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5225

World Catalogue of the family Thaumaleidae (Diptera: Culicomorpha)

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BRADLEY J. SINCLAIR, ROBERT J. PIVAR & PAUL H. ARNAUD, Jr.
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Abstract

Family, genus and species group names in the family Thaumaleidae (Diptera: Culicomorpha) are catalogued, including information on name-bearing types, distribution by country and 428 references to all literature known to us pertaining to this family. The Thaumaleidae or madicolous midges are known from 202 species in the following seven genera: *Afrothaumalea* Stuckenberg, 1960 (3 species), *Androprosopa* Mik, 1898 (59 species), *Austrothaumalea* Tonnoir, 1927 (44 species), *Neothaumalea* Pivar, Moulton & Sinclair, 2018 (1 species), *Niphtha* Theischinger, 1986 (14 species), *Thaumalea* Ruthe, 1831 (77 species) and *Trichothaumalea* Edwards, 1929 (4 species). In addition, one fossil genus and species are known (*Mesothaumalea fossilis* Kovalev). Published species distributions are provided, noting country and biogeographic region; specimen data representing new records for species are listed. The following new combinations, originally assigned to *Thaumalea*, are proposed: *Androprosopa baminana* (Yang, 2003) **comb. nov.**, *Androprosopa zhejiangana* (Yang, 1998) **comb. nov.**

Key words: madicolous midges, distribution, synonymy, type locality, depository

Introduction

The Thaumaleidae, or madicolous midges (or seepage/ trickle midges), is a small family of nematocerous Diptera with species across all biogeographical regions, except Antarctica. Among the seven recognized genera, *Androprosopa* Mik and *Thaumalea* Ruthe are known from the Nearctic, Palearctic and Oriental regions. *Trichothaumalea* Edwards is widely disjunct with species in the eastern and western Nearctic and Japan. *Afrothaumalea* Stuckenberg is known only from South Africa, whereas *Austrothaumalea* Tonnoir and *Niphtha* Theischinger are known from Australia, New Caledonia, New Zealand and southern South America. *Neothaumalea* Pivar, Moulton & Sinclair is currently recorded from Brazil's southern state of Santa Catarina. The family is classified in the infraorder Culicomorpha, have no known medical or economic importance, and are considerably less studied than their sister family, Simuliidae (black flies) (Moulton 2000; Bertone *et al.* 2008; Wiegmann *et al.* 2011; Borkent 2012; Kutty *et al.* 2018). Adults are commonly collected from rock-face seepages, margins of waterfalls and splash zones of cascading streams (Sinclair 2000; Pivar & Moulton *et al.* 2018; Pivar & Pinho *et al.* 2018; Pivar *et al.* 2020). Thaumaleid larvae are restricted to madicolous habitats, or substrates with a thin film of water flowing over them (Figs 1–4) (Vaillant 1956; Pivar & Moulton *et al.* 2018). Larvae and pupae are usually limited to rocky substrates, but recently immature stages on water splashed leaves have been observed (Pivar *et al.* 2021).

Adults are yellow to dark brown, approximately 1.5–5.0 mm long, and have a stalky body, broad wings and a short flagellum (Figs 5, 8–10). Larvae are readily identified in the field by their unique jerking motion, have hypognathous heads, unpaired prolegs, are amphipneustic, and mottled in colour due to chromatocytes beneath the cuticle (Figs 4, 7, 13) (Sinclair 2017). Pupae are often ventrally flattened, with or without caudal hooks, and have short respiratory organs and abdominal spiracles (Figs 11, 12).

The family remains relatively rarely collected, primarily due to their small size, restriction to their microhabitat and limited dispersal abilities. Adults are rarely collected in flight intercept traps, unless the trap is set across

flowing water. Collecting efforts by specialists focused on macicolous habitats have discovered many new species, extended the range of genera and found many new and fascinating early life stages (e.g., Sinclair 1992, 2008b; Pivar & Pinho *et al.* 2018; Pivar *et al.* 2021).



FIGURES 1–4. Thaumaleidae habitats. **1**, Roadside spring seepage, Inglis Falls, Ontario, Canada; **2**, Roadside stream, Skate Creek Road, Giggord Pinchot National Forest, Washington, USA; **3**, Cascading stream, Perry Creek Falls Trail, British Columbia, Canada; **4**, Larvae on vertical rock seepage face, Miyazaki Prefecture, Kyushu, Japan (photo: T. Saigusa).

As for most Diptera, examination of the male terminalia is vital in species sorting and identification. This was first most effectly demonstrated by Edwards (1929) in his world revision of the family, which included detailed line drawings which have been emulated ever since.

The present world catalogue builds on regional treatments by Stone (1965) [Nearctic], Stone (1966) [Neotropical], Schmid (1973) [Oriental], Stuckenberg (1980) [Afrotropical], Martinovský & Rozkošný (1988) [Palaeartic] and Peterson & Theischinger (1989) [Australasian]. In addition to these species-level catalogues, we have attempted to compile all literature referencing the family. A total of 202 extant species in seven genera of Thaumaleidae are currently recognized, and one fossil genus and species are known (*Mesothaumalea fossilis* Kovalev). Most major geographical regions have been recently revised, represented by revisions in the following countries: Australia (Theischinger 1986; Sinclair 2008a), New Zealand (McLellan 1988), Chile (Pivar *et al.* 2020, 2021), North America (Sinclair 1996; Pivar & Moulton *et al.* 2018), Europe (Wagner 2002), South Africa (Sinclair 2015) and Japan (Sinclair & Saigusa 2002; Sinclair 2018). The eastern Palaeartic and Oriental regions remain poorly studied with many new species awaiting description; however, many species are highly similar with slight differences in the paramere differentiating putative species. The use of molecular identification tools will likely greatly assist species sorting in the future.



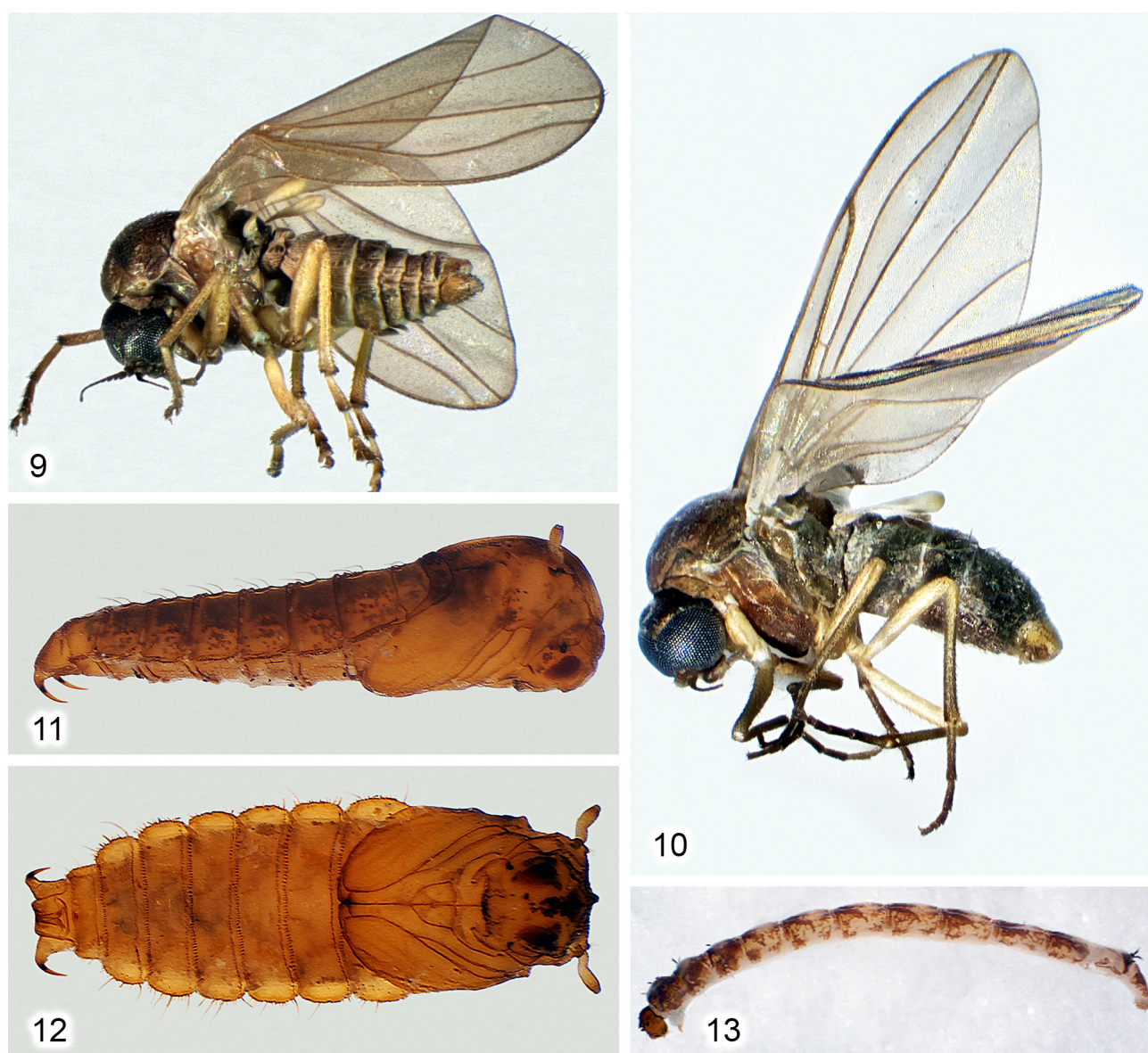
FIGURES 5–8. Thaumaleidae adults, pupae and larva. **5**, *Androprosopa* sp., female, California, USA (photo: S.A. Marshall); **6**, *Afrothaumalea stuckenbergi* Sinclair, pupae, Cederberg Wilderness, Western Cape Province, South Africa (photo: S.A. Marshall); **7**, *Androprosopa* sp., larva, Miyazaki Prefecture, Kyushu, Japan (photo: T. Saigusa); **8**, *Androprosopa elnora* (Dyar & Shannon) (yellow) and *A. gillespieae* Arnaud & Boussy (dark), adults, Perry Creek Falls Trail, British Columbia, Canada (photo: S. Henderson).

Material & methods

The known distribution of each thaumaleid species is given next to the valid name, and grouped according to biogeographic region, with country and province/ state added for some large countries. The biogeographic regions are abbreviated as follows: AF (Afrotropical); AU (Australasian); NE (Nearctic); NT (Neotropical); OR (Oriental); PA (Palaeartic). These regions are outlined and mapped in O’Hara *et al.* (2020: 8–26). Specimen data representing new records for species are marked with “*” and listed at the end of the catalogue. Name-bearing types are abbreviated as follows: HT (holotype); LT (lectotype); ST (syntype). Paratypes (PT) are listed if the primary type is missing or listed in a published museum type catalogue.

The following abbreviations are used for the repositories housing the primary types listed below: AMS (Australian Museum, Sydney, Australia); ANIC (Australian National Insect Collection, CSIRO, Canberra, Australia); ANSP (Academy of Natural Sciences, Philadelphia, USA); BMNH (The Natural History Museum, London, U.K.); BMSA (National Museum, Bloemfontein, South Africa); CAS (California Academy of Sciences, San Francisco, USA);

CAU (China Agricultural University, Beijing, China); CNC (Canadian National Collection of Insects, Arachnids & Nematodes, Ottawa, Canada); FVC (François Vaillant Collection); UGMD (Ghent University Museum, Zoological Collection, Ghent, Belgium); HNHM (Hungarian Natural History Museum, Budapest, Hungary); KUMF (Biosystematics Laboratory, Kyushu University, Fukuoka, Japan); MHNN (Muséum d'histoire naturelle Neuchâtel, Switzerland); MMB (Moravian Museum, Brno, Czech Republic); MNHN (Muséum national d'Histoire naturelle, Paris, France); MNVL (Musée d'Histoire naturelle de Ville de Lille, Lille, France); MSNM (Museo di Storia Naturale di Milano, Milan, Italy); MZH (Zoologiska Museum, Finnish Museum of Natural History, Helsinki, Finland); MZLS (Musée cantonal de zoologie, Lausanne, Switzerland); MZSP (Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil); MZLU (Biologiska museet, Lunds Universitet, Lund, Sweden); NMI (National Museum of Ireland, Dublin); NMSA (KwaZulu-Natal Museum, Pietermaritzburg, South Africa); NMW (Naturhistorisches Museum, Wien, Austria); NSMT (National Museum of Nature and Science, Tokyo, Japan); NZAC (New Zealand Arthropod Collection, Auckland, New Zealand); OLL (Biologiezentrum Linz, Oberösterreichisches Landesmuseum, Linz, Austria); OUMNH (Oxford University Museum Natural History, Oxford); PIN (Borissiak Paleontological Institute, Russian Academy of Sciences, Moscow, Russia); RWC (Rüdiger Wagner Collection, Germany); SDEI (Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany); USNM (National Museum of Natural History, Washington, DC, USA); ZMHB (Museum für Naturkunde der Humboldt-Universität, Berlin, Germany).



FIGURES 9–13. Habitus views of Thaumaleidae adults, pupae and larva. **9**, *Neothaumalea atlantica* Pivar & Pinho, male; **10**, *Androprosopa gillespieae* Arnaud & Boussy, male; **11**, *N. atlantica* Pivar & Pinho, pupa, lateral view; **12**, *N. atlantica* Pivar & Pinho, pupa, ventral view; **13**, *Androprosopa* sp., larva, lateral view.

The repository of the vast majority of primary types were readily identified. Wherever possible, the location of the primary types have been verified from online lists provided by the institution, by direct observation or by contacting the local curator. Determining the location of some types originally housed in the François Vaillant collection (FCV) has proven difficult. A series of types from FCV were donated some decades ago to MNHN (Daugeron pers. comm. 2021), and most of the remaining material consisting of the majority of the collection were donated between 2010 and 2013 to MZLS (Gattolait, pers. comm. 2020). The whereabouts of the remaining types from FVC are unknown and possibly lost.

Vaillant & Vinçon (1988) treated *Protothaumalea* as a junior synonym of *Ornephophilina*, but Sinclair (1996) expanded the concept of *Androprosopa* to include both *Protothaumalea* and *Ornephophilina* as junior synonyms. Wagner (2002) recognized *Protothaumalea* as a separate genus including only *tarda* Loes and *algira* Vaillant. In a molecular phylogenetic analysis, Haubrock *et al.* (2017) found that *Protothaumalea* nested within a paraphyletic *Thaumalea*, but they suggested that further study was necessary to assess if this conclusion was justified morphologically. In an unpublished thesis using extensive molecular phylogenetic analyses, Pivar (2018) proposed that both *Protothaumalea* and *Androprosopa* be treated as junior synonyms of *Thaumalea*. For this catalogue, we will follow the concept of Sinclair (1996) until the monophyly of these genera can be more fully established.

The type locality data was obtained either from the literature or directly from labels (where available). All data available is listed under each taxon, including elevation, habitat and geographic co-ordinates, except date and collector names. All primary types are pinned, unless otherwise stated. The type locality data for species described by F. Schmid were updated using Lonsdale (2020) and Oláh *et al.* (2021). Older type numbers have been included when provided in the literature or supplied by curators. In addition, database numbers have been included wherever possible. In the CNC, type specimens can be located online by these unique identifiers or taxonomic name at: <https://cnc.agr.gc.ca/taxonomy/TaxonMain.php>. In this site, high-resolution photographs of all pinned types, including labels, are appended to the specimen records.

All citations to Thaumaleidae are compiled from the original source literature in 428 references, including all literature known to us pertaining to this family.

Family Thaumaleidae

Chenesinae Rondani, 1840b: 7 [corrected spelling: Chenesiinae - Sabrosky 1999: 84].

Heteroclitae Haliday, 1851: 7 [see Sabrosky (1999: 427) for explanation of authorship]. Sabrosky, 1999: 341 [described group name as artificial family to include *Orphnephila* and *Dixa* in synoptic table of the Diptera]; Walker, 1856: 263 [quotes Haliday (1851), with key to genera].

Orphnephilinae [misspelling]. Rondani 1847: 21 [genus spelled correctly in text].

Orphnephilinae: Walker, 1856: 263 [quotes Haliday (1851), with one genus]. Kieffer 1909: 38 [new subfamily of Chironomidae with *Orphnephila testacea* “Macq.” as type].

Orphnephilidae Rondani, 1856: 17, 39 [cited “TIP: Fungicolae Macq. - TIP: Culiciformes Haliday; “Unica Stirps LXXV. Orphnephilina”] Osten Sacken 1878: 23 [catalogue, NE]; Theobald 1892: xii, 15, 20 [diagnosis, one of five genera of Nematocera anomala]; Comstock & Comstock 1895: 424, 449 [key to families of North American Diptera, diagnosis]; Williston 1896: 1, 26 [key to Diptera families, diagnosis]; Howard 1901: 124 [description]; Kertész 1902: 292 [catalogue, World]; Kertész 1903: 159 [catalogue, PA]; Osten Sacken 1903: 203 [characters of aerial Diptera]; Aldrich 1905: 173 [catalogue, NE]; Wingate 1906: 27, 408 [list of Durham, England Diptera]; Williston 1908: 153 [description, Manual of North American Diptera]; Thienemann 1909: 74 [habitat, larval phenology, hygropetric fauna]; Brues & Melander 1915: 62 [key, North American Diptera]; Malloch 1917: 290 [description of family characters of larva and pupa]; Bischoff 1922: 16 [description of larval head]; Leathers 1922: 48 [larval habitat and feeding habits]; Comstock 1924: 828 [notes that Bezzi (1913) first to use *Thaumalea* as type genus]; Handlirsch 1925: 969 [key to Diptera families, synonymy, description, diversity]; Séguy 1925: 17 [keys to adults and larvae of non-biting nematoceros Diptera, description of life stages]; Essig 1926: 527 [key, Western North American Diptera]; Tillyard 1926: 352 [as synonym of Thaumaleidae]; Imms 1930: 626 [description]; Tuxen 1943: 46 [key to adults and larvae, Denmark]; Wesenberg-Lund 1943: 542 [description]; Bertrand 1955: 394 [morphology]; Whitten 1959: 131 [tracheal system in larval Diptera]; Morge 1969: 33 [Strobl collection]; Sabrosky 1999: 226 [Thaumaleidae takes priority].

