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TRICHOPTERA OF THE AREA PLATENSE

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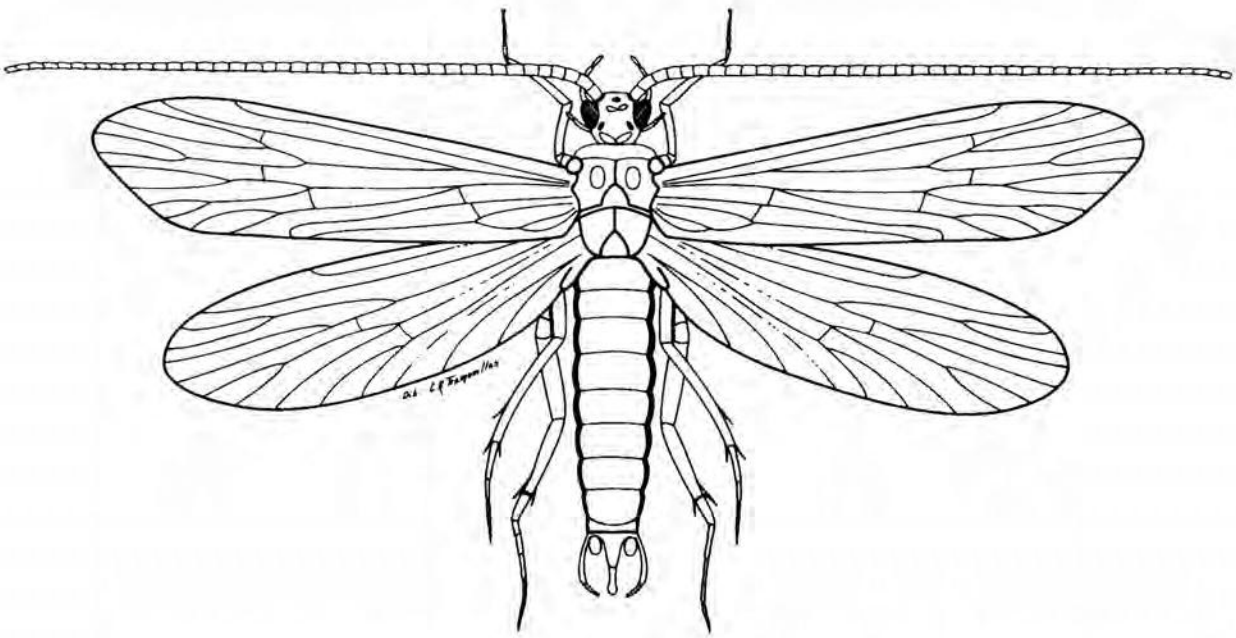

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El estado actual de conocimientos sobre los Trichoptera de la República Argentina es aún fragmentario en los que concierne a sus principales regiones biogeográficas, limitándose a estudios puntuales, cuya integración no suple hasta el presente la información de conjunto necesaria para establecer el status de este taxón como integrante de nuestra biota. Es por ello una circunstancia afortunada cubrir parcialmente el mencionado déficit con este aporte de conjunto, referido a los representantes del Area Platense, cuyo autor, el Dr. Oliver S. Flint, del Departamento de Entomología del National Museum of Natural History, Smithsonian Institution, Washington D.C., USA, es uno de sus más destacados especialistas en el mundo.

Esta revisión eminentemente sistemática, ofrece un enfoque introductorio general, complementado con someras descripciones ambientales, comentarios sobre aspectos distribucionales, y referencias a métodos de recolección y preservación de material. El tratamiento sistemático de los Trichoptera del Area Platense incluye descripciones y claves para la identificación de las 31 especies que conforman su elenco sistemático en el área de referencia, como así también de los 11 géneros y 6 familias de las cuales forman parte. Larvas y pupas son incorporadas en claves identificatorias en niveles supragenéricos.

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Trichoptera of the Area Platense

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The order Trichoptera (or caddisflies) is one of the panorpoid orders of insects closely related to the Mecoptera and Lepidoptera. The adults are quite mothlike in appearance, but they have sponging type mouthparts, analogous to those of the Diptera, and hold their wings, which are covered with hairs, rooflike over their body. Their larval and pupal stages are aquatic, or in a few cases subaquatic, terrestrial or marine. All larvae produce silk, which they utilize in various ways depending upon their habits. In the most pimitive family, the Rhyacophilidae, the larva spins no more than a silken lifeline until it reaches maturity and must spin a silken cocoon. In many other families the larva produces a silken shelter and a variously formed trapnet which is immovably attached to the substrate. In the third group of families, the larva constructs a portable case of sand or plant material held together by silk. Regardless of the type of larval behavior, all species construct a silk-lined shelter which encloses the pupa and is firmly attached to the substrate. At the time of emergence, the pupa cuts its way free of the pupal shelter using its well-developed mandibles, swims to the surface or shore, and the adult emerges and soon flies away.

Distribution

The diversity and richness of the caddisfly fauna in any region is generally a function of the types of aquatic habitats in the area. In general, a region with rocky hills or mountains with their fast moving waters has a much more diverse fauna than a similar area of little relief. Although the presence of lakes and marshes unquestionably adds species to a fauna, the lentic habitat rarely posseses as many species as does the lotic habitat. When one adds to these tendencies the fact that the Area Platense with its virtually flat topography appears to be far from the center of diversity of the Neotropical Realm, one should not be surprized that its trichopterous fauna is not very great. The data at hand support this view: 6 families, 11 genera, and 31 species have been collected in the Area. In contrast the fauna of the entire Republic of Argentina will reach at least 500 species when more fully known.

The area of the Río Parana appears to be by far the richest within the Area Platense. Many of the branches and channels of this system apparently approach the lotic habitat closely enough to support representatives of the families Psychomyiidae, Hydropsychidae, and Hydroptilidae which are generally common farther to the north. In addition this area is also favorable to

the lentic species, many of which are also more common to the north. This fauna, in a rather attenuate form, appears in suitable habitats, such as the complex of channels and islets, as far down the Río de la Plata as Berisso.

Inland, the pampas lakes and arroyos have a much less diverse fauna. A few species of Leptoceridae and Hydroptilidae, which also inhabit the Río Parana, are to be found in the lakes and slowly flowing channels between them. The ríos and arroyos generally possess a few specimens of the same species as the lakes. However, they may also have a few species of Hydropsychidae, but these are rarely common unless man has added quantities of suitable hard substrate to the watercourse.

Collection and Preservation

During the day the adult insects are generally secreted and hard to find, although sweeping the foliage near the watercourse with an insect net will, on occasion, produce a few examples. The moist, cool underside of a bridge may be productive, especially if some species is emerging in numbers. At night the adults may be attracted to bright lights, such as those of a house, service station or store if they are in the vicinity of water. A propane or gasoline mantle-type lantern is easily moved

from locality to locality and generally attracts caddisflies from nearby sites. However, the most attractive lights are of the mercury-vapor or ultraviolet types. These can be operated from a portable gasoline generator or from an automobile battery with the use of the proper converter to produce the necessary type of electrical current. A white background, such as a bedsheet, to serve as a reflecting surface and resting place should be suspended immediatly behind the light.

The immature stages of all species found in this region are aquatic or possibly subaquatic. Those living in lotic sites are often found by lifting stones or pieces of wood out of the water and carefully examining them for caddis larvae. As the surface dries most larvae will become active and more easily seen. If the current is sufficiently strong, a net may be held tightly against the substrate and submerged objects upstream of the net turned over, whereupon many larvae will be dislodged and swept into the net. In lentic sites the larvae must be actively searched out. An aquatic net energetically worked through submerged plants or skimmed along the surface of the bottom may collect a few larvae. Masses of submerged plants such as Potamogeton or Cabomba removed from the water and very carefully searched will be found to harbor a few larvae. Larvae and pupae

of micro-caddisflies (Hydroptilidae) have been found attached to the submerged parts of emergent plants, especially those closest to open water.

Most case-making larvae from lentic sites may be easily reared to adults in aquaria, provided oxygen and natural food are supplied. However, the habit of all caddisfly larvae of preparing a shelter in which to pupate makes the correlation of larvae, pupae and adults rather easy, especially for those species inhabiting lotic sites which are difficult to rear in aquaria. Within the pupal shelter are found the larval sclerites, generally clustered together at the posterior of the pupa. Shortly before emergence, the adult is fully formed and hardened beneath the pupal skin - such an adult is called a pharate adult - thus the adult structures needed for identification, except the wings, are available. A specimen that contains the larval sclerites and the pharate adult within the pupal skin is called a metamorphotype. Care should be taken to preserve in a small container all the associated sclerites and other pieces of such a valuable specimen.

The adults may be preserved either dry on points or pins or in 80% ethanol. Those species with a conspicuous color pattern should be kept dry, as most frequently the colors on the wings

are produced by hairs which are soon washed off in alcohol. However, the small species and those uniformly dark in color may be preserved directly in alcohol.

All larvae and pupae should be kept in their cases, if they posses any, and all preserved in 80% ethanol. Any collection so preserved should have the ethanol changed in a few days if the material more than half fills the container. Otherwise the ethanol may be diluted so much by body fluids that rotting occurs.

The modified terminal abdominal segments, or genitalia, of the adults must be examined to verify an identification. It is generally necessary to cut off the terminal abdominal segments and warm them in 10% KOH until the viscera can be removed and the parts are relaxed and can be clearly seen. After the genitalia are cleared they should be rinsed in water and any residual KOH neutralized by a quick wash in weak acetic acid. The genitalia may then be studied in alcohol or glycerine. After the identification has been made, the genitalia should be stored in the same vial as the rest of the specimen if it is in ethanol, or put into glycerine in a microvial and pinned beneath the specimen. Gurney, Kramer, and Steyskal (1964) give a full account of this procedure.

Use of the Keys

Although it may be possible to make definitive identifications to species for females or larvae, our present knowledge does not, in general, permit this. Consequently the adult male genitalia must be studied (see above for technique) to be certain of the identity of the species. There is a strong possibility of collecting species not included in this report, therefore, one should always compare the genitalia of the specimen under study with the figures before considering the identification complete.

The accompanying figures of the adult, larva, and pupa (Figures 1-3) are labeled to explain the terminology used in this study. The keys to families and genera are designed to correctly place all species known or likely to occur in central Argentina. The regions of Misiones, the northwestern provinces, and the patagonian provinces each have rather distinct and much more diverse faunas that in many instances will not run properly in these keys. Because of our lack of knowledge, even at the generic level, larvae and pupae are not keyed beyond the familial level.

