., *Gelithemis elisa* (Hagen), *Enallagma basidens* Calvert and *E. ebrium* (Hagen) from studies in central Tennessee (Wright, 1946a); *Helocordulia uhleri* (Selys) from miscellaneous sources (Wright, 1946b). Cook (1947) added *Somatochlora filosa* Hagen, *S. linearis* Hagen and *S. williamsoni* Walker from the southeastern part of the state (Great Smoky Mountains National Park). These additions brought the total recorded fauna to sixty-three Anisoptera and twenty-nine Zygoptera. No additional species have been recorded and no extensions of range or season have been made since that time.

In 1954, the Museum of Zoology of the University of Michigan (UMMZ) acquired, by gift, the Mike Wright Collection of Odonata, with approximately one-third of the adult material undetermined. In the process of determining and incorporating this material in the Williamson-Kennedy Odonata Collection a considerable number of state records and new records of geographic and seasonal distribution were found. The latter consists of over two hundred new records; the former of the following thirteen species: *Cordulegaster diastatops* (Selys), *C. erroneus* Hagen, *C. maculatus* Selys, *C. obliquus* (Say), *Gomphus (Stylurus) laurae* Williamson, *Gomphus lividus* Selys, *Lanthus parvulus* (Selys), *Neurocordulia molesta* (Walsh), *Libellula flavida* Rambur, *Sympetrum rubicundulum* (Say), *Calopteryx angustipennis* Selys, *Lestes congener* Hagen and *Lestes disjunctus australis* Walker.

In the following the taxa are listed alphabetically by family to facilitate reference; only adult material is listed unless spe-

cifically indicated. New localities in counties previously recorded are not included unless they represent new seasonal data. Seasonal distribution is given in parentheses at the end of the locality records for those species for which the present data alters the previously known seasonal distribution. To consolidate space the names of all collectors have been abbreviated as follows:

BEM—B. Elwood Montgomery	THH—Theodore H. Hubbell
CA —Carsten Ahrens	HS —Herman Spieth
CFB —C. Francis Byers	IJC —Irving J. Cantrall
CH —Carl Hubbs and family	JJF —James J. Friauf
EBW—E. B. Williamson	JSR —J. Speed Rogers
EJ —Mrs. E. Janson	MW —Mike Wright
FMG—Frederick M. Gaige	

I wish to express my appreciation to Dr. Theodore H. Hubbell, Director of the UMMZ, for permission to conduct this work on the odonate collections; to Mrs. Leonora K. Gloyd for determining several females of *Anomalagrion hastatum* and one female *Gomphus rogersi*; to Dr. Robert S. Hodges for verifying my determination of a female *Neurocordulia molesta*.

## ANISOPTERA

### PETALURIDAE

*Tachopteryx thoreyi* (Hagen). Blount: Cades Cove, July 15, 1935, CA; Fentress: July 5, 1924, JSR and Allardt, July 19, 1924, THH; Morgan: Brushy Mts., August 5, 1924, THH. (July 5-August 5).

### CORDULEGASTERIDAE

*Cordulegaster diastatops* (Selys). A state record. A female from Cocke Co., Carson's Springs, English Creek, June 1, 1946, MW. In view of the known distribution of this species its occurrence in Tennessee is expected although this is the farthest south it has been reported west of the Appalachians.

*Cordulegaster erroneus* Hagen. A state record. Two males, both from Fentress Co., one on June 28, 1924, JSR, the other in Allardt at 1600 ft., August 9, 1924, THH. In view of the known distribution of this species its occurrence in Tennessee is expected.

*Cordulegaster maculatus* Selys. A state record. A female from Greene Co., Horse Creek, May 4, 1947, MW. The larval material reported by Wright and Shoup (1945) as *Cordulegaster* sp. has been reexamined with the following portion determined as *C. maculatus*: four of the larvae collected at Sta. 14a (Putnam-Cumberland Co. line, April 28, 1945) and three of those collected at Sta. 13 (Putnam Co., April 28, 1945). Additional larval material in the Wright collection not previously reported and determined by the author as *C. maculatus* include: Greene: Horse Creek, May 17, 1947, MW; Hardin: Robinson Creek, September 8, 1945, MW; Unicoi: Higgins Creek, 0.4 mi. S. of Flag Pond, August 23, 1939, R. Rhoades. In view of the known distribution of this species its occurrence in Tennessee is expected.

