Notes on the *Dicrotendipes* (Diptera: Chironomidae) of Mexico, with descriptions of two new species

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Ent. scand. Suppl.

The chironomid fauna of Mexico and Central America is poorly known (Reiss 1982). Less than 10 species have been described as new from Mexico (Reiss 1972; Roback 1964, 1965; Sæther 1983; Serra-Tosio 1977; Vargas 1946, 1952). Our poor present knowledge of the midges of Mexico is no doubt due to a scarcity of collectors and a dearth of specimens, rather than an impoverished fauna. I recently examined some chironomids from Mexico collected by C. W. and L. B. O'Brien. In this material were 2 new species of *Dicrotendipes* Kieffer.

The genus *Dicrotendipes* was recently revised for the Nearctic (Epler 1987). The present paper deals with the species of *Dicrotendipes* found or expected to occur in Mexico. Comments on sexual dimorphism in the genus are also included.

Methodology

Morphological and descriptive terminology follow Sæther (1980) and Epler (1987). All measurements are in micrometers unless otherwise stated. The female notum is measured from its anterior origin to its bifurcation point.

Abbreviations used are:

FSCA — Florida State Collection of Arthropods, Florida A & M University, Tallahassee, FL, U.S.A.

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slide mounting. The muscle tissue becomes very difficult or impossible to macerate following fixation in Kahle’s after as short a period as 2 years. Because of this serious limitation, workers desiring to retain midge colors would achieve better results by pinning a series of fresh specimens in addition to those collected in alcohol.

Results and discussion

Vargas (1952) recorded 2 species of Dicrotendipes (as Tendipes (Limnochironomus)) from Mexico: californicus Johannsen and figueroai n. sp. Eppler (1987) considered figueroai to be a junior synonym of D. aethiops (Townes). Following is a list of the species of Dicrotendipes known from or expected to occur in Mexico. Because so much of Mexico remains unsampled for chironomids, this list should be regarded as provisional.

Dicrotendipes adnitus Eppler

This species is known only from the Chiricahua Mountains of SE Arizona. Although not yet recorded from Mexico, I would expect diligent collecting in the mountains of Chihuahua and Sonora would produce this species.

Dicrotendipes aethiops (Townes)

Vargas (1952) recorded this species (as Tendipes (Limnochironomus) figueroai) from Lagunas de Zempoala, Morelos. Eppler (1987) recorded a single specimen from Arroyo de Calamajue in Baja California. In addition, I have also seen 4 specimens from Querétaro, C. Cadereya, Wagner Farm, 29-X-1962, leg. E. J. Fittkau. These 4 specimens are in the Zoologische Staatssammlung, Munich, Federal Republic of Germany.

Dicrotendipes californicus (Johannsen)

Vargas (1952) recorded this species from Lagunas de Zempoala, Morelos. Eppler (1987) also recorded specimens from Xochitepec in Morelos, Tehuantepec in Oaxaca, and Piaxtla in Sinaloa. This species is part of a complex of species which ranges from California and South Dakota in the U.S. to Colombia in South America.

Dicrotendipes lucifer (Johannsen) complex

Males of the D. lucifer complex are not safely separable to species (Eppler 1987). Although I have not seen specimens of this complex from Mexico, I have examined specimens collected in Browning, Texas and other areas near the Texas—Mexico border. I believe it would be safe to assume that this species will eventually be collected in Mexico.

Dicrotendipes neomodeustus (Malloch)

This species has not yet been recorded from Mexico, but its presence along the Rio Grande in Texas should lead to its eventual collection in Mexico.

Dicrotendipes obriniornum sp. nov.

Type locality: Mexico, Michoacan, Patzcuaro. Type material: Holotype, male, Mexico, Michoacan, Patzcuaro, el. 2164 m, at light, 14-18-1982, leg. L. B. O'Brien (FSU). — Paratypes (13), same data as holotype, 3♂♂, 10♀♀ (FSU, JHE). The male holotype is mounted in Euparal and is deposited in the Florida State Collection of Arthropods chironomid collection housed at Florida A & M University, Tallahassee, FL, U.S.A. 2 male paratypes are mounted in Hoyers (ringed with Euparal); the remainder of the paratypes are in alcohol or mounted in Euparal. Diagnosis: Distinguished from D. californicus (Johannsen) and D. crypticus Eppler by the dark red-brown coloration and the solid coloration of the fore femora.

Etymology: I take pleasure in naming this species after C. W. and L. B. O'Brien, who have taken the time to collect chironomids on their field trips to Mexico, and have made their specimens available to me.