Key to Families: Adults

1. Mesoscutellum composed of a triangular, flat area with a vertical posterior margin; forewing length 1.5-4mm.....Hydroptilidae

   Mesoscutellum evenly convex, without vertical posterior margin; forewing length generally over 4mm, rarely less than 2mm.....2

2. Ocelli present.....3

   Ocelli absent.....6

3. Maxillary palpus with fifth segment 2-3 times as long as fourth segment.....Philopotamidae

   Maxillary palpus either of less than 5 segments, or with fifth segment barely longer than fourth.....4

4. Maxillary palpus with second segment longer than first, male with only 3 palpal segments.....Limnephilidae

   Maxillary palpus with second segment subequal to first, male with 5 segments.....5

5. Foretibia with a pair of prominent apical spurs.....Rhyacophilidae

Foretibia with apical spurs lacking or hairlike.....
.....Glossosomatidae

6. Maxillary palpus with terminal segment elongate and generally with suturelike cross-striations, or palpus lacking.....7
Terminal segment subequal to preceding segment, without cross-striations.....8

7. Foretibia either with a preapical spur, or if without, then with R_{2+3} of forewing unbranched.....Psychomyiidae
Foretibia never with a preapical spur; forewing with R_{2+3} branched before wing margin.....Hydropsychidae

8. Middle tibiae with preapical spurs.....9
Middle tibiae lacking preapical spurs.....10

9. Mesoscutellum small and rectangular; forewing very broad toward apex.....Calamoceratidae
Mesoscutellum large and broadly rounded anteriorly; forewing long and slender, scarcely broadened apicad...Odontoceridae

10. Hindwing with anterior margin bearing a row of hooked setae basally.....Helicopsychidae

Hindwing without such setae.....Leptoceridae

Key to Families: Larva

1. Pro-, meso-, and metanotum each completely covered by sclerotized plates.....2

   Meso-, and metanotum either membranous or only covered in part by sclerites.....3

2. Abdomen with many branched gills.....Hydropsychidae

   Abdomen with at most simple anal gills.....Hydroptilidae

3. Mesonotum largely covered by sclerotized plates, variously subdivided and pigmented.....7

   Mesonotum usually without sclerotized plates, occasionally with small sclerites not covering more than half of notum.4

4. Ninth abdominal tergum with a sclerite.....5

   Ninth abdominal tergum membranous.....6

5. Anal prolegs free of ninth segment, directed posteriad, with large claws; larva free-living.....Rhyacophilidae

   Anal prolegs joined to ninth segment basally, directed

ventrad, claws small; larva inhabiting a case made in the form of a turtle's shell.....Glossosomatidae

6. Labrum membranous, with anterior margin expanded laterally (T-shaped).....Philopotamidae
Labrum sclerotized, roughly semicircular.....Psychomyiidae

7. Labrum with a transverse row of about 20 stout setae.....
.....Calamoceratidae
Labrum without such a row of setae.....8

8. Antenna long and prominent, at least 6 times as long as wide
.....Leptoceridae
Antenna small and inconspicuous, no more than 3 times longer than wide.....9

9. Anal claw with a series of teeth, comb-like; inhabiting a case shaped like a snail shell.....Helicopsychidae
Anal claw with a single hook, or only a small accessory tooth.....10

10. Antenna situated approximately midway between anterior margin of head capsule and eye; prosternal horn present.....

.....Limnephilidae

Antenna situated at the anterior margin of the head capsule; prosternal horn lacking.....Odontoceridae

Key to Families: Pupa

1. Abdomen without apical processes except for ventral lobes containing the developing genitalia.....2

   Abdomen with projecting processes or trianguloid lobes in addition to genital lobes.....5

2. Mandibles without teeth or serrations on inner margin.....

   .....Hydroptilidae

   Mandibles with teeth or serrations on inner margin.....3

3. Mandibles with teeth grouped on apical half....Philopotamidae

   Mandibles either with a single tooth near midlength or several teeth distributed over length of inner margin, or serrations only.....4

4. Mandibles with a single large tooth near midlength and small serrations.....Glossosomatidae

   Mandibles with either a series of teeth or serrations.....

   .....Rhyacophilidae

5. Abdomen lacking lateral fringe line.....6
   Abdomen with lateral fringe present.....9

6. Abdominal segments 3 or 4 or both with anterior and posterior hook-plates.....Hydropsychidae
   Abdominal segment 5 only with both pairs of hook-plates.....7

7. Hook-plates on abdominal segments 3 to 6.....Helicopsychidae
   Hook-plates on segments 2 or 3 to 7 or 8.....8

8. Hook-plates present anteriorly on segment 8.....Psychomyiidae
   Hook-plates present anteriorly only as far as segment 7.....
   .....Odontoceridae

9. Long bristles of labrum hooked apically.....Limnephilidae
   Long bristles of labrum straight.....10

10. Dorsum of abdomen with transverse rows of long hairs on most segments.....Calamoceratidae
    Dorsum of abdomen without such dense rows of hairs.....
    .....Leptoceridae

Family Rhyacophilidae

The family may be recognized by the following: ocelli present, maxillary palpi of 5 segments, fifth not greatly elongate, foretibia with large apical spurs.

This family, which is of worldwide distribution, is composed of 2 subfamilies. The nominal is basically northern hemisphere in distribution, and the Hydrobiosinae basically southern. A single hydrobiosine species, Atopsyche (described as Ventrarma) spinosa (Navas) was described from Palo Blanco, Buenos Aires (Navas,1930b). However, this species is common in the northwestern provinces, and not known from closer than Catamarca. The type is unquestionably mislabeled, and the species is to be removed from the Fauna Platense. No other species of the genus Atopsyche is known from closer then Catamarca or Misiones. Recently a species of the genus Cailloma, probably lucidula (Ulmer), has been found in the Sierras de Cordoba. All stages of the 3 species of this genus were described by Flint (1974b).

Family Glossosomatidae

Adults of this family may be recognized by the following characteristics: ocelli present, maxillary palpi of 5 segments, fifth not greatly elongated, foretibia lacking apical spurs, size small, forewing generally less than 3mm long.

This is another family of worldwide distribution, all of whose Neotropical representatives belong to the Protoptilinae. Although no examples have been taken nearer than the Sierras de Cordoba, they might occur within the Area Platense in suitable lotic habitats. Protoptila dubitans Mosely, which is known from Cordoba, the northwestern provinces and southeastern Brasil is the most likely candidate. However, the genus Mexitrichia, several species of which occur in Misiones, might also occur in the Platense region. Flint (1963, 1971) gives keys to the genera.

Family Philopotamidae

The following characteristics will distinguish this family: ocelli present, fifth segment of the maxillary palpus at least twice as long as the fourth, foretibia with a single, small, apical spur.

Species of this family are found in all areas of the world. The genus Chimarra, which is most likely to be found in the Area Platense, is likewise worldwide in distribution, although with greatest diversity in the tropical regions. C. argentinica Ulmer is found as close as the Provincia Cordoba and again in the Andes from Mendoza north, and might possibly occur in the western part

of the Provincia Buenos Aires.

Family Psychomyiidae

The adults may be recognized by the combination of the following characters: lack of ocelli, maxillary palpi of 5 segments of which the terminal segment is much longer than any of the preceding segments and has many cross-striations, and R_2 and R_3 of the forewing are fused to the wing margin.

This is a family of worldwide distribution, members of which are equally at home in the temperate and tropical regions. The larvae construct silken retreats generally consisting of a smaller living area and a larger, looser section for trapping their food. Although most species are restricted to lotic habitats, certain ones are at home in slow rivers or lakes.

One genus has been discovered in the Area Platense and a second is expected. Consult Flint (1971) for a key to all known Neotropical genera.

Key to Genera

1. Foretibia with a preapical spur.....Cyrnellus
   Foretibia lacking a preapical spur.....Cernotina

Genus Cyrnellus Banks

This genus may be distinguished from the most closely related Neotropical genera by the following combination of characters: foretibia with a preapical spur, maxillary palpus with the second segment almost as long as the third (rather than only 1/3 the length).

Seven species are presently recognized in Cyrnellus, all of which are found in South America, with one, C. fraternus (Banks), known from Buenos Aires, Argentina north to southern Canada. Flint (1971) should be consulted for a revision of all known species. Six of the 7 described species have now been collected in the Area Platense.

Key to Species

1. Clasper with a single, dark, mesal point.....2
   Clasper with 2, dark, mesal points.....4

2. Clasper in lateral aspect upcurved apically, in ventral aspect with mesal lobe directed posteromesally.....risi
   Clasper in lateral aspect upcurved at midlength but with tip angled to be more nearly parallel to basal portion,

in ventral aspect with mesal lobe directed mesad.....3

3. Clasper in ventral aspect with mesal point arising from a broad base.....mammillatus

   Clasper in ventral aspect with mesal point triangular in outline.....fraternus

4. Aedeagus with a large, heavily-sclerotized, internal sclerite.....arotron

   Aedeagus with internal sclerite small and rather indistinct.....5

5. Clasper in ventral aspect with mesal lobe almost at apex, with basal point longest.....bifidus

   Clasper in ventral aspect with lobe well before apex, with apical point longest.....ulmeri

Cyrnellus arotron Flint

Figures 10-12

Cyrnellus arotron Flint, 1971, p.32; 1972, p.230.

Adult.- Length of forewing, 3.5-4.5mm. Color brown; forewing irregularly mottled with lighter and darker shades of brown.

Male: Clasper with 2 distinct dark points on inner margin, basalmost longest. Aedeagus with a large, dark, complex inner sclerite.

Distribution.- Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 4♂. The species is also known from Misiones in Argentina and the Amazon Basin in Brasil.

Cyrnellus bifidus Flint

Figures 13-14

Cyrnellus bifidus Flint, 1971, pp.32; 1972, p.230.

Adult.- Length of forewing, 4-5mm. Color brown; forewing irregularly mottled with lighter and darker shades of brown. Male: Clasper with 2 dark points at apex of inner margin. Aedeagus with internal sclerite lightly sclerotized and indistinct.

Distribution.- Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 2♂. Pcia. Buenos Aires, Río Parana de las Palmas, Lima, 16 Dec 1979, 5♂. Also known from Santa Fe and Formosa in Argentina and Brasil.

Cyrnellus fraternus (Banks)

Figures 4-5

Cyrnus fraternus Banks, 1905, p.17.

Cyrnellus fraternus (Banks): Flint, 1964, p.469.

Adult.- Length of forewing, 3-4.5mm. Color brown; forewing irregularly mottled with lighter and darker shades of brown.

Male: Clasper with inner margin bearing a single, trianguloid, dark point. Internal sclerite lightly sclerotized and indistinct.

Distribution.- Pcia. Buenos Aires, Río Parana de las Palmas, Lima, 16 Dec 1979, 4♂. I known this species from Chaco and Santa Fe in Argentina, as well as Paraguay, Brasil, Ecuador, Surinam, and Venezuela, north through Central America and throughout the United States.

Cynellus mammillatus Flint

Figures 6-7

Cynellus mammillatus Flint, 1971, pp.30; 1972, pp.230.

Adult.- Length of forewing, 3-5mm. Color brown; forewing irregularly mottled with lighter and darker shades of brown.

Male: Clasper with inner margin bearing a single dark point arising from a broader, dark base. Aedeagus with internal sclerite lightly sclerotized and indistinct.

Distribution.- Pcia. Buenos Aires, Río Parana de las Palmas, Lima, 16 Dec 1979, 7♂. I know this species from Entre Ríos and Misiones in Argentina as well as Paraguay, Brasil and Ecuador.

Cyrnellus risi (Ulmer)

Figures 8-9

Cyrnus risi Ulmer, 1907a, p.40.

Cyrnellus risi (Ulmer): Banks, 1913, p.88.

Adult.- Length of forewing, 4-5mm. Color brown; forewing irregularly mottled with lighter and darker shades of brown. Male: Clasper with a single dark point on inner margin which is elongate and directed posteromesally. Aedeagus with internal sclerite lightly sclerotized and indistinct.

Distribution.- Pcia. Buenos Aires, Buenos Aires, Dec 1890, 5♂. The species is known from Entre Ríos and Corrientes in Argentina, and Paraguay, Brasil and Surinam.

Cyrnellus ulmeri Flint

Figures 15-16

Cyrnellus ulmeri Flint, 1971, p.32

Adult.- Length of forewing, 3.5mm. Color brown; forewing irregularly mottled with lighter and darker shades of brown. Male: Clasper with 2 distinct dark points on inner margin, apical point being the longest. Aedeagus with internal sclerite lightly sclerotized and indistinct.

