Family Anomalopsychidae

The family Anomalopsychidae was erected by Flint (1981c) for two Chilean species previously placed in the Sericostomatidae: *Contulma cranifer* Flint and *Anomalopsyche minuta* (Schmid). Two additional *Contulma* species were described by Holzenthal and Flint from Colombia and 18 new species were recently described from Costa Rica, Colombia, Ecuador, Peru, and Brazil (Holzenthal and Flint 1995).

Flint (1981c) described the immature stages of *Anomalopsyche* and those of several species of *Contulma* were described by Holzenthal and Flint (1995). Larvae of both genera build cases of sand grains and inhabit small streams in forested areas.

Genus **Anomalopsyche** Flint [1]

Anomalopsyche Flint, 1967a:66 [Type species: *Anomalopsyche ocellata* Flint 1967a = *Myotrichia minuta* Schmid 1957, original designation; in Sericostomatidae]. —Flint, 1981c:75 [to Anomalopsychidae].

A single species is known from Chile. Larvae and pupae were described by Flint (1981c). They build slightly curved, tapered, cylindrical cases of sand grains. The immature stages are found in spring runs, in waterfalls and hydropetric situations, often in aquatic moss.

minuta (Schmid), 1957:392 [Type locality: Chile, Ñuble, Tregualemu, NMNH; ♂; in *Myotrichia*]. —Flint, 1967a:66 [to *Anomalopsyche*]. —Flint, 1981c:75 [♂, ♀, larva, pupa; redescription].

—*ocellata* Flint, 1967a:66 [Type locality: Chile, Valdivia, Punucapa, near Valdivia; NMNH; ♂]. —Flint, 1974e: 84, 91 [to synonymy].

DISTRIBUTION. —Chile.

Genus **Contulma** Flint [21]

Contulma Flint, 1969b:513 [Type species: *Contulma cranifer* Flint 1969b, original designation; in Sericostomatidae]. —Flint, 1981c:82 [to Anomalopsychidae]. —Holzenthal and Flint, 1995:1 [♂, ♀, larva, pupa, phylogeny].

This is by far the most diverse genus in the family, with 21 known, described species. Species range in distribution from Costa Rica, through the Andes of Colombia, Ecuador, and Peru to Chile and the mountains of southeastern Brazil. Certainly, many more undescribed species await discovery.

Contulma species are generally found associated with the spray and splash zones of waterfalls, small first order streams, and seeps in lush, montane forests. Some species have been taken from small streams flowing through the páramo. Larvae probably feed on periphyton. Adults are not readily attracted to lights.

adamsae Holzenthal and Flint, 1995:11 [Type locality: Peru, Cuzco, Paucartampo, nr. park entrance station, nr. km 106, seeps; NMNH; ♂; ♀].

DISTRIBUTION. —Peru.

bacula Holzenthal and Flint, 1995:11 [Type locality: Ecuador, Napo, 1 mi E of Papallacta; NMNH; ♂].

DISTRIBUTION. —Ecuador.

caldensis Holzenthal and Flint, 1995:12 [Type locality: Colombia, Caldas, 1.1 km E Termales de Ruíz; NMNH; ♂].

DISTRIBUTION. —Colombia.

cataracta Holzenthal and Flint, 1995:12 [Type locality: Ecuador, Napo, Río Maspa Chico, 2 km W Cuyuja; NMNH; ♂].

DISTRIBUTION. —Ecuador.

colombiensis Holzenthal and Flint, in Flint, 1991:106 [Type locality: Colombia, Dpto. Antioquia, 12 km N Fredonia, road to Medellín; NMNH; ♂]. —Holzenthal and Flint, 1995:14 [♂, ♀, redescription, distribution].

DISTRIBUTION. —Colombia.

costaricensis Holzenthal and Flint, 1995:14 [Type locality: Costa Rica, Cartago, Reserva Tapantí, unnamed tribs. (Quebrada Palmitos and falls), ca. 9 km (road) NW tunnel, 9.72°N, 83.78°W; NMNH; ♂].

