Studies of Neotropical Caddisflies, LIII: A Taxonomic Revision of the Subgenus *Curgia* of the Genus *Chimarra* (Trichoptera: Philopotamidae)

OLIVER S. FLINT, Jr.

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ABSTRACT

Flint, Oliver S., Jr. Studies of Neotropical Caddisflies, LIII: A Taxonomic Revision of the Subgenus *Curgia* of the Genus *Chimarra* (Trichoptera: Philopotamidae). *Smithsonian Contributions to Zoology,* number 594, 131 pages, 446 figures, 26 maps, 1998.—The genus *Chimarra*, subgenus *Curgia* Walker, is revised, resulting in 92 species being recognized, of which 52 are described as new. The subgenus, which is exclusively New World in distribution, is characterized in the adult stage, and its relationships are briefly discussed. A key to the species, based primarily on the male genitalia, is presented. Diagnostic characters and descriptions are given for all species, the male genitalia are figured, and distribution maps are presented. The subgenus is divided into 16 species groups, which are characterized, their distributions are given, and relationships of the contained species are discussed. Of the 52 names available before this work, 40 are still recognized as valid. Six synonymies are proposed herein: *C. martinmoselyi* Botosaneanu under *morio* (Burmeister); *alayoi* Botosaneanu under *moesta* Banks; *punctulata* Flint under *parana* Flint; *catarinensis* Flint under *scopuloides* Flint; and *brustia* Ross and *alamosa* Denning under *laguna* Ross. One species, *barrettae* (Banks), is resurrected from the synonymy of *mexicana* (Banks).

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Introduction

Over the past twenty-five years there has been a rapidly increasing number of works on the caddisflies of the Neotropical realm. These studies have been carried out primarily by field oriented specialists on caddisflies, to wit: Botosaneanu, Bueno, Flint, Holzenthal, and Kumanski. As a result, vast quantities of freshly collected, well-prepared material have been accumulating in collections. One of the most commonly collected genera, in nearly all areas except the Chilean, has been the genus *Chimarra*. Species of this genus are found near most types of flowing water, except perhaps the largest, mud-bottomed tropical rivers. Adults come in large numbers to lights at night, although a few have been found to be very active at day and not to show up at lights operated at the same site at night.

Preliminary sorting of collections of this genus showed that a much larger number of species were present than hitherto had been suspected in both the subgenera *Chimarra* s.s. and *Curgia*. This study was conceived initially to make known less than a few dozen species thought to need names in *Curgia*. As the study progressed it became obvious that many more species were present than initially thought, that many of the old ones needed redescription in order to clarify their status, and that some species groupings were readily apparent. Consequently the paper has grown to become a full fledged, but still "classical," revision of the subgenus *Curgia*. Concurrently, Roger Blahnik, under guidance from Ralph Holzenthal at the University of Minnesota, entered into a modern, cladistic revision of the New World Chimarrinae. They have now published the genus *Chimarrhodella* and are working on the species and groupings of *Chimarra* (*Chimarra*), which is as rich in the New World as is *Curgia*.

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Historical Review

Phryganea marginata was the first species described that is now placed in *Chimarra*. The species was described from Sweden by Linnaeus in 1767 and transferred to (and became the type species of) the new genus *Chimarra* by Stephens in 1829. Unfortunately, the generic name *Chimarra* was emended by Burmeister (1839) to *Chimarrha*, a spelling that was widely used until it was rejected in the 1940s as an invalid emendation (Ross, 1944). *Chimarra marginata* is the only species of *Chimarra* in Europe, but species were soon described from many other parts of the world. The first New World species was described in 1852 by Walker as *Beraea? obscura;* the first Neotropical species was described by the same author in 1860 as *Curgia braconoides* from Hispaniola.

The generic name *Curgia* has had a checkered career. Although proposed in 1860, it was only mentioned in lists for almost the next 50 years. Ulmer (1905c) listed the species *braconoides* under *Chimarrha*, thereby implicitly synonymizing *Curgia*. The generic name remained unused until 1936 when Milne resurrected it for *Chimarrha argentella* Ulmer and for an unspecified number of "tropical and subtropical species," with forewings marked with "silvery

spots and bars." Ross (1956) presented a first attempt at characterization of *Curgia,* but he only had a small fraction of the species available for his consideration. In recent decades workers on the Neotropical fauna have tended to assign newly described species to either the subgenera *Chimarra* or *Curgia,* but without clearly defining them.

Of the 52 species described before this paper was begun, I recognize 40 as still valid. In addition, another 52 species are described as new in this paper, bringing the total to 92 species currently described in the subgenus *Curgia.* In comparison, in the subgenus *Chimarra* itself, there are 17 species currently recognized that were described from the United States and Canada and nearly another 75 recognized from Mexico, the West Indies, and southward (Blahnik, in his revision of this subgenus, will be describing another 60 plus species).

METHODS

Basic entomological techniques have been used throughout this study. Specimens are generally collected in the field at night when they are attracted to lights, usually ultraviolet or mercury vapor. Depending on individual preference, they may be taken dry in a killing bottle and pinned within 12 hours, or collected directly into 80% ethyl alcohol (however, material preserved this way will deteriorate in time).

Specific identification is dependent on structures of the male terminalia, which can sometimes be seen with sufficient clarity for identification without clearing. More frequently the abdomen must be removed from the thorax and the contents removed by treatment in 10% KOH or NaOH in order to clearly see the genital parts. Because the phallus is mostly within the body, important structures therein are often obscured by surrounding parts. Sometimes the phallus can be pulled with needle-nosed forceps out far enough to see the internal parts, but often this is not sufficient. In general the phallus can not be pulled out of the abdomen from the rear in its entirety. It is better to grasp its base with the forceps from inside the abdomen and pull it inward, gently loosing it from its surroundings until free. It often happens that the tenth tergum will be inverted at the same time, but the sclerites may be returned to their original position by prodding from inside with forceps or a needle. No special efforts were made to evert the endophallus, but sometimes it was everted naturally at death. After study, the phallus is put inside the abdomen to help prevent its loss.

After clearing, the genitalia are washed in alcohol and studied and drawn in glycerine. They are usually stored in glycerine in a microvial attached to the pin with the remaining parts of the specimen. If the body is in alcohol, the abdomen may be returned to the same vial, but if the phallus has been removed, the abdomen should be put into a microvial first to prevent the loss of small parts.

For each species account, lots with no disposition indicated have been placed in the collection of the National Museum of Natural History, Smithsonian Institution. All other material studied herein has been placed in the following collections, as indicated by the acronyms.

AMNH	American Museum of Natural History, New York, NY
ANSP	Academy of Natural Sciences, Philadelphia, PA
BMNH	Natural History Museum, London, England
CAS	California Academy of Sciences, San Francisco, CA
CMNH	Carnegie Museum of Natural History, Pittsburgh, PA
CU	Cornell University, Ithaca, NY
DMNH	Denver Museum of Natural History, Denver, CO
EBPA	Empresa Brasileira de Pesquisa Agropecuária, Planaltina, Brazil
FAMU	Florida Agricultural and Mechanical University, Tallahassee, FL
IBUNAM	Instituto de Biologia, Universidad Autonomia de Mexico, Mexico City, Mexico
INBIO	Instituto Nacional de Biodiversidad, Costa Rica
INHS	Illinois Natural History Survey, Champaign, IL
INPA	Instituto Nacional de Pesquisas da Amazonia, Manaus, Brazil
IZAM	Instituto de Zoologia Agricola, Maracay, Venezuela
LACM	Los Angeles County Museum of Natural History, Los Angeles, CA
MCZ	Museum of Comparative Zoology, Cambridge, MA
MHNJP	Museo de Historia Natural "Javier Prado," Lima, Peru
MNRJ	Museu Nacional, Rio de Janeiro, Brazil
MZUSP	Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil
NMNH	National Museum of Natural History, Smithsonian Institution, Washington, DC
RNH	Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands
SDMNH	San Diego Museum of Natural History, San Diego, CA
UGGG	Biodiversity Center, University of Guyana, Georgetown, Guyana
UMSP	University of Minnesota, Saint Paul, MN
UNCM	Universidad Nacional de Colombia, Medellín, Colombia
ZSZMH	Zoologische Staatsinstitut und Zoologisches Museum, Hamburg, Germany

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me for use in conjunction with the sketches. R.W. Holzenthal and R.J. Blahnik (University of Minnesota) have participated in many discussions and fully shared their ideas with me during their parallel studies on the other philopotamid genera. I am most grateful to the Trustees of The Natural History Museum, London, for permission to reproduce the excellent figures of the type of *Chimarra* (*Curgia*) *braconoides* from Betten and Mosely (1940).

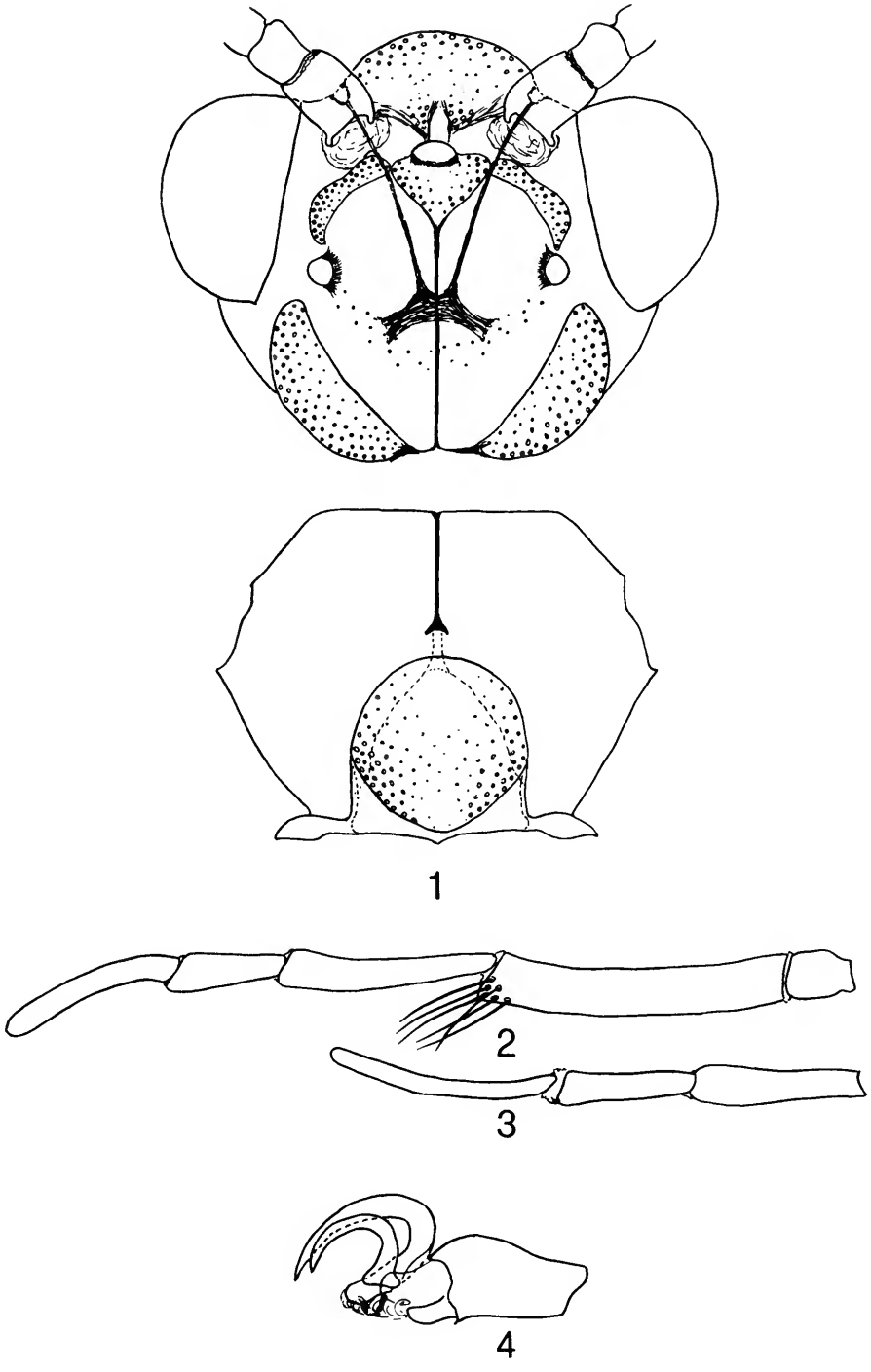
Subgenus *Curgia* Walker

Curgia Walker, 1860:179 [type species: *Curgia braconoides* Walker, 1860, monobasic].—Ulmer, 1905c:69 [as *Chimarrha* (recte *Chimarra*) *braconoides*]; 1907:199 [*Curgia* listed as generic synonym of *Chimarrha*].—Milne, 1936:81 [listed as subgenus of *Chimarrha*].—Fischer, 1961:53 [catalog].

Chimarrhodes Müller, 1887:290 [type species: *Chimarrha morio* Burmeister, 1839, subsequent designation Fischer, 1961:53].—Ulmer, 1907:199 [*Chimarrhodes* listed as generic synonym of *Chimarrha*].

DESCRIPTION.—Forewing length 4–10 mm; female usually 1–2 mm larger than male. Color various: body and appendages, fuscous, brown, or orange, underparts usually paler; forewing, uniformly fuscous, fuscous marked with white, silver, or golden maculae (Figure 228), or brown marked with golden maculae. Maxillary palpi 5-segmented; second segment longer, often nearly two times, than third, and with an apical tuft of enlarged setae apically on inner face on a slight enlargement of segment (Figure 2). Labial palpi 3-segmented (Figure 3). Head flattened, elongated posteriad. Ocelli 3. Head with anterior, anteromesal, and posterolateral setal warts; posterior setal warts and subtending suture often lacking (especially in orange-bodied species); with anterior tentorial arms long, broadly connected mesally just prior to short, broad posterior arms (Figure 1). Antennae with scape simple, slightly enlarged, flagellar segments unmodified. Mesonotum with scutellum evenly rounded anteriorly (not produced and slightly divided anteromesally) (Figure 1). Spurs 1, 4, 4 (spur of foreleg very reduced in size and easily overlooked). Male foretarsal claws often asymmetrical, varying from nearly equally developed, to one less than half size of other (Figure 4). Forewing venation nearly complete, except M, 3-branched; Rs and adjacent veins simple and straight (in subgenus *Chimarra* this area is curved and curiously modified, see Kimmins, 1962, fig. 15); crossveins, basal fork of M, and apex of Cu_2 all pale, indistinct (Figure 5). Hindwing with 4 branches to Rs, 3 to M; 1A and 2A looped together with single vein extending to wing margin, 3A short, extending directly to posterior wing margin; crossveins, base of M, and Cu_1 all pale, indistinct (Figure 5). Fifth abdominal sternum with sublateral pore surrounded by a large, dark macula, "cellular" in appearance. Male genitalia (Figures 6–9). Eighth tergum usually modified: either slightly produced into a simple posteromesal lobe, often with lateral lobes bearing strong setal brushes and/or with an elongate mesal process. Ninth segment usually enlarged anteroventrally, never with an anterodorsal, rod-like process; posteroventrally with a mesal keel-like lobe, often produced into an elongate process; dorsal margin united to tenth tergum, often narrow and synsclerous, frequently produced dorsally into a thin plate or rod articulating with posterventral margin of tergum 8 (especially common in those species with strongly modified tergum 8), rarely a free-standing process. Tenth tergum usually entire, with apex uparched and hood-like, rarely divided on midline (in a few species, division reaches completely to base of tergum), but never with mesal membranous structure if so divided; often ornamented with processes and lobes; with many apicolateral sensillae. Cerci (or preanal appendages) simple, setate lobes, generally oval in outline, sometimes elongate. Claspers (or inferior appendages) 1-segmented, usually almost equidimensional, occasionally elongate, rarely greatly so. Phallotheca tubular, base produced into a broad dorsal hood open beneath, apicoventral lip almost never produced into a spine-like process; endotheca membranous, eversible, phallotremal sclerite usually a simple ring-like structure with a small ventral rod (rod-and-ring structure), with various numbers of usually short, black spines; rarely with sclerites and spines greatly enlarged, modified, and heavily sclerotized (then with homologies obscure). Female genitalia (not studied in detail in most species; Figure 10). Eighth segment synsclerous, rarely partially membranous midlaterally, anterior margin often with a short lateral projection, with a short, midventral process; posterolateral margin with 2 pairs of darkened, setal warts (lateral and ventral positions), ventral pair often elongate and even subdivided. Ninth tergum sclerotized, with anterolateral apodemes. Segment 10 membranous, bilobate, bearing a pair of small, apical cerci. Internally with vaginal area variously sclerotized.

DISCUSSION.—There is a series of clearly synapomorphic characters defining the subfamily Chimarrinae, which is generally recognized to contain only two genera, *Chimarra* and *Chimarrhodella*. To briefly summarize the synapomorphies: vein M4 of forewing absent; vein 2A of hindwing looped and fused to 1A; claspers 1-segmented; and female sternum and tergum of abdominal segment 8 fused into a tubular ring (Ross, 1956; Blahnik and Holzenthal, 1992; Blahnik, 1997). *Chimarrhodella* recently has been revised and cladistically studied (Blahnik and Holzenthal, 1992), resulting in a series of defining synapomorphies: second segment of maxillary palpus with an apical, bristle-bearing extension, with third segment thus inserted preapically; claspers of male elongate, slender, and linear; phallic endotheca of enlarged and characteristic structure; female with setose process posteriorly from venter of segment 8; wings held horizontally and spread apart when live insect is at rest; and head flattened and elongate posteriad (this characteristic seems to be widespread to some degree through-



FIGURES 1–4.—*Chimarra* (*Curgia*) *braconoides* (Walker), male: 1, head and mesonotum, dorsal; 2, maxillary palpus, lateral; 3, labial palpus, lateral; 4, last tarsal segment and tarsal claws, lateral.

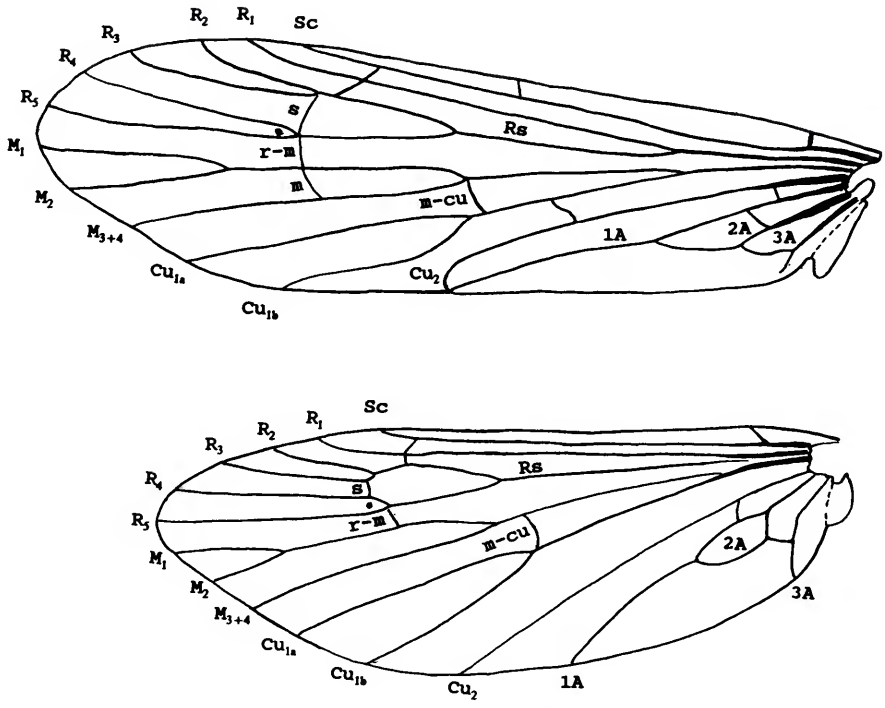


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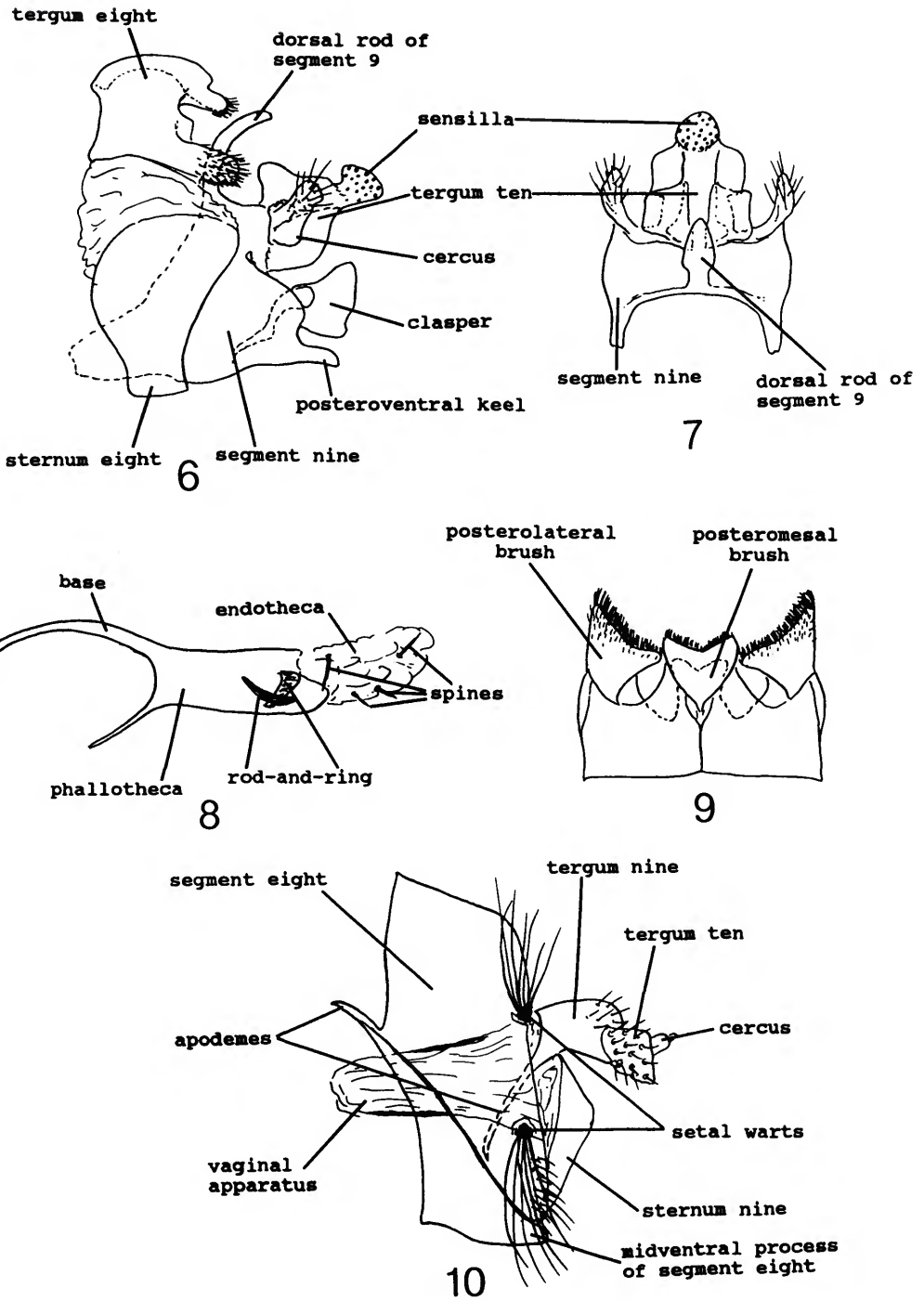
FIGURE 5.—*Chimarra* (*Curgia*) *braconoides* (Walker), male, fore- and hindwings.

out the family). A single character, the reduction of spurs on the foreleg to one from two, is the only synapomorphy suggested that would define all the species placed in the genus *Chimarra*. However, this genus is under active study from a cladistic viewpoint by Blahnik and Holzenthal (pers. comm.), and a more rigorous definition is hoped for. Although their study is much more broadly based than this and I therefore defer to their work, I do offer a few observations. The majority of the groups in the subgenus *Chimarra* would seem to be defined by a few obvious structures that are probably synapomorphic: Rs of forewing with a curved shape related to a bulls-eye-like structure that often modifies other surrounding veins; and ninth segment of male with a variously developed dorsolateral apodeme from anterior margin (polarity uncertain). Again, this leaves the *patosa* and *simpliciforma* groups of the subgenus *Chimarra* and the subgenus *Curgia* as a still unresolved mishmash. It would appear that the *patosa* and the *simpliciforma* groups have several synapomorphies defining each. I am still unable to come up with any structure, except, perhaps, the eighth sternal process in the female genitalia, that might be a synapomorphy inferring the monophyly of the subgenus *Curgia*. Unfortunately, females have not been studied in detail to make certain that this characteristic is present throughout the subgenus, but a species or two in most groups were studied and all possessed this character.

Little is known of the immature stages of species in this subgenus. The larvae have been described for *albomaculata* (Flint, 1964; Palmer, 1938), *argentella* (Flint, 1968), and *texana* (Edwards and Arnold, 1961). These are all very similar, no obvious differences being apparent in the descriptions. They share several distinctive structures on the head: frontoclypeus with a deep and symmetrical emargination from the anterior margin, and both mandibles with a small, projecting angle at midlength on the mesal margin. In the North American species of the subgenus *Chimarra,* at least, the frontoclypeal emargination is asymmetrical and often rather irregular (cf. Ross, 1944, figs. 179–182), and, at their respective midlengths, the left mandible has a distinct, projecting tooth and the right mandible has an indentation (Ross, 1944, figs. 175–178). It is difficult to assign polarity to these characteristics, and thus to know if they might prove to be synapomorphic for either subgenus.



FIGURES 6–10.—*Chimarra* (*Curgia*) *centralis* Ross, male genitalia, labelled: 6, lateral; 7, ninth and tenth terga and cerci, dorsal; 8, phallus, lateral; 9, eighth tergum, dorsal. *Chimarra* (*Curgia*) *morio* (Burmeister), female genitalia, labelled: 10, lateral.

Key to Species of *Chimarra* (*Curgia*)

The following key to species is designed for males only, and no identification should be considered complete until the genitalia of the unknown has been compared in all details to the figures and descriptions herein, the ranges and coloration considered, and all found to be in substantial agreement. In those couplets leading to a specific identification, I have given the figure number of the lateral view of the genitalia, even though this view may not be the best one for the character being used. My reason is that all aspects of the genitalia must be considered, not just the one selected as the most distinctive.

1. Eighth tergum with brushes of setae of varying size and complexity, usually from the posterolateral angles [Figure 261], and rarely other processes [Figure 427] 59

   Eighth tergum unmodified [Figure 26], with a simple lobe [Figure 62] or point [Figure 70], or rarely posterolateral knobs [Figure 249]; none bearing setal brushes 2

2. Eighth tergum with a pair of dorsolateral points [Figure 70] . . . . . *C.* (*Curgia*) *tucuna,* new species

   Eighth tergum lacking pointed processes 3

3. Ninth tergum bearing a long, posteromesal process between the halves of the tenth tergum, which is completely divided mesally [Figure 180] 4

   Ninth tergum without such a process; tenth tergum entire or rarely divided . . . 5

4. Ninth tergal process evenly upcurved, tip slightly enlarged [Figure 179]. . . . . *C.* (*Curgia*) *distermina,* new species

   Ninth tergal process upcurved, but with apical fourth angled posteroventrally and narrowed [Figure 183] . . . . . *C.* (*Curgia*) *aviceps,* new species

5. Eighth tergum no more than barely lobate [Figure 27]; posterolateral margin of ninth segment unmodified [Figure 11]; tenth tergum undivided mesally, but with a ventrolateral projection whose tip may be angled posteriad [Figure 11]; phallus with a simple rod-and-ring plus many (rarely as few as 3, usually more than 10) simple, short spines [Figure 14] 6

   Genitalia with one or more of the following: eighth tergum strongly produced [Figure 74] or bilobate [Figure 176]; posterolateral margin of ninth segment may bear points and processes [Figure 257]; tenth tergum may be divided mesally [Figure 83]; phallus usually with 2 to 4 internal spines, some of which may be different in structure from others [Figure 81] 16

6. Tenth tergum long, straight, tapering apicad in lateral aspect [Figure 11], broad in dorsal aspect [Figure 12] 7

   Tenth tergum shorter, often up-arched and widened apicad [Figure 21]; apex, at least, narrow in dorsal aspect [Figure 23] 8

7. Phallus with 50 or more small, internal spines [Figure 11] . . . . . *C.* (*Curgia*) *morio* (Burmeister)

   Phallus with 3 to 6 small, internal spines [Figure 17] . . . . . *C.* (*Curgia*) *froehlichi,* new species

8. Tenth tergum in lateral aspect straight, parallel-sided, with ventrolateral process very broad, produced, and with outer margin darkened; clasper longer than broad, rectangular with erect apicodorsal point [Figure 57] . . . . . *C.* (*Curgia*) *centrispina,* new species

   Tenth tergum enlarged apically or subapically with ventrolateral process narrow, extending ventrad along ninth segment, apex produced posteriad [Figure 21]; claspers narrower, crescentic [Figure 26] or trianguloid, often no longer than broad [Figure 45] 9

9. Clasper much longer than broad, crescentic and tapered apicad [Figure 21] 10

   Clasper rarely longer than broad, rectanguloid or trianguloid [Figure 37] 11

10. Forewing uniformly fuscous; phallus with 15 to 20 small, internal spines [Figure 21] . . . . . ***C. (Curgia) conica*** Flint
    Forewing with 2 to 3 large pale spots; phallus with 8 to 12 small, internal spines [Figure 26] . . . . . ***C. (Curgia) cipoensis,*** new species
11. Tenth tergum strongly up-arched and narrowed apicad; tip of clasper produced into a spine directed dorsomesad [Figure 53] . . . . . ***C. (Curgia) petricola,*** new species
    Tenth tergum not up-arched, tip usually enlarged [Figure 30] or produced into a dorsal point [Figure 49]; clasper with apicomesal spine directed straight mesad [Figure 37] or lacking altogether [Figure 47] 12
12. Clasper rounded apically, lacking any spine [Figure 37] 13
    Clasper with a spine on inner face, usually visible in ventral aspect [Figure 47] 14
13. Eighth tergum with a posterior margin produced into a shallow, broad lobe; posteroventral keel of ninth segment not as long as broad [Figure 37] . . . . . ***C. (Curgia) boraceia,*** new species
    Eighth tergum with a posterior margin produced into a rectanguloid lobe as long as broad; posteroventral keel of ninth segment twice as long as broad [Figure 41] . . . . . ***C. (Curgia) beckeri,*** new species
14. Clasper with a short, rather broad spine placed subterminally on inner face [Figure 30] . . . . . ***C. (Curgia) plaumanni*** Flint
    Clasper with a long, slender spine, placed apicomesally [Figure 47] 15
15. Ventrolateral process of tenth tergum broad and ending in a long, slender projection in lateral aspect [Figure 45] . . . . . ***C. (Curgia) burmeisteri,*** new species
    Ventrolateral process of tenth tergum very narrow at midlength, terminating in a rounded lobe [Figure 49] . . . . . ***C. (Curgia) petersorum,*** new species
16. Forewing with a large, circular golden spot centrally; claspers in ventral aspect fused mesally [Figure 64] or fused for basal third [Figure 68], with apicolateral caliper-like spines 17
    Forewing colored differently; claspers not fused mesally 18
17. Claspers in ventral aspect broadly fused mesally [Figure 64] . . . . . ***C. (Curgia) aurivittata*** Flint
    Claspers only fused for basal third of length [Figure 68] . . . . . ***C. (Curgia) jugescens,*** new species
18. Eighth tergum strongly produced posteromesally; tenth tergum with a long, pointed process arising ventrolaterally; clasper with a long, acute dorsal lobe and an apicomesal lobe [Figure 74] 19
    Male genitalia with a different combination of characters 20
19. Tenth tergum with a very high, rectangular, dorsomesal lobe [Figure 74] . . . . . ***C. (Curgia) ensifera,*** new species
    Tenth tergum with dorsomesal lobe low, rounded [Figure 78] . . . . . ***C. (Curgia) donamariae*** Denning and Sykora
20. Cercus a separate, ovid lobe arising basolaterally from tenth tergum [Figure 82] 21
    Cercus completely fused to tenth tergum, no more than a slightly bulging, setate area [Figure 103] . . . . . ***C. (Curgia) otuzcoensis*** Flint and Reyes
21. Tenth tergum divided mesally and without ventral lobe [Figure 83], ninth segment with a pointed process arising from posterior margin midway between tenth tergum and clasper [Figure 82] 22
    Genitalia with tenth tergum entire [Figure 187] or divided into dorsal and ventral lobes [Figure 108], or genitalia lacking process from posterolateral margin of ninth segment [Figure 133] 26
22. Phallus with large, apicoventral, spinose sclerites [Figure 85] 23
    Phallus with large, complex sclerites, but none spinose [Figure 93] 24
23. Phallus with a short ventral ring, spinose ventrolateral sclerites [Figure 82], and

spiny dorsal process . . . . . ***C. (Curgia) margaritae*** Flint

Phallus with a long, slender ring, long spinose ventrolateral processes [Figure 86], and lacking spiny dorsal process . . . . . ***C. (Curgia) chrysosoma,*** new species

24. Phallus with a lateral, band-like sclerite, truncate apically [Figure 90] . . . . . ***C. (Curgia) minga,*** new species

Phallus with a lateral band-like sclerite ending in a small, black spine [Figure 94] 25

25. Phallus with internal sclerites very long, consisting of a lateral pair and a slender pointed central one [Figure 94] . . . . . ***C. (Curgia) acula,*** new species

Phallus with internal sclerites one-half length of preceding species, consisting of long and short lateral pairs and a curved central one [Figure 98] . . . . . ***C. (Curgia) lojaensis,*** new species

26. Tenth tergum tripartite, consisting of a sensillate dorsomesal lobe and pointed, produced ventrolateral lobes [Figure 108] 27

Tenth tergum without pointed ventrolateral lobes, although ventrolateral area may be enlarged [Figure 129] 30

27. Phallus armed with a series of short, black spines in addition to several elongate internal sclerites [Figure 108] . . . . . ***C. (Curgia) barinita,*** new species

Phallus lacking short, black spines, with several long slender spines [Figure 115] 28

28. Posteromesal projection of ninth tergum long, almost touching dorsal angle of tenth tergum [Figure 116] . . . . . ***C. (Curgia) fernandezi*** Flint

Posteromesal projection of ninth tergum no more than a sharp point, tenth tergum not produced dorsad [Figure 112] 29

29. Tenth tergum divided apicomesally, internal sclerites of phallus very large and massive [Figure 120] . . . . . ***C. (Curgia) costaricensis,*** new species

Tenth tergum with apical margin entire, internal sclerites of phallus much more slender [Figure 112] . . . . . ***C. (Curgia) puya,*** new species

30. Tenth tergum with 2 pairs of basal lobes in addition to the cerci, posterior margin of ninth segment produced into 2 sharp points [Figure 257] . . . . . ***C. (Curgia) pulchra*** (Hagen)

Tenth tergum consisting of only a single mesal structure [Figure 188], which may be partially divided on midline [Figure 134], posterior margin of ninth segment simple or bearing processes [Figure 156] 31

31. Clasper embedded in ninth segment, i.e., either posterolateral [Figure 171] or posteromesal [Figure 253] margin of ninth segment extending further posteriad than clasper 32

Clasper extending well beyond posterior margin of ninth segment [Figure 125] 34

32. Posteromesal keel of ninth segment surpassing claspers, no long, slender, dorsolateral process from ninth segment [Figure 253] . . . . . ***C. (Curgia) albomaculata*** (Kolbe)

Posterolateral margin of ninth segment surpassing claspers, with a long, slender, dorsolateral process from ninth segment [Figure 171] 33

33. Tenth tergum with a sharp, dorsal crest [Figure 175] . . . . . ***C. (Curgia) guyanensis,*** new species

Tenth tergum with apex slender, unmodified [Figure 171] . . . . . ***C. (Curgia) juliae,*** new species

34. Clasper long and slender, at least 3 times as long as wide [Figure 125] 35

Clasper shorter, no more than twice as long as wide, often as high as long [Figure 187] 46

35. Ninth segment dorsally developed as a lobe [Figure 141] or dorsolaterally developed as a spine [Figure 152] or process [Figure 156] over base of tenth tergum 36

Ninth segment dorsally unmodified [Figure 125] 43

36. Eighth tergum bearing a long, slender, posteromesal process; ninth tergum with elongate, pointed processes overlaying tenth tergum [Figure 167] . . . . . *C.* (*Curgia*) *carolae,* new species
Without this combination of genitalic characters 37
37. Eighth tergum developed into a broad lobe, bearing 4 small points from posterior margin; ninth tergum bearing broad triangular lobes larger than tenth tergum [Figure 163] . . . . . *C.* (*Curgia*) *quaternaria* Flint
Male genitalia differently formed 38
38. Eighth tergum with posterior margin bearing a median lobe flanked by large, rounded lobes; ninth tergum bearing dorsolateral, rod-like processes [Figure 156] 39
Eighth tergum differently formed [Figures 142, 149]; ninth tergum without rod-like processes [Figure 141] 40
39. Median lobe of eighth tergum almost square in dorsal aspect [Figure 159] . . . . . *C.* (*Curgia*) *neofimbriata* Flint
Median lobe of eighth tergum spatulate in dorsal aspect [Figure 156] . . . . . *C.* (*Curgia*) *fimbriata* Flint
40. Eighth tergum with a single, posteromesal process [Figure 149] 41
Eighth tergum with posterior margin bilobed [Figure 145] 42
41. Tenth tergum truncate apically; ninth tergum with small, dorsolateral points [Figure 152] . . . . . *C.* (*Curgia*) *truncatiloba* Flint
Tenth tergum with apex drawn out into a small lobe; ninth tergum lacking dorsolateral points [Figure 148] . . . . . *C.* (*Curgia*) *medioloba* Flint
42. Tenth tergum attenuate, with a small dorsal lobe at midlength [Figure 141] . . . . . *C.* (*Curgia*) *claviloba* Flint
Tenth tergum broad, truncate apically, lacking a dorsal lobe [Figure 144] . . . . . *C.* (*Curgia*) *cirrifera,* new species
43. Tenth tergum with ventrolateral surface greatly expanded from near apex to base [Figure 129] 44
Tenth tergum with ventrolateral surface developed only near base [Figure 125] . . . . . *C.* (*Curgia*) *straminea,* new species
44. Tenth tergum in lateral aspect twice as long as broad [Figure 133] . . . . . *C.* (*Curgia*) *irwini,* new species
Tenth tergum higher than long in lateral aspect [Figure 129] 45
45. Phallus with spine of rod-and-ring structure barely as long as width of phallus [Figure 137] . . . . . *C.* (*Curgia*) *paria,* new species
Spine of rod-and-ring structure of phallus much longer than width of phallus [Figure 132] . . . . . *C.* (*Curgia*) *canoaba,* new species
46. Ninth segment (or at least from this area) with 1 or 2 points or lobes from posterolateral margin [Figure 229] 47
Ninth segment evenly rounded in this area [Figure 187] 52
47. A pair of angles or processes from (or apparently from) posterolateral margin of ninth segment [Figure 229] 48
Only a single process in this area [Figure 245] 51
48. Tenth tergum with a bilobate ventrolateral lobe in addition to the 2 angles or points from the lateral margin of the ninth segment [Figure 237] 49
Tenth tergum lacking ventral lobes, with only the single pair of processes apparently from posterolateral margin of ninth segment [Figure 229] 50
49. Posterolateral processes of ninth segment low, rounded; clasper shorter than high [Figure 241] . . . . . *C.* (*Curgia*) *quina,* new species
Posterolateral processes of ninth segment elongate, pointed; clasper longer than high [Figure 237] . . . . . *C.* (*Curgia*) *aurantibasis,* new species
50. Posterolateral process of ninth segment with dorsal and ventral arms parallel, dorsal arm blunt apically [Figure 233] . . . . . *C.* (*Curgia*) *gilvimacula,* new species
Posterolateral process of ninth segment with dorsal and ventral arms convergent,

dorsal arm sharply pointed [Figure 229] . . . ***C. (Curgia) braconoides*** (Walker)

51. Eighth tergum produced into a lateral, blackened, knob-like lobe; tenth tergum with a long, slender, basodorsal crest [Figure 249] . . . . . ***C. (Curgia) argentella*** (Ulmer)

Eighth tergum without lateral lobes; tenth tergum produced only apicad [Figure 245] . . . . . ***C. (Curgia) moesta*** Banks

52. Tenth tergum produced into a dorsal crest; clasper about as high as long [Figure 204] 53

Tenth tergum either extending posteriad [Figure 199] or angled dorsad [Figure 214]; clasper about twice as long as broad [Figure 187] 54

53. Eighth tergum in dorsal aspect broad, truncate mesally; apex of dorsal crest of tenth tergum distinctly bifurcate in dorsal aspect [Figure 210] . . . . . ***C. (Curgia) bisectilis,*** new species

Eighth tergum in dorsal aspect broadly rounded; apex of tenth tergum entire or no more than slightly notched [Figure 204] . . . . . ***C. (Curgia) wilsoni*** Flint

54. Tenth tergum in lateral aspect broad basally, sharply constricted at midlength, apex extending almost straight posteriad [Figure 199] . . . . . ***C. (Curgia) lobata*** Flint

Tenth tergum not constricted at midlength, apex directed distinctly dorsad [Figure 187] 55

55. Tenth tergum in lateral aspect with apex rounded, sharply angled dorsad; dorsal portion of ninth segment strongly produced and angled posteriad over the tenth tergum [Figure 214] . . . . . ***C. (Curgia) pablito,*** new species

Tenth tergum only semierect apically, usually angled from near base; ninth segment variously produced, but not curved freely over tenth tergum [Figure 218] 56

56. Ninth segment strongly produced dorsad as a narrow sclerite in lateral aspect [Figure 218] 57

Ninth segment barely produced dorsad in lateral aspect [Figure 187] 58

57. Eighth tergum with posterior margin developed as a pair of large lobes in dorsal aspect; ninth tergal strap curved posteriad [Figure 223] . . . . . ***C. (Curgia) hyoeides*** Flint

Eighth tergum barely produced in dorsal aspect; ninth tergal strap erect [Figure 218] . . . . . ***C. (Curgia) ypsilon*** Flint

58. Forewing with a broad, longitudinal band (sometimes broken into 2 large spots) of golden hair; foretarsal claws almost equal in size; tenth tergum with tip distinctly angled semierect, not carinate [Figure 187] . . . . . ***C. (Curgia) mexicana*** (Banks)

Forewing with many small golden spots; one foretarsal claw markedly larger than other; tenth tergum angled semierect from near base, usually with low dorsolateral carinae [Figure 193] . . . . . ***C. (Curgia) barrettae*** (Banks)

59. Clasper elongate, tapering beyond dorsomesal tooth in lateral aspect, broadly triangular in ventral aspect [Figure 425] 60

Clasper variously shaped, often with apical tooth, never with a dorsomesal tooth 61

60. Posteromesal process of eighth tergum extending freely posteriad [Figure 414] . . . . . ***C. (Curgia) laguna*** Ross

Posteromesal process of eighth tergum curved ventrad and fused to ninth segment [Figure 422] . . . . . ***C. (Curgia) texana*** (Banks)

61. Eighth tergum with a posteromesal lobe; tenth tergum with ventrolateral surface produced into apical lobe; clasper elongate, with apicomesal tooth [Figure 427] 62

Genitalia not with above combination of characters, never with apicoventral lobe to tenth tergum 65

62. Tenth tergum with dorsal crest well developed, nearly as long as tergum; clasper barely longer than broad [Figure 442] . . . ***C. (Curgia) securigera,*** new species
Tenth tergum either lacking dorsal crest or possessing a pair of erect lobes; clasper at least twice as long as broad [Figure 427] 63
63. Tenth tergum with a pair of erect, basodorsal lobes [Figure 427] . . . . . ***C. (Curgia) immaculata*** (Ulmer)
Tenth tergum lacking dorsal processes 64
64. Eighth tergum with posteromesal process short, narrow apically in dorsal aspect [Figure 432] . . . . . ***C. (Curgia) persimilis*** (Banks)
Eighth tergum with long posteromesal process, widened apically in dorsal aspect [Figure 437] . . . . . ***C. (Curgia) peytoni,*** new species
65. Eighth tergum with posterior margin bearing lateral brushes and a single, mesal brush on a process [Figures 280, 406] 66
Eighth tergum with lateral brushes only [Figure 285], paired mesal brushes only, or lateral and mesal paired brushes [Figure 395] 68
66. Ninth tergum bearing an erect, terete, mesal process unattached to intersegmental membrane [Figure 280] . . . . . ***C. (Curgia) centralis*** Ross
Ninth tergum lacking such process, with dorsolateral sclerites attached to intersegmental membrane [Figure 319] 67
67. Tenth tergum with a pair of erect processes anteriad to apex [Figure 409] . . . . . ***C. (Curgia) erectiloba,*** new species
Tenth tergum without such processes [Figure 404] . . . . . ***C. (Curgia) mycterophora,*** new species
68. Eighth tergum with brush or brushes borne only from posterolateral angles [Figure 314], brushes may have 2 arms, one of which extends mesad [Figure 264] 69
Eighth tergum with an extra set of brushes mesally, which may be borne from venter of eighth tergum [Figure 395] or from sclerite lying between posterolateral brushes [Figure 353] 83
69. Posterolateral brush of eighth tergum clearly consisting of two branches or arms [Figure 264] 70
Posterolateral brush of eighth tergum single [Figure 314], although it may be twisted mesad [Figure 311] or may bear a few basal spines or a small spiny lobe [Figure 381] 74
70. Both posterolateral brushes of eighth tergum extending equally posteriad or posteromesally [Figure 290] 71
One arm of posterolateral brush extending posteriad, other directed dorsomesally under posterior margin of eighth tergum [Figure 261] 72
71. Tenth tergum developed into an erect, sharp, spine-like process [Figure 290] . . . . . ***C. (Curgia) piliferosa,*** new species
Tenth tergum lacking any pointed process [Figure 375] . . . . . ***C. (Curgia) scopula*** Flint
72. Eighth tergum in dorsal aspect with posterior margin slightly curved [Figure 267] . . . . . ***C. (Curgia) sarophora,*** new species
Eighth tergum with a pair of dorsolateral lobes from posterior margin [Figure 263] 73
73. Apex of eighth tergal lobe attenuate in dorsal aspect, dorsal arm of posterolateral brush directed dorsally then mesally under eighth tergum [Figure 261] . . . . . ***C. (Curgia) banksi*** (Ulmer)
Apex of eighth tergal lobe rounded, dorsal arm of posterolateral brush directed mesally and then dorsally across intersegmental membrane [Figure 273] . . . . . ***C. (Curgia) macara,*** new species
74. Posterolateral brush of eighth tergum borne on a long, slender arm nearly as long as tergum itself [Figure 285] . . . . . ***C. (Curgia) acinaciformis,*** new species

Posterolateral brush of eighth tergum either attached directly to tergum [Figure 369] or on a process, in which case it is short, barely attaining apex of tergum [Figure 314] 75

75. Posterolateral angles of eighth tergum bearing a large, trianguloid, hirsute lobe, posterior margin of tergum broadly concave in dorsal view [Figure 369] . . . . . ***C. (Curgia) fittkaui*** Flint

Posterolateral brush of eighth tergum borne on a short process, posterior margin either truncate [Figure 310] or lobate [Figure 304], rarely concave [Figure 298] 76

76. Posterior margin of eighth tergum deeply concave in dorsal aspect, with posterolateral lobes overhanging small, posterolateral brush [Figure 296] . . . . . ***C. (Curgia) aureopunctata*** Flint

Posterior margin of tergum either truncate [Figure 310], produced [Figure 316], or lobate [Figure 304] 77

77. Posterior margin of eighth tergum bilobate in dorsal aspect [Figure 381] . . . . . ***C. (Curgia) scopuloides*** Flint

Posterior margin of tergum truncate [Figure 333] or produced [Figure 304] 78

78. Clasper with apicodorsal angle distinctly elongate in lateral aspect, without apicomesal tooth [Figure 302] 79

Clasper more rectanguloid in lateral aspect [Figure 314] or with apicodorsal angle acute [Figure 331], with an apicomesal tooth [Figure 317] 80

79. Posterior margin of eighth tergum produced into a conical, mesal lobe in dorsal aspect, tenth tergum evenly curved apicodorsally [Figure 302] . . . . . ***C. (Curgia) purisca,*** new species

Posterior margin of eighth tergum truncate, tenth tergum produced into a sharp, dorsal point [Figure 308] . . . . . ***C. (Curgia) maritza,*** new species

80. Clasper lacking any development of apicodorsal angle [Figure 314] 81

Clasper with apicodorsal angle developed into an acute angle [Figure 325] 82

81. Eighth tergum with posterior margin in dorsal aspect developed into a broad lobe, clasper with apicomesal tooth completely hidden in lateral aspect [Figure 314] . . . . . ***C. (Curgia) spatulata*** Ross

Eighth tergum with posterior margin not produced, apicomesal tooth of clasper clearly visible in lateral aspect [Figure 319] . . . . . ***C. (Curgia) didyma,*** new species

82. Eighth tergum with posterior margin in dorsal aspect produced into a small mesal point, eighth tergal brushes folded mesally beneath tergum [Figure 325] . . . . . ***C. (Curgia) nasuta,*** new species

Eighth tergum with posterior margin truncate, eighth tergal brushes short, not curved mesad [Figure 331] . . . . . ***C. (Curgia) blepharophera,*** new species

83. Tenth tergum with a pair of erect processes from dorsal surface [Figure 336] 84

Tenth tergum with dorsal margin either smooth [Figure 352], slightly protruding [Figure 387], or angulate [Figure 398] 86

84. Tenth tergum terminating in an acute, upturned point [Figure 341] . . . . . ***C. (Curgia) peruviana,*** new species

Tenth tergum apically slightly rugose, decurved and rounded [Figure 336] . . . 85

85. Eighth tergum with posterolateral brushes distinct, with a single, mesal setal lobe; processes from tenth tergum curving anterodorsad [Figure 346] . . . . . ***C. (Curgia) minca,*** new species

Eighth tergum with posterolateral brushes reduced or lacking, mesal brush divided centrally; processes from tenth tergum straight, erect [Figure 336] . . . . . ***C. (Curgia) geranoides,*** new species

86. Eighth tergum with a pair of large, well-developed mesal brushes in addition to posterolateral brushes [Figure 389] 87
Eighth tergum with a pair (or two) of small setal lobes arising from sclerite between eighth and ninth terga, posterolateral brushes capping apical margin of large, protruding lobe [Figure 353] 89
87. Posterolateral angle of eighth tergum produced into a long, terete process only sparsely ornamented; tenth tergum with a hump at midlength [Figure 387] . . . . . ***C. (Curgia) tamba,*** new species
Posterolateral brushes not on a long stalk directed posteriad; tenth tergum not humped, but may bear basolateral shoulders [Figure 399] 88
88. Tenth tergum in lateral aspect evenly curved, without basolateral angles [Figure 392] . . . . . ***C. (Curgia) teresae,*** new species
Tenth tergum with basolateral, angulate shoulders [Figure 398] . . . . . ***C. (Curgia) camposae,*** new species
89. Sclerotized plate between eighth and ninth terga bearing 2 pairs of brushes [Figure 360] . . . . . ***C. (Curgia) parana*** Flint
This plate bearing only a single pair of brushes [Figure 353] 90
90. Tenth tergum apically flattened, slender, angled directly posteriad [Figure 364] . . . . . ***C. (Curgia) cultellata*** Flint
Tenth tergum inflated, semierect [Figure 352] 91
91. Dorsal margin of posterolateral brush of eighth tergum nearly straight in lateral aspect, tenth tergum semierect, tip only slightly narrowed, not angled posteriad [Figure 352] . . . . . ***C. (Curgia) brasiliana*** (Ulmer)
Dorsal margin of posterolateral brush distinctly concave, tenth tergum semierect, but strongly narrowed apicad and with tip distinctly bent down [Figure 356] . . . . . ***C. (Curgia) piraya*** Flint

The *morio* Group

DIAGNOSIS.—Length of forewing, 5.5–9 mm. Basic color jet black, rarely with forewing marked with few large spots or a broad band of pale yellow or white. Claws of male foreleg not noticeably asymmetrical.

Male Genitalia: Eighth tergum without brushes, at most with posterior margin slightly projecting mesad. Ninth segment with anterior margin nearly vertical, broad dorsad, without any dorsomesal projection. Cercus small, oval. Tenth tergum consisting of dorsal lobe with apex entire and bearing many sensillae; with ventrolateral angle produced into a sclerite lying along posterolateral margin of ninth segment and with its apex produced into a free lobe projecting posteriad. Clasper generally elongate, not greatly modified, often with an apicomesal tooth. Phallus tubular, phallotheca generally produced apicodorsally; internally with a small, basal, rod-and-ring assembly and a variable number (3–100+) of black spines.

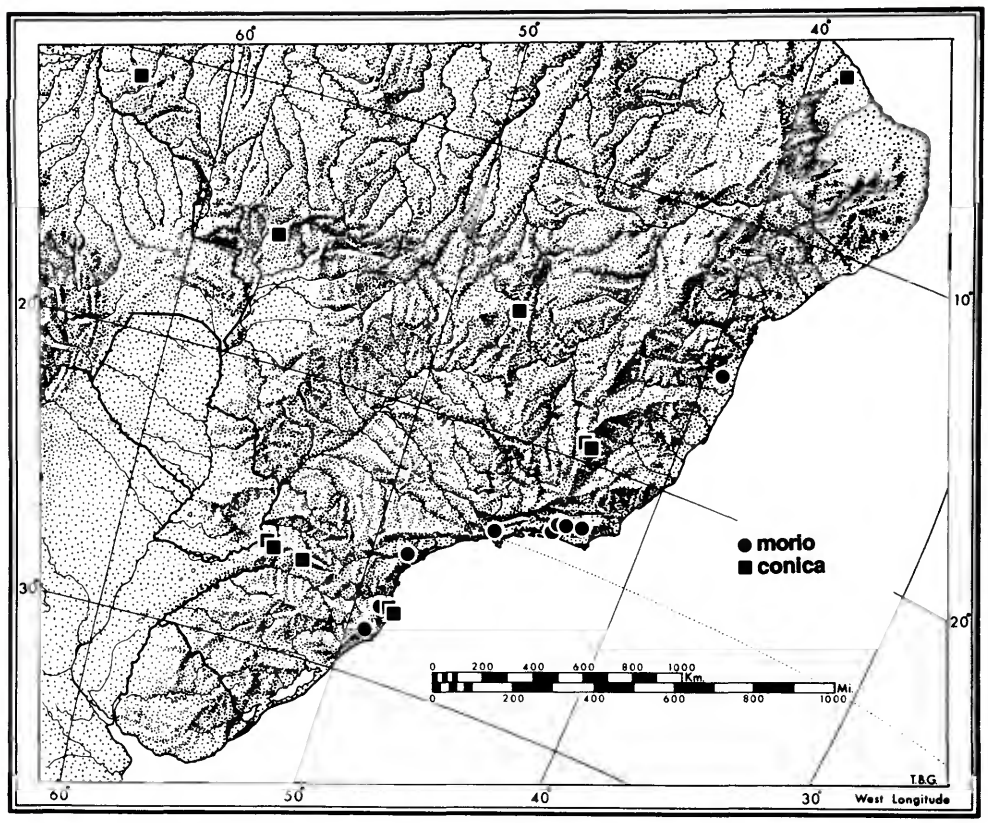
DISTRIBUTION.—Primarily mountains of southeastern Brazil, extending inland as far as the state of Rondônia, Brazil, and the province of Misiones, Argentina, and north to Ceara, Brazil.

DISCUSSION.—This is a very uniform group, united by a striking synapomorphy: the ventral extension of the basoventral angle of the tenth tergum. In most species this extension of the tenth tergum terminates with its apex free and angled posteriad; only in *C. froehlichi* is it not to some degree angled. A few species complexes are apparent within the group, although they are not sharply defined. The *morio* complex has the tenth tergum rather elongate, the tip unmodified, and, in dorsal aspect, broad; the claspers are also elongate (*morio* and *froehlichi*). The *conica* complex has a shorter tenth tergum whose apex is to some degree enlarged in lateral aspect and in dorsal aspect tapers to a narrow tip; the clasper is elongate, narrow, and concave in lateral aspect (*conica* and *cipoensis*). The *plaumanni* complex also has a shortened tenth tergum whose apex is generally enlarged in lateral aspect, tapered and narrow in dorsal aspect, and often with a distinct basolateral angle; the clasper is usually short, barely longer than high (*boraceia, burmeisteri, petersorum, petricola,* and *plaumanni*), but in *beckeri* it is distinctly longer than high. The final species, *centrispina,* seems quite distinct from the above groups in shape of clasper and ventrolateral lobe of the tenth tergum, although the general shape of the tergum is quite like that in the *plaumanni* complex.

Chimarra (Curgia) morio (Burmeister)

FIGURES 11–16; MAP 1

Chimarrha morio Burmeister, 1839:911.—Ulmer, 1905a:94.
Chimarra morio (Burmeister).—Walker, 1852:81.—Fischer, 1961:67.
Chimarra moselyi Ross, 1956:50, 71 [preoccupied by *Chimarra moselyi* Denning, 1947b:251].
Chimarra martinmoselyi Botosaneanu, 1980:98 [new name for *Chimarra moselyi* Ross] [new synonymy].



MAP 1.—Distributions of *Chimarra* (*Curgia*) *morio* (Burmeister) and *Chimarra* (*Curgia*) *conica* Flint.

REMARKS.—The species *Chimarrha morio* Burmeister is based on a number of females, originally stated to be from "Brasilien." Ulmer (1905a) studied two of these types from the "Zoologischen Instituts zu Halle," stating them to be labelled "Brasilien, Beske." These specimens cannot now be located in the Halle collection (Mey, pers. comm.). I have seen a single female specimen in the collection of the MCZ labelled in Hagen's hand "Brasilien. Neu Freiburg. Beschke. Germar." and "Ch. morio Burm."; I consider this to be another syntype. The abdomen of this specimen had been cleared and served as my basis for determining the identity of the species.

Females of most of the species of the *morio* group from the regions of Rio de Janeiro and Nova Friburgo have been cleared and studied, and, as a result, differences can be seen between all the species, although they are rather subtle. I have found several examples that match the syntype of *morio* perfectly, one of which has the same data as the holotype of *moselyi* Ross, the other taken in company with a male of the same species. Somewhat complicating the picture is the fact that several other species have been taken in the same vicinity. However, by study of these species from several other localities, I have been able to associate the sexes for all with what I feel to be a high level of confidence. Thus, the *morio* female is also left by elimination with the same association as herein recognized.

This species is very closely related to the species herein described as *froehlichi*. Both have the tenth tergum broad in dorsal aspect and thin in lateral aspect, and both have relatively long claspers. However, *morio* has a distinct, but small, tooth apicodorsally on the clasper and more than 50 small spines in the phallus. In *froehlichi* the tooth is lacking or is represented by no more than a small bump, and the phallus contains only three to six small spines.

I have seen several series that differ from what I regard as the typical form. In one variant (Figures 15, 16) the clasper appears shorter and broader with the apicodorsal tooth quite pronounced, and the portion apicad of this tooth is nearly vertical. I can see no other differences in the male genitalia. In another variant (from Bahia), the clasper is much the same as in the first variant, but a bit longer. The tip of the tenth tergum and the lobe of the eighth tergum are both slightly bifid, and the posteroventral keel of the ninth segment is long in this form.

ADULT.—Length of forewing, ♂ 7–8.5 mm, ♀ 8–9 mm. Color uniformly jet black.

Male Genitalia: Eighth sternum narrow, slightly wider dorsad; tergum with posterior margin slightly and broadly projecting mesad (eighth segment omitted from Figures 11, 12). Ninth segment with anterior margin nearly vertical, broad dorsad; posteroventral keel short, broadly trianguloid. Cercus

small, oval. Tenth tergum entire; slightly arched in lateral aspect, broad basally; in dorsal aspect with tip rounded, widening basad, with many sensillae; ventrolateral process developed as a short lobe over clasper base. Clasper elongate, nearly parallel sided basad of apicodorsal tooth, tapering ventrad beyond tooth; in ventral aspect with mesal margin slightly produced apicad. Phallus tubular, produced apicodorsally; internally with a small, basal, rod-and-ring assembly and 50 to 70 short, black spines.

MATERIAL EXAMINED.—BRAZIL [EDO. RIO DE JANEIRO], Neu Freiburg [now Nova Friburgo], Beschke [or Beske], 1♀ probable syntype (MCZ). Km 21, 14 km S Teresópolis, 1340 m, 19 Apr 1977, C.M. and O.S. Flint, Jr., 2♂. Petrópolis, nr. Rio de Janeiro, McLachlan Coll., 1♀ (BMNH). [EDO. GUANABARA] Tijuca, Rio de Janeiro, 17 Oct 1913, Cornell U. Exp., 1♂ (CU). EDO. SÃO PAULO, Estação Biológica Boraceia, str. near quarry, 850 m, 3 Apr 1977, C.M. and O.S. Flint, Jr., 1♂, 1♀. Estação Biológica de Paranapiacaba, Serra do Mar, ~40 km SE São Paulo, 27 Nov 1963, C.G. Froehlich (37), 1♂ (MZUSP). Variant form: EDO. RIO DE JANEIRO, Mury, Nova Friburgo, Jan 1978, Gred and Guimarães, 32♂ (MZUSP, NMNH). EDO. SANTA CATARINA, Blumenau, Res. Spitzkopf, 4 Dec 1975, Exp. Dept. Zool. USP, 1♂ (MZUSP). Lauro Mueller, 800 m, 3 Feb 1993, V.O. Becker, 1♂, 1♀. EDO. PARANÁ, Quatro Barras [25°22'S, 49°05'W], 900 m, 31 Jan 1993, V.O. Becker, 7♂, 5♀. EDO. BAHIA, Camacã, 400–700 m, 13–14 Apr 1992, V.O. Becker, 1♂.

ETYMOLOGY.—Probably from the Latin *morio* ("a fool").

Chimarra (Curgia) froehlichi, new species

FIGURES 17–20; MAP 2

REMARKS.—This species is very closely related to *morio*, with which it shares the simple, elongate, and rounded tenth tergum, elongate, tapering claspers, and barely modified eighth tergum. It differs in having the tenth tergum straighter and more broadly rounded apicad and in having no posterior lobe from its ventrolateral process, in its clasper being more rounded apicad with virtually no apicomesal tooth, and, especially, in having very few small spines in the phallus.

ADULT.—Length of forewing, ♂ 5.5–7 mm, ♀ 6.5–7.5 mm. Color uniformly jet black.

Male Genitalia: Eighth sternum parallel sided; tergum with posterior margin slightly enlarged mesad, with this portion bearing a modified rugose cuticle and either depressed or somewhat invaginated (eighth segment omitted from Figures 17, 18). Ninth segment slightly enlarged anteroventrally; tergal area broad; posteroventral keel produced into a short, blunt process. Cercus elongate, rounded apically. Tenth tergum entire; nearly straight in lateral aspect, widening basad; in dorsal aspect with tip broadly rounded, sides nearly parallel; apically with many sensillae; ventrolateral process very short, not projecting posteriad. Clasper elongate, tapering regularly apicad, with a small dorsomesal tooth; in ventral aspect with apex broadly rounded. Phallus tubular, with apicolateral surface produced and rounded apically; internally with a small, basal, rod-and-ring assembly and (rarely one) three to six short, black spines.

MATERIAL EXAMINED.—*Holotype,* male: BRAZIL, EDO. RIO DE JANEIRO, km 54, 26 km E Nova Friburgo, 410 m, 19 Apr 1977, C.M. and O.S. Flint, Jr. MZUSP Type.

Paratypes: Same data as holotype, 9♂, 8♀ (NMNH). Nova Friburgo, municipal water supply, 950 m, 24 Apr 1977, C.M. and O.S. Flint, Jr., 4♂, 1♀. Parque Nacional do Itatiaia, near Lago Azul, 9 Jun 1965, C.G. Froehlich (66), 4♂, 6♀ (MZUSP, NMNH). EDO. SÃO PAULO, Casa Grande, Estação Biológica Boraceia, 21 Feb 1990, L.G. Oliveira, 4♂, 4♀ (MZUSP and NMNH); same, but 5–6 Nov 1974 [C.G. Froehlich] (140, 141), 5♂ (MZUSP); same, but Ribeirã Coruja, 850 m, 2 Apr 1977, C.M. and O.S. Flint, Jr., 1♀; same, but 16 Nov 1974, C.G. Froehlich (401), 1♂, 1♀ (MZUSP); same, but 26 Jan 1974 (292), 11♂, 3♀ (MZUSP). EDO. ESPÍRITO SANTO, Caixa d'Agua, Santa Teresa, 23 Apr 1977, C.M. and O.S. Flint, Jr., 2♂, 1♀.

ETYMOLOGY.—Patronym, in honor of Dr. Claudio G. Froehlich, the noted Brazilian plecopterist and aquatic biologist.

Chimarra (Curgia) conica Flint

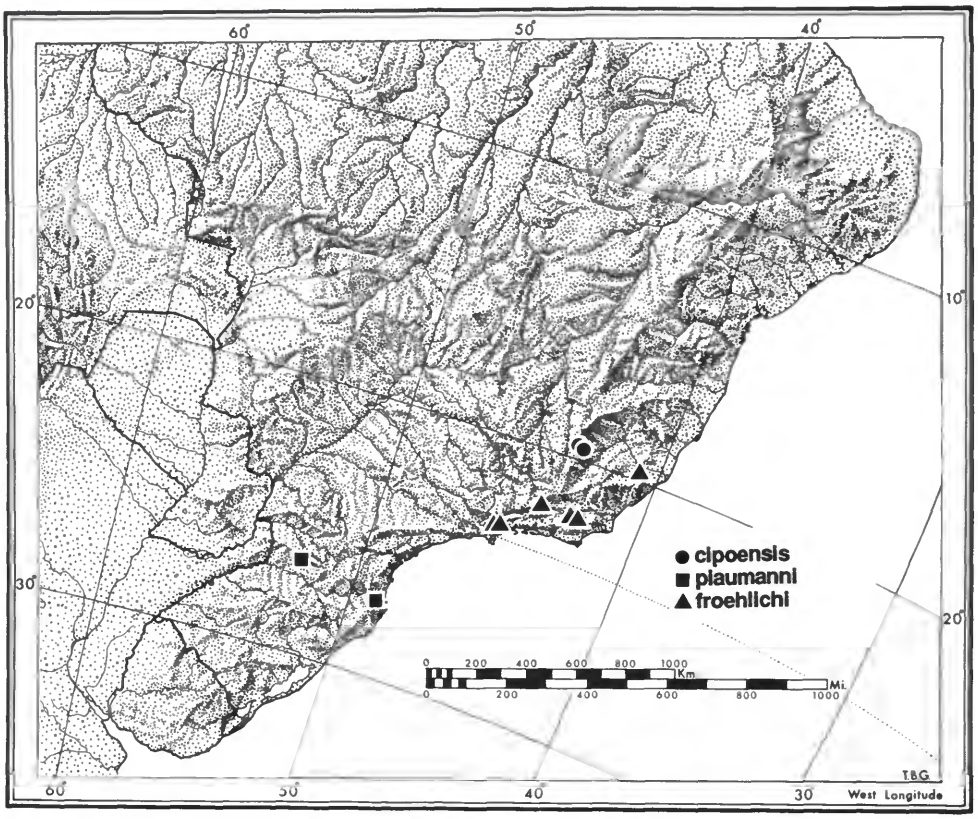
FIGURES 21–25; MAP 1

Chimarra (Curgia) conica Flint, 1983:20.

REMARKS.—This species and the following species, *cipoensis,* are very closely related. Pinned (and sometimes alcoholic) material is easily distinguished by color; *conica* is uniformly jet black, and *cipoensis* has two or three large white spots on the forewing. The male genitalia are very similar, offering few clear distinctions in some populations. However, where the two coexist in Minas Gerais, they are easily distinguished by the tip of the tenth tergum, which in *conica* is distinctly enlarged at the apex from both the dorsal and ventral margins, giving it an ax-shaped appearance (Figure 22), and by the phallus, which contains 15–20 small, black spines, nearly twice as many as in *cipoensis.*

ADULT.—Length of forewing, ♂ and ♀ 6–7.5 mm. Color uniformly jet black (examples from Nova Teutonia have a broad, golden band in center of wing).

Male Genitalia: Eighth sternum narrow, slightly widened dorsad; tergum with posteromesal margin produced into a short, broad lobe (eighth segment omitted from Figures 21, 23). Ninth segment produced anteroventrally; tergal area broad; posteroventral keel produced as an elongate, trianguloid process. Cercus elongate, rounded apically. Tenth tergum entire; in lateral aspect with apex enlarged from both dorsal and ventral margins (in the variety this enlargement is grossly



MAP 2.—Distributions of *Chimarra* (*Curgia*) *cipoensis*, new species, *Chimarra* (*Curgia*) *plaumanni* Flint, and *Chimarra* (*Curgia*) *froehlichi*, new species.

exaggerated, Figure 22); in dorsal aspect tapering to a narrowly rounded tip; apically with many sensillae arranged around apex; ventrolateral process with a short, posteroventral extension. Clasper elongate, concave dorsally, tapering apicad; in ventral aspect with inner margin straight, rounded laterally, produced into an apicomesal point. Phallus tubular, with apicodorsal surface produced; internally with a small, basal, rod-and-ring assembly and 15 to 20 short, black spines.

MATERIAL.—ARGENTINA, PCIA. MISIONES, Arroyo Piray Mini, Rt.17, W Dos Hermanas, 23 Nov 1973, O.S. Flint, Jr., ♂ holotype and 4♂,6♀ paratypes (NMNH). Arroyo Piray Guazú, N San Pedro, 22 Nov 1973, O.S. Flint, Jr., 2♂ paratypes.

BRAZIL, EDO. SANTA CATARINA, Nova Teutonia (27°11'S, 52°23'W), 300–500 m, 193-, F. Plaumann, 1♂ (BMNH); same, but 17 Sep–9 Nov 1939, 4♂ (MCZ, NMNH). Blumenau, Reserva Spitzkopf, 4 Dec 1975, Exp. Dep. Zool. USP (452), 6♂, 15♀ (MZUSP, NMNH). Mun. Ilhota, Morro de Baú, a luz, 3 Dec 1974, C.G. Froehlich (409), 1♂, 1♀ (MZUSP).

VARIETY SHOWN IN FIGURE 22: EDO. MINAS GERAIS, Serra do Cipó, Rio Braunina, 12 Jul 1974, Froehlich and Shimizu (381), 3♂, 1♀ (MZUSP). Serra do Cipó, km 116, Rio Braunina, a luz, 19 Dec 1974, Froehlich (410), 6♂, 4♀ (MZUSP, NMNH); same, but unknown date, net (462), 4♂ (MZUSP). Serra do Cipó, km 110, 29 Oct 1974, C.G. Froehlich (397), 10♂ (MZUSP); same, but Chapeau de Sol, 21 Dec 1974 (413), 1♂ (MZUSP); same, but km 106, 8 Feb 1974 (323), 1♂ (MZUSP). Serra do Cipó, Rio Capivara, 28 Oct 1974, C.G. Froehlich, 4♂, 1♀ (MZUSP); same, but 18 Dec 1974 (409), 9♂, 6♀ (MZUSP, NMNH); same, but tributary to Rio Capivara, road to Usina, a luz, 20 Dec 1974 (411), 1♂, 4♀ (MZUSP); same, but 21 Sep 1976 (463), 3♂ (MZUSP); same, but 22 Sep 1976 (465a), 1♂ (MZUSP). EDO. GOIÁS, 24 km E Formosa, 29 May 1956, F.S. Truxal, 1♂ (LACM). EDO. MATO GROSSO, Chapada dos Guimarães, 800 m, 26 Oct 1993, V.O. Becker, 4♂, 4♀. EDO. RONDÔNIA, 13 km S Caucalandia, B-65 at creek, 21 Nov 1991, D. Petr, 3♂, 5♀. 8 km S Caucalandia, creek, 21 Nov 1991, D. Petr, 2♂, 2♀. EDO. CEARÁ, Pacatuba, 250 m, 6 Apr 1994, V.O. Becker, 2♂, 1♀.

ETYMOLOGY.—From the Latin *conus*, in allusion to the shape of the tenth tergum in dorsal aspect.

NOTE.—In the original descriptions and illustrations of this species and *plaumanni* an unfortunate transposition of the drawings of the dorsal view of the tenth terga was made during the assembly of the plates. The actual drawing of *plaumanni* is

Figure 55 and that of *conica* is Figure 50, in spite of their being labelled to the contrary.

Chimarra (Curgia) cipoensis, new species

FIGURES 26–29; MAP 2

REMARKS.—This species barely differs from *conica* except in coloration; the forewings bear several large white spots rather than being uniformly fuscous. Several small differences are to be seen between the male genitalia of *cipoensis* and that of the typical form of *conica:* the tenth tergum in lateral aspect is only slightly enlarged apicad and the dorsal and ventral margins are uniformly divergent from near the base (rather than dorsal margin strongly produced subapically); there is a small lobe from the ventrolateral process of the tenth tergum that appears as a spine in dorsal aspect; the clasper in ventral view is proportionately shorter and broader; and the phallus contains fewer spines. However, the form of *conica* that coexists with *cipoensis* differs more strongly in that it is the one with the tip of the tenth tergum produced into a sharp apicodorsal point (see Figure 22).

ADULT.—Length of forewing, ♂ and ♀ 6–7 mm. Color in alcohol dark brown; forewing with two or three large spots of pale hair.

Male Genitalia: Eighth sternum widened dorsad; tergum with posterior margin slightly produced mesally. Ninth segment produced anteroventrally; tergal area broad; posteroventral keel produced into a short lobe. Cercus small, ovoid. Tenth tergum entire; in lateral aspect with apex barely enlarged, with both dorsal and ventral margins uniformly divergent from near base; in dorsal aspect tapering to a rounded tip; apically with many sensillae arranged around apex; ventrolateral process with a small lobe at midlength that appears as a sharp spine laterad of the base of tergum in dorsal aspect, posteroventral extension long and flattened. Clasper elongate, concave dorsally, tapering apicad; in ventral aspect with inner margin straight, rounded laterally, produced into an apicomesal point. Phallus tubular, with apicodorsal surface produced; internally with a small, basal, rod-and-ring assembly and eight to 12 small, black spines.