*Cordulegaster obliquus* (Say). A state record. Among the larval specimens recorded as *Cordulegaster* sp. by Wright and Shoup (1945) the following were determined by the author as *C. obliquus*: one larva collected at Sta. 27 (Overton Co., July 19, 1939) and three of those collected at Sta. 13 (Putnam Co., April 28, 1945). One larva not previously reported and determined by the author as *C. obliquus*: Putnam: Meadow Creek, E. Fork of Obey River, April 28, 1945, Wright and Shoup [= Sta. 12 of Wright and Shoup, 1945?]. In view of the known distribution of this species its occurrence in Tennessee is expected.

## GOMPHIDAE

- Dromogomphus spinosus* Selys. Campbell: Clear Fork on US 25W, August 14, 1939, BEM; Giles: Murrell's Mill, 2 mi. NNE of Elkton on Elkton River, August 18, 1951, IJC; Sevier: Gatlinburg, July 18, 1935, CA; Sullivan: Kingsport, July 20, 1935, CA; Wilson: Cumberland River near Lebanon, September 7, 1937, MW. (July 18 - September 7).
- Erpetogomphus designatus* (Hagen). Wilson: Cumberland River near Lebanon, September 7 and 8, 1937, MW.
- Gomphus (Stylurus) lawrae* Williamson. A state record. A female from Fentress Co., Allardt, 1600', August 9, 1924, THH. The occurrence of this southern species in Tennessee is expected.
- Gomphus lividus* Selys. A state record. The following localities are all in Greene County, all material collected by Mike Wright: Camp Creek, on June 4, 1947, 2 males, 1 female on June 5, 1947; Tusculum College Campus, 1 female on May 4, 1947; Frank's Creek, Tusculum College, 2 females, 1 female on April 18, 1948, 2 males, 1 female on April 22, 1948 and 1 female on May 10, 1948. In view of the known distribution of this species this is an expected occurrence in Tennessee. (April 18 - June 5).
- Gomphus (Stylurus) plagiatus* Selys. Wilson: Cumberland River near Lebanon, September 7, 1937, MW. (September 7-30).
- Gomphus rogersi* Gloyd. Greene: Camp Creek, May 12, 1947, MW. This species has been treated as a synonym of *G. consanguis* Selys by Klots (1944) and Needham and Westfall (1954); Gloyd (*in lit.*, October 9, 1955) upholds its validity. Mrs. Gloyd kindly determined this female specimen. (May 12 - June 18).
- Gomphus (Stylurus) spiniceps* (Walsh). Sevier: Gatlinburg, July 14, 1935, CA. (July 14 - August 14).
- Hagenius brevistylus* Selys. Anderson: Clinton, August 30, 1924, no collector; Blount: Cades Cove, July 15, 1935, CA. (July 15 - August 30).
- Lanthus parvulus* (Selys). A state record. A male from Greene Co., Horse Creek, May 5, 1947, MW. In view of the known distribution of this species this is an expected occurrence in Tennessee although this is the farthest south it has been reported west of the Appalachians.
- Progomphus obscurus* (Rambur). Morgan: August 14, 1924, THH; Sevier: Gatlinburg, July 18, 1935, CA. (June 28 - August 14).

## AESHNIDAE

- Aeshna umbrosa* Walker. Greene: Tusculum College Campus, November 4, 1945, November 2, 1946, September 18, 21, and 23, 1947, September 30, 1948, October 13, 1949. All specimens collected by Mike Wright. (September 3 - November 4).
- Anax junius* (Drury). Greene: Camp Creek, August 29, 1946 and Frank's Creek, Tusculum College, April 23, 1948, MW; Unicoi: Fish Hatchery at Erwin, August 14, 1948, MW.

