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World Catalog of the Family Canacidae (including Tethinidae) (Diptera), with keys to the supraspecific taxa

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Dedicated to the memory of our friends and colleagues Willis W. Wirth (1914–1994) and Silvano Canzoneri (1941–1995)

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Abstract

All genera and species of the family Canacidae as well as all synonyms and the world distribution for each species are listed to form an updated world catalog. Since McAlpine's (2007) placement of the families Canacidae *sensu stricto* and Tethinidae into a single, inclusive family (Canacidae *sensu lato*, i.e. the older family-group name), a comprehensive world catalog has been needed to include the new taxonomic arrangement and the corpus of new entries published over the last fifteen years, that is since the preceding catalogs (Mathis, 1992; Mathis and Munari, 1996). Identification keys to all supraspecific taxa are also given for each taxonomic section.

Key words: Diptera, Canacidae, Tethinidae, world catalog

A brief premise

Many years have passed since the publication of the two world catalogs of the families Canacidae (Mathis, 1992) and Tethinidae (Mathis and Munari, 1996). In particular, the second catalog is now dramatically out of date, since some new genera and many new species and records have been added, and a few taxonomic changes have been proposed. Additionally, the two families very recently have been merged into a single, inclusive family (McAlpine, 2007, see further). Hence, we have felt the necessity to present a new, updated edition of a world catalog dealing with all genera and species of the previous families Canacidae *sensu stricto* and Tethinidae, joined herein to form a single corpus of data. In this connection, it is opportune to underline that in 1992 catalog (Canacidae) the citations and the references for each species concerned only the most significant entries at the taxonomic/nomenclatural level. Otherwise, in the 1996 catalog (Tethinidae) all citations and references found in the literature known to us were reported under each species. So, the amount of entries between the two previously published world catalogs will appear quantitatively unbalanced to readership. That is because these works were, at first, differently conceived as to the choice of the type of data entries to be published.

Introduction

True flies of the family Canacidae occur in cool-temperate and tropical zones of the world, primarily on or near seashores with oceanic climates. A few species are found inland, usually in saline or alkaline environments, but occasionally in meadow-like habitats or in freshwater streams of Hawaii. The subfamily Apetaeninae is endemic in the subantarctic archipelagos. Worldwide there are 307 species in the family (6 subfamilies, 27 genera).

In this catalog the bibliographic section for each name includes references (author, date, and page of the original description and most subsequent citations), as well as distributional and other biotic information, as available in the literature. We have intentionally avoided adding many fragmentary and unchecked citations from the extensive, sometimes redundant, literature on the ecology of halo- and thalassophilous (sea loving) insects, but we primarily recorded from taxonomic and nomenclatural papers or from all basic studies on the ecology of the diptera inhabiting seashores.

The sequence of subfamilies and genera should not be interpreted strictly to represent a phylogenetic scheme, as no comprehensive study is available for the family.

Format.—The format we have adopted follows that advocated by systematists from the Systematic Entomology Laboratory (United States Department of Agriculture) (R. W. Hodges, personal communication). Details are illustrated in the following hypothetical examples of generic and species entries (genera *Xus* and *Yus* and species *albus* and *zeus*). All valid generic and species names are indicated in boldfaced type.

Genus *Xus* Author(s) (number of species in the genus)

Xus Author(s), year: page. Type species: *Xus albus* Author(s), year, method of type fixation.—Author(s), year: page [annotation(s)].

Yus Author(s), year: page. Type species: *Yus zeus* Author(s), year, method of type fixation.—Author(s), year: page [annotation(s) such as "synonymy"].

albus Author(s). Geographic distribution by major faunal realm(s): Country (in some cases also including province or state).

Yus albus Author(s), year: page [type locality (Country. Province or state: specific locality (annotation(s) such as elevation or habitat. Specific information on the type locality is desirable, and to be explicit and complete, we have provided this information without abbreviations. In many cases, such as when a specific site is not published or when the type locality is vague, we have quoted this information as it appears in the original publication.); primary type(s) and gender(s), deposition information].—Author, year: page [annotation(s)].

Xus zeus Author(s), year: page [type locality (Country. Province or state: specific locality (annotation(s) such as elevation or habitat); primary type(s) and gender(s), deposition information].—Author, year: page [annotation(s) such as "synonymy"].

Yus zeus.—Author(s), year: page [annotation(s) such as "generic combination"].

Within a taxon, the subordinate taxa are listed alphabetically, i.e., genera within a subfamily or a tribe, species within a genus and so on.

Faunal Treatments (papers listed chronologically under major faunal realms)

As there are several papers that treat Canacidae *sensu lato* on a regional basis, it may be of interest and use to the reader to provide herein a summary of these as well as of the most important revisionary works (see further).

Since the two families, Canacidae *sensu stricto* and Tethinidae, were regarded as two separate families until 2007, when D.K. McAlpine merged them to form a single, inclusive family, the above-mentioned works obviously treated each of the two families separately. In order to facilitate the readers, we mark in brackets, after the author's name, each work listed below with the capital letters C (= Canacidae *sensu stricto*) or T (= Tethinidae) depending on whether a given paper considers the one or the other family, or both.

Afrotropical: Wirth [C] (1956b, 1960, South African fauna); Canzoneri and Meneghini [C] (1969, Afrotropical fauna); Vanschuytbroeck [T] (1976, fauna of St. Helena); Mathis and Wirth [C] (1979, fauna of Madagascar); Cogan [C, T] (1980a, b, catalog); Munari [T] (1988, fauna of the Seychelles; 1990, fauna of Aldabra; 1994, checklist of Afrotropical fauna); Mathis [C] (1988b, fauna of the Seychelles); Mathis and Freidberg [C] (1991, review of the Afrotropical Canacini and Nocticanacinae); Kirk-Spriggs *et al.* [C, T] (2001, fauna of Namibia and South Africa, key to species).

Australasian/Oceanian: Hutton [T] (1901, fauna of New Zealand); Harrison [C, T] (1959, 1976, fauna of New Zealand); Hardy and Delfinado [C, T] (1980a, b, Hawaiian fauna); Mathis [C] (1989a, catalog; 1996, fauna of Australia); Mathis and Sasakawa [T] (1989, catalog); Colless and D.K. McAlpine [C, T] (1970, 1991, concise introduction to Australian fauna); Sasakawa [T] (1995, Micronesian fauna); Munari [T] (2002b, Indopacific *Dasyrhicnoessa* and *Pseudorhicnoessa*; 2004a, fauna of Australia and Papua New Guinea); D.K. McAlpine [C, T] (2007, Zaleinae of Australasia).

Nearctic: Melander [T] (1952, review); Wheeler [C] (1952, fauna of United States); Vockeroth [T] (1965, catalog; 1987, family treatment, key to genera); Wirth [C] (1965, catalog of Nearctic fauna; 1987, family treatment, key to genera); Cole [C, T] (1969, fauna of Western North America); Woodley and Hilburn [T] (1994, Bermudan fauna); Foster and Mathis [T] (1998, fauna of the Gulf of Mexico; 2003, revision of *Pelomyia* and *Masoniella*); Mathis and Foster [C, T] (2007, fauna of the Delmarva States); Foster and Mathis [T] (2008a, fauna of western North America).

Neotropical: Cresson [C] (1931, fauna of Patagonia and South Chile); Malloch [T] (1934, fauna of Patagonia and South Chile); Stuardo Ortiz [C, T] (1946, catalog of Chilean fauna); Wirth [C] (1975,

Neotropical catalog); Foster [T] (1976b, Neotropical catalog); Mathis [C] (1989b, fauna of the Caribbean and Gulf of Mexico); Foster and Mathis [T] (1998, fauna of Bermuda and the Caribbean; 2000, key to Neotropical species of *Tethina*; 2003, revision of *Pelomyia* and *Masoniella*; 2008b, key, fauna of Galápagos Islands).

Oriental: Hennig [C, T] (1941, checklist of Formosan fauna); Delfinado [C] (1975 fauna of Sri Lanka); Delfinado and Wirth [C] (1977, Oriental catalog); Steyskal and Sasakawa [T] (1977, Oriental catalog).

Palaearctic: Becker [C, T] (1908a, b, faunas of the Canary and Madeira Islands, respectively); Czerny [T] (1928, Palaearctic fauna); Séguy [C, T] (1934, fauna of France); Frey [C, T] (1936, 1945, 1949, 1958a, 1958b, faunas of Azores, Madeira, Canary Islands, and Cape Verde Islands); Collin [T] (1960, fauna of Great Britain); Trojan [T] (1962, checklist of Polish fauna); Miyagi [C] (1965a, b, Japanese species of the genera *Procanace* and *Nocticanace*, respectively); Stackelberg [C, T] (1970a, b, western Palaearctic fauna); Cogan [C, T] (1976a, b, checklist of the British fauna); Rald [C, T] (1976a, b, fauna of Denmark); Soós [T] (1978, Mongolian fauna, checklist of Palaearctic fauna; 1981, Hungarian fauna; 1984, Palaearctic catalog); Hackman [T] (1980, Finnish fauna); Sasakawa [T] (1981, 1986, Japanese fauna); Mathis [C] (1982a, fauna of Israel); Szadziewski [T] (1983, ecology of Polish species); Canzoneri and Meneghini [C] (1983, fauna of Italy; 1995, checklist of Italian fauna); Cogan [C] (1984, Palaearctic catalog); Roháček [T] (1986, Slovakian fauna); Morimoto [C, T] (1989, checklist of Japanese fauna); Nowakowski [T] (1991, checklist of Poland); Gosseries [T] (1991, catalog of Belgian fauna); Beschovski [T] (1994a, Tunisian fauna; 1994b, Bulgarian fauna; 1997, eastern Mediterranean fauna; 1998, western Palaearctic fauna; 2009, Bulgarian fauna), [C] (2009, Bulgarian fauna); Canzoneri *et al.* [C, T] (1995, Italian fauna); Chandler [T] (1998, checklist of British fauna); Munari [C, T] (1998, key to Palaearctic genera; 1999b, fauna of Crete; 2002a, Palaearctic checklist; 2004b, fauna of Morocco and Cape Verde Islands; 2005b, fauna of Sahara; 2007a, 2008c, 2010b fauna of the Arabian Peninsula; 2008b, 2010b fauna of the United Arab Emirates); Bährmann [T] (1999, checklist of Germany); Munari and Báez [T] (2000, Macaronesian fauna); Munari and Ebejer [T] (2001, fauna of Sicily, Malta, and Tunisia); Papp [T] (2001b, checklist of Hungarian species); Carles-Tolrá and Báez [T] (2002, fauna of Spain and Portugal); Beuk [C, T] (2002a, b, checklist of the Netherlands); Roháček [T] (2006, checklist of Czech and Slovak faunas); Báez and García [T] (2004, checklist of Canary Islands); Diaz *et al.* [T] (2005, checklist of Azores); Munari and Vanin [T] (2007, fauna of Italy); Ebejer [T] [C] (2003; 2008; fauna of the Balearic Islands and Madeira, respectively).

Reviews and Revisionary Treatments (papers listed chronologically)

Becker [C] (1926, revision of Palaearctic fauna); Hendel [T] (1934, world revision); Wirth [C] (1951, world revision; 1970, revision of the *Canace snodgrassii* group); Collin [T] (1966, Palaearctic species of *Tethina* and *Rhicnoessa*); Wirth [C] (1969a, revision of *Canaceoides*); Foster [T] (1976a, review of *Neopelomyia* and the *milichioides* group of *Tethina*); Sabrosky [T] (1978, review of *Horaismoptera*); Munari [T] (1981b, review of *Pseudorhicnoessa;* 1991b, review of *Afrotethina*; 2004a, review of Tethininae from Australia and Papua New Guinea; 2007b (1st contribution) and 2008a (2nd contribution), review of the subfamily Apetaeninae); Mathis [C] (1982a, review of Palaearctic species of *Canace*; 1982b suprageneric revision; 1992, world catalog; 1998, Palaearctic manual;1999, review of *Isocanace*); Mathis and Freidberg [C] (1982, review of the Western Palaearctic species of *Xanthocanace*); Mathis and Munari [T] (1996, world catalog); Munari [T] (Palaearctic manual); Freidberg and Beschovski [T] (1996, revision of the *Tethina alboguttata* group); Munari and Ebejer [T] (2001, key to species of the *Tethina alboguttata*-group); Foster and Mathis [T] (2003, revision of *Pelomyia* and *Masoniella*); D.K. McAlpine [C, T] (2007, synonymy of the Tethinidae, including its synonymy with the Canacidae and revisions of *Zalea* and *Suffomyia*).

Abbreviations used in this catalog

To economize on space we have used well-known abbreviations for museums, especially to indicate the deposition of a primary type(s). Most of the following abbreviations are in accordance with those proposed by Evenhuis (2009, as acronyms or codens):

AMNH	American Museum of Natural History, New York, New York, USA.
AMNZ	Auckland Institute and Museum, Auckland, New Zealand.
AMS	Australian Museum, Sydney, Australia.
ANCB	Museo Nacional de Historia Natural, La Paz, Bolivia.
ANIC	Australian National Insect Collection, CSIRO Entomology, Canberra, Australia.
ANSP	Academy of Natural Sciences, Philadelphia, Pennsylvania, USA.
BPBM	Bernice P. Bishop Museum, Honolulu, Hawaii, USA.
CAS	California Academy of Sciences, San Francisco, California, USA.
CMNZ	Canterbury Museum, Christchurch, New Zealand.
CNC	Canadian National Collection, Ottawa, Canada.
CTC	Collection of M. Carles-Tolrá, Barcelona, Spain.
DEI	Deutsches Entomologisches Institut, Eberswald, Germany.
EIHU	Hokkaido University, Sapporo, Hokkaido, Japan.
ETHZ	Eidgenössische Technische Hochschule, Zürich, Switzerland.
FIOC	Fundacão Instituto Oswaldo Cruz, Rio de Janeiro, Brazil.
HNHM	Hungarian Natural History Museum, Budapest, Hungary.
INRA	Institut National de la Recherche Agronomique (INRA-ENSA), Montpellier, France.
KPU	Kyoto Prefectural University, Kyoto, Japan.
LACM	Los Angeles County Museum of Natural History, Los Angeles, California, USA.
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA.
MNHN	Muséum National d'Histoire Naturelle, Paris, France.
MSNVE	Museo di Storia Naturale di Venezia, Venice, Italy.
MZH	Finnish Museum of Natural History, Helsinki, Finland.
MZLU	Museum of Zoology, Lund University, Lund, Sweden.
MZSP	Museu de Zoologia da Universidade de São Paulo, Brazil.
NHML	The Natural History Museum (former British Museum (Natural History)), London, England.
NHRS	Naturhistoriska Riksmuseet, Stockholm, Sweden.
NMBA	Naturhistorisches Museum der Benediktiner-Abtei (Dipterorum Collectionis Strobl), Admont, Austria.
NMID	National Museum of Ireland, Dublin, Ireland.
NMSA	Natal Museum, Pietermaritzburg, Kwa-Zulu Natal, South Africa.
NMW	Naturhistorisches Museum, Vienna, Austria.
NMWC	National Museum of Wales, Cardiff, UK.
NZAC	Landcare Research, New Zealand Arthropod Collection, Entomology Division, DSIR, Auckland, New Zealand.
OMNH	Osaka Museum of Natural History, Osaka, Japan.
OUMNH	University Museum, Oxford University, Oxford, England.
RMCA	Musee Royal de l'Afrique Centrale, Tervuren, Belgium.
SEMC	Snow Entomology Museum, University of Kansas, Lawrence, USA.
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Ludwigsburg, Germany.
SUJ	Saikyo University, Kyoto, Japan.
TAU	Tel Aviv University, Tel Aviv, Israel.
TMSA	Transvaal Museum, Pretoria, Gauteng, South Africa.
UQIC	University of Queensland, St. Lucia, Queensland, Australia.
USNM	National Museum of Natural History (former United States National Museum), Smithsonian Institution, Washington, D.C., USA.
WAM	Western Australian Museum, Perth, Australia.
ZIN	Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.
ZMAN	Instituut voor Taxonomische Zoologie, Zoologisch Museum, Universiteit van Amsterdam, Amsterdam, Netherlands.

ZMHB Museum für Naturkunde der Humboldt-Universität, Berlin, Germany.
ZMUC Zoologisk Museum, Københavns Universitet, København, Denmark.
ZMUN Zoological Museum, University of Oslo, Oslo, Norway.
ZSM Zoologische Staatssammlung, München, Germany.

Abbreviations for primary types: HT Holotype, LT Lectotype, NT Neotype, and ST Syntype.

Catalog

Family Canacidae Jones (6 subfamilies, 27 genera, 307 species, 3 subspecies)

Canacenae Jones, 1906: 170-198 [as a subfamily of Ephydridae, incorrect formation of the family-group name]. Type genus: *Canace* Haliday, 1837.

Canaceinae Hendel, 1913: 93.

Canacinae Enderlein, 1914: 326-327.

Canaceidae.—Hendel, 1916: 297 [incorrect formation of the family-group name].—Wirth, 1951: 245-275 [revision]; 1965: 733-734 [Nearctic catalog]; 1987: 1079-1083 [North American manual].

Canacidae.—Enderlein, 1935: 235.—Mathis, 1982: 1-29 [classification]; 1992: 1-18 [world catalog]; 1998: 251-257 [Palaearctic manual].—Mathis and Foster, 2007: 387-428 [review, Delmarva States].—Beschovski, 2009: 399-401 [Bulgarian fauna].

Tethinidae Hendel, 1916: 297; 1917: 45. Type genus: *Tethina* Haliday, 1837.—Vockeroth, 1965: 726-728 [Nearctic catalog]; 1987: 1073-1078 [North American manual].—Mathis and Munari, 1996: 1-27 [world catalog].—Munari, 1998: 243-250 [Palaearctic manual].—McAlpine, 2007: 42-43 [synonymy, discussion, relationships, key to sufamilies].—Beschovski, 2009: 373-377 [Bulgarian fauna, key to genera and species].

Diagnosis.—The family Canacidae, *sensu lato,* is distinguished from other families of the Carnoidea by the following combination of characters: exclusively or tending to occur in saline habitats (secondarily in freshwater habitats), mostly thalassobiont/halobiont flies. Minute to moderately small flies, length 1.6-4.0 mm; frequently covered with pale yellowish to brown microtomentum. *Head:* Postocellar setae, if present, extremely weak to relatively strong, generally widely separated at base, convergent (divergent in Zaleinae), or absent (sometimes reduced) in Canacinae and in *Tethina lusitanica* Munari, Almeida and Andrade (Tethininae); dorsal fronto-orbital seta lateroclinate; oral vibrissae generally weakly differentiated, except for *Dasyrhicnoessa* species; antenna with 1st flagellomere (= postpedicel, *sensu* Stuckenberg, 1999) round or oval; arista sub-basal, inserted dorsally, with very short pubescence. Face sometimes characterized by 2 shiny protuberances laterad to the facial cavity, just above vibrissal pore (*Tethina, Pseudorhicnoessa*) or nearby (*Afrotethina*, *Horaismoptera*), absent in *Dasyrhicnoessa*, *Plesiotethina, Tethinosoma,* and in all species of Apetaeninae, Pelomyiinae, Zaleinae, and Canacinae); face relatively narrow and high (Pelomyiinae) or strongly depressed and short (*Dasyrhicnoessa*, Horaismopterinae and Zaleinae), or even with medial carina (*Tethina*) or distinctly convex (Canacinae); genal width varying, very narrow to exceptionally wide (*Horaismoptera*), though gena of male usually narrower than that of female; gena sometimes bearing few to many scattered, tiny setulae between eye and ventral row of peristomal setae or bare, except for ventral or nearly ventral row of setae (peristomal setae), or even with a few anaclinate, strong setae (Canacinae). Buccal parts strongly sclerotized in Canacinae. *Thorax:* Precoxal bridge developed, except in some taxa of Zaleinae; dorsocentral setae usually 4 (1+3), sometimes 1 (0+1 in *Apetaenus litoralis watsoni* Hardy) or 3 (1+2 or 2+1 in some other species of *Apetaenus*) or even 5 (2+3 in *Tethina hirsuta* Munari, *Tethinosoma,* and a few phenotypes of *Apetaenus enderleini* Munari); acrostichal setulae absent to arranged in several rows; prescutellar acrostichal setae absent to distinctly developed; usually 2 pairs of marginal scutellar setae (in *Horaismoptera vulpina* Hendel the scutellum has numerous setae towards sides of dorsal surface between basal and apical scutellar setae); disc of scutellum bare or setulose; 0-3 anepisternal posterior setae developed, generally also bearing enlarged, upward curved seta posterodorsally; usually 1 katepisternal seta present; proepisternal seta developed, proepimeral seta variable. Wing generally uniformly faintly yellow or brown,

without spots or bands (except for *Tethina pictipennis* Freidberg and Beschovski and *Tethina lusitanica* having blackish spots and bands on wing); costal vein interrupted just before apex of radial vein R_1, deeply so in Horaismopterinae*;* only basal section of subcosta visible, apically touching or fused with apex of vein R_1; costal vein generally lacking spines along anterior margin (except for *Horaismoptera* and *Tethinosoma* bearing several strong, erect, spine-like setae); cells *bm* and *dm* fused or separate; position of crossvein *r-m* variable; cell *cup* present but small; anal vein virtually absent or produced weakly as a slight fold; anal angle and alula well developed (the former reduced in Apetaeninae, the latter strongly reduced in *Suffomyia*); vein A_1 short (except in *Apetaenus*); vein A_2 long, clearly visible but little sclerotized; haltere pale, usually white to yellowish white; reduced and rudimentary in micropterous species of *Apetaenus* and in micropterous phenotypes of *Apetaenus enderleini* Munari. Microptery is found in the subantarctic genus *Apetaenus* and in some phenotypes of *Apetaenus enderleini*, the latter species also showing brachypterous forms; aptery unknown. Legs: generally slender, with only hindfemur of male sometimes strongly swollen (in a few species of *Afrotethina* and some *Tethina*); coxae and forefemur with some long, hairlike setae; ctenidium of forefemur variable; tibiae generally without setae (except *Horaismoptera*, *Pseudorhicnoessa*, and *Tethina hirsuta*, which have strong setae or bear stout setulae on femora and tibiae) but with an apical ventral spurlike seta on midtibia and sometimes an apical anteroventral spurlike seta on hindtibia; dorsal, preapical setae on tibiae absent.

Abdomen: Pregenital sclerites of male short and fused; syntergosternite 7+8 usually short (large only in Zaleinae and Canacinae), and partially fused with tergite 6, the latter also fused with sternite 8, forming a usually symmetrical (except in some *Tethina* spp.), pregenital sclerite; male sternite 7 lost; postgonites firmly connected laterally to base of phallapodeme, distinctly anterior to basiphallus; hypandrium forming a sheath or phallic mantle around the postgonite and basiphallus; hypandrial structures strongly varying in shape, particularly the large lateral hypandrial arms and postgonites; epandrium bearing 1-2 pairs of surstyli ventrally, sometimes anterior surstylus lacking (Canacinae, *Tethina*, *Dasyrhicnoessa platypes* Sasakawa, Apetaeninae, and *Suffomyia*) or vestigial (*Plesiotethina australis* Munari) or even replaced by a more or less large, ventral, epandrial lobe (Pelomyiinae); posterior surstylus partially articulated or fused with epandrium; inner basal corner of surstylus connected to broad interparameral sclerite; cercus very short to exceptionally developed (Horaismopterinae); postabdomen of female more or less telescopically retractile; 2 sclerotized spermathecae variable in shape, below with a narrower cylindrical extension into the spermathecal duct; cercus subcylindrical or compressed, 2-8 times as long as broad, sometimes bearing numerous, stout, spinelike setulae (pseudacanthophorite *sensu* Freidberg and Beschovski, 1996).

Discussion.—Our concept of Canacidae includes what had been considered as two families, the Canacidae and Tethinidae. At the familial level, J. F. McAlpine (1989: 1472) identified five synapomorphies that link the Canacidae *sensu stricto* with Tethinidae and noted that "...There are clear indications of a sister-group relationship between them ... and may even indicate that they are subgroups of a single family". Other authors (Hennig, 1958; Griffiths, 1972; D. K. McAlpine, 1982; Freidberg, 1995) have also suggested a relationship between these two families, and Griffiths (1972) further noted some affinities of the Tethinidae with the Chloropidae and Milichiidae. According to J. F. McAlpine's (1989) cladogram, which included an analysis of 25 characters for the families Canacidae *sensu stricto* and Tethinidae, the Canacidae, as considered herein, that is *sensu lato*, together with Australimyzidae, Braulidae, Carnidae, Chloropidae (including Minidae and Siphonellopsidae), Cryptochetidae, Milichiidae, and Risidae comprise the superfamily Carnoidea (= Chloropoidea). Of the 25 characters McAlpine considered, five were determined to be synapomorphies that establish the monophyly of the Canacidae/Tethinidae lineage.

More recently, Buck (2006) and D. K. McAlpine (2007) provided rather compelling character evidence, substantiating that these two families are closely associated, and more specifically that the Canacidae *sensu stricto* are an included lineage within the Tethinidae. Thus, not to include the Canacidae within the Tethinidae would render the Tethinidae as a paraphyletic family. Buck (2006) cited ten autapomorphies that corroborate the monophyly of the family Canacidae *sensu lato* (the family-group name Canacidae is older than Tethinidae). These autapomorphies are (only synapomorphic state cited): (1) precoxal bridge present; (2)

anepisternum with enlarged, upcurved seta in posterodorsal corner; (3) vein A_2 long, present as a fold; (4) male sternite 6 reduced and divided medially; (5) male tergite 6 fused with sternite 8, forming a symmetrical pregenital sclerite; (6) male sternite 7 lost; (7) postgonites firmly connected laterally to base of phallapodeme, distinctly anterior to basiphallus; (8) hypandrium forming a sheath or phallic mantle around the postgonite and basiphallus; (9) cuticle of larva with covering of fine spicules; and (10) halobiontic and halophilic in habitat preference, secondarily in freshwater habitats. Buck (2006) further suggested that the sister group to Canacidae *sensu stricto* is the subfamily Apetaeninae, not the Zaleinae, and provided four characters as corroborative evidence of this relationship: (1) antennae broadly separated, inserted on more or less protuberant facial tubercles; (2) clypeus distinctly enlarged and produced anteriorly; (3) prementum distinctly emarginated apically; and (4) tentorial arms of head capsule enormously developed and strongly sclerotized. At this point, we think it necessary to inform readership that D. K. McAlpine (personal communication, e-mail of April 6, 2010) disagrees to a large extent with most of Buck's autapomorphies for Canacidae *sensu lato* (see above).

It should be stressed that since McAlpine's (2007) reassessment of Canacidae/Tethinidae, the former subfamilies of the Canacidae *sensu stricto* were automatically downgraded at the tribe level, while Canacidae *sensu stricto* is merely regarded now as the nominal subfamily of Canacidae *sensu lato.* As far as the former family Tethinidae is concerned, McAlpine (2007) maintained the same subfamilies as traditionally accepted in the modern literature, contextually downgrading the family-group name Tethinidae to a junior synonym of Canacidae *sensu lato*. Thus, according to this author, the Canacidae comprise now the following subfamilies: Canacinae (including Nocticanacinae), Zaleinae, Apetaeninae, Horaismopterinae, Pelomyiinae, and Tethininae.

No species of fossil Canacidae have been described (Evenhuis, 1994), although undetermined specimens of Tethininae have been recorded from the Oligocene/Miocene amber of Chiapas, Mexico (Hurd *et al.*, 1962; Poinar, 1992). These specimens have not been examined by a specialist to verify their status.

As far as we know only six parasites of Canacidae are recorded in the literature. Rossi (1988), Rossi and Cesari Rossi (1979), and Rossi and Weir (2007) described three new species of Laboulbeniales (Ascomycetes), parasitic on *Pseudorhicnoessa rattii* Munari (Tethininae) from the Seychelles, on *Canace nasica* (Haliday) (Canacinae) from Senegal (the fungus parasitic on the latter species was also recorded from Spain by Santamaria (2006)), and on *Zalea* spp. (Zaleinae) from Australia. Fain and Grootaert (1993) described a new larval Trombidiidae mite parasitic on *Nocticanace scapania* Wirth and *N. usingeri* Wirth (Canacinae) from the Galapágos Islands, and Camerik (2005) described two new species of Siteroptidae mites parasitic on Canacinae and Tethininae (only generically recorded at a familial level) from Thailand and Mexico, respectively.

Key to subfamilies of Canacidae *sensu lato*

(after McAlpine, 2007, slightly modified)

1. Frontal orbit with 3-5 major lateroclinate setae, foremost near level of ptilinal fissure, in addition to inner series of 3 or more proclinate-inclinate, shorter setae or setulae; proclinate-inclinate interfrontal setae in 2 distinct series; pair of convergent, often widely spaced, postocellars present; if absent then wing with distinct, black spots (*Tethina lusitanica*); costa along marginal cell with a continuous series of closely placed, short, black, anterior spinules, and no series of longer, widely spaced spines; discal and second basal cells separate; anal cell closed; vein A_1+CuA_2 (6th longitudinal) not extending distinctly beyond anal cell, even as a sharp fold in membrane ..... Tethininae
- Fronto-orbital setae not arranged as above; if biseriate interfrontal setae present, then either convergent postocellar setae absent or anal cell open distally; other characters variable 2
2. Face, at least on ventral part, almost vertical, not receded onto ventral surface; prelabrum (=clypeus) thus located approximately as far forward as anterior surface of head capsule 3
- Face, in profile, convex ventrally, markedly receded onto ventral surface of head; prelabrum thus markedly displaced posteriorly 5

[*Neopelomyia*, probably referable to Pelomyiinae, disagrees in these characters, but differs from other subfamilies in having discal and second basal cells confluent (McAlpine, 2007)].

3. Wing either vestigial, or with long vein A_1+CuA_2 extended to margin; fronto-orbital setae normally 3, of which middle one is reclinate and farther from eye than others; female: syntergite 1+2 longer than rest of abdomen; endemic in the subantarctic archipelagos ..... Apetaeninae
- Wing normally developed, with vein A_1+CuA_2 scarcely extended beyond anal cell; if 3 fronto-orbital setae present, then middle one not farther from eye than others; syntergite 1+2 at most as long as or normally shorter than rest of abdomen; not inhabiting the subantarctic archipelagos 4
4. Anal cell closed; face prominent, extensively visible in profile, entirely sclerotized; prelabrum (=clypeus) large and very broad; prementum very broad, deeply cleft distomedially; tergites l and 2 without or with quite indistinct weak line of demarcation mid-dorsally; cercus of female basally thickened and fused with epiproct, distally tapered, with 1-2 spinescent setae ..... Canacinae
- Anal cell open distally; face not prominent; prelabrum of moderate size, about half width of surrounding subcranial membrane, and not over one quarter width of head; prementum not much broader than long, nor deeply cleft; tergites 1 and 2 separated in mid-dorsal region by distinct membranous strip, fused at sides; cercus of female basally articulated, distally blunt, without spinescent setae ..... Zaleinae
5. Antennae widely divergent from bases; pedicel short, collar-like, with series of short, stout spines or spinescent setulae on medial surface; 1-3 mesoclinate fronto-orbital setae located below the two upper eclinate fronto-orbitals; dorsal postocular seta (behind lateral vertical) present; disc of scutellum sometimes setulose; fore coxa broad, less than 2/3 as long as forefemur; costa with obliquely incised notch at subcostal break, beyond break with a well spaced series each of anterodorsal and anteroventral long spines; discal cell closed basally by well sclerotized vein .... Horaismopterinae
- Antennae subparallel; pedicel not remarkably short, with few fine setulae on medial surface; incurved fronto-orbital setae absent; dorsal postocular seta absent; disc of scutellum without setulae; fore coxa elongate, at least 2/3 as long as femur; costa with simple subcostal break, beyond break without such spaced spines; discal cell basally confluent with second basal cell ..... Pelomyiinae

Subfamily Canacinae Jones (11 genera, 122 species)

Canaceinae.—Hendel, 1913: 93 [as a subfamily of Ephydridae, incorrect formation of the subfamily-group name].

Canacinae.—Enderlein, 1914: 326 [as a subfamily of Ephydridae].—Malloch, 1933: 4 [as a subfamily of Ephydridae].—Mathis, 1982: 2 [as a subfamily of Canacidae, phylogeny].—Ferrar, 1987: 99–101, 606 [as a family, preimaginal stages].—McAlpine, 2007: 43 [review, diagnosis, status].

Diagnosis.—Adult. Small to moderately large flies (body length 1.60–5.00 mm); blackish, brownish, yellowish, or grey, often invested with whitish to greyish microtomentum. *Head:* Postocellar setae absent; 3–5 lateroclinate fronto-orbital setae. Antennae broadly separated, inserted more or less on protuberant facial tubercles; subcranial cavity large. Face prominent, projected in lateral view, slightly convex to concave; setae usually sparse except for mesoclinate vibrissal seta; vibrissal angle unmodified. Gena high, bearing 1–4 dorsoclinate genal setae. Subcranial cavity and anteclypeus enlarged; clypeus prominent, enlarged, wide; labellum short, nongeniculate; prementum of proboscis short but very broad, deeply cleft distomedially, distinctly emarginated apically; tentorial arms of head capsule enormously developed and strongly sclerotized. *Thorax:* Mesonotum with 4 or more dorsocentral setae. Wing usually hyaline; C extended to M and with subcostal break only; Sc complete and separate from R_1 almost to its apex; cells *br*, *bm*, *dm*, and *cup* complete; A_1 short. Precoxal bridge usually present. *Abdomen:* Syntergite 1+2 with intervening membranous strip in mid-dorsal region weakly developed or absent; male tergites 1–6 exposed; spiracles 1–6 in posteroventral portion of tergite, spiracle 7 also in tergite 6; terminalia symmetrical; compound dorsal sclerite of protandrium with tergite 6 markedly larger in area than sternite 8; surstylus fused with epandrium; hypandrium usually with lateral arms extended above aedeagus, fused into posteriorly directed process; aedeagus relatively short; cercus usually weakly developed. Female cercus fused with epiproct, well sclerotized, thickened basally, long, approximate, bearing a well-developed, thickened apical seta, sometimes

preceded by similar but smaller setae; ventral wall of genital chamber with V- or ring-shaped sclerite; spermathecae 2.

Discussion.—Adult canacids are similar and sometimes confused with shore flies (Ephydridae) and most species described in the 19th century were placed in the Ephydridae. Canacids are distinguished by the wing venation (cells bm and cup complete) and by the additional abdominal segments (5 in ephydrid males, 6 in canacids), which in females terminate as an elongated and fused epiproct+cercus that bears enlarged, apical, spinelike setae. It is also noteworthy to mention the treatment by Hinton (1976) dealing with the respiratory adaptations in some species of this subfamily, at that time mentioned as family Canaceidae.

Key to tribes and subtribes of Canacinae

1. Lateroclinate fronto-orbital setae either 4 or more, or 3 and with katepisternal seta lacking; female cercus with 1 large, apical, spinelike seta, this usually acutely pointed..... Canacini...2
- Lateroclinate fronto-orbital setae 3 and katepisternal seta present; ♀ cercus with 2 large, spinelike setae, one apical the other subapical, each rather bluntly rounded ..... Nocticanacini
2. Lateroclinate fronto-orbital setae 4 or more, katepisternal seta sometimes present ..... Dynomiellina
- Lateroclinate fronto-orbital setae 3, katepisternal seta lacking..... Canacina

Tribe Canacini Jones (7 genera, 40 species)

Canaceini.—Hendel, 1913: 93 [as a subfamily of Ephydridae, incorrect formation of the family-group name].

Canacini.—Enderlein, 1914: 326 [as a subfamily of Ephydridae].—Mathis, 1982b: 2 [as a subfamily of Canacidae, phylogeny]; 1992: 3–7 [world catalog].—Malloch, 1933: 4 [as a subfamily of Ephydridae].—Mathis, 1982b: 3 [as a tribe of Canacinae].

Subtribe Canacina Jones (1 genus, 5 species)

Canaceina.—Hendel, 1913: 93 [as a subfamily of Ephydridae, incorrect formation of the family-group name].

Canacina.—Enderlein, 1914: 326 [as a subfamily of Ephydridae].—Mathis, 1982b: 2 [as a subfamily of Canacidae, phylogeny]; 1992: 3–7 [world catalog].—Malloch, 1933: 4 [as a subfamily of Ephydridae].—Mathis, 1982b: 3 [as a tribe of Canacinae].

Genus *Canace* Haliday (5 species)

Canace Haliday, in Curtis, 1837: 281 [published in synonymy; first made available by use in Haliday, 1839: 411; see Thompson and Mathis 1981]. Type species: *Ephydra nasica* Haliday, 1839, by subsequent monotypy (Haliday, 1839: 411).—Loew, 1860: 29 [review]; 1874: 76 [review].—Schiner, 1863: 268 [review].—Rondani, 1875: 176, 169 [review].—Becker, 1896: 245 [review]; 1905c: 215 [catalog]; 1926: 106 [review].—Wirth, 1951: 259 [review].—Stackelberg, 1970b: 363 [key].—Cogan, 1980a: 694 [Afrotropical catalog]; 1984: 125 [Palaearctic catalog].—Mathis, 1982a: 58 [review, figs. of ♂ and ♀ terminalia, heads]; 1992: 3–4 [world catalog].—Mathis and Freidberg, 1991: 71–75 [review of Afrotropical fauna].—Beschovski, 2009: 401 [Bulgarian fauna].

Ephydra (Canace).—Haliday, 1839: 411.—Walker, 1853: 268 [review].

actites Mathis. *Palaearctic*: Portugal (Madeira Islands), Spain (Canary Islands).

Canace salonitana, (misidentification).—Becker, 1908b: 202, 204 [list, Madeira Islands].—Frey, 1949: 37 [list, Madeira Islands].

In part (misidentification).—Wirth, 1951: 264 [review, fig. of ♂ terminalia].

Canace actites Mathis, 1982a: 58 [Spain. Canary Islands: Teneriffe; figs. of head, thorax, ♂ and ♀ terminalia; HT ♂, USNM (76783)]; 1992: 3–4 [world catalog].—Mathis and Freidberg, 1991: 72 [key].—Ebejer, 2008: 329 [citation, Madeira].

nasica (Haliday). *Afrotropical*: Cape Verde Islands, Senegal. *Palaearctic*: Coast of western Europe (England, France, Germany, Ireland, and Spain), Mediterranean (Croatia, Egypt, Italy), and islands of northeastern Atlantic Ocean (Azores, Canary Islands, and Madeira Islands).

