

## Distribution of Spring Diaptomids (Copepoda: Calanoida) in Oklahoma

PHYLLIS KINGSBURY<sup>1</sup>, University of Oklahoma, Norman

Data on *Diaptomus* distribution are scanty and many of the available records do not give the specific locality. In Oklahoma, only three literature references report on diaptomid distribution. Marsh (1929) listed only one species, *Diaptomus pallidus*, as occurring in Oklahoma. Duck (1937) extended the reported species to five and included *D. saltillinus*, *D. siciloides*, *D. sanguineus*, and *D. clavipes*. *D. reighardi* was reported from Lake Tenkiller by Summers (1960). No additional species were found by Ophel (1950), Wilson (1941) or in the present study. Thus the locality records of *Diaptomus* in Oklahoma consist of 6 species from a total of 16 different locations. In the present study, 92 locations were examined and diaptomids were found in 87. From these data it appears that diaptomid species have distributional patterns within the state.

### METHODS

The data for this study came from three sources. During the spring of 1965, 32 bodies of water (30 were lakes) were sampled by collecting a measured amount of water from the upper 2 meters in the open area of the lake. In the spring of 1964, 37 farm ponds and in the spring of 1959, 23 ponds and lakes were sampled. In these studies a plankton net was cast from the shore, usually near the dam. All samples were taken between March 20 and May 2 of the respective years with a # 25 plankton net. The diaptomids were identified according to Wilson (1956). The diaptomids were dissected under a microscope, mounted in glycerin jelly and the slide sealed with Murrayite.

### RESULTS

Four species were found. These were: *Diaptomus clavipes* Schacht, 1897; *Diaptomus pallidus* Herrick, 1879; *Diaptomus reighardi* Marsh, 1895; and *Diaptomus siciloides* Lilljeborg, 1889. Tables I, II and III show the localities visited and the species collected. Exact localities of the lakes may be found in "Oklahoma's Water Resources" (1960).

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*Diaptomus pallidus* is found widely over the state in ponds and lakes but seems to be absent from the east-central area. This was the most frequently collected species, occurring in 55 of the 92 locations.

*Diaptomus reighardi* is apparently limited to the east-central area. All locations sampled in this area were lakes, thus its occurrence in ponds is not known.

*Diaptomus siciloides* occurs in the western and central part of the state in lakes and farm ponds. It is apparently a plains species. Along the eastern edge of its range, *Diaptomus siciloides* is found with another diaptomid, usually *D. pallidus*.

*Diaptomus clavipes* is scattered over the state. Wilson (1955) gives its distribution as extending through the southwest and from the lower Rocky Mountains to the Mississippi River.

#### DISCUSSION AND SUMMARY

A distributional pattern for the occurrence of the various species of *Diaptomus* within the state is shown in Fig. 1. *Diaptomus pallidus* and *D. reighardi* are complementary species. *Diaptomus pallidus* and *D. siciloides* are overlapping species. Not enough is known about *D. clavipes* to determine its distribution.

TABLE I. *Diaptomus* SPECIES COLLECTED IN 1965 IN OKLAHOMA LAKES. C = *D. clavipes*, P = *D. pallidus*, R = *D. reighardi*, S = *D. siciloides*.

Date	Lake	County	Species
5/2	Francis	Adair	R
4/24	Great Salt Plains	Alfalfa	S
4/24	Watonga	Blaine	P
4/24	Pond, 1 M. S. Watonga	Blaine	P
4/18	Ardmore Club	Carter	P
4/18	Mountain	Carter	P & S
5/2	Tenkiller	Cherokee	R
4/17	Schooler	Choctaw	P
4/17	Raymond Gary	Choctaw	P
4/23	Caddo	Comanche	P
4/23	Post Oak	Comanche	none
4/23	Rush	Comanche	P
4/24	Pond, 3 mile NW Enid	Garfield	C
4/16	Holdenville Res.	Hughes	P
4/24	Mahoney Lake # 1	Kingfisher	P
4/17	Carlton	Latimer	R
4/17	Carter	Marshall	P
4/30	Greenleaf	Muskogee	R
4/30	Okmulgee	Okmulgee	R
4/25	Hominy	Osage	P
4/25	Pawhuska	Osage	P & S
4/25	Pawnee	Pawnee	P & S
4/25	Cari Blackwell	Payne	S
4/16	McAlester	Pittsburg	C
4/30	Shawnee	Pottawatomie	P & S
4/17	Clayton	Pushmataha	P
4/17	Nanah Waiya	Pushmataha	P
4/17	Ozzie Cobb	Pushmataha	P
4/18	Comanche	Stephens	P
4/18	Duncan	Stephens	P & S
4/23	Hobart	Washita	S
4/24	Clinton	Washita	P