Orphnephiloidea Hendel, 1936: 1908 [diagnosis]; Wesenberg-Lund 1943: 542 [diagnosis].

Taumaleoidea [misspelling]. Rohdendorf 1947: 758.

Tahumaleidae [misspelling]. Bezzi 1913: 231.

Thaumalaeidae [misspelling]. Labandeira 1994: 45.

Thaumaleidae Bezzi, 1913: 259 [first use of family name]; Tonnoir 1923: 93 [New Zealand]; Comstock 1924: 788, 828 [key, diagnosis]; Crampton 1925: 61 [adult thoracic morphology, phylogeny]; Tillyard 1926: 352 [nine Australasian species belonging to the genus *Thaumalea*]; Edwards 1926: 117 [larval characters, phylogeny]; Edwards & Shannon 1927: 653 [distribution, NT]; Hendel 1928: 61 [adult and larval key]; Edwards 1929: 121 [revision, world Thaumaleidae]; Lindner 1930: 1 [review, PA]; Edwards & Collin 1932: 264 [first record of family from St. Kilda, Scotland]; Curran 1934: 67 [key to world genera, key to three North American species]; Lutz 1935: 230 [key to families, North America]; Hendel 1936: 1908 [description of adults and immature stages, about 30 world species known]; Séguy 1940: 3 [key to families of Nematocera of France]; Curran 1942: 177 [key to families, North America]; Jaques 1947: 187 [habitat]; Oldroyd 1949: 37 [key to families, Britain]; White 1949: 255 [cytological evidence on classification of Nematocera]; Hennig 1950: 190 [summary of knowledge on immature stages]; Séguy 1950: 485 [phenology]; Séguy 1951a: 113 [description]; Séguy 1951b: 625 [credited family name to de Meijere, 1917, family described]; Brues *et al.* 1954: 315 [keys to world families of adult and larval Diptera]; Borror & DeLong 1955: 566 [key to Diptera families, solitary midges, summary]; Séguy 1955: 65 [family included in Psychodoidea]; Hinton 1955: 473 [larval locomotion]; Clements 1956: 432 [antennal pulsating organ absent in both sexes of *T. testacea*]; Vaillant 1956: 43 [11 species listed as part of madicolous fauna of France, Corsica and North Africa]; Wirth & Stone 1956: 438 [summary, key to genera, North American]; White 1957: 78 [chiasmata in Nematocera]; Hinton 1958: 249 [nature and metamorphosis of the colour pattern of *Thaumalea*]; Paramonov 1959: 170 [biogeography: AU]; Hinton 1960: 347 [chromatocytes in larvae]; Hennig 1960: 247 (1966: 21) [biogeography, New Zealand]; Peterson 1960: 224 [larval key to families]; Vaillant 1960: 8 [insects of madicolous habitats and affects of modification]; Tietz 1963: 43 [key, North American insects, common name solitary midges, figures of antenna and wing]; Stone 1965: 120 [catalogue, NE]; Stone 1966: 1 [catalogue, NT]; Vaillant 1967: 395 [Limnofauna Europaea]; Wray 1967: 72 [checklist, North Carolina]; McAlpine & Munroe 1968: 1167 [morphology]; Colyer 1968: 86 [key to families of the British Isles]; Cole 1969: 85 [key, western North American species]; Stackelberg 1969: 245 [key to European USSR species]; Colless & McAlpine 1970: 693 [synopsis, Australia]; Borror & White 1970: 266 [synopsis, North America]; Hennig 1973: 27 [systematic placement of family, morphology]; Schmid 1973: 344 [catalogue, OR]; White 1973: 488 [chiasmata in spermatogenesis]; Rohdendorf 1974: 58 [systematic placement of family]; Hutson 1975: 9 [checklist, British insects]; Arnaud 1977: 284 [review of biology, diversity, world]; Sæther 1977: 11 [female terminalia]; Cummins *et al.* 1978: 276 [ecology, distribution, larval Diptera, North America]; Merritt & Schlinger 1978: 263 [adult key to families of aquatic Diptera, North America]; Teskey 1978: 247 [larval key to families of aquatic Diptera, North America]; Vaillant 1978b: 459 [European Limnofauna]; McAlpine 1979: 390 [census of Canadian Diptera]; Peterson 1979: 400 [adults, ecology, diversity in Canada]; Craig & Borkent 1980: 2268 [maxillary palpal sensilla]; Rozkošný 1980: 298 [diagnosis, larval key to genera]; Stuckenberg 1980: 149 [catalogue, AF]; Theischinger 1980: 240 [OLL type catalogue]; Hennig 1981: 423 [family phylogeny]; Hinton 1981: 85 [cited Mandaron (1963) in reference to oviposition]; Ferrington 1981: 86 [family key to larvae]; McAlpine 1981a: 12 [morphology]; McAlpine 1981b: 89 [key to families, North America]; McCafferty & Provonsha 1981: 287 [aquatic Diptera]; Stone & Peterson 1981: 351 [family diagnosis, key, North America, figures of adult, wings, larva]; Teskey 1981a: 81 [larval morphology]; Teskey 1981b: 127 [key to larvae, North America]; Williams 1981: 1221, 1223 [overview, aquatic insects of Australia]; Zwick 1981: 1185 [biogeography]; Bickel 1982: 568 [diagnosis, diversity]; Bock 1982: 1108 [classification]; Dudley & Anderson 1982: 17 [facultatively associated with wood debris]; Vaillant 1982: 420 [male genitalic homologies]; Webb & Brigham 1982: 11.48 [life history]; Lichtwardt & Moss 1984: 512 [fungal symbionts in thaumaleid larvae]; Arnett 1985: 643 [diagnosis, key to families, North America]; Hackman & Väisänen 1985: 171 [costal chaetotaxy]; Blech & Rohlfien 1987: 214 [SDEI type catalogue]; Bushnell *et al.* 1987: 506 [habitats, Colorado]; Lounibos *et al.* 1987a: 196 [habitat, bromeliads]; Lounibos *et al.* 1987b: 224, 228 [mosquito larvae reduce abundance of larval Thaumaleidae (Thaumaleidae are misidentified Ceratopogonidae - fide W.W. Wirth who studied specimens at Arnaud's request)]; Martinovský & Rozkošný 1988: 187 [catalogue, PA]; Winterbourn & Gregson 1989: 58 [key to aquatic larvae, New Zealand]; Wood & Borkent 1989: 1359 [Nematocera phylogeny];

Borkent & McKeever 1990: 219 [larval proleg, phylogeny of Culicomorpha]; Kovalev 1990: 124 [fossil, phylogenetic discussion]; Colless & McAlpine 1991: 747 [synopsis, Australia]; Foote 1991: 755 [description of larva, biology, North America]; Teskey 1991: 706 [key to larvae, North America]; Schumann 1992: 104 [assigned to superfamily Thaumaleoidea, diversity, Germany]; Sinclair 1992: 491 [male genitalic homologies]; Williams & Feltnate 1992: 78 [list of families of aquatic Diptera]; Matile 1993: 204 [Diptera of Western Europe]; Krzemińska *et al.* 1993: 581 [family assigned to Axymyiomorpha based on wing venation]; Duxbury & Barraclough 1994: 31 [conservation status]; Palmer *et al.* 1994: 343 [larval habitat, southern Africa]; Smith 1994: 256 [CNC type catalogue]; Oosterbroek & Courtney 1995: 279 [Nematocera phylogeny]; Courtney, Merritt & Teskey *et al.* 1996: 491 [key to larvae, aquatic Diptera, North America]; Courtney, Merritt & Cummins *et al.* 1996: 540 [ecology, distribution, larval Diptera, North America]; Merritt *et al.* 1996: 519 [key to pupae of aquatic Diptera]; Pawlowski *et al.* 1996: 168 [Culicomorpha phylogeny]; Poole 1996: 307 [checklist, NE]; Santamaría & Girbal 1997: 220 [Trichomyctes]; Wagner 1997b: 187 [diagnosis, habitats, morphology, keys, North Europe]; Wagner 1997c: 325 [Manual of Palaearctic Diptera]; Chandler 1998: 51 [checklist, British Isles]; Haupt & Haupt 1998: 122 [diagnosis]; Hughes *et al.* 1998: 15 [checklist, Madeiran freshwater macroinvertebrates]; Oosterbroek 1998: 68 [Malay Archipelago]; ICZN 1999: 46 [discussion of Thaumaleidae vs. Orphnephilidae]; Sabrosky 1999: 304 [established priority in family names]; Martinovský & Barták 2000: 121 [fauna of industrially affected region, Czech Republic]; Moulton 2000: 106 [molecular support as sister to Simuliidae]; Sæther 2000: 223 [Culicomorpha phylogeny]; Sinclair 2000: 171 [immature stages, parasitism, phylogenetic affinities]; Hilsenhoff 2001: 697 [diagnosis, habits, key to aquatic families]; Lichtwardt *et al.* 2001: 765 [fungal symbionts in thaumaleid larvae]; Macfarlane & Andrew 2001: 35 [diversity, New Zealand]; Walker 2001: 50 [head capsule from lake sediments]; Wagner 2002: 41 [species of Europe, descriptions, distributions, keys]; Day *et al.* 2003: 46 [freshwater Diptera, southern Africa]; Theischinger 2004: 669 [introduction to Thaumaleidae, general biology, not yet known from Malaysian region]; White & Lichtwardt 2004: 901 [fungal symbionts in thaumaleid larvae]; Cranston 2005: 289 [biogeography]; Ferrington *et al.* 2005: 255 [Trichomyctes]; Grimaldi & Engel 2005: 498 [phylogeny, fossils]; Gullen & Cranston 2005: 197 [Diptera classification]; Ševčík *et al.* 2005: 97 [fauna, Podyjí National Park, Czech Republic]; Yeates & Wiegmann 2005: 18 [Diptera classification]; Marshall 2006: 392 [photographs, family ecology]; Oosterbroek 2006: 167 [European families of Diptera]; White *et al.* 2006: 340 [Trichomyctes in larval gut]; Lencioni *et al.* 2007: 123 [macroinvertebrate assemblage]; Salmela *et al.* 2007: 37 [diversity, Finnish wetland]; Sinclair *et al.* 2007: 725 [male genital tract]; Yeates *et al.* 2007: 569 [Diptera classification, phylogeny]; Bertone *et al.* 2008: 674 [Nematocera phylogeny]; Borkent *et al.* 2008: 626 [mating position, genitalia not rotated]; Courtney *et al.* 2008: 752 [ecology, distribution, larval Diptera, North America]; Papp & Földvári 2008a: 180 [diversity, Hungary]; Papp & Földvári 2008b: 370 [diversity, Hungary]; Papp *et al.* 2008: 262 [diversity, Hungary]; Sinclair 2008b: 292 [biogeography, phylogeny, New Caledonia]; Strongman & White 2008: 1450 [Trichomyctes in gut of larvae]; Wagner *et al.* 2008: 498, 502, 507 [notes on diversity, distribution, biology, biogeography & phylogenetic affinities]; Courtney *et al.* 2009: 188, 189, 205 [larval biology, family diversity]; Chandler 2010a: 4 [classification]; Chandler 2010b: 28 [diversity, Britian]; Macfarlane *et al.* 2010: 319 [biodiversity, New Zealand]; Pape *et al.* 2011: 223 [Diptera classification]; Wiegmann *et al.* 2011: 5692 [Diptera phylogeny]; Bernotienė & Vidinskienė 2012: 30 [first record from Lithuania]; Borkent 2012: 27 [pupae, Culicomorpha phylogeny]; Craig *et al.* 2012: 15 [Culicomorpha phylogeny]; Marshall 2012: 120 [photographs, review, key to family]; Lock 2013: 160 [fauna of Flanders, Belgium, biology, water quality requirements]; Weber 2013: 386 [railway tunnels, Luxembourg]; Kahanpää 2014: 7 [one Finland species]; Kemp *et al.* 2014: 144 [macroinvertebrate assemblage]; Schneeberg & Beutel 2014: 3 [adult and larval head structures]; Shimabukuro *et al.* 2015: 578 [eumadiculous, new collecting trap with potential for collecting thaumaleids]; Borkent & Sinclair 2017: 364 [key to larvae of Afrotropical Diptera families]; Haubrock *et al.* 2017: 523 [molecular phylogeny, phylogeography and genetic structure of European species]; Borkent 2018: 6 [no intrafamilial phylogeny known]; Kutty *et al.* 2018: 1 [whole-transcriptome shotgun phylogeny of Culicomorpha, Thaumaleidae + Simuliidae is sister group to Culicoidea]; Pinho & Heurta 2018: 719 [NT Thaumaleidae]; Sinclair 2018: 1271 [Japanese fauna]; Adler & Courtney 2019: 2 [aquatic Diptera]; Zhang *et al.* 2019 [Culicomorpha phylogeny based on mitochondrial genomes]; Pivar *et al.* 2020: 512 [South America *Austrothaumalea*, keys to genera and species]; Pivar *et al.* 2021: 52 [South America *Niphtha*, revision, new immature morphotype]; Lonsdale 2021: 6 [19 Schmid type, biography of Fernand Schmid].

Thaumatidae [misspelling]. Dyar & Shannon 1924: 432.
Thaumatidae [misspelling]. McAlpine & Munroe 1968: 1167.
Thaumatodea: Hendel 1936: 1908 [contains only one family Thaumaleidae].
Thaumatidae [misspelling]. Edwards & Shannon 1927: 653.

Genus *AFROTHAUMALEA* Stuckenberg

Afrothaumalea Stuckenberg, 1960: 107. Type-species: *Afrothaumalea pamela* Stuckenberg by original designation. Stuckenberg 1961: 409 [review, relationship to *Austrothaumalea*]; Vaillant 1963: 26 [distribution]; Hennig 1973: 27 [distribution]; Martinovský & Rozkošný 1976: 187 [review, one of six valid world genera]; Arnaud 1977: 284 [diversity]; Stuckenberg 1980: 149 [catalogue, AF]; Bickel 1982: 568 [distribution]; Theischinger 1986: 291, 316 [review, compared with *Austrothaumalea* and *Niphtha*]; McLellan 1988: 563, 575 [revision, affinities of Southern Hemisphere genera]; Peterson & Theischinger 1989: 219 [catalogue, AU]; Peterson *et al.* 1989 [review, discussion of number of flagellomeres]; Duxbury & Barraclough 1994: 31 [conservation status]; Sinclair & Stuckenberg 1995: 210 [revision]; Sinclair 2000: 175 [comparison of larvae]; Sinclair & Saigusa 2002: 181 [revision, phylogeny]; Sinclair 2008a: 1 [review, affinities to *Niphtha*]; Sinclair 2008b: 292 [comparison of Southern Hemisphere genera]; Sinclair 2015: 164 [key]; Sinclair 2017: 729 [Manual of Afrotropical Diptera]; Pivar & Pinho *et al.* 2018: 481, 493 [revision, phylogenetic relationship with *Neothaumalea*, key].

capensis Sinclair & Stuckenberg. **AF:** South Africa (Western Cape).

Afrothaumalea sp. Stuckenberg, 1961: 409 [description].

Afrothaumalea capensis Sinclair & Stuckenberg, 1995: 212. Type locality: South Africa: Southwestern Cape, Maanschynkop, 7 miles east of Hermanus. HT ♂ MZLU (MZLU 3135) [on microscope slide]. Sinclair 2015: 165 [key]; Sinclair 2017: 732 [Manual of Afrotropical Diptera].

pamela Stuckenberg. **AF:** South Africa (KwaZulu-Natal).

Afrothaumalea pamela Stuckenberg, 1960: 108. Type locality: South Africa: Natal, Cathedral Peak, Natal Drakensberg, Organ Pipes Pass. HT ♀ NMSA. Stuckenberg 1961: 409 [review, comparison to Southwestern Cape species]; Stuckenberg 1980: 149 [catalogue, AF]; Duxbury & Barraclough 1994: 31 [conservation status]; Sinclair & Stuckenberg 1995: 210 [review, male described]; Sinclair 2015: 165 [key]; Sinclair 2017: 732 [Manual of Afrotropical Diptera].

stuckenbergi Sinclair. **AF:** South Africa (Western Cape).

Afrothaumalea stuckenbergi Sinclair, 2015: 162. Type locality: South Africa: Western Cape, Cederberg Wilderness, Duiwelsgat near at 32°24.086'S 19°05.268'E, 693 m, rock seepage. HT ♂ BMSA. Sinclair 2017: 732 [Manual of Afrotropical Diptera]; Pivar & Pinho *et al.* 2018: 491 [pupa, comparison with *Neothaumalea* and *Trichothaumalea*].

