

**Recognition of *Culex bidens* Dyar and *Culex interfor* Dyar
(Diptera: Culicidae) as separate species¹**

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ABSTRACT. *Culex (Culex) interfor* Dyar is resurrected from synonymy with *Culex (Culex) bidens* Dyar. The male genitalia of these species are described and distinguished.

Bram (1967) synonymized *Culex (Culex) interfor* Dyar, 1928, with *Cx. (Cux.) bidens* Dyar, 1922, on the basis of similarity in the male genitalia. The lectotype was the only male of *interfor* available to Bram, and he apparently could not distinguish it from the lectotype of *bidens* (cf. Fig. 1, A and B). Without additional material, it may have been impossible for Bram to properly assess the status of *interfor*.

In 1983 we noticed that males of *bidens* collected in Santa Fe Province, Argentina⁵ could be separated into two groups based on differences in the dentition of the lateral plate of the phallosome. One group included specimens with a single tooth on each lateral plate. The other group included specimens with two or three teeth on at least one plate. A more detailed study was undertaken when we realized that the lectotype of *interfor* belonged to the first group and the lectotype of *bidens* belonged to the second group. When we carefully examined the genitalia of all the material available to us in the collections of the National Museum of Natural History (NMNH) and Centers for Disease Control (CDC), we discovered that *interfor* is reliably distinguished from *bidens* by the unusual character of the ventral

¹ The views of the authors do not purport to reflect the positions of the supporting agencies.

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⁵ Specimens were collected in light traps by C. J. Mitchell, CDC, Ft. Collins, during cooperative studies with the University of Córdoba, Córdoba, Argentina.

arm of the lateral plate. Based on these findings, we are restoring *interfor* to full species status. The genitalia of these species are described and illustrated below.

Culex (Culex) bidens Dyar

Culex bidens Dyar, 1922. TYPE: lectotype male, Rosario [Beni], Bolivia (NMNH); designation of Stone and Knight 1957.

MALE GENITALIA (Figs. 1, 2). *Tergum IX*: Ninth tergal lobe small, with regular or irregular row of 3-11 (mode 5) unevenly spaced setae. *Gonocoxopodite*: Gonocoxite normal, uniformly covered with fine spicules, ventrolateral surface with strong setae, lateral surface with 2 or 3 rows of moderately developed setae, mesal margin with 4 rows of small setae extending from base to level of subapical lobe; subapical lobe prominent, undivided, setae *a-c* and *g* in vertical row at tip of lobe, setae *f* and *h* at level of *g* on mesal and lateral sides of lobe respectively, group *d-e* represented by single alveolus at base of *f*; *a-c* stout, tapered and hooked at tip, *a* slightly shorter than *b* and *c*; *f* flattened and broad and often twisted on distal half, with curved hooked tip; *g* foliform, asymmetrical, pointed or narrowly rounded apically; *h* slightly bent at about 0.3 from base, tapered and curved distally. Gonostylus stout, curved and narrowed distally, with 2 small, slender setae on distal 0.3 of concave surface; gonostylar claw short, troughlike. *Phallosome*: Lateral plates slightly longer than aedeagus; aedeagal sclerite broad, crest somewhat triangular in lateral view; lateral plate with 1-3 (usually 2) large dorsolaterally directed teeth, 0-3 minute conical denticles, and a prominent beak-shaped dorsal process, dorsal process directed slightly laterad; base of lateral plate with strongly differentiated basal articulatory process (articulates with basal piece); ventral arm strongly developed, in form of spine bent dorsolaterally, surface smooth or with tiny spicules; dorsal arm absent. *Proctiger*: Paraproct with long basal lateral arm and distinct ventral acetabulum, basal lateral arm curved ventrad and compressed distally; crown dark, with dense cluster of needlelike spicules; 1-4 (mode 2) cercal setae. *Tergum X* elongate, slightly curved, joining paraproct at base of basal lateral arm.

MATERIAL EXAMINED: 80 male genitalia. ARGENTINA. *Corrientes*: locality not specified, 6 specimens. *Jujuy*: Ledesma, 1 specimen. *Santa Fe*: Calchaquí, 1 specimen; Humboldt, 2 specimens; Las Tacuaritas, 4 specimens; Recreo, 1 specimen; locality not specified, 8 specimens. *Tucumán*: Concepción, 2 specimens; Medinas, 2 specimens; Tucumán, 1 specimen. *Province not specified*: 7 specimens. BOLIVIA. *Beni*: Rosario, lectotype. BRAZIL. *Bahia*: Bahia (?), 7 specimens; Lago, 34

specimens; Muriqueria, 1 specimen. VENEZUELA. *State not specified*: Ocumare de la Costa, 2 specimens.