DISTRIBUTION. —Costa Rica.

cranifer Flint, 1969b:513 [Type locality: Chile, Malleco, Río Manzanares, near Puren; NMNH; ♂]. —Flint, 1981c:82 [to Anomalopsychidae]. —Holzenthal and Flint, 1995:14 [♂, ♀, redescription].

DISTRIBUTION. —Chile.

echinata Holzenthal and Flint, 1995:15 [Type locality: Colombia, Caldas, 5 km W Termales de Ruíz; NMNH; ♂; ♀].

DISTRIBUTION. —Colombia.

ecuadorensis Holzenthal and Flint, 1995:16 [Type locality: Ecuador, Imbabura, Otavalo/Apuila; NMNH; ♂; ♀].

DISTRIBUTION. —Ecuador.

inornata Holzenthal and Flint, 1995:16 [Type locality: Colombia, Caldas, 5 km W Termales de Ruíz; NMNH; ♂].

DISTRIBUTION. —Colombia.

lanceolata Holzenthal and Flint, 1995:17 [Type locality: Ecuador, Napo, Baeza (72 km E), in seep at waterfall; NMNH; ♂].

DISTRIBUTION. —Ecuador.

nevada Holzenthal and Flint, 1995:17 [Type locality: Colombia, Caldas, 0.7 km S entrance P.N. Los Nevados; NMNH; ♂; ♀, larva].

DISTRIBUTION. —Colombia.

papallacta Holzenthal and Flint, 1995:17 [Type locality: Ecuador, Napo, 1 mi E of Papallacta; NMNH; ♂].

DISTRIBUTION. —Ecuador.

penai Holzenthal and Flint, 1995:18 [Type locality: Ecuador, Zamora-Chinchipe, 30 km E Loja; NMNH; ♂; ♀, larva].

DISTRIBUTION. —Colombia, Ecuador.

sancta Holzenthal and Flint, 1995:19 [Type locality: Costa Rica, Alajuela, Quebrada Virgencita, 10.2 km S Bajos del Toro, 10.168°N, 84.326°W; NMNH; ♂].

DISTRIBUTION. —Costa Rica.

spinosa Holzenthal and Flint, in Flint, 1991:106 [Type locality: Colombia, Dpto. Antioquia, Quebrada La Iguaná, 17 km NW Medellín, on road to San Jerónimo; NMNH; ♂]. —Holzenthal and Flint, 1995:19 [♂, ♀, larva, distribution].

DISTRIBUTION. —Colombia, Ecuador.

talamanca Holzenthal and Flint, 1995:21 [Type locality: Costa Rica, Puntarenas, Río Jaba at rock quarry, 1.4 km (air) W Las Cruces, 8.79°N, 82.97°W; NMNH; ♂; ♀].

DISTRIBUTION. —Costa Rica.

tapanti Holzenthal and Flint, 1995:21 [Type locality: Costa Rica, Cartago, Reserva Tapantí, unnamed trib. (Quebrada Palmitos and falls), ca. 9 km (road) NW tunnel, 9.72°N, 83.78°W; NMNH; ♂; ♀].

DISTRIBUTION. —Costa Rica.

tica Holzenthal and Flint, 1995:22 [Type locality: Costa Rica, Puntarenas, Río Bellavista, ca. 1.5 km NW Las Alturas, 8.951°N, 82.846°W; NMNH; ♂].

DISTRIBUTION. —Costa Rica.

tijuca Holzenthal and Flint, 1995:22 [Type locality: Brazil, Rio de Janeiro, Parque Nacional Tijuca, Represa dos Ciganos; MZUSP (on indefinite loan to NMNH); ♂; ♀, probable larva].

DISTRIBUTION. —Brazil.

valverdei Holzenthal and Flint, 1995:22 [Type locality: Costa Rica, Cartago, Reserva Tapantí, waterfall, ca. 1 km (road) NW tunnel, 9.69°N, 83.76°W; NMNH; ♂; ♀, larva].

DISTRIBUTION. —Costa Rica.