Distribution.- Pcia. Buenos Aires, Buenos Aires, Dec 1890, 1♂; San Miguel, 26 Jan 1938, 1♂; Río Parana de las Palmas, Lima, 16 Dec 1979, 1♂. I have seen the species from the Provinces of Chaco, Cordoba, Formosa and Tucuman, as well as Brasil.

Genus Cernotina Ross

The genus is characterized by: foretibia lacking preapical spur, maxillary palpus with the second segment 1/3 to 1/2 as long as the third segment whose apex is produced into a small lobe on one side.

In South America this is a very large and diverse genus, 27 species having been described, all from lowland regions (Flint 1971, 1974a). Although no specimens have yet been collected in the Area Platense, they have been taken in Santa Fe and Entre Ríos and undoubtedly will be found in the study area.

Family Hydropsychidae

The adults are distinguished by the following characteristics: lack of ocelli, maxillary palpi of 5 segments (or rarely wholly lacking) of which the terminal segment is much longer than any of the preceding segments and has many cross-striations, R_{2+3} of forewing is branched.

Representatives of this family are found in all regions of the world including many of the most remote oceanic islands on which Trichoptera are found. The larvae construct a silken retreat fixed to the substrate. As part of this retreat they construct a net to strain-out their food from the flowing water. As a consequence species are usually limited to lotic sites, although they are on occasion also found on wave-washed lake shores.

Two genera have been collected in the Area Platense and 2 more may well occur in the Parana Delta. Flint (1978) gives a key to all the known Neotropical genera.

Key to Genera

1. Antenna subequal in length to forewing; forewing size 4-6 mm.....Smicridea

Antenna much longer than forewing, often over twice as long; forewing size 12-18mm.....2

2. Lacking maxillary palpi.....Synoestropsis
Maxillary palpi well developed.....3

3. Maxillary palpus with second segment much longer than third segment.....Leptonema
Maxillary palpus with third segment slightly longer than second segment.....Blepharopus

Subfamily Hydropsychinae

Genus Smicridea McLachlan

This genus may be recognized by the following characteristics: antennae slightly shorter than forewing, maxillary palpus present, size smaller - length of forewing 4-6mm.

This is the only genus of the subfamily Hydropsychinae known from South America. It is distributed from the southwestern United States to southern Chile, with additional representatives in Australia. The genus is divided into 2 subgenera, the

nominate in which the male bears 2 pairs of reticulate sacs inside the abdomen, and Rhyacophylax which lacks these reticulate sacs. All 5 species taken in the Area Platense belong to Rhyacophylax. There are many more species which occur in adjacent areas and may yet be added to the Platense fauna.

Key to Species

1. Male with apex of aedeagus with a central lobe and a pair of lateral flaps; color of forewing milky white to pale yellowish-brown, with indistinct darker bands....mesembrina

   Male with tip of aedeagus differently formed; color various, but usually brown with varied markings.....2

2. Male with tip of aedeagus bearing 3 dark points dorsally; color grayish-brown, with indistinct lighter and darker transverse lines.....argentina

   Male with tip of aedeagus unornamented externally; color as above, or pale yellowish-brown.....3

3. Male with aedeagus internally with simple, elongate, thread-like sclerites; color yellowish-brown, with distinct dark, zig-zag, transverse lines.....pampeana

   Male with aedeagus internally with central thread-like

sclerites and additional lateral sclerites; color brown, with various markings.....4

4. Male with aedeagus internally bearing lateral sclerites ending in a simple apical point; color pale brown, with indistinct lighter and darker transverse lines.....vilela

Male with aedeagus internally bearing lateral sclerites ending in an elongate spine twisted up and over the dorsum; color as above.....voluta

Smicridea (R.) argentina (Navas)

Figures 17-19

Badallus argentinus Navas, 1918b, p.21; 1920b, p.133.

Rhyacophylax argentinus (Navas): Navas, 1920c, p.42; 1923, p.200; 1930b, p.132; 1931, p.322. Schmid, 1949, p.341.

Smicridea (R.) argentina (Navas): Flint, 1972, p.237.

Adult.- Size intermediate, ♂ & ♀ 4-6mm. Forewing color dark grayish-brown, with a distinct paler subterminal band and darker spots and lines. Male: Aedeagus bearing externally a middorsal, and lateral darkened points, internally with long, slender sclerites.

Distribution.- Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 7♂. The species is only known with certainty from along the Paraguay-Parana system in the provinces of Chaco, Formosa, Santa Fe and Entre Ríos.

Smicridea (R.) mesembrina (Navas)

Figures 20-22

Rhyacophylax mesembrinus Navas, 1918a, p.502. Schmid, 1949, p.343.

Rhyacophylax nivosus Navas, 1920d, p.65. Schmid, 1949, p.344.

Adult.- Size small, ♂ 3-4mm, ♀ 5-6mm. Forewing color milky-white to pale, grayish-brown, indistinctly marked with darker spots and bands. Male: Aedeagus bearing from apex a central lobe and lateral flaps.

Distribution.- Pcia. Buenos Aires, 14 Mar 1920, 6♂; La Plata, 9 Jan 1907, and 14 Feb 1920, 9♂; Arroyo Pescado, Rt.11, 15 km. east La Plata, 20 Dec 1979, 2♂. I have seen this species from the provinces of Cordoba, Catamarca, Entre Ríos, Salta and Tucuman as well as Bolivia.

Smicridea (R.) pampeana Flint

Figures 23-24

Smicridea (R.) pampeana Flint, 1980, p.137.

Adult.- Size intermediate, ♂ & ♀ 6-6.5mm. Forewing color yellow brown, with transverse brown bands mesally and subapically; females more uniformly brown. Male: Aedeagus with tip smooth externally; with internal sclerites long, slender, and slightly sinuous.

Distribution.- Pcia. Buenos Aires, Río Salado, Rt.3, south San Miguel del Monte, 7 Dec 1979, 100's ♂♂ ♀♀; Cañada Arregui, Rt.11, 11km. west Magdalena, 21 Dec 1979, 1♀; Arroyo Dulce, Rt.188, 15km. north Rojas, 13-14 Dec 1979, 1♂, 1♀. The species is only known from the Province of Buenos Aires where it is has been taken as far south as the Sierra de la Ventana.

Smicridea (R.) vilela Flint

Figures 25-27

Smicridea (R.) vilela Flint, 1978, p.382

Adult.- Size small, ♂ & ♀ 4-5mm. Forewing color brown, transversely marked with indistinct darker bands, and a distinct

pale subterminal band. Male: Aedeagus with tip smooth externally, internally with long, slender mesal sclerites and a lateral sclerite ending in a darkened point.

Distribution.- Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 1♂. The species is known also from the Río Parana in Pcia. Chaco, and throughout the Amazon Basin in Brasil.

Smicridea (R.) voluta Flint

Figures 28-30

Smicridea (R.) voluta Flint, 1978, pp.378-379.

Adult.- Size intermediate, ♂ & ♀ 5-6mm. Forewing color brown, transversely marked with darker and paler bands. Male: Aedeagus with tip smooth externally, internally with long, slender mesal sclerites and a lateral sclerite ending in a slender spine that curves up and over the mesal sclerites.

Distribution.- Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 1♂. This is the first Argentine record of this species which had previously been known only from the Amazon Basin of Brasil.

Subfamily Macronematinae

Genus Leptonema Guerin

The following characteristics are diagnostic for this genus: antenna slightly longer than (♀) or much longer than forewing (♂), size large - forewing 12-16mm, maxillary palpi present with second segment longer than third segment.

This is a large genus of more than 80 species distributed in the Ethiopian and Neotropical Regions. In the New World, examples have been taken from Argentina to the United States, with most species found in Central America, the Andes and eastern Brasil. Only 1 species has been, or is likely to be, found in the study area.

Leptonema columbianum Ulmer

Figure 31

Leptonema columbianum Ulmer, 1905a, p.58; 1907b, p. 51. Navas, 1917b, p.404; 1930b, p.132. Mosely, 1933, p.13. Flint, 1972, p.234.

Adult.- Size large, forewing ♂ 16mm, ♀ 12mm. Color pale green in life fading to brown with time; forewing with 2 dark spots basally on subcosta. Female with tibia and tarsus of midleg flattened and much expanded. Male: Aedeagus tubular,

ending in a pair of dorsolateral lobes, caliper-like in posterior aspect.

Distribution.- Pcia. Buenos Aires, San Miguel, 13 Dec 1932, 1♀. The species is also known from the following provinces: Chaco, Corrientes, Entre Ríos, Formosa, Misiones, Salta, and Santa Fe. It is also recorded from Bolivia, Brasil, Colombia, Ecuador, Guyana, Paraguay, and Surinam. The biology and immature stages were described by Flint & Wallace (1980).

Genus Blepharopus Kolenati

The genus is diagnosed by the following: antenna longer than forewing, size large - forewing 11-16mm, maxillary palpi with third segment longer than second, head of male with dorsum bulging and bearing a strong middorsal carina, head and thorax very hairy.

This is a monotypic genus closely related to Macronema (Flint & Wallace 1980). The only species, B. diaphanus Kol., is recorded from Argentina, Brasil, and Venezuela. It is generally taken near large rivers and has been found as close as Salto Grande on the Río Uruguay. The biology and immature stages were described by Flint & Wallace (1980).

Genus Synoestropsis Ulmer

The genus is easily recognized as follows: antenna longer than forewing, size very large - forewing 16-25mm, maxillary palpi lacking.

This is a genus of less than a dozen rather ill-defined species, none of which have been taken in the Area Platense. It is exclusively Neotropical in distribution, with species known from Mexico to Argentina. S. vitrea Navas is known from as far south as Santa Fe on the Río Parana, and S. pedicillata Ulmer from Salto Grande on the Río Uruguay.

Family Hydroptilidae

The adults may be recognized as follows: size very small - forewing 1-3mm, ocelli present or absent, mesoscutellum flat, the roughly triangular central portion with a vertical posterior margin.

This is the family of the microcaddisflies, most of whose species are only a millimeter or two long. Because of their small size and ease of dispersal, many species are widely distributed, and the family as a whole is found in all parts of the world. The larvae of most genera, including all those found

in the Area Platense, pass the first 4 instars as minute, hairy, free-living organisms which in the fifth instar construct a case, greatly increase in size, and change in form. Some genera continue their free-living existance for their entire larval life, while others construct an immovable cover to shelter the last instar larva. They are found in all types of aquatic environments, both lotic and lentic. The larvae are generally adapted to feed on algae.

Three genera are known to occur in the Area Platense, and it is doubtful if other genera will be found. Flint (1974a) gives a key to many Neotropical genera and Marshall (1979) keys and comprehensively reviews the world fauna.

