

STUDIES OF NEOTROPICAL CADDISFLIES, I:
THE DESCRIPTION OF *CERASMATRICHIA*,
NEW GENUS, A RELATIVE OF *ALISOTRICHIA*,
WITH DESCRIPTIONS OF NEW AND
OLD SPECIES AND THE LARVA
(TRICHOPTERA: HYDROPTILIDAE)

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Abstract.—*Cerasmatrixia*, new genus (type species *C. trinitatis*), is established and defined in the adult and larval stage. *Alisotrichia dominicensis* Flint, *A. wirthi* Flint and *A. adunca* Flint are transferred thereto, and their males and females redescribed. *Cerasmatrixia spinosa* (Venezuela), *C. argylensis* (Tobago, Trinidad), *C. trinitatis* (Trinidad), are newly described in the male and female sexes; the larva of the first is firmly established by metamorphotypes, and therefore used as the basis for the generic level description of the larva (modified if necessary to include the larvae of species A–E). Larvae and females of an additional six species serve to extend the range of the genus to Costa Rica, south to Peru, east through Venezuela and north in the Lesser Antilles to Guadeloupe.

Since the genus *Alisotrichia* was described in 1964 for a Puerto Rican species, the genus has grown to 32 species and become very heterogeneous. As part of studies by the first two authors on the definition and limits of the tribe Stactobiini in the New World, we have been attempting to define natural groups in this melange, and when warranted, establish new genera for them (e.g., Harris & Holzenthal 1993, Harris & Bueno 1994). One of the most obvious groups centers around *A. dominicensis* Flint, which is the focus of this study. The recent discovery of several undescribed species by the third author, and the firm association of the larval stage has confirmed the distinctiveness of this assemblage of species. We are here establishing the new genus *Cerasmatrixia*, redescribing three species transferred thereto, describing three newly discovered species, and the larval stage.

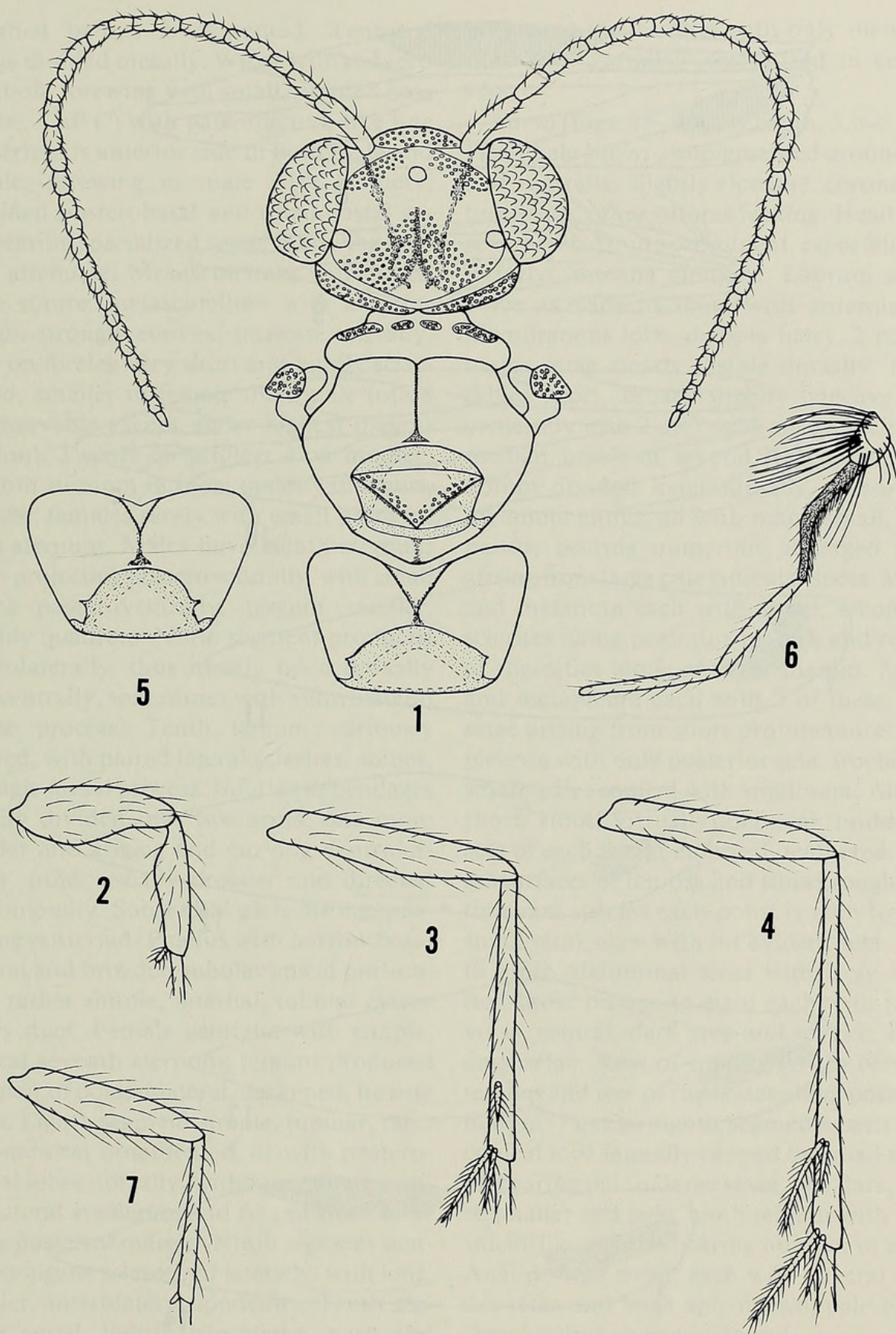
Material is deposited in several museums as indicated by the following acronyms:

IRSNB, Institut Royal des Sciences Naturelles de Belgique, Brussels; NMNH, National Museum of Natural History, Washington D.C.; IZAM, Instituto de Zoologia Agricola, Maracay, Venezuela; UWI, Department of Zoology, University of the West Indies, St. Augustine, Trinidad; ZMUA, Zoologisch Museum, Universiteit van Amsterdam, Amsterdam.

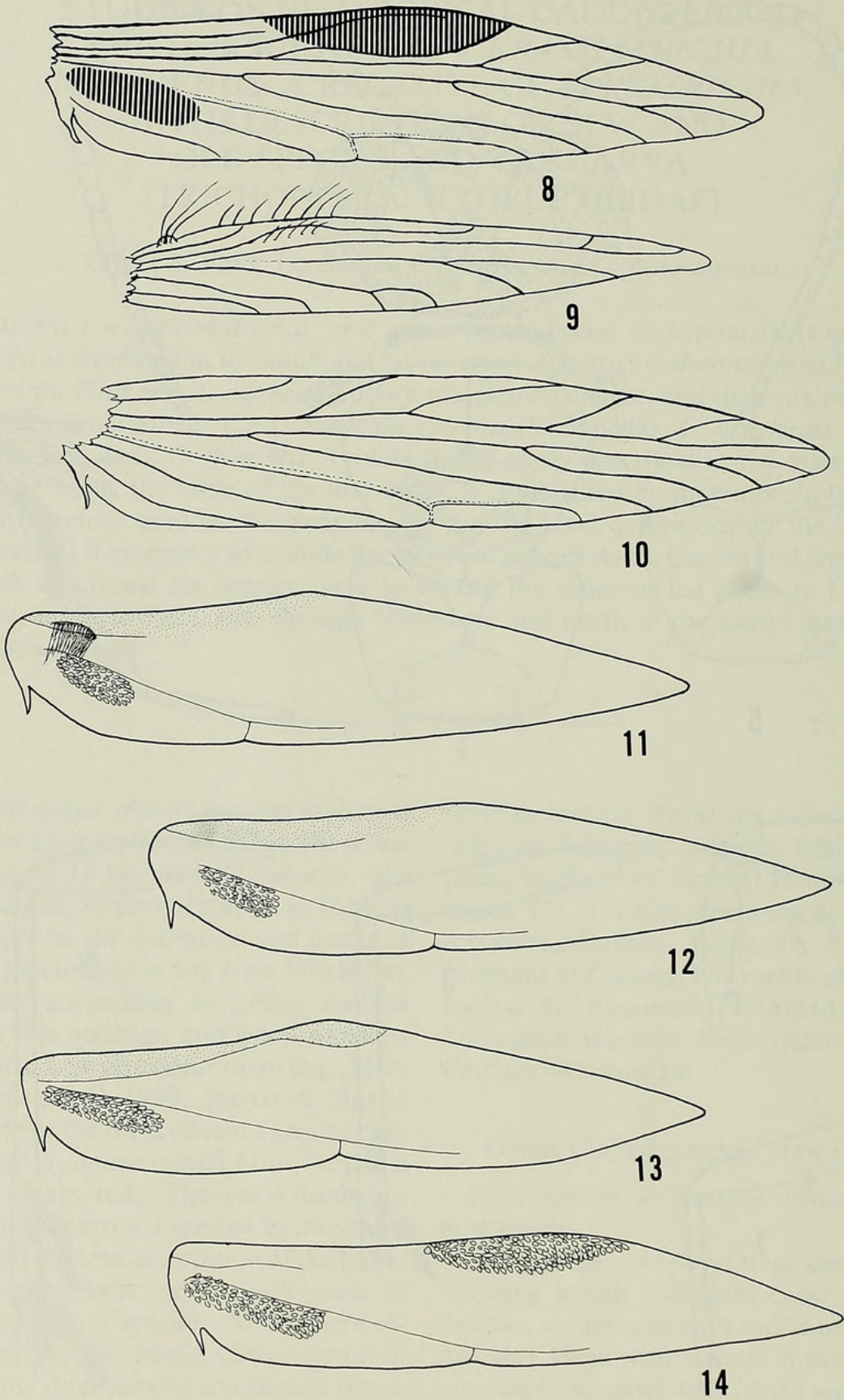
Genus *Cerasmatrixia*, New Genus

Type Species.—*Cerasmatrixia trinitatis* new species.

Adult (Figs. 1–14).—Of moderate size, forewing length 2–3 mm; color generally fuscous, sometimes with indistinct whitish maculae. Head with 3 ocelli. Antennae simple, scape elongate, with 25–35 segments in male, 22–26 in female. Maxillary palpus with 5 segments: 2 basal segments very small, globular, 3 remaining segments of equal length, each 3–4 times as long as basal



Figs. 1-7. 1-4, *Cerasmatrichia trinitatis*, adult. 1, head and thorax, dorsal; 2, fore femur and tibia; 3, mid femur and tibia; 4, hind femur and tibia. 5-7, *C. wirthi*, adult. 5, metanotum, dorsal; 6, maxillary palpus; 7, fore femur and tibia.