Family Atriplectididae

In 1978 Neboiss erected a new family, Atriplectididae, for the Australian species *Atriplectides dubius* Mosely and at the same time transferred *Hughscottiella auricapilla* Ulmer, from the Seychelles, to the family. The larvae of both genera were described in the same year (Marlier 1978, Neboiss 1978). Roback (1966) described an unusual caddisfly larva from the Río Bella, near Tingo Maria, Peru, that he was unable at the time to place in a known family, but it, too, belongs to the Atriplectididae. The larvae of all three are unusual within the Trichoptera in that the head, pro- and mesonota are narrow, elongate, and retractile. All known Neotropical material of this family was revised by Holzenthal in 1997. The unusual larval morphology is apparently an adaptation that allows the larva to feed internally in small dead arthropods found in the stream (Malicky 1997).

Genus **Neoatriplectides** Holzenthal [1]

Neoatriplectides Holzenthal, 1997:157 [Type species: *Neoatriplectides froehlichi* Holzenthal 1997].

Only a single species has been described in the genus; it is known from Ecuador, Peru, and Bolivia. The larva was described by Roback (1966), and the larva of a second species from eastern Brazil was described by Holzenthal (1997). They were found in shallow, lateral pools of a small stream.

froehlichi Holzenthal, 1997:159 [Type locality: Peru, Cuzco, Paucartambo, Puente San Pedro, ca. 50 km NW Pilcopata, MHNJP (temporarily at NMNH); ♂; ♀].
—Unknown family 1, Roback, 1966:256 [larva only]. —Holzenthal, 1997: 157 [to synonymy].
DISTRIBUTION. —Bolivia, Ecuador, Peru.

Family Calamoceratidae

This is a small, but cosmopolitan family of seven genera and about 100 species, most of which are tropical. Only two genera, *Banyallarga* and *Phylloicus*, are to be found in the Neotropics, with 11 and 28 species respectively.

Adults are more diurnal in their activity than most Trichoptera. The immature stages and cases of several species of *Phylloicus* have been described a number of times: Flint 1964a, Roldán Pérez 1988, Wiggins 1996, Bowles and Flint 1997. The same stages are also known for *Banyallarga argentinica* (Flint and Angrisano 1985). Larvae of the Neotropical species are found in standing, backwater areas of streams and rivers where they feed on leaf detritus; they are often very abundant.

Genus **Banyallarga** Navás [11]

Banyallarga Navás, 1916b:78 [Type species: *Banyallarga testacea* Navás 1916b, original designation]. —Fischer, 1963:175 [in Hydropsychidae: Macronematinae]. —Botosaneanu and Flint, 1982:24 [larva, as *Phylloicus*]. —Flint, 1983a:77 [to Calamoceratidae]. —Flint and Angrisano, 1985:688 [larva, pupa, distinguished from *Phylloicus*].
Loxinum Navás, 1934b:175 [Type species: *Loxinum aequatorium* Navás 1934b, original designation]. —Flint, 1983a:77 [to synonymy].

This genus of 11 known species is endemic to the Neotropics, being found from Costa Rica south to Argentina. Adults exhibit a preference for flying and swarming during the day, and only rarely are attracted to collecting lights.

Larvae build tubular cases primarily of mineral fragments with some plant matter incorporated. The larvae are found in slowly flowing areas of small streams on sandy-stony bottoms or among vegetation (Flint and Angrisano 1985). They appear to be omnivorous.

acutiterga (Denning and Hogue), in Denning *et al*., 1983:188 [Type locality: Costa Rica, San José Province, Motel Prado, San Isidro del General; LACM; ♂; in *Murielia*]. —Flint, Holzenthal, and Harris, 1999:73 [to *Banyallarga*].

DISTRIBUTION. —Costa Rica.

aequatoria (Navás), 1934a:176 [Type locality: Ecuador, Loja; MNHNP; ♀; in *Loxinum*]. —Flint, 1983a:77 [type is missing].

DISTRIBUTION. —Ecuador.

argentinica Flint, 1983a:77 [Type locality: Argentina, Pcia. Salta, Cañada la Gotera, Rt. 59, km 23.5; NMNH; ♂]. —Flint and Angrisano, 1985:691 [larva, pupa, biology].

DISTRIBUTION. —Argentina.

columbiana (Navás), 1934a:174 [Type locality: Colombia, Santander, Pamplona; MNHNP; ♀; in *Anisocentropus*]. —Flint, 1983a:77 [to *Banyallarga*].