- Basiaeschna janata* (Say). Cocke: Douglas Lake, near Newport, April 11, 1949, MW.
- Boyeria grafiana* Williamson. Fentress: Allardt, August 19, 1924, THH; Sevier: Gatlinburg, July - August, 1938, EJ. ([July?] August 19 - September 22).
- Boyeria vinosa* (Say). Anderson: Clinton, August 30, 1924, no collector; Campbell: Clear Fork along US 25W, August 14, 1939, BEM; Fentress: July 2, 1924, JSR; Greene: Tusculum College Campus, July 1, 1946 and September 29, 1946, and Frank's Creek, Tusculum College, September 20, 1947, MW. (July 1 - September 29).
- Epiaeschna heros* (Fabricius). Greene: Tusculum College Campus, April 23, 1946 and Frank's Creek, Tusculum College, May 14 and June 6, 1948, MW. The male collected on May 14 was taken at night in a New Jersey light trap. (April 23 - August 2).

## LIBELLULIDAE

## Macrominae

- Didymops transversa* (Say). Jefferson: Douglas Lake, May 8, 1948, MW. (May 8 - May 15).
- Macromia illinoiensis* Walsh. Blount: Townsend, July 15, 1935, CA; Greene: Camp Creek, August 24, 1947, MW; Sevier: Gatlinburg, July 17, 1935, CA and July - August, 1938, EJ. (July 15 - September 30).
- Macromia taeniolata* Rambur. Cheatham: Sycamore Creek, Sycamore, July 26, 1918, EBW. [Apparently overlooked by Williamson in his 1923 paper on Tennessee dragonflies].

## Cordulinae

- Epicordulia princeps* (Hagen). Campbell: Cove Lake at Caryville Dam, July 20, 1946, MW.
- Neurocordulia molesta* (Walsh). A state record. A female from Hardin Co., Stagnant Slough off Tennessee River, 1 mi. below Pickwick Dam, June 2, 1945, MW. Although this species is listed as occurring in Tennessee by Needham and Westfall (1954) the data is presumed to be that of Hodges (unpublished) and therefore the present record constitutes a formal state record.
- Somalochlora tenebrosa* (Say). Carter: Roam Mt. Station, August 11, 1922, THH. (July 31 - August 11).

## Libellulinae

- Celithemis eponina* (Drury). A new seasonal record from Reelfoot Lake, July 31, 1937, MW. (June 17 - July 31).
- Erythemis simplicicollis* (Say). Anderson: Fish Hatchery Ponds, Norris Dam, August 15, 1939, BEM and Pond at Clear Creek, Norris Dam, July 21, 1946, MW; Campbell: Cove Lake, LaFollette, August 14, 1939, BEM and Cove Lake at Caryville Dam, July 20, 1946, MW; Fentress: Allardt, June 14, 1924, CFB; Madison: 3 mi. E. of Jackson, August 26, 1924, THH; Sevier: Gatlinburg, July 18, 1935, CA; Unicoi: Fish Hatchery at Erwin, August 14, 1948, MW.
- Libellula cyanea* Fabricius. Anderson: Pond at Clear Creek, Norris Dam, July 21, 1946, MW; Cumberland: Grassy Cove, 1600 ft., July 10 and 14, 1922, THH; Sevier: Gatlinburg, July 14 and 18, 1935, CA. (June 26 - July 21).
- Libellula flavida* Rambur. A state record. Blount: Cades Cove, July 16, 1935 (males and females), CA; Fentress: June 26 (female) and July 1 (female), 1924, JSR; Sevier: Gatlinburg, July 14, 1935 (females), CA. These data constitute the first inland records for a species known previously only from the coastal states. (June 26 - July 16).