Culex (Culex) interfor Dyar

Culex (Culex) interfor Dyar, 1928. TYPE: lectotype male, between Tucumán and Jujuy, Argentina (NMNH); designation of Stone and Knight 1957.

MALE GENITALIA (Figs. 1, 2). Tergum IX, gonocoxopodite and proctiger almost exactly as in *bidens*, but phallosome differing in the following conspicuous features. Aedeagal sclerite longer, crest more or less evenly rounded; lateral plate with a single strong apical tooth projecting dorsolaterad, infrequently with 1 or 2 minute denticles; ventral arm uniquely developed as small triangular flaplike process, directed laterad and pressed close to surface of lateral plate.

MATERIAL EXAMINED: 42 male genitalia. ARGENTINA. *Chaco*: locality not specified, 2 specimens. *Corrientes*: locality not specified, 5 specimens. *Santa Fe*: Candiotti, 1 specimen; Empalme San Carlos, 2 specimens; Esperanza, 2 specimens; Galvey, 5 specimens; Humboldt, 9 specimens; Recreo, 4 specimens; locality not specified, 10 specimens. *Tucumán*: between Tucumán and Jujuy, lectotype and 1 paralectotype.

The genitalia of the types of *bidens* (undissected) and *interfor* (partially dissected) were poorly mounted (Fig. 1, A and B) when they were examined by Bram (1967). As pointed out by Harbach et al. 1983 (1984), careful dissection and uniform positioning of the genitalic structures of *Culex* are necessary for accurate species recognition. The importance of considering the positioning and posture of structural features when making species determinations cannot be overstated.

Acknowledgments

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Figure Legends

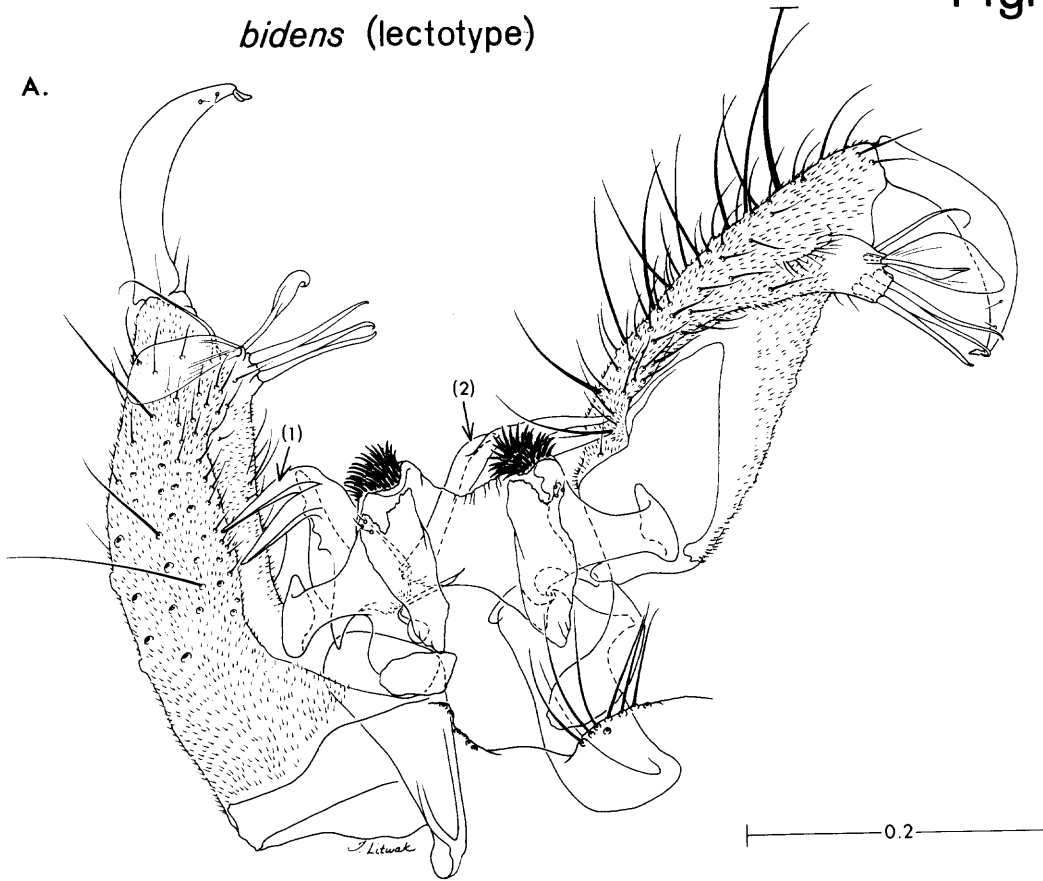
Figure 1. Lectotype male genitalia of *Culex bidens* Dyar (undissected) and *Culex interfor* Dyar (partially dissected) before being removed from the original slides and dissected by WLJ. **A**, Parameres omitted from background; articulation of basal pieces, paraprocts and lateral plates obstructed and confused; joining of aedeagal sclerites obscure. **B**, Basal pieces, part of right paraproct, right tergum X and cercal sclerites omitted; articulation of basal pieces, paraprocts, tergum X and gonocoxal apodemes badly confused at points marked by circles; lateral plates, aedeagal sclerites and parameres in reverse left-right positions with lateral aspects shown, left and right halves of proctiger also reversed in position and not attached to gonocoxites. *Culex interfor* is quite distinct from *bidens* in the character of the teeth (1) and ventral arm (2) of the lateral plate.