Ephydra (Canace) nasica Haliday, 1839: 411 ["England." Type(s) apparently lost (see Mathis 1982a: 60)].—Walker, 1853: 269 [review].

Canace nasica.—Loew, 1860: 29 [review]; 1874: 80 [review].—Schiner, 1863: 269 [review].—Rondani, 1875: 170 [review].—Becker, 1896: 247 [list]; 1903: 183 [list]; 1905c: 215 [catalog]; 1926: 106 [review].—Séguy, 1934: 401 [review, figs. of wing and head]; 1936: 21 [list, Azores, Canary Islands].—Cresson, 1936: 265 [discussion].—Frey, 1936: 110 [review, Canary Islands]; 1945: 81 [review, Azores]; 1949: 37 [list, Madeira Islands]; 1958a: 53 [list, Canary Islands]; 1958b: 48 [list, Cape Verde Islands].—Wirth, 1951: 262 [review, fig. of ♂ terminalia]; 1956a: 161 [discussion].—Hinton, 1967: 319 [natural history, especially of plastron respiration, figs. of puparium].—Stackelberg, 1970b: 362 [list, English translation 1988: 603].—Hinton, 1976: 72–73 [respiratory adaptations, figs. of puparium and spiracular gill].—Cogan, 1976a: 87 [list, Great Britain]; 1980: 694 [Afrotropical catalog]; 1984: 124 [Palaearctic catalog].—Mathis, 1982a: 60 [review, figs. of head, ♂ and ♀ terminalia]; 1992: 4 [world catalog].—Mathis and Freidberg, 1991: 72–73 [review].—Ebejer, 2008: 329 [citation, Madeira].

Canace salonitana variety *rufitarsis* Strobl, 1902: 503 [Yugoslavia. Croatia: Fiume (= Rijeka); ST 3♀♀, NMBA].—Strobl, 1904: 564 [synonymy with *Canace nasica*].

rossii Canzoneri. *Afrotropical*: Sierra Leone.

Canace rossii Canzoneri, 1982: 61 [Sierra Leone. Western Area: Freetown, Lumley Beach di fronte a Juba; habitus; HT ♂, MSNVE].—Mathis and Freidberg, 1991: 73 [review, fig. of ♂ terminalia].—Mathis, 1992: 4 [world catalog].

salonitana Strobl. *Palaearctic*: Bulgaria, Croatia, Egypt, Greece (Crete), Israel, Italy.

Canace salonitana Strobl, 1900: 635 [Yugoslavia. Dalmatia (Salona); HT ♂, NMBA].—Becker, 1903: 184 [review]; 1905c: 215 [catalog]; 1926: 107 [review].—Mathis, 1982a: 61 [review, figs. of head, ♂ and ♀ terminalia]; 1992: 4 [world catalog].—Cogan, 1984: 124 [Palaearctic catalog].—Beschovski, 2009: 402–405 [Bulgarian fauna, figs. of head, thorax, wing, ♂ and ♀ terminalia, spermathecae].—Chvála, 2008: 230 [Type material, NMBA].

zvuv Mathis and Freidberg. *Afrotropical*: Cameroon.

Canace zvuv Mathis and Freidberg, 1991: 73 [Cameroon. Limbe (shore); figs. of ♂ terminalia; HT ♂, USNM].—Mathis, 1992: 4 [world catalog].

Subtribe Dynomiellina Mathis (6 genera, 35 species)

Dynomiellini Mathis, 1982b: 3 [as a tribe of Canacinae]. Type genus: *Dynomiella* Giordani Soika, 1956.─Mathis, 1992: 4–7 [world catalog].

Key to Genera of Dynomiellina

l.	Katepisternal seta present, sometimes pale	2
-	Katepisternal seta absent	3
2.	Forefemur lacking row of spinelike setae (ctenidium); arista with 2 rows of setulae extended from base to apex; l supra-alar seta (Afrotropical, the *briani* group)	*Isocanace* (in part)
-	Forefemur with row of spinelike setae, usually 4 or 5, along apical one-half of anteroventral surface; apical 1/3 of arista bare; 2 supra-alar setae (Nearctic, Neotropical)	*Canacea*
3.	Anterior notopleural seta present; lateral scutellar setae 2 pairs	4
-	Anterior notopleural seta absent; lateral scutellar setae l pair	6
4.	Vein M with last section arcuate; mesofrons uniformly and densely setulose; 4–6 fronto-orbital setae; setae generally pale (Indo-Pacific, Palaearctic)	*Xanthocanace*

- Vein M with last section more or less straight, not distinctly arcuate; mesofrons with bare areas, not densely setulose; 4 fronto-orbital setae; setae generally dark colored 5

5. Arista with 2 rows of setulae extended from base to apex, l row dorsally and l ventrally; postocellar setae conspicuously smaller than ocellar setae, with proclinate, slightly divergent orientation (Australasian, the *albiceps* group)..... ..... *Isocanace* (in part)

- Arista with apical 1/3 bare; postocellar setae subequal in size and with similar orientation as ocellar setae (Southern Africa, Australia) ..... *Dynomiella*

6. Mesofrons well sclerotized, distinct from membranous appearing parafrons; anteroclinate genal seta, large, black; dorsoclinate genal setae lacking; arista with 2 rows of setulae extending to apex; propleuron setulose (Indo-Pacific) ..... *Chaetocanace*

- Mesofrons and parafrons not distinct from each other except by color in some species, both appearing membranous although usually microtomentose; anteroclinate genal seta small, pale; dorsoclinate genal setae 2; arista with apical 1/3–1/2 bare, styletlike; propleuron without setulae (Indo-Pacific) ..... *Trichocanace*

Genus *Canacea* Cresson (4 species)

Canacea [lapsus].—Malloch, 1924a: 52–53 [description of *C. macateei*, diagnosis of genus, see next entry].—Johnson, 1925: 276 [list, New England].—Mathis, 1982a: 58 [discussion].

Canacea Cresson, 1924: 164. Type species: *Canacea macateei* Malloch, by original designation and monotypy; Cresson validated Malloch's name as an indication.—Mathis, 1982b: 4–7 [review; discussion of nomenclatural status and reasons for selection of this genus-group name and author]; 1992: 4–5 [world catalog].—Mathis and Foster, 2007: 392–394 [review, Delmarva States].

Canace, in part, of authors.—Malloch, 1933: 4 [discussion].—Curran, 1934b: 356 [discussion, generic key].—Cresson, 1936: 264–265 [discussion, description of new species].—Wirth, 1951: 259–265 [review]; 1965: 733 [Nearctic catalog]; 1970: 397–403 [revision as "*snodgrassii* group"]; 1975: 1 [Neotropical catalog].—Wheeler, 1952: 90–91 [discussion].—Cole, 1969: 391 [key, discussion].

aldrichi (Cresson). *Nearctic*: United States (California).

Canace aldrichi Cresson, 1936: 264 [United States. California. Santa Clara: Palo Alto; HT ♂, USNM (51848)].—Wirth, 1951: 262 [review]; 1965: 733 [Nearctic catalog]; 1970: 401 [review, fig. of ♂ terminalia].—Wheeler, 1952: 91 [distribution, key].—Cole, 1969: 391 [list, Western North America].

Canace aldrich [sic, printing error].—Wirth, 1956a: 161 [discussion].

Canacea aldrichi.—Mathis, 1982b: 6 [generic combination, catalog, key]; 1992: 4 [world catalog].

currani (Wirth). *Neotropical*: Panama (Canal Area, Darién, Panama), Ecuador (Guayas).

Canace currani Wirth, 1970: 402 [Panama. Darién: Jaqué (light trap); fig. of ♂ terminalia; HT ♂, USNM (70341)]; 1975: 1 [Neotropical catalog].—Arnaud, 1979: 346 [list, type data].

Canacea currani.—Mathis, 1982b: 6 [generic combination, catalog, key]; 1992: 4 [world catalog].

macateei Malloch. *Nearctic*: Canada (New Brunswick, Prince Edward Island), United States (Alabama, Connecticut, Delaware, Florida, Georgia, Maine, Maryland, Massachusetts, Mississippi, New Jersey, New York, North Carolina, Rhode Island, Virginia, Texas). *Neotropical*: Belize, Costa Rica (Limón, Puntarenas), West Indies (Anguilla, Cuba, Dominican Republic, Jamaica).

Canacea macateei Malloch, 1924a: 52 [United States. Georgia. Glynn: Jekyll Island; HT ♂, USNM (26883)].—Cresson, 1924: 164 [discussion]; 1936: 265 [discussion].—Johnson, 1925: 276 [list, Massachusetts, Rhode Island]; 1930: 145 [list, Massachusetts].—Mathis, 1982b: 7 [catalog, key; figs. of head, thorax, and leg]; 1989b: 592–593 [review]; 1992: 4–5 [world catalog].—Mathis and Foster, 2007: 393–394 [review, Delmarva States].

Canace snodgrassii, in part (misidentification).—Johnson, 1910: 807 [list, United States (New Jersey)].—Wirth, 1951: 260 [review, synonymy, fig. of ♂ and ♀ terminalia]; 1965: 733 [Nearctic catalog].

Canace macateei.—Malloch, 1933: 5 [note].—Curran, 1934b: 356 [status].—Wheeler, 1952: 90–91 [distribution, key].—Wirth, 1970: 399 [resurrection from synonymy, review, fig. of ♂ terminalia].—Teskey and Valiela, 1977: 545–547 [description of larva and puparium, natural history].

snodgrassii (Coquillett). *Neotropical*: Ecuador (Galápagos Islands), Panama (Canal Zone).

Canace snodgrassii Coquillett, 1901: 378 [Ecuador. Galápagos Islands: Albemarle Island (= Isabela); LT ♂ (designated by Cresson, 1936: 264), USNM (4430)].—Cresson, 1936: 264 [review].—Cole, 1969: 391 [list, Galápagos Islands].—Wirth, 1969b: 578 [review]; 1970: 401–402 [review, fig. of ♂ terminalia]; 1975: 1 [Neotropical catalog].

Canace snodgrassii, in part.—Wirth, 1951: 260 [review, fig. of ♂ and ♀ terminalia]; 1956a: 161 [discussion].

Canace snodgrassi [sic, lapsus].—Wirth, 1956b: 48 [discussion].

Canacea snodgrassii.—Mathis, 1982b: 7 [generic combination, catalog, key]; 1992: 5 [world catalog].

Genus *Chaetocanace* Hendel (5 species)

Chaetocanace Hendel, 1914: 98. Type species: *Canace biseta* Hendel, by original designation and monotypy.—Malloch, 1924b: 333 [generic key].—Curran, 1934b: 357 [generic key].—Wirth, 1951: 265 [review].—Miyagi, 1963: 122 [list, Korea].—Delfinado and Wirth, 1977: 391 [Oriental catalog].—Mathis, 1982b: 7–9 [review]; 1989a: 670 [Australasian/Oceanian catalog]; 1992: 5 [world catalog]; 1996: 331–335 [Australian species].—Cogan, 1984: 124 [Palaearctic catalog].

biseta (Hendel). *Oriental*: Japan (Ryukyu Islands), Philippines (Davao, Luzon), Taiwan (Tainan). *Palaearctic*: Japan (Hokkaido, Honshu, Kyushu, Shikoku), Korea (Seoul).

Canace biseta Hendel 1913: 95 [Taiwan. Tainan; ST (undetermined number), DEI].

Chaetocanace biseta.—Hendel, 1914: 98 [generic combination].—Wirth, 1951: 265 [review].—Miyagi, 1963: 122, 125 [review, figs. of ♂ and ♀ terminalia]; 1973b: 82 [list, Philippines].—Delfinado, 1975: 221–222 [comparison with *C. brincki*, fig. of ♂ terminalia].—Delfinado and Wirth, 1977: 391 [Oriental catalog].—Mathis, 1982b: 9 [review, catalog, key; figs. of head and thorax]; 1992: 5 [world catalog].—Cogan, 1984: 124 [Palaearctic catalog].—Morimoto, 1989: 833 [list, Japan].—Ohishi *et al.*, 2007: 73 [citation, Japan (Honshu)].—Sasakawa, 2008: 135 [citation, OMNH].

Canace (Chaetocanace) biseta.—Hennig, 1941: 158 [list of types, DEI].

brincki Delfinado. *Australasian/Oceanian*: Australia (Queensland), Papua New Guinea (Central). *Oriental*: Sri Lanka (Northern Province).

Chaetocanace brincki Delfinado, 1975: 221 [Sri Lanka. Northern Province: Mannar (16 km E), Nay Aru at Pallamadu; HT ♂, MZLU].—Delfinado and Wirth, 1977: 391 [Oriental catalog].—Mathis, 1982b: 9 [catalog, key]; 1989a: 670 [Australasian/Oceanian catalog]; 1992: 5 [world catalog]; 1996: 332 [review, Australia].

flavipes Mathis. *Australasian/Oceanian*: Australia (Western Australia), Papua New Guinea (Central).

Chaetocanace flavipes Mathis, 1996: 332 [Papua New Guinea. Central: Lea Lea (saltpan margin); HT ♂, USNM].

koongarra Mathis. *Australasian/Oceanian*: Australia (Northern Territory).

Chaetocanace koongarra Mathis, 1996: 334 [Australia. Northern Territory: Koongarra (15 km E Mt. Cahill); HT ♂, ANIC].

longicauda Mathis. *Australasian/Oceanian*: Australia (Northern Territory).

Chaetocanace longicauda Mathis, 1996: 334 [Australia. Northern Territory: Jabiru (35 km W, South Alligator River area); HT ♂, ANIC].

Genus *Dynomiella* Giordani Soika (5 species)

Dynomiella Giordani Soika, 1956: 130. Type species: *Dynomiella arenicola* Giordani Soika (= *Canace stuckenbergi* Wirth, 1956b), by original designation and monotypy.—Mathis, 1982b: 9–11 [review]; 1992: 5 [world catalog]; 1996: 335–337 [Australian species].

Canace, in part, of authors.—Wirth, 1956b: 48–51 [revison, key]; 1960: 390 [synonymy of *Dynomiella* with *Canace*].—Cogan, 1980a: 694 [Afrotropical catalog].

australica Mathis. *Australasian/Oceanian*: Australia (Tasmania).

Dynomiella australica Mathis, 1996: 336 [Australia. Tasmania: Squeaking Point near Port Sorell (stony beach); HT ♂, UQIC].

cala (Cresson). *Afrotropical*: South Africa (Cape).

Canace cala Cresson, 1934: 220 [South Africa. Cape: East London; HT ♂, TMSA].—Wirth, 1951: 264 [review]; 1956b: 49–51 [key, review].—Cogan, 1980a: 694 [Afrotropical catalog].

Dynomiella cala.—Mathis, 1982b: 11 [generic combination, catalog, key]; 1992: 5 [world catalog].

glauca (Wirth). *Afrotropical*: South Africa (Cape).

Canace glauca Wirth, 1956b: 49 [South Africa. Cape: Port Elizabeth (56 km E), Gamtoos River (lower reaches, within 3 km of ocean); HT ♂, USNM (62712)].—Cogan, 1980a: 694 [Afrotropical catalog].

Dynomiella glauca.—Mathis, 1982b: 11 [generic combination, catalog, key]; 1992: 5 [world catalog].

spinosa (Wirth). *Afrotropical*: South Africa (Cape).

Canace spinosa Wirth, 1956b: 51 [South Africa. Cape: Port Elizabeth (56 km E), Gamtoos River (lower reaches, within 3 km of ocean); HT ♂, USNM (62714].—Cogan, 1980a: 694 [Afrotropical catalog].

Dynomiella spinosa.—Mathis, 1982b: 11 [generic combination, catalog, key; figs. of head, thorax, and leg]; 1992: 5 [world catalog].

stuckenbergi (Wirth). *Afrotropical*: South Africa (Cape), Namibia (Walvis Bay).

Canace stuckenbergi Wirth, 1956b: 50 [South Africa. Cape: Port Elizabeth (56 km E), Gamtoos River (lower reaches, within 3 km of ocean); HT ♂, USNM (62713)].—Cogan, 1980a: 694 [Afrotropical catalog].

Dynomiella stuckenbergi.—Mathis, 1982b: 11 [generic combination, catalog, key]; 1992: 5 [world catalog].

Dynomiella arenicola Giordani Soika, 1956: 130 [Namibia. Walfish Bay (= Walvis Bay); HT ♂, RMCA].—Wirth, 1960: 391 [synonymy].

Genus *Isocanace* Mathis (6 species)

Isocanace Mathis, 1982b: 11. Type species: *Isocanace briani* Mathis, by original designation; 1989a: 670 [Australasian/Oceanian catalog]; 1992: 5–6 [world catalog]; 1996: 337–339 [Australian species]; 1999: 347–358 [review].

Canace, in part, of authors.—Mathis and Wirth, 1979: 786.

albiceps (Malloch). *Australasian/Oceanian*: Australia (New South Wales, Queensland, Tasmania).

Canace albiceps Malloch, 1925: 87 [Australia. New South Wales: Sydney HT ♂, AMS].—Wirth, 1951: 262 [review].

Isocanace albiceps (Malloch).—Mathis, 1982b: 18 [generic combination; figs. of head, thorax, and ♂ terminalia]; 1989a: 670 [Australasian/Oceanian catalog]; 1992: 6 [world catalog]; 1996: 338–339 [review, Australia]; 1999: 351 [review].

australis Mathis. *Afrotropical*: Kenya, South Africa (Cape).

Isocanace australis Mathis, 1982b: 14 [South Africa. Cape: Port St. Johns; fig. of head and ♂ terminalia; HT ♂, NMSA]; 1999: 352–353 [review]; 1992: 6 [world catalog].

briani Mathis. *Afrotropical*: Madagascar (Antseranana), Seychelles (Aldabra).

Canace stuckenbergi Mathis and Wirth, 1979: 786 [Madagascar. Antseranana: Sambirano Lokobe Nosy Bé; fig. of ♂ terminalia; junior primary homonym, see Wirth, 1956b: 50; HT ♂, MNHN].

Isocanace briani Mathis, 1982b: 15 [new name for *C. stuckenbergi* Mathis and Wirth, 1979; figs. of head, thorax, and ♂ terminalia]; 1992: 6 [world catalog]; 1999: 353–354 [review].

crosbyi Mathis. *Australasian/Oceanian*: New Zealand (North and South Islands).

Isocanace crosbyi Mathis, 1999: 349 [New Zealand. South Island. NN: Cable Bay (41°09.6'S, 173°24.9'E); HT ♂, NZAC].

flava (Canzoneri and Meneghini). *Afrotropical*: Democratic Republic of the Congo (Haut-Zaire).

Canace flava Canzoneri and Meneghini, 1969: 184 [Zaire. Albert National Park: May ya Moto; HT ♂, RMCA].—Cogan, 1980a: 694 [Afrotropical catalog].

Isocanace flava.—Mathis, 1982b: 17 [generic combination; figs. of head, thorax, ♂ terminalia]; 1992: 6 [world catalog]; 1999: 355 [review].

freidbergi Mathis. *Afrotropical*: Kenya.

Isocanace freidbergi Mathis, 1999: 355 [Kenya. Takaugu (50 km N Monbasa); HT ♂, USNM]; 1992: 6 [world catalog].

Genus *Trichocanace* Wirth (3 species)

Trichocanace Wirth, 1951: 252. Type species: *Trichocanace sinensis* Wirth, by original designation and monotypy; 1964: 225-227 [revision; key].—Wirth and Delfinado, 1977: 392 [Oriental catalog].—Mathis and Wirth, 1979: 795 [diagnosis, discussion].—Cogan, 1980a: 694 [Afrotropical catalog].—Mathis, 1982b: 20–22 [review]; 1989a: 670 [Australasian/Oceanian catalog]; 1992: 6 [world catalog]; 1996: 339–342 [Australian species].

atra Wirth. *Australasian/Oceanian*: Australia (Queensland), Papua New Guinea (Central). *Oriental*: Philippines (Mindanao), Thailand (Cholburi).

Trichocanace atra Wirth, 1964: 227 [Australia. Queensland: Cairns; fig. of ♂ terminalia; HT ♂, USNM (67135)].—Delfinado and Wirth, 1977: 392 [Oriental catalog].—Mathis, 1982b: 21 [catalog, key].—Mathis, 1989a: 670 [Australasian/Oceanian catalog]; 1992: 6 [world catalog]; 1996: 340–341 [review, Australia].

marksae Wirth. *Australasian/Oceanian*: Australia (Queensland).

Trichocanace marksae Wirth, 1964: 226 [Australia. Queensland: Cairns (bayshore); fig. of ♂ terminalia; HT ♂, USNM (67134)].—Mathis, 1982b: 21 [catalog, key; figs. of head and thorax]; 1989a: 670 [Australasian/Oceanian catalog]; 1992: 6 [world catalog]; 1996: 341 [review, Australia].

sinensis Wirth. *Afrotropical*: Kenya, Madagascar (Toliara). *Australasian/Oceanian*: Australia (Queensland). *Oriental*: China (Fukien), Malaysia (Negri Sembilan), Thailand (Bangkok).

Trichocanace sinensis Wirth, 1951: 253 [China. Fukien: Foochow (= Minhow); fig. of head, wing, ♂ terminalia; HT ♂, NHML]; 1964: 225 [review].—Delfinado and Wirth, 1977: 392 [Oriental catalog].—Mathis and Wirth, 1979: 795 [review].—Cogan, 1980a: 694 [Afrotropical catalog].—Mathis, 1982b: 22 [catalog, key]; 1989a: 670 [Australasian/Oceanian catalog]; 1992: 6 [world catalog]; 1996: 341–342 [review, Australia].

Genus *Xanthocanace* Hendel (12 species)

Xanthocanace Hendel, 1914: 98. Type species: *Canace ranula* Loew, by original designation.—Malloch, 1924b: 334 [discussion, generic key].—Cresson, 1936: 270 [synonymy, discussion].—Curran, 1934b: 357 [generic key].—Wirth, 1951: 249 [review, key].—Miyagi, 1963: 123 [review, key].—Delfinado and Wirth, 1977: 393 [Oriental catalog].—Cogan, 1980a: 694 [Afrotropical catalog]; 1984: 125 [Palaearctic catalog].—Mathis, 1982b: 22-25 [review]; 1989a: 670 [Australasian/Oceanian catalog]; 1992: 6–7 [world catalog]; 1996: 342–346 [Australian species].—Mathis and Freidberg, 1982: 97-104 [review of western Palaearctic species]. ─Munari, 2008c: 45 [key, Arabian Peninsula].

Dinomyia Becker, 1926: 107. Type species: *Canace ranula* Loew, by monotypy; preoccupied, Martynov, 1909 (Trichoptera), and Dyar, 1919 (Diptera).—Séguy, 1934: 401 [generic key].—Cresson, 1936: 270 [synonymy with *Xanthocanace*].—Stackelberg, 1970b: 362 [key].

Myioblax Enderlein, 1935: 235. Type species: *Canace ranula* Loew, by original designation; 1936: 172 [review].—Cresson, 1936: 270 [synonymy with *Xanthocanace*].

capensis Wirth. *Afrotropical*: South Africa (Cape).

Xanthocanace capensis Wirth, 1956b: 47 [South Africa. Cape: Port Alfred, Kleinemonde River (sea water); HT ♂, USNM (62711)].—Miyagi, 1963: 125-126 [distribution, key].—Cogan, 1980a: 694 [Afrotropical catalog].—Mathis, 1982b: 24 [catalog, key]; 1992: 6 [world catalog].

collessi Mathis. *Australasian/Oceanian*: Australia (Western Australia).

Xanthocanace collessi Mathis, 1996: 345 [Australia. Western Australia: West Kimberley, Cape Bertholet (5 km SSW); HT ♂, UQIC].

hamifer Munari. *Palaearctic*: United Arab Emirates.

Xanthocanace hamifer Munari, 2008c: 40 [United Arab Emirates (UAE). Qurrayah; figs. of ♂♀ terminalia; HT ♂, NMWC]; 2010b: 648 [discussion].

kaplanorum Mathis and Freidberg. *Palaearctic*: Egypt (Sinai), Oman.

Xanthocanace kaplanorum Mathis and Freidberg, 1982: 100 [Egypt. Sinai: Nabek; figs. of head, ♂ terminalia; HT ♂, USNM (100203)].—Mathis, 1992: 6 [world catalog].—Munari, 2010b: 648 [discussion, citation, Oman].

magna (Hendel). *Oriental*: Taiwan (Anping).

Canace magna Hendel, 1913: 95 [Taiwan (Formosa). Anping; ST 2, DEI].

Xanthocanace magna.—Hendel, 1914: 98 [generic combination].—Malloch, 1924b: 334 [list].—Wirth, 1951: 250 [review].—Miyagi, 1963: 125–126 [distribution, key].—Delfinado and Wirth, 1977: 393 [Oriental catalog].—Mathis, 1982b: 24 [catalog, key]; 1992: 6 [world catalog].

Canace (Xanthocanace) magna.—Hennig, 1941: 158 [listing of syntypes in DEI].

nigrifrons Malloch. *Australasian/Oceanian*: Australia (New South Wales, Queensland, Tasmania, Western Australia).

Xanthocanace nigrifrons Malloch, 1924b: 334 [Australia. New South Wales: Woy Woy; figs. of head; HT ♂, AMS)].—Wirth, 195l: 250 [review].—Miyagi, 1963: 125-126 [distribution, key].—Griffiths, 1972: 256 [discussion of ♂ terminalia].—Mathis, 1982b: 24 [catalog, key, figs. of head and thorax]; 1989a: 670 [Australasian/Oceanian catalog]; 1992: 7 [world catalog]; 1996: 343–345 [review, Australia].

orientalis (Hendel). *Oriental*: China (Fukien), India (Bombay), Taiwan (Alikang, Anping), Thailand (Bangphra).

Canace orientalis Hendel, 1913: 94 [Taiwan (Formosa). Anping; ST 14, DEI].

Xanthocanace orientalis.—Hendel, 1914: 98 [generic combination].—Malloch, 1924b: 334 [list].—Wirth, 1951: 251 [review, figs. of ♂ terminalia].—Miyagi, 1963: 125-126 [distribution, key].—Delfinado and Wirth, 1977: 393 [Oriental catalog].—Mathis, 1982b: 24 [catalog, key]; 1992: 7 [world catalog].

Canace (Xanthocanace) orientalis.—Hennig, 1941: 158 [listing of syntypes in DEI].

pollinosa Miyagi. *Oriental*: Malaysia (Negri Sembilan, Perak). *Palaearctic*: Japan (Hokkaido, Honshu), Korea (Seoul).

Xanthocanace pollinosa Miyagi, 1963: 124 [Korea. Seoul; figs. of ♂ terminalia; HT ♂, USNM].—Mathis, 1982b: 24 [catalog, key]; 1992: 7 [world catalog].—Cogan, 1984: 126 [Palaearctic catalog].—Morimoto, 1989: 833 [list, Japan].—Ohishi *et al.*, 2007: 73 [citation, Japan (Honshu)]

ranula (Loew). *Palaearctic*: Belgium, Denmark, England, Germany, Ireland, Italy, Morocco, Netherlands, Spain (Canary Islands).

Canace ranula Loew, 1874: 81 [Germany. Coast of North Sea, Cuxhaven (ZMHB). Ireland. Kerry, Rossbegh Creek and Smerwick Bay (NMID or OUMNH); ST (number undetermined), NMID, OUMNH, ZMHB].—Gercke, 1887: 1–4 [discussion, mouthparts].—Becker, 1896: 247 [review, figs. of head and wing]; 1905c: 215 [Palaearctic catalog].—Czerny and Strobl, 1909: 266 [list, Spain].—Frey, 1921: 140–142 [discussion, figs. of mouthparts].

Xanthocanace ranula.—Hendel, 1914: 98 [generic combination]; 1928: 108 [list, Germany, figs. of head and wing].—Malloch, 1924b: 334 [list].—Wirth, 195l: 250 [review].—Miyagi, 1963: 125 [distribution, key].—Rald, 1976b: 77-79 [list, Denmark, figs. of head and mouthparts, key].—Cogan, 1976a: 87 [list, British insects] 1984: 126 [Palaearctic catalog].—Mathis, 1982b: 24 [catalog, key];

1992: 7 [world catalog].—Mathis and Freidberg, 1982: 101 [review, figs. of ♂ terminalia].—Beuk, 2002a: 277 [catalog, Netherlands].—Stuke, 2008: 86, 102 [citation, Germany].—von Tschirnhaus, 2008: 383 [citation, Germany].—Munari, 2010a: 54 [citation, Morocco].

Dinomyia ranula.—Becker, 1926: 107 [generic combination, review].—Séguy, 1934: 401 [review].—Goetghebuer, 1942: 8 [list, Belgium].—Stackelberg, 1970b: 363 [list, North Sea area].

Myioblax ranula.—Enderlein, 1935: 235 [generic combination]; 1936: 172 [key].

Canace nasica (misidentification).—Haliday, 1855: 64 [review, figs. of head and habitus (dorsal view)].

sabroskyi Mathis and Freidberg. *Palaearctic*: Egypt (Sinai), Oman, United Arab Emirates.

Xanthocanace sabroskyi Mathis and Freidberg, 1982: 100 [Egypt. Sinai: Nabek; figs. of head, ♂ terminalia; HT ♂, USNM (100204)].—Mathis, 1992: 7 [world catalog].—Munari, 2010b: 648–650 [discussion, citation, Oman, United Arab Emirates].

seoulensis Miyagi. *Palaearctic*: Korea (Seoul).

Xanthocanace seoulensis Miyagi, 1963: 123 [Korea. Seoul; figs. of ♂ terminalia; HT ♂, USNM].—Mathis, 1982b: 25 [catalog, key]; 1992: 7 [world catalog].

zeylanica Delfinado. *Oriental*: Sri Lanka (Northwestern Province). *Palaearctic*: Oman.

Xanthocanace zeylanica Delfinado, 1975: 223 [Sri Lanka. Northwestern Province: Puttalan (5 km N, salt pan); HT ♂, MZLU].—Delfinado and Wirth, 1977: 393 [Oriental catalog].—Mathis, 1982b: 25 [catalog, key]; 1992: 7 [world catalog].—Munari, 2010b: 650 [citation, Oman].

Tribe Nocticanacini Mathis (4 genera, 82 species)

Nocticanacinae Mathis, 1982b: 3. Type genus: *Nocticanace* Malloch 1933.

Key to Genera of Nocticanacini

1. Interfrontal setae absent, although anterior 1/3 of frons occasionally with scattered setulae (mostly Pantropical, also occurring on the Atlantic coast of the Nearctic Region)..... *Procanace* Hendel
- One or 2 interfrontal setae in addition to any setulae 2
2. Two interfrontal setae; postocellar setae well developed, proclinate and slightly divergent (Central and South America) .....*Paracanace* Mathis and Wirth
- One interfrontal seta; postocellar setae either much reduced or absent 3
3. Disc of scutellum with 2-15 setulae; 3 large dorsoclinate genal setae (Hawaii, Eastern Pacific coast) .... *Canaceoides* Cresson
- Disc of scutellum lacking setulae; 2 large dorsoclinate genal setae (mostly Pantropical).....*Nocticanace* Malloch

Genus *Canaceoides* Cresson (9 species)

Canaceoides Cresson, 1934: 221. Type species: *Canace nudata* Cresson, 1926, by original designation.—Wirth, 1951: 266–269 [revision]; 1954: 59 [notes, comparison with *Nocticanace*]; 1965: 733 [Nearctic catalog]; 1969a: 551–570 [revision]; 1975: 1–5 [Neotropical catalog].—Wheeler, 1952: 91 [notes on synonymy].—Cole, 1969: 391 [key, discussion].—Hardy and Delfinado, 1980a: 384–388 [revision of Hawaiian species].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 7–8 [world catalog].

Procanace Curran, 1934a: 160. Type species: *Procanace panamensis* Curran, 1934a, by original designation; preoccupied, Hendel, 1913 (Diptera).

Neocanace Curran, 1934b: 357. Type species: *Procanace panamensis* Curran, 1934a, automatic; new name for *Procanace* Curran 1934.—Wirth, 1951: 266 [synonymy with *Canaceoides*].

angulatus Wirth. *Australasian/Oceanian*: Hawaii (Hawaii, Kauai, Kahoolawe, Laisan, Lisiansky, Maui, Molokai, Nihoa, Oahu), Midway Islands. *Nearctic*: Mexico (Baja California Norte). *Neotropical*: Ecuador (Galápagos Islands), Peru (Lima).

Canaceoides nudatus, in part (misidentification), of authors.—Bryan, 1926: 69 [list, Hawaii]; 1934: 432, 455 [list].—Hardy, 1952: 466 [list, Hawaii].

Canaceoides angulatus Wirth, 1969a: 556 [Hawaii: Oahu, Waimea (intertidal rocks); figs. of ♂ and ♀ terminalia; HT ♂, USNM (69932)]; 1969b: 590 [review]; 1975: 2 [Neotropical catalog].—Arnaud, 1979: 346 [list of types, CAS].—Hardy and Delfinado, 1980a: 384 [revision, figs. of head, ♂ and ♀ terminalia, larvae].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 7 [world catalog].—Nishida, 2002: 86 [checklist, Hawaii].

balboai Wirth. *Neotropical*: Panama (Canal Area, Darién).

Canaceoides balboai Wirth, 1969a: 559 [Panama. Darién: Jaqué; figs. of ♂ and ♀ terminalia; HT ♂, USNM (69933)]; 1975: 2 [Neotropical catalog].—Mathis, 1992: 7–8 [world catalog].

hawaiiensis Wirth. *Australasian/Oceanian*: Hawaii (Hawaii, Kauai, Maui, Molokai, Nihoa, Oahu).

Canaceoides hawaiiensis Wirth, 1969a: 561 [Hawaii. Maui: Hana; figs. of ♂ and ♀ terminalia; HT ♂, BPBM].—Hardy and Delfinado, 1980a: 387 [revision, figs. of ♂ and ♀ terminalia].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 8 [world catalog].—Nishida, 2002: 86 [checklist, Hawaii].

nudatus (Cresson). *Nearctic*: Mexico (Baja California Norte), United States (California, Washington).

Canace nudata Cresson, 1926: 257 [United States. California: Los Angeles; HT ♂, ANSP (6307)].—Malloch, 1933: 114 [note].—Williams, 1938: 108 [natural history].—Arnaud, 1979: 346 [list, type data].

Canaceoides nudatus.—Cresson, 1934: 221 [generic combination].—Wirth, 1951: 266 [revision, figs. of ♂ terminalia]; 1954: 60 [notes]; 1965: 733 [Nearctic catalog]; 1969a: 562 [revision, figs. of ♂ and ♀ terminalia]; 1975: 2 [Neotropical catalog].—Hinton, 1976: 471 [fig. of larva].—Wheeler, 1952: 92 [notes].—Cole, 1969: 391 [list, California, WA].—Mathis, 1992: 8 [world catalog].

panamensis (Curran). *Neotropical*: Panama (Canal Area).

Procanace panamensis Curran, 1934a: 161 [Panama. Canal Area: Patilla Point; HT ♂, AMNH].

Canaceoides panamensis.—Wirth, 1951: 268 [revision, generic combination; figs. of ♂ terminalia]; 1969a: 563 [revision, figs. of ♂ and ♀ terminalia]; 1975: 2 [Neotropical catalog].—Mathis, 1992: 8 [world catalog].

scutellatus Wirth. *Neotropical*: Mexico (Baja California Sur).

Canaceoides scutellatus Wirth, 1969a: 563 [Mexico. Baja California Sur: Gulf of California, Isla de Sanildefonso; figs. of ♂ and ♀ terminalia; HT ♂, CAS (10156)]; 1975: 2 [Neotropical catalog].—Arnaud, 1979: 347 [list, type data].—Mathis, 1992: 8 [world catalog].

setosus Wirth. *Neotropical*: Mexico (Baja California Sur).

Canaceoides setosus Wirth, 1969a: 565 [Mexico. Baja California Sur: Gulf of California, Isla de Santa Catalina; figs. of ♂ and ♀ terminalia; HT ♂, CAS (10157)]; 1975: 2 [Neotropical catalog].—Arnaud, 1979: 347 [list, type data].—Mathis, 1992: 8 [world catalog].

spinosus Wirth. *Neotropical*: Mexico (Baja California Sur).

Canaceoides spinosus Wirth, 1969a: 567 [Mexico. Baja California Sur: Cabo San Lucas; figs. of ♂ and ♀ terminalia; HT ♂, CAS (10158)]; 1975: 2 [Neotropical catalog].—Arnaud, 1979: 347 [list, type data].—Mathis, 1992: 8 [world catalog].

tenuistylus Wirth. *Neotropical*: Mexico (Baja California Sur).

Canaceoides tenuistylus Wirth, 1969a: 568 [Mexico. Baja California Sur: Gulf of California, Isla San Francisco; figs. of ♂ and ♀ terminalia; HT ♂, CAS (10159)].—Arnaud, 1979: 347 [list, type data].—Mathis, 1992: 8 [world catalog].

Genus *Nocticanace* Malloch (35 species)

Nocticanace Malloch 1933: 4. Type species: *Nocticanace peculiaris* Malloch, 1933, by original designation.—Wirth, 1951: 269–274 [revision]; 1954: 59 [notes]; 1969b: 581–590 [revision of species from Galápagos Islands, discussion]; 1975: 2–3 [Neotropical catalog].—Miyagi, 1965b: 299–

303 [revision of Japanese species].—Cole, 1969: 391 [key, discussion].—Delfinado and Wirth, 1977: 391–392 [Oriental catalog].—Mathis and Wirth, 1979: 788–790 [diagnosis, discussion].—Cogan, 1980a: 694 [Afrotropical catalog]; 1984: 124 [Palaearctic catalog].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 8–10 [world catalog]; 1989b: 594–599 [review of Caribbean and nearby fauna].—Mathis and Foster, 2007: 394–400 [review, Delmarva States].—Munari, 2008c: 45 [key, Arabian Peninsula].

actites Mathis and Wirth. *Afrotropical*: Madagascar (Tomasina), Seychelles (Aldabra).

Nocticanace actites Mathis and Wirth, 1979: 790 [Madagascar. Toamasina: Fénérive (= Fenoarivo Atsinanana; beach); figs. of ♂ terminalia; HT ♂, MNHN].—Mathis and Freidberg, 1991: 76 [review].—Mathis, 1992: 8 [world catalog].

affinis Munari. *Palaearctic*: Oman, United Arab Emirates.