- Libellula luctuosa* Burmeister. Anderson: Pond at Clear Creek, Norris Dam, August 15, 1939, BEM and July 21, 1946, MW; Campbell: Cove Lake, Lafollette, August 14, 1939, BEM and Cove Lake, Caryville Dam, July 20, 1946, MW.
- Libellula pulchella* Drury. Campbell: Cove Lake, Lafollette, August 14, 1939, BEM; Fentress: June 18, 1924, JSR; Greene: Pond near Camp Creek, August 11 and 29, 1946, MW and Greeneville, May 10, 1948, MW; Sevier: Gatlinburg, July 14, 1935, CA. (May 10 - September 3).
- Libellula semifasciata* Burmeister. Fentress: July 5, 1924, JSR. (April 30 - July 5).
- Libellula vibrans* Fabricius. Blount: Cades Cove, July 15, 1935, CA; Greene: Camp Creek, June 23, 1946, MW; Hardeman: September 2, 19??, CFB; Sevier: Gatlinburg, July 18, 1935, CA. (June 22 - September 2).
- Pachydiplax longipennis* (Burmeister). Anderson: Clear Creek, Norris Dam, August 15, 1939, BEM and Pond at Clear Creek, July 21, 1946, MW; Blount: Cades Cove, July 15, 1935, CA; Jefferson: Douglas Lake, May 8, 1948, MW; Sevier: Gatlinburg, July 18, 1935, CA; Washington: Johnson City, 1922, no collector. A new seasonal record from Reelfoot Lake, September 5, 1919, FMG. (May 5 - September 5).
- Pantala flavescens* (Fabricius). Anderson: Fish Hatchery Ponds, Norris Dam, August 14, 1939, BEM; Cumberland: Grassy Cove, 1600 ft., July 12, 1922, THH; Greene: Camp Creek, August 29, 1946, MW; Sullivan: Kingsport, July 20, 1935, CA.
- Pantala hymenea* (Say). Davidson: East Nashville, August 31, 1937, MW. (July 31 - August 31).
- Perithemis tenera* (Say). Sevier: Gatlinburg, July 18, 1935, CA; Washington: Johnson City, 1922, no collector.
- Plathemis bydia* (Drury). Anderson: Fish Hatchery Pond, Norris Dam, August 15, 1939, BEM and Pond at Clear Creek, Norris, July 21, 1946, MW; Cumberland: Grassy Cove, 1600 ft., July 10 and 12, 1923, THH; Fentress: July 5, 1924, JSR; Greene: Camp Creek Ponds, June 18, August 11 and 29, 1946, June 5, 1947, May 11, 1948, MW; Jefferson: Douglas Lake, May 8, 1948, MW; Robertson: near Greenbrier, August 30, 1937, MW; Sevier: Gatlinburg, July 14, 1935, CA. A male from Reelfoot Lake, at spillway, July 21, 1937, MW was apparently overlooked by Wright in the preparation of his 1938 Reelfoot Lake studies; this specimen constitutes an addition to the fauna of this well-studied area. An early seasonal record from Davidson Co., Percy Warner Park, Nashville, near Highway 100, April 24, 1947, JJJ. (April 24 - October 16).
- Sympetrum ambiguum* (Rambur). Greene: Camp Creek, August 29, 1946, MW; Marshall: Lewisburg, August 23, 1924, THH.
- Sympetrum rubicundulum* (Say). A state record. A male from Fentress Co., over grassy swale, 1600 ft., July 1, 1924, JSR. This is the farthest south this species has been reported west of the Appalachians; it extends to North Carolina on the coast.
- Sympetrum semicinctum* (Say). Sevier: Gatlinburg, July 18, 1935, CA. (July 18 - September 3).
- Sympetrum vicinum* (Hagen). Unicoi: Fish Hatchery at Erwin, August 7, 1948, MW. (August 7 - October 27).
- Tramea lacerata* Hagen. Anderson: Fish Hatchery Ponds, Norris Dam, August 15, 1939, BEM; Sullivan: Kingsport, July 20, 1935, CA; Unicoi: Fish Hatchery at Erwin, August 7, 1948, MW. An early seasonal record from Davidson Co., Nashville, Percy Warner Park, near Highway 100, April 24, 1947, JJJ. (April 23 - August 16).

## ZYGOPTERA

## CALOPTERYGIDAE

- Calopteryx angustipennis* Selys. A state record. A female from Fentress Co., Allardt, June 12, 1924, CFB. This species is known from the central Atlantic coastal states and from Ohio and Indiana; this record is the farthest southwest of the Appalachians.
- Calopteryx maculatum* (Beauvois). Anderson: Clear Creek near Norris Dam, August 15, 1939, BEM; Campbell: Clear Fork on US 25W, August 14, 1939, BEM; Cocke: Sinking Creek near Newport, June 7 and 8, 1946, MW; Dickson: Jones Creek, 3 mi. S. of Charlotte, June 18, 1938, CH; Greene: Camp Creek, June 18, 1946, MW; Sevier: Gatlinburg, July 14, 1935, CA.
- Hetaerina americana* (Fabricius). Sevier: Gatlinburg, July 17, 1935, CA and Sevierville, August 9, 1930, no collector; Sullivan: Kingsport, July 20, 1935, CA; Wilson: Cumberland River near Lebanon, September 7, 1937, MW.
- Hetaerina titia* (Drury). Anderson: Clear Creek near Norris Dam, August 15, 1939, BEM; Clairborne: Tazewell, August 18, 1899, [EBW?]; Wilson: Cumberland River near Lebanon, September 7 and 8, 1937, MW.