Genus *ANDROPROSOPA* Mik

Androprosopa Mik, 1898 : 65. Type-species: *Orphnephila larvata* Mik (by original designation). Kertész 1902: 292 [catalogue, World]; Kertész 1903: 159 [catalogue, PA]; Malloch 1917: 290 [North America]; Handlirsch 1925: 969 [synopsis]; Séguy 1925: 19 [diagnostic features]; Edwards 1929: 141 [revision of world Thaumaleidae, redescription]; Edwards 1930: 111 [Patagonia and South Chile]; Lindner 1930: 6 [redescription]; Curran 1934: 68 [key to world genera]; Enderlein 1936: 96 [key to world genera]; Hendel 1936: 1908 [genera, world Thaumaleidae]; Okada 1938: 389 [key to world genera]; Hennig 1950: 193 [diversity, distribution]; Brues *et al.* 1954: 315 [listed as genus of Thaumaleidae]; Bertrand 1955: 402 [distribution, adult head figured]; Vaillant 1959: 31 [distribution]; Zilahi-Sebess 1960: 35 [Carpathian Basin record, key to Hungarian species]; Hennig 1960: 247 (1966: 21) [biogeography]; Vaillant 1963: 26 [distribution]; Cole 1969: 85 [key to genera]; Stackelberg 1969: 245 [species of European USSR]; Hennig 1973: 27 [recorded from Holarctic Region]; Martinovský &

Rozkošný 1976: 188 [distribution]; Arnaud 1977: 284 [distribution, head and mouthparts known]; Rozkošný 1980: 297 [generic key to larva]; Bickel 1982: 568 [distribution]; Martinovský & Rozkošný 1988: 187 [catalogue, PA]; Szadziewski 1991: 111 [checklist, Poland]; Sinclair 1992: 496 [male terminalia]; Sinclair 1996: 376 [redefinition of genus, list of 51 valid taxa referred to *Androprosopa* (including 39 new combinations), eastern Nearctic species, descriptions of adults, larvae and pupae, phylogenetic affinities, key]; Wagner 1997c: 328 [Manual of Palaearctic Diptera]; Sinclair 2000: 175 [generic comparisons of immature stages]; Wagner 2002: 54 [European species, descriptions, distributions, keys]; Theischinger 2004: 669 [northern hemisphere distribution]; Szadziewski 2007: 71 [checklist, Poland]; Courtney *et al.* 2008: 752 [ecology, distribution, larval Diptera, North America]; Saigusa 2014: 211 [catalogue, Japan]; Schneeberg & Beutel 2014: 3 [adult and larval head structures]; Sinclair 2017: 730 [Manual of Afrotropical Diptera, *Protothaumalea* may be a synonym]; Sinclair 2018: 1271 [Japanese fauna]; Pivar & Moulton *et al.* 2018: 349 [revision, western North America]; Courtney *et al.* 2019: 992 [ecology, distribution, larval Diptera, North America].

Androposopa [misspelling]. Collart 1950b: 64 [first record of genus from France, description of male palpus]; Vaillant 1953a: 1 [separated from *Thaumalea* on basis of male postabdomen]; Haubrock *et al.* 2017: 523 [molecular phylogeny, phylogeography and genetic structure of European species].

Orphnephilina Enderlein, 1936: 96. Type-species: *Orphnephila nigra* Loew, 1871, by original designation. Bertrand 1955: 402 [diagnosis]; Stone 1964: 120 [as synonym of *Thaumalea*]; Martinovský & Rozkošný 1976: 188 [diagnosis, possibly eight species should be transferred to genus]; Vaillant 1978a: 698 [diagnosis, key to species]; Martinovský & Rozkošný 1988: 187 [catalogue, PA]; Vaillant & Vinçon 1988: 284 [new species, definition]; Wagner 1995: 65 [as synonym of *Androprosopa*]; Sinclair 1996: 361 [discussion]; Wagner 1997c: 328 [Manual of Palaearctic Diptera, as synonym of *Androprosopa*].

Psychothaumalea Vaillant, 1970: 166. Type-species: *Orphnephila nigra* Loew, 1871, by original designation. Martinovský & Rozkošný 1976: 188 [as synonym of *Orphnephilina*].

Protothaumalea Vaillant, 1978a: 698. Type-species: *Thaumalea tarda* Loew, 1847 by original designation. Wagner 1987: 17 [phylogenetic discussion]; Martinovský & Rozkošný 1988: 188 [catalogue, PA]; Vaillant & Vinçon 1988: 284 [as synonym of *Orphnephilina*]; Sinclair 1996: 361 [discussion]; Wagner 1997c: 328 [Manual of Palaearctic Diptera, key to genera]; Wagner 2002: 54 [European species, descriptions, distributions, keys]; Haubrock *et al.* 2017: 524 [molecular phylogeny, phylogeography and genetic structure of European species]; Sinclair 2017: 730 [Manual of Afrotropical Diptera, questionable valid genus].

Orphnephila of authors: Loew 1862: 6 [record, NE]; Osten Sacken 1878: 23 [catalogue, NE]; Aldrich 1905: 173 [catalogue, NE].

Thaumalea of authors: Stone 1964: 120 [Diptera of Connecticut, description of larva, pupa, adult, key to eastern species, synonyms of *Thaumalea*]; Stone 1965: 120 [catalogue, NE]; Arnaud 1968: 83 [distribution, new species from California]; Cole 1969: 85 [key to genera]; Elgork & Sæther 1970: 34 [larvae, NE]; Sæther 1970: 76 [larvae, NE]; Gillespie 1971: 327 [larval and pupal habitat, rearing]; Brothers 1972: 121 [NE fauna represented by five species]; Schmid 1973: 344 [catalogue, OR]; Cummins *et al.* 1978: 276 [ecology, distribution, larval Diptera, North America]; Stone & Peterson 1981: 353 [key to genera of North America]; Dudley & Anderson 1982: 17 [immatures from wood debris, USA]; Arnett 1985: 667 [six species in North America]; Frommer 1986: 61 [recorded from Philip L. Boyd Deep Canyon Desert Research Center, California]; Bushnell *et al.* 1987: 506 [recorded from alpine lake and stream chain, Colorado]; Arnaud & Boussy 1994: 41 [Western Nearctic *Thaumalea*, 17 new species descriptions, key to males]; Gillespie *et al.* 1994: 153 [larval and pupal descriptions of nine western Nearctic species, biological notes]; Courtney, Merritt & Cummins *et al.* 1996: 540 [ecology, distribution, larval Diptera, North America]; Hilsenhoff 2001: 720 [figure of larva].

algira (Vaillant). **PA:** Algeria, Spain (Mallorca), Morocco, Tunisia.

Thaumalea algira Vaillant, 1953b: 127. Type locality: Algeria: Atlas de Blida, Ruisseau des Singes, near La Chiffa, 700 m. ST ♂, ♀ MNHN [multiple specimens on microscope slides], ST 1 ♂, 1 ♀ CNC [pinned] (CNC766865, CNC766866). Vaillant 1953a: 1 [figures of male terminalia, distribution]; Vaillant 1955: 96 [distribution, Algeria, larvae live in wide temperature range]; Vaillant 1956: 43 [madicolous species]; Schmid 1958: 5 [distribution, classification]; Vaillant 1959: 36 [phylogenetic discussion]; Vaillant 1963: 26 [phylogenetic discussion]; Vaillant 1968: 82 [phylogenetic discussion]; Vaillant 1969: 703 [assigned to Group I of *Thaumalea*]; Martinovský & Rozkošný 1976: 188 [phylogenetic discussion]; Arnaud 1977: 284

[description of larval habitat]; Cooper 1991: 79 [CNC type catalogue, ST].

Orphnephilina algira: Vaillant & Vinçon 1988: 284 [new combination].

Protothaumalea algira: Vaillant 1978a: 698 [new combination]; Wagner 1981: 144 [distribution, Mallorca]; Wagner 1987: 17 [distribution, Tunisia]; Martinovský & Rozkošný 1988: 188 [catalogue, PA]; Wagner 2002: 54 [redescription, male and female terminalia, distribution]; Wagner & Báez 2002: 78 [distribution]; Haubrock *et al.* 2017: 528, 529, 530 [molecular phylogeny, phylogeography and genetic structure of European species].

Androprosopa algira: Sinclair 1996: 376 [new combination].

americana (Bezzi). **NE**: Canada (Ontario, Quebec, Nova Scotia), United States of America (Alabama, Georgia, Kentucky, Maryland, Mississippi*, New Hampshire, New York, North Carolina, Pennsylvania, South Carolina, Tennessee, Virginia, West Virginia).

Thaumalea americana Bezzi, 1913: 250. Type locality: USA: Ithaca, New York. HT ♂ MSNM. Comstock 1924: 828 [wing figure, NE]; Dyar & Shannon 1924: 434 [key, redescription; distribution]; Johannsen 1928: 714 [distribution, New York]; Edwards 1929: 140 [redescription, distribution, figures of male and female terminalia]; Curran 1934: 68 [key to North American species]; Johannsen 1934: 56 [description, larva]; Lutz 1935: 230 [common North American species]; Vaillant 1959: 31 [review, NE]; Peterson 1960: 273 [larval description]; Vaillant 1963: 26 [phylogenetic discussion]; Stone 1964: 122 [key to eastern North American species, figures of head, wing, male terminalia, larva, synonymy]; Stone 1965: 120 [catalogue, NE]; Stone 1966: 1 [biology]; Wray 1967: 72 [checklist]; Cole 1969, 85 [habitus, distribution]; Sæther 1970: 76 [larvae, NE]; Hennig 1973: 204 [notes on adult morphology]; Martinovský & Rozkošný 1976: 188 [phylogenetic discussion]; McAlpine 1981a: 17, fig. 2.19 [figure of antenna]; McAlpine 1981b: 93 [key to families, North America, figure of wing]; Stone & Peterson 1981: 351 [habitus, figure of wing]; Webb & Brigham 1982: 11.48 [checklist, North and South Carolina]; Arnett 1985: 667 [common species of northeastern North America]; Sinclair & Marshall 1987: 11 [member of madicolous fauna, eumadicolous]; Wood 1987: 142 [distribution, Cape Breton]; Peterson *et al.* 1989 [discussion of number of flagellomeres]; Sinclair 1990: 285 [distribution, Ontario]; Sinclair 1992: 492, 496, 498 [male terminalia and reproductive system]; Arnaud & Boussy 1994: 45 [generic assignment, discussion of male reproductive system, figure of male terminalia of holotype]; Poole 1996: 307 [checklist, NE].

Thaumalea johannis Dyar & Shannon, 1924: 434. Type locality: USA: Cabin John, Maryland. LT ♂ USNM (Type No. 27461; USNMMENT1028680) [on microscope slide]. Edwards 1929: 141 [brief comparison to *A. americana*]; Curran 1934: 68 [key to North American species]; Vaillant 1959: 31 [review, NE]; Stone 1964: 122 [as synonym of *T. americana*, LT designated]; Cole 1969: 85 [distribution].

Orphnephila testacea of authors: Loew 1862: 6 [NE record]; Osten Sacken 1878: 23 [catalogue, NE]; Comstock & Comstock 1895: 449 [single NE species known]; Howard 1901: 124 [single NE species]; Aldrich 1905: 173 [catalogue, NE]; Young 1921: 258 [female adult abdomen]; Leathers 1922: 48 [larval habitat and feeding]; Dyar & Shannon 1924: 432 [taxonomic discussion]; Crampton 1925: 68 [adult thoracic morphology, phylogeny]; Stone 1965: 120 [catalogue, NE, synonym].

Orphnephila americana: Malloch 1917: 290 [discussion, synopsis]; Bertrand 1948: 168 [larvae].

Protothaumalea americana: Vaillant 1978a: 698 [new combination].

Androprosopa americana: Sinclair 1996: 371 [new combination, descriptions, illustrations of adult male and female, pupa, larva, egg, biology, distribution, colour morphs]; Strongman & White 2008: 1453 [Trichomyctes in gut of larvae]; Bertone *et al.* 2008: 674 [exemplar, Nematocera phylogeny].

anolo (Schmid). **NE**: United States of America (Idaho, Oregon, Washington).

Thaumalea anolo Schmid, 1970: 501. Type locality: USA: Oregon, Marion County, French Creek. HT ♂ CNC (Type No. 11306; CNC767000) [abdomen, right wing on two microscope slides]. Martinovský & Rozkošný 1976: 188 [phylogenetic discussion]; Cooper & Cumming 1993: 82 [CNC type catalogue]; Arnaud & Boussy 1994: 58 [redescription, figures of wing and male genitalia; distribution]; Poole 1996: 307 [checklist, NE]; Pivar & Moulton *et al.* 2018: 354 [revision, western North America].

Androprosopa anolo: Sinclair 1996: 370, 376 [new combination, phylogenetic affinities]; Pivar & Moulton *et al.* 2018: 354 [revision, western North America].

apache Pivar & Moulton. **NE:** United States of America (Arizona).

Androprosopa apache Pivar & Moulton in Pivar & Moulton *et al.*, 2018: 362. Type locality: USA: Arizona, Apache Co., Apache-Sitgreaves National Forest, Greer, Squirrel Spring, 34°02'27.8"N, 109°27'32.9"W. HT ♂ CNC (CNC1589867).

arnaudi Pivar. **NE:** United States of America (Arizona).

Androprosopa arnaudi Pivar in Pivar & Moulton *et al.*, 2018: 366. Type locality: USA: Arizona, Graham Mountains, Wet Canyon, 32°39'06"N 109°48'48"W, 6060 ft. HT ♂ CNC (CNC1589866).

atropatenica (Schmid). **PA:** Iran.

Thaumalea atropatenica Schmid, 1958: 16. Type locality: Iran: near village de Meyur, 2200 m, north side Kuh-i-Savelan [Ardabil: Moeil, 38°17'44.60"N 47°42'58.63"E]. HT ♂ CNC (Type No. 17191; CNC767001). Cooper 1991: 79 [CNC type catalogue].

Orphnephilina atropatenica: Martinovský & Rozkošný 1988: 187 [catalogue, PA].

Androprosopa atropatenica: Sinclair 1996: 376 [new combination].

baminana Yang. **OR:** China (Fujian). **comb. nov.**

Thaumalea baminana Yang, 2003: 587. Type locality: China: Fujian, Mt. Huanggangshan. HT ♂ CAU.

becca (Arnaud & Boussy). **NE:** Canada (Alberta, British Columbia), United States of America (Idaho, Montana, Washington).

Thaumalea becca Arnaud & Boussy, 1994: 60. Type locality: Canada: British Columbia, 14 miles South Valemont, Highway 5. HT ♂ CAS (Type No. 17000) [on microscope slide]. Gillespie *et al.* 1994: 161 [description, larva and pupa]; Poole 1996: 307 [checklist, NE].

Androprosopa becca: Sinclair 1996: 370, 376 [new combination, phylogenetic affinities]; Pivar & Moulton *et al.* 2018: 367 [revision, western North America].

bispicula Wagner & Rulik. **PA:** Italy.

Androprosopa bispicula Wagner & Rulik, 2008: 322. Type locality: Italy: Province Bolzano, Trentino-Alto Adige, Parco Nazionale dello Stelvio, Tartscher Valley south of Trafoi, 46°32'33.9"N 010°30'17.2"E, 1630 m. HT ♂ ZMHB [currently in RWC] [stored in ethanol].

brothersi (Arnaud & Boussy). **NE:** United States of America (California, Colorado, New Mexico, South Dakota).

Thaumalea brothersi Arnaud & Boussy, 1994: 63. Type locality: USA: California, Santa Clara County, Swanson Creek, Uvas Canyon. HT ♂ CAS (Type No. 17001) [apex of abdomen on microscope slide]. Gillespie *et al.* 1994: 164 [description, larva and pupa]; Poole 1996: 307 [checklist, NE].

Androprosopa brothersi: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 369 [revision, western North America].

buckae (Arnaud & Boussy). **NE:** United States of America (California, Oregon).

Thaumalea buckae Arnaud & Boussy, 1994: 66. Type locality: USA: California, Marin County, Mill Valley Lee Street, 360 ft [110 m], dripping cliff. HT ♂ CAS (Type No. 17002) [on microscope slide]. Boussy *et al.* 1994: 195 [scanning electron micrographs of external larval structures]; Gillespie *et al.* 1994: 166 [description, larva and pupa]; Poole 1996: 307 [checklist, NE].

Androprosopa buckae: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 372 [revision, western North America].

carthusiana Vaillant. **PA:** France.

Orphnephilina carthusiana Vaillant, 1978a: 699. Type locality: France: Guiers Vif, au fond du cirque de Saint-Meme, massif de la Chartreuse, Alpes du Dauphine, 900 m, d'une cascade en dessous des sources. HT ♂ MNHN [multiple specimens on microscope slides]. Vaillant 1981: 139 [figure of female terminalia, key to females of European species]; Martinovský & Rozkošný 1988: 187 [catalogue, PA]; Vaillant & Vinçon

1988: 284 [distribution].

Androprosopa carthusiana: Sinclair 1996: 376 [new combination]; Wagner 2002: 56 [descriptions, male and female terminalia, distribution map].

chandlerorum (Arnaud & Boussy). **NE:** United States of America (California).

Thaumalea chandlerorum Arnaud & Boussy, 1994: 77. Type locality: USA: Nevada County, Sagehen Creek, northeast of Carpenter Ridge, 8000 ft [2438 m]. HT ♂ CAS (Type No. 17003) [right wing, abdomen on microscope slide]. Poole 1996: 307 [checklist, NE].

Androprosopa chandlerorum: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 373 [revision, western North America].

coloradensis (Arnaud & Boussy). **NE:** United States of America (Colorado).

Thaumalea coloradensis Arnaud & Boussy, 1994: 79. Type locality: USA: San Juan County, north side Red Mountain Pass, 3292 m. HT ♂ CAS (Type No. 17004) [on two microscope slides]. Poole 1996: 307 [checklist, NE].

Androprosopa coloradensis: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 375 [revision, western North America].

confracta (Arnaud & Boussy). **NE:** United States of America (Oregon, Washington).

Thaumalea confracta Arnaud & Boussy, 1994: 82. Type locality: USA: Oregon, Linn County, Lost Prairie. HT ♂ CNC (CNC767026) [abdomen on microscope slide]. Poole 1996: 307 [checklist, NE].

Androprosopa confracta: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 376 [revision, western North America].

demandana (Vaillant & Vinçon). **PA:** Spain.