Key to Genera

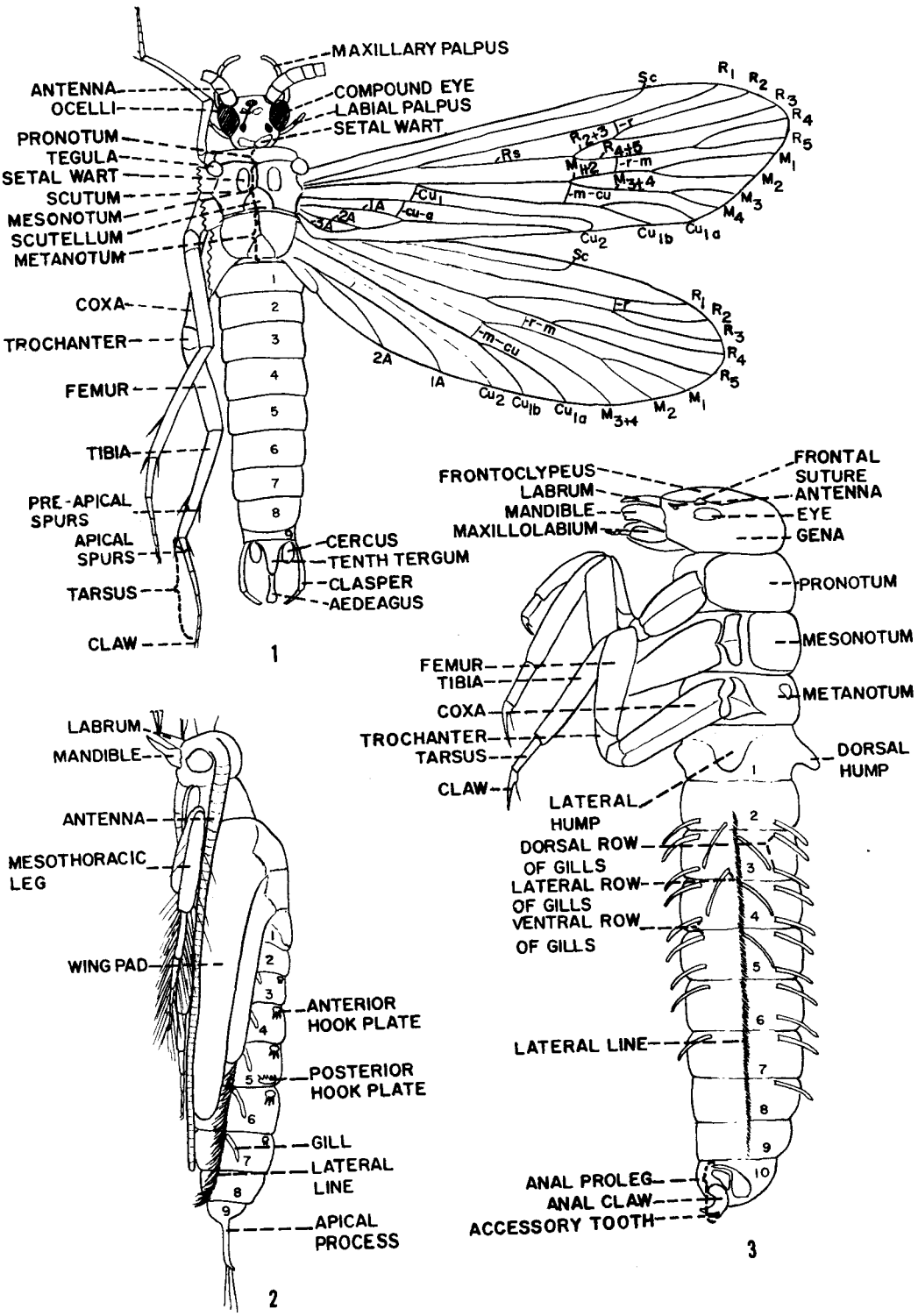
1. Ocelli lacking.....Hydroptila
   Ocelli present.....2

2. Hind tibia with only 1 preapical spur.....Neotrichia
   Hind tibia with 2 preapical spurs.....Oxyethira

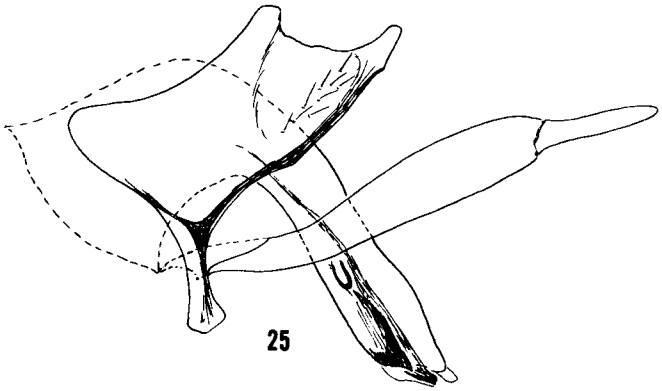
Genus Hydroptila Dalman

LAMINAS

Figs. 1-3.--1, adult trichopteran, labeled to show parts; 2, same for pupa; 3, same for larva.


MAXILLARY PALPUS
ANTENNA
OCELLI
COMPOUND EYE
LABIAL PALPUS
SETAL WART
PRONOTUM
TEGULA
SETAL WART
SCUTUM
MESONOTUM
SCUTELLUM
METANOTUM
COXA
TROCHANTER
FEMUR
TIBIA
PRE-APICAL SPURS
APICAL SPURS
TARSUS
CLAW
CERCUS
TENTH TERGUM
CLASPER
AEDEAGUS
1
Sc
R1
R2
R3
R4
R5
Rs
M1
M2
M3
M4
Cu2
Cu1b
Cu1a
1A
2A
-r
-r-m
-m-cu
-cu-a
FRONTOCLYPEUS
LABRUM
MANDIBLE
MAXILLOLABIUM
FRONTAL SUTURE
ANTENNA
EYE
GENA
PRONOTUM
MESONOTUM
METANOTUM
FEMUR
TIBIA
COXA
TROCHANTER
TARSUS
CLAW
DORSAL HUMP
LATERAL HUMP
DORSAL ROW OF GILLS
LATERAL ROW OF GILLS
VENTRAL ROW OF GILLS
LATERAL LINE
ANAL PROLEG
ANAL CLAW
ACCESSORY TOOTH
3
LABRUM
MANDIBLE
ANTENNA
MESOTHORACIC LEG
WING PAD
ANTERIOR HOOK PLATE
POSTERIOR HOOK PLATE
GILL
LATERAL LINE
APICAL PROCESS
2

Figs. 25-31.-- *Smicridea (R.) vilela* Flint: 25, male genitalia, lateral; 26, tip of aedeagus, dorsal; 27, male genitalia, dorsal. *S. (R.) voluta* Flint: 28, male genitalia, lateral; 29, tip of aedeagus, dorsal; 30, male genitalia, dorsal; *Leptonema columbianum* Ulmer: 31, male genitalia, lateral.



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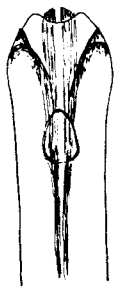

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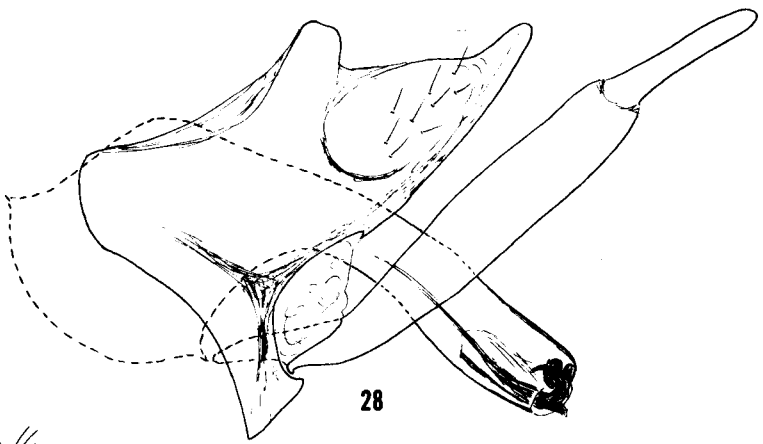

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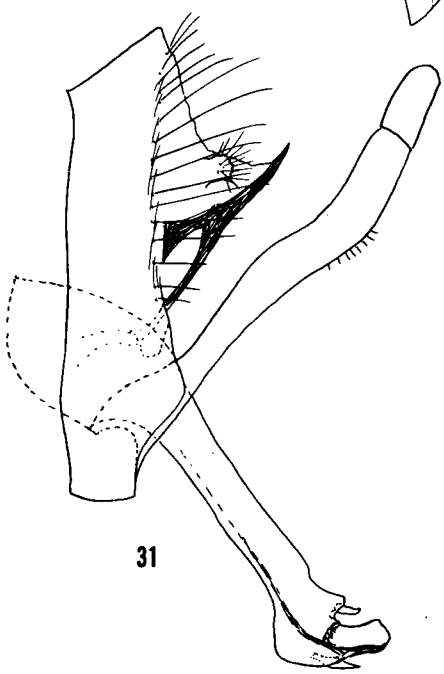

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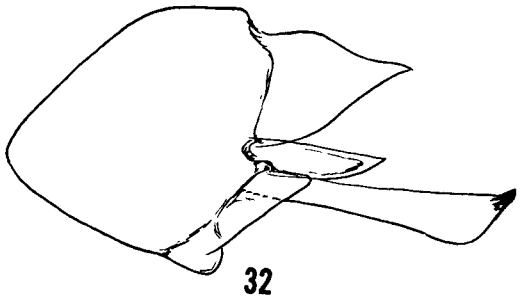
Figs. 32-39.-- *Hydroptila pulestoni* Flint: 32, male genitalia, lateral; 33, male genitalia, ventral; 34, aedeagus; 35, female eighth sternum, ventral; *H. sauca* Flint: 36, female eighth sternum, ventral; 37, male genitalia, lateral; 38, male genitalia, ventral; 39, aedeagus;



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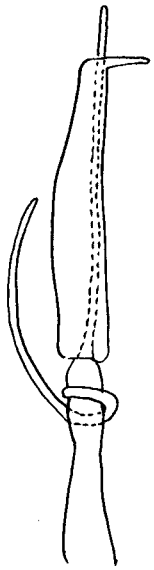

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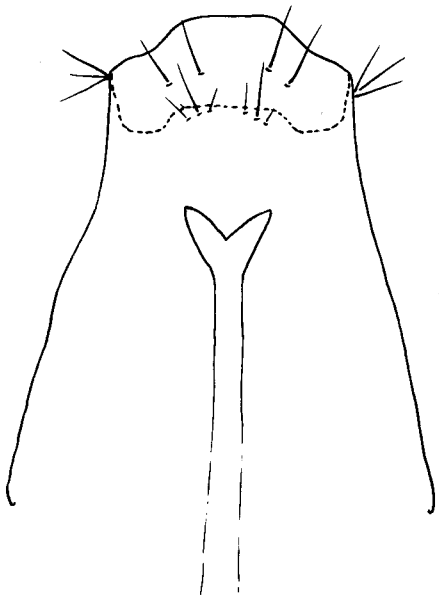

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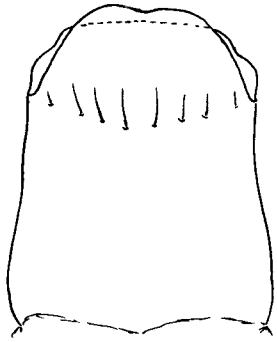

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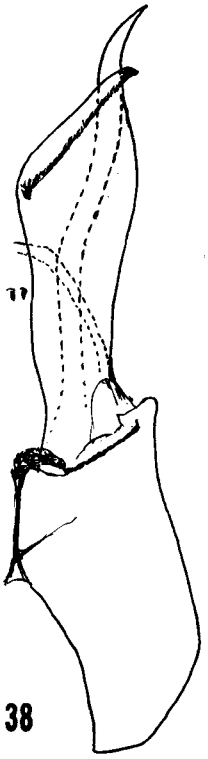

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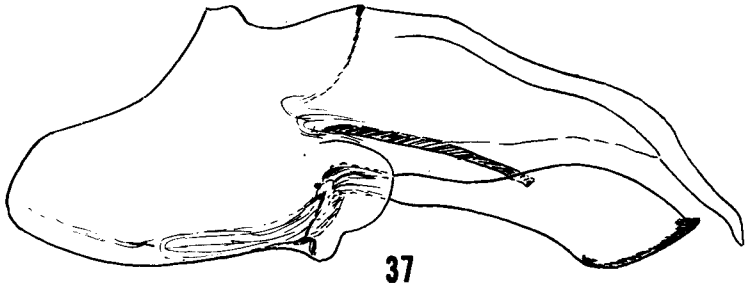

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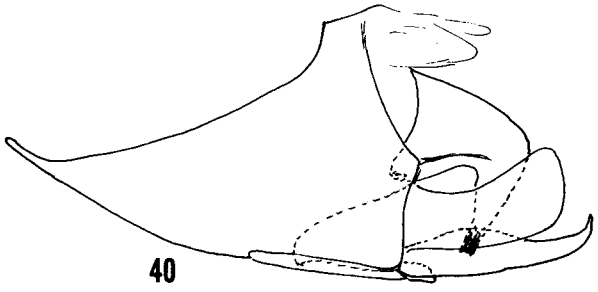
Figs. 40-49.--*Neotrichia palma* Flint: 40, male genitalia, lateral; 41, male genitalia, ventral; 42, aedeagus; 43, female eighth sternum, ventral. *N salada* Flint: 44, female eighth sternum, ventral; 45, aedeagus; 46, male genitalia, lateral; 47, male genitalia, ventral. *N. tubulifera* Flint: 48, male genitalia, lateral; 49, male genitalia, ventral.