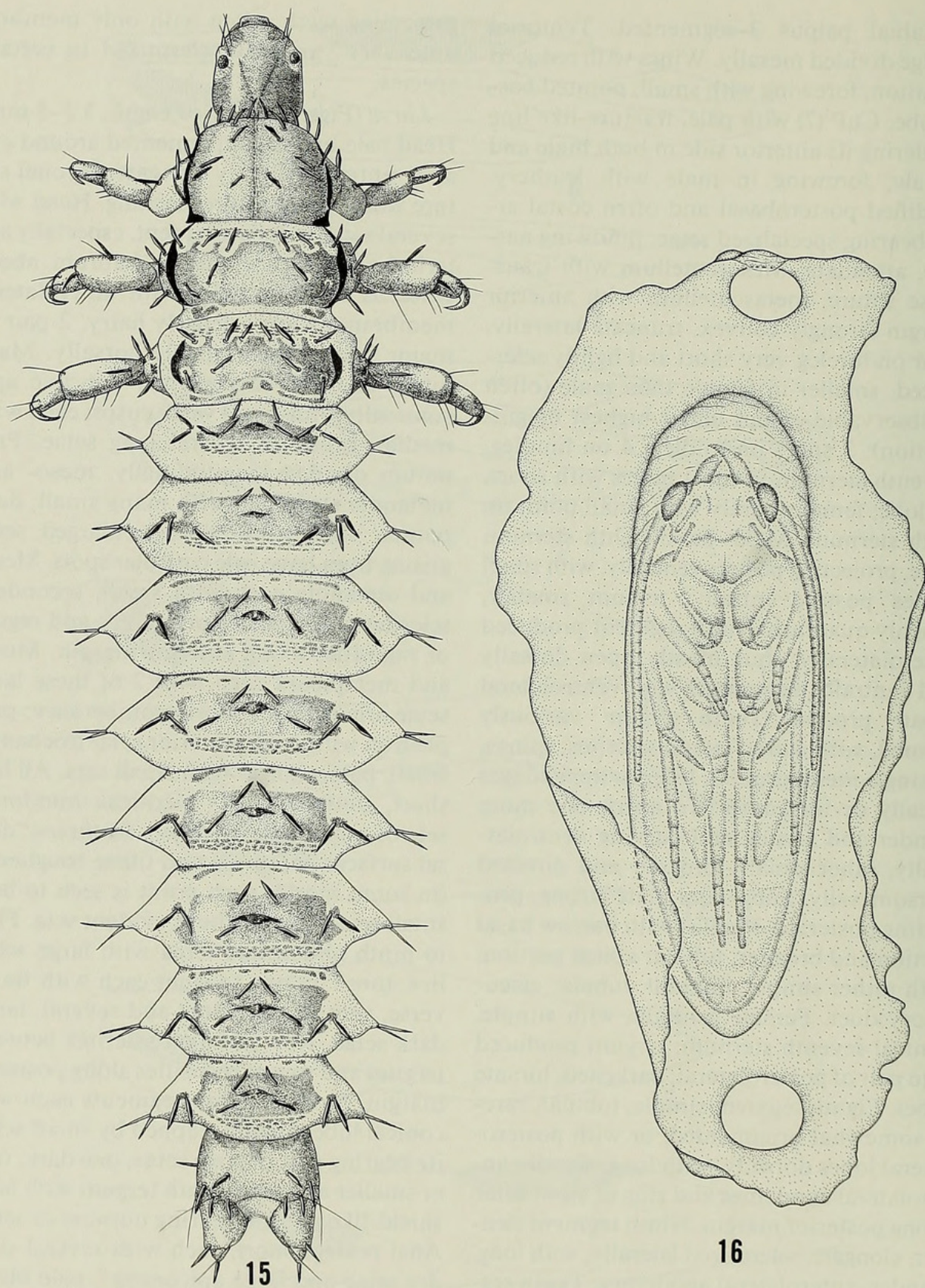
Figs. 8-14. 8-10, *Cerasmatrichia trinitatis*, wings. 8, forewing venation, male; 9, hindwing venation, male; 10, forewing venation, female. 11, *C. wirthi*, male forewing schematic showing modified areas. 12, same of *C. dominicensis*. 13, same of *C. argylensis*. 14, same of *C. trinitatis*.

2; labial palpus 3-segmented. Tentorial bridge divided mesally. Wings with reduced venation; forewing with small, pointed basal lobe, CuP (?) with pale, fracture-like line bordering its anterior side in both male and female; forewing in male with leathery, modified posterobasal and often costal areas bearing specialized setae; hindwing narrow, attenuate. Mesoscutellum with transverse suture; metascutellum with anterior margin strongly convex, truncate laterally. Spur on foreleg very short and lightly sclerotized, smaller in female than male (often unobservable except under highest magnification); 3 spurs on midleg; 4 on hindleg. Seventh sternum in most males with short, fat lobe; females rarely with small point on sixth sternum. Males have eighth sternum large, projecting posteroventrally, with small spines posteroventrally; tergum smaller, roughly quadrate. Ninth segment produced anterolaterally, thus mostly open dorsally and ventrally, sometimes with ventrolateral lobate process. Tenth tergum variously formed, with paired lateral sclerites, spines, or single mesal process. Inferior appendages usually divided into two arms: one more slender and arising and curving ventrolaterally, other usually broader and directed dorsomesally. Subgenital plate strong, projecting posteriad. Phallus with narrow basal section and broader, tubular apical portion; with rather simple, internal, tubular ejaculatory duct. Female genitalia with simple, conical seventh sternum; tergum produced into pair of posterolateral, darkened, hirsute lobes. Eighth segment simple, tubular, rarely somewhat ornamented, or with posterolateral lobes dorsally, with long, slender anterolateral apodemes and ring of stout setae along posterior margin. Ninth segment slender, elongate, sclerotized laterally, with long, slender, anterolateral apodemes. Tenth segment small, lightly sclerotized, narrowed apically with pair of slender apicolateral papillae. Vaginal sclerites complex, with small, spherical sclerite pierced by central opening, sometimes with strong anterior plate with

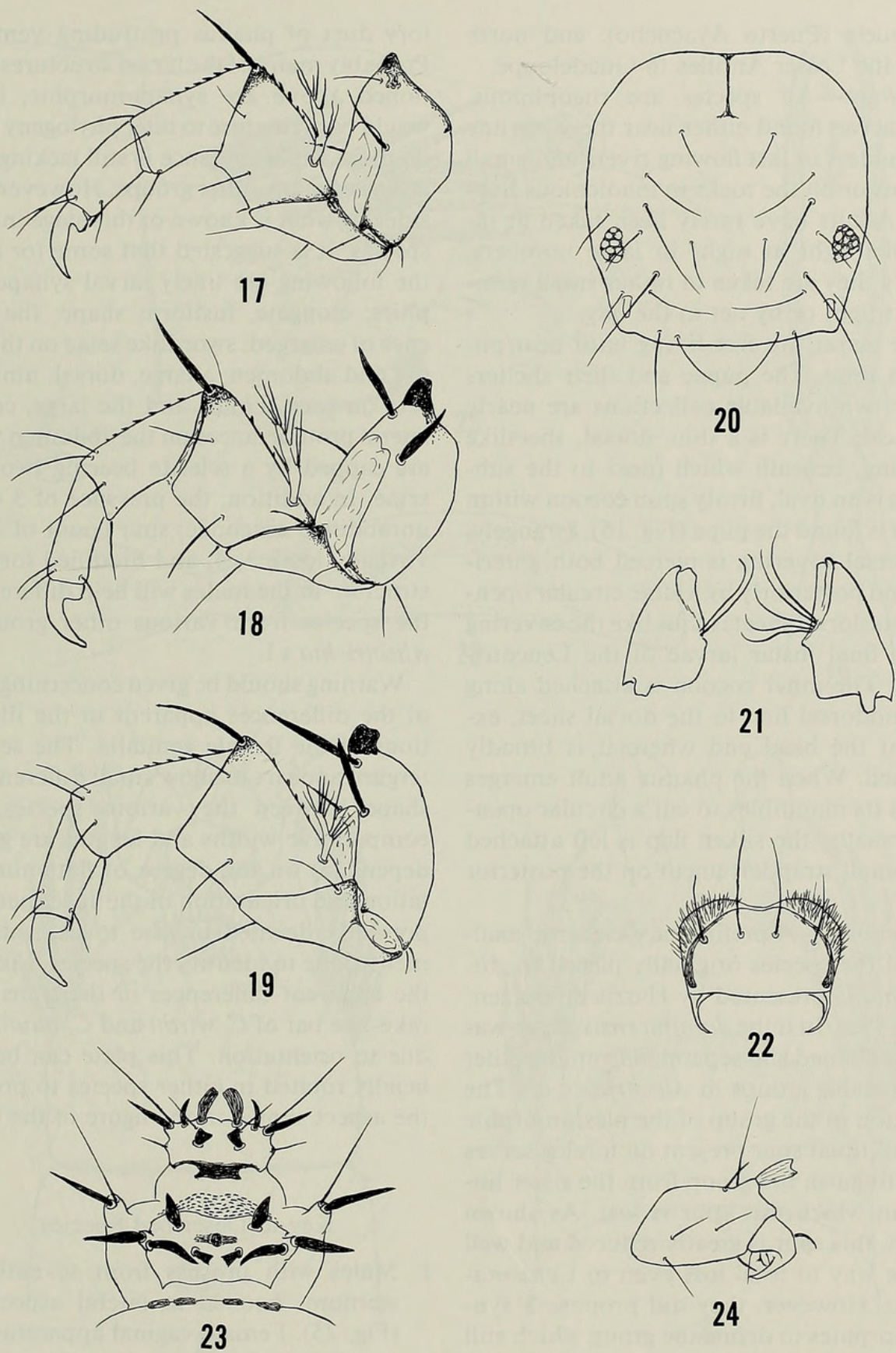
projecting teeth, often with only membranous sacs variously sclerotized in certain species.

Larva (Figs. 15–24). — Length, 3.5–5 mm. Head pale brown, unpigmented around eye and ventrally, slightly elongate, coronal suture weak, other sutures lacking. Head with several setae quite prominent, especially anteriorly; antenna elongate. Labrum about twice as wide as long, with anterolateral membranous lobe, densely hairy, 2 pair of major setae clearly visible dorsally. Mandibles short, broad, slightly concave apicomeresally with 2 or 3 weak cusps; each with median brush of several long setae. Pronotum divided longitudinally, meso- and metanota entire; all with many small, dark points; bearing numerous, enlarged setae arising from large pale cuticular spots. Meso- and metanota each with small, secondary sclerites along posterior margin and region of rugosities along anterior margin. Meso- and metapleura each with 2 of these large setae arising from short protuberance; propleuron with only posterior seta, trochantin small, pale, conical with small seta. All legs short, stout, virtually identical; middorsal seta of each femur enlarged, feathered; dorsal surfaces of femora and tibiae roughened (in some species each point is seen to bear small seta); claw without evident seta. First to ninth abdominal terga with large sclerites, those on one to eight each with transverse, central, dark area and several, large, dark setae. Row of small sclerites between tergites and row of rugosities along posterior margin. First to eighth segments each with conical lobe laterally capped by small sclerite bearing pair of large setae, one dark, other smaller and pale; ninth tergum with large shield-like sclerite bearing number of setae. Anal prolegs short, each with several slender setae and large apicomeresal, pale blade; claw hooked sharply ventrad.