Description

MALE IMAGO (n=3; holotype, 2 paratypes)

Color (alcohol preserved specimens). Head and abdomen red-brown, distal 1/3 of T VII and VIII lighter, thorax dark red-brown. Fore legs completely dark brown; mid and hind legs with femora dark brown, tibiae light brown with dark brown apices, tarsis light brown, tarsomere 1 sometimes with light proximal apex; tibial apices of hind legs with more extensive dark coloration than mid legs. Wings mostly clear, with faint spots at base of R4+5, at FCu and along M3+4 and Cu1 slightly darker long vannal fold; veins light red-brown.


Thorax. Scsc developed. Acrostic 33(2); scutellum small pit with well developed. Wing. Length. FCu below or d1ichiorium with 2-3 setae; 3-5 setae; 6.

Legs. Foreleg middle leg with Lenghs and propig.

Abdomen. Female. Hypopygium as inflated or slightly curved medially apex. Superior valve width 40-46; paraprosternal margin arranged in 2-3 with tip of club slightly notched, silla chaetica in these setae slightly more other Distantly, pyriniform strongly deflexed 9-11 lateral bar.

FEMALE IMAGO

Color. Sin.
**Length.** Total 4.20-4.61 mm; thorax 1.18-1.28 mm; abdomen 3.03-3.34 mm.


**Thorax.** Scutal tubercle moderately well developed. Acrostichals 4-6(2); dorsocentrals 26-33(2); scutellars 11(2); prealars 10-11(2). Humeral pit well developed, with 3-7 large tubercles.

**Wing.** Length 2.40-2.51 mm, width 685-690. FCu below or distal to RM. VR 0.90-0.92. Brachiochium with 2-3 setae; R1 with 16-22 setae; R4,5 with 3-5 setae; squama with 17-18 setae.

**Legs.** Foretarsal beard absent. Metatarsus of middle leg with 9(2) palmate sensilla chaetica. Lengths and proportions of legs:

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<td>SV</td>
<td>1.48—1.52(2)</td>
<td>3.96—4.11</td>
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**Abdomen.** flattened setae on S VI not apparent.

**Hypopygium.** (Fig. 1). Gonostylius broad, not as inflated or apically attenuate as *D. californicus*, curved medially, with 8-10 large setae on inner apex. Superior volsella (Figs. 2-3) length 75-83, width 40-46; pediform, with apex reflexed in all specimens examined, ventrally setose except for distal margin and apex, with 5-7 sensilla chaetica arranged in 2-3 irregular rows. Inferior volsella with tip of club moderately expanded, apex shallowly notched, with 2-3 dorsal rows of 1-5 sensilla chaetica each; with 1-3 ventral apical setae, these setae slightly smaller than those present in most other *Dicrotenides*. Anal point bare dorsally, pyriform, with short narrow peduncle, strongly deflexed; with 2-4 dorsal basal setae and 9-11 lateral basal setae.

**Female Imagos** (n=3 paratypes)

**Color.** Similar to male. The dark markings along the veins of the wing are slightly more extensive in the female.

**Length.** Total 3.70-3.71(2) mm; thorax 1.08 (2) mm; abdomen 2.63-2.68 mm.

**Head.** Temporals 23-32. Clypeus with 31-36 setae; 8-13 cibarial setae. Palpomere lengths: 25-42; 43-50; 143-175; 172-203. Frontal tubercles 10-15 long, 5-10 wide. AR 0.46-0.52.

**Thorax.** Scutal tubercle well developed. Acrostichals 10-11(2); dorsocentrals 40-48; scutellars 13-15; prealars 8-13. Humeral pit well developed, with 8-9 large tubercles.

**Wing.** Length 2.28-2.45 mm; width 770-800. FCu distal to RM. VR 0.89-0.92. Brachiochium with 2 setae; R1 with 31-35 setae; R4,5 with 30-35 setae; squama with 13-14 setae.

**Legs.** Metatarsus of middle leg with 42-43 palmate sensilla chaetica in partially double row. Lengths and proportions of legs:

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<td>415(1)</td>
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<td>SV</td>
<td>1.45(1)</td>
<td>3.91—4.11</td>
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**Abdomen.** Flattened setae on S VI not apparent. S VIII with 20-29 setae per side; T VIII with 22-37 setae. T IX with about 36-50 setae. T X with 5-7 setae per side. Gc IX with 2-3 setae. Notum 190-198 (2) long. Cerci 126-134 long. Genitalia as in Figs. 4-6.