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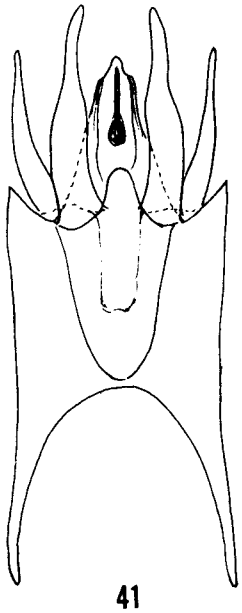

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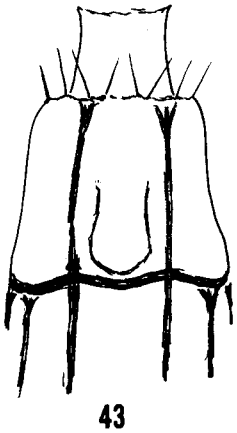

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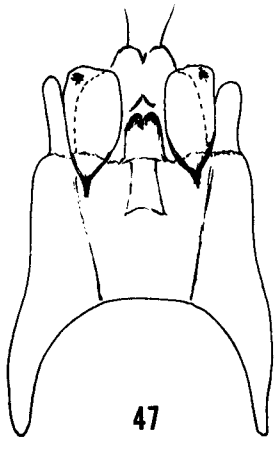

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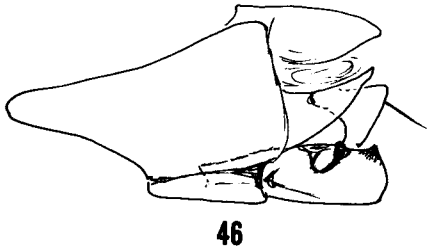

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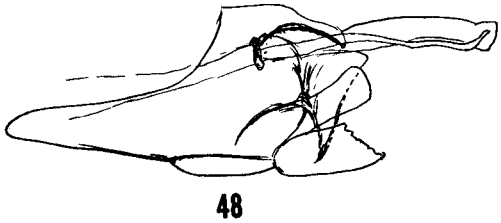

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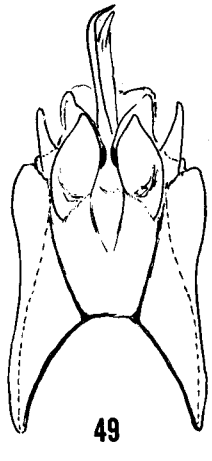

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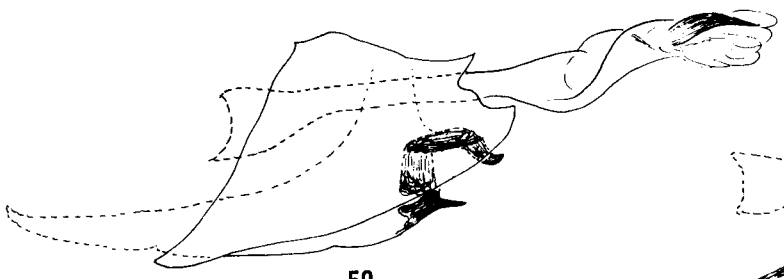
Figs. 50-55.-- *Oxyethira argentinensis* Flint: 50, male genitalia, lateral; 51, male genitalia, ventral. *O. lagunita* Flint: 52, male genitalia, lateral; 53, male genitalia, ventral. *O. santiaguensis* Flint: 54, male genitalia, lateral; 55, male genitalia, ventral.



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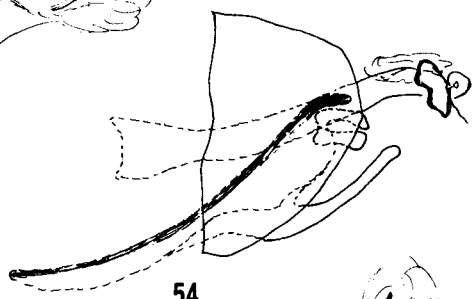

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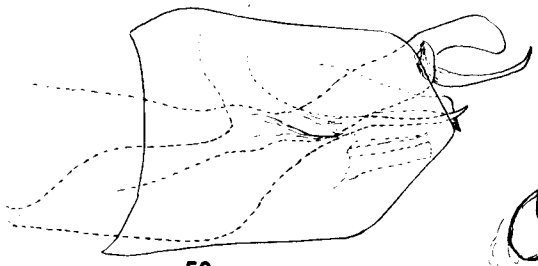

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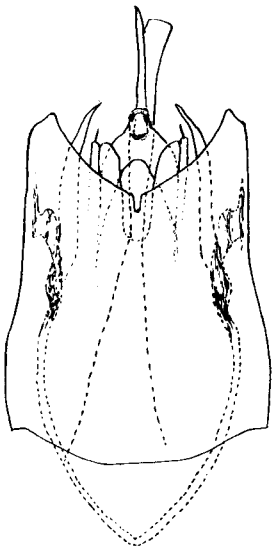

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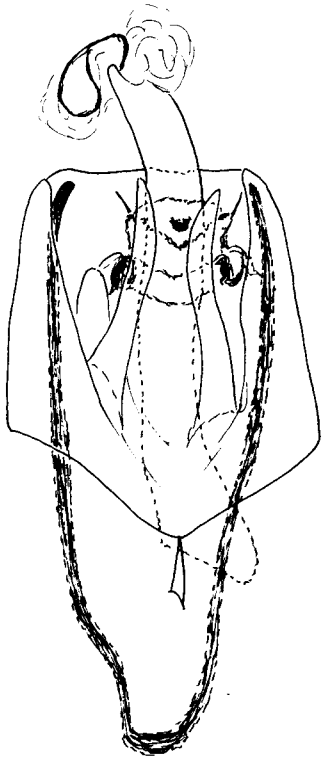

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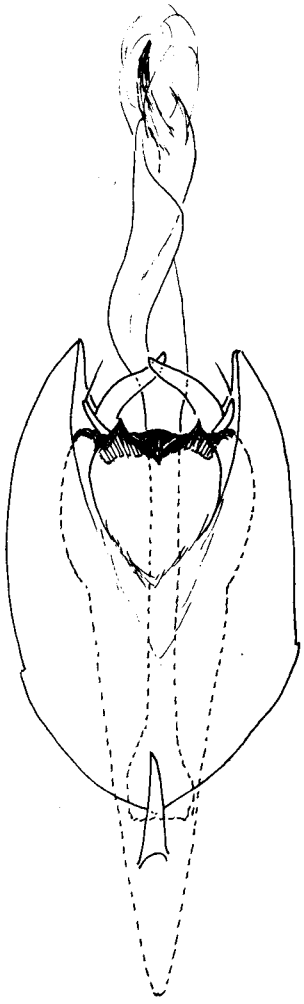

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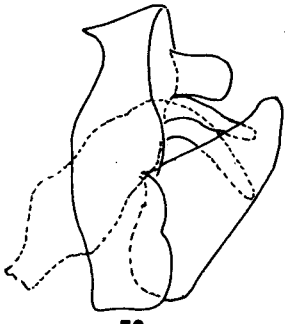
Figs. 56-65.-- *Magellomyia bruchina* Navas): 56, male genitalia, lateral; 57, male genitalia, dorsal. *Brachysetodes duodecimpunctatus* (Navas): 58, male genitalia, lateral. *Oecetis amazonica* (Banks): 59, male genitalia, lateral; 60, clasper, ventral. *O. excisa* Ulmer: 61, male genitalia, lateral; 62, clasper, ventral. *O. paranensis* Flint: 63, male genitalia, lateral; 62, clasper, ventral. *O. paranensis* Flint: 63, male genitalia, lateral; 64, clasper, ventral. *O. punctipennis* (Ulmer): 65, male genitalia, lateral.



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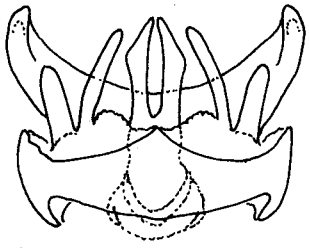

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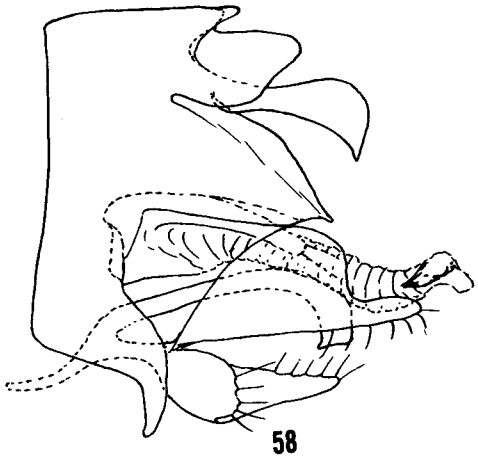

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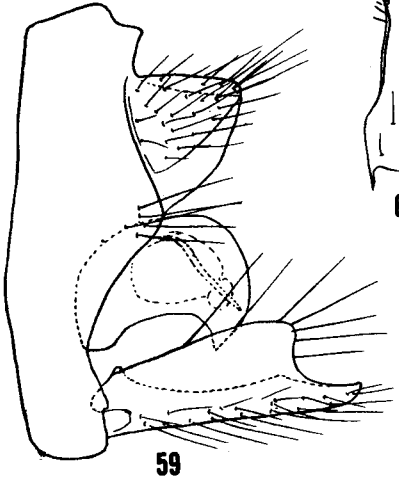

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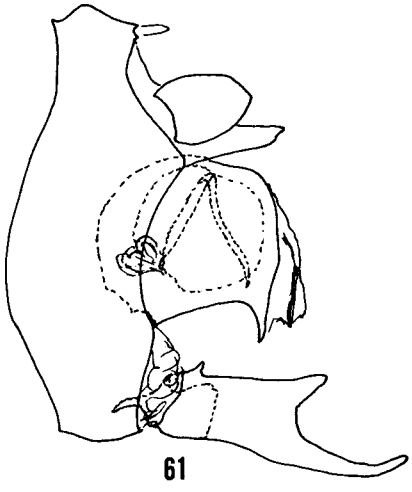