MATERIAL EXAMINED.—*Holotype,* male: BRAZIL, EDO. MINAS GERAIS, Serra do Cipó, km 110 [on road to Conceição do Mato Dentro], 29 Oct 1974, C.G. Froehlich (#397). MZUSP Type.

Paratypes: Serra do Cipó, Rio Capivara, 18 Dec 1974, C.G. Froehlich (409), 1♂, 1♀ (NMNH); same, but tributary to Rio Capivara, 25 July 1972 (171), 1♂ (MZUSP); same, but 20 Dec 1974 (411), 1♀ (MZUSP).

ETYMOLOGY.—From the type locality, Serra do Cipó.

Chimarra (Curgia) plaumanni Flint

FIGURES 30–36; MAP 2

Chimarra (Curgia) plaumanni Flint, 1983:19.

REMARKS.—This species presents a combination of characteristics in the male genitalia relating it to *morio* in some manners, but other structures are shared with the other members of the *plaumanni* complex. The slightly elongate clasper with a subapical mesal tooth is quite characteristic of the *morio* complex, but the narrow tenth tergite with the basolateral shoulder is characteristic of the *plaumanni* complex. The species is distinguished from its congeners by the following combination of characters: the tenth tergum is blunt apically and has a posterior lobe from its ventrolateral process, and its clasper shows a small lobe from the dorsal margin at midlength and a subapicomesal tooth in ventral aspect.

I have seen two males that show slight differences from the type: the clasper is broader and rounded apically, and the tenth tergum is more elongate apically (Figures 34–36).

ADULT.—Length of forewing, ♂ 6–8 mm, ♀ 8–9 mm. Color uniformly jet black.

Male Genitalia: Eighth sternum narrow, slightly widened dorsad; tergum with posteromesal margin produced into a short, broad angle (eighth segment omitted from Figures 30, 31). Ninth segment slightly enlarged anteroventrally; tergal area broad; posteroventral keel produced into a short, trianguloid process. Cercus elongate, rounded apically. Tenth tergum entire; in lateral aspect produced into a blunt, broad apex; in dorsal aspect with tip narrow, pointed, with a sharp basolateral point; apically with many sensillae arranged around apex; ventrolateral process with a short, posteroventral lobe. Clasper elongate, tapering apicad, with a small dorsomesal lobe; in ventral aspect with inner margin slightly produced apicad, with a subapical, mesal tooth. Phallus tubular, with apicodorsal surface produced; internally with a small, basal, rod-and-ring assembly and many (40 to 50) short, black spines.

MATERIAL.—BRAZIL, EDO. SANTA CATARINA, Nova Teutonia, 27°11′S, 52°23′W, 300–500 m, 19 Jan 1964, F. Plaumann, ♂ holotype (NMNH); same, but 11 Oct 1936, 2♂, 1♀ (BMNH); same, but 11 May 1938, 1♀ (BMNH).

VARIANT.—BRAZIL, EDO. SANTA CATARINA, Blumenau, Loth. Hetschko, 1♂ (BMNH). Santa Catharina [probably from near Blumenau where Müller worked most of his life], F. Müller, McLachlan Coll., 1♂, 2 without abdomen (BMNH).

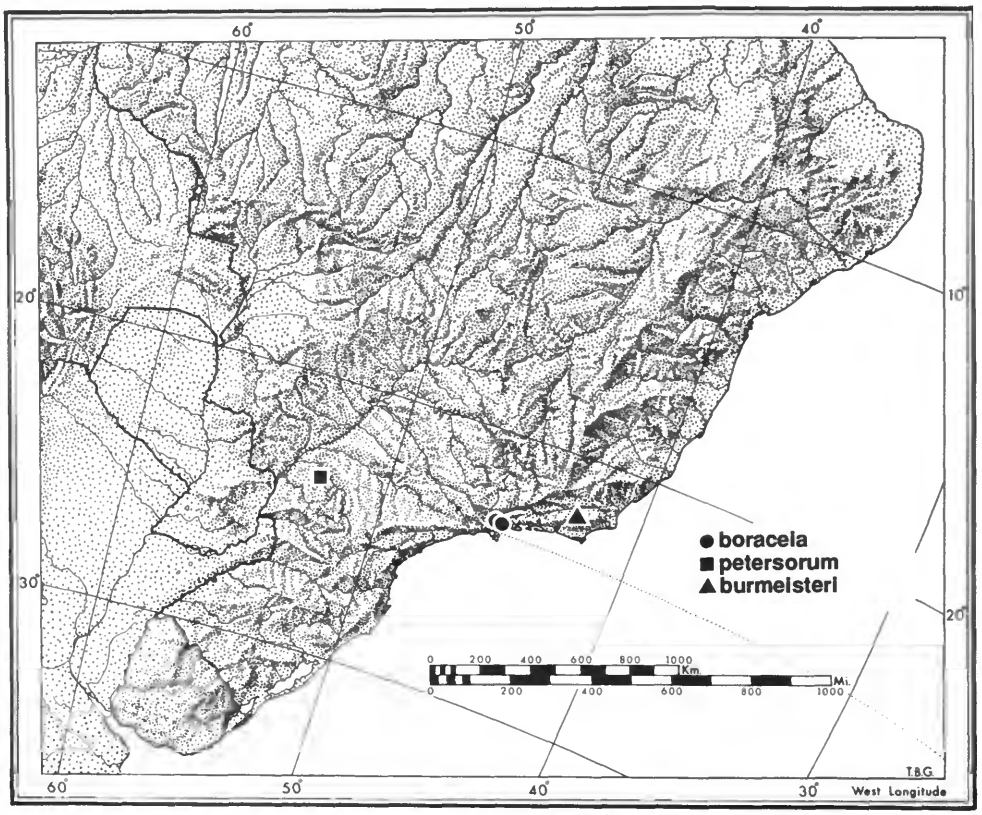
ETYMOLOGY.—Patronym, in honor of Fritz Plaumann, the late Brazilian entomological collector.

Chimarra (Curgia) boraceia, new species

FIGURES 37–40; MAP 3

REMARKS.—This species is certainly a member of the *plaumanni* complex on the basis of the narrowed apex of the tenth tergum. The broad, shallow posteromesal lobe of the eighth tergum, the very short posteroventral keel of the ninth segment, the odd, rather broad, ventrolateral process of the tenth tergum, which is not produced into a slender ventral lobe, and the short, almost spatulate clasper serve to distinguish the species from the closely related *beckeri.*

ADULT.—Length of forewing, ♂ and ♀ 7–8 mm. Color uniformly jet black.



MAP 3.—Distributions of *Chimarra (Curgia) boraceia,* new species, *Chimarra (Curgia) petersorum,* new species, and *Chimarra (Curgia) burmeisteri,* new species.

Male Genitalia: Eighth sternum slightly widened dorsad; tergum with posteromesal margin produced into a short, broad lobe (eighth segment omitted from Figures 37, 38). Ninth segment produced anteroventrally; tergal area broad; posteroventral keel a very small, trianguloid process. Cercus elongate, rounded apically. Tenth tergum entire; in lateral aspect slightly enlarged subapically, mainly on dorsal margin; in dorsal aspect almost rod-like, barely enlarged basally, tip acute; with many sensillae dorsally; ventrolateral process appearing rather broad, lacking a posteroventral lobe, although slightly produced ventrally. Clasper short, about as long as high, tapering slightly to a broadly rounded apex; in ventral aspect a bit longer than broad, with inner and outer margins slightly flared laterad, apex broadly rounded. Phallus tubular, with apicodorsal surface produced; internally with a small, basal, rod-and-ring assembly and 50 to 60 short, black spines.

MATERIAL EXAMINED.—*Holotype,* male: BRAZIL, EDO. SÃO PAULO, Reserva Casa Grande, Corrego da Pedreira, 18 Jul 1969, C.G. Froehlich (#123). MZUSP Type.

Paratypes: Same data as holotype, 8♂ (MZUSP, NMNH); same, but 21 Jul 1967 (102), 4♂ (MZUSP); same, but 15 Oct 1969 (121), 1♂ (MZUSP); same, but 7 Dec 1969 (127), 5♂ (MZUSP); same, but 3 Apr 1977, C.M. and O.S. Flint, Jr., 1♂; same, but Ribeirão Venerando, 3 Apr 1977, 1♂; same, but Ribeirão Coruja, 26 Jan 1974, C.G. Froehlich (292), 5♂ (MZUSP, NMNH); same, but 12 Oct 1974 (391), 5♂, 1♀ (MZUSP); same, but 16 Nov 1974 (401), 1♂ (MZUSP). Estação Biológica de Paranapiacaba, Serra do Mar, ~40 km SE São Paulo, 17 Sep 1963, C.G. Froehlich (33), 1♂ (MZUSP); same, but 10 Jun 1964 (47), 1♂ (NMNH).

ETYMOLOGY.—Based on the name of the Boraceia biological preserve.

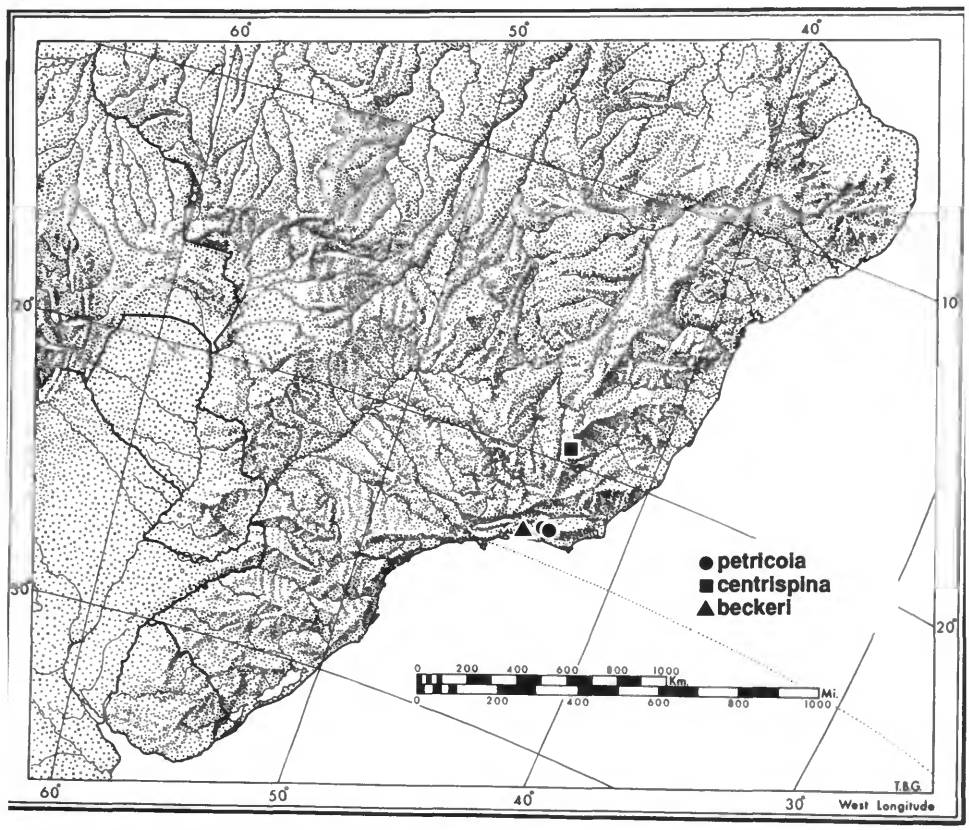
Chimarra (Curgia) beckeri, new species

FIGURES 41–44; MAP 4

REMARKS.—This species, which is a member of the *plaumanni* complex, is very close to *boraceia.* It is to be recognized by the more elongate clasper, the sharper, more elongate, ventrolateral process of the tenth tergum, the longer posteroventral keel of the ninth segment, and especially by the narrow, quadrate posteromesal lobe of the eighth tergum.

ADULT.—Length of forewing, ♂ and ♀ 5.5–7 mm. Color uniformly jet black.

Male Genitalia: Eighth sternum parallel-sided, narrowed



MAP 4.—Distributions of *Chimarra* (*Curgia*) *petricola*, new species, *Chimarra* (*Curgia*) *centrispina*, new species, and *Chimarra* (*Curgia*) *beckeri*, new species.

dorsad; tergum with posteromesal margin produced into a quadrate lobe about as long as wide. Ninth segment produced anteroventrally; tergal area broad; posteroventral keel an elongate, trianguloid process. Cercus elongate, rounded apically. Tenth tergum entire; in lateral aspect arched dorsad, slightly enlarged subapically, mainly on dorsal margin; in dorsal aspect almost rod-like, barely enlarged basally, tip acute; with many sensillae dorsally; ventrolateral process extending ventrad to dorsal margin of clasper along posterior margin of ninth segment, with a pointed, posteroventral lobe above clasper. Clasper about twice as long as high, apex obliquely truncate; in ventral aspect longer than broad, with inner and outer margins subparallel, outer margin slightly flared laterad, apex truncate; dorsal surface with paler central region bounded apically by a heavily sclerotized ridge. Phallus tubular, with apicodorsal surface produced; internally with a small, basal, rod-and-ring assembly, a pair of bifid, elongate spines at apex of phallotheca, and 60 to 80 short, black spines.

MATERIAL EXAMINED.—*Holotype,* male: BRAZIL, EDO. RIO DE JANEIRO, Mangaratiba, 150 m, 20 Jan 1993, V.O. Becker. MZUSP Type.

Paratypes: Same data as holotype, 20♂, 2♀ (EBPA, MZUSP, NMNH).

ETYMOLOGY.—Patronym, in honor of Vitor O. Becker, the Brazilian lepidopterist and entomological collector.

Chimarra (*Curgia*) *burmeisteri,* new species

FIGURES 45–48; MAP 3

REMARKS.—This species and *petersorum* are closely related. In *burmeisteri* differences are to be found in the tenth tergum, whose dorsal process is only obtusely angled dorsally and whose ventrolateral process is very wide and ends in a thin posteroventral lobe, and in the clasper that, in ventral aspect, is longer than broad, with the apicomesal process acuminate rather than spiniform.

ADULT.—Length of forewing, ♂ 7–8 mm, ♀ 8–9.5 mm. Color uniformly jet black.

Male Genitalia: Eighth sternum slightly widened dorsad; tergum with posterior margin shallowly and broadly produced mesally (eighth segment omitted from Figures 45, 46). Ninth segment produced anteroventrally; tergal area broad; posteroventral keel produced into a sharp point. Cercus elongate, base broadly fused to ninth segment. Tenth tergum entire; in lateral aspect with dorsal margin produced into a subapical obtuse angle; in dorsal aspect spatulate, narrowed basally, tip

acute; with many sensillae apically; ventrolateral process mostly fused to lateral margin of ninth segment, very broad, with a small angle near midlength, projecting ventrally as a long, thin lobe. Clasper short, about as long as high, dorsal margin straight, serrate, ventral margin rounded; in ventral aspect longer than broad, with inner and outer margins curved, subparallel, with a strong acuminate spine apicomesally. Phallus tubular, with apicodorsal surface produced; internally with a small, basal, rod-and-ring assembly and 25 to 30 short, black spines.

MATERIAL EXAMINED.—*Holotype,* male: BRAZIL, EDO. RIO DE JANEIRO, municipal water supply, Nova Friburgo, 950 m, 20 Apr 1977, C.M. and O.S. Flint, Jr. MZUSP Type.

Paratypes: Same data as holotype, 100s of ♂ and ♀ (MZUSP, NMNH); same, but 24 Apr 1977, 84♂, 68♀ (MZUSP, NMNH).

ETYMOLOGY.—Patronym, in honor of Hermann Burmeister, the famous early entomologist who visited Nova Friburgo in the mid 1800s.

Chimarra (Curgia) petersorum, new species

FIGURES 49–52; MAP 3

REMARKS.—This species, a member of the *morio* group and *plaumanni* complex, is most closely related to *burmeisteri.* Both species have a narrow and basally constricted tenth tergum and a short, ventrally rounded clasper with a sharp apicomesal spine. In *petersorum* the tenth tergite has its apex produced into a dorsal point, with the ventrolateral process no more than a short, rounded lobe, and the clasper in ventral aspect is more nearly oval in outline with the spine very prominent.

ADULT.—Length of forewing, ♂ and ♀ 6 mm. Color in alcohol uniformly fuscous.

Male Genitalia: Eighth sternum very slightly widened dorsad; tergum with posterior margin slightly and broadly produced mesally. Ninth segment produced anteroventrally; tergal area broad, depressed mesally; posteroventral keel produced into a sharp point. Cercus short, base broadly fused to ninth segment. Tenth tergum entire; in lateral aspect with tip produced dorsally into a point; in dorsal aspect spatulate, narrowed basally, tip rounded; with many sensillae apically; ventrolateral process mostly fused to lateral margin of ninth segment, projecting ventrally as a small, rounded lobe. Clasper short, about as long as high, dorsal margin straight, serrate, ventral margin rounded; in ventral aspect almost oval in outline, with a strong spine apicomesally. Phallus tubular, with apicodorsal surface produced; internally with a small, basal, rod-and-ring assembly and about 16 short, black spines.

MATERIAL EXAMINED.—*Holotype,* male: BRAZIL, EDO. PARANÁ, Rio Marumbi, Marumbi, 1600′ [~500 m], 15–16 Feb 1969, W.L. and J.G. Peters (#BRA 36). MZUSP Type.

Paratypes: Same data as holotype, 7♂, 16♀ (FAMU, MZUSP, NMNH).

ETYMOLOGY.—Patronym, in honor of the ephemeropterists William L. and Janice G. Peters, who collected the species.

Chimarra (Curgia) petricola, new species

FIGURES 53–56; MAP 4

REMARKS.—This species shows similarities to both the *morio* and the *plaumanni* complexes. It shares with *morio* an elongate tenth tergum and claspers; however, the apex of the tergum is strongly arched and narrowed apically, and the tip of the clasper is more strongly modified, as it is in the *plaumanni* complex. It is distinguished from both in having (1) the tenth tergum strongly arched apically and much widened at midlength, with a very small posterior lobe from its ventrolateral process, and (2) the clasper narrowed and twisted apicad, but appearing almost semicircular in ventral aspect, and bearing a sharp apicomesal tooth .

ADULT.—Length of forewing, ♂ 8.5–9 mm, ♀ 9 mm. Color uniformly jet black.

Male Genitalia: Eighth sternum narrow, parallel sided; tergum with posterior margin not noticeably modified (eighth segment omitted from Figures 53, 54). Ninth segment slightly enlarged anteroventrally; tergal area broad; posteroventral keel produced into a short, trianguloid process. Cercus elongate, rounded apically. Tenth tergum entire; in lateral aspect strongly arched apicad, widening basad; in dorsal aspect sharply constricted at midlength with tip narrow; apically with many sensillae arranged in a longitudinal, middorsal band; ventrolateral process with a short, posteroventral lobe. Clasper elongate, tapering apicad, tip narrow, appearing twisted, with a sharp dorsomesal tooth; in ventral aspect almost semicircular in outline. Phallus tubular, with apicodorsal surface produced; internally with a small, basal, rod-and-ring assembly and many (40 to 50) short, black spines.

MATERIAL EXAMINED.—*Holotype,* male: BRAZIL, EDO. RIO DE JANEIRO, Petrópolis, McLachlan Coll. B.M. 1938-674, Chimarrha morio Burm [in McLachlan's hand]. BMNH Type.

Paratypes: Same data as holotype, 1♀ (BMNH); Caxambu, Petrópolis, Roger Arlé, 5♂ (MNRJ, NMNH).

ETYMOLOGY.—From the Latin *petra* ("rock") and the Latin suffix, *-cola* ("dweller"), suggested by the type locality.

Chimarra (Curgia) centrispina, new species

FIGURES 57–61; MAP 4

REMARKS.—This is a very odd species, not fitting well into any species complex. On the basis of the clasper shape, with mesally directed point from the dorsum, large number of internal spines in the phallus, and widened base of the tenth tergum, it is similar to the *morio* complex. However, the tenth tergum is not as broad as in the other members of the complex, and the form of the ventrolateral process of tenth tergum is unique.

ADULT.—Length of forewing, ♂ 5–6 mm, ♀ 7–8 mm. Color in alcohol uniformly fuscous.

Male Genitalia: Eighth sternum slightly parallel sided; tergum with posterior margin slightly produced mesally (eighth segment omitted from Figure 58). Ninth segment slightly produced anteroventrally; posteroventral keel produced into a blunt process. Cercus small, rounded. Tenth tergum entire; in lateral aspect parallel sided, nearly straight; in dorsal aspect short, broadly triangular, tip blunt; with many sensillae apically; ventrolateral process mostly fused to lateral margin of ninth segment, very broad, posterior margin oblique and blackened. Clasper elongate, quadrate apex produced into a small dorsomesally directed point; in ventral aspect longer than broad, with outer margin curved, slightly widened apicad. Phallus tubular, rather short, with apicodorsal surface produced; internally with a small, basal, rod-and-ring assembly and nearly 100 short, black spines.

MATERIAL EXAMINED.—*Holotype,* male: BRAZIL, EDO. MINAS GERAIS, Rio Cipó, Yaboticatubas, 10 Mar 1956, Machado. INHS Type.

Paratypes: Same data as holotype, 1♂, 6♀ (INHS, NMNH).

ETYMOLOGY.—From the Latin *centrum* ("midpoint") and *spina* ("spine"), in allusion to the central spines of the phallus.

The *aurivittata* Group

DIAGNOSIS.—Length of forewing, 5–7 mm. Body jet black; forewing jet black, with a large, oval, golden spot. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth tergum without brushes, with posterior margin projecting as a large lobe divided apically. Ninth segment with anterior margin rounded; posterolateral margin produced a bit over the base of the clasper; ventral keel small, projecting ventrad. Cercus small, appressed to the surface of the tenth tergum. Tenth tergum consisting of hood-like lobe deeply divided on midline, bearing many sensillae. Claspers slender, elongate; in ventral aspect wholly or partially fused to each other on midline, with projecting apical hook. Phallus tubular; internally with a small, basal, rod-and-ring assembly and 12 to 30 short, black spines.

DISTRIBUTION.—The species are found in central and northeastern South America.

DISCUSSION.—This is a distinctive group, containing only two species. They are an odd combination of what would appear to be pliesiomorphic and apomorphic characteristics. The eighth tergal structure, the phallus, and the lateral aspect of the tenth tergum all seem to be of ancestral nature. Yet the mesal division of the tenth tergum and, especially, the fusion of the claspers are all strongly derived. The nearly uniform black coloration, with a large, bright orange spot on the forewings, is startling but perhaps is most easily derived from the *morio* group, which is suggested also by the phallic structure.

Chimarra (Curgia) aurivittata Flint

FIGURES 62–65; MAP 5

Chimarra (Curgia) aurivittata Flint, 1971:22.

REMARKS.—This species is very closely related to the following species, *C. jugescens,* new species, with which it shares a distinctive coloration: jet black with a central orange spot on the forewing. They can be distinguished only by the male genitalia. In *aurivittata* the eighth tergal lobe is more deeply divided, the claspers are widely fused mesally and their tips taper more regularly, and the phallus bears fewer spines.

ADULT.—Length of forewing, ♂ and ♀ 5–7 mm. Color jet black; ventral side of body and bases of legs stramineous; forewing jet black, with a large, subapical, oval, transverse, gold spot.

Male Genitalia: Eighth sternum not widened dorsad; tergum strongly produced posteriad, in dorsal aspect with a deep, U-shaped mesal incision. Ninth sternum with anterior margin evenly produced, rounded; venter produced as a thin, keel-like lobe, not produced posteriad. Cercus small, ovoid, mostly fused to lateral surface of tenth tergum. Tenth tergum broad basally, narrowing apicad; dorsal margin sinuate, with a deep, U-shaped mesal excision in dorsal aspect; with scattered sensillae. Clasper elongate, slender, tapering to an acute apex in lateral aspect; in ventral aspect fused mesally except for apicolateral, pointed processes whose tips almost meet mesally. Phallus tubular, short, inflated basally; internally with a rod-and-ring assembly whose rod is greatly produced anteriad, and 12 to 18 short, dark spines.

MATERIAL EXAMINED.—GUYANA, DIST. ESSEQUIBO, Mazeruni River, 39 mi [62.8 km] SW Wineperu, 17–18 Mar 1969, Duckworth and Dietz, ♂ holotype, 1♂ paratype (NMNH). Dubulay Ranch, Warniabo Cr., 5°39.8'N, 57°53.4'W, 10–11 Apr 1994, O.S. Flint, Jr., 7♂, 6♀; same, but 14–19 Apr 1995, 5♂, 8♀ (NMNH, UGGG); same, but Aramatani Cr., 5°39.4'N, 57°55.5'W, 15–18 Apr 1995, 7♂, 1♀ (NMNH, UGGG).

BRAZIL, EDO. AMAZONAS, Reserva Ducke, 26 km E. Manaus, 1–5 Feb 1979, O.S. Flint, Jr., 1♀. Rio Marauiá, Igarapé S. Antônio (Cachoeira), 8 Jan 1963, E.J. Fittkau (A-470), 2♂, 1♀. EDO. RONDÔNIA, Porto Velho, 180 m, 24–30 Apr 1989, V.O. Becker, 1♀. Ariquemes, 180 m, 13–16 Apr 1989, V.O. Becker, 1♀.

VENEZUELA, T.F. AMAZONAS, Cerro de la Neblina, basecamp (0°50'N, 66°10'W), 140 m, 4–29 Feb 1984, Davis and McCabe, 19♂, 8♀; same, but 13–24 Mar 1984, Flint and Louton, 22♂, 18♀; same, but 24 Nov–1 Dec 1984, R.L. Brown, 2♀; same, but 1–20 Feb 1985, Spangler et al., 23♂, 27♀.

ETYMOLOGY.—From the Latin *aurum* ("gold") and *vitta* ("stripe"), in allusion to the spot on the forewing.

MAP 5.—Distributions of *Chimarra* (*Curgia*) *aurivittata* Flint, *Chimarra* (*Curgia*) *donamariae* Denning and Sykora, *Chimarra* (*Curgia*) *margaritae* Flint, and *Chimarra* (*Curgia*) *acula*, new species.

Chimarra (Curgia) jugescens, new species

FIGURES 66-69; MAP 6

REMARKS.—This species and the preceding species, *C. aurivittata*, share a distinctive coloration and can be distinguished only by the male genitalia. In *jugescens* the eighth tergal lobe is only shallowly divided, the claspers are fused mesally only near their bases and their tips are distinctly curved, and the phallus bears almost twice as many internal spines.

ADULT.—Length of forewing, ♂ 5-6 mm. Color jet black; ventral side of body and bases of legs stramineous; forewing jet black, with a large, subapical, oval, transverse, gold spot.

Male Genitalia: Eighth sternum not widened dorsad; tergum strongly produced posteriad, in dorsal aspect with a slight mesal division. Ninth sternum with anterior margin broadly produced, rounded; venter produced as a broad, almost terete, lobe, directed ventrad. Cercus small, rectanguloid, mostly fused to lateral surface of tenth tergum. Tenth tergum broad basally, narrowing apicad, with a deep, U-shaped mesal excision in dorsal aspect; with scattered sensillae. Clasper elongate, slender, tapering to an acute, dorsally curving apex in lateral aspect; in ventral aspect fused mesally for basal third, with apicolateral, pointed processes whose tips curve and almost meet mesally. Phallus tubular, short, inflated basally; internally with a rod-and-ring assembly whose rod is produced anteriad and 26 to 29 short, dark spines.

MATERIAL EXAMINED.—*Holotype,* male: BRAZIL, EDO. PARA, stream at Caverna do Tatajuba, ~22 km SE Altamira, 6 Oct 1986, P. Spangler and O. Flint. MZUSP Type.

Paratype: Same data as holotype, 1♂ (NMNH).

ETYMOLOGY.—From the Latin *jugo* ("join") and the suffix, *-escens* ("beginning of"), in allusion to the partial fusion of the claspers.

The *tucuna* Group

DIAGNOSIS.—Length of forewing, 5-7 mm. Color of body and appendages stramineous; forewings mostly pale yellow with several large fuscous spots. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth tergum with posteromesal margin produced, lobe entire, with a pair of subtending spines. Ninth segment with anterior margin oblique, broadest ventrally; posterolateral margin almost straight, posteroventral keel displaced anteriad. Cercus small, elongate. Tenth tergum entire, thin; in dorsal aspect broad basally, rounded apically; bearing many sensillae. Clasper elongate, thin, apex produced into a narrow upcurved lobe. Phallus tubular; internally with basal rod-and-ring assembly and many short black spines.

DISTRIBUTION.—The central Amazon basin near Manaus, Brazil.

DISCUSSION.—This group contains only a single species. It may be related to the *morio* group, with which it agrees in the shape of the tenth tergum and phallus; however, the pair of spines from the posterior margin of the eighth segment, the shape of the ninth segment, and lack of the ventrolateral sclerite from the tenth tergum all prevent its placement in that group. Its coloration is unique within the subgenus.

Chimarra (Curgia) tucuna, new species

FIGURES 70-73; MAP 6

REMARKS.—This very distinctive species bears no clear relationship to any other known species of *Curgia,* as discussed above.

ADULT.—Length of forewing, ♂ and ♀ 5-7 mm. Color pale golden yellow; body and appendages stramineous; head and thorax with golden yellow hair; forewing pale golden yellow, with a large fuscous spot at midlength of posterior margin, a round, fuscous spot on radial system just before chord, and entire apical fourth, fuscous.

Male Genitalia: Eighth sternum almost parallel sided; tergum with posterior margin middorsally produced into a short, rectangular lobe, with a small pointed process on each side. Ninth sternum produced anteroventrally; with ventral keel directed ventrad, not reaching posterior margin. Cercus elongate, angulate, base broadly fused to dorsolateral margin of ninth segment. Tenth tergum elongate, broad apically in dorsal aspect, tapering apicad in lateral; with many sensillae. Clasper elongate, rounded ventrally, serrate dorsally, with apex narrowed, hooked dorsad. Phallus tubular, slightly inflated basad; internally with a small basal rod-and-ring assembly and about 40 small, black spines.

MATERIAL.—*Holotype,* male: BRAZIL, EDO. AMAZONAS, Igarapé Tucunaré, 75 km W Itacoatiara, 30 Jan 1979, O.S. Flint, Jr. MZUSP Type.

Paratypes: Same data as holotype, 9♂, 9♀ (INPA, MZUSP, NMNH). Igarapé Tarumazinho, 46 km N Manaus, 6 Feb 1979, O.S. Flint, Jr., 5♂, 7♀. CEPLAC, 30 km N Manaus, 8 Dec 1976, N.D. Penny, 5♂, 4♀ (INPA, NMNH); same, but 15 Dec 1976, 4♂, 2♀ (INPA).

ETYMOLOGY.—A name suggested by the type locality.

The *ensifera* Group

DIAGNOSIS.—Length of forewing, 5.5-7 mm. Color of body and forewings fuscous. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth tergum with posteromesal margin produced, lobe entire or barely bilobed. Ninth segment with anterior margin produced ventrally; posterolateral margin slightly produced over base of clasper, and bearing a long, slender, process ventrad of tenth tergum. Cercus small, circular or elongate. Tenth tergum entire, with mesal portion erect or raised above lateral portion, bearing many sensillae. Clasper short, produced into a dorsolateral projection and an apicome-

MAP 6.—Distributions of *Chimarra* (*Curgia*) *chrysosoma*, new species, *Chimarra* (*Curgia*) *minga*, new species, *Chimarra* (*Curgia*) *tucuna*, new species, *Chimarra* (*Curgia*) *ensifera*, new species, and *Chimarra* (*Curgia*) *jugescens*, new species.

sal tooth. Phallus tubular; internally with basal rod-and-ring assembly, a pair of long spines, and two to three pairs of short to long black spines.

DISTRIBUTION.—Widespread around the Amazonian Basin.

DISCUSSION.—This group only contains two known species. It seems to be unrelated to any other group in the genus. The strong spine from the posterior margin of the ninth segment suggests the *margaritae* group, but other parts on the genital

capsule argue against this relationship, especially the internal sclerites of the phallus.

Chimarra (Curgia) ensifera, new species

FIGURES 74–77; MAP 6

REMARKS.—This distinctive species is easily distinguished from *donamariae* by the erect central lobe of the tenth tergum, the placement and shape of the processes of the claspers, and the structure of the phallus.

ADULT.—Length of forewing, ♂ and ♀ 5.5–7 mm. Color fuscous, coxae paler; forewing fuscous.

Male Genitalia: Eighth sternum almost parallel sided; tergum with posterior margin middorsally produced into an elongate, apically rounded lobe. Ninth sternum very wide in lateral aspect, anterior margin strongly produced ventrally, with small dorsal lobe; dorsolateral margin with a series of strong, spine-like setae, and bearing from inner face a slender decurved, pointed process; ventral keel short, broad. Cercus small, circular. Tenth tergum nearly erect, hood-like in lateral aspect, squarely truncate apically in dorsal aspect; with many sensillae. Clasper elongate, rounded ventrally, with apex narrowed, pointed dorsad, with a slender, ventromesal point. Phallus long, tubular, slightly inflated basad; with internal structures displaced toward apex, with a rod-and-ring assembly, a pair of long, slender spines, two to four short, stout spines, and a pair of short spines, each divided into two or three smaller spines, comb-like.

MATERIAL.—*Holotype*, male: VENEZUELA, TERRITORIO FEDERAL AMAZONAS, Cerro de la Neblina, Camp IV, 0°58′N, 65°57′W, 760 m, 15–18 Mar 1984, O.S. Flint, Jr. NMNH Type.

Paratypes: Same data as holotype, 28♂, 21♀ (IZAM, NMNH); same, but Camp V, 0°49′N, 66°0′W, 1250 m, 23–24 Mar 1984, 3♂, 1♀ (IZAM, NMNH); same, but Camp III, 0°56′10″N, 66°3′53″W, 1820 m, 15–17 Feb 1984, D.R. Davis, 3♂, 1♀ (IZAM, NMNH); same, but Camp X, 0°54′N, 60°2′W, 1690 m, 12–13 Feb 1985, W.E. Steiner, 18♂, 7♀ (IZAM, NMNH); same, but Basecamp, 0°51′N, 66°10′W, 140 m, 19 Mar 1984, Flint and Louton, 1♂; same, but 10–20 Feb 1985, Spangler et al., 1♂.

ETYMOLOGY.—From the Latin *ensifer* ("sword-bearing"), in allusion to the process of the male genitalia.

Chimarra (Curgia) donamariae Denning and Sykora

FIGURES 78–81; MAP 5

Chimarra donamariae Denning and Sykora, 1968:173.
Chimarra species.—Sattler, 1962:125 [larva, pupa, biology].

REMARKS.—Although clearly related to *ensifera*, it is easily distinguished by the lower central lobe of the tenth tergum, the more claw-like shape of the clasper, and the shapes and placement of the spines in the phallus, especially the apicolateral, C-shaped ones.

ADULT.—Length of forewing, ♂ 5.5 mm, ♀ 7 mm. Color fuscous; forewing fuscous.

Male Genitalia: Eighth sternum narrow, almost parallel sided; tergum with posterior margin middorsally produced into an elongate lobe, apex slightly bilobed. Ninth sternum produced anteroventrally; bearing from inner face a slender, pointed process; ventral keel short, broad. Cercus small, posteroventral margin developed as a curving ridge laterally on tenth tergum. Tenth tergum with mesal portion slightly elevated above shoulder-like lateral portions in lateral aspect, apex very slightly bilobed in dorsal aspect; with many sensillae on mesal portion. Clasper elongate, with a slender, erect, and mesally curving process middorsally, with apex narrowed, pointed. Phallus long, tubular, slightly inflated basad, with paired apicolateral, dark, C-shaped sclerites; internally with a slender rod-and-ring assembly, a pair of very long, slender spines whose apices cross, a pair of more lightly sclerotized long spines, and a pair of short spines.

MATERIAL EXAMINED.—BRAZIL, EDO. PARÁ, Rio Xingu Camp (52°22′W, 03°39′S), ~60 km S Altamira, 1–7 Oct 1986, Spangler and Flint, 1♀ (MZUSP); same, but Igarapé Jabuti, 8–16 Oct 1986, Malaise trap, day collection, 1♂, 1♀ (MZUSP, NMNH); same, but 1st jungle stream, trail 1, 2–8 Oct 1986, Malaise trap, day collection, 1♀ (NMNH).

PERU, DPTO. MADRE DE DIOS, Pakitza (11°56′S, 71°18′W), tributary to Quebrada Paujil-Picoflor, trail 1, past marker 21, 350 m, 5 Jul 1993, Blahnik and Pescador, 3♂, 1♀ (MHNJP, NMNH, UMSP).

ETYMOLOGY.—Patronym, in honor of Dona Maria Koltzau, who assisted Dr. Sattler in the discovery of the species.

The *margaritae* Group

DIAGNOSIS.—Length of forewing, 5–9 mm. Color of body orange, or orangeish to black; forewings jet black. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth tergum with posteromesal margin produced, lobe usually divided mesally. Ninth segment with anterior margin usually somewhat produced ventrally, broadened dorsally; posterolateral margin produced into a small, rounded lobe over base of clasper; with a blackened, pointed process from posterior between tenth tergum and claspers. Cercus rounded, ovate. Tenth tergum divided mesally, halves elongate, rod-like, bearing many sensillae. Clasper elongate, generally rectanguloid, with a strong posterior tooth. Phallus tubular; dorsomesal and lateroventral surfaces of phallotheca sclerotized, ribbon-like, serving to invert the internal complex; if internal complex everted, the lateroventral ribbons often seen to end with a dark spine; internally with rod-and-ring assembly modified beyond homology (generally), often consisting of paired, elongate, spiculate, or otherwise modified, lobes, usually with one or two large spines additionally.

DISTRIBUTION.—The Andes of northern and western South America from Bolivia to Venezuela.

DISCUSSION.—This is a very distinctive group of five closely related species. It is united by a series of striking apomorphies: the divided tenth tergum; the blackened, pointed process from the posterior margin of the ninth segment; and strikingly modified internal sclerites of the phallus. There are several weak clusters of species. The pair *margaritae* and *chrysosoma* both have strikingly orange bodies, elongate, rectangular claspers, and paired spiculate lobes from the phallus. The species *minga* has a similar elongate clasper but has a dark body, and the internal sclerites of the phallus are distinctly different. The final two species, *lojaensis* and *acula,* also have dark bodies, but the clasper tapers more, the apical tooth is greatly enlarged, the internal sclerites of the phallus are distinctive, and the lateroventral phallic ribbons end in a dark spine.

Chimarra (Curgia) margaritae Flint

FIGURES 82–85; MAP 5

Chimarra (Curgia) margaritae Flint, 1991:26.

REMARKS.—This species is very closely related to *chrysosoma,* distinguished only by details of the male genitalia. In *margaritae* the eighth tergum is broadly and roundly produced, but in *chrysosoma* it is distinctly bilobed. The most clear-cut differences are seen in the phallus, which in *margaritae* has a dorsal spiny band and a short basal ring with the lateral spiny processes heavily sclerotized; in *chrysosoma* there is no dorsal process, the basal ring is long and pointed and intrudes between the lateral spiny processes, which are much longer and not clearly attached to a sclerite.

ADULT.—Length of forewing, ♂ and ♀ 6.5–9 mm. Color black and orange; head, thorax, abdomen, coxae, and femora orange; antennae, palpi, tibiae and tarsi, and wings black. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum nearly parallel sided; tergum produced posteromesally into a broad, rounded lobe. Ninth sternum slightly produced anteroventrally, posteroventral keel well developed; with a blackened process from posterior margin between clasper and tenth tergum. Cercus a small, ovoid lobe. Tenth tergum in lateral aspect an elongate, rounded rod, in dorsal aspect deeply divided mesally; each lobe with many sensillae. Clasper rather rectanguloid in lateral aspect, dorsal margin serrulate, with a distinct, upright, apicomesal lobe. Phallus tubular, inflated basally, apex membranous, but with sclerotized dorso- and ventrolateral bands; apex dorsally with a transverse sclerite with small, dark spines, ventrally with dark, paired sclerites bearing many spicules and arising from a sclerotized basal structure.

MATERIAL EXAMINED.—COLOMBIA, DPTO. ANTIOQUIA, 12 km NW Medellín [road to San Pedro], 13 Feb 1983, O.S. Flint, Jr., 23♂ (including holotype), 5♀; same, but 20 Feb 1984, C.M. and O.S.Flint, Jr., 7♂, 3♀. Quebrada Bocana, 8 km E Medellín [road to Sta. Elena], 24 Feb 1983, O.S. Flint, Jr., 1♂. 12 km E Medellín [road to Sta. Elena], 6 Feb 1983, O.S. Flint, Jr., 6♂, 1♀. 24 km NW of Medellín [road to San Jerónimo], 22 Feb 1984, C.M. and O.S. Flint, Jr., 2♀. 27 km NW of Medellín [road to San Jerónimo], 23 Feb 1984, C.M. and O.S. Flint, Jr., 10♂, 4♀. 12 km N Fredonia [road to Medellín], 22 Feb 1983, 2000 m, O.S. Flint, Jr., 4♂, 2♀. Quebrada Cocorná, Aug 1981. R. Vélez, 6♂, 3♀ (UNCM); same, but A. Madrigal C., 2♂, 1♀ (UNCM); same, but Jul 1980, A.M. del Corral, 1♂ (UNCM). San Luis, Sep 1980, A.M. del Corral, 3♂ (UNCM). DPTO. VALLE DEL CAUCA, Topacio, 1600 m, 13 Sep 1985, A.D. Quintero, 6♂, 3♀.

ECUADOR, PCIA. TUNGURAHUA, 13 km E Baños, 1550 m, 15 Sep 1990, O.S. Flint, Jr., 4♂, 5♀.

ETYMOLOGY.—Patronym, in honor of Margarita M. Correa G., a student of Trichoptera at the University of Antioquia, who helped me greatly during my trips to Colombia.

Chimarra (Curgia) chrysosoma, new species

FIGURES 86–89; MAP 6

REMARKS.—This species and the preceding species, *margaritae,* are very closely related. The differences are found in the male genitalia, as noted previously. The shapes of the eighth terga and phalli are most distinctive.

ADULT.—Length of forewing, ♂ and ♀ 7.5–9 mm (Peruvian examples 5–7 mm). Color black and orange; head, thorax, abdomen, coxae, and femora orange; antennae, palpi, head between antennae, tibiae and tarsi, and wings black. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum parallel sided; tergum produced posteromesally into a pair of rounded submesal lobes. Ninth sternum with anterior margin nearly vertical; with a small posteroventral keel; posterolateral margin produced posteriad over base of clasper into a small, round lobe, with a blackened, pointed process beneath phallus. Cercus a small, ovoid lobe. Tenth tergum in lateral aspect an elongate, slender lobe; in dorsal aspect divided mesally, with lateral arms slightly divergent posteriad; each lobe with many sensillae. Clasper elongate, rectanguloid, with a distinct, apicodorsal tooth; in ventral aspect broadly rounded apically. Phallus tubular, inflated basally; apically with elongate lateral bands of short, dark spines between which mesobasally lies an elongate, pointed sclerite.

MATERIAL.—*Holotype,* male: BOLIVIA [PCIA. LA PAZ], Yungas La Paz, Circuata to Cajuata, 2400 m, 3–5 Dec 1984, L.E. Peña G.; NMNH Type.

Paratypes: Same data as holotype, 2♂, 4♀. Unduavi to Coroico, 2500 m, 19–25 Nov 1984, L.E. Peña G., 2♀.

PERU [DEPT. CUSCO], Quince Mil, Sep 1962, L.E. Peña G., 1♂. DEPT. CUSCO, *Pcia. Paucartambo,* E Buenos Aires, km

135 (13°07'S, 71°43'W), 2200 m, 28–29 Aug 1989, N.E. Adams, 1♂; same, but river at Puente Union (13°04.2'S, 71°34.0'W), 1670 m, 21–23 Jun 1993, Blahnik and Pescador, 6♂, 3♀; same, but Puente San Pedro, km 152 (13°03.3'S, 71°32.8'W), 44 km NW Pilcopata, 1450 m, 2–3 Sep 1988, O. Flint and N. Adams, 5♂; same, but 24 Jun 1993, Blahnik and Pescador, 3♂, 1♀; same, but Quitacalzón, km 164 (13°01.6'S, 71°30.0'W), 32 km NW Pilcopata, 1050 m, 1–2 Sep 1989, N. Adams et al., 9♂, 3♀; same, but 25–27 Jun 1993, Blahnik and Pescador, 16♂, 8♀; same, but streamlet 50 m E Quitacalzón, 2 Sep 1989, 4♂, 4♀; same, but 26 Jun 1993, Blahnik and Pescador, 2♂ (MHNJP, NMNH, UMSP).

ETYMOLOGY.—From the Greek *chrysos* ("gold") and *soma* ("body"), in allusion to the body color.

Chimarra (*Curgia*) *minga*, new species

FIGURES 90–93; MAP 6

REMARKS.—Although very clearly a member of the *margaritae* group, this species offers a number of distinctive differences from the others, especially in color and the phallus. The entirely black body and wings are in marked contrast to the orange, or at least pale, bodies with black wings in the other species. The internal sclerites of the phallus are not spiny, but plate-like and broad basally and become membranous apicad.

ADULT.—Length of forewing, ♂ and ♀ 6–7 mm. Color jet black, immaculate. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum parallel sided; tergum produced posteromesally into a pair of submesal lobes. Ninth sternum produced anteroventrally; posteroventral keel produced into a slender process; posterolateral margin produced posteriad over base of clasper into a pointed lobe, with a blackened, pointed process beneath phallus. Cercus a small, ovoid lobe. Tenth tergum in lateral aspect an elongate, slender lobe; in dorsal aspect deeply divided mesally, with lateral arms slightly divergent posteriad; each lobe with many sensillae. Clasper elongate, quadrangular, with a small, apicodorsal knob, in ventral aspect, slightly angled laterad for apical third. Phallus tubular, inflated basally; apex divided into a dorsal, tubular lobe and lateral, elongate plates; internally with paired, curved plates, membranous apicad, and a single, curved spine basomesally.

MATERIAL.—*Holotype,* male: VENEZUELA, EDO. BARINAS, 30 km NW Barinitas, 24 Feb 1976, C.M. and O.S. Flint, Jr. NMNH Type.

Paratypes: Same data as holotype, 2♀. San Isidro, 24 Sep 1975, R. Dietz, 1♂, 1♀ (IZAM). EDO. MÉRIDA, La Campana, 12 km SE Santo Domingo, 24 Feb 1976, C.M. and O.S. Flint, Jr., 1♀. 10 km E Santo Domingo, 6300 ft [~1900 m], 7 Feb 1978, J.B. Heppner, 1♂, 1♀.

ETYMOLOGY.—A name suggested by the locality Domingo.

Chimarra (*Curgia*) *acula*, new species

FIGURES 94–97; MAP 5

REMARKS.—This species is allied to the following species, *lojaensis,* as shown by the black body and wings, the somewhat shorter clasper tapering apicoventrally and bearing a much more prominent apical tooth, and the phallus having black seta at the apex of the ventrolateral ribbons. The two differ most notably by the phallic armature.

ADULT.—Length of forewing, ♂ and ♀ 7.5–8 mm. Color black; body blackish, legs basally paler, abdomen yellow-orange; wings black. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum slightly narrowed ventrad; tergum produced posteromesally into a shallowly divided mesal lobe. Ninth sternum with anterior margin sinuate; with a posteroventral keel; posterolateral margin produced posteriad over base of clasper into a small lobe, with a blackened, pointed process beneath phallus. Cercus a small, ovoid lobe. Tenth tergum in lateral aspect an elongate, slender lobe; in dorsal aspect divided mesally, with lateral arms divergent posteriad; each lobe with many sensillae. Clasper rectanguloid, slightly produced posteroventrally, with a distinct, apicodorsal tooth; in ventral aspect barely rounded apically with spine very distinct apicomesally. Phallus tubular, inflated basally; apically with an elongate, lateral sclerite ending in a black spine; internally with a pair of elongate, lateral sclerites, between which lies mesally an elongate, pointed sclerite that bears a dark central band.

MATERIAL.—*Holotype,* male: PERU, DEPT. CUSCO, *Pcia. Paucartambo,* Puente San Pedro, km 152 (13°03.3'S, 71°32.8'W), 44 km NW Pilcopata, 1450 m, 2–3 Sep 1988, O. Flint and N. Adams. NMNH Type.

Paratypes: Same data as holotype, 3♀.

ETYMOLOGY.—From the Latin *acula* ("pin"), in allusion to the point on the clasper.

Chimarra (*Curgia*) *lojaensis*, new species

FIGURES 98–102; MAP 7

REMARKS.—This species and the preceding species are closely related, but small differences are found in all parts of the male genitalia, especially the phallic sclerites.

ADULT.—Length of forewing, ♂ and ♀ 7.5–8 mm. Color black; body blackish dorsally; basal part of legs, ventral part of thorax, and abdomen orange; wings black. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum slightly narrowed ventrad; tergum produced posteromesally into a shallow mesal lobe. Ninth sternum with anterior margin slightly produced ventrad; with a posteroventral keel; posterolateral margin slightly and broadly produced posteriad over base of clasper, with a blackened, pointed process beneath phallus. Cercus a small, ovoid lobe. Tenth tergum in lateral aspect an elongate, slender

MAP 7.—Distributions of *Chimarra* (*Curgia*) *otuzcoensis* Flint and Reyes, *Chimarra* (*Curgia*) *barinita*, new species, *Chimarra* (*Curgia*) *puya*, new species, and *Chimarra* (*Curgia*) *lojaensis*, new species.

lobe; in dorsal aspect divided mesally, with lateral arms slightly divergent basally; each lobe with many sensillae. Clasper rectanguloid, produced posteroventrally, with a distinct, apicodorsal tooth; in ventral aspect barely rounded apically, with spine very distinct apicomesally. Phallus tubular, inflated basally; apically with an elongate, lateral sclerite ending in a

small, black spine; internally with a pair of short, basally broad, lateral spines, between which lies mesally an upcurved spine united basally to the lateral spines, apicolaterally with a second pair of short, black spines.

MATERIAL.—*Holotype,* male: ECUADOR, PCIA. ZAMORA-CHINCHIPE, 30 km E Loja, 2000 m, 23 Sep 1990, O.S. Flint, Jr. NMNH Type.

Paratypes: Same data as holotype, 2♂, 1♀.

ETYMOLOGY.—From the type locality, Loja.

The *otuzcoensis* Group

DIAGNOSIS.—Length of forewing, 7–8.5 mm. Color of body and forewings jet black. Claws of male foreleg apparently unmodified to slightly asymmetrical.

Male Genitalia: Eighth tergum with posteromesal margin produced, lobe divided mesally. Ninth segment with anterior margin slightly produced ventrally, broadened dorsally; posterolateral margin slightly produced and angulate at midlength. No free cercus, but an oval, setate lobe fused to the side of tenth tergum may be cercal in origin. Tenth tergum divided mesally, halves elongate, rod-like, bearing many sensillae. Clasper elongate, rectanguloid, with a dorsomesal tooth apically. Phallus tubular; dorsomesal and lateral surfaces of phallotheca sclerotized, ribbon-like, and end with a dark spine; internally with rod-and-ring assembly modified beyond recognition, consisting of two pairs of large, black spines and a midventral sclerite.

DISTRIBUTION.—The Andes of northwestern South America from Peru to Ecuador.

DISCUSSION.—This group contains only a single species. In most respects it resembles the *margaritae* group, especially *lojaensis*. It differs from all species in the *margaritae* group in two major aspects: the lack of a process from the posterior margin of the ninth segment and the loss of the cercus, or more probably the fusion of the cercus to the lateral surface of the tenth tergum. With the exception of these two characteristics, *otuzcoensis* and *lojaensis* are quite similar, especially in the structure of the internal sclerites and the apex of the phallus.

Chimarra (Curgia) otuzcoensis Flint and Reyes

FIGURES 103–107; MAP 7

Chimarra (Curgia) otuzcoensis Flint and Reyes, 1991:480.

REMARKS.—Although herein placed in its own group, this species shares several common structures with the *margaritae* group, especially with *lojaensis,* as discussed above.

ADULT.—Length of forewing, ♂ and ♀ 7–8.5 mm. Color overall jet black, immaculate. Claws of male foreleg sometimes slightly asymmetrical.

Male Genitalia: Eighth sternum narrow, parallel sided, posterior margin concave; tergum produced posteriad into a pair of rounded, submesal lobes. Ninth segment produced into a rounded anteroventral lobe; with a small posteromesal keel; posterolateral margin slightly produced and angulate at midlength. Cercus completely fused to lateral surface of tenth tergum, visible only as an oval, setate area. Tenth tergum in lateral aspect broad basally, produced into an apical, nose-like lobe with many sensillae; in dorsal aspect with a deep, U-shaped, mesal excision separating lateral arms. Clasper elongate, rectanguloid with a small apicodorsal point in lateral aspect; in ventral aspect with an apicomesal lobe from dorsal margin. Phallus tubular, inflated basally; apex with a thin, pointed process from dorsolateral surface on each side; a pair of long, arched, black spines dorsally, and a shorter pair of black spines laterally; midventrally with a large, black spine whose apex is trifid in ventral aspect and which bears a pair of slender basal processes.

MATERIAL EXAMINED.—PERU, DEPT. LA LIBERTAD, *Prov. Otuzco, Dist. Sinsicap,* Río Sinsicap, Sinsicap, 2000 m, 23 Sep 1989, L. Reyes A., 15♂ (including holotype), 3♀.

ECUADOR, PCIA. PICHINCHA, 2.3 km S Tandayapa, 1800 m, 6 Sep 1990, O.S. Flint, Jr., 15♂, 6♀.

ETYMOLOGY.—From the type locality, Province of Otuzco.

The *fernandezi* Group

DIAGNOSIS.—Length of forewing, 6–9 mm. Color uniformly fuscous. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth tergum with a posteromesal lobe. Ninth segment with anterior margin produced ventrally, broad dorsad, with posterior margin produced to some degree over base of tenth tergum; posterolateral margin produced over base of clasper. Cercus short, ovate, appressed to side of tenth tergum. Tenth tergum entire to slightly divided; halves divided into elongate dorsal and ventrolateral lobes, bearing many sensillae on dorsal lobe. Clasper elongate, tapering to a pointed apex. Phallus tubular, inflated basally; internally with rod-and-ring assembly greatly modified and unrecognizable, with long, heavy, dark spines and plates, rarely with short, black spines.

DISTRIBUTION.—The Andes of northern South America from Ecuador to Venezuela, and Costa Rica.

DISCUSSION.—This is a distinctive group of four closely related species. The form of the tenth tergum (divided into dorsal and ventral lobes but with the dorsal lobe not generally divided mesally), the broad dorsum of the ninth segment produced somewhat over the base of the tenth segment, the elongate and tapering clasper, and the very modified rod-and-ring assembly of the phallus are all synapomorphies uniting this group. The species *costaricensis* is the most modified of the group, with its divided tenth tergum and exceedingly

modified internal plates of the phallus, but the other three species form a very uniform complex of species.

Chimarra (Curgia) barinita, new species

FIGURES 108–111; MAP 7

REMARKS.—This species, together with *fernandezi* and *puya,* form the distinctive *fernandezi* complex, which is characterized by the tenth tergum being bifid in lateral aspect but entire apically in dorsal. *Chimarra barinita* is the sister of *puya* and is generally indistinguishable from it in most parts, except for the phallus. There are two subequal pairs of long internal spines, the dorsalmost of which have their apices angled laterad and bear a ventral tooth, and the membrane bears a cluster of short spines in the phallus of *barinita.*

ADULT.—Length of forewing, ♂ and ♀ 7–7.5 mm. Color uniformly fuscous; forewings unmarked.

Male Genitalia: Eighth sternum narrowing ventrad; tergum produced posteriad as a small, mesal lobe. Ninth segment produced anteroventrally; posteroventral keel produced into a broad lobe. Cercus small, ovate. Tenth tergum hood-like, semierect, apex entire, with many sensillae; with a bluntly pointed ventrolateral lobe. Clasper elongate, ventral and dorsal margins convex; apex produced into a sharp hook directed dorsomesad. Phallus tubular, base inflated; apex produced as a thin sclerite dorsally; internally, ventrally with a pair of very long, dark spines united to a basal sclerite, dorsally with a pair of long spines ending in a dark, laterally directed point and a ventral tooth, with a cluster of short, black spines on apical membrane.

MATERIAL EXAMINED.—*Holotype,* male: VENEZUELA, EDO. BARINAS, 22 km NW Barinitas, 19 Feb 1976, C.M. and O.S. Flint, Jr. NMNH Type.

Paratypes: Same data as holotype, 2♂, 3♀ (IZAM, NMNH).

COLOMBIA [DPTO. MAGDALENA], Sierra Nevada de Sta. Marta, stream near Minca, ~2000 m, 13 Jul 1983, U. Matthias, 1♂. Minca, June, Carnegie Museum Acc. No. 1999, 1♂ (CMNH).

ETYMOLOGY.—A name suggested by the locality Barinita.

Chimarra (Curgia) puya, new species

FIGURES 112–115; MAP 7

REMARKS.—This species and *barinita* are very closely related sister species. Although in *puya* the tenth tergum is more uparched and bulbous and the point at the tip of the clasper is much reduced, the definitive differences are seen in the phallus. In *puya* the cluster of small spines is lacking at the tip of the phallus, the dorsal spines are much smaller, and the ventral spines are stouter.

ADULT.—Length of forewing, ♂ and ♀ 7–8 mm. Color uniformly fuscous; forewings unmarked.

Male Genitalia: Eighth sternum narrowing ventrad; tergum produced posteriad as a small, mesal lobe. Ninth segment produced anteroventrally; posteroventral keel produced into a broad lobe. Cercus small, ovate. Tenth tergum hood-like, slightly uparched, apex bulbous, entire, with many sensillae; with a bluntly pointed ventrolateral lobe. Clasper elongate, ventral and dorsal margins convex; apex produced into a small hook directed dorsomesad. Phallus tubular, base inflated; internally with a pair of very long, dark spines ventrally united to a basal sclerite and with apices sharply upturned, dorsally with a pair of short, dark spines; apicodorsal surface of phallotheca ending in a very short, ribbon-like sclerite.

MATERIAL EXAMINED.—*Holotype,* male: ECUADOR, PCIA. PASTAZA, 27 km N Puyo, Estación Fluviometrica, 4 Feb 1976, P.J. Spangler et al. NMNH Type.

Paratypes: Same data as holotype, 2♂.

ETYMOLOGY.—A name suggested by the locality Puyo.

Chimarra (Curgia) fernandezi Flint

FIGURES 116–119; MAP 8

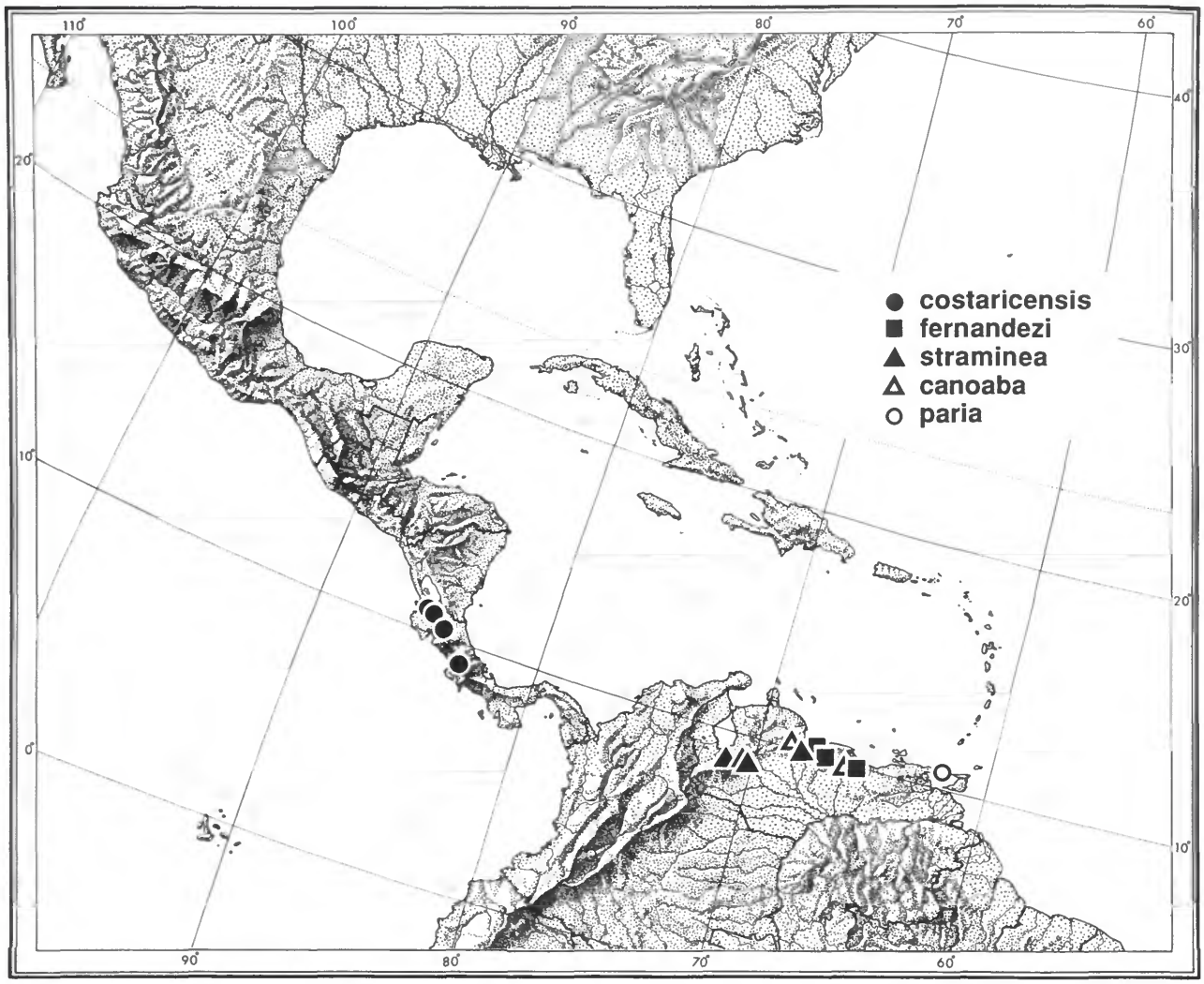
Chimarra (Curgia) fernandezi Flint, 1981:11.

REMARKS.—This is an easily recognized member of the *fernandezi* complex. Its elongate posteromesal projection of the ninth tergum, the dorsal projection of the upper lobe of the tenth tergum, and apical point of the clasper all provide ready recognition for *fernandezi.*

ADULT.—Length of forewing, ♂ and ♀ 6.5–7 mm. Color uniformly fuscous; forewings unmarked.

Male Genitalia: Eighth sternum narrowing ventrad; tergum produced posteriad as a simple, mesal, hood-like lobe. Ninth segment slightly produced anteroventrally; posteroventral keel about twice as long as high; dorsal margin flattened, heavily sclerotized, and produced posteriad as a sharp mesal point. Cercus a small, rectanguloid lobe. Tenth tergum produced into a bilobed dorsomesal lobe and a distinct, pointed ventrolateral lobe. Clasper elongate, pointed apically; ventral and lateral margins convex. Phallus tubular, base slightly inflated; internally with two pairs of long spines, dorsalmost slightly fimbriate and curved, ventralmost very slender and united near base to a short mesal rod.

MATERIAL EXAMINED.—VENEZUELA, EDO. ARAGUA, El Limón, 450 m, 31 Oct 1948, F. Fernandez Y. and L. Salas, 2♂, 2♀ paratypes. Tiara, 30 Jan 1983, O.S. Flint, Jr., 2♂, 1♀. Estación Experimental Cataurito, ~32 km E Villa da Cura, 1100 m, 28 Jan–1 Feb 1983, O.S. Flint, Jr., 86♂, 20♀. EDO. CARABOBO, Río Borburata, 300 m, 20 Nov 1955, F. Fernandez Yepes, C.J. Rosales, 4♂, 2♀. EDO. GUÁRICO, Parque Nacional Guatopo, Quebrada Guatopo, 10.014°N, 66.363°W, 0.5 km N



MAP 8.—Distributions of *Chimarra* (*Curgia*) *costaricensis,* new species, *Chimarra* (*Curgia*) *fernandezi* Flint, *Chimarra* (*Curgia*) *straminea,* new species, *Chimarra* (*Curgia*) *canoaba,* new species, and *Chimarra* (*Curgia*) *paria,* new species.

Est. La Colina, 600 m, 22 Jan 1994, Holzenthal et al., 5♂, 4♀ (UMSP).

ETYMOLOGY.—Patronym, in honor of the late F. Fernandez Yepes, Venezuelan entomologist, who was very helpful during my visits to Venezuela.

Chimarra (*Curgia*) *costaricensis,* new species

FIGURES 120–124; MAP 8

REMARKS.—This is the fourth species in the *fernandezi* complex, and the only member of the entire group known from Central America. There are slight differences in many parts of the male genitalia among the various species, but between this species and the others, the primary difference lies in the internal sclerites of the phallus. The eighth tergum is produced dorsomesally into a narrow lobe, the tenth tergum is distinctly divided apicomesally, and the cerci are completely fused to the lateral margins of the tergum in *costaricensis*. The internal sclerites of the phallus are large and heavily sclerotized, the dorsolateral rods are thin but broad and pointed in ventral aspect, and the ventromesal sclerite is large and joined to the dorsolateral rods basally.

ADULT.—Length of forewing, ♂ and ♀ 6–9 mm. Color uniformly fuscous; forewings unmarked.

Male Genitalia: Eighth sternum narrowing slightly ven-

trad; tergum produced posteriad as a narrow, mesal lobe. Ninth segment slightly produced anteroventrally; posteroventral keel about twice as long as high; dorsal margin flattened, heavily sclerotized, and produced posteriad as a sharp mesal point. Cercus a small, ovoid lobe completely fused mesally to lateral surface of tenth tergum. Tenth tergum produced into a rounded dorsal lobe in lateral aspect, but in dorsal aspect tergum distinctly divided mesally for half length; with a distinct, bluntly pointed ventrolateral lobe. Clasper elongate, pointed apicomesally; ventral and lateral margins convex. Phallus tubular, base inflated; internally with a pair of long dorsolateral spines, thin in lateral aspect, but broad and pointed in ventral aspect, united near base to a large, elongate, midventral sclerite.

MATERIAL EXAMINED.—*Holotype,* male: COSTA RICA, PCIA. GUANACASTE, Río Negro, Parque Nacional Rincón de la Vieja (10.765°N, 85.313°W), 810 m, 3 Mar 1986, Holzenthal and Fasth. NMNH Type.

Paratypes: Same data as holotype, 3♂, 13♀ (INBIO, NMNH, UMSP). PCIA. PUNTARENAS, Río Singri, ~2 km (air) S Finca Helechales (9.057°N, 83.082°W), 720 m, 21 Feb 1986, Holzenthal et al., 1♂, 1♀ (UMSP). Río Guineal, ~1 km (air) E Finca Helechales (9.076°N, 83.092°W), 840 m, 22 Feb 1986, Holzenthal et al., 5♂, 5♀ (INBIO, NMNH, UMSP). PCIA. ALAHUELA, Río Bochinche tributary, 6 km (air) NW Dos Ríos, Cerro Campana (10.945°N, 85.413°W), 600 m, 22-23 Jul 1987, Holzenthal et al., 2♂, 1♀ (INBIO, NMNH); same, but 640 m, 15-16 Mar 1986, Holzenthal and Fasth, 2♀ (UMSP). Río San Lorencito and tributaries, Reserva Forestal San Ramón (10.216°N, 84.607°W), 980 m, 30 Mar-1 Apr 1987, Holzenthal et al., 1♂ (UMSP).

ETYMOLOGY.—From the type country, Costa Rica.

The *canoaba* Group

DIAGNOSIS.—Length of forewing, 4-8 mm. Color uniformly fuscous or stramineous. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth tergum with a posteromesal lobe. Ninth segment with anterior margin produced ventrally, broad dorsad; posterolateral margin usually produced near ventral angle of tenth tergum; posteromesal keel long and slender. Cercus elongate. Tenth tergum slightly to wholly divided mesally, halves bearing many sensillae on distinct apicodorsal region. Clasper elongate, tapering to a distinct apicodorsal hook. Phallus tubular, inflated basally; internally with modified rod-and-ring assembly, usually pair of long spines, and 15 to 30 short, black spines.

DISTRIBUTION.—The Andes of northern South America in Venezuela.

DISCUSSION.—This is a distinctive group of four closely related species. The form of the tenth tergum, divided to some extent mesally, the distinctive, elongate and hooked clasper, the oddly modified rod-and-ring assembly of the phallus, together with the uniform color, fuscous to stramineous, render this group very easily recognized.

Chimarra (*Curgia*) *straminea,* new species

FIGURES 125-128; MAP 8

REMARKS.—From the other species of the group, *straminea* is easily recognized by its uniform stramineous color and narrowed and uparched apex of the tenth tergum in lateral aspect that is notched mesally in dorsal aspect. In the three other species, the apex is broad and nearly rectangular in lateral aspect and deeply, but narrowly, cleft in dorsal aspect and their color is fuscous. Differences also exist among all four species in the shape of the eighth tergum, tip of the claspers, and phallic armature.

ADULT.—Length of forewing, ♂ and ♀ 7-8 mm. Color uniformly stramineous; forewings unmarked.

Male Genitalia: Eighth sternum hardly narrowing ventrad; tergum produced posteriad as a simple, mesal, hood-like lobe. Ninth segment slightly produced anteroventrally; posteroventral keel produced into a pointed, slender process. Cercus a small, ovate lobe. Tenth tergum hood-like, arched dorsad; apex bifid in dorsal aspect, with many sensillae. Clasper elongate, ventral margin convex, dorsal margin nearly straight; apex produced into a small, dorsally directed hook. Phallus tubular, base slightly inflated; internally with a pair of long, slender, curved spines attached to a basal sclerite, and apex with a cluster of about 30 short, black spines.

MATERIAL EXAMINED.—*Holotype,* male: VENEZUELA, EDO. MÉRIDA, 10 km E Santo Domingo, 6800 ft [2040 m], 7 Feb 1978, montane forest, blacklight, J.B. Heppner. NMNH Type.

Paratypes: EDO. MÉRIDA, Quebrada Mucuy, 7 km E Tabay (8.637°N, 71.034°W), 2200 m, 18 Jan 1994, Holzenthal et al., 1♂, 8♀ (UMSP); same, but Mucuy Fish Hatchery, 6600 ft [1980 m], 10-13 Feb 1978, J.B. Heppner, 9♂, 4♀. EDO. BARINAS, 30 km NW Barinitas, 24 Feb 1976, C.M. and O.S. Flint, Jr., 2♀. San Isidro, 24 Sep 1975, R.E. Dietz, 1♂, 1♀ (IZAM). La Chimenea, 5 km S La Soledad, 1500 m, 28-29 May 1975, R.E. Dietz, 1♂ (IZAM).

ETYMOLOGY.—From the Latin *stramineus* ("of grass"), in allusion to its color.

Chimarra (*Curgia*) *canoaba,* new species

FIGURES 129-132; MAP 8

REMARKS.—*Chimarra canoaba* is very closely related to the following new species, *irwini,* on the basis of the shape of the tenth tergum. However, *canoaba* is easily distinguished by the much shorter tenth tergum and mesal lobe of the eighth tergum, the shape of the apex of the clasper, and the presence of long internal spines in the phallus.

ADULT.—Length of forewing, ♂ and ♀ 4-5 mm. Color

uniformly fuscous; forewings unmarked.

Male Genitalia: Eighth sternum hardly narrowing ventrad; tergum produced posteriad as a simple, mesal, hood-like lobe. Ninth segment produced anteroventrally; posteroventral keel produced into a slender process. Cercus irregularly elongate. Tenth tergum small, with a small, dorsal lobe that is narrowly divided dorsomesally and bears many sensillae; with a large, rectangular, ventrolateral lobe. Clasper elongate, ventral margin convex, dorsal margin nearly straight; apex produced into a small, basally directed hook that bears a small apically directed lobe. Phallus tubular, base slightly inflated; internally with a small basal rod-and-ring assembly, a pair of long, dark spines with enlarged bases and sharply curved apices, and with a cluster of about 16 short, black spines.

MATERIAL EXAMINED.—*Holotype,* male: VENEZUELA, EDO. CARABOBO, near Canoabo, 850 m, 24 Jan 1983, O.S. Flint, Jr. NMNH Type.

Paratypes: Same data as holotype, 1♂, 1♀ (IZAM, NMNH). EDO. MIRANDA, Santa Cruz del Río Grande, 7 Feb 1976, C.M. and O.S. Flint, Jr., 1♂.

ETYMOLOGY.—A name suggested by the locality Canoabo.

Chimarra (Curgia) irwini, new species

FIGURES 133–136; MAP 9

REMARKS.—This species is a very distinctive member of the *straminea* complex and is probably the sister species to *paria.* Both have the posterior margin of the eighth tergum produced into a slender process, and both lack long spines in the phallus. In *irwini* the tenth tergum is almost twice as long as high, and the posterior margin is nearly vertical, with a semivertical ventral margin.

ADULT.—Length of forewing, ♂ 5.5 mm. Color uniformly dark brown in alcohol.

Male Genitalia: Eighth sternum narrowing ventrad; tergum produced posteriad as a narrow, elongate, apically pointed lobe. Ninth segment broadly produced anteroventrally; posteroventral keel produced into a pointed slender process. Cercus elongate, clavate. Tenth tergum elongate, deeply and narrowly divided dorsomesally; each lateral lobe consisting of a dorsal portion bearing many sensillae and a thin, rectangular, lateral plate that is produced laterad near ventral margin. Clasper elongate, nearly parallel-sided; apex produced into a small, dorsomesally directed hook. Phallus tubular, base slightly inflated; internally with a rod-and-ring assembly whose ring is sharply angled at middle, with a paired row of about 15 short, black spines in each row.