Distribution. — Examples are known from about 10°N in Costa Rica south along the mountains to 13°S in Peru, and east across northern South America to south-central



Figs. 15-16. 15, *Cerasmatrixia* species B, larva, dorsal. 16, *C. spinosa*, pupa and case, ventral.



Figs. 17–24. *Cerasmatrichia spinosa*, larva. 17, foreleg; 18, midleg; 19, hindleg; 20, head; 21, mandibles; 22, labrum; 23, eighth and ninth terga; 24, anal proleg.

Venezuela (Puerto Ayacucho), and north along the Lesser Antilles to Guadeloupe.

Biology.—All species are rheophilous, with larvae found either near the waterline on boulders in fast flowing rivers and small streams or on the rocks in madicolous habitats. Adults have rarely been taken at ultraviolet light at night in large numbers, usually they are taken in rather small numbers at light or by net in the day.

The larvae are free-living until near pupation time. The pupae and their shelters of the two available collections are nearly identical. There is a thin, dorsal, sheetlike covering, beneath which (next to the substrate) is an oval, firmly spun cocoon within which is found the pupa (Fig. 16). Strangely, the dorsal covering is pierced both anteriorly and posteriorly by a large circular opening; this dorsal sheet is thus like the covering of the final instar larvae of the *Leucotrichiini*. The inner cocoon is attached along the middorsal line to the dorsal sheet, except at the head end where it is broadly attached. When the pharate adult emerges it uses its mandibles to cut a circular opening dorsally, the silken flap is left attached by a small strap left uncut on the posterior side.

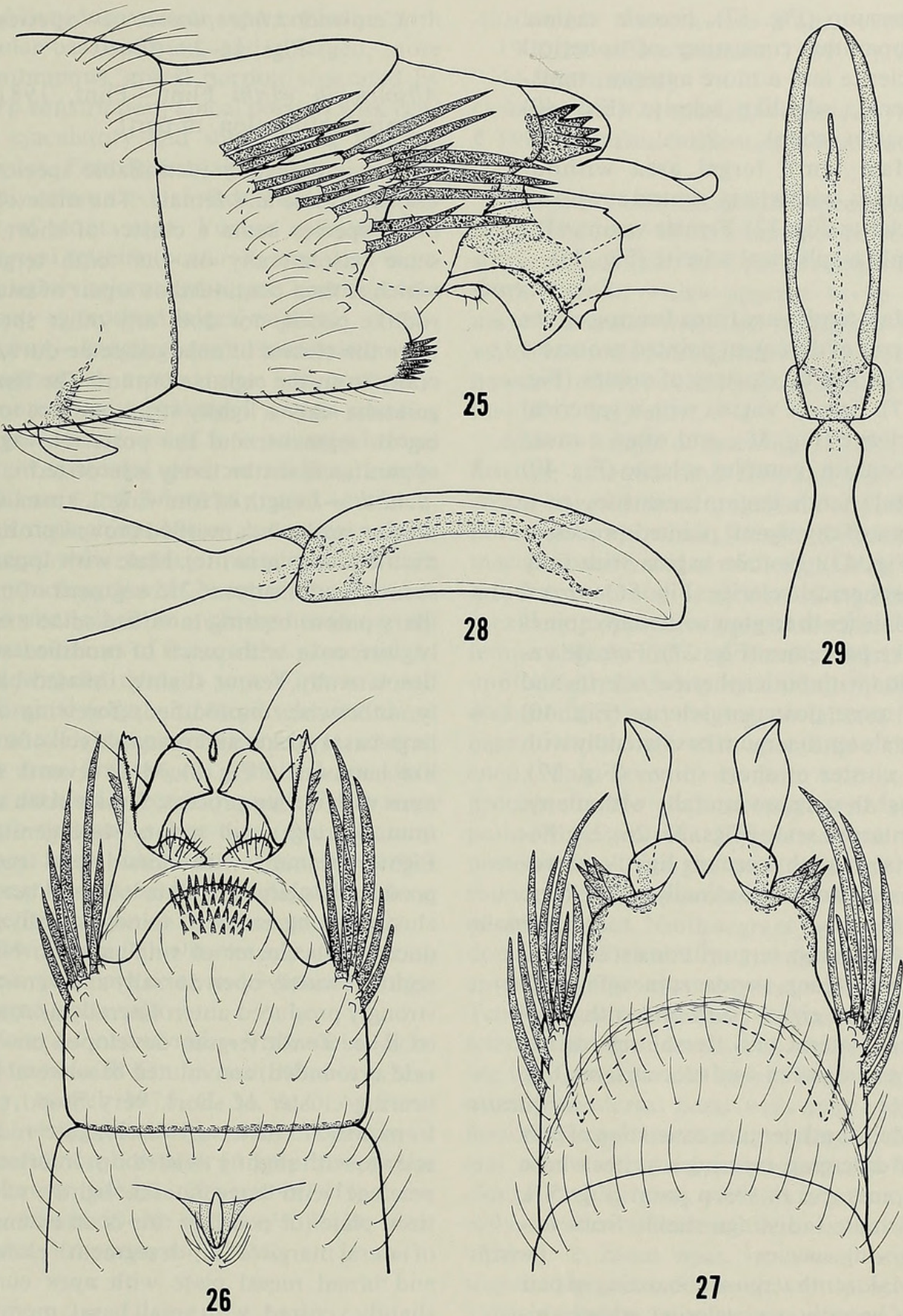
Remarks.—A preliminary cladistic analysis of the species originally placed in *Alisotrichia* is presented by Harris & Holzenthal (1993). In it the *dominicensis* group was clearly defined and separated from the other recognizable groups in *Alisotrichia* s.l. The retention in the group of the plesiomorphic state of tibial spur present on foreleg serves to distinguish the group from the sister lineage in which this spur is lost. As shown herein, this spur is greatly reduced and well on the way to total loss even in *Cerasmatrichia*. However, they did propose 3 synapomorphies to define the group which still seem valid: female seventh tergum (mistakenly called VIII tergum) with paired setal patches, male eighth sternum with patch of heavy spine posteromesally, and ejacula-

tory duct of phallus protruding ventrally. Probably many of the larval structures mentioned above are synapomorphic, but it would be premature to infer phylogeny based on them while evidence is still lacking from larvae of many other groups. However, considering what is known of this stage in other species, it is suggested that some (or all) of the following are likely larval synapomorphies: elongate, fusiform shape; the presence of enlarged, swordlike setae on the thorax and abdomen; a large, dorsal, fimbriate seta on each femur; and the large, conical lateral protuberances on the abdomen which are capped by a sclerite bearing two large setae. In addition, the presence of 3 ocelli, unmodified antennae, spur count of 1 (but virtually lost), 3, 4, and modified forewing structure in the males will help differentiate the species from various other groups in *Alisotrichia* s.l.

Warning should be given concerning some of the differences apparent in the illustrations of the female genitalia. The seventh tergum appears to show small differences in shape between the various species. The comparative widths and lengths are greatly dependant on the degree of flattening, rotation and orientation of the specimen. It is presently deemed unwise to use this segment alone to identify the species. Likewise the apparent differences in the transverse, rake-like bar of *C. wirthi* and *C. adunca* are due to orientation. This plate can be artificially rotated in either species to produce the aspect shown in the figure of the other.

Key to Described Species

1. Males with process from seventh sternum, hooked in lateral aspect (Fig. 25). Female vaginal apparatus consisting of a spherical sclerite and possibly other sclerites more posterior (Fig. 40) (*dominicensis* group) 2
- Males lacking process from seventh



Figs. 25–29. *Cerasmatrichia spinosa*, male genitalia. 25, lateral; 26, ventral; 27, dorsal; 28, phallus, lateral; 29, phallus, dorsal.

- sternum (Fig. 57). Female vaginal apparatus consisting of spherical sclerite and a more anterior, transverse, rake-like sclerite (Fig. 40) (*wirthi* group) 5
2. Male tenth tergal area without spines, with a long, central strap-like sclerite (Fig. 32). Female vagina with only a spherical sclerite (Fig. 37). *dominicensis*
Male tenth tergal area bearing either a pair of divergent pointed processes (Fig. 43) or clusters of spines (Fig. 27). Female vagina with a spherical sclerite (Fig. 56), and often a more posterior, complex sclerite (Fig. 40) 3
3. Male tenth tergum consisting of a pair of divergent, pointed processes (Fig. 43). Female vagina with only a spherical sclerite (Fig. 56) *argylensis*
Male tenth tergum with many spine-like processes (Fig. 27). Female vagina with both spherical sclerite and a more posterior sclerite (Fig. 40) 4
4. Male tenth tergum basolaterally with a cluster of short spines (Fig. 27); eighth sternum laterally with many, enlarged setae (Figs. 25, 26, 27). Female eighth sternum lightly sclerotized and longitudinally striate (Fig. 38) *spinosa*
Male tenth tergum consisting of 6 pairs of long, slender spines (Fig. 48). Female eighth sternum with ventral, lateral and dorsal sclerotized areas distinct and not striate (Fig. 51) *trinitatis*
5. Male tenth tergum consisting of pair of diverging, tapering sclerites whose apices end in sharp point (Fig. 57). Female indistinguishable from following species *wirthi*
Male tenth tergum consisting of pair of broadly oval sclerites whose apices are narrowed and compressed (Fig. 63). Female similar to preceding species *adunca*

Cerasmatrichia spinosa, new species
Figs. 16–29, 38–40

Alisotrichia wirthi Flint.—Flint, 1981:26 [misidentification, in part].

This is a readily identifiable species in both the male and female. The male of no other species bears a cluster of short, fat setae basolaterally on the tenth tergum, which is then continued as a pair of lateral, rodlike plates, nor does any other species have the cluster of enlarged setae dorsolaterally from the eighth sternum. The female genitalia show a lightly striate surface to the eighth segment, and the posterior vaginal apparatus is distinctively sclerotized.

