

TEXAS BLACKFLY RECORDS (DIPTERA: SIMULIIDAE)

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A review of the literature reveals published records of nine species of blackflies from Texas localities. Eight are species of *Simulium* Latreille and the ninth referable to the genus *Cnephia* Enderlein. With one exception none of the published Texas records are of recent date and each was reported from only one or two localities. Our collecting efforts demonstrated an additional species. In a personal communication Dr. Alan Stone of the U. S. National Museum provided us with unpublished records of four additional species of *Simulium* together with many additional locality records for most of the previously reported species of Texas blackflies. We wish to express our sincere thanks to Dr. Stone for identifying blackfly material that we have collected, for graciously permitting us to include unpublished data supplied by him, and for suggestions incident to the preparation of this manuscript.

In the course of our continuing statewide vector surveillance program it has been possible for us to search for blackfly breeding in streams over a rather extensive area of Texas. Our collecting efforts, coupled with information furnished by Dr. Stone, indicate that blackflies are widespread and relatively abundant in Texas and, at least in the central and southern areas of the state, that breeding continues throughout the year. In recent years residents of Austin, Texas, have complained of being bitten by gnats while out of doors during the summer months. Investigation showed these bites to be caused by *S. mediovittatum* Knab. Here this species swarms about human beings, especially at their ankles, but is usually hesitant about attacking. Once they have begun to feed they are not easily alarmed and engorge rapidly. The bites are almost immediately

painful and the sites swell into pronounced welts in a short time. This is usually accompanied by an intense irritation which persists for a day or longer. Several instances of systemic disturbance, possibly allergic in nature, have been called to our attention following *S. mediovittatum* bites. An extensive search was made in the Austin area and but a single breeding site for this species discovered—in the Colorado River adjacent to the City Power Plant. Here water cascades over a streamwide, man-made chain of rocks and large fragments of concrete, erected to impound water for municipal uses. Human annoyances by *S. mediovittatum* occurred up to eight miles distant from this breeding area. It is quite possible that similar situations occur in other Texas cities but reports of such occurrences have not come to our attention. We have received no complaints of annoyance by biting gnats from hunters and fishermen.

Utilizing large, home aquaria, well aerated with a device attached to a compressed air supply, we have had no difficulty rearing adult blackflies from larvae or pupae in our insectary. We observed many pupal cases to contain one to several water mites (Hydracnellidae). Very frequently we found one or more of these mites attached to emerged adult blackflies and we regard this phenomenon as an example of phoresy.

There is a general tendency amongst entomologists to consider the Simuliidae of the United States to be represented by five genera, viz., *Prosimulium* Roubaud 1906, *Parasimulium* Malloch 1914, *Eusimulium* Roubaud 1906, *Simulium* Latreille 1802, and *Cnephia* Enderlein 1921.

In the following tabulation of blackfly records, those marked with an asterisk (*) represent data furnished by Dr. Stone and all collections dated April 1941 were made by him. The stage or stages reported are indicated in the following manner: A—adult; P—pupa; L—larva.

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Simulium argus WILLISTON 1893

Not previously reported from Texas. This species, considered identical with *vittatum* by Malloch (1914), is regarded as a valid species by Dr. Stone. Texas records are as follows:

Medina County

Hondo River, Oct. 16, 1957, P

*Hondo Creek, Apr. 20, 1941, P

Burnet County

Unnamed stream, Feb. 2, 1958, L

Uvalde County

*Sabinal, Mar. 22, 1911, A

*Sabinal River, Apr. 20, 1941, P

*Uvalde, Dec. 28, 1923, P

Travis County

*Small stream south of Austin, Apr. 19, 1941, P

*Slaughter Creek, Apr. 19, 1941, P

Menard County

*Los Morros Creek, Apr. 23, 1941, P

*San Saba River, Apr. 23, 1941, P

Kerr County

*Kerrville, Mar. 1955, L, P

Val Verde County

*Devil's River, Juno, June 13, 1953, L, P

Simulium bivittatum MALLOCH 1914

Not previously recorded from Texas. Texas records are as follows:

Menard County

*Los Morros Creek, May 22, 1939, A

Collin County

*McKinney, Mar. 28, 1913, A

Simulium jenningsi MALLOCH 1914

Not previously recorded from Texas. Texas records are as follows:

Kerr County

*Kerrville, June 1, 1953, A

Cherokee County

*Unnamed stream west of Jacksonville, Apr. 17, 1941, P

Simulium mediovittatum KNAB 1915

Type locality Arlington, Tarrant County, Texas, Oct. 28, 1914. Dyar and Shannon (1927) list this species from Bay City,

