

A catalogue of the Lonchaeidae (Diptera: Tephritoidea) and Teratomyzidae (Diptera: Opomyzoidea) of Chile

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Abstract. A catalogue of the Lonchaeidae and Teratomyzidae of Chile is presented. This paper comprises two genera with five species of Lonchaeidae and two genera with two species of Teratomyzidae known from Chile, including information about the name of the taxon, author, year of publication, page number, type species, type depository, type locality, and references. The geographical distributions of each species were determined by examination of bibliographic data and of label data on specimens in collections.

Keywords. List of species; Acalyptratae; Lance flies; Fern flies; Andean Region.

INTRODUCTION

Belonging to the superfamily Tephritoidea, Lonchaeidae was erected by Rondani (1856) to host two genera, *Lonchaea* Fallén and *Palloptera* Fallén. Currently Lonchaeidae comprises nine genera and almost 600 valid names (MacGowan, 2022), divided in two subfamilies, Dasiopinae, which includes only *Dasiops* Rondani, and Lonchaeinae, divided into two tribes, Earomyiini and Lonchaeini, each with four genera (Norrbon & Korytkowski, 2010).

Species of Lonchaeidae occur worldwide and are found in a wide range of habitats, from the Arctic Circle to the Equator and in all zoogeographical regions (MacGowan & Friedberg, 2008). Most lonchaeids are scavengers as larvae, breeding mainly in damaged plant tissues or decaying vegetation, but a few species are primary invaders of living plants (Norrbon & Korytkowski, 2010).

Members of Lonchaeidae can be recognised by the following characters: moderately small (body length 3.0-6.0 mm), relatively setose, shiny black to metallic blue or green, with wings usually hyaline. Body stout, abdomen broad and flat. Face broad, usually without strong carina. Eye large, pilose or bare. Without vibrissa but one or more sub vibrissal vibrissae-like setae sometimes present. Wing with anal lobe and alula well developed, halter dark brown (Norrbon & Korytkowski, 2010; MacGowan & Rotheray, 2021).

Currently Teratomyzidae comprises seven genera and 24 species, distributed in the Australasian/Oceanic, Oriental, and southern Neotropical regions. The systematic position of Teratomyzidae has been controversial. Courtney *et al.* (2017) and Pape *et al.* (2011) placed Teratomyzidae in the Opomyzoidea group, whereas Malloch (1933) placed the genera *Teratomyza* of Teratomyzidae in Anthomyzidae. D.K. McAlpine (1998) countered that teratomyzids further differ from the Anthomyzidae in the reduction of the prosternum and from the Opomyzidae in the presence of the vibrissae. More recently, Teratomyzidae has been placed in the Sphaeroceroidea, closely to Heleomyzidae and Paraleucopidae (Bayless *et al.*, 2021; Bayless, 2022). Little known about the biology of Teratomyzidae. According to McAlpine & Keizer (1994), most teratomyzids were obtained by sweeping fronds of terrestrial ferns, usually in or near the margins of forests.

D.K. McAlpine (1998) provided a diagnosis to Teratomyzidae: CuA₂+A₁ terminating well beyond the level of crossvein dm-cu, no elongate costal bristle overlapping the costal break, alula broad and produced distad of the alular incision, several fronto-orbital setae present, parafacial suture distinct, a large supra-alar seta present, no abdominal sternite 6 in the male, and a distinctively modified postabdomen in the female.

The goal of this paper is to provide a catalogue of the Lonchaeidae of Chile and an updated cata-

logue to the Teratomyzidae of Chile with references and additional information for each species, and genus of both families.

MATERIAL AND METHODS

For each species, the Chilean distribution is given by region and province (from north to south) and localities (alphabetically) when such data are available from the literature and from specimens in collections.

The abbreviations used in this catalogue are: biol. = biology; cat. = catalogue; com. = comments; des. = description; diag. = diagnosis; dist. = distribution; fem. gen. = female genitalia; fig. = figure; key = taxonomic key; list = list of species; mal. gen. = male genitalia; n. com. = new combination; phyl. = phylogeny; reds. = redescription; refs. = references; tabs. = tables; taxon. = taxonomy.