Nocticanace affinis Munari, 2008c: 38 [Oman. Muscat, Haramel; figs. of ♂♀ terminalia; HT ♂, NMWC]; 2010b: 647 [citation, United Arab Emirates].

arnaudi Wirth. *Nearctic*: United States (California).

Nocticanace arnaudi Wirth, 1954: 59 [United States. California. Monterey: Point Lobos; HT ♂, USNM (61608)].—Wirth, 1965: 734 [Nearctic catalog].—Cole, 1969: 391 [list, California].—Arnaud, 1979: 347 [list, type data].—Mathis, 1992: 8 [world catalog].

ashlocki Wirth. *Neotropical*: Ecuador (Galápagos Islands).

Nocticanace ashlocki Wirth, 1969b: 589 [Ecuador. Galápagos Islands: Isla Santa Cruz, Academy Bay (coastal rocks and beach); figs. of wing, ♂ and ♀ terminalia; HT ♂, CAS (10160)]; 1975: 2 [Neotropical catalog].—Arnaud, 1979: 347 [list, type data].—Mathis, 1992: 8 [world catalog].

australina Mathis. *Australasian/Oceanian*: Australia (New South Wales).

Nocticanace australina Mathis, 1996: 329 [Australia. New South Wales: Lord Howe Islands, Roach Island Beach; HT ♂, ANIC].

caffraria (Cresson). *Afrotropical*: South Africa (Cape).

Canaceoides caffraria Cresson, 1934: 222 [South Africa. Cape: East London; HT ♂, TMSA].

Nocticanace caffraria.—Wirth, 1951: 273 [revision, generic combination]; 1956b: 51 [review].—Cogan, 1980a: 694 [Afrotropical catalog].—Mathis and Freidberg, 1991: 76–77 [review].—Mathis, 1992: 8 [world catalog].

cancer Wirth. *Neotropical*: Ecuador (Galápagos Islands).

Nocticanace cancer Wirth, 1969b: 586 [Ecuador. Galápagos Islands: Isla Pinta (on crabs); figs. of ♂ terminalia; HT ♂, SMNS]; 1975: 2 [Neotropical catalog].—Mathis, 1992: 8 [world catalog].

chilensis (Cresson). *Neotropical*: Chile, Panama.

Canace chilensis Cresson, 1931: 116 [Chile. Chiloe Island, Ancud; HT ♂, NHML].

Canaceoides chilensis.—Cresson, 1934: 221 [generic combination].—Stuardo Ortiz, 1946: 146 [catalog, Chile].—Wirth, 1951: 269 [review, figs. of ♂ terminalia].

Nocticanace chilensis.—Wirth, 1954: 61 [review; generic combination]; 1975: 2 [Neotropical catalog].—Mathis, 1992: 8 [world catalog].

curioi Wirth. *Neotropical*: Ecuador (Galápagos Islands).

Nocticanace galapagensis (misidentification).—Curio, 1964: 794–797 [habits].

Nocticanace curioi Wirth, 1969b: 583 [Ecuador. Galápagos Islands: Isla Wolf (from crabs); figs. of leg, ♂ and ♀ terminalia; HT ♂, SMNS]; 1975: 2 [Neotropical catalog].—Mathis, 1992: 8–9 [world catalog].

cyclura Mathis and Wirth. *Afrotropical*: Madagascar (Toliara).

Nocticanace cyclura Mathis and Wirth, 1979: 791 [Madagascar. Toliara: Sud-Est Sainte Luce, Fort Dauphin (= Taolanaro; 10 m); figs. of ♂ terminalia; HT ♂, MNHN].—Mathis and Freidberg, 1991: 77 [review].—Mathis, 1992: 9 [world catalog].

danjoensis Miyagi. *Palaearctic*: Japan (Kyushu).

Nocticanace danjoensis Miyagi, 1973d: 174 [Japan. Kyushu: Nagasaki, Danjo Islands, Meshima; figs. of ♂ and ♀ terminalia; HT ♂, EIHU].—Cogan, 1984: 125 [Palaearctic catalog].—Morimoto, 1989: 833 [list, Japan].—Mathis, 1992: 9 [world catalog].

darwini Wirth. *Neotropical*: Ecuador (Galápagos Islands).

Nocticanace darwini Wirth, 1969b: 585 [Ecuador. Galápagos Islands: Isla Genovesa (on crabs); figs. of leg, ♂ and ♀ terminalia; HT ♂, SMNS]; 1975: 3 [Neotropical catalog].—Mathis, 1992: 9 [world catalog].

flavipalpis Mathis and Wirth. *Afrotropical*: Madagascar (Toamasina), Seychelles (Aldabra, Cosmoledo).

Nocticanace flavipalpis Mathis and Wirth, 1979: 792 [Madagascar. Toamasina: Est Ivontaka, Mananara (15 m); figs. of ♂ terminalia; HT ♂, MNHN].—Mathis and Freidberg, 1991: 77 [review].—Mathis, 1992: 9 [world catalog].

galapagensis (Curran). *Neotropical*: Ecuador (Galápagos Islands).

Procanace galapagensis Curran, 1934a: 160 [Ecuador. Galápagos Islands: Albemarle Island (= Isabela), Tagus Cove; HT ♂, CAS (3804)].—Arnaud, 1979: 348 [list, type data].

Nocticanace galapagensis.—Wirth, 1951: 274 [revision, generic combination]; 1969b: 581 [revision, figs. of ♂ and ♀ terminalia]; 1975: 3 [Neotropical catalog].—Curio, 1964: 794 [in part, habits].—Mathis, 1992: 9 [world catalog].

hachijuoensis Miyagi. *Palaearctic*: Japan (Honshu).

Nocticanace hachijuoensis Miyagi, 1965b: 302 [Japan. Honshu: Hachijo-jima; figs. of ♂ and ♀ terminalia; HT ♂, EIHU].—Cogan, 1984: 125 [Palaearctic catalog].—Morimoto, 1989: 833 [list, Japan].—Mathis, 1992: 9 [world catalog].

japonica Miyagi. *Palaearctic*: Japan (Hokkaido, Honshu, Kyushu).

Nocticanace japonicus Miyagi, 1965b: 300 [Japan. Hokkaido: Otaru; figs. of ♂ and ♀ terminalia; HT ♂, EIHU]; 1973d: 175 [list].—Cogan, 1984: 125 [Palaearctic catalog].—Morimoto, 1989: 833 [list, Japan].—Mathis, 1992: 9 [world catalog].

kraussi Munari. *Australasian/Oceanian*: Cook Islands (Polynesia).

Nocticanace kraussi Munari, 2010a: 53 [Cook Islands: Aitutaki; figs. of ♂ terminalia ; HT ♂, ZMUC].

litoralis Delfinado. *Oriental*: Taiwan.

Nocticanace litoralis Delfinado, 1971: 119 [Taiwan. Yehliu Beach, Taipei Hsien; figs. of ♂ and ♀ terminalia; HT ♂, BPBM].—Delfinado and Wirth, 1977: 391 [Oriental catalog].—Mathis, 1992: 9 [world catalog].

littorea Mathis and Freidberg. *Afrotropical*: Kenya.

Nocticanace littorea Mathis and Freidberg, 1991: 77 [Kenya. Takaungu (50 km N Mombasa); fig. of ♂ terminalia; HT ♂, USNM].—Mathis, 1992: 9 [world catalog].

mahensis (Lamb). *Afrotropical*: Seychelles (Mahé).

Canace mahensis Lamb, 1912: 328 [Seychelles (Mahé); HT ♂, NHML].

Nocticanace mahensis.—Wirth, 1951: 274 [generic combination, review].—Cogan, 1980a: 694 [Afrotropical catalog].—Mathis, 1982c: 423 [revision, figs. of ♂ terminalia] 1992: 9 [world catalog].—Mathis and Freidberg, 1991: 78 [review].

malayensis Miyagi. *Oriental*: Malaysia.

Nocticanace malayensis Miyagi, 1973c: 169 [Malaysia. Penang; figs. of ♂ and ♀ terminalia; HT ♂, EIHU].—Delfinado and Wirth, 1977: 391 [Oriental catalog].—Mathis, 1992: 9 [world catalog].

marshallensis Wirth. *Australasian/Oceanian*: Marshall Islands.

Nocticanace marshallensis Wirth, 1951: 272 [Marshall Islands. Ailinglapalap Atoll: Bigatyeling Island; fig. of ♂ terminalia; HT ♂, USNM (59968)].—Arnaud, 1979: 348 [list, type data].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 9 [world catalog].

pacifica Sasakawa. *Oriental*: Japan (Ryukyu), Taiwan. *Palaearctic*: Japan (Kyushu).

Nocticanace pacificus Sasakawa, 1955: 367 [Japan. Ryukyu Islands: Tokara Islands, Nakanoshima Island; figs. of ♂ and ♀ terminalia; HT ♂, OMNH (formerly in SUJ)].—Miyagi, 1965b: 302 [revision, figs. of ♂ and ♀ terminalia; 1973a: 81 [list, Taiwan].—Delfinado and Wirth, 1977: 391

[Oriental catalog].—Morimoto, 1989: 833 [list, Japan].—Mathis, 1992: 9 [world catalog].—Matsumoto and Sasakawa, 2006: 25 [citation, primary type, OMNH].

panamensis Mathis. *Neotropical*: Panama (Canal Area).

Nocticanace panamensis Mathis, 1989b: 599 [Panama. Canal Area: Mojinga Swamp, Ft. Sherman; figs. of ♂ terminalia; HT ♂, USNM]; 1992: 9 [world catalog].

peculiaris Malloch. *Australasian/Oceanian*: Austral Islands, Marianas Islands, Marquesas, Mangareva. *Oriental*: Japan (Okinawa).

Nocticanace peculiaris Malloch, 1933: 4 [Marquesas. Eiao: Vaituha; HT ♂, BPBM].—Wirth, 1951: 270 [revision, figs. of ♂ and ♀ terminalia].—Cole, 1969: 391 [list, Marquesas].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 9 [world catalog].—Munari, 2010a: 52, 54 [discussion, fig. of surstylus].

propristyla Miyagi. *Oriental*: Malaysia.

Nocticanace propristyla Miyagi, 1973c: 170 [Malaysia. Port Dickson; figs. of ♂ and ♀ terminalia; HT ♂, EIHU].—Delfinado and Wirth, 1977: 391 [Oriental catalog].—Mathis, 1992: 9 [world catalog].

scapania Wirth. *Neotropical*: Ecuador (Galápagos Islands).

Nocticanace scapanius Wirth, 1969b: 586 [Ecuador. Galápagos Islands: Isla Fernandina: Punta Espinosa (intertidal rocks); figs. of ♂ and ♀ terminalia; HT ♂, CAS (10161)]; 1975: 3 [Neotropical catalog].—Arnaud, 1979: 348 [list, type data].—Mathis, 1992: 9 [world catalog].

sinaiensis Mathis. *Palaearctic*: Egypt, Israel.

Nocticanace sinaiensis Mathis, 1982a: 64 [Israel. Sinai: Ras Burka; figs. of head, thorax, and ♂ terminalia; HT ♂, USNM (76784)]; 1992: 9–10 [world catalog].

sinensis Delfinado. *Oriental*: China (Hong Kong).

Nocticanace sinensis Delfinado, 1971: 120 [Hong Kong. N.T. Sai Kung Station; figs. of ♂ terminalia; HT ♂, BPBM].—Delfinado and Wirth, 1977: 392 [Oriental catalog].—Mathis, 1982c: 424 [review, fig. of ♂ terminalia]; 1992: 10 [world catalog].

spinicosta Wirth. *Neotropical*: Ecuador (Galápagos Islands).

Nocticanace spinicosta Wirth, 1969b: 589 [Ecuador. Galápagos Islands: Isla Fernandina: Punta Espinosa (intertidal rocks); figs. of ♂ and ♀ terminalia; HT ♂, CAS (10162)]; 1975: 3 [Neotropical catalog].—Arnaud, 1979: 348 [list, type data].—Cogan, 1984: 125 [Palaearctic catalog].—Mathis, 1992: 10 [world catalog].

takagii Miyagi. *Palaearctic*: Japan (Honshu, Kyushu, Shikoku).

Nocticanace takagii Miyagi, 1965b: 302 [Japan. Honshu: Kumano, Kii, Wakayama-ken; figs. of ♂ and ♀ terminalia; HT ♂, EIHU]; 1973d: 175 [list].—Morimoto, 1989: 833 [list, Japan].—Mathis, 1992: 10 [world catalog].—Ohishi *et al.*, 2007: 73 [citation, Japan (Honshu)]

taprobane Mathis. *Oriental*: Sri Lanka.

Nocticanace taprobane Mathis, 1982c: 421 [Sri Lanka. Galle District: Mirigama; figs. of ♂ terminalia; HT ♂, USNM (100224)]; 1992: 10 [world catalog].

texensis (Wheeler). *Nearctic*: United States (Florida, North Carolina, Texas). *Neotropical*: Belize, Mexico (Tabasco), West Indies (Antigua, Dominica, St. Vincent, Trinidad and Tobago).

Canaceoides texensis Wheeler, 1952: 92 [United States. Texas. Galveston: Galveston; HT ♂, CAS (6311)].—Arnaud, 1979: 347 [list, type data].

Nocticanace texensis.—Wirth, 1954: 62 [review; generic combination]; 1965: 734 [Nearctic catalog]; 1975: 3 [Neotropical catalog].—Mathis, 1989b: 595–598 [revision, figs. of ♂ terminalia]; 1992: 10 [world catalog].—Mathis and Foster, 2007: 397–400 [review, Delmarva States].

usingeri Wirth. *Neotropical*: Ecuador (Galápagos Islands).

Nocticanace usingeri Wirth, 1969b: 587 [Ecuador. Galápagos Islands: Isla Fernandina: Punta Espinosa; figs. of ♂ and ♀ terminalia; HT ♂, CAS (10163)]; 1975: 3 [Neotropical catalog].—Arnaud, 1979: 348 [list, type data].—Mathis, 1992: 10 [world catalog].

wirthi Mathis. *Nearctic*: Bermuda, United States (Florida). *Neotropical*: West Indies (Cuba).

Nocticanace wirthi Mathis, 1989b: 598 [United States. Florida. Palm Beach: Boyton Beach; figs. of ♂ terminalia; HT ♂, USNM]; 1992: 10 [world catalog].

zimmermani Wirth. *Australasian/Oceanian*: Rapa Island.

Nocticanace zimmermani Wirth, 1951: 272 [Rapa Island. Karapo Rahi Islet; figs. of ♂ and ♀ terminalia; HT ♂, BPBM].—Arnaud, 1979: 348 [list, type data].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 10 [world catalog].

Genus *Paracanace* Mathis and Wirth (8 species)

Paracanace Mathis and Wirth, 1978: 524. Type species: *Paracanace hoguei* Mathis and Wirth, 1978, by original designation.—Mathis, 1989b: 600–603 [review of Caribbean and nearby fauna]; 1992: 10 [world catalog]; 1997: 140–148 [review of *hoguei* group].

Canace, in part, of authors.—Wirth, 1975: 1 [Neotropical catalog].

aicen Mathis and Wirth. *Nearctic*: United States (Florida). *Neotropical*: Belize, Mexico (Quintana Roo), West Indies (Cuba, Dominica, Dominican Republic, St. Lucia, St. Vincent, Trinidad and Tobago).

Paracanace aicen Mathis and Wirth, 1978: 533 [Dominica. Calibishie; figs. of wing, ♂ terminalia; HT ♂, USNM (75304)].—Mathis, 1989b: 601–603 [review]; 1992: 10 [world catalog]; 1997: 142–144 [review].

blantoni (Wirth). *Neotropical*: Panama (Darién).

Canace blantoni Wirth, 1956a: 162 [Panama. Darién: Jaqué; HT ♂, USNM (63002)]; 1975: 1 [Neotropical catalog].

Paracanace blantoni.—Mathis and Wirth, 1978: 524 [generic combination], 527 [key].—Mathis, 1992: 10 [world catalog].

cavagnaroi (Wirth). *Neotropical*: Ecuador (Galápagos Islands).

Canace cavagnaroi Wirth, 1969b: 579 [Ecuador. Galápagos Islands: Isla Santa Cruz: Academy Bay (beach and coastal collecting); figs. of ♂ terminalia, ♀ spermatheca; HT ♂, CAS (10155)]; 1975: 1 [Neotropical catalog].—Arnaud, 1979: 346 [list, type data].

Paracanace cavagnaroi.—Mathis and Wirth, 1978: 524 [generic combination], 527 [key].—Mathis, 1992: 10 [world catalog].

hoguei Mathis and Wirth. *Neotropical*: Costa Rica (Cocos Island).

Paracanace hoguei Mathis and Wirth, 1978: 527 [Costa Rica. Cocos Island: Wafer Bay; figs. of legs, wing, ♂ terminalia; HT ♂, LACM].—Mathis, 1992: 10 [world catalog]; 1997: 144–146 [review].

lebam Mathis and Wirth. *Neotropical*: West Indies (Jamaica).

Paracanace lebam Mathis and Wirth, 1978: 530 [Jamaica. Runaway Bay; figs. of head, ♂ terminalia; HT ♂, USNM (75303)].—Mathis, 1989b: 603 [review]; 1992: 10 [world catalog]; 1997: 146 [review].

maritima (Wirth). *Neotropical*: Ecuador (Galápagos Islands).

Canace maritima Wirth, 1951: 263 [Ecuador. Galápagos Islands: Bartolomé Island (edge mangrove); figs. of ♂ and ♀ terminalia; HT ♂, USNM (59967)]; 1956a: 162 [key]; 1969b: 578 [review]; 1975: 1 [Neotropical catalog].

Paracanace maritima.—Mathis and Wirth, 1978: 524 [generic combination], 527 [key].—Mathis, 1992: 10 [world catalog].

oliveirai (Wirth). *Neotropical*: Brazil (Rio de Janeiro).

Canace oliveirai Wirth, 1956a: 164. [Brazil. Rio de Janeiro: Ilha Guaiba, Baia de Sepetiba; HT ♂, FIOC]; 1975: 1 [Neotropical catalog].

Paracanace oliveirai.—Mathis and Wirth, 1978: 524 [generic combination], 527 [key].—Mathis, 1992: 10 [world catalog].

wirthi Mathis. *Neotropical*: West Indies (Puerto Rico).

Paracanace wirthi Mathis, 1997: 146. [Puerto Rico. Arecibo (18°28.7'N, 66°42'W); HT ♂, USNM].

Genus *Procanace* Hendel (30 species)

Procanace Hendel, 1913: 93. Type species: *Procanace grisescens* Hendel, by original designation.—Wirth, 1951: 253–259 [revision].—Miyagi, 1965a: 85 [revision of Japanese species].—Delfinado, 1970: 527–531 [revision of species from New Guinea].—Delfinado and Wirth, 1977: 392 [Oriental catalog].—Mathis and Wirth, 1979: 794 [diagnosis, discussion].—Hardy and Delfinado, 1980a: 388-406 [revision of Hawaiian species].—Cogan, 1984: 125 [Palaearctic catalog].—Mathis, 1989a: 669–670 [Australasian/Oceanian catalog]; 1989b: 603–607 [review of Caribbean and nearby fauna]; 1992: 10–12 [world catalog].—Mathis and Foster, 2007: 410–413 [review, Delmarva States].—Ohishi *et al.*, 2007: 77 [graphic key to Japanese species].

acuminata Hardy and Delfinado. *Australasian/Oceanian*: Hawaii (Hawaii, Maui, Molokai).

Procanace acuminata Hardy and Delfinado, 1980a: 389 [Hawaii. Hawaii: east slope of Mauna Kea, Kapue Stream (305 m); figs. of wing, ♂ and ♀ terminalia, larvae; HT ♂, BPBM].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 11 [world catalog].—Nishida, 2002: 86 [checklist, Hawaii].

aestuaricola Miyagi. *Palaearctic*: Japan (Honshu, Shikoku).

Procanace aestuaricola Miyagi, 1965a: 89 [Japan. Shikoku: Matsuyama; figs. of ♂ and ♀ terminalia; HT ♂, EIHU].—Cogan, 1984: 125 [Palaearctic catalog].—Morimoto, 1989: 833 [list, Japan].—Mathis, 1992: 11 [world catalog].—Ohishi *et al.*, 2007: 73 [citation, Japan (Honshu)]

bifurcata Hardy and Delfinado. *Australasian/Oceanian*: Hawaii (Kauai, Oahu).

Procanace bifurcata Hardy and Delfinado, 1980a: 392 [Hawaii. Oahu: Opaeula Stream (320 m); figs. of ♂ and ♀ terminalia; HT ♂, BPBM].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 11 [world catalog].—Nishida, 2002: 86 [checklist, Hawaii].

canzonerii Mathis and Freidberg. *Afrotropical*: Cameroon.

Procanace canzonerii Mathis and Freidberg, 1991: 79 [Cameroon. Limbe (shore); figs. of ♂ terminalia; HT ♂, USNM].—Mathis, 1992: 11 [world catalog].

cogani Mathis. *Afrotropical*: Seychelles (Mahé).

Procanace cogani Mathis, 1988: 24 [Seychelles. Mahé: Anse aux Pins; figs. of ♂ terminalia; HT ♂, USNM]; 1992: 11 [world catalog].—Mathis and Freidberg, 1991: 83 [review].

confusa Hardy and Delfinado. *Australasian/Oceanian*: Hawaii (Hawaii, Maui).

Procanace confusa Hardy and Delfinado, 1980a: 394 [Hawaii. Hawaii: Akaka Falls (stream above); figs. of ♂ and ♀ terminalia; HT ♂, BPBM].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 11 [world catalog].—Nishida, 2002: 86 [checklist, Hawaii].

constricta Hardy and Delfinado. *Australasian/Oceanian*: Hawaii (Hawaii, Maui, Molokai).

Procanace constricta Hardy and Delfinado, 1980a: 396 [Hawaii. Molokai: Halawa Valley (wet rocks in swift moving stream); figs. of ♂ and ♀ terminalia; HT ♂, BPBM].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 11 [world catalog].—Nishida, 2002: 86 [checklist, Hawaii].

cressoni Wirth. *Oriental*: China. *Palaearctic*: Japan (Hokkaido, Honshu, Shikoku, Kyushu).

Procanace cressoni Wirth, 1951: 256 [China. Fukien: Foochow (= Minhow); figs. of ♂ terminalia; HT ♂, NHML].—Miyagi, 1965a: 97 [revision, figs. of ♂ and ♀ terminalia].—Delfinado and Wirth, 1977: 392 [Oriental catalog].—Morimoto, 1989: 833 [list, Japan].—Mathis, 1992: 11 [world catalog].—Ohishi *et al.*, 2007: 73 [citation, Japan (Honshu)].—Sasakawa, 2008: 135 [citation, OMNH].

dianneae Mathis. *Nearctic*: Bermuda, United States (Alabama, Delaware, Florida, Maryland, Mississippi, North Carolina, South Carolina, Virginia). *Neotropical*: Brazil, West Indies (Cuba).

Procanace dianneae Mathis, 1988a: 330 [United States. Virginia. Westmoreland: Westmoreland State Park (banks of Potomac River); figs. of ♂ terminalia; HT ♂. USNM]; 1989b: 606–607 [review]; 1992: 11 [world catalog].—Mathis and Foster, 2007: 400–404 [review, Delmarva States].

flavescens Miyagi. *Palaearctic*: Japan (Honshu, Kyushu).

Procanace flavescens Miyagi, 1965a: 88 [Japan. Kyushu: Ibusuki, Kagoshima-ken; figs. of ♂ and ♀ terminalia; HT ♂, EIHU].—Cogan, 1984: 125 [Palaearctic catalog].—Morimoto, 1989: 833 [list, Japan].—Mathis, 1992: 11 [world catalog].—Ohishi *et al.*, 2007: 73 [citation, Japan (Honshu)]

flaviantennalis Miyagi. *Oriental*: Japan (Ryukyu Islands).

Procanace flaviantennalis Miyagi, 1965a: 90 [Japan. Ryukyu Islands: Ishigaki-jima; figs. of ♂ and ♀ terminalia; HT ♂, EIHU].—Morimoto, 1989: 833 [list, Japan].—Mathis, 1992: 11 [world catalog].

fulva Miyagi. *Palaearctic*: Japan (Hokkaido, Honshu, Kyushu).

Procanace fulva Miyagi, 1965a: 91 [Japan. Hokkaido: Okoppe; figs. of ♂ and ♀ terminalia; HT ♂, EIHU].—Cogan, 1984: 125 [Palaearctic catalog].—Morimoto, 1989: 833 [list, Japan].—Mathis, 1992: 11 [world catalog].

gressitti Delfinado. *Australasian/Oceanian*: Papua New Guinea.

Procanace gressitti Delfinado, 1970: 527 [Papua New Guinea. NE Wonerara (1450 m); figs. of ♂ and ♀ terminalia; HT ♂, BPBM].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 11 [world catalog].

grisescens Hendel. *Afrotropical*: Kenya, Liberia, Nigeria, Sierra Leone, Sudan, Democratic Republic of the Congo (=Zaire). *Australasian/Oceanian*: Papua New Guinea, Yap Islands. *Oriental*: Bangladesh, Japan (Ryukyu Islands), Malaysia, Nepal, Taiwan, Thailand, Pakistan. *Palaearctic*: Japan (Honshu).

Procanace grisescens Hendel, 1913: 93 [Taiwan. Anping; ST ♂, NMW].—Wirth, 1951: 258 [revision, figs. of ♂ terminalia].—Miyagi, 1965a: 96 [revision, figs. of ♂ and ♀ terminalia]; 1973b: 82 [list].—Delfinado, 1970: 528 [list, New Guinea, figs. of ♂ and ♀ terminalia].—Delfinado and Wirth, 1977: 392 [Oriental catalog].—Cogan, 1984: 125 [Palaearctic catalog].—Morimoto, 1989: 833 [list, Japan].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 11 [world catalog].—Mathis and Freidberg, 1991: 83–84 [review].—Ohishi *et al.*, 2007: 74 [citation, Japan (Honshu)].

Procanace fluvialis Canzoneri, 1987: 95 [Sudan. Khartoum (Nile River); habitus fig.; HT ♂, MSNVE].—Mathis and Freidberg, 1991: 83 [synonymy].

hendeli Delfinado. *Oriental*: Taiwan.

Procanace hendeli Delfinado, 1971: 119 [Taiwan. Wulai, Taipei Hsien (150 m); figs. of ♂ terminalia; HT ♂, BPBM].—Delfinado and Wirth, 1977: 392 [Oriental catalog].—Mathis, 1992: 11 [world catalog].

macalpinei Mathis. *Australasian/Oceanian*: Australia (New South Wales).

Procanace mcalpinei [*sic*] Mathis, 1996: 330 [Australia. New South Wales: Karuah (inlet, beach); HT ♂, UQIC]; 1992: 11 [world catalog].

macquariensis Womersley. *Australasian/Oceanian*: Macquarie Island.

Procanace macquariensis Womersley, 1937: 78 [Macquarie Island; HT ♂, NHML].—Wirth, 1951: 259 [review].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 11 [world catalog].

nakazatoi Miyagi. *Oriental*: Japan (Ryukyu Islands).

Procanace nakazatoi Miyagi, 1965a: 95 [Japan. Ryukyu Islands: Okinawa, Nago; figs. of ♂ and ♀ terminalia; HT ♂, EIHU].—Morimoto, 1989: 833 [list, Japan].—Mathis, 1992: 11–12 [world catalog].

nigroviridis Cresson. *Australasian/Oceanian*: Hawaii (Kauai, Molokai, Oahu).

Procanace nigroviridis Cresson, 1926: 277 [Hawaii. Kauai; HT ♂ BPBM].—Bryan, 1934: 432, 455 [list].—Wirth, 1951: 254 [revision, figs. of ♂ and ♀ terminalia].—Hinton, 1976: 471 [fig. of adult].—Hardy and Delfinado, 1980a: 398 [figs. of head, ♂ and ♀ terminalia].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 12 [world catalog].—Nishida, 2002: 86 [checklist, Hawaii].

novaeguineae Delfinado. *Australasian/Oceanian*: Indonesia (Papua). *Oriental*: Philippines.

Procanace novaeguineae Delfinado, 1970: 529 [Indonesia (Irian Jaya). Waris (S of Hollandia, 450–500 m); figs. of ♂ and ♀ terminalia; HT ♂, BPBM].—Miyagi, 1973b: 82 [list, Philippines].—Delfinado and Wirth, 1977: 392 [Oriental catalog].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 12 [world catalog].

opaca de Meijere. *Oriental*: Indonesia.

Procanace opaca de Meijere, 1916: 272 [Indonesia. Java: Wonosobo District; ST (1♂ 1♀), ZMAN].—Wirth, 1951: 258 [review].—Delfinado and Wirth, 1977: 392 [Oriental catalog].—Mathis, 1992: 12 [world catalog].—de Jong, 2000: 157 [Type material, ZMAN].

pauliani Mathis and Wirth. *Afrotropical*: Madagascar (Toliara).

Procanace pauliani Mathis and Wirth, 1979: 794 [Madagascar. Toliara: Saint Augustin (6 m); fig. of ♂ terminalia; HT ♂, MNHN].—Mathis and Freidberg, 1991: 84 [review, figs. of ♂ terminalia].—Mathis, 1992: 12 [world catalog].

pninae Mathis and Freidberg. *Afrotropical*: Kenya.

Procanace pninae Mathis and Freidberg, 1991: 81 [Kenya. Takaungu (50 mi N Mombasa); figs. of ♂ terminalia; HT ♂, USNM].—Mathis, 1992: 12 [world catalog].

quadrisetosa Hardy and Delfinado. *Australasian/Oceanian*: Hawaii (Kauai).

Procanace quadrisetosa Hardy and Delfinado, 1980a: 401 [Hawaii. Kauai: Waipoo Falls, Waimea Canyon, Kokee (on wet rocks); figs. of ♂ terminalia; HT ♂, BPBM].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 12 [world catalog].—Nishida, 2002: 86 [checklist, Hawaii].

rivalis Miyagi. *Palaearctic*: Japan (Hokkaido, Honshu).

Procanace rivalis Miyagi, 1965a: 86 [Japan. Hokkaido: Katsurasawa; figs. of ♂ and ♀ terminalia; HT ♂, EIHU].—Cogan, 1984: 125 [Palaearctic catalog].—Morimoto, 1989: 833 [list, Japan]; 1992: 12 [world catalog].—Ohishi *et al.*, 2007: 74 [citation, Japan (Honshu)].

suigoensis Miyagi. *Palaearctic*: Japan (Honshu).

Procanace suigoensis Miyagi, 1965a: 93 [Japan. Honshu: Suigo, Chiba-ken; figs. of ♂ and ♀ terminalia; HT ♂, EIHU].—Cogan, 1984: 125 [Palaearctic catalog].—Morimoto, 1989: 833 [list, Japan]; 1992: 12 [world catalog].

taiwanensis Delfinado. *Oriental*: Taiwan.

Procanace taiwanensis Delfinado, 1971: 118 [Taiwan. Yehliu Beach, Taipei Hsien; figs. of ♂ and ♀ terminalia; HT ♂, BPBM].—Delfinado and Wirth, 1977: 392 [Oriental catalog].—Mathis, 1992: 12 [world catalog].

Procanace formosaensis Miyagi, 1973a: 80 [Taiwan. Keelung; figs. of ♂ and ♀ terminalia ; HT ♂, EIHU].—Delfinado and Wirth, 1977: 392 [synonymy].

townesi Wirth. *Australasian/Oceanian*: Marshall Islands.

Procanace townesi Wirth, 1951: 255 [Marshall Islands. Ailinglapalap Atoll: Bigatyelang Island; figs. of ♂ and ♀ terminalia; HT ♂, USNM (59966)].—Mathis, 1989a: 669 [Australasian/Oceanian catalog]; 1992: 12 [world catalog].

williamsi Wirth. *Australasian/Oceanian*: Hawaii (Oahu). *Palaearctic*: Japan (Honshu, Shikoku, Kyushu).

Procanace williamsi Wirth, 1951: 257 [Hawaii. Oahu: Kalihi, Honolulu; figs. of ♂ terminalia; HT ♂, USNM (59965)].—Hardy, 1952: 466 [list].—Miyagi, 1965a: 96 [revision, figs. of ♂ and ♀ terminalia].—Hardy and Delfinado, 1980a: 402 [revision, figs. of head, ♂ and ♀ terminalia].—Cogan, 1984: 125 [Palaearctic catalog].—Mathis, 1989a: 670 [Australasian/Oceanian catalog]; 1992: 12 [world catalog].—Morimoto, 1989: 833 [list, Japan].—Nishida, 2002: 86 [checklist, Hawaii].—Ohishi *et al.*, 2007: 74 [citation, Japan (Honshu), as *williamswi*, misspelling].

wirthi Hardy and Delfinado. *Australasian/Oceanian*: Hawaii (Kauai, Oahu).

Procanace wirthi Hardy and Delfinado, 1980a: 404 [Hawaii. Oahu: Maunawili Stream (800 ft., on wet rocks); figs. of ♂ and ♀ terminalia; HT ♂, BPBM].—Mathis, 1989a: 670 [Australasian/Oceanian catalog]; 1992: 12 [world catalog].—Nishida, 2002: 86 [checklist, Hawaii].

Subfamily Apetaeninae Mathis and Munari (1 genus, 4 species, 3 subspecies)

Apetaeninae Mathis and Munari, 1996: 7. Type genus: *Apetaenus* Eaton.—McAlpine, 2007: 42–43 [review, diagnosis, status].—Munari, 2007b: 21–34 [review]; 2008a: 26–42 [review].

Diagnosis.—A monotypic subfamily characterized by moderately large flies (body length 2.90–5.00 mm), endemic on the subantarctic archipelagos. Brachy- and microptery occur in some species. *Head:* Mid seta of three fronto-orbital setae farther from eye than others; facial sclerotization sharply divided by a complete medial membranous strip (partial desclerotization only in some Tethininae and Zaleinae); prelabrum enlarged. *Thorax*: Characteristically shaggy only in the subspecies (micropterous) of *Apetaenus* (s. str.) *litoralis* Eaton, with remarkable variation in number and strength of setae and setulae, otherwise poorly setose in the other species of the subfamily; costa of wing slightly curved just before subcostal break (apparent only in macropterous forms); wing membrane behind vein A_1+CuA_2 and distad of alula reduced (apparent only in macropterous forms); vein A_1+CuA_2 long and conspicuous (shared with Horaismopterinae). Apical tarsomere triangular with medial terminal seta on a tubercle, with broad excavation on each side, forming a depression on dorsal surface. *Abdomen:* syntergite 1+2 in female longer than rest of abdomen (condition approached in a few Canacinae); membranous strip separating tergites 1 and 2 in mid-dorsal region lost (shared with most Canacinae); external terminalia of male with more or less developed, ventral, epandrial lobe; anterior sursty-lus absent; cercus of normal shape and size; cercus of female shining, without pruinescence (microtrichia) between setulae or almost so (shared with some Canacinae; cercus extensively microtomentose in all other subfamilies).

Natural History.—Subantarctic flies strictly associated with colonies of penguins and other seabirds, sometimes also found on kelps and other marine debris stranded on the rocky supralittorals. An exhaustive review of the taxonomy of all species of Apetaeninae as well as of the typology of their habitats was published by Munari (2007b, 2008a). The immature stages were treated by Ferrar (1987) under the family Coelopidae.

Genus *Apetaenus* Eaton (4 species, 3 subspecies)

Apetaenus Eaton, 1875: 58. Type species: *Apetaenus litoralis* Eaton, by monotypy.—Séguy, 1940: 235 [description].—Griffiths, 1972: 232 [phylogenetic relationships].—Ferrar, 1987: 123– 125, 626–627 [as Coelopidae, immature stages].—Mathis and Sasakawa, 1989: 667 [Australasian/Oceanian catalog].—Mathis and Munari, 1996: 7–8 [world catalog].—Munari, 2007b: 21–34 [revision, subantarctic Indian Ocean area]; 2008a : 26–42 [world subgenera, revision, Australia and New Zealand].

Key to subgenera of *Apetaenus*

1. Micropterous species with vestigial wings and halteres; thorax and abdomen (in particular the latter) shaggily setose or with dense, long, apparently soft villosity; forefemur in both sexes with no long setae on distal 2/3; tarsi stumpy ..... subgenus *Apetaenus*
- Macropterous species (except for some rare, localized individuals of *A. (Listriomastax) enderleini* which exhibit brachy- and microptery) with fully developed wings and halteres; thorax (except for main, long setae) and abdomen poorly setose; forefemur in both sexes with 2–4 widely spaced, very long, forward curved, postero-ventral setae on distal 2/3; tarsi slender (more or less shortened in specimens showing wing reduction) 2
2. Vein R_1 bare; postpronotal seta lacking; preabdomen of female strongly physogastric, with syntergite 1+2 deeply split medially; wing reduced in some isolated specimens ..... subgenus *Listriomastax*
- Vein R_1 setulose; postpronotal seta strong; preabdomen of female moderately physogastric, with syntergite 1+2 never split medially; no wing reduction..... subgenus *Macrocanace*

Subgenus *Apetaenus* Eaton (1 species subdivided into 3 subspecies)

litoralis litoralis Eaton. *Sub-Antarctic Indian Ocean*: Crozet Islands, Heard Island, Kerguelen Islands.

Apetaenus litoralis Eaton, 1875: 58 [(France) Kerguelen Island; LT ♂ (designated by Harrison, 1959: 99), NHML].—Enderlein, 1909: 396, 432 [key, description, figs. (plates 48, 52)].—Hendel, 1937: 185 [key].—Womersley, 1937: 75 [citation, Kerguelen Islands, Macquarie Island].—Séguy, 1940:

207–208, 236–238 [citation, redescription, figs. of female habitus, head, micropterous wing, ♂ terminalia]; 1971: 347 [citation, Crozet, Heard, Kerguelen, Marion, Prince Edward, Islands].—Jeannel, 1953: 162 [citation, Marion Island].—Harrison, 1959: 98–99 [revision, lectotype designation].—Dreux, 1966: 48 [citation, Crozet Islands, discussion].—Hennig, 1971: 53–56 [discussion, figs. of head, ♂ and ♀ terminalia].—Tréhen and Vernon, 1982: 108–118 [ecology].—Papp, 1983: 272 [citation].—Tréhen *et al.*, 1985: 607 [alar development].—Crafford, Scholtz and Chown, 1986: 46, 64–65 [citation, Marion and Prince Edward Islands, biology, figs. of preimmaginal stages and adult habitus].—Ferrar, 1987: 123–125 [as Coelopidae, biology, immature stages].—Mathis and Sasakawa, 1989: 667, 803 [Australasian/Oceanian catalog].—Mathis and Munari, 1996: 8 [world catalog].—Klok and Chown, 2000: 305–308 [physiology, Marion Island].—Munari, 2007b: 21–34 [revision, figs. of ♂ terminalia, adult habitus, head, female abdomen].