Matagorda County, Texas, Jan. 26, 1911. Additional Texas records are as follows:

Travis County

Austin, July 8, 1955, A

Sandy Creek, July 5, 1957, P

Barton Creek, July 29, 1957, L, P

Onion Creek, July 13, 1957, L, P

Colorado River, Aug. 18, 1957, L, P

Colorado River, Jan. 22, 1958, L, P

*Austin, Aug. 26, 1955, A

Medina County

Hondo River, Oct. 16, 1957, L, P

Kinney County

Pinto Creek, Oct. 15, 1957, L, P

Hamilton County

Partridge Creek, Nov. 13, 1957, L, P

Cowhouse Creek, Nov. 13, 1957, L, P

Lampasas County

Lampasas River, Nov. 13, 1957, L

Burnet County

Lampasas River, Nov. 13, 1957, L

Nueces County

Nueces County, Dec. 10, 1958, L, P

Zavala County

*Crystal City, June 21, 1935, A

Uvalde County

*Leona River, Apr. 21, 1941, P

Menard County

*San Saba River, Apr. 23, 1941, P

*Los Morros Creek, Oct. 1, 2, 9, 1942, A, P

*Los Morros Creek, July 3, 1940, A

*Los Morros Creek, May 22, 1939, A

Dimmit County

*Winter Haven, June 21, 1935, A

Simulium meridionale RILEY 1886

Recorded, as *S. occidentale* Townsend 1891, by Dyar and Shannon (1927) from Liberty, Liberty County, Texas, Mar. 19, 1908, and Dallas, Tarrant County, Texas, June 2, 1922. Additional Texas records are as follows:

Cameron County

*Brownsville, June 2, 1904, A

Tom Green County

*Christoval, Sept. 5, 1941, L, P

Brazos County

*College Station, 1945, A

Nueces County

*Corpus Christi State Park, Oct. 6, 1951, A

Simulium notatum ADAMS 1904

Recorded by Dyar and Shannon (1927) from Devil's River, Texas, May 6, 1907. In a personal communication Dr. Stone states that he believes Dyar and Shannon misidentified this species and that it does not occur in Texas.

Simulium slossonae DYAR AND SHANNON 1927

Not previously reported from Texas. Texas records are as follows:

Leon County

*Buffalo Creek, Apr. 18, 1941, L, P

Simulium solaris STONE 1948

Type locality San Saba River, Menard County, Texas, Apr. 23, 1941. In his description of this species Stone (1948) designated as paratypes specimens collected in Menard, Travis, Uvalde, Val Verde, Kerr, and Burnet counties. Additional Texas records are as follows:

Travis County

Barton Creek, July 29, 1957, L

Onion Creek, July 13, 1957, L, P

Hays County

Hamilton County, July 13, 1957, L, P

Kerr County

Guadalupe River, Sept. 21, 1957, L, P

Guadalupe River, Sept. 21, 1957, L, P

Burnet County

Unnamed stream, Feb. 2, 1958, L, P

Simulium trivittatum MALLOCH 1914

Recorded by Malloch (1914) as *S. distinctum* new species from Devil's River, Texas, no date, and by Dyar and Shannon (1927) from Devil's River, Texas, May 5, 1907, and from Victoria, Victoria County, Texas, Dec. 13, year not given. Additional Texas records are as follows:

Val Verde County

Creek in Del Rio, Texas, Oct. 18, 1957, L, P

Lampasas County

Lampasas River, Nov. 13, 1957, P

Burnet County

Lampasas River, Nov. 13, 1957, P

Unnamed stream, Jan. 22, 1958, P

Unnamed stream, Jan. 22, 1958, P

Unnamed stream, Jan. 22, 1958, P

Unnamed stream, Jan. 22, 1958, L, P

Travis County

Bull Creek, Dec. 15, 1957, P

Bull Creek, Dec. 15, 1957, L

Unnamed stream, Dec. 15, 1957, L

Williamson County

S. San Gabriel River, Dec. 16, 1957, L, P

S. San Gabriel River, May 20, 1958, P

*Large stream southwest of Hutto, Apr. 18, 1941, P

Tom Green County

Concho River at Christoval, Apr. 20, 1959, L, P

Uvalde County

*Sabinal River, Apr. 20, 1941, P

*Leona River, Apr. 21, 1941, P

*Nueces River, Apr. 21, 1941, P

*Nueces River, Sept. 7, 1941, P

Edwards County

*Pulliam Creek, Apr. 22, 1941, P

Kimble County

*S. Llano River, Apr. 22, 1941, P

Menard County

*Los Morros Creek, Apr. 23, 1941, P

*San Saba River, Apr. 23, 1941, P

*Clear Creek, Apr. 23, 1941, P

Simulium venustum SAY 1829

Recorded by Dyar and Shannon (1927) from 'Texas.' An additional Texas record is as follows:

Cherokee County

*Two streams near Jacksonville, Apr. 17, 1941, P

Simulium tuberosum (LUNDSTROEM) 1911

Not previously reported from Texas.