Adult.—Length of forewing 2.3 mm. Coloration in alcohol, mottled brown (probably mottled fuscous in life). Male with apparent sexual modifications: 3rd segment of maxillary palpus bearing modified setae mesally; fore coxa with patch of modified setae basolaterally, femur slightly inflated basally, otherwise unmodified; forewing with large basal pocket and marginal cell of scale-like hairs (as in Fig. 8). Male seventh sternum with strong process; female sixth sternum bearing small point. Male genitalia. Eighth sternum with dorsolateral corner produced as large angulate lobe and bearing cluster of long, enlarged spines, mesally produced with cluster of small spines. Ninth segment widely open dorsally and ventrally, strongly produced anterolaterally as rounded lobe. Tenth tergum developed on each side as rounded, convoluted basolateral lobe bearing cluster of short, very broad setae from which cluster arises elongate rodlike sclerite with slightly twisted tip. Inferior appendage with large lateral, lightly sclerotized plate (or possibly this is an extension of lateral margin of ninth segment); elongate and broad mesal plate with apex curved slightly ventrad, with small basal, membranous lobe. Subgenital plate long, arising ventrolaterally from basal area of tenth tergum, tip hooked ventrad, appearing as dark-

ened ovoid in ventral aspect. Phallus with tubular basal portion, and enlarged, more membranous, apical portion separated by sharp constriction; apical portion with central ejaculatory and some basal, internal sclerites. Female genitalia. Eighth segment lightly sclerotized, surface striate; posterior row of stout setae. Vagina with anterior spherical sclerite; posterior area with elongate lightly sclerotized region bearing more heavily sclerotized lateral pockets.

Larva.—Length, 4 mm. Head pale brown, unpigmented around eye and ventrally. Pronotum with enlarged setae: anterior margin bearing row of 5–6 each side, behind margin submesal pair, at midlength submesal pair and 3 laterally, with scattered, small, dark points. Meso- and metanota with enlarged setae: anterior margin with 3 each side, midlength with 2 each side, with scattered small, dark points and point free areas. Dorsal surfaces of femora and tibiae roughened without evident seta. First to ninth abdominal terga with large sclerites, those on one to eight each with transverse, central, dark area; first tergum with 3, large, dark setae each side, second through eighth terga with 4 such setae (one extra seta in lateral cluster) each side. Row of small sclerites between tergites and row of rugosities along posterior margin of all segments. Ninth tergum with large shield-like sclerite bearing 3, enlarged, dark setae and 3 slender, pointed setae, each side.

Material examined.—Venezuela, Edo. Aragua, Río El Limón, fish hatchery, Maracay, 16 Feb 1976, C. M. & O. S. Flint, Jr., ♂ holotype, ♀ allotype, 13 ♂, 1 ♀ paratypes (all metamorphotypes), 51 prepupae, pupae and empty cases, 78 larvae (NMNH); same data, except 19–20 May 1975, F. H. Weibezahn, 1 ♂ paratype (IZAM).

Cerasmatrixia dominicensis (Flint),
new combination
Figs. 12, 30–37

Alisotrichia dominicensis Flint, 1968:44; 1970:29.—Botosaneanu, 1989:97; 1990:44 [Martinique].

Ochrotrichia (*O.*) species.—Flint & Sykora, 1993:58 [misidentification, Guadeloupe].

This is a readily identifiable species in the male. The male of no other species bears a single dorsomesal, sclerotized strap on the tenth tergum, which appears to be connected laterally into the subgenital plate which is directed straight down. The female, however, offers no clear-cut differences from that of *C. argylensis*.

Adult.—Length of forewing, 2 mm. Color fuscous; antennae and fore and mid tarsi cream colored, head anteriorly and mesonotum with white hair, forewings with white maculae basally and at midlength. Male with minor sexual modifications: 3rd segment of maxillary palpus seemingly unmodified; fore femur slightly inflated basally, otherwise unmodified; forewing with small midbasal area modified and bulging, costal area from base to midlength with membrane thickened. Male seventh sternum with strong process; female sixth sternum with small point. Male genitalia. Eighth sternum with posterolateral margin produced as large rounded lobe, posteromesally with cluster of small spines. Ninth segment widely open dorsally and ventrally, strongly produced anterolaterally as narrowly angled lobe. Tenth tergum developed as broad, lightly sclerotized region basally, abruptly narrowing into long, parallel-sided, heavily sclerotized, middorsal band with apex slightly hooked dorsad. Inferior appendage with lateral arm short, arising basolaterally from elongate mesal plate which is angulate apically; mesal arm twice as long as lateral arm, tapered to blunt apex in lateral aspect, slightly capitate and lobed in ventral aspect. Subgenital plate long, slender, arising ventrolaterally from basal area of tenth tergum, apex directed ventrad, tip appearing as darkened ovoid in ventral aspect. Phallus

with tubular basal portion, and enlarged, more membranous apical portion separated by sharp constriction; apical portion with central ejaculatory and some basal, internal sclerites. Female genitalia. Eighth segment lightly sclerotized ventrally, unornamented; posterior margin with row of stout setae. Vagina with anterior spherical sclerite with small central opening; posterior area completely membranous.

Material examined.—Dominica: 2.2 mi E Pont Casse, 7 May 1964, O. S. Flint, Jr., 1 ♂ holotype (NMNH). 2.5 mi E Pont Casse, 16 Jan 1965, W. W. Wirth, 3 ♀ allotype and paratypes (NMNH). Fond Figes, 25 Jan 1965, W. W. Wirth, 1 ♂ paratype (NMNH). Morne Nicholls, 9 Nov 1964, P. J. Spangler, 1 ♀ paratype (NMNH). Martinique: Rivière Coco at Morne Vert, 14 Feb 1986, L. Botosaneanu, 1 ♂ (ZMUA). Ravine l'Abbé, Morne Vert, 3 Mar 1989, L. Botosaneanu, light, 1 ♂ (ZMUA). Guadeloupe: Basse Terre, Cascade aux Ecrevilles, 9 Apr 1992, L. Botosaneanu, 1 ♂ (ZMUA). Rivière Laurant, near Belleville, 8 Apr 1979, Starmühlner & Therezien, 1 ♀ (NMNH).

Cerasmatrixia argylensis, new species

Figs. 13, 41–45, 54–56

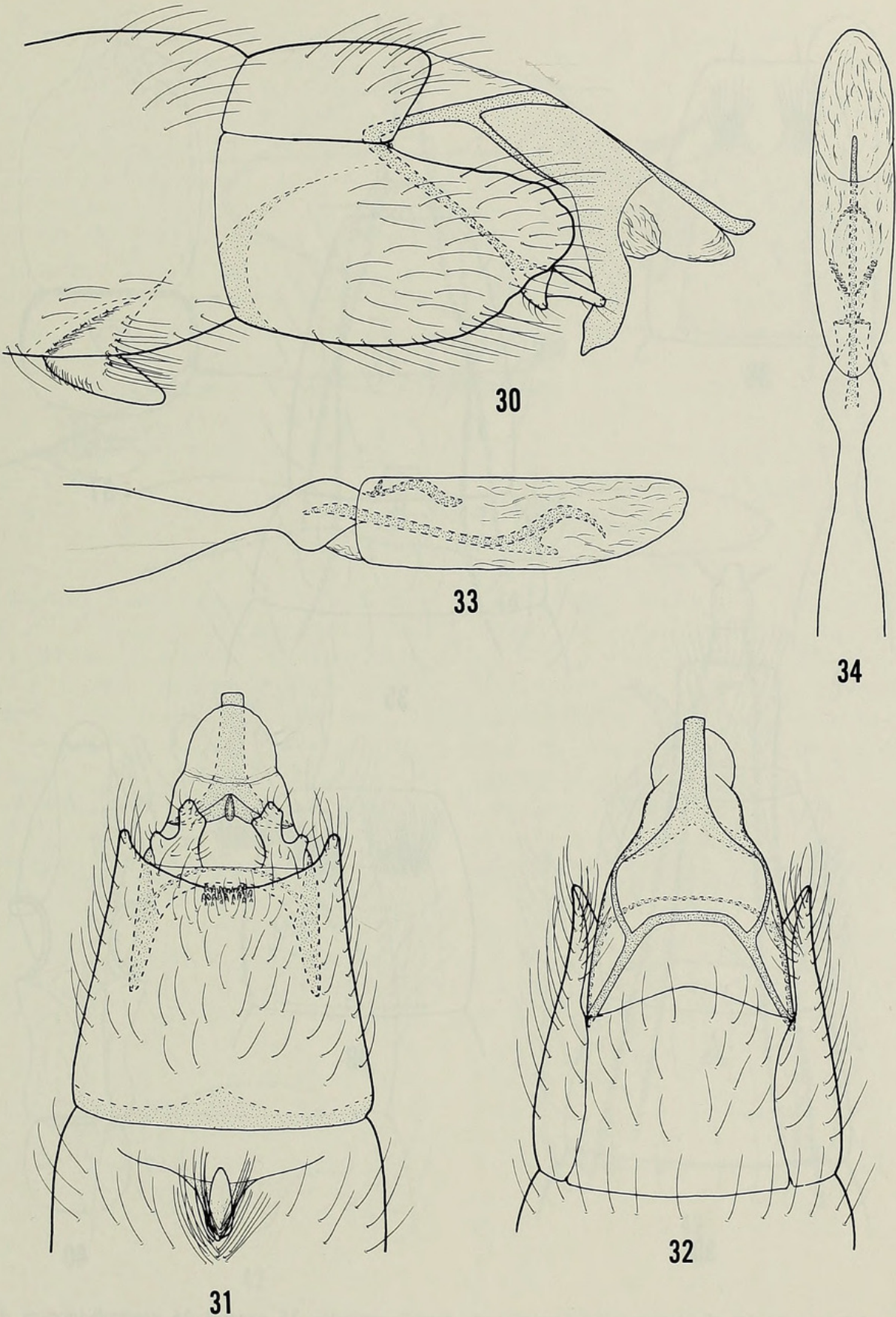
Hydroptilid genus, sp. 2, Botosaneanu & Sakal, 1992:201.

The species is readily recognized in the male sex by the tenth tergum developed into a pair of strong, divergent hooks. The female, however, can not be distinguished with absolute certainty from that of *C. dominicensis*.