Apetaenus (Apetaenus) litoralis litoralis.—Munari, 2008a: 35, 40 [designation of the nominal subspecies, key, photograph of ♂ abdomen].

litoralis marionensis Munari. *Sub-Antarctic Indian Ocean*: Marion, ?Prince Edward Islands.

Apetaenus (Apetaenus) litoralis marionensis Munari, 2008a: 36 [Marion Island, baie Jeannel; HT ♂, MNHN].

Apetaenus litoralis Eaton of authors.

litoralis watsoni Hardy. Australasian/Oceanian: Bishop Island, Macquarie Island.

Apetaenus watsoni Hardy, 1962: 965 [Macquarie Island. Hurd Point; HT ♂, ANIC].—Womersley, 1937: 75 [as *Apetaenus litoralis* Eaton, citation, Macquarie Island].—Watson, 1967: 28–29 [ecology].—Harrison 1976: 127 [citation, Macquarie Island].—Ferrar, 1987: 123–125, 626–627 [as Coelopidae, biology, immature stages, figs. of 3rd instar larva].—Mathis and Sasakawa 1989: 667 [Australasian/Oceanian catalog].—Mathis and Munari, 1996: 8 [world catalog].—Davies *et al.*, 1997: 456–457 [citation, Macquarie Island, Bishop Island].

Apetaenus (Apetaenus) litoralis watsoni.—Munari 2008a: 30 [new status].

Subgenus *Listriomastax* Enderlein (1 species)

Listriomastax Enderlein, 1909: 396. Type species: *Listriomastax litorea* Enderlein, 1909, by original designation.—Séguy, 1940: 232 [description]; 1965: 139–140 [morphology].—Hennig, 1971: 54 [synonymy].—Griffiths, 1972: 232 [phylogenetic relationships].—Mathis and Munari, 1996: 8 [world catalog].—Munari, 2007b: 21–34 [revision, nomenclatural changes]; 2008a : 28 [designated as a subgenus of *Apetaenus* Eaton].

enderleini Munari. *Sub-Antarctic Indian Ocean*: Crozet Islands, Kerguelen Islands, Marion Island, Prince Edward Island.

Apetaenus enderleini Munari, 2007b: 23 [*nomen novum* for *Apetaenus litoreus* (Enderlein, 1909) (= *Listriomastax litorea* Enderlein), *nomen preoccupatum* by *Apetaenus littoreus* (Hutton, 1902); revision, figs. of ♂ terminalia, adult habitus, female abdomen].

Apetaenus (Listriomastax) enderleini.—Munari, 2008a: 28 [new subgeneric status].

Listriomastax litorea Enderlein, 1909: 398 [(France.) Crozet Islands: Possession Island, Weihnachts-Bucht; ST ♂♀, ZMHB].—Hendel, 1937: 185 [key].—Womersley, 1937: 74–75 [citation,Crozet Is., figs. of preimmaginal morphology].—Séguy, 1940: 207–208, 232–235 [citation, redescription, figs. of wing, ♂ terminalia, morphology of the third instar larva]; 1965: 139–144 [adult morphology, wing reduction, figs. of adult habitus and wing reduction]; 1971: 347 [citation, Marion Island].—Dreux, 1966: 48 [citation, Crozet Islands, discussion].—Tréhen and Vernon, 1982: 108–118 [ecology].—Papp, 1983: 272–275 [discussion, figs. of ♂ and ♀ terminalia].—Tréhen *et al.*, 1985: 607 [alar development].—Crafford, Scholtz and Chown, 1986: 46, 62–64 [citation, Marion and Prince Edward Islands, biology, figs. of preimmaginal stages and adult habitus (misidentification, the adult fig.d is a sphaerocerid fly belonging to the genus *Thoracochaeta* Duda)].—Ferrar, 1987: 123–125, 627 [as Coelopidae, biology, immature stages, figs. of larva and puparium].—Mathis and Sasakawa, 1989:

804 [Australasian/Oceanian catalog].—Mathis and Munari, 1996: 8 [world catalog].—Buck, 2006: 394, 396 [figs. of head and mouthparts].—Munari, 2007b: 23 [*nomen preoccupatum*].

Subgenus *Macrocanace* Tonnoir and Malloch (2 species)

Macrocanace Tonnoir and Malloch, 1926: 5. Type species: *Milichia littorea* Hutton, by original designation.—Harrison, 1953: 272-276 [revision]; 1976: 142–143 [key to species].—Griffiths, 1972: 232 [phylogenetic relationships].—Mathis and Sasakawa, 1989: 667 [synonymy].—McAlpine, 2007: 43 [designated as a subgenus of *Apetaenus* Eaton].—Munari, 2008a : 28 [revision, key to species].

australis (Hutton). *Australasian/Oceanian*: Antipodes Islands, Campbell Island.

Ochtiphila australis Hutton, 1902: 174 [Campbell Island; HT ♂, supposed to be in NZAC (originally in the Cawthron Institute collection, as declared by Harrison, 1959: 252). However, the holotype does not appear in the list of the "Primary type specimens in the New Zealand Arthropod Collection (NZAC): Diptera" (Web Version 1 – June 1997)]. Probably the holotype is still deposited in CMNZ, as formerly declared by Miller (1950: 112).

Macrocanace australis.—Tonnoir and Malloch, 1926: 5 [generic combination].—Miller, 1950: 112 [citation, New Zealand].—Harrison, 1976: 142–143 [southern islands of New Zealand subregion].

Apetaenus australis.—Mathis and Sasakawa, 1989: 667 [generic combination, Australasian/Oceanian catalog].—Mathis and Munari, 1996: 7–8 [world catalog].—Marris, 2000: 193 [citation, Campbell Island].

Apetaenus (Macrocanace) australis.—McAlpine, 2007: 30, 36–37, 43 [new subgeneric status, SEM photographs of lower face and adjacent parts, fore basitarsus, acropod, and part of costa, discussion].—Munari, 2008a: 30–32, 35, 40 [key, revision, figs. of ♂ terminalia, anepisternum, wings].

Macrocanace antipoda Harrison, 1953: 276 [Antipodes Island: Ringdove Bay (spider's web); HT ♀, AMNZ]; 1959: 251 [synonymy].

littoreus (Hutton). *Australasian/Oceanian*: Antipodes Island, Bounty Islands.

Milichia littorea Hutton, 1902: 174 [Antipodes Islands (on pools between tide marks); HT ♂, CMNZ].

Macrocanace littorea.—Tonnoir and Malloch, 1926: 5 [generic combination].—Miller, 1950: 112 [citation, New Zealand].—Harrison, 1953: 274–276 [revision]; 1959: 250 [revision]; 1976: 142 [Antipodes Island, Bounty Islands].

Apetaenus littoreus.—Mathis and Sasakawa, 1989: 667 [generic combination, Australasian/Oceanian catalog].—Mathis and Munari, 1996: 8 [world catalog].—Marris, 2000: 193 [citation, Bounty Islands].

Apetaenus (Macrocanace) littoreus.—McAlpine, 2007: 38, 43 [citation, new subgeneric status].—Munari, 2008a : 30, 32–35 [key, revision, figs. of ♂ terminalia, anepisternum, wings].

Subfamily Horaismopterinae Sabrosky (2 genera, 4 species)

Horaismopterinae Sabrosky, 1978: 335. Type genus: *Horaismoptera* Hendel.—Sabrosky, 1999: 160 [citation, nomenclature].—Mathis and Munari, 1996: 8 [world catalog].—McAlpine, 2007: 42 [review, diagnosis, status].

Diagnosis.—Moderately large flies (body length 2.38–3.78 mm), dark grey to reddish brown (*Horaismoptera*) or also invested with pale grey microtomentum (*Tethinosoma*). *Head:* Antennae widely divergent from bases; pedicel short, collar-like, with series of short, stout spines or spinescent setulae on medial surface; 1–3 mesoclinate fronto-orbital setae below 2 dorsal eclinate fronto-orbital setae; dorsal postocular seta (behind lateral vertical) present. Face in lateral view convex ventrally, markedly receding onto ventral surface of head; prelabrum thus markedly displaced posteriorly; gena and postgena very broad. *Thorax:* Dorsocentral setae 1+3 (*Horaismoptera*) or 2+3 (*Tethinosoma*); postpronotum bearing at least 2 setae; scutellum dorsally bare or setulose; costa of wing with obliquely incised notch at subcostal break,

beyond break with a well spaced series each of anterodorsal and anteroventral long spines; cell *dm* closed basally by well sclerotized vein; distal section of vein A_1+CuA_2 long and distinct (shared with Apetaeninae and, to some extent, with Pelomyiinae), not reaching wing margin in *Tethinosoma*. Forecoxa broad, less than 2/3 as long as forefemur; hind femur with 1–2 long, anteroventral setae in *Horaismoptera* species. *Male terminalia*: Both anterior and posterior surstyli markedly developed (*Horaismoptera*) or anterior surstylus absent and posterior surstylus normally developed, with epandrium continuing in a large ventral lobe (*Tethinosoma*); cercus strongly developed in *Horaismoptera* species.

Natural History.—Thalassobiont flies inhabiting the oceanic seashores. The biology of the preimaginal stages is unknown.

Key to genera of Horaismopterinae

1. Dorsocentral setae 4; prescutellar acrostichal setae well developed. Face with vertical series of well developed setae, orientation of setae lateroclinate to slightly curved upward except for dorsal-most, inclinate pair which arise from a pair of shiny tubercles. Costa bearing 3–6 well-developed setae between humeral crossvein and subcostal break; discal cell short, penultimate section of vein CuA_1 about 1/2 length of apical section (Indian Ocean, southern Africa)... .....*Horaismoptera*
- Dorsocentral setae 5; prescutellar acrostichal setae absent. Face lacking vertical series of setae (with 1 vibrissal seta). Costa lacking well developed setae just before subcostal break and where humeral break would be; discal cell long, penultimate section of vein CuA_1 over twice length of apical section (New Zealand) .....*Tethinosoma*

Genus *Horaismoptera* Hendel (3 species)

Horaismoptera Hendel, 1907: 238. Type species: *Horaismoptera vulpina* Hendel, by monotypy.—Sabrosky, 1978: 327-336 [revision]; 1999: 32, 160 [citations, nomenclature].—Cogan, 1980b: 693 [Afrotropical catalog].—Soós, 1984: 110 [Palaearctic catalog].—Munari, 1986: 41–44 [discussion]; 2009b: 56 [distribution map].—Mathis and Munari, 1996: 8 [world catalog]; Kirk-Spriggs *et al.*, 2001: 97 [citation].

Selidacantha Bezzi, 1908: 197. Type species: *Selidacantha microphthalma* Bezzi, by original designation [preoccupied, Hulst, 1896, Lepidoptera].—Bezzi, 1908: 197 [synonymy (in a footnote)].

Oestroparea Séguy, 1933: 30. Type species: *Oestroparea grisea* Séguy, by original designation.—Hennig, 1958: 659.—Sabrosky, 1978: 328 [synonymy].

hennigi Sabrosky. *Oriental*: Sri Lanka.

Horaismoptera hennigi Sabrosky, 1978: 330 [Sri Lanka. Mannar District: Olaithoduvai (10 mi NW Mannar; rotten seaweed); HT ♂, USNM].—Mathis and Munari, 1996: 8 [world catalog].

microphthalma (Bezzi). *Afrotropical*: Namibia, South Africa.

Selidacantha microphthalma Bezzi, 1908: 198 [Namibia. Lüderitz Bay (Angra Pequena); LT ♂ (designated by Munari, 1994: 25), ZMHB].

Horaismoptera microphthalma.—Sabrosky, 1978: 330 [generic combination, revision, probable senior synonym of *H. grisea*].—Cogan, 1980b: 693 [Afrotropical catalog].—Munari, 1994: 25, 27 [lectotype designation, citation, Afrotropics]; 2009b: 57 [citation, Namibia].—Mathis and Munari, 1996: 8 [world catalog].—Kirk-Spriggs *et al.*, 2001: 94, 97–98, 132–135 [citation, Namibia, South Africa, figs. of wing and ♂ genitalia].

Oestroparea grisea Séguy, 1933: 30 [Namibia. Swakopmund; ST ♂♀, MNHN].—Munari, 1994: 25 [synonymy].

Horaismoptera grisea.—Sabrosky, 1978: 329 [generic combination, revision, probable junior synonym of *H. microphthalma* (Bezzi)].—Cogan, 1980b: 693 [Afrotropical catalog].—Munari, 1991b: 179 [citation, Namibia].

vulpina Hendel. *Afrotropical*: Yemen (Abd al Kuri Is., Socotra Is.), Kenya, Madagascar. *Palaearctic*: Egypt, Iran, Oman, Qatar, United Arab Emirates.

Horaismoptera vulpina Hendel, 1907: 240 [Yemen. Abd-al-Kuri; ST ♂, NMW (or DEI?)].—Hennig, 1965: 2 [citation, Iran].—Sabrosky, 1978: 329 [revision]; 1999: 160 [citation, nomenclature].—Cogan, 1980b: 693 [Afrotropical catalog].—Soós, 1984: 110 [Palaearctic catalog].—Munari, 1994: 23, 27 [citation, Afrotropical list, Kenya and Madagascar]; 2002a: 18 [citation, Palaearctic checklist, distribution]; 2005a: 587 [citation, Qatar]; 2007a: 103 [citation, Oman]; 2009b: 57 [discussion, citation, Kenya].—Mathis and Munari, 1996: 8 [world catalog].—Beschovski and Nartshuk, 1997: 129 [citation, Saudi Arabia, misinterpretation].—Kirk-Spriggs, 2001: 97 [citation].

Genus *Tethinosoma* Malloch (1 species)

Tethinosoma Malloch, 1930: 335. Type species: *Agromyza fulvifrons* Hutton, by original designation.—Harrison, 1959: 150 [revision].—D.K. McAlpine, 1967: 75 [citation, assigned to Tethinidae]; 2007: 42 [assigned to the subfamily Horaismopterinae].—Mathis and Munari, 1996: 19 [world catalog].

fulvifrons (Hutton). *Australasian/Oceanian*: New Zealand.

Agromyza fulvifrons Hutton, 1901: 93 [New Zealand. Christchurch (on sea beach); HT ♀, NZAC (formerly in CMNZ)].

Tethinosoma fulvifrons.—Malloch, 1930: 335 [generic combination, figs. of head and wing].—Miller, 1950: 101 [citation, New Zealand].—Harrison, 1959: 150–151 [revision].—Mathis and Sasakawa, 1989: 668 [Australasian/Oceanian catalog].—Mathis and Munari, 1996: 19 [world catalog].—McAlpine, 2007: 30, 33, 37–39 [SEM photographs of head ventrally, antenna, anepisternum, acropod, and part of costa, fig. of segment 5 and protandrium].

Subfamily Pelomyiinae Foster (4 genera, 46 species)

Pelomyiinae Foster, 1976: 337. Type genus: *Pelomyia* Williston.—Sabrosky, 1999: 237 [citation, nomenclature].—Foster and Mathis, 2003: 2–3 [diagnosis, key to genera].—McAlpine, 2007: 43 [review, diagnosis, status].—Beschovski, 2009: 377–378 [Bulgarian fauna].

Diagnosis.—Small to moderately large flies (body length 1.20–3.30 mm). *Head:* Usually as high as long, elongate in *Neopelomyia*; postocellar setae weak, convergent or proclinate; medial vertical seta convergent; lateral vertical seta divergent; strong ocellar seta 1, with additional, sometimes several, minute setulae; fronto-orbital setae 1–3; frons at most with a few minute setulae, often bare; parafrons with a few minute setulae, in *Pelomyia* with a stronger setula near antennal base. Antenna semiporrect, almost parallel, not markedly divergent; arista sparsely micropubescent. Face narrow, membranous; oral vibrissae strong to absent; ventral margin of face and prelabrum displaced posteriorly on ventral surface of head (shared with Horaismopterinae). Gena bearing many scattered setulae; a distinct peristomal row absent or present; shiny chitinous stripe along both parafacial and peristomal margins absent or present; labellum long or short; maxillary palpus shorter than oral cavity, bearing 1 strong, apical seta or several scattered setae. *Thorax:* Grey to brown microtomentose; dorsocentral setae 4 (1+3); scutellar setae 2; acrostichal setulae few or absent, if present weak and in 2–4 scattered rows. Disc of scutellum bare. Wing with crossvein *bm-cu* usually absent, making cells *dm* and *bm* confluent; wing venation typical acalyptrate pattern, subcostal break simple; distal section of vein A_1+CuA_2 sharply defined (but quite desclerotized and not nearly reaching margin). Legs: forecoxa elongate and slender; fore- and hindfemora often moderately enlarged; forefemur with a row of strong setae on posterodorsal and posteroventral surface, anteriorly often with a comb of weak to very strong setae on anteroventral surface, otherwise evenly setulose; mid- and hindfemora, tibiae and tarsi more or less evenly setulose; midfemur may bear 1 stronger seta in middle of anterior surface; proepisternal seta 1; proepimeral seta 1. *Abdomen:* Brown or grey microtomentose, extreme posterior margin of tergites usually pale. Male terminalia: Epandrium with distinct ventral lobe of various shapes, bifurcate in some species of *Pelomyia*, usually setulose on medial surface, may be setulose on anterior or posterior margin or both; surstylus usually rather straight and shorter than cercus, setulose; surstylus located laterad to cercus and articulating strongly with subepandrial sclerite; additional anterior lobe present in one species of *Masoniella;*

cercus evenly setulose and with 1 long, strong apical seta; hypandrium with 2 arms, arms fused anteriorly with aedeagal apodeme, separated posteriorly but articulated with subepandrial sclerite and epandrium; hypandrial apodeme absent. Basiphallus oblong, ovoid, or triangular; pregonites distinct or fused with hypandrium, if fused a few setae remain on hypandrium showing location of pregonites; if pregonites are distinct they are often extended posteriorly as a pair of spatulate or pointed processes partially fused with postgonites; postgonites typically long, pointed, or spatulate posteriorly, sometimes fused with each other posteriorly; articulated with phallapodeme anteriorly (may have a nodulate flexion point medially if separate); if fused or nearly fused posteriorly, as in *Neopelomyia* and *Pelomyiella* respectively, they are dentate or nodulate over the posterior half or so; aedeagus usually long and densely setulose.

Distribution.—With the exception of *Pelomyiella,* which is Holarctic in distribution, the genera of Pelomyiinae are found primarily in the New World. The genera *Masoniella* and *Neopelomyia* occur exclusively in the New World, as does *Pelomyia* with the exception of *P. occidentalis,* which is apparently adventive to central Europe (Roháček, 1992), and a few unnamed species from Australia (Colless and McAlpine, 1970, 1991).

Discussion.—Synapomorphies that demonstrate the monophyly of Pelomyiinae are (only derived state cited): (1) ventral margin of face and prelabrum displaced posteriorly on ventral surface of head (shared with Horaismopterinae; McAlpine, 2007); (2) crossvein *bm-cu* generally absent; (3) surstylus shifted dorsally; (4) gena setose; (5) acrostichal setae reduced or absent; (6) distal section of vein CuA_1 sharply defined (but desclerotized and not reaching wing margin; McAlpine 2007); (7) forecoxa elongate; and (8) internal copulatory apparatus complex (well-developed pregonites; postgonites may be bilobed, dentate, or fused).

Natural history.—Unlike most species of Canacidae, those of the subfamily Pelomyiinae are not restricted to littoral habitats. *Pelomyia coronata* (Loew), for example, is associated with meadows in mountain passes, forests, and oases (Melander, 1952: 194). These inland sites, as noted in the introduction, are sometimes saline. Gorczytza (1988) reported on the spatial and seasonal distribution of some European species (*Pelomyiella mallochi* (Sturtevant)), from a study using color traps on the Frisian Islands of Mellum and Memmert.

Key to genera of Pelomyiinae

1. Postocellar setae proclinate; lacking ctenidium along anteroventral surface of forefemur; peristomal and parafacial margins with at most a remnant of a shiny, chitinous thickening 2
- Postocellar setae convergent; forefemur usually bearing ctenidium; peristomal and parafacial margins with a distinct, shiny, chitinous thickening..... 3
2. Head elongate, longer than high; eye oblique; ventral portion of face protrudent; fronto-orbital setae 3; oral vibrissae strong; distinct peristomal setae absent; labellum elongate; palpus with many fine setae (western Nearctic)..... ..... *Neopelomyia*
- Head at least as high as long; eye round; face vertical; fronto-orbital setae 1–2; oral vibrissae weak to absent; peristomal setae distinct; labellum short; palpus with only 1 weak seta (Holarctic, in the south also reaching Mexico) ..... *Pelomyiella*
3. Body robust; always evenly microtomentose; gena rarely less than 0.20 times eye height (Nearctic, Neotropical, West Palaearctic (Europe), also occurring in the Hawaiian archipelago (introduced) and Australia)..... *Pelomyia*
- Body usually smaller, delicate; thorax sometimes fully or partially shiny; abdomen shiny (except *M. argentinaensis*) or partially shiny (*M. darwini*); gena usually less than 0.20 times eye height (except *M. advena* and *M. darwini*, 0.25 to 0.33, respectively) (mostly Neotropical, in the north also reaching California) ..... *Masoniella*

Genus *Masoniella* Vockeroth (7 species)

Masoniella Vockeroth, 1987: 1075 [*nomen nudum*]; 1995: 732 [validation]. Type species: *Masoniella richardsi* Vockeroth, by original designation.—Mathis and Munari, 1996: 13 [world catalog].—Foster and Mathis, 2003: 49–57 [revision].—Munari, 2010a: 57 [key to species].

advena Foster and Mathis. *Neotropical:* Argentina.

Masoniella advena Foster and Mathis, 2003: 50 [Argentina. Jujuy: Agua Caliente, NE Guemes (1100 m); HT ♂, CNC].

argentinaensis Foster and Mathis. *Neotropical:* Argentina.

Masoniella argentinaensis Foster and Mathis, 2003: 52 [Argentina (no locality). HT ♂, USNM].

darwini Munari. *Neotropical*: Argentina.

Masoniella darwini Munari, 2010a: 54 [Argentina (southern Patagonia). Santa Cruz, Fitz Roy, Rio Deseado; HT ♂, ZMUC].

delicata Foster and Mathis. *Neotropical:* Argentina, Bolivia, Ecuador, Peru.

Masoniella delicata Foster and Mathis, 2003: 53 [Peru. Moquegua: Yacango; HT ♂, USNM].

flabella Foster and Mathis. *Neotropical:* Argentina.

Masoniella flabella Foster and Mathis, 2003: 54 [Argentina. Salta: Rio Juramento (60 km S Guemes); HT ♂, CNC].

richardsi Vockeroth. *Nearctic:* United States (California).

Masoniella richardsi Vockeroth, 1987: 1075 [*nomen nudum*]; 1995: 732 [United States. California. San Bernardino: Helendale; HT ♂, CNC].—Mathis and Munari, 1996: 13 [world catalog].—Foster and Mathis, 2003: 55–56 [revision].

spatulata Foster and Mathis. *Neotropical:* Chile.

Masoniella spatulata Foster and Mathis, 2003: 56 [Chile. Aysén: Chico, Lago Buenos Aires; HT ♂, CNC].

Genus *Neopelomyia* Hendel (2 species)

Neopelomyia Hendel, 1917: 46. Type species: *Tethina rostrata* Hendel, by original designation.—Curran, 1934b: 331 [key].—Hendel, 1934: 53 [citation].—Melander, 1952: 192 [key].—Vockeroth, 1965: 727 [Nearctic catalog]; 1987: 1075 [key].—Foster, 1976a: 346 [revision].—Mathis and Munari, 1996: 8–9 [world catalog].

longicerca Foster. *Nearctic*: United States (California).

Neopelomyia longicerca Foster, 1976a: 349 [USA. California. Orange: Laguna Beach; HT ♂, USNM (73641)].—Mathis and Munari, 1996: 8 [world catalog].

rostrata (Hendel). *Nearctic*: Canada (British Columbia), United States (California, Oregon, Washington).

Tethina rostrata Hendel, 1911: 41 [Canada. British Columbia: Pender Island (not Pender, Idaho, as stated in the original description); LT ♂ (designated by Foster, 1976a: 349), NMW].—Malloch, 1913: 147 [citation].—Melander, 1913: 297 [key]; 1952: 190 [revision].—Saunders, 1928: 545 [biology].

Neopelomyia rostrata.—Hendel, 1917: 46 [generic combination, in key]; 1934: 38 [generic key], 54 [citation].—Sturtevant, 1923: 7 [citation].—Hennig, 1937: 139 [notes].—Melander, 1952: 198 [citation].—Vockeroth, 1965: 727 [Nearctic catalog]; 1987: 1076 [fig. of head].—Cole, 1969: 386 [distribution, diagnosis].—Foster, 1976a: 349 [revision, lectotype designation].—Mathis and Munari, 1996: 9 [world catalog].—Buck, 2006: 394, 396 [fig. of mouthparts].

Genus *Pelomyia* Williston (28 species)

Pelomyia Williston, 1893: 258. Type species: *Pelomyia occidentalis* Williston, by monotypy [as Ephydridae].—Becker, 1896: 274 [as Ephydridae].—Kuntze, 1897: 20 [as *Tethina*].—Williston, 1908: 295, 307 [as Ephydridae and Agromyzidae].—Hendel, 1911: 41 [as *Tethina* in Milichiidae]; 1917: 46 [key to genera]; 1934: 51 [revision, references].—Malloch, 1913: 146 [as *Tethina* in Ephydridae]; 1934: 456-460 [revision, southern South American species].—Melander, 1913: 297 [as *Tethina* of authors, not Haliday, 1838]; 1952: 193 [revision of Nearctic species].—Sturtevant, 1923: 5–8 [discussion].—Czerny, 1928: 2 [revision of Palaearctic species, generic misidentification].—Séguy, 1934: 397–400 [review, French fauna, generic misidentification].—Hennig, 1937: 138 [Neotropical distribution].—Ardö, 1957:

131 [review, North Europe, generic misidentification].—Trojan, 1962: 63 [review, Poland, generic misidentification].—Stackelberg, 1970a: 356 [review, fauna of USSR, generic misidentification].—Foster, 1976b: 1–2 [Neotropical catalog].—Hardy and Delfinado 1980b: 375 [revision of Hawaiian species].—Vockeroth, 1987: 1075 [key].—Mathis and Sawakawa, 1989: 667 [Australasian/Oceanian catalog]; Mathis and Foster, 2007: 405–406 [diagnosis].—Sabrosky, 1999: 32, 237 [citations, nomenclature].—Mathis and Munari, 1996: 9–10 [world catalog].—Foster and Mathis, 2003: 1–63 [revision].—Munari, 2010a: 60 [key to the *melanocera*-group].

aurantifrons Foster and Mathis. *Neotropical:* Argentina, Bolivia, Chile, Peru.

Pelomyia aurantifrons Foster and Mathis, 2003: 26 [Peru. Cuzco: Quispicamchis, Huambutio (2900 m); HT ♂, USNM].

boliviensis Foster and Mathis. *Neotropical:* Argentina, Bolivia.

Pelomyia boliviensis Foster and Mathis, 2003: 42 [Bolivia. Cochabamba: Leque Palca (2 km W; 17°38.2'S, 67°58.4'W; 3950 m); HT ♂, ANCB].

coronata (Loew). *Nearctic:* Canada (Alberta, British Columbia, Saskatchewan), Mexico (Baja California Norte), United States (Arizona, California, Colorado, Florida, Georgia, Idaho, Missouri, Nevada, New York, Texas, Utah, Washington). *Neotropical:* Guatemala, Mexico (Chiapas, Distrito Federal, Puebla, Sonora).

Rhicnoessa coronata Loew, 1866: 185 [United States. "Georgia"; HT ♀, MCZ].

Tethina coronata.—Malloch, 1913: 147 [generic combination, citation].—Melander, 1913: 297 [key].

Pelomyia coronata.—Hendel, 1917: 46 [generic combination in key]; 1934: 51 [key], 52 [citation].—Sturtevant, 1923: 7–8 [citation, in part].—Curran 1934: 330 [fig. of wing].—Hennig, 1939: 82 [fig. of ♂ terminalia].—Melander, 1952: 193, 212 [revision, figs. of ♂ terminalia].—Vockeroth, 1965: 726 [Nearctic catalog, noted to be an unworked species complex]; 1987: 1076–1077 [figs. of head and wing].—Cole, 1969: 386 [distribution, discussion].—Foster, 1976b: 1 [Neotropical catalog].—Mathis and Munari, 1996: 9 [world catalog].—Foster and Mathis, 2003: 9–14 [revision].—Mathis and Foster, 2007: 406–408 [diagnosis, citation, United States (Florida, New York), figs. of ♂ and ♀ terminalia].—McAlpine, 2007: 37 [SEM photograph of empodium and bases of claws].—Munari, 2010a: 57 [citation, Guatemala].

Pelomyia cruciata Hendel, 1934: 52 [United States. Missouri. Independence: Atherton; ST ♂♀, NMW].—Melander, 1952: 195 [citation].—Vockeroth, 1965: 726 [Nearctic catalog].—Mathis and Munari, 1996: 9 [world catalog].—Foster and Mathis, 2003: 9 [synonymy].

crassiseta Foster and Mathis. *Neotropical:* Argentina, Chile.

Pelomyia crassiseta Foster and Mathis, 2003: 44 [Chile. Aysén: Chico, Lago Buenos Aires; HT ♂, CNC].

crassispina Foster and Mathis. *Neotropical:* Argentina.

Pelomyia crassispina Foster and Mathis, 2003: 46 [Argentina. Jujuy: La Quiaca (3500 m); HT ♂, CNC].

curva Foster and Mathis. *Neotropical:* Bolivia.

Pelomyia curva Foster and Mathis, 2003: 38 [Bolivia. Cochabamba: Leque Palca (2 km W; 17°37.7'S, 67°57'W; 3970 m); HT ♂, ANCB].

dentata Foster and Mathis. *Neotropical:* Argentina, Bolivia.

Pelomyia dentata Foster and Mathis, 2003: 24 [Argentina. Jujuy: La Quiaca (3500 m); HT ♂, CNC].

freidbergi Foster and Mathis. *Neotropical:* Argentina, Bolivia.

Pelomyia freidbergi Foster and Mathis, 2003: 37 [Bolivia. La Paz: El Alto (23 km S; 16°42.7'S, 68°11.2'W; 3860 m); HT ♂, ANCB].

fuegina Munari. *Neotropical*: Argentina.

Pelomyia fuegina Munari, 2010a: 57 [Argentina. Tierra del Fuego: Estancia Viamonte, Auricosta; HT ♂, ZMUC].

granditarsa Foster and Mathis. *Nearctic:* United States (Nevada).

Pelomyia granditarsa Foster and Mathis, 2003: 14 [United States. Nevada. Clark: Las Vegas; HT ♂, USNM].

grisecoxa Foster and Mathis. *Neotropical:* Chile.

Pelomyia grisecoxa Foster and Mathis, 2003: 47 [Chile. Curicó: El Coigo; HT ♂, CNC].

intermedia Malloch. *Neotropical:* Argentina, Peru.

Pelomyia intermedia Malloch, 1934: 460 [Argentina. Buenos Aires: Bahia Blanca; HT ♀, NHML].—Hennig, 1937: 140 [citation].—Foster, 1976b: 2 [Neotropical catalog].—Mathis and Munari, 1996: 9 [world catalog].—Foster and Mathis, 2003: 22–23 [revision].—Buck, 2006: 395 [fig. of left maxilla].

irwini Foster and Mathis. *Neotropical:* Argentina, Chile, Peru.

Pelomyia irwini Foster and Mathis, 2003: 28 [Peru. Huánuco: Huánuco (10 km N), Rio Huallaga; HT ♂, USNM].

lobina Foster and Mathis. *Nearctic:* Canada (Alberta, Manitoba, Saskatchewan), United States (Idaho, Montana, Utah, Washington, Wyoming).

Pelomyia lobina Foster and Mathis, 2003: 15 [United States. Montana. "3-Forks"; HT ♂, USNM].

melanocera Foster and Mathis. *Neotropical:* Chile.

Pelomyia melanocera Foster and Mathis, 2003: 48 [Chile. Orsono: Volcan Puyhue (1400 m); HT ♂, USNM].

nigripalpis Foster and Mathis. *Neotropical:* Bolivia.

Pelomyia nigripalpis Foster and Mathis, 2003: 41 [Bolivia. Oruro: Pazña (S of town; 18°36.2'S, 66°54.7'W; 3750 m); HT ♂, ANCB].

nigritarsis Foster and Mathis. *Neotropical:* Argentina, Bolivia, Chile.

Pelomyia nigritarsis Foster and Mathis, 2003: 29 [Argentina. Jujuy: La Quiaca (3500 m); HT ♂, CNC].

nubila Melander. *Nearctic:* United States (California).

Pelomyia nubila Melander, 1952: 195 [United States. California. Orange: Corona del Mar, San Clemente; ST (3♂, 5♀), USNM].—Vockeroth, 1965: 726 [Nearctic catalog].—Cole, 1969: 386 [distribution, diagnosis].—Mathis and Munari, 1996: 9 [world catalog].—Foster and Mathis, 2003: 16–17 [revision].

occidentalis Williston. *Australasian/Oceanian:* Hawaiian Islands (Molokai, Oahu). *Nearctic:* Canada (British Columbia, Manitoba), Mexico (Baja California Norte), United States (Arizona, California, Idaho, Nevada, New Mexico, Ohio, Oregon, Utah, Virginia, Washington). *Neotropical:* Mexico (Estado de Mexico). *Palaearctic:* Czech Republic, Germany, Great Britain, Hungary, Poland, Slovakia, Switzerland.

Pelomyia occidentalis Williston, 1893: 258 [United States. California. Monterey: Monterey; ST (1♂, 1♀), SEMC].—Melander, 1913: 297 [as a synonym of *P. coronata* (Loew)]; 1952: 193 [as a synonym of *P. coronata* (Loew)].—Sturtevant, 1923: 7 [as a synonym of *P. coronata* (Loew)].—Hendel, 1934: 52 [as a synonym of *P. coronata* (Loew)].—Curran, 1934b: 330 [generic combination, fig. of head].—Vockeroth, 1965: 726 [Nearctic catalog].—Mathis and Munari, 1996: 9 [world catalog].—Chandler, 1998: 144 [citation, Great Britain].—Sabrosky, 1999: 237 [citation, nomenclature].—Irwin, Cole and Ely, 2001: 153–156 [discussion, citations, England, Germany, figs. of head and ♂ terminalia].—Papp, 2001b: 363 [checklist, Hungary].—Munari, 2002a: 18 [list, Palaearctic Region].—Merz *et al.*, 2002: 126–127 [citation, Switzerland, habitat, fig. of adult habitus].—Foster and Mathis, 2003: 17–22 [revision].—Roháček, 2006: from web [citation, Czech Republic, Slovakia].—Munari and Vanin, 2007: 57, 60 [key, citation, discussion].—Mathis and Foster, 2007: 408–410 [diagnosis, citation, Delmarva States, figs. of ♂ and ♀ terminalia].—Stuke, 2008: 85, 97, 101 [citation, Germany, colour photograph of habitus].

Pelomyia coronata of authors, not Loew, 1866 [misidentification].—Melander, 1913: 297 [key].—Sturtevant, 1923: 7–8 [citation].—Nowakowski, 1991: 217 [citation, Poland].

Pelomyia steyskali Hardy and Delfinado, 1980b: 375 [United States. Oregon. Curry: Gold Beach (8 mi N); HT ♂, USNM].—Zuska and Laštovka, 1969: 207 [as *Pelomyia* sp., Czech Republic].—Szadziewski, 1983: 47 [as *P. coronata*, Poland, ecology, figs. of ♂ terminalia].—Mathis and Sasakawa, 1989: 667 [Australasian/Oceanian catalog].—Roháček, 1992: 128–129 [discussion, ecology, Czech Republic, Hungary, Slovakia]; 1997: 79 [citation, Czech Republic and Slovakia];

1999: 328 [citation, Czech Republic].—Mathis and Munari, 1996: 9 [world catalog].—Papp, 2001a: 286 [citation, Hungary].—Foster and Mathis, 2003: 17 [synonymy].—Bährmann, 2001: 185 [citation, Germany].—Nishida 2002: 117 [checklist, Hawaii].

peruviana Malloch. *Neotropical:* Bolivia, Chile, Peru.

Pelomyia peruviana Malloch, 1934: 458 ["Peru"; HT ♀, USNM].—Hennig, 1937: 140 [citation]; 1939: 82 [fig. of ♂ terminalia].—Foster, 1976b: 2 [Neotropical catalog].—Mathis and Munari, 1996: 8 [world catalog].—Foster and Mathis, 2003: 30–31 [revision].

planibulla Foster and Mathis. *Nearctic:* United States (Washington).

Pelomyia planibulla Foster and Mathis, 2003: 23 [United States. Washington. Okanogan: Pateros; HT ♂, USNM].

robustiseta Foster and Mathis. *Neotropical:* Argentina, Chile.

Pelomyia robustiseta Foster and Mathis, 2003: 31 [Argentina. Jujuy: Coyaquayma (7 km S), Mina Perquitas (4100 m); HT ♂, CNC].

trivittata Malloch. *Neotropical:* Chile.

Pelomyia trivittata Malloch, 1934: 459 [Chile. Malleco: Renaico; HT ♂, USNM].—Hennig, 1937: 140 [citation].—Foster, 1976b: 2 [Neotropical catalog].—Mathis and Munari, 1996: 9 [world catalog].—Foster and Mathis, 2003: 32–34 [revision].

undulata Foster and Mathis. *Neotropical:* Bolivia.

Pelomyia undulata Foster and Mathis, 2003: 42 [Bolivia. Oruro: Pazña (S of town; 18°36.2'S, 66°54.7'W; 3750 m); HT ♂, ANCB].

univittata Foster and Mathis. *Neotropical:* Bolivia.

Pelomyia univittata Foster and Mathis, 2003: 39 [Bolivia. Oruro: Pazña (S of town; 18°36.2'S, 66°54.7'W; 3750 m); HT ♂, ANCB].

viedmae Malloch. *Neotropical:* Argentina.