MATERIAL EXAMINED.—*Holotype,* male: VENEZUELA, EDO. ARAGUA, Rancho Grande, 1100 m, 4 Mar 1967, M.E. Irwin. CAS Type.

ETYMOLOGY.—Patronym in honor of Michael E. Irwin, dipterist, who collected the type.

Chimarra (Curgia) paria, new species

FIGURES 137–140; MAP 8

REMARKS.—This is probably the sister species to *irwini.* It is very similar to it in most respects, such as the slender process of the posterior margin of the eighth tergum and the lack of long spines in the phallus. The main difference is in the tenth tergum, which is only about half as long in *paria* as in *irwini,* and its apical margin is proportionately much longer.

ADULT.—Length of forewing, ♂ and ♀ 4–5 mm. Color uniformly fuscous.

Male Genitalia: Eighth sternum narrowing ventrad; tergum produced posteriad as a lobe about as long as broad basally in dorsal aspect. Ninth segment produced anteroventrally; posteroventral keel produced into a pointed slender process. Cercus elongate, clavate. Tenth tergum about as long as high, deeply and narrowly divided dorsomesally; each lateral lobe consisting of a dorsal portion whose dorsal margin curves upwardly in lateral aspect and bears many sensillae and a thin, lateral plate whose posterior margin recedes ventrad and is produced into a small, posteroventral angle. Clasper elongate, nearly parallel sided; apex produced into a small, dorsomesally directed hook. Phallus tubular, base slightly inflated, apex produced into a rounded lobe ventrally, with an apicodorsal hood-like sclerite; internally with a rod-and-ring assembly whose rod is elongate, and paired rows of 13 to 15 short, black spines in each.

MATERIAL EXAMINED.—*Holotype,* male: VENEZUELA, EDO. SUCRE, Río la Viuda, Uquire, Peninsula de Paria, 10°42.830'N, 61°57.661'W, 15 m, 30 Mar–1 Apr 1995, Holzenthal, Flint, and Cressa, NMNH type.

Paratypes: Same data as holotype, but taken in malaise trap, 12♂, 1♀ (IZAM, NMNH, UMSP).

ETYMOLOGY.—A name suggested by the locality Paria Peninsula.

The *medioloba* Group

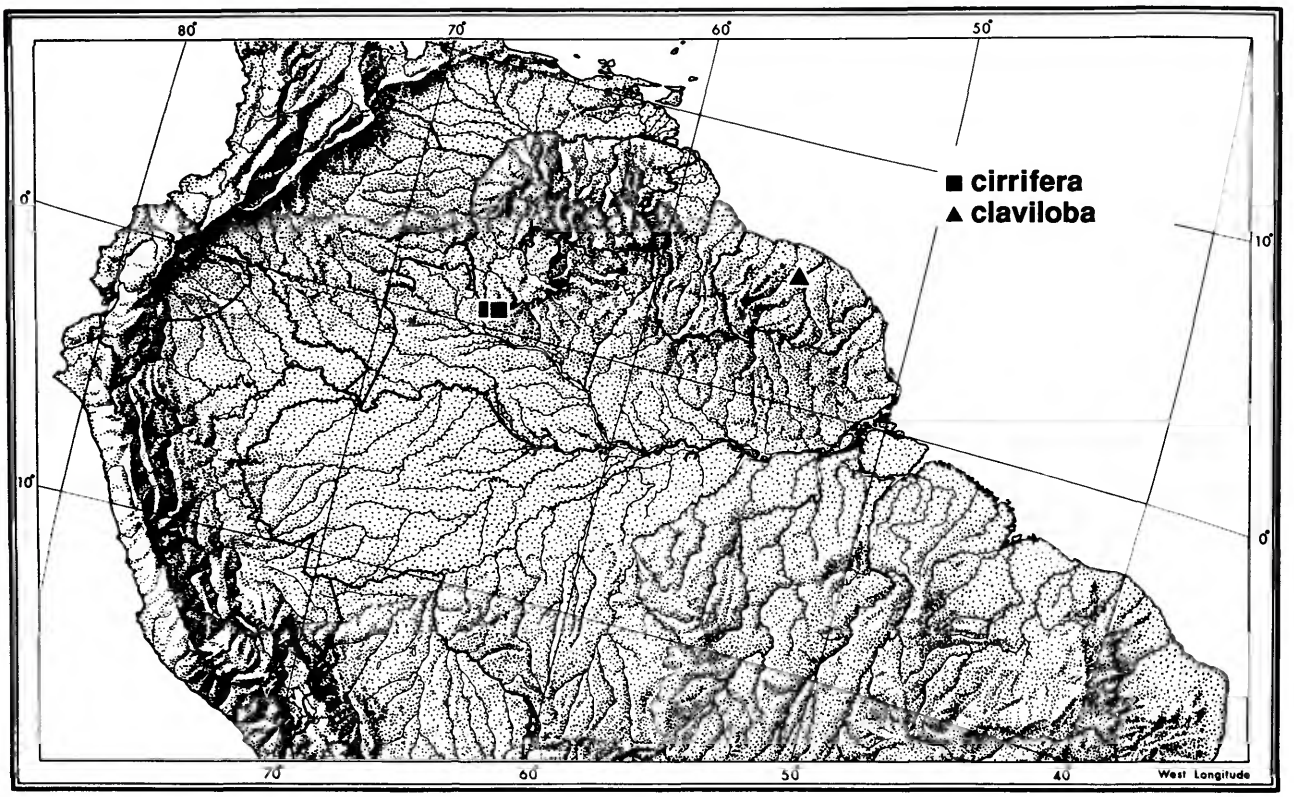
DIAGNOSIS.—Length of forewing, 4.5–7.5 mm. Body, appendages, and forewing uniformly fuscous, bases of legs slightly paler. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth tergum with posteromesal margin variable: slightly to strongly bilobed, with mesal lobe between these lobes, to single, elongate, mesal process. Ninth segment produced anteroventrally, narrow dorsad, often with dorsomesal margin produced or bearing dorsolateral projections from posterior margin; posterolateral margin generally produced as lobe over clasper base, sometimes greatly produced. Cercus variable, fused to basolateral lobe of tenth tergum. Tenth tergum divided mesally, rarely shallowly, generally deeply to completely so, broad basally, tapering apicad, of variable shape, bearing many sensillae. Clasper elongate, almost parallel sided, apically with tooth or acutely pointed. Phallus

MAP 9.—Distributions of *Chimarra* (*Curgia*) *ypsilon* Flint, *Chimarra* (*Curgia*) *aviceps*, new species, *Chimarra* (*Curgia*) *irwini*, new species, and *Chimarra* (*Curgia*) *distermina*, new species.

tubular, inflated basally; internally with basal, rod-and-ring assembly, often associated with pair of large, black spines, and additional four to six enlarged, black spines.

DISTRIBUTION.—Limited to the region north of the Amazon River and south and east of the Orinoco and Negro rivers; primarily the Guyanan Crystalline Shield area



MAP 10.—Distributions of *Chimarra* (*Curgia*) *cirrifera,* new species, and *Chimarra* (*Curgia*) *claviloba* Flint.

of northeastern South America.

DISCUSSION.—This is a distinctive group of 10 species, separable into two major complexes; one, the *juliae* complex, consisting of *juliae* and *guyanensis,* is the most highly modified. The other complex, the *medioloba* complex, contains the remaining species, separable into five clusters, but all closely related. The *claviloba* cluster also contains *cirrifera* and is characterized by rather simple eighth and ninth terga. Another complex contains *medioloba* and *truncatiloba* and is characterized by an elongate, mesal process of the eighth tergum, but a rather simple ninth tergum. More modified is the cluster of *fimbriata* and *neofimbriata,* in which the eighth tergum bears large submesal lobes flanking a mesal lobe, and the ninth segment bears elongate dorsolateral processes. The species *quaternaria* stands alone and is distinguished by its broadly produced eighth tergum bearing four apical points, its ninth segment with large, pointed dorsolateral lobes, and its much reduced tenth tergum. Also standing alone is *carolae,* with its single, long, mesal process of the eighth tergum and its paired, long, dorsolateral processes of the ninth tergum overlaying the tenth tergum. The *juliae* complex bears submesal lobes from the eighth tergum, but the ninth segment bears long, slender, dorsolateral processes and a very large ventrolateral lobe, surpassing the claspers and almost completely hiding them in lateral aspect.

Chimarra (*Curgia*) *claviloba* Flint

FIGURES 141–143; MAP 10

Chimarrha (*C.*) *claviloba* Flint, 1974:22.

REMARKS.—This species and the new species *cirrifera* are related on the basis of the slight modifications of the eighth and ninth terga. In *claviloba* the tenth tergum is pointed apically, with each side bearing a distinct dorsal lobe (rather than being broad and lacking the lobe in *cirrifera*) and the phallus lacks the heavy spines associated with rod-and-ring assembly (as are present in *cirrifera*).

ADULT.—Length of forewing, ♂ 6.5 mm. Color probably fuscous when alive.

Male Genitalia: Eighth sternum enlarged dorsad; tergum with posterior margin produced mesally and with small apical excision; in lateral aspect with small, dark tooth laterad of

mesal lobe. Ninth sternum with anteroventral margin produced; with large, terete, posteromesal process; dorsum broad, produced over tenth tergal base as rounded mesal lobe, with short, dorsolateral processes. Cercus elongate. Tenth tergum deeply divided mesally; lateral plate in lateral aspect pointed apicad with dorsal knob bearing sensillae. Clasper elongate, narrow, subapically produced into dorsally directed tooth. Phallus tubular, base inflated; internally with rod-and-ring assembly and six small spines; apically with numerous short hairs.

RECORDED FROM.—SURINAME, Nassau Mountains, km 11.2, creek, Mar 1949, D.C. Geijskes, ♂ holotype (RNH, not restudied).

ETYMOLOGY.—From the Latin *clava* ("club") and *lobus* ("projection"), in allusion to the shape of the cercus.

Chimarra (Curgia) cirrifera, new species

FIGURES 144–147; MAP 10

REMARKS.—Together with *claviloba,* this species has rather simple eighth and ninth terga. The differences lie in the broader tenth tergum, the presence of a pair of heavy spines associated with the rod-and-ring assembly, and the elongation and curling of the other spines of the phallus of this species.

ADULT.—Length of forewing, ♂ and ♀ 4–5.5 mm. Color uniformly fuscous.

Male Genitalia: Eighth sternum slightly enlarged dorsad; tergum barely produced posteromesally as a pair of narrow lobes. Ninth sternum with anteroventral margin produced; with short, distinct, posteromesal keel; dorsum produced into transverse ridge dorsad of tenth tergum, consisting of central plate flanked by a heavily sclerotized knob. Cercus enlarged, fused to dorsolateral margin of lateral lobe of tenth tergum. Tenth tergum divided mesally into broad lateral plates obliquely truncate apicad, with many sensillae; each plate bearing a flaring basolateral lobe. Clasper elongate, narrow, with apex truncate, bearing a dorsomesally directed tooth; in ventral aspect elongate, parallel sided, slightly produced apicomesally. Phallus tubular, base inflated; internally with rod-and-ring assembly in association with two pairs of short, thick, dark spines, and with three pairs of curved, long, dark spines (one spine of basal pair lost in type).

MATERIAL EXAMINED.—*Holotype,* male: VENEZUELA, TERRITORIO FEDERAL AMAZONAS, Cerro de la Neblina, Base-camp, 0°51′N, 66°10′W, 140 m, 20–24 Mar 1984, Flint and Louton. NMNH Type.

Paratypes: Same data as holotype, 1♀; same, but 19 Mar 1984, 2♂; same, but 26–31 Jan 1985, Spangler et al., 1♂, 1♀; same, but 1–9 Feb 1985, 1♂; same, but 10–20 Feb 1985, 2♂; same, but 21–28 Feb 1985, 1♀; same, but 24 Nov–1 Dec 1984, R.L. Brown, 1♀; same, but Agua Blanca, 0°49′N, 66°08′W, 160 m, 20–21 Mar 1984, Flint and Louton, 1♀ (IZAM, NMNH).

ETYMOLOGY.—From the Latin *cirrus* ("tendril") and suffix *-fera* ("to bear"), in allusion to the curled spines of the phallus.

Chimarra (Curgia) medioloba Flint

FIGURES 148–151; MAP 11

Chimarrha (C.) medioloba Flint, 1971:22.

REMARKS.—This species and the following species, *truncatiloba,* are very similar in all aspects of the male genitalia. They are separated from each other by the acuminate apex of the tenth tergum and the presence of a pair of heavy spines associated with the rod-and-ring assembly of the phallus in *medioloba.*

ADULT.—Length of forewing, ♂ and ♀ 4.5–7.5 mm. Color uniformly fuscous.

Male Genitalia: Eighth sternum slightly enlarged dorsad; tergum with long, slightly drooping, mesal process from posterior margin, apex constricted. Ninth sternum with anteroventral margin produced; with very short posteromesal keel; dorsum produced into two, bilobed, narrow, transverse ridges dorsad of tenth tergum. Cercus elongate, fused to dorsolateral margin of lateral lobe of tenth tergum. Tenth tergum divided mesally into broad lateral plates narrowed apicad, with many sensillae; each plate bearing a flaring basolateral lobe. Clasper elongate, narrow, tapering, with apex produced into a dorsally directed tooth; in ventral aspect elongate, parallel sided, produced apicomesally. Phallus tubular, base inflated; internally with rod-and-ring assembly strongly modified and bearing a pair of slender apicodorsal spines, and with two pairs of curved, large, dark spines (one heavier than other).

MATERIAL EXAMINED.—BRAZIL, EDO. AMAZONAS, Gebeit End station Rio Marauiá, etwa 350 m über dem Meerespiegel, schattig, starkes Gefälle über Granitblöcken, 26 Jan 1963, E.J. Fittkau, 1♂ holotype (NMNH).

VENEZUELA, TERR. FED. AMAZONAS, Cerro de la Neblina, Camp VII, 0°51′N, 65°58′W, 1850 m, 30 Jan–10 Feb 1985, Spangler et al., 5♂, 6♀. Caño Coromoto, El Tobogan, 40 km S Puerto Ayacucho, 24 Jan 1989, Spangler et al., 1♂, 2♀.

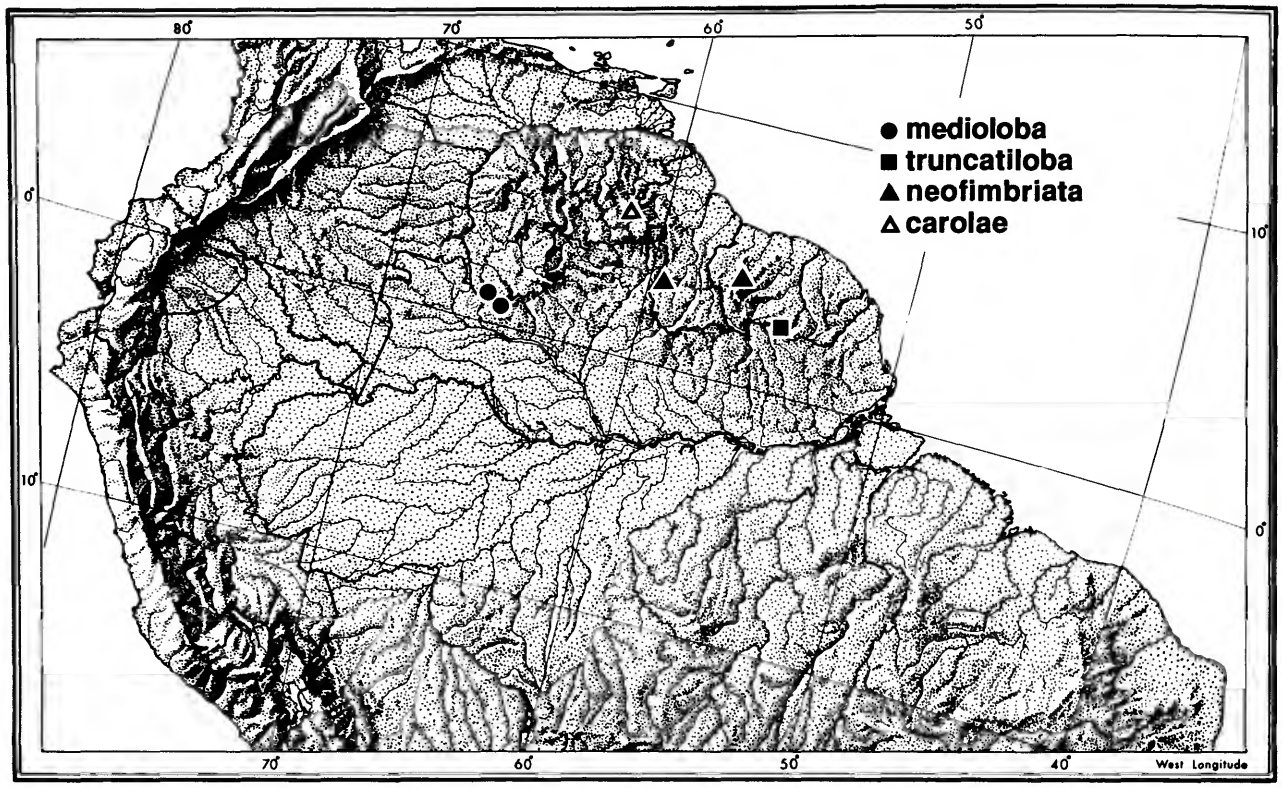
ETYMOLOGY.—From the Latin *medius* ("middle") and *lobus* ("projection"), in allusion to the process of the eighth tergum.

Chimarra (Curgia) truncatiloba Flint

FIGURES 152–155; MAP 11

Chimarrha (C.) truncatiloba Flint, 1974:21.

REMARKS.—This species and *medioloba* are very similar in structure of the male genitalia. In *truncatiloba* the apex of the tenth tergum is truncate, and all the spines of the phallus are relatively slender.



MAP 11.—Distributions of *Chimarra* (*Curgia*) *medioloba* Flint, *Chimarra* (*Curgia*) *truncatiloba* Flint, *Chimarra* (*Curgia*) *neofimbriata* Flint, and *Chimarra* (*Curgia*) *carolae*, new species.

ADULT.—Length of forewing, ♂ 5 mm. Color uniformly dark brown (probably fuscous when alive).

Male Genitalia: Eighth sternum parallel sided; tergum with long, straight, mesal process from posterior margin, apex constricted. Ninth sternum with anteroventral margin greatly produced; with a short, distinct, posteromesal keel; dorsum produced into narrow, transverse ridge divided into a central, plate-like area and paired, short spines laterad to plate and dorsad of tenth tergum. Cercus rounded, fused to dorsolateral margin of lateral lobe of tenth tergum. Tenth tergum divided mesally into broad lateral plates truncate apicad, with many sensillae; each plate bearing a flaring basolateral lobe. Clasper elongate, narrow, tapering, with apex produced into a dorsally directed tooth; in ventral aspect elongate, parallel sided, produced apicomesally. Phallus tubular, base inflated; phallotheca very long, angulate at midlength; internally with small rod-and-ring assembly associated with pair of small spines, and with two pairs of curved, elongate, dark spines.

MATERIAL EXAMINED.—SURINAME, Litani [River], Waremapan Soela [= Rapids], 30 Jul 1939, D.C. Geijskes, 1♂ paratype (NMNH).

ETYMOLOGY.—From the Latin *truncus* ("cut off") and *lobus* ("projection"), in allusion to the shape of the apex of the tenth tergum.

Chimarra (*Curgia*) *fimbriata* Flint

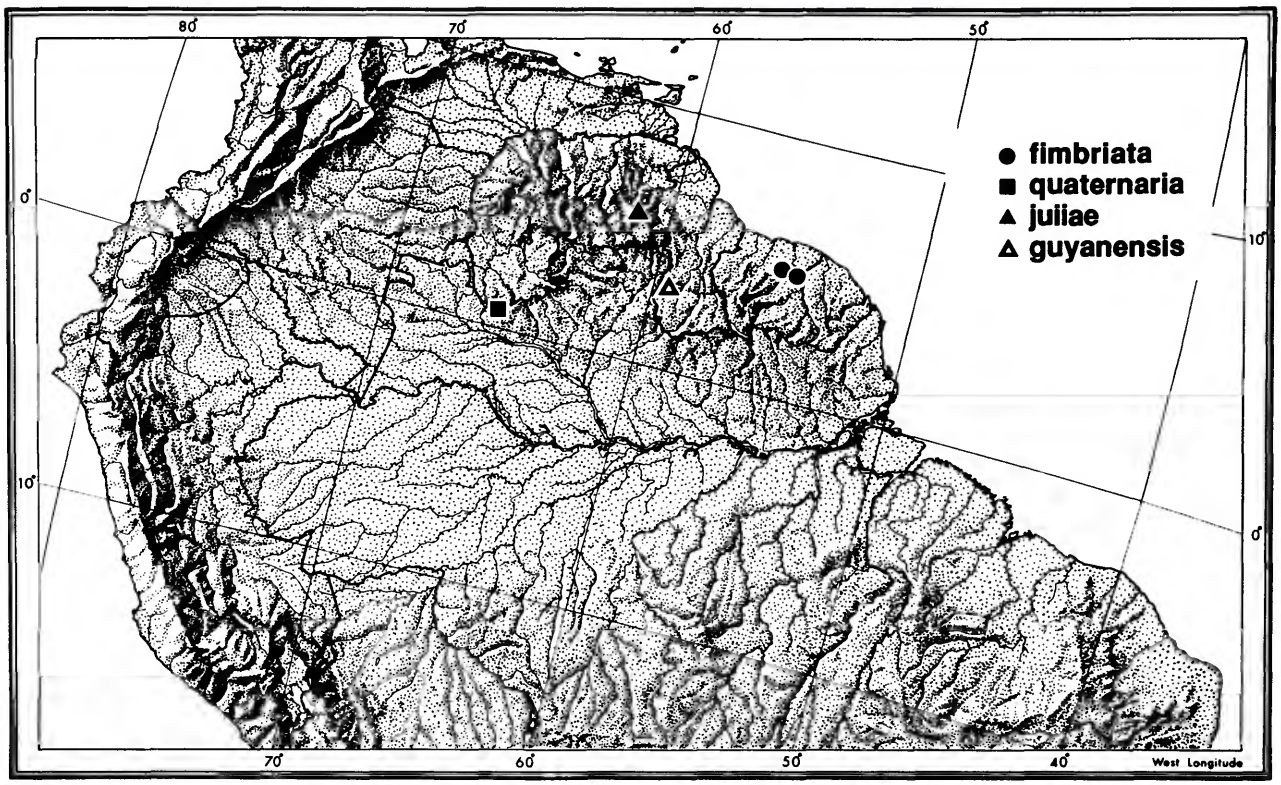
FIGURES 156–158; MAP 12

Chimarrha (*C.*) *fimbriata* Flint, 1974:22.

REMARKS.—The species *fimbriata* and *neofimbriata* are strongly modified and very distinctive in the region of the eighth and ninth terga. In *fimbriata* the mesal process of the eighth tergum is clavate apically, and the tenth tergum is decurved apically. The phallus bears a pair of heavy spines associated with the rod-and-ring assembly in *fimbriata*, which are lacking in *neofimbriata*.

ADULT.—Length of forewing, ♂ 4.5 mm. Color uniformly pale brown in alcohol (probably fuscous when alive).

Male Genitalia: Eighth sternum parallel sided; tergum with long, clavate, mesal process from posterior margin, flanked by large rounded lobes. Ninth sternum with anteroven-



MAP 12.—Distributions of *Chimarra* (*Curgia*) *fimbriata* Flint, *Chimarra* (*Curgia*) *quaternaria* Flint, *Chimarra* (*Curgia*) *juliae*, new species, and *Chimarra* (*Curgia*) *guyanensis*, new species.

tral margin produced; with short, distinct, posteromesal keel; dorsum broad, with elongate dorsolateral processes; posterior margin produced into broad, bifid flap laterally. Cercus rounded, projecting from dorsolateral margin of lateral lobe of tenth tergum. Tenth tergum divided mesally into broad, elongate, decumbent, lateral plate narrowed apicad (probably with many sensillae); each plate bearing a flaring basolateral lobe. Clasper elongate, narrow, tapering, with apex produced into tooth; in ventral aspect elongate, parallel sided, barely produced apicomesally. Phallus tubular, base inflated; internally with small rod-and-ring assembly associated with pair of large, dark spines fimbriate at their tips; and with pair of large, dark spines and four small spines.

MATERIAL EXAMINED.—SURINAME, Brownsberg, top near small stream, 475 m, 20 Sep 1938, D.C. Geijskes, at light, 1♂ paratype (NMNH, genitalia completely transparent, with structure not apparent).

RECORDED FROM.—Suriname, Nassau Mountains, trail south from km 7, large mountain stream, 3 Mar 1938, D.C. Geijskes, ♂ holotype (RNH, not restudied).

ETYMOLOGY.—From the Latin *fimbriatus* ("fringed"), in allusion to the apex of the phallic spines.

Chimarra (*Curgia*) *neofimbriata* Flint

FIGURES 159–162; MAP 11

Chimarrha (*C.*) *neofimbriata* Flint, 1974:23.

REMARKS.—As mentioned above, *fimbriata* and *neofimbriata* share striking synapomorphies of the eighth and ninth terga. In *neofimbriata* the mesal lobe of the eighth tergum is squarely truncate; the tenth tergum, although directed slightly ventrad, is not strongly curved in that direction; and the phallus lacks stout spines associated with the rod-and-ring assembly.

ADULT.—Length of forewing, ♂ and ♀ 5.5–7 mm. Color uniformly fuscous.

Male Genitalia: Eighth sternum slightly widened dorsad; tergum with elongate, irregularly truncate, mesal process from posterior margin, flanked by large rounded lobes. Ninth sternum with anteroventral margin slightly produced; with distinct, posteromesal keel; dorsum broad, with elongate dorsolateral processes; posterior margin produced into broad, obliquely truncate flap laterally. Cercus rounded, projecting from dorsolateral margin of lateral lobe of tenth tergum. Tenth tergum divided mesally into broad, elongate, lateral plates

slightly narrowed apicad; each plate bearing a flaring basolateral lobe. Clasper elongate, narrow, tapering, with apex truncate; in ventral aspect elongate, narrowed apically, with small apicomesal tooth. Phallus tubular, base inflated; internally with small rod-and-ring assembly, with two pair of long, dark, multifid spines, a pair of large, dark spines, and a cluster of small, apical spines.

MATERIAL EXAMINED.—GUYANA, Kumu Stream, 25 km SE Lethem, 3°15.9'N, 59°43.6'W, 4–5 Apr 1994, O.S. Flint, Jr., 4♂, 2♀ (NMNH, UGGG); same, but 28–30 Apr 1995, 4♂, 2♀.

RECORDED FROM.—Suriname, Wilhelmina Mountains, trail II km 12, mountain creek, 21 Sep 1943, D.C. Geijskes, ♂ holotype (RNH, not restudied).

ETYMOLOGY.—From the Greek *neos* ("new"), in allusion to its close relationship to the species *fimbriata*.

Chimarra (Curgia) quaternaria Flint

FIGURES 163–166; MAP 12

Chimarrha (C.) quaternaria Flint, 1971:23.

REMARKS.—This very distinctive species cannot be confused with any other in the group. The structure of the eighth tergum, the dorsolateral processes of the ninth tergum, and the very reduced size of the tenth tergum are all unique.

ADULT.—Length of forewing, ♂ and ♀ 5 mm. Color uniformly dark brown in alcohol (probably fuscous in life).

Male Genitalia: Eighth sternum parallel sided; tergum with posterior margin strongly and broadly produced, in dorsal aspect margin bearing four apical points. Ninth sternum with anteroventral margin produced; with short, distinct, posteromesal keel; dorsum unmodified. Cercus seemingly lacking, but possibly fused to lateral margin of lateral lobe of tenth tergum. Tenth tergum divided mesally into short, bilobed plates, with dorsal lobe projecting beyond ventral; sensillae not apparent; each plate bearing a flaring basolateral lobe produced into a large, sharp point completely covering mesal lobe in lateral aspect. Clasper elongate, narrow, tapering, with apex produced into a tooth; in ventral aspect elongate, parallel sided, produced apicomesally. Phallus with base inflated, phallotheca long and slender; internally with small rod-and-ring assembly associated with a pair of long spines each subdivided into several filaments, a pair of curved, large, dark spines arising dorsally, a single mesoventral spine attached to a ribbon-like sclerite, and three to four small spines.

MATERIAL EXAMINED.—BRAZIL, EDO. AMAZONAS, Gebeit Endstation Rio Marauiá, etwa 350 m über dem Meerespiegel, schattig, starkes Gefälle über Granitblöcken, 26 Jan 1963, E.J. Fittkau, 1♂ holotype, 5♂ paratypes, 8♀ (NMNH).

ETYMOLOGY.—From the Latin *quaternaria* ("consisting of four"), in allusion to the four points on the eighth tergum.

Chimarra (Curgia) carolae, new species

FIGURES 167–170; MAP 11

REMARKS.—This is another rather isolated species, easily distinguished from the other species of the complex. The very long, slender, mesal process from the eighth tergum and the pair of long, pointed processes overlaying the tenth tergum are all unique to *carolae*.

ADULT.—Length of forewing, ♂ and ♀ 5–6 mm. Color uniformly fuscous.

Male Genitalia: Eighth sternum narrow, parallel sided; tergum with posterior margin produced mesally into long, slender, mesal process. Ninth sternum with anteroventral margin strongly produced; with small, posteromesal keel; dorsum produced into two transverse ridges dorsad of tenth tergum: dorsalmost a broad, rounded mesal lobe in dorsal aspect, ventralmost strongly produced into pointed lobe, divided mesally, extending dorsolaterally over tenth tergum. Cercus rounded, fused to dorsolateral margin of lateral lobe of tenth tergum. Tenth tergum divided mesally into broad lateral plates, pointed apically, with many sensillae; each plate bearing a flaring basolateral lobe. Clasper elongate, narrow, with apex produced into elongate tooth, hooked dorsad; in ventral aspect elongate, lateral margin produced subapically, produced apicomesally. Phallus tubular, base inflated; internally with rod-and-ring assembly modified, apicoventral angle produced into blackened spine, and two pairs of large, black spines.

MATERIAL EXAMINED.—*Holotype,* male: VENEZUELA, EDO. BOLIVAR, La Escalera, 108 km S Río Cuyuni, 11–12 Feb 1976, C.M. and O.S. Flint, Jr. NMNH Type.

Paratypes: Same date as holotype, 4♂, 2♀ (IZAM, NMNH).

ETYMOLOGY.—Patronym in honor of my wife, Carol, who collected the types on our trip to Venezuela.

Chimarra (Curgia) juliae, new species

FIGURES 171–174; MAP 12

REMARKS.—The species *juliae* and *guyanensis* are closely related, sharing the striking apomorphies of the dorsolateral and ventrolateral projections of the ninth segment. The most distinctive characteristics of *juliae* are the truncate lobes of the eighth tergum, the narrow apex of the tenth tergum, and the very heavy spines associated with the rod-and-ring assembly of the phallus.

ADULT.—Length of forewing, ♂ and ♀ 4.5–5.5 mm. Color fuscous, legs slightly paler.

Male Genitalia: Eighth sternum parallel sided; tergum with posterior margin produced into pair of broad, apically truncate, submesal lobes separate by deep, U-shaped excision in dorsal aspect. Ninth segment produced slightly anterodorsally and more strongly anteroventrally; dorsum narrow,

unmodified; posterior margin greatly produced ventrolaterally, dorsal margin of which bears low, elongate setate lobe (probable cercus) and small setate point, apex rounded; posteromesal process elongate, terete. Long, slender, process with scattered enlarged setae, fused to dorsolateral margin of ninth tergum (possible cercus). Tenth tergum entire, broad basally, tapering to small, apical lobe bearing sensillae, in dorsal aspect shallowly bilobed; each side bearing large, thin, basoventral lobe lining inner surface between ventrolateral lobes of ninth segment. Clasper elongate, narrow, in lateral aspect, mostly embedded in ventromesal area of ventrolateral lobe of ninth segment; in ventral aspect elongate, slightly curved, with strong apicomesal point. Phallus tubular, base inflated, sclerotization produced apicoventrally; internally with small rod-and-ring assembly overlaying a pair of large, stout, black, crescentic spines, apically with seven large, black spines.

MATERIAL EXAMINED.—*Holotype,* male: VENEZUELA, EDO. BOLIVAR, Piedra de Virgen, 10 km S of km 88 [at base of La Escalera], 20 Mar 1982, G.F. and J.F. Hevel, at blacklight. NMNH Type.

Paratype: Same date as holotype, 1♀.

ETYMOLOGY.—Patronym in honor of Julie Fortin Hevel, who, with her husband, collected the type series.

Chimarra (Curgia) guyanensis, new species

FIGURES 175–178; MAP 12

REMARKS.—This species and *juliae* comprise a distinctive cluster in the *medioloba* group, as mentioned previously. In *guyanensis* the lobes of the eighth tergum are narrowed apically, the apex of the tenth tergum is developed into a crested, birdhead-like shape, and the spines associated with the rod-and-ring assembly of the phallus are long and slender.

ADULT.—Length of forewing, ♂ and ♀ 5–6.5 mm. Color fuscous, legs slightly paler basally.

Male Genitalia: Eighth sternum parallel sided; tergum with posterior margin produced into pair of elongate, apically narrowly rounded, submesal lobes separated by deep, U-shaped excision in dorsal aspect. Ninth segment vertical anterodorsally and strongly produced anteroventrally; dorsum narrow, unmodified; posterior margin greatly produced ventrolaterally, dorsal margin of which bears low, elongate, setate lobe (probable cercus) tipped by small point, apex dorsally acute; posteromesal process elongate, terete. Long, slender process (possible cercus), fused to lateral margin of ninth tergum bearing cluster of spines. Tenth tergum entire, broad basally, tapering to small, crested, apical lobe bearing sensillae, in dorsal aspect deeply bilobed; each side bearing large, thin, basoventral lobe lining inner surface between ventrolateral lobes of ninth segment. Clasper elongate, narrow in lateral aspect, mostly embedded in ventromesal area of ventrolateral lobe of ninth segment; in ventral aspect longer than broad, slightly curved, with strong apicomesal point. Phallus tubular, base inflated, sclerotization strongly produced apicoventrally and with middorsal, ribbon-like sclerite; internally with small rod-and-ring assembly overlaying a pair of long, slender, black, crescentic spines, apically with pair of large, black spines dorsally and second pair of shorter spines internally.

MATERIAL EXAMINED.—*Holotype,* male: GUYANA, Kumu Stream, 25 km SE Lethem, 3°15.9'N, 59°43.6'W, 4–5 Apr 1994, O.S. Flint, Jr. NMNH Type.

Paratypes: Same date as holotype, 7♂, 2♀ (NMNH, UGGG); same, but W.N. Mathis, 1♂; same, but 28–30 Apr 1995, O.S. Flint, Jr., 11♂, 6♀ (NMNH, UGGG).

ETYMOLOGY.—From the type country, Guyana.

The *distermina* Group

DIAGNOSIS.—Length of forewing, 5–8.5 mm. Color jet black overall; abdomen paler, orangish. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth tergum with a small posteromesal lobe. Ninth segment with anterior margin nearly vertical, broad dorsad, with a long, rod-like dorsomesal projection between halves of tenth tergum; posterolateral margin with dorsal angle continuous with ventral angle of tenth tergum. Cercus elongate, oblique. Tenth tergum divided mesally, halves elongate, narrow apically, bearing many sensillae. Clasper elongate, tapering apicad. Phallus tubular, barely inflated basally; internally with an elongate, rod-and-ring assembly, a pair of elongate spines, and a single curved spine.

DISTRIBUTION.—The Andes of western South America from Bolivia to Peru.

DISCUSSION.—This is a very unusual group of two very closely related species. The divided tenth tergum, with a single mesal rod between the lobes, is distinctive. The two species were first thought to be variants of a single species, but with the discovery of other very close species pairs (i.e., *geranoides* and *peruviana, mycterophora* and *erectiloba*) coexisting at one site and undoubtedly being valid, I suspect the same exists with this species pair, although they have not yet been found at the same site.

Chimarra (Curgia) distermina, new species

FIGURES 179–182; MAP 9

REMARKS.—The species *aviceps,* from Peru, is very closely related to *distermina.* The two species are readily distinguished by the shape of the posteromesal process of the ninth segment, which is blunt and produced into a small dorsal angle in *distermina* but is angled downward and produced into a slender process in *aviceps.* The pair of dark spines in the phallus of *distermina* are nearly twice as long as the dorsal spine but are barely as long in *aviceps.*

ADULT.—Length of forewing, ♂ and ♀ 7–8.5 mm. Color overall jet black, immaculate; abdomen pale orangish.

Male Genitalia: Eighth sternum narrow, slightly narrower ventrad; tergum produced posteromesally into a lobe, broad basally with a short, truncate apex. Ninth segment barely produced anteroventrally; posteromesal keel short and broad; posterolateral margin slightly produced and angulate at midlength, where it meets ventral margin of tenth tergum; middorsally bearing a long, upcurved, posteromesal process ending in a blunt apicodorsal angle and lying between the tenth tergal halves. Cercus narrow, elongate, directed posteroventrad. Tenth tergum in lateral aspect broad basally, produced apically with many sensillae; in dorsal aspect with a deep, U-shaped, mesal excision separating lateral lobes, which are broad and flat dorsally; with the mesal lobe of the ninth segment lying between the halves. Clasper elongate, inflated at midlength, tip produced into a dorsally directed point; in ventral aspect with lateral margin rounded, mesal margin straight. Phallus tubular, barely inflated basally; apex with a single dorsal spine, a pair of long ventral spines twice as long as dorsal spine, and a very weakly sclerotized and elongate rod-and-ring assembly.

MATERIAL EXAMINED.—*Holotype,* male: BOLIVIA, DPTO. LA PAZ, quebradas del Río Zongo, 1400 m, 24–30 Oct 1984, L.E. Peña G. NMNH Type.

Paratypes: Same date as holotype, 7♂, 4♀.

ETYMOLOGY.—From the Latin *disterminus* ("separated"), in allusion to the divided tenth tergum.

Chimarra (*Curgia*) *aviceps,* new species

FIGURES 183–186; MAP 9

REMARKS.—The one obvious difference between *distermina* and *aviceps* is the shape of the tip of the mesal process from the ninth segment; in *aviceps* it is narrowed, bent down, and produced into a slender process; in *distermina* it is blunt and ends in a dorsal angle. A more distinctive difference is the pair of dark spines in the phallus, which are noticeably shorter in *aviceps* than in *distermina.*

ADULT.—Length of forewing, ♂ and ♀ 5–8 mm. Color overall jet black, immaculate; abdomen orangish.

Male Genitalia: Eighth sternum narrow, slightly narrower ventrad; tergum produced posteromesally into a lobe, broad basally with a short, truncate apex. Ninth segment with anterior margin vertical; posteromesal keel short and broad; posterolateral margin slightly produced and angulate at midlength, where it meets ventral margin of tenth tergum; middorsally bearing a long, upcurved, posteromesal process lying between the tenth tergal halves, tip bent posteroventrally, narrowed, and elongate. Cercus narrow, elongate, directed posteroventrad. Tenth tergum in lateral aspect broad basally, produced apically with many sensillae; in dorsal aspect with a deep, U-shaped, mesal excision separating lateral lobes, which are broad and flat dorsally, between which lies the posterior process of ninth segment. Clasper elongate, inflated at midlength, tip produced into a dorsally directed point; in ventral aspect with lateral margin rounded, mesal margin straight. Phallus tubular, barely inflated basally; apex with a single dorsal spine, a pair of ventral spines twisted at apex and barely longer than dorsal spine, and a very weakly sclerotized and elongate rod-and-ring assembly.

MATERIAL EXAMINED.—*Holotype,* male: PERU, DPTO. CUSCO, *Pcia. Paucartambo,* stream 3 km E Puente San Pedro (13°03.3'S, 71°32.8'W), 41 km NW Pilcopata, 1430 m, 31 Aug 1989, N. Adams et al. NMNH Type.

Paratypes: Same data as holotype, 1♂, 2♀; same, but river at Puente Union (13°04.2'S, 71°34.0'W), 1670 m, 21–23 Jun 1993, Blahnik and Pescador, 1♂, 1♀. DPTO. CUSCO, Cosñipata Valley, Santa Isabel, 22 Jan 1952, F. Woytkowski, 1♂ (INHS); Callanga, Staudinger, 2♂, 1♀ (ZSZMH). DPTO. HUANUCO, Tingo Maria, 672 m, 1–6 Feb 1980, J.B. Heppner, premontane rain forest, 1♂.

ETYMOLOGY.—From the Latin *avis* ("bird") and *caput* ("head"), in allusion to the shape of the mesal process of the ninth segment.

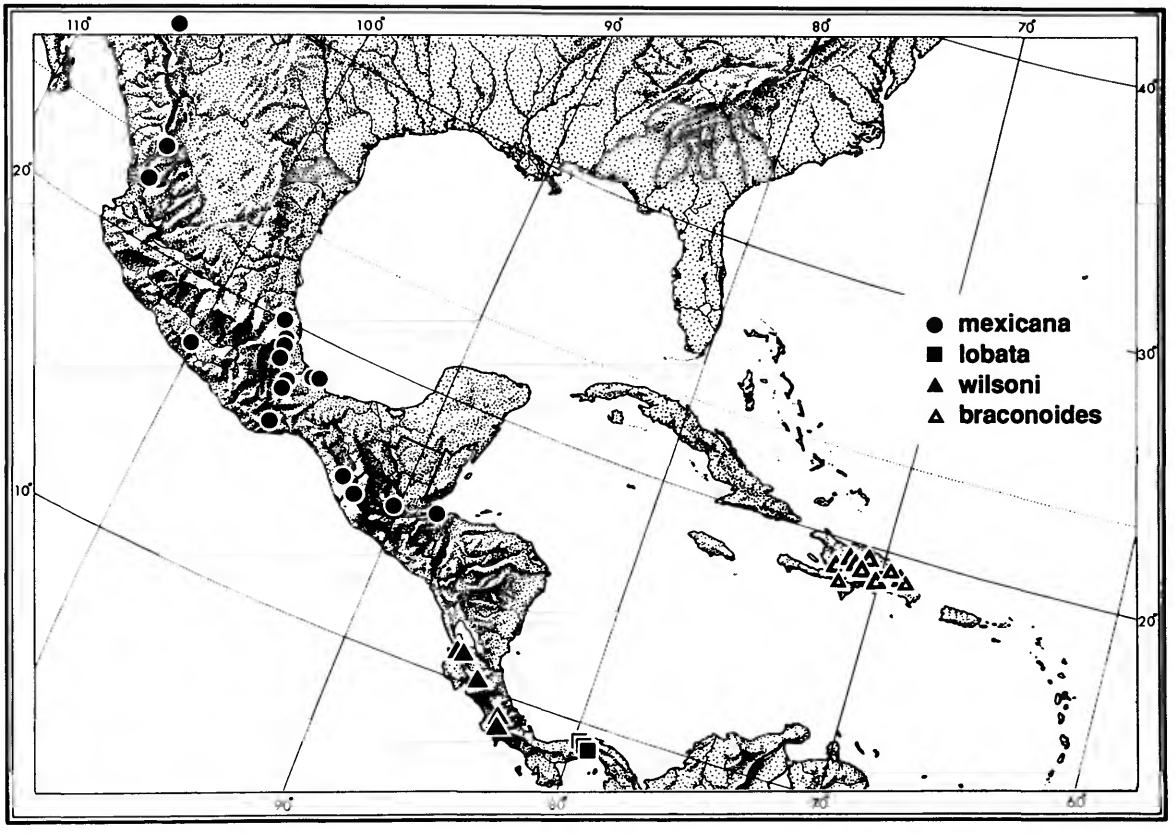
The *mexicana* Group

DIAGNOSIS.—Length of forewing, 4–10 mm. Body brown, appendages generally paler; head and thorax may be covered with golden hair; forewing brown, usually marked with golden spots or lines, rarely with a broad, longitudinal, golden band. Claws of male foreleg vary from exceedingly to not noticeably asymmetrical.

Male Genitalia: Eighth tergum without brushes, usually with posterior margin projecting and divided. Ninth segment greatly produced anteroventrally, narrow dorsad; usually with simple dorsomesal projection, which may even project freely posteriad; posterolateral margin usually simple, rarely produced as a rounded lobe. Cercus elongate, ovate. Tenth tergum entire, hood-like, apex usually upturned, rarely with apicodorsal projection, bearing many sensillae. Clasper generally short, to slightly elongate, not greatly modified, often with an apical or apicomesal, small tooth. Phallus tubular, base inflated; internally with a small, basal, rod-and-ring assembly and a number (1–20) of short, black spines.

DISTRIBUTION.—Species are found in middle America and northern South America, from Mexico to Ecuador; and a pair are found in the mountains and uplands of southeastern South America (Argentina, Brazil, Paraguay, and Uruguay).

DISCUSSION.—This group seems to be closely related to the *laguna* group based upon the body coloration and the form of male genitalia, differing primarily in lack of brushes from the eighth tergum. The species *wilsoni* and *bisectilis* are closely related as shown by the short clasper with its apicomesal tooth and the presence of a dorsomesal point from the tenth tergum. The remaining species all share a more elongate clasper and a simpler tenth tergum. The pair *mexicana* and *barrettae* are very



MAP 13.—Distributions of *Chimarra* (*Curgia*) *mexicana* (Banks), *Chimarra* (*Curgia*) *lobata* Flint, *Chimarra* (*Curgia*) *wilsoni* Flint, and *Chimarra* (*Curgia*) *braconoides* (Walker).

similar in all characteristics of the male genitalia, with *pablito* and *lobata* forming another pair on the basis of the apically tapering claspers, but they are more abundantly distinct from each other than are the former pair. Finally, the pair *ypsilon* and *hyoeides* are much like the latter two in general, but they are found in southeastern South America.

Chimarra (*Curgia*) *mexicana* (Banks)

FIGURES 187–192; MAP 13

Rhyacophila mexicana Banks, 1900:259.—Ulmer, 1907:210.—Betten, 1934:135.—Fischer, 1960:104; 1971:100.

Wormaldia mexicana Ulmer, 1905b:89.—Flint, 1967b:3 [synonymy].

Chimarrha mexicana (Ulmer).—Ulmer, 1907:200; 1913:405.—Betten, 1934:176.

Chimarra mexicana (Ulmer).—Fischer, 1961:66.—Flint, 1966:3.

Chimarra (*Curgia*) *mexicana* (Banks).—Flint, 1967b:3.—Bueno and Flint, 1980:197.

REMARKS.—This species and the species *barrettae* are very closely related, and I had earlier synonymized the two species. After studying much more material than was available earlier, including three collections in which both species were found, I now believe that they are distinct. Although there is a good deal of variation in both, there are several differences between the two that seem to be consistent in the studied material.

Male specimens of *mexicana* have a broad golden band down the forewing that may be divided at midlength into two large spots; in male *barrettae* the gold hair is broken into many small spots. In the females, *mexicana* may be colored as the males, but generally the forewing has less golden hair, and it is frequently reduced to spots, as is always the case in the females of *barrettae*. The tarsal claws of the male forelegs in *mexicana* are equal in size or only moderately asymmetric, but in *barrettae* one is several times larger than the other. The clasper of *mexicana* is broader at the apex, with a small apicodorsal and apicoventral knob, and in posteroventral aspect the tip has the distalmost point produced further mesad than the more basal angle; in *barrettae* the clasper is much narrowed apicad, with a distinct apicodorsal point, and in posteroventral aspect the tip has the basalmost angle produced further mesad than the

distalmost angle. The phallus in *mexicana* has four or five small, black, internal spines, but in *barrettae* it has only two or three. The tenth tergum tends to have its tip more sharply angled dorsad in *mexicana* with its dorsolateral margins not carinate; in *barrettae* the tip is less sharply angled dorsad, and the dorsolateral margins are more or less carinate. Unfortunately, all of the characteristics are variable in both species, but the first three states all seem to break at the same point. There also seems to be some differences in the two species' distributions. Although they broadly overlap from Vera Cruz, Mexico, south to central Guatemala, *mexicana* also is known from northwestern Mexico, and *barrettae* is found in Costa Rica and northern Panama.

ADULT.—Length of forewing, ♂ and ♀ 7–9.5 mm. Color brown; appendages pale brown; head and thorax dorsally with golden hair; forewing brown, usually with a broad, central, golden band (sometimes divided into two large golden spots, infrequently in females into many golden spots). Male foretarsal claws slightly to moderately different in size.

Male Genitalia: Eighth sternum slightly widened dorsad; tergum produced into a pair of rounded, submesal lobes from posterior margin. Ninth sternum produced anteroventrally; with short, posteromesal keel. Cercus elongate, slightly enlarged apicad. Tenth tergum with tip entire, angled dorsad; apex broadly rounded in dorsal aspect, with many sensillae. Clasper elongate, tip truncate or broadly rounded; in ventral aspect, with apical lobe angled mesad, distalmost angle of lobe extending furthest mesad, with a rounded excision in mesal margin basad of lobe. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly and four or five small, black spines.

MATERIAL EXAMINED.—MEXICO, EDO. VERACRUZ, Xico [Barrett, in original description], holotype, male: MCZ Type 11816. Near Huatusco, 25–26 Jul 1965, Flint and Ortiz, 1♂. Río Jamapa, 5 km N Coscomatepec, 2 May 1981, C. and O. Flint, Bueno, and Velasco, 33♂, 66♀ (IBUNAM, NMNH); same, but 26 May 1981, 36♂, 46♀ (including 2 mating pairs) (IBUNAM, NMNH); same, but 2 Sep 1982, J. Bueno, 7♂, 7♀ (IBUNAM); same, but 29 Jan 1984, M. Espinosa, 5♂, 5♀ (IBUNAM). 2 mi [3.2 km] N Coscomatepec, 1300 m, 29 Jul 1987, Wolfe, Valverde, and Mullins, 1♂ (SDMNH). Zongolica, 2 May 1980, F. Gonzalez, 1♂ (IBUNAM). Tlapacoyán, Río La Tomata, 9 Feb 1985, S. Stanford, 2♂, 1♀ (IBUNAM). Ocotal Texisapa, 8 Dec 1985, R. Barba, L. Cervantes, 1♂ (IBUNAM) [very spotted wings]. Ocotal Chico, Sierra Sta. Marta, Los Tuxtlas, 24 May 1982, 1♂ (IBUNAM); same, but, 28 Apr 1979, H. Perez Ruiz, 1♂, 1♀ (IBUNAM); same, but, 23–24 Jan 1982, H. Perez Ruiz, 4♂, 1♀ (IBUNAM). Arroyo Claro, Los Tuxtlas, 18 Dec 1976, S. Zaragoza, 17♂, 5♀ (IBUNAM, NMNH); same, but 28 Aug 1984, H. Perez, 1♂ (IBUNAM). EDO. CHIAPAS, El Triunfo [near Finca Prusia, 15°45'N, 92°43'W, ~1800 m], 13–14 May 1985, H. Velasco, 30♂, 4♀ (IBUNAM, NMNH). EDO. SONORA, Maycoba River, W Maycoba, 21 Aug 1986, Baumann et al., 1♂. EDO. DURANGO, 10 mi [16.1 km] W El Salto, 9000' [2700 m], 17 Jun 1964, J.E.H. Martin, 5♂. Rancho Nuevo, El Salto, 10–13 Jun 1989, N. Bloomfield, 6♂, 1♀ (NMNH, SDMNH). EDO. GUERRERO, Atoyac to Nueva Delhi, El Faisanal, 20 Apr 1988, Cadena, Garcia, and Cervantes, 4♂, 2♀ (IBUNAM, NMNH). EDO. NAYARIT, Mesa Nayar, 49.4 mi [79.6 km] NE El Venado, 5800' [1740 m], 18–21 May 1988, N. Bloomfield, 2♂ (NMNH, SDMNH); same, but 18–25 Aug 1987, 4♀ (NMNH, SDMNH). 0.6 mi [1.0 km] E Riitos, road to San Andreas, 9–11 Mar 1987, N. Bloomfield, 1♀ (SDMNH). EDO. OAXACA, La Esperanza [Rt. 175, S Valle Nacional], 18 Apr 1983, M. Garcia, 2♂, 1♀ (IBUNAM, NMNH). Puente Jalatengo, Rt. 175, 2 Nov 1987, R. Barba, 1♂, 1♀ (IBUNAM). Portillo del Rayo, 29 Oct 1985, E. Marino, 1♂, 1♀ (IBUNAM). EDO. PUEBLA, Cuetzalán, Río Apulco, 1400 m, 1 May 1987, J. Bueno, 2♂, 2♀ (IBUNAM). Cuetzalán to Zacatlán, km 64, 1250 m, 19 Mar 1987, J. Bueno, 2♂, 4♀ (IBUNAM). Cuetzalán to Zacatlán, Río Apulco, km 25, 18 Mar 1987, J. Bueno, 5♂, 5♀ (IBUNAM, NMNH). Puente Viejo, 30 km Zacatlán, 2 May 1987, J. Bueno, 1♂ (IBUNAM). EDO. MORELOS, Cuernavaca, 26–29 Mar 1932, A. Dampf, MF2492, 1♂, 1♀ (INHS).

GUATEMALA [DPTO. IZABAL], Cayuga, Apr, Schaus and Barnes, 1♂. [DPTO. QUEZALTENANGO] Volcan Santa Maria, Nov, Schaus and Barnes, 1♂. [DPTO. ALTA VERAPAZ] Cobán, Biotopo, km 156, 28 Aug 1985, F. Arias and H. Velasco, 16♂, 14♀ (IBUNAM, NMNH).

ETYMOLOGY.—Undoubtedly from the type country, Mexico.

Chimarra (*Curgia*) *barrettae* (Banks), resurrected species

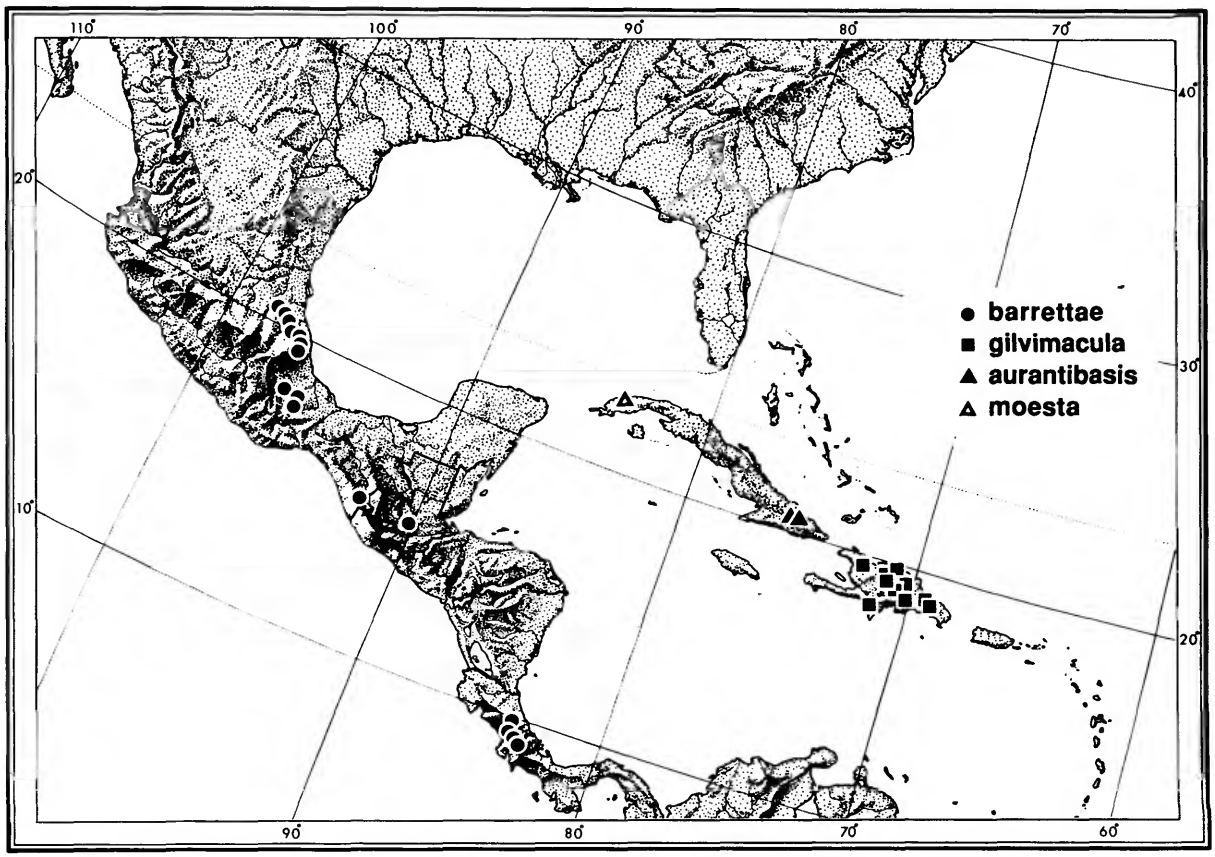
FIGURES 193–198; MAP 14

Philopotamus barrettae Banks, 1900:259; 1901:370.—Ulmer, 1905c:68 [as *barretta*]; 1907:197; 1913:197.—Betten, 1934:168.—Fischer, 1961:6.

Chimarra (*Curgia*) *mexicana* (Banks).—Flint, 1967b:3 [*barrettae* to synonymy].—Bueno and Flint, 1980:197 [*barrettae* as synonym].

Chimarra mexicana (Banks).—McElravy et al., 1981:152 [misidentification].

REMARKS.—As discussed more fully under *mexicana*, these two species are very closely related. The tarsal claws on the male forelegs in this species are exceedingly asymmetrical, but they are almost equal in *mexicana*. Characteristics of coloration (always spotted in *barrettae*) and male genitalia (more pointed clasper with differently shaped tips and phallus with only two or three, internal, black spines in *barrettae*) seem to distinguish the two species. Although the females of the two may be similarly colored, the forewings of *barrettae* are always spotted with golden hair, which is generally more extensive and coalesced in *mexicana*. The type of *barrettae* is a female with spotted forewings, which leads to questions as to its identity. (I am unable to find differences in the female genitalia between the two species.) I have seen a male from near the type locality (designated allotype below) that agrees exactly in maculation. To avoid unnecessary proliferation of names, I consider the name *barrettae* to apply to this entity on the basis of



MAP 14.—Distributions of *Chimarra* (*Curgia*) *barrettae* (Banks), *Chimarra* (*Curgia*) *gilvimacula*, new species, *Chimarra* (*Curgia*) *aurantibasis*, new species, and *Chimarra* (*Curgia*) *moesta* Banks.

preponderance of evidence. I am leaving unidentified all other females with spotted wings that lack associated males.

ADULT.—Length of forewing, ♂ and ♀ 7–10 mm. Color brown; appendages pale brown; head and thorax dorsally with golden hair; forewing brown, with many golden spots of various sizes. Male foretarsal claws grossly asymmetrical.

Male Genitalia: Eighth sternum slightly widened dorsad; tergum produced into a pair of rounded, submesal lobes from posterior margin. Ninth sternum produced anteroventrally; with posteromesal keel. Cercus elongate, slightly enlarged apicad. Tenth tergum with tip entire, slightly angled dorsad, often with dorsolateral margins carinate; apex broadly rounded in dorsal aspect, with many sensillae. Clasper elongate, with an apicodorsal point; in ventral aspect, with apical lobe angled mesad, distalmost angle of lobe not extending as far mesad as basal angle, with a rounded excision in mesal margin basad of lobe. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly and two or three small, black spines.

MATERIAL EXAMINED.—MEXICO, EDO. VERACRUZ, Jalapa, 4 [? = April] [Barrett, in original description], holotype female, MCZ Type 11823. Córdoba, 6–9 Nov 1966, A.B. Lau, allotype, male (NMNH). Tlapacoyán, Río Tomata, 4 Oct 1986, J. Magro, 1♂ (IBUNAM). EDO. OAXACA, Carretera Tuxtepec, km 70, 3000 ft. [900 m], 2 Mar 1986, A. Ibarra, 11♂, 16♀ (IBUNAM, NMNH). Metates, Sierra de Juarez, 1600 m, 16 Sep 1982, A. Ibarra, 1♂, 2♀ (IBUNAM). Near junctions of roads to Santa Marta Chilchota y Huatla de Jimenez, along road to Sta. Maria, 3900 ft. [1170 m], 9 Jul 1982, R.W. Holzenthal, 5♂ (IBUNAM, NMNH). La Esperanza, 18 Apr 1983, M. Garcia, 3♂ (IBUNAM, NMNH). EDO. PUEBLA, Cuetzalán to Zacatlán, Río Apulco, km 25, 18 Mar 1987, J. Bueno, 1♂. Cuetzalán, Río Apulco, 1 May 1987, J. Bueno, 3♂, 1♀ (IBUNAM). San Diego, 16 May 1953, 1♂ (IBUNAM). Xicotepec de Juarez, 24 Mar 1977, H. Brailovsky, 1♂ (IBUNAM). EDO. CHIAPAS, El Triunfo [near Finca Prusia, 15°45'N, 92°43'W, ~1800 m], 13–14 May 1985, H. Velasco, 11♂ (IBUNAM, NMNH). Finca Esperanza, 20–28 Feb 1939, A. Dampf, MF8683, 7♂, 8♀ (INHS). El Vergel, 12 Jun 1935, A. Dampf, MF4506, 1♂ (INHS). EDO. HIDALGO, Laguna Atezca, Molango, 8 Nov 1980,

H. Perez, 1♂ (IBUNAM); same, but 18 May 1978, 2♂ (IBUNAM, NMNH).

GUATEMALA [DPTO. ALTA VERAPAZ], Cobán, Biotopo, km 156, 28 Aug 1985, F. Arias and H. Velasco, 1♂ (IBUNAM).

COSTA RICA, PCIA. CARTAGO, Reserva Tapanti, unnamed tributaries, ~9 km (air) NW tunnel, 9.72°N, 83.78°W, 1400 m, 7–8 Jun 1988, Flint et al., 6♂, 19♀. Reserva Tapanti, Río Grande de Orosí, 9.686°N, 83.756°W, 1650 m, 18–21 Mar 1987, Holzenthal et al., 1♂ (UMSP). Reserva Tapanti, Quebrada Segunda at admin. building, 9.761°N, 83.787°W, 1250 m, 9–10 May 1990, Holzenthal et al., 1♂ (UMSP). PCIA. PUNTARENAS, Río Cotón in Las Alturas, 8.938°N, 82.826°W, 1360 m, 16 Feb 1986, Holzenthal et al., 14♂, 30♀ (UMSP). Río Bellavista, 1.5 km NW Las Alturas, 8.951°N, 82.846°W, 1400 m, 18 Feb 1986, Holzenthal et al., 1♂, 4♀; same, but 8–9 Apr 1987, 4♂; same, but 2–3 Aug 1987, 2♂ (UMSP). Río Cotón, Sitio Cotón, Zona Protectora Las Tablas, 8.941°N, 82.787°W, 1460 m, 15 Apr 1989, Holzenthal and Blahnik, 2♂, 2♀ (UMSP). PCIA. SAN JOSÉ, Río Chirripó Pacifico, 9.5 km NE Rivas, 9.470°N, 83.591°W, 1370 m, 23 Feb 1986, Holzenthal et al., 2♂, 5♀ (UMSP).

PANAMA [PCIA. CHIRIQUI], El Hato, 23 May 1957, R.M. Altman, light trap, 4♂, 1♀ (INHS, NMNH). Fortuna Dam Site, nr. Hornitos, 8°55'N, 82°16'W, 1050 m, 17 Nov 1976–8 Nov 1977, H. Wolda, 27♂.

ETYMOLOGY.—Patronym, undoubtedly for the collector, Mrs. O.F. Barrett.

Chimarra (Curgia) lobata Flint

FIGURES 199–203; MAP 13

Chimarra (Curgia) lobata Flint, 1967a:7.

REMARKS.—The most closely related species would seem to be the new species *pablito* based on the elongate and tapering claspers in both. However, in *lobata* the eighth tergum has its posterior margin clearly bilobate, the apex of the tenth tergum is narrow and straight, and the ninth segment does not project dorsomesally.

ADULT.—Length of forewing, ♂ and ♀ 5.5–7 mm. Color brown; appendages pale brown; forewing brown, with many yellowish spots almost completely covering wing. Claws of male foreleg not noticeably asymmetrical.

Male Genitalia: Eighth sternum widened dorsad; tergum produced into a pair of rounded, submesal lobes from posterior margin; in lateral aspect broad, almost truncate. Ninth sternum slightly produced anteroventrally, posterior margin produced laterally over base of clasper; with broad, posteromesal keel; with a small, dorsal extension. Cercus elongate, slightly enlarged apicad, directed laterad. Tenth tergum with tip entire; apex narrow, directed posteriad, ventral margin with a right-angle excision in lateral aspect; apex nearly truncate in dorsal aspect; with many sensillae. Clasper elongate, narrowed apicad; in posteroventral aspect, with inner margin nearly straight, lateral margin produced, apex narrowed. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly, two short, black spines, and a longer, slender, curved spine.

MATERIAL EXAMINED.—PANAMA, Canal Zone [PCIA. COLÓN], Río Agua Salud, 30 Mar 1965, S.S. and W.D. Duckworth, 2♂, holotype and paratype, NMNH Type 69579. Tabernilla, May, August Busck, 1♂. [PCIA. PANAMÁ] Barro Colorado Island, 28–30 Apr 1964, S.S. and W.D. Duckworth, 2♂, 1♀; same, but 1–9 May 1964, 1♀; same, but marker 3, Snyder-Molino Trail, Jun 1988–Jun 1990, H. Wolda, light trap, 7♂, 1♀. [Pcia. unknown] Camp Pina, 7 Jun 1953, R.M. Altman, light trap, 1♂, 1♀ (INHS).

ETYMOLOGY.—From the Latin *lobus* ("projection"), in allusion to the shape of the eighth tergum.

Chimarra (Curgia) wilsoni Flint

FIGURES 204–209; MAP 13

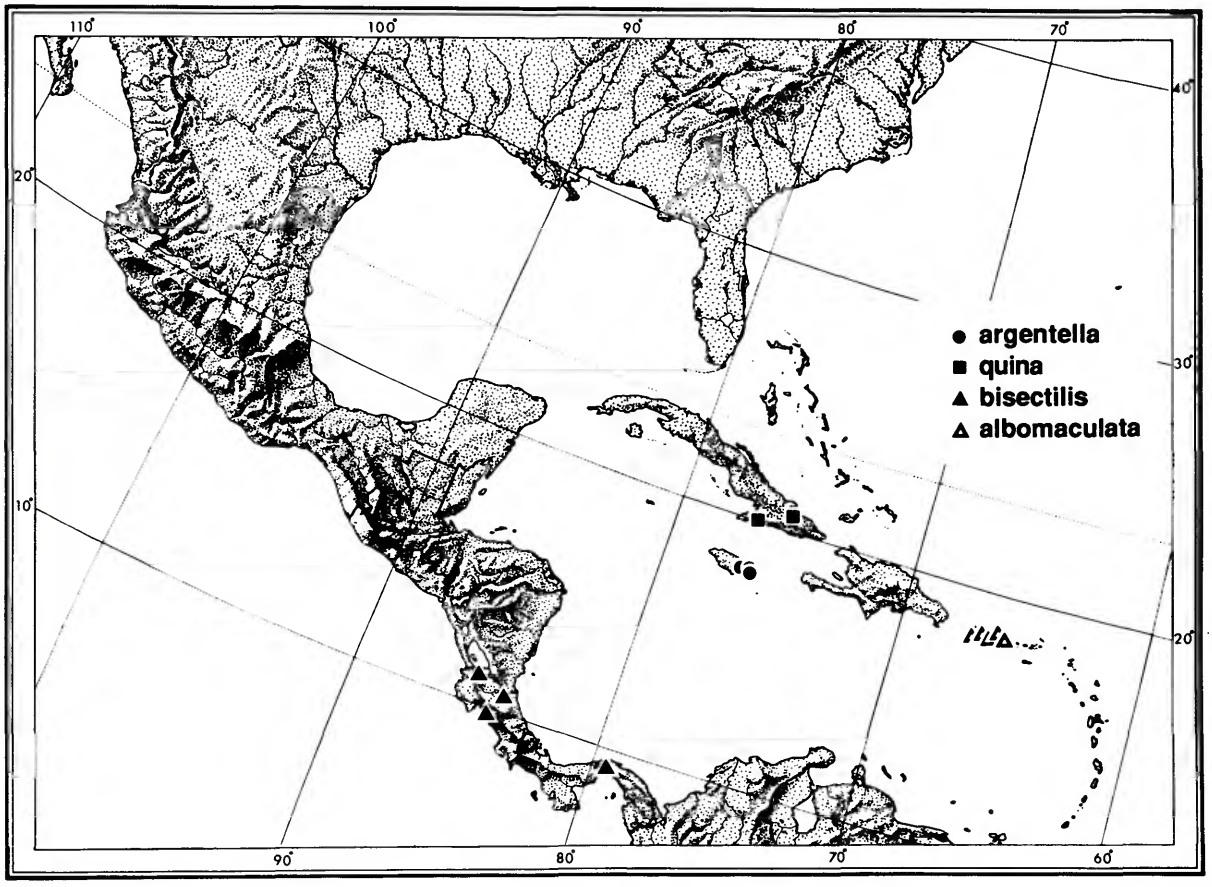
Chimarra (Curgia) wilsoni Flint, 1967a:8.—McElravy et al., 1981:152.—Holzenthal, 1988:57.

REMARKS.—This species and *bisectilis,* new species, are very similar sister species that can be differentiated only by small differences in the male genitalia. In *wilsoni* the posterior margin of the eighth tergum is more strongly produced, the tip of the tenth tergum is either entire or only minutely notched in dorsal aspect, and the mesal tooth of the clasper is mostly hidden in ventral aspect by the posteromesal lobe of the clasper.

ADULT.—Length of forewing, ♂ and ♀ 5.5–8 mm. Color dark brown; appendages pale brown; forewing dark brown with scattered, golden spots. Claws of male foreleg exceedingly asymmetrical.

Male Genitalia: Eighth sternum widened dorsad; tergum with posterior margin broadly produced into a rounded, mesal lobe. Ninth sternum produced anteroventrally; with small, posteromesal keel; with dorsal extension broad in lateral aspect. Cercus elongate, slightly enlarged apicad, directed laterad. Tenth tergum with tip entire; apex narrow, reflexed, crest-like, tip narrow, usually with a small apical notch in dorsal aspect; with many sensillae. Clasper short, apicoventral margin slightly produced, with tooth extending beyond apical margin in lateral aspect; in ventral aspect, with inner margin produced more than lateral margin, tooth barely projecting mesad. Phallus tubular, inflated basally; internally with a small rod-and-ring assembly and one or two short, black spines.

MATERIAL EXAMINED.—COSTA RICA [PCIA. PUNTARENAS], Las Cruces, near San Vito, 19–20 Mar 1965, S.S. and W.D. Duckworth, ♂ holotype, NMNH Type 69580; same, but 24 Apr 1965, 2♀. Río Cotón in Las Alturas, 8.938°N, 82.826°W, 1360 m, 16 Feb 1986, Holzenthal et al., 3♂ (UMSP). Río Jaba at rock quarry, 1.4 km (air) NW Las Cruces,



MAP 15.—Distributions of *Chimarra* (*Curgia*) *argentella* (Ulmer), *Chimarra* (*Curgia*) *quina*, new species, *Chimarra* (*Curgia*) *bisectilis*, new species, and *Chimarra* (*Curgia*) *albomaculata* (Kolbe).

8.79°N, 82.97°W, 1150 m, 9 Aug 1990, Holzenthal et al., 1♂ (UMSP); same, but 15 Mar 1991, Holzenthal et al., 10♂ (INBIO, NMNH, UMSP). PCIA. ALAJUELA, Río San Lorencito and tribs., Reserva Forestal San Ramón, 10.216°N, 84.607°W, 980 m, Flint et al., 1♂; same, but 2–4 Jul 1986, Holzenthal et al., 1♂ (UMSP); same, but 2–6 Sep 1986, I. and A. Chacón, 1♂ (INBIO). Cerro Campana, Río Bochinche trib., 6 km (air) NW Dos Ríos, 10.945°N, 85.413°W, 600 m, 22–23 Jul 1987, Holzenthal et al., 1♂ (INBIO); same, but 15–16 Mar 1986, Holzenthal and Fasth, 1♂ (NMNH). Quebrada Provisión, P.N. Rincón de la Vieja, 10.769°N, 85.281°W, 810 m, Holzenthal and Fasth, 1♂, 1♀ (UMSP). Río Pizote, ~5 km (air) S Brasilia, 10.972°N, 85.345°W, 390 m, 12 Mar 1986, Holzenthal and Fasth, 13♂ (INBIO, NMNH, UMSP). Río Pizote, ~5 km N Dos Ríos, 10.948°N, 85.291°W, 470 m, 9 Mar 1986, Holzenthal and Fasth, 2♂ (UMSP). PCIA. GUANACASTE, Río Orosí, Estación Pitilla, Parque Nacional Guanacaste, 10.991°N, 85.428°W, 700 m, Flint et al., 4♂, 7♀ (NMNH); same, but 22–25 May 1990, Holzenthal and Blahnik, 19♂, 8♀ (INBIO, UMSP).

PANAMA, PCIA. CHIRIQUI, Fortuna Dam Site, nr. Hornitos, 8°55′N, 82°16′W, 1050 m, 10 Nov 1976–15 Nov 1977, H. Wolda, 32♂.

ETYMOLOGY.—Patronym in honor of Robert Wilson, on whose property the species was collected.

Chimarra (*Curgia*) *bisectilis*, new species

FIGURES 210–213; MAP 15

REMARKS.—This species and *wilsoni* are very closely related sister species. The small differences are seen in the male genitalia: in *bisectilis* the eighth tergum is less enlarged, the tip of the tenth tergal crest is distinctly divided in dorsal aspect, and the tooth of the clasper is clearly seen in ventral aspect.

ADULT.—Length of forewing, ♂ and ♀ 5–6 mm. Color dark brown; appendages pale brown; forewing dark brown with scattered, golden spots. Claws of male foreleg exceedingly asymmetrical.