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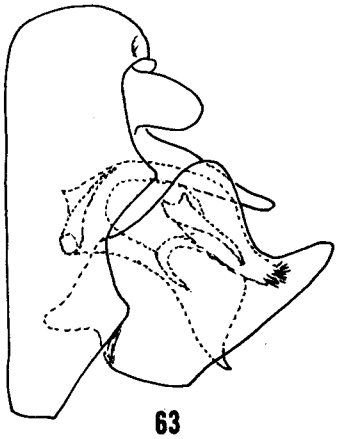

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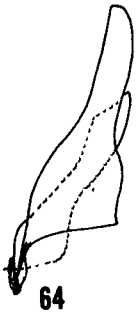

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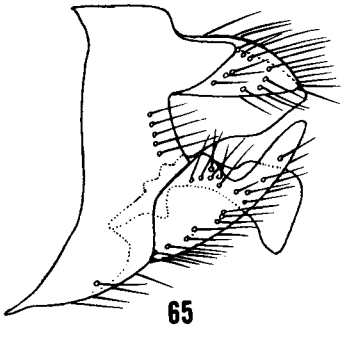
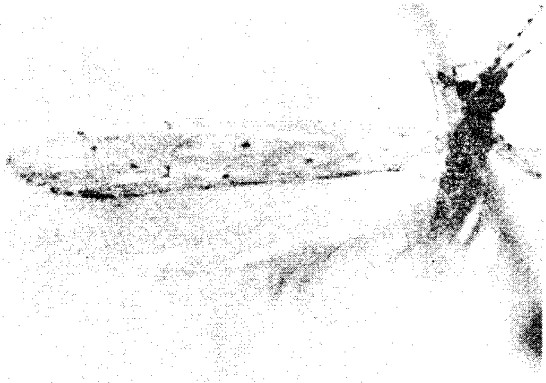


65

Figs. 66-71.--*Oecetis punctipennis* (Ulmer): 66, wings. *Nectopsyche bruchi* (navas): 67, wings. *N. flavofasciata* (Ulmer): 68, eings. *N. muhni* (navas): 69, wings. *N. separata* Banks): 70, wings. *N. spendida* (navas): 71, wings.



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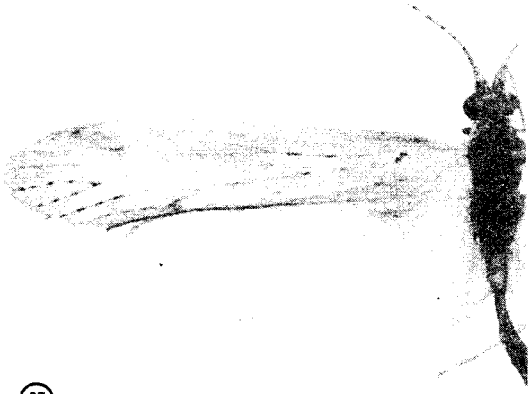

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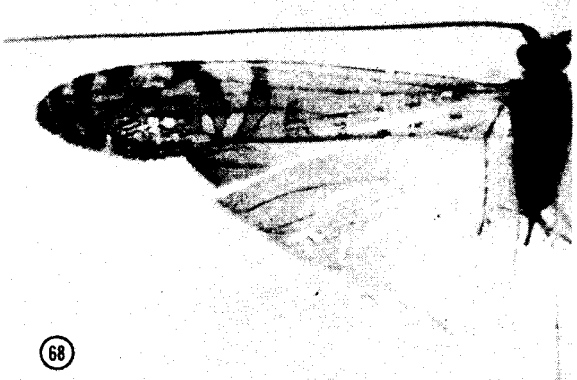

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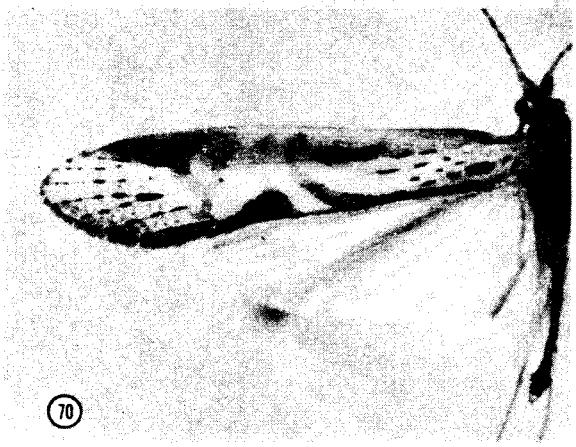

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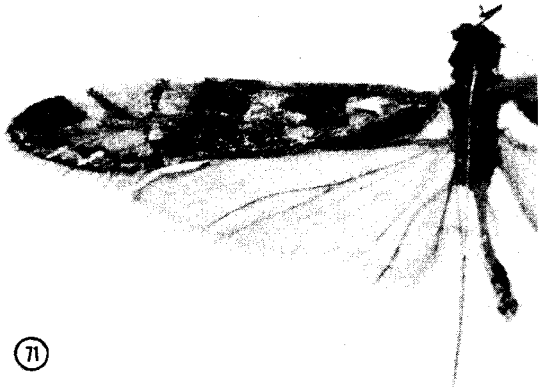

71

The genus is easily distinguished from the other Argentine genera by its lack of ocelli, undivided mesoscutellum, spur count of 0, 2, 4, and form of the male genitalia.

This is the largest genus of the family with over 150 species described from all regions of the world. In South America, however, it does not seem to have the diversity it does in the Northern Hemisphere. The final instar larvae embed small plant pieces in their cases of silk which consist of two oval halves joined dorsally and ventrally. Although only 1 species has been taken in the Area Platense, it is virtually certain that a second and possibly more species will be found there.

Key to Species

1. Male with aedeagus bearing a well developed spiral process and with tip bent at right angles; female eighth sternum with an elongate mesal structure.....pulestoni

   Male with aedeagus lacking a spiral process, apical lobe convoluted at midlength; female eighth sternum lacking mesal structure.....sauca

Hydroptila pulestoni Flint

Figures 32-35

Hydroptila pulestoni Flint, 1980, p.138.

Adult.- Length of forewing, 3-4mm. Color brown; forewing with elongate dark maculae. Male: Tenth tergum short,tapering t posterolateral points. Clasper ending in a dorsolateral dark point. Aedegus with a spiral process, tip of apical lobe angled to one side. Female: Eighth sternum elongate, with an elongate, bifurcate mesoventral structure.

Distribution.- Pcia. Buenos Aires, Río Santiago, Palo Blanco, Berisso, 23 Nov 1979, 1♂, 1♀; Cañada Arregui, Rt.11, 15km. west Magdalena, 21 Dec 1979, 1♀; Arroyo Pescado, Rt.11, 15km. east La Plata, 20 Dec 1979, 43♂, 50♀; Río Salado, Rt.3, south San Miguel del Monte, 7 Dec 1979, 3♂, 1♀; Laguna Monte, San Miguel del Monte, 6 Dec 1979, 4♂; Arroyo Vitel, Chascomus, 1 Oct 1973, 1♂. This species appears to be rather frequently encountered in the slowly flowing streams of the Province of Buenos Aires, and is known also from the Provinces of Entre Ríos, Tucuman, and Río Negro as well as Chile.

Hydroptila sauca Flint

Figures 36-39

Hydroptila sauca Flint, 1980, p.141.

Adult.- Length of forewing, 2.5mm. Alcoholic material, brown. Male: Tenth tergum long, with long, pointed, lateral processes. Clasper ending with dorsal and ventral dark points. Aedeagus without spiral process, apical lobe twisted through nearly 360° at midlength. Female: Eighth sternum slightly longer than wide, without a midventral structure.

Distribution.- The species has been taken both to the south of the Area Platense in the Sierra de la Ventana and to the north in Entre Ríos near Villa San José.

Genus Neotrichia Morton

This genus is distinguished from the other Argentine Hydroptilidae by the following characteristics: 3 ocelli present, undivided mesoscutellum, spur count of 0, 2, 3. The male genitalia has a very distinctive form, especially in the possession of a lateral plate or bracteole.

The genus is exclusively New World in distribution, being found from southern Canada to southern Argentina. The fifth instar larvae construct tapering, tubular cases of minute sand grains held together by silk. Up to now 3 closely related species have been taken in the Area Platense.

Key to Species

1. Clasper about 2 1/2 times as long as broad, tip not attenuate; female eighth sternum longer than wide, posterior margin with 2 pairs of large, dark setae laterally.....2

   Clasper about 4 times as long as broad, tip attenuate; female eighth sternum as long as wide, posterior margin with a row of indistinct setae.....palma

2. Clasper truncate apically, with a small apicodorsal dark point.....salada

   Clasper tapering to an apical point, no dorsal dark point .....tubulifera

Neotrichia palma Flint

Figures 40-43

Neotrichia palma Flint, 1982, p.000.

Adult.- Length of forewing, 2mm. Color brown. Male: Clasper about 4 times as long as broad, tip drawn out into a slender process in both lateral and ventral aspects. Female: Eighth

sternum as wide as long, bulging anteromesally, posterior margi.. with a row of indistinct pale setae.

Distribution.- Pcia. Buenos Aires, Río Parana de las Palmas, Lima, 18 Dec 1979, 1♂, 2♀. In addition to this material the species is known from Asuncion, Paraguay.

Neotrichia salada Flint

Figures 44-47

Neotrichia salada Flint, 1982, p.000.

Adult.- Length of forewing, 1.5-2mm. Color grayish-brown, legs and body stramineous, forewing with alternating streaks of gray and stramineous. Male: Clasper about 2 1/2 times as long as broad; apex truncate in both lateral and ventral aspects, with a dark apicodorsal point. Female: Eighth sternum longer than broad, unmodified, posterior margin with 2 lateralmost pairs of setae very large and dark.

Distribution.- Pcia. Buenos Aires, Río Salado, Rt.3, south San Miguel del Monte, 7 Dec 1979, 23♂, 64♀; Arroyo Pescado, Rt.11, 15km. east La Plata, 20 Dec 1979, 1♂, 4♀; Río Parana de las Palmas, Lima, 16 Dec 1979, 1♂. This species is also recorded from the Provinces of Entre Ríos and Chaco as well as Asuncion,

Paraguay.

Unfortunately I am unable to distinguish between the females of salada and tubulifera. A large series of adults, all females, were taken from the cement walls around the old hotel at Punta Indio, on 20 Dec 1979, but can only be associated with this pair of species. This site, which these caddisfles were inhabiting, most closely approaches the marine habitat of any site yet found in the Area Platense.

Neotrichia tubulifera Flint

Figures 48-49

Neotrichia tubulifera Flint, 1980, p.141.

Adult.- Length of forewing, 2mm. Color brown in alcohol. Male: Clasper about 2 1/2 times as long as wide; tapering to an apical point in both lateral and ventral aspects, apicodorsal margin in lateral aspect rugose. Female: Indistiguishable from salada.

Distribution.- Pcia. Buenos Aires, San Isidro, 11 Feb 1969, 5♂, 4♀; Río Parana de las Palmas, Lima, 16 Dec 1979, 1♂. The species has also been recorded from Salto Grande in Entre Ríos.

Genus Oxyethira Eaton

This genus may be recognized by the following combination of characters: ocelli present, mesoscutellum entire, spur count of 0, 3, 4.

The genus is known from almost all regions of the world, and seems to be quite diverse in tropical America. The larvae construct distinctive, compressed, silken cases with a narrow neck region and a broad posterior area. They live in slowly-flowing or lentic waters in association with their food, filamentous green algae. Three species are identified from the Area Platense, but unassociated females indicate that several more species are in the area.