Pelomyia viedmae Malloch, 1934: 460 [Argentina. Rio Negro: Viedma; HT ♂, NHML].—Foster, 1976b: 2 [Neotropical catalog].—Mathis and Munari, 1996: 10 [world catalog].—Foster and Mathis, 2003: 34–35 [revision].

vockerothi Foster and Mathis. *Neotropical:* Argentina.

Pelomyia vockerothi Foster and Mathis, 2003: 35 [Argentina. Jujuy: Agua Caliente (NE Guemes; 1100 m); HT ♂, CNC].

Genus *Pelomyiella* Hendel (9 species)

Pelomyiella Hendel, 1934: 39. Type species: *Pelomyia hungarica* Czerny, by original designation.—Curran, 1934b: 331 [key].—Hendel, 1934: 52–53 [key, list].—Melander, 1952: 196 [revision Nearctic species].—Collin, 1960: 191 [review, British species].—Vockeroth, 1965: 727 [Nearctic catalog]; 1987: 1075 [key].—Soós, 1978: 407–411 [key, Palaearctic fauna, catalog]; 1981: 130–132 [key, Hungary]; 1984: 107 [Palaearctic catalog].—Beschovski, 1994b: 17 [Bulgarian species]; 2009: [Bulgarian fauna].—Mathis and Munari, 1996: 10–11 [world catalog].—Foster and Mathis, 1998: 603–604 [diagnosis, discussion, revision and key to species from Bermuda, the Caribbean, and Gulf of Mexico].—Mathis and Foster, 2007: 410–411 [diagnosis, Delmarva States].

cinerella (Haliday). *Palaearctic*: Belgium, China (Tibet), Denmark, England, Finland, France, Germany, Ireland, Italy, Mongolia, Netherlands, Poland, Spain, Sweden.

Opomyza (Leptomyza) cinerella Haliday, 1837: 151 [Northern Ireland. Down: Holywood (muddy seashore); ST (6 ♂♀), NMID, ZMHB].

Opomyza cinerella.—Walker, 1853: 235 [citation, England].

Rhicnoessa cinerella.—Loew, 1865: 38 [generic combination, revision].—Czerny, 1902: 256 [citation].—Becker, 1905b: 252 [Palaearctic catalog]; 1908a: 164 [misidentification, Canary Islands]; 1908b: 203 [misidentification, Madeira].—Tuccimei, 1913: 231 [citation, Italy].

Anthophilina cinerella.—Rondani, 1875: 186 [key], 187 [generic combination, citation, Ireland].

Leptomyza cinerella.—Czerny, 1902: 256 [generic combination, placement in *Rhicnoessa*].

Tethina cinerella.—Hendel, 1911: 42 [generic combination, citation].—Ringdahl, 1948: 3 [citation].

Pelomyia cinerella.—Czerny, 1928: 2 [generic combination, revision].—de Meijere, 1928: 79 [citation].—Karl, 1930: 68 [citation, fig. of head].—Krogerus, 1932: 118, 170, 172–173, 216 [ecology, citation, Finland].—Séguy, 1934: 399 [key, review, France].—Frey, 1936: 110 [citation, Canary Islands].—Ardö, 1957: 131 [citation].—Trojan, 1962: 64 [key, fig. of head].—Stackelberg, 1970a: 356 [citation].

Pelomyiella cinerella.—Hendel, 1934: 52 [key], 53 [generic combination, citation].—Hennig, 1939: 82 [fig. of ♂ terminalia, as *P. cinerea*].—de Meijere, 1939: 162 [citation].—Collin, 1960: 191 [citation, England].—Frey, 1949: 36 [citation, Madeira, misidentification after Becker's (1908b) citation].—Cogan, 1976b: 87 [citation, England].—Rald, 1976a: 113–115 [key, Denmark, fig. of head, citation].—Soós, 1978: 408–411 [key, Palaearctic catalog]; 1981: 132 [key]; 1984: 107 [Palaearctic catalog].—Hackman, 1980: 150 [citation, Finland].—Szadziewski, 1983: 48 [citation, Poland].—Nowakowski, 1991: 217 [citation, Poland].—Gosseries, 1991: 169 [citation, Belgium].—Tschirnhaus, 1992: 458 [citation, Germany].—Mathis and Munari, 1996: 10 [world catalog].—Munari, 1996b: 2 [citation, Sweden]; 1997b: 279 [citation, Italy]; 2002a: 18 [citation, Palaearctic checklist, distribution].—Beschovski and Nartshuk, 1997: 129 [citation, Mongolia, China (Tibet)].—Chandler, 1998: 144 [citation, Great Britain].—Bährmann, 1999: 218 [citation, Germany]; 2001: 186 [citation, Germany].—Gaponov, 1999: 1194–1195 [egg].—Papp, 2001b: 363 [citation (expected), Hungary].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain].—Beuk, 2002b: 288 [checklist, Netherlands].—Munari and Vanin, 2007: 57, 60–61 [key, citation, discussion].—Stuke, 2008: 85, 101 [citation, Germany].—von Tschirnhaus, 2008: 389 [citation, Germany].

hungarica (Czerny). *Palaearctic*: Austria, Hungary, Slovakia.

Pelomyia hungarica Czerny, 1928: 2 [Hungary. Szatymaz; HT ♀, ZMHB, plus 2 "Typen" in DEI].—Stackelberg, 1970a: 356 [citation].—Trojan, 1962: 64 [key, fig. of head].—Rohlfien and Ewald, 1972: 443 [type material, DEI].

Pelomyiella hungarica.—Hendel, 1934: 39 [generic key], 52 [key], 53 [generic combination, citation].—Soós, 1978: 407, 411 [key, Palaearctic catalog]; 1981: 131–132 [key, citation, habitus, fig.]; 1983: 312 [citation, Hungary]; 1984: 108 [Palaearctic catalog].—Roháček, 1983: 1022 [citation, Slovakia]; 1986: 176 [citation, Slovakia]; 1987: 260 [citation, Slovakia]; 1992: 129 [biology, citation, Slovakia]; 1997: 79 [citation, Slovakia]; 2006: from web [citation, Czech Republic, Slovakia].—Franz, 1989: 255 [citation, Austria].—Mathis and Munari, 1996: 10–11 [world catalog].—Papp, 2001b: 363 [citation, Hungary].—Munari, 2002a: 18 [citation, Palaearctic checklist, distribution].—Munari and Vanin, 2007: 57, 61 [key, citation].

mallochi (Sturtevant). *Nearctic*: Canada (British Columbia, Manitoba, Northwest Territories, Saskatchewan), Greenland, Mexico (Baja California Norte), United States (Arizona, Arkansas, California, Colorado, Connecticut, Idaho, Kansas, Maine, Maryland, Massachusetts, Michigan, Montana, Nevada, New York, North Dakota, Oregon, Rhode Island, South Dakota, Texas, Utah, Virginia, Washington, Wyoming). *Palaearctic*: Austria, Belgium, Bulgaria, China (Tibet), Czech Republic, Denmark, England, France, Germany, Greece, Hungary, Italy (incl. Sardinia), Mongolia, Netherlands, Poland, Rumania, Russia, Slovakia, Sweden, Turkey, Ukraine, former Yugoslavia.

Pelomyia mallochi Sturtevant, 1923: 7 [USA. Massachusetts. Barnstable: North Falmouth; HT ♀, AMNH].

Pelomyiella mallochi.—Hendel, 1934: 52 [key], 53 [generic combination, citation].—de Meijere, 1939: 162 [citation].—Melander, 1952: 196-197 [revision].—Collin, 1960: 191 [citation].—Vockeroth, 1965: 727 [Nearctic catalog]; 1987: 1076–1077 [figs. of head and wing].—Cole, 1969: 386 [distribution, diagnosis].—Cogan, 1976b: 87 [citation, England].—Rald, 1976a: 112–115 [key, Denmark, figs. of head and wing, citation].—Soós, 1978: 407 [key], 408 [discussion], 412 [Palaearctic catalog]; 1981: 131 [key, citation]; 1984: 108 [Palaearctic catalog].—Bährmann, 1982: 75–78 [ecology, citation, Germany]; 2000: 270, 274, 280 [ecology, citation, Germany]; 2001: 185–

186 [citation, Germany, ecology].—Roháček, 1983: 1022 [citation, Slovakia]; 1986: 176 [citation, Slovakia]; 1987: 260 [citation, Slovakia]; 1992: 129 [biology, citation, Czech Republic and Slovakia]; 1997: 79 [citation, Czech Republic and Slovakia]; 2005: 337 [citation, Czech Republic, threatened species]; 2006: from web [citation, Czech Republic, Slovakia].—Szadziewski, 1983: 47–48 [citation, figs. of ♂ terminalia].—Gorczytza, 1988: 304, 307 [fig. of habitus and head, citation, ecology].—Franz, 1989: 255 [citation, discussion].—Nowakowski, 1991: 217 [citation, Poland].—Gosseries, 1991: 169 [citation, Belgium].—Beschovski, 1994b: 18 [review, figs. of ♂ terminalia]; 2009: 378–382 [Bulgarian fauna, figs. of head, thorax, wing, ♂ and ♀ terminalia, spermathecae].—Mathis and Munari, 1996: 10 [world catalog].—Munari, 1996b: 2 [citations, Greece, Sweden]; 1997a: 30 [citations, Germany, Rumania, Turkey]; 2002a: 18 [citation, Palaearctic checklist, distribution].—Beschovski and Nartshuk, 1997: 129–130 [citations, Europe, Mongolia, China (Tibet), Ukraine, Russia (West Siberia), North America].—Foster and Mathis, 1998: 604 [revision, United States (Texas)].—Chandler, 1998: 144 [citation, Great Britain].—Bährmann, 1999: 218 [citation, Germany].—Papp, 2001b: 363 [citation, Hungary].—Beuk, 2002b: 288 [checklist, Netherlands].—Munari and Merz, 2003: 222 [citation, Sardinia].—Munari and Vanin, 2007: 57, 61 [key, citation, Italy].—Mathis and Foster, 2007: 411–413 [diagnosis, citation, Delmarva States, figs. of head and wing].—Stuke, 2008: 85, 101 [citation, Germany].—von Tschirnhaus, 2008: 389 [citation, Germany].

Pelomyia angustifacies de Meijere, 1928: 76 [Netherlands. Amsterdam and Diemen (Zuidersee); ST (1♂, 5♀), ZMAN]; 1932: 286 [discussion].—Karl, 1930: 68 [citation].—Czerny, 1930: 450 [citation, as *P. angustifrons* (sic)].—Hendel, 1934: 53 [synonymy].—Ardö, 1957: 131 [citation].—de Jong, 2000: 25 [Type material, ZMAN].

Pelomyiella angustifacies.—Beuk, 2002b: 288 [as synonym of *mallochi* Sturtevant, checklist, Netherlands].

Pelomyia kuntzei Czerny, 1928: 3 ["Insel Borkum, England, Neusiedler See, Keczel (Ungarn)"; ST ♂♀, ZMHB (apparently lost), ST 2 (sex ?), DEI]; 1930: 450 [synonymy with *P. angustifacies*].—Karl, 1930: 68 [synonymy].—Hendel, 1934: 53 [citation, synonymy].—Séguy, 1934: 399 [key, review, France].—Trojan, 1962: 64–65 [fig. of head, key].—Stackelberg, 1970a: 356 [citation].—Beschovski, 1972: 12 [citation, Bulgaria].—Rohlfien and Ewald, 1972: 443 [type material, DEI].

Pelomyiella kuntzei.—Beuk, 2002b: 288 [as synonym of *mallochi* Sturtevant, checklist, Netherlands]

Tethina parvula of authors, not Loew, 1869 [misidentification].—Malloch, 1913: 147 [generic combination, citation].—Melander, 1913: 297 [key].

Tethina illota of authors, not Haliday, 1838 [misidentification].—Kuntze, 1897: 20 [discussion].

maritima (Melander). *Nearctic*: United States (Maryland, Mississippi, Texas).

Tethina maritima Melander, 1913: 297 [USA. Texas. Galveston: Galveston; ST 3♀, USNM].

Pelomyia maritima.—Sturtevant, 1923: 7 [generic combination].

Pelomyiella maritima.—Hendel, 1934: 53 [generic combination].—Melander, 1952: 197 [revision].—Vockeroth, 1965: 727 [Nearctic catalog].—Mathis and Munari, 1996: 11 [world catalog].—Foster and Mathis, 1998: 604–605 [revision, figs. of head and ♂ terminalia].—Mathis and Foster, 2007: 413 [discussion].

melanderi (Sturtevant). *Nearctic*: Canada (British Columbia). United States (Arizona, California, Oregon, Washington). Mexico.

Pelomyia melanderi Sturtevant, 1923: 7 [USA. California. Santa Clara: Palo Alto; HT ♂, AMNH].

Pelomyiella melanderi.—Hendel, 1934: 52 [key], 53 [generic combination, citation].—Melander, 1952: 196-197 [revision].—Vockeroth, 1965: 727 [Nearctic catalog].—Griffiths, 1972: 305 [fig. of ♂ terminalia].—Mathis and Munari, 1996: 11 [world catalog].—Mathis and Foster, 2007: 413 [discussion].

Tethina parvula of authors, not Loew, 1869 [misidentification].—Hendel, 1911: 43 [review, fig. of head].—Hendel, 1934: 53 [synonymy].

mongolica Soós. *Palaearctic*: Mongolia.

Pelomyiella mongolica Soós, 1978: 409 [Mongolia. Südgobi aimak: "Nojon nuruu, Grenzposten Ovot Chuural" (1500 m); HT ♂, HNHM]; 412 [Palaearctic catalog]; 1984: 108 [Palaearctic catalog].—Mathis and Munari, 1996: 11 [world catalog].—Beschovski and Nartshuk, 1997: 129 [citation, Mongolia].—Ratti, 2000: 47 [type material].—Munari, 2002a: 18 [citation, Palaearctic checklist, distribution].

nigra Soós. *Palaearctic*: Mongolia.

Pelomyiella nigra Soós, 1978: 411, 412 [Mongolia. Uvs aimak: "S. Rand des Sees Örög nuur" (1500 m); HT ♂, HNHM]; 1984: 108 [Palaearctic catalog].—Mathis and Munari, 1996: 11 [world catalog].—Beschovski and Nartshuk, 1997: 129 [citation, Mongolia].—Munari, 2002a: 18 [citation, Palaearctic checklist, distribution].

obscurior (Becker). *Palaearctic*: China (Tibet).

Tethina obscurior Becker, 1907b: 308 [China. Tibet. Zaidam (Fl. Orogyn, Syrtyn ju Nanyschanja Gobi); LT ♂ (designated by Soós, 1978: 410–411), ZIN].—Hendel, 1911: 42 [citation].—Czerny, 1928: 2 [citation].

Pelomyiella obscurior.—Soós, 1978: 408, 412 [key, Palaearctic catalog, lectotype designation]; 1984: 108 [Palaearctic catalog].—Mathis and Munari, 1996: 11 [world catalog].—Beschovski and Nartshuk, 1997: 129–130 [citation, China (Gobi, Tibet)].—Munari, 2002a: 19 [citation, Palaearctic checklist, distribution].

Pelomyiella cinerella obscurior.—Hendel, 1934: 52 [key], 53 [generic combination, citation].

opacula (Zetterstedt). *Palaearctic*: Sweden.

Notiphila opacula Zetterstedt, 1860: 6317 ["Scania merid. ad Illstorp" (Sweden); HT ♂, MZLU].

Pelomyiella opacula.—Zatwarnicki, 1991: 330 [generic combination, probably synonym of *P. cinerella*].—Mathis and Munari, 1996: 11 [world catalog].—Munari, 2002a: 19 [citation, Palaearctic checklist, distribution].

Subfamily Tethininae Hendel (7 genera, 115 species)

Tethininae Hendel, 1916: 297 [as a family]; 1917: 45. Type genus: *Tethina* Haliday.—Mathis and Munari, 1996: 1–27 [world catalog].—Mathis and Foster, 2007: 413–414 [diagnosis, natural history].—McAlpine, 2007: 42 [review, diagnosis, status].

Diagnosis.—Small to moderately large flies (body length 1.43–3.66 mm); frequently invested with pale yellowish to brown microtomentum. *Head:* 3–4 lateroclinate fronto-orbital setae; generally 3 inclinate frontal setae; frontal orbit with a series of more or less developed proclinate-inclinate setulae; postocellar seta convergent (absent in *Tethina lusitanica* Munari, Almeida and Andrade). Face generally characterized by 2 shiny protuberances laterad of facial cavity above vibrissal pore (*Afrotethina, Pseudorhicnoessa, Tethina*), lacking in *Dasyrhicnoessa*, *Sigaloethina*, and *Plesiotethina*; vibrissal seta variable, usually weak (moderately strong in *Dasyrhicnoessa* and *Sigaloethina*). *Thorax:* Postpronotum usually bearing 3 setae (except for *Tethina lusitanica* Munari, Almeida and Andrade bearing 1 seta); 1 proepisternal seta; 1 proepimeral seta (sometimes absent in a few species of *Tethina)*; anepisternum with 1 or more setae and some setulae posteriorly. Precoxal bridge usually present. Wing hyaline to weakly infuscate or milky to pale yellow or even patterned (*Tethina pictipennis* Freidberg and Beschovski and *T. lusitanica* Munari, Almeida and Andrade); C with Sc break only; cell *cup* present but small; A_1 weakened apically, not reaching wing margin. *Abdomen:* Male epandrium bearing 1–2 lobes ventrally (we consider the lobe that articulates dorsally with the subepandrial sclerite to be the true surstylus while the anterior surstylar-like lobe may or may not be surstylar in origin); the true surstylus is generally strongly spinulose; phallapodeme long, slender; ejaculatory apodeme usually with large distal fan; aedeagus usually elongate, ribbonlike, sinuous, subcylindrical, with a more or less dense ventral pubescence, often with several microscopic papillae. Female with 2 sclerotized spermathecae; cercus subcylindrical or compressed, sometimes bearing several stout, spinelike setulae (pseudacanthophorite *sensu* Freidberg, 1996); tergites 7–8 mostly with characteristic pigmented areas; epiproct generally small, bearing a pair of setulae dorsally on apical third; hypoproct large.

Natural History.—Tethininae are mostly halobiont/thalassobiont flies, occurring in coastal marine habitats. Adults of thalassobiont species are commonly found in coastal marine habitats, including the intertidal zone, wrack heaps (usually brown algae that are most abundant along temperate seashores bathed by cold currents), salt marshes, dune vegetation, lagoon-litoriparian zones, mangroves (particularly species of *Dasyrhicnoessa*), and on salty soils or bare sand. Various species of the genus *Tethina* also inhabit desert oases and other inland environments even hundreds of kilometers away from the sea coast (Munari, 2005b). The biology, including the preimaginal stages, of the subfamily is poorly known. Hardy and Delfinado (1980) reared *Dasyrhicnoessa vockerothi* Hardy and Delfinado from deposits of seaweed on beaches in Hawaii, and Ferrar (1987) provided some observations on the puparia of *Tethina grisea* (Fallén). Gorczytza (1988) reported on the spatial and seasonal distribution of some European species (*Tethina albosetulosa* (Strobl), *Tethina illota* Haliday, *Tethina flavigenis* (Hendel), and *Tethina grisea* (Fallén)) from a study using color traps on the Frisian Islands of Mellum and Memmert. We have also observed adults often in large numbers on carcasses of marine animals on beaches. In nature, an abundance of individuals and a paucity of species sometimes characterize sandy sites where tethinids occur.

Key to genera of Tethininae

1. Legs very robust, densely long villose, particularly forelegs of male; tibiae with rows of strong setae; femora and tibiae unicolorous; 8–9 rows of acrostichal setulae on anterior half of scutum; disc of scutellum with several setulae; all thoracic setae distinctly more subtle than those in all other genera of Tethininae; terminalia of male with anterior surstylus very long and slender, subequal in length with posterior surstylus, running parallel with the latter (Australia) ..... *Thitena*
- Legs neither particularly robust nor villose; tibiae evenly setulose; if mid and hind tibiae with strong setae, then hind femur and tibia with evident, apical, brown ring; acrostichal setulae less numerous, not arranged as above; disc of scutellum variable; all thoracic setae of normal strength; terminalia of male with surstyli not as above 2
2. Eye generally micropubescent, densely covered with small, pale, interfacetal ommatrichia (if bare then lacking shiny tubercle above vibrissal pore); shiny tubercle above vibrissal pore variable; mid and hind tibiae with or without strong anterodorsal and posterodorsal setae; scutellum pubescent on disc (if bare then lacking shiny tubercle above vibrissal pore); epandrium with 2 pairs of surstyli (only 1 in *Dasyrhicnoessa platypes* Sasakawa) 3
- Eye appearing bare, ommatrichia very sparse or lacking; shiny tubercle above vibrissal pore always present; mid and hind tibiae evenly setulose, lacking anterodorsal or posterodorsal setae (except for *Tethina hirsuta* Munari); scutellar disc bare; epandrium with 1 pair of surstyli, partially fused with epandrium (worldwide)..... *Tethina*
3. Presence of true vibrissal seta variable; shiny tubercle above the foremost strong peristomal seta lacking; scutellar disc bare except for marginal setae; anterior surstylus varying in shape but not curved hooklike (absent in *Dasyrhicnoessa platypes* Sasakawa) 4
- True vibrissal seta absent on apex of vibrissal angle (foremost peristomal setae inclinate, simulating a vibrissal seta); vibrissal apex occupied by shiny tubercle (sometimes as a scarcely visible fold); scutellar disc covered with a more or less scattered pubescence in addition to marginal setae; anterior surstylus curved hooklike in *Afrotethina* species 6
4. Body cuticle distinctly glossy dark brown to black, sometimes invested with dense, brown to grey microtomentum; anterior surstylus of male terminalia distinctly larger than posterior surstylus, arising from extremity of lower apical part of epandrium, and bearing characteristic triangular patch of microtrichia on outer surface (Australia)..... ..... *Sigaloethina*
- Body cuticle noticeably duller; anterior surstylus of male terminalia generally smaller than posterior surstylus, never arising from extremity of lower apical part of epandrium, and never bearing triangular patch of microtrichia on outer surface 5
5. Eye micropubescent, covered with small, pale, interfacetal ommatrichia; true vibrissal seta present; ctenidium of forefemur present in most species; anterior surstylus of male more or less developed (absent in *Dasyrhicnoessa platypes* Sasakawa), never rudimentary or minutely knob-like (Pantropical) ..... *Dasyrhicnoessa*
- Eye bare, without interfacetal ommatrichia; true vibrissal seta absent; ctenidium of forefemur absent; anterior surstylus of male distinctly vestigial, minutely knob-like (Australia) ..... *Plesiotethina*

6. Mid and hind tibiae evenly setulose, lacking anterodorsal or posterodorsal setae; all femora and tibiae unicolorous; anterior surstylus always curved, mostly hooklike (mostly Afrotropical, but also reaching the southern Arabian Peninsula)..... *Afrotethina*
- Mid and hind tibiae bearing strong anterodorsal and posterodorsal setae; at least hind femur and tibia with apical brown ring; anterior surstylus not shaped as above (Indo-Pacific)..... *Pseudorhicnoessa*

Genus *Afrotethina* Munari (8 species)

Afrotethina Munari, 1986: 44. Type species: *Afrotethina aemiliani* Munari, by original designation; 1991a: 169 [Afrotropical checklist]; 1991b: 183–184 [key to species].—Mathis and Munari, 1996: 11 [world catalog]; Kirk-Spriggs *et al.*, 2001: 97, 124–125 [citation, biogeographic notes].

aemiliani Munari. *Afrotropical*: Kenya, Tanzania.

Afrotethina aemiliani Munari, 1986: 44 [Kenya. Diani Beach; HT ♂, MSNVE]; 1994: 16, 26 [citation, Kenya, fig. of ♂ terminalia]; 2005a: 587 [citation, Tanzania].—Mathis and Munari, 1996: 11 [world catalog].—Ratti, 2000: 47 [type material].

aurisetulosa (Lamb). *Afrotropical*: Kenya, Madagascar, Mozambique, Seychelles (Aldabra, Cosmoledo, Mahé).

Tethina aurisetulosa Lamb, 1914: 368 [Seychelles. Mahé: Anonyme Island, Long Island; LT ♂ (designated by Munari, 1988: 45), NHML].—Cogan, 1980b: 693 [Afrotropical catalog].

Rhicnoessa aurisetulosa.—Hendel, 1934: 44 [key], 48 [generic combination, citation].

Afrotethina aurisetulosa.—Munari, 1988: 45–46 [generic combination, lectotype designation, figs. of ♂ terminalia]; 1990: 55 [citation, Aldabra]; 1991b: 180 [citation, Madagascar, Mozambique]; 1994: 17, 26 [citation, list, Madagascar]; 1997a: 30 [citation, Madagascar]; 2005a: 587 [citation, Madagascar]; 2009b: 57 [citation, Kenya].—Mathis and Munari, 1996: 11 [world catalog].

brevicostata Munari. *Afrotropical*: Kenya, Madagascar, Seychelles (Aldabra), South Africa (Natal), Tanzania.

Afrotethina brevicostata Munari, 1990: 56 [Seychelles. Aldabra: Grande Terre, Anse Cedre (shoreline on beach); HT ♂, NHML]; 1991b: 180 [citation, South Africa]; 1994: 17, 26 [citation, list, Madagascar]; 2005a: 587 [citation, Tanzania]; 2009b: 57 [citation, Kenya].—Mathis and Munari, 1996: 11 [world catalog].—Kirk-Spriggs *et al.*, 2001: 97, 125 [citation, South Africa].

femoralis (Munari). *Afrotropical*: Kenya, Madagascar, South Africa (Cape, Natal), Tanzania.

Pseudorhicnoessa femoralis Munari, 1981b: 94 [Kenya. Diani Beach; HT ♂, MSNVE; figs. of hindleg and ♂ terminalia]; 1991b: 180–181 [citation, Madagascar, South Africa].—Ratti, 2000: 48 [type material].

Afrotethina femoralis.—Munari, 1991a: 166–168 [generic combination, fig. of ♂ terminalia, spermathecae]; 1994: 17, 26 [citation, list, Madagascar, South Africa]; 2005a: 587 [citation, Tanzania].—Mathis and Munari, 1996: 11 [world catalog].—Kirk-Spriggs *et al.*, 2001: 97–98, 124–125, 132–135 [citation, South Africa, biogeographic notes].

kaplanae Munari. *Afrotropical*: Cameroon.

Afrotethina kaplanae Munari, 1994: 17 [Cameroon. Kribi (beach); HT ♂, TAU].—Mathis and Munari, 1996: 11 [world catalog].—

martinezi Munari. *Afrotropical*: Yemen. *Palaearctic*: Oman, Qatar, United Arab Emirates.

Afrotethina martinezi Munari, 2005a: 587 [Qatar. Umm Said (Sea line), 45 km au sud de Doha, N 24° 50 819', E 051° 30 502'); HT ♂, INRA; figs. of ♂ terminalia]; 2007a: 103 [citation, Oman, Yemen]; 2008b: 673, 676 [citation, United Arab Emirates, photograph of adult].

persimilis Munari. *Afrotropical*: Namibia, South Africa.

Afrotethina persimilis Munari, 1991b: 181 [Namibia. Swakop River mouth (near Swakopmund, 22°31'S, 14°32'E); HT ♂, NMSA]; 1994: 26 [list, Afrotropics]; 2009b: 58 [citation, Namibia].—Mathis and Munari, 1996: 11 [world catalog].—Kirk-Spriggs *et al.*, 2001: 97–98, 124–125, 132–135 [citation, Namibia, South Africa, biogeographic notes] .

stuckenbergi Munari. *Afrotropical*: Namibia, South Africa (Cape).

Afrotethina stuckenbergi Munari, 1990: 58 [South Africa. South West Cape, Ysterfontein; HT ♂, NHML]; 1991b: 183 [citation, South Africa]; 1994: 26 [list, Afrotropics]; 2009b: 58 [discussion, citation, Namibia].—Mathis and Munari, 1996: 11 [world catalog].—Kirk-Spriggs *et al.*, 2001: 97–98, 124–125, 132–135 [citation, Namibia, South Africa, biogeographic notes].

Genus *Dasyrhicnoessa* Hendel (25 species)

Dasyrhicnoessa Hendel, 1934: 38. Type species: *Rhicnoessa fulva* Hendel, by original designation.—Malloch, 1935: 93 [discussion].—Sasakawa, 1974: 2-5 [revision Oriental species].—Steyskal and Sasakawa, 1977: 394 [Oriental catalog].—Hardy and Delfinado, 1980b: 370 [revision Hawaiian species].—Mathis and Sasakawa, 1989: 667 [Australasian/Oceanian catalog].—Mathis and Munari, 1996: 11–13 [world catalog].—Foster and Mathis, 1998: 606–608 [revision of Caribbean and Gulf of Mexico species].—Munari, 2004a: 46 [checklist of the world species].—McAlpine, 2007: 37–38 [SEM photographs of acropod and part of costa].

adelpha Munari. *Oriental*: India (Goa).

Dasyrhicnoessa adelpha Munari, 2005a: 589 [India. Goa, Panjim, beach; HT ♂, TAU; figs. of ♂ terminalia]; 2010a: 65 [figs. of ♂ terminalia (after Munari, 2005a)].

aquila Munari. *Australasian/Oceanian*: Pitcairn Island.

Dasyrhicnoessa aquila Munari, 2002b: 540 [Pitcairn Island. Down Rope; HT ♂, USNM; figs. of ♂ terminalia].

atripes Munari. *Australasian/Oceanian*: Australia (New South Wales).

Dasyrhicnoessa atripes Munari, 2004a: 34 [Australia. New South Wales: Wategos, Cape Byron, beach; HT ♂, AMS (K186735); figs. of ♂ terminalia].

bicolor Munari. *Australasian/Oceanian*: Fiji Islands.

Dasyrhicnoessa bicolor Munari, 2002b: 542 [Fiji. Ovalau Is., 4 km S Levuka; HT ♂, USNM; figs. of ♂ terminalia].

boninensis Sasakawa. *Australasian/Oceanian*: Bonin Islands, Volcano Island.

Dasyrhicnoessa boninensis Sasakawa, 1995: 58 [Bonin Islands. Chichi Jima, Omura (Camp Beach); HT ♂, BPBM (12773); figs. of ♂ terminalia]; 2008: 135 [citation, OMNH].—Mathis and Munari, 1996: 12 [world catalog].—Munari, 2002b: 550 [citation, World list].

celata Munari. *Australasian/Oceanian*: Bismarck Islands.

Dasyrhicnoessa celata Munari, 2010a: 61 [Bismarck Islands. Dyaul Island: Sumuna; HT ♂, ZMUC; figs. of ♂ terminalia].

ciliata Munari. *Australasian/Oceanian*: Australia (Northern Territory).

Dasyrhicnoessa ciliata Munari, 2004a: 34 [Australia. Northern Territory: Buffalo Ck, Darwin; HT ♂, AMS (K 186736); figs. of antenna and ♂ terminalia].

clandestina Munari. *Australasian/Oceanian*: ?New Caledonia, Fiji Islands.

Dasyrhicnoessa clandestina Munari, 2002b: 543[New Zealand: N. Caledonia ?, in plane (see discussion under "Distribution" on p. 544); HT ♂, USNM; figs. of male terminalia]; 2004a: 56 [citation, Fiji Islands (Suva)].

ferruginea (Lamb). *Afrotropical*: Kenya, Madagascar, Seychelles (Aldabra, Astove, Mahé). *South Indian Ocean Islands*: Amsterdam Island. *Australasian/Oceanian*: Australia (Queensland), Caroline Islands (Yap), Mariana Islands (Saipan), Palau, Papua New Guinea. *Oriental*: China (Hong Kong - Lantau), Malaysia (Sabah, Singapore), Philippines (Balabac, Busuanga, Calicoan, Culion, Leyte, Mindanao, Negros Oriental, Palawan). *Palaearctic*: Oman, United Arab Emirates.

Rhicnoessa ferruginea Lamb, 1914: 367 [Seychelles. Mahé; LT ♂ (designated by Munari, 1988: 48), NHML].—Hendel, 1934: 44 [key], 49 [citation].—Bezzi, 1928: 140 [synonymy with *R. sexseriata* Hendel].

Tethina ferruginea.—Cogan, 1980b: 693 [generic combination, Afrotropical catalog].

Dasyrhicnoessa ferruginea.—Munari, 1988: 48 [generic combination, lectotype designation]; 1990: 54 [citation, Aldabra and Seychelles]; 1991b: 180 [citation, Madagascar]; 1994: 20, 26 [citation, Kenya and Madagascar, list Afrotropics]; 1997a: 30 [citation, Madagascar]; 2002b: 546, 550 [citation, Amsterdam Is., Singapore, Sabah, Calicoan]; 2004a: 33 [key], 36 [citation, Australia (Queensland), Papua New Guinea], 53 [catalogue]; 2007a: 103–104 [citation, Oman]; 2010b: 650 [citation, United Arab Emirates].—Mathis and Sasakawa, 1989: 667 [Australasian/Oceanian catalog].—Woodley and Hilburn, 1994: 53 [misidentification, citation, Bermuda].—Sasakawa, 1995: 60–61 [revision, Micronesia, figs. of ♂ terminalia]; 2008: 135 [citation, OMNH].—Mathis and Munari, 1996: 12 [world catalog].—Foster and Mathis, 1998: 605–608 [discussion, figs. of ♂ terminalia].—Munari and Evenhuis, 2000: 147 [world distribution].

fulva (Hendel). *Oriental*: Sri Lanka, Taiwan. *Palaearctic*: Oman, United Arab Emirates.

Rhicnoessa fulva Hendel, 1913: 110 [Taiwan. Anping and Tainan; ST 9 (♂♂ and ♀♀), DEI, NMW].—Malloch, 1914: 308 [citation].—Rohlfien and Ewald, 1972: 443 [type material, DEI].

Dasyrhicnoessa fulva.—Hendel, 1934: 51 [generic combination].—Hennig, 1939: 82-83 [fig. of ♂ terminalia].—Steyskal and Sasakawa, 1977: 394 [Oriental catalog].—Mathis and Munari, 1996: 12 [world catalog].—Munari, 2002b: 546, 550 [citation, Sri Lanka, figs. of male terminalia]; 2007a: 104 [citation, Oman]; 2010b: 650 [discussion, citation, United Arab Emirates].

fulvescens Malloch. *Australasian/Oceanian*: Australia (Queensland).

Dasyrhicnoessa fulvescens Malloch, 1935: 93 [Australia. Queensland: Townsville; HT ♀, AMS].—Mathis and Sasakawa, 1989: 667 [Australasian/Oceanian catalog].—Mathis and Munari, 1996: 12 [world catalog].—Munari, 2002b: 550 [citation, World list]; 2004a: 32 [key], 37 [discussion], 53 [catalog].

humilis Munari. *Australasian/Oceanian*: Australia (New South Wales, Queensland).

Dasyrhicnoessa humilis Munari, 2004a: 37 [Australia. New South Wales: Careel Bay, Avalon; HT ♂, AMS (K186737); figs. of ♂ terminalia]; 2005a: 591 [citation, Australia (Queensland)].

insularis (Aldrich). *Afrotropical*: Cameroon, Madagascar, Nigeria. *Australasian/Oceanian*: American Samoa (Tutuila), Australia (Queensland), Bismarck Islands (Dyaul), Canton Island, Caroline Islands (Ponhpei, Chuuk, Yap, Palau), Fiji Islands (Ovalau, Suva, Viti Levu), ?French Polynesia (Society Islands: Moorea), Hawaii (Hawaii, French Frigate Shoals, Hilo, Lisiansky, Maui, Oahu, Pearl and Hermes Reef), Kiribati (Butaritari, Makin, Eita, Tarawa, Abemama), Line Islands (Christmas), Mariana Islands (Saipan, Tinian), Marquesas (Hivaoa, Nuku Hiva), Marshall Islands (Majuro, Japtan, Parry, Lib, Jibu, Jaluit, Namorik), Midway Islands, New Hebrides (Erromanga), Palmyra Island, Pitcairn Island, Rapa Island, Society Islands (Bora Bora), Wake Island. *Nearctic*: Bermuda, United States (Florida). *Neotropical*: Bahamas (South Bimini), Belize, Brazil (Ceará), Mexico (Tabasco), West Indies (Cuba, Dominica, St. Lucia, St. Kitts, St. Vincent).

Tethina insularis Aldrich, 1931: 395 [(USA) Wake Island; HT ♀, USNM (41629)].—Hardy, 1952: 463 [citation].

Rhicnoessa insularis.—Hendel, 1934: 44 [key], 48 [generic combination, citation].

Dasyrhicnoessa insularis.—Hardy and Delfinado, 1980b: 371–373 [generic combination, citation, figs. of head, wing, ♂ and ♀ terminalia, Oahu, Maui, Hawaii, Frigate Shoal, Pearl and Hermes Reef, Canton Island, and Palmyra Island].—Mathis and Sasakawa, 1989: 667 [Australasian/Oceanian catalog].—Sasakawa, 1995: 61–64 [revision, Micronesia, figs. of ♂ terminalia].—Mathis and Munari, 1996: 12 [world catalog].—Munari and Evenhuis, 2000: 145–147 [revision, world distribution, citations, Hawaii, Brazil].—Nishida, 2002: 117 [checklist, Hawaii].—Munari, 2002b: 546–547, 550 [citation, Hawaii, American Samoa, Fiji, Marquesas, Society Islands, Rapa Island, Pitcairn Island, Belize]; 2004a: 33 [key], 38 [citation, Australia (Queensland), 53 [catalogue], 56 [citation, Fiji Islands (Suva), ?French Polynesia (Society Islands: Moorea)]; 2010a: 64 [citation, Bismarck Islands (Dyaul), New Hebrides (Erromanga), West Indies (St. Kitts), Dominica].

Tethina lasiophthalma Malloch, 1933: 17 [Marquesas. Hivaoa: Tahauku; HT ♂, BPBM].—Munari, 1988: 48 [synonymy with *R. ferruginea* Lamb].

Dasyrhicnoessa lasiophthalma.—Sasakawa, 1974: 2 [generic combination].—Steyskal and Sasakawa, 1977: 394 [Oriental catalog].—Munari, 1986: 49 [discussion, Seychelles].—Mathis and Sasakawa, 1989: 667 [Australasian/Oceanian catalog].—Foster and Mathis, 1998: 606–608 [revision, Caribbean and Gulf of Mexico, figs. of ♂ terminalia].—Munari and Evenhuis, 2000: 145 [synonymy].