Orphnephilina demandana Vaillant & Vinçon, 1988: 282. Type locality: Spain: Sierra de la Demanda, sud de la vallée d'Ebre, proche de la station de ski de Valdezcaray, 1900 m, affluent du rio Oja. ST 1 ♂, MNHN, ST 1 ♀ MZLS (GBIFCH00597462) [on microscope slides].

Androprosopa demandana: Sinclair 1996: 376 [new combination]; Wagner & Báez 2002: 78 [distribution]; Wagner 2002: 56 [redescription, male and female terminalia, distribution]; Hancock 2016: 300 [distribution].

Notes. Vaillant & Vinçon (1988: 284) stated “Holotypes ♂ et ♀” and we do not consider this a valid holotype designation and both are viewed as syntypes because more than one specimen is listed as the holotype (see ICZN (1999) Article 73.1.1).

dirghakantaka (Schmid). **OR:** India.

Thaumalea dirghakantaka Schmid, 1970: 510. Type locality: India: Uttarakhand, Pauri Garhwal, Gawana [Gawana Malla, 6000 ft, small river tributary of Bhichangana, 30°32'18.9"N 78°48'35.9"E]. HT ♂ CAS (Type No. 11154). Schmid 1973: 344 [catalogue, OR]; Arnaud 1979: 59 [CAS type catalogue]; Cooper 1991: 79 [CNC type catalogue].

Androprosopa dirghakantaka: Sinclair 1996: 376 [new combination].

elnora (Dyar & Shannon). **NE:** Canada (British Columbia), United States of America (Idaho, Washington, Wyoming).

Thaumalea elnora Dyar & Shannon, 1924: 434. USA: Idaho, Moscow Mountain. LT ♂ USNM (Type No. 27462; USNMENT01028679) [on microscope slide]. Edwards 1929: 141 [brief redescription based on literature]; Curran 1934: 68 [key to North American species]; Vaillant 1959: 31 [NE species]; Stone 1965: 120 [catalogue, NE]; Weems 1965: 50 [specimens in Florida State Collection of Arthropods]; Arnaud 1968: 83 [distribution]; Cole 1969: 85 [habitus, briefly redescribed]; Martinovský & Rozkošný 1976: 188 [phylogenetic discussion]; Arnaud & Boussy 1994: 84 [LT designated, redescription, male and female terminalia]; Poole 1996: 307 [checklist, NE].

Androprosopa elnora: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 377 [revision, western North America].

ericfisheri (Arnaud & Boussy). **NE:** Canada (Alberta, British Columbia), United States of America (Washington).

Thaumalea ericfisheri Arnaud and Boussy, 1994: 87. Type locality: Canada: Alberta, Rocky Mountains, Grizzly Creek at Kananaskis Road, 18 miles south Highway 1, 5600 ft [1707 m]. HT ♂ CAS (Type No. 17005) [on microscope slide]. Poole 1996: 307 [checklist, NE].
Androprosopa ericfisheri: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 378 [revision, western North America].

falciformis (Arnaud & Boussy). **NE:** Canada (British Columbia), United States of America (Idaho, Montana, Washington).

Thaumalea falciformis Arnaud & Boussy, 1994: 91. Type locality: USA: Idaho, Idaho County, 4.6 miles east Lowell. HT ♂ CAS (Type No. 17006) [on microscope slide]. Gillespie *et al.* 1994: 168 [description, larva and pupa]; Poole 1996: 307 [checklist, NE].

Androprosopa falciformis: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 380 [revision, western North America].

fusca (Garrett). **NE:** Canada (British Columbia).

Orphnephila fusca Garrett, 1925: 10. Type locality: Canada: British Columbia, Marysville. HT ♂ CNC (CNC767058) [left wing and abdomen on microscope slide]. Curran 1926: 99 [new Canadian species]; Cooper 1991: 79 [CNC type catalogue].

Thaumalea fusca: Edwards 1929: 141 [brief redescription based on literature]; Wirth & Stone 1956: 438 [Humboldt County, California possible record - unconfirmed]; Vaillant 1959: 31 [one of five NE species]; Stone 1965: 120 [NE catalogue]; Arnaud 1968: 83 [distribution]; Cole 1969: 85 [distribution, Oregon - unconfirmed]; Martinovský & Rozkošný 1976: 188 [phylogenetic discussion]; Arnaud & Boussy 1994: 94 [redescription, figures of wing and male terminalia, distribution]; Poole 1996: 307 [checklist, NE].

Androprosopa fusca: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 382 [revision, western North America].

gillespieae (Arnaud & Boussy). **NE:** Canada (British Columbia), United States of America (California, Colorado, Idaho, Oregon, Washington, Utah).

Thaumalea gillespieae Arnaud & Boussy, 1994: 97. Type locality: USA: Oregon, Linn County, Monument Peak Guard Station, 4000 ft [1220 m]. HT ♂ CAS (Type No. 17007) [on microscope slide]. Gillespie *et al.* 1994: 171 [description, larva and pupa]; Poole 1996: 307 [checklist, NE].

Androprosopa gillespieae: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 383 [revision, western North America].

heterodoxa (Schmid). **OR:** India, Pakistan.

Thaumalea heterodoxa Schmid, 1958: 19. Type locality: Pakistan: Jamnu and Kashmir, Janwai [34°47'40"N 74°32'0"E], 2130 m. HT ♂ CNC (Type No. 17199; CNC767171). Schmid 1970: 501 [distribution, India, morphological differences between India and Pakistan, male terminalia]; Schmid 1973: 344 [catalogue, OR]; Blech & Rohlfien 1987: 215 [distribution, 1 ♂ PT deposited in SDEI]; Cooper 1991: 80 [CNC type catalogue].

Protothaumalea heterodoxa: Vaillant 1978a: 698 [new combination].

Androprosopa heterodoxa: Sinclair 1996: 376 [new combination].

himalayana (Schmid). **OR:** India, Pakistan.

Thaumalea himalayana Schmid, 1958: 18. Type locality: Pakistan: North-West Frontier Province [= Khyber Pakhtunkhwa], Naran [34°54'28"N 73°38'57"E], 2500 m. HT ♂ CNC (Type No. 17200; CNC767809). Schmid 1973: 344 [catalogue, OR]; Blech & Rohlfien 1987: 215 [distribution, 1 ♂ PT deposited in SDEI]; Cooper 1991: 80 [CNC type catalogue].

Androprosopa himalayana: Sinclair 1996: 376 [new combination].

hyrcanica (Schmid). **PA:** Iran.

Thaumalea hyrcanica Schmid, 1958: 16. Type locality: Iran: Mazandaran, Lius (Ost. 2), 2100 m. HT ♂ CNC (Type No. 17202; CNC767832). Cooper 1991: 80 [CNC type catalogue].
Orphnephilina hyrcanica: Martinovský & Rozkošný 1988: 187 [catalogue, PA].
Androprosopa hyrcanica: Sinclair 1996: 376 [new combination].

idahoensis (Arnaud & Boussy). **NE**: United States of America (California, Idaho, Washington).

Thaumalea idahoensis Arnaud & Boussy, 1994: 101. Type locality: USA: Idaho, Nez Perce County, Juliaetta Falls. HT ♂ CAS (Type No. 17008) [on microscope slide]. Gillespie *et al.* 1994: 175 [description, larva and pupa]; Poole 1996: 307 [checklist, NE].
Androprosopa idahoensis: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 386 [revision, western North America].

intermedia (Schmid). **PA**: Republic of North Macedonia, Serbia.

Thaumalea intermedia Schmid, 1958: 11. Type locality: Republic of North Macedonia: Perister [Baba Mountain, 41°0'12"N 21°11'3"E], 1800–2400 m. HT ♂ CNC (Type No. 17201; CNC767843). Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1968: 82 [phylogenetic discussion]; Vaillant 1969: 701 [distribution]; Joost 1978: 118 [distribution]; Vaillant 1978a: 704 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Wagner 1980: 16 [distribution: Serbia]; Wagner 1981: 150 [phylogenetic discussion]; Blech & Rohlfien 1987: 216 [1 ♂ PT deposited in SDEI]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Cooper 1991: 80 [CNC type catalogue].
Androprosopa intermedia: Sinclair 1996: 376 [new combination]; Wagner 2002: 58 [redescription, male and female terminalia, distribution map].

japonica (Okada). **PA**: Japan.

Thaumalea japonica Okada, 1938: 390. Type locality: Japan: Honshu, Kogesawa near Takao, Tokyo. HT ♂ NSMT (Type No. 34358) [legs and terminalia mounted in Canada balsam]. Vaillant 1959: 36 [phylogenetic discussion]; Martinovský & Rozkošný 1976: 188 [phylogenetic discussion].
Protothaumalea japonica: Vaillant 1978a: 698 [new combination]; Martinovský & Rozkošný 1988: 189 [catalogue, PA].
Androprosopa japonica: Sinclair 1996: 376 [new combination]; Saigusa 2014: 211 [catalogue, Japan]; Sinclair 2018: 1271 [Japanese fauna, keys, figures].

karakoramica (Schmid). **OR**: India, Nepal, Pakistan.

Thaumalea karakoramica Schmid, 1958: 20. Type locality: Pakistan: Mahandri [34°41'40"N 73°34'27"E], 1550 m, NW Frontier Province [= Khyber Pakhtunkhwa]. HT ♂ CNC (Type No. 17198; CNC767870). Schmid 1970: 503, [distribution, India, male terminalia]; Schmid 1973: 344 [catalogue, OR]; Blech & Rohlfien 1987: 216 [distribution, 1 ♂ PT in SDEI]; Cooper 1991: 80 [CNC type catalogue]; Papp *et al.* 2006: 124 [phylogenetic discussion].
Protothaumalea karakoramica: Vaillant 1978a: 698 [new combination].
Androprosopa karakoramica: Sinclair 1996: 376 [new combination].

larvata (Mik). **PA**: Austria, Bosnia and Herzegovina, Bulgaria, Czech Republic, France, Germany, Italy, Republic of North Macedonia, Poland, Romania, Slovakia, Spain, Switzerland.

Orphnephila larvata Mik, 1888: 243. Type locality: Austria: Alpen des oberen Innthales in Tirol. ST 17 ♂, 5 ♀ NMW.
Androprosopa larvata: Mik 1898: 65 [designated type species of new genus]; Kertész 1902: 292 [catalogue, World]; Kertész 1903: 159 [catalogue, PA]; Bezzi 1913: 243 [redescription, World catalogue]; Séguy 1925: 19 [description]; Edwards 1929: 141 [redescription, distribution, figures of male and female terminalia]; Lindner 1930: 6 [redescription, distribution, figures of male and female terminalia, head, and wing]; Collart 1945: 5 [distribution, PA]; Collart 1950b: 64 [new distribution: France]; Schmid 1951: 6 [distribution, PA]; Vaillant 1953a: 3 [terminalia compared, distribution, France]; Vaillant 1953b: 122 [distribution]; Bertrand 1955: 397 [morphology]; Schmid 1958: 7, 12 [distribution, Switzerland, figures of male heads]

and terminalia]; Zilahi-Sebess 1960: 36 [distribution, Carpathian Basin, key to Hungarian species]; Vaillant 1967: 396 [Limnofauna Europaea]; Downes 1968: 613 [spermatophore]; Stackelberg 1969: 245 [species of European USSR]; Vaillant 1969: 689 [distribution]; Vaillant 1973: 145 [distribution, Parc de la Vanoise, France]; Martinovský & Rozkošný 1976: 188 [distribution, figures of male and female terminalia]; Joost 1978: 118, 120 [distribution, Bulgaria]; Vaillant 1978a: 706 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Stone & Peterson 1981: 352 [adult description]; Vaillant 1981: 131 [male and female terminalia described, habitat, key to females of European species]; Wagner 1981: 150 [phylogenetic discussion]; Martinovský 1984: 83 [checklist, Slovakia]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Martinovský & Rozkošný 1988: 187 [catalogue, PA]; Szadziewski 1991: 111 [checklist, Poland]; Sinclair 1992: 492 [male terminalia]; Wagner 1995: 66 [under *Orphnephilina*, distribution, Austria]; Rivosecchi 1995: 11 [distribution, Italy]; Pawlowski *et al.* 1996: 168 [exemplar, Culicomorpha phylogeny]; Sinclair 1996: 376 [generic assignment]; Martinovský 1997a: 212 [faunistic records, Czech Republic and Slovakia]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia]; Wagner 1997b: 187 [Thaumaleidae of North Europe]; Wagner & Niesiołowski 1997: 499 [records, Poland]; Arnaud 1998: 107 [checklist, Switzerland]; Martinovský 1999: 133 [distribution, Slovakia]; Wagner 1999: 83 [checklist, German]; Wagner 2002: 56 [redescription, male and female terminalia, distribution map]; Szadziewski 2007: 71 [checklist, Poland]; Preisler *et al.* 2008: 154 [distribution, Jizerský hory Mountains, Czech Republic]; Wagner & Rulik 2008: 321 [distribution, Stilfsererjoch National Park, Italy]; Ševčík 2012: 194 [distribution, Krkonoš Mountains, Czech Republic]; Palaczyk & Słowińska-Krysiak 2014: 56 [distribution, Tatra Mountains, Poland]; Haubrock *et al.* 2017: 523 [molecular phylogeny, phylogeography and genetic structure of European species]; Papp 2018: 179 [distribution, Romania]; Pivar & Moulton *et al.* 2018: 492 [sexual dimorphism]; Carles-Tolrá 2020: 106 [distribution, Spain]; Keresztes & Dénes, 2021: 122 [distribution, Romania].

Androprosopa tarda: Bezzi 1913: 244, 259 [listed as questionable synonym of *Androprosopa larvata*].

lindsayorum (Arnaud & Boussy). **NE**: Canada (British Columbia), United States of America (California, Oregon, Washington).

Thaumalea lindsayorum Arnaud & Boussy, 1994: 105. Type locality: USA: Oregon, Hermiston. HT ♂ USNM (USNMENT01028675) [left wing and abdomen on microscope slide]. Poole 1996: 307 [checklist, NE].

Thaumalea sonorensis: Arnaud & Boussy 1994: 121 [misidentification of 1 PT (Pivar & Moulton *et al.* 2018)].

Androprosopa lindsayorum: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 388 [revision, western North America].

Androprosopa lindsayorum [misspelling]. Borkent 2012: 28, 89, 93 [comparison of pupa with other members of Culicomorpha].

longicauda (Vaillant). **PA**: France (Corsica).

Psychothaumalea longicauda Vaillant, 1970: 168. Type locality: France: Corsica, haute vallée de la Restonica, 1900 m. ST 1 ♂, 1 ♀ MZLS (GBIFCH00597461, GBIFCH00597464) [on microscope slides].

Orphnephilina longicauda: Martinovský & Rozkošný 1976: 188 [new combination]; Martinovský & Rozkošný 1988: 187 [catalogue, PA]; Vaillant 1978a: 699 [phylogenetic discussion, key to males of European species]; Vaillant 1981: 144 [key to females of European species]; Vaillant & Vinçon 1988: 284 [distribution].

Androprosopa longicauda: Sinclair, 1996: 376 [new combination]; Wagner 2002: 54 [redescription, male and female terminalia, distribution map].

melanderi (Arnaud & Boussy). **NE**: United States of America (California).

Thaumalea melanderi Arnaud & Boussy, 1994: 108. Type locality: USA: California [San Bernardino County], Forest Home. HT ♂ USNM (USNMENT01028676) [right wing and abdomen on microscope slide]. Poole, 1996: 307 [checklist, NE].

Androprosopa melanderi: Sinclair, 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 390 [revision, western North America].

nanarupa (Schmid). **OR**: India.

Thaumalea nanarupa Schmid, 1970: 503. Type locality: India: Uttarakhand, Pauri Garhwal, Dhur [Dhoor Village, 7400 ft, steep brooks in forest, 30°05'13.9"N 79°54'33.5"E]. HT ♂ CAS (Type No. 11158). Schmid 1973: 344 [catalogue, OR]; Arnaud 1979: 59 [CAS type catalogue]; Cooper 1991: 80 [CNC type catalogue].
Protothaumalea nanarupa: Vaillant 1978a: 698 [new combination].
Androprosopa nanarupa: Sinclair 1996: 376 [new combination].

nigra (Loew). **PA**: Austria, Czech Republic, France, Germany, Italy, Poland, Romania.

Orphnephila nigra Loew, 1871: 30. Type locality: Slovakia/Poland: Tatragebirge. 8 ST ZMHB (ZMHB_Dipt_S013156). van der Wulp 1877: 311 [distribution, Europe]; Thalhammer 1900: 16 [checklist, Hungary, none from present limits]; Kertész 1902: 292 [catalogue, World]; Kertész, 1903: 159 [catalogue, PA]; Becker 1908: 70 [taxonomic discussion]; Handlirsch 1925: 969 [wing figure].

Thaumalea nigra: Bezzi 1913: 247 [redescription, World catalogue]; Edwards 1929: 140 [redescription, distribution, figure of male terminalia]; Lindner 1930: 12 [description, figures of wing and male terminalia, distribution, Central Europe]; Okada 1938: 390 [key to group C of Edwards (1929), PA]; Collart 1945: 5 [distribution, PA]; Vaillant 1953a: 1 [figures of male terminalia, distribution]; Vaillant 1953b: 124 [male and female terminalia]; Vaillant 1956: 43 [madicolous species]; Schmid 1958: 5 [distribution, classification]; Vaillant 1959: 36 [phylogenetic discussion]; Zilahi-Sebess 1960: 38 [doubtful Hungarian record, key to Hungarian species]; Stuckenberg 1960: 107 [discussion of wing venation]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 696 [distribution]; Stackelberg 1969: 246 [species of European USSR]; Vaillant 1978b: 460 [Limnofauna Europaea].

Psychothaumalea nigra: Vaillant 1970: 168 [designated type-species of new genus].