Male Genitalia: Eighth sternum slightly widened dorsad; tergum with posterior margin barely produced into a broad, mesal lobe. Ninth sternum produced anteroventrally; with small, posteromesal keel; with dorsal extension narrow in lateral aspect. Cercus elongate, slightly enlarged apicad, directed laterad. Tenth tergum with tip entire; apex reflexed, crest-like, tip narrow, in dorsal aspect tip divided with lateral arms flared; with sensillae along margin. Clasper short, apicoventral margin slightly produced, with tooth extending beyond apical margin in lateral aspect; in ventral aspect, with inner margin not produced more than lateral margin, tooth distinctly projecting mesad. Phallus tubular, inflated basally; internally with a small rod-and-ring assembly and one or two short, black spines.

MATERIAL.—*Holotype,* male: COSTA RICA, PCIA. SAN JOSÉ, Río Carara, Reserva Biologica Carara, 9.778°N, 84.531°W, 200 m, 14 Mar 1991, Holzenthal, Muñoz, Huisman. NMNH Type.

Paratypes: Same data as holotype, 8♂, 8♀ (INBIO, NMNH, UMSP). PCIA. ALAJUELA, Río Bochinche trib., Cerro Campana, 6 km (air) NW Dos Ríos, 10.945°N, 85.413°W, 600 m, 22–23 Jul 1987, Holzenthal et al., 1♂ (NMNH); same, but 15–16 Mar 1986, Holzenthal and Fasth, 1♂ (UMSP). PCIA. HEREDIA, Quebrada Sura, Estación Biologica La Selva, 10.437°N, 84.010°W, 50 m, 20–21 Jun 1986, Holzenthal et al., 1♂ (INBIO).

PANAMA [PCIA. PANAMÁ], Goofy Lake [on Cerro Azul], 14 Jun 1955, R.M. Altman, 1♂ (INHS).

ETYMOLOGY.—From the Latin *-bi* ("two") and *sectilis* ("cut"), in allusion to the shape of the tenth tergum.

Chimarra (Curgia) pablito, new species

FIGURES 214–217; MAP 16

Chimarra undescribed sp. "C" (nr. *spangleri* Trivette Ms).—McElravy et al., 1981:152.

REMARKS.—This species is quite distinctive and is perhaps most similar to *lobata* Flint. It differs from this species and its congeners in the eighth tergum, which is not produced at all, in the curved, elongate dorsal projection of the ninth segment, the rounded, upturned tip of the tenth tergum, and the elongate clasper.

ADULT.—Length of forewing, ♂ and ♀ 4–6 mm. Color dark brown; appendages pale brown; forewing dark brown, with scattered, golden spots. Claws of male foreleg not noticeably asymmetrical.

Male Genitalia: Eighth sternum nearly parallel-sided; tergum with posterior margin barely produced and slightly indented mesally. Ninth sternum produced anteroventrally; with large posteromesal keel; with dorsal extension rod-like and free in lateral aspect, curved posteriad over tenth tergum. Cercus short, clavate. Tenth tergum with tip entire; apex curved dorsad, rounded, in dorsal aspect tip with small anteromesal excision; with sensillae. Clasper elongate, tapering apicad in lateral aspect; in ventral aspect, with apex slightly produced mesad. Phallus tubular, inflated basally; internally with a small rod-and-ring assembly and a pair of short, black spines.

MATERIAL.—*Holotype,* male: COSTA RICA [PCIA. CARTAGO], Turrialba, 15–19 Jul 1965, P.J. Spangler. NMNH Type.

Paratypes: Same data as holotype, 4♂, 3♀; same, but 2–5 Nov 1967, E.L. Todd, 1♂. Quebrada Relleno, La Cruzada, 20 Jun 1967, Flint and Ortiz, 1♂. Chitaria, 19 Jun 1967, Flint and Ortiz, 1♂. Tuis, 18 Jun 1967, Flint and Ortiz, 1♂. Río Chitaria, route 10, 10 km NW Río Reventazón, 9.920°N, 83.604°W, 740 m, 21 Mar 1991, Holzenthal et al., 5♂, 6♀ (INBIO, UMSP). Pejibaye, 22–24 Mar 1987, W.E. Steiner, 1♂.

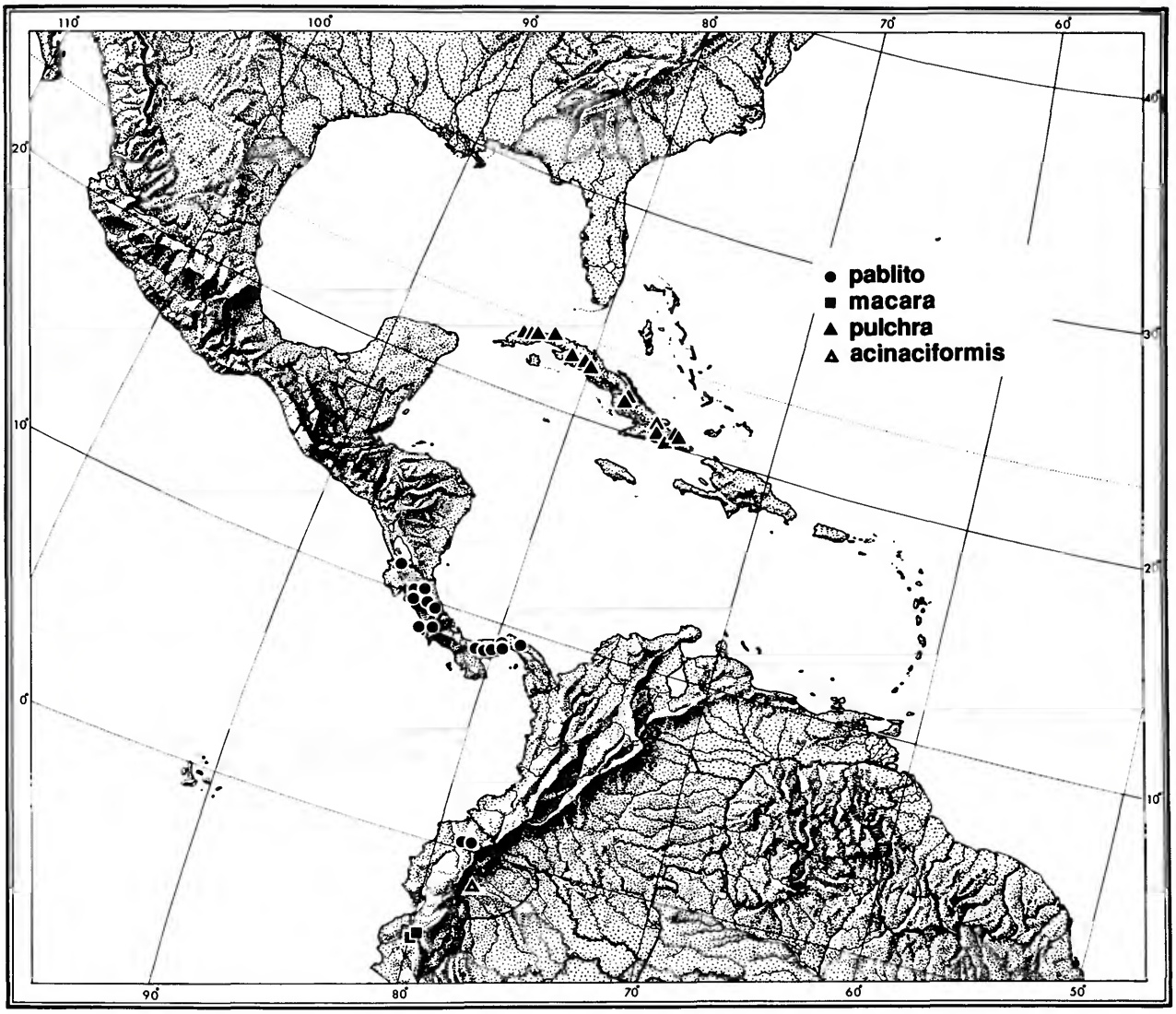
PCIA. ALAJUELA, Reserva Forestal San Ramón, Río San Lorencito and tribs., 10.216°N, 84.607°W, 980 m, 13–16 Jun 1988, Flint et al., 17♂, 12♀; same, but 2–4 Jul 1986, Holzenthal et al., 16♂, 14♀ (UMSP); same, but 1–4 May 1990, 2♂, 5♀ (UMSP); same, but 28–30 Jul 1990, 2♂, 4♀ (UMSP); same, but 6–10 Mar 1991, 23♂, 16♀ (UMSP); same, but 30 Mar–1 Apr 1987, 63♂ (UMSP); same, but 24–27 Feb 1987, I. and A. Chacón, 4♂ (INBIO); same, but 5–9 Jul 1986, 3♂ (INBIO); same, but 1–4 Oct 1986, 3♂, 1♀ (INBIO); same, but Dec 1986, 6♂ (INBIO). Cerro Campana, Río Bochinche trib., 6 km (air) NW Dos Ríos, 10.945°N, 85.413°W, 600 m, 22–23 Jul 1987, Holzenthal et al., 7♂ (INBIO, NMNH, UMSP); same, but 15–16 Mar 1986, 1♂ (UMSP). Río Sarapiqui, ~2 km SE Cariblanco, 10.299°N, 82.172°W, 22 Jun 1986, 710 m, Holzenthal et al., 1♂, 2♀ (UMSP).

PCIA. LIMÓN, Río Telire and small trib., SE Suretka, 9.554°N, 82.892°W, 48 m, 1 Feb 1986, Holzenthal et al., 1♂ (UMSP). Quebrada Gonzaléz, Parque Nacional Braulio Carillo, 10.160°N, 83.939°W, 480 m, 12–14 May 1990, Holzenthal and Blahnik, 4♂, 1♀ (UMSP).

PCIA. PUNTARENAS, Parque Nacional Corcovado, Piedra el Arco, 8.582°N, 83.709°W, 20 m, 10–11 Apr 1989, Holzenthal and Blahnik, 1♂ (UMSP). Río Jaba at rock quarry 1.4 km (air) W Las Cruces, 8.79°N, 82.9°W, 1150 m, 9 Aug 1990, Holzenthal et al., 4♂ (NMNH, UMSP); same, but 15 Mar 1991, 2♂ (UMSP).

PCIA. SAN JOSÉ, Reserva Biologica Carara, Río del Sur, 1.5 km (rd.) S of Carara, 9.769°N, 84.531°W, 160 m, 13 Mar 1991, Holzenthal and Blahnik, 1♂, 2♀ (UMSP).

PANAMA, PCIA. CHIRIQUI, Fortuna Dam Site, nr. Hornitos, 8°55'N, 82°16'W, 1050 m, 10 Nov 1976–20 Dec 1976, H. Wolda, 13♂; same, but 10 Aug–15 Nov 1977, 2♂. PCIA. COCLÉ, El Potroso, 10 km NE El Copé, 2500' [750 m], 4 Nov 1980, Univ. Panama Student Collection, 2♂. El Valle, 15 Jul 1967, O.S. Flint, Jr., 2♂, 3♀. [PCIA. PANAMÁ] Cerro Campana, 11–14 Jul 1967, O.S. Flint, Jr., 3♂, 14♀. Pipeline Road, Río Frijoles, 6–7 Jul 1967, Flint and Ortiz, 1♂. Barro Colorado Island, 1–9 May 1964, S.S. and W.D. Duckworth, 1♂, 1♀; same, but 10–17 May 1964, 1♂; same, but 25–28 Mar 1965,



MAP 16.—Distributions of *Chimarra* (*Curgia*) *pablito*, new species, *Chimarra* (*Curgia*) *macara*, new species, *Chimarra* (*Curgia*) *pulchra* (Hagen), and *Chimarra* (*Curgia*) *acinaciformis*, new species.

1♀; same, but 3 Dec, M. Bates, 2♂ (MCZ); same, but 22 Nov, 1♂ (MCZ); same, but Jul 1967, W.W. Wirth, 1♂; same, but Marker 3, Snyder-Molino Trail, various dates 4 Mar 1987–9 Apr 1991, H. Wolda, light trap, 386♂, 528♀. COMARCA DE SAN BLAS, Nusigandi, 9°20′N, 78°56′W, 1–6 Mar 1985, Flint and Louton, 3♂, 3♀.

ECUADOR, PCIA. PICHINCHA, via Puerto Quito at km 113, 24 Jun 1976, J. Cohen, 1♂. Río Umachaca, Forestry Station Maquipucuna, ~5 km E Nanegal, 0°075′N, 78°37′W, 1250 m, 4–5 Sep 1990, O.S. Flint, Jr., 1♂; same, but seep 0.5 km S Station, 1300 m, 5 Sep 1990, 1♂.

ETYMOLOGY.—Patronym in honor of Paul J. Spangler, collector of first seen examples of the species.

Chimarra (*Curgia*) *ypsilon* Flint

FIGURES 218–222; MAP 9

Chimarra (*Curgia*) *ypsilon* Flint, 1983:16.

REMARKS.—This species and the following species are clearly related, not only on the basis of coloration, but also on the basis of the male genitalia. In coloration, *ypsilon* has a large

golden basal spot and a large, distinct Y-shaped mark on the forewing; in *hyoeides* the basal spot is broken into a least two smaller spots, and the Y-mark is smaller and less distinct. The dorsal lobes of the eighth tergum are small in *ypsilon,* the tenth tergum is shorter and up-arched, the clasper is truncate, and the phallus bears many small spines.

ADULT.—Length of forewing, ♂ and ♀ 6–9 mm. Color generally fuscous; head and thorax with golden pubescence; forewing extensively marked with golden hair, especially basally, and with a Y-shaped mark from costal margin at stigma. Claws of male foreleg exceedingly asymmetrical.

Male Genitalia: Eighth sternum widened dorsad; tergum barely produced posteromesally, in dorsal aspect with a pair of small, submesal lobes. Ninth sternum with anteroventral angle slightly produced; dorsal margin produced into an erect lobe; with posteroventral keel elongate. Cercus large, elongate, flared laterad. Tenth tergum broad basally, narrowing apicad, apex slightly up-arched, hood-like; apex narrowed in dorsal aspect; with scattered sensillae. Clasper elongate, quadrate with small apicodorsal points in lateral aspect; in ventral aspect produced apicomesally, mostly obscuring a small point on posterior face. Phallus tubular, short, inflated basally; internally with a rod-and-ring assembly and about 18 to 24 short, dark spines.

MATERIAL EXAMINED.—ARGENTINA, PCIA. MISIONES, Puerto Libertad, 24 Nov 1973, O.S. Flint, Jr., ♂ holotype, 2♀ paratypes (NMNH). Arroyo Piray Guazú, N San Pedro, 22 Nov 1973, O.S. Flint, Jr., 3♂ paratypes.

BRAZIL, EDO. SANTA CATARINA, Nova Teutonia (27°11'S, 52°23'W), 300–500 m, various dates, F. Plaumann, 35♂, 38♀ paratypes (MCZ, NMNH). EDO. RIO DE JANEIRO, Municipio Rio Claro, Rio Pirai, 8 Apr 1977, C.M. and O.S. Flint, Jr., 1♀. EDO. MINAS GERAIS, Serra do Cipó, km 110, 29 Oct 1974, C.G. Froehlich (397), 1♂ (MZUSP).

PARAGUAY, DPTO. ALTO PARANÁ, Salto del Monday, near Puerto Presidente Franco, 26 Nov 1973, O.S. Flint, Jr., 8♂, 5♀ paratypes.

ETYMOLOGY.—From the Greek *ypsilon* (the letter Y), in allusion to the shape of the mark on the forewing.

Chimarra (Curgia) hyoeides Flint

FIGURES 223–227; MAP 17

Chimarra (Curgia) hyoeides Flint, 1983:17.

REMARKS.—As discussed under *ypsilon,* that species and this species are clearly related. In coloration, *hyoeides* has more smaller, golden spots, and the Y-shaped mark is narrower and not as distinct. The dorsal lobes of the eighth tergum are large in *hyoeides,* the tenth tergum is long and straight, the clasper tapers apicad, and the phallus bears only a few small spines. The claws of the male foreleg are strongly asymmetrical, but less so than in *ypsilon.*

ADULT.—Length of forewing, ♂ and ♀ 6–9 mm. Color generally fuscous; head and thorax with golden pubescence; forewing extensively marked with many small golden spots, and with narrow Y-shaped mark from costal margin at stigma. Claws of male foreleg strongly asymmetrical.

Male Genitalia: Eighth sternum widened dorsad; tergum strongly produced posteromesally, in dorsal aspect with a pair of large, submesal lobes. Ninth sternum with anteroventral angle slightly produced; dorsal margin produced into an erect lobe angled posteriad; with posteroventral keel long, slender. Cercus large, elongate, flared laterad. Tenth tergum broad basally, narrowing apicad, apex directed dorsad at 45° angle, hood-like; tapering abruptly to narrow apex in dorsal aspect; with scattered sensillae. Clasper elongate, tapering apically in lateral aspect; in ventral aspect produced apicolaterally. Phallus tubular, short, inflated basally; internally with a rod-and-ring assembly, two elongate basal spines, and four or five short, dark spines.

MATERIAL EXAMINED.—ARGENTINA, PCIA. MISIONES, Río Iguazú, Camp Nañdu, 25 Nov 1973, O.S. Flint, Jr., ♂ holotype (NMNH). Arroyo Piray Mini, Rt. 17 W Dos Hermanas, 23 Nov 1973, O.S. Flint, Jr., 1♂ paratype.

BRAZIL, EDO. SANTA CATARINA, Nova Teutonia (27°11'S, 52°23'W), 300–500 m, Sep–Oct 1964, F. Plaumann, 3♂ paratypes. EDO. SÃO PAULO, Pedregulho, 140 km NE Ribeirão Preto, 13 Apr 1989, L.G. Oliveira, 1♂, 1♀. EDO. PARÁ, Aldea Coraci, 11 km W Canindé, Rio Gurupí, Dec 1964, B. Malkin, 1♂ (MZUSP).

PARAGUAY, DPTO. ALTO PARANÁ, Salto del Monday, near Puerto Presidente Franco, 26 Nov 1973, O.S. Flint, Jr., 23♂ paratypes. DPTO. AMAMBAY, Río Aquidabán, Cerro Corá, 29 Nov 1973, O.S. Flint, Jr., 6♂, 5♀ paratypes. 2 km S Cerro Corá, 28 Nov 1973, O.S. Flint, Jr., 1♂ paratype. The species is also recorded from Uruguay (Flint, 1983:19).

ETYMOLOGY.—From the Greek *hyoeides* (like *ypsilon*), in allusion to the similarity of this and the preceding species.

The *braconoides* Group

DIAGNOSIS.—Length of forewing, 5–9 mm. Body orange; appendages fuscous; forewing fuscous and usually marked with few large spots of orange, yellow, or silver. Claws of male foreleg not noticeably to strongly asymmetrical.

Male Genitalia: Eighth tergum without brushes, usually with posterior margin projecting, divided and depressed to some degree mesally, dorsolateral lobes may be enlarged and darkened. Ninth segment greatly produced anteroventrally, narrow dorsad, without any dorsomesal projection; posterolateral margin produced, often strikingly, usually over dorsal base of clasper. Cercus small, oval. Tenth tergum consisting of dorsal lobe with entire apex, usually with apicodorsal and sometimes with apicoventral projections, bearing many sensillae; usually with ventrolateral angle produced into a sclerite lying along posterolateral margin of ninth segment and with posterior margin often bearing one or two free lobes projecting posteriad. Clasper generally short to slightly elongate, not

MAP 17.—Distributions of *Chimarra* (*Curgia*) *geranoides*, new species, *Chimarra* (*Curgia*) *hyoeides* Flint, *Chimarra* (*Curgia*) *piliferosa*, new species, and *Chimarra* (*Curgia*) *sarophora*, new species.

greatly modified. Phallus tubular, inflated basally; internally with a small, basal, rod-and-ring assembly and a variable number (2-30) of black spines.

DISTRIBUTION.—All species are limited to the Greater Antilles, with each major island supporting one or more species.

DISCUSSION.—This is a distinctive group of seven species, limited to the Greater Antilles. There are some obvious groupings of species, e.g., *braconoides* and *gilvimacula* on Hispaniola, *quina* and *aurantibasis* on Cuba. However, the Cuban *moesta,* the Jamaican *argentella,* and the Puerto Rican *albomaculata* all stand distinctly apart from each other.

Chimarra (Curgia) braconoides (Walker)

FIGURES 1–5, 228–232; MAP 13

Curgia braconoides Walker, 1860:179.
Chimarrha braconoides (Walker).—Betten and Mosely, 1940:15 [redescription of holotype].
Chimarra braconoides (Walker).—Fischer, 1961:57; 1971:208.

REMARKS.—The holotype of this species, the type species of *Curgia,* was redescribed and figured in detail by Betten and Mosely (1940). It and the following new species, *gilvimacula,* are very close sister species, agreeing in all basic points of genitalia. There are, however, small but consistent differences in the form of certain parts and in the color of the forewings that serve to distinguish the two. In *braconoides* the dorsolateral process from the ventral lobe of the tenth segment is sharply pointed and angled ventrad, so that this and the ventral process converge slightly. The clasper also lacks any indication of an apicolateral lobe, so that in ventral aspect the apicomesal angle extends farthest posteriad. The coloration differs between the two species, so that in unrubbed examples both sexes may be identified. *Chimarra braconoides* has the forewing markings a deep golden yellow, rather than the pale creamy yellow of *gilvimacula.*

ADULT.—Length of forewing, ♂ and ♀ 7–9 mm. Color fuscous; head, thorax, abdomen, and appendages orange; antennae, maxillary palpi, tibiae, and tarsi fuscous; setae of head and thorax orange; forewing fuscous, marked with deep golden yellow spots and bands. Male foretarsal claws distinctly asymmetrical.

Male Genitalia: Eighth sternum narrowing ventrad; tergum produced posteriad into a pair of small, rounded, submesal lobes. Ninth segment produced anteroventrally; posteroventral keel appearing pointed in lateral aspect, but broad and truncate in ventral aspect. Cercus a small, elongate lobe. Tenth tergum with a narrow neck, apex enlarged and produced into pointed dorsal and ventral angles; produced ventrolaterally along posterior margin of ninth segment, this extension bearing slender, pointed, dorsal and ventral process whose tips are slightly convergent. Clasper short, bluntly pointed in lateral aspect; in ventral aspect with tip obliquely truncate, mesal angle extending farther posteriad than lateral. Phallus tubular, base slightly inflated; internally with a small, lightly sclerotized, rod-and-ring assembly and four large, black spines.

MATERIAL EXAMINED.—DOMINICAN REPUBLIC [?SANTIAGO PROVINCE], foothills Cordillera Central, S. of Santiago, Jun 1938, Darlington, 2♂, 2♀ (MCZ). [SAN CRISTÓBAL PROVINCE] Villa Altagracia, Jul 1938, Darlington, 1♂, 1♀ (MCZ). LA VEGA PROVINCE, La Palma, 12 km E El Río, 2–13 Jun 1969, Flint and Gomez, 35♂, 8♀. Convento, 12 km S Constanza, 6–13 Jun 1969, Flint and Gomez, 2♂, 1♀. Río Camú, 19 km NE Jarabacoa, 12 Jun 1969, Flint and Gomez, 1♂. Jarabacoa, 3–4 Jun 1969, Flint and Gomez, 1♂, 1♀. Constanza, 2–6 Jun 1969, Flint and Gomez, 1♂. Constanza to Jarabacoa, 2[000]–4000 ft. [~600–1200 m], Aug 1938, Darlington, 2♂ (MCZ). DAJABÓN PROVINCE, 13 km S Loma de Cabrera, ~400 m, 20–22 May 1973, D. and M. Davis, 1♀. EL SEIBO PROVINCE, 15 km S Miches, ~500 m, 31 May 1973, D. and M. Davis, 12♂, 2♀. Loma Cocuyo, 6 km S Pedro Sanchez, 18°55′N, 69°07′W, 475 m, 4 Jul 1992, J. Rawlins et al., 11♂, 4♀ (CMNH, NMNH). LA ESTRELLETA PROVINCE, 4 km SE Río Limpio, ~760 m, 24–25 May 1973, D. and M. Davis, 71♂, 19♀. PEDERNALES PROVINCE, along Río Mulito, 13 km N Pedernales, 18°09′N, 71°46′W, 230 m, 17 Jul 1992, J. Rawlins et al., 4♂, 2♀ (CMNH). Río Mulito, 21 km N Pedernales, 18°09.5′N, 71°45.4′W, 280 m, 14 May 1995, O.S. Flint, Jr., 1♀. BAORUCO PROVINCE, on upper Río Colorado, Los Guineos, Sierra de Neiba, 18°35′N, 71°11′W, 630 m, 11–12 Aug 1990, Rawlins and Thompson, 1♂ (CMNH). HATO MAYOR PROVINCE, Parque Los Haitises, E Trepada Alta, 12 km W El Valle, 18°59′N, 69°30′W, 145 m, 6 Jul 1992, J. Rawlins et al., 1♂ (CMNH). [DISTRITO NACIONAL] Trujillo City [now Santo Domingo], 5 Jan 1940, B.B. Palmer, 1♂ (INHS); same, but Duran [?, label partially illegible] River, Jan 1940, 1♂ (INHS). St. Domingo [no further locality], Sep 1905, A. Busck, 1♂; same data, except Mar 1925, D.S. Miller, 1♀.

HAITI, Crew, 1♂ (MCZ). [From lot, some labelled "Hayti," no further data], 1♂ (MCZ).

ETYMOLOGY.—Possibly from the Latin *bracon* ("a kind of wasp") and the Latin suffix *-oides* ("like"), perhaps due to the similar orange and black color pattern of the wasps in the genus *Bracon* and this species.

Chimarra (Curgia) gilvimacula, new species

FIGURES 233–236; MAP 14

REMARKS.—This species and *braconoides* are closely related sister species, differing slightly, but consistently, in coloration and male genitalia. I have collected both species together at two different sites in the Dominican Republic. With good, well-marked, pinned examples, *gilvimacula* is easily distinguished from *braconoides* by being slightly smaller, with the wing markings being a creamy white rather than a deep, golden yellow. The male genitalia of the two also offer small differences. The dorsal process of the ventrolateral extension of the tenth tergum in *gilvimacula* is rounded apically, and the two processes are parallel. The claspers in *gilvimacula* have a small apicolateral lobe, so that in ventral aspect the apicolateral angle extends farthest posteriad, but in *braconoides* it is the apicomesal angle that extends farthest posteriad.

ADULT.—Length of forewing, ♂ and ♀ 6.5–7 mm. Color fuscous; head, thorax, abdomen, and appendages orange; antennae, maxillary palpi, tibiae, and tarsi fuscous; setae of head and thorax orange; forewing fuscous, marked with a distinct pattern of cream-colored spots and bands. Male foretarsal claws slightly asymmetrical.

Male Genitalia: Eighth sternum nearly parallel sided; tergum produced posteriad into a pair of small, rounded, submesal lobes. Ninth segment produced anteroventrally; posteroventral keel appearing pointed in lateral aspect, but broad and truncate in ventral aspect. Cercus a small, ovate lobe. Tenth tergum with a narrow neck, apex enlarged and produced into pointed dorsal and ventral angles; produced ventrolaterally along posterior margin of ninth segment, this extension bearing slender, blunt, dorsal and ventral process that are parallel. Clasper short, with a small apicolateral lobe; in ventral aspect with tip obliquely truncate, lateral angle extending farther posteriad than mesal. Phallus tubular, base slightly inflated; internally with a lightly sclerotized, indistinct, rod-and-ring assembly and five large, black spines.

MATERIAL EXAMINED.—*Holotype,* male: DOMINICAN REPUBLIC [LA VEGA PROVINCE], Río Camú, 19 km NE Jarabacoa, 12 Jun 1969, Flint and Gomez. NMNH Type.

Paratypes: Same data as holotype, 6♂, 3♀. Convento, 12 km S Constanza, 6–13 Jun 1969, Flint and Gomez, 1♂. Río Baiguate, 1–2 km S Jarabacoa, 19°06.9′N, 70°37.0′W, 520 m, 8–9 May 1995, O.S. Flint, 2♂; same, but 19–21 May 1995, 7♂, 1♀. Ao. Guasara, 9.5 km W Jarabacoa, 19°04.4′N, 70°42.1′W, 680 m, 19 May 1995, O.S. Flint, 1♂. 15 km N Jarabacoa, 240 m, 21 Jul 1987, Rawlins and Davidson, 1♂ (CMNH). Bayacanes, 120 m, 24 Jul 1987, Rawlins and Davidson, 2♂ (CMNH). PUERTO PLATA PROVINCE, Los Hidalgos, 4–5 Jun 1969, Flint and Gomez, 1♂. Pico El Murazo, north slope near summit, 19°41′N, 70°57′W, 910 m, 29 Nov 1992, J. Rawlins et al., 1♀ (CMNH). DAJABÓN PROVINCE, Río Massacre, Balneario Don Miguel, 7 km SW Dajabón, 40 m, 26 May 1973, D. and M. Davis, 1♂. 9 km S Loma de Cabrera, 19°21′N, 71°37′W, 620 m, 12 Jul 1992, J. Rawlins et al., 26♂, 24♀ (CMNH, NMNH). EL SEIBO PROVINCE, Loma Cocuyo, 6 km S Pedro Sanchez, 18°55′N, 69°07′W, 475 m, 4 Jul 1992, J. Rawlins et al., 1♂ (CMNH). 15 km S Miches, ~500 m, 31 May 1973, D. and M. Davis, 1♂. Río Quisibani, E El Seiba, 18°45.3′N, 68°55.7′W, 12 May 1995, O.S. Flint, 2♂, 2♀. PEDERNALES PROVINCE, along Río Mulito, 13 km N Pedernales, 18°09′N, 71°46′W, 230 m, 17 Jul 1992, J. Rawlins et al., 46♂, 64♀ (CMNH, NMNH). Río Mulito, 21 km N Pedernales, 18°09.5′N, 71°45.4′W, 280 m, 14 May 1995, O.S. Flint, 13♂, 6♀. HATO MAYOR PROVINCE, Parque Los Haitises, E Trepada Alta, 12 km W El Valle, 18°59′N, 69°30′W, 145 m, 6 Jul 1992, J. Rawlins et al., 4♂, 6♀ (CMNH, NMNH). Parque Los Haitises, 3 km W Cueva de Arena, 19°04′N, 69°29′W, 20 m, 7–9 Jul 1992, J. Rawlins et al., 4♂, 2♀ (CMNH). AZUA PROVINCE, Río Las Cuevas, 8 km NE Padre Las Casas, 18°46′N, 70°53′W, 580 m, 7 Aug 1990, J. Rawlins et al., 1♂ (CMNH); same, but 3–4 Oct 1991, 1♂ (CMNH). ELIAS PINA PROVINCE, N slope Sierra de Neiba, 2 km SW Canada, 7 km WSW Hondo Valle, 18°42′N, 71°45′W, 980 m, 29 Aug 1995, J. Rawlins et al., 1♂, 3♀ (CMNH). SAN JUAN PROVINCE, Presa de Sabaneta, 1 km SE Ingenito, 11 km NE Hato Nuevo, 19°02′N, 71°18′W, 610 m, 31 Aug 1995, J. Rawlins et al., 2♂ (CMNH). [SAN CRISTÓBAL PROVINCE] Villa Altagracia, Jul 1938, Darlington, 1♀ (MCZ). [Province unknown] San Francisco Mts., 15 Sep 1905, A. Busck, 18♂, 21♀ (MCZ, NMNH).

HAITI [DEPARTMENT OF L'ARTIBONITE], Ennery, 12 Jul 1956, B. and B. Valentine, 1♂, 2♀, 3 without abdomen. Haiti [no further data], 3♂, 1♀ (MCZ).

ETYMOLOGY.—From the Latin *gilvus* ("pale yellow") and *macula* ("spot"), in allusion to the marks on the forewing.

Chimarra (*Curgia*) *aurantibasis,* new species

FIGURES 237–240; MAP 14

REMARKS.—This Cuban species is closely related to the Cuban *quina,* and both are more distantly related to the Hispaniolan *braconoides* and *gilvimacula.* The species is most easily recognized by the shape of the processes from the posterior margin on the ninth segment, the form of the apical lobe of the tenth tergum, and, most especially, the claspers that are a bit longer than broad in ventral aspect. The holotype is very greasy, but it does show a rather distinct color pattern. The forewings are primarily fuscous, but there is a longitudinal band of orange hair along the radial system for about one-third of the wing length at which point it curves out to, and ends at, the anterior wing margin.

ADULT.—Length of forewing, ♂ 8 mm, ♀ 9 mm. Color fuscous and orange; body, scape, legs to the tibiae, and hair of head and thorax orange; antennal flagellum, palpi, tibiae, and tarsi fuscous; forewing fuscous, with a bright orange longitudinal band from base along radial veins for one-third of wing length, then curved to anterior margin. Male foretarsal claws slightly asymmetrical.

Male Genitalia: Eighth sternum widened dorsad; tergum slightly produced posteriad into a pair of small, rounded, submesal lobes. Ninth segment produced anteroventrally; posteroventral keel produced into a small lobe; posterolateral margin produced into two points laterad of clasper. Cercus a small, ovate lobe. Tenth tergum with a narrow neck, apex enlarged and produced into pointed dorsal and ventral angles; produced ventrolaterally along posterior margin of ninth segment, this extension bearing a small dorsal process near base of tergum and a rounded ventral process above base of clasper. Clasper short, with a small dorsomesal tooth. Phallus tubular, base slightly inflated; internally with a rod-and-ring assembly and nine large, black spines.

MATERIAL EXAMINED.—*Holotype,* male: CUBA, OTE. [old Oriente Province], Piloto [possibly Río Piloto at 20°25′N,

75°45'W], Moa, Jun 1954, Zayas and Alayo. INHS Type.

Paratypes: Without any data [but judging from similar matting and appearance to holotype, they may have been taken together], 2♀ (INHS, NMNH). OTE. [Oriente], La Brea, Moa, Jun 1954, F. Zayas and P. Alayo, 1♂ (CMNH).

ETYMOLOGY.—From the Latin *aurum* ("gold") and *base* ("basal"), in allusion to the marking on the forewing.

Chimarra (Curgia) quina, new species

FIGURES 241–244; MAP 15

REMARKS.—This is another species of the *braconoides* group, and it is closely related to *aurantibasis*. From the latter, it is distinguished by the sharply pointed crest and the broadly rounded apex of the tenth tergum, the very short claspers, and the much larger number of spines in the phallus.

ADULT.—Length of forewing, ♂ and ♀ 6–7 mm. Color fuscous and orange; body, scape, legs to the tibiae, and hair of head and thorax orange; antennal flagellum, palpi, tibiae, and tarsi fuscous; forewing fuscous, with base orange and with orange hair. Male foretarsal claws not noticeably asymmetrical.

Male Genitalia: Eighth sternum slightly widened dorsad; tergum produced posteriad into a pair of rounded, submesal lobes. Ninth segment produced anteroventrally into a narrow lobe; posteroventral keel produced into a small lobe; posterolateral margin produced into a shallow, broad, lobe laterad of clasper. Cercus a small, ovate lobe. Tenth tergum with a narrow neck, apex enlarged and produced into a sharp dorsal point and a broadly rounded apex; produced ventrolaterally along posterior margin of ninth segment, this extension bearing a dorsal process near base of tergum and a flat plate along posterior margin of ninth segment. Clasper short, higher than long, without teeth. Phallus tubular, base slightly inflated; internally with a rod-and-ring assembly and about 30 black spines.

MATERIAL EXAMINED.—*Holotype,* male: CUBA, HOLGUÍN [PROVINCE], Pinares de Mayarí, 640 m, Jul 1990, V.O. Becker. NMNH Type.

Paratypes: Same data as holotype, 5♂. [ORIENTE PROVINCE] coast below Pico Turquino, 26–30 Jun 1936, P.J. Darlington, 1♂, 1♀ (MCZ).

ETYMOLOGY.—A name suggested by the locality Turquino.

Chimarra (Curgia) moesta Banks

FIGURES 245–248; MAP 14

Chimarra (Curgia) moesta Banks, 1924:449.—Fischer, 1961:67.—Flint, 1967b:4 [figure of female genitalia attributed erroneously to holotype].
Chimarra (Curgia) alayoi Botosaneanu, 1980:96 [new synonymy].

REMARKS.—There has been a most unfortunate exchange of abdominal preparations of the type of this species with a specimen of *C. guapa* Botosaneanu (or closely related). This had occurred sometime before I figured the supposed type abdomen in 1967. During the preparation of this paper, I restudied this abdomen, associated with the type, and I realized that it probably was that of *guapa,* but the remainder of the type was clearly a species of *Curgia*. At the same time, I discovered a specimen with prepared male abdomen in Cuban material recently returned by Ross that was easily recognizable as *alayoi* Botosaneanu. However, Ross had marked this specimen "gen. may not belong to body." Checking the wing venation, I, too, realized that these were misassociated and observed that the proportions of the abdomen were far too large for the body. I realized that perhaps these two genital preparations had been exchanged, and I went back to the bodies to see if there was any other evidence. The abdomen of the type of *moesta* had been cleanly cut at midlength, and the basal segments were still attached to the thorax; the abdomen of the *guapa* specimen had been broken off at the base. Eureka! The male genital preparation of *alayoi* was neatly clipped at about the fifth segment (the preparation has since become more disarticulated), and the size of the preparation and the body matched perfectly. The female preparation was of the whole abdomen, thus it could not have come from the type, and its size was proportional to the *guapa* body. Now that the correct male abdomen has been reassociated with the rest of the type of *moesta,* the synonymy of *alayoi* is established.

The species is very distinctive and is not closely related to any other species of the group, as is shown by the unmodified posterior margin of the eighth tergum and the rather simple, hood-like tenth tergum, in comparison to the crested tenth tergum of the other species. Other distinctive features are the single, hook-like posterolateral process of the ninth segment and the very small, quadrate claspers.

The type of *moesta* is almost totally denuded, and there is no indication of any pale spots in the wing membrane, as seen in many of the other species when lacking their wing hair. Very careful examination of the wings, however, reveals a few white hairs, mostly in the stigmal area and near the chord. Thus, I expect that well-marked examples will be mostly fuscous, including the body, with a few, small, creamy white spots on the forewing.

ADULT.—Length of forewing, ♂ 7.5 mm. Color dull fuscous, nearly unicolorous; wings mostly denuded, but see "Remarks," above. Male foretarsal claws broken, symmetry unknown.

Male Genitalia: Eighth sternum almost parallel sided; tergum barely produced posteriad mesally. Ninth segment slightly produced anteroventrally; posteroventral keel produced into an elongate rod; posterolateral margin produced into a pointed lobe whose dorsal margin bears an angulate shoulder, and whose tip extends posteriad beyond the clasper. Cercus a small, ovate lobe. Tenth tergum broad basally, with a small notch in dorsal margin subbasally, narrowed and arched apicad, hood-like; in dorsal aspect triangular in outline; with a flat, plate-like sclerite extending ventrad from ventrolateral margin

and ending in a darkened knob above clasper bases. Clasper shorter than high, almost rectangular in outline and mostly recessed into ninth segment, apex in ventral aspect with a small apicomesal lobe. Phallus tubular, base slightly inflated; internally with a distinctive rod-and-ring assembly and nine elongate, black spines.

MATERIAL EXAMINED.—"Cuba, Ch. Wright," "MCZ Type 14876," ♂ holotype (MCZ). PCIA. PINAR DEL RIO, Arroyo del Pinar del Viñales ["a very clear and fast flowing brook, found in a pine forest very near Viñales"] [no date], P. Alayo, ♀ allotype, 1♀ paratype (NMNH).

ETYMOLOGY.—Probably from the Latin *moestus* ("sorrowful"), in allusion to its somber color.

Chimarra (Curgia) argentella (Ulmer)

FIGURES 249–252; MAP 15

Chimarrha argentella Ulmer, 1906:92.

Chimarra argentella (Ulmer).—Fischer, 1961:55; 1971:220.—Flint, 1968:17 [male, female, larva, distribution].

REMARKS.—This species of the *braconoides* group inhabits the island of Jamaica. Milne (1936) recorded the species from Florida; I have seen those specimens in the MCZ, and they appear to be correctly identified and are labelled "Florida." However, I expect that they are mislabelled because neither this species nor any other *Curgia* has been found subsequently in that state.

The males are very easily recognized by the large, black, knob-like, lateral lobes of the eighth tergum and the very long, blackened, dorsal prolongation of the tenth tergum. There does not appear to be any ventral extension of the tenth tergum in the species, but careful examination of this area suggests that there is possibly a pale, lightly sclerotized plate.

ADULT.—Length of forewing, ♂ and ♀ 7–8 mm. Color fuscous; head, thorax, abdomen, and appendages orange; antennae and maxillary palpi fuscous; tarsi slightly infuscate; setae of head and thorax orange; forewing fuscous, marked with silvery white spots and bands. Male foretarsal claws exceedingly asymmetrical.

Male Genitalia: Eighth sternum narrowing slightly ventrad; tergum produced posteriad into a large, darkened, rounded, lateral lobe and deeply divided dorsomesally with dorsum concave. Ninth segment produced anteroventrally; posteroventral keel reduced to a very small point; posterolateral margin produced into a pointed lobe whose dorsal margin is slightly angulate. Cercus an elongate lobe. Tenth tergum with a narrow neck, apex enlarged and produced into a very long, pointed dorsal process and a shorter, apically rounded lobe. Clasper elongate, dorsomesal margin irregular, tapering to an apical point; in ventral aspect with apicomesal angle produced into a large tooth. Phallus tubular, base slightly inflated; internally with a lightly sclerotized, rod-and-ring assembly and two large, black spines.

MATERIAL EXAMINED.—JAMAICA, *St. Andrew Parish:* Irish Town, 15 Nov 1949, G.L. Thynne, 1♂, 1♀. Botanic Garden, Castleton, Petrunkevitch, 1♂ (MCZ). Constant Spring, Jun 1937, Avinoff and Shoumatoff, 1♀, (CMNH). C. Spring [Constant Spring], Hill Gardens, Jul 1898 [no collector], 1♀ (CMNH Acc. 2522). Liguanea Plain, Nov–Dec, 1911, C.T. Brues, 1♀ (MCZ). Chestervale, Yallahs River, 24–25 Jul 1962, Farr, O. and R. Flint, 5♂; same, but 17 Jul 1963, 4♂. Stoney [sic: Stony] Hill, [19]37, M. Bovell, 1♀ (MCZ). Hope River, near Newcastle at mile post 16.5, 30 Jul 1962, Farr, O. and R. Flint, 4♂. *St. Thomas Parish:* Bath, 19 Jul 1961, Maldonado and Farr, 2♀; same, but 26 Jul 1962, Farr, O. and R. Flint, 3♀; same, but Jul 1937, 1♂ (CMNH). *Portland Parish:* "Green Hills," Hardwar Gap, 24–25 Jul 1962, Farr, O. and R. Flint, 3♂; same, but 16–17 Jul 1963, 1♂. Rio Grande, Fellowship, 27 Jul 1962, Farr, O. and R. Flint, 2♂, 2♀. Port Antonio, 13 Feb, Wight, 1♀ (MCZ). Millbank, 9 Aug 1985, M.A. Ivie, 6♂, 2♀. [Parish unknown] Pleasant Hill, Blue Mts., 3660 ft. [~1100 m], 24 Jul 1923, R[ehn], 2♂, 3♀ (ANSP). Jamaica [no further data], 2♂, 1♀, 1 without abdomen (MCZ, NMNH).

ETYMOLOGY.—Probably from the Latin *argentinus* ("silvery"), in allusion to its forewing color.

Chimarra (Curgia) albomaculata (Kolbe)

FIGURES 253–256; MAP 15

Chimarrha albomaculata Kolbe, 1888:175.

Chimarra luquillo Denning, 1947a:657.—Flint, 1964:21 [*luquillo* to synonymy].

Chimarra albomaculata (Kolbe).—Fischer, 1961:54; 1971:220.—Flint, 1964:21 [male, female, larva, pupa, distribution].

REMARKS.—This species of the *braconoides* group inhabits the island of Puerto Rico. I have seen over 25 different collections containing many hundreds of specimens in the collections of the AMNH, INHS, MCZ, and NMNH. It is a very common and abundant species throughout the island wherever there is flowing water that is not grossly polluted.

The males are recognized very easily by the sharp, dorsal prolongation of the tenth tergum, the bipartite ventrolateral lobes from the tenth segment, and the small clasper that is almost totally surrounded by the ninth segment.

ADULT.—Length of forewing, ♂ and ♀ 5–7 mm. Color fuscous; head, thorax, abdomen, and appendages orange; antennae apically, maxillary palpi, and femora and tarsi slightly infuscate; setae of head and thorax orange; forewing fuscous, marked with silvery white spots and bands. Male foretarsal claws exceedingly asymmetrical.

Male Genitalia: Eighth sternum narrowing slightly ventrad; tergum produced posteriad into a broad, obliquely angulate, scabrous, lateral lobe and divided dorsomesally. Ninth segment produced anteroventrally; posteroventral keel developed into a large, broad lobe surpassing apices of claspers. Cercus an elongate lobe. Tenth tergum with a narrow

neck, apex enlarged and produced into a long, sharply pointed dorsal process and a short, rounded, apical lobe, bifid in dorsal aspect; posteroventral lobe produced into a large, projecting structure, divided centrally. Clasper very small, ovate, completely withdrawn within posterior margin of ninth segment. Phallus tubular, base slightly inflated; internally with a well-sclerotized, rod-and-ring assembly, four black spines, and a small, rugose lobe apicoventrally.

MATERIAL EXAMINED.—PUERTO RICO, Luquillo, 29 Oct 1943, light trap, 1♀; same, but Nov 1943, H.D. Pratt, 2♂, 1♀ paratypes *C. luquillo*. El Yunque, 800 ft. [240 m], 22 Feb 1900, C.W. Richmond, 8♂, 5♀ (MCZ). Luquillo Forest, El Yunque Biological Station, Molindero Road, 2100′ [630 m], 3 Jan 1963, P. and P. Spangler, 2♂, 7♀. El Yunque, tributary, Quebrada Juan Diego, 7 Jan 1991, E.C. Masteller, 8♂, 19♀. El Yunque, Cocoa Falls, 7 Jan 1991, E.C. Masteller, 6♂, 16♀. El Yunque, La Mina area, 650 m, 8 Feb 1990, O.S. Flint, Jr., 5♂, 121♀. El Yunque, Big Tree Trail, 1 Aug 1962, Flint and Matthews, 1♂, 2♀. El Yunque, route 191, km 9.7, 1 Aug 1962, Flint and Matthews, 1♂, 2♀. Vereda Carillo, Quebrada Bisley #3, light trap, 8 Jan 1991, E.C. Masteller, 10♂, 9♀; same, but 6 Feb 1990, O.S. Flint, Jr., 9♂, 3♀; same, but emergence trap, 8 Feb 1990, E.C. Masteller, 1♂. 1 mi [1.6 km] E Catalina Ranger Station, Rt. 988, 9 Feb 1990, O.S. Flint, Jr., 3♂, 49♀. Río Mameyes, Rt. 988, 8 Jan 1991, E.C. Masteller, 3♂, 2♀. Río Mameyes, Mameyes, 1 Aug 1962, Flint and Matthews, 2♂, 1♀; same, but 27 Jun 1969, O.S. Flint, Jr., 9♂, 10♀; same, but 6 Mar 1914, T.B. Jones, 1♂ (MCZ). El Verde Station, 6 Feb 1991, E.C. Masteller, 3♀; same, but 6–8 Mar 1966, S.S. and W.D. Duckworth, 26♂, 8♀. El Verde Station, stream by road, 6 Feb 1991, E.C. Masteller, 3♂, 1♀. El Verde Station, Quebrada Prieta, light trap, 4 Jan 1991, E.C. Masteller, 1♂. El Verde Station, Quebrada Sonadora, hanging bridge, 4 Jan 1991, E.C. Masteller, 3♂, 14♀; same, but 5 Feb 1990, O.S. Flint, Jr., 10♂, 154♀. Río Espíritu Santo, Rt. 198, 10 Feb 1990, O.S. Flint, Jr., 4♂, 4♀. Naguabo, 19 Jan 1914, 2♀ (INHS); same, but 7–9 Mar 1914, 1♂ (INHS). Pueblito del Río, 8 Jan 1963, P.J. Spangler, 18♀. Bayamón, 28 Jul 1932, Anderson, 1♂ (MCZ); rt. 174, km. 13.5, 19 Aug 1961, Flint and Spangler, 1♀. Río de Bayamon, rt. 156, km. 15.5, near Aguas Buenas, 19 Aug 1961, Flint and Spangler, 1 larva. Comerio, 27 Nov 1932, A.S. Mills, 2♂ (MCZ). Aibonito, 1–3 Jun 1915, 2♂, 12♀ (INHS). Coamo Springs, 17–19 Jul 1914, 1♂, 1♀ (INHS); same, but 5–7 Jun 1915, 1♂, 1♀ (INHS). Toro Negro State Forest, Dona Juana Recreation Area, 23–24 Jun 1969, O.S. Flint, Jr., 3♂, 1♀; same, but 7 Feb 1990, Flint and Masteller, 4♀. Adjuntas, 8–13 Jun 1915, 1♂, 6♀ (INHS). Maricao, light trap, Jul 1960, J. Maldonado C., 27♂, 26♀; same, but Fish Hatchery, 10–20 Oct 1971, 1♂, 2♀; same, but 8–11 Aug 1961, Flint and Spangler, 2♂, 22♀; same, but 23 Dec 1962, P.M. and P.J. Spangler, 15♂, 100♀. Mayagüez, at light, 9–16 Jul 1955, J.A. Ramos, 1♀.

ETYMOLOGY.—Probably from the Latin *albus* ("white") and *macula* ("spot"), in allusion to its forewing color.

The *pulchra* Group

DIAGNOSIS.—Length of forewing, 6–9 mm. Body orange; appendages fuscous; forewing fuscous, usually marked with few large spots or a band of orange. Claws of male foreleg, not noticeably asymmetrical.

Male Genitalia: Eighth tergum without brushes, with posterior margin slightly projecting. Ninth segment greatly produced anteroventrally, narrow dorsad, without any dorsomesal projection; posterolateral margin strikingly produced. Cercus small, oval. Tenth tergum consisting of dorsal lobe with entire apex, bearing many sensillae, with two pairs of small basodorsal projections. Clasper elongate, tapering apicad. Phallus tubular; internally with a rod-and-ring assembly whose apicodorsal and ventral margins are produced posteriad, with no internal spines.

DISTRIBUTION.—Limited to the Greater Antillean island of Cuba.

DISCUSSION.—The group is limited to a single species on Cuba. It would seem to combine some characteristics of the *mexicana* and *braconoides* groups with its own apomorphies. With *mexicana*, especially, it shares its coloration, a rather simple eighth tergum, an elongate clasper, and the lack of ventrolateral lobe of the tenth tergum. With the *braconoides* group, it shares the development of the posterolateral margin of the ninth segment. The extra basal lobes of the tenth tergum and the internal structure of the phallus are unique.

Chimarra (Curgia) pulchra (Hagen)

FIGURES 257–260; MAP 16

Chimarrha pulchra Hagen, 1861:298.—Ross. 1952:32 [lectotype].
Chimarrha (Curgia) fraterna Banks, 1924:449.
Chimarra pulchra (Hagen).—Fischer, 1961:69; 1971:216.—Botosaneanu and Sykora, 1973:380.—Botosaneanu, 1977:232; 1979:38; 1980:91.—Kumanski, 1987:7.
Chimarra fraterna (Banks).—Fischer, 1961:60.
Chimarra (Curgia) pulchra (Hagen).—Flint, 1967b:4 [*fraterna* to synonymy].—Botosaneanu, 1980:98.

REMARKS.—This is a very widespread species on Cuba and has been recorded from all Provinces and the Isle of Pines. It also is quite variable in coloration. There is generally a broad, irregular, golden yellow band lengthwise on the forewing; this band may be broken into two or three discrete spots or short bands (type of *fraterna*). On the eastern end of the island, from Camagüey, at least, all the pinned examples I have seen have a uniformly fuscous forewing. However, I am unable to see any differences in either the male or female genitalia in all this material.

Although the species appears similar to *C. moesta* Banks, in the form of the hood-like tenth tergum, the two pairs of basodorsal process are unique to *pulchra*.

ADULT.—Length of forewing, ♂ 6–8 mm, ♀ 8–9 mm. Color fuscous and orange; body, scape, legs to the tibiae, and hair of

head and thorax orange; antennal flagellum, palpi, tibiae, and tarsi fuscous; forewing fuscous, with broad central orange band, often broken into several large spots, rarely totally lacking orange color. Male foretarsal claws not noticeably asymmetrical.

Male Genitalia: Eighth sternum slightly widened dorsad; tergum barely produced posteriad mesally. Ninth segment produced anteroventrally; posteroventral keel produced into a small lobe; posterolateral margin produced into a pair of widely separated, pointed lobes. Cercus small, ovate. Tenth tergum broad basally, narrowed and produced apicad, hood-like; in dorsal aspect triangular in outline, with two pairs of basal lobes, lateralmost much longer. Clasper elongate, tapering apicad, apex with a small dorsomesal tooth. Phallus tubular, base slightly inflated; internally with a rod-and-ring assembly, which is greatly produced posteriad dorsally and ventrally, lacking spines.

MATERIAL EXAMINED.—"Cuba, o. Sacken, Marz 1858," "Lectotype Chimarrha pulchra," "MCZ Type 11100," ♂ lectotype (MCZ)

"Cuba, Ch. Wright," "Lectotype ♂ Chimarra fraterna Bks. By Flint '64," "MCZ Type 14876," ♂ lectotype, 4♀ lectoparatypes (MCZ).

CUBA, PINAR DEL RÍO PROVINCE, S. Diego d l Banos [San Diego de los Baños], Apr 15.00 [15 Apr 1900], Palmer and Riley, 1♂, 2♀ (MCZ). Rancho Mundito, S. Rangel, 5 [= May?] 1953, F. de Zayas, 3♀ (INHS). Rancho Mundito, Sierra de los Organos, 28 May 1948, J. Ferrás, 1♂, 1♀ (INHS). Sierra Rosario, 400 m, 5–15 Jun 1990, V.O. Becker, 5♂, 6♀. San Vicente, 9 Apr 1922, S.C. Bruner and J. Acuña, 1♂ (INHS). San Blas, 1918, W.M. Mann, 1♀. Soroa, 27–28 Apr 1983, W.N. Mathis, 7♂, 2♀; same, but 4–6 Dec 1994, Flint and Mathis, 8♂, 6♀. La Caridad, 2.2 km NW Soroa, 4–5 Dec 1994, Flint and Mathis, 4♂, 8♀. Viñales, 100 m, 20 Jul 1990, V.O. Becker, 5♂, 3♀. Mogote dos Hermanos, 3 km W Viñales, 150 m, 7–8 Feb 1981, D.R. Davis, 1♀.

LA HABANA PROVINCE, Havana, Baker, 2♀ (MCZ). Cangrejas, 30 May 1931, S.C. Bruner, 1♂ (INHS). Somorrostro, 3 1953, F. de Zayas, 2♂ (INHS).

MATANZAS PROVINCE, Cienaga Zapata, nr. Playa Larga, 3 m, 10–11 Feb 1981, D.R. Davis, 1♀.

[CIENFUEGOS or SANCTI SPIRITUS PROVINCE] Buenos Aires, Trinidad Mts., 17–23 Jun 1939, C.T. Parsons, 1♂, 1♀ (MCZ).

[CIENFUEGOS PROVINCE, all the following localities referring to "Soledad" are at what is now called the Jardin Botanico Cienfuegos, 3 km E Pepito Tey = the old Central Solidad, at 22°07.5′N, 80°19.2′W.] Soledad, Sta. Clara, 24–28 Jun 1932, Bates and Fairchild, 3♂, 6♀ (MCZ). Cen. Soledad, Sta. Clara, 1 May 1932, S.C. Bruner, A. Otero, 1♂ (INHS). Soledad, near Cienfuegos, 6–20 Aug, N. Banks, 2♂, 5♀ (MCZ). Soledad, Cienfuegos, Jun 1929, Darlington, 1♀ (MCZ); same, but Apr 1936, 2♂, 1♀ (MCZ). Soledad, 21 Feb 1925, Geo. Salt, 1♀ (MCZ); same, but 5 Jul 1925, 1♀ (MCZ); same, but 9 Jun 1925, 1♀ (MCZ). Near Casa Harvard, Soledad, Cienfuegos, 11–14 Aug 1933, N.A. Weber, 2♀ (MCZ). Río Caburni, 5 km WNW Topes de Collantes, 10–11 Dec 1994, Flint and Mathis, 3♂, 2♀.

CAMAGÜEY PROVINCE, Barrio Caobilla, 23–25 Jun 1927, J. Acuña, 1♂ [dark-winged form] (INHS). Los Paredones, Sierra Cubitas, Jun 1955, Alayo, 2♀ [dark form] (CMNH). West end Sierra de las Cubitas, 6 Jun 1959, M.W. Sanderson, 1♂ [color dark, in alcohol] (INHS).

ORIENTE PROVINCE, Holguín, Jun, [illegible], 1♀ [dark form] (MCZ). Pinares de Mayarí, 640 m, Jul 1990, V.O. Becker, 4♂, 2♀ [dark form]. El Cañon, P. Boniato, Jun 1964, F. de Zayas, 2♂ [dark form] (INHS). Batey de Moa, Jun 1954, Zayas-Alayo, 2♀ [dark form] (INHS). Near Bahia de Taco, 3–4 Jun 1959, M.W. Sanderson, 1♂ [color dark, in alcohol] (INHS). Playa Verraco, Caney, Apr 1959, Alayo, 2♂ [dark form] (CMNH).

SANTIAGO DE CUBA PROVINCE, Municipio Contramaestre, Filé (near Los Negros, Hotel El Saltón), 200 m, 20 Jul 1995, R.S. Peigler, 1♂, 4♀ (DMNH).

In addition to the material seen above, many additional localities have been published by Botosaneanu and Sykora (1973), Botosaneanu (1977, 1979, 1980) and Kumanski (1987). These authors recorded the presence of the species on Isla de Pinos and added many more specific localities all over the island, which are not noted herein on the map.

ETYMOLOGY.—Probably from the Latin *pulcher* ("beautiful"), in allusion to its coloration.

The *banksi* Group

DIAGNOSIS.—Length of forewing, 4–10.5 mm. Color light to dark brown; forewing brown, extensively marked with pale brown to creamy spots and blotches (rarely the wing is fuscous with more silvery spots). Claws of male foreleg apparently unmodified to exceedingly asymmetrical.

Male Genitalia: Eighth tergum with posterolateral setal brushes, and often lobes and/or secondary brushes posteromesally or beneath tergum. Ninth segment with anterior margin produced ventrally, indented at midlength; dorsally produced into a thin plate or lobe serving to support eighth tergum or to close in large membranous region ventrad to the eighth tergum; posterolateral margin unmodified; posteromesal keel varying from short and broadly triangular to elongate and slender. Cercus elongate, ovoid, often flared posterolaterally. Tenth tergum entire, tip narrow and directed dorsad, often with strong dorsal development, or with processes and lobes from dorsal surface of tergum; bearing many sensillae. Clasper in lateral aspect varying from slightly elongate with a posteromesal, darkened ridge to roughly triangular with a distinct, blunt, mesoventral tooth. Phallus tubular, inflated basally; internally with small rod-and-ring assembly and zero to four short, black spines.

DISTRIBUTION.—Mexico, south through Central America and South America to Suriname in the east and Bolivia in the

south, and in the uplands southeast of the Amazon to northern Argentina and Uruguay.

DISCUSSION.—This is a rather heterogeneous group of 28 species, which offers a series of complexes and single species that show a bewildering melange of characters. The presence of brushes and other processes of the eighth tergum and the development of dorsal plates from the ninth tergum, in conjunction with these modification, is synapomorphic, as is the reduction of phallic spines to between four and one, or absent entirely. The claspers also are reduced in size, which is probably a specialization. Many modifications similar to these occur in other groups, but not in the same manner and combination.

One of the more well-marked complexes is the *banksi* complex of three species: *banksi, sarophora,* and *macara.* These have the posterior margin of the eighth tergum produced somewhat dorsolaterally, the brush divided in a free ventral arm, a dorsal arm appressed to the membrane between the eighth and ninth segments, the tip of the tenth tergum upturned, the clasper elongate and semierect, and no spines in the phallus.

Another well-marked species is *centralis,* which stands alone in the group on the basis of a number of unique structures in the male genitalia. The unusual posteromesal and posterolateral brushes of the eighth tergum, the basodorsal lobes of the tenth tergum, and especially the free-standing dorsomesal rod of the ninth tergum are all distinctive structures.

The union of *acinaciformis* and *piliferosa* in a single complex is advanced with some trepidation. At first sight, the former species, with only a single pair of eighth tergal brushes combined with the latter species bearing two pairs, seems highly improbable. Yet the virtually identical structure of the ninth and tenth terga, claspers, and phallus is quite convincing. The uniquely derived placement of the tenth tergal sensillae in a small patch on the posterior prominence on the segment is synapomorphic for the two.

The species *aureopunctata* is another single-species complex. The most striking apomorphy is the deep and broad membranization of the eighth tergum, combined with the placement of the lateral brush on a small process developed mesally from a broad posterolateral flap on the segment. The structure of the ninth and tenth terga, claspers, and phallus are very like those of the *purisca* and *spatulata* complexes.

The *purisca* complex of two species (*purisca* and *maritza*) is very close to the *spatulata* complex, differing only in the posterior margin of the eighth tergum, which in lateral aspect is long and vertical, and in the male foretarsal claws, which are not noticeably modified. The clasper also is produced apicodorsally, with the posterior margin bilobate.

Containing four species (*spatulata, didyma, nasuta,* and *blepharophera*), the *spatulata* complex is one of the larger ones in the group. It also is easily recognizable: the eighth tergum has a small posterolateral brush, the clasper is ovoid in outline in lateral aspect with a small apicomesal tooth in ventral aspect, and it has grossly asymmetrical male tarsal claws. The latter characteristic is clearly an apomorphy for the complex.

The *geranoides* complex of three species, *geranoides, peruviana,* and *minca,* is a very tight-knit group. They share the possession of the paired dorsal processes on the tenth tergum, the mesal, hirsute lobe from the eighth tergum, and the internal structure of the phallus, which are all apomorphic characteristics.

The five species of the *brasiliana* complex, *brasiliana, piraya, cultellata, parana,* and *fittkaui,* are all very similar in appearance. The eighth tergum has a rather simple, broad, posterolateral lobe bearing the brush, but it has a specialization in the ninth dorsal plate, which also bears a smaller brush of various forms. The complex is divisible into two pairs of very close species: *brasiliana* and *piraya, cultellata* and *parana,* and a more distant one, *fittkaui.*

The *scopula* complex contains only the nominotypical species and *scopuloides.* Again the eighth tergum offers major distinctions: the posterolateral brushes are small and elongate, and a pair of large lobes arise from the dorsal margin. The dorsal process of the ninth tergum is slender and rod-like, and the clasper is slightly elongate with an apicomesal tooth.

The species *tamba* is placed in its own group, primarily on the basis of the configuration of the eighth tergum. The posterolateral lobes of the eighth tergum are elongate but lack the usual brushes, which are found instead on the ventral surface of a mesal plate, and there are additional small setate lobes. The basic shapes of the ninth segment, tenth tergum, claspers, and phallus are all typical of the *banksi* group, although offering specific differences.

The two species, *teresae* and *camposae,* are closely related, forming a distinctive complex, perhaps related to the preceding one. The uniquely structured eighth tergum and its brushes are the most distinctive synapomorphies of the complex. The ninth tergum also is broad dorsally, but the claspers and phallus are all quite typical.

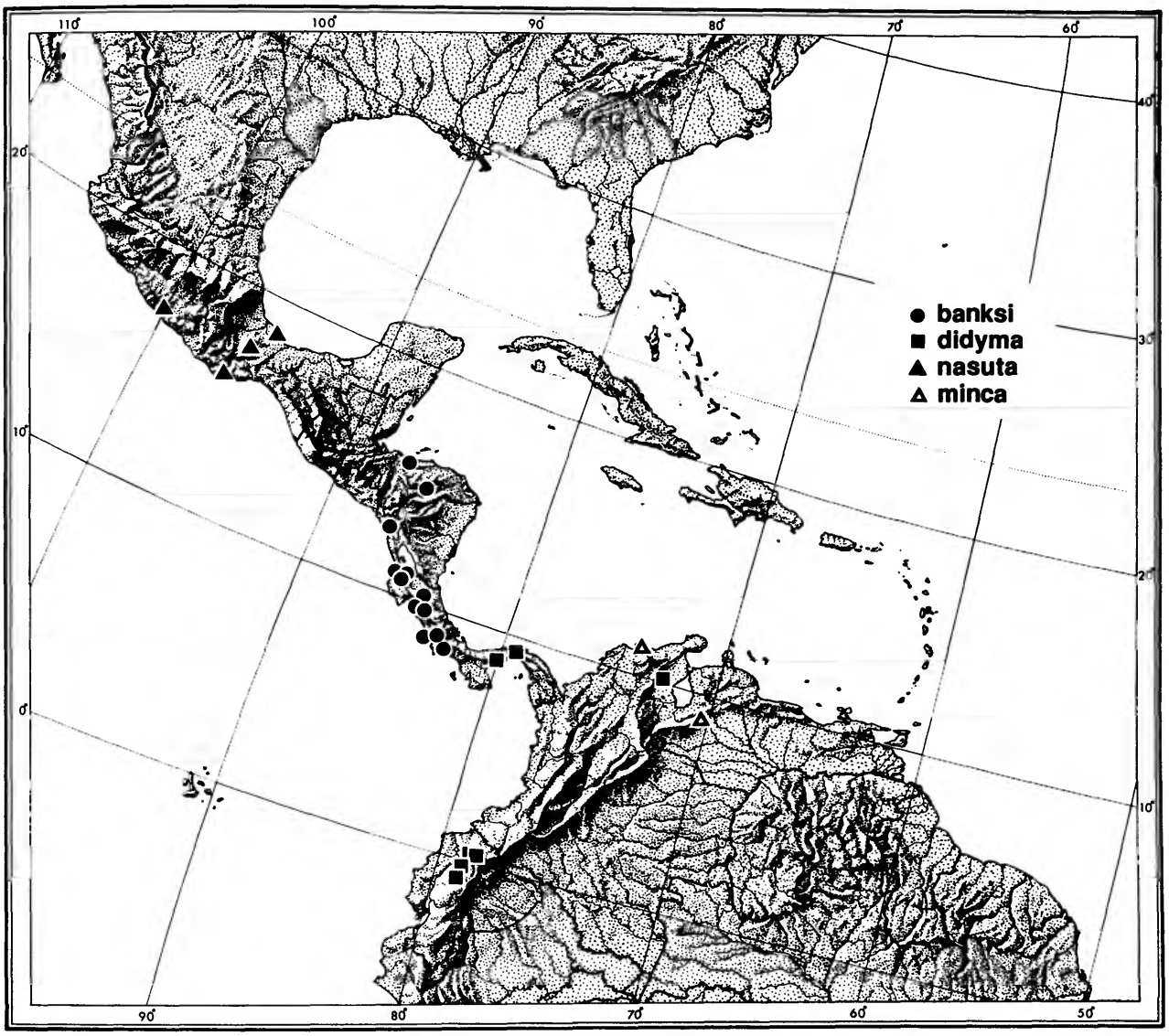
Perhaps the most bizarre complex is the *mycterophora* complex, containing only the additional species *erectiloba.* The eighth tergum bears its posterolateral brushes on long, straight processes and has a long central lobe with an apicoventral brush from the posterior margin. This development is highly apomorphic, although foreshadowed by *erectiloba.* The dorsal plate of the ninth tergum is divided into two long lobes that lie between the lateral and central brushes of the eighth tergum.

Chimarra (Curgia) banksi (Ulmer)

FIGURES 261–266; MAP 18

Wormaldia mediana Banks, 1905:18 [preoccupied].
Wormaldia banksi Ulmer, 1907:198 [new name for *Wormaldia mediana* Banks 1905]; 1913:405.—Navás, 1924:75.—Betten, 1934:170.—Fischer, 1961:32.
Chimarra (Curgia) banksi (Ulmer).—Flint, 1967b:3.—Maes and Flint, 1988:3.—Holzenthal, 1988:57.

REMARKS.—The three species, *banksi, sarophora,* and



MAP 18.—Distributions of *Chimarra* (*Curgia*) *banksi* (Ulmer), *Chimarra* (*Curgia*) *didyma*, new species, *Chimarra* (*Curgia*) *nasuta*, new species, and *Chimarra* (*Curgia*) *minca*, new species.

macara, form a complex of closely related species that can be told apart only by the structure of the eighth tergum. In *banksi* the posterior margin of the tergum is produced into large, trianguloid lobes deeply divided mesally. The posterolateral lobe is divided into a lateral arm bearing an apical brush and a slender dorsal arm, appressed to the inner face of the tergum, and which also bears an apical brush. The apex of the dorsal arm is slender and extends freely from under the tergum. In *sarophora* the dorsal arm is broad and extends across the posterior face of the eighth segment, and the brush is continuous along the inner margin. In *macara* the dorsal arm is slender and extends directly mesad across the face of the segment, and, before bending abruptly upward, its brushes are divided into a pair of brushes at the tips of the two arms, but there are a few scattered setae connecting these brushes. The posterior margin of the eighth tergum in *sarophora* bears a pair of small lobes, but in *macara* these lobes are quite long and rather narrow.

ADULT.—Length of forewing, ♂ and ♀ 5.5–7 mm. Color brown; appendages pale brown; forewing brown, with many

small, golden spots. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum slightly widened dorsad; tergum strongly produced into an acute dorsolateral angle, broadly and deeply divided dorsomesally; with posterolateral lobe divided into a ventrolateral arm, bearing a brush of setae apically, and a dorsomesal lobe appressed to inner face of tergum and ending in a small projection, bearing a small, apical brush. Ninth sternum produced anteroventrally; with elongate, posteromesal keel; produced into a long dorsal extension, narrow in lateral and posterior aspects, articulating to ventromesal projection from eighth tergum at base of central excision. Cercus elongate, decurved, slightly enlarged apicad. Tenth tergum with tip entire, sharply curved dorsad; apex broadly rounded in dorsal aspect, with many sensillae. Clasper elongate, apical 2/3 angled dorsad; in ventral aspect, with a small angle mesally, apex narrowed. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly, no spines.

MATERIAL EXAMINED.—*Holotype,* male: NICARAGUA [DPTO. CHINANDEGA], Chinandega, Baker, MCZ Type 11826.

COSTA RICA, PCIA. ALAJUELA, Río Pizote, ~5 km N Dos Ríos, 10.948°N, 85.291°W, 470 m, 9 Mar 1986, Holzenthal and Fasth, 3♂, 1♀ (UMSP); same, but 5 km (air) S Brasilia, 10.972°N, 85.345°W, 390 m, 12 Mar 1986, 52♂, 6♀ (INBIO, NMNH). Cerro Campana, ~6 km (air) NW Dos Ríos, 10.9°N, 85.4°W, 640 m, 15–16 Mar 1986, Holzenthal and Fasth, 2♂ (UMSP). Río Bochinche trib., 6 km (air) NW Dos Ríos, 10.945°N, 85.413°W, 600 m, 22–23 Jul 1987, Holzenthal et al., 1♂ (UMSP). PCIA. GUANACASTE, Parque Nacional Guanacaste, Río Orosí, Estación Pitilla, 10.991°N, 85.428°W, 700 m, 19–20 Jun 1988, C.M. and O.S. Flint, Jr., 18♂, 112♀; same, but 22–25 May 1990, Holzenthal and Blahnik, 2♂ (UMSP); same, but Río Tempisquito, Estación Maritza, 10.958°N, 85.497°W, 550 m, 19–20 Jul 1987, Holzenthal et al., 1♂ (UMSP); same, but 30–31 Aug 1990, 1♂ (INBIO). Parque Nacional Santa Rosa, Quebrada San Emilio, 10.862°N, 85.610°W, 300 m, 27 Jun 1986, Holzenthal et al., 1♂ (UMSP); same, but Quebrada Guacimo, 10.877°N, 85.589°W, 255 m, 24 Jun 1986, 1♂ (NMNH). Río Góngora (sulfur mine), 4 km (air) NE Queb. Grande, 10.887°N, 85.470°W, 590 m, 21 Jul 1987, Holzenthal et al., 5♂, 11♀ (UMSP). PCIA. HEREDIA, Río Bijagual on road to Magsasay, 10.408°N, 84.076°W, 140 m, 12 Feb 1986, Holzenthal et al., 3♂, 13♀ (INBIO, UMSP). PCIA. PUNTARENAS, Río Camaronal, Estación Sirena, Parque Nacional Corcovado, 8.482°N, 83.589°W, 30 m, 13 Apr 1989, Holzenthal et al., 3♂, 3♀ (UMSP). Río Jaba at rock quarry, 1.4 km (air) W Las Cruces, 8.79°N, 82.97°W, 1150 m, 15 Mar 1991, Holzenthal et al., 2♂ (INBIO, UMSP). Quebrada Bonita, Reserva Biologica Carara, 9.775°N, 84.605°W, 35 m, 18–20 May 1990, Holzenthal et al., 1♂, 1♀ (UMSP); same, but 11 Mar 1991, 1♂, 5♀ (NMNH); same, but Río Carara, 4.3 km (rd.) E Costanera Sur, 9.810°N, 84.572°W, 20 m, 12 Mar 1991, 1♂, 1♀ (INBIO). Golfito, 25–28 Apr 1965, S.S. and W.D. Duckworth, 2♂, 2♀. 2.8 mi [4.5 km] E Golfito, 18–19 Jul 1967, O.S. Flint, Jr, 1♂. Quebrada Pita, ~3 km (air) W Golfito, 8.642°N, 83.193°W, 15 m, 15 Feb 1986, Holzenthal et al., 1♂ (UMSP). PCIA. SAN JOSÉ, Río del Sur, 1.5 km (rd.) S Carara, Reserva Biologica Carara, 9.769°N, 84.521°W, 160 m, 13 May 1991, Holzenthal et al., 2♂, 6♀ (UMSP); same, but Rio Carara, in Carara, 9.778°N, 84.531°W, 200 m, 14 Mar 1991, 1♂, 17♀ (INBIO). Río Negro, 3.5 km SE jct. route 239, 9.680°N, 84.394°W, 230 m, 21 Mar 1986, Holzenthal et al., 10♂, 31♀ (INBIO, NMNH, UMSP).