Rusk County

*Sampson Creek, Apr. 17, 1941, P

Simulium virgatum COQUILLET 1903

Recorded by Dyar and Shannon (1927) from Devil's River, Texas, May 5, 1907,

and by Stains and Knowlton (1936) from 'Texas.' Additional Texas records are as follows:

Hays County

Bear Creek, July 8, 1957, A, L, P

Travis County

Bull Creek, Dec. 15, 1957, L

Bull Creek, Dec. 15, 1957, P

Unnamed stream, Dec. 15, 1957, L

*Small stream south of Austin, June 19, 1941, L, P

Nueces County

Nueces River, Dec. 10, 1957, L

Burnet County

Unnamed stream, Feb. 2, 1958, P

Unnamed stream, Feb. 2, 1958, P

Bexar County

Helotes Creek, Apr. 5, 1958, L, P

Bell County

San Gabriel River, May 20, 1958, L

Williamson County

San Gabriel River, May 20, 1958, P

*Large stream southwest of Hutto, Apr. 18, 1941, P

Menard County

*Los Morros Creek, May 22, 1939, A

Los Morros Creek, Apr. 12, 1943, A

*San Saba River, Apr. 23, 1941, P

Edwards County

*Spring near Llano River, Apr. 22, 1941, P

Medina County

*Hondo Creek, Apr. 20, 1941, P

Uvalde County

*Sabinal River, Apr. 20, 1941, P

*Frio River, Apr. 21, 1941, P

Zavala County

*Nueces River, Apr. 20, 1941, P

Simulium vittatum ZETTERSTEDT 1835

Recorded by Dyar and Shannon (1927) from Sabinal, Uvalde County, Texas, Mar. 22, 1911, and by Vargas (1945) from Los Morros Creek, Menard, Menard County, Texas, July 3, 1940. Additional Texas records are as follows:

Tom Green County

Concho River at Christoval, Apr. 20, 1959, L, P

Concho River at San Angelo, Apr. 21, 1959, L, P

McCulloch County

San Saba River southeast of Brady, Apr. 22, 1959, L, P, A

Travis County

Colorado River at Austin, 1959, L, P

Rusk County

*Outflow from Henderson water supply, Apr. 17, 1941, L, P

Cherokee County

*Sampson Creek, Apr. 17, 1941, P

*Stream east of Jacksonville, Apr. 17, 1941, L, P

*Stream west of Jacksonville, Apr. 17, 1941, L, P

*Spillway from culvert east of Nueces River, Apr. 17, 1941, P

Anderson County

*Stream north of Palestine, Apr. 18, 1941, L, P

Leon County

*Buffalo Creek, Apr. 18, 1941, L, P

Robertson County

*Stream west of Ridge, Apr. 18, 1941, L, P

Medina County

*Hondo Creek, Apr. 20, 1941, P

Uvalde County

*Leona River, Apr. 21, 1941, P

*Nueces River, Apr. 21, 1941, P

Menard County

*Los Morros Creek, Apr. 23, 1941, P

*San Saba River, Apr. 23, 1941, P

*Clear Creek, Apr. 23, 1941, P

Taylor County

*Small stream north of Abilene, Apr. 24, 1941, L, P

LaSalle County

*Nueces River at Cotulla, Apr. 4, 1941, A

Cnephia pecuaria (RILEY) 1886

Previously recorded, as *Eusimulium pecuorum* (Riley) by Dyar and Shannon (1927) from College Station, Brazos County, Texas, no date, and by Stains and Knowlton (1943) from Lufkin, Angelina County, Texas, Jan. 17, 1941. Additional Texas records are as follows:

Burnet County

Unnamed stream, Feb. 2, 1958, P

Grimes County

*Navasota, Mar. 11, 1946, A

Jasper County

*Kirbyville, Mar. 25, 1908, A

SUMMARY

Nine species of blackflies have been previously reported from Texas, the identity of one of which (*S. notatum*) is questionable. In this paper, additional locality records are given for seven of these species. Texas locality records for five previously unrecorded species of *Simulium* are included bringing the total number of species definitely known to occur in the state to thirteen.

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