**Pupa and Larva:** Unknown

**Remarks**

This species is a member of the *D. californicus* group; other species in this group include *D. californicus* and *D. crypticus* Epler. This group is distributed from the western United States southward to Colombia. It is possible that *D. obriensorum* may be a color phase or subspecies of *D. californicus*; more rearings of the members of the *D.*
californicus group are needed from Central and South America.

Dicrotendipes sinoposus sp. nov.

Type locality: Mexico, Hidalgo, Otonlo.
Type material: Holotype, male, Mexico, Hidalgo, Otonlo, at light, 8-1-1982, leg. C. W. & L. B. O’Brien (FSCA). — Paratypes (2): Mexico, Veracruz, Catemaco, 9 Aug. 1964, light trap, leg. P. J. Spangler, 2♂♂♂ (USNM). The holotype specimen is slide mounted in Hoyer’s mountant (ringed with Euparal), and is deposited in the FSCA.
Diagnosis: This species is similar to D. modestus (Say) and D. adnilus Epler. The raised truncate base of the anal point, with more than 15 dorsal basal setae, will separate this species from D. modestus. The base of the anal point is wider and more setose in D. sinoposus than D. adnilus; the apex of the superior volsella is setose in sinoposus, bare in adnilus; and the abdomen of sinoposus is green, while adnilus is a dark brown species.
Etymology: Sinoposus is an anagram for Soponis; I take pleasure in naming this species in honor of A. R. Soponis.

MALE IMAGO (=3; 1 holotype and 2 paratypes)

Color (based on holotype which was preserved in Pampel’s fluid before slide mounting). Head and abdomen green, thorax yellow-orange. Fore legs with femora green, with brown distal apices; tibiae light brown-green, distal apices brown, tarsi brown. Mid and hind legs greenish stramineous, with tarsomeres darker. Wings clear, veins light yellow-brown.

Length. Total 5.12 mm (1); thorax 1.15-1.23 mm; abdomen 3.90mm (1).


Thorax. Scutal tubercle moderately to well developed. Acrostichals 11-14; dorsocentrales 14-22; scutellars 9-12 (2); prealar 10. Humeral pit not clearly discernable.

Wing. Length 1.83-2.55 mm, width 560-730. FCu distal to RM. VR 0.86-0.88. Brachiolium with 2 setae; R₃ with 34-42 setae; R₄₅ with 16-21 setae; squama with 8-14 setae.

Legs. Foretarsal bead absent. Metatarsus of middle leg with 5-6 palmate sensilla chaetica. Lengths and proportions of legs:

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<td>SV</td>
<td>1.42-1.52</td>
<td>3.48-3.57</td>
<td>2.61-2.82</td>
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Abdomen. Flattened setae on S VI not apparent.

Hypopygium (Fig. 7). Gonostylus narrow, curved medially, with 8 large setae on inner apex. Superior volsella (Fig. 8) length 65-83, width 45-65; pediform, ventrally covered with small setae to distal margin, with 6-10 sensilla chaetica arranged in 2-3 irregular rows. Inferior volsella with tip of club moderately expanded, apex shallowly bifid, with 2-3 dorsal rows of 1-5 sensilla chaetica each; with 1 large ventral apical seta. Anal point bare dorsally, pyriform; base of point truncate, raised; with 16-20 large dorsal basal setae, some running forward almost to median portion of hypopygium; 7-9 lateral basal setae.

FEMALE IMAGO, PUPA, AND LARVA: unknown.

Remarks

The pediform superior volsella and general morphology of the hypopygium place this species near D. adnilus Epler and D. modestus (Say).

Notes on sexual dimorphism

In addition to the usual sexual dimorphism, such as genitalia, antennae, and the stouter female body and wing form, several other differences are apparent. The dorsocentral setae in the female (Fig. 9) originate much farther forward on the thorax than in the male (Fig. 10), and are more numerous, as are the acrostichal setae. Wing veins R₁ and R₄₅ are more setose in the female. The leg ratio BV is higher in the female. The palmate sensilla chaetica of the metatarsus of the middle leg are more numerous in the female and may run almost the entire length of the tarsomere. The row of sensilla chaetica is partially double. Although I
have not critically examined females of all *Dicrotendipes* species, the numbers of dorso-central setae and palimate sensilla chaetica are higher in the female than the male in all species examined, and these setae and sensilla chaetica are generally distributed in a similar manner in the females of all species examined.

Acknowledgements: I would like to thank Drs. C.W. and L.B. O'Brien, and Dr. F. Reiss for making specimens available to me. This research was partially supported by a CSRS/USDA grant (FLAX 79009) at Florida A & M University.

Literature cited


