

## NOTES ON OKLAHOMA DRAGONFLIES

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During June and July, 1950, I collected odonates within a twenty mile radius of the Wildlife Conservation Station of Oklahoma A. & M. College at Braggs, Muskogee County, Oklahoma. Although three Oklahoma lists (Williamson, 1914; Ortenburger, 1926; Bird, 1932) have appeared there are no records from Muskogee County and a total of only seventeen species have been recorded from the fifteen counties north of the Arkansas River.

Fifty species or approximately half of the State list of 106 given by Bird (1932) were collected. Six of these, indicated by an \*, in the following list are believed to be new state records. All specimens are in the author's collection. The species collected are:

ANISOPTERA—*Progomphus obscurus* (Rambur), *Hagenius brevistylus* Selys, *Erpetogomphus designatus* (Hagen), *Gomphus externus* Hagen, *G. militaris* Hagen, *Dromogomphus spoliatus* (Hagen), *D. spinosus* (Selys), *Anax junius* (Drury), *Nasiaeschna pentacantha* (Rambur), \**Boyeria vinosa* (Say), \**Cordulegaster obliquus* (Say), *Macromia pacifica* Hagen, *Platycordulia xanthosoma* Williamson, \**Somatochlora linearis* (Hagen), \**Neurocordulia obsoleta* (Say), *Epicordulia princeps* (Hagen), *Tetragoneuria cynosura* (Say), *Perithemis tenera* (Say), *Celithemis eponina* (Drury), *C. elisa* (Hagen), *C. fasciata* Kirby, *Libellula luctuosa* Burmeister, *L. cyanea* Fabricius, *L. pulchella* Drury, *L. incesta* Hagen, *L. vibrans* Fabricius, *Plathemis lydia* (Drury), *Sympetrum corruptum* (Hagen), *Pachidiplax longipennis* (Burmeister), *Erythemis simplicicollis* (Say), *Dythemis velox* Hagen, *Pantala hymenea* (Say), *P. flavescens* (Fabricius), *Tramea onusta* Hagen, *T. lacerata* Hagen, \**T. carolina* (L.).

ZYGOPTERA—*Agrion maculatum* Beauvais, *Hetaerina americana* (Fabricius), *H. titia* (Drury), *Argia apicalis* (Say), *A. moesta* (Hagen), \**A. plana* Calvert, *A. translata* Hagen, *A. violacea* (Hagen), *Enallagma civile* (Hagen), *E. exsulans* (Hagen), *E. basidens* Calvert, *Ischnura verticalis* (Say), *I. posita* (Hagen), *Anomalagrion hastatum* (Say).

The most common of the anisopterans were: *L. luctuosa*, *P. lydia*, *C. elisa*, *D. velox*. The first three were common about small lakes and stock ponds. *D. velox* was found only along Greenleaf Creek where it occurred in large numbers of individuals perching with abdomens upwards on dead twigs. *Argia moesta* was the most common of the damselflies.

Special mention must be given to those species which are apparently new Oklahoma records. A total of twenty-one young nymphs of *Boyeria vinosa* were taken at the Wildlife Station in Greenleaf Lake on June 19 and in Little Greenleaf Creek on June 22, 26. Although all these nymphs are very immature they are clearly *B. vinosa* as de-

scribed by Wright (1949). Distribution given by Needham and Heywood (1929) is Maine and Wisconsin to Arkansas and Tennessee. *Cordulegaster obliquus* is represented by a single adult female taken in full sunlight while perched low on a small weed in a field two miles south of Braggs on July 26. Another adult female was collected on June 7 at Forans Gap, 10 miles north of Mena, Arkansas. It was perched low on a tree in a shaded woods adjacent to a swiftly flowing rocky stream and was easily taken by hand. Distribution of *C. obliquus* given by Needham and Heywood is Maine and Pennsylvania to Wisconsin and Illinois. *Somatochlora linearis* is represented by a single adult male collected at the Wildlife Station on July 18 and by one nymph taken at the same location on June 13. Walker (1925) gave eastern Iowa and Missouri as the westernmost limits for *S. linearis*. A single nymph of *Neurocordulia obsoleta* was taken at the Wildlife Station in Little Greenleaf Creek on June 13. The westernmost records given by Byers (1937) are Tennessee and Illinois. The record of *Tramea carolina* collected at the Wildlife Station on June 14 is somewhat doubtful since it is based on a single immature nymph.

Because of the scarcity of collections of *Platycordulia xanthosoma* and the very limited knowledge of its ecology, it is interesting to give the circumstances under which it was collected. One female was taken on a window screen in the laboratory on June 26 by Dr. Philip Smith. On July 23 a male was collected just after it had flown weakly and had perched low on a bush in a clearing at the edge of Greenleaf Creek. The specimen was collected about noon in almost full sunlight. On July 3 one last instar exuvium was taken on the bank of the Verdigris River at its juncture with the Arkansas. This exuvium checked well with the nymph described by supposition as *P. xanthosoma* by Byers (1937). The skin was well attached to the trunk of a willow and was about 20 feet above the water level and four feet above the ground. Along the bank here among the willow roots numerous cast skins of *Gomphus* sp. and one of *Erpetogomphus designatus* were also taken. Byers (1937) recorded four *Platycordulia* nymphs from the Mississippi River at Alma, Wisconsin, and one from the Mississippi River at Fairport, Iowa. Apparently all collections to date have been from the larger rivers. In spite of the fact that my collections were made almost daily and at all possible times, including twilight and night collections, only three individuals of *Platycordulia* were obtained.

*Pantala hymenea* nymphs were collected under circumstances which are indicative of an unusually brief life history. The camp swimming pool was of concrete and had been dry for at least four years. On June 26 it was partially filled with water from a filtration plant, flushed out and filled on June 29. Numerous apparently mature nymphs were collected from the pool on July 27 and on August 1 numerous last instar exuviae were taken clinging to the concrete sides about three feet above the water level. The presence of last instar exuviae approximately one month after the filling of the pool and

under conditions allowing for no apparent introduction of partially grown nymphs from adjacent sources is at least suggestive of a remarkably short nymphal period. The briefest nymphal period for any anisopteran with which I am familiar is fifty-five days given by Warren (1915) for *Pantala flavescens*.

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