HONDURAS [DPTO. ATLANTIDA], Lancetilla, Aug, Stadelmann, 5♂ (MCZ). DPTO. OLANCHO, Río Agua Amarillo, Pacayal, 5 km S El Carbón, 27 Jul 1989, Lentz and Lopez, 1♂, 1♀.

PANAMA [PCIA. CHIRIQUI], Rio Caimito, 10 mi N David, 4 Jul 1967, Flint and Ortiz, 1♂.

ETYMOLOGY.—Patronym in honor of Nathan Banks, the noted North American specialist on Trichoptera and other neuropteroids.

Chimarra (Curgia) sarophora, new species

FIGURES 267–272; MAP 17

REMARKS.—This species is closely related to *banksi.* The primary difference between them is in the eighth and, to a lesser degree, the tenth terga of the male genitalia. In *sarophora* the lateral and mesal brushes are a continuous band extending from the mesal margin of a large, broad sclerite that does not project freely as a slender process dorsomesally, nor are the lobes from the posterior margin on the tergum very large. In *banksi* the brushes are borne from the extremity of the lateral lobe and from the apex of a very slender sclerite that curves dorsad and projects freely from beneath the tergum, and the lobes from the posterior margin are much larger, especially as seen in dorsal aspect. The apex of the tenth tergum is a bit larger and more sharply angled dorsally in *sarophora* than it is in *banksi.*

ADULT.—Length of forewing, ♂ and ♀ 6–7 mm. Color brown, body and appendages paler; forewing light yellowish brown, with many small, dark flecks. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsally; tergum with posterior margin produced into a pair of small, rounded, submesal lobes; with a hirsute posterolateral lobe that is produced into a large lobe held against inner face of tergum and is hirsute along inner margin. Ninth sternum produced anteroventrally; with slender posteromesal keel; produced into long, slender, dorsal extension, articulating to inner surface of eighth tergum. Cercus elongate, enlarged apicad. Tenth tergum short, tip entire; apex curved and produced sharply dorsad, rounded apically in dorsal aspect; with many sensillae. Clasper elongate, thin, semierect; mesal margin in posterior aspect dark and slightly produced for dorsal half. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly,

without spines.

MATERIAL.—*Holotype,* male: PANAMA, Canal Zone [PCIA. COLÓN], Río Agua Salud, Pipeline Road, 8–12 Jul 1967, Flint and Ortiz. NMNH Type.

Paratypes: Same data as holotype, 2♀; same, but 30 Mar 1965, S.S. and W.D. Duckworth, 3♂, 1♀. PCIA. PANAMÁ, Barro Colorado Island, Snyder-Molino trail marker 3, 8 Apr 1987–12 Feb 1991, H. Wolda (light trap), 13♂, 12♀.

ETYMOLOGY.—From the Greek *saron* ("broom") and the suffix *-pher* ("to bear"), in allusion to the brushes of the eighth tergum.

Chimarra (Curgia) macara, new species

FIGURES 273–279; MAP 16

REMARKS.—This species is another in the complex of species closely related to *banksi.* The primary difference between the various species is in the eighth and, to a lesser degree, the tenth terga of the male genitalia. In *macara* there is a slender arm extending directly mesad from the lateral brushes, which is at its apex recurved upward where it bears a setal brush; this brush is connected to the lateral brush by a continuous row of scattered setae along the posterior margin. The lobes from the posterior margin on the eighth tergum are displaced laterad and are longer than wide. In *banksi* the brushes are borne from the extremity of the lateral lobe and from the apex of a very slender sclerite that curves dorsad and projects freely from beneath the tergum, and the lobes from the posterior margin are much larger, especially as seen in dorsal aspect. The apex of the tenth tergum is a bit broader in *macara* than it is in *banksi.*

ADULT.—Length of forewing, ♂ and ♀ 6.5–7 mm. Color brown; body and appendages paler; forewing light yellowish brown, with many small, dark flecks. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsally; tergum with posterior margin bearing a pair of rounded, lateral lobes; with a slender posterolateral lobe bearing an apical brush of setae, and a slender arm projecting directly mesad before curving dorsad and bearing a setal brush apically; setal brush connected by scattered setae along inner margin to lateral brush. Ninth sternum produced anteroventrally; with posteromesal keel; produced into long, slender, dorsal extension, articulating to inner surface of eighth tergum. Cercus elongate, enlarged apicad. Tenth tergum short, tip entire; apex curved dorsad, rounded apically in dorsal aspect; with many sensillae. Clasper elongate, thin, semierect; mesal margin in posterior aspect dark and slightly produced for dorsal half. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly, without spines.

MATERIAL.—*Holotype,* male: ECUADOR, PCIA. LOJA, Macará to Catacocha, 650 m, 14 Aug 1977, L.E. Peña G. NMNH Type.

Paratypes: Same data as holotype, but Macará, 13 Aug 1977, 1♂, 2♀.

ETYMOLOGY.—A name suggested by the locality Macará.

Chimarra (Curgia) centralis Ross

FIGURES 6–9, 280–284; MAP 19

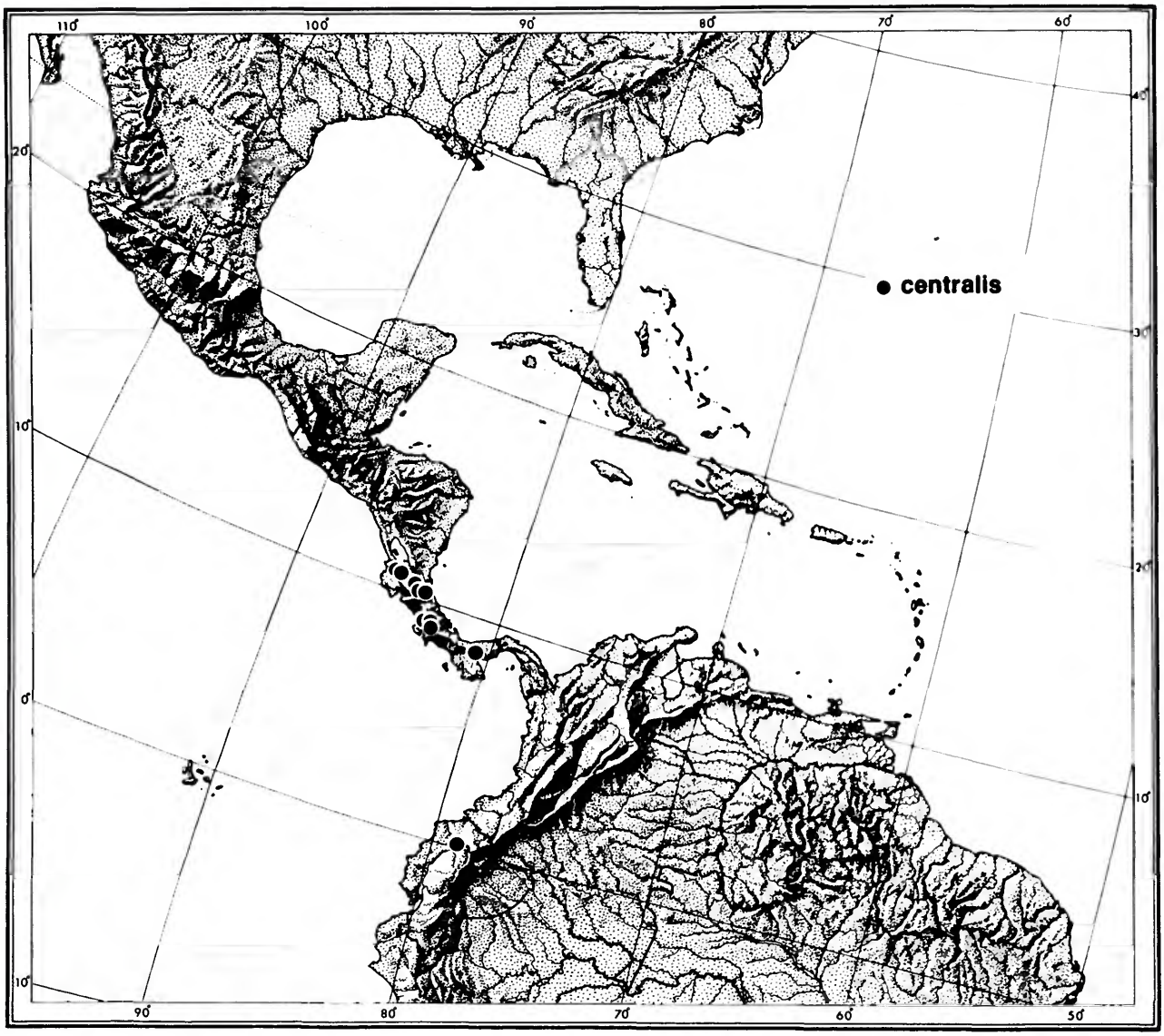
Chimarra (Curgia) centralis Ross, 1959:178.—Fischer, 1971:221.—McElravy et al., 1981:152.—Holzenthal, 1988:57.

REMARKS.—This species stands alone in the group on the basis of a number of unique structures in the male genitalia. The unusual posteromesal and posterolateral brushes of the eighth tergum, the basodorsal lobes of the tenth tergum, and especially the free-standing dorsomesal rod of the ninth tergum are all distinctive structures. The shape of the claspers, however, is like that of *acinaciformis* and some other species in the group.

ADULT.—Length of forewing, ♂ and ♀ 4.5–5 mm. Color brown; body and appendages paler; forewing light yellowish brown, with many small, dark flecks. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsad; tergum produced posteromesally as a trianguloid lobe with a fringe of short spines along apical margin in dorsal aspect; with a large posterolateral lobe bearing a brush of short setae along apical margin and covered with short scabrous spines. Ninth sternum produced anteroventrally; with elongate, slender, posteromesal keel; produced into a long, curved, dorsal extension, narrow in lateral aspect, free of all attachment to eighth segment. Cercus elongate, ear-like, slightly enlarged apicad. Tenth tergum with tip entire, produced into a small apicodorsal lobe, with many sensillae; basally bearing a pair of dorsolateral, plate-like lobes and a lateral projection (just mesad of base of cercus), with ventrolateral margins expanded. Clasper short, broadest apically; in ventral aspect mitten-like with a very short, mesal "thumb." Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly and two to four small, dark spines.

MATERIAL EXAMINED.—COSTA RICA, PCIA. ALAJUELA, Cerro Campana, ~6 km (air) NW Dos Ríos, 10.9°N, 85.4°W, 640 m, 15–16 Mar 1986, Holzenthal and Fasth, 1♂ (UMSP). PCIA. GUANACASTE, Quebrada Garcia, 10.6 km ENE Quebrada Grande, 10.862°N, 85.428°W, 470 m, 8 Mar 1986, Holzenthal and Fasth, 2♂ (UMSP). PCIA. HEREDIA, P.N. Braulio Carillo, Est. El Ceibo, Río Peje, 10.327°N, 84.078°W, 460 m, 29–31 May 1990, Holzenthal et al., 3♂, 2♀ (NMNH, UMSP); same, but Est. Magsasay, Río Peje, 10.402°N, 84.050°W, 130 m, 25–26 Aug 1990, 2♂, 4♀ (NMNH, UMSP). PCIA. LIMÓN, P.N. Braulio Carillo, Quebrada Gonzalez, 10.160°N, 83.939°W, 480 m, 12–14 May 1990, Holzenthal and Blahnik, 2♂, 2♀ (UMSP). PCIA. PUNTARENAS, Río Guineal, ~1 km (air) E Finca Helechales, 9.076°N, 83.092°W, 840 m, 22 Feb 1986, Holzenthal et al., 2♂ (UMSP). Río Singri, ~2 km (air) S Finca



MAP 19.—Distribution of *Chimarra* (*Curgia*) *centralis* Ross.

Helechales, 9.057°N, 83.082°W, 720 m, 21 Feb 1986, Holzenthal et al., 17♂ (UMSP). Río Jaba at rock quarry, 1.4 km (air) W Las Cruces, 8.79°N, 82.97°W, 1150 m, 15 Mar 1991, Holzenthal et al., 2♂ (NMNH, UMSP). PCIA. SAN JOSÉ, P.N. Braulio Carillo, Est. Carillo, Q. Sanguijuela, 10.160°N, 83.963°W, 800 m, 27 Mar 1987, Holzenthal et al., 2♂, 1♀ (UMSP).

PANAMA, PCIA. CHIRIQUI, Fortuna Dam Site, nr. Hornitos, 1050 m, 8°55'N, 82°16'W, 11–24 May 1977, H. Wolda, 5♂; same, but 10–16 Aug 1977, 1♂. PCIA. COCLÉ, El Potroso, 10 km NE El Copé, 4 Nov 1980, University of Panama student collection, 1♂.

ECUADOR, PCIA. PICHINCHA, via Puerto Quito (at km 113), 24 Jun 1976, J. Cohen at blacklight, 6♂.

ETYMOLOGY.—Probably from the Latin *centrum* ("mid-point"), of unknown connotation.

Chimarra (*Curgia*) *acinaciformis*, new species

FIGURES 285–289; MAP 16

REMARKS.—This species is easily distinguished from the only other species in the complex, *piliferosa*. The single pair of very long processes that bear the posterolateral brushes on the

eighth tergum and the broad, almost rounded, tip of the tenth tergum easily distinguish this species from its compatriot.

ADULT.—Length of forewing, ♂ and ♀ 5–6.5 mm. Color brown, body and appendages paler; forewing light yellowish brown, with many small, dark flecks. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsally; tergum with posterior margin bearing a pair of very short, rounded, submesal lobes; with a long, slender posterolateral lobe bearing an apical brush of setae. Ninth sternum strongly produced anteroventrally; with slender posteromesal keel; produced into long, slender, dorsal extension, articulating to inner surface of eighth tergum. Cercus elongate, barely enlarged apicad. Tenth tergum short, tip entire; curved sharply dorsad, tip thin, slightly reflexed, rounded apically in dorsal aspect; with many sensillae on small apical knob. Clasper short, roughly quadrate; in ventral aspect with a small apicomesal tooth. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly, a pair of small, dark spines, and a second pair of longer, slender spines with curved apices.

MATERIAL.—*Holotype,* male: ECUADOR, PCIA. PASTAZA, Estación Fluviometrica, Puyo (27 kms N), 4 Feb 1976, Spangler et al., NMNH Type.

Paratypes: Same data as holotype, 16♂, 4♀.

ETYMOLOGY.—From the Latin *acinaces* ("scimitar") and *forma* ("shape"), in allusion to the shape of the tenth tergum.

Chimarra (Curgia) piliferosa, new species

FIGURES 290–295; MAP 17

REMARKS.—This species is placed in the complex with *acinaciformis,* with which it shares many characters. It is easily recognized by the possession of a second broad pair of brushes from the posterolateral angle of the eighth tergum. In addition, the tip of the tenth tergum is drawn out to an attenuate spine.

ADULT.—Length of forewing, ♂ 7 mm. Color brown; mostly denuded, remaining hair on forewing pale brown, probably with some darker flecks. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsally; tergum produced into a pair of small, submesal lobes from posterior margin (in paratype, these are united into a single, small lobe); with two brushes borne from posterolateral angle, ventralmost long and slender, dorsalmost very broad, with apex enlarged and bearing a dense brush. Ninth sternum produced anteroventrally; with long, slender, posteromesal keel; produced into thin, long, dorsal plate, filling posterior face of eighth tergum (appearing as a fish-tail shaped structure extending posteriad from posterior margin of eighth tergum in dorsal aspect). Cercus elongate, flared laterad, with an associated basoventral lobe. Tenth tergum with tip entire; with a pointed, dorsal projection, apex hood-like; with many sensillae. Clasper slightly elongate, with a blunt dorsomesal point. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly, two small, dark spines, and a pair of slightly longer, more slender, hooked spines.

MATERIAL.—*Holotype,* male: BOLIVIA, Yungas de La Paz, Río San Pedro, 850 m, 8–9 Jan 1976, L.E. Peña G. NMNH Type.

Paratype: PERU, Quince Mil, Sep 1962, L.E. Peña G., 1♂.

ETYMOLOGY.—From the Latin *pilus* ("hair") and the suffix *-feros* ("to bear"), in allusion to hairy lobes of the eighth tergum.

Chimarra (Curgia) aureopunctata Flint

FIGURES 296–301; MAP 20

Chimarra (Curgia) aureopunctata Flint, 1967a:7.—Maes and Flint, 1988:2.—Holzenthal, 1988:57.

REMARKS.—This monotypic complex is easily recognized by the deep and broad posteromesal excision of the eighth tergum. The broad posterolateral lobe of the same tergum serves to obscure the small brush that is directed mesad.

ADULT.—Length of forewing, ♂ and ♀ 5.5–7.5 mm. Color brown; appendages pale brown; forewing brown, with many small, golden spots. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum slightly widened dorsad; tergum produced into a dorsolateral angle pointed in lateral aspect, but broadly rounded in dorsal aspect, broadly and deeply divided dorsomesally; with posterolateral lobe narrow, short, produced beneath dorsolateral angle and bearing a small, apical brush. Ninth sternum produced anteroventrally; with broad, posteromesal keel; produced into a dorsal extension, narrow in lateral and posterior aspects, anterior margin attached to membranous central area of eighth tergum, but with apex extending freely posteriad. Cercus elongate, slightly enlarged apicad. Tenth tergum with tip entire; apex produced dorsad, hatchet-shaped, slightly narrowed in dorsal aspect; with many sensillae. Clasper elongate, apex produced dorsad; in posteroventral aspect, with a small mesal lobe, apex narrowed. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly and four short, black spines.

MATERIAL EXAMINED.—COSTA RICA [PCIA. CARTAGO], Turrialba, 22–28 Feb 1965, S.S. and W.D. Duckworth, 2♂ (holotype and paratype), NMNH Type 69578. PCIA. GUANACASTE, Río los Ahogados, 11.3 km ENE Quebrada Grande, 10.865°N, 85.423°W, 470 m, 26 Jun 1986, Holzenthal et al., 1♂, 1♀ (UMSP); same, but 7 Mar 1986, 2♂ (UMSP). PCIA. ALAJUELA, Quebrada Provisión, Parque Nacional Rincón de la Vieja, 10.769°N, 85.281°W, 810 m, 4 Mar 1986, Holzenthal and Fasth, 1♂, 2♀ (UMSP). Río Sarapiquí, ~2 km SE Cariblanco, 10.299°N, 82.172°W, 710 m, 27 Mar 1986, Holzenthal and Fasth, 1♂ (UMSP). Río Peñas Blancas, Reserva Bosque Nubosa Monteverde, 10.30°N, 84.74°W, 950 m, 1 Mar 1986, Holzenthal and Fasth, 1♂ (UMSP).

MAP 20.—Distributions of *Chimarra* (*Curgia*) *peruviana*, new species, *Chimarra* (*Curgia*) *aureopunctata* Flint, *Chimarra* (*Curgia*) *fittkaui* Flint, and *Chimarra* (*Curgia*) *brasiliana* (Ulmer).

NICARAGUA [DPTO. NUEVA SEGOVIA], 5.3 mi [8.5 km] E Matagalpa, 20 Jul 1967, Flint and Ortiz, 28♂, 24♀.

PANAMA, Canal Zone [PCIA. COLÓN], Mojinga Swamp [adjacent to Fort Sherman, near Colón], 15 Nov 1951, F.S. Blanton, 1♂.

ETYMOLOGY.—From the Latin *aurum* ("gold") and *punctum* ("dot"), in allusion to the marking of the forewing.

Chimarra (Curgia) purisca, new species

FIGURES 302–307; MAP 21

REMARKS.—The two new species, *purisca* and *maritza*, are a very closely related pair. *Chimarra purisca* is, on average, slightly larger than *maritza*. The male genitalia also are very similar, the main differences being in the eighth tergum that is produced into a conical lobe posteromesally in *purisca* but is truncate in *maritza*. The apex of the tenth tergum also is rounded dorsally in *purisca* but is sharply angulate in *maritza*.

ADULT.—Length of forewing, ♂ and ♀ 6–8 mm. Color dark brown, body and appendages paler; forewing dark brown, with many small, golden flecks. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsally; tergum produced into a conical mesal lobe from posterior margin; with a small posterolateral lobe borne from inner face of tergum, with apical brush of setae. Ninth sternum slightly produced anteroventrally; with large posteromesal keel; produced into thin, long, dorsal extension, articulating to inner surface of eighth tergum. Cercus elongate, slightly enlarged apicad. Tenth tergum short, tip entire; apex rounded and bowed dorsad, narrowed apically in dorsal aspect; with many sensillae. Clasper slightly elongate, semierect, mesal margin in posterior aspect with a small lobe at midlength, tip rounded. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly and two (rarely three or four) small, dark spines.

MATERIAL.—*Holotype,* male: COSTA RICA, PCIA. SAN JOSÉ, P.N. Braulio Carillo, 6.2 km NE adm. Build., 10.09°N, 83.97°W, 1100 m, 6 Feb 1986, Holzenthal and Morse. NMNH Type.

Paratypes: Same data as holotype, 8♂, 7♀ (INBIO, NMNH, UMSP). Río Chirripó Pacifico, 9.5 km NE Rivas, 9.470°N, 83.591°W, 1370 m, 23 Feb 1986, Holzenthal et al., 1♂, 2♀ (UMSP). Santa Rosa de Puriscal, 500 m, 24 Dec 1983, Marvin Valverde D., 1♂, 2♀ (SDMNH). PCIA. ALAJUELA, Río La Paz Pequeño, 7.8 km N Vara Blanca, 10.211°N, 84.116°W, 1230 m, 13 Feb 1986, Holzenthal et al., 1♂, 1♀ (UMSP). Río San Lorencito and tribs, Reserva Forestal San Ramón, 10.216°N, 84.607°W, 960 m, 1–4 May 1990, Holzenthal et al., 1♂, 12♀ (UMSP); same, but 6–10 Mar 1991, 1♂ (INBIO). Río Toro, 3.0 km (road) SW Bajos del Toro, 10.204°N, 84.316°W, 1530 m, 3–4 Sep 1990, Holzenthal et al., 4♂, 1♀ (INBIO, NMNH, UMSP). PCIA. CARTAGO, Quebrada Segunda at admin building, Reserva Tapanti, 9.761°N, 83.787°W, 1250 m, 9–10 May 1990, Holzenthal and Blahnik, 5♂, 2♀ (NMNH, UMSP). Quebrada Palmitos and falls, Reserva Tapanti, 9.72°N, 83.78°W, 1400 m, 2–3 Jun 1990, Holzenthal et al., 2♂, 1♀ (NMNH); same, but 1–2 Aug 1990, 1♂, 2♀ (UMSP); same, but 24–25 Mar 1991, 1♂, 1♀ (INBIO). PCIA. GUANACASTE, Parque Nacional Guanacaste, Río San Josécito, Estación Mengo, 10.922°N, 85.470°W, 960 m, 3–4 Apr 1987, Holzenthal et al., 2♂ (INBIO, UMSP); same, but 28–29 Jul 1987, 2♂ (NMNH). PCIA. PUNTARENAS, Río Bellavista, ~1.5 km NW Las Alturas, 8.951°N, 82.846°W, 1400 m, 8–9 Apr 1987, Holzenthal et al., 2♂ (NMNH); same, but 2–3 Aug 1987, 2♂, 10♀ (UMSP); same, but 10–11 Aug 1990, 5♂, 3♀ (INBIO, NMNH, UMSP); same, but 16–17 Mar 1991, 1♂ (UMSP). Trib. to Río Bellavista in Las Alturas (road to quarry), 8.952°N, 82.848°W, 1480 m, 13–14 Aug 1990, Holzenthal et al., 5♂, 2♀ (INBIO, NMNH, UMSP); same, but 19 Mar 1991, 2♂ (UMSP). Río Jaba at rock quarry, 1.4 km (air) W Las Cruces, 8.79°N, 82.97°W, 1150 m, 15 Mar 1991, Holzenthal et al., 3♂ (INBIO, NMNH); same, but 9 Aug 1990, 2♂ (UMSP).

ETYMOLOGY.—A name suggested by the locality Puriscal.

Chimarra (Curgia) maritza, new species

FIGURES 308–313; MAP 22

REMARKS.—As discussed in more detail under *purisca*, these two species are very closely related; however, *maritza* can be distinguished by its slightly smaller size, its truncate eighth tergum, and the pointed apex of its tenth tergum.

ADULT.—Length of forewing, ♂ and ♀ 5–6 mm. Color dark brown, body and appendages paler; forewing dark brown, with many small, golden flecks. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsally; tergum with posterior margin squarely truncate, with mesal area ventrally bearing many short or long, spinous setae; with a small posterolateral lobe borne from inner face of tergum, with apical brush of setae. Ninth sternum slightly produced anteroventrally; with large posteromesal keel; produced into thin, long, dorsal extension, articulating to inner surface of eighth tergum. Cercus elongate, enlarged apicad. Tenth tergum short, tip entire; apex produced dorsad into a sharp point, narrowed apically in dorsal aspect; with many sensillae. Clasper slightly elongate, semierect, mesal margin in posterior aspect with a small lobe at midlength, tip rounded. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly and two small, dark spines.

MATERIAL.—*Holotype,* male: COSTA RICA, PCIA. GUANACASTE, Parque Nacional Guanacaste, Río Tempisquito, Maritza, 10.958°N, 85.497°W, 550 m, 17–18 Apr 1988, C.M. and O.S. Flint, Jr., Holzenthal. NMNH Type.

Paratypes: Same data as holotype, but 19–20 Jul 1987, Holzenthal et al., 1♂ (UMSP); same, but 31 Aug 1990,

MAP 21.—Distributions of *Chimarra* (*Curgia*) *purisca*, new species, *Chimarra* (*Curgia*) *piraya* Flint, *Chimarra* (*Curgia*) *erectiloba*, new species, and *Chimarra* (*Curgia*) *cultellata* Flint.

MAP 22.—Distributions of *Chimarra* (*Curgia*) *maritza*, new species, *Chimarra* (*Curgia*) *parana* Flint, *Chimarra* (*Curgia*) *teresae*, new species, and *Chimarra* (*Curgia*) *tamba*, new species.

Huisman and Quesada, 1♂ (INBIO). Río Góngora (sulphur mine), 4 km (air) NE Queb. Grande, 10.887°N, 85.470°W, 590 m, 21 Jul 1987, Holzenthal et al., 1♂ (UMSP). PCIA. ALAJUELA, Quebrada Latas, 8.9 km NE Bajos del Toro, 10.269°N, 84.260°W, 1030 m, 6 Sep 1990, Holzenthal et al., 1♂ (UMSP). PCIA. PUNTARENAS, Parque Nacional Corcovado, Piedra el Arco, 8.582°N, 83.709°W, 20 m, 10–11 Apr 1989, Holzenthal and Blahnik, 4♂, 3♀ (INBIO, NMNH, UMSP). Osa Penin., Corcovado Nat. Pk., 16–22 Mar 1979, D.H. Janzen, 1♂ (INBIO). Río Jaba at rock quarry, 1.4 km (air) W Las Cruces, 8.79°N, 82.97°W, 1150 m, 15 Mar 1991, Holzenthal et al., 1♂ (UMSP); same, but 9 Aug 1990, 5♂, 3♀ (INBIO, NMNH, UMSP).

ETYMOLOGY.—A name suggested by the locality Maritza.

Chimarra (*Curgia*) *spatulata* Ross

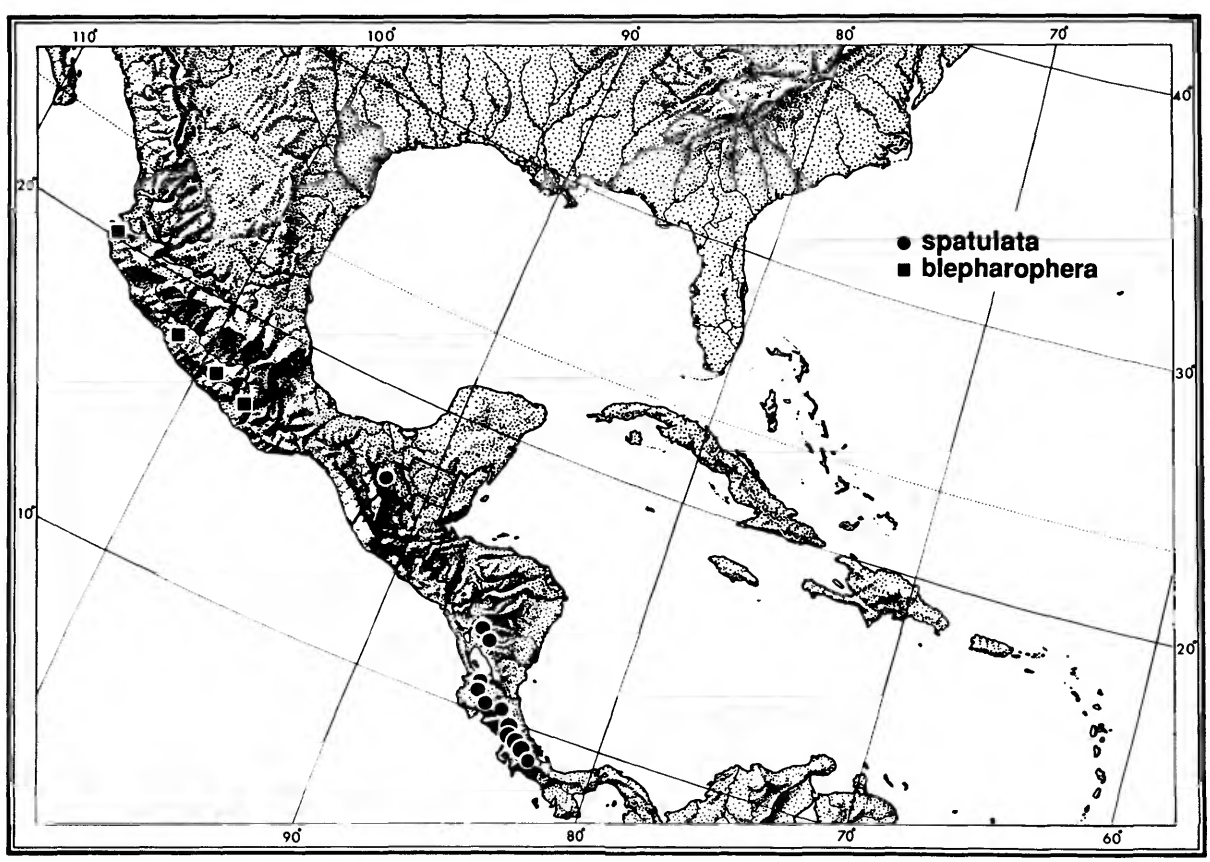
FIGURES 314–318; MAP 23

Chimarra (*Curgia*) *spatulata* Ross, 1959:176.—Fischer, 1971:221.—Bueno and Flint, 1980:197.—McElravy et al., 1981:152.—Maes and Flint 1988:3.—Holzenthal, 1988:57.

REMARKS.—This species is very close to *C. didyma* and can be distinguished from it only by the details of the structure of the male genitalia. The eighth tergum in dorsal aspect is produced into a broad lobe whose apex is either truncate or broadly rounded, rather than not produced at all. The claspers are slightly more elongate, and the mesal tooth is completely hidden in lateral aspect, not differing greatly in ventral aspect, although the tooth is a bit nearer the middle of the posterior margin. The phallus in *spatulata* usually lacks (rarely present) the two small, black spines seen in *didyma*.

ADULT.—Length of forewing, ♂ and ♀ 6–7.5 mm. Color dark brown, body and appendages paler; forewing dark brown, with many small, golden flecks. Claws of male foreleg grossly asymmetrical, longer claw often turned back on and twisted around apical tarsomere.

Male Genitalia: Eighth sternum nearly parallel sided; tergum produced posteriad, posterior margin nearly truncate to broadly rounded in dorsal aspect, with a short posterolateral lobe bearing a brush of setae. Ninth sternum produced anteroventrally; with short, posteromesal keel; produced into a long dorsal extension, narrow in lateral aspect, in dorsal aspect



MAP 23.—Distributions of *Chimarra* (*Curgia*) *spatulata* Ross and *Chimarra* (*Curgia*) *blepharophera*, new species.

very wide, wider than tenth tergum. Cercus long, slightly enlarged apicad. Tenth tergum short, tip entire, arched dorsad, narrowed apically in dorsal aspect, with many sensillae. Clasper slightly elongate, with mesal tooth completely hidden in lateral aspect; in ventral aspect tooth directed mesad, arising from near center of posterior margin. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly and, rarely, with one or two small, dark spines.

MATERIAL EXAMINED.—MEXICO, EDO. CHIAPAS, Finca Vergel, at light, 22 May 1935, A. Dampf MF 4259, holotype, male (INHS).

NICARAGUA, Santa Rita, Boaco, 20 Mar 1958, M. Vaughan, 1♂. 5.3 mi [8.5 km] E Matagalpa, 30 Jul 1967, O.S. Flint, Jr., 1♂.

COSTA RICA, PCIA. ALAJUELA, Reserva Bosque Nubosa Monteverde, Río Peñas Blancas, 10.30°N, 84.74°W, 950 m, 1 Mar 1986, Holzenthal and Fasth, 1♂, 2♀ (UMSP). Cerro Campana, ~6 km (air) NW Dos Ríos, 10.9°N, 85.4°W, 640 m, 15–16 Mar 1986, Holzenthal and Fasth, 3♂ (UMSP). Río Pizote, ~5 km N Dos Ríos, 10.948°N, 85.291°W, 470 m, 9 Mar 1986, Holzenthal and Fasth, 1♂ (UMSP). PCIA. GUANACASTE, Río Tempisquito, Maritza, Parque Nacional Guanacaste, 10.958°N, 85.497°W, 550 m, 17–18 Jun 1988, Flint and Holzenthal, 3♂, 6♀; same, but 19–20 Jul 1987, Holzenthal et al., 23♂, 20♀ (UMSP); same, but 30–31 Aug 1990, 5♂, 3♀ (UMSP). Río Negro, Parque Nacional Rincón de la Vieja, 10.765°N, 85.313°W, 810 m, 3 Mar 1988, Holzenthal and Fasth, 6♂, 17♀ (UMSP). Río Los Ahogados, 11.3 km ENE Quebrada Grande, 10.865°N, 85.423°W, 470 m, 7 Mar 1986, Holzenthal and Fasth, 4♂, 1♀ (UMSP). Quebrada Garcia, 10.6 km ENE Quebrada Grande, 10.862°N, 85.428°W, 470 m, 8 Mar 1986, Holzenthal and Fasth, 2♂, 6♀ (UMSP). Quebrada Tronadorcita, Arenal, 24 Jul 1967, O.S. Flint, Jr., 2♂. [PCIA. CARTAGO] Turrialba, 17–21 Feb 1965, S.S. and W.D. Duckworth, 2♂, 2♀. PCIA. HEREDIA, P.N. Braulio Carillo, Est. El Ceibo, Río Peje, 10.327°N, 84.078°W, 460 m, 29–31 May 1990, Holzenthal et al., 1♂, 3♀ (UMSP). PCIA. LIMÓN, P.N. Braulio Carillo, Quebrada Gonzalez, 10.160°N, 83.939°W, 480 m, 12–14 May 1990, Holzenthal et al., 2♂, 3♀ (UMSP). PCIA. PUNTARENAS, Río Bellavista, ~1.5 km NW Las Alturas, 8.951°N, 82.846°W, 1400 m, 8–9 Apr 1987, Holzenthal et al., 6♂ (UMSP). Río Guineal, ~1 km (air) E Finca Helechales, 9.076°N, 83.092°W, 840 m, 22 Feb 1986, Holzenthal et al., 22♂, 32♀ (UMSP); same, but 4 Aug 1987, 5♂, 30♀ (UMSP). Río Singri, ~2 km (air) S Finca Helechales, 9.057°N, 83.082°W, 720 m, 21 Feb 1986, Holzenthal et al., 7♂ (UMSP). Río Negro, ~10 km (air) SSW Las Alturas, 8.950°N, 82.851°W, 1035 m, 17 Feb 1986, Holzenthal et al., 2♂, 7♀ (UMSP). PCIA. SAN JOSÉ, P.N. Braulio Carillo, Est. Carillo, Q. Sanguijuela, 10.160°N, 83.963°W, 800 m, 27 Mar 1987, Holzenthal et al., 1♂ (UMSP). Río General, Pacuare, 1 Jul 1967, Flint and Ortiz, 1♂.

PANAMA, PCIA. CHIRIQUI, Volcán, 1470 m, 3 Jun 1983, Spangler et al., 1♂, 1♀. El Hato, 23 May 1957, R.M. Altman, 1♂ (INHS). Fortuna Dam Site, nr. Hornitos, 8°55'N, 82°16'W, 1050 m, 10 Nov 1976–18 Oct 1977, H. Wolda, 65♂. Canal Zone, Ft. Kobbe, 17 Nov 1956, R.M. Altman, 2♂ (INHS).

ETYMOLOGY.—Probably from the Latin *spatha* ("paddle"), of unknown connotation.

Chimarra (*Curgia*) *didyma*, new species

FIGURES 319–324; MAP 18

REMARKS.—This species is very close to *spatulata* and can be distinguished from it only by the details of the structure of the male genitalia. The eighth tergum in dorsal aspect is nearly truncate posteriorly, rather than produced into a broadly conical lobe. The claspers are shorter and more quadrate, with the mesal tooth clearly projecting beyond the apex in lateral aspect, more rounded apically, and placed nearer the mesal margin in ventral aspect. The phallus bears two small, black spines in addition to the small rod-and-ring assembly that is present only in *spatulata* (rarely a single black spine is seen).

ADULT.—Length of forewing, ♂ and ♀ 6–7 mm. Color dark brown, body and appendages paler; forewing dark brown, with many small, golden flecks. Claws of male foreleg grossly asymmetrical.

Male Genitalia: Eighth sternum nearly parallel-sided; tergum produced posteriad, posterior margin nearly truncate in dorsal aspect, with a short posterolateral lobe bearing a brush of setae. Ninth sternum produced anteroventrally; with short, posteromesal keel; produced into a long dorsal extension, narrow in lateral aspect, in dorsal aspect very wide, wider than tenth tergum. Cercus long, slightly enlarged apicad. Tenth tergum short, tip entire, slightly arched dorsad (in Venezuelan specimens with a small basolateral projection, Figure 324), broadly rounded apically in dorsal aspect, with many sensillae. Clasper quadrate, with mesal tooth extending beyond tip in lateral aspect; in ventral aspect with tooth rounded apically, directed mesad. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly and a pair of small, dark spines.

MATERIAL.—*Holotype,* male: PANAMA, PCIA. PANAMÁ, Cerro Azul, 7 Jul 1967, Flint and Ortiz. NMNH Type.

Paratypes: PANAMA, PCIA. COCLÉ, El Valle, 829 m, 25–27 May 1983, Spangler et al., 1♂, 1♀; same, but 7 Mar 1957, R.M. Altman, 8♂, 4♀ (INHS).

ECUADOR, PCIA. PICHINCHA, 14 km E Santo Domingo de los Colorados, 5 Jul 1975, Langley and Cohen, 6♂, 1♀. Nanegal, 1100 m, 19–20 Sep 1977, L.E. Peña G., 1♂, 1♀. Via Puerto Quito at km 113, 24 Jun 1976, J. Cohen, 2♂. PCIA. COTOPAXI, 133 km W Latacunga, 1080 ft [325 m], 2 Jul 1975, Langley and Cohen, 15♂, 6♀.

VENEZUELA, EDO. ZULIA, Parque Nacional Perijá, Río Negro in Toromo, 10.051°N, 72.712°W, 360 m, 15 Jan 1994, Holzenthal et al., 7♂, 11♀ (IZAM, NMNH, UMSP).

ETYMOLOGY.—From the Greek *didymos* ("double"), in allusion to the two spines of the phallus.

Chimarra (Curgia) nasuta, new species

FIGURES 325-330; MAP 18

REMARKS.—This species is very close to *spatulata* and is distinguished, again, only by the details of the structure of the male genitalia. The eighth tergum in dorsal aspect is produced into a small point posteromesally, which appears as a small lobe in lateral aspect, and the posterolateral brushes are on elongate stalks and folded underneath the tergum (perhaps they can be twisted outward to look more like the other species, but all examples are folded under). The claspers are produced into an apicodorsal angle, and the mesal tooth projects beyond the apex in lateral aspect, is more rounded apically, and is placed nearer the mesal margin in ventral aspect. The tenth tergum is up-arched before the tip in the holotype but is angled directly upwardly from its base at about 45° in the paratypes, and the apex is rounded.

ADULT.—Length of forewing, ♂ 6.5–7 mm. Color brown, body and appendages paler; forewing dark brown, with many small, golden flecks, especially concentrated along chord. Claws of male foreleg grossly asymmetrical.

Male Genitalia: Eighth sternum nearly parallel sided, posterior margin bulging slightly; tergum produced posteriad with a small apical lobe in lateral aspect, posterior margin conical, with a small median point in dorsal aspect, with a posterolateral lobe folded under tergum, bearing a brush of setae apically. Ninth sternum produced anteroventrally; with short, posteromesal keel; produced into a long dorsal extension, narrow in lateral aspect, in dorsal aspect tapering to a narrow dorsal lobe, much narrower than tenth tergum. Cercus elongate, slightly enlarged apicad. Tenth tergum short, tip entire, uparched anteapically (in paratypes angled dorsad at nearly 45°, Figure 330), rounded apically in dorsal aspect, with many sensillae. Clasper quadrate, apicodorsal angle slightly produced, with mesal tooth extending beyond tip in lateral aspect; in ventral aspect tooth rounded apically, directed mesad. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly and no spines.

MATERIAL.—*Holotype,* male: MEXICO, EDO. VERACRUZ, Los Tuxtlas area, near Balzapote, 3–15 May 1981, C.M and O.S. Flint, Jr. NMNH Type.

Paratypes: Same data as holotype, but 21 Dec 1976 [collector unknown], 1♂ (IBUNAM). Ocotal Chico, Los Tuxtlas, S. Sta. Martha, 22–24 May 1982, W. Perez, 1♂ (IBUNAM). EDO. OAXACA, 15 mi [24.2 km] N Pochutla, 1100′ [~335 m], 7–10 Jan 1989, N. Bloomfield, 2♂ (NMNH, SDMNH). Totontepec, 22 Nov 1985, E. Barrera, 2♂ (IBUNAM). Loxicha, 450 m, 22 Oct 1982, 27♂, 1♀ (IBUNAM, NMNH). Pochutla, Finca Progresso, 2 Jun 1987, L. Cervantes, 3♂ (IBUNAM). Toltepec, 220 m, 22 Nov 1983, E. Mariño, 2♂ (IBUNAM). EDO. GUERRERO, 19 mi [30.6 km] N Atoyac, 2900′ [~880 m], 29–31 Dec 1988, Bloomfield, 1♂ (SDMNH). EDO. NAYARIT, Compostela, 20 Oct 1982, Garcia and Ibarra, 1♂ (IBUNAM).

ETYMOLOGY.—From the Latin *nasutus* ("large-nosed"), in allusion to the projection of the eighth tergum.

Chimarra (Curgia) blepharophera, new species

FIGURES 331–335; MAP 23

REMARKS.—This species is another member of the *spatulata* complex, most similar to *nasuta,* with which it shares the straight apical margin of the tenth tergum and the development of the apicodorsal angle of the clasper. From the latter species, it is distinguished by the shape of the eighth tergum in dorsal aspect, which is truncate posteromesally. The tenth tergum of *blepharophera* is more elongate apically and is not as erect in lateral aspect as in *nasuta,* but it exhibits intraspecific variation within *blepharophera* in that it is somewhat narrower in dorsal aspect in the holotype but is more broadly rounded in the series from Jalisco.

ADULT.—Length of forewing, ♂ and ♀ 6.5–9 mm. Color brown, body and appendages paler; forewing dark brown, with many small, golden flecks, especially concentrated along chord. Claws of male foreleg grossly asymmetrical.

Male Genitalia: Eighth sternum widened dorsad, especially from posterior margin; tergum produced posteriad in lateral aspect, posterior margin conical, apical half squarely truncate in dorsal aspect; with a short posterolateral lobe bearing a brush of setae apically. Ninth sternum produced anteroventrally; with short, posteromesal keel; produced into a long dorsal extension, narrow in lateral aspect, in dorsal aspect as broad ventrally as base of tenth tergum, but the dorsal appendage narrow. Cercus elongate, slightly enlarged apicad. Tenth tergum short, tip entire, angled slightly dorsad, in dorsal aspect narrowed for apical half, tip angled or rounded; with many sensillae. Clasper quadrate, apicodorsal angle slightly produced, acute, with mesal tooth barely extending beyond tip in lateral aspect; in ventral aspect with tooth rounded apically, directed mesad. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly and no spines.

MATERIAL.—*Holotype,* male: MEXICO, EDO. OAXACA, 7.4 mi [11.9 km] N Putla, Hwy 125, 3200′ [~970 m], 3–5 Jan 1989, N. Bloomfield. SDMNH Type (on indefinite loan to NMNH).

Paratypes: Same data as holotype, 3♂, 10♀ (NMNH, SDMNH). EDO. GUERRERO, Ciudad Altamirano, 80 km NO Zihjuataneo, 7 Jun 1984, J. Bueno, 1♂ (IBUNAM). Acahuizotla, 23 Nov 19(?8)2, M. Garcia A., 1♂ (IBUNAM). EDO. JALISCO, 20 mi [32.2 km] S Puerto Vallarta, 22–23 May 1989, N. Bloomfield, 3♂, 4♀ (NMNH, SDMNH). EDO. NAYARIT, Compostela, 20 Oct 1982, Garcia and Ibarra, 1♂ (IBUNAM).

ETYMOLOGY.—From the Greek *blepharon* ("eyelid") and *phero* ("to bear"), in allusion to the brush of the eighth tergum.

Chimarra (Curgia) geranoides, new species

FIGURES 336–340; MAP 17

REMARKS.—This species and the following two new species, *peruviana* and *minca,* are very closely related sister species. The lack of posterolateral brushes, presence of a small divided mesal brush and small submesal lobes of the eighth tergum, deeply concave dorsal plate of the ninth segment, and flattened and rugose tip of the tenth tergum are diagnostic for *geranoides.*

The three species also have differing ranges. *Chimarra minca* is the northernmost of the three species, occurring in northern Colombia and Venezuela; *geranoides* occurs in central Ecuador and southern Colombia; and *peruviana* overlaps *geranoides* in east central Ecuador but then continues into southern Peru.

ADULT.—Length of forewing, ♂ and ♀ 6–8 mm. Color pale brown; body and appendages stramineous; forewing stramineous, with scattered flecks of darker hair. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsally; tergum posterolaterally with small, sclerotized lobe, which may bear a few small setae mesally, not brush-like; posterior margin bearing many long setae, with a dorsomesal excision, and bearing beneath here a small, hirsute lobe, divided mesally. Ninth sternum produced anteroventrally; with posteromesal keel; produced dorsally into deeply concave plate between lateral margins of eighth tergum. Cercus elongate, flared laterad, enlarged apicad. Tenth tergum with tip entire, but with dorsomesal groove; with an upcurved, slender process on each side from base of mesal lobe with several apical sensillae, apex of mesal lobe flattened, surface irregular, with many sensillae. Clasper slightly elongate, tip pointed apicodorsally, a small tooth apicoventrally, with a transverse ridge in ventral aspect. Phallus short, tubular, inflated basally, with apicolateral face produced; internally with a small rod-and-ring assembly, a pair of slender, curved, basal spines, and a pair of stouter, dark, apical spines.

MATERIAL.—*Holotype,* male: ECUADOR, PCIA. PICHINCHA, Río Umachaca, Forestry Station Maquipucuna, ~5 km E Nanegal, 0°075'N, 78°37'W, 1250 m, 4–5 Sep 1990, O.S. Flint., Jr. NMNH Type.

Paratypes: Same date as holotype, 48♂, 15♀. Nanegal, 1100 m, 19–20 Sep 1977, L.E. Peña G., 3♂, 4♀. PCIA. PASTAZA, 12 km W Puyo, 9 May 1977, Spangler and Givens, 1♂, 3♀. 16 km W Puyo, 3 Feb 1976, Spangler et al., 4♂; same, but 22 km W Puyo, 5 Feb 1976, 1♂. PCIA. TUNGURAHUA, 39 km E Baños, 4200 m, 25 Jan 1976, Spangler et al., 1♂, 1♀. PCIA. ZAMORA-CHINCHIPE, 6 km E. Zumbi, 980 m, 21 Sep 1990, O.S. Flint, Jr., 1♂, 2♀.

COLOMBIA, DPTO. RISARALDA, 4 km E Santa Rosa de Cabal, 29 Feb 1984, C.M. and O.S. Flint, Jr., 3♂, 6♀. DPTO. NARIÑO, La Planada, 7 km S Chuconés, 1800 m, June 1992, W. Eberhard, 1♂, 1♀ (UMSP).

ETYMOLOGY.—From the Greek *geranos* ("crane") and the suffix *-oides* ("like"), in allusion to the projection of the tenth tergum.

Chimarra (Curgia) peruviana, new species

FIGURES 341–345; MAP 20

REMARKS.—As mentioned under *geranoides* and *minca,* these species are very closely related. The distinctive genitalic characters in *peruviana* are the small posterolateral brushes, the entire, elongate mesal lobe flanked by rod-like lobes of the eighth tergum, and the sharply upturned tip of the tenth tergum, which also bears a small dorsolateral point midway between the dorsal process and tip.

ADULT.—Length of forewing, ♂ and ♀ 6–9 mm. Color pale brown; body and appendages stramineous; forewing stramineous, with scattered flecks of darker hair. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsally; tergum posterolaterally with small, sclerotized lobe bearing a small brush apically; posterior margin bearing many long setae, with a dorsomesal excision, bearing on each side a slender rod-like projection capped by several very long setae, and bearing beneath here a tongue-like, hirsute lobe. Ninth sternum produced anteroventrally; with posteromesal keel; produced dorsally as a plate, barely concave, between lateral margins of eighth tergum. Cercus elongate, flared laterad, enlarged apicad. Tenth tergum with tip entire, but with dorsomesal groove; with an upcurved, slender process on each side from base of mesal lobe with several apical sensillae, apex of mesal lobe pointed apicad, with a small point dorsolaterally between tip and process, with many sensillae. Clasper slightly elongate, tip pointed apicodorsally, a small tooth apicoventrally; tooth distinct apicomesally in ventral aspect. Phallus short, tubular, inflated basally, with apicolateral face produced; internally with a small rod-and-ring assembly, a pair of slender, curved, basal spines, and a pair of stouter, dark, apical spines.

MATERIAL.—*Holotype,* male: ECUADOR, PCIA. NAPO, Río Jondachi, 30 km N Tena, 950 m, 10 Sep 1990, O.S. Flint, Jr. NMNH Type.

Paratypes: Same date as holotype, 3♀. 5.2 km SW Pano, 640 m, 13 Sep 1990, O.S. Flint, Jr., 1♂. PCIA. PASTAZA, Puyo, 5–17 May 1977, Spangler and Givens, 8♂, 4♀; same, but 1.5 km S Puyo, 14–21 May 1977, 5♂. Estación Fluviometrica, 27 km N Puyo, 4 Feb 1976, Spangler et al., 3♂, 3♀.

PERU, DPTO. CUSCO, *Pcia. Paucartambo,* Puente San Pedro at km 152 (13°13.3'S, 71°32.8'W), 44 km NW Pilcopata, 1450 m, 2–3 Sep 1988, O. Flint and N. Adams, 1♂ (NMNH). Quitacalzón at km 164, (13°01.6'S, 71°30.0'W), 32 km NW Pilcopata, 1050 m, 1–2 Sep 1989, N. Adams et al., 21♂, 9♀; same, but 25–27 Jun 1993, Blahnik and Pescador, 3♂; same,

but streamlet, 50 m E Quitacalzón, 2 Sep 1989, 18♂, 4♀; same, but 26 Jun 1993, Blahnik and Pescador, 1♂, 2♀. Cosñipata Valley, 29 Nov 1951, F. Woytkowski, 1♂ (INHS); same, but Cosñipata Valley, Hacienda Maria (tropical jungle), 2700' [~820 m], 20 Feb 1952, F. Woytkowski, 1♂ (INHS); same, but Santa Isabel, Cosñipata Valley, 1 Jan 1952, 1♂ (INHS). Pilcopata (premontane rain forest), 600 m, 8–10 Dec 1979, J.B. Heppner, 1♂. Quince Mil, Sep 1962, L.E. Peña G., 10♂, 19♀. DPTO. HUANUCO, Tingo Maria (premontane rain forest), 672 m, 1–6 Feb 1980, J.B. Heppner, 4♂.

ETYMOLOGY.—A name suggested by the country Peru.

Chimarra (Curgia) minca, new species

FIGURES 346–351; MAP 18

REMARKS.—The three species, *geranoides, peruviana,* and *minca,* are a closely related complex of species. The eighth tergum in *minca,* with its strong posterolateral brushes, simple posterior margin, and small mesal brush, the upwardly curved basodorsal processes, and rounded tip of the tenth tergum with irregular dorsolateral margin, is very distinctive.

ADULT.—Length of forewing, ♂ 6–7 mm. Color pale brown; body and appendages stramineous; forewing stramineous, with scattered flecks of darker hair. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsally; tergum with brush on a short stalk from posterolateral face; posterior margin bearing many long setae, with a dorsomesal excision, and bearing beneath here a small, hirsute lobe. Ninth sternum slightly produced anteroventrally; with posteromesal keel; produced dorsally into a plate, between lateral brushes of eighth tergum. Cercus elongate, flared laterad, enlarged apicad. Tenth tergum with tip entire, but with dorsomesal groove; with basolateral, shoulder-like lobe, with an upcurved, slender process on each side from base of mesal lobe, apex of mesal lobe arched, hood-like, with many sensillae. Clasper slightly elongate, tip narrowly rounded, with a transverse ridge in ventral aspect. Phallus short, tubular, inflated basally, with apicolateral face produced; internally with a small rod-and-ring assembly, a pair of slender, curved, basal spines, and a pair of stout, dark, apical spines.

MATERIAL.—*Holotype,* male: VENEZUELA, EDO. BARINAS, 15 km southwest Barinitas, 25 Feb 1969, Duckworth and Dietz. NMNH Type.

Paratype: COLOMBIA [DPTO. MAGDALENA], Minca, June, Carnegie Museum Acc. # 1999, 1♂ (CMNH).

ETYMOLOGY.—A name suggested by the locality Minca.

Chimarra (Curgia) brasiliana (Ulmer)

FIGURES 352–355; MAP 20

Chimarrha brasiliana Ulmer, 1905a:96.—Tomaszewski, 1961:2.
Wormaldia parva Ulmer, 1905b:90.—Flint, 1966:3 [synonymy].
Chimarra brasiliana (Ulmer).—Fischer, 1961:58.—Flint, 1966:3; 1972:228.
Chimarra parva (Ulmer).—Fischer, 1961:68.

REMARKS.—This species and the following species, *piraya,* are very closely related and only slightly less so to *cultellata* and *parana.* They are distinguished from each other by relatively small differences in the shapes of the eighth and tenth terga. In *brasiliana* the posterolateral brushes of the eighth tergum are on a lobe whose dorsal margin is nearly straight (rather than arcuate), the tenth tergum is broader and regularly semierect, and the apicoventral tooth of the clasper is shorter than in *piraya.* In addition, there are subtle but valid differences in coloration between the two.

ADULT.—Length of forewing, 4.5–7 mm. Color fuscous; tibiae, tarsi, and antennae paler; head and thorax dorsally with creamy white hair; forewing fuscous, with scattered silvery white maculae. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum with posterior margin produced at midheight; tergum deeply and broadly concave in dorsal aspect, with posterolateral brush on a straight, decumbent lobe, a second, smaller brush directed mesally from near base of inner margin of lobe (actually this brush is detached from eighth segment and borne from dorsolateral angles of ninth tergal plate). Ninth sternum strongly produced anteroventrally; with an elongate posteromesal keel; with a thin, but broad, dorsomesal plate-like sclerite produced between lateral lobes of eighth tergum. Cercus elongate, ovoid in outline. Tenth tergum with tip entire, semierect, tip broadly rounded in dorsal aspect, with many sensillae. Clasper as long as high, with apicodorsal point in lateral aspect and apicomesal point in both lateral and ventral aspects. Phallus tubular, inflated basally, lateral margin produced apicoventrally; internally with a small rod-and-ring assembly and two pairs of short, dark spines, one pair longer and more slender than other.

MATERIAL EXAMINED.—ARGENTINA, PCIA. MISIONES, Puerto Rico, 4–8 Apr 1971, C.M. and O.S. Flint, Jr., 2♀. Arroyo Piray Mini, W Dos Hermanas, 23 Nov 1973, O.S. Flint, Jr., 100s of ♂ and ♀. Arroyo Piray Guazú, N San Pedro, 22 Nov 1973, O.S. Flint, Jr., 100s of ♂ and ♀.

BRAZIL, EDO. SANTA CATARINA, Nova Teutonia, 27°11'S, 52°23'W, 300–500 m, Jun 1963, F. Plaumann, 3♂, 3♀; same but Aug–Nov 1963, 100 ♂ and ♀; same, but Jan–Feb 1963, 3♂, 2♀; same, but Aug 1964, 1♂; same, but Oct 1964, 19♂, 38♀; same, but 24 Aug–4 Oct 1939, 10♂, 8♀ (MCZ). Blumenau, 21 Jul 1953, C. Biezanko, 1♀.

PARAGUAY, Alto Paraná, SE Naranjal (~20 km S. Puerto Stroessner), 18–24 Aug 1988, L.E. Peña G., 74♂, 23♀.

URUGUAY, Cerro Largo, Arroyo Quebracho, 4–8 Mar 1959, C.C. Carbonell, 3♂, 3♀.

ETYMOLOGY.—Probably a name suggested by the country Brazil.

Chimarra (Curgia) piraya Flint

FIGURES 356–359; MAP 21

Chimarra (Curgia) piraya Flint, 1983:15.

REMARKS.—As discussed more fully under *brasiliana,* these

two species are very closely related. This species is distinguishable by coloration and by the shapes of the eighth tergum and its brushes, the tenth tergum, and claspers.

ADULT.—Length of forewing, ♂ and ♀ 6–8 mm. Color fuscous; head and thorax dorsally with golden hair; forewing fuscous, with none to a few scattered, silvery white maculae. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum with posterior margin produced at midheight; tergum deeply and broadly concave in dorsal aspect, with posterolateral brush on a gently curved lobe, a second pair of smaller brushes directed posteriad from small prominences on posterior margin of inner lobe. Ninth sternum produced anteroventrally; with an elongate posteromesal keel; with a thin, but broad, dorsomesal plate-like sclerite produced between lateral lobes of eighth tergum. Cercus elongate, ovoid in outline. Tenth tergum with tip entire, semierect, tapering apicad, tip broadly rounded in dorsal aspect, with many sensillae. Clasper as long as high, with apicodorsal point in lateral aspect and apicomesal point in both lateral and ventral aspects. Phallus tubular, inflated basally, lateral margin produced apicoventrally; internally with a small rod-and-ring assembly and two or three short, dark spines.

MATERIAL EXAMINED.—ARGENTINA, PCIA. MISIONES, Arroyo Piray Mini, W Dos Hermanas, 23 Nov 1973, O.S. Flint, Jr., holotype ♂, 28♂, 13♀ paratypes. Arroyo Piray Guazú, N San Pedro, 22 Nov 1973, O.S. Flint, Jr., 2♂, 1♀ paratypes.

ETYMOLOGY.—A name suggested by the locality Piray.

Chimarra (Curgia) parana Flint

FIGURES 360–363; MAP 22

Chimarra (Curgia) parana Flint, 1972:227.
Chimarra (Curgia) punctulata Flint, 1983:15 [new synonymy].

REMARKS.—The species *parana* and *cultellata* are very closely related; the majority of genital parts are nearly identical. Only two distinctions seem to be clear-cut and consistent: the mesal plate of the eighth tergum in *parana* bears two pairs of small brushes, and the phallus bears only one pair of spines; in *cultellata* there is only one pair of small brushes from the inner lobe of the eighth tergum, and the phallus bears two pairs of spines.

ADULT.—Length of forewing, ♂ and ♀ 5–7 mm. Color dark brown; body, bases of legs, and antennae light brown; head and thorax with golden hair dorsally; forewing dark brown, with many scattered, mostly small, golden maculae. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum with posterior margin produced at midheight; tergum deeply and broadly concave in dorsal aspect, with posterolateral brush on a broad, decurved lobe, inner lobe bearing two pairs of small brushes directed posteriad, ventralmost brush slightly above dorsal margin of tenth tergum. Ninth sternum produced anteroventrally; with an elongate posteromesal keel; with a thin, but broad, dorsomesal, plate-like sclerite produced between lateral lobes of eighth tergum. Cercus elongate, ovoid in outline. Tenth tergum with tip entire, broad basally, slender apicad and directed straight posteriad, tip extended as a narrow, apically rounded lobe in dorsal aspect, with scattered sensillae. Clasper as long as high, with apicodorsal point in lateral aspect, apicomesal point scarcely evident, with a darkened ridge on posterior face. Phallus tubular, inflated basally, lateral margin produced apicoventrally; internally with a small rod-and-ring assembly and a pair of short, dark spines.

MATERIAL EXAMINED.—ARGENTINA, PCIA. MISIONES; Puerto Rico, 4–8 Apr 1971, C.M. and O.S. Flint, Jr., holotype ♂, 15♂ and 11♀ paratypes. Mbopicua near Puerto Rico, 6–7 Apr 1971, C.M. and O.S. Flint, Jr., 29♂ and 37♀ paratypes. Capioví, 5 Apr 1971, C.M. and O.S. Flint, Jr., 3♀ paratypes. Arroyo Piray Guazú, north San Pedro, 22 Nov 1973, O.S. Flint, Jr., 2♀. Arroyo Saura, 9 km N L.N. Alem, 20 Nov 1973, O.S. Flint, Jr., 1♂, 2♀. Arroyo Liso, 8 km N L.N. Alem, 19 Nov 1973, O.S. Flint, Jr., 3♂, 6♀. Arroyo Coati, 15 km E San José, 18–19 Nov 1973, O.S. Flint, Jr., 19♂, 29♀.

BRAZIL, DISTRITO FEDERAL, Planaltina, 15°35'S, 47°42'W, 1000 m, 26 Aug 1986, V.O. Becker, 5♂ (EBPA, NMNH); same, but 25–30 Sep 1985, S.E. Miller, 2♂, 2♀. EDO. GOIÁS, Chapada dos Veadeiros, 18–24 km N Alto Paraíso, 1400–1500 m, 2–5 Oct 1985, S.E. Miller, 2♂. 7 km NE Alto Paraíso, 1100 m, 3–4 Oct 1985, S.E. Miller, 4♂. EDO. RIO DE JANEIRO, Rio Pirai, Municipalidad Rio Claro, 8 Apr 1977, C.M. and O.S. Flint, Jr., 3♂ and 1♀ paratypes, *punctulata*. EDO. SANTA CATARINA, Nova Teutonia, 27°11'S, 52°23'W, 300–500 m, Oct 1963, F. Plaumann, 1♂ paratype, *punctulata*. EDO. SÃO PAULO, Pedregulho, 140 km NE Riberao Preto, 13 Apr 1989, L.G. Oliveira, 3♂, 8♀. Piracicaba, 2 Dec 1965, C.A. Triplehorn, 1♂. EDO. MINAS GERAIS, Serra do Cipó, Rio Capivara, 11 Jul 1973, C.G. Froehlich et al., 4♂ (MZUSP); same, but 18 Dec 1973, 31♂, 100♀ (MZUSP, NMNH); same, but 6–9 Feb 1974, 7♂, 1♀ (MZUSP); same, but 6–9 Jul 1974, 24♂, 31♀ (MZUSP); same, but 28 Oct 1974, 70♂, 150♀ (MZUSP, NMNH); same, but 19 Apr 1975, 17♂, 46♀ (MZUSP, NMNH); same, but 7 Oct 1975, 1♂ (MZUSP); same, but 22 Sep 1976, 8♂, 9♀ (MZUSP); same, but caminho da usina, trib. Rio Capivara, 20 Dec 1974, 9♂, 21♀ (MZUSP); same, but 19 Apr 1975, 12♂, 10♀ (MZUSP); same, but 21 Sep 1976, 1♂ (MZUSP); same, but Rio Brauninha, 7 Feb 1974, 1♂ (MZUSP).

PARAGUAY, Arroyo Tapiracuay, San Estanislao, 27 Nov 1973, O.S. Flint, Jr., 1♂, 2♀. Río Aquidabán, Cerro Corá, 29 Nov 1973, O.S. Flint, Jr., 1♀. Salto del Monday, near Puerto Presidente Franco, 26 Nov 1973, O.S. Flint, Jr., 1♂.

ETYMOLOGY.—A name suggested by the river Parana.

Chimarra (Curgia) cultellata Flint

FIGURES 364–368; MAP 21

Chimarra (Curgia) cultellata Flint, 1983:15.

REMARKS.—As discussed more fully under *brasiliana*, the

three species, *brasiliana, cultellata,* and *piraya,* are all very closely related. The elongate, slender apex of the tenth tergum in the male of this species, which extends straight posteriad, is diagnostic.

ADULT.—Length of forewing, ♂ and ♀ 4.5–6 mm. Color brown; body, bases of legs, and antennae light brown; head and thorax with yellow-brown hair dorsally; forewing brown, almost covered by yellow-brown maculae, leaving only scattered darker marks. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum with posterior margin produced at midheight; tergum deeply and broadly concave in dorsal aspect, with posterolateral brush on a broad, decumbent lobe, a second pair of smaller brushes directed posteriad from small prominences on posterior margin of inner lobe. Ninth sternum produced anteroventrally; with an elongate posteromesal keel; with a thin, but broad, dorsomesal plate-like sclerite produced between lateral lobes of eighth tergum. Cercus elongate, ovoid in outline. Tenth tergum with tip entire, broad basally, slender apicad and directed straight posteriad, tip extended as a narrow, apically rounded lobe in dorsal aspect, with scattered sensillae. Clasper as long as high, with apicodorsal point in lateral aspect, apicomesal point scarcely evident, with a darkened ridge on posterior face. Phallus tubular, inflated basally, lateral margin produced apicoventrally; internally with a small rod-and-ring assembly and two pairs of short, dark spines.

MATERIAL EXAMINED.—ARGENTINA, PCIA. MISIONES, Iguazú, 30 Jan–13 Mar 1945, Hayward, Willink, and Golbach, 13♂, 7♀.

BRAZIL, EDO. SANTA CATARINA, Nova Teutonia, 27°11′S, 52°23′W, 300–500 m, Jan 1963, F. Plaumann, holotype ♂. DISTRITO FEDERAL, Planaltina, 15°35′S, 47°42′W, 1000 m, 26 Aug 1986, V.O. Becker, 1♂ (EBPA). EDO. MINAS GERAIS, Serra do Cipó, km 110, 29 Oct 1974, C.G. Froehlich, 1♂, 1♀ (MZUSP). EDO. RONDÔNIA, 62 km S Ariquemes, Linea C-20, 7 km E B-65, Fazenda Rancho Grande, 10°32′S, 62°48′W, 165 m, 17 Nov 1991, D. Petr, 1♂, 1♀. Linea C-20, off B-65, at Rio Pardo, 19 Nov 1991, D. Petr, 1♂, 1♀. 8 km S Caucalandia, creek, 21 Nov 1991, D. Petr, 7♂, 10♀.

VENEZUELA, T.F. AMAZONAS, Río Cataniapo, 10 km S Puerto Ayacucho, 9 Mar 1984, O.S. Flint, Jr., 7♂, 5♀.

ETYMOLOGY.—From the Latin *cultellus* ("small knife"), in allusion to the projecting tenth tergum.

Chimarra (Curgia) fittkaui Flint

FIGURES 369–374; MAP 20

Chimarra (Curgia) fittkaui Flint, 1971:22.

REMARKS.—This is a very distinctive species, on the basis of male genitalia. The male genitalia are clearly of the *brasiliana* pattern, but the eighth tergum is constructed rather differently from the other species of the group. Whereas the other species have the posterolateral lobes bearing brushes of long setae, *fittkaui* has these lobes bearing only short, scabrous setae. Also, the ninth tergal plate is constructed quite differently in this species than the in others in the group.

ADULT.—Length of forewing, ♂ and ♀ 5–7 mm. Color pale brown; body, bases of legs, and antennae stramineous; forewing stramineous, with many irregular, brown maculae. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum greatly widened dorsad; tergum strongly produced posterolaterally and bearing apically a brush of short, setae, all directed mesad, in dorsal aspect with a deep, wide, U-shaped mesal emargination. Ninth sternum with anteroventral angle strongly produced; dorsal margin produced into an erect, broad, hirsute lobe between lobes of eighth tergum; with large posteroventral mesal keel. Cercus large, elongate, flared laterad. Tenth tergum broad basally, narrowing apicad, apex up-arched, hood-like; apex narrowed in dorsal aspect; with scattered sensillae. Clasper short, quadrate, with apicoventral and apicodorsal points in lateral aspect; in ventral aspect with pale apicomesal point mostly obscuring a dark ridge on posterior face. Phallus tubular, short, inflated basally; internally with a rod-and-ring assembly associated with two elongate, slender spines and three short, dark spines.

MATERIAL EXAMINED.—BRAZIL [EDO. AMAZONAS], Rio Marauiá, Endstation vor langer Cachoeira, Fluss tritt hier aus dem Gebirge mit starkem Gefälle, 28 Jan 1963, E.J. Fittkau (A-502), ♂ holotype, ♂ paratype.

GUYANA, Moco Moco River, Kanuku Mts., 30 km E Lethem, 3°18.2′N, 59°38.9′W, 29 Apr 1995, O.S. Flint, Jr., 8♂, 3♀ (NMNH, UGGG); same, but 3–6 Apr 1994, W.N. Mathis, 1♀.

ETYMOLOGY.—Patronym in honor of E.J. Fittkau, dipterist, who collected the type series.

Chimarra (Curgia) scopula Flint

FIGURES 375–380; MAP 24

Chimarra (Curgia) scopula Flint, 1974:18.

REMARKS.—The species *scopula* and *scopuloides* are very closely related, as suggested by their specific epithets. Only two distinctions seem to be clear-cut and consistent: the apex of the tenth tergum is rounded and extends posteriad in *scopula* but is upcurved and pointed in *scopuloides;* and the clasper is slightly produced apicodorsally in lateral aspect, with the mesal tooth well developed and pointed in *scopula,* but rectangular with a blunt tooth in *scopuloides.*

ADULT.—Length of forewing, ♂ and ♀ 4–5.5 mm. Color pale brown; body, bases of legs, and antennae stramineous; forewing pale brown, with many irregular, stramineous maculae. Claws of male foreleg exceedingly asymmetrical.

Male Genitalia: Eighth sternum widened dorsad; tergum strongly produced posteriad, in dorsal aspect with a deep, U-shaped mesal incision, with two small posterolateral brushes

MAP 24.—Distributions of *Chimarra* (*Curgia*) *scopuloides* Flint, *Chimarra* (*Curgia*) *mycterophora*, new species, *Chimarra* (*Curgia*) *camposae*, new species, and *Chimarra* (*Curgia*) *scopula* Flint.

on small processes ventrad of each dorsal lobe. Ninth sternum produced anteroventrally; with an elongate posteromesal process; with a thin, very narrow, dorsomesal sclerite produced between lateral lobes of eighth tergum. Cercus elongate, ovoid in outline. Tenth tergum with tip entire, broad basally, slender apicad and directed posteriad, tip slightly elevated, extended as

a tapering, apically rounded lobe in dorsal aspect, with scattered sensillae. Clasper slightly longer than high, produced slightly apicodorsally in lateral aspect, apicomesal tooth well developed, sharply pointed. Phallus tubular, inflated basally, produced apicoventrally; internally with a small rod-and-ring assembly, a pair of elongate, lightly sclerotized spines, and two to four shorter, dark spines.

MATERIAL EXAMINED.—SURINAME, Suriname River, Kabelstation, river bank in leaves, 25 Sep 1938, D.C. Geijskes, 4♂ paratypes.

VENEZUELA, EDO. BARINAS, Río Santo Domingo, Barinas, 17 Feb 1976, C.M. and O.S. Flint, Jr., 1♂. EDO. BOLIVAR, Río Caroni at Paso Caruachi, 9 Feb 1976, C.M. and O.S. Flint, Jr., 12♂, 101♀. Río Caroni, Parque Llovizna, Ciudad Guyana, 13 Feb 1976, C.M. and O.S. Flint, Jr., 41♂, 26♀. Río Cuyuni, El Dorado, 10 Feb 1976, C.M. and O.S. Flint, Jr., 3♀.

ETYMOLOGY.—From the Latin *scopula* ("small broom"), in allusion to the brushes of the eighth tergum.

Chimarra (Curgia) scopuloides Flint

FIGURES 381–386; MAP 24

Chimarra (Curgia) scopuloides Flint, 1974:19.
Chimarra (Curgia) catarinensis Flint, 1983:19 [new synonymy].

REMARKS.—This species and the preceding species, *scopula,* are very closely related. Only two differences in the male genitalia seem to be consistent: the apex of the tenth tergum is upcurved and pointed in *scopuloides* but is rounded and extends posteriad in *scopula;* and the clasper in ventral aspect is rectangular with a blunt tooth in *scopuloides,* whereas the mesal tooth is well developed and pointed in *scopula.* The small, uppermost brush from the ventrolateral margin of the eighth tergum is quite variable, even being totally lost in the holotype of *catarinensis.*

ADULT.—Length of forewing, ♂ and ♀ 5–5.5 mm. Color pale brown; head and thorax dorsally with golden hair; body, legs, and antennae stramineous; forewing dark brown, with a few, mostly large, distinct, golden maculae. Claws of male foreleg exceedingly asymmetrical.