DISTRIBUTION. —Colombia.

fortuna (Resh), in Denning *et al*., 1983:190 [Type locality: Panama, Rio Chiriqui at Fortuna; UCB; ♂; in *Murielia*]. —Flint, Holzenthal, and Harris, 1999:73 [to *Banyallarga*].

—undescribed genus, undescribed species "A" McElravy *et al*., 1981:153. —Denning *et al*., 1983:190 [to synonymy].

DISTRIBUTION. —Panama.

loxana (Navás), 1934a:173 [Type locality: Ecuador, Loja; MNHNP; ♂; in *Phylloicus*]. —Flint, 1983a:77 [to *Banyallarga*]; 1996b:424 [distribution].

DISTRIBUTION. —Argentina, Bolivia, Ecuador, Peru.

mollicula (McLachlan), 1871:127 [Type locality: Venezuela; BMNH; ♂; in *Ganonema*]. —Flint, 1983a:77 [to *Banyallarga*].

DISTRIBUTION. —Venezuela.

testacea Navás, 1916b:78 [Type locality: Colombia, Muzo; collection Appolinaris, now lost?; ♂].

DISTRIBUTION. —Colombia.

vicaria (Walker), 1852:114 [Type locality: Venezuela; BMNH; ♀; in *Hydropsyche*]. —McLachlan, 1871:127 [♂]. —Betten and Mosely, 1940:218 [redescription of type]. —Flint, 1983a:77 [to *Banyallarga*].

DISTRIBUTION. —Venezuela.

villosa (Navás), 1934a:174 [Type locality: Ecuador, Loja; MNHNP; ♂; in *Anisocentropus*]. —Flint, 1983a:77 [to *Banyallarga*].

DISTRIBUTION. —Ecuador.

yungensis Flint, 1983a:79 [Type locality: Argentina, Pcia. Tucumán, Horco Molle, near Tucumán; NMNH; ♂]. —Martynov 1912:7, ♂, misidentified as *Ganonema vicarium*].

DISTRIBUTION. —Argentina, Peru.

Genus **Phylloicus** Müller [28]

Phylloicus Müller, 1880a:113, 131 [Type species: *Phylloicus major* Müller 1880a, subsequent selection of Flint 1964a, not Fischer 1965]. —Flint and Angrisano, 1985:688 [larva, pupa; distinguished from *Banyallarga*].

Homoeoplectron Ulmer, 1905a:33 [Type species: *Homoeoplectron assimile* Ulmer 1905a = *Phylloicus major* Müller 1880a, subsequent selection of Fischer 1965]. —Ulmer, 1905b:77 [to synonymy].

Notiomyia Banks, 1905:18 [Type species: *Heteroplectron mexicanum* Banks 1900, original designation]. —Flint, 1967c:17 [to synonymy].

Murielia Hogue and Denning, in Denning *et al*., 1983:187 [Type species: *Phylloicus farri* Flint 1968a, original designation]. — Flint, Holzenthal, and Harris, 1999:73 [to synonymy].

The genus is basically limited to Latin America, with two species intruding into the southwestern United States. As in *Banyallarga*, the strikingly colored adults are day active, although they do appear at collecting lights, especially teneral individuals.

Larvae have been described a number of times (Ulmer 1955, Wiggins 1996, Botosaneanu and Sykora 1973, Botosaneanu and Flint 1982, Bowles and Flint 1997). The flat case made of oval pieces of leaves is distinctive. Larvae live in still, backwater pools of rivers and streams; they can occur in very large numbers.

One species is known to occur in water trapped in the leaf axils of Bromeliaceae (Müller 1880a). Larvae are detritivorous, undoubtedly feeding on the same leaf litter they use to construct their cases.

abdominalis (Ulmer), 1905a:34 [Type locality: Brazil; ZIUH; ♂; in *Homoeoplectron*]. —Ulmer, 1913:398 [distribution].

DISTRIBUTION. —Argentina, Brazil.

aculeatus (Blanchard), 1851:138 [Type locality: Chile; MNHNP; ♀; in *Macronema*]. —Flint, 1974e:84 [♀ lectotype; to *Phylloicus*]; 1990:119 [distribution].