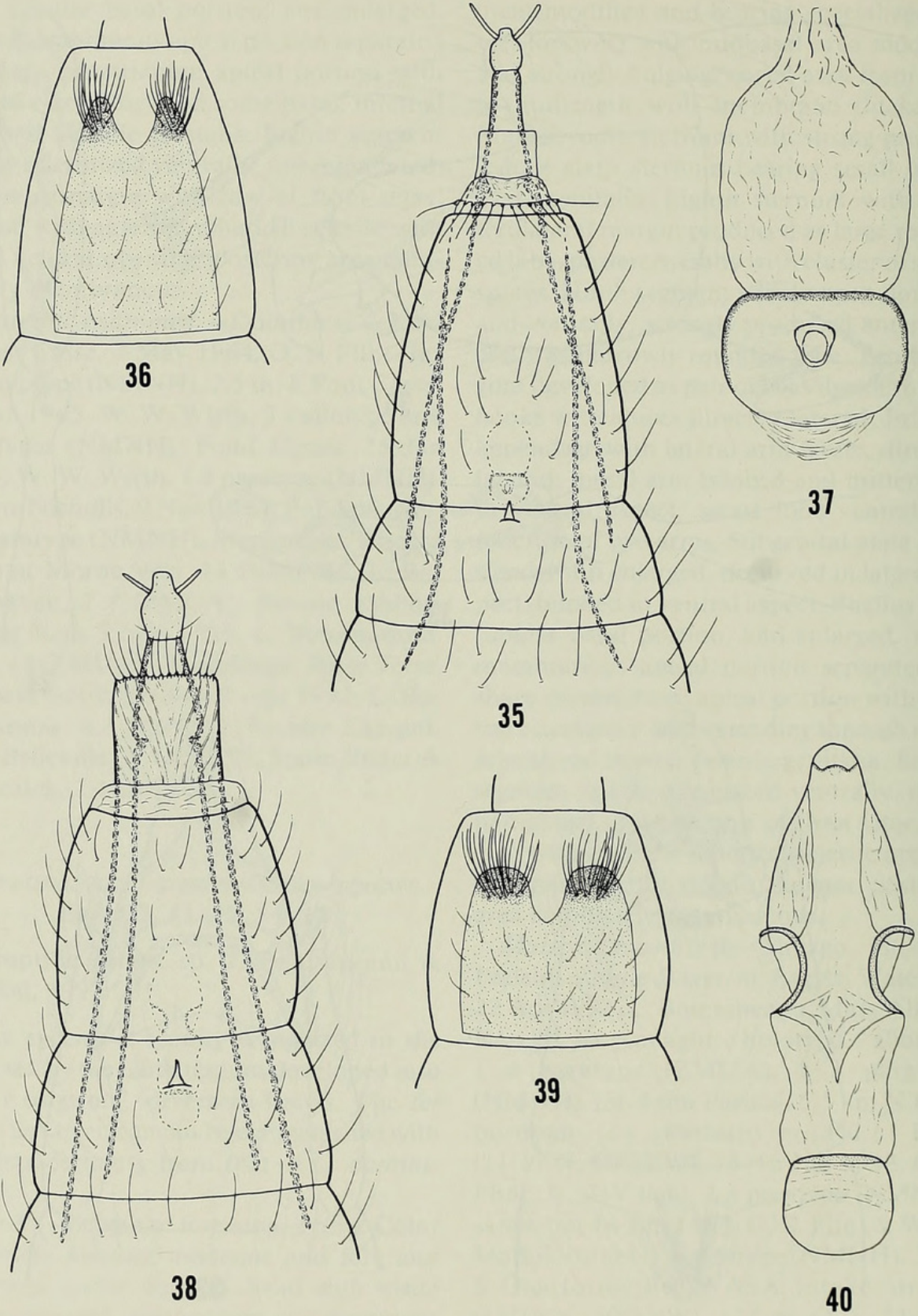
Adult.—Length of forewing, 2 mm. Color of female fuscous; antennae and fore and mid tarsi cream colored, head with white hair anteriorly, mesonotum and forewings with indistinct, silvery-white maculae. Male with sexual modifications: 3rd segment of maxillary palpus slightly cupped, with concave face modified and bearing specialized setae; fore femur inflated basally, integu-

ment modified and bearing specialized setae; forewing with midbasal area modified and strongly bulging, costal area from base to midlength with membrane thickened. Male seventh sternum with strong process; female sixth sternum bearing small point. Male genitalia. Eighth sternum with posterolateral margin produced as large rounded lobe, posteromesally with cluster of small spines. Ninth segment widely open dorsally and ventrally, strongly produced anterolaterally as narrowly rounded lobe. Tenth tergum developed as pair of heavily sclerotized hooks with apices directed laterad. Inferior appendage with lateral arm terete, directed laterad; mesal arm bilobed and mitten-like in ventral aspect; setate lobe ventrally at junction of two arms. Subgenital plate long, slender, tip enlarged, decurved in lateral aspect, bilobed in ventral aspect. Phallus with tubular basal portion, and enlarged, more membranous apical portion separated by sharp constriction; apical portion with central ejaculatory duct extending through more sclerotized cavity. Female genitalia. Eighth segment lightly sclerotized ventrally, unornamented; posterior row of stout setae. Vagina with anterior spherical sclerite appearing transversely divided at equator; posterior area completely membranous.

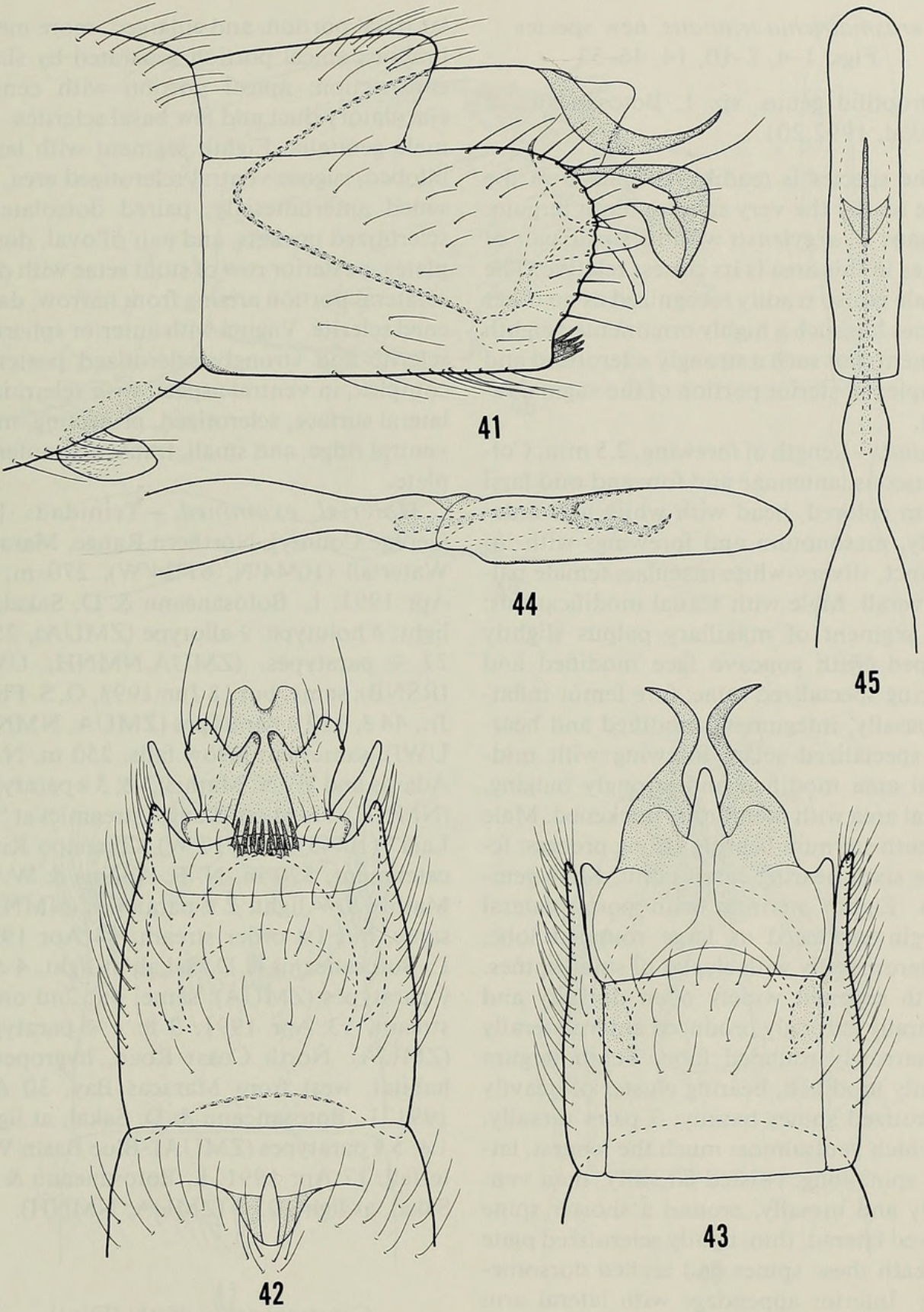
Material examined.—Tobago: [St. Paul Parish], Argyle River at Argyle Waterfall, 22 Apr 1991, L. Botosaneanu, Mary Alkins-Koo, M. Koo, at light: ♂ holotype, ♀ allotype, 1 ♂ paratype (ZMUA), 1 ♂ paratype (NMNH). [St. John Parish], 6.5 km N Roxborough [on Parlatuvier Rd.], B1/5 (11°17'N, 60°35'W), 15–16 Jun 1993, O. S. Flint, Jr., UV light, 1 ♂ paratype (NMNH); same, but 14 Jun 1993, O. S. Flint & W. N. Mathis, by net, 1 ♀ paratype (NMNH). 3 km S Charlotteville, WASA intake stream (11°19'N, 60°33'W), 125 m, O. S. Flint & N. E. Adams, UV light, 1 ♀ paratype (NMNH). Trinidad: [St. George County], Northern Range, below Maracas Waterfall (10°44'N, 61°24'W), 250 m, 18 Jun 1993, N. E. Adams & W. N. Mathis, 1 ♀ (NMNH).



Figs. 30–34. *Cerasmatrichia dominicensis*, male genitalia. 30, lateral; 31, ventral; 32, dorsal; 33, phallus, lateral; 34, phallus, dorsal.



Figs. 35–40. 35–37, *Cerasmatrixchia dominicensis*, female genitalia. 35, ventral; 36, seventh tergum, dorsal; 37, vaginal sclerites, ventral. 38–40, *C. spinosa*, female genitalia. 38, ventral; 39, seventh tergum, dorsal; 40, vaginal sclerites, ventral.



Figs. 41–45. *Cerasmatrichia argylensis*, male genitalia. 41, lateral; 42, ventral; 43, dorsal; 44, phallus, lateral; 45, phallus, dorsal.

Cerasmatrixia trinitatis, new species

Figs. 1–4, 8–10, 14, 46–53

Hydroptilid genus, sp. 1, Botosaneanu & Sakal, 1992:201.

The species is readily recognized in the male sex by the very spinose tenth tergum, perhaps *C. argylensis* with its single pair of spines in this area is its closest relative. The female is also readily recognized as no other species has such a highly ornamented eighth segment, nor such a strongly sclerotized and complex posterior portion of the vaginal region.