## LESTIDAE

- Archilestes grandis* (Rambur). New seasonal record from Davidson Co., Knapp Farm, Cedar Springs, October 12, 1936, MW. (August 21 - October 12).
- Lestes congenere* Hagen. A state record. A female from Fentress Co., Allardt, 1600ft., September 6, 1924, THH. This is the farthest southeast record for this species.
- Lestes disjunctus australis* Walker. A state record. In erecting this subspecies of Selys's *disjunctus* Walker (1952) re-examined the UMMZ collection of both this species and *L. forcipatus* Rambur. The distribution as given below for both species supercedes that given in previous lists of Tennessee Odonata.

The following records of *L. disjunctus australis* were previously listed as *L. forcipatus*: Davidson: Nashville, Centennial Gardens, September 25, 1900, Morrow's Swamp, May 5 and 22, 1901, Old Brickyard Pond, May 18, 1901, Nashville, May 30, 1901, all collected by EBW; Davidson: Stone's River Bridge, US 41, May 22, 1937, MW. New records are: Cumberland: Grassy Cove, 1600ft., July 10, 1922, THH; Greene: Camp Creek, May 11 and 14, 1948, MW and Frank's Creek, Tusculum College, April 18, 1946, MW; Hardeman: Whiteville, August 27, 1924, THH. (April 18 - September 25).

- Lestes forcipatus* Rambur. (See above under *L. disjunctus australis*.) Cumberland: Grassy Cove, July 9, 1922, THH; Davidson: Nashville, May 30, 1901, EBW; Greene: Tusculum College Campus, April 4, 1946, MW. The specimens listed by Koen (1937) from Reelfoot Lake are not available for examination; however, it is not doubtful that this species as well as *L. disjunctus australis* may be found in the vicinity. (April 4 - July 9).
- Lestes inaequalis* Walsh. New seasonal records from Davidson Co., Nashville, Morrow Swamp, May 22, 1901, EBW and from Reelfoot Lake, lake center, July 20, 1937, MW. (May 22 - July 20).

*Lestes rectangularis* Say. Cumberland: Grassy Cove, July 9, 1922, THH; Sevier: Gatlinburg, July 18, 1935, CA. A seasonal record from Davidson Co., Nashville, Centennial Park, August 8, 1945, MW. (May 21 - August 8).

## COENAGRIONIDAE

*Anomalagrion hastatum* (Say). Campbell: Cove Lake, Lafollette, August 14, 1939, BEM; Greene: Frank's Creek, April 22, 1948 and Pond near Camp Creek, May 14, 1948, MW; Hardin: Pickwick Lake, Group Camp Area, June 2, 1945, MW; Sullivan: Kingsport, July 20, 1935, CA.

*Argia apicalis* (Say). Anderson: Terrace at Norris Park, Norris Dam, August 15, 1939, BEM; Campbell: Cove Lake, Lafollette, August 14, 1939, BEM and Cove Lake at Caryville Dam, July 20, 1946, MW; Hardin: Pickwick Lake, Group Camp Area, June 2, 1945, MW; Sevier: Gatlinburg, July 18, 1935, CA; Wilson: Cumberland River at Lebanon, September 7, 1937, MW. A seasonal record from Davidson Co., Nashville, Centennial Park, May 29, 1937, MW. (May 29 - October 16).

*Argia moesta* (Hagen). Campbell: Clear Fork along US 25W, August 14, 1939, BEM; Sevier: Gatlinburg, July 17, 1935, CA and Sevierville, August 9, 1930, HS. A seasonal record from Davidson Co., Nashville, June 2, 1901, EBW. (June 2 - October 5).

*Argia sedula* (Hagen). Campbell: Clear Fork along US 25W, August 14, 1939, BEM; Sevier: Gatlinburg, July 17, 1935, CA; Wilson: Cumberland River near Lebanon, September 7 and 8, 1937, MW. (July 17 - September 8).