Acronyms used for location of primary types: CNC = Canadian National Collection, Ottawa, Canada; BMNH = The Natural History Museum, London, United Kingdom; OUMNH = Oxford University Museum of Natural History, Oxford, England; SDEI = Senckenberg Deutsches Entomologisches Insitut, Müncheberg, Germany; USNM = U.S. National Museum of Natural History, Washington, DC, USA.

RESULTS

Two genera with five species of Lonchaeidae and two genera with two species of Teratomyzidae have been recorded from Chile (Table 1).

Catalogue of Lonchaeidae

Family Lonchaeidae Rondani
Subfamily Lonchaeinae Rondani
Tribe Earomyiini Morge
Genus *Protearomyia* J.F. McAlpine

Protearomyia J.F. McAlpine, 1962: 92.

Type species: *Lonchaea obscura* Walker, 1836: 357, by subsequent designation of J.F. McAlpine, 1962.

Table 1. List of genera and species of Lonchaeidae and Teratomyzidae from Chile.

Family	Subfamily	Tribe	Genus	Species name	Author
Lonchaeidae	Lonchaeinae	Earomyiini	<i>Protearomyia</i>	<i>mallochi</i>	McAlpine, 1983
				<i>obscura</i>	(Walker, 1836)
	Lonchaeinae	Lonchaeini	<i>Lonchaea</i>	<i>andina</i>	(Bigot, 1885)
				<i>patagonica</i>	Malloch, 1933
				<i>pilifrons</i>	Hennig, 1948
Teratomyzidae			<i>Stepta</i>	<i>latipennis</i>	(Malloch, 1933)
			<i>Teratoptera</i>	<i>chilensis</i>	(Malloch, 1933)

References: J.F. McAlpine, 1962: 72 (key), 74 (phyl.), 93 (dist.), 93 (key), 94 (com.), 95 (phyl.); Hennig, 1967: 14 (phyl.); J.F. McAlpine, 1983: 885 (cat.), 886 (diag.), 887 (phyl.), 888 (key); J.F. McAlpine, 1987: 796 (key); Lima, 2005: 666 (biol.); Winqvist & Kahanpää, 2007: 28 (list); MacGowan & Friedberg, 2008: 63 (key), 68 (com.); Máca, 2009 (cat.); Norrbom & Korytkowski, 2010: 858 (fig.: 3 head, 8 scutellum), 859 (key); Wyckhuys *et al.*, 2012: 91 (com.); MacGowan, 2014: 337 (com.); Lemos *et al.*, 2015: 1227 (com.); MacGowan, 2015a: 167 (com.); MacGowan, 2015b: 20 (key); MacGowan *et al.*, 2016: 179 (biol.), 180 (list); MacGowan, 2022 (database).

Protearomyia mallochi J.F. McAlpine

Protearomyia mallochi J.F. McAlpine, 1983: 891.

Holotype: male (CNC).

Type locality: Chile, Los Coiques [(sic) = Los Coigües].

Distribution: Chile: *Región del Biobío*: Concepción Province (Concepción). *Región de La Araucanía*: Cautín Province (Los Coigües). *Región de Los Ríos*: Valdivia Province (Puerto Fui). *Región de Aysén*: Aysén Province (Puerto Cisnes).

References: J.F. McAlpine, 1983: 888 (key), 892 (fig. 9-11: mal. gen.), 899 (fig. 23-25: fem. gen.); MacGowan, 2022 (database).

Protearomyia obscura (Walker)

Lonchaea obscura Walker, 1836: 357.

Holotype: female (BMNH).

Type locality: Chile, Port Famine in the Straits of Magellan, by subsequent designation of J.F. McAlpine, 1962: 92.

Lonchaea (*Lonchaea*) *obscura* Malloch, 1933: 351.
Earomyia? *obscura* Hennig, 1948: 353.

Distribution: Chile: *Región del Biobío*: Concepción Province (Concepción). *Región de Los Lagos*: Chiloé Province (Castro). *Región de Aysén*: Coyhaique Province (Lago Frío, Río Simpson). *Región de Magallanes y la Antártica Chilena*: Tierra del Fuego Province (Bahía Munciones, Bahía Inútil, Cameron).