Adult. — Length of forewing, 2.5 mm. Color fuscous; antennae and fore and mid tarsi cream colored, head with white hair anteriorly, mesonotum and forewings with indistinct, silvery-white maculae; female paler overall. Male with sexual modifications: 3rd segment of maxillary palpus slightly cupped, with concave face modified and bearing specialized setae; fore femur inflated basally, integument modified and bearing specialized setae; forewing with mid-basal area modified and strongly bulging, costal area with membrane thickened. Male seventh sternum bearing strong process; female sixth bearing small point. Male genitalia. Eighth sternum with posterolateral margin produced as large rounded lobe, posteromesally with cluster of small spines. Ninth segment widely open dorsally and ventrally, strongly produced anterolaterally as narrowly rounded lobe. Tenth tergum greatly modified, bearing cluster of heavily sclerotized spines basally: 3 pairs mesally, of which ventralmost much the longest, lateral spine long, twisted laterally, then ventrally and mesally, around a shorter spine curved laterad; thin, lightly sclerotized plate beneath these spines and arched dorsomesally. Inferior appendage with lateral arm terete, directed laterad; mesal arm broad in ventral aspect with distinct apicomeral point, small setate lobe ventrally at junction of two arms. Subgenital plate long, slender, tip distinctly narrowed. Phallus with tubu-

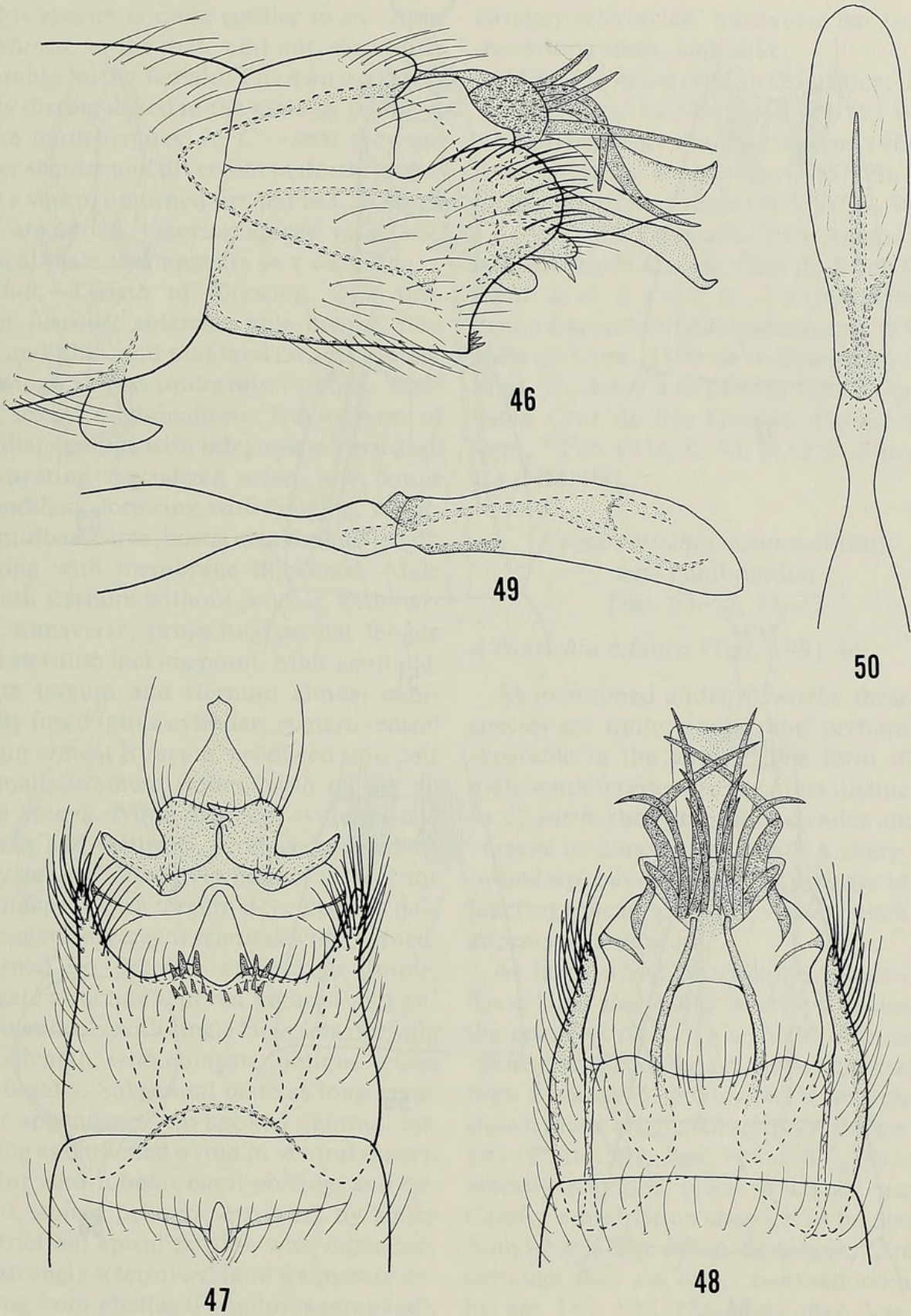
lar basal portion, and enlarged, more membranous apical portion separated by sharp constriction; apical portion with central ejaculatory duct and few basal sclerites. Female genitalia. Eighth segment with large, bilobed, rugose ventral sclerotized area, divided anteromesally, paired dorsolateral, sclerotized pockets, and pair of oval, dorsal plates; posterior row of stout setae with dorsolateral portion arising from narrow, darkened sclerite. Vagina with anterior spherical sclerite and strongly sclerotized posterior complex, in ventral aspect, with sclerotized lateral surface, sclerotized, projecting, mid-ventral ridge, and small, transverse anterior plate.

Material examined. — Trinidad: [St. George County], Northern Range, Maracas Waterfall (10°44'N, 61°24'W), 270 m, 12 Apr 1991, L. Botosaneanu & D. Sakal, at light: ♂ holotype, ♀ allotype (ZMUA), 25 ♂, 27 ♀ paratypes, (ZMUA, NMNH, UWI, IRSNB); same, but 18 Jun 1993, O. S. Flint, Jr., 44 ♂, 112 ♀ paratypes (ZMUA, NMNH, UWI); same, but below falls, 250 m, N. E. Adams and W. N. Mathis, 1 ♂, 3 ♀ paratypes (NMNH). Northern Range, streamlet at "La Laja" (10°43'N, 61°17'W), Guanapo River catchment, 520 m, N. E. Adams & W. N. Mathis, UV light, 2 ♀ paratypes (NMNH); same, but 1st order stream, 14 Apr 1991, L. Botosaneanu & D. Sakal, at light, 4 ♂, 1 ♀ paratypes (ZMUA); same, but 2nd order stream, 13 Apr 1991, 3 ♂, 1 ♀ paratypes (ZMUA). North Coast Road, hygropetric habitat, west from Maracas Bay, 30 Apr 1991, L. Botosaneanu & D. Sakal, at light, 1 ♂, 5 ♀ paratypes (ZMUA). Blue Basin Waterfall, 17 Apr 1991, L. Botosaneanu & D. Sakal, at light, 23 ♀ (ZMUA, NMNH).

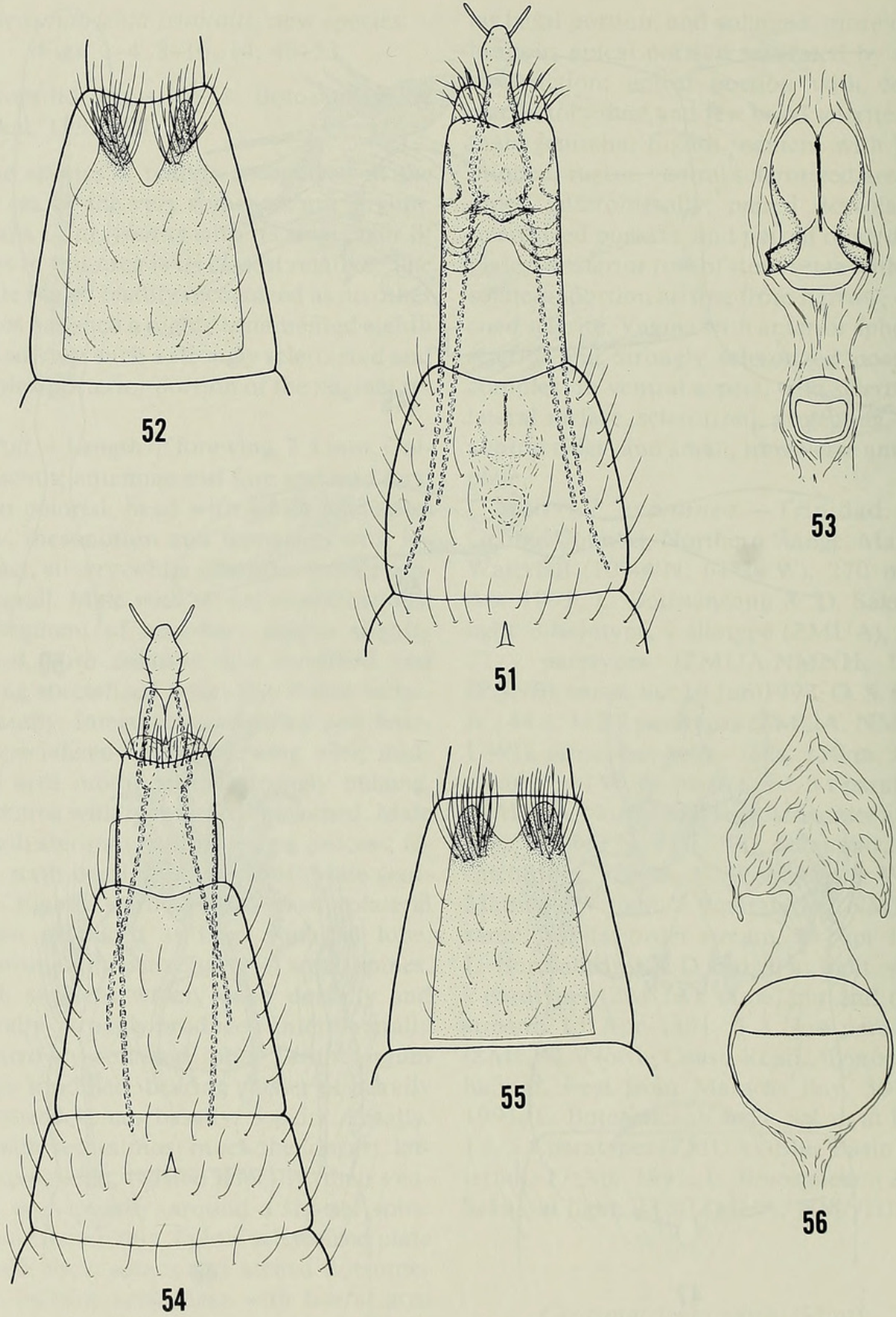
Cerasmatrixia wirthi (Flint),
new combination

Figs. 5–7, 11, 57–62, 68–70

Alisotrichia wirthi Flint, 1968:46; 1970:29; 1981:26 [in part].