Orphnephilina nigra: Bertrand 1955: 399 [male terminalia figured]; Martinovský & Rozkošný 1976: 190 [distribution, figures of male and female terminalia]; Joost 1978: 118 [distribution]; Vaillant 1978a: 698 [redescription and figures of male terminalia, key to males of European species]; Vaillant 1981: 139 [female terminalia, key to females of European species]; Martinovský 1984: 83 [checklist, Slovakia]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Martinovský & Rozkošný 1988: 187 [catalogue, PA]; Vaillant & Vinçon 1988: 284 [included in *Orphnephilina*]; Szadziewski 1991: 111 [checklist, Poland]; Rivosecchi 1995: 11 [distribution, Italy]; Sinclair 1992: 492 [male terminalia studied]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia].

Androprosopa nigra: Wagner 1995: 65 [cited as type species of genus *Orphnephilina*]; Sinclair 1996: 376 [new combination]; Wagner & Niesiołowski 1997: 500 [may occur in Poland]; Wagner 1999: 83 [checklist, Germany]; Wagner 2002: 59 [redescription, male and female terminalia, distribution map]; Szadziewski 2007: 71 [checklist, Poland]; Ševčík 2012: 194 [distribution, Krkonoš Mountains, Czech Republic]; Haubrock *et al.* 2017: 528, 529, 530 [molecular phylogeny, phylogeography and genetic structure of European species].

palouse (Arnaud & Boussy). **NE**: Canada (British Columbia), United States of America (Colorado, Idaho, Montana, Wyoming).

Thaumalea palouse Arnaud & Boussy, 1994: 110. Type locality: USA: Idaho, Latah County, 4.5 miles east Laird Park. HT ♂ CAS (Type No. 17009) on microscope slide. Gillespie *et al.* 1994: 178 [description, larva and pupa]; Poole 1996: 307 [checklist, NE].

Androprosopa palouse: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 391 [revision, western North America].

rainierensis Pivar & Sinclair. **NE**: United States of America (Washington).

Androprosopa rainierensis Pivar & Sinclair in Pivar & Moulton *et al.*, 2018: 393. Type locality: USA: Washington, Mt. Rainier National Park, Narada Falls to Reflection Lake trail, 46°46'15"N 121°44'44", 1415 m, small stream. HT ♂ ANSP.

rangifer Martinovský. **PA**: Slovakia.

Androprosopa rangifer Martinovský, 1999: 133. Type locality: Slovakia: Nová Sedlica (distr. Snina), Stuzica

nature Reserve (south slope), 900 m. HT ♂ MHNN. Wagner & Bellstedt 2015: 483 [omitted from Wagner (2002)].

santaclaraensis (Brothers). **NE:** United States of America (California).

Thaumalea santaclaraensis Brothers, 1972: 121. Type locality: USA: California, Santa Clara County, Alum Rock Park. HT ♂ CAS (Type No. 9909) [abdomen on microscope slide]. Arnaud 1979: 59 [CAS type catalogue]; Peterson *et al.* 1989: 57 [discussion of number of flagellomeres]; Arnaud & Boussy 1994: 113 [redescription, figures of wing and male terminalia, distribution]; Gillespie *et al.* 1994: 180 [description, larva and pupa]; Poole 1996: 307 [checklist, NE].

Thaumalea santaclarensis [misspelling]. Arnaud & Boussy 1994: 53, 115 [key, distribution map].

Androprosopa santaclaraensis: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 394 [revision, western North America].

schmidiana (Arnaud & Boussy). **NE:** United States of America (California, Colorado, Idaho, Nevada).

Thaumalea schmidiana Arnaud & Boussy, 1994: 116. Type locality: USA: California, Siskiyou County, Klamath River. HT ♂ CNC (CNC767986) [abdomen on microscope slide]. Gillespie *et al.* 1994: 182 [description, larva]; Poole 1996: 307 [checklist, NE].

Androprosopa schmidiana: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 395 [revision, western North America].

sonorensis (Arnaud & Boussy). **NT:** Mexico.

Thaumalea sonorensis Arnaud & Boussy, 1994: 119. Type locality: Mexico: Sonora, 22 km north Moctezuma. HT ♂ CAS (Type No. 17011) [abdomen on microscope slide]. Poole 1996: 307 [checklist, NE].

Androprosopa sonorensis: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 397 [revision, western North America].

striata (Okada). **PA:** Japan.

Thaumalea striata Okada, 1938: 392. Type locality: Japan: Honshu, Kogesawa near Takao, Tokyo. HT ♂ NSMT (Type No. 40264) [left wing, legs and terminalia mounted in Canada balsam]. Vaillant 1959: 36 [phylogenetic affinities]; Martinovský & Rozkošný 1976: 188 [phylogenetic discussion].

Protothaumalea striata: Vaillant 1978a: 698 [new combination]; Martinovský & Rozkošný 1988: 188 [catalogue, PA].

Androprosopa striata: Sinclair 1996: 376 [new combination]; Saigusa 2014: 211 [catalogue, Japan]; Sinclair 2018: 1271 [Japanese fauna, keys, figures].

suborientalis (Schmid). **OR:** India, Paksitan.

Thaumalea suborientalis Schmid, 1958: 18. Type locality: Pakistan: NWFP [= Khyber Pakhtunkhwa], Jalkhad Nar, 3350 m. HT ♂ CNC (Type No. 17211, CNC767994). Schmid 1970: 504 [new distribution records, male terminalia]; Schmid 1973: 344 [catalogue, OR]; Cooper 1991: 80 [CNC type catalogue].

Protothaumalea suborientalis: Vaillant 1978a: 698 [new combination].

Androprosopa suborientalis: Sinclair 1996: 376 [new combination].

tarda (Loew). **PA:** Italy (Sicily); France (Corsica).

Thaumalea tarda Loew, 1847b: 369. Type locality: Italy: Messina, Sicily. HT ♀ ZMHB (Type No. 9246). Zetterstedt 1852: 4343 [cited with reference to Loew (1847)]; Edwards 1928: 173 [redescription, distribution, figure of male terminalia]; Edwards 1929: 140 [redescription, distribution, figures of male and female terminalia]; Lindner 1930: 14 [description, figures of male and female terminalia, distribution, Sicily and Corsica]; Okada 1938: 390 [key to group C of Edwards (1929), PA]; Collart 1945: 5 [distribution, PA]; Collart 1950b: 63 [distribution, France]; Vaillant 1953a: 1 [figures of male terminalia, distribution]; Vaillant 1956: 43 [madicolous species]; Schmid 1958: 5 [distribution, classification]; Vaillant 1959: 36 [phylogenetic affinities]; Vaillant 1969: 703 [Group I of *Thaumalea*]; Martinovský & Rozkošný 1976: 188 [phylogenetic discussion]; Vaillant 1978b: 460 [Limnofauna Europaea].

Orphnephila tarda: Schiner 1864a: 644 [distribution, Sicily]; Schiner 1864b: 23 [catalogue, European Diptera]; Loew 1871: 31 [taxonomic discussion]; van der Wulp 1877: 311 [one of three European species, distribution]; Kertész 1902: 293 [catalogue, World]; Kertész 1903: 160 [catalogue, PA]; Becker 1908: 70 [taxonomic discussion]; Bertrand 1948: 166 [distribution].
Protothaumalea tarda: Vaillant 1978a: 698 [type-species of new genus *Protothaumalea*, key to males of European species]; Wagner 1987: 17 [distribution map]; Martinovský & Rozkošný 1988: 188 [catalogue, PA]; Rivosecchi 1995: 11 [distribution, Italy].
Orphnephilina tarda: Vaillant & Vinçon 1988: 284 [transferred to *Orphnephilina*]; Wagner 2002: 54 [redescription, male and female terminalia, distribution map].
Androprosopa tarda: Sinclair 1996: 376 [new combination].

tchakrarupa (Schmid). **OR**: India.

Thaumalea tchakrarupa Schmid, 1970: 507. Type locality: India: Uttarakhand, Pauri Garhwal, Timarsan [11122 ft, along Dhaul Ganga River, lateral torrent and brooks, 30°45'52.5"N 79°50'54.7"E]. HT ♂ CAS (Type No. 11149). Schmid 1973: 344 [catalogue, OR]; Arnaud 1979: 59 [CAS type catalogue].
Androprosopa tchakrarupa: Sinclair 1996: 376 [new combination].

tchaturskona (Schmid). **OR**: India.

Thaumalea tchaturskona Schmid, 1970: 503. Type locality: India: Arunachal Pradesh, Jhum La [7200–8000 ft], Kameng Frontier Division [now divided into the districts of Tawang, East Kameng and West Kameng]. HT ♂ CAS (Type No. 11150). Schmid 1973: 345 [catalogue, OR]; Arnaud 1979: 60 [CAS type catalogue]; Cooper 1991: 81 [CNC type catalogue].
Protothaumalea tchaturskona: Vaillant 1978a: 698 [new combination].
Androprosopa tchaturskona: Sinclair 1996: 376 [new combination].

thornburghae Vaillant. **NE**: United States of America (Georgia, North Carolina, Tennessee).

Thaumalea thornburghi Vaillant, 1959: 35. Type locality: USA: Tennessee, Great Smoky Mountains National Park, Dripping Rock Cliff, Roaring Fork. HT ♂ MNHN [not found] [on microscope slide]; 1 ♂ PT, 2 ♂ MZLS (GBIFCH00597456), 2 ♀ PT MZLS (GBIFCH00597458, GBIFCH00597457) [on microscope slides]. Vaillant 1963: 26 [phylogenetic discussion]; Wray 1967: 72 [checklist]; Poole 1996: 307 [checklist, NE].

Thaumalea thornburghae: Stone 1964: 122 [key to eastern NE species]; Stone 1965: 120 [catalogue, NE]; Martinovský & Rozkošný 1976: 188 [phylogenetic discussion]; Webb & Brigham 1982: 11.48 [checklist, North and South Carolina]; Peterson *et al.* 1989 [discussion of number of flagellomeres]; Arnaud & Boussy 1994: 45 [cited from North Carolina (error for Tennessee)]; Sinclair 1996: 362, 376 [new combination, redescription of male, female, larva and pupa, invalid lectotype designated, biology, distribution]; Poole 1996: 307 [checklist, NE, emend.].

Androprosopa thornburghae: Sinclair 1996: 362, 376 [new combination, redescription of male, female, larva and pupa, lectotype designated, biology, distribution]; White *et al.* 2006: 340 [Trichomycetes in larval gut].

Notes. The specific epithet of *Thaumalea thornburghae* Vaillant (1959: 35) was originally published as *thornburghi* but subsequent authors (e.g., Stone 1964: Stone 1965: Peterson *et al.* 1989: Arnaud & Boussy 1994: Sinclair 1996) used the spelling *thornburghae* [named after Vaillant's aunt Miss Laura Thornburgh who assisted his studies; reprint received by PHA from Vaillant had been annotated *thornburghae*]. The spelling *thornburghae* is an incorrect subsequent spelling according to Article 33.3 of the *Code* (ICZN 1999) but because it is in prevailing usage and is attributed to Vaillant (1959), it is deemed to be the correct original spelling in compliance with Article 33.3.1.

The holotype of *A. thornburghae* (erroneously designated as lectotype by Sinclair (1996)) was borrowed by PHA from F. Vaillant and presumably forwarded to MNHN. Unfortunately, the whereabouts of the holotype could not be confirmed and was not found among the paratypes deposited in MZLS.

tiriaschi (Schmid). **OR**: India.

Thaumalea tiriaschi Schmid, 1970: 507. Type locality: India: Sikkim, Tsomgo [Tsongmo Lake, 9900–12500 ft,

27°22'26.9"N 88°45'24.2"E]. HT ♂ CAS (Type No. 11151). Schmid 1973: 345 [catalogue, OR]; Arnaud 1979: 60 [CAS type catalogue]; Arnaud 1979: 60 [CAS type catalogue].

Protothaumalea tririaschi [misspelling]. Vaillant 1978a: 698 [new combination].

Androprosopa tiriaschi: Sinclair 1996: 376 [new combination].

tiriasdanta (Schmid). **OR:** India.

Thaumalea tiriasdanta Schmid, 1970: 509. Type locality: India, Assam, Llaitlyngkot [= Laitlyngkot, 4800 ft, 25°26'39.0"N 91°50'40.8"E], United Jaintia and Khasi Hills [= Meghalaya]. HT ♂ CAS (Type No. 11156). Schmid 1973: 345 [catalogue, OR]; Arnaud 1979: 60 [CAS type catalogue]; Cooper 1991: 81 [CNC type catalogue].

Orphnephilina tiriasdanta [misspelling]. Vaillant & Vinçon 1988: 284 [transferred to *Orphnephilina*, related to *Androprosopa demandana*].

Androprosopa tiriasdanta: Sinclair 1996: 376 [new combination].

tridanta (Schmid). **OR:** India.

Thaumalea tridanta Schmid, 1970: 504. Type locality: India: Manipur, Sirohi Kashong [= Sirohi Kashong = Shirui Kashong (peak), 7000–7500 ft, 25°06'44.5"N 94°27'35.4"E]. HT ♂ CAS (Type No. 11148). Schmid 1973: 345 [catalogue, OR]; Arnaud 1979: 60 [CAS type catalogue].

Protothaumalea tridanta: Vaillant 1978a: 698 [new combination].

Androprosopa tridanta: Sinclair 1996: 376 [new combination].

tridhatu (Schmid). **OR:** India.

Thaumalea tridhatu Schmid, 1970: 504. Type locality: India: Sikkim, Tikjak [= Tikjya, 4900 ft, 27°17'25.1"N 88°13'43.3"E]. HT ♂ CAS (Type No. 11152). Schmid 1973: 345 [catalogue, OR]; Arnaud 1979: 60 [CAS type catalogue]; Cooper 1991: 81 [CNC type catalogue].

Protothaumalea tridhatu: Vaillant 1978a: 698 [new combination].

Androprosopa tridhatu: Sinclair 1996: 376 [new combination].

urdhvakantaka (Schmid). **OR:** India.

Thaumalea urdhvakantaka Schmid, 1970: 508. Type locality: India: North Western Bengal, Bara Hata [= Berea, 5000 ft, 27°06'20.5"N 88°09'18.7"E]. HT ♂ CAS (Type No. 11153). Schmid 1973: 345 [catalogue, OR]; Arnaud 1979: 61 [CAS type catalogue]; Cooper 1991: 81 [CNC type catalogue].

Androprosopa urdhvakantaka: Sinclair 1996: 376 [new combination].

vaillantiana Sinclair. **NE:** United States of America (North Carolina, Tennessee, Virginia).

Androprosopa vaillantiana Sinclair, 1996: 373. Type locality: USA: North Carolina, Swain Co., Great Smoky Mountains National Park, Clingmans Dome Road, 7.5 km N parking lot, roadcut seep. HT ♂ CNC (CNC768087).

Thaumalea americana: Vaillant 1959: 32 [misidentification].

vakrakantaka (Schmid). **OR:** India.

Thaumalea vakrakantaka Schmid, 1970: 509. Type locality: India: Assam, Lungdur [2800 ft, 27°03'26.1"N 92°08'40.4"E], Kameng Frontier Division, NEFA. HT ♂ CAS (Type No. 11155). Schmid 1973: 345 [catalogue, OR]; Arnaud 1979: 61 [CAS type catalogue]; Cooper 1991: 81 [CNC type catalogue].

Androprosopa vakrakantaka: Sinclair 1996: 376 [new combination].

vartula (Schmid). **OR:** India.

Thaumalea vartula Schmid, 1970: 507. Type locality: India: Uttarakhand, Pauri Garhwal, Jungal Chatti [8500 ft, 30°40'49.6"N 79°02'39.2"E]. HT ♂ CAS (Type No. 11157). Schmid 1973: 345 [catalogue, OR]; Arnaud 1979: 61 [CAS type catalogue]; Cooper 1991: 81 [CNC type catalogue].

Androprosopa vartula: Sinclair 1996: 376 [new combination].

waha (Arnaud & Boussy). **NE:** Canada (British Columbia), United States of America (California, Colorado, Idaho, Washington).

Thaumalea waha Arnaud & Boussy, 1994: 121. Type locality: USA: Idaho [Nez Perce County], Lake Waha. HT ♂ USNM (USNMENT01028677) [right wing and abdomen on microscope slide]. Poole 1996: 308 [checklist, NE].
Androsopoda waha: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 398 [revision, western North America].

zelmae (Arnaud & Boussy). **NE**: United States of America (Washington).

Thaumalea zelmae Arnaud & Boussy, 1994: 124. Type locality: USA: Washington [Pierce County], Mount Rainier National Park, Van Trump Creek. HT ♂ USNM (USNMENT01028678) [left wing and abdomen on microscope slide]. Poole 1996: 308 [checklist, NE].
Androsopoda zelmae: Sinclair 1996: 376 [new combination]; Pivar & Moulton *et al.* 2018: 400 [revision, western North America].

zempoala Sinclair & Huerta. **NT**: Mexico.

Androsopoda zempoala Sinclair & Huerta, 2010: 443. Type locality: México: México, Parque Nacional Lagunas de Zempoala, 19°3'13.6"N 99°18'54.7"W, Trampe Malaise. HT ♂ CNC (CNC768120). Pivar & Moulton *et al.* 2018: 401 [revision, western North America].

zhejiangana Yang. **OR**: China (Zhejiang). **comb. nov.**

Thaumalea zhejiangana Yang, 1998: 249. Type locality: China: Zhejiang Province, Lonwangshan Nature Reserve, Anji County, 30.4°N 119.4°E. HT ♂ CAU.

Genus *AUSTROTHAUMALEA* Tonnoir

Thaumalea of authors. Tillyard 1926: 352 [Australian and New Zealand species].