Dasyrhicnoessa ferruginea of authors, not Lamb, 1914 [misidentification].—Munari, 1986: 49 [discussion, Seychelles].—Woodley and Hilburn, 1994: 53 [citation, Bermuda].—Munari and Evenhuis, 2000: 145 [citation].

Dasyrhicnoessa freidbergi Munari, 1994: 20 [Cameroon. Kribi (beach, Rt. N7); HT ♂, TAU].—Mathis and Munari, 1996: 12 [world catalog].—Munari and Evenhuis, 2000: 145 [synonymy].

longisetosa Munari. *Australasian/Oceanian*: Australia (Queensland)**,** Papua New Guinea.

Dasyrhicnoessa longisetosa Munari, 2004a: 38 [Papua New Guinea. Port Moresby, mangroves; HT ♂, AMS (K186738); figs. of ♂ terminalia].

macalpinei Munari. *Australasian/Oceanian*: Australia (Northern Territory).

Dasyrhicnoessa macalpinei Munari, 2004a: 40 [Australia. Northern Territory: Buffalo Ck, Darwin; HT ♂, AMS (K186739); figs. of ♂ terminalia].

mathisi Munari. *Australasian/Oceanian*: Easter Island.

Dasyrhicnoessa mathisi Munari, 2002b: 547 [Easter Island. Rano Raraku; HT ♂, USNM; figs. of ♂ terminalia].

ostentatrix Munari. *Australasian/Oceanian*: Australia (New South Wales, Queensland, Victoria).

Dasyrhicnoessa ostentatrix Munari, 2004a: 40 [Australia. New South Wales: Careel Bay, Avalon, swept sea grass; HT ♂, AMS (K186740); figs. of ♂ terminalia]; 2005a: 591 [citation, Australia (Queensland)].

pallida Munari. *Australasian/Oceanian*: Australia (Queensland).

Dasyrhicnoessa pallida Munari, 2004a: 42 [Australia. Queensland: Mackay, mangroves; HT ♂, AMS (K186741); figs. of ♂ terminalia].

platypes Sasakawa. *Oriental*: Japan (Ryukyus).

Dasyrhicnoessa platypes Sasakawa, 1986: 437 [Japan. Ryukyus: Okinawa; HT ♂, USNM].—Morimoto, 1989: 833 [citation, Japan].—Mathis and Munari, 1996: 12 [world catalog].—Beschovski and Nartshuk, 1997: 129 [citation, Japan].—Munari, 2002a: 19 [citation, Palaearctic checklist, distribution]; Munari, 2002b: 550 [citation, World list].

priapus Munari. *Australasian/Oceanian*: Australia (Queensland).

Dasyrhicnoessa priapus Munari, 2004a: 44 [Australia. Queensland: Eurimbula, mangroves; HT ♂, AMS (K186742); figs. of ♂ terminalia].

serratula Malloch. *Australasian/Oceanian*: Australia (Queensland).

Dasyrhicnoessa serratula Malloch, 1935: 94 [Australia. Queensland: Townsville; ST ♀, AMS].—Mathis and Sasakawa, 1989: 667 [Australasian/Oceanian catalog].—Mathis and Munari, 1996: 12 [world catalog].—Munari, 2002b: 550 [citation, World list]; 2004a: 45 [discussion, *species inquirenda*], 53 [catalogue].

sexseriata (Hendel). *Australasian/Oceanian*: Australia (Queensland), Bismarck Islands (Dyaul, Hermit, Lavongai, Manus), Caroline Islands (Yap, Palau, Pohnpei, Ponape), Fiji Islands (Ovalau, Viti Levu), Mariana Islands (Guam, Saipan), Marshall Islands (Namorik), Papua New Guinea, Tonga Islands (Tongatapu), Wake Island. *Oriental*: China (Hong Kong), Philippines, Taiwan.

Rhicnoessa sexseriata Hendel, 1913: 110 [Taiwan. Anping; HT ♀, DEI]; 1934: 44 [key], 49 [citation].—Malloch, 1914: 309 [citation].—Rohlfien and Ewald, 1972: 443 [type material, DEI].

Tethina sexseriata.—Steyskal and Sasakawa, 1977: 395 [generic combination, Oriental catalog].—Mathis and Sasakawa, 1989: 668 [Australasian/Oceanian catalog].

Dasyrhicnoessa sexseriata.—Mathis and Munari, 1996: 12 [new combination, world catalog].—Munari, 2002b: 548, 550 [citation, Palau, Fiji Islands]; 2004a: 33 [key], 45 [citation, Australia (Queensland), Papua New Guinea], 53 [catalogue]; 2010a: 64 [citation, Bismarck Islands (Dyaul, Hermit, Lavongai, Manus), Philippines (Palawan), Tonga Islands (Tongatapu)].

Dasyrhicnoessa asymbasia Sasakawa, 1995: 56 [Caroline Islands. Yap Islands: Rummang Island (at light); HT ♂, USNM; figs. of ♂ terminalia].—Mathis and Munari, 1996: 12 [synonymy].

tripunctata Sasakawa. *Australasian/Oceanian*: Australia (Queensland), Bismarck Islands (Dyaul, Mussau), Caroline Islands (Kosrae, Palau, Pohnpei), Mariana Islands (Guam), Papua New Guinea. *Oriental*: Japan (Ryukyus), Malaysia (Sabah, Sarawak), Philippines (Balabac, Culion, Palawan, Tawi-Tawi). *Palaearctic*: United Arab Emirates (cf.).

Dasyrhicnoessa tripunctata Sasakawa, 1974: 5 [Philippines. Palawan: Tinabog (3 km NE); HT ♂, BPBM (10355)].—Steyskal and Sasakawa, 1977: 394 [Oriental catalog].—Mathis and Munari, 1996: 12 [world catalog].—Munari, 1996b: 10 [citation, North Borneo, discussion, figs. of ♂ midfemur and terminalia]; 2002a: 19 [citation, Palaearctic checklist, distribution]; 2002b: 548, 550 [citation, Malaysia, Palau]; 2004a: 32 [key], 45 [citation, Australia (Queensland), Papua New Guinea], 53–54 [catalogue]; 2010a: 64–65 [citation, Bismarck Islands (Dyaul, Mussau), Philippines (Balabac, Tawi-Tawi), figs. of ♂ terminalia (after Sasakawa, 1995, as *D. phyllodes*, syn.)]; 2010b: 650–651 [discussion, citation, United Arab Emirates (cf.)].

Dasyrhicnoessa phyllodes Sasakawa, 1995: 64 [Caroline Islands. Palau Islands: Babelthuap Island, Almongui (Ngaramlungui); HT ♂, USNM; figs. of ♂ terminalia]; 2008: 135 [citation, OMNH].—Mathis and Munari, 1996: 12 [world catalog].—Munari, 1996b: 10 [synonymy].

vockerothi Hardy and Delfinado. *Afrotropical*: Seychelles (Aldabra, Mahé). *Australasian/Oceanian*: Australia (New South Wales, Northern Territory, Queensland), Bismarck Islands (Dyaul), Caroline Islands (Truk, Palau), Gilbert Islands, Hawaii (Hawaii, Hilo, Kauai, Maui, Molokai, Oahu), Mariana Islands (Guam, Saipan), Marshall Islands, ?New Caledonia, Papua New Guinea, Wake Island. *Oriental*: Japan (Ryukyus), Malaysia (Sarawak), Philippines, Sri Lanka.

Dasyrhicnoessa vockerothi Hardy and Delfinado, 1980b: 373 [USA. Hawaii. Kauai, Haena (collected on beach); HT ♂, BPBM].—Mathis and Sasakawa, 1989: 667 [Australasian/Oceanian catalog].—Munari, 1990: 53 [citation, Aldabra and Seychelles]; 1994: 27 [list, Afrotropics]; 1996b: 10–11 [citations, Sri Lanka, Malaysia (Sarawak), discussion, figs. of surstylar variability]; 2002a: 19 [citation, Palaearctic checklist, distribution]; 2002b: 548, 550 [citation, Hawaii, ? New Caledonia]; 2004a: 33 [key], 46 [citation, Australia (New South Wales, Northern Territory, Queensland), Papua New Guinea], 54 [catalogue]; 2005a: 591 [citation, Australia (Queensland)]; 2009b: 58 [citation, Philippines]; 2010a: 66 [citation, Bismarck Islands (Dyaul)].—Sasakawa, 1995: 66–69 [revision, Micronesia, figs. of ♂ terminalia].—Mathis and Munari, 1996: 12–13 [world catalog].—Nishida, 2002: 117 [checklist, Hawaii].

Dasyrhicnoessa occidentalis Munari, 1986: 47 [Seychelles. Mahé: Mahé Beach (10 km N); HT ♂, MSNVE]; 1988: 51 [citation, Seychelles]; 1990: 53 [synonymy].—Ratti, 2000: 47 [type material].

yoshiyasui Sasakawa. *Oriental*: China (Hong Kong), Japan (Ryukyus).

Dasyrhicnoessa yoshiyasui Sasakawa, 1986: 439 [Japan. Ryukyus: Iriomote-jima Island, Uehara (on beach); HT ♂, OMNH (formerly in KPU (236))].—Morimoto, 1989: 833 [citation, Japan].—Mathis and Munari, 1996: 13 [world catalog].—Beschovski and Nartshuk, 1997: 129 [citation, Japan].—Munari, 2002a: 19 [citation, Palaearctic checklist, distribution]; 2002b: 549, 550 [citation, Hong Kong, figs. of male terminalia].—Matsumoto and Sasakawa, 2006: 25 [citation, primary type, OMNH].

Genus *Plesiotethina* Munari (1 species)

Plesiotethina Munari, 2000: 238. Type species: *Plesiotethina australis* Munari, by original designation.

australis Munari. *Australasian/Oceanian*: Australia (Western Australia).

Plesiotethina australis Munari, 2000: 240 [Australia. South West Australia: south of Shoal Bay (6 km S Albany; salt meadow); HT ♂, ZSM; figs. of head and ♂ terminalia]; 2004a: 31 [key], 54 [catalogue].

Genus *Pseudorhicnoessa* Malloch (2 species)

Pseudorhicnoessa Malloch, 1914: 306. Type species: *Pseudorhicnoessa spinipes* Malloch, by original designation.—Hendel, 1934: 54 [citation].—Steyskal and Sasakawa, 1977: 394 [Oriental catalog].—Munari, 1981b: 92 [key to species]; 1991a: 169 [checklist].—Mathis and Sasakawa, 1989: 667 [Australasian/Oceanian catalog].—Mathis and Munari, 1996: 13 [world catalog].—McAlpine, 2007: 30, 39 [SEM photographs of lower face and contiguous parts, fig. of segment 5 and protandrium].

Macrotethina Malloch, 1935: 91 (as a subgenus of *Tethina*). Type species: *Tethina (Macrotethina) tibiseta* Malloch, by original designation.—Mathis and Sasakawa, 1989: 667 [synonymy].

rattii Munari. *Afrotropical*: Mauritius, Seychelles (Cousine Island, Mahé). *Oriental*: India (Goa), Sri Lanka.

Pseudorhicnoessa rattii Munari, 1981b: 92 [Seychelles. Mahé: Anse Louis; HT ♂, MSNVE; figs. of hindleg and ♂ terminalia]; 1988: 42–44 [citation, Seychelles, figs. of ♂ terminalia]; 1990: 55 [citation, Seychelles and Mauritius]; 1994: 27 [citation, Afrotropics]; 2002b: 550 [citation, World list]; 2005a : 591–592 [citation, India (Goa), Seychelles (Cousine Island), distribution map].—Rossi, 1988: 176–177 [parasitic fungus].—Mathis and Munari, 1996: 13 [world catalog].—Ratti, 2000: 48 [type material].

spinipes Malloch. *Australasian/Oceanian*: Australia (Northern Territory, Queensland), Bismarck Islands (Duke of York, Dyaul, Hermit, Lavongai, Manus), Caroline Islands (Palau, Tobi, Yap), Mariana Islands (Guam, Saipan), Marshall Islands (Alu, Likiep, Majuro), Papua New Guinea. *Oriental*: Japan (Ryukyus), Malaysia (Sabah, Sarawak, Singapore), Philippines, Taiwan, Thailand, Vietnam.

Pseudorhicnoessa spinipes Malloch, 1914: 307 [Taiwan. Takao; HT ♀, USNM].—Hendel, 1934: 54 [citation].—Sasakawa, 1974: 6 [revision]; 1981: 520 [citation]; 1986: 433–434 [key, citation, Ryukyus]; 1995: 69–71 [revision, Micronesia, figs. of ♂ terminalia]; 2008: 135 [citation, OMNH].—Steyskal and Sasakawa, 1977: 395 [Oriental catalog].—Morimoto, 1989: 933 [citation, Japan].—Mathis and Munari, 1996: 13 [world catalog].—Munari, 1996b: 10 [citation, Malaysia (Sarawak)]; 2002a: 19 [citation, Palaearctic checklist, distribution]; 2002b: 549, 550 [citation, Malaysia, Philippines, Australia (Queensland), discussion]; 2004a: 31 [key], 46 [citation, Australia (Northern Territory, Queensland), Papua New Guinea], 54 [catalogue]; 2005a: 592 [citation, Australia (Queensland), Thailand, distribution map]; 2009b: 58 [citation, Philippines]; 2010a: 67 [citation, Bismarck islands (Duke of York, Dyaul, Hermit, Lavongai, Manus), Philippines (Balabac), Thailand].—Papp *et al.*, 2006: 192 [citation, Thailand].

Tethina (Macrotethina) tibiseta Malloch, 1935: 91 [Australia. Queensland: Townsville; HT ♂, AMS].

Pseudorhicnoessa tibiseta.—Mathis and Sasakawa, 1989: 667 [generic combination, Australasian/Oceanian catalog].—Mathis and Munari, 1996: 13 [world catalog].—Munari, 2002b: 549 [synonymy].

Genus *Sigaloethina* Munari (2 species)

Sigaloethina Munari, 2004a: 46. Type species: *Sigaloethina phaia* Munari, by original designation.

endiomena Munari. *Australasian/Oceanian*: Australia (Queensland).

Sigaloethina endiomena Munari, 2005a: 592 [Australia. SE QLD, Carbrook, Logan River Delta, 27.41S, 153.19E, mangroves; HT ♂, AMS; figs. of head and ♂ terminalia]; 2004a: 48 [as *Sigaloethina* sp. near *phaia*, citation, Australia (Queensland)].

phaia Munari. Australasian/Oceanian: Australia (New South Wales, Northern Territory, Queensland).

Sigaloethina phaia Munari, 2004a: 47 [Australia. New South Wales: Careel Bay, Avalon, mangroves; HT ♂, AMS (K186743); figs. of adult habitus and ♂ terminalia]; 2005a: 594 [citation, Australia (Queensland), fig. of head].

Genus *Tethina* Haliday (76 species)

Tethina Haliday, in Curtis, 1837: 281 (as *Tethnia*, incorrect original spelling), 293 (as a subgenus of *Opomyza;* published in synonymy; first made available by use in Haliday, 1838: 188). Type species: *Opomyza (Tethina) illota* Haliday, 1838, by subsequent monotypy (Haliday, 1838: 188).—Becker, 1905a: 234 [Palaearctic catalog].—Hendel, 1917: 46 [key to genera].—Sturtevant, 1923: 5–7 [discussion of synonymy, listing of Nearctic species].—Czerny, 1928: 3 [revision].—Malloch, 1934: 453 [revision Chilean species, discussion, key].—Séguy, 1934: 399 [review, key, French fauna].—Melander, 1952: 199 [revision Nearctic species].—Ardö, 1957: 131 [citation, fauna of northern Europe].—Collin, 1960: 192 [review, British species]; 1966: 20–25 [revision Palaearctic species].—Trojan, 1962: 65 [review, Poland].—Vockeroth, 1965: 727–728 [Nearctic catalog]; 1987: 1075 [key].—Prado and Tavares, 1966: 429–431 [review, Brazilian species].—Stackelberg, 1970a: 356 [review, USSR fauna].—Cogan and Dear, 1975: 179 [discussion].—Foster, 1976b: 2-3 [Neotropical catalog].—Steyskal and Sasakawa, 1977: 395 [Oriental catalog].—Soós, 1978: 412 [Palaearctic catalog]; 1981: 132–137 [key, Hungarian species]; 1984: 108 [Palaearctic catalog].—Cogan, 1980b: 693 [Afrotropical catalog].—Hardy and Delfinado, 1980b: 377 [revision Hawaiian species].—Thompson and Mathis, 1981: 86 [citation, nomenclature].—Mathis and Sasakawa, 1989: 668 [Australasian/Oceanian catalog].—Canzoneri *et al.*, 1990: 37–38 [fauna of Pelagian Islands (Italy)].—Beschovski, 1994b: 20 [diagnosis of genus and of the *albosetulosa* and *czernyi* groups]; 1998: 407–412 [notes, Palaearctic species]; 2009: 382–383 [Bulgarian fauna].—Freidberg and Beschovski, 1996: 91–113 [Mediterranean fauna].—Munari, 1996a: 153–158 [Mediterranean fauna, microevolutionary patterns, distribution].—Mathis and Munari, 1996: 13–19 [world catalog].—Foster and Mathis, 1998: 608–630 [revision of Caribbean and Gulf of Mexico species]; 2008a: 302–303 [diagnosis, western North America].—Beschovski, 1998: 407–412 [notes, Palaearctic species].—Sabrosky, 1999: 32, 304 [citations, nomenclature].—Mathis and Foster, 2007: 414–415 [diagnosis, Delmarva States].

Rhicnoessa Loew, 1862: 174. Type species: *Rhicnoessa cinerea* Loew, by monotypy.—Loew, 1865: 34-39 [revision].—Hendel, 1902: 261–264 [systematics].—Becker, 1905b: 252 [Palaearctic catalog].—Williston, 1908: 292, 296 [fig. of head, key].—Collin, 1911: 234 [probable synonymy with *Tethina*]; 1960: 192–193 [review, British species]; 1966: 25–32 [revision, Palaearctic species].—Malloch, 1913: 147 [discussion, fig. of head].—Melander, 1913: 298 [key to Nearctic species]; 1952: 200 [revision of Nearctic species].—Hendel, 1911: 41 [generic remarks]; 1917: 46 [synonymy in key]; 1934: 46 [references].—de Meijere, 1928: 78 [discussion].—Curran, 1934b: 331 [key].—Hennig, 1937: 138 [distribution in neotropics].—Cogan and Dear, 1975: 179 [discussion].—Soós, 1978: 412 [Palaearctic catalog]; 1984: 109 [Palaearctic catalog].—Munari, 1990: 60–61 [status as a subgenus of *Tethina*].—Beschovski, 1993: 104 [diagnosis, as a genus]; 1994b: 18 [diagnosis, as a genus].

Phycomyza Melander, 1952: 198. Type species: *Rhicnoessa milichioides* Melander, by original designation.—Vockeroth, 1965: 727 [Nearctic catalog].—Foster, 1976a: 338 [synonymy].

acrostichalis Freidberg and Beschovski. *Palaearctic*: Israel.

Tethina acrostichalis Freidberg and Beschovski, 1996: 97 [Israel. Tel Aviv Dunes; HT ♂, TAU].—Mathis and Munari, 1996: 14 [world catalog].—Munari, 2002a: 19 [citation, Palaearctic checklist, distribution].

albitarsa Foster and Mathis. *Neotropical*: Ecuador, Panama.

Tethina albitarsa Foster and Mathis, 1998: 628 [Ecuador. Manabi: Bahía de Caráquez; HT ♂, USNM].

alboguttata (Strobl). *Afrotropical*: St. Helena. *Palaearctic*: Algeria, Canary Islands, ?Italy, Morocco, Portugal (Madeira), Spain (including Balearic Islands), Tunisia.

Rhicnoessa alboguttata Strobl, 1900: 6 [Spain. Cádiz: Algeciras; HT ♂, NMBA].—Becker, 1905b: 252 [Palaearctic catalog].—Hendel, 1934: 42 [key], 46 [citation].—Frey, 1958a: 52 [citation, Canary Islands].—Collin, 1966: 26, 28–29 [key, discussion].—Soós, 1978: 412 [Palaearctic catalog]; 1984: 109 [Palaearctic catalog].—Carles-Tolrá, 1992: 349 [citation, Spain].—Chvála, 2008: 62 [Type material, NMBA].

Tethina alboguttata.—Czerny, 1928: 3–4 [key, generic combination, revision].—de Meijere, 1928: 79 [citation].—Vanschuytbroeck, 1976: 106 [citation, St. Helena].—Cogan, 1980b: 693 [Afrotropical catalog].—Carles-Tolrá, 1992: 349 [citation, Spain]; 1994: 23 [citation, Spain]; 2001a: 95 [citation, Spain].—Beschovski, 1993: 104–105 [list, fig. of ♂ terminalia].—Munari, 1994: 23, 27 [citation, St. Helena, list, Afrotropics]; 1996b: 9 [citation, Tunisia]; 2002a: 19 [citation, Palaearctic checklist, distribution]; 2004b: 108 [citation, Morocco, discussion, fig. of ♂ terminalia]; 2005b: 4 [citation, Morocco].—Mathis and Munari, 1996: 14 [world catalog].—Freidberg and Beschovski, 1996: 102–103 [revision, citation, Morocco].—Munari and Báez, 2000: 8–9 [discussion, citation, Canary Islands, Madeira].—Munari and Ebejer, 2001: 144 [citation].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain, Canary Islands, Madeira].—Ebejer *et al.*, 2007: 30 [citation, Balearic Islands].—Báez and García, 2004: 280 [citation, Canary islands].—Munari and Vanin, 2007: 57, 61 [key, citation, discussion].—Ebejer, 2008: 329 [citation, Madeira].

albosetulosa (Strobl). *Afrotropical*: Senegal. *Palaearctic*: Azores, Belgium, Bulgaria, Canary Islands, Cyprus, Denmark, Egypt, England, France, Germany, Greece, Hungary, Israel, Italy (incl. Sardinia), Lebanon, Malta, Portugal, Rumania, Spain (including Balearic Islands), Tunisia, Turkey.

Rhicnoessa albosetulosa Strobl, 1900: 7 [Spain. Cádiz: Algeciras; ST (1♂, 4♀), NMBA].—Becker, 1905b: 252 [Palaearctic catalog]; 1907a: 405 [citation, Tunisia].—Mercier, 1925: 178 [citation, France].—Chvála, 2008: 63 [Type material, NMBA].

Rhicnoessa albosetulosa variety *beckeri* Strobl, 1906: 375 [Egypt. "Alexandrien" (from Becker, 1903: 184); ST (sex ?), ZMHB].—Chvála, 2008: 86 [Type material, ZMHB].

Tethina albosetulosa.—Hendel, 1934: 39 [key], 40 [generic combination, citation].—Hennig, 1937: 140 [citation]; 1939: 82 [fig. of ♂ terminalia].—Frey, 1945: 80 [citation, Azores].—Collin, 1960: 192 [citation]; 1966: 20, 22–23 [key, discussion].—Rald, 1976a: 113, 116 [key, Denmark, citation].—Cogan, 1976b: 87 [citation, England].—Soós, 1978: 412 [Palaearctic catalog]; 1981: 133–134 [habitus fig., key, citation, Hungary]; 1984: 108 [Palaearctic catalog].—Beschovski, 1964a: 263 [citation]; 1993: 104–105 [list, figs. of ♂ terminalia]; 1994b: 20–22 [review, fig. of ♂ terminalia, Bulgaria]; 1997: 144 [citation, Egypt (Sinai), Israel, Lebanon]; 1998: 408 [citation, France, Greece, Italy]; 2009: 383–386 [Bulgarian fauna, figs. of head, thorax, ♂ terminalia].—Gorczytza, 1988: 307 [citation, ecology, fig. of head].—Canzoneri *et al.*, 1990: 37 [citation, Pelagian Islands].—Gosseries, 1991: 169 [citation, Belgium].—Munari and Canzoneri, 1992: 26–35 [revision, morphology].—Munari, 1994: 27 [list, Afrotropics]; 1996b: 3 [citation, Greece, Italy, Spain]; 1997a: 31 [citation, Egypt, Rumania]; 1999b: 366 [citation, Greece (Crete)]; 2002a: 19 [citation, Turkey, Palaearctic checklist, distribution].—Mathis and Munari, 1996: 14 [world catalog].—Chandler, 1998: 144 [citation, Great Britain].—Bährmann, 1999: 218 [citation, Germany].—Munari and Báez, 2000: 8 [citation, Azores, Canary Islands]; Munari and Ebejer, 2001: 132, 144 [citation, Malta, Tunisia].—Papp, 2001b: 363 [citation, Hungary].—Carles-Tolrá, 2001b: 86 [citations, Spain, Portugal].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain, Balearic and Canary Islands, Portugal, Azores].—Ebejer *et al.*, 2007: 30 [citation, Balearic Islands].—Carles-Tolrá and Ventura, 2008: 276 [citation, Balearic Islands (Spain)].—Báez and García, 2004: 280 [citation, Canary islands].—Munari and Merz, 2003: 222–223 [citations, Cyprus, Malta, Sardinia].—Munari and Vanin, 2007: 58, 61–63, 71–74 [key, citation, Italy, discussion, photographs of habitus and katepisternal seta].—Diaz *et al.*, 2005: 218 [citation, Azores].—Stuke, 2008: 85, 101 [as *Tethinia*, misspelling, citation, Germany].—von Tschirnhaus, 2008: 389 [citation, Germany].

Tethina albosetulosa albipila.—Frey, 1958a: 52 [citation, Canary Islands].

Rhicnoessa albipsila Mercier, 1925: 179 [France. Côte du Calvados, "dune de Courseulles," Saint-Lunare, Spain; ST (sex ?), MNHN].—Hendel, 1934: 41 [synonymy].

Rhicnoessa albipila [sic] of authors, not Mercier, 1925 [error].—Soós, 1984: 108 [citation].

Tethina griseola of authors (sensu Czerny, 1928), not van der Wulp, 1871 [misidentification].—Czerny, 1928: 5 [revision].—de Meijere, 1932: 286 [discussion].—Hendel, 1934: 41 [synonymy].—Séguy, 1934: 400 [key, France].—Frey, 1936: 110, 152, 197, 206 [citation, Canary Islands].—Beschovski, 1964b: 94 [citation, Bulgaria]; 1975: 5 [citation].

Tethina albissima Collin, 1966: 23 [Italy. "Rosolina Mare" (near Venice); HT ♀ (destroyed, only a paratype remains), MSNVE].—Soós, 1978: 412 [Palaearctic catalog]; 1984: 108 [Palaearctic catalog].—Canzoneri *et al.*, 1990: 37 [citation, Pelagian Islands].—Munari and Canzoneri, 1992: 33 [synonymy].—Pont, 1995: 31 [type material, discussion].—Ratti, 2000: 48 [type material].

Tethina diversa Collin, 1966: 24 [Italy. "Sp. Alberoni" (near Venice); HT ♂, MSNVE].—Soós, 1978: 412 [Palaearctic catalog]; 1984: 108 [Palaearctic catalog].—Munari and Canzoneri, 1992: 33 [synonymy].—Pont, 1995: 63 [type material].—Ratti, 2000: 48 [type material].

Tethina mixta Collin, 1966: 24 [France. Plage S. Raphael, Var; HT ♂ (destroyed, only damaged paratypes remain), MSNVE].—Soós, 1978: 412 [Palaearctic catalog]; 1984: 109 [Palaearctic catalog].—Canzoneri *et al.*, 1990: 37 [citation, Pelagian Islands].—Munari and Canzoneri, 1992: 33 [synonymy].—Pont, 1995: 110 [type material, discussion].—Ratti, 2000: 48 [type material].

albula (Loew). *Australasian/Oceanian:* Hawaii (Hawaii, Kahoolawe, Kauai, Maui, Oahu). *Nearctic*: Mexico (Baja California Norte and Sur), United States (California, Delaware, Florida, Maryland, Massachusetts, New York, North Carolina, Rhode Island, South Carolina, Virginia). *Neotropical:* Bahamas, Belize, Brazil (Rio de Janeiro), Costa Rica, Curaçao, Ecuador (incl. Galápagos Islands), Guyana, Mexico (Chiapas, Quintana Roo, Sonora), Panama, Peru, Trinidad, Tobago, Turks and Caicos, West Indies (Anguilla, Antigua, Barbados, Barbuda, Dominica, Dominican Republic, Grand Cayman, Grenada, Jamaica, Montserrat, Puerto Rico, St. Croix, St. Lucia, St. Vincent).

Rhicnoessa albula Loew, 1869: 44 [USA. Rhode Island. Newport: Newport; ST ♂♀, MCZ].—Johnson, 1910: 812 [citation]; 1913: 89 [citation]; 1930: 156 [citation].—Malloch, 1913: 147 [citation].—Melander, 1913: 298 [key]; 1952: 201–202 [key, citation].—Frey, 1919: 15 [citation].—Hendel, 1934: 43 [key], 46–47 [citation].—Hennig, 1937: 140 [citation].

Tethina albula.—Sturtevant, 1923: 6 [generic combination].—Johnson, 1925: 286 [citation].—Curran, 1934b: 330 [citation].—Vockeroth, 1965: 727 [Nearctic catalog].—Prado and Tavares, 1966: 431–432 [revision, figs. of ♂ terminalia].—Foster, 1976b: 2 [Neotropical catalog].—Mathis and Munari, 1996: 14 [world catalog].—Foster and Mathis, 1998: 609–611 [revision, Caribbean and Gulf of Mexico, figs. of head and ♂ terminalia]; 2000: 543–544 [revision]; 2008a: 303–305 [world distribution, citation, Mexico, figs. of head and male terminalia]; 2008b: 745–747 [review, Galápagos Islands, figs. of head and ♂ terminalia].—Mathis and Foster, 2007: 415–418 [diagnosis, discussion, world distribution, citation, Delmarva States, figs. of head and male terminalia].

Rhicnoessa sonorensis Melander, 1952: 207 [Mexico. Baja California Norte and Sonora: Rocky Point Marsh; LT ♂ (designated by Foster, 1976b: 2), USNM].—Cole, 1969: 387 [distribution, diagnosis]; Foster and Mathis, 2000: 544 [synonymy, citation].

Tethina sonorensis.—Foster, 1976b: 2 [generic combination, lectotype designation, Neotropical catalog].—Mathis and Munari, 1996: 18 [world catalog].

amphitrite Munari and Báez. *Afrotropical*: Cape Verde Islands.

Tethina amphitrite Munari and Báez, 2000: 17 [Cape Verde Islands. São Vicente, Rib. Julião; HT ♂, MZH]; 2004b: 111 [citation, Cape Verde Islands].—Frey, 1958b: 38 [as *Rhicnoessa incisuralis* and *R. pallipes*, Cape Verde Islands].

angustifrons Melander. *Nearctic*: United States (California).

Tethina angustifrons Melander, 1952: 199 [United States. California. San Luis Obispo: Asilomar, Morro Dunes, Pismo Beach; LT ♂ (designated by Foster and Mathis, 2008a: 306), USNM].—Vockeroth, 1965: 727 [Nearctic catalog].—Cole, 1969: 386 [distribution, diagnosis].—Mathis and Munari, 1996: 14 [world catalog].—Foster and Mathis, 2008a: 305–308 [review, lectotype designation, western North America, figs. of male terminalia].

angustipennis (Melander). *Nearctic:* Mexico (Baja California Norte), United States (California).

Rhicnoessa angustipennis Melander, 1952: 203 [United States. California. San Luis Obispo: Morro Bay (dunes NW); LT ♂ (designated by Foster and Mathis, 2008a: 308), USNM; fig. of ♂ terminalia].—Cole, 1969: 387 [distribution, diagnosis].

Tethina angustipennis.—Vockeroth, 1965: 727 [generic combination, Nearctic catalog].—Mathis and Munari, 1996: 14 [world catalog].—Foster and Mathis, 2008a: 308–310 [review, lectotype designation, western North America, figs. of male terminalia].

Rhicnoessa denudata Melander, 1952: 204 [United States. California. Santa Barbara: Carpenteria (edge of dunes at seashore); LT ♂ (designated by Foster and Mathis, 2008a: 308), USNM].—Foster and Mathis, 2008a: 308 [synonymy].

Tethina denudata.—Vockeroth, 1965: 727 [generic combination, Nearctic catalog].—Mathis and Munari, 1996: 15 [world catalog].

Rhicnoessa lavendula Melander, 1952: 205 [United States. California. Orange: Huntington Beach; LT ♂ (designated by Foster and Mathis, 2008a: 309), USNM].—Foster and Mathis, 2008a: 308 [synonymy].

Tethina lavendula.—Vockeroth, 1965: 727 [generic combination, Nearctic catalog].—Mathis and Munari, 1996: 17 [world catalog].

callosirostris Munari. *Palaearctic*: United Arab Emirates.

Tethina callosirostris Munari, 2008b: 673 [United Arab Emirates: near Sweihan; HT ♂, NMWC]; 2010b: 651 [citation, United Arab Emirates].

cohiba Foster and Mathis. *Neotropical*: Bahamas, Belize, Mexico (Quintana Roo), Panama, Trinidad and Tobago, West Indies (Anguilla, Antigua, Cuba, Dominica, Dominican Republic, Grand Cayman, Grenada, Jamaica, Puerto Rico).

Tethina cohiba Foster and Mathis, 1998: 625 [Grand Cayman. George Town Harbour (19°18'N, 81°22.9'W); HT ♂, USNM].

czernyi (Hendel). *Palaearctic*: Algeria, Bulgaria, Cyprus, Egypt (Sinai), France, Germany, Hungary, Israel, Italy, Mongolia, Poland, Spain, Tadjikistan, Tunisia, Turkey, Turkmenistan, Uzbekistan.

Rhicnoessa czernyi Hendel, 1934: 46 ["TransKaspien, Kleinasien, Spanien, Berlin, Nord-und Ostseeküsten"; ST 4 (♂, ♀), DEI, NMW].—Hennig, 1939: 82 [fig. of ♂ terminalia].—Collin, 1966: 26, 28 [key, discussion, citation, Italy].—Rohlfien and Ewald, 1972: 443 [type material, DEI].—Soós, 1978: 411–412 [citation, Palaearctic catalog]; 1984: 109 [Palaearctic catalog].—Nowakowski, 1991: 217 [citation, Poland].

Tethina czernyi.—Trojan, 1962: 66 [as *T. cinerea* (Loew), Poland].—Soós, 1981: 135 [generic combination, key, citation]; 1983: 312 [citation, Hungary].—Szadziewski, 1983: 46 [citation].—Beschovski, 1993: 104–105 [list, fig. of ♂ terminalia]; 1994b: 22 [review, fig. of ♂ terminalia, Bulgaria]; 1997: 144 [citation, Egypt (Sinai), Israel]; 1998: 408 [citation, France, Israel]; 2009: 386–

389 [Bulgarian fauna, figs. of head, thorax, wing, ♂ terminalia].—Canzoneri, *et al.*, 1995: 14 [citation, Italy].—Mathis and Munari, 1996: 15 [world catalog].—Munari, 1996b: 2, 5 [citation, Tunisia, fig. of ♂ terminalia]; 2002a: 20 [citation, Palaearctic checklist, distribution]; 2005b: 4 [citation, Algeria, Turkey].—Beschovski and Nartshuk, 1997: 129–130 [citation, Mongolia, Transcaspia, Tadjikistan, Turkey, Turkmenistan, Uzbekistan].—Bährmann, 1999: 218 [citation, Germany].—Munari and Ebejer, 2001: 144 [citation].—Papp, 2001b: 363 [citation, Hungary].—Carles-Tolrá and Blasco-Zumeta, 2001: 60 [citation, Spain].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain].—Munari and Merz, 2003: 223 [fig. of habitus of male], 225 [fig. of head], 223–224 [citation, Cyprus, discussion].—Munari and Vanin, 2007: 58, 63 [key, citation, Italy, discussion].

Tethina grisea.—*sensu* Czerny, 1928: 4 [misidentification].—Hendel, 1934: 46 [synonymy (nec Fallén)].

dunae Munari. *Palaearctic*: Oman.

Tethina dunae Munari, 2007a: 104 [Oman. Ra's al Ghubbah (20°07'N, 57°49'E; at light); HT ♂, NMWC].

flavigenis (Hendel). *Palaearctic*: Bulgaria, Denmark, England, France, Germany, Greece, Italy (incl. Sardinia), Netherlands, Rumania, Spain (including Balearic Islands), Tunisia.

Rhicnoessa flavigenis Hendel, 1934: 47 [Spain. "Algeciras, Andalusien"; ST (1♂, 4♀), DEI, NMW].—Collin, 1960: 192–193 [citation]; 1966: 26, 29 [key, discussion].—Rohlfien and Ewald, 1972: 443 [type material, DEI].—Rald, 1976a: 115–116 [key, Denmark, citation].—Soós, 1978: 412 [Palaearctic catalog]; 1984: 109 [Palaearctic catalog].—Gorczytza, 1988: 307–308 [fig. of head, citation, ecology].—von Tschirnhaus, 2008: 389 [citation, Germany].

Tethina flavigenis.—Cogan, 1976b: 87 [generic combination, citation, England].—Beschovski, 1993: 104–105 [list, fig. of ♂ terminalia]; 1994a: 201 [citation, Tunisia]; 1994b: 22 [review, fig. of ♂ terminalia, Bulgaria]; 1998: 408 [citation, France, Greece, Italy, Netherlands]; 2009: 389–391 [Bulgarian fauna, figs. of head, thorax, wing, ♂ terminalia].—Mathis and Munari, 1996: 15 [world catalog].—Munari, 1997a: 31 [citation, Rumania]; 1999b: 366 [citation, Greece (Crete)]; 2002a: 20 [citation, Palaearctic checklist, distribution].—Chandler, 1998: 144 [citation, Great Britain].—Bährmann, 1999: 218 [citation, Germany].—Munari and Ebejer, 2001: 144 [citation].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain].—Munari and Merz, 2003: 224 [citation, Sardinia].—Munari and Pont, 2004: 14 [*nomen protectum*, junior synonym of *Milichia*? *tamaricis* Bigot].—Munari and Vanin, 2007: 58, 63–64, 72 [key, citation, Italy, discussion].—Ebejer *et al.*, 2007: 30 [citation, Balearic Islands].—Stuke, 2008: 85, 101 [citation, Germany].

Milichia? *tamaricis* Bigot, 1888: 10 [Gabès, juin, abondant sur les *Tamarix*; LT ♂ (designated by Munari and Pont, 2004: 13), INRA].—Munari and Pont, 2004: 14 [*nomen oblitum*, senior synonym of *Tethina flavigenis* (Hendel)].

