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SIPHLONURUS (EPHEMEROPTERA, SIPHLONURIDAE) IN KANSAS

by

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Siphlonurus Eaton, 1868, is the only genus of Siphlonuridae known to occur in Kansas. The genus was first reported for Kansas by Tucker (1907a, 1907b; as Siphlurus). Tucker (op. cit.) stated simply that his specimens apparently represented an undescribed species and thus no species were yet listed for Kansas. The whereabouts of his specimens, which were supposedly on deposit in the Snow Museum at the University of Kansas, are unknown today. This then represents the first account of Siphlonurus for Kansas since 1907.

This report is based primarily on collections made by staff members of the State Biological Survey of Kansas. Most collections indicate that Siphlonurus are more abundant in the eastern one fourth of the state with the exception of one population repeatedly collected from Cheyenne County in the extreme northwest corner of Kansas. Larval material was collected from a variety of aquatic habitats including small spring fed streams, other types and sizes of perennial streams, ponds and medium sized rivers but nearly always from vegetation and from the slow moving or backwater areas of lotic waters. Except for one Cheyenne County collection adults were never taken concurrently with larvae. Adults, when collected, were taken some distance from a water body. Several larval/adult associations have been made through rearing. Recent adult collection dates reflect an annual emergence period from mid-May through early June, however, Tucker (1907a) mentioned a July collection.

In North America there are 18 nominal species of Siphlonurus with a possibly new species from Alaska noted in Edmunds, Jensen and Berner (1976). All but the potentially new species from Alaska and S. demarayi Kondratieff and Voshell (1981) are taxonomically treated in Needham, Traver and Hsu (1935) which was the primary source for identification of Kansas adult Siphlonurus. Other resources used for determinations were Burks, 1953, original type descriptions and miscellaneous recountings of descriptions. Although Edmunds, et al. (1976) related that "species of adults should be identifable with relative ease" this may not necessarily be the case at least in peripheral areas of a species range (i.e. Kansas) or allopatric situations. Nearly all past species separations within the genus have weighed heavily on color patterns or color state variations with limited or no reference to other morphological features of perhaps a more stable nature. This should be a concern of those who

work with the group in the future.

The following records are based on specimens housed in the Biological Survey collection or the Snow Museum at the University of Kansas (UKSM). Since this is the first nominal accounting of Siphonurus species for Kansas they can be considered as new state records. Species determinations were based on adults. Larval records with the species accounts should be considered as tentative placements because a number of species do not have descriptions of the immature stage.

Siphlonurus marshalli Traver 1934

Adults: DOUGLAS Co.: Univ. Kansas Nat. Hist. Reservation, 5 Jun 1979, S. M. Roble. FRANKLIN Co.: Ottawa Creek, 5.0 mi E Ottawa, 29 May 1979, S. W. Hamilton, FCG, JAS. MIAMI Co.: Miami County State Lake, 27 May 1951, R. E. Beer (UKSM). MONTGOMERY Co.: Elk City, 23 May 1936, Beamer and Sanderson (UKSM).

Larvae: CHAUTAUQUA Co.: pools in stream, 10.0 mi NE Sedan, 16 May 1974, K. Waddington; spring run, 0.5 mi S and 1.5 mi E Chautauqua, 12 May 1982, D. G. Huggins and B. G. Coler. DOUGLAS Co.: Washington Creek above Lone Star Lake, 26 Mar 1974, J. Wagner; inlet stream SE corner Lone Star Lake, 26 Mar 1974, J. Wagner; unnamed stream in Univ. Kansas Nat. Hist. Reservation, 4 Jun 1982, P. M. Liechti and D. G. Huggins. LEAVENWORTH Co.: unnamed stream 0.2 mi E Leavenworth County State Lake, 24 Apr 1975, J. P. Caldwell and S. Lyall. LINN Co.: Big Sugar Creek, 0.2 mi N Farlinville, 19 Apr 1976, P. M. Liechti and D. G. Huggins. WOODSON Co.: stream near Woodson County State Lake, 15 Apr and 15 May 1974; inlet stream Woodson County State Lake, 24-26 May 1976, S. W. Hamilton and T. W. Oldham. WYANDOTTE Co.: Little Turkey Creek, sec 11, T11S, R23E, 26 May 1977, S. W. Hamilton and T. W. Oldham.