Figure 2. Male genitalic structures of *Culex bidens* Dyar and *Culex interfor* Dyar. **A**, Gonocoxopodite; **B**, Proctiger; **C**, Phallosome; **D**, Tergum IX; **E, H**, Lateral plates and aedeagus in everted position; **F, G, I, J**, Lateral plates and aedeagal sclerites. Aspects as indicated; abbreviations: a-h = setae a-h; ae = aedeagus; as = aedeagal sclerite; bap = basal articulatory process; bla = basal lateral arm; bp = basal piece; cs = cercal sclerite; dp = dorsal process; gs = gonostylus; gx = gonocoxite; lp = lateral plate; tl = ninth tergal lobe; va = ventral arm; X-Te = tergum X.

Fig. 1

bidens (lectotype)

A.



interfor (lectotype)

B.

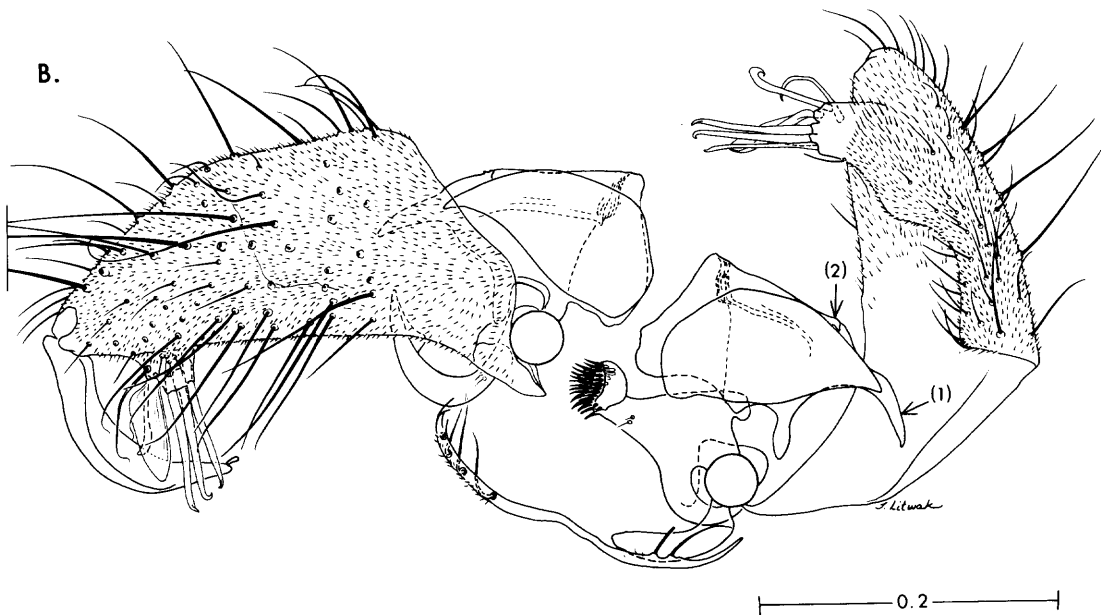


Fig.2