—*distans* Navás, 1918c:226 [Type locality: Chile, Marga-Marga, Los Perales; MZBS; ♂]. —Flint, 1974e:84 [to synonymy].

DISTRIBUTION. —Chile.

aeneus (Hagen), 1861:285 [Type locality: Mexico, [Veracruz]; MCZ; ♀; in *Macronema*]; 1864b:804 [to *Anisocentropus*]. —Ulmer, 1905b:79 [to *Phylloicus*, redescription]. —Ross, 1952:34 [lectotype]. —Flint, 1967c:17 [♂]. —Denning, *et al*., 1983:182 [redescription]. —Wiggins, 1996:224 [larva]. —Bowles and Flint, 1997:58 [variation].

—*nigripennis* (Banks), 1900:256 [Type locality: Mexico, Puebla, Santa Maria; MCZ; ♀; in *Heteroplectron*]. —Flint, 1967c:17 [to synonymy].

—*mexicanus* (Banks), 1900:257 [Type locality: Mexico, Morelos, Cuernavaca; MCZ; ♀; in *Heteroplectron*]. —Flint, 1967c:17 [to synonymy].

—*latus* (Navás), 1924c:83 [Type locality: Costa Rica; MNHNP; ♂; as *Macronema latum*]. —Holzenthal, 1988c:53, 71 [to synonymy].

—*sagittosa* (Ross), 1951a:72 [Type locality: Mexico, Lower California, Todos Santos; CAS; ♂; in *Notiomyia*]. —Flint, 1967c:17 [to synonymy].

DISTRIBUTION. —Costa Rica, Honduras, Mexico, Panama, U.S.A.

angustior Ulmer, 1905b:78 [Type locality: Brazil, Rio Gr. do Sul; NMW; ♂]. —Flint, 1966a:11 [lectotype ♂]. —Botosaneanu and Flint, 1982:24 [larva]. —Botosaneanu and Alkins-Koo, 1993:38 [distribution].

—*hansoni* Denning, in Denning *et al*., 1983:184 [Type locality: Trinidad, Simla Research Station; CAS; ♂]. —Botosaneanu and Alkins-Koo, 1993:38 [to synonymy].

DISTRIBUTION. —Argentina, Brazil, Colombia, Trinidad, Venezuela.

brevior Banks, 1915:632 [Type locality: Guyana, Bartica; MCZ; ♂]. —Flint, 1967c:18 [♂]; 1974c:139 [♂, distribution].

DISTRIBUTION. —Guyana, Surinam.

bromeliarum Müller, 1880a:131 [Type locality: Brazil, Santa Catharina [sic]; no type nor type depository designated; case]. —Ulmer, 1906:56 [♀]; 1913:398 [♂, distribution]; 1955:418 [larva].

DISTRIBUTION. —Argentina, Brazil.

centralus (Navás), 1924c:82 [Type locality: Costa Rica; MNHNP; ♂; in *Macronema*]. —Holzenthal, 1988c:72 [to *Phylloicus*].

DISTRIBUTION. —Costa Rica.

chalybeus (Hagen), 1861:285 [Type locality: Cuba; MCZ; ♂; in *Macronema*]. —Ross, 1952:34 [lectotype ♂]. —Flint, 1967c:18 [♂]. —Botosaneanu, 1980:115 [♂, restriction of type locality]; 1994b:468 [larva].

DISTRIBUTION. —Cuba.

crenatus Navás, 1916b:79 [Type locality: Colombia, Muzo; collection Apollinaris, now lost?; ♂; in *Banyallarga*]. — Flint, 1983a:77 [to *Phylloicus*].

DISTRIBUTION. —Colombia.

cubanus Banks, 1924:445 [Type locality: Cuba; MCZ; ♂]. —Flint, 1967c:18 [♂]. —Botosaneanu and Sykora, 1973:399 [♂, larva, pupa]. —Botosaneanu 1994b:468 [larva].

DISTRIBUTION. —Cuba.

elegans Hogue and Denning, in Denning *et al*., 1983:184 [Type locality: Panama, Canal Zone, Barro Colorado Island; WSU; ♂]. —Flint, 1991:98 [♂, distribution].