Odinia tamaricis.—Becker, 1905b: 240 [generic combination; Palaearctic catalog].—Hennig, 1938: 7 [suggested synonymy with *Tethina pallipes* (Loew) (by Becker)].—Krivosheina, 1984: 262 [Palaearctic catalog, doubtful species of Odiniidae, genus *Odinia*].

Tethina tamaricis.—Munari and Pont, 2004: 13–14 [generic combination].

Rhicnoessa dubiosa Collin, 1966: 30 [Italy. Lido di Volano (near Ferrara); HT ♂, MSNVE].—Soós, 1978: 412 [Palaearctic catalog]; 1984: 109 [Palaearctic catalog].—Pont, 1995: 64 [type material].—Ratti, 2000: 48 [type material].—Munari, 2006: 102,111, 115 [synonymy, photographs of the holotype].

Tethina dubiosa.—Mathis and Munari, 1996: 15 [generic combination, world catalog].—Munari, 2002a: 20 [citation, Palaearctic checklist, distribution].

flavoidea Beschovski. *Palaearctic*: Egypt (Sinai), Israel.

Tethina flavoidea Beschovski, 1997: 144 [Israel. En Avedat; HT ♂, TAU]; 1998: 408 [citation, Israel].—Munari, 2002a: 20 [citation, Palaearctic checklist, distribution]; 2005b: 4 [citation, Israel].

gatti Munari and Ebejer. *Palaearctic*: Algeria, Tunisia.

Tethina gatti Munari and Ebejer, 2001: 140 [Tunisia. Sousse, Sidi Bou Ali, saltmarsh; HT ♂, MSNVE].—Munari, 2002a: 20 [citation, Palaearctic checklist, distribution]; 2005b: 4 [citation, Algeria].

gobii Beschovski and Nartshuk. *Palaearctic*: Mongolia.

Tethina gobii Beschovski and Nartshuk, 1997: 131 [Mongolia. Gobi Altai Aimak, Shargyn-Gobi, Bajan (10 km NE and E; salt ground); HT ♂, ZIN].—Munari, 2002a: 20 [citation, Palaearctic checklist, distribution].

grisea (Fallén). *Palaearctic*: Azores, Belgium, Bulgaria, Canary Islands, Cyprus, Denmark, England, Finland, France, Germany, Greece (Crete), Israel, Italy, Malta, Netherlands, Norway, Spain (including Balearic Islands), Sweden, Tunisia, Turkey, Turkmenistan, Ukraine.

Anthomyza grisea Fallén, 1823: 7 [Sweden; ST ♀, NHRS].—Czerny, 1902: 255–256 [citation, descriptive notes, placement in *Rhicnoessa*].

Opomyza grisea.—Meigen, 1830: 112 [generic combination].

Leptomyza grisea.—Macquart, 1835: 581 [generic combination].

Anthophilina grisea.—Zetterstedt, 1848: 2699 [generic combination].—Rondani, 1875: 186 [key], 187 [citation].

Rhicnoessa grisea.—Strobl, 1900: 8 [generic combination, discussion, Spain].—Becker, 1905b: 252 [Palaearctic catalog].—Collin, 1911: 234 [citation, England]; 1960: 192 [citation]; 1966: 25, 28 [key, discussion].—Hendel, 1934: 42 [key], 46 [citation].—de Meijere, 1939: 162 [citation].—Frey, 1945: 80 [citation, Azores]; 1958a: 52 [citation, Canary Islands].—Soós, 1978: 412 [Palaearctic catalog]; 1984: 109 [Palaearctic catalog].—Ferrar, 1987: 399, 894 [description and figs. of immature stages].—Szadziewski, 1983: 46 [citation].—Gorczytza, 1988: 307–308 [fig. of head, citation, ecology].—Gosseries, 1991: 169 [citation (?*grisea*), Belgium].—Beschovski, 1993: 104, 106 [list, fig. of ♂ terminalia]; 1994a: 201 [citation, Tunisia]; 1994b: 18–20 [key, fig. of ♂ terminalia]; 1997: 148 [citation, Israel].—Munari, 1996b: 2 [discussion, citation, Spain, Sweden]; 1997a: 30 [citation, Spain, Tunisia]; 1999b: 366 [citation, Greece (Crete)].—Munari and Báez, 2000: 8 [citation, Azores, Canary Islands].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain, Balearic and Canary Islands, Azores].—Báez and García, 2004: 280 [citation, Canary islands].—Diaz *et al.*, 2005: 218 [citation, Azores].—von Tschirnhaus, 2008: 389 [citation, Germany].

Tethina grisea.—Wahlgren, 1927: 375 [generic combination].—de Meijere, 1928: 79 [citation]; 1932: 287 [discussion on taxonomic status].—Czerny, 1928: 4–5 [key, revision].—Karl, 1930: 69 [citation].—Krogerus, 1932: 118, 170, 172 [ecology, citation, Finland].—Séguy, 1934: 400 [key, France].—Ardö, 1957: 131 [citation].—Tiensuu, 1954: 42 [citation].—Trojan, 1962: 67 [key].—Beschovski, 1964a: 263 [citation]; 1964b: 94 [citation, Bulgaria]; 2009: 392–394 [Bulgarian fauna, figs. of head, thorax, ♂ terminalia].—Stackelberg, 1970a: 356 [citation, Turkmenistan].—Cogan, 1976b: 87 [citation, England].—Rald, 1976a: 113, 116 [key, Denmark, fig. of head, citation].—Canzoneri *et al.*, 1990: 37 [citation, Pelagian Islands].—Mathis and Munari, 1996: 15 [world catalog].—Chandler, 1998: 144 [citation, Great Britain].—Bährmann, 1999: 218 [citation, Germany].—Munari and Ebejer, 2001: 133, 144 [citation, Malta].—Munari, 2002a: 20 [citation, Turkey, Palaearctic checklist, distribution].—Beuk, 2002b: 288 [under subgenus *Rhicnoessa*, checklist, Netherlands].—Ebejer, 2003: 105, 106, 113 [citation, Balearic Islands].—Munari and Merz, 2003: 224, 226 [citations, Cyprus, Malta].—Munari and Vanin, 2007: 58, 64–65, 72–73 [key,

citation, Italy, discussion, photograph of habitus].—Ebejer *et al.*, 2007: 30, 57 [citation, Balearic Islands].—Stuke, 2008: 85, 97, 101 [citation, Germany, colour photograph of habitus].—Ventura and Pretus, 2003: 11 [citation, Balearic Islands (Spain)].—Carles-Tolrá and Ventura, 2008: 276 [citation, Balearic Islands (Spain)].

Rhicnoessa cinerea Loew, 1862: 175 [Bulgaria. Varna; HT ♂, ZMHB].—Loew, 1865: 35 [revision].—Strobl, 1900: 6 [discussion]; 1906: 375 [citation, Spain].—Becker, 1905b: 252 [Palaearctic catalog]; 1907a: 405 [citation, Tunisia]; 1908a: 164 [citation, Canary Islands].—Hendel, 1934: 46 [as a synonym of *Anthomyza grisea* Fallén].—de Meijere, 1939: 162 [as a synonym of *Anthomyza grisea* Fallén].—Collin, 1966: 25, 28 [key, discussion].—Soós, 1978: 412 [Palaearctic catalog]; 1984: 109 [Palaearctic catalog].—Szadziewski, 1983: 46 [citation].—Beschovski, 1993: 104, 106 [list, fig. of male terminalia]; 1994b: 18–20 [review, key to Bulgarian species, fig. of male terminalia].—Carles-Tolrá, 1994: 23 [citation, Spain].—Munari, 1996b: 2 [reinstated synonymy].—Beschovski and Nartshuk, 1997: 138 [citation, Ukraine].

Tethina cinerea.—Czerny, 1928: 4 [key, generic combination, revision].—de Meijere, 1928: 79 [citation]; 1932: 287 [discussion on taxonomic status].—Karl, 1930: 69 [citation].—Séguy, 1934: 400 [key, France].—Ringdahl, 1948: 3 [citation].—Tiensuu, 1954: 42 [citation].—Ardö, 1957: 131 [citation].—Trojan, 1962: 66 [misidentification].—Beschovski, 1964a: 263 [citation]; 1964b: 94 [citation, Bulgaria]; 1975: 5 [citation].—Stackelberg, 1970a: 356 [citation].—Soós, 1981: 135 [key].—Mathis and Munari, 1996: 15 [world catalog].—Bährmann, 2001: 186 [citation, Germany].—Beuk, 2002b: 288 [as synonym of *grisea* Fallén, checklist, Netherlands].—Papp, 2001b: 363 [citation (expected), Hungary].

Rhicnoessa latigenis Becker, 1907a: 405 [Tunisia. Tunis: La Marsa; Greece. Kandia (= Iràklion, Crete); Spain. Canary Islands: Tenerife, Santa Cruz; ST ♂♀, ZMHB]; 1908a: 165 [repeat of original description].—Hendel, 1934: 46 [synonymy].

Tethina latigenis.—Czerny, 1928: 3, 6 [generic combination, key, revision].—Karl, 1930: 69 [citation].—de Meijere, 1932: 287 [discussion of taxonomic status].—Séguy, 1934: 400 [key, France].—Frey, 1936: 110, 152 [citation, Canary Islands].—Trojan, 1962: 65 [key].—Beuk, 2002b: 288 [as synonym of *grisea* Fallén, checklist, Netherlands].

grossipes (Becker). *Afrotropical*: Cape Verde Islands. *Palaearctic*: Canary Islands, Morocco.

Rhicnoessa grossipes Becker, 1908a: 165 [(Spain.) Canary Islands: Tenerife; HT ♂, ZMHB].—Hendel, 1934: 44 [key], 48 [citation].—Frey, 1958a: 52 [citation, Canary Islands]; 1958b: 38 [citation, Cape Verde Islands].—Soós, 1978: 412 [Palaearctic catalog]; 1984: 109 [Palaearctic catalog].

Tethina grossipes.—Czerny, 1928: 3, 5 [generic combination, key, revision].—Frey, 1936: 110, 160 [citation, Canary Islands].—Cogan, 1980b: 693 [Afrotropical catalog].—Munari, 1994: 27 [citation, Afrotropics]; 2002a: 20 [citation, Palaearctic checklist, distribution]; 2004b: 109–110 [citation, Morocco, discussion].—Mathis and Munari, 1996: 16 [world catalog].—Munari and Báez, 2000: 10–12 [revision, citation, Canary Islands, Cape Verde Islands, figs. of scutellum, ♂ and ♀ terminalia].—Carles-Tolrá and Báez, 2002: 196 [citation, Canary Islands].—Báez and García, 2004: 280 [citation, Canary islands].

guttata Freidberg and Beschovski. *Palaearctic*: Israel, Tunisia.

Tethina guttata Freidberg and Beschovski, 1996: 103 [Israel. Bor Meshash; HT ♂, TAU].—Mathis and Munari, 1996: 16 [world catalog].—Munari and Ebejer, 2001: 144 [citation].—Munari, 2002a: 20 [citation, Palaearctic checklist, distribution]; 2005b: 6–7 [citation, Israel, Tunisia].

heringi (Hendel). *Palaearctic*: Canary Islands.

Rhicnoessa heringi Hendel, 1934: 49 [(Spain.) Canary Islands: Fuerteventura; ST 4 (both sexes), NMW, ZMHB].—Frey, 1958a: 52 [citation, Canary Islands].—Soós, 1978: 413 [Palaearctic catalog]; 1984: 109 [Palaearctic catalog].

Tethina heringi.—Mathis and Munari, 1996: 16 [new combination, world catalog].—Munari and Báez, 2000: 20, 22–25 [revision, Canary Islands, figs. of head, syntergosternite 7+8, ♂ terminalia].—Munari, 2002a: 20 [citation, Palaearctic checklist, distribution].—Carles-Tolrá and Báez, 2002: 196 [citation, Canary Islands].—Báez and García, 2004: 280 [citation, Canary islands].

hirsuta Munari. *Australasian/Oceanian*: Australia (Western Australia).

Tethina hirsuta Munari, 2000: 244 [Australia. South West Australia: Hopetoun (southern coast); HT ♂, ZSM; figs. of head, legs, abdomen, ♂ terminalia, spermathecae]; 2004a: 31 [key], 54 [catalogue].

histrica Munari. Palaearctic: Croatia.

Tethina histrica Munari, 2009a: 21 [Croatia. Istria, Kamenjak Peninsula; HT ♂, MSNVE; figs. of head, ♂ terminalia, photograph of the site].

horripilans (Melander). *Nearctic:* United States (California, Oregon, Washington).

Rhicnoessa horripilans Melander, 1952: 204 [United States. Washington. Pacific: Ilwaco; LT ♂ (designated by Foster and Mathis, 2008a: 312), USNM].

Tethina horripilans.—Vockeroth, 1965: 727 [generic combination, Nearctic catalog]; 1987: 1076–1077 [figs. of head, hindtibia, and wing].—Mathis and Munari, 1996: 16 [world catalog].—Foster and Mathis, 2008a: 310–313 [review, lectotype designation, western North America, figs. of male terminalia].

illota (Haliday). *Palaearctic*: Belgium, Denmark, England, Finland, France, Germany, Ireland, Netherlands, Portugal, Sweden.

Opomyza (Tethina) illota Haliday, 1838: 188 [Ireland. Dublin: Killiney Bay; ST ♂♀, NMID (apparently lost)].

Tethina illota.—Becker, 1905a: 234 [generic combination, Palaearctic catalog].—Collin, 1911: 234 [discussion, citation, England]; 1960: 192 [citation]; 1966: 22 [key, citation, discussion].—Hendel, 1917: 46 [citation in key]; 1934: 39 [key, citation].—Sturtevant, 1923: 6 [discussion].—Czerny, 1928: 3, 5–6 [key, revision].—de Meijere, 1928: 79 [citation]; 1932: 286 [discussion]; 1939: 162 [citation].—Karl, 1930: 69 [citation].—Séguy, 1934: 399 [key, France].—Ardö, 1957: 131 [citation].—Trojan, 1962: 65–66 [key, fig. of head].—Stackelberg, 1970a: 356 [citation].—Cogan, 1976b: 87 [citation, England].—Rald, 1976a: 113–114, 116 [key, Denmark, fig. of head, citation].—Soós, 1978: 412 [Palaearctic catalog]; 1981: 134 [fig. of head, key]; 1984: 109 [Palaearctic catalog].—Gorczytza, 1988: 307–308 [fig. of head, citation, ecology].—Gosseries, 1991: 169 [citation, Belgium].—Beschovski, 1993: 104 [list].—Mathis and Munari, 1996: 16 [world catalog].—Munari, 1996b: 3 [citation, Denmark, Sweden]; 2002a: 21 [citation, Palaearctic checklist, distribution].—Chandler, 1998: 144 [citation, Great Britain].—Bährmann, 1999: 218 [citation, Germany].—Sabrosky, 1999: 304 [citation, nomenclature].—Papp, 2001b: 363 [citation (expected), Hungary].—Beuk, 2002b: 288 [under the subgenus *Tethina*, checklist, Netherlands].—Stuke, 2008: 86, 97, 102 [citation, Germany, colour photograph of habitus].—von Tschirnhaus, 2008: 389 [citation, Germany].—Munari *et al.*, 2009: 126 [citation, Portugal].

Madiza griseola van der Wulp, 1871: 198 [Netherlands. Scheveningen; ST ♂♀, ZMAN].—Hendel, 1934: 40 [synonymy].

Rhicnoessa griseola.—Becker, 1907a: 405 [generic combination]; 1908a: 166 [misidentification].

Tethina griseola.—de Meijere, 1928: 78 [generic combination, discussion].—Karl, 1930: 69 [citation].—Trojan, 1962: 65 [key].—Beuk, 2002b: 288 [as synonym of *illota* Haliday, checklist, Netherlands].

incisuralis (Macquart). *Afrotropical*: Yemen. *Palaearctic*: Algeria, Canary Islands, Egypt, England, Greece (Crete), Israel, ?Italy, Jordan, Malta, Morocco, Qatar, Spain (including Balearic Islands), Syria, Tunisia, Turkmenistan, United Arab Emirates.

Chlorops incisuralis Macquart, 1851: 278 [Egypt; ST ♂, MNHN].

Rhicnoessa incisuralis.—Collin, 1949: 201 [generic combination, synonymy of *R. pictipes* Becker]; 1960: 192–193 [citation]; 1966: 27, 29 [key, discussion].—Frey, 1958a: 52 [citation, Canary Islands]; 1958b: 38 [misidentification].—Hennig, 1971: 14 [fig. of antenna (as *R. incisurata*)].—Soós, 1978: 413 [Palaearctic catalog]; 1984: 110 [Palaearctic catalog].

Tethina incisuralis.—Cogan, 1976b: 87 [generic combination, citation, England]; 1980: 693 [Afrotropical catalog].—Rald, 1976a: 115 [key].—Beschovski, 1993: 104–105 [citation, fig. of ♂ terminalia]; 1997: 147 [taxonomic notes, citation, Egypt (Sinai), Israel]; 1998: 408 [citation, Greece (Crete), Israel]; 2009: 391 [fig. of ♂ terminalia].—Munari, 1994: 27 [as *Tethina incinsuralis* (sic); citation, Afrotropics]; 1996b: 4–5 [citation, Algeria, Jordan, fig. of ♂ terminalia]; 1997a: 31 [discussion, citation, Egypt, Morocco, Spain, Tunisia]; 1999b: 366–367 [citation, Greece (Crete)]; 2002a: 21 [citation, Palaearctic checklist, distribution]; 2005a: 594 [cf., citation, Qatar]; 2005b: 7 [citation, Algeria, Egypt, Israel, Jordan]; 2007a: 106 [citation Yemen]; 2010a: 67 [citation, Morocco]; 2010b: 651 [citation, United Arab Emirates].—Mathis and Munari, 1996: 16 [world catalog].—Beschovski and Nartshuk, 1997: 129, 132 [taxonomic note, citation, Syria, Turkmenistan].—Chandler, 1998: 144 [citation, Great Britain].—Munari and Báez, 2000: 21 [citation, Canary Islands].—Munari and Ebejer, 2001: 133, 144 [citation, Malta].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain, Canary Islands].—Báez and García, 2004: 280 [citation, Canary islands].—Munari and Vanin, 2007: 58, 65 [key, citation, discussion].—Ebejer *et al.*, 2007: 30 [citation, Balearic Islands].

Rhicnoessa pictipes Becker, 1903: 185 [Egypt. Cairo and Siala; ST 13 ♂♀, ZMHB]; 1905b: 252 [Palaearctic catalog].—Hendel, 1934: 45 [key], 50 [citation].—Collin, 1949: 201 [synonymy]; 1966: 32 [discussion].

Tethina pictipes.—Czerny, 1928: 4, 7 [generic combination, key, revision].—de Meijere, 1928: 79 [citation].—Karl, 1930: 69 [citation].—Séguy, 1934: 400 [key, France].—Ardö, 1957: 131 [citation].—Trojan, 1962: 66 [key].

inopinata Munari and Canzoneri. *Palaearctic*: Greece.

Tethina (Tethina) inopinata Munari and Canzoneri, 1992: 35 [Greece. Salonika: Sithoniá Peninsula (Calcid.), Isola Diaporos; HT ♂, MSNVE].—Mathis and Munari, 1996: 16 [world catalog].—Ratti, 2000: 48 [type material].—Munari, 2002a: 21 [citation, Palaearctic checklist, distribution].

?***insignis*** Becker. *Palaearctic*: Tunisia.

Rhicnoessa insignis Becker, 1907: ? [?].—Bezzi, 1922: 132 [citation, Tunisia].

Remarks. This obscure species does not appear in Becker's (1907) paper on the Diptera of Tunisia. Bezzi's (1922) citation was probably due to a mistake.

insulans Curran. *Neotropical*: Ecuador (Galápagos Islands).

Tethina insulans Curran, 1932: 358 [Ecuador. Galápagos Islands: Floreana, Post Office Bay (seaside); HT ♂, ZMUN].—Foster, 1976b: 2 [Neotropical catalog].—Mathis and Munari, 1996: 17 [world catalog].—Foster and Mathis, 2000: 543 [revision, discussion]; 2008b: 747 [review, Galápagos Islands].

intermedia Collin. *Palaearctic*: Canary Islands, Egypt, Israel, Tunisia, Ukraine.

Tethina intermedia Collin, 1966: 21 [Tunisia. Tunis: La Marsa; HT ♂, MSNVE].—Soós, 1978: 412 [Palaearctic catalog]; 1984: 109 [Palaearctic catalog].—Pont, 1995: 91 [type material].—Mathis and

Munari, 1996: 17 [world catalog].—Ratti, 2000: 48 [type material].—Munari and Ebejer, 2001: 144 [citation].—Munari, 2002a: 21 [citation, Palaearctic checklist, distribution].—Munari and Merz, 2003: 225 [figs. of head and male terminalia], 226 [taxonomy, discussion].

Tethina quadricephala Freidberg and Beschovski, 1996: 108 [Egypt. El Arish; HT ♂, TAU].—Mathis and Munari, 1996: 18 [world catalog].—Beschovski, 1998: 411 [citation, Ukraine].—Munari and Báez, 2000: 9–10 [discussion, citation, Canary Islands, fig. of thorax].—Munari, 2002a: 23 [citation, Palaearctic checklist, distribution].—Carles-Tolrá and Báez, 2002: 196 [citation, Canary Islands].—Munari and Merz, 2003: 226 [synonymy].—Báez and García, 2004: 280 [citation, Canary islands].

karatasensis Munari. *Palaearctic*: Turkey.

Tethina karatasensis Munari, 1981a: 139 [Turkey. Karatàs; HT ♀, MSNVE]; 2002a: 21 [citation, Palaearctic checklist, distribution].—Soós, 1984: 109 [Palaearctic catalog].—Mathis and Munari, 1996: 17 [world catalog].—Freidberg and Beschovski, 1996: 105–106 [revision].—Ratti, 2000: 48 [type material].—Munari and Merz, 2003: 226–227 [citation, Turkey, description of male, figs. of ♂ terminalia].

lisae Foster and Mathis. *Neotropical*: West Indies (Anguilla, Jamaica).

Tethina lisae Foster and Mathis, 1998: 613 [Jamaica. Clarendon: Jackson Bay (17°44.7'N, 77°12.6'W); HT ♂, USNM].

litocola Munari and Ebejer. *Palaearctic*: Cyprus, Tunisia.

Tethina litocola Munari and Ebejer, 2001: 138 [Tunisia. Tabarka, coastal dunes; HT ♂, MSNVE].—Munari, 2002a: 21 [citation, Palaearctic checklist, distribution].—Munari and Merz, 2003: 227–228 [citation, Cyprus, discussion].

longilabella Munari. *Palaearctic:* Oman.

Tethina longilabella Munari 2007a: 107 [Oman. Ra's al Ghubbah (20°07'N, 57°49'E; at light); HT ♂, NMWC].

longirostris (Loew). *Palaearctic*: Algeria, Cyprus, Egypt, France, Germany, Greece (Crete), Israel, Italy (Sicily), Malta, Spain (including Balearic Islands), Tunisia.

Rhicnoessa longirostris Loew, 1865: 36 [Italy. Sicily; ST (5♂, 3♀), ZMHB].—Bezzi and De Stefani-Perez, 1897: 46 [citation, discussion].—Becker, 1905b: 252 [Palaearctic catalog]; 1907a: 405 [citation, Algeria, Tunisia].—Hendel, 1934: 44 [key], 50 [citation].—Frey, 1945: 80 [misidentification].—Collin, 1966: 26, 29 [key, discussion].—Soós, 1978: 413 [Palaearctic catalog]; 1984: 110 [Palaearctic catalog].

Tethina longirostris.—Czerny, 1928: 4, 6 [generic combination, key, revision, misidentification (see *T. strobliana* (Mercier))].—de Meijere, 1928: 79 [citation].—Karl, 1930: 44 [citation, France].—Beschovski, 1993: 104–105 [list, fig. of ♂ terminalia]; 1994a: 201 [citation, Tunisia]; 1994b: 24, 27 [review, figs. of ♂ terminalia and head]; 1997: 145 [taxonomic note, citation, Israel]; 1998: 410 [citation, Greece (Crete)]; 2009: 397 [figs. of head and ♂ terminalia].—Mathis and Munari, 1996: 17 [world catalog].—Munari, 1996b: 8–9 [citation, Tunisia, discussion, figs. of egg and ♂ terminalia]; 1997a: 31–32 [citation, Tunisia]; 1999b: 368 [citation, Greece (Crete)]; 2002a: 21 [citation, Palaearctic checklist, distribution]; 2005b: 8 [citation, Algeria].—Bährmann, 1999: 218 [citation, Germany]; 2001: 186 [citation, Germany].—Munari and Ebejer, 2001: 133, 144 [citation, Malta].—Carles-Tolrá and Blasco-Zumeta, 2001: 60 [citation, Spain].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain].—Carles-Tolrá and Aguirre-Segura, 2007: 201 [citation, Spain].—Munari and Merz, 2003: 225 [fig. of head], 228–229 [citations, Cyprus, Malta, morphological variation].—Munari and Vanin, 2007: 58, 65–66 [key, citation, Italy, discussion].—Ebejer *et al.*, 2007: 30 [citation (cf.), Balearic Islands].

lusitanica Munari, Almeida, and Andrade. *Palaearctic*: Portugal.

Tethina lusitanica Munari, Almeida, and Andrade, 2009: 124 [Portugal: Braga, Esposende, Apulia; HT ♂, MSNVE; figs. of ♂ terminalia and wing, colour photographs of adults].

luteosetosa Beschovski and Nartshuk. *Palaearctic*: Mongolia, Turkmenistan.

Tethina luteosetosa Beschovski and Nartshuk, 1997: 133 [Mongolia. Bajan-Khongor Aimak, Talyn-Bilgekh-Bulak (24–35 km E); HT ♂, ZIN].—Munari, 2002a: 21 [citation, Palaearctic checklist, distribution].

mariae Munari. *Palaearctic*: Morocco.

Tethina mariae Munari, 1997a: 32 [Morocco. Larache (40 km S; 0–20 m); HT ♂, ZMUC]; 2002a: 21 [citation, Palaearctic checklist, distribution]; 2010a: 67 [citation, Morocco].—Munari and Báez, 2000: 28 [citation].

marmorata (Becker). *Palaearctic*: Canary Islands.

Rhicnoessa marmorata Becker, 1908a: 164 [(Spain.) Canary Islands: Tenerife, Orotava; LT ♂ (designated by Munari and Báez, 2000: 26–27), ZMHB].—Hendel, 1934: 44 [key], 48 [citation].—Frey, 1958a: 52 [citation, Canary Islands].—Soós, 1978: 413 [Palaearctic catalog]; 1984: 110 [Palaearctic catalog].

Tethina marmorata.—Czerny, 1928: 3, 6–7 [generic combination, key, revision].—Frey, 1936: 110, 160 [citation, Canary Islands].—Beschovski, 1993: 104–106 [list, figs. of ♂ terminalia].—Mathis and Munari, 1996: 17 [world catalog].—Munari and Báez, 2000: 26–27 [revision, lectotype designation, Canary Islands, fig. of ♂ terminalia].—Munari, 2002a: 21 [citation, Palaearctic checklist, distribution].—Carles-Tolrá and Báez, 2002: 196 [citation, Canary Islands].—Báez and García, 2004: 280 [citation, Canary islands].

melitensis Munari and Ebejer. *Palaearctic*: Malta.

Tethina melitensis Munari and Ebejer, 2001: 136 [Malta. Gozo, Ramla dunes; HT ♂, MSNVE].—Munari, 2002a: 21 [citation, Palaearctic checklist, distribution].—Munari and Merz, 2003: 229–230 [citation, Malta, morphological variation].

merzi Munari. *Palaearctic*: Israel.

Tethina merzi Munari, 1999a: 14 [Israel. Elot; HT ♂, ETHZ]; 2002a: 21 [citation, Palaearctic checklist, distribution].

milichioides (Melander). *Nearctic:* United States (California, Oregon, Washington).

Rhicnoessa milichioides Melander, 1913: 299 [United States. Washington. King: Seattle, Alki Point; LT ♂ (designated by Foster, 1976a: 346), USNM].—Hendel, 1934: 43 [key], 48 [citation].

Phycomyza milichioides.—Melander, 1952: 198, 212 [generic combination, fig. of ♂ terminalia].—Vockeroth, 1965: 727 [Nearctic catalog].—Cole, 1969: 386 [distribution, diagnosis].

Tethina milichioides.—Sturtevant, 1923: 6 [generic combination].—Foster, 1976a: 345–346 [revision, lectotype designation].—Mathis and Munari, 1996: 17 [world catalog].—Foster and Mathis, 2008a: 313–316 [review, synonymy, western North America, figs. of head and ♂ terminalia].

Tethina woodi Foster, 1976a: 342 [United States. Washington. Pacific: Ilwaco; HT ♂, USNM (73640)].—Mathis and Munari, 1996: 19 [world catalog].—Foster and Mathis, 2008a: 313 [synonymy].

Tethina steyskali Foster, 1976a: 344 [United States. California. San Luis Obispo: Pismo Beach; HT ♂, USNM (73639)].—Mathis and Munari, 1996: 18 [world catalog].—Foster and Mathis, 2008a: 313 [synonymy].

mima Munari. *Palaearctic*: Greece (Rhodes).

Tethina mima Munari, 1996b: 3 [Greece. Rhodes: Kattavia (4 km S); HT ♂, MZLU]; 2002a: 21 [citation, Palaearctic checklist, distribution].

minoia Munari. *Palaearctic*: Greece (Crete).

Tethina minoia Munari, 1999b: 367 [Greece. Crete. Plakiás (southern coast near; sand dunes); HT ♂, ZSM]; 2002a: 21 [citation, Palaearctic checklist, distribution].

multipilosa Beschovski and Nartshuk. *Palaearctic*: Mongolia.

Tethina multipilosa Beschovski and Nartshuk, 1997: 135 [Mongolia. Gobi-Altai-Aimak, Shargyn-Gobi, Bajan (10 km NE and E); HT ♂, ZIN].—Munari, 2002a: 22 [citation, Palaearctic checklist, distribution].

munarii Carles-Tolrá. *Palaearctic*: Italy (Sicily), Malta, Spain (including Balearic Islands).

Tethina (Rhicnoessa) munarii Carles-Tolrá, 1993: 251 [Spain. Gerona, Cadaqués; HT ♂, CTC]; 1994: 23 [citation, Spain]; 2001a: 95 [citation, Spain]; 2001b: 86 [citation, Spain].—Mathis and Munari, 1996: 17 [world catalog].—Munari, 2002a: 22 [citation, Italy (Sicily: Pantelleria Is., Linosa Is.), Palaearctic checklist, distribution].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain, Balearic Islands].—Munari and Merz, 2003: 230 [citation, Malta, diagnostic features].—Munari and Vanin, 2007: 58, 66 [key, citation].

nigriseta Malloch. *Australasian/Oceanian*: Australia (New South Wales, Queensland, Victoria).

Tethina nigriseta Malloch, 1924b: 337 [Australia. New South Wales: Woolgoolga; HT ♂, AMS].—Mathis and Sasakawa, 1989: 668 [Australasian/Oceanian catalog].—Colless and D.K. McAlpine, 1991: 779 [figs. of head and wing].—Mathis and Munari, 1996: 17 [world catalog].—Munari, 2004a: 31 [key], 48–50 [citation, Australia (New South Wales, Victoria), figs. of ♂ terminalia], 54 [catalogue]; 2005a: 594 [citation, Australia, (New South Wales, Queensland].—McAlpine, 2007: 31, 36 [SEM photographs of lower face and adjacent parts, and acropod].

Rhicnoessa nigriseta.—Hendel, 1934: 43 [key], 47 [generic combination, citation].

Tethina (Tethina) nigriseta.—Malloch, 1935: 92 [citation].

nigrofemorata Beschovski. *Palaearctic*: Algeria, Canary Islands, Cyprus, Egypt, France, Greece (Crete), Israel, Jordan, Malta, Spain (including Balearic Islands), Tunisia.

Tethina nigrofemorata Beschovski, 1997: 145 [Israel. Nahal Yam; HT ♂, TAU]; 1998: 410 [citation, France, Israel].—Becker, 1908: 164 [misidentified as *Rhicnoessa cinerea* Loew, citation, Canary Islands].—Munari, 1996b: 5 [as *Tethina* sp. nov. "A", figs. of ♂ terminalia, citation, Tunisia]; 1999b: 366 [citation, Greece (Crete)]; 2002a: 22 [citation, Palaearctic checklist, distribution]; 2005b: 8 [citation, Algeria, Egypt, Jordan].—Munari and Báez, 2000: 21–22 [discussion, citation, Canary Islands, figs. of ♂ terminalia].—Munari and Ebejer, 2001: 144 [citation].—Carles-Tolrá and Báez, 2002: 196 [citation, Canary Islands].—Báez and García, 2004: 280 [citation, Canary islands].—Munari and Merz, 2003: 230–231 [citations, Cyprus, Malta].—Ebejer, 2003: 105, 106, 113 [citation, Balearic Islands].—Munari and Vanin, 2007: 58, 66 [key, citation].—Ebejer *et al.*, 2007: 18, 30 [citation, Balearic Islands, Canary Islands].

omanensis Munari. *Palaearctic:* Oman.

Tethina omanensis Munari, 2007a: 108 [Oman. North Masira Island (B. E. R. S. Camp); HT ♂, NMWC].

orientalis (Hendel). *Australasian/Oceanian*: Mariana Islands (Guam). *Oriental*: China (Hong Kong), Japan (Ryukyus), Taiwan.

Rhicnoessa orientalis Hendel, 1934: 47 [Taiwan. Anping; HT ♀, NMW].

Tethina orientalis.—Sasakawa, 1974: 1 [generic combination, revision]; 1981: 520 [citation]; 1986: 433, 437 [key, citation]; 1995: 54–55 [revision, Micronesia]; 2008: 135 [citation, OMNH].—Steyskal and

Sasakawa, 1977: 395 [Oriental catalog].—Morimoto, 1989: 833 [citation, Japan].—Mathis and Munari, 1996: 17 [world catalog].

pallidiseta Malloch. *Australasian/Oceanian*: Australia (Lord Howe Island, New South Wales, Tasmania, Victoria, Western Australia).

Tethina (Tethina) pallidiseta Malloch, 1935: 92 [Australia. New South Wales: Collaroy; HT ♂, AMS].—Mathis and Sasakawa, 1989: 668 [Australasian/Oceanian catalog].—Mathis and Munari, 1996: 17–18 [world catalog].—Munari, 2000: 247 [citation, Australia (Western Australia), fig. of ♂ terminalia]; 2004a: 31 [key], 50 [citation, Australia (Lord Howe Island, New South Wales, Tasmania, Victoria], 55 [catalogue]; 2005a: 594 [citation, Australia (New South Wales)].—McAlpine, 2007: 31–32, 34 [SEM photographs of head ventro-laterally and postfrons, fig. of prosternum].

pallipes (Loew). *Afrotropical*: Cape Verde Islands, Senegal, Seychelles (Aldabra), South Africa. *Australasian/Oceanian*: Australia (Western Australia). *Oriental*: India, Taiwan. *Nearctic*: Bermuda, United States (Texas). *Neotropical*: Chile, Mexico (Chiapas, Tabasco). *Palaearctic*: Algeria, Azores, Bulgaria, Canary Islands, Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Malta, Oman, Portugal (Madeira), Spain (including Balearic Islands), Tunisia, Turkey, United Arab Emirates.

Rhicnoessa pallipes Loew, 1865: 37 ["Griechenland [Greece]" and "griechischen Inseln"; LT ♂ (designated by Munari, 2006: 104), ZMHB].—Munari, 2006: 103–105, 111, 115 [lectotype designation, discussion, photographs of lectotype].

Rhicnoessa pallipes of authors, not Loew, 1865.—Becker, 1905b: 252 [Palaearctic catalog]; 1907a: 405 [citation, Tunisia]; 1908a: 164 [citation, Canary Islands].—Bezzi, 1922: 133 [citation, Tunisia].—Hendel, 1934: 45 [key], 50 [citation]; 1938: 7 [senior synonym of *Odinia tamaricis* (Bigot)].—Frey, 1945: 81 [citation, Azores]; 1958a: 52 [citation, Canary Islands]; 1958b: 38 [citation, Cape Verde Islands].—Collin, 1966: 28, 32 [key, discussion].—Soós, 1978: 413 [Palaearctic catalog]; 1984: 110 [Palaearctic catalog].

Tethina pallipes.—Munari, 2007a: 111 [citation, Oman]; 2008b: 672, 675–676 [citation, United Arab Emirates, photographs of adults]; 2009b: 58–59 [discussion, citation, India]; 2010b: 651 [citation, United Arab Emirates].—Munari and Vanin, 2007: 58, 66, 73 [key, citation, Italy, discussion].—Ebejer, 2008: 329 [citation, Madeira].—Beschovski, 2009: 394–395 [Bulgarian fauna, figs. of head, thorax, wing, ♂ terminalia].

Tethina pallipes of authors, not Loew, 1865.—Czerny, 1928: 4, 7 [generic combination, key, revision].—de Meijere, 1928: 79 [citation].—Séguy, 1934: 400 [key, France].—Frey, 1936: 110, 154, 196–197, 201, 204, 206, 221 [citation, Canary Islands].—Cogan, 1980b: 693 [Afrotropical catalog].—Beschovski, 1993: 104, 106 [list, fig. of ♂ terminalia]; 1994b: 22–25 [review, fig. of ♂ terminalia, Bulgaria]; 1997: 147–148 [notes, citation, Israel].—Munari, 1994: 28 [list, Afrotropics]; 1996b: 8 [citation, Tunisia]; 2002a: 22 [citation, Palaearctic checklist, distribution]; 2005b: 9 [misidentification].—Mathis and Munari, 1996: 18 [world catalog].—Munari and Ebejer, 2001: 144 [citation].

Rhicnoessa ochracea Hendel, 1913: 109 [Taiwan. Anping; LT ♂ (designated by Munari, 1991a: 166), NMW].—Malloch, 1914: 308 [citation].—Hendel, 1934: 45 [key], 50 [citation].—Rohlfien and Ewald, 1972: 443 [type material, DEI].—Munari, 2006: 103 [synonymy].