*Argia tibialis* (Rambur). Campbell: Clear Fork along US 25W, August 14, 1939, BEM. A seasonal record from Davidson Co., Nashville, Stone's River and US 41, May 22, 1937, MW. (May 22 - August 21).

*Argia translata* Hagen. Campbell: Clear Fork along US 25W, August 14, 1939, BEM; Wilson: Cumberland River near Lebanon, September 7 and 8, 1937, MW.

*Argia violacea* (Hagen). Anderson: Clear Creek near Norris Dam, August 15, 1939, BEM and Pond at Clear Creek, Norris, July 21, 1946, MW; Cocke: Sinking Creek near Newport, June 7 and 8, 1946, MW; Hardin: Creek 1 mi. S. of Counce, September 8, 1945, MW. (May 31 - September 8).

*Chromagrion conditum* (Hagen). Davidson: Nashville, Clay Pit Ponds, April 11, 1945, MW. (April 11 - August -).

*Enallagma civile* (Hagen). Anderson: Fish Hatchery Ponds, Norris Dam, August 14 and 15, 1939, BEM; Campbell: Lafollette, Cove Lake, August 14, 1939, BEM; Greene: Camp Creek, May 11, 1948, MW and Horse Creek, April 10, 1949, MW; Hardin: Pickwick Lake, Group Camp Area, June 2, 1945, MW; Unicoi: Fish Hatchery at Erwin, August 7 and 14, 1948, MW. (April 10 - October 20).

*Enallagma exsulans* (Hagen). Anderson: Seven Mile Creek at Antioch Pike, July 19, 1945, MW; Campbell: Clear Fork along US 25W, August 14, 1939, BEM; Cocke: Small tributary of Sinking Creek, Newport, June 7, 1946, MW; Greene: Camp Creek, June 18, 1946 and June 5, 1947, MW and Sinking Creek at Erwin Road, May 19, 1947, MW; Sevier: Gatlinburg, July 17, 1935, CA; Wilson: Cumberland River near Lebanon, September 8, 1937, MW. (May 19 - September 8).

*Enallagma signatum* (Hagen). Anderson: Fish Hatchery Ponds, Norris Dam, August 15, 1939, BEM; Campbell: Cove Lake, Lafollette, August 14, 1939, BEM. A new seasonal record from Davidson Co., Nashville, Clay Pit Pools, April 11, 1945, MW. (April 11 - September 25).

*Enallagma vesperum* Calvert. Since seasonal distribution has not been previously given for this species the following data from Reelfoot Lake material is presented: July 10-20, 1937, MW.

*Ischnura posita* (Hagen). Anderson: Fish Hatchery Ponds, Norris Dam, August 15, 1939, BEM and Pond at Clear Creek, Norris Dam, July 21, 1946, MW; Blount: Townsend, July 15, 1935, CA; Campbell: Cove Lake, Lafollette, August 14, 1939, BEM; Cocke: Cat-tail marsh near Newport, no date, MW; Greene: Frank's Creek, Tusculum College, April 23, 1948, MW and Horse Creek, April 10, 1949, MW; Sevier: Gatlinburg, July 14, 1935, CA. A seasonal record from Davidson Co., Nashville, Clay Pit Pools, April 11, 1945, MW. (April 11 - October 25).

*Ischnura verticalis* (Say). Anderson: Fish Hatchery Ponds, Norris Dam, August 14, 1939, BEM; Campbell: Cove Lake, Lafollette, August 14, 1939, BEM; Greene: Camp Creek, May 14, 1948, MW and Frank's Creek, Tusculum College, April 23, 1948, MW; Unicoi: Fish Hatchery at Erwin, August 7 and 14, 1948, MW. A seasonal record from Davidson Co., Nashville, Percy Warner Park, September 6, 1945, MW. (April 15 - September 6).

#### NOTES ON PREVIOUSLY LISTED SPECIES

*Tramea abdominalis* (Rambur) [Williamson, 1903 and Wright, 1938a]. Sometime prior to his death Mr. Williamson re-determined this male specimen as *Tramea cophysa* Hagen; I have also examined this specimen and concur with the new designation. *T. abdominalis* is thereby removed from the Tennessee list and replaced by *T. cophysa*. This record establishes Tennessee as the known eastern limit of this neotropical species known previously in the United States only in Texas.