DISTRIBUTION. —Colombia, Costa Rica, Nicaragua, Panama.

farri Flint, 1968a:56 [Type locality: Jamaica, St. Andrew, Hope River near Newcastle at mile post 16.5; NMNH; ♂; ♀, larva, pupa, case]. —Denning, *et al*., 1983:188 [type species of *Murielia*]. —Flint, Holzenthal, and Harris 1999:73 [returned to *Phylloicus*].

DISTRIBUTION. —Jamaica.

fenestratus Flint, 1974c:139 [Type locality: Surinam, Nickerie River, Stondansi; RNH; ♂]; 1996b:425 [distribution].
DISTRIBUTION. —Brazil, Peru, Surinam.

iridescens Banks, 1941:397 [Type locality: Dominican Republic, Constanza to V. Nuevo; MCZ; ♂]. —Flint, 1967c:18 [lectotype ♂].
DISTRIBUTION. —Dominican Republic.

lituratus Banks, 1920:350 [Type locality: Colombia, Mariquito; MCZ; ♂]. —Flint, 1967c:19 [♂]. —Denning, *et al*., 1983:182 [redescription].
DISTRIBUTION. —Colombia, Costa Rica, Panama.

maculatus (Banks), 1901:369 [Type locality: Mexico, Veracruz, Presidio; MCZ; ♀; in *Heteroplectron*]. —Flint, 1967c:19 [♀, to *Phylloicus*]. —Holzenthal, 1988c:72 [distribution].
DISTRIBUTION. —Costa Rica, Mexico.

magnus Banks, 1913a:236 [Type locality: Colombia, Monte Socorro; MCZ; ♂]. —Flint, 1967c:19 [♂].
DISTRIBUTION. —Colombia.

major Müller 1880a:113, 131 [Type locality: Brazil, Santa Catarina; no type nor type depository designated; case]. —Ulmer, 1905b:77, 78 [as synomyn of *assimilis*]. —Flint, 1964a:65 [type species of genus]; 1966a:11 [♂, lectotype].
—***assimilis*** (Ulmer), 1905a:36 [Type locality: Brazil, Santa Catarina; PAN; ♂; in *Homoeoplectron*]. —Flint, 1966a:11 [♂, lectotype, to synonymy].
DISTRIBUTION. —Brazil.

medius Müller 1880a:132 [Type locality: Brazil, Santa Catarina; no type nor type depository designated; sex not stated]. —Ulmer, 1955:418 [literature, discussion].
DISTRIBUTION. —Brazil.

monticolus Flint, 1968b:74 [Type locality: Dominica, 1.6 miles west of Pont Casse; NMNH; ♂; ♀ larva, pupa, case]. —Botosaneanu 1994a:51 [distribution].
DISTRIBUTION. —Dominica, Guadeloupe.

obliquus Navás, 1931b:458 [Type locality: Brazil, Minas Gerais; DEI; ♀].
DISTRIBUTION. —Brazil.

ornatus (Banks), 1909:342 [Type locality: United States, Texas, Brownwood; MCZ; ♀; in *Notiomyia*]. —Flint, 1967c:17 [to *Phylloicus*]. —Holzenthal, 1988c:72 [distribution]. —Bowles and Flint, 1997:53 [redescription, ♂, ♀, larva, pupa]
DISTRIBUTION. —Costa Rica, Mexico, U.S.A.

plaumanni Flint, 1983a:76 [Type locality: Brazil, Edo. Santa Catarina, Seara (27°09'S, 52°15'W); NMNH; ♂].
DISTRIBUTION. —Argentina, Brazil.

priapulus Denning and Hogue, in Denning, *et al*., 1983:187 [Type locality: Costa Rica, Puntarenas Province, 1.8 miles west of Rincón, Osa Peninsula; LACM; ♂].
DISTRIBUTION. —Costa Rica.

pulchrus Flint, 1964a:65 [Type locality: Puerto Rico, Maricao Forest; NMNH; ♂].
DISTRIBUTION. —Puerto Rico.

spectabilis Martynov, 1912:9 [Type locality: Peru, Callanga; ASL; ♂].
DISTRIBUTION. —Peru.

superbus Banks, 1938:298 [Type locality: Cuba, Oriente, Pico Turquino; MCZ; ♂]. —Flint, 1967c:19 [lectotype ♂].
DISTRIBUTION. —Cuba.

tricalcaratus (Ulmer), 1905a:37 [Type locality: Brazil; ZIUH; ♂; in *Homoeoplectron*]; 1905b:78 [to *Phylloicus,* key].
DISTRIBUTION. —Brazil.