The type locality for Siphlonurus marshalli is northeast Arkansas. Siphlonurus marshallii is the most common taxon in Kansas and it has been found in the eastern one fourth of the state and will probably not be found much further west due to decreasing habitat suitability. Adult collections demonstrate a fairly stable emergence period of from mid-May to early June, however, maturity of some larvae collected indicate the emergence period may be somewhat longer. Peters and Warren, 1966, gave an emergence period for S. marshalli in northwest Arkansas of the first two weeks in April which is substantially earlier than Kansas collections even though the area is not that far removed from southeastern Kansas records.

All specimens of S. marshalli were taken from or near small streams or inlet areas of small impoundments. This is not the case with the other Kansas siphlonurids which were taken from medium size streams or small rivers.

Siphlonurus occidentalis Eaton 1885

Adults: CHEYENNE Co.: Hackberry Creek at confluence with South Fork Republican River, 9.2 mi N and 5.0 mi E St. Francis, 18 May 1977, P. M. Liechti and D. G. Huggins; South Fork Republican River, 11.2 mi W and

6.5 mi S St. Francis, 5 Jun 1979, P. Liechti and D. G. Huggins.

Larvae: CHEYENNE Co.: South Fork Republican River, 6.0 mi W and 4.5 mi S, St. Francis, D. G. Huggins; Hackberry Creek at confluence with South Fork Republican River, 9.2 mi N and 5.0 mi E St. Francis, 18 May 1977, P. M. Liechti and D. G. Huggins; South Fork Republican River, 11.0 mi W and 7.0 mi S St. Francis, 5 Jun 1979, D. G. Huggins and P. M. Liechti; Arikaree River, 14.8 mi N and 12.0 mi W St. Francis, 4 May 1982, P. M. Liechti and L. C. Ferrington.

Siphlonurus occidentalis is a western species with this record being the most eastern reported to date. Its range includes all the western states into the Canadian Provinces of British Columbia and Alberta. The type locality was designated as Colorado (lectotype) by Eaton 1885 along with several syntypes from Nevada and Washington. The species distribution will probably be limited to the western areas of the Great Plains.

The Cheyenne County collecting sites were all sandy substrates with immature specimens taken from submerged or overhanging grassy vegetation or submerged macrophytes. One female was taken using a black light trap, the other adults were collected from riparian grasses. The Arikaree River is ephemeral while the South Fork Republican River has never been known to go dry at the collection sites listed. Both bodies of water have high summer temperatures approaching 30 degrees C and average pH fluctuations between 7.8-8.2. This northwest Kansas aquatic environment is quite different from the eastern waters enhabited by other Siphlonurus species.

Siphlonurus minnoi Provonsha and McCafferty 1982

Adults: CHEROKEE Co.: Shoal Creek, 2.0 mi S Galena at K-26 hwy bridge, 22 Apr 1978, reared female and male subimagoes, reared female and male imagoes, S. W. Hamilton and M. B. DuBois; reared subimago female, 1 Apr 1982, P. M. Liechti and J. K. Gelhaus.

Larvae: CHEROKEE Co.: Spring River, 20 Apr 1974, D. G. Huggins; Shoal Creek, 2.0 mi S Galena at K-26 hwy bridge, D. G. Huggins; Shoal Creek, 2.0 mi S Galena at K-26 hwy bridge, 8 Jun 1978, F. C. Gilbert, et al.; 18 May 1979, F. C. Gilbert, et al.; 19 May 1981, P. M. Liechti, et al.; 1 Apr 1982, P. M. Liechti and J. K. Gelhaus.

Siphlonurus minnoi was recently described (Provonsha and McCafferty, 1982) and is quite distinct from other Siphlonurus species. The type locality was designated as Perry County, Indiana but numerous paratypes assigned were from southern Missouri.

The Spring River and Shoal Creek are an extension of Ozarkian areas of Missouri and Arkansas and is unique to Kansas geomorphology. This is the only area in Kansas where this Sipholonurus occurs. A larva and adult male in the Biological Survey collection from the Elk River in McDonald County, Missouri appear to be the same species.

Collections of immatures were from among rootlets and aquatic macrophytes in backwater or eddies of the streams. Adult emergence in Kansas is in late April with the Missouri adult being taken on 20 May.

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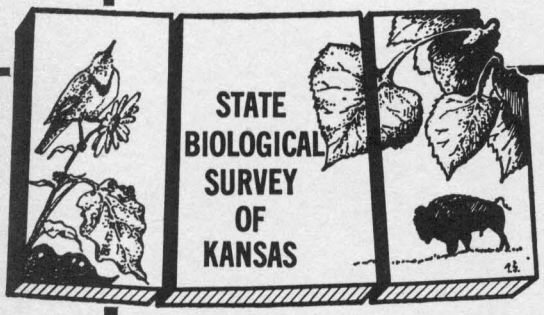

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