References: Bezzi, 1910: 21 (com., key.); Malloch, 1933: (reds.); Stuardo, 1946: 136 (cat.); Hennig, 1948: 353 (com.); J.F. McAlpine, 1962: 93 (key), 97 (com.); Morge, 1963: 193 (n. com.); Hennig, 1967: 10 (com.); Korytkowski & Ojeda, 1971: 100 (list), 109 (com.); J.F. McAlpine, 1983: 888 (key), 888 (reds.), 889 (fig. 4: wing), 892 (fig. 7-8: mal. gen.), 899 (fig. 22, 28-29: fem. gen.); MacGowan, 2022 (database).

Tribe Lonchaeini Rondani**Genus *Lonchaea* Fallén**

Lonchaea Fallén, 1820: 25.

Type species: *Musca chorea* Fabricius, 1781: 444, by subsequent designation of Westwood, 1840: 150.

Lasiolonchaea Enderlein, 1936 152, junior synonym.

Type species: *Lonchaea hirticeps* Zetterstedt, 1838: 754.

Mastigimas Enderlein, 1927: 105, junior synonym.

Type species: *Mastigimas togoensis* Enderlein, 1927: 105.

Teremyia Macquart, 1835: 514, junior synonym.

Type species: *Lonchaea laticornis* Meigen, 1826: 308.

Tricholonchaea Czerny, 1934: 21, junior synonym.

Type species: *Lonchaea albitarsis* Zetterstedt, 1838: 754.

References: Fallén, 1820: 25 (des.); Malloch, 1933: 349 (com.); Hennig, 1948: 340 (key); Hellmuth, 1954: 57-58 (fig. 5-7 larvae); J.F. McAlpine, 1962: 69 (phyl.), 72 (key), 74 (phyl.), 78 (com.), 144 (reds.), 145 (diag.), 146 (biol.), 150 (dist., com.), 152 (phyl.); Hennig, 1967: 14 (phyl.); Korytkoioski & Ojeda, 1971: 88 (com.), 89 (key), 100 (cat., list, dist., key); J.F. McAlpine, 1974: 777 (com.); J.F. McAlpine, 1983: 885 (com.); J.F. McAlpine, 1987: 796 (key); Papavero & Ibañez-Bernal, 2001: 172 (tabs.); MacGowan & Friedberg, 2008: 64 (key); Miranda, 2009: 140 (biol.); Norrbom & Korytkowski, 2010: 860 (fig. 14-19: mal. gen.), 860 (fig. 20-21: fem. gen.), 861 (fig. 22 wing, 24-26 larvae), 862 (key); MacGowan, 2022 (database).

***Lonchaea andina* (Bigot)**

Ophyra andina Bigot, 1885: 304.

Holotype: female (OUMNH).

Type locality: Chile, by subsequent designation of *Lonchaea andina* Stein, 1907: 211.

Distribution: Chile.

References: Stuardo, 1946: 137 (cat., as *incertae sedis*); J.F. McAlpine, 1974: 778 (redes.), 779 (fig. 1-2: head; 3-4: fem. gen.); MacGowan, 2022 (database).

***Lonchaea patagonica* Malloch**

Lonchaea (Lonchaea) patagonica Malloch, 1933: 350.

Holotype: male (USNM).

Type locality: Chile, Ancud.

Distribution: **Argentina:** Río Negro Province (San Carlos de Bariloche), Río Negro Province (Lago Correntoso). **Chile:** *Región del Biobío:* Concepción Province (Concepción). *Región de La Araucanía:* Malleco Province (Angol). *Región de Los Lagos:* Llanquihue Province (Ensenada).

References: Stuardo, 1946: 136 (cat.); Hennig, 1948: 376 (fig.: frons), 381 (com., fig.: mal. gen.), 384 (key), 392 (com.); Hennig, 1955: 22 (reds.); Skottsberg, 1956: 303 (list); J.F. McAlpine, 1962 (tabs.); Korytkoioski & Ojeda, 1971: 100 (list), 109 (com.); MacGowan, 2022 (database).