Austrothaumalea Tonnoir, 1927: 109. Type-species: *Austrothaumalea neozealandica* Tonnoir by original designation. Edwards 1929: 125 [diagnosis of genus, two New Zealand and numerous undescribed in Australia and southern South America]; Edwards 1930: 111 [southern South American species]; Curran 1934: 68 [key to world genera]; Okada 1938: 389 [key to world genera]; Stuardo 1946: 42 [catalogue, Chile]; Hennig 1950: 193 [diversity, distribution]; Miller 1950: 47 [catalogue, New Zealand]; Vaillant 1959: 31 [distribution]; Stuckenberg 1960: 107 [compared with *Afrothaumalea*]; Hennig 1960: 247 (1966: 21, English translation) [biogeography]; Stuckenberg 1961:409 [affinities with *Afrothaumalea*]; Vaillant 1963: 26 [distribution]; Stone 1966: 1 [catalogue, NT]; Hennig 1973: 27 [distribution, omitted Argentina]; McLellan 1975: 556 [distribution, habitat]; Martinovský & Rozkošný 1976: 187 [distribution]; Arnaud 1977: 284 [distribution]; Stuckenberg 1980: 149 [biogeography]; Bickel 1982: 568 [distribution]; McLellan 1983: 267 [new generic diagnosis, immature stages]; Lichtwardt & Moss 1984: 516 [fungal symbionts in larvae]; Theischinger 1986: 291 [revision, Australia, key to species]; McLellan 1988: 563 [revision, New Zealand, two species groups]; Theischinger 1988: 211 [distribution, new species description]; Peterson & Theischinger 1989: 219 [catalogue, AU]; Winterbourn & Gregson 1989: 58 [diversity, New Zealand]; Lichtwardt & Williams 1990: 1062 [fungal symbionts in larvae]; Williams & Lichtwardt 1990: 1050 [fungal symbionts in larvae]; Colless & McAlpine 1991: 747 [18 Australian spp.]; Semmens, McQuillan & Hayhurst 1992: 34 [diversity, Tasmania]; Sinclair 1992: 496 [immature stages, male terminalia]; Oosterbroek 1998: 156 [Diptera of Malay Archipelago]; Bugledich 1999: 341 [catalogue, AU]; Winterbourn *et al.* 2000: 59 [key to aquatic families]; Sinclair 2000: 171 [immatures of *Austrothaumalea denticulata*, generic relationships, parasitism]; Sinclair & Saigusa 2002: 181 [phylogeny]; McLellan 2003: 1 [checklist, New Zealand]; Theischinger 2004: 671 [distribution, biology of pupae, larval illustration]; Sinclair 2008a: 1 [review, seven new species, key to Australian species, phylogenetic affinities]; Sinclair 2008b: 293 [new species, New Caledonia, phylogenetic affinities, biogeography]; Pivar & Pinho *et al.* 2018: 481, 489, 493 [pupal comparison with *Neothaumalea* and *Niphtha*, key to Southern Hemisphere genera, comparison of Southern Hemisphere genera]; Pivar *et al.* 2020: 512 [revision, South America, key to species].

Oterere McLellan, 1988: 573. Type-species: *Oterere oliveri* McLellan by original designation. Winterbourn & Gregson 1989: 58 [larvae unknown, one species in New Zealand]; Sinclair 1992: 496 [male terminalia

studied]; Sinclair 2000: 175 [comparison of Southern Hemisphere genera]; Winterbourn *et al.* 2000: 59 [key to aquatic families]; McLellan 2003: 1 [checklist, New Zealand]; Sinclair 2008a: 11 [phylogenetic relationship with *Austrothaumalea*]; Sinclair 2008b: 292 [Southern Hemisphere genera]; Macfarlane *et al.* 2010: 346 [biodiversity, New Zealand]; Pivar & Pinho *et al.* 2018: 481, 493 [key to Southern Hemisphere genera]; Pivar *et al.* 2020: 512 [as synonym of *Austrothaumalea*].

apicalis Edwards. **NT:** Argentina, Chile.

Austrothaumalea apicalis Edwards, 1930: 113. Type locality: Argentina: Bariloche. HT ♀ BMNH (NHMUK010210687). Stone 1966: 1 [catalogue, NT]; Arnaud 1977: 284 [distribution]; Theischinger 1986: 316 [phylogenetic discussion]; Sinclair 2008a: 12 [possibly in *Austrothaumalea fusca* group]; Pivar *et al.* 2020: 512 [revision, male described].

appendiculata Tonnoir. **AU:** New Zealand (South Island).

Austrothaumalea appendiculata Tonnoir, 1927: 112. Type locality: New Zealand: Otira. HT ♂ NZAC (NZAC04022293). Edwards 1929: 126 [distribution]; Miller 1950: 47 [catalogue, New Zealand]; McLellan 1983: 267 [New Zealand species]; Theischinger 1986: 291 [phylogenetic discussion]; Peterson & Theischinger, 1989: 219 [catalogue, AU]; Eward *et al.* 1994: 11 [listed from Westland National Park]; McLellan 2003: 1 [checklist, New Zealand]; Sinclair 2008a: 11 [in *Austrothaumalea appendiculata* group]; Macfarlane *et al.* 2010: 442 [biodiversity, New Zealand].

australis Theischinger. **AU:** Australia (Western Australia).

Austrothaumalea australis Theischinger, 1986: 296. Type locality: Australia: Western Australia, 4.8 km north-east of Pimelia, near Pemberton. HT ♂ ANIC. Peterson & Theischinger 1989: 219 [catalogue, AU]; Bugledich 1999: 341 [catalogue, AU]; Sinclair 2008a: 11 [possibly in *Austrothaumalea capricornis* group].

barrydayi Theischinger. **AU:** Australia (New South Wales).

Austrothaumalea barrydayi Theischinger, 1986: 297. Type locality: Australia: New South Wales, Mooney Mooney Creek, near Gosford. HT ♂ AMS (K.72717). Peterson & Theischinger 1989: 219 [catalogue, AU]; Bugledich 1999: 342 [catalogue, AU]; Sinclair 2008a: 4, 11 [new distribution records, remarks, in *Austrothaumalea barrydayi* group].

bickeli Theischinger. **AU:** Australia (New South Wales).

Austrothaumalea bickeli Theischinger, 1988: 212. Type locality: Australia: New South Wales, Barrington Tops National Park, upper Williams River, 550 m. HT ♂ ANIC [not found]. Bugledich 1999: 342 [catalogue, AU]; Sinclair 2008a: 4, 11 [new distribution records, in *Austrothaumalea barrydayi* group].

bicornis Sinclair. **AU:** Australia (Queensland).

Austrothaumalea bicornis Sinclair, 2008a: 4. Type locality: Australia: Queensland, Mt. Elliot National Park, above Alligator Creek, Falls, 600 m. HT ♂ AMS (K.280196).

bifida Sinclair. **AU:** Australia (Queensland).

Austrothaumalea bifida Sinclair, 2008a: 4. Type locality: Australia: Queensland, Mt. Elliot National Park, above Alligator Creek, Falls, 600 m. HT ♂ AMS (K.280197).

caledonica Sinclair. **AU:** New Caledonia.

Austrothaumalea caledonica Sinclair, 2008b: 292. Type locality: New Caledonia: Parc Rivière Bleue, Haute Purina Trail, 650 m, creek. HT ♂ MNHN.

capricornis Theischinger. **AU:** Australia (New South Wales).

Austrothaumalea capricornis Theischinger, 1986: 298. Type locality: Australia: New South Wales, Mount Wilson, Blue Mountains. HT ♂ AMS (K.72722). Peterson & Theischinger 1989: 219 [catalogue, AU]; Bugledich 1999: 342 [catalogue, AU]; Sinclair 2008a: 6, 11 [new distribution records, remarks, in *Austrothaumalea*

capricornis group].

cervula Theischinger. AU: Australia (New South Wales).

Austrothaumalea cervulus Theischinger, 1986: 298. Type locality: Australia: New South Wales, Fitzroy Falls. HT ♂ ANIC. Bugledich 1999: 342 [catalogue, AU]; Sinclair 2008a: 6, 12 [new distribution records, remarks, in *Austrothaumalea fusca* group].

Austrothaumalea cervula: Peterson & Theischinger 1989: 219 [catalogue, AU]; Theischinger 2004: 670 [illustration of adult male habitus].

chilensis Edwards. NT: Chile.

Austrothaumalea chilensis Edwards, 1930: 111. Type locality: Chile: Ancud. HT ♂ BMNH (NHMUK010210688).

Austrothaumalea chilensis: Stuardo 1946: 42 [catalogue, Chile]; Stone 1966: 1 [catalogue, NT]; Arnaud, 1977: 284 [distribution, Chile]; Theischinger 1986: 316 [phylogenetic discussion]; Sinclair 2008a: 11 [in *Austrothaumalea capricornis* group]; Pivar *et al.* 2020: 514 [revision].

communi Theischinger. AU: Australia (New South Wales).

Austrothaumalea communi Theischinger, 1986: 300. Type locality: Australia: New South Wales, Clyde Mountain, 732 m. HT ♂ ANIC. Peterson & Theischinger 1989: 219 [catalogue, AU]; Bugledich 1999: 342 [catalogue, AU]; Sinclair 2008a: 6, 11 [new distribution records, in *Austrothaumalea capricornis* group].

concava Sinclair. AU: Australia (Queensland).

Austrothaumalea concava Sinclair, 2008a: 6. Type locality: Australia: Queensland, Bunya Mtns National Park, Paradise Falls. HT ♂ AMS (K.280195). Sinclair 2008b: 294 [phylogenetic discussion].

crosbyi McLellan. AU: New Zealand.

Austrothaumalea crosbyi McLellan, 1988: 566. Type locality: New Zealand: Northland (ND), seepage over volcanic rock at bridge over tributary of Waima R., 5 km N of Donnellys Crossing. HT ♂ NZAC (NZAC03016057) [stored in ethanol]. McLellan 2003: 1 [checklist, New Zealand]; Sinclair 2008a: 12 [in *Austrothaumalea neozealandica* group]; Macfarlane *et al.* 2010: 442 [biodiversity, New Zealand].

denticulata Theischinger. AU: Australia (New South Wales, Queensland, Tasmania, Victoria).

Austrothaumalea denticulata Theischinger, 1986: 301. Type locality: Australia: Tasmania, Hobart. HT ♂ ANIC. Peterson & Theischinger 1989: 219 [catalogue, AU]; Semmens *et al.* 1992: 34 [catalogue, Tasmanian insects]; Bugledich 1999: 342 [catalogue, AU]; Sinclair 2000: 172 [immature stages, parasitism]; Sinclair 2008a: 7, 11 [new distribution records, remarks, in *Austrothaumalea barrydayi* group]; Kutty *et al.* 2018: 5, 6, 8 [exemplar for whole-transcriptome shotgun phylogeny of Culicomorpha].

fredericki Pivar. NT: Chile.

Austrothaumalea fredericki Pivar in Pivar *et al.*, 2020: 515. Type locality: Chile: Region X, east side Lago Llanquihue, small falls on road, 41°08.74'S 72°53.28'W, 100 m. HT ♂ CNC (CNC1589868).

fusca Theischinger. AU: Australia (Tasmania).

Austrothaumalea fusca Theischinger, 1986: 301. Type locality: Australia: Tasmania, King River. HT ♂ ANIC [HT lost during loan, see Sinclair (2008: 12)]. Peterson & Theischinger 1989: 219 [catalogue, AU]; Semmens *et al.* 1992: 34 [catalogue, Tasmanian insects]; Bugledich 1999: 342 [catalogue, AU]; Sinclair 2008a: 11 [in *Austrothaumalea fusca* group].

gibbsi McLellan. AU: New Zealand.

Austrothaumalea gibbsi McLellan, 1988: 571. Type locality: New Zealand: Westland (WN), Pukemoremore South Basin below Dundas Hut, North Tararua Range. HT ♂ NZAC (NZAC03016067) [stored in ethanol]. McLellan 2003: 1 [checklist, New Zealand]; Sinclair 2008a: 11 [in *Austrothaumalea appendiculata* group]; Macfarlane *et al.* 2010: 442 [biodiversity, New Zealand].

macalpinei Theischinger. AU: Australia (New South Wales).

Austrothaumalea macalpinei Theischinger, 1986: 301. Type locality: Australia: New South Wales, Otford. HT ♂ AMS (K.72726). Peterson & Theischinger 1989: 219 [catalogue. AU]; Bugledich 1999: 342 [catalogue, AU]; Sinclair 2008a: 8, 11 [new distribution records, remarks, in *Austrothaumalea capricornis* group].

macfarlanei McLellan. AU: New Zealand.

Austrothaumalea neozealandica: McLellan, 1983: 267 [misidentification].

Austrothaumalea macfarlanei McLellan, 1988: 566. Type locality: New Zealand: Nelson (NN), Karamea Bluff, 1 km south of summit, seepage on limestone. HT ♂ NZAC (NZAC03016055) [stored in ethanol]. Winterbourn & Gregson 1989: 58 [diversity, New Zealand]; Winterbourn *et al.* 2000: 59 [immature stages]; McLellan 2003: 1 [checklist, New Zealand]; Sinclair 2008a: 12 [in *Austrothaumalea neozealandica* group]; Macfarlane *et al.* 2010: 442 [biodiversity, New Zealand].

maxwelli McLellan. AU: New Zealand.

Austrothaumalea maxwelli McLellan, 1988: 571. Type locality: New Zealand: Nelson (NN), Whisky Creek, Karamea Bluff. HT ♂ NZAC (NZAC03016062) [stored in alcohol]. McLellan 2003: 1 [checklist, New Zealand]; Sinclair 2008a: 11 [in *Austrothaumalea appendiculata* group]; Macfarlane *et al.* 2010: 442 [biodiversity, New Zealand].

minnamurrae Theischinger. AU: Australia (New South Wales, Queensland, Victoria).

Austrothaumalea minnamurrae Theischinger, 1986: 304. Type locality: Australia: New South Wales, Minnamurra Falls. HT ♂ ANIC. Peterson & Theischinger 1989: 219 [catalogue, AU]; Bugledich 1999: 342 [catalogue, AU]; Sinclair 2008a: 6, 12 [new distribution records, remarks, in *Austrothaumalea minnamurrae* group].

neozealandica Tonnoir. AU: New Zealand.

Austrothaumalea neozealandica Tonnoir, 1927: 110. Type locality: New Zealand, Waiho. HT ♂ NZAC (NZAC04021390). Edwards 1929: 126 [distribution]; Miller 1950: 47 [catalogue, New Zealand]; Stuckenberg 1960: 107 [wing similar to *Afrothaumalea pamela*]; Stuckenberg 1961: 409 [wing similar to *Afrothaumalea*]; Theischinger 1986: 316 [phylogenetic discussion]; McLellan 1988: 564 [redescription of adult from types]; Peterson & Theischinger 1989: 219 [catalogue, AU]; McLellan 2003: 1 [checklist, New Zealand]; Sinclair 2008a: 12 [in *Austrothaumalea neozealandica* group]; Macfarlane *et al.* 2010: 442 [biodiversity, New Zealand].

Austrothaumalea neozelandica [misspelling]. Eward *et al.* 1994: 11 [listed from Westland National Park, New Zealand].

ngaire McLellan. AU: New Zealand.

Austrothaumalea ngaire McLellan, 1988: 567. Type locality: New Zealand: Westland (WD), Jackson V, 11.25 km from Jackson's Tavern, seepage area of small waterfall over gravel bank. HT ♂ NZAC (NZAC03016064) [stored in alcohol]. McLellan 2003: 1 [checklist, New Zealand]; Sinclair 2008a: 12 [in *Austrothaumalea neozealandica* group]; Macfarlane *et al.* 2010: 442 [biodiversity, New Zealand].

oliveri McLellan. AU: New Zealand.

Oterere oliveri McLellan, 1988: 573. Type locality: New Zealand: Waikato (WO), Pirongia Mt, near Hamilton, net at streamside. HT ♂ NZAC (NZAC03016065 [stored in alcohol], NZAC02015573 [left gonocoxite and gonostylus on microscope slide], NZAC02015574 [right wing on microscope slide]). McLellan 2003: 1 [checklist, New Zealand]; Sinclair 2008a: 12 [phylogenetic relation to *Austrothaumalea*]; Macfarlane *et al.* 2010: 442 [biodiversity, New Zealand].

Austrothaumalea oliveri: Pivar *et al.* 2020: 512 [new combination].

pala McLellan. AU: New Zealand.

Austrothaumalea pala McLellan, 1988: 567. Type locality: New Zealand: Westland (WN), Pukemoremore South

Basin below Dundas Hut, N Tararuas, swept from streamside, 1112 m. HT ♂ NZAC (NZAC03016066) [stored in alcohol]. McLellan 2003: 1 [checklist, New Zealand]; Sinclair 2008a: 12 [in *Austrothaumalea neozelandica* group]; Macfarlane *et al.* 2010: 442 [biodiversity, New Zealand].

queenslandensis Sinclair. AU: Australia (Queensland).

Austrothaumalea queenslandensis Sinclair, 2008a: 8. Type locality: Australia: Queensland, Bellenden Ker National Park, Kearneys Falls, 400 m. HT ♂ AMS (K.280194). Sinclair 2008b: 294 [phylogenetic discussion].

ramosa Sinclair. AU: Australia (New South Wales).

Austrothaumalea ramosa Sinclair, 2008a: 8. Type locality: Australia: New South Wales, Blue Mtns National Park, Blackheath, seeps below Govetts Leap Lookout. HT ♂ AMS (K.280192).

setipennis Edwards. NT: Argentina.

Austrothaumalea setipennis Edwards, 1930: 113. Type locality: Argentina: Bariloche, Terr. Rio Negra. HT ♂ BMNH (NHMUK010210691). Stone 1966: 1 [catalogue, NT]; Arnaud 1977: 284 [distribution, Argentina]; Theischinger 1986: 316 [phylogenetic discussion]; Pivar *et al.* 2020: 518 [revised status, redescription].