Tethina ochracea.—Steyskal and Sasakawa, 1977: 395 [generic combination, Oriental catalog].—Munari, 1991a: 166 [lectotype designation, discussion]; 1994: 23, 27 [citation, Egypt and South Africa, list, Afrotropics]; 1996b: 6, 8 [citation, Algeria, Greece, Spain, Tunisia, fig. of ♂ terminalia]; 1997a: 33 [citation, Egypt, Spain]; 2000: 247 [citation, Australia (Western Australia)]; 2002a: 22 [citation, Palaearctic checklist, distribution]; 2004a: 31 [key], 54–55 [catalogue]; 2004b: 112

[citation, Cape Verde Islands]; 2005b: 8–9 [discussion, citation, Algeria, Egypt, Jordan].—Carles-Tolrá, 1992: 349 [citation (*partim*, also as *T. simplex*), Spain]; 1994: 23 [citation (*partim*, also as *T. simplex*), Spain]; 2001a: 95 [citation, Spain].—Beschovski, 1993: 104, 106 [list, figs. of ♂ terminalia]; 1994b: 24–25 [review, fig. of ♂ terminalia and head, Bulgaria]; 1997: 148 [citation, Israel, Spain, Tunisia]; 1998: 411 [citation, France, Israel].—Mathis and Munari, 1996: 17 [world catalog].—Beschovski and Nartshuk, 1997: 129 citation, Turkey].—Munari and Báez, 2000: 12–14 [citation, Azores, Canary Islands, Cape Verde Islands, Madeira].—Munari and Evenhuis, 2000: 147 [synonymies, world distribution].—Munari and Ebejer, 2001: 134, 144 [citation, Malta].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain, Balearic and Canary Islands, Azores, Madeira].—Munari and Merz, 2003: 225 [fig. of head], 231 [citations, Cyprus, Malta].—Báez and García, 2004: 280 [citation, Canary islands].—Diaz *et al.*, 2005: 218 [citation, Azores].—Ebejer *et al.*, 2007: 30 [citation, Balearic Islands].

Rhicnoessa texana Malloch, 1913: 148 [USA. Texas. Nueces: Corpus Christi; HT ♀, USNM (15807)].—Hendel, 1934: 50 [citation].—Melander, 1952: 202, 208 [key, citation].—Munari, 2006, 103 [synonymy].

Tethina texana.—Sturtevant, 1923: 7 [generic combination].—Vockeroth, 1965: 728 [Nearctic catalog].—Mathis and Munari, 1996: 19 [world catalog].—Foster and Mathis, 1998: 618–621 [revision, Caribbean and Gulf of Mexico].—Munari and Evenhuis, 2000: 147 [synonymy with *T. ochracea* (Hendel)].

Tethina chilensis Malloch, 1934: 455 [Chile. Antofagasta: Antofagasta; HT ♂, USNM (allotype on same pin)].—Foster, 1976b: 2 [Neotropical catalog].—Mathis and Munari, 1996: 15 [world catalog].—Foster and Mathis, 1998: 618 [synonymy with *R. texana* Malloch].—Munari and Evenhuis, 2000: 147 [synonymy with *T. ochracea* (Hendel)].—Munari, 2006: 103 [synonymy].

Tethina canzonerii Munari, 1981a: 142 [Turkey. Karatàs; HT ♂, MSNVE]; 1990: 60, 68 [citation, Seychelles, South Africa, figs. of ♂ terminalia]; 1991a: 165 [synonymy with *T. ochracea* (Hendel)]; 2006: 103 [synonymy].—Soós, 1984: 108 [Palaearctic catalog].—Canzoneri *et al.*, 1990: 37 [citation, Pelagian Islands].—Ratti, 2000: 48 [type material].

parvula (Loew). *Nearctic*: Canada (Quebec), United States (California, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Jersey, New York, North Carolina, Ohio, Rhode Island, Virginia, Washington).

Rhicnoessa parvula Loew, 1869: 45 [USA. Rhode Island. New Port: Newport; ST ♂♀, MCZ].—Hallock and Parker, 1926: 3 [citation].—Hendel, 1934: 43 [key], 48 [citation].—Melander, 1952: 201, 205 [key, citation].

Tethina parvula.—Hendel, 1911: 43 [generic combination, misidentification, see *Pelomyiella melanderi* (Sturtevant)].—Sturtevant, 1923: 7 [citation].—Johnson, 1925: 286 [citation]; 1930: 156 [citation].—Vockeroth, 1965: 727 [Nearctic catalog]; 1987: 1073 [fig. of habitus].—Mathis and Munari, 1996: 18 [world catalog].—Mathis and Foster, 2007: 418–420 [diagnosis, citation Delmarva States, figs. of male terminalia].

Rhicnoessa whitmani Melander, 1913: 298 [USA. Massachusetts. Barnstable: Woods Hole; HT ♂, USNM].—Sturtevant, 1923: 7 [synonymy].

pictipennis Freidberg and Beschovski. *Palaearctic*: Morocco.

Tethina pictipennis Freidberg and Beschovski, 1996: 107 [Morocco. Larache (40 km S); HT ♂, ZMUC].—Mathis and Munari, 1996: 18 [world catalog].—Munari, 2002a: 22–23 [citation, Palaearctic checklist, distribution, discussion]; 2004b: 110–111 [citation, Morocco, discussion, fig. of ♂ terminalia].

pleuralis Munari. *Palaearctic*: United Arab Emirates.

Tethina pleuralis Munari, 2010b: 651 [United Arab Emirates. South of Ras Al Khaymah, coast, 25° 43.66' N, 055° 52.42' E; HT ♂, NMWC].

prognatha (Melander). *Nearctic:* United States (California).

Rhicnoessa prognatha Melander, 1952: 206 [United States. California. San Luis Obispo: Morro Bay (dunes west); HT ♀, USNM].

Tethina prognatha.—Vockeroth, 1965: 728 [generic combination, Nearctic catalog].—Mathis and Munari, 1996: 18 [world catalog].—Foster and Mathis, 2008a: 316–317 [review, western North America].

robusta Foster and Mathis. *Neotropical*: Chile.

Tethina robusta Foster and Mathis, 2000: 546 [Chile. Osorno Province, Pucatrihue; HT ♂, USNM].

saigusai Sasakawa. *Palaearctic*: Japan (Honshu, Hokkaido).

Tethina saigusai Sasakawa, 1986: 434 [Japan. Honshu: Kyoto, Kunda Peninsula, Shimakage Bay; HT ♂, OMNH (formerly in KPU (234))].—Morimoto, 1989: 833 [citation, Japan].—Mathis and Munari, 1996: 18 [world catalog].—Beschovski and Nartshuk, 1997: 129 [citation, Japan].—Munari, 2002a: 23 [citation, Palaearctic checklist, distribution].—Matsumoto and Sasakawa, 2006: 25 [citation, primary type, OMNH].—Ohishi *et al.*, 2007: 74 [citation, Japan (Honshu)].

Rhicnoessa saigusai.—Beschovski and Nartshuk, 1997: 140 [generic combination, discussion].

salinicola Beschovski. *Palaearctic*: France.

Tethina (Rhicnoessa) salinicola Beschovski, 1998: 408 [France. Bouches-du-Rhône, Salin de Giraud; HT ♂; ETHZ].—Munari, 2002a: 23 [citation, Palaearctic checklist, distribution]; 2004b: 112 [discussion, comparison with a closely related, undescribed species].—Munari and Vanin, 2007: 58, 67 [key, citation].

sasakawai Foster and Mathis. *Nearctic:* Canada (British Columbia), United States (California). *Palaearctic:* Japan (Hokkaido).

Tethina sasakawai Foster and Mathis, 2008a: 317 [United States. California. San Diego: Camp Pendleton (33°13.3'N, 117°24.5'W; beach); HT ♂; USNM].

shalom Freidberg and Beschovski. *Palaearctic*: Israel (Red Sea coast), Qatar.

Tethina shalom Freidberg and Beschovski, 1996: 109 [Israel. Elat; HT ♂, TAU].—Mathis and Munari, 1996: 18 [world catalog].—Munari, 2002a: 23 [citation, Palaearctic checklist, distribution]; 2005a: 595–596 [citation, Qatar, discussion, distribution map].

soikai Munari. *Afrotropical*: Cape Verde Islands, Senegal. *Palaearctic*: Oman.

Tethina soikai Munari, 1981a: 141 [Senegal. Rufisque; HT ♂, MSNVE]; 1994: 28 [list, Afrotropics]; 1996b: 5–6, 8 [citation, Oman, fig. of ♂ terminalia].—Mathis and Munari, 1996: 18 [world catalog].—Munari and Báez, 2000: 14 [citation, Cape Verde Islands].—Ratti, 2000: 48 [type material].

spinigera Munari. *Palaearctic*: United Arab Emirates.

Tethina spinigera Munari, 2008b: 675 [United Arab Emirates: al-Ajban; HT ♂, NMWC]; 2010b: 655 [citation, United Arab Emirates].

spinulosa Cole. *Nearctic:* Mexico (Baja California Norte, Baja California Sur), United States (California, Florida). *Neotropical:* Chile (Tarapaea to Antofagasta), Ecuador (Galápagos Islands), Mexico (Sonora, Tabasco).

Tethina spinulosa Cole, 1923: 478 [Mexico.Baja California: Las Animas Bay; HT ♂, CAS (1356)].—Hendel, 1934: 41 [revision].—Vockeroth, 1965: 728 [Nearctic catalog].—Foster, 1976b: 2 [Neotropical catalog].—Mathis and Munari, 1996: 18 [world catalog].—Foster and Mathis, 2000:

544–546 [review; neotropics]; 2008a: 319–323 [review, western North America, figs. of head and ♂ terminalia]; 2008b: 747–750 [review, Galápagos Islands, figs. of head and ♂ terminalia].

Rhicnoessa spinulosa.—Melander, 1952: 202, 208 [key, generic combination, citation].

Tethina setulosa Malloch, 1934: 454 [Chile. Antofagasta: Tocopilla; HT ♂, USNM].—Foster, 1976b: 2 [Neotropical catalog].—Mathis and Munari, 1996: 18 [world catalog].—Foster and Mathis, 1998: 621 [fig. of head], 624–625 [revision, Chile, Mexico (Tabasco), fig. of ♂ terminalia]; 2000: 544–546 [synonymy; review; neotropics].

Rhicnoessa setulosa.—Hennig, 1937: 139 [generic combination, citation].

stobaeana Munari. *Palaearctic*: Spain, Uzbekistan.

Tethina stobaeana Munari, 1996b: 6 [Spain. Castellón: Benicasim; HT ♂, MZLU]; 2002a: 23 [citation, Palaearctic checklist, distribution].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain].

strobliana (Mercier). *Palaearctic*: Azores, Belgium, Bulgaria, Czech Republic, Denmark, England, France, Germany, Greece (Crete), Hungary, Israel, Italy (including Sardinia), Kazakhstan, Lebanon, Malta, Oman, Poland, Portugal (Madeira), Russia (Sea of Azov), Slovakia, Spain (including Balearic Islands), Syria, Tadjikistan, Tunisia, Turkmenistan, Ukraine, Uzbekistan.

Rhicnoessa strobliana Mercier, 1923: 18 ["Espagne (Algeciras, Alicante), France (côte du Calvados; mare saumâtre à Bénouville, dune de Courseulles, juin-juillet)"; ST (sex ?), MNHN].—Hendel, 1934: 45 [key], 50 [citation].—Frey, 1945: 81 [misidentification, Azores]; 1949: 36 [misidentification, Madeira].—Collin, 1960: 192–193 [citation, *partim*]; 1966: 27, 30 [key, discussion].—Soós, 1978: 413 [Palaearctic catalog]; 1984: 110 [Palaearctic catalog].—Szadziewski, 1983: 46 [citation].—Nowakowski, 1991: 217 [citation, Poland].—Gosseries, 1991: 169 [citation, Belgium].

Tethina strobliana.—Czerny, 1928: 6 [as *Tethina longirostris* (Loew), revision].—Cogan, 1976b: 87 [generic combination, citation, England].—Rald, 1976a: 115 [key].—Soós, 1981: 134, 136–137 [figs. of head and habitus, key, citation]; 1983: 312 [citation, Hungary].—Canzoneri *et al.*, 1990: 38 [citation, Pelagian Islands].—Beschovski, 1993: 104, 106 [list, fig. of ♂ terminalia]; 1997: 148 [citation, Israel]; 1998: 411 [citation, France, Israel, Italy]; 2009: 396–398 [Bulgarian fauna, figs. (as *Tethina pallipes*, mistake) of head, wing, ♂ terminalia].—Mathis and Munari, 1996: 18–19 [world catalog].—Munari, 1996b: 8–9 [citation, Greece, Spain, Tunisia, discussion, fig. of ♂ terminalia]; 2002a: 23 [citation, Palaearctic checklist, distribution]; 2005b: 10 [discussion, citation, Italy]; 2006: 105–109, 113 [discussion, figs. of surstylus variation]; 2007a: 111–112 [discussion, citation, Oman].—Beschovski and Nartshuk, 1997: 137–138 [citation, Black Sea coast, Kazakhstan, Russia, Tadjikistan, Turkmenistan, Ukraine, Uzbekistan, figs. of head, ♂ terminalia].—Chandler, 1998: 144 [citation, Great Britain].—Bährmann, 1999: 218 [citation, Germany]; 2001: 187 [citation, Germany].—Munari and Báez, 2000: 17 [citation (cf.), Azores].—Munari and Ebejer, 2001: 134, 144 [citation, Malta].—Papp, 2001b: 363 [citation, Hungary].—Carles-Tolrá, 2001b: 86 [citation, Spain].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain, Azores (doubtful record), Madeira (misidentification)].—Carles-Tolrá and Ventura, 2008: 276 [citation, Balearic Islands (Spain)].—Hardwick, 2002: 18–19 [citation, England].—Munari and Merz, 2003: 231–232 [citation, Malta, Sardinia, discussion].—Ebejer, 2003: 105, 106, 113 [citation, Balearic Islands].—Diaz *et al.*, 2005: 218 [citation, Azores].—Roháček, 2006: from web [citation, Czech Republic, Slovakia].—Munari and Vanin, 2007: 58, 67–68, 73 [key, citation, Italy, discussion].—Ebejer *et al.*, 2007: 30 [citation, Balearic Islands].—Ebejer, 2008: 329 [misidentification, Madeira].—Stuke, 2008: 86, 102 [citation, Germany].

Tethina nigripes Czerny, 1928: 7 [Germany. Sülldorf; and Lebanon. Beirut; LT ♂ (designated by Munari, 2006: 105–106), DEI].—Karl, 1930: 69 [citation].—Ardö, 1957: 131 [citation].—Trojan,

1962: 67 [key].—Rohlfien and Ewald, 1972: 443 [type material, DEI].—Rald, 1976a: 115 [key].—Soós, 1981: 136 [key].—Mathis and Munari, 1996: 17 [world catalog].—Beschovski and Nartshuk, 1997: 129 [citation, Lebanon, Syria].—Bährmann, 1999: 218 [citation, Germany]; 2001: 186 [citation, Germany].—Papp, 2001b: 363 [citation (expected), Hungary].—Munari and Ebejer, 2001: 144 [citation].—Munari, 2002a: 22 [citation, Palaearctic checklist, distribution]; 2006: 105–107, 112, 115 [synonymy, discussion, photographs of the lectotype]. –Ventura and Pretus, 2003: 11 [citation, Balearic Islands (Spain)].

Rhicnoessa nigripes.—Hendel, 1934: 46 [key], 50 [generic combination, citation].—Collin, 1966: 27, 30 [key, discussion].—Soós, 1978: 413 [Palaearctic catalog]; 1984: 110 [Palaearctic catalog].—Szadziewski, 1983: 46–47 [citation, fig. of ♂ terminalia].—Nowakowski, 1991: 217 [citation, Poland].

Tethina longirostris of authors, not Loew, 1865 [misidentification].—Collin, 1911: 234 [citation, England].—Czerny, 1928: 6 [revision].

Rhicnoessa penita Collin, 1966: 31 [England. Suffolk: Aldeburgh; HT ♂, OUMNH]; 1960: 192–193 [as *Rhicnoessa strobliana* Mercier].—Soós, 1978: 413 [Palaearctic catalog]; 1984: 110 [Palaearctic catalog].—Beschovski, 1993: 104 [synonymy].—Pont, 1995: 130 [type material, discussion].

Tethina penita.—Cogan and Dear, 1975: 179 [generic combination].—Cogan, 1976b: 87 [citation, England].—Rald, 1976a: 115–116 [key, Denmark, citation].

Rhicnoessa simplex Collin, 1966: 32 [England. Norfolk: Holme-by-sea; LT ♂ (designated by Beschovski, 1994b: 24), OUMNH]; 1960: 192–193 [as *Rhicnoessa strobliana* Mercier].—Soós, 1978: 413 [Palaearctic catalog]; 1984: 110 [Palaearctic catalog].—Pont, 1995: 149 [type material].—Munari, 2006: 105, 107–109, 114–115 [synonymy, discussion, photographs of the lectotype].

Tethina simplex.—Cogan and Dear, 1975: 179 [generic combination].—Cogan, 1976b: 87 [citation, England].—Rald, 1976a: 115 [key].—Roháček, 1992: 130 [as "?*simplex*", Czech Republic and Slovakia]; 1994a: 201 [citation, Tunisia]; 1997: 79 [citation, Czech Republic and Slovakia].—Carles-Tolrá, 1992: 349 [misidentification]; 1994: 23 [misidentification]; 2001a: 95 [taxonomic rectification].—Beschovski, 1993: 104, 106 [list, fig. of ♂ terminalia]; 1994b: 24 [review, figs. of ♂ terminalia and head, Hungary, lectotype designation].—Mathis and Munari, 1996: 18 [world catalog].—Chandler, 1998:144 [citation, Great Britain].—Papp, 2001b: 363 [citation, Hungary].—Munari, 2002a: 23 [citation, Palaearctic checklist, distribution].—Ebejer *et al.*, 2007: 30, 32, 36 [citation, Balearic Islands].

stukei Munari. *Palaearctic*: United Arab Emirates.

Tethina stukei Munari, 2010b: 655 [United Arab Emirates. Umm al Qaywayn, beach, 25° 31.46' N, 055° 31.53' E; HT ♂, NMWC].

subpunctata Beschovski. *Palaearctic*: Tunisia.

Tethina subpunctata Beschovski, 1994a: 198 [Tunisia. Sousse (15 km N); HT ♂, OUMNH].—Mathis and Munari, 1996: 19 [world catalog].—Munari and Ebejer, 2001: 144 [citation].—Munari, 2002a: 23 [citation, Palaearctic checklist, distribution].

tethys Munari and Báez. *Palaearctic*: Azores, Italy (incl. Sardinia), Spain (Balearic Islands).

Tethina tethys Munari and Báez, 2000: 14 [Azores. São Miguel, Ribeira Grande; HT ♂, MZH].—Munari, 2002a: 23–24 [citation, Palaearctic checklist, distribution].—Carles-Tolrá and Báez, 2002: 196 [citation, Azores, Balearic Islands].—Diaz *et al.*, 2005: 218 [citation, Azores].—Munari and Vanin, 2007: 58, 68 [key, citation, Italy].

thula Sasakawa. *Nearctic:* United States (Alaska). *Palaearctic:* Japan (Hokkaido), Russia (Far East, South Sakhalin).

Tethina thula Sasakawa, 1986: 436 [Japan. Hokkaido: Notsuke-gun, Bekkai Beach; HT ♂, OMNH (formerly in KPU (235))].—Morimoto, 1989: 833 [citation, Japan].—Mathis and Munari, 1996: 19 [world catalog].—Beschovski and Nartshuk, 1997: 129 [citation, Japan].—Munari, 2002: 24 [list, Palaearctic Region].—Foster and Mathis, 2008a: 323–325 [review, Alaska, figs. of ♂ terminalia].—Matsumoto and Sasakawa, 2006: 25 [citation, primary type, OMNH].

Rhicnoessa thula.—Beschovski and Nartshuk, 1997: 138–140 [generic combination, review, Russia (Far East, southern Sakhalin), figs. of head, wing, ♂ and ♀ terminalia].

tschirnhausi Munari. *Palaearctic*: Greece (Crete).

Tethina tschirnhausi Munari, 1999b: 369 [Greece. Crete. Paleochóra (west of; beach); HT ♂, ZSM]; 2002a: 24 [citation, Palaearctic checklist, distribution].

willistoni (Melander). *Australasian/Oceanian*: Hawaii (French Frigate Shoals, Hawaii, Kahoolawe, Kauai, Lisiansky, Maui, Oahu), Midway Islands. *Nearctic*: Bermuda, United States (California, Connecticut, Delaware, Florida, Maryland, Massachusetts, North Carolina, South Carolina, Virginia). *Neotropical*: Bahamas, Belize, Brazil (Rio de Janeiro), Cuba, Curaçao, Ecuador, Mexico (Chihuahua, Tabasco), Panama, Peru, Tobago, Turks and Caicos, West Indies (Anguilla, Antigua, Barbados, Barbuda, Dominica, Dominican Republic, Grand Cayman, Grenada, Jamaica, Montserrat, Puerto Rico, St. Croix, St. Lucia, St. Vincent).

Anthomyza cinerea Williston, 1896: 444 [West Indies. St. Vincent. Wallilabou beach (1315'N, 61°16'W); NT ♂ (designated by Foster and Mathis, 1998: 615), USNM; preoccupied, Loew, 1862].

Rhicnoessa cinerea.—Czerny, 1902: 256 [generic combination].

Rhicnoessa willistoni Melander, 1913: 298 [new name for *A. cinerea* of Williston, 1896, not Loew, 1862].—Hendel, 1934: 51 [citation].—Melander, 1952: 201 209 [key, citation].

Tethina willistoni.—Foster, 1976b: 3 [generic combination, Neotropical catalog].—Mathis and Munari, 1996: 19 [world catalog].—Foster and Mathis, 1998: 611, 613, 615–618 [revision, Caribbean and Gulf of Mexico, neotype designation, figs. head and ♂ terminalia]; 2008a: 325–328 [review, western North America, figs. of head and ♂ terminalia].—Nishida, 2002: 117 [checklist, Hawaii].—Mathis and Foster, 2007: 420–424 [review, fauna of Delmarva States].

Rhicnoessa bermudaensis Melander, 1952: 203 [Bermuda. Castle and Cooper Islands; LT ♂ (designated by Foster and Mathis, 1998: 612), USNM].—Mathis and Foster, 2007: 421 [synonymy].

Tethina bermudaensis.—Vockeroth, 1965: 727 [generic combination, Nearctic catalog].—Woodley and Hilburn, 1994: 53–54 [citation, Bermuda].—Mathis and Munari, 1996: 15 [world catalog].—Foster and Mathis, 1998: 611–613 [revision, lectotype designation, Caribbean and Gulf of Mexico, fig. of ♂ terminalia].

Rhicnoessa variseta Melander, 1952: 209 [United States. California. Orange: Corona del Mar; LT ♂ (designated by Foster and Mathis, 1998: 616), USNM].—Foster and Mathis, 1998: 615 [synonymy, lectotype designation].

Tethina variseta.—Vockeroth, 1965: 728 [generic combination, Nearctic catalog].—Hardy and Delfinado, 1980b: 378–379 [citation, Hawaii (Oahu, Kauai, Maui, Kahoolawe, Hawaii, French Frigate Shoals), figs. of head, ♂ terminalia, spermathecae].—Mathis and Sasakawa, 1989: 668 [Australasian/Oceanian catalog].—Mathis and Munari, 1996: 19 [world catalog].

Tethina carioca Prado and Tavares, 1966: 433 [Brazil. Rio de Janeiro: Ilha do Governador (Galeão); HT ♂, FIOC (13356); figs. of ♂ terminalia and wing].—Foster, 1976b: 2 [Neotropical catalog].—Mathis and Munari, 1996: 15 [world catalog].—Foster and Mathis, 1998: 615 [synonymy].

Tethina albula of authors, not Loew, 1869 [misidentification].—Frey, 1919: 15.

xanthopoda (Williston). *Nearctic*: Bermuda, Canada (Alberta), United States (Florida). *Neotropical*: Bahamas, Belize, Brazil (Bahia, Rio de Janeiro, Rio Grande do Norte), Guyana, Mexico (Quintana Roo, Yucatan), Panama, Trinidad and Tobago, Turks and Caicos, West Indies (Antigua, Barbados, Barbuda, Cuba, Curaçao, Dominica, Dominican Republic, Grand Cayman, Grenada, Jamaica, St. Lucia, St. Vincent).

Anthomyza xanthopoda Williston, 1896: 445 [West Indies. St. Vincent; LT ♂ (designated by Foster and Mathis, 1998: 620); NHML].—Czerny, 1902: 256 [citation, placement in *Rhicnoessa*].

Tethina xanthopoda.—Foster, 1976b: 3 [generic combination, Neotropical catalog].—Woodley and Hilburn, 1994: 54 [citation, Bermuda].—Mathis and Munari, 1996: 19 [world catalog].—Foster and Mathis, 1998: 620–624 [revision, Caribbean and Gulf of Mexico, lectotype designation, figs. of head and ♂ terminalia].

Rhicnoessa xanthopoda.—Czerny, 1902: 256 [generic combination].—Melander, 1913: 298 [key]; 1952: 202, 209 [key, citation].—Hendel, 1934: 51 [citation].

Rhicnoessa seriata Melander, 1952: 206 [USA. Florida. Dade: Miami; LT ♂ (designated by Foster and Mathis, 1998: 620), USNM].—Foster and Mathis, 1998: 620 [synonymy, lectotype designation].

Tethina seriata.—Vockeroth, 1965: 728 [generic combination, Nearctic catalog].—Mathis and Munari, 1996: 18 [world catalog].

Tethina brasiliensis Prado and Tavares, 1966: 435 [Brazil. Rio de Janeiro: Ilha do Governador (Galeão); HT ♂, FIOC (13358); figs. of ♂ and ♀ terminalia].—Foster, 1976b: 2 [Neotropical catalog].—Artigas *et al.*, 1992: 127–129 [figs. of puparium].—Mathis and Munari, 1996: 15 [world catalog].—Foster and Mathis, 1998: 620 [synonymy].

yaromi Freidberg and Beschovski. *Palaearctic*: Spain (including Balearic Islands).

Tethina yaromi Freidberg and Beschovski, 1996: 110 [Spain. Almeria, Cabo de Gata; HT ♂, TAU].—Mathis and Munari, 1996: 19 [world catalog].—Munari, 2002a: 24 [citation, Palaearctic checklist, distribution].—Carles-Tolrá and Báez, 2002: 196 [citation, Spain].—Carles-Tolrá and Aguirre-Segura, 2007: 201 [citation, Spain].—Ebejer, 2003: 105, 113 [citation, Balearic Islands].—Ebejer *et al.*, 2007: 30 [citation, Balearic Islands].

yemenensis Munari. *Afrotropical:* Yemen.

Tethina yemenensis Munari, 2007a: 112 [Yemen. Al Kowd, light trap; HT ♂, NMWC].

Genus *Thitena* Munari (1 species)

Thitena Munari, 2004a: 50. Type species: *Thitena cadaverina* Munari, by original designation.

cadaverina Munari. Australasian/Oceanian: Australia (Western Australia).

Thitena cadaverina Munari, 2004a: 51 [Australia. Western Australia: Barrow Island, on dead turnstone [bird], beach; HT ♂, AMS (K186744); figs. of adult habitus, scutellum, ♂ terminalia].

Subfamily Zaleinae D.K. McAlpine (2 genera, 16 species)

Zalinae D. K. McAlpine, 1982: 116.Type genus: *Zale* D. K. McAlpine, 1982 [junior homonym, Hübner, 1818 (Lepidoptera)].

Zaleinae D. K. McAlpine, 1985: 81 [new name for Zalinae D. K. McAlpine, 1982]. Type genus: *Zalea* D. K. McAlpine, 1985.—Mathis, 1992: 12–13 [world catalog].—Mathis and Munari, 1996: 19–20 [world catalog].—McAlpine, 2007: 44–62 [revision].

Diagnosis.—Very small to moderately large flies (body length 0.91–3.0 mm); *Head*. Pseudopostocellar

setae absent; postocellar setae proclinate, usually more or less divergent, at bases at most slightly closer to nearest medial vertical than to each other; 3 fronto-orbital setae, all reclinate or posterior one variably curved outwards; vibrissa located either at anterior extremity of gena (as seen in profile) or distinctly behind this point; facial ridge not prominent, without tubercle; face not prominent, usually nearly vertical, lightly sclerotized except on lower median part; eye with many well-developed ommatrichia, nearly as numerous as ommatidial facets. Antennae subparallel, decumbent; segment 2 with any setulae on medial surface inconspicuous or absent; segment 5 usually stout, microtrichose; segment 6 with moderately dense short to moderate hairs. Subcranial area not enlarged; prelabrum well developed but not broad, not set back from anterior surface of head; proboscis of moderate dimensions; prementum longer than wide, not cleft distomedially; labellum not posteriorly prolonged. *Thorax*. 1+3 dorsocentral setae; 1 postpronotal seta; scutellum with 2 pairs of major setae, sometimes also with 1–2 pairs of smaller setae, but without discal setulae; prothoracic presternum at least moderately developed, broad; basisternum with or without precoxal bridge. *Wing*. Costa with a series of anterior spinules interspersed at short intervals among more numerous hairs or short setae; cells *dm* and *bm* separate; vein CuA2 obsolete with cell *cup* open distally; distal section of vein A_1+CuA_2 represented only by indistinct crease in membrane. *Legs.* Tarsal claws differentiated into slender basal shaft and broadened distal falx. *Abdomen*. Syntergite 1+2 separated in mid-dorsal region by narrow membranous strip, their combined length much less than that of rest of abdomen. Male: dorsal protandrial sclerite (tergite 6 + sternite 8) symmetrical (i.e. without visible vestige of sternite 7), remarkably large because of large tergite 6 component (markedly greater than area of sternite 8); epandrium with at least one pair of basally fully articulated surstyli; hypandrium (so far as known) with at least one comb of three setae on each side. Female: postabdominal segments very extensile; cercus simple, straight, blunt, basally articulated, without spines.

Key to genera of Zaleinae

(after D. K. McAlpine, 2007, slightly modified)

1. Frons (postfrons) without setulae between anterior ocellus and anterior margin; distal section of subcosta (beyond humeral crossvein) well sclerotized on about middle third, obsolete and unpigmented on about distal third, and much weakened towards base; first basal cell not separated from second basal cell by any sclerotized vein; ♂ with one pair of surstyli; ♀ with abdominal tergite 7 without anterior apodeme (♀ unknown in *S. ismayi*), or with entire tergite broadly divided medially, each plate bearing a long anterior apodeme (western Palaearctic (Red Sea, Oman), western Pacific) ..... *Suffomyia*
- Frons with several setulae on central anterior part; distal section of subcosta almost uniformly sclerotized from humeral crossvein to termination at subcostal break of costa; first and second basal cells almost or completely separated by a sclerotized vein; ♂ with two pairs of surstyli; ♀ with abdominal tergite 7 showing at least anteromedian plate undivided medially, latter bearing median, posteriorly forked apodeme (not yet investigated for a few species) (Australia, New Zealand) ..... *Zalea*

Genus *Suffomyia* Freidberg (4 species)

Suffomyia Freidberg, 1995: 448. Type species: *Suffomyia scutellaris* Freidberg, 1995, by original designation.—Mathis and Munari, 1996: 20 [world catalog].—McAlpine, 2007: 60–61 [revision, key to species].—Munari, 2008c: 45 [key to species].

dancei Munari. *Palaearctic*: Oman.

Suffomyia dancei Munari, 2008c: 42 [Oman. Muscat, Haramel; figs. of ♂♀ terminalia; HT ♂, NMWC]; 2010b: 658 [citation, Oman].

ismayi D.K. McAlpine. *Australasian/Oceanian*: Papua New Guinea.

Suffomyia ismayi D. K. McAlpine, 2007: 62 [Papua New Guinea. Central Province: S of Idler Bay; figs. of head and ♂ terminalia; HT ♂, AMS].—Munari, 2008c: 45 [key].

sabroskyi D.K. McAlpine. *Australasian/Oceanian*: Micronesia (Caroline and Yap Islands).

Suffomyia sabroskyi D. K. McAlpine, 2007: 61 [Caroline Islands. Yap Island: Giliman; figs. of head, prosternum, wing, surstyli; HT ♂, BPBM].—Munari, 2008c: 45 [key].

scutellaris Freidberg. *Palaearctic*: Egypt (Sinai), Israel, Oman.

Suffomyia scutellaris Freidberg, 1995: 448 [Egypt. Sinai: Nueiba (10 km N); HT ♂, TAU].—Munari, 2002a: 24 [citation, Palaearctic checklist, distribution]; 2008c: 44–45 [citation, Oman, fig. of ♂ terminalia, key]; 2010b: 658 [citation, Oman].—D. K. McAlpine, 2007: 61 [citation].

Genus *Zalea* D.K. McAlpine (12 species)

Zale D.K. McAlpine, 1982: 108 [preoccupied, Hübner, 1818 (Lepidoptera)]. Type species: *Zale minor* D.K. McAlpine, 1982, by original designation.

Zalea D.K. McAlpine, 1985: 82 [new name for *Zale* of D.K. McAlpine, 1982]. Type species: *Zale minor* D.K. McAlpine, 1982, automatic; D. K. McAlpine, 2007: 45–47 [revision, key to species].—Mathis, 1989a: 670 [Australasian/Oceanian catalog]; 1992: 12–13 [catalog].—Mathis and Munari, 1996: 20 [world catalog].

clava D.K. McAlpine. *Australasian/Oceanian*: Australia (Western Australia).

Zalea clava D. K. McAlpine, 2007: 56 [Australia. Western Australia: Cable Beach, S of Albany; figs. of ♂ terminalia, tergite 7 of female; HT ♀, WAM].

dayi D.K. McAlpine. *Australasian/Oceanian*: Australia (New South Wales).

Zalea dayi D. K. McAlpine, 2007: 59 [Australia. New South Wales: Seal Rocks; figs. of postfrons, costa of wing, tergite 7 and sternites 1–7 of female, surstyli of ♂ terminalia; HT ♀, AMS].

earlyi D.K. McAlpine. *Australasian/Oceanian*: New Zealand.

Zalea earlyi D. K. McAlpine, 2007: 52 [New Zealand. North Island: Great Barrier Island, Medlands Beach; figs. of abdominal segment 7 of female; HT ♀, AMNZ].

horningi (Harrison). *Australasian/Oceanian*: New Zealand.

Tethina horningi Harrison, 1976: 143 [New Zealand. Snares Islands: Seal Cove (on supralittoral rocks); fig. of wing; HT ♂, NZAC].—Mathis and Sasakawa, 1989: 668 [Australasian/Oceanian catalog].

Zalea horningi.—D.K. McAlpine, 1985: 82 [generic combination, discussion]; 2007: 34, 53-54 [revision, figs. of prosternum, ♂ terminalia, tergite 7 of female].—Mathis, 1992: 12 [catalog].—Mathis and Munari, 1996: 20 [world catalog].—Buck, 2006: 399 [*Z. horningi* group, figs. of ♂ terminalia].

johnsi D.K. McAlpine. *Australasian/Oceanian*: New Zealand.

Zalea johnsi McAlpine, 2007: 48 [New Zealand. South Island: Kaikoura Peninsula (East Head on some maps); figs. of prosternum, anepisternum, tarsus, mid femur of male, ♂ terminalia; HT ♂, NZAC].

lithax D.K. McAlpine. *Australasian/Oceanian*: New Zealand.

Zalea lithax McAlpine, 2007: 52 [New Zealand. North Island: Great Barrier Island, Whangaparapara Harbour; figs. of surstyli and cercus of ♂ terminalia, tergite 7 of female; HT ♂, AMNZ].

major (D.K. McAlpine). *Australasian/Oceanian*: Australia (New South Wales, Tasmania).

Zale major D.K. McAlpine, 1982: 112 [Australia. New South Wales: Bundeena, Port Hacking; figs. of head; HT ♀ (the statement – D.K. McAlpine, 1982 – that the holotype is a male is probably due to an oversight), AMS].

Zalea major.—D.K. McAlpine, 1985: 82 [generic combination]; 2007: 34, 39, 57, 58–59 [supplementary description, citation, New South Wales, Tasmania, figs. of antenna, prementum of proboscis, prosternum, segment 5 and protandrium, tergite 7 of female, sternites of female, ♂ terminalia].—

Mathis, 1989a: 670 [Australasian/Oceanian catalog].—Mathis, 1992: 12 [catalog].—Mathis and Munari, 1996: 20 [world catalog].

mathisi D.K. McAlpine. *Australasian/Oceanian*: New Zealand.

Zalea mathisi McAlpine, 2007: 50 [New Zealand. North Island: Whananaki South; figs. of ♂ terminalia; HT ♂, NZAC].

minor (D.K. McAlpine). *Australasian/Oceanian*: Australia (New South Wales, Tasmania, Victoria).

Zale minor D.K. McAlpine, 1982: 110 [Australia. New South Wales: Sydney Harbour, Vaucluse, Nielsen Park, Bottle and Glass Rocks; figs. of wing, ♂ and ♀ terminalia; HT ♂, AMS].

Zalea minor.—D.K. McAlpine, 1985: 82 [generic combination]; 2007: 34, 36–37, 48, 49, 57-58 [supplementary description, citation, New South Wales, Victoria, Tasmania, figs. of prosternum, setulae of fore basitarsus, acropod, mid femur of male, tergite 7 of female, Laboulbeniales parasitic on wing and hind tibia].—Mathis, 1989a: 670 [Australasian/Oceanian catalog].—Mathis, 1992: 13 [catalog].—Freidberg, 1995: 454–455 [discussion].—Mathis and Munari, 1996: 20 [world catalog].

ohauorae D.K. McAlpine. *Australasian/Oceanian*: New Zealand.

Zalea ohauorae McAlpine, 2007: 51 [New Zealand. North Island: White Island, Ohauora (or Rocky Point); figs. of surstyli of ♂ terminalia; HT ♂, AMNZ].

uda D.K. McAlpine. *Australasian/Oceanian*: New Zealand.

Zalea uda McAlpine, 2007: 50 [New Zealand. Sandy Bay; figs. of surstyli of ♂ terminalia; HT ♂, NZAC].

wisei D.K. McAlpine. *Australasian/Oceanian*: New Zealand.

Zalea wisei McAlpine, 2007: 54 [New Zealand. North Island: Hauraki Gulf, Noisies Islands, Otata Island; figs. of head, surstyli and cercus of ♂ terminalia, base of antennal arista; HT ♂, AMNZ].

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