***Lonchaea pilifrons* Hennig**

Lonchaea pilifrons Hennig, 1948: 382.

Holotype: male (SDEI).

Type locality: Chile, Palca.

Distribution: **Chile:** Región de Tarapacá: El Tamarugal Province (Palca).

References: Hennig, 1948: 376 (fig.: frons), 384 (key), 382 (fig.: mal. gen.); J.F. McAlpine, 1962 (tabs.); Rohlfien & Ewald, 1970: 441 (cat.); Korytkoioski & Ojeda, 1971: 100 (list); MacGowan, 2022 (database).

Catalogue of Teratomyzidae**Family Teratomyzidae Colless & McAlpine****Type genus: *Teratomyza* Malloch****Genus *Stepta* McAlpine & Keyzer**

Stepta McAlpine & Keyzer, 1994: 310.

Type species: *Teratomyza (Teratoptera) latipennis* Malloch, 1933: 388, by subsequent designation of McAlpine & Keyzer, 1994: 310.

References: McAlpine & Keyzer, 1994: 310 (key, com.); Rodrigues *et al.*, 2016: 278 (dist.), 281 (cat.), 285 (list); Cox & McEvey, 2019: 106 (list); Fachin & Amorim, 2018: 571 (com.).

***Stepta latipennis* (Malloch)**

Teratomyza (Teratoptera) latipennis Malloch, 1933: 388.

Holotype: female (BMNH).

Type locality: Chile, Mechuque Island, by subsequent designation of McAlpine & Keyzer, 1994: 310.

Distribution: **Chile:** *Región de Los Lagos:* Chiloé Province (Isla Mechuque).

References: Malloch, 1933: 387 (key), 389 (com.), plate VII (fig.: wing); Stuardo, 1946: 140 (cat.); Prado, 1975: 1 (cat.); McAlpine & Keyzer, 1994: 310 (com.); Rodrigues *et al.*, 2016: 279 (fig. 8: habitus lateral), 281 (cat.).

Genus *Teratoptera* Malloch

Teratomyza (*Teratoptera*) Malloch, 1933: 387.

Type species: *Teratomyza* (*Teratoptera*) *chilensis* Malloch, 1933: 388.

References: Malloch, 1933: 387 (key); Hennig, 1936: 91 (n. com.); Stuardo, 1946: 140 (cat.); Frey, 1958: 31 (key, n. com.); Hennig, 1965: 164-165 (com.); Prado, 1975: 1 (cat.); Vockeroth, 1989: 562 (cat.); McAlpine & Keyzer, 1994: 310 (key, com.), 315 (reds.); Rodrigues *et al.*, 2016: 275 (com.), 278 (dist.), 283 (cat.), 285 (list.).

Teratoptera chilensis (Malloch)

Teratomyza chilensis Malloch, 1933: 388 [*Teratomyza* (*Teratoptera*)].

Holotype: female (BMNH).

Type locality: Chile, Ancud, by subsequent designation of McAlpine & Keyzer, 1994: 315.

Distribution: **Chile:** *Región de Los Lagos:* Chiloé Province (Ancud).

References: Malloch, 1933: 387 (taxon. notes, key), 388 (desc.), plate VII (figs. 12, 14: wings); Stuardo, 1946: 140 (cat.); Prado, 1975: 1 (cat.); McAlpine & Keyzer, 1994: 315 (taxon., notes), 316 (n. com., figs.: 23-24: mal. gen., com.); Rodrigues *et al.*, 2016: 279 (fig. 10: habitus lateral), 283 (cat.), 285 (list.).

AUTHORS' CONTRIBUTION: **JPVR:** Data curation, Writing – original draft. **CRG:** Conceptualization, Project administration, Writing – review & editing. All authors actively participated in the discussion of the results, and they reviewed and approved the final version of the paper.

CONFLICTS OF INTEREST: Authors declare there are no conflicts of interest.

FUNDING INFORMATION: This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – Finance Code 001.

ACKNOWLEDGMENTS: The authors are grateful to Dr. Ramon Luciano Mello and Dr. William L. Murphy, research collaborator with the National Museum of Natural History, Smithsonian Institution, for reviewing the manuscript and for help in editing the English version.

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