Figs. 46–50. *Cerasmatrichia trinitatis*, male genitalia. 46, lateral; 47, ventral; 48, dorsal; 49, phallus, lateral; 50, phallus, dorsal.



Figs. 51–56. 51–53, *Cerasmatrixia trinitatis*, female genitalia. 51, ventral; 52, seventh tergum, dorsal; 53, vaginal sclerites, ventral. 54–56, *C. argylensis*, female genitalia. 54, ventral; 55, seventh tergum, dorsal; 56, vaginal sclerites, ventral.

This species is quite similar to its sister, *C. adunca*, in the male and not apparently separable in the female. The two are most easily distinguished in the male by the form of the tenth tergites. In *C. wirthi* they are rather slender and divergent in dorsal aspect with a sharp, upturned tip, but in *C. adunca* they are broad, tapering apicad to a thin, vertical plate that appears as a dark line.

Adult.—Length of forewing, 2–3 mm. Color fuscous; antennae pale brown, fore tarsi and tibia, and mid tarsi cream colored; forewings almost uniformly fuscous. Male with sexual modifications: 3rd segment of maxillary palpus with integument very dark and bearing specialized setae; fore femur unmodified; forewing with bulging, modified midbasal area, costal area for half length of wing with membrane thickened. Male seventh sternum without process, with narrow, transverse, projecting carina; female sixth sternum lacking point. Male genitalia. Eighth tergum and sternum almost completely fused into a cylinder; posteroventral margin almost truncate, produced into pair of small, submesal lobes, with cluster of small spines. Ninth segment widely open dorsally and ventrally, produced ventrolaterally as small lobe over base of its inferior appendage. Tenth tergum developed as pair of elongate, divergent sclerites with pointed, upturned tip. Inferior appendage simple, elongate structure, curved ventrad and enlarged apically with single large seta dorsally at midlength; with elongate, oblique setose lobe basally. Subgenital plate as long as inferior appendages, tip hooked ventrad, appearing as darkened ovoid in ventral aspect. Phallus with tubular basal portion, and enlarged, apical portion separated by sharp constriction; apical portion with outer surface strongly sclerotized (and frequently detaching from phallus if phallus is removed), centrally with ejaculatory duct and some basal, internal sclerites. Female genitalia. Eighth segment lightly sclerotized laterally; posterior row of stout setae. Vagina with spherical sclerite, anteriad to which is

strongly sclerotized, transverse bar bearing many long teeth, comblike.

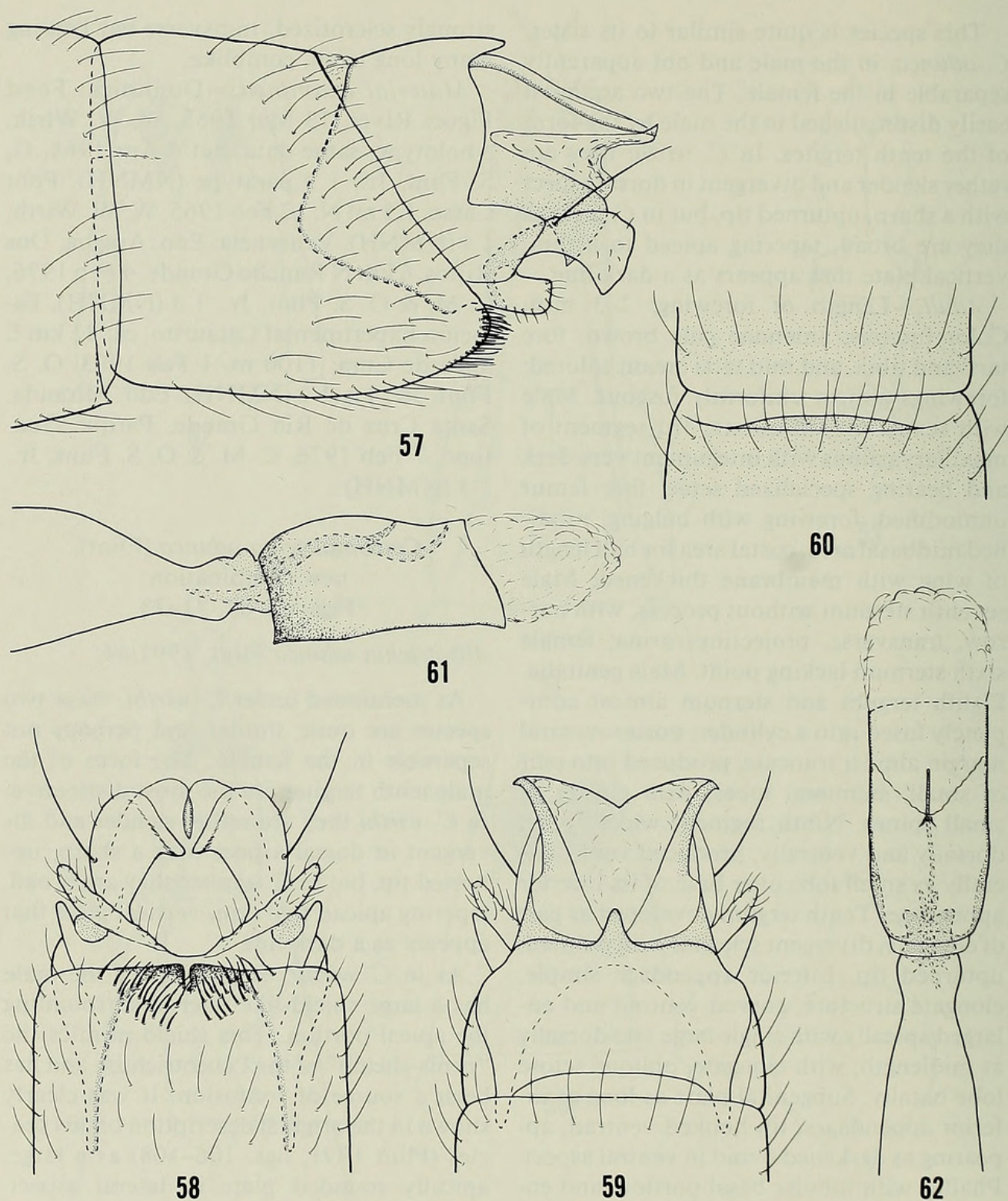
Material examined.—Dominica: Fond Figes River, 13 Mar 1965, W. W. Wirth, ♂ holotype; same data, but 6 Apr 1964, O. S. Flint, Jr., 1 ♂ paratype (NMNH). Pont Casse, 1.5 mi N, 12 Feb 1965, W. W. Wirth, 1 ♀ (NMNH). Venezuela: Edo. Aragua, Dos Riitos, 6 km N Rancho Grande, 4 Feb 1976, C. M. & O. S. Flint, Jr., 1 ♂ (NMNH). Estación Experimental Cataurito, ca. 32 km E Villa de Cura, 1100 m, 1 Feb 1983, O. S. Flint, Jr., 4 ♂, 1 ♀ (NMNH). Edo. Miranda, Santa Cruz de Río Grande, Parque Guatopo, 7 Feb 1976, C. M. & O. S. Flint, Jr., 1 ♂ (NMNH).

Cerasmatrix adunca (Flint),
new combination
Figs. 63–67, 71–73

Alisotrichia adunca Flint, 1991:44.

As mentioned under *C. wirthi*, these two species are quite similar and perhaps not separable in the female. The form of the male tenth tergites are the most distinctive. In *C. wirthi* they are rather slender and divergent in dorsal aspect with a sharp, upturned tip, but in *C. adunca* they are broad, tapering apicad to a thin, vertical plate that appears as a dark line.

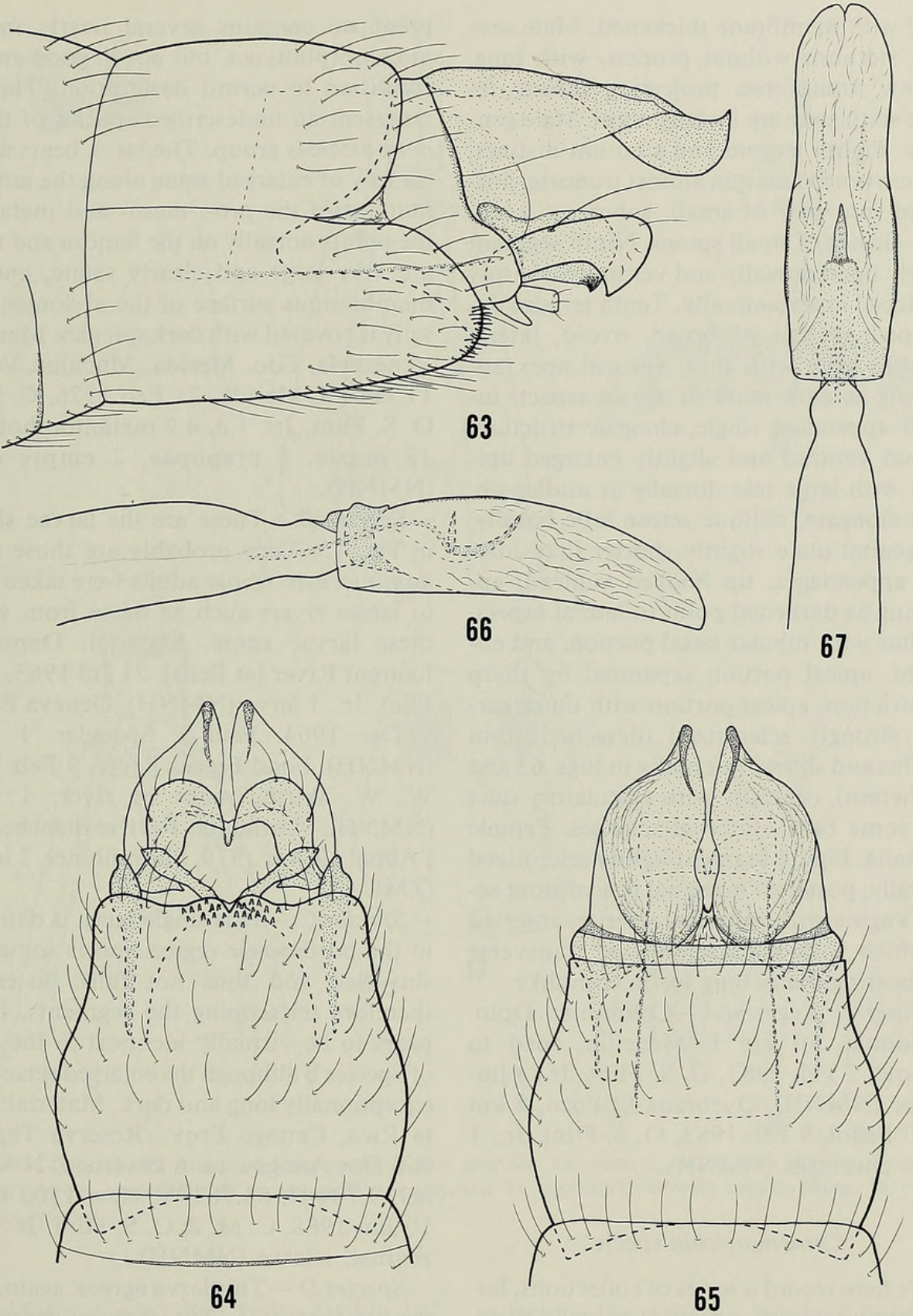
As in *C. wirthi*, the phallus of the male has a large shield-like sclerite surrounding the apical portion. This shield mimics the “penis-sheath” of the Leucotrichiini and has been a source of confusion. It was clearly shown in the original description of this species (Flint 1991, figs. 106–108) as a large, apically rounded plate in lateral aspect. Careful examination shows it to be distinct from what is here called the subgenital plate, although they are easily confounded as in his figs. 107, 108. This plate often detaches from the phallus if one tries to pull the phallus back through the abdomen (as happened in Fig. 63 herein, where it is shown as the large, rectanguloid structure within segments 8 and 9).