*Enallagma pollutum* (Hagen) [Williamson, 1903 and Wright, 1938a and 1943]. The location of this specimen is unknown; it is not contained in the UMMZ collection. Calvert's opinion (1919) that this species is probably confined to Florida has been verified up to the present by its absence elsewhere except for this one record from Tennessee. In the same paper Calvert described *Enallagma vesperum* basing the description, in part, on a considerable amount of Williamson material, probably all that was available; however, he does not list this particular specimen from Tennessee. There seems no doubt that what Williamson called *pollutum* was actually Calvert's later described *vesperum* and it seems advisable therefore to remove *E. pollutum* from the Tennessee list.

*Platycordulia* sp. [Wright, 1946a]. Although I have been unable to locate this larval specimen in the collection it is undoubtedly *P. xanthosoma* Williamson inasmuch as this is a monotypic genus. Furthermore, there would have been no doubt as to its generic identity to Wright in view of the marked difference between it and its nearest ally (*Neurocordulia*) based upon its characteristically flat and triangular frontal shelf (Wright and Peterson, 1944). Considering this material as *P. xanthosoma* establishes Tennessee as the known eastern limit of an essentially western species.

*Cordulegaster* sp. [Wright and Shoup, 1945]. Eleven of the fourteen specimens reported by Wright and Shoup have been located in the Wright immature collection; these have been accounted for in the above list under *C. maculatus* and *C. obliquus*. I have been unable to locate the two specimens taken at Station 14a and the one taken at Station 87. Since four species in this genus are now known to occur in Tennessee and inasmuch as it is not improbable that the southeastern *C. fasciatus* Rambur or the



more generally distributed *G. sayi* Selys may still be found in the state, it is not advisable to hazard the specific identity of this unlocated material.

*Gomphus dilatatus* Rambur [Wilson, 1912 and Wright, 1938a]. This established record is omitted by Needham and Westfall (1954) undoubtedly by oversight.

#### GEOGRAPHIC RELATIONS OF THE FAUNA

Although numerous gaps remain as regards distributional knowledge of the dragonflies of Tennessee and additional species will doubtless be recorded in the future, it seems advisable to orient the present known facts into a distributional framework. Because of their capacity for extensive flight the Odonata are not a confined group and with few exceptions their spread from centers of origin is significantly high. It therefore seems inadvisable at this time to attempt to delimit the neotropical, nearctic or boreal elements in the fauna and rather to discuss the fauna in terms of the known geographical distribution of the species concerned.

Fourteen of the species which occur in Tennessee are transcontinental in distribution (at least in the United States): *Anax junius*, *Erythemis simplicicollis*, *Libellula pulchella*, *Pachydiplax longipennis*, *Pantala flavescens*, *P. hymenea*, *Plathemis lydia*, *Sympetrum* [= *Tarnetrum* of Needham] *corruptum*, *Tramea lacerata*, *T. onusta*, *Hetaerina americana*, *Argia moesta*, *A. sedula* and *A. translata*. Twelve species may be considered northern in distribution with Tennessee marking their southern boundary: *Boyeria grafiana*, *Somatochlora williamsoni*, *Leucorrhinia intacta*, *Sympetrum rubicundulum*, *S. semicinctum*, *Calopteryx angustipennis*, *Lestes congener*, *L. forcipatus*, *L. inaequalis*, *L. unguiculatus*, *Chromagrion conditum* and *Enallagma ebrium*. Two species are essentially western with Tennessee marking their eastern limit: *Platycordulia xanthosoma* and *Archilestes grandis*. In the southern group, two species are southwestern: *Tramea cophysa* and *Enallagma basidens*; five are southeastern: *Gomphus dilatatus*, *G. hybridus*, *G. laurae*, *G. pallidus* and *G. rogersi* (= *G. consanguis*?); two are generally distributed throughout the south: *Neurocordulia virginiensis* and *Ischnura prognata*. The remaining sixty-six species are more or less generally distributed east of the Rock Mountains, some only to the Mississippi, some only west of the Appalachians and some only as far as southern Canada; these may be considered essentially as eastern species.

This distributional analysis may be summarized as follows:

Eastern	— 66	species
Transcontinental	— 14	"
Northern	— 12	"
Southeastern	— 5	"
Southwestern	— 2	"
Southern	— 2	"
Western	— 2	"

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