Further work should be done to determine the effects of temperature and turbidity on the appearance of the different species. The finding of *D. siciloides* and *D. pallidus* at the same location may be a seasonal transition. The occurrence of *D. clavipes* may be affected by turbidity (Comita, 1951). The large size of *D. clavipes* may affect its collection.

In this survey, *D. saltitinus* and *D. sanguineus* were not found. Perhaps if more extensive collecting were done and a greater variety of habitats visited, their distribution could be determined. Other species which might be expected to occur are: *D. stagnalis*, *D. stollis*, *D. signicauda*, *D. moorei*, and *D. mississippiensis*.

Distributional patterns seem to be present in the state for *D. pallidus*, *D. siciloides*, and *D. reighardi*.

TABLE II. *Diaptomus* SPECIES COLLECTED IN 1964 FROM FARM PONDS. ALL DISTANCES ARE IN MILES. C = *D. clavipes*, P = *D. pallidus*, R = *D. reighardi*, S = *D. siciloides*

Date	Location	County	Species
3/25	2.4 W of Wapanucka	Atoka	P
4/16	2 NW Geary	Blaine	S
4/16	1.7 S Watonga	Blaine	S
4/16	4.4 W Hitchcock	Blaine	none
3/24	5 S, 3 E Durant	Bryan	P
4/16	1 E, 1 N Piedmont	Canadian	S & P
4/16	3.3 E Geary	Canadian	C
4/16	3.3 E Geary	Canadian	C & S
3/25	.6 S Clarita	Coal	C
3/25	1 SW Ravina	Johnston	C
3/25	1.1 SW Ravina	Johnston	C
4/16	.1 N Okarche	Kingfisher	P & C
4/16	.3 N Okarche	Kingfisher	S
4/16	2 W Dover	Kingfisher	none
4/17	.4 S Meeker	Lincoln	P
4/17	5.5 E, 1 N Meeker	Lincoln	P
4/17	5.5 E, 1.4 N Meeker	Lincoln	P
4/17	9.4 N Prague	Lincoln	P
4/17	9.7 N Stroud	Lincoln	P
3/27	1.4 W Guthrie	Logan	P
3/28	Langston Univ.	Logan	P
4/16	1.4 W Guthrie	Logan	P
3/24	4 W Kingston	Marshall	P
3/24	6 W Kingston	Marshall	P
3/27	3 W, 1.4 N. Morrison	Noble	P
4/5	1.3 N, 2 E Okemah	Okfuskee	P
4/19	7.2 E Okemah	Okfuskee	P
4/16	7.6 S Luther	Oklahoma	none
4/5	11.5 W Okmulgee	Okmulgee	P
4/5	1.5 S Morris	Okmulgee	P
4/19	5.2 E Morris	Okmulgee	P
3/27	2.5 W Ralston	Payne	none
4/17	.5 W Yale	Payne	P
4/17	10.7 W Stillwater	Payne	P
3/25	9.4 N Ada	Pontotoc	P
3/25	6 E Asher	Pottawatomie	S
3/21	Meade State Lake	Meade Co., Ks.	S