Oterere setipennis: McLellan 1988: 575 [new combination]; Sinclair 2008a: 11, 12 [tentatively included in *Austrothaumalea capricornis* group, phylogenetic relation to *Austrothaumalea*].

similis Theischinger. AU: Australia (Tasmania).

Austrothaumalea similis Theischinger, 1986: 305. Type locality: Australia: Tasmania, Mount Hicks. HT ♂ ANIC. Peterson & Theischinger 1989: 219 [catalogue, AU]; Semmens *et al.* 1992: 34 [catalogue, Tasmanian insects]; Bugledich 1999: 342 [catalogue, AU]; Sinclair 2008a: 11 [in *Austrothaumalea barrydayi* group].

simplex Theischinger. AU: Australia (Tasmania).

Austrothaumalea simplex Theischinger, 1986: 306. Type locality: Australia: Tasmania, Eaglehawk Neck. HT ♂ ANIC. Peterson & Theischinger 1989: 220 [catalogue, AU]; Semmens *et al.* 1992: 34 [catalogue, Tasmanian insects]; Bugledich 1999: 343 [catalogue, AU]; Sinclair 2008a: 11 [possibly in *Austrothaumalea capricornis* group]; Pivar *et al.* 2016: 595 [modified key to species].

sinuosa Theischinger. AU: Australia (New South Wales, Victoria).

Austrothaumalea sinuosa Theischinger, 1986: 307. Type locality: Australia: New South Wales, Mt. Kosciusko, Pretty Point Creek. HT ♂ ANIC. Peterson & Theischinger 1989: 220 [catalogue, AU]; Bugledich 1999: 343 [catalogue, AU]; Sinclair 2008a: 9, 11 [new distribution records, remarks, in *Austrothaumalea capricornis* group]; Sinclair 2008b: 294 [phylogenetic discussion].

spatulata Schmid. NT: Chile.

Austrothaumalea spatulata Schmid, 1970: 501. Type locality: Chile: Curico, Estero la Jaula, Nothofagus. HT ♂ CNC (Type No. 11305; CNC803775). Arnaud 1977: 284 [distribution, Chile]; Cooper 1991: 79 [CNC type catalogue]; Sinclair 1992: 492 [male terminalia]; Theischinger 1986: 316 [phylogenetic discussion]; Pivar *et al.* 2020: 520 [revision].

Austrothaumalea spatula [misspelling]. Sinclair 2008a: 12 [possibly in *Austrothaumalea fusca* group].

spiculata Pivar. AU: Australia (Victoria).

Austrothaumalea spiculata Pivar in Pivar *et al.*, 2016: 595. Type locality: Australia: Victoria, Grampians National Park, 37°06'37.05"S 142°24'31.39"E, side seep along foot bridge to MacKenzie Falls, 378 m. HT ♂ AMS.

spinosa Theischinger. AU: Australia (New South Wales, Tasmania, Victoria).

Austrothaumalea spinosa Theischinger, 1986: 307. Type locality: Australia: New South Wales, Mount Kosciusko, Pretty Point Creek. HT ♂ ANIC. Peterson & Theischinger 1989: 220 [catalogue, AU]; Semmens *et al.* 1992: 34 [catalogue, Tasmanian insects]; Bugledich 1999: 343 [catalogue, AU]; Sinclair 2008a: 9, 11 [new

distribution records, remarks, in *Austrothaumalea capricornis* group].

tasmanica Theischinger. AU: Australia (Tasmania).

Austrothaumalea tasmanica Theischinger, 1986: 307. Type locality: Australia: Tasmania, Hobart. HT ♂ ANIC. Peterson & Theischinger 1989: 220 [catalogue, AU]; Semmens *et al.* 1992: 34 [catalogue, Tasmanian insects]; Bugledich 1999: 343 [catalogue, AU]; Sinclair 2008a: 11 [possibly in *Austrothaumalea capricornis* group].

theischingeri Sinclair. AU: Australia (New South Wales).

Austrothaumalea theischingeri Sinclair, 2008a: 8. Type locality: Australia: New South Wales, Blue Mtns National Park, Blackheath, seeps along track, Govett's Leap. HT ♂ AMS (K.280193).

tonnoiri Theischinger. AU: Australia (New South Wales).

Austrothaumalea tonnoiri Theischinger, 1986: 309. Type locality: Australia: New South Wales, Belmore Falls, near Robertson. HT ♂ ANIC. Peterson & Theischinger 1989: 220 [catalogue, AU]; Bugledich 1999: 343 [catalogue, AU]; Sinclair 2008a: 11 [possibly in *Austrothaumalea capricornis* group].

uloola Sinclair. AU: Australia (New South Wales).

Austrothaumalea uloola Sinclair, 2008a: 9. Type locality: Australia: New South Wales, Royal National Park, Uloola Falls, seeps behind falls. HT ♂ AMS (K.280191).

uptoni Theischinger. AU: Australia (New South Wales).

Austrothaumalea uptoni Theischinger, 1986: 310. Type locality: Australia: New South Wales, Clyde Mountain, 732 m. HT ♂ ANIC. Peterson & Theischinger 1989: 220 [catalogue, AU]; Bugledich 1999: 343 [catalogue, AU]; Sinclair 2008a: 12 [in *Austrothaumalea fusca* group].

victoriae Theischinger. AU: Australia (New South Wales, Victoria).

Austrothaumalea victoriae Theischinger, 1986: 311. Type locality: Australia: Victoria, Sassafras. HT ♂ ANIC. Peterson & Theischinger 1989: 220 [catalogue, AU]; Bugledich 1999: 343 [catalogue, AU]; Sinclair 2008a: 10, 11 [new distribution records, remarks, in *Austrothaumalea barrydayi* group].

walkerae McLellan. AU: New Zealand.

Austrothaumalea walkerae McLellan, 1988: 567. Type locality: New Zealand: NN, Patarau. HT ♂ NZAC (NZAC03016068) [stored in ethanol]. McLellan 2003: 1 [checklist, New Zealand]; Sinclair 2008a: 12 [in *Austrothaumalea neozealandica* group]; Macfarlane *et al.* 2010: 442 [biodiversity, New Zealand].

zentae Theischinger. AU: Australia (New South Wales, Queensland, Tasmania, Victoria)

Austrothaumalea zentae Theischinger, 1986: 313. Type locality: Australia: New South Wales, Rutherford Creek, Brown Mountain. HT ♂ ANIC. Peterson & Theischinger 1989: 220 [catalogue, AU]; Sinclair 1992: 492 [male terminalia studied]; Semmens *et al.* 1992: 34 [catalogue, Tasmanian insects]; Bugledich 1999: 343 [catalogue, AU]; Sinclair 2008a: 11 [new distribution records, remarks, in *Austrothaumalea capricornis* group]; Sinclair 2008b: 294 [phylogenetic discussion].

zwicki McLellan. AU: New Zealand.

Austrothaumalea zwicki McLellan, 1988: 569. Type locality: New Zealand: Nelson (NN), 1 km S of Kohaihai River, small stream. HT ♂ NZAC (NZAC03016058) [stored in ethanol]. McLellan 2003: 1 [checklist, New Zealand]; Sinclair 2008a: 12 [in *Austrothaumalea neozealandica* group]; Macfarlane *et al.* 2010: 442 [biodiversity, New Zealand].

Genus *MESOTHAUMALEA* Kovalev

Mesothaumalea Kovalev, 1989: 799. Type-species: *Mesothaumalea fossilis* Kovalev by original designation.

Evenhuis 1994: 237 [fossil catalogue]; Grimaldi & Engel 2005: 505 [fossil record].
Mesothaumaleia [misspelling]. Evenhuis, 1994: 371 [catalogue].

fossilis Kovalev. **PA:** Russia (Buryatia).

Mesothaumaleia fossilis Kovalev, 1989: 799. Russia: East Transbaikalia (Upper Jurassic/Lower Cretaceous). HT ♀ PIN (PIN 2372/33). Krzemińska *et al.* 1993: 589 [distribution]; Evenhuis 1994: 237 [fossil catalogue]; Papp *et al.* 2006: 124 [wing venation nomenclature]; Sinclair 2017: 730 [Manual of Afrotropical Diptera, only known fossil of Thaumaleidae].

Genus *NEOTHAUMALEA* Pivar, Moulton & Sinclair

Neothaumalea Pivar, Moulton & Sinclair in Pivar & Pinho *et al.*, 2018: 482. Type-species: *Neothaumalea atlantica* Pivar & Pinho, by original designation.

atlantica Pivar & Pinho. **NT:** Brazil (Santa Catarina State).

Neothaumalea atlantica Pivar & Pinho in Pivar & Pinho *et al.*, 2018: 482. Type locality: Brazil: Santa Catarina State, Grão Pará, Serra do Corvo Branco, 28°03'21"S 49°22'01"W, 1245 m, seepage. HT ♂ MZSP. Pinho & Heurta 2018: 720 [new genus, Brazil]. Pivar *et al.* 2021: 100 [comparison of immatures to *Niphta*, faunal patterns].

Genus *NIPHTA* Theischinger

Niphta Theischinger, 1986: 314. Type-species: *Niphta bickeli* Theischinger, by original designation. McLellan 1988: 563, 575 [generic affinities, distribution]; Theischinger 1988: 211 [distribution]; Peterson & Theischinger 1989: 220 [catalogue, AU]; Colless & McAlpine 1991: 747 [three Australian spp.]; Sinclair 1992: 496 [male terminalia]; Bugledich 1999: 343 [catalogue, AU]; Sinclair 2000: 173 [immatures of *Niphta collessi*, generic relationships]; Sinclair & Saigusa 2002: 181 [phylogeny]; Sinclair 2008a: 11 [new distribution records]; Sinclair 2008b: 292 [Southern Hemisphere genera]; Sinclair 2017: 730 [Manual of Afrotropical Diptera, relationship to *Afrothaumalea*]; Pivar & Pinho *et al.* 2018: 481, 489, 491, 493 [phylogenetic relationship with *Neothaumalea*, key to Southern Hemisphere genera]; Pivar *et al.* 2021: 52 [South America *Niphta*, revision, new immature morphotype].

acus Pivar. **NT:** Chile.

Niphta acus Pivar in Pivar *et al.*, 2021: 55. Type locality: Chile: Region VIII, Bío Bío, Estero Agua Blanca, Rte. Q-61, 37°46'30.8"S 71°42'03.9"W, 552 m, vegetation near splash zone. HT ♂ CNC (CNC1589869).

bickeli Theischinger. **AU:** Australia (New South Wales).

Niphta bickeli Theischinger, 1986: 314. Type locality: Australia: New South Wales, Dorrigo, Newell Falls. HT ♂ ANIC. Peterson & Theischinger 1989: 220 [catalogue, AU]; Bugledich 1999: 343 [catalogue, AU]; Sinclair 2000: 175 [distribution]; Sinclair 2008a: 11 [new distribution records].

bifurcata Pivar. **NT:** Chile.

Niphta bifurcata Pivar & Moulton in Pivar *et al.*, 2021: 70. Type locality: Chile: Region XIV, Los Ríos, Antilhue, Rte. T-35, 39°49'09.8"S 72°56'33.6"W, 40 m, roadside creek. HT ♂ CNC (CNC1589870).

bispinosa Pivar. **NT:** Chile.

Niphta bispinosa Pivar & Sinclair in Pivar *et al.*, 2021: 75. Type locality: Chile: Region VII, Maule, Los Queñes, Rte. J-25, 34°59'46.7"S 70°49'19.2"W, 679 m, cascading creek. HT ♂ CNC (CNC1589871).

brunnea Pivar. **NT:** Chile.

Niphta acus Pivar in Pivar *et al.*, 2021: 78. Type locality: Chile: Region IX, Araucanía, Rte. 71, 38°14'20.6"S, 71°53'46.6"W, 953 m, roadside seeps. HT ♂ CNC (CNC1589872).

collessi Theischinger. AU: Australia (Australian Capital Territory).

Niphta collessi Theischinger, 1986: 314. Type locality: Australia: Australian Capital Territory, Mount Gingera. HT ♂ ANIC. Peterson & Theischinger 1989: 220 [catalogue, AU]; Bugledich 1999: 344 [catalogue, AU]; Sinclair 2000: 173 [immatures]; Theischinger 2004: 670 [pupa illustrated]; Pivar & Pinho *et al.* 2018: 489 [pupa comparison with *Neothaumalea atlantica*].

courtneyi Pivar. NT: Chile.

Niphta courtneyi Pivar in Pivar *et al.*, 2021: 89. Type locality: Chile: Region X, Los Lagos, East side Lago Llanquihue, 41°08.47'S 72°35.28'W, 100 m, small falls on road. HT ♂ CNC (CNC1589873).

daniellae Pivar. NT: Chile.

Niphta daniellae Pivar in Pivar *et al.*, 2021: 90. Type locality: Chile: Region I, Araucanía, Rte. 71, 38°14'20.6"S, 71°53'46.6"W, 953 m, roadside seeps. HT ♂ CNC (CNC1589874).

downesi Pivar. NT: Chile.

Niphta downesi Pivar in Pivar *et al.*, 2021: 65. Type locality: Chile: Region XIV, Los Ríos, Rte. T-85, 40°19'58.6"S 72°16'56.1"W, 95 m, roadcut seep. HT ♂ CNC (CNC1589875).

eurydactyla Pivar. NT: Chile.

Niphta eurydactyla Pivar in Pivar *et al.*, 2021: 93. Type locality: Chile: Region X, Los Lagos, Rte. U-99, 40°08'28.2"S, 72°35'16.8"W, 101 m, roadside seeps and creek. HT ♂ CNC (CNC1589876).

farecta Theischinger. AU: Australia (New South Wales).

Niphta farecta Theischinger, 1986: 315. Type locality: Australia: New South Wales, Fitzroy Falls. HT ♂ ANIC. Peterson & Theischinger 1989: 220 [catalogue, AU]; Bugledich 1999: 343 [catalogue, AU]; Sinclair 2000: 175 [distribution]; Sinclair 2008: 11 [new distribution records].

halteralis (Edwards). NT: Chile.

Austrothaumalea halteralis Edwards, 1930: 114. Type locality: Chile: Llanquihue, Casa Pangué. HT ♂ BMNH (NHMUK010210689). Stuardo 1946: 42 [catalogue, Chile]; Stone 1966: 1 [catalogue, NT]; Arnaud 1977: 284 [distribution, Chile].

Niphta halteris [misspelling]. Theischinger 1986: 316 [new combination]; McLellan 1988: 563 [notes on generic combination].

Niphta halteralis: Pivar *et al.* 2021: 66 [redescription].

mapuche Pivar. NT: Chile.

Niphta mapuche Pivar in Pivar *et al.*, 2021: 68. Type locality: Chile: Region IX, Araucanía, Rte. S-365, 38°46'27.0"S 71°36'51.0"W, 809 m, creek/ small falls. HT ♂ CNC (CNC1589877).

nudipennis (Edwards). NT: Chile.

Austrothaumalea nudipennis Edwards, 1930: 113. Type locality: Chile: Ancud, Chiloé Is. HT ♂ BMNH (NHMUK010210690). Stuardo 1946: 42 [catalogue, Chile]; Stone 1966: 1 [catalogue, NT]; Arnaud 1977: 284 [distribution, Chile].

Niphta nudipennis: Theischinger 1986: 316 [new combination]; McLellan 1988: 563 [notes on generic combination]; Pivar *et al.* 2021: 95 [redescription, immature stage].

Genus *THAUMALEA* Ruthe

Thaumalea Ruthe, 1831: 1211. Type-species: *Thaumalea testacea* Ruthe (by monotypy). Agassiz 1846: 39 [list

of generic names]; Desmarest 1849: 546 [listed, origin of name from Greek for “admirable”]; Walker 1856: 264 [cited as described in 1831, but not employed because of Wagler’s use of the name in the same year for a genus of birds]; Scudder 1882b: 316 [list of generic names]; Osten Sacken 1895: 168 [notes]; Tonnoir 1927: 109 [phylogenetic discussion]; Edwards 1929: 126 [revision of Palaearctic and Nearctic species with 16 new species]; Edwards 1930: 111 [distribution]; Lindner 1930: 8 [review, PA]; Sherborn 1931: 6482 [listed and dated as 1831]; Curran 1934: 68 [key, North American species, key to world genera]; Enderlein 1936: 96 [key to world genera]; Hendel 1936: 1908 [summary]; Okada 1938: 389 [revision, Japan, key to world genera and three groups of *Thaumalea*]; Séguy 1940: 319 [wing figure]; Coe 1945: 342 [checklist, British insects]; Hennig 1950: 193 [diversity, distribution]; Schremmer 1952: 329 [angle of inclination of larval mandibles]; Vaillant 1953a: 1 [separated from *Androprosopa* on basis of male terminalia]; Brues *et al.* 1954: 315 [listed as genus of Thaumaleidae; wing figure]; Clements 1956: 143 [antennal pulsating organs absent]; Vaillant 1956: 25 [madicolous insects, habitat, behaviour, phenology]; Smart 1959: 354 [trochanter musculature]; Vaillant 1959: 31 [distribution]; Hennig 1960: 247 (1966: 21) [biogeography]; Stuckenberg 1960: 107 [number of maxillary palpal segments]; Zilahi-Sebess 1960: 36 [key to 11 known and probable Hungarian species with figures]; Vaillant 1963: 26 [distribution]; Vaillant 1968: 81 [diversity, Pyrenees]; Stackelberg 1969: 245 [key to European USSR]; Hennig 1973: 27, 109 [Holarctic Region, larval vertical mandibular movement]; Hutson 1976: 9 [checklist, British insects]; Martinovský & Rozkošný 1976: 187 [distribution]; Arnaud 1977: 284 [review of biology, diversity]; Vaillant 1978a: 695 [description of four new species, key to males of European species]; Rozkošný 1980: 297 [generic key to larva]; Bickel 1982: 568 [distribution]; McLellan 1983: 267 [morphological comparison of immatures]; Lichtwardt & Moss 1984: 514 [fungal symbionts in thaumaleid larvae]; Vaillant & Vinçon 1986: 65 [diversity, Pyrenees]; Martinovský & Rozkošný 1988: 188 [catalogue, PA]; Vaillant & Vinçon 1988: 281 [diversity, Spain]; Lichtwardt *et al.* 1990: 366 [fungal symbionts in thaumaleid larvae]; Szadziewski 1991: 111 [checklist, Poland]; Sinclair 1996: 361 [generic classification, 39 species assigned to *Androprosopa*]; Wagner 1997c: 328 [Manual Palaearctic Diptera]; Chandler 1998: 51 [checklist, British Isles]; Sabrosky 1999: 304 [senior synonym of *Orphnephila*]; Sinclair 2000: 175 [phylogenetic discussion]; Carles-Tolrá 2001: 82 [records, Iberian Peninsula]; Wagner & Cobo 2001: 31 [records, Spain and Andorra]; Wagner 2002: 60 [descriptions, male and female terminalia, distribution maps]; Theischinger 2004: 669 [northern hemisphere distribution]; Papp *et al.* 2006: 122 [description, *Thaumalea* described from Oriental Region, *Thaumalea* female known from Vietnam, wing vein nomenclature]; Szadziewski 2007: 71 [checklist, Poland]; Howe 2010: 281 [larval habitat]; Bernotienė & Viđinskienė 2012: 30 [first record from Lithuania]; Haubrock *et al.* 2017: 523 [molecular phylogeny, phylogeography and genetic structure of European species].