Key to Species

1. Ninth sternum with a pair of large processes arising from midventral margins.....santiagensis
   Ninth sternum without midventral processes, although apices may be produced into spines.....2

2. Aedeagus with apex divided into twisted, sclerotized plates and a spine-like process.....argentinensis

Aedeagus with apex bearing a central membranous tube and a large ventral spine.....lagunita

Oxyethira argentinensis Flint

Figures 50-51

Oxyethira argentinensis Flint, 1982, p.000.

Adult.- Length of forewing, 2mm. Color pale brown with forewing bearing dark brown maculae. Male: Ninth sternum without processes. Aedeagus with tip divided into large twisted plates, and a spinelike process.

Material.- Pcia. Buenos Aires, Arroyo Pescado, Rt.11, 15km. east La Plata, 20 Dec 1979, 29♂. The species has only been taken at the above locality and in Río Negro.

Oxyethira lagunita Flint

Figures 52-53

Oxyethira lagunita Flint, 1980, p,142.

Adult.- Length of forewing, 2mm. Color unknown, in alcohol. Male: Ninth sternum with posterolateral angles drawn-out into pointed processes. Aedeagus with tip divided into a central, membranous, tubular process, and a large ventral spine.

Material.- Pcia. Buenos Aires, Chascomus, between Lago Chascomus and Lago Vitel, 1 Oct 1973, 1♂. The species was also recorded from Entre Ríos.

Oxyethira santiagensis Flint

Figures 54-55

Oxyethira santiagensis Flint, 1982, p.000.

Adult.- Length of forewing, 2mm. Color brown; forewing with pale and dark brown maculae. Male: Ninth sternum with a pair of large, terete processes arising from the mesoventral margins. Aedeagus with tip asymmetrically produced to one side and bearing a membranous lobe and a slender, twisted filament.

Material.- Pcia. Buenos Aires, Río Santiago, Palo Blanco, Berisso, 23 Nov 1979, 1♂. The species is only known from the holotype male, listed above.

Family Limnephilidae

Adults of this family may be recognized by: ocelli present, maxillary palpi 3-segmented in male, 5-segmented in female, and in both sexes the second segment is slightly longer than in the first.

The family is primarily north temperate in distribution, being very abundant in the lakes and rivers of North America, Europe, and Asia. In the southern hemisphere a single species is known from Australia, and 7 genera with many species primarily from Chile and Argentina in South America. The latin American species live in all types of aquatic habitats, from temporary ponds, to lakes and all types of lotic situations. All larvae construct portable, basically tubular cases of plant and/or mineral fragments which cover their bodies as they walk over the substrate. One European species has terrestrial larvae, several more have subaquatic larvae, and a number are able to complete pupal development in environments that dry-up during this stage.

Only a single species has been taken in the Area Platense, and that rarely. All the other species of the family are found in the Patagonian Region far to the southwest.

Magellomyia bruchina (Navas)

Figures 56-57

Nostrafilla bruchina Navas, 1918a, p.501.

Magellomyia bruchina (Navas): Schmid, 1955, p.54.

Adult.- Length of forewing, 8-9mm. Color uniformly stramineous. Male: Tenth tergum divided into a pair of terete processes. Cercus a broad, slightly elongate lobe. Clasper elongate, semierect, tapering regularly from base to apex. Aedeagus with a tubular base, apex divided into a pair of long, decurved arms.

Material.- Pcia. Buenos Aires(no further locality), 189_, 1♂; same, but 190_, 4♂; La Plata, Jul 1970, 2♂. The species appears to be restricted to the Pcia. Buenos Aires, with the only known specific locality being La Plata. This collection was made in July, suggesting that the species may complete its development and be on the wing during winter or early spring. It may breed in the small pools in the marshes between La Plata and Punta Lara.

Family Leptoceridae

The leptocerids are a well-marked family: ocelli absent,

maxillary palpi of 5 segments,preapical spurs of middle tibiae lacking, antennae very long, usually at least twice as long as forewing which is long and slender, setae of mesonotum arising in a long row, not from well-defined warts, the mesoscutellum is large and broadly rounded anteriorly, and the hindwing lacks hamuli on the anterior margin.

The long, slender leptocerids are world-wide in distribution. They may be a bit more diverse in the tropics, but are well represented everwhere. They breed primarily in slowly flowing rivers, lakes, and marshes, but some species are confined to fast flowing rivers and small streams. All larvae construct portable, tubular cases, mostly from plant matter, however, some utilize sand grains exclusively. Several Neotropical genera spend most of their larval stage away from water, living in the moist marginal environment.

Three genera are known to occur in the Area Platense and another 3 occur in other areas of Argentina. It is unlikely that any of these 3 genera (Triplectides, Hudsonema, Grumichella) occur in the study area.

Key to Genera

1. Forewing with M apparently unbranched.....Oecetis

Forewing with M branched at or beyond r-m.....2

2. Hindwing with Rs system atrophied.....Nectopsyche

Hindwing with Rs and branches clearly present...Brachysetodes

Genus Brachysetodes Schmid

The genus is characterized by: forewing with R_{2+3} and M branched before margin, hindwing with R_{2+3}, M, and Cu_1 branched before margin, anal area not enlarged.

The genus is exclusively Neotropical in distribution. The majority of species are limited to Patagonia, but one occurs in the Lesser Antilles, and another is widely distributed in continental South America. The larvae of the few species known in this stage construct small, tubular cases of small sand grains.

Brachysetodes duodecimpunctatus (Navas)

Figure 58

Setodes duodecimpunctata Navas, 1916a, p.33.

Brachysetodes duodecimpunctata (Navas): Flint, 1972, p.244.

Adult.- Length of forewing, ♂ 5-6mm, ♀ 4-5mm. Color yellow

to light brown; forewing with 11-12 dark spots at junctions of veins. Male: Ninth segment produced posterolaterally. Cercus earlike, fused basally to ninth segment. Tenth tergum enlarged apically. Clasper divided into 3 distinct lobes.

Material.- Pcia. Buenos Aires, San Miguel, 25 Jan 1938, 1 without abdomen. The species is widely distributed in Argentina (Chaco, Corrientes, Entre Ríos, and Misiones) as well as Bolivia, Brasil, Colombia, Guyana, Paraguay, Peru, Suriname, and Venezuela.

Genus Oecetis McLachlan

Species of this genus may be recognized by the following venational characteristics: forewing with M not branched at r-m, hindwing with anal area not enlarged.

Oecetis is very widespread, being found in all faunal realms, even many oceanic islands. It is a large genus equally well represented in tropical and temperate areas. The larvae construct cases in a number of very distinctive manners. Some make simple tubular cases of sand grains and others use plant matter, some use a few larger pieces of leaves and others many small fragments, and a few make a distinctive case, square in cross-section, out of regularly placed pieces of leaf. Four

species have been taken in the area, but others do occur in Argentina and may occur here also.

Key to Species

1. Hindwing with M and Cu_1 both with apical forks.....2
   Hindwing with M and Cu_1 not forked.....punctipennis

2. Male with clasper 2-3 times longer than high.....3
   Clasper about as high as long in lateral aspect....paranensis

3. Male clasper with basodorsal lobe occupying 1/3 of its length and with a long, terete, apical lobe.....excisa
   Clasper with basodorsal lobe occupying 3/4 of its length and with apical lobe short and broad in ventral aspect .....amazonica

Oecetis amazonica (Banks)

Figures 59-60

Oecetina amazonica Banks, 1924, p.447.

Oecetis amazonica (Banks): Fischer, 1966, p.109. Flint, 1972, p.244.

Adult.- Length of forewing, 8-10mm. Color brown; forewing clothed with brown hair. Male: Clasper 2-3 times longer than broad in lateral aspect, with basodorsal lobe occupying 3/4 length of dorsal margin of clasper; apical lobe short, narrow in lateral aspect, short and broad in ventral aspect.

Material.- Pcia. Buenos Aires, San Miguel, 7 Jan 1938, 2♂, 3♀. Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 4♂, 4♀. The species is known from Chaco and Santa Fe in Argentina, and Brasil, Peru, and Venezuela.

Oecetis excisa Ulmer

Figures 61-62

Oecetis excisa Ulmer, 1907a, p.15; 1913, p.403. Navas, 1923, p.200. Flint, 1972, p.244.

Oecetis mutila Navas, 1918b, p.22; 1920b, p.134. Schmid, 1949, p.382.

Oecetis castilleja Navas, 1920b, p.134; 1920d, p.66; 1927, p.28; 1933, p.116. Flint, 1972, p.244.

Oecetis muhnia Navas, 1920a, p.28; 1930b, p.132. Flint, 1972, p.244.

Oecetis apicata Navas, 1931, p.323 (New synonymy).

Adult.- Length of forewing, 6-10mm. Color brown; forewing clothed in brown hair, generally with membrane darkened along chord. Male: Clasper about 3 times as long as high in lateral aspect, basodorsal lobe occupying 1/3 length of dorsal margin of clasper, apical lobe long, terete in both lateral and ventral aspects.

Material.- Pcia. Buenos Aires, La Plata, 26 Mar 1924, 1♂; La Plata, Jardin Zoologico, 19 May 1920, 1 without abdomen; Berisso, 8 Nov 1973, 1♂; Río Santiago, Palo Blanco, Berisso, 19 Dec 1979, 1♀; Monte Veloz, 14 Jan 1920, 1♂; Cañada Arregui, Rt.11, 11km west Magdalena, 21 Dec 1979, 5♂; Monte Brown, Chascomus, 27-28 Nov 1979, 1♀; Arroyo Vitel, Chascomus, 27-28 Nov 1979, 1♂, 3♀; Arroyo las Encadenadas, 17km. northwest M.J.Cobo, 29 Nov 1979, 21♂, 12♀; Arroyo Azul, Azul, 26 Feb 1968, 1♀; San Miguel, 14 Jan 1932 and 14 Jan 1933, 13♂; Laguna Monte, San Miguel del Monte, 6 Dec 1979, 2♂; Laguna de Gomez, Junin, 12 Dec 1979, 6♂, 1♀.

The species is common and widespread in Argentina, being known from Catamarca, Chaco, Cordoba, Entre Ríos, Formosa, Jujuy, Misiones, Salta, Santa Fe, and Santiago del Estero. It is also known from much of southern South America: Bolivia, Brasil, and Paraguay.

I have studied the type of O. apicata Navas, located in the

Museum National d'Histoire Naturelle, Paris, and find in all details of venation and female genitalia that it is identical to excisa with which it is here synonymized. It may be shown that excisa is a synonym of O. inconspicua (Walk.), which is widespread in North and Central America, the West Indies, and northern South America.

Oecetis paranensis Flint

Figures 63-64

Oecetis paranensis Flint, 1982, p.000.

Adult.- Length of forewing, 6-9mm. Color dark brown; forewing with brown hair, veins with a few white hairs and fuscous spots at junctions of veins, apical margin with fuscous spots at veins and whiter hair between. Male: Clasper in lateral aspect as high as long, with a broad, rounded dorsal lobe and a short, more pointed apical lobe.

Material.- Pcia. Buenos Aires, Río Parana de las Palmas, Lima, 16 Dec 1979, 1♂. Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 2♂. This recently described species is known from Brasil and Paraguay as well as the Provinces of Chaco and Misiones.

Oecetis punctipennis (Ulmer)

Figures 65-66

Pseudosetodes punctipennis Ulmer, 1905b, p.77.

Oecetis punctipennis (Ulmer): Flint, 1966, p.10; 1972, p.245.

Oecetis bridarollina Navas, 1933, p.116. Flint, 1972, p.245.

Adult.- Length of forewing, 5-8mm. Color stramineous; forewing with spots of dark hair at junctions of veins, posteroapical margin with alternating white and brown spots. Male: Clasper short, pointed in lateral and ventral aspects, with a slight basodorsal enlargement.