Family Ecnomidae

This family seems to be most diverse in the Southern Hemisphere, but some species enter Europe and Asia, with just one entering the southern United States. It is not very diverse generically, but many of the genera are very species rich. For a long time the genera were placed in the Polycentropodidae, but recently they have been recognized as belonging to an independent family. In the New World all but one species is placed in the genus *Austrotinodes*.

The larvae of a number of the Old World species of *Ecnomus* have been described (Lepneva 1970, Scott 1968, Ulmer 1957), as well as those of the New World *Austrotinodes* (Flint 1973a, Wiggins 1996). They construct some type of trap net and retreat, reportedly only a loose silken tube (Ulmer 1957). The pupa is found in a more firmly made, oval, silken cocoon with sieve plates at each end. They live in water bodies ranging from lakes and slowly flowing large rivers to small streams. They may be found on rocks or wood on the substrate or in submerged vegetation (Lepneva 1970). Larval food is unknown.

Genus **Austrotinodes** Schmid [36]

Austrotinodes Schmid, 1955a:132 [Type species: *Austrotinodes latior* Schmid 1955a, original designation]. —Flint, 1973a:127 [review of genus]. —Flint and Denning, 1989b:108 [review].

The genus was created for a series of species from Chile and Patagonian Argentina, but more recently it has been found throughout the entire Neotropics including the West Indies and Texas (Bowles 1995). The Chilean group of species is distinctly different from the more tropical group.

The larva of an unknown Chilean species was described at the same time as was the pupa of *A. recta* (Flint 1973a). The larva of *A. cubanus* is described (Botosaneanu 1994b) and the larva and pupa of *A. texensis* are also known (Bowles 1995). The adults are generally collected, most commonly by net or rarely at UV lights, near flowing waters, from small streams to rather large rivers. The larvae live in elongate, rather flimsy shelters of sand and silk on the undersides of rocks. Larval foods are unknown.

adamsae Flint, 1996a:76 [Type locality: Tobago, Hermitage River, 5 km S Charlotteville, 11°19'N, 60°34'W; NMNH; ♂; ♀].
DISTRIBUTION. —Tobago.

amazonensis Flint and Denning, 1989b:119 [Type locality: Brazil, Amazonas State, Hwy. Am. 010, km 246, 20 km W Itacoatiara; MZUSP; ♂].
DISTRIBUTION. —Brazil.

ancylus Flint and Denning, 1989b:114 [Type locality: Ecuador, Pastaza Province, Tzapino (32 km NE Tigueno at 1°11'S, 77°14'W); NMNH; ♂].
DISTRIBUTION. —Ecuador.

angustior Schmid, 1955a:133 [Type locality: Chile (ile de Chiloé) Aucar; NMNH; ♂]. —Flint and Denning, 1989b:109 [distribution].
DISTRIBUTION. —Argentina, Chile.

ariasi Flint and Denning, 1989b:118 [Type locality: Brazil, Amazonas State, Reserva Ducke, Hwy. Am. 010, km 26; MZUSP; ♂].
DISTRIBUTION. —Brazil.

armiger Flint, 1983a:23 [Type locality: Chile, Pcia. Malleco, Cabrería, Cordillera Nahuelbuta; NMNH; ♂]. —Schmid, 1958b:202 [example of *angustior* this species]. —Flint and Denning, 1989b:109 [distribution].
DISTRIBUTION. —Argentina, Chile.

bracteatus Flint and Denning, 1989b:119 [Type locality: Brazil, Sao Paulo State, Paranapiacaba Biological Station; MZUSP; ♂].
DISTRIBUTION. —Brazil.

brevis Schmid, 1958b:201 [Type locality: Chile, Contulmo (Palo Botado); NMNH; ♂]. —Flint, 1973a:135 [distribution].
DISTRIBUTION. —Chile.