Male Genitalia: Eighth sternum barely widened dorsad; tergum strongly produced posteriad, in dorsal aspect with a deep, U-shaped mesal incision, with two small posterolateral brushes (dorsalmost much smaller and sometimes lacking) on small processes ventrad of each dorsal lobe. Ninth sternum produced anteroventrally; with a short posteromesal process; with a thin, very narrow, dorsomesal sclerite produced between lateral lobes of eighth tergum. Cercus elongate, ovoid in outline. Tenth tergum with tip entire, broad basally, curving dorsad apically, tip pointed, extended as a tapering, narrowly rounded lobe in dorsal aspect; with scattered sensillae. Clasper equidimensional to higher than long in lateral aspect, apicomesal tooth obscure, bluntly rounded in ventral aspect. Phallus tubular, inflated basally, produced apicoventrally; internally with a rod-and-ring assembly associated with one or two elongate spines dorsally and six to ten shorter, dark spines.

MATERIAL EXAMINED.—ARGENTINA, PCIA. MISIONES, Iguazú, 30 Jan–13 Mar 1945, Hayward, Willink, and Golbach, 5♂.

BRAZIL, EDO. PARÁ, Rio Xingu, camp ~60 km S Altamira (52°22'W, 3°39'S), 6–21 Oct 1986, P. Spangler and O. Flint, 1♂, 2♀. EDO. GOIÁS, Chapada dos Veadeiros, 18–24 km N Alto Paraiso, 1400–1500 m, 2–5 Oct 1985, S.E. Miller, 1♂. EDO. RONDÔNIA, 8 km S Caucalandia, creek, 21 Nov 1991, D. Petr, 1♂, 1♀. EDO. SANTA CATARINA, Nova Teutonia, 52°23'W, 27°11'S, 300–500 m, Jan 1963, F. Plaumann, ♂ holotype; same, but Feb 1964, 2♂ paratypes of *catarinensis.* TERR. RORAIMA, Rio Uraricoera, Ilha de Maraca, 2–13 May 1987, Rafael et al., 2♂ (INPA, NMNH).

Also recorded from Suriname (Flint 1974:19).

ETYMOLOGY.—From the Latin suffix *-oides* ("like"), in allusion to similarity to the preceding species.

Chimarra (Curgia) tamba, new species

FIGURES 387–391; MAP 22

REMARKS.—This very distinctive species is placed in its own complex. The ornamentation of the eighth tergum, especially, is unlike anything else yet seen in the subgenus, as is the humped tenth tergum. The other aspects of the male genitalia, however, are quite typical of many of the other complexes in the group.

ADULT.—Length of forewing, ♂ 7–8 mm. Color brownish; body and appendages stramineous; forewing dark brown (especially veins), with scattered, obscure darker maculae. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsally; tergum with an elongate posterolateral stalk with few long setae and scattered apicomesal spiculae, with a pair of large, horizontal plates mesally, with ventral surfaces densely spinose, with slender, pale processes dorsolaterally bearing several, long apical setae; with posterior margin deeply incised mesally in dorsal aspect, with a central, inverted V-shaped mark. Ninth sternum greatly produced anteroventrally; with elongate, posteromesal keel; produced dorsally into a thin, broad plate beneath mesal brushes of eighth tergum and with dorsolateral angles produced anteriad between the lateral lobes and the mesal plate of the eighth tergum. Cercus elongate, flared laterad, rounded apically. Tenth tergum with tip entire, apex rounded, arched, with a dorsal knob at midlength; with many sensillae. Clasper short, trianguloid; with a mesoventral tooth barely visible in ventral aspect. Phallus short, tubular, base inflated (now broken off), with apicolateral face produced; internally with a small rod-and-ring assembly, a pair of slender curved spines, the longer of which is bifid apically, and a small, dark, apical spine.

MATERIAL.—*Holotype,* male: PERU, DPTO. CUSCO, *Pcia. Paucartambo,* streamlet 50 m E Quitacalzón at km 164 (13°01.6'S, 71°30.0'W), 32 km NW Pilcopata, 1050 m, 2 Sep

1989, N. Adams et al. NMNH Type.

Paratypes: Same data as holotype, but Puente San Pedro at km 152 (13°03.3'S, 71°32.8'W), 44 km NW Pilcopata, 1450 m, 2–3 Sep 1988, O. Flint and N. Adams, 1♂ (NMNH). Santa Isabel, Cosñipata Valley, 30 Nov 1951, Felix Woytkowski, 1♂ (INHS).

ETYMOLOGY.—A name suggested by the locality Paucartambo.

Chimarra (Curgia) teresae, new species

FIGURES 392–397; MAP 22

REMARKS.—Although this species and the following species are placed in their own complex on the basis of the ornamentation of the eighth tergum, there does seem to be some similarity in this structure to that seen in *tamba.* The remaining parts of the male genitalia are very typical of a large number of species in the *banksi* group. The larger mesal brush and differently formed posterior margin of the eighth tergum and the evenly curved and hood-like tenth tergum distinguishes *teresae* from *camposae.*

ADULT.—Length of forewing, ♂ and ♀ 5.5–7 mm. Color brownish; body and appendages stramineous; forewing pale brown, with scattered, obscure darker maculae. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsally; tergum with a sharply inturned, posterolateral brush on a short stalk, with a pair of large, vertical plates mesally, with inner surfaces densely spinose, with a hairy dorsolateral lobe and with posterior margin deeply incised mesally in dorsal aspect. Ninth sternum produced anteroventrally, broad dorsally with mesal region depressed; with posteromesal keel; produced dorsally into a plate divided to each side of mesal brushes of eighth tergum. Cercus elongate, flared laterad, enlarged apicad. Tenth tergum with tip entire, apex rounded, short and arched; with small basolateral, shoulder-like lobe; with many sensillae. Clasper short, rounded apicodorsally with small, blunt apicoventral tooth. Phallus short, tubular, base inflated (now broken off), with apicolateral face produced; internally with a small rod-and-ring assembly and a pair of small, dark, apical spines.

MATERIAL.—*Holotype,* male: BRAZIL, EDO. ESPÍRITO SANTO, Fazenda Santa Clara, 15 km SE Santa Teresa, 460 m, 22 Apr 1977, C.M. and O.S. Flint, Jr. MZUSP Type.

Paratypes: Same data as holotype, 3♀ (MZUSP, NMNH).

ETYMOLOGY.—A name suggested by the locality Santa Teresa.

Chimarra (Curgia) camposae, new species

FIGURES 398–403; MAP 24

REMARKS.—This species and the preceding species, *teresae,* are closely related, as shown by the great similarity in the male genital structures. In *camposae* the mesal brush of the eighth tergum is smaller, and the posterior margin and posterolateral brush are differently formed. The tenth tergum has an almost straight dorsal margin with a distinct mesobasal projection (as seen in lateral aspect) and a ventral margin that is more angulate.

ADULT.—Length of forewing, ♂ 6–7 mm. Color unicolored, pale brown in alcohol. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsally; tergum with a sharply inturned, posterolateral brush on a short stalk, with a pair of vertical plates mesally, with inner surfaces densely spinose, with posterior margin slightly produced laterad and bearing some spinose hairs and deeply incised mesally in dorsal aspect. Ninth sternum produced anteroventrally, broad dorsally with mesal region depressed and bearing a small anteromesal, knob-like lobe; with posteromesal keel; produced dorsally into a plate divided to each side of mesal brushes of eighth tergum. Cercus elongate, flared laterad, enlarged apicad. Tenth tergum with dorsal margin nearly straight with tip slightly turned down and bearing many sensillae, with a distinct basal projection as seen in lateral aspect, ventral margin nearly right-angled at midlength, with small basolateral lobe. Clasper short, rounded apicodorsally, with small, blunt apicoventral tooth. Phallus short, tubular, base slightly inflated, ventral margin angulate, with apicolateral face produced; internally with a small rod-and-ring assembly and a pair of small, dark, apical spines.

MATERIAL.—*Holotype,* male: BRAZIL, EDO. MINAS GERAIS, Corrego Marumbe, Municipio Nova Lima, 20°03'31"S, 43°53'29"W, 4 Aug 1988, Campos and Junqueira. MZUSP Type.

Paratypes: Same data as holotype, 7♂ (MZUSP, NMNH); same, but Rio do Peixe, 20°18'55"S, 43°53'29"W, 5 Aug 1988, 2♂ (NMNH). Ribeirão do Silva, Municipio Itabirito, 20°16'21"S, 43°56'08"W, 5 Aug 1988, Campos and Junqueira, 7♂ (MZUSP, NMNH).

ETYMOLOGY.—Patronym in honor of Monica de Cassia de Souza Campos, aquatic ecologist, who collected the type series.

Chimarra (Curgia) mycterophora, new species

FIGURES 404–408; MAP 24

REMARKS.—The two new species, *mycterophora* and *erectiloba,* form a closely related species pair. They share a virtually unique structure of the eighth tergum, although clearly foreshadowed by the less extreme development of the same in the *geranoides* complex. The two species are distinguished most easily by the structure of the tenth tergum, which in *mycterophora* is longer and bears no erect basal process, and by the dorsolateral, setate lobes of the eighth tergum, which in *mycterophora* are free of the central lobe for a considerable distance.

ADULT.—Length of forewing, ♂ and ♀ 6–10.5 mm. Color fuscous; body and appendages stramineous; forewing fuscous,

with many scattered, paler hairs. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsad; tergum with long ventrolateral arms, darkened apicad and bearing dark points; with long, posteromesal lobe whose apex is hooked ventrad and bears ventrally a brush of short, fine hair, and bearing at midlength short, dorsolateral, setate lobes. Ninth sternum produced anteroventrally; with short, posteromesal keel; produced into a pair of long, dorsal extensions, mostly filling area between mesal and lateral processes of eighth tergum. Cercus elongate, slightly enlarged apicad. Tenth tergum short, tip entire, hood-like, angled dorsad, dorsal surface before sensillate lobe with a pair of small angles; in dorsal aspect narrowed for apical half, tip rounded; with many sensillae. Clasper short, quadrate, with small ventromesal tooth barely extending beyond tip in lateral and ventral aspects. Phallus tubular, inflated basally; internally with a small rod-and-ring assembly, a pair of slender, curved, black spines, and a second pair of short, dark spines.

MATERIAL.—*Holotype,* male: BOLIVIA, DPTO. LA PAZ, quebradas del Río Zongo, 1400 m, 24–30 Oct 1984, L.E. Peña G. NMNH Type.

Paratypes: Same data as holotype, 36♂, 40♀. Unduavi to Coroico, 2500 m, 19–25 Nov 1984, L.E. Peña G., 1♂. Coroico, 2200 m, 23–24 Nov 1984, L.E. Peña G., 28♂, 14♀. Yungas La Paz, Puente Muruata to Cusilloni, 1600 m, 26–28 Nov 1984, L.E. Peña G., 21♂, 14♀. DPTO. COCHABAMBA, Río Ronquito, road to Villa Tunare, Chapare, 1900 m, 10–11 Dec 1984, L.E. Peña G., 11♂, 15♀. Dpto. unknown, Alto Beni, 1600 m, 10–11 Jan 1976, L.E. Peña G., 1♂.

PERU, DPTO. CUSCO, *Pcia. Paucartambo,* river at Puente Union (13°04.2'S, 71°34.0'W), 1670 m, 21–23 Jun 1993, Blahnik and Pescador, 54♂, 29♀ (MHNJP, NMNH, UMSP). Puente San Pedro at km 152 (13°03.3'S, 71°32.8'W), 44 km NW Pilcopata, 1450 m, 2–3 Sep 1988, O. Flint and N. Adams, 8♂, 14♀; same, but 30–31 Aug 1989, N. Adams et al., 2♂, 2♀; same, but 24 Jun 1993, Blahnik and Pescador, 15♂, 7♀ (MHNJP, NMNH, UMSP). Paucartambo, Cosñipata Valley, 14 Nov 1951, F. Woytkowski, 1♂ (INHS).

ETYMOLOGY.—From the Greek *mykter* ("nose") and *phero* ("bear"), in allusion to the process of the eighth tergum.

Chimarra (*Curgia*) *erectiloba,* new species

FIGURES 409–413; MAP 21

REMARKS.—This species and *mycterophora* form a readily recognized species complex characterized especially by the structure of the eighth tergum. In *erectiloba* the dorsolateral, setate lobes on the posteromesal lobe of the eighth tergum are fused to the mesal lobe, being noticeable only as a ridge in lateral aspect, and the tip of the tenth tergum is narrow and bears a pair of erect, slender processes.

ADULT.—Length of forewing, ♂ and ♀ 7–9 mm. Color pale brown; body and appendages stramineous; forewing with pale brown hair, with many scattered, darker flecks. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth sternum widened dorsad; tergum with long ventrolateral arm whose apex is nubbly; with long, posteromesal lobe whose apex bears ventrally a brush of short, fine hair internally, and bears at midlength lateral, setate lobes mostly fused to dorsal margin of mesal lobe. Ninth sternum produced anteroventrally; with posteromesal keel; produced into a pair of long, dorsal extensions, mostly filling area between mesal and lateral processes of eighth tergum, central region deeply concave in lateral aspect. Cercus elongate, slightly enlarged apicad. Tenth tergum short, tip entire, hood-like, semierect, dorsal surface before sensillate lobe with a pair of slender, erect processes; in dorsal aspect narrowed for apical half, tip rounded; with many sensillae. Clasper short, quadrate, with small ventromesal tooth barely extending beyond tip in lateral and ventral aspects. Phallus tubular, inflated basally; internally with a small rod-and-ring assembly, a pair of slender, curved, black spines, and a second pair of short, dark spines.

MATERIAL.—*Holotype,* male: PERU, DPTO. CUSCO, *Pcia. Paucartambo,* Puente San Pedro at km 152 (13°03.3'S, 71°32.8'W), 44 km NW Pilcopata, 1450 m, 2–3 Sep 1988, O. Flint and N. Adams. NMNH Type.

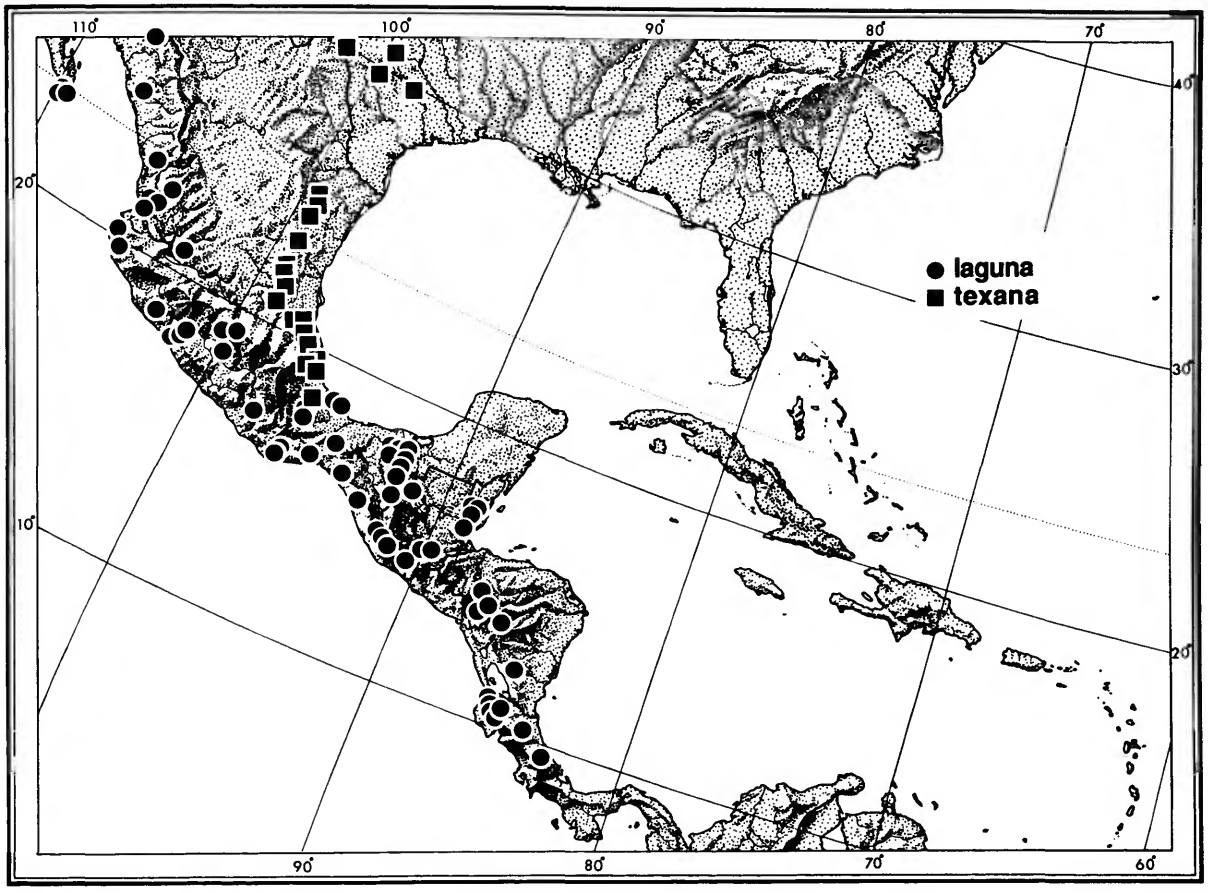
Paratypes: Same data as holotype, 15♂, 10♀; same, but 30–31 Aug 1989, N. Adams et al., 5♂, 5♀; same, but 24 Jun 1993, Blahnik and Pescador, 14♂, 11♀; same, but stream 3 km E Puente San Pedro, 31 Aug 1989, N. Adams, 5♂, 4♀. River at Puente Union (13°04.2'S, 71°34.0'W), 1670 m, 21–23 Jun 1993, Blahnik and Pescador, 2♂, 1♀. Quitacalzón at km 164 (13°01.6'S, 71°30.0'W), 32 km NW Pilcopata, 1050 m, 1–2 Sep 1989, N. Adams, 6♂, 1♀; same, but 25–27 Jun 1993, Blahnik and Pescador, 15♂, 21♀; same, but streamlet 50 m E Quitacalzón, 2 Sep 1989, N. Adams, 6♂; same, but 26 Jun 1993, Blahnik and Pescador, 5♂, 2♀. Santa Isabel, Cosñipata Valley, 7 Dec 1951, Felix Woytkowski, 1♂ (INHS).

ETYMOLOGY.—From the Latin *erectus* ("upright") and *lobus* ("projection"), in allusion to the process of the tenth tergum.

The *laguna* Group

DIAGNOSIS.—Length of forewing, 4.5–8 mm. Color dark brown to fuscous; forewing with four or more silver spots. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth tergum with a slender posteromesal process, with posterolateral plate bearing one or two setal brushes. Ninth segment with anterior margin produced ventrally, indented at midlength; posterolateral margin unmodified; posteromesal keel long and slender. Cercus elongate, broad apically. Tenth tergum entire, tip narrow and directed dorsad, bearing many sensillae. Clasper in lateral aspect elongate, with a dorsal tooth at midlength, tip pointed; in ventral aspect almost triangular in outline. Phallus tubular,



MAP 25.—Distributions of *Chimarra* (*Curgia*) *laguna* Ross and *Chimarra* (*Curgia*) *texana* (Banks).

inflated basally; internally with small rod-and-ring assembly and two short, black spines.

DISTRIBUTION.—Southwestern United States, south through Mexico to Costa Rica.

DISCUSSION.—This is a distinctive group of two closely related species. The structure of the eighth tergum, especially the slender mesal process, the upturned tip of the tenth tergum, and the shape of the clasper render the group easily recognizable. In the field, the dark, usually fuscous wings with bright silvery spots also permit ready recognition.

Chimarra (*Curgia*) *laguna* Ross

FIGURES 414–421; MAP 25

Chimarra (*Curgia*) *laguna* Ross, 1951:68; 1956:51.—Denning, 1962:402.—Fischer, 1971:221.—Bueno and Flint, 1980:196.—Holzenthal, 1988:57.

Chimarra (*Curgia*) *brustia* Ross, 1959:176.—Fischer, 1971:221 [new synonymy].

Chimarra (*Curgia*) *alamosa* Denning, 1962:406.—Bueno and Flint, 1980:196 [*alamosa* to synonymy].

REMARKS.—This very wide-ranging species is quite constant in most respects over its range. Some examples from Costa Rica appear to be identical in coloration and genitalia to examples from Baja California. However, some variations are found. The brushes on the lateral lobes of the eighth tergum are quite variable, sometimes divided into two as shown herein, but frequently they are broadly connected by many more spines, and the tip of the lobe can be drawn out a bit. Material from Guatemala and scattered lots from southern Mexico to Costa Rica have a point on either side of the central spine of the eighth tergum. They also have a basic dark brown (not fuscous), even when living, ground color that is variously spotted with from none to many small cream-colored spots. However, the material from Cascada Misolja and Río Tulija, which also have the points on the eighth tergum, are colored exactly like examples from Baja, California, whereas the series from near Arriaga, Mexico, are colored like the Guatemalan examples but have genitalia like the Baja examples. The "*brustia*" form seems to be an extreme example of the development of the point into a shelf-like lobe (Figure 421). Because these

variations do not exhibit any constant association of characteristics or exclusive ranges, I consider them to be only variants that exhibit greater frequency and integrity in certain regions.

ADULT.—Length of forewing, ♂ and ♀ 6.5–8 mm. Color fuscous, appendages a bit paler; forewing fuscous, with four silvery white maculae, sometimes subdivided or virtually lost (quite variable).

Male Genitalia: Eighth sternum slightly widened dorsad; tergum strongly produced in a sharp, posteromesal spine, posterior margin laterad of spine nearly straight in dorsal aspect; with a large posterolateral lobe bearing brushes of setae apically and basodorsally. Ninth sternum produced anteroventrally; with elongate, slender, posteromesal keel; produced into a long dorsal extension, narrow in lateral aspect, articulating ventrobasally to eighth tergal spine. Cercus elongate, decurved, slightly enlarged apicad. Tenth tergum with tip entire, sharply curved dorsad, apically pointed; with many sensillae. Clasper longer than high, with dorsomesal tooth projecting above body in lateral aspect; in ventral aspect almost equidimensional, with tooth barely visible mesally, directed mesad. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly and a pair of small, dark spines.

MATERIAL EXAMINED.—MEXICO, BAJA CALIFORNIA SUR, El Triunfo, 3 Oct 1981, Andrews and Faulkner, 2♀ (NMNH, SDMNH). 12.2 mi [19.6 km] SE San Perdito, near Rancho Saucito, 8 Oct 1981, Andrews and Faulkner, 1♀ (SDMNH). El Salto, 8 mi [12.9 km] NE Todos Santos, 9 Oct 1983, Andrews and Faulkner, 4♂, 6♀ (NMNH, SDMNH). Ramal de Naranjas, 6 mi [9.7 km] W Highway 1, near Santa Anita, 11 Oct 1983, Andrews and Faulkner, 2♂, 6♀ (NMNH, SDMNH). EDO. SONORA, Maycoba River, W Maycoba, 21 Aug 1986, Baumann et al., 1♂, 3♀. EDO. SINALOA, 2 mi [3.2 km] SW Santa Lucia (Villa Blanca), 6 Aug 1986, Faulkner, 1♂, 1♀ (NMNH, SDMNH). EDO. NAYARIT, 7.3 mi [11.8 km] W Huajicori, Mina el Tigre, 12–13 Mar 1987, Bloomfield, 4♂, 1♀ (NMNH, SDMNH). 49.4 mi [79.6 km] E Venado, 18–21 May 1988, N. Bloomfield, 1♀ (SDMNH). 15 mi [24.1 km] N Tepic, 26 Jul 1963, P.J. Spangler, 1♂. Río Santiago, Los Sabinos, 210 m, 10 Apr 1991, E. Barrera, 2♂, 2♀ (IBUNAM). Compostela, 20–21 Oct 1982, Ibarra and Garcia, 4♂ (IBUNAM). EDO. COLIMA, 13 mi [20.9 km] N Manzanillo, micr. toro, 24–26 May 1989, N. Bloomfield, 1♀ (SDMNH). EDO. MICHOACÁN, Aguililla, 31 Jul 1985, R. Barba, F. Arias, 1♂ (IBUNAM). EDO. JALISCO, 20 mi [32.2 km] S Puerto Vallarta (7.3 mi [11.8 km] E Edo. Jalisco), 20–23 May 1989, N. Bloomfield, 4♂, 8♀ (NMNH, SDMNH). 20.3 mi [32.7 km] S Yahualica, 5800′ [1740 m], 11 Sep 1986, Faulkner and Bloomfield, 1♂, 4♀ (SDMNH). EDO. GUERRERO, Cocula, at light, 17 Dec 1936, A. Dampf, male holotype of *brustia*; INHS Type. Ruta 130, 8 km NW Zihuatanejo, 7 Jun 1984, J. Bueno, 1♂ (*brustia* form, IBUNAM). Ruta 130, Altamirano to Zihuatanejo, 1200 m, 7 Jun 1984, Bueno and Barrera, 2♂ (*brustia* form, IBUNAM). Placeres del Oro, 22 Nov 1984, Barrera and Velasco, 14♂ (*brustia* form, IBUNAM, NMNH). EDO. MORELOS, San Rafael Vicente Aranda, 15 km SE Tehuixtla, 26–27 Mar 1982, H. Velasco, 40♂, 2♀ (*brustia* form, IBUNAM, NMNH); same, but 16 Apr 1982, 27♀ (IBUNAM). EDO. MÉXICO, Tejupilco, 13 Apr 1988, Cadona et al., 1♂ (*brustia* form, IBUNAM). EDO. VERACRUZ, Los Tuxtlas area, Balzapote, 3 May 1991, R. Arce, 1♂ (IBUNAM); same, but 21 Dec 1976, 1♂ (IBUNAM); same, but Río Palma, near Sontecomapán, 5 Dec 1975, C.M. and O.S. Flint, Jr., 2♂; same, but 7–14 May 1981, 1♂. Río Tacolapán, Rt. 180 km 551, 25–26 Jul 1966, Flint and Ortiz, 1♂. Camino a Uxpanapa, 29 May 1976, H. Brailovsky, 2♂ (IBUNAM). EDO. OAXACA, 7.4 mi [11.9 km] N Putla, Hwy 125, 3200′ [960 m], 3–5 Jan 1989, N. Bloomfield, 2♂, 2♀ (NMNH, SDMNH). 15 mi [24.2 km] N Pochutla, 1100′ [330 m], 7–10 Jan 1989, N. Bloomfield, 7♂, 9♀ (NMNH, SDMNH). Ruta 175, 12 km E Pocutla, 5 Sep 1982, J. Bueno, 1♂ (IBUNAM). Arroyo Choapan, Bethania, 31 km S Tuxtepec, 24 May 1981, C.M. and O.S. Flint, Jr., 2♂, 6♀. Tehuantepec, 23 Jul 1964, P.J. Spangler, 1♂. Candelaria de Loxicha, 10 Feb 1982, A. Ibarra, 2♂ (IBUNAM). Carretera Tuxtepec, km 70, 2 Apr 1986, A. Ibarra, 1♂, 2♀ (IBUNAM). Uxpanapa, 27 Sep 1977, 1♂ (IBUNAM). EDO. TABASCO, Río Puyacatengo, E Teapa, 28–29 Jul 1966, Flint and Ortiz, 29♂, 17♀ (including 2 pairs, IBUNAM, NMNH); same, but 9 Dec 1985, L. Cervantes, K. Barba, 1♀ (IBUNAM); same, but Grutas de Cocona, Río Puyacatengo, 7 Mar 1988, Barba and Barrera, 2♂ (IBUNAM). Río Teapa, Villahermosa, 6 May 1985, H. Velasco, 7♂, 15♀ (IBUNAM). EDO. CHIAPAS, 7.8 mi [12.6 km] E Pichucalco, 7 Dec 1975, C.M. and O.S. Flint, Jr., 3♂, 4♀. Palenque, 19 May 1984, M. Garcia, 2♂ (IBUNAM). Río Chacamax, Palenque, 6 Dec 1975, C.M. and O.S. Flint, Jr., 1♂, 4♀. 3 mi [4.8 km] N Palenque, 14 Jun 1974, J.R. Zimmerman, 1♂. 10 mi [16.1 km] W Palenque, 300 m, 7 Aug 1985, Wolfe and Valverde, 1♀ (SDMNH). Cascada Misolja, 20 km S Palenque, 17–18 May 1981, C.M. and O.S. Flint, Jr., 54♂, 25♀ (including 2 pairs); same, but 18 May 1981, J. Bueno, H. Velasco, 4♂ (IBUNAM). Agua Azul, 1 May 1978, H. Brailovsky, 6♂, 5♀ (IBUNAM); same, but 25 May 1979, L. Rivera, 1♂ (IBUNAM); same, but 2 May 1978, E. Barrera, 5♂, 8♀ (IBUNAM). Río Tulija, 48 km S Palenque, 17 May 1981, C.M. and O.S. Flint, Jr., 7♂, 6♀ (IBUNAM, NMNH). Ruinas de Bonampak, 3 May 1978, E. Barrera, 24♂ (IBUNAM); same, but 21 May 1980, J. Bueno, 13♂ (IBUNAM); same, but 5 May 1978, H.S. Brailovsky, 4♂ (IBUNAM); same, but 20–22 May 1984, A, Ibarra, 6♂ (IBUNAM). Río Lacanja, 22 km N Ocosingo, 19 May 1981, C.M. and O.S. Flint, Jr., 2♂. Rt. 35, 4 km N Arriaga, 9 Dec 1975, C.M. and O.S. Flint, Jr., 8♂, 3♀. Puente Arroyo Viejo, Rt. 200 km 141, 9 Jun 1967, Flint and Ortiz, 3♂, 4♀. Ixtacomitán, Matamoros, 10 Dec 1985, Arias et al., 5♂ (IBUNAM). Ixhuatán, km 3 carretera Pozo-Rosarito, 11 Dec 1985, R. Barba, L. Cervantes, 2♀ (IBUNAM). El Lagartero, Colon, 6 Apr 1979, J. Bueno, 21♂ (IBUNAM). Huitiupán, 18 Feb 1987, C. Beutelspacher, 33♂, 2♀ (IBUNAM). Corozal, 25 May 1984, Barrera and Ibarra, 1♂ (IBUNAM).

BELIZE, CAYO DIST., Chaa River Cabins, 14 km S San Ignacio, 23 May 1986, Spangler and Faitoute, 7♂, 3♀. 12 km SW Augustine, 27 May 1986, Spangler and Faitoute, 1♂. Río Privassión, Blancaneaux Lodge, 9–11 Jul 1973, Y. Sedman, 26♂, 16♀. Mountain Pine Ridge, 27–29 Jun 1971, G. Stacell, 45♂, 33♀. TOLEDO DIST., Columbia Forest Station, 29 Jun 1970, Y. Sedman, 3♀; same, but 3 Aug 1970, 9♂, 8♀.

GUATEMALA, DPTO. ZACAPA, Río Teculután, 18 Aug 1965, Flint and Ortiz, 15♂, 24♀. DPTO. EL PROGRESSO, San Agustín Acasaguastlín, 1 Aug 1965, Flint and Ortiz, 7♂, 6♀. DPTO. SUCHITEPEQUEZ, Finca Mocá, 12 Jun 1966, Flint and Ortiz, 1♂. Puente Ixtacapa, 18–19 Jun 1966, Flint and Ortiz, 8♂, 16♀ (incl. pair); same, but 28 Jun 1966, 1♂, 14♀. Cuyotenango, 10–20 Jun 1966, Flint and Ortiz, 7♂, 24♀; same, but 24 Dec 1965, J.M. Campbell, 3♂, 5♀; same, but 30 Dec 1965, 36♂, 120♀; same, but 22 Jan 1966, 3♂, 1♀; same, but 1 Feb 1966, 3♂, 1♀. DPTO. RETALHULEU, Puente El Nino, 16 Jun 1966, Flint and Ortiz, 1♂, 5♀. DPTO. SAN. MARCOS, Puente Ixben, 6 Jul 1966, Flint and Ortiz, 2♂, 4♀. DPTO. ESCUINTLA, Río Metapa, 10 km SE Escuintla, 275 m, 5–6 Mar 1970, E.J. Fee, 1♂, 1♀.

HONDURAS, DPTO. CHOLUTECA, Pespire, 1 Aug 1967, O.S. Flint, Jr., 1♀. DPTO. COMAYAGUA, Rancho Chiquito, SE Flores, 2–3 Aug 1967, O.S. Flint, Jr., 1♀. DPTO. FRANCISCO MORAZÁN, El Zamorano, 28–29 Jan 1966, G.F. Freytag, 9♂, 2♀.

NICARAGUA, DPTO. NUEVA SEGOVIA, Río Coco, Ocotal, 31 Jul 1967, O.S. Flint, Jr., 1♀. DPTO. CHONTALES, E Villa Somoza, 29 Jul 1967, O.S. Flint, Jr., 8♂, 12♀.

COSTA RICA, PCIA. GUANACASTE, Río Ahogados, 10 mi [16.1 km] NW Liberia, 25 Jul 1965, P.J. Spangler, 19♂, 43♀. 1.5 mi [2.4 km] S Potrerillos, 27 Jul 1967, O.S. Flint, Jr., 2♂, 3♀. Río Piedras, Bagaces, 27 Aug 1967, O.S. Flint, Jr., 1♂. P.N. Santa Rosa, trib. to Queb. Guacimo, 10.877°N, 85.589°W, 255 m, 24 Jun 1986, Holzenthal et al., 7♂, 8♀ (UMSP); same, but Río Cuajinquil, 10.881°N, 85.613°W, 250 m, 24 Jul 1987, 10♂, 5♀ (UMSP). P.N. Guanacaste, El Hacha, Queb. Alcornoque, 11.009°N, 85.577°W, 250 m, 26 Jul 1987, Holzenthal et al., 1♂ (UMSP); same, but Río San Josécito, Est. Mengo, 10.922°N, 85.470°W, 960 m, 28–29 Jul 1981, 1♂ (UMSP); same, but Est. Pitilla, Río Orosí, 10.991°N, 85.428°W, 700 m, 22–25 May 1990, 3♂ (UMSP). Río Tempisquito, ~3 km S Rt.1, 10.790°N, 85.522°W, 75 m, 6 Mar 1986, Holzenthal and Fasth, 7♂, 18♀ (UMSP). Río Tempisquito, Hda. Tempisquito (Pelón de Altura), 1 km NE km 265, Rt. 1, 10.847°N, 85.561°W, 95–100 m, 18 Jul 1987, Holzenthal et al., 2♂ (UMSP). Río Tizate, 7.2 km NE Cañas Dulces, 10.773°N, 85.449°W, 275 m, 28 Jun 1986, Holzenthal et al., 3♂, 3♀ (UMSP). PCIA. LIMÓN, Río Uatsi, ~8 km W Bribri, 9.62°N, 82.90°W, 60 m, 25 Mar 1987, Holzenthal et al., 4♂ (UMSP). PCIA. SAN JOSÉ, P.N. Braulio Carillo, Est. Carillo, Q. Sanguijuela, 10.160°N, 83.963°W, 800 m, 27 Mar 1987, Holzenthal et al., 1♂ (UMSP).

ETYMOLOGY.—Probably from the Spanish *laguna* ("lake"), possibly from the locality "Sierra Laguna," one of the typic localities.

Chimarra (*Curgia*) *texana* (Banks)

FIGURES 422–426; MAP 25

Chimarrha texana Banks, 1920:360.—Ross, 1938:7 [lectotype].
Chimarrha betteni Denning, 1941:82.
Chimarra texana (Banks).—Ross, 1944:292.—Fischer, 1961:71 [catalog].—Bueno and Flint, 1980:190, 197 [distribution, *betteni* to synonymy].
Chimarra betteni Denning.—Edwards and Arnold, 1961:406 [distribution, larva and pupa].

REMARKS.—This species and *laguna* are very closely related. They are undoubtedly sister species, *laguna* being found in western Mexico and south to Costa Rica, *texana* being restricted to northeastern Mexico and adjacent Texas.

The overall form of the male genitalia in these two species is very similar, from the eighth, ninth, and tenth segments, to the claspers and phalli. The posteromesal process of the eighth tergum in *laguna* is long and free but curved ventrad and attached to the dorsomesal projection of the ninth segment in *texana*. The posterolateral brush of the eighth segment generally is longer and more slender in *texana* than in *laguna*, although it varies greatly in length and shape in the latter. The apex of the clasper is drawn out to a longer and sharper point, in both lateral and ventral aspects, in *texana* than it is in *laguna*.

ADULT.—Length of forewing, ♂ and ♀ 4.5–6 mm. Color fuscous, appendages a bit paler; forewing fuscous, with four silvery white maculae, sometimes subdivided or virtually lost (quite variable).

Male Genitalia: Eighth sternum almost parallel sided; tergum produced in a posteromesal spine decurved apically and joining ninth tergum, posterior margin laterad of spine with a large, flat lobe, thin in lateral aspect; with a large posterolateral lobe, elongate apically and with a basodorsal lobe bearing setal brush along dorsal margin. Ninth sternum slightly produced anteroventrally; with elongate, slender, posteromesal keel; produced into a long dorsal extension, narrow in lateral aspect, joining decurved apex of eighth tergal spine. Cercus elongate, enlarged apicad. Tenth tergum with tip entire, sharply curved dorsad, narrow, apically pointed; with many sensillae. Clasper with apex produced into an upcurved point, with dorsomesal tooth projecting above body in lateral aspect; in ventral aspect with apex produced into a point, with tooth barely visible mesally, directed mesad. Phallus short, tubular, inflated basally; internally with a small rod-and-ring assembly and a pair of small, dark spines.

MATERIAL EXAMINED.—U.S.A., TEXAS, Bandera Co., Medina River, 1.5 mi [2.4 km] N Medina, 16 Apr 1993, C.M. and O.S. Flint, Jr., 13♂, 6♀. [Hays Co.] San Marcos, 21 May 1960, O.S. Flint, 6♂, 31♀. Kimble Co., Llano River, 23 May 1972, W.W. Wirth, 1♀; Junction, 15 Apr 1974, A. and M.E. Blanchard, 1♀. Val Verde Co., Dolan Falls, Devils River State

Natural Area, elev. 360 m, 17–19 May 1993, Gelhaus et al., 6♂, 11♀ (ANSP, NMNH).

MEXICO, EDO. NUEVO LEON, Linares, Río Camacho, 21–22 Jun 1965, O.S. Flint, Jr., 1♂. EDO. TAMAULIPAS, Carretera Linares-Ciudad Victoria, Rio Purificación, 17 Nov 1977, J. Bueno, 5♂, 1♀ (IBUNAM). Río Guayalejo [Rt. 101, S Ciudad Victoria], 25 Oct 1985, J. Bueno, 2♂, 10♀ (IBUNAM). 4 mi [6.4 km] SW Ciudad Victoria, 1100 ft. elev. [330 m], 10 Jul 1963, Duckworth and Davis, 1♂, 3♀. Río Corona, 18 mi [29.0 km] N Ciudad Victoria, 13 Mar 1982, J.E. Gillaspy, 2♂. Ciudad Victoria, 17 Mar 1963, F. Pacheco, 4♂, 3♀; same, but 15 Mar 1963, R. Balderas L., 6♂, 3♀; same, but 22 Mar 1963, 3♂, 3♀; same, but 31 Mar 1963, 1♀. EDO. SAN LUIS POTOSI, El Salto Falls, 26 mi [41.9 km] W Antiguo Morelos, 2000 ft. elev. [600 m], 11–14 Jul 1963, Duckworth and Davis, 1♂; same, but 29 Jun 1965, P.J. Spangler, 1♂; same, but 23–24 Jun 1965, O.S. Flint, Jr., 11♂, 37♀; same, but 8 Aug 1966, 2♂, 1♀; same, but 3 Jun 1967, 2♂, 6♀. Posada Sol, Tamazunchale, 13 Apr 1952, 9♂, 24♀ (IBUNAM). 2 mi [3.2 km] N Tamazunchale, 400 ft. elev. [120 m], 16–18 Jul 1963, Duckworth and Davis, 12♂, 17♀; same, but 2 Aug 1963, 10♂, 23♀. Huichihuayán, 25 mi [40.2 km] N Tamazunchale, 400 ft. elev. [120 m], 3–4 Aug 1963, Duckworth and Davis, 10♂, 23♀; same, but 26 Jun 1965, O.S. Flint, Jr., 3♂, 2♀; same, but 4 Jun 1967, 2♂, 1♀. Rancho Quemado, Rt. 85, km 353, 4–6 Aug 1966, O.S. Flint, Jr., 1♂, 11♀. Palitla, 25 Jun 1965, O.S. Flint, Jr., 7♂, 21♀; same, but 5 Jun 1966, 9♂, 4♀; same, but 5 Aug 1966, 3♂, 10♀ (incl. pair in cop.). Río Micos, Ciudad Valles, 5 Nov 1980, 3♂, 1♀ (IBUNAM); same, but 21 Aug 1979, Garcia-Figueroa, 1♂ (IBUNAM); same, but 2 Sep 1978, 1♂ (IBUNAM); same, but 7–8 Apr 1978, 32♂ (IBUNAM); same, but 5 Apr 1978, H. Perez Ruiz, 1♂ (IBUNAM). Chapulhuacanito, 11 Apr 1980, J. Bueno, 1♂ (IBUNAM). EDO. HIDALGO, Laguna Atezca, Molango, 18 May 1978, 14♂, 1♀ (IBUNAM). EDO. VERACRUZ, 7 mi [11.3 km] SW Poza Rica, 200 ft. elev. [60 m], 20–22 Jul 1963, Duckworth and Davis, 4♂, 3♀. La Gloria Cardel, 30 Apr 1937, J. Camelo G., 1♀. Cordoba, May, Wm. Schaus, 1♀. Barranca de Metlac, 6 km W Fortín de las Flores, 4 Dec 1975, C.M and O.S. Flint, Jr., 1♂; same, but 1 May 1981, 2♂, 5♀; same, but 10 Jul 1975, 1♂ (IBUNAM); same, but 30 Mar 1976, 1♂ (IBUNAM). Cuitlahuac, 10–12 Aug 1964, P.J. Spangler, 13♂, 20♀ (incl. pair in cop.) (IBUNAM, NMNH); same, but 3 Jul 1965, 2♂, 2♀; same, but 24–27 Jul 1965, Flint and Ortiz, 11♂, 30♀. Nr. El Encero, Rt. 140, km 347, 22 Jul 1965, Flint and Ortiz, 4♂, 2♀. Puente Nacional, 23–24 Jul 1965, Flint and Ortiz, 21♂, 18♀; same, but 31 Jul 1966, 1♂, 2♀. 15 km before Chicontepec, Mar 1977, J. Bueno, 1♂, 1♀ (IBUNAM). Chicontepec, 29 Feb 1976, J. Bueno, 1♂, 1♀ (IBUNAM); same, but 14 Apr 1975, 9♂ (IBUNAM). Tlapacoyán, Rio Tomata, 8 Dec 1984, J. Magro, 1♀ (IBUNAM). EDO. PUEBLA, Estación de Bombeo San Diego, 2–3 Apr 1953, 2♂ (IBUNAM); same, but 11 Apr 1953, 1♂ (IBUNAM); same, but 2 May 1953, 10♂ (IBUNAM); same, but 16 May 1953, 4♂ (IBUNAM); same, but 12 Jun 1953, 30♂ (IBUNAM); same, but 10 Jul 1953, 1♂ (IBUNAM). Rancho Alegre, 26 Jan 1952, 6♂ (IBUNAM); same, but 10 Mar 1952, 11♂ (IBUNAM). La Esperanza, 16 Apr 1975, J. Bueno, 1♂, 10♀ (IBUNAM). Patla, 23 Mar 1977, 8♂ (IBUNAM). 30 km N Xicotepec de Juarez, 24 Mar 1977, H. Brailovsky, 6♂ (IBUNAM). El Agengibre, 1 Mar 1952, 2♂ (IBUNAM). EDO. OAXACA, Jacatepec, 9 Jul 1979, J. Padilla, 1♂ (IBUNAM).

ETYMOLOGY.—Probably a name suggested by the state Texas.

The *immaculata* Group

DIAGNOSIS.—Length of forewing, 5–7 mm. Body and appendages brown; forewing brown marked with many small, yellowish spots. Claws of male foreleg apparently unmodified.

Male Genitalia: Eighth tergum with posterolateral brushes on stalks, with a single, posteromesal projection. Ninth segment not produced anteroventrally, narrow dorsad, with a dorsomesal projection bearing one or two small setose lobes on each side; posterolateral margin often produced as a broad, rounded lobe. Cercus elongate, stalked basally, ovate apically. Tenth tergum hood-like, often with a dorsal crest, with apex entire, subapically bearing a broad lateroventral lobe, bearing many sensillae. Clasper generally elongate, apex rather broad, with apicoventral tooth. Phallus tubular, phallotheca produced, lip-like, apicoventrally; internally with a small, basal, rod-and-ring assembly, no black spines, but often with a spiculate pouch.

DISTRIBUTION.—Primarily the Andes of western and northern South America extending north into Central America as far as Honduras.

DISCUSSION.—This is a distinctive group of four species, all very closely related and separable only by details of the male genitalia. Of the four, *immaculata, peytoni,* and *persimilis* form a cluster of very similar species, whereas *securigera* stands a bit apart from this cluster. Map 26 shows the generally allopatric distribution of the species in this group.

Chimarra (*Curgia*) *immaculata* (Ulmer)

FIGURES 427–431; MAP 26

Chimarrha immaculata Ulmer, 1911:15; 1913:405.—Lestage, 1925:37.
Chimarra immaculata (Ulmer).—Fischer, 1961:60.—Flint, 1981:12.

REMARKS.—The differences between this species and the others of the group are seen in the male genitalia, especially in the shapes of the eighth and tenth terga. In *immaculata* the mesal process of the eighth tergum is long, and the tenth tergum bears large, erect processes basolaterally. The phallus bears two spiculate pockets. *Chimarra* (*C.*) *peytoni* also bears a long process from the eighth tergum, but the basolateral processes of the tenth tergum are no more than low ridges and the spiculate patches of the phallus are reduced to a small, indistinct sclerite. In *persimilis* the eighth tergal lobe is short, the basolateral

MAP 26.—Distributions of *Chimarra* (*Curgia*) *immaculata* (Ulmer), *Chimarra* (*Curgia*) *persimilis* (Banks), *Chimarra* (*Curgia*) *peytoni*, new species, and *Chimarra* (*Curgia*) *securigera*, new species.

processes of the tenth tergum are very low, but the spiculate pockets of the phallus are well developed.

ADULT.—Length of forewing, ♂ and ♀ 5–6.5 mm. Color brown, body and appendages paler; forewing yellowish brown, with many small, dark flecks.

Male Genitalia: Eighth sternum slightly enlarged dorsad; tergum with long mesal process from posterior margin, apex enlarged, fish-tail-like in dorsal aspect; with narrow posterolateral lobe bearing an apical brush of setae. Ninth sternum with anterior margin vertical; with broad posteromesal keel; produced into dorsal extension, articulating to inner surface of eighth tergum, these plates bearing large setose lobes dorsomesally. Cercus elongate, clavate. Tenth tergum short, tip entire; apex produced in a low dorsal lobe, with basolateral shoulder-

like lobe elongate, erect, with posteroventral lobe; with many sensillae dorsally. Clasper elongate, tapering, basally with dorsal lobe, with small apicoventral lobe; in ventral aspect tapering to a blunt apical point. Phallus short, tubular, base greatly inflated, opening ventrad; with a strong, apicoventral lip-like lobe and a slender dorsal sclerotization; internally with a small rod-and-ring assembly and a pair of seta-bearing pockets.

MATERIAL EXAMINED.—BOLIVIA, Alto Beni, Palos Blancos, 600 m, 11–15 Jan 1976, L.E. Peña G., 1♂, 2♀.

COLOMBIA, DPTO. CAQUETA, Morelia, Río Bodoquero, 430 m, 19–20 Jan 1969, Duckworth and Dietz, 7♂, 11♀.

ECUADOR, PCIA. NAPO, Lago Agrio, 16 Aug 1975, A. Langley, 1♂; same, but 19 Sep 1975, 1♂. PCIA. PASTAZA, Puyo, 6–21 May 1977, Spangler and Givens, 34♂, 16♀; same, but 1.5 km S Puyo, 8–21 May 1975, 85♂, 32♀; same, but 5 km E, 17 May 1975, 4♂, 4♀.

PERU, DPTO. MADRE DE DIOS, Río Tambopata Reserve, 30 air mi [48.3 km] SW Puerto Maldonado, 290 m, 2–25 Nov 1979, J.B. Heppner, 79♂, 61♀. "Erika," near Salvación, 400 m, 4–6 Sep 1988, Flint and Adams, 16♂, 16♀ (including 8 pairs in copula). Limonal, 10 km N Boca Manu (12°16.0'S, 70°55.4'W), 200 m, 7 Sep 1988, Flint and Adams, 3♂, 5♀ (including 3 pairs in copula). Pakitza (11°56'S, 71°18'W), 250 m, 9–23 Sep 1988, Flint and Adams, 35♂, 32♀; same, but 12–23 Sep 1989, N.E. Adams, 6♂, 6♀; same, but 30 Sep 1987, M.G. Pogue, 1♀; same, but Aguajal, ~2 km S Pakitza, 12 Sep 1988, 2♂; same, but Cocha Salvador, ~10 km S Pakitza, 13–14 Sep 1988, Flint and Friedburg, 1♂, 1♀. DPTO. CUSCO, Pilcopata, 600 m, 8–14 Dec 1979, J.B. Heppner, 140♂, 25♀. Avispas, Oct 1962, L.E. Peña G., 5♂, 6♀. Quince Mil, Sep 1962, L.E. Peña G., 6♂. DPTO. HUANUCO, Tingo Maria, 672 m, 1–6 Feb 1980, J.B. Heppner, 1♂. [DPTO. PASCO] Puerto Bermudez, Río Pichis, 15 Jul 1920, 6♂ (CU).

VENEZUELA, EDO. ARAGUA, Rancho Grande, 10–12 Feb 1969, Duckworth and Dietz, 1♂, 1♀.

ETYMOLOGY.—Probably from the Latin *im-* ("not") and *macula* ("spot"), in allusion to the appearance of the type.

Chimarra (Curgia) persimilis (Banks)

FIGURES 432–436; MAP 26

Chimarrha persimilis Banks, 1920:360.—Lestage, 1925:37.
Chimarra persimilis (Banks).—Fischer, 1961:68.—Flint, 1967b:4.—Maes and Flint, 1988:3.—Holzenthal, 1988:57.

REMARKS.—As discussed more fully above, *immaculata, persimilis,* and *peytoni* are very similar. *Chimarra* (*C.*) *persimilis* is recognized by the structure of the male genitalia, especially the very short middorsal process of the eighth tergum. In addition, the basolateral processes of the tenth tergum are very low, and the phallus bears well-developed spiculate pockets.

ADULT.—Length of forewing, ♂ and ♀ 5–7 mm. Color brown, body and appendages paler; forewing yellowish brown, with many small, dark flecks.

Male Genitalia: Eighth sternum slightly enlarged dorsad; tergum with short, pointed mesal process from posterior margin (somewhat variable in length); with narrow posterolateral lobe bearing an apical brush of setae. Ninth sternum with anterior margin vertical; with long posteromesal keel; produced into dorsal extension, articulating to inner surface of eighth tergum, these plates each bearing small setose lobe from near center (lobe size and setal numbers quite variable). Cercus elongate, clavate. Tenth tergum short, tip entire; apex produced in a low dorsal lobe and basolateral shoulder-like expansions, with posteroventral lobe; with many sensillae dorsally. Clasper elongate, tapering, basally with dorsal lobe (much of clasper base and dorsal lobe covered by lateral face of ninth sternum), with small apicoventral lobe; in ventral aspect tapering to a blunt apical point. Phallus short, tubular, base greatly inflated, opening ventrad; with a strong, apicoventral lip-like lobe and a slender dorsal sclerotization; internally with a small rod-and-ring assembly and a pouch bearing many small spicules.

MATERIAL EXAMINED.—COSTA RICA [PCIA. GUANACASTE], Río Corobici, Las Cañas, 26 Jul 1967, O.S. Flint, Jr., 7♂, 6♀. PCIA. HEREDIA, Puerto Viejo, 6 Apr 1969, D.C. Rentz, 5♂, 4♀. La Selva Field Station near Puerto Viejo, 21–28 Mar 1988, Steiner et al., 3♂, 6♀; same, but 1–3 Apr 1987, J. Hill, 1♂, 1♀. Río Bijagual on road to Magsasay, 10.408°N, 84.076°W, 140 m, 12 Feb 1986, Holzenthal et al., 2♂ (UMSP). [PCIA. SAN JOSÉ] Río General, Pacuare, 1 Jul 1967, Flint and Ortiz, 4♂, 1♀. Quebrada Sanguihuela, Estación Carrillo, P.N. Braulio Carillo, 10.160°N, 83.963°W, 800 m, 27 Mar 1987, Holzenthal et al., 1♂, 1♀ (UMSP). [PCIA. PUNTARENAS] Río La Vieja, near Lagarto, 2–3 Jul 1967, Flint and Ortiz, 3♂, 4♀. 2.8 mi [4.5 km] E Golfito, 3–4 Jul 1967, Flint and Ortiz, 4♂, 6♀; same, but 18–19 Jul 1967, 3♂. Golfito, 25–28 Apr 1965, S.S. and W.D. Duckworth, 2♂, 5♀. Río Singri, ~2 km (air) S Finca Helechales, 9.057°N, 83.082°W, 720 m, 21 Feb 1986, Holzenthal et al., 19♂ (UMSP); Río Ceibo, route 2, ~6 km W road to Buenos Aires, 9.149°N, 83.377°W, 250 m, 20 Feb 1986, Holzenthal et al., 1♂, 1♀ (UMSP). PCIA. LIMÓN, La Lola, near Matina, 11 Mar 1965, S.S. and W.D. Duckworth, 1♂, 1♀. Río Utasi, ~8 km (air) W Bribri, 9.62°N, 82.90°W, 60 m, 25 Mar 1987, Holzenthal et al., 14♂, 15♀ (UMSP). Río Cerere, Reserva Biol. Hitoy-Cerere, 9.671°N, 83.028°W, 90 m, 23–24 Mar 1987, Holzenthal et al., 16♂, 13♀ (UMSP). Río Telire and small trib., SE Suretka, 9.554°N, 82.892°W, 48 m, 1 Feb 1986, Holzenthal et al., 1♂, 8♀ (UMSP).

ECUADOR [PCIA. LOS RÍOS], Quevedo, lectotype ♂, lectoparatype ♀ (MCZ); same, but 11 May 1975, Spangler et al., 1♂. 5 km S Quevedo, 14 Jan 1978, Spangler and Anderson, 1♂. 11 km S Quevedo, 3 Jul 1975, Langley and Cohen, 3♂, 4♀. Río Palenque Biological Station, 56 km N Quevedo, 220 m, 7

Jan 1978, P. Spangler, 52♂, 27♀; same, but 28–29 Jul 1976, J. Cohen, 38♂, 6♀. PCIA. ESMERALDAS, 9 km S San Lorenzo, 25 Mar 1979, J.J. Anderson, 1♂, 1♀. La Unión, 3 Feb 1979, J.J. Anderson, 1♂, 1♀. PCIA. PICHINCHA, 29 km W Santo Domingo de los Colorados, 6 May 1975, Spangler et al., 13♂, 10♀. 14 km E Santo Domingo de los Colorados, 5 Jul 1975, Langley and Cohen, 1♂. Río Palenque Biological Station, 47 km S Santo Domingo de los Colorados, 750 ft. [225 m], 29 Jul 1976, J. Cohen, 28♂, 6♀. via Puerto Quito, at km 113, 24 Jun 1976, J. Cohen, 14♂; same, but 24 Jul 1976, 1♂. PCIA. EL ORO, 6 km E Pasaje, 13 Jan 1978, Spangler and Anderson, 1♂. Las Lajas, Canton de Arenillas, 600 m, 30 May 1979, J.J. Anderson, 1♂, 2♀. PCIA. LOJA, Río Puyango, 300 m, 17–18 Aug 1977, L.E. Peña G., 10♂, 14♀. PCIA. COTOPAXI, 36 km NE Quevedo, 1100′ [330 m], 21 Jul 1976, J. Cohen, 3♂, 6♀. 133 km W Latacunga, 1080 ft [324 m], 2 Jul 1975, Langley and Cohen, 5♂. PCIA. MANABI, Rancho Ronald, 29 km SW Santo Domingo, 20 Jul 1978, J.J. Anderson, 7♂, 3♀; same, but 8 Sep 1978, 4♂, 1♀.

HONDURAS [DPTO. ATLANTIDA], Lancetilla, Aug, Stadelmann, 6♂ (MCZ).

NICARAGUA [DPTO. CHONTALES], Puente Quinama, E Villa Somoza, 29 Jul 1967, O.S. Flint, Jr., 14♂, 29♀.

PANAMA [PCIA. CHIRIQUI], Río Caimito, 10 mi [16.1 km] N David, 4 Jul 1967, Flint, Spangler, and Ortiz, 34♂, 34♀. Dolega, 17 Jul 1967, O.S. Flint, Jr., 18♂, 22♀. Río El Pueblo, Dolega, 27 Jun 1964, A. Broce, 4♂, 3♀. David, Doleguita, 3 Jun 1964, A. Broce, 24♂, 9♀. PCIA. COCLÉ, El Potroso, 10 km NE El Copé, 2500 ft [750 m], 3–4 Nov 1980, Student Collectors, 3♂. [PCIA. PANAMÁ] Canal Zone, Barro Colorado Island, 1–9 May 1964, W.D. and S.S. Duckworth, 1♂, 1♀; same, but 10–17 May 1964, 1♀; same, but Marker 3, Snyder Molino Trail, 1 May 1987–24 Jul 1990, H. Wolda, light trap, 19♂, 10♀. Río Cañita, near Cañita, 24 Feb 1985, Flint and Louton, 3♀. [PCIA. COLÓN] Canal Zone, Río Frijoles, Pipeline Road, 6–7 Jul 1967, Flint and Ortiz, 4♂, 2♀; same, but Río Agua Salud, 8–12 Jul 1967, 3♂, 9♀; same, but 30 Mar 1965, S.S. and W.D. Duckworth, 3♂. Navy Reserve, near Gamboa, 29 Mar 1965, W.D. and S.S. Duckworth, 1♀; same, but Jul 1967, W.W. Wirth, 4♂, 6♀. [COMARCA DE] SAN BLAS, Nusagandi, 9°20′N, 78°56′W, 350 m, 1–6 Mar 1985, Flint and Louton, 2♀; same, but 2 km S Nusagandi, 3 Mar 1985, 1♂ Quebrada Pingandi, 9 km N Nusagandi, 1–2 Mar 1985, Flint and Louton, 4♀. Río Cartí Grande, near coast, 2 Mar 1985, Flint and Louton, 4♂, 14♀. PCIA. DARIEN, Río Tuira, between El Real and Río Pucuro, 16 Feb 1985, J. Louton, 8♂, 15♀; same, but at Río Pucuro, 16–17 Feb 1985, 2♂, 7♀; same, but at Boca de Cupe, 18 Feb 1985, 3♂, 10♀.

PERU [DPTO. PASCO], Puerto Bermudez, Río Pichis, 15 Jul 1920, 1♂ (CU).

ETYMOLOGY.—Probably from the Latin *per* ("very") and *similis* ("like"), perhaps in allusion to the stated similarity to the preceding species.

Chimarra (*Curgia*) *peytoni*, new species

FIGURES 437–441; MAP 26

Chimarra immaculata (Ulmer).—Flint, 1981:12 [misidentification, in part].

REMARKS.—Together with *immaculata* and *persimilis*, this species forms a very distinctive cluster of species. The long mesal process of the eighth tergum, the lack of erect basolateral processes of the tenth tergum, and the reduction of the spiculate pouches of the phallus render this species distinctive.

ADULT.—Length of forewing, ♂ and ♀ 5–7 mm. Color brown, body and appendages paler; forewing yellowish brown, with many small, dark flecks.

Male Genitalia: Eighth sternum parallel sided; tergum with long, mesal process from posterior margin whose apex is expanded and bilobed in dorsal aspect; with slender posterolateral lobe bearing an apical brush of setae. Ninth sternum with anterior margin vertical; with long posteromesal keel; produced into long dorsal extension, articulating to inner surface of eighth tergum, laterally these plates bearing two setose knobs, dorsalmost larger. Cercus elongate, clavate. Tenth tergum short, tip entire; apex produced in a low dorsal lobe and low, basolateral shoulder-like knobs, with posteroventral lobe; with many sensillae dorsally. Clasper elongate, tapering, basally with small, dorsal lobe (much of clasper base and dorsal lobe covered by lateral face of ninth sternum), dorsal margin with a small angle near midlength and small apicoventral lobe; in ventral aspect tapering to a blunt apicomesal point. Phallus short, tubular, base greatly inflated, opening ventrad; with a strong, apicoventral lip-like lobe and a slender dorsal sclerotization; internally with a small rod-and-ring assembly and a small, sclerotic spot with a few minute spicules.

MATERIAL.—*Holotype,* male: VENEZUELA, EDO. BARINAS, Puente Parangula, 8 km S Barinitas, 18 Feb 1976, C.M. and O.S. Flint, Jr. NMNH Type.

Paratypes: Same data as holotype, 2♂, 1♀. EDO. ZULIA, Dist. Mara, Río Socuy, Campamento Corpozulia, 50 km W Carrasquero, 6–7 Oct 1979, Savage and Romero, 1♂. El Tucuco, Sierra de Perijá, 28–29 Jan 1978, J.B. Heppner, 2♂, 4♀. Parque Nacional Perijá, Río Negro in Toromo, 10.051°N, 72.712°W, 360 m, 15 Jan 1994, Holzenthal et al., 7♂, 4♀ (IZAM, UMSP). Caño Carichuano, 3.4 km SE Carbones del Guasare, 11.002°N, 72.285°W, 70 m, 12–13 Jan 1994, Holzenthal et al., 3♂, 7♀ (UMSP). EDO. ARAGUA, Parque Nacional Henri Pittier, Río La Trilla, 22.5 km N Rancho Grande, 17–19 Sep 1979, H.M. Savage, 1♂, 1♀. Ocumare [de la Costa], 19–20 Feb 1969, P. and P. Spangler, 7♂, 10♀ (IZAM, NMNH). EDO. MIRANDA, Río La Sabana, ~2 km S La Sabana, 10.606°N, 66.383°W, 10 m, 25 Jan 1994, Holzenthal et al., 1♂, 1♀ (UMSP).

COLOMBIA, DPTO. TOLIMA, Armero, near Guayabal, 2–10 Feb 1977, E.L. Peyton, 130♂, 73♀.

ETYMOLOGY.—Patronym in honor of E.L. Peyton, culicidologist, in whose collection I first recognized the species.

Chimarra (Curgia) securigera, new species

FIGURES 442–446; MAP 26

REMARKS.—The most distinctive species of the *immaculata* group, *securigera,* is recognized immediately by several structures of the male genitalia. The eighth tergum not only has a long mesal process, but it is very wide basally, and the lateral brushes are on very long stalks. The tenth tergum is produced dorsally into a high crest whose dorsobasal angle is developed into a sharp point. The clasper also is much shorter and proportionately higher apically than in the other species, almost square in both lateral and ventral aspects.

ADULT.—Length of forewing, ♂ 5.5 mm. Color brown, body and appendages paler; forewing brown, with many small dark flecks.

Male Genitalia: Eighth sternum parallel sided; tergum with long, mesal process from posterior margin; with a long, slender posterolateral lobe bearing an apical brush of setae. Ninth sternum with anterior margin vertical; with posteromesal keel; produced into long dorsal extension, articulating to inner surface of eighth tergum, laterally these plates bearing a setose knob at dorsal margin. Cercus elongate, barely enlarged apicad. Tenth tergum short, tip entire; apex produced in a long, thin, crest dorsally, with small posteroventral lobe; with many sensillae on dorsal crest. Clasper short, roughly quadrate, with small apicodorsal and ventral lobes; in ventral aspect with apicolateral and mesal lobes, basal half of inner margin darkened. Phallus short, tubular, inflated subbasally; with a strong, apicoventral lip-like lobe and a slender dorsal sclerotization; internally with a small rod-and-ring assembly.

MATERIAL.—*Holotype,* male: VENEZUELA, EDO. BARINAS, Río Santo Domingo, Barinas, 17 Feb 1976, C.M. and O.S. Flint, Jr. NMNH Type.

ETYMOLOGY.—From the Latin *securiger* ("ax-bearing"), in allusion to the ventral lobe of the tenth tergum.

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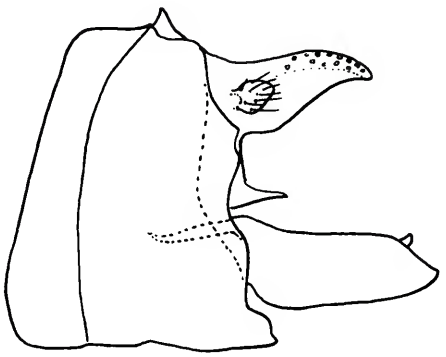

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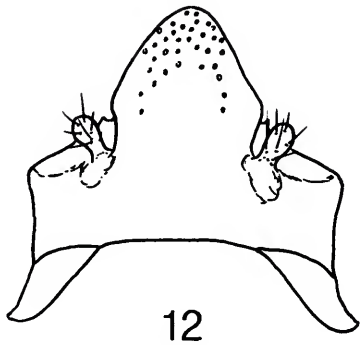

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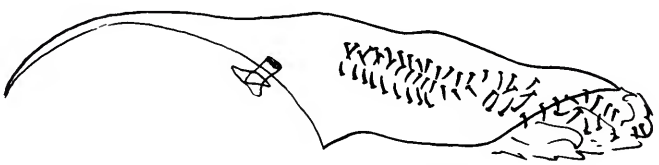

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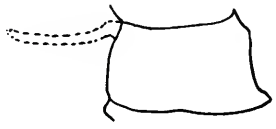

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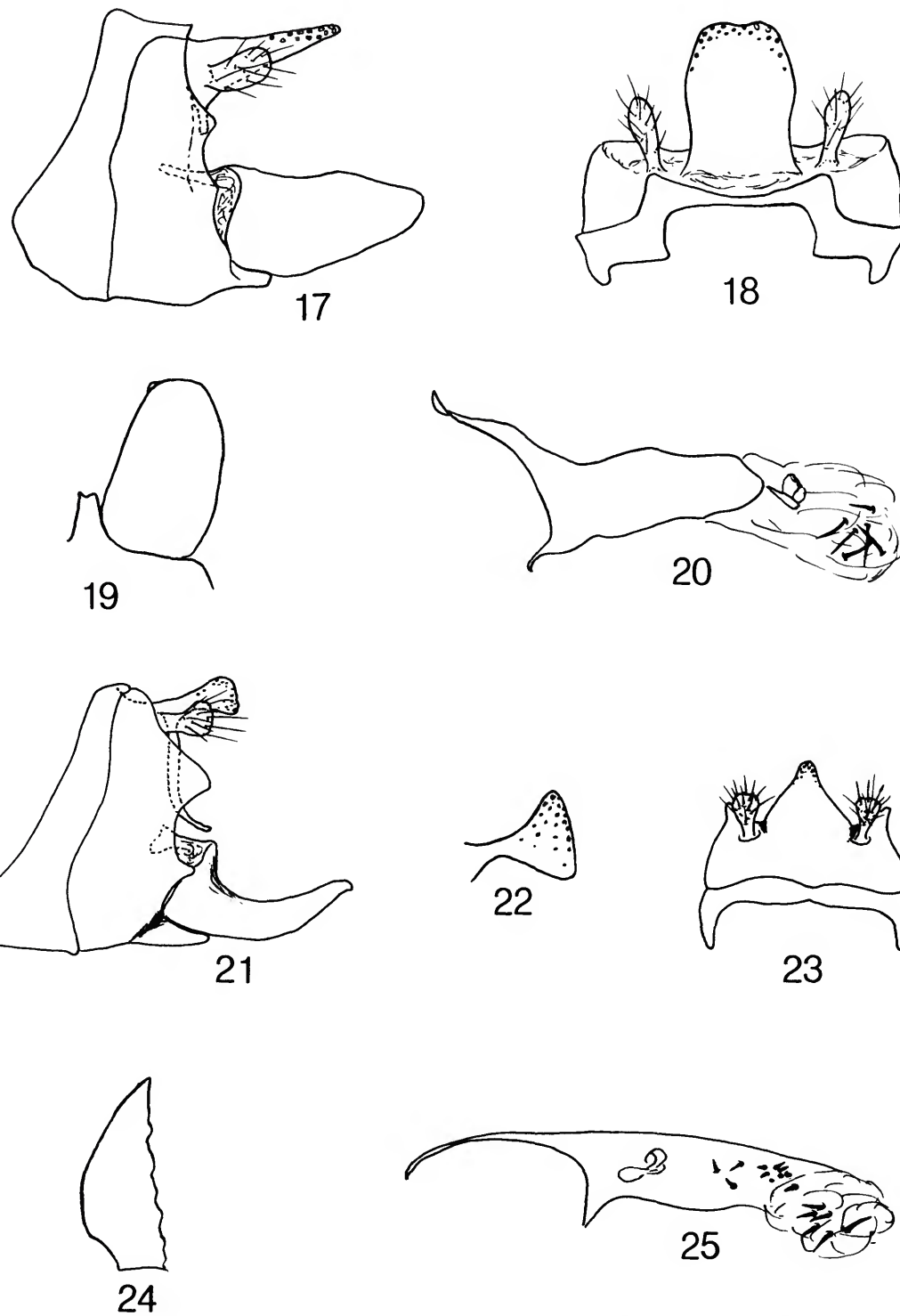
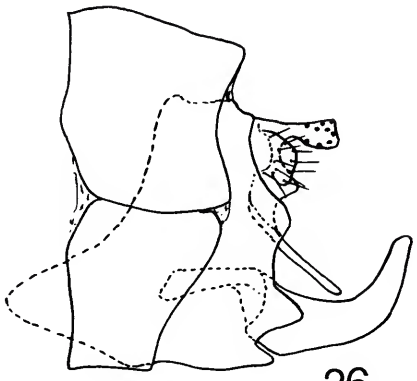
FIGURES 11–16.—*Chimarra* (*Curgia*) *morio* (Burmeister), male genitalia: 11, lateral; 12, ninth and tenth terga and cerci, dorsal; 13, clasper, ventral; 14, phallus, lateral. 15, 16, variant from Blumenau: 15, clasper, lateral; 16, clasper, ventral.



FIGURES 17–25.—Male genitalia. *Chimarra* (*Curgia*) *froehlichi*, new species: 17, lateral; 18, ninth and tenth terga and cerci, dorsal; 19, clasper, ventral; 20, phallus, lateral. *Chimarra* (*Curgia*) *conica* Flint: 21, lateral; 22, tip of tenth tergum of northern form, lateral; 23, ninth and tenth terga and cerci, dorsal; 24, clasper, ventral; 25, phallus, lateral.



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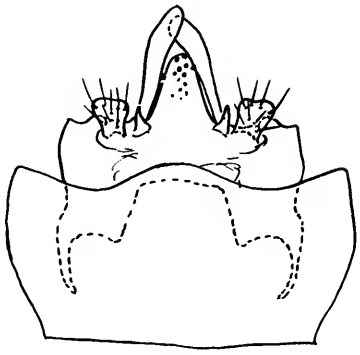

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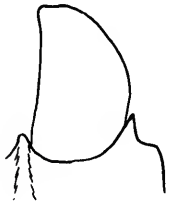

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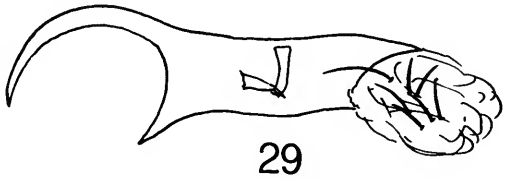

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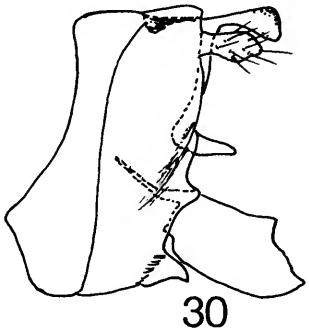

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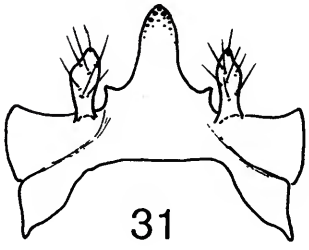

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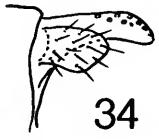

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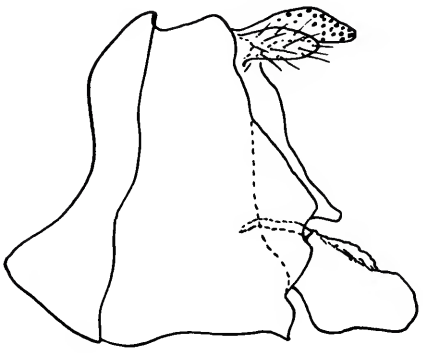
FIGURES 26–36.—Male genitalia. *Chimarra* (*Curgia*) *cipoensis,* new species: 26, lateral; 27, eighth, ninth, and tenth terga and cerci, dorsal; 28, clasper, ventral; 29, phallus, lateral. *Chimarra* (*Curgia*) *plaumanni* Flint: 30, lateral; 31, ninth and tenth terga and cerci, dorsal; 32, clasper, ventral; 33, phallus, lateral. 34–36, variant from Blumenau: 34, cercus and tenth tergum, lateral; 35, clasper, lateral; 36, clasper, ventral.