Figs. 57–62. *Cerasmatrichia wirthi*, male genitalia. 57, lateral; 58, ventral; 59, dorsal; 60, seventh and eighth sterna, ventral; 61, phallus, lateral; 62, phallus, dorsal.

Adult. —Length of forewing, 2.5 mm. Color fuscous; frontal hairs of head, antennae, fore tarsi and tibia, and mid tarsi cream colored; forewings fuscous with many small, pale maculae. Male with sexual modifica-

tions: 3rd segment of maxillary palpus and fore femur apparently unmodified; forewing with membrane of midbasal area thickened, slightly bulging, but apparently not otherwise modified, costal area for half length of



Figs. 63–67. *Cerasmatrichia adunca*, male genitalia. 63, lateral; 64, ventral; 65, dorsal; 66, phallus, lateral; 67, phallus, dorsal.

wing with membrane thickened. Male seventh sternum without process, with long, narrow, transverse, projecting carina; female sixth sternum lacking point. Male genitalia. Eighth tergum and sternum distinct; posteroventral margin almost truncate, produced into pair of small, submesal lobes, with cluster of small spines. Ninth segment widely open dorsally and ventrally, sharply produced anterolaterally. Tenth tergum developed as pair of broad, ovoid, lateral sclerites each with thin, vertical apex appearing as dark mark in dorsal aspect. Inferior appendage single, elongate structure, curved ventrad and slightly enlarged apically with large seta dorsally at midlength; with elongate, oblique setose lobe basally. Subgenital plate slightly shorter than inferior appendages, tip hooked ventrad, appearing as darkened point in lateral aspect. Phallus with tubular basal portion, and enlarged, apical portion separated by sharp constriction; apical portion with outer surface strongly sclerotized (detached from phallus and shown internally in Figs. 63 and 65, herein), centrally with ejaculatory duct and some basal, internal sclerites. Female genitalia. Eighth segment lightly sclerotized laterally; posterior marginal row of stout setae. Vagina with spherical sclerite, anterior to which is strongly sclerotized transverse bar bearing many long teeth, comblike.

Material examined.—Colombia: Dpto. Antioquia, 10 km E Medellín, road to Guarne, 7 Feb 1983, O. S. Flint, Jr., ♂ holotype (NMNH). Quebrada El Pozo, 8 km W El Peñol, 9 Feb 1983, O. S. Flint, Jr., 1 ♂, 1 ♀ paratypes (NMNH).

Cerasmatrixia species

We here record a series of collections, larvae or females, that can not be definitively placed to species. They serve to expand the known range of the genus and give some idea of specific differences to be found in the larvae.

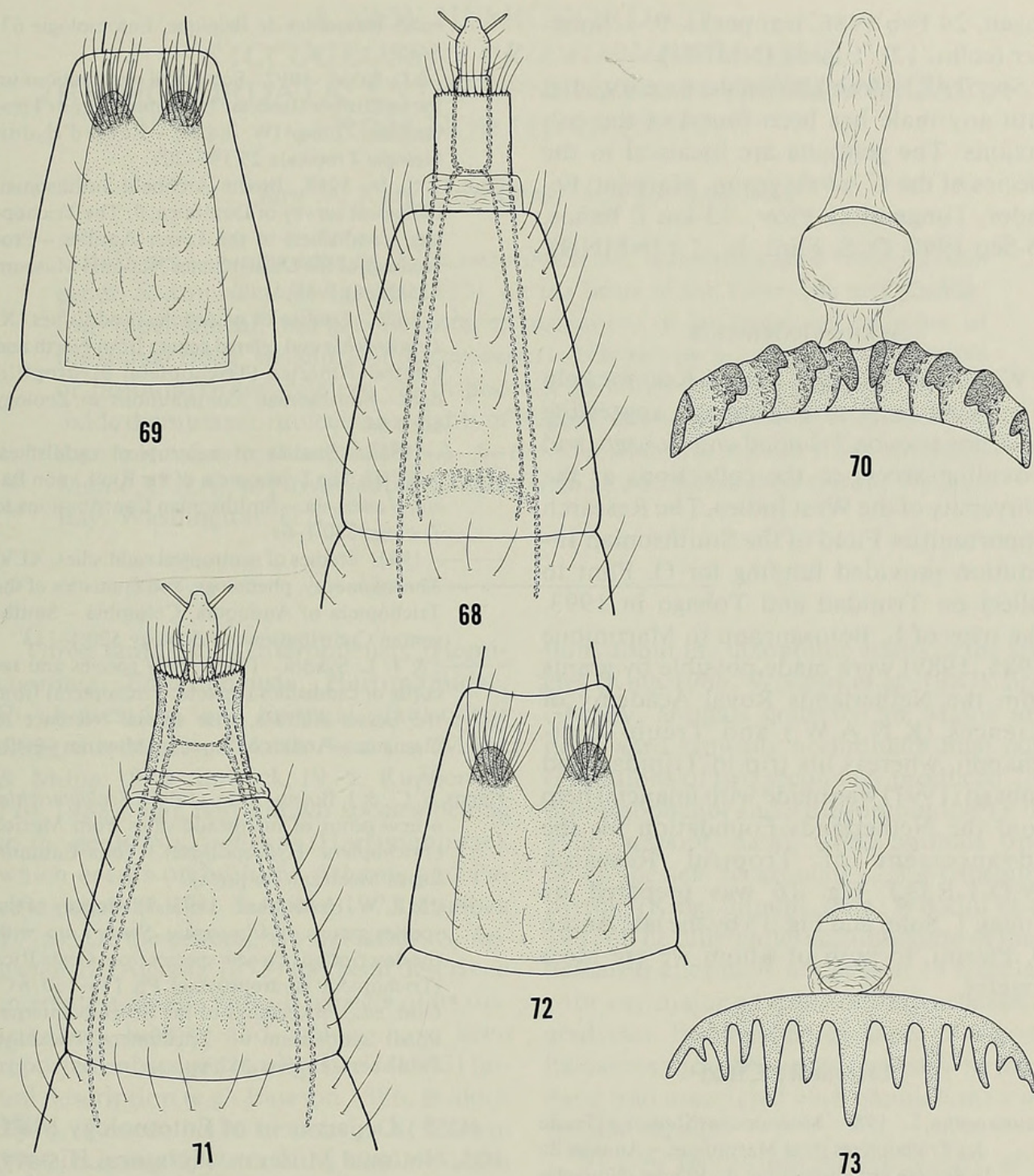
Species A.—This collection of pupae and

prepupae contains several nearly mature metamorphotypes, but not in good enough condition to permit description. They do represent an undescribed species of the *C. dominicensis* group. The larva bears an extra row of enlarged setae along the anterior margins of the pro-, meso- and metanota, the points dorsally on the femora and tibiae are very large and clearly setate, and the membranous surface of the abdomen dorsally is covered with dark spicules. Material: Venezuela, Edo. Merida, Mucujun Valley, 11 km NE Merida, 21 Feb 1976, C. M. & O. S. Flint, Jr., 1 ♂, 4 ♀ metamorphotypes, 13 pupae, 2 prepupae, 2 empty cases (NMNH).

Species B.—These are the larvae shown in Fig. 15. They probably are those of *C. dominicensis*, whose adults were taken close to larger rivers such as those from which these larvae came. Material: Dominica, Laurent River [at Bells], 21 Jul 1963, O. S. Flint, Jr., 1 larva (NMNH). Geneva Estate, 9 Dec 1964, Paul J. Spangler, 1 larva (NMNH). Fond Figue River, 9 Feb 1965, W. W. Wirth, rocks in river, 1 larva (NMNH). Martinique, Rivière Blanche, near l'Alma, 19 Apr 1979, Starmühlner, 2 larvae (ZMUA).

Species C.—This single larva is damaged in the prothoracic region and is somewhat shriveled and thus not fully distended, therefore telescoping the segments. It appears to be virtually identical to the larva of Species B although the enlarged setae seem exceptionally long and dark. Material: Costa Rica, Cartago Prov., Reserva Tapantí, Río Dos Amigos, ca. 6 km (road) NW tunnel, 9.704°N, 83.783°W, elev. 1500 m, 9–10 Jun 1988, C. M. & O. S. Flint, Jr., Holzenthal, 1 larva (NMNH).

Species D.—This larva agrees, again, with the basic structure, but its entire dorsal surface (sclerites and membrane) is covered with dark points, the points on the tibiae are produced into a comblike row of clear projections, and the abdominal terga lack the posterior band of rugosities. Material:



Figs. 68–73. 68–70, *Cerasmatrichia wirthi*, female genitalia. 68, ventral; 69, seventh tergum, dorsal; 70, vaginal sclerites, ventral. 71–73, *C. adunca*, female genitalia. 71, ventral; 72, seventh tergum, dorsal; 73, vaginal sclerites, ventral.

Peru, Dept. Cuzco, San Pedro (at km 152 & 2 km east), 13°09'S, 71°26'W, 1430 m, 31 Aug 1989, R. A. Faitoute (colln. 11), 1 larva (NMNH).

Species E.—This is another larva that is very similar to those of *C. spinosa*. It differs

in lacking the posterior bands of rugosities on the abdominal terga, but has the membrane darkened and with dark points laterad, and the femora and tibiae seem smooth dorsally. Material: Venezuela, T.F. Amazonas, 40 km S Puerto Ayacucho at To-

bogan, 24 Feb 1986, leaf packs, P. J. Span-
gler (colln. 12), 1 larva (NMNH).

Species F.—A single female, unassociated
with any male has been found in the col-
lections. The genitalia are identical to the
species of the *C. wirthi* group. Material: Ec-
uador, Tungurahua Prov., 13 km E Baños,
15 Sep 1990, O. S. Flint, Jr., 1 ♀ (NMNH).

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