Material.- Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 2♂, 1♀. The species is widespread both in Argentina (Corrientes, Misiones and Santa Fe) and South America (Brasil, Ecuador, Guyana, Suriname, and Venezuela).

Genus Nectopsyche Müller

This genus is easily recognized: forewing with M branched at or near r-m, hindwing with Rs and its branches atrophied and the anal area in the males is enlarged in a fanlike manner. The forewings are, in most species, prettily colored with white, brown, gold, etc. hairs and scales in a manner distinctive to the

species.

The genus is exclusively American in distribution, being known from Canada southward through Argentina, including the Greater Antilles. Larvae construct tubular cases made of organic matter and sand grains, often incorporating slender pieces of plant matter on the sides. A few species make broad, flattened cases of nearly circular leaf fragments. They inhabit a variety of waters, but most live in lakes and slowly flowing arroyos. Definite records are available for 5 species, but it is probable that several more species will be found. The species are easily distinguished by wing coloration, the male genitalia being of little help, therefore they should be kept dry, mounted on pins.

Key to Species

1. Forewing mostly unicolorous, with dark spots.....2

   Forewing distinctly marked with bands and spots of different colors.....3

2. Forewing basically white, veins apically and basally with black spots.....bruchi

   Forewing yellow or pale brown, marked with brown flecks adjacent to veins.....muhni

3. Forewing black, marked with bands of silver and orange scales.....splendida

Forewing differently marked.....4

4. Middle of forewing with transverse brown marks, veins spotted basally and apically, no black spots near apex .....separata

Middle and apex of forewing with transverse golden marks, posteroapical angle with a contrasting series of black spots.....flavofasciata

Nectopsyche bruchi (Navas)

Figure 67

Leptocella bruchi Navas, 1920d, p.66. Flint, 1972, p.243. Nectopsyche bruchi (Navas): Flint, 1974a, p.127.

Adult.- Length of forewing, ♂ 10-12mm, ♀ 7-10mm. Color white; forewing whitish to fulvous, with fuscous spots on the veins beyond the chord and again basally; some very indistinct darker areas in middle of wing, especially over the stigma.

Material.- Pcia. Buenos Aires, San Miguel, 17 Jan 1933, 1♂, 1♀; Río Santiago, Palo Blanco, Berisso, 23 Nov 1979, 1♀; Cañada

Arregui, Rt.11, 11km. west Magdalena, 21 Dec 1979, 1♀; Monte Veloz, no date, 1♂; Chascomus, 22 Feb 1968, 2♀; Arroyo Vitel, Chascomus, 27-28 Nov 1979, 14♂, 21♀; Río Salado, Rt.57, 15km. southwest M.J.Cobo, 29 Nov 1979, 1♂; Arroyo las Encadenadas, 17km. northwest M.J.Cobo, 29 Nov 1979, ♂♂♀♀; Laguna Monte, San Miguel del Monte, 6 Dec 1979, 4♂; Río Salado, Rt.3, south San Miguel del Monte, 2♂, 3♀; Arroyo Azul, Azul, 26 Feb 1968, 18♂, 3♀; Río Parana de las Palmas, Lima, 16 Dec 1979, 6♂; Laguna Gomez, Junin, 12 Dec 1979, 1♂. Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 6♂, 2♀.

The species is known from the Provinces of Chaco, Corrientes, and Misiones, and the countries of Brasil and Paraguay.

Nectopsyche flavofasciata (Ulmer)

Figure 68

Leptocella flavofasciata Ulmer, 1907a, p.18. Flint, 1972, p.242.
Leptocella sparsa Banks, 1920, p.353. Flint, 1966, p.9.
Brethesella decorata Navas, 1920d, p.71 (New synonymy).
Leptocella ditata Navas, 1933, p.118 (New synonymy).
Nectopsyche flavofasciata (Ulmer): Flint, 1974a, p.127.

Adult.- Length of forewing, ♂ 12-14mm, ♀ 9-11mm. Head and

thorax with white hairs; forewing basically white, with golden transverse bands narrowly outlined with brown, posteroapical angle with a row of white spots surrounded by black.

Material.- Pcia. Buenos Aires, Río Salado, Rt.3, south San Miguel del Monte, 7 Dec 1979, 1♀. Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 6♀. I know the species from Jujuy, Misiones, Salta, Santa Fe, and Tucuman as well as from Bolivia, Brasil, and Peru.

I have seen the type of Brethesella decorata Navas from the Museo de Zoologia, Barcelona, as well as a second specimen from the same series in the Museo Argentino de Ciencias Naturales, Buenos Aires. Although much rubbed they are clearly flavofasciata. Thus the monotypic genus Brethesella must be synonymized with Nectopsyche, and the name decorata with flavofasciata. The type of L. ditata Navas was located at the Instituto San Miguel, Buenos Aires. It is a small female, in fairly good condition. It is very much paler than most examples from eastern Argenitina, but agrees with a smaller, paler form which occurs in the northwest of the country. I hold this all to be one species, thus necessitating the synonymy of ditata with flavofasciata also.

Nectopsyche muhni (Navas)

Figure 69

Leptocella muhni Navas, 1916b, p.68; 1917a, p.196; 1920b, p.134; 1922b, p.264; 1924, p.367; 1926, p.111; 1927, p.28. Schmid, 1949, p.388. Flint, 1972, p.243.

Leptocella fulvocapilla Navas, 1922a, p.399. Flint, 1972, p.243.

Setodes pretiosella Banks, 1924, p.447 (New synonymy).

Leptocella bridarollia Navas, 1930a, p.75 (New synonymy).

Adult.- Length of forewing, ♂ 7-11mm, ♀ 6-7mm. Body with yellow hair; forewing with yellow or pale brown hair, with many transverse rows of brown spots adjacent to veins.

Material.- Pcia. Buenos Aires, Buenos Aires, Feb 1922, 1♀; same, but 2 Feb 1920, 1♀; same, but 16 Feb 1920, 1♀; Martinez, 17 Jan 1930, 4♂; same, but 13 Nov 1925, 4♂; same, but 6 Dec 1928, 1♂; San Miguel, 7 Jan 1938, 2♀; same, but 17 Jan 1933, 1♀; same, but 21 Jan 1938, 1♂; same, but 25 Jan 1938, 1♂, 1♀; same, but 17 Nov 1932, 1♂; San Isidro, 11 Feb 1969, ♂♂♀♀; Tigre, 8 Feb 1920, 1♀; Isla Martin Garcia, 10 Dec 1915, 4♀; Arroyo Carnaval, Villa Elisa, 23 Dec 1979, 1♀; La Plata, 14 Dec 1920, 1♂; same, but 20 Dec 1920, 1♂; Punta Lara, 5 Nov 1922, 2♂; same, but 5 Nov 1972, 2♀; Río Santiago, Palo Blanco, Berisso, 4 Nov 1973, 1♂; same, but

20 Nov 1920, 1♂; same, but 19 Dec 1979, 1♂; same, but 30 Dec 1915, 1♂. Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 7♀. I know the species from Chaco, Corrientes, Misiones, and Santa Fe. It is also widely distributed in South America: Bolivia, Brasil, Ecuador, Guyana, Paraguay, Peru, Suriname, and Venezuela.

The type of L. bridarollia Navas was located at the Instituto San Miguel, Buenos Aires. It is in poor condition, lacking metathorax and abdomen, but in size it probably is a female as originally stated. The forewings are badly rubbed, but the few hairs remaining establish the typical pattern of muhni with which it is here synonymized. The female type of L. pretiosella Banks is in the collection of the Museum of Camparative Zoology, Cambridge, Mass., and is in excellent condition. It is a perfect match of muhni and is also here synonymized.

Nectopsyche separata (Banks)

Figure 70

Leptocella separata Banks, 1920, p.353. Flint, 1972, p.242.
Leptocella graphica Navas, 1932, p.65 (New synonymy).
Nectopsyche separata (Banks): Flint, 1974a, p.127.

Adult.- Length of forewing, ♂ 11-13mm, ♀ 7-10mm. Head and thorax with white hair, except for a middorsal brown stripe on mesonotum; forewing basically white, with a series of dark brown spots on the veins apically and basally, with a complex pattern of transverse brown marks centrally (some examples have these marks much paler than in the photo).

Material.- Pcia. Buenos Aires, Río Parana de las Palmas, Lima, 16 Dec 1979, 2♂, 6♀. Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 2♂, 17♀. The species is also recorded from Misiones in Argentina and is known from Brasil and Paraguay beyond.

I have seen the type of L. graphica Navas which is located in the Deutsches Entomologische Institut, East Berlin. It is not in perfect condition, but the coloration remaining is identical to separata, with which it is here synonymized.

Nectopsyche splendida (Navas)

Figure 71

Leptocella splendida Navas, 1917b, p.403; 1923, p.200. Flint, 1972, p.244.

Nectopsyche splendida (Navas): Flint, 1974a, p.127.

Adult.- Length of forewing, ♂ & ♀ 5-6mm. Color jet black; head and thorax dorsally with metallic silvery-blue scales; forewing with bands of silvery-blue scales and a patch of gold scales over stigma, generally a second patch of gold replacing band of black just posteriad.

Material.- Pcia. Buenos Aires, San Miguel, 7 Jan 1938, 1♀. The species is known from Chaco, Cordoba, Formosa, Misiones, and Santa Fe as well as Bolivia, Brasil, Colombia, Ecuador, Paraguay, Peru, and Venezuela.

Family Odontoceridae

The family may be recognized by: ocelli lacking, maxillary palpi of 5 segments, terminal segment not modified, middle tibia with preapical spurs, mesonotum covered with small, decumbent setae, scutum and scutellum without well-defined warts, mesoscutellum large, broadly rounded anteriorly, forewing long and slender, barely broadened apicad.

The Odontoceridae is a rather small family of very diverse appearances that is found in all the regions of the world except Africa. Their larvae live, as far as is known, in flowing water only. They all construct portable cases, generally cylindrical ones, of very fine sand grains. Only a single female has been

found, but it definitely establishes the presence of the family and the genus Marilia in the area.

Marilia species

A single female was taken on the banks of the Parana. Despite efforts to name this example to species, I am only able to suggest that it probably belongs to a species of the minor group. The forewing is 8mm long, and the color gray with wings and body covered with whitish hair.

Material.- Pcia. Entre Ríos, Río Parana Ibicuy, Puerto Ibicuy, 10 Dec 1979, 1♀.

Family Calamoceratidae

Adult calamoceratids may be recognized by: ocelli absent, maxillary palpi of 5 unmodified segments, middle tibia with preapical spurs, mesoscutellum small and nearly rectangular in outline, and forewing much broader toward apex.

Although widely distributed over the world, the family is a rather small one. The genus Phylloicus might occur in the region of the Parana Delta. P. angustior Ulmer, although not taken closer than Misiones, is the species most likely to be found.

Family Helicopsychidae

The family is characterized by: ocelli absent, maxillary palpi of 5 unmodified segments in the female, of 2 or 3 segments in the male, middle tibia lacking preapical spurs, and the hindwing has a row of hooked, stout, hamuli along the basal half of the anterior margin.

Although widely distributed throughout the world, the family is best represented in tropical areas. Two genera might be found, Cochliopsyche with its long, slender antennae being the most likely. C. opalescens Flint, known from Misiones, is the most likely to occur because it is widely distributed over South America in the large rivers. Helicopsyche turbida Navas, taken commonly in the Sierras de Cordoba, is less likely to reach the area because it seems to need small, cool, mountain streams in which to breed.

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