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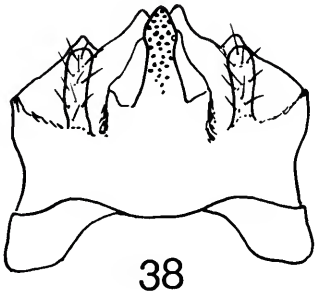

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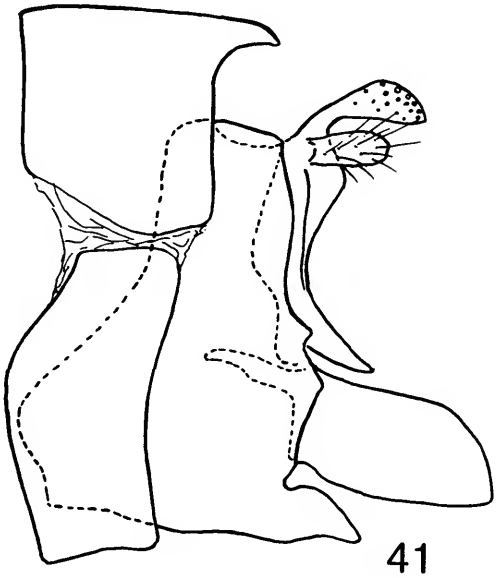

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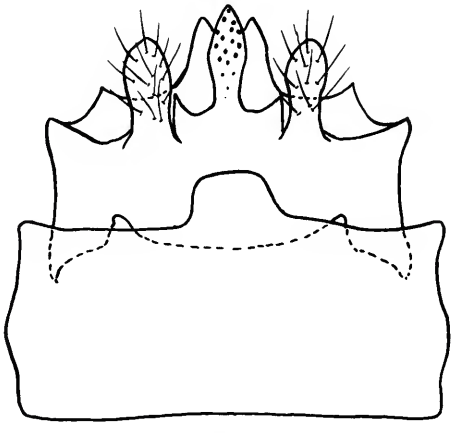

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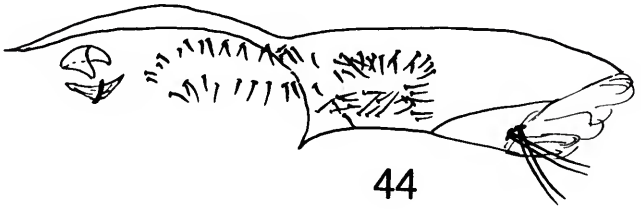

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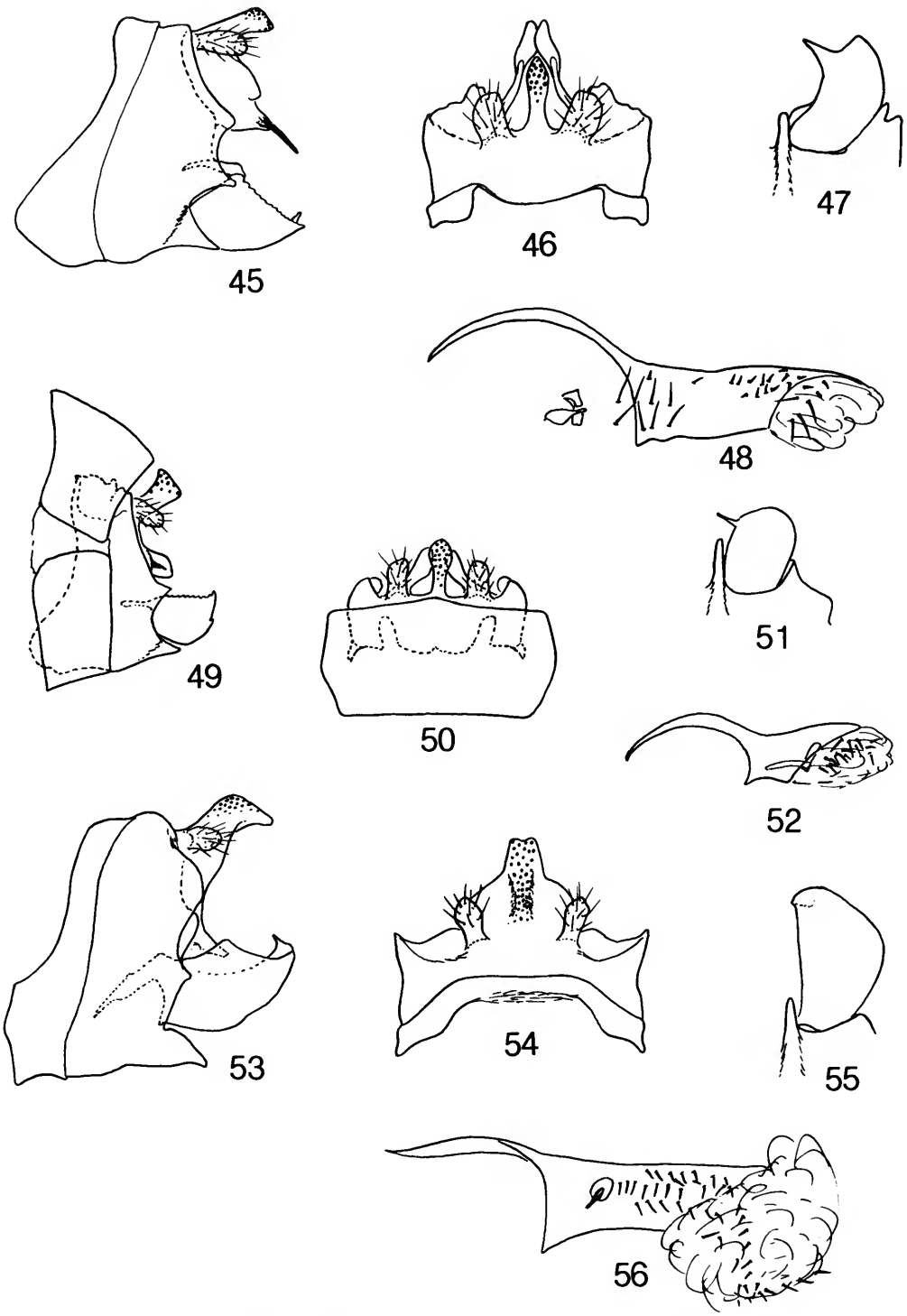
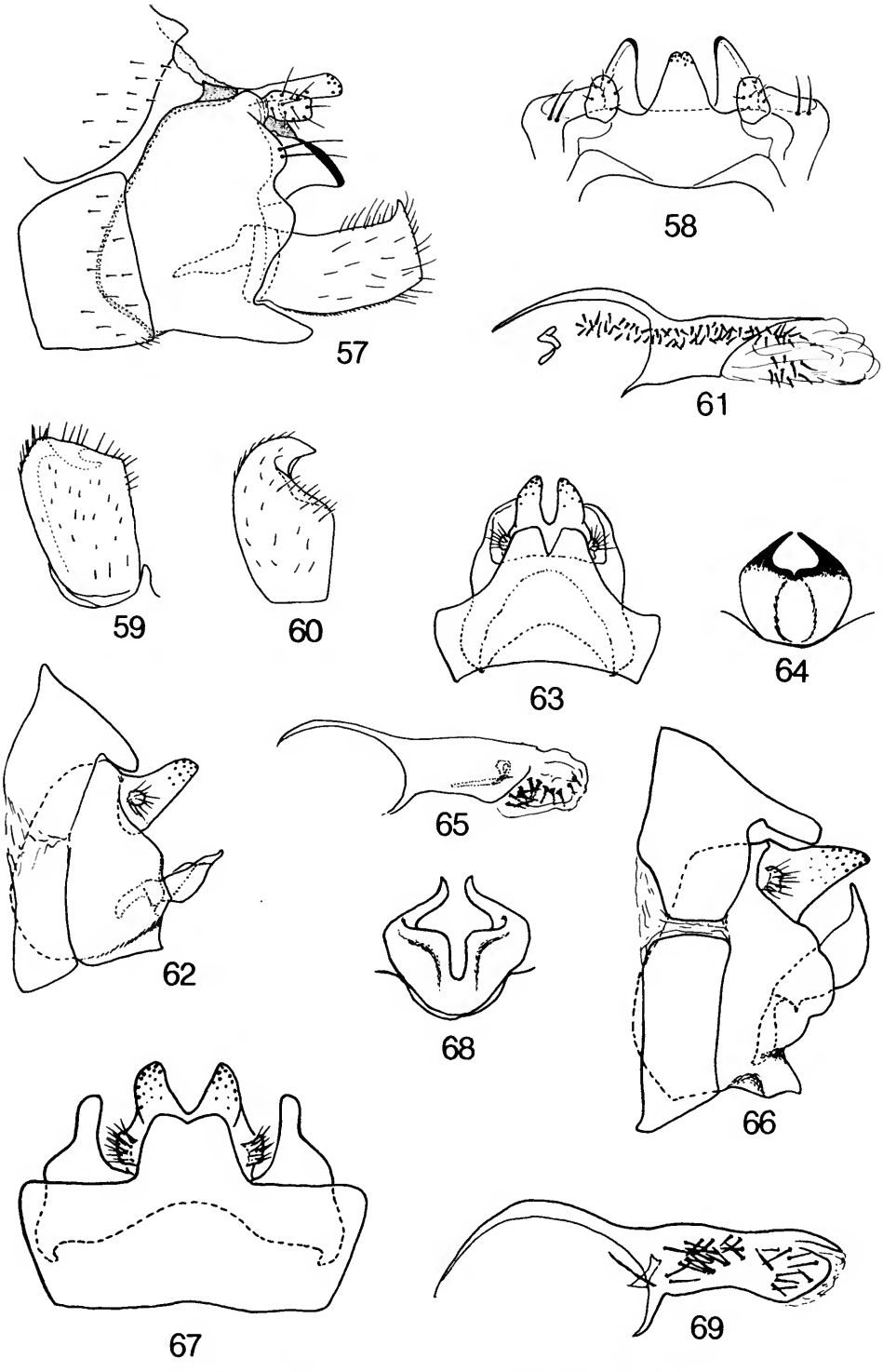
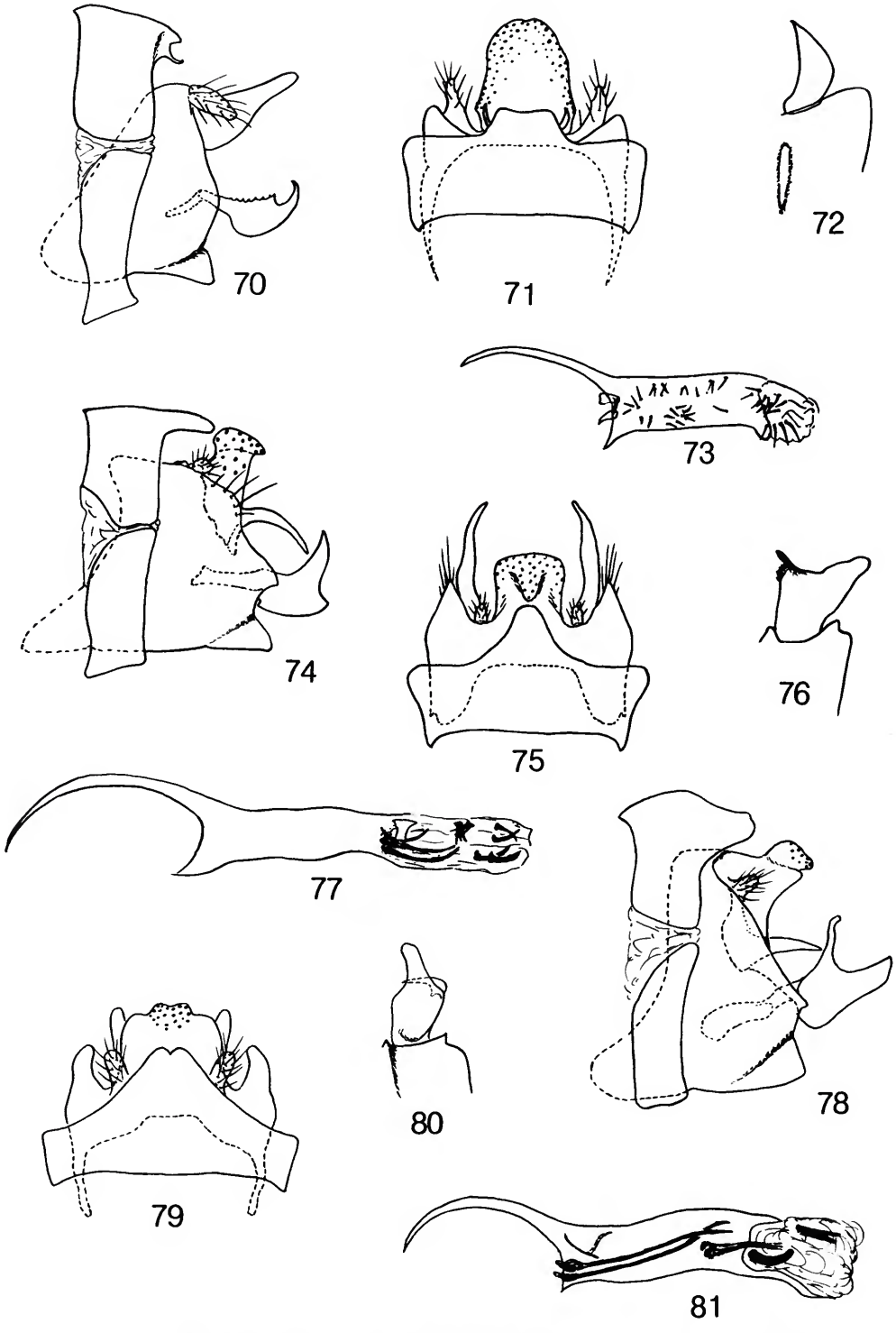
FIGURES 37–44.—Male genitalia. *Chimarra* (*Curgia*) *boraceia*, new species: 37, lateral; 38, ninth and tenth terga and cerci, dorsal; 39, clasper, ventral; 40, phallus, lateral. *Chimarra* (*Curgia*) *beckeri*, new species: 41, lateral; 42, eighth, ninth, and tenth terga and cerci, dorsal; 43, clasper, ventral; 44, phallus, lateral.



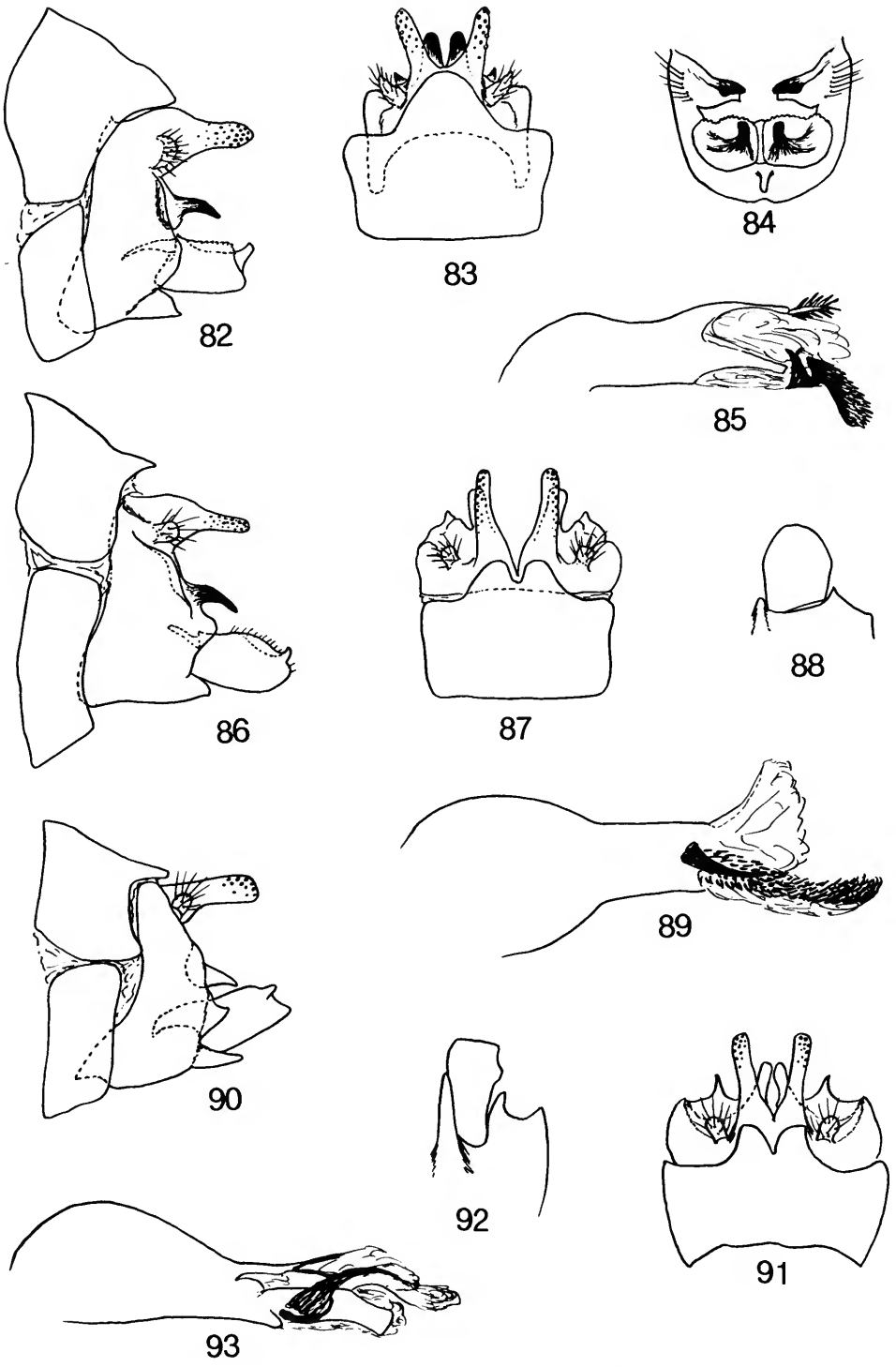
FIGURES 45–56.—Male genitalia. *Chimarra* (*Curgia*) *burmeisteri*, new species: 45, lateral; 46, ninth and tenth terga and cerci, dorsal; 47, clasper, ventral; 48, phallus, lateral. *Chimarra* (*Curgia*) *petersorum*, new species: 49, lateral; 50, eighth, ninth, and tenth terga and cerci, dorsal; 51, clasper, ventral; 52, phallus, lateral. *Chimarra* (*Curgia*) *petricola*, new species: 53, lateral; 54, ninth and tenth terga and cerci, dorsal; 55, clasper, ventral; 56, phallus, lateral.



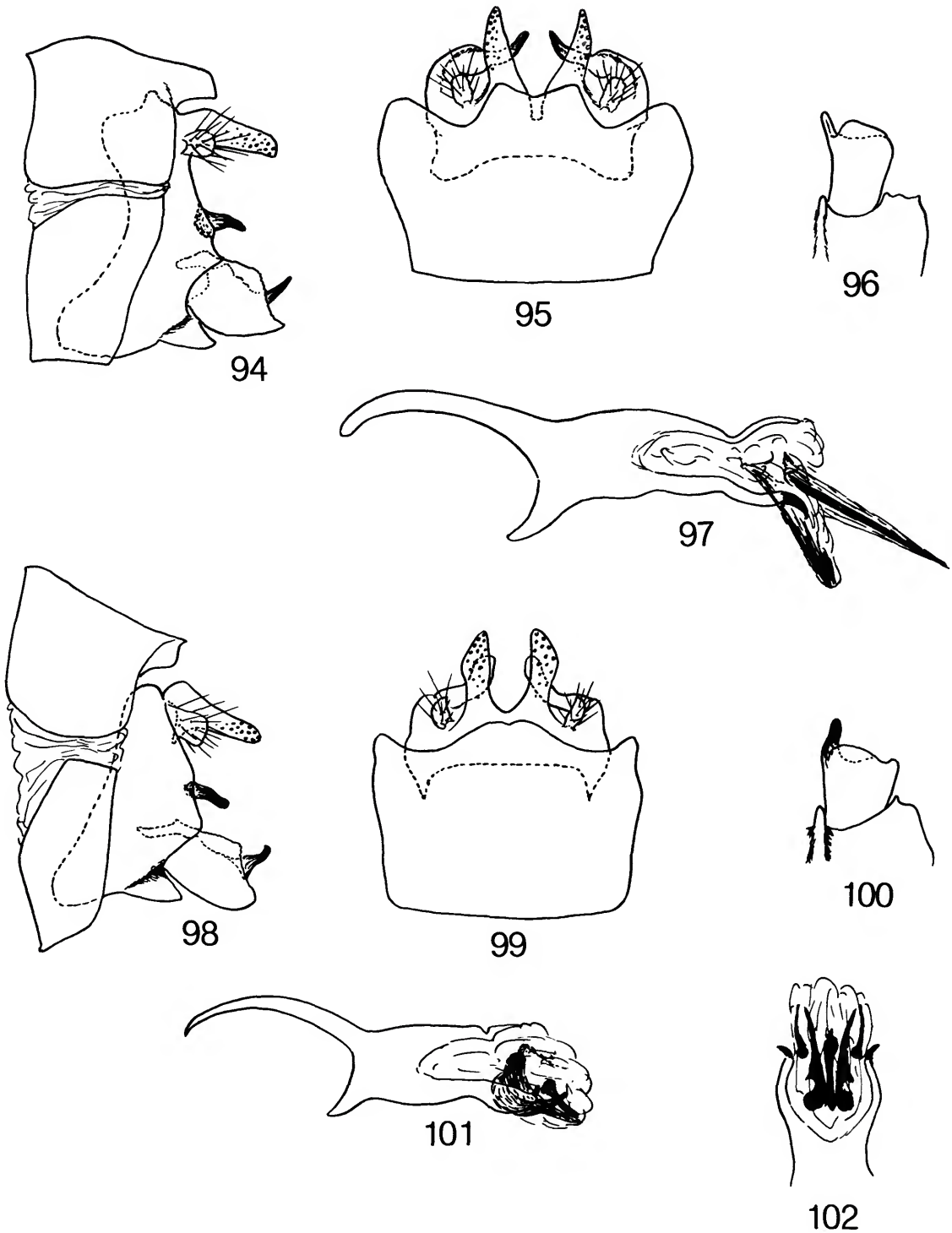
FIGURES 57–69.—Male genitalia. *Chimarra* (*Curgia*) *centrispina*, new species: 57, lateral; 58, ninth and tenth terga and cerci, dorsal; 59, clasper, ventral; 60, clasper, posteroventral; 61, phallus, lateral. *Chimarra* (*Curgia*) *aurivittata* Flint: 62, lateral; 63, eighth, ninth, and tenth terga and cerci, dorsal; 64, claspers, ventral; 65, phallus, lateral. *Chimarra* (*Curgia*) *jugescens*, new species: 66, lateral; 67, eighth, ninth, and tenth terga and cerci, dorsal; 68, claspers, ventral; 69, phallus, lateral.



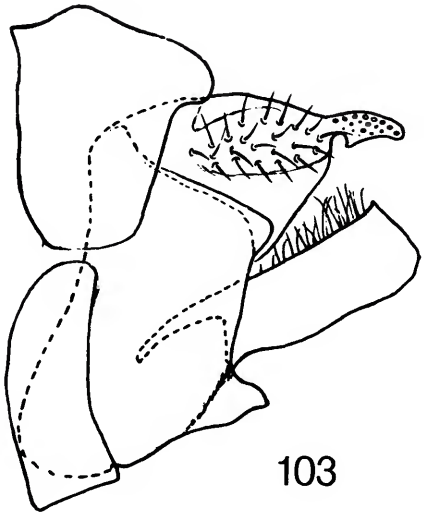
FIGURES 70–81.—Male genitalia. *Chimarra* (*Curgia*) *tucuna*, new species: 70, lateral; 71, eighth, ninth, and tenth terga and cerci, dorsal; 72, clasper, ventral; 73, phallus, lateral. *Chimarra* (*Curgia*) *ensifera*, new species: 74, lateral; 75, eighth, ninth, and tenth terga and cerci, dorsal; 76, clasper, ventral; 77, phallus, lateral. *Chimarra* (*Curgia*) *donamariae* Denning and Sykora: 78, lateral; 79, eighth, ninth, and tenth terga and cerci, dorsal; 80, clasper, ventral; 81, phallus, lateral.

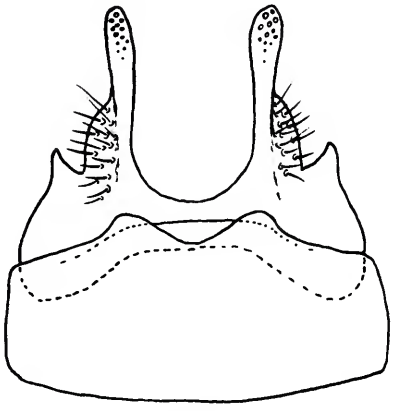


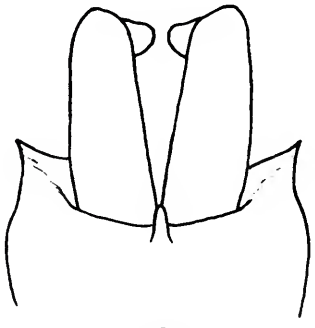
FIGURES 82–93.—Male genitalia. *Chimarra* (*Curgia*) *margaritae* Flint: 82, lateral; 83, eighth, ninth, and tenth terga and cerci, dorsal; 84, ninth segment and claspers, posterior; 85, phallus, lateral. *Chimarra* (*Curgia*) *chrysosoma*, new species: 86, lateral; 87, eighth, ninth, and tenth terga and cerci, dorsal; 88, clasper, ventral; 89, phallus, lateral. *Chimarra* (*Curgia*) *minga*, new species: 90, lateral; 91, eighth, ninth, and tenth terga and cerci, dorsal; 92, clasper, ventral; 93, phallus, lateral.

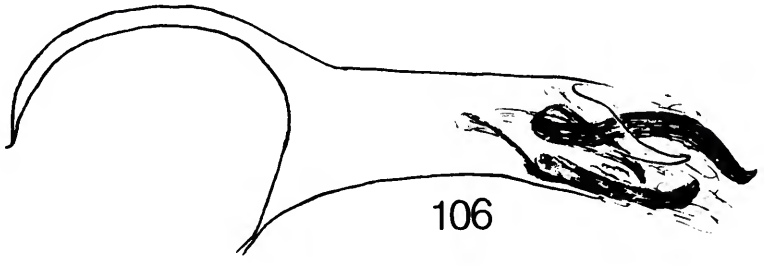


FIGURES 94–102.—Male genitalia. *Chimarra* (*Curgia*) *acula,* new species: 94, lateral; 95, eighth, ninth, and tenth terga and cerci, dorsal; 96, clasper, ventral; 97, phallus, lateral. *Chimarra* (*Curgia*) *lojaensis,* new species: 98, lateral; 99, eighth, ninth, and tenth terga and cerci, dorsal; 100, clasper, ventral; 101, phallus, lateral; 102, apex of phallus, dorsal.

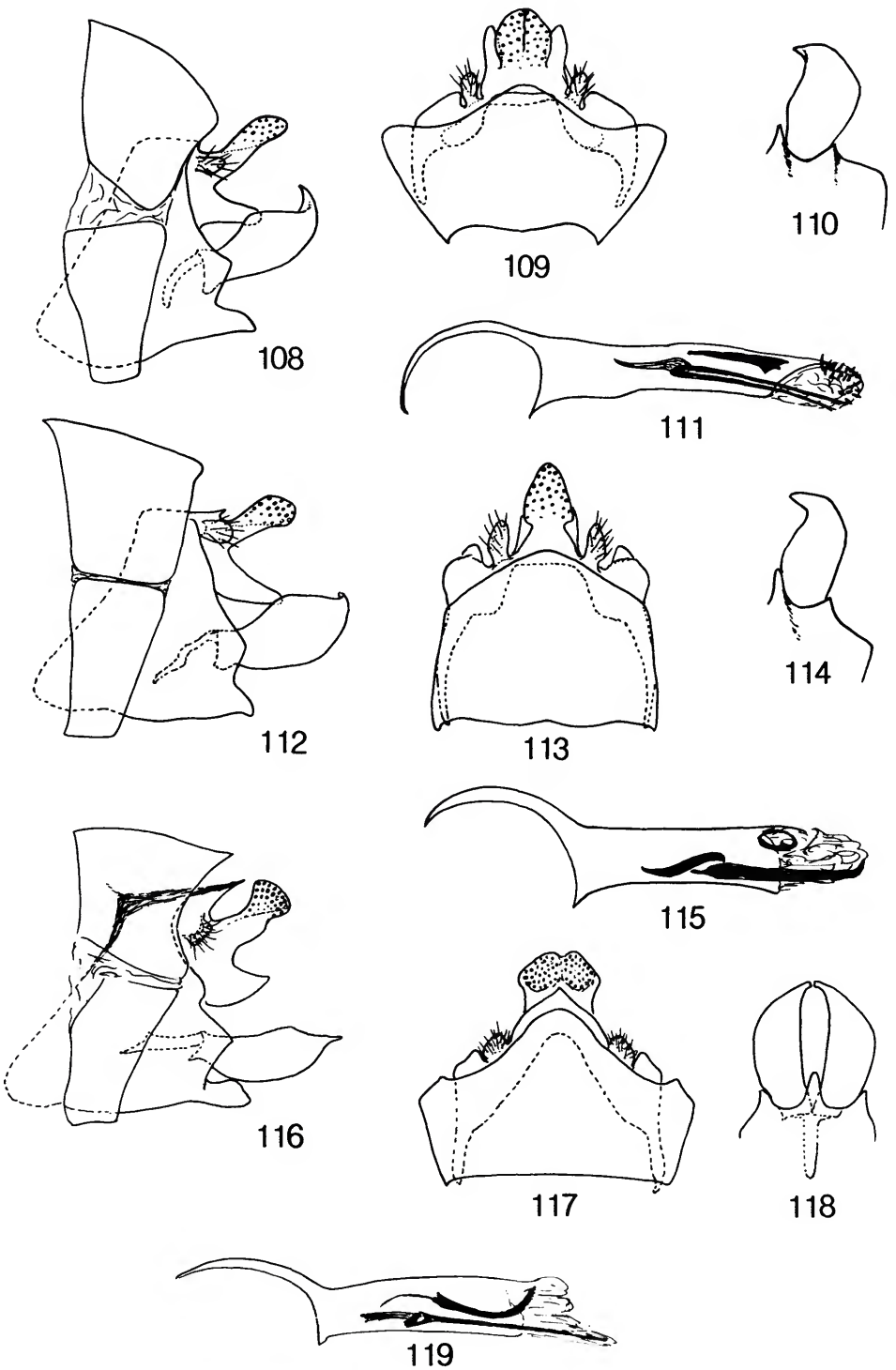




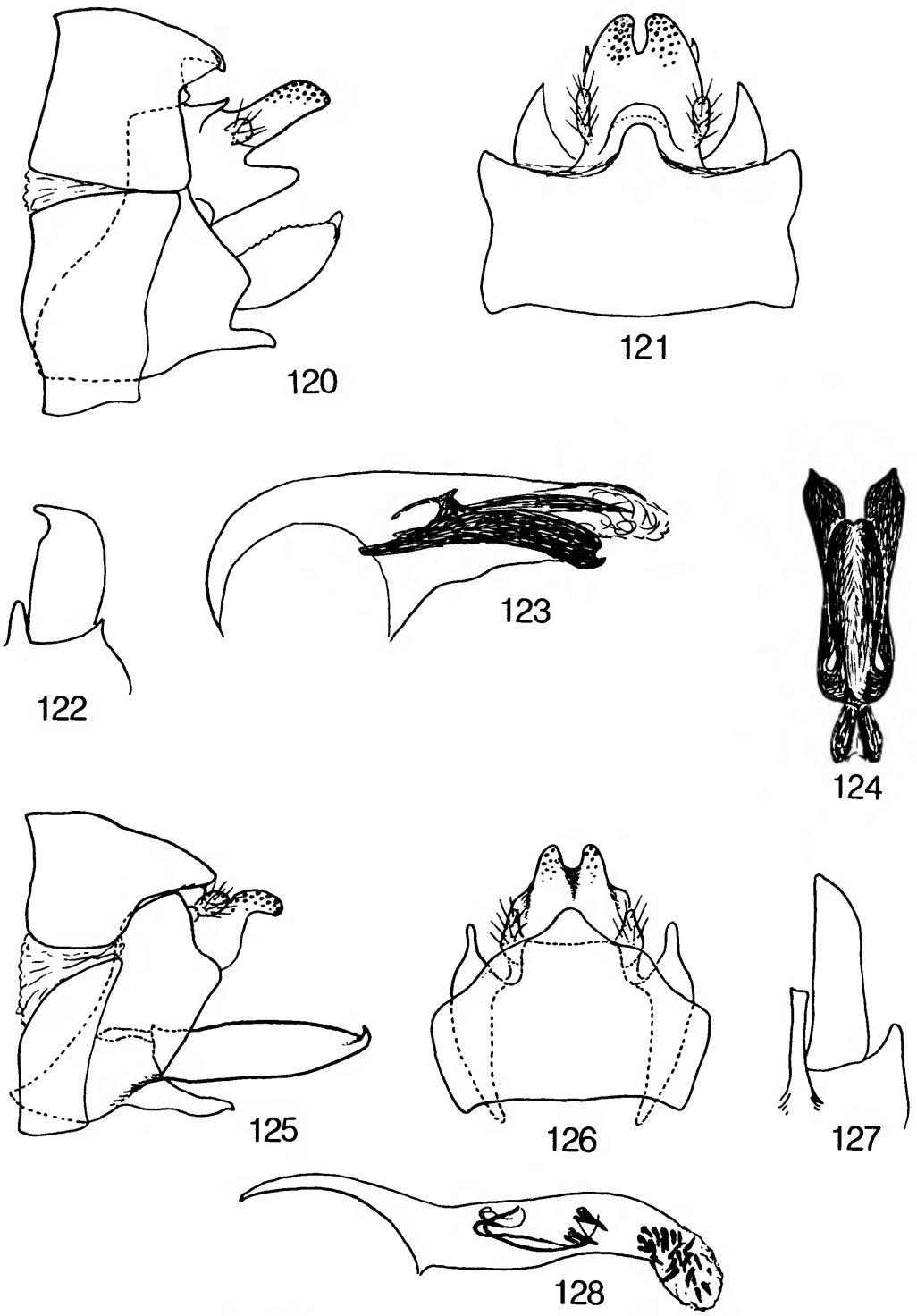




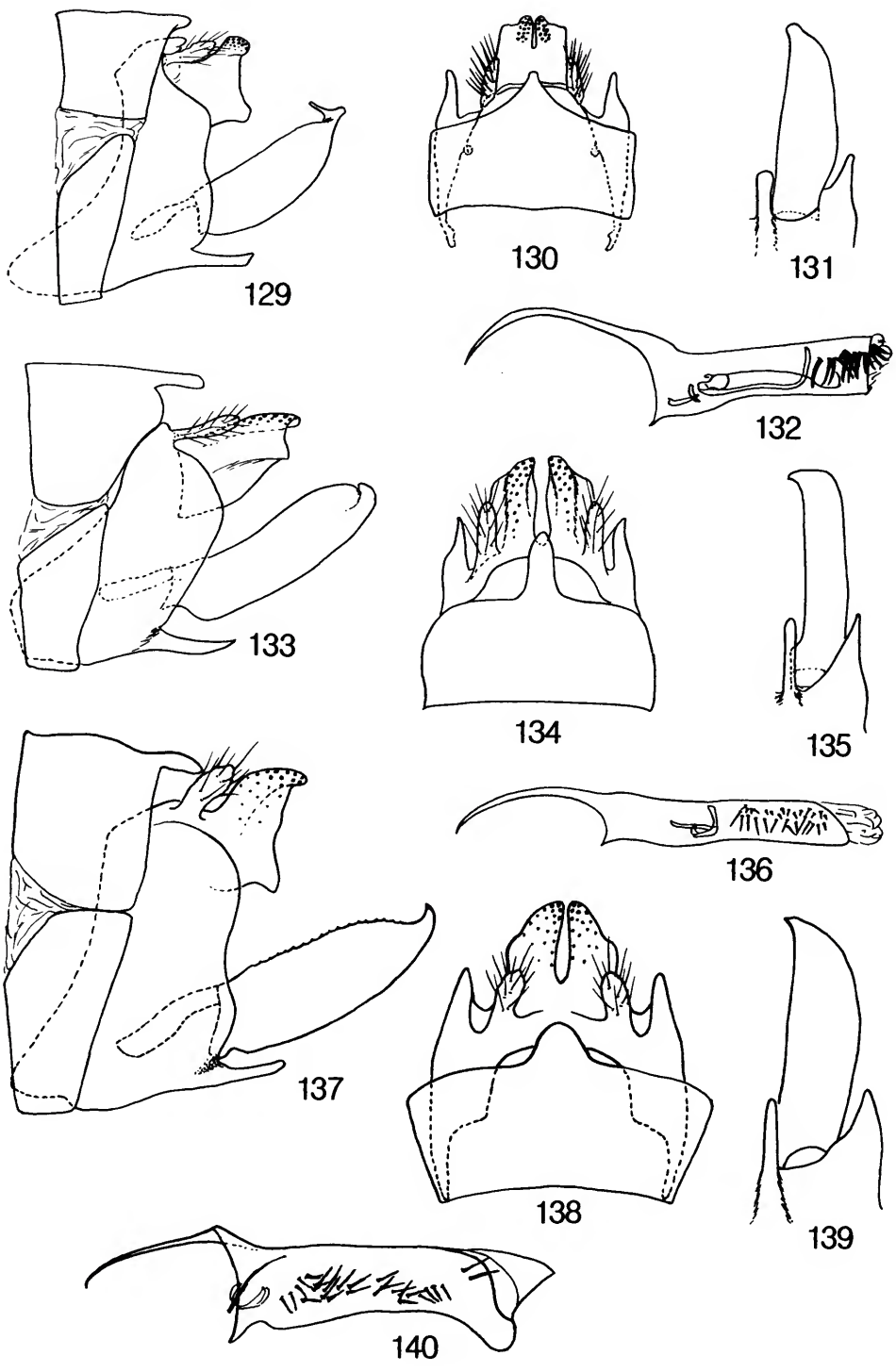
FIGURES 103–107.—Male genitalia. *Chimarra* (*Curgia*) *otuzcoensis* Flint and Reyes: 103, lateral; 104, eighth, ninth, and tenth terga, dorsal; 105, claspers, ventral; 106, phallus, lateral; 107, apex of phallus, dorsal.



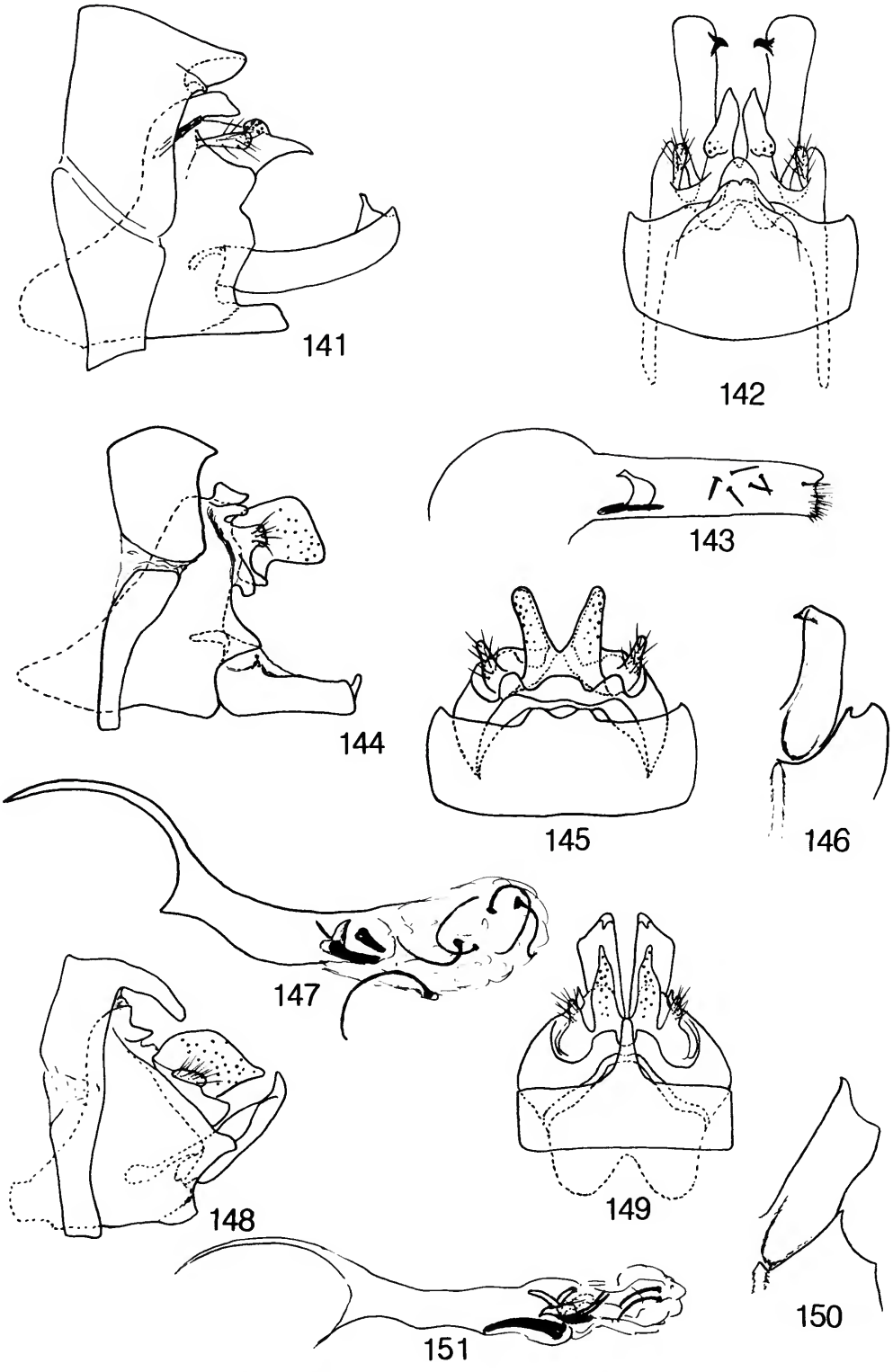
FIGURES 108–119.—Male genitalia. *Chimarra* (*Curgia*) *barinita,* new species: 108, lateral; 109, eighth, ninth, and tenth terga and cerci, dorsal; 110, clasper, ventral; 111, phallus, lateral. *Chimarra* (*Curgia*) *puya,* new species: 112, lateral; 113, eighth, ninth, and tenth terga and cerci, dorsal; 114, clasper, ventral; 115, phallus, lateral. *Chimarra* (*Curgia*) *fernandezi* Flint: 116, lateral; 117, eighth, ninth, and tenth terga and cerci, dorsal; 118, claspers, ventral; 119, phallus, lateral.



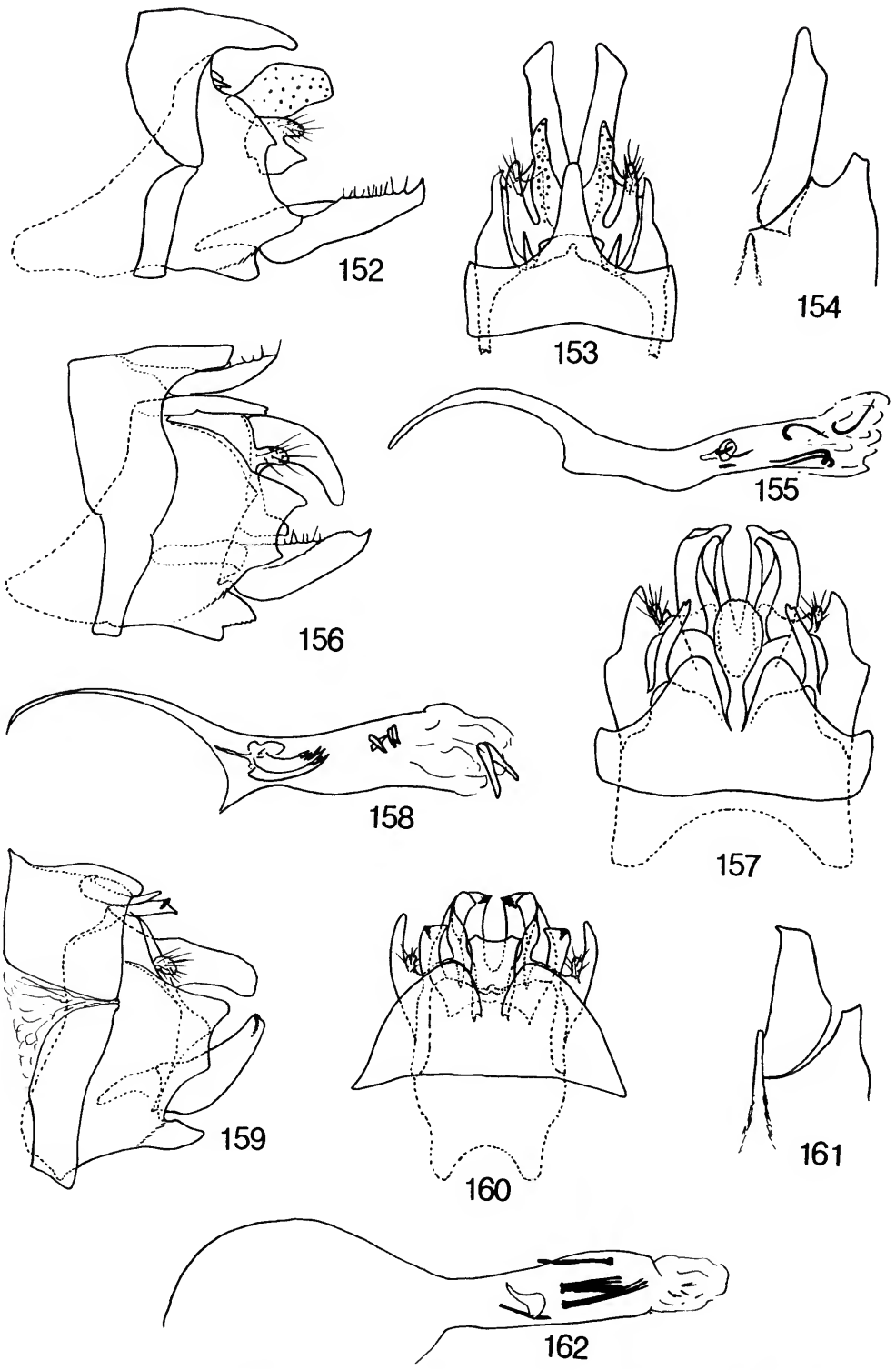
FIGURES 120–128.—Male genitalia. *Chimarra* (*Curgia*) *costaricensis*, new species: 120, lateral; 121, eighth, ninth, and tenth terga and cerci, dorsal; 122, clasper, ventral; 123, phallus, lateral; 124, sclerites of phallus, dorsal. *Chimarra* (*Curgia*) *straminea*, new species: 125, lateral; 126, eighth, ninth, and tenth terga and cerci, dorsal; 127, clasper, ventral; 128, phallus, lateral.



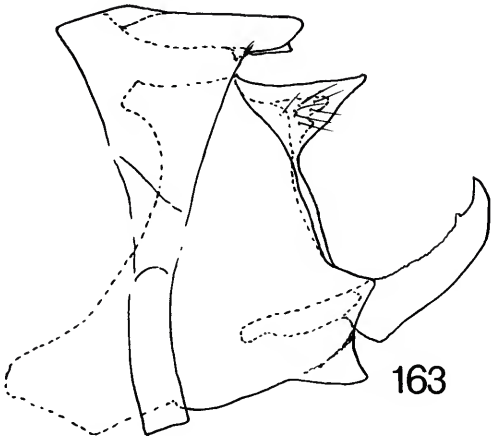
FIGURES 129–140.—Male genitalia. *Chimarra* (*Curgia*) *canoaba*, new species: 129, lateral; 130, eighth, ninth, and tenth terga and cerci, dorsal; 131, clasper, ventral; 132, phallus, lateral. *Chimarra* (*Curgia*) *irwini*, new species: 133, lateral; 134, eighth, ninth, and tenth terga and cerci, dorsal; 135, clasper, ventral; 136, phallus, lateral. *Chimarra* (*Curgia*) *paria*, new species: 137, lateral; 138, eighth, ninth, and tenth terga and cerci, dorsal; 139, clasper, ventral; 140, phallus, lateral.

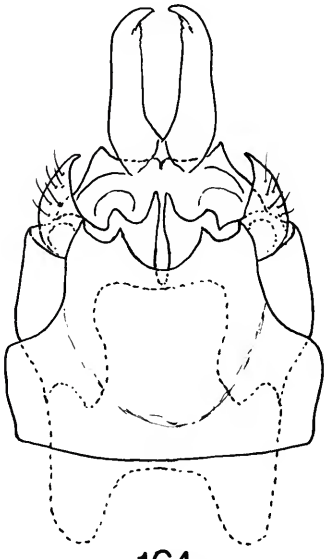


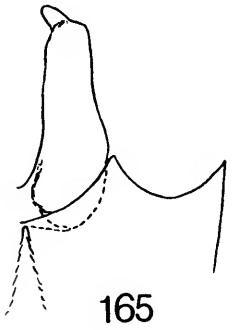
FIGURES 141–151.—Male genitalia. *Chimarra* (*Curgia*) *claviloba* Flint: 141, lateral; 142, dorsal; 143, phallus, lateral. *Chimarra* (*Curgia*) *cirrifera*, new species: 144, lateral; 145, eighth, ninth, and tenth terga and cerci, dorsal; 146, clasper, ventral; 147, phallus, lateral. *Chimarra* (*Curgia*) *medioloba* Flint: 148, lateral; 149, dorsal; 150, clasper, ventral; 151, phallus, lateral.

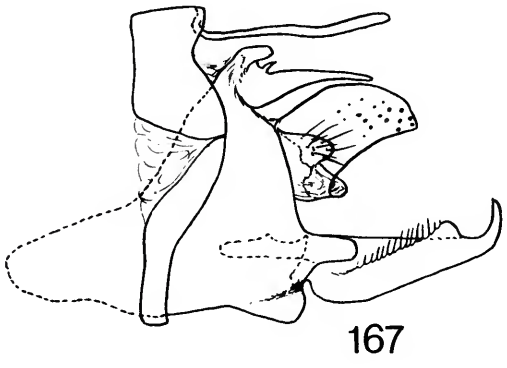


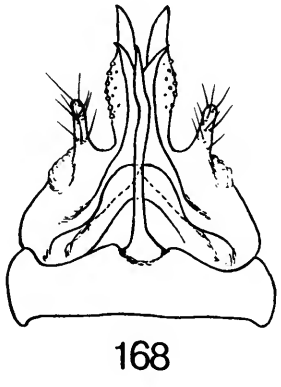
FIGURES 152–162.—Male genitalia. *Chimarra* (*Curgia*) *truncatiloba* Flint: 152, lateral; 153, dorsal; 154, clasper, ventral; 155, phallus, lateral. *Chimarra* (*Curgia*) *fimbriata* Flint: 156, lateral; 157, dorsal; 158, phallus, lateral. *Chimarra* (*Curgia*) *neofimbriata* Flint: 159, lateral; 160, dorsal; 161, clasper, ventral; 162, phallus, lateral.

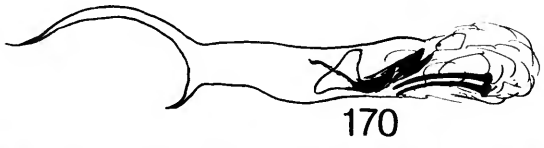




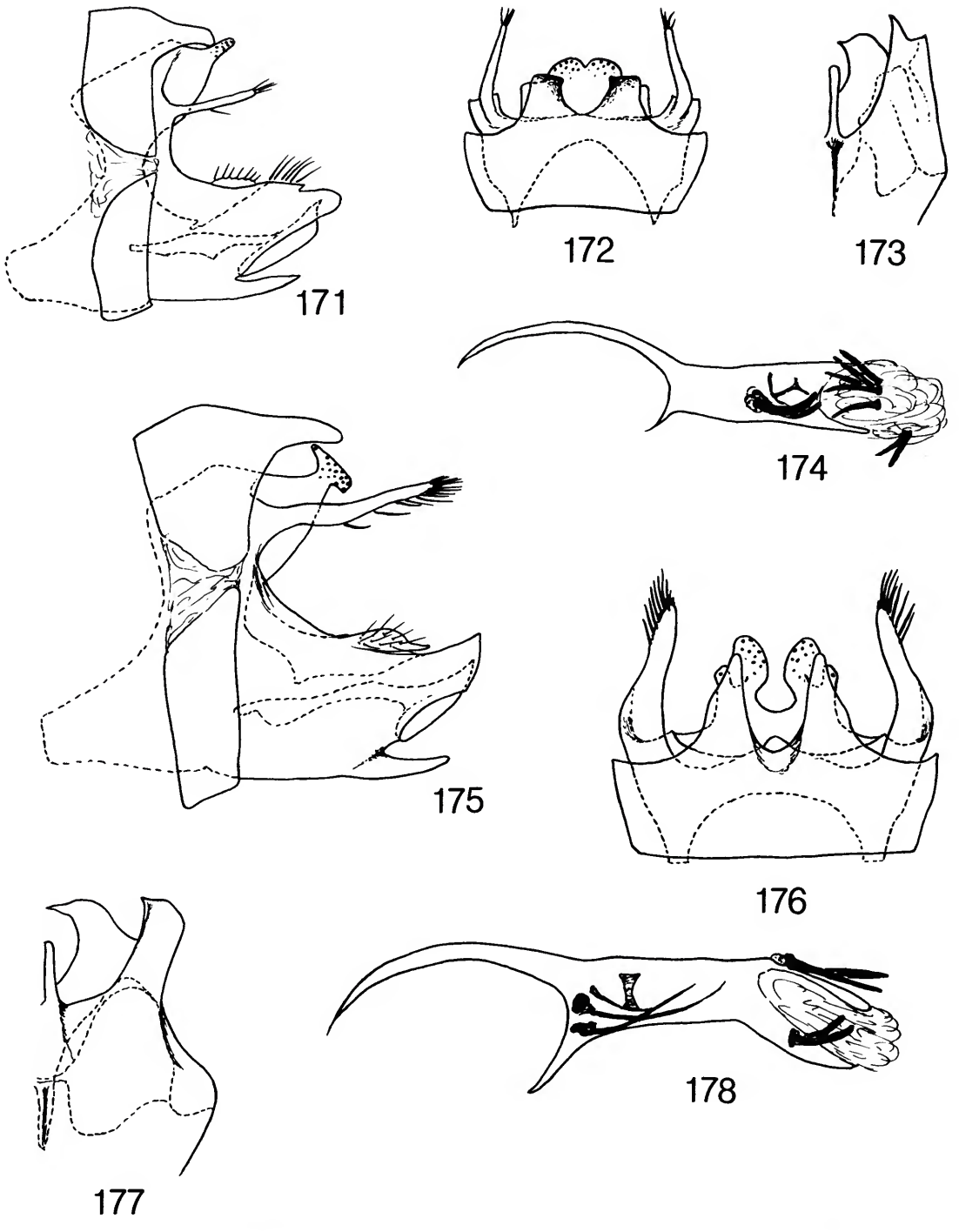




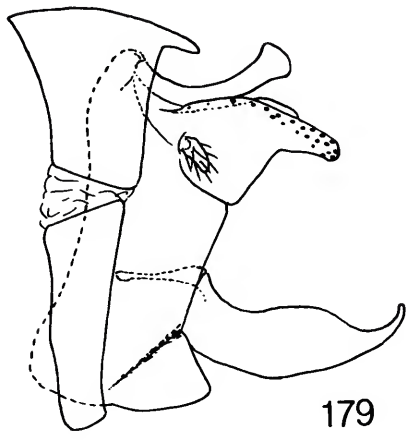


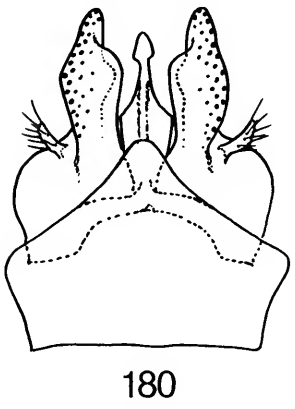


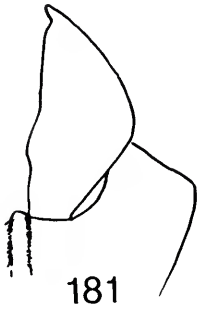
FIGURES 163–170.—Male genitalia. *Chimarra* (*Curgia*) *quaternaria* Flint: 163, lateral; 164, dorsal; 165, clasper, ventral; 166, phallus, lateral. *Chimarra* (*Curgia*) *carolae,* new species: 167, lateral; 168, eighth, ninth, and tenth terga and cerci, dorsal; 169, clasper, ventral; 170, phallus, lateral.

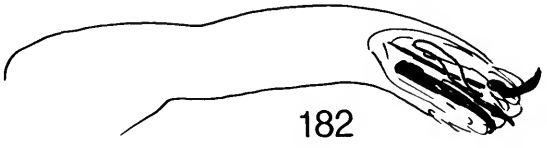


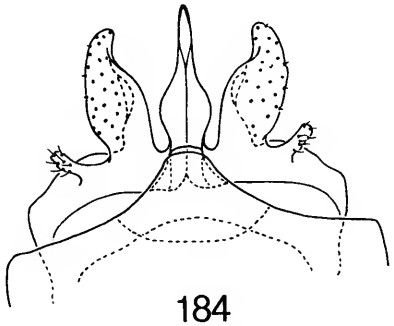
FIGURES 171–178.—Male genitalia. *Chimarra* (*Curgia*) *juliae,* new species: 171, lateral; 172, eighth, ninth, and tenth terga and cerci, dorsal; 173, clasper and ninth sternum, ventral; 174, phallus, lateral. *Chimarra* (*Curgia*) *guyanensis,* new species: 175, lateral; 176, eighth, ninth, and tenth terga and cerci, dorsal; 177, clasper and ninth sternum, ventral; 178, phallus, lateral.

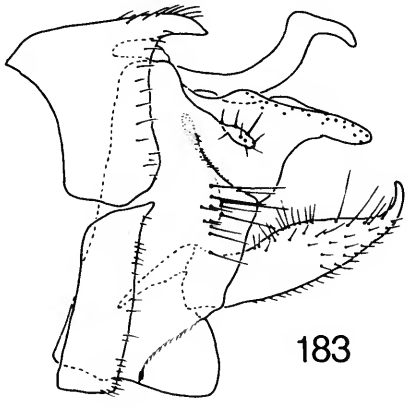


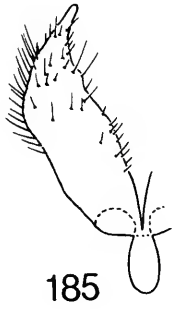


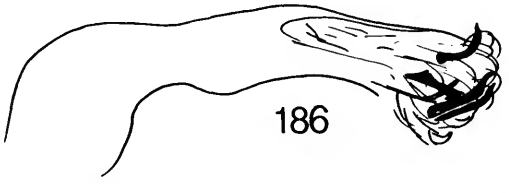




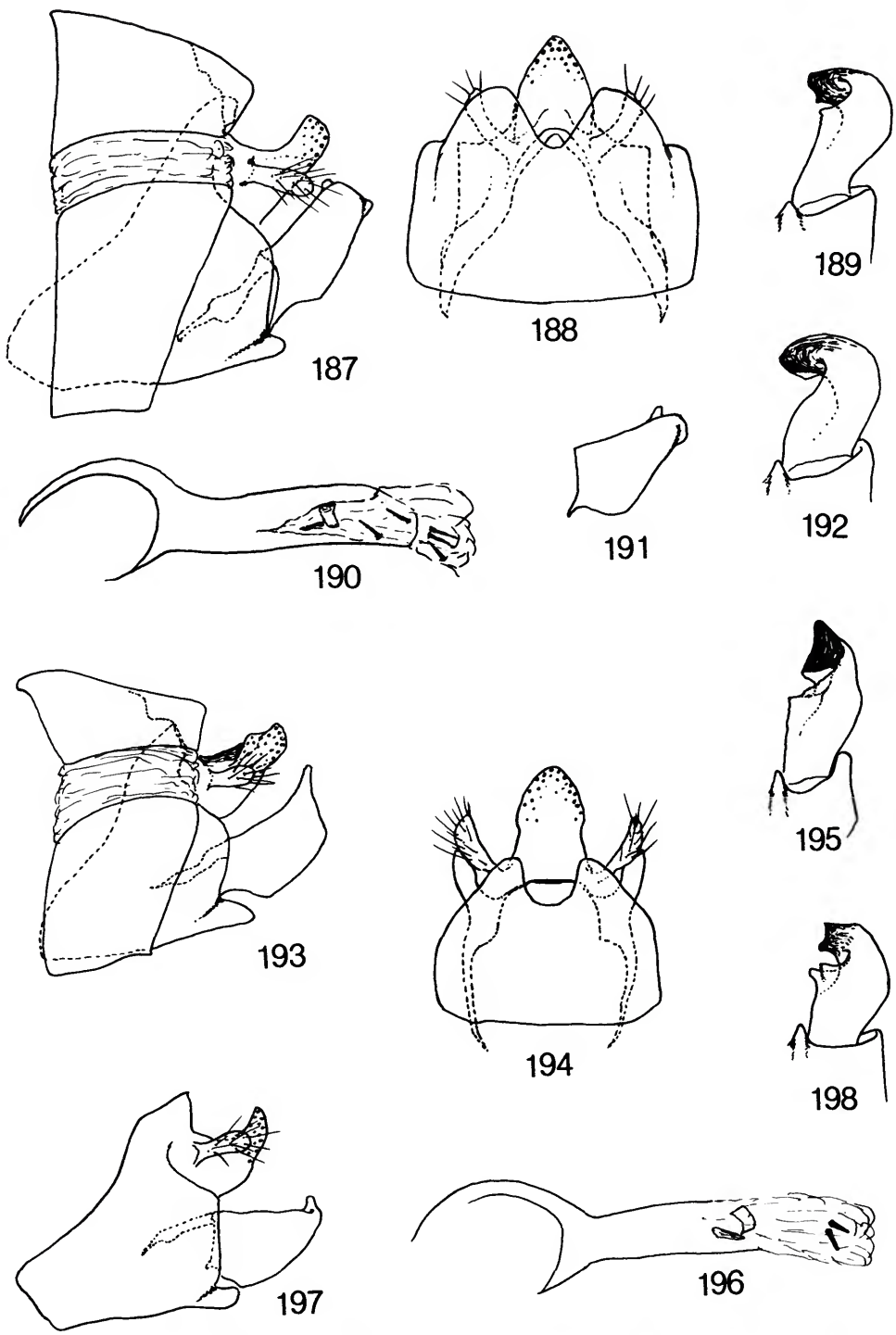




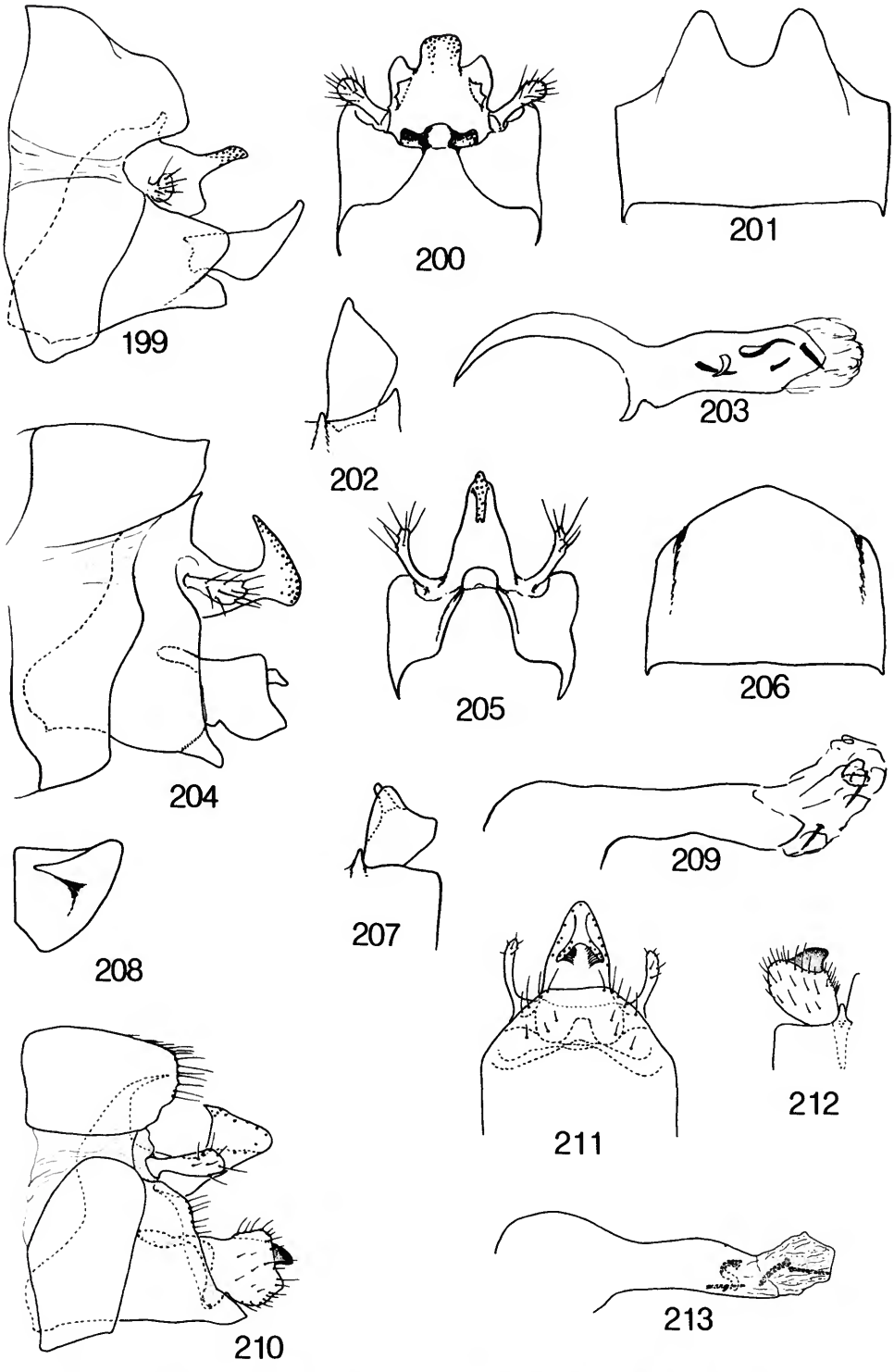




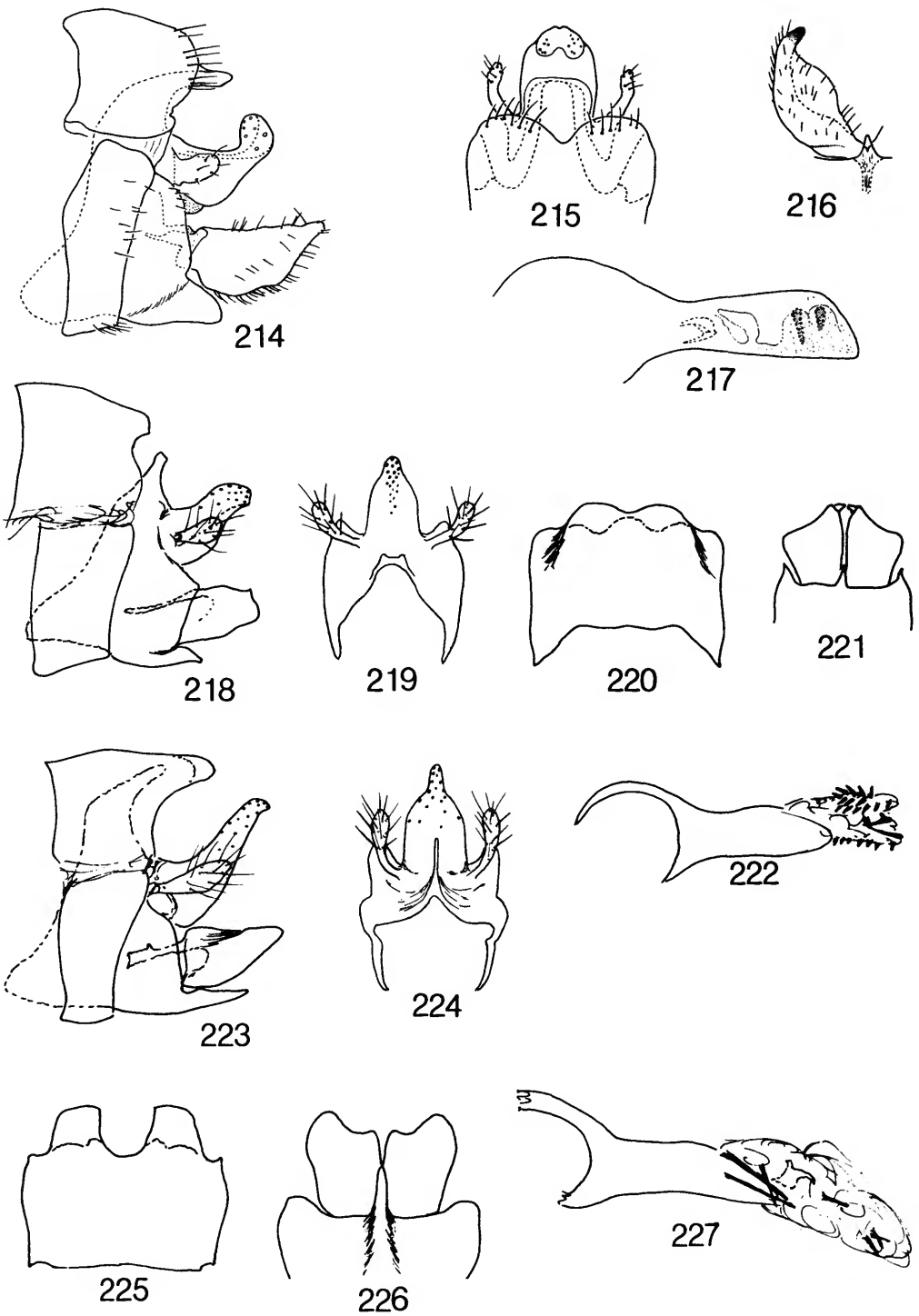
FIGURES 179–186.—Male genitalia. *Chimarra* (*Curgia*) *distermina,* new species: 179, lateral; 180, eighth, ninth, and tenth terga and cerci, dorsal; 181, clasper, ventral; 182, phallus, lateral. *Chimarra* (*Curgia*) *aviceps,* new species: 183, lateral; 184, eighth, ninth, and tenth terga and cerci, dorsal; 185, clasper, ventral; 186, phallus, lateral.



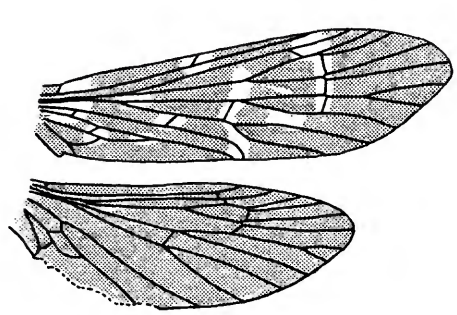
FIGURES 187–198.—Male genitalia. *Chimarra* (*Curgia*) *mexicana* (Banks): 187, lateral; 188, eighth, ninth, and tenth terga and cerci, dorsal; 189, clasper, ventral; 190, phallus, lateral. 191, 192, variant from Rancho Nuevo, Durango, Mexico: 191, clasper, lateral; 192, clasper, ventral. *Chimarra* (*Curgia*) *barrettae* (Banks): 193, lateral; 194, eighth, ninth, and tenth terga and cerci, dorsal; 195, clasper, ventral; 196, phallus, lateral. 197, 198, variant from Tapanti, Cartago, Costa Rica: 197, genitalia, lateral; 198, clasper, ventral.



FIGURES 199–213.—Male genitalia. *Chimarra* (*Curgia*) *lobata* Flint: 199, lateral; 200, ninth and tenth terga and cerci, dorsal; 201, eighth tergum, dorsal; 202, clasper, ventral; 203, phallus, lateral. *Chimarra* (*Curgia*) *wilsoni* Flint: 204, lateral; 205, ninth and tenth terga and cerci, dorsal; 206, eighth tergum, dorsal; 207, clasper, ventral; 208, clasper, posterior; 209, phallus, lateral. *Chimarra* (*Curgia*) *bisectilis*, new species: 210, lateral; 211, eighth, ninth, and tenth terga and cerci, dorsal; 212, clasper, ventral; 213, phallus, lateral.



FIGURES 214–227.—Male genitalia. *Chimarra* (*Curgia*) *pablito*, new species: 214, lateral; 215, eighth, ninth, and tenth terga and cerci, dorsal; 216, clasper, ventral; 217, phallus, lateral. *Chimarra* (*Curgia*) *ypsilon* Flint: 218, lateral; 219, ninth and tenth terga and cerci, dorsal; 220, eighth tergum, dorsal; 221, claspers, ventral; 222, phallus, lateral. *Chimarra* (*Curgia*) *hyoeides* Flint: 223, lateral; 224, ninth and tenth terga and cerci, dorsal; 225, eighth tergum, dorsal; 226, claspers, ventral; 227, phallus, lateral.