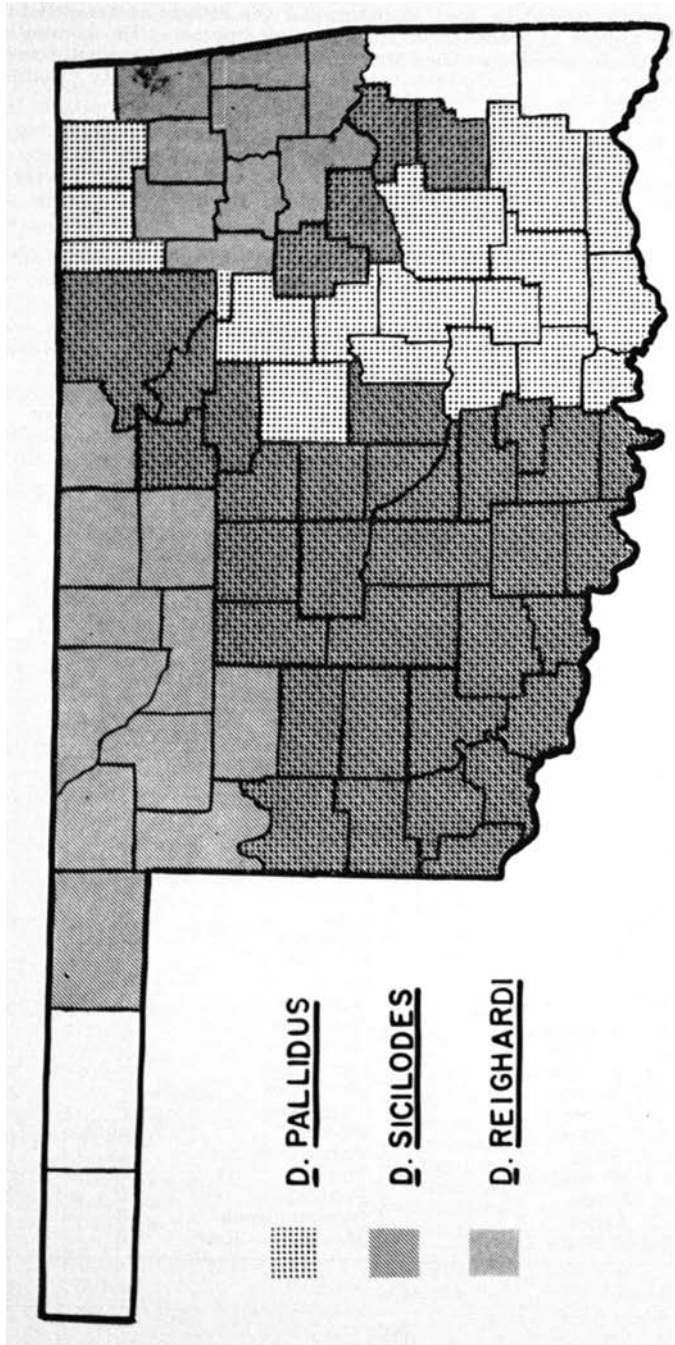


Fig. 1. Distributional patterns of *Diaptomus* within the state showing the overlapping of *D. siciloides* with *D. pallidus* and of *D. reighardi* with *D. pallidus*.

TABLE III. *Diaptomus* SPECIES COLLECTED IN 1959 FROM LAKES AND FARM PONDS. ALL DISTANCES ARE IN MILES. SPECIES SYMBOLS ARE THE SAME AS TABLE I.

Date	Location	County	Species
3/20	pond, 3 W El Reno	Canadian	S
3/21	Clinton Lake	Washita	P
3/21	pond, 2.7 N Berlin	Roger Mills	P & S
3/21	pond, 8.7 S Waynoka	Major	S
3/22	pond, 7 E Hennessey	Kingfisher	S
3/22	Lake Hefner	Oklahoma	P & S & C
4/10	Ponca City Lake	Kay	S
4/11	pond, 11 W Nowata	Nowata	P
4/11	pond, 11 E Nowata	Craig	P
4/11	Grand Lake	Mayer	R
4/11	Claremore City Lake	Rogers	R
4/11	pond	Latimer	P
4/11	pond	Haskell	P
3/20	pond	Grady	P
3/20	pond, 3 E Mangum	Greer	P
3/21	Altus-Lugert Res.	Kiowa-Greer	S
3/21	Altus Res.	Jackson	S
3/21	pond, 1/2 N Frederick	Tillman	P
3/21	Walters City Lake	Cotton	S
3/21	Lawton golf course	Comanche	S
3/21	pond, 11 NE Duncan	Stephens	P
3/22	pond	Love	S
3/22	Lake Murray	Love-Carter	P

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