Chenesia Macquart, 1834: 122. Type-species: *Chenesia testacea* Macquart (by monotypy). Meigen 1838: 51 [description, figures of head and adult]; Duponchel 1843: 469 [taxonomic list, diagnosis]; Zetterstedt 1850: 3451 [redescription]; Zetterstedt 1852: 4343, 4530 [three species listed]; Zetterstedt 1855: 4835 [cites Rondani, brief diagnosis]; Zetterstedt 1860: 6494 [cites Bigot, brief diagnosis]; Scudder 1882b: 64 [list of generic names]; Osten Sacken 1895: 168 [notes]; Sherborn 1925a: 1222 [listed and dated 1834]; Collart 1945: 1 [as synonym of *Thaumalea*, discussion]; Evenhuis *et al.* 2016: 42 [catalogue, Macquart].

Chenisia [misspelling]. Kertész 1902: 292 [catalogue, World]; Kertész 1903: 159 [catalogue, PA].

Macropeza or *Chenesia*: Brodie 1845: 34 [compression fossil of wing, Wealden Formation, England].

“Novum genus” Zetterstedt, 1838: 867 [described but not named, related to *Cyrtomae* of the Platypezinae].

Orphnephila Haliday, 1832: 350. Type-species: *Orphnephila devia* Haliday (by monotypy). Agassiz 1846: 28 [list of generic names]; Rondani 1847: 20 [key to families]; Zetterstedt 1855: 4932 [cited in reference to *Chenesia*]; Rondani 1856: 189 [cited under Stirps Orphnephilina, family Orphnephilidarum with *Orphnephila devia* Haliday as “Spec: Typ.”]; Walker 1856: 263 [redescribed, one species in Great Britain]; Schiner 1864a: 643 [description]; Schiner 1864b: 23 [catalogue, European Diptera]; van der Wulp 1877: 309 [redescription, distribution, wing figure]; Scudder 1882b: 223 [list of generic names]; Röder 1886: 261 [record of genus from 4490 m in Ecuador]; Osten Sacken 1895: 168 [notes]; Williston 1896: 1, 26 [diagnosis, NE genus with two or three known world species]; Kertész 1902: 292 [catalogue, World]; Kertész 1903: 159 [catalogue, PA]; Wingate 1906: 414 [checklist, Durham, England]; Williston 1908: 154 [single North American genus, wing figure]; Thienemann 1909: 59 [“euhygropetrischen”, habitat, larval movement]; Coquillett 1910: 581 [type species: *Orphnephila devia* Haliday]; Bezzi, 1913: 259 [as junior synonym of *Thaumalea*]; Brues & Melander 1915: 62 [North American genus, wing figure]; Malloch 1917: 290 [one of two genera in family, North America]; Bischoff

1922: 17 [description of larval head]; Handlirsch 1925: 969 [one of two genera of Orphnephilidae]; Séguéy 1925: 19 [description]; Sherborn 1929: 4631 [listed and dated 1832]; Wesenberg-Lund 1943: 402 [movement of larvae]; Bertrand 1948: 166 [phenology]; Bertrand 1955: 400 [diagnosis, key to genera]; Stone 1964: 120 [synonym of *Thaumalea testacea* Macquart cited in error as type species]; Morge 1974: 188 [*Orphnephila obscura* listed in Strobl collection]; Hutson 1975: 9 [as synonym of *Thaumalea*]; Arnaud 1977: 284 [highest recorded elevation for a thaumaleid, from high Andes of Ecuador]; Sabrosky 1999: 226 [published Sept. 1831, but did not appear until July 1832; junior synonym of *Thaumalea* (published Nov. 1831)].

Ochnephila [misspelling]. Hagen 1862: 334.

Prothaumalea Enderlein, 1936: 96. Type-species: *Thaumalea caudata* Bezzi (by original designation). Bertrand 1955: 401 [diagnosis, key to genera]; Stone 1964: 120 [as synonym of *Thaumalea*].

Thaumalia [misspelling]. Loew 1847b: 368 [synonymy]; Scudder 1882a: 331 [list of generic names]; Scudder 1882b: 316 [list of generic names].

Taumalea [misspelling]. Zetterstedt 1852: 4530 [index]; Zetterstedt 1860: 6605 [index].

Note. References to Nearctic *Orphnephila* and *Thaumalea* records are listed under *Androprosopa*.

alpina Vaillant. **PA:** France.

Thaumalea alpina Vaillant, 1981: 133. Type locality: France: Isère, spring Guiers Vif, tributary of Rhône, 870 m. HT ♂ MNHN [on microscope slide]. Martinovský & Rozkošný 1988: 188 [catalogue, PA]; Wagner 2002: 103 [redescription, male and female terminalia, distribution].

alticola Schmid. **PA:** Spain.

Thaumalea alticola Schmid, 1951: 2. Type locality: Spain: Sierra Nevada, Val del Inferno, 2000 m., HT ♂ CNC (Type No. 17190; CNC803947). Vaillant 1953a: 3 [male terminalia, distribution]; Schmid 1958: 4 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1978a: 707 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Blech & Rohlfien 1987: 214 [distribution, 1 ♀ PT in SDEI]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Vaillant & Vinçon 1988: 281 [endemic to Spain]; Cooper 1991: 79 [CNC type catalogue]; Wagner 2002: 62 [redescription, male and female terminalia, distribution map]; Wagner & Báez 2002: 78 [distribution]; Hancock 2016: 300 [distribution].

angelieri Vaillant & Vinçon. **PA:** France.

Thaumalea angelieri Vaillant & Vinçon, 1986: 65. Type locality: France: Pyrénées Atlantique, gave de Bious, a tributary “du gave d’Ossau”, 600 m. HT ♂ FVC [? on microscope slide]. Wagner 2002: 94 [redescription, male and female terminalia, distribution]; Hancock 2016: 300 [distribution].

aperta Martinovský & Rozkošný. **PA:** Czech Republic, Hungary, Poland?, Slovakia.

Thaumalea aperta Martinovský & Rozkošný, 1976: 190. Type locality: Slovakia: Štrba-Lieskovec. HT ♂ MMB (ENT1536). Vaillant 1978a: 707 [key to males of European species]; Vaillant 1981: 143 [phylogenetic discussion, key to females of European species]; Martinovský 1984: 83 [checklist, Slovakia]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia]; Wagner & Niesiołowski 1997: 500 [may occur in Poland]; Martinovský 1999: 135 [distribution, Slovakia]; Papp & Majer 2000: 235 [records, Hungaria]; Papp 2001: 90 [checklist, Hungary]; Wagner 2002: 91 [redescription, male and female terminalia, distribution]; Papp 2003: 311 [checklist, Hungaria, distribution]; Ševčík 2005: 273 [vulnerable species in Czech Republic]; Papp *et al.* 2008: 262 [diversity, Hungary].

appendiculata Wagner. **PA:** Italy (Sicily).

Thaumalea appendiculata Wagner, 1987: 20. Type locality: Italy: Sicily, south San Teodoro [37°15'N ?14°41'E – error in original description], 790 m. HT ♂ RWC. Rivosecchi 1995: 11 [distribution, Italy]; Wagner 2002: 73 [redescription, male and female terminalia, distribution map].

ardechica Vaillant, ***nomen nudum***.

Thaumalea ardechica Vaillant, 1978b: 460 [Limnofauna Europaea, from Western Middle Mountain Region].

Thaumalea ardechira [misspelling]. Martinovský & Rozkošný 1988: 192 [as *nomen nudum*, catalogue, PA]

austriaca Edwards. **PA:** Andorra, Austria, Czech Republic, France, Germany, Italy, Slovenia, Spain, Switzerland.

Thaumalea austriaca Edwards, 1929: 136. Type locality: Austria: Gastein. HT ♂ NMW. Lindner 1930: 8 [description, figure of male terminalia, distribution, Austria]; Collart 1945: 5 [distribution, PA]; Schmid 1951: 4 [distribution, PA]; Zilahi-Sebess 1956: 435 [phylogenetic discussion]; Schmid 1958: 4, 7 [distribution, Switzerland, classification]; Zilahi-Sebess 1960: 38 [doubtful Hungarian record, key to Hungarian species]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1968: 81 [phylogenetic discussion]; Vaillant 1969: 689 [distribution]; Martinovský & Rozkošný 1976: 192 [distribution, figures of male and female terminalia]; Vaillant 1978a: 706 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 141 [phylogenetic discussion, key to females of European species]; Wagner 1981: 143 [distribution, PA]; Vaillant & Vinçon 1986: 65 [distributed widely in Europe, including Pyrenees]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Martinovský & Rozkošný 1988: 188 [catalogue, PA]; Rivosecchi 1995: 11 [distribution, Italy]; Wagner 1995: 66 [distribution, Slovenia]; Martinovský 1997a: 212 [distribution, Czech Republic and Slovakia]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia]; Arnaud 1998: 107 [checklist, Switzerland]; Wagner 1999: 83 [checklist, Germany]; Wagner 2002: 62 [redescription, male and female terminalia, distribution map]; Wagner & Báez 2002: 78 [distribution]; Ševčík 2005: 273 [vulnerable species in Czech Republic]; Ševčík 2012: 194 [distribution, Krkonoš Mountains, Czech Republic]; Wagner & Bellstedt 2015: 485 [phylogenetic discussion]; Hancock 2016: 300 [distribution].

Thaumalea bruyanti Vaillant, 1953b: 125. Type locality: France: Massif du Vercors, Gorges du Bruyant, 1000 m. ST ♂ FVC [unknown number of specimens, presumably more than one male since specimens collected in April and July]. Vaillant 1956: 141 [distribution]; Schmid 1958: 4 [distribution, classification]; Vaillant 1968: 81 [distribution, Pyrenees, figures of male terminalia]; Vaillant 1969: 690 [as synonym of *Thaumalea austriaca*]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 188 [catalogue, PA, as synonym of *Thaumalea austriaca*].

baltasardi Schmid. **PA:** Iran.

Thaumalea baltasardi Schmid, 1958: 13. Type locality: Iran: Mazandaran, Lius (Ost. 2), 2100 m. HT ♂ CNC (Type No. 17192; CNC804030). Theischinger 1979: 52 [phylogenetic discussion]; Blech & Rohlfien 1987: 214 [distribution, 1 ♂ PT in SDEI]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Cooper 1991: 79 [CNC type catalogue].

bernardi Vaillant. **PA:** Algeria, Morocco.

Thaumalea bernardi Vaillant, 1953b: 126. Type locality: Algeria: Djurdjura, Oued Echamlili, near Tala Guiléf, 1400 m; Aurès, Oued Talha, flancs du Chelia, 1400–1600 m. ST ♂, ♀ MNHN [multiple specimens on microscope slides], 3 ♂ MZLS (GBIFCH00597463) [on microscope slide]. Vaillant 1953a: 3 [figures of male terminalia, distribution]; Vaillant 1955: 96 [distribution, Grand Atlas, larvae live in high altitude cold waters]; Vaillant 1956: 43 [madicolous species]; Schmid 1958: 4 [distribution, classification]; Vaillant 1963: 28 [phylogenetic discussion]; Vaillant 1969: 703 [Group II of *Thaumalea*]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Wagner 2002: 67 [redescription, male and female terminalia, distribution map]; Kettani & Wagner 2022: 143 [distribution, Morocco].

bezzii Edwards. **PA:** Albania, Austria, Bosnia & Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, Great Britain, Greece, Hungary, Italy, Republic of North Macedonia, Poland, Romania, Serbia, Slovakia, Switzerland.

Thaumalea bezzii Edwards, 1929: 134. Type locality: Italy: Scais. HT ♂ BMNH (NHMUK013437558). Lindner 1930: 8 [description, figures of male and female terminalia, distribution, PA]; Collart 1945: 5 [distribution, PA]; Hennig 1950: 193 [larvae]; Schmid 1951: 4 [distribution, PA]; Vaillant 1953b: 124 [male terminalia described and figured]; Vaillant 1956: 43 [madicolous species]; Schmid 1958: 8 [distribution, classification, figures of male terminalia]; Vaillant 1967: 396 [Limnofauna Europaea]; Stackelberg 1969: 246 [species of European USSR, figure of male terminalia]; Vaillant 1969: 690 [distribution, figures of male terminalia];

Martinovský & Rozkošný 1976: 192 [distribution, figures of male and female terminalia]; Joost 1978: 118, 120 [distribution, Bulgaria]; Vaillant 1978a: 706 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Wagner 1980:16 [distribution, Serbia, Bosnia and Herzegovina, Macedonia, Romania]; Vaillant 1981: 129 [distribution, phylogenetic discussion, key to females of European species]; Wagner 1981: 143 [distribution, PA]; Martinovský 1984: 83 [checklist, Slovakia]; Blech & Rohlfien 1987: 215 [distribution, 4 PT in SDEI]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Szadziewski 1991: 111 [checklist, Poland]; Rivosecchi 1995: 11 [distribution, Italy]; Wagner 1995: 66 [records, Croatia]; Papp 1996: 429 [fauna of Bükk National Park, Hungary]; Martinovský 1997a: 212 [records, Czech Republic and Slovakia]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia]; Wagner 1997b: 188 [Thaumaleidae of North Europe, figures of male and female terminalia]; Wagner & Niesiołowski 1997: 499 [distribution, Poland]; Arnaud 1998: 107 [checklist, Switzerland]; Martinovský 1999: 136 [distribution, Slovakia]; Wagner 1999: 83 [checklist, Germany]; Papp & Majer 2000: 235 [Hungarian records]; Papp 2001: 89 [checklist, Hungary]; Wagner 2002: 84 [redescription, male and female terminalia, distribution map]; Papp 2003: 310 [Hungarian checklist, distribution]; Pârvu 2004: 190 [recorded from Piatra Craiului National Park, Romania]; Ševčík *et al.* 2005: 97 [fauna, Podyjí National Park, Czech Republic]; Szadziewski 2007: 71 [checklist, Poland]; Papp *et al.* 2008: 262 [diversity, Hungary]; Håland 2011: 11 [records, Denmark, not yet found in Norway]; Ševčík 2012: 194 [record, Krkonoš Mountains, Czech Republic]; Ševčík *et al.* 2013: 188 [Muránska planina National Park, Slovakia]; Palaczyk & Słowińska-Krysiak 2014: 57 [record, Tatra Mountains, Poland]; Haubrock *et al.* 2017: 523 [molecular phylogeny, phylogeography and genetic structure of European species]; Papp 2018: 179 [distribution, Romania]; Keresztes & Dénes 2021: 123 [distribution, Romania].

biacuminata Wagner & Bellstedt. **PA:** Russia (Karachay-Cherkessia).

Thaumalea biacuminata Wagner & Bellstedt, 2015: 485. Type locality: Russia: West Caucasus, Teberda, Karatschai-Cherkessia province, 43°25'59.99"N 41°45'0.00"E, 1000 m. HT ♂, currently in RWC [stored in ethanol], to be deposited in ZMHB.

bosnica Schmid. **PA:** Bosnia and Herzegovina.

Thaumalea bosnica Schmid, 1958: 11. Type locality: Bosnia and Herzegovina: Trnovo. HT ♂ CNC (Type No. 17193, CNC804091). Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 701 [distribution, Group IV d of *Thaumalea*]; Martinovský & Rozkošný 1976: 192 [phylogenetic discussion]; Joost 1978: 118 [distribution]; Vaillant 1978a: 706 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Cooper 1991: 79 [CNC type catalogue]; Wagner 2002: 81 [redescription, male terminalia, distribution].

botosaneanui Vaillant. **PA:** Romania.

Thaumalea botosaneanui Vaillant, 1969: 690. Type locality: Romania: Gemenele lake, Retezat Mtns, southern Carpathians, 1850 m. HT ♂ MNHN [on microscope slide]. Martinovský & Rozkošný 1976: 195 [phylogenetic discussion]; Joost 1978: 118 [distribution]; Vaillant 1978a: 708 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 141 [female terminalia, key to females of European species]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Wagner 2002: 68 [redescription, male and female terminalia, distribution map]; Papp 2018: 179 [distribution, Romania].

brevidens Edwards. **PA:** Austria, Germany, Slovenia.

Thaumalea brevidens Edwards, 1929: 131. Type