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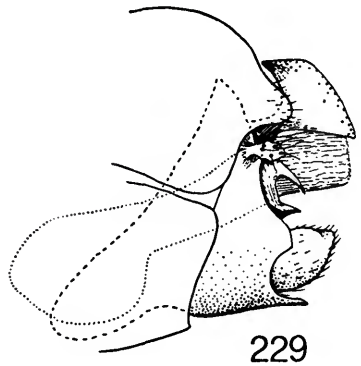

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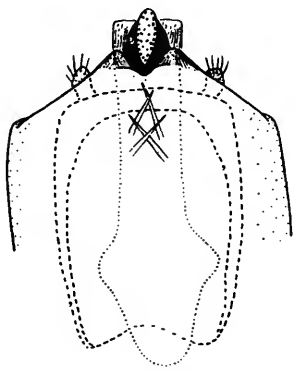

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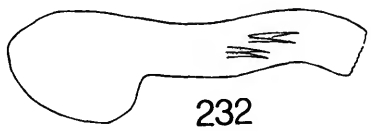

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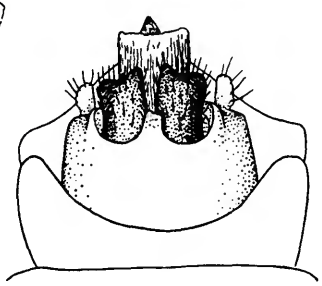

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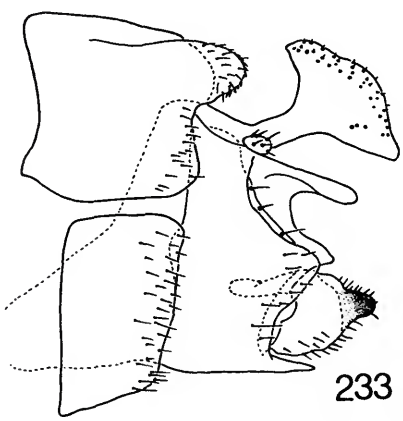

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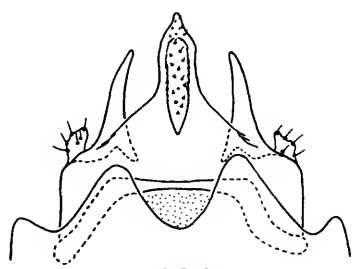

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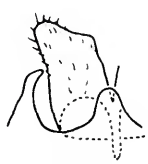

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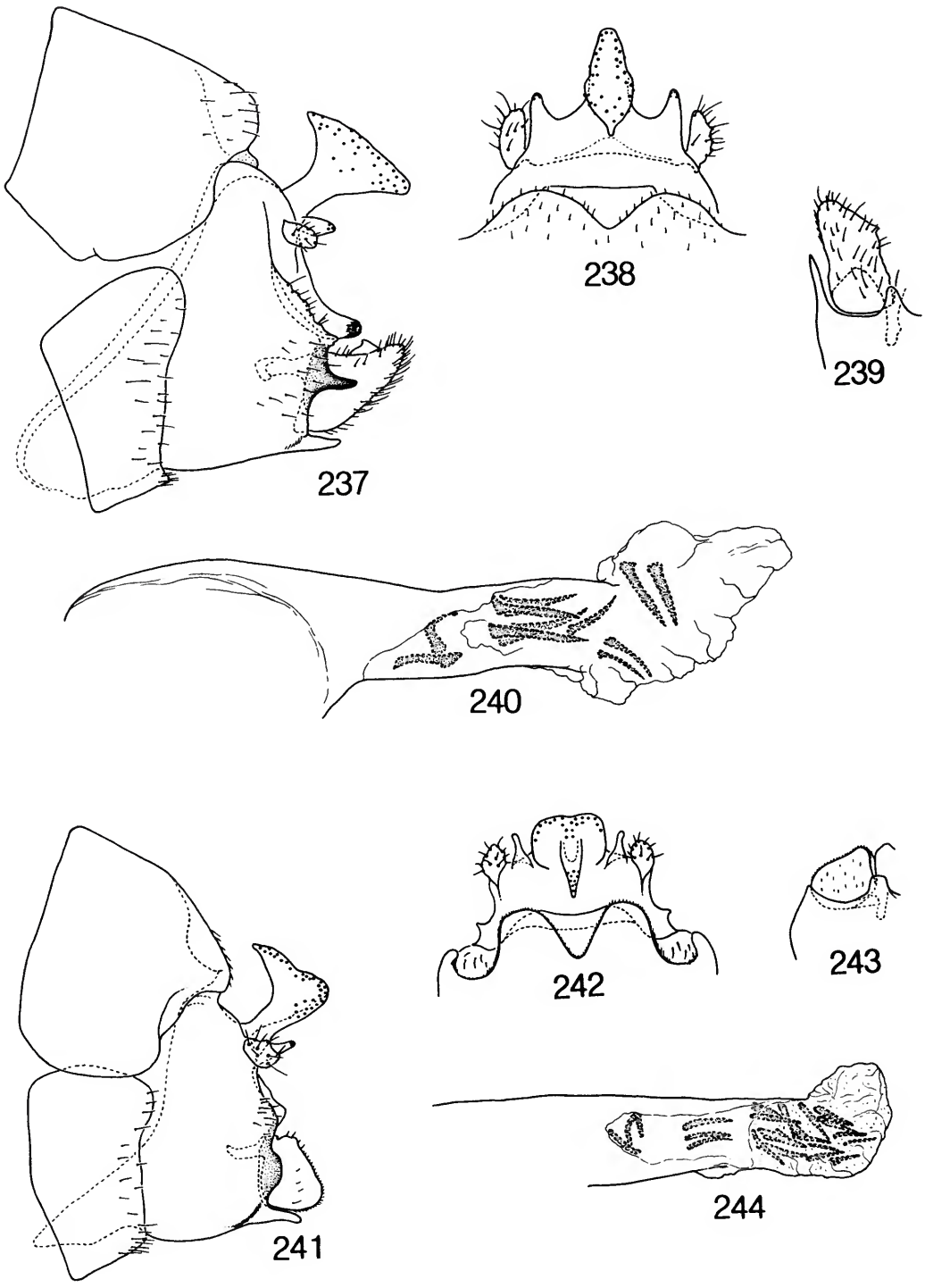
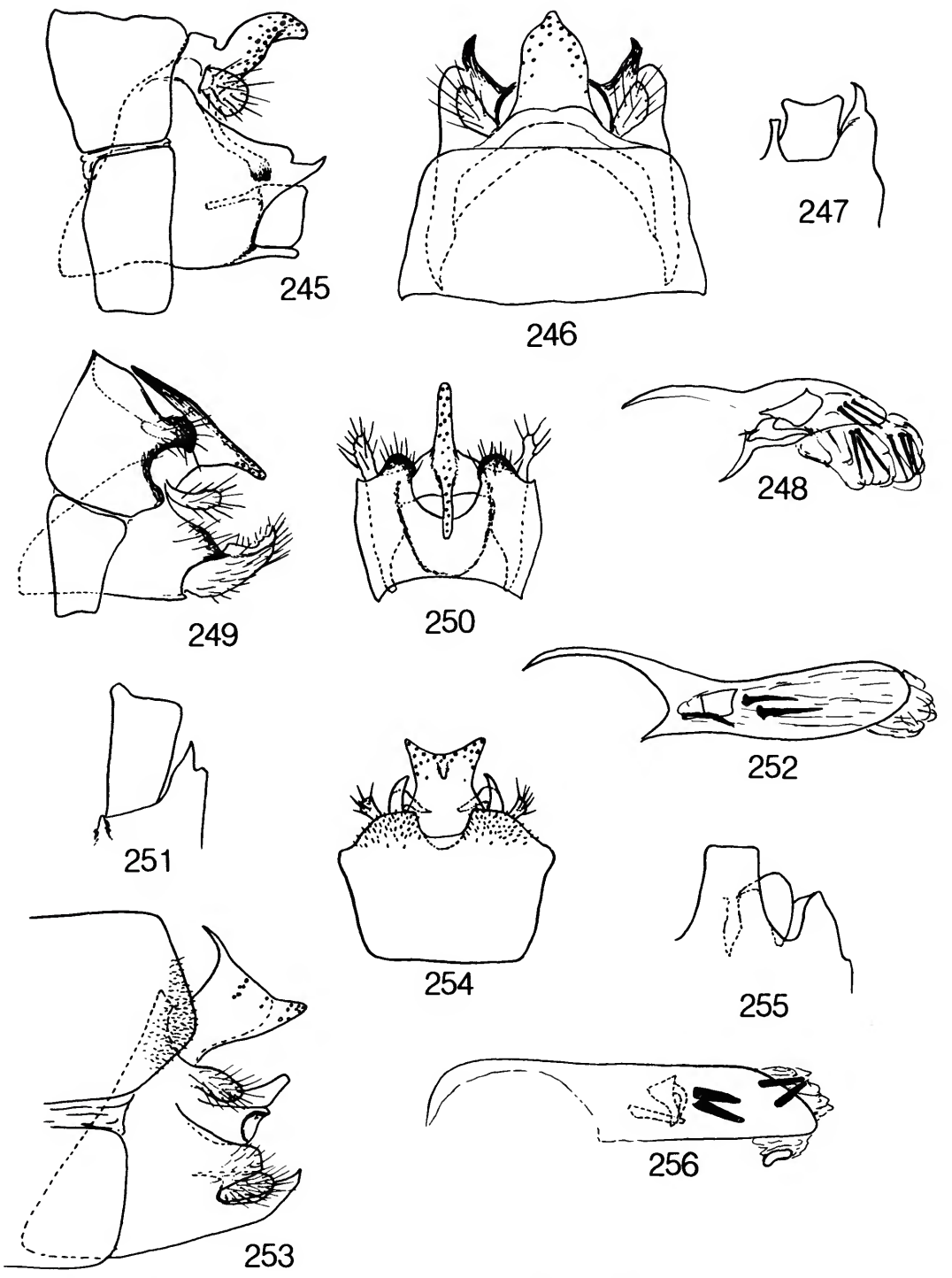
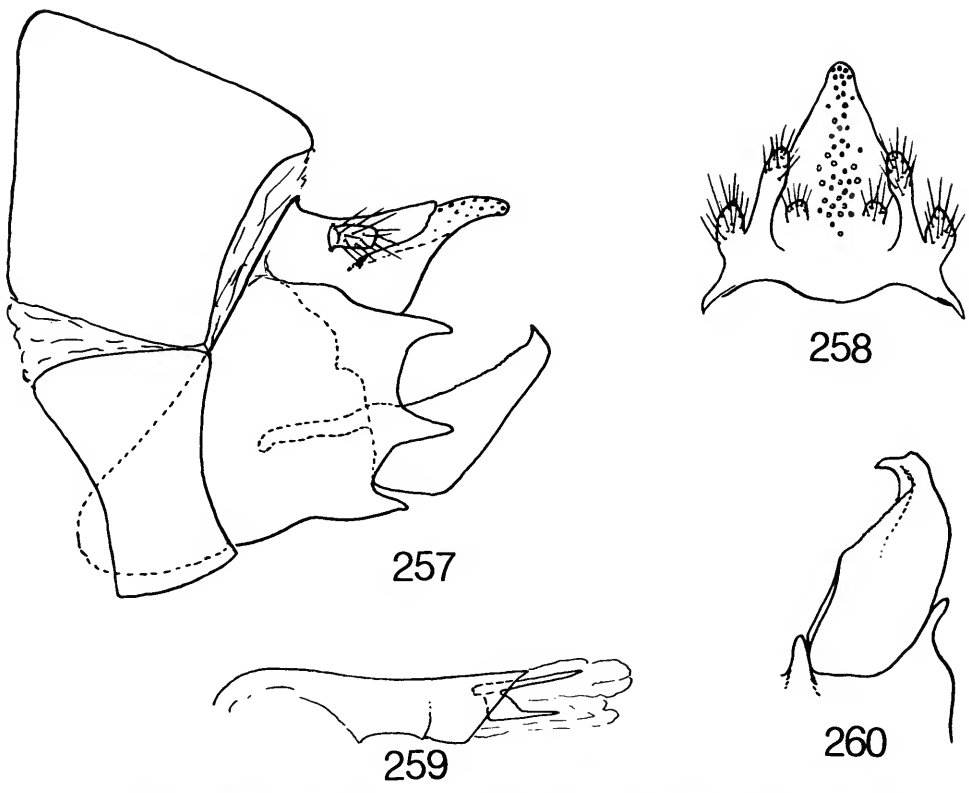
FIGURES 228–236.—*Chimarra* (*Curgia*) *braconoides* (Walker): 228, wings, showing color pattern. Male genitalia: 229, lateral; 230, dorsal; 231, ventral; 232, phallus, lateral. *Chimarra* (*Curgia*) *gilvimacula*, new species: 233, lateral; 234, eighth, ninth, and tenth terga and cerci, dorsal; 235, clasper, ventral; 236, phallus, lateral.



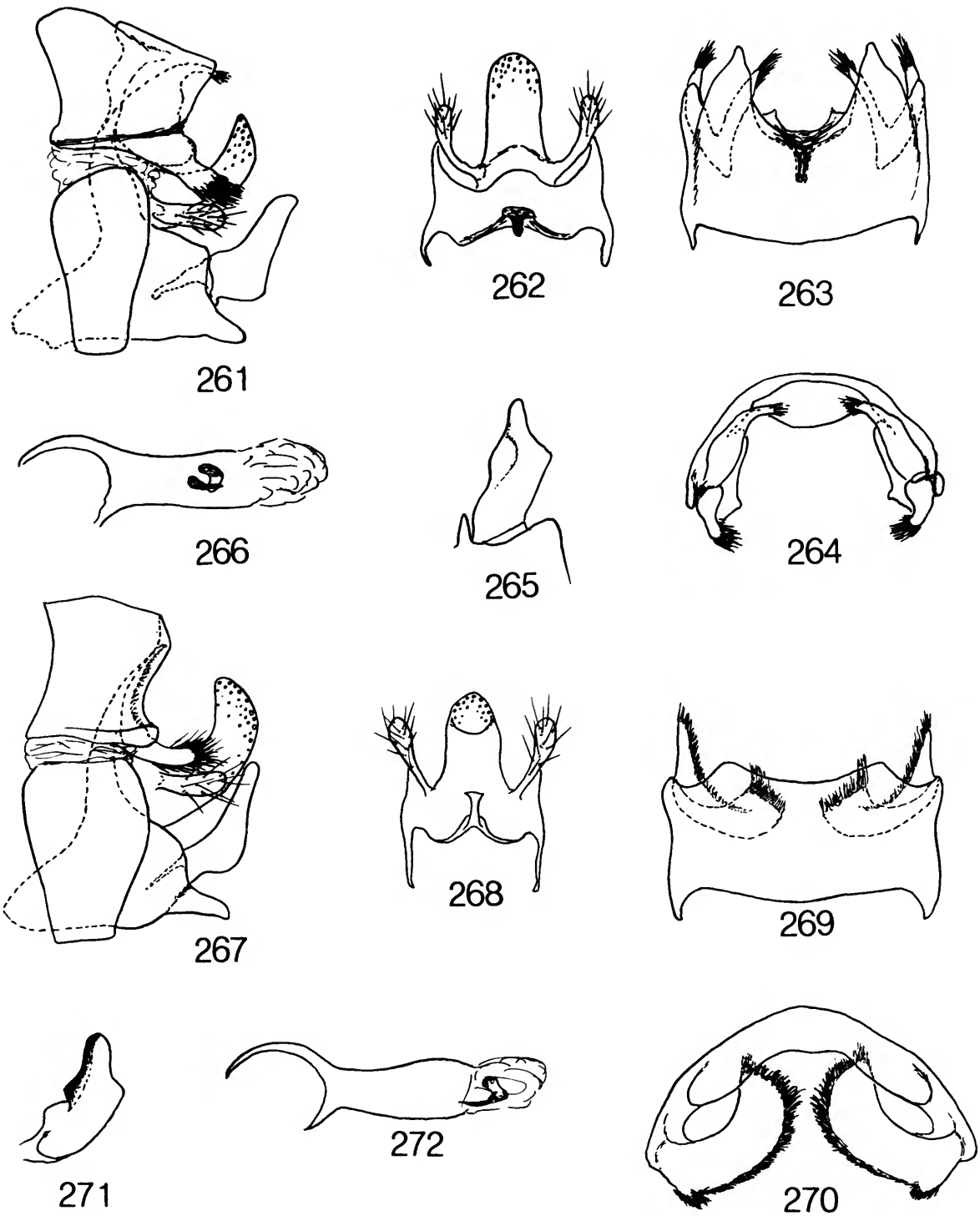
FIGURES 237–244.—Male genitalia. *Chimarra* (*Curgia*) *aurantibasis*, new species: 237, lateral; 238, eighth, ninth, and tenth terga and cerci, dorsal; 239, clasper, ventral; 240, phallus, lateral. *Chimarra* (*Curgia*) *quina*, new species: 241, lateral; 242, eighth, ninth, and tenth terga and cerci, dorsal; 243, clasper, ventral; 244, phallus, lateral.



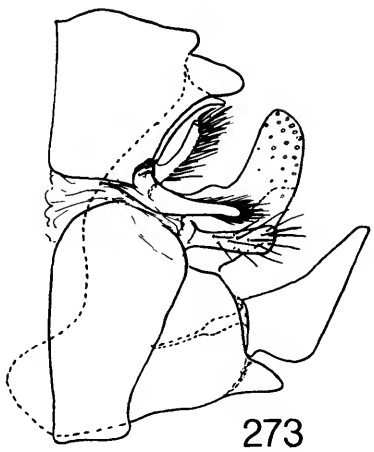
FIGURES 245–256.—Male genitalia. *Chimarra* (*Curgia*) *moesta* Banks: 245, lateral; 246, eighth, ninth, and tenth terga and cerci, dorsal; 247, clasper, ventral; 248, phallus, lateral. *Chimarra* (*Curgia*) *argentella* (Ulmer): 249, lateral; 250, eighth, ninth, and tenth terga and cerci, dorsal; 251, clasper, ventral; 252, phallus, lateral. *Chimarra* (*Curgia*) *albomaculata* (Kolbe): 253, lateral; 254, eighth, ninth, and tenth terga and cerci, dorsal; 255, clasper, ventral; 256, phallus, lateral.



FIGURES 257–260.—Male genitalia. *Chimarra* (*Curgia*) *pulchra* (Hagen): 257, lateral; 258, tenth tergum and cerci, dorsal; 259, clasper, ventral; 260, phallus, lateral.



FIGURES 261–272.—Male genitalia. *Chimarra* (*Curgia*) *banksi* (Ulmer): 261, lateral; 262, ninth and tenth terga and cerci, dorsal; 263, eighth tergum, dorsal; 264, eighth tergum, posterior; 265, clasper, ventral; 266, phallus, lateral. *Chimarra* (*Curgia*) *sarophora*, new species: 267, lateral; 268, ninth and tenth terga and cerci, dorsal; 269, eighth tergum, dorsal; 270, eighth tergum, posterior; 271, clasper, ventral; 272, phallus, lateral.



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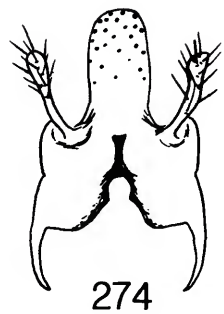

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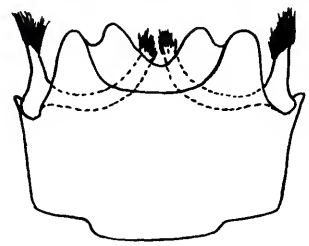

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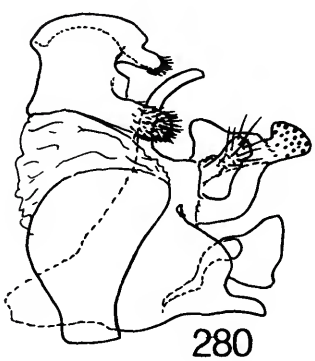

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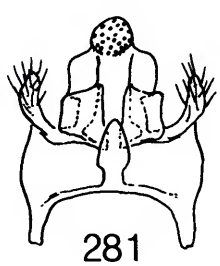

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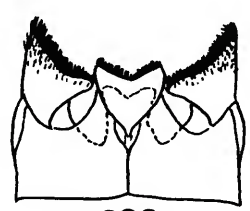

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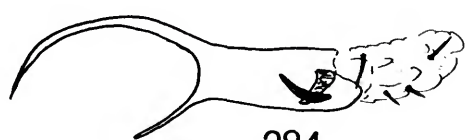

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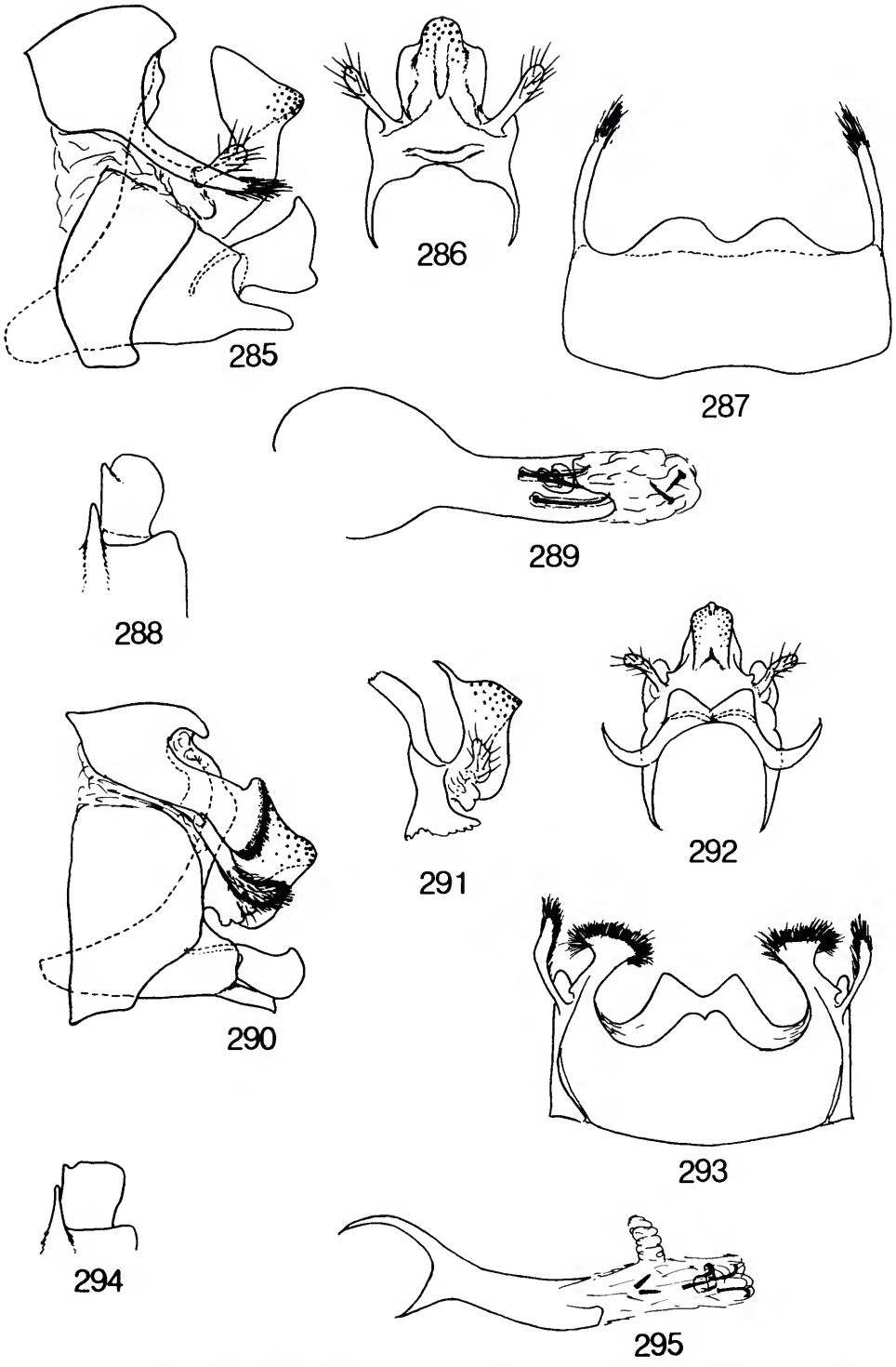
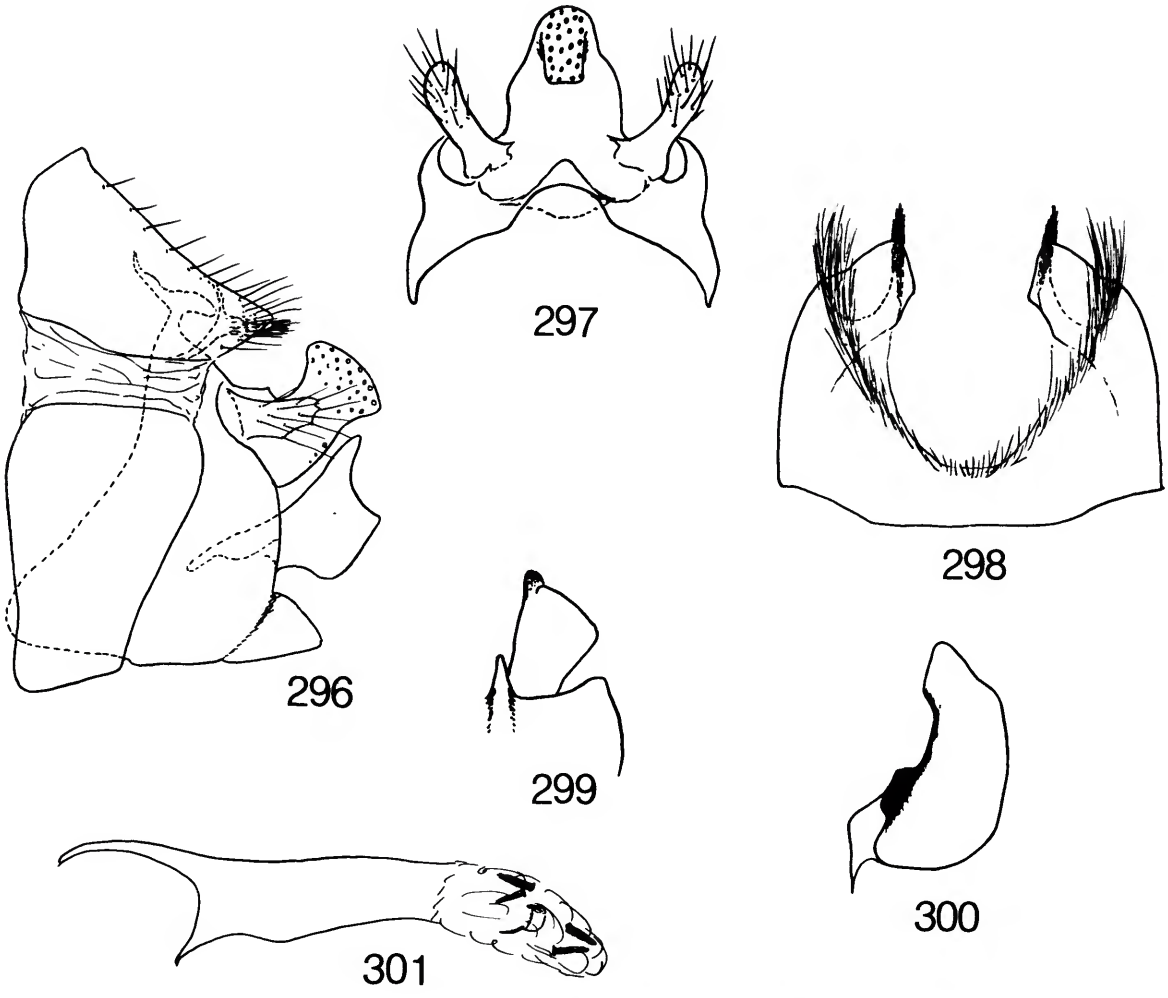
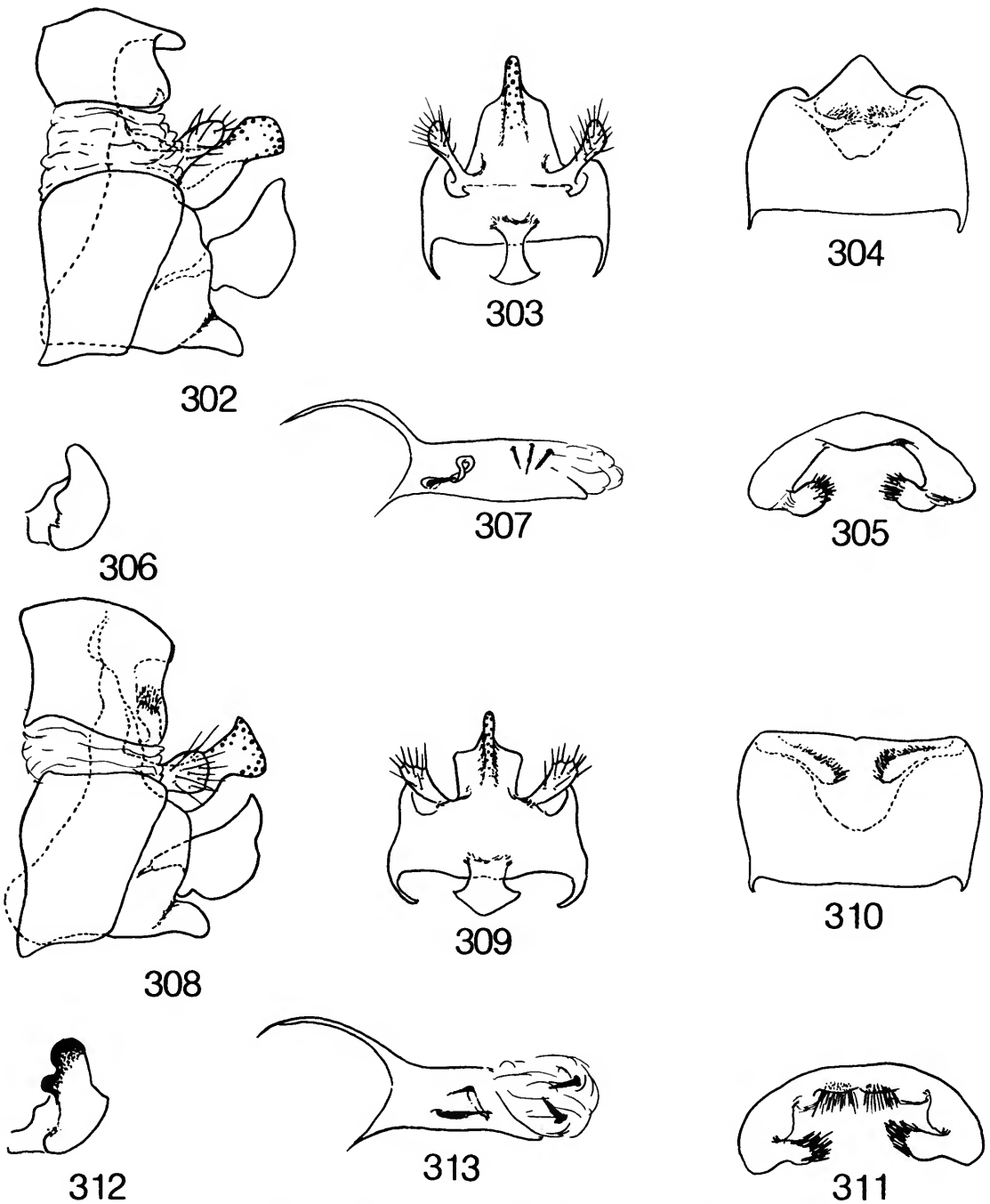
FIGURES 273–284.—Male genitalia. *Chimarra* (*Curgia*) *macara*, new species: 273, lateral; 274, ninth and tenth terga and cerci, dorsal; 275, eighth tergum, dorsal; 276, eighth tergum, posterior; 277, clasper, ventral; 278, clasper, posterior; 279, phallus, lateral. *Chimarra* (*Curgia*) *centralis* Ross: 280, lateral; 281, ninth and tenth terga and cerci, dorsal; 282, eighth tergum, dorsal; 283, clasper, ventral; 284, phallus, lateral.



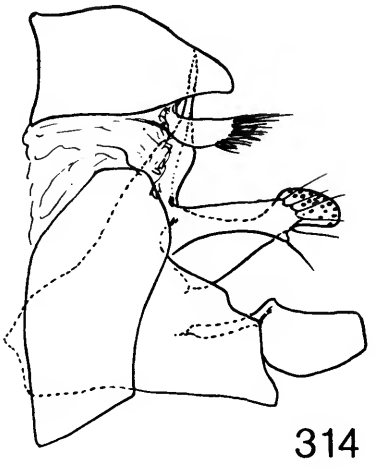
FIGURES 285–295.—Male genitalia. *Chimarra* (*Curgia*) *acinaciformis*, new species: 285, lateral; 286, ninth and tenth terga and cerci, dorsal; 287, eighth tergum, dorsal; 288, clasper, ventral; 289, phallus, lateral. *Chimarra* (*Curgia*) *piliferosa*, new species: 290, lateral; 291, tenth tergum and cercus, lateral; 292, ninth and tenth terga and cerci, dorsal; 293, eighth tergum, dorsal; 294, clasper, ventral; 295, phallus, lateral.

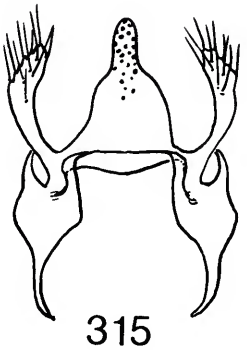


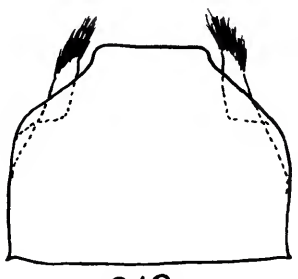
FIGURES 296–301.—Male genitalia. *Chimarra* (*Curgia*) *aureopunctata* Flint: 296, lateral; 297, ninth and tenth terga and cerci, dorsal; 298, eighth tergum, dorsal; 299, clasper, ventral; 300, clasper, posterior; 301, phallus, lateral.

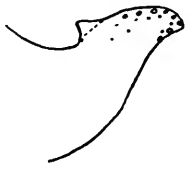


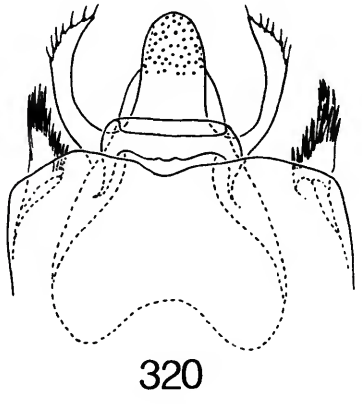
FIGURES 302-313.—Male genitalia. *Chimarra* (*Curgia*) *purisca*, new species: 302, lateral; 303, ninth and tenth terga and cerci, dorsal; 304, eighth tergum, dorsal; 305, eighth tergum, posterior; 306, clasper, posterior; 307, phallus, lateral. *Chimarra* (*Curgia*) *maritza*, new species: 308, lateral; 309, ninth and tenth terga and cerci, dorsal; 310, eighth tergum, dorsal; 311, eighth tergum, posterior; 312, clasper, posterior; 313, phallus, lateral.

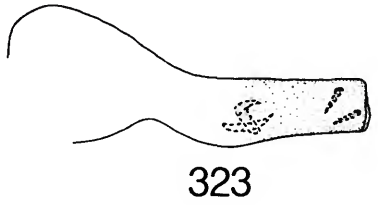




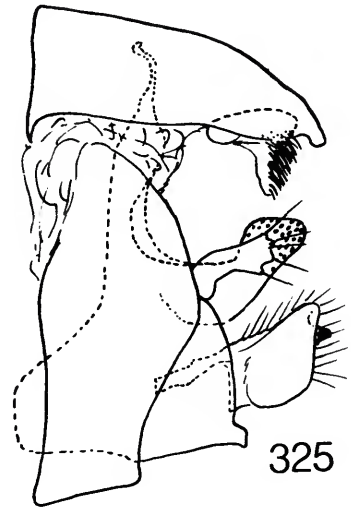


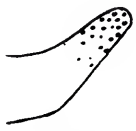


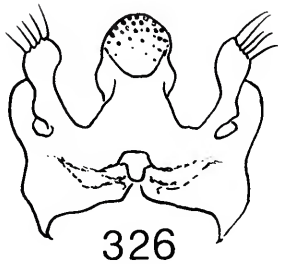


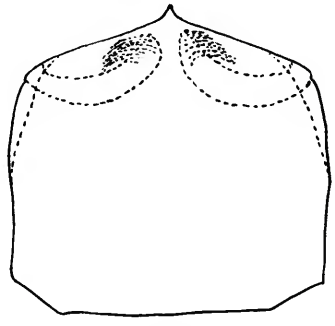


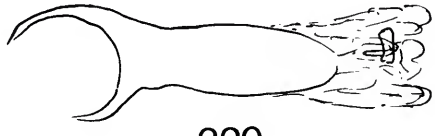
FIGURES 314–324.—Male genitalia. *Chimarra* (*Curgia*) *spatulata* Ross: 314, lateral; 315, ninth and tenth terga and cerci, dorsal; 316, eighth tergum, dorsal; 317, clasper, ventral; 318, phallus, lateral. *Chimarra* (*Curgia*) *didyma,* new species: 319, lateral; 320, eighth, ninth, and tenth terga and cerci, dorsal; 321, clasper, ventral; 322, clasper, dorsal; 323, phallus, lateral. 324, variant from Perijá, Zulia, Venezuela: tenth tergum, lateral.

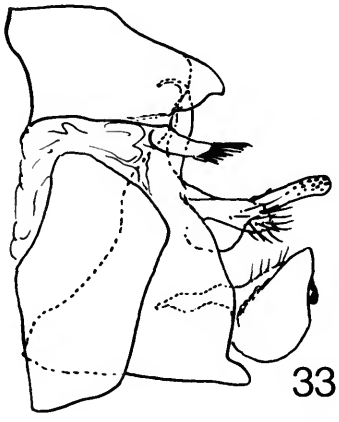


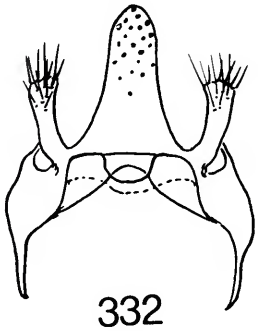


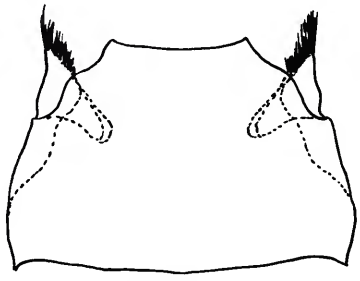




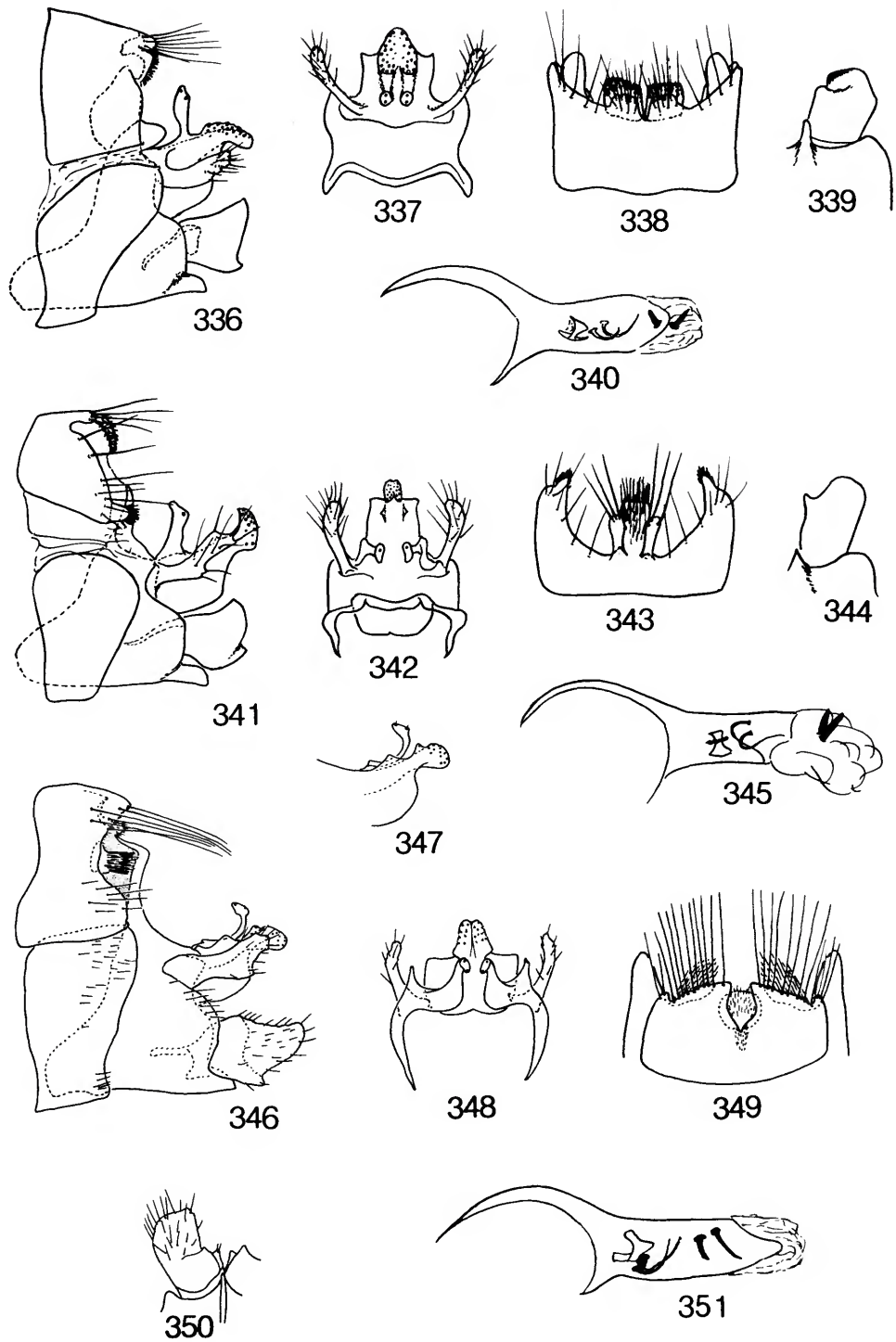




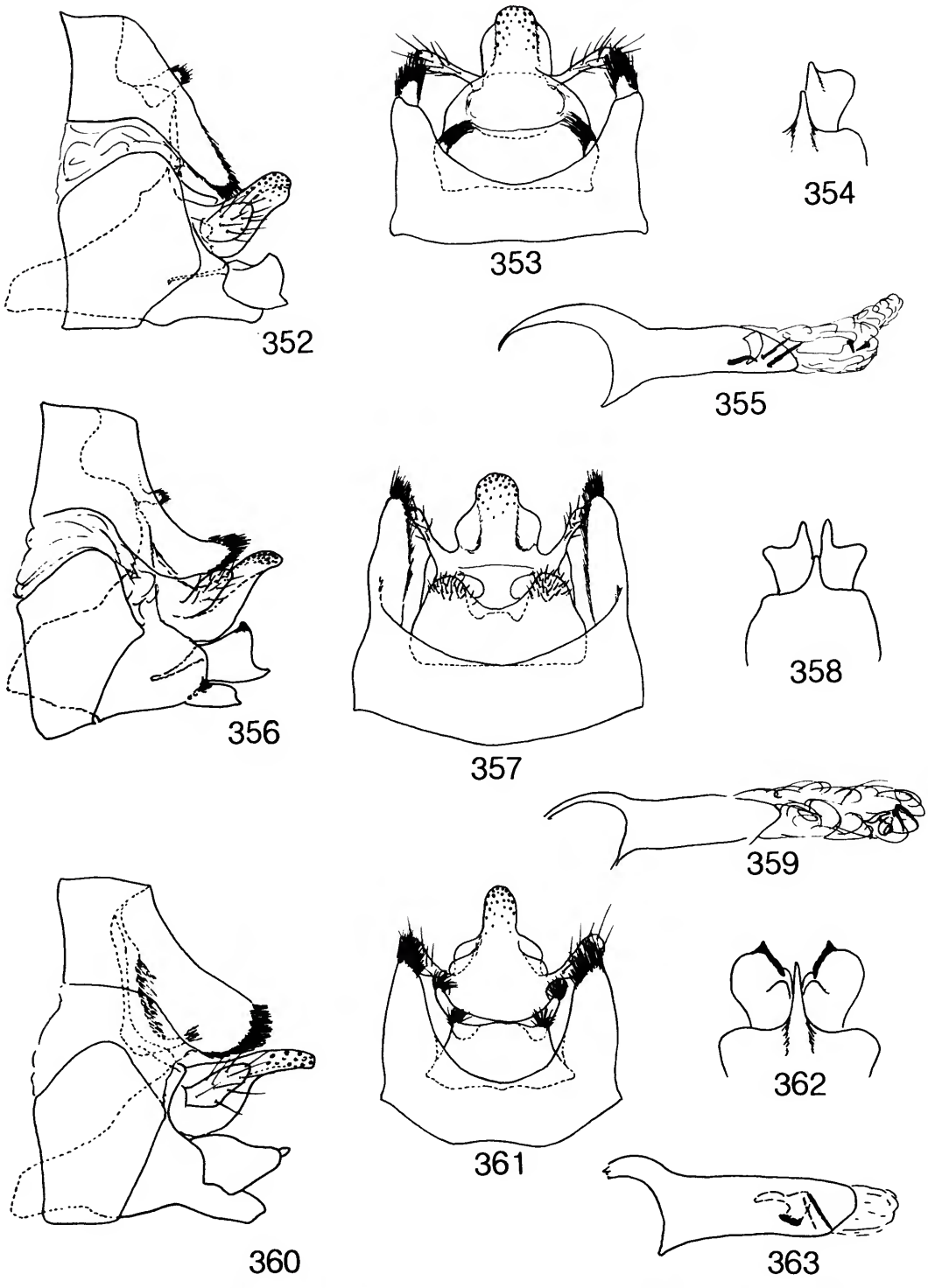




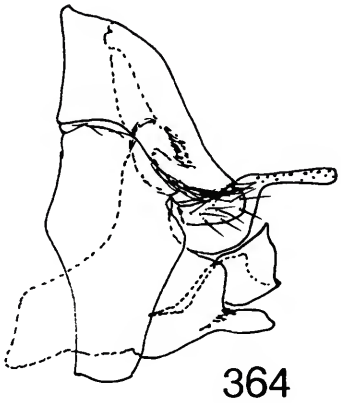
FIGURES 325–335.—Male genitalia. *Chimarra* (*Curgia*) *nasuta*, new species: 325, lateral; 326, ninth and tenth terga and cerci, dorsal; 327, eighth tergum, dorsal; 328, clasper, ventral; 329, phallus, lateral. 330, variant from Pochutla, Oaxaca, Mexico: tenth tergum, lateral. *Chimarra* (*Curgia*) *blepharophera*, new species: 331, lateral; 332, ninth and tenth terga and cerci, dorsal; 333, eighth tergum, dorsal; 334, clasper, ventral; 335, phallus, lateral.



FIGURES 336–351.—Male genitalia. *Chimarra* (*Curgia*) *geranoides,* new species: 336, lateral; 337, ninth and tenth terga and cerci, dorsal; 338, eighth tergum, dorsal; 339, clasper, ventral; 340, phallus, lateral. *Chimarra* (*Curgia*) *peruviana,* new species: 341, lateral; 342, ninth and tenth terga and cerci, dorsal; 343, eighth tergum, dorsal; 344, clasper, ventral; 345, phallus, lateral. *Chimarra* (*Curgia*) *minca,* new species: 346, lateral; 347, tenth tergum, lateral; 348, ninth and tenth terga and cerci, dorsal; 349, eighth tergum, dorsal; 350, clasper, ventral; 351, phallus, lateral.



FIGURES 352–363.—Male genitalia. *Chimarra* (*Curgia*) *brasiliana* (Ulmer): 352, lateral; 353, eighth, ninth, and tenth terga and cerci, dorsal; 354, clasper, ventral; 355, phallus, lateral. *Chimarra* (*Curgia*) *piraya* Flint: 356, lateral; 357, eighth, ninth, and tenth terga and cerci, dorsal; 358, claspers, ventral; 359, phallus, lateral. *Chimarra* (*Curgia*) *parana* Flint: 360, lateral; 361, eighth, ninth, and tenth terga and cerci, dorsal; 362, claspers, ventral; 363, phallus, lateral.



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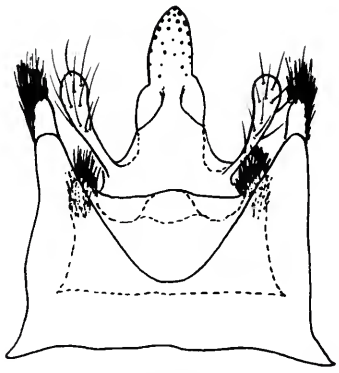

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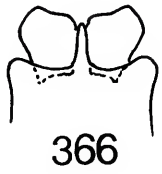

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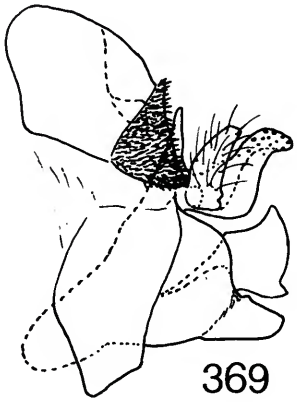

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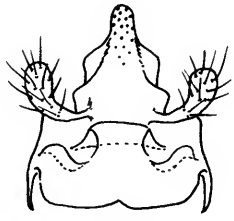

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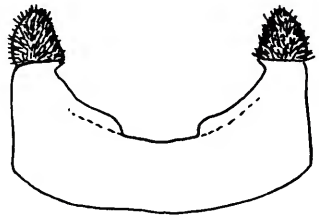

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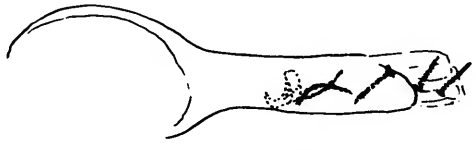

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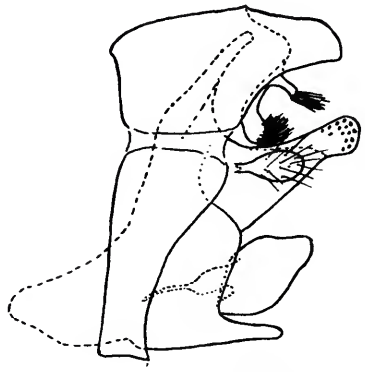
FIGURES 364–374.—Male genitalia. *Chimarra* (*Curgia*) *cultellata* Flint: 364, lateral; 365, eighth, ninth, and tenth terga and cerci, dorsal; 366, claspers, ventral; 367, clasper, posterior; 368, phallus, lateral. *Chimarra* (*Curgia*) *fittkaui* Flint: 369, lateral; 370, ninth and tenth terga and cerci, dorsal; 371, eighth tergum, dorsal; 372, clasper, ventral; 373, clasper, posterior; 374, phallus, lateral.



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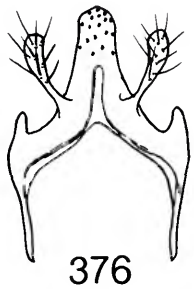

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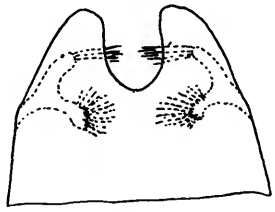

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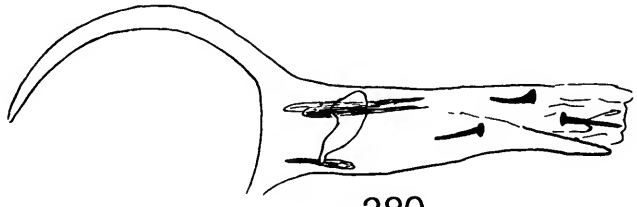

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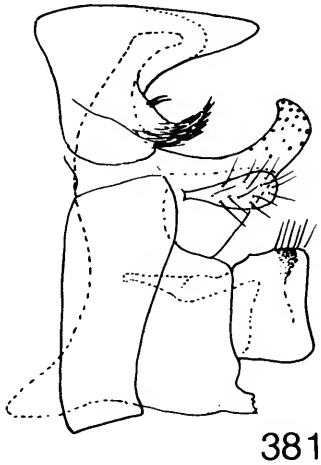

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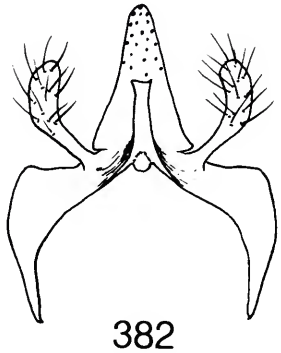

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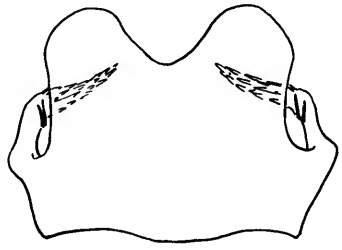

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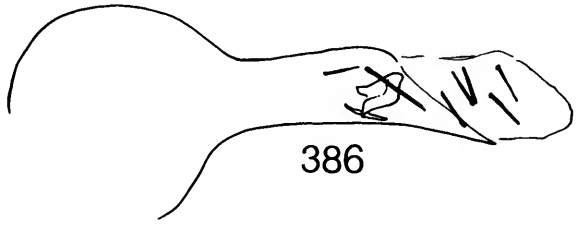

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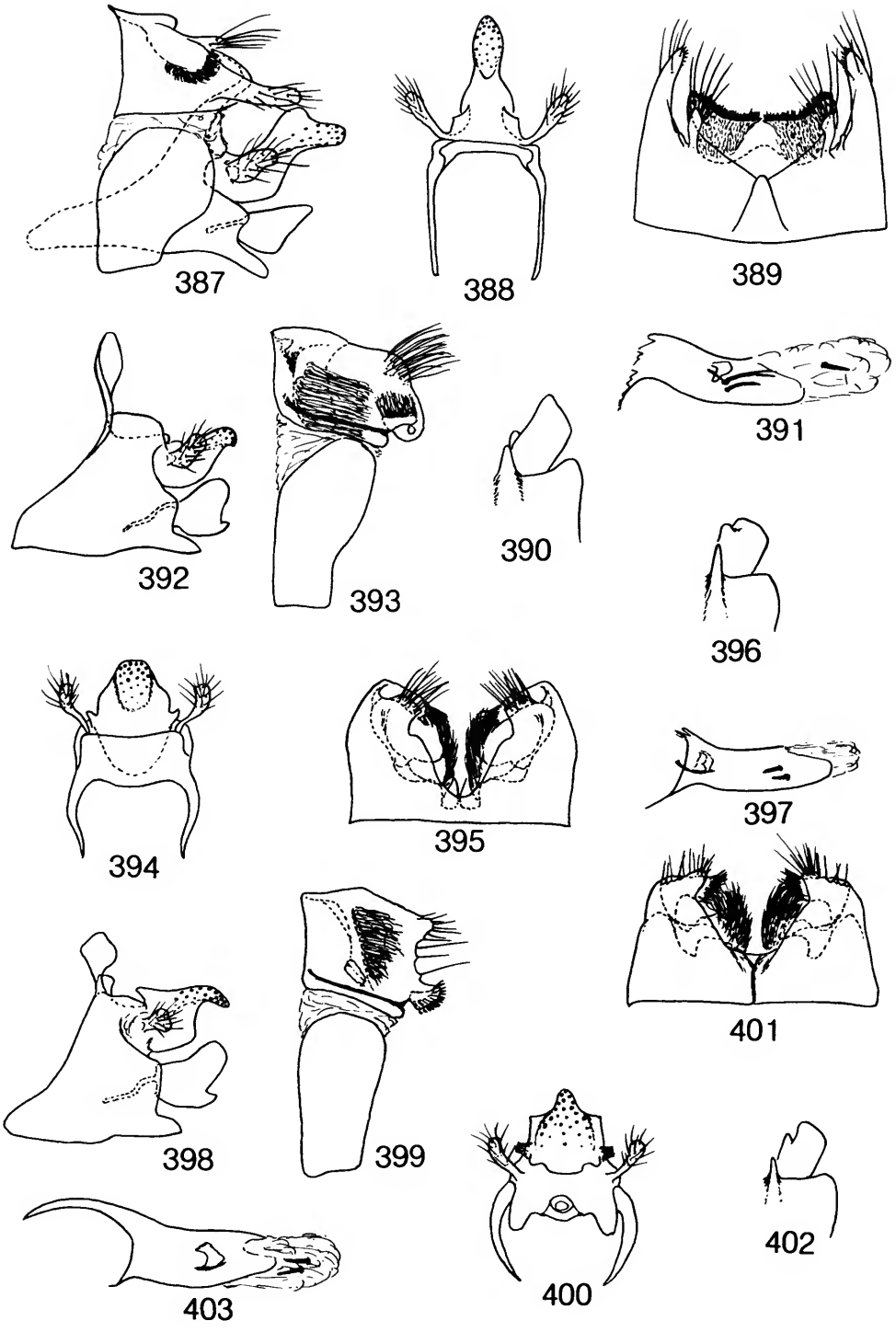
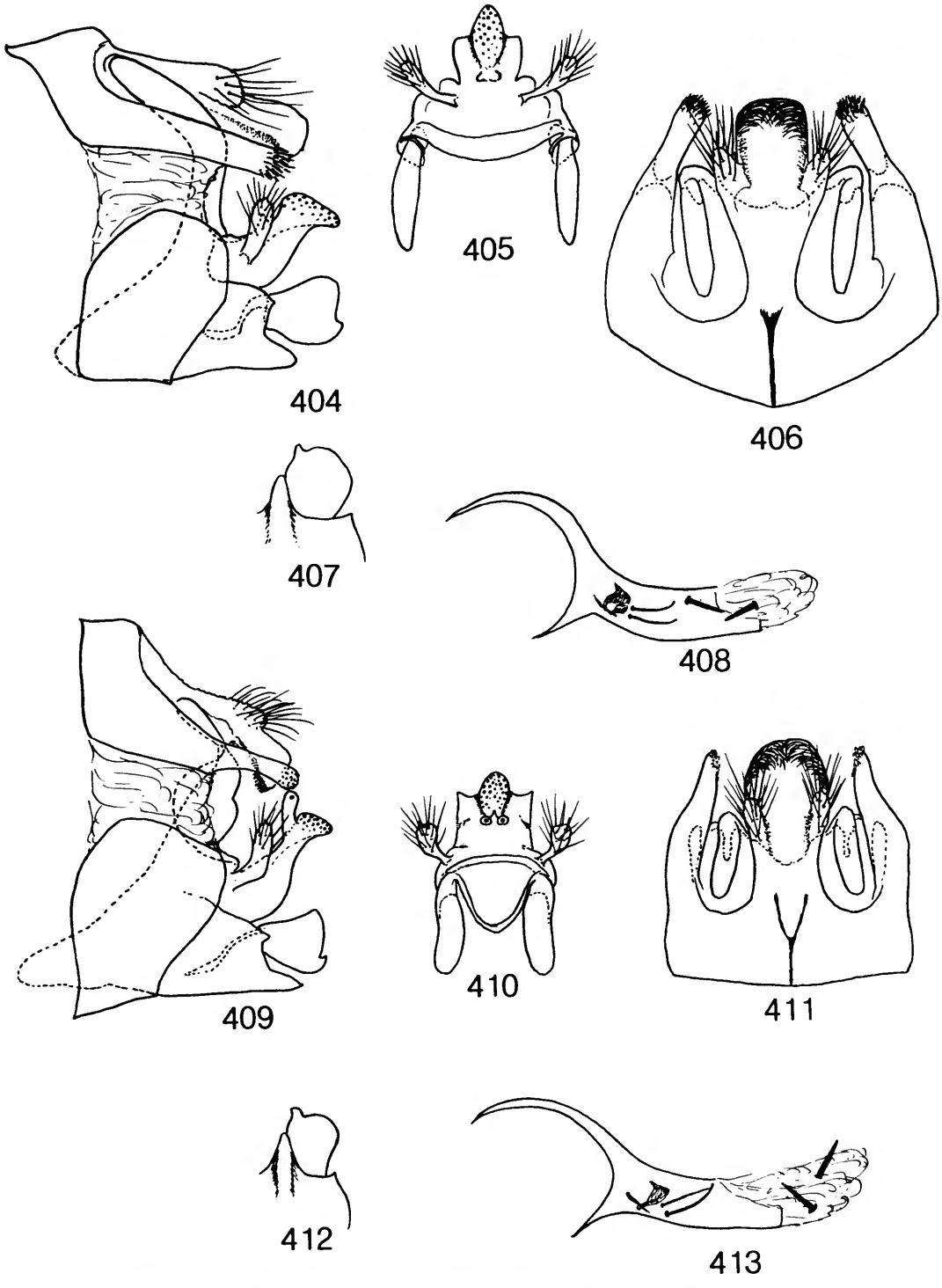
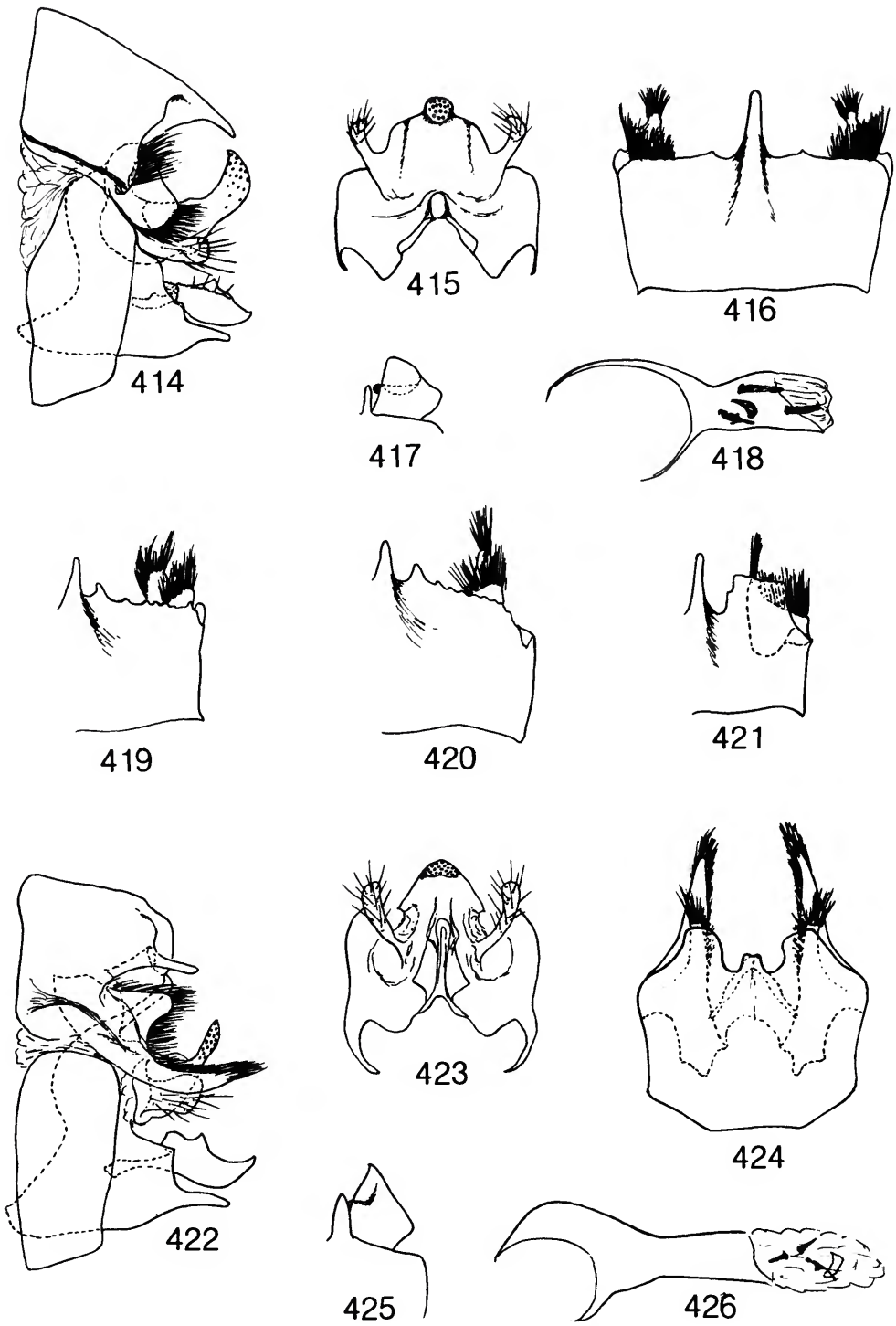
FIGURES 375–386.—Male genitalia. *Chimarra* (*Curgia*) *scopula* Flint: 375, lateral; 376, ninth and tenth terga and cerci, dorsal; 377, eighth tergum, dorsal; 378, clasper, ventral; 379, clasper, posterior; 380, phallus, lateral. *Chimarra* (*Curgia*) *scopuloides* Flint: 381, lateral; 382, ninth and tenth terga and cerci, dorsal; 383, eighth tergum, dorsal; 384, clasper, ventral; 385, clasper, posterior; 386, phallus, lateral.



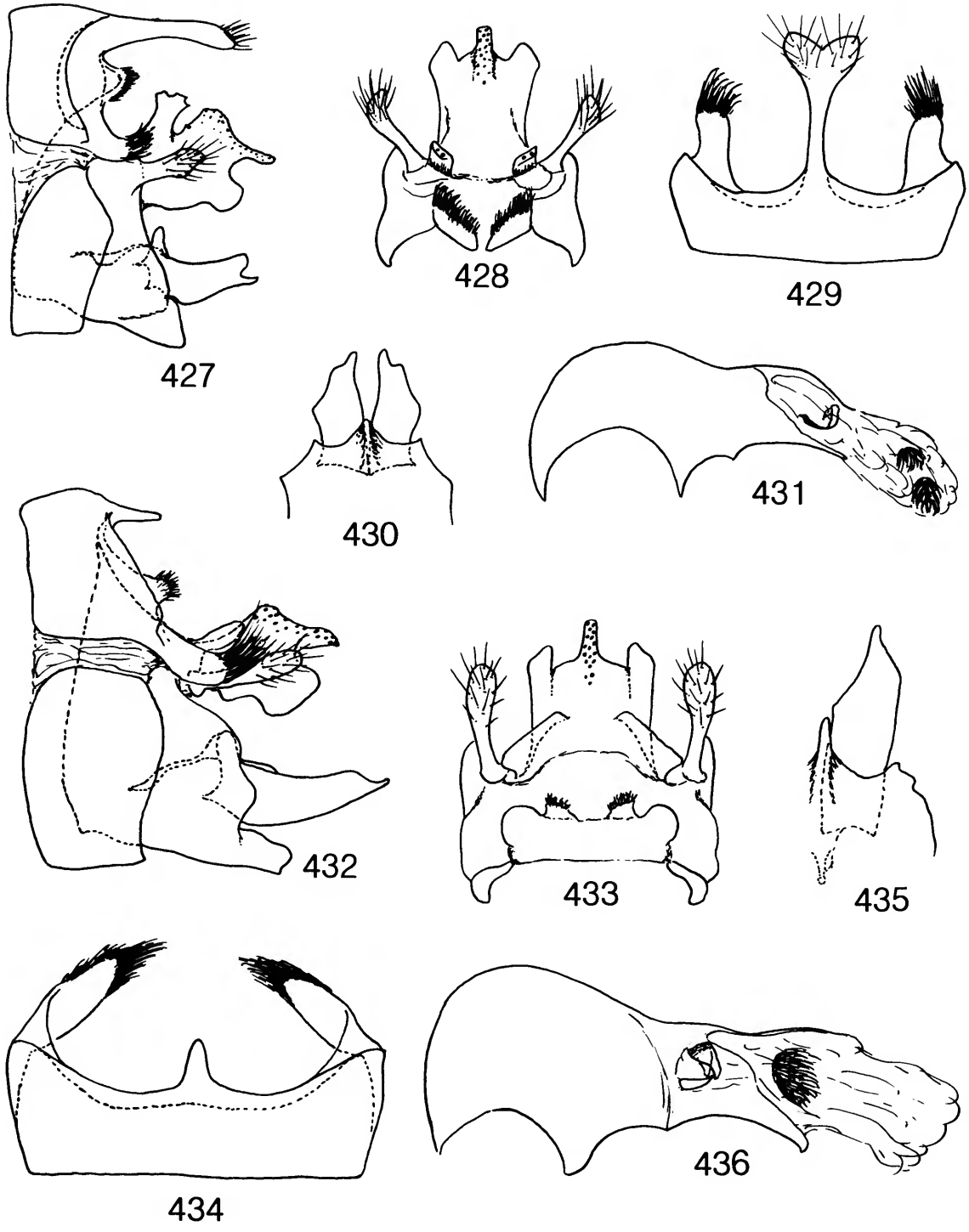
FIGURES 387–403.—Male genitalia. *Chimarra* (*Curgia*) *tamba,* new species: 387, lateral; 388, ninth and tenth terga and cerci, dorsal; 389, eighth tergum, dorsal; 390, clasper, ventral; 391, phallus, lateral. *Chimarra* (*Curgia*) *teresae,* new species: 392, lateral; 393, eighth segment, lateral; 394, ninth and tenth terga and cerci, dorsal; 395, eighth tergum, dorsal; 396, clasper, ventral; 397, phallus, lateral. *Chimarra* (*Curgia*) *camposae,* new species: 398, lateral; 399, eighth segment, lateral; 400, ninth and tenth terga and cerci, dorsal; 401, eighth tergum, dorsal; 402, clasper, ventral; 403, phallus, lateral.



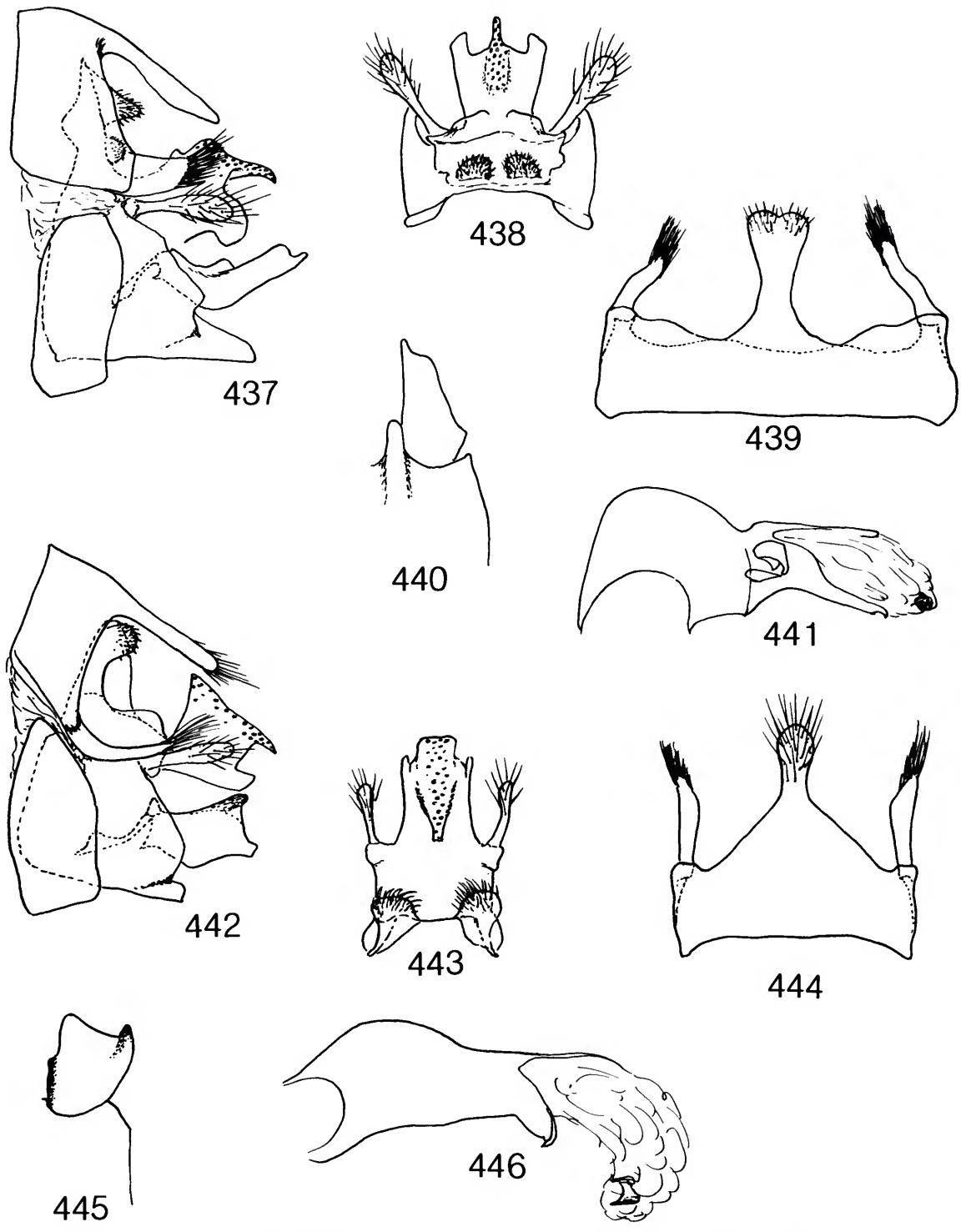
FIGURES 404–413.—Male genitalia. *Chimarra* (*Curgia*) *mycterophora*, new species: 404, lateral; 405, ninth and tenth terga and cerci, dorsal; 406, eighth tergum, dorsal; 407, clasper, ventral; 408, phallus, lateral. *Chimarra* (*Curgia*) *erectiloba*, new species: 409, lateral; 410, ninth and tenth terga and cerci, dorsal; 411, eighth tergum, dorsal; 412, clasper, ventral; 413, phallus, lateral.



FIGURES 414–426.—Male genitalia. *Chimarra* (*Curgia*) *laguna* Ross: 414, lateral; 415, ninth and tenth terga and cerci, dorsal; 416, eighth tergum, dorsal; 417, clasper, ventral; 418, phallus, lateral. 419, variant from Liberia, Guanacaste, Costa Rica: eighth tergum, dorsal. 420, variant from Teculután, Zacapa, Guatemala: eighth tergum, dorsal. 421, holotype, "*brustia*" variant from Cocula, Guerrero, Mexico: eighth tergum, dorsal. *Chimarra* (*Curgia*) *texana* (Banks): 422, lateral; 423, ninth and tenth terga and cerci, dorsal; 424, eighth tergum, dorsal; 425, clasper, ventral; 426, phallus, lateral.



FIGURES 427–436.—Male genitalia. *Chimarra* (*Curgia*) *immaculata* (Ulmer): 427, lateral; 428, ninth and tenth terga and cerci, dorsal; 429, eighth tergum, dorsal; 430, claspers, ventral; 431, phallus, lateral. *Chimarra* (*Curgia*) *persimilis* (Banks): 432, lateral; 433, ninth and tenth terga and cerci, dorsal; 434, eighth tergum, dorsal; 435, clasper, ventral; 436, phallus, lateral.



FIGURES 437–446.—Male genitalia. *Chimarra* (*Curgia*) *peytoni*, new species: 437, lateral; 438, ninth and tenth terga and cerci, dorsal; 439, eighth tergum, dorsal; 440, clasper, ventral; 441, phallus, lateral. *Chimarra* (*Curgia*) *securigera*, new species: 442, lateral; 443, ninth and tenth terga and cerci, dorsal; 444, eighth tergum, dorsal; 445, clasper, ventral; 446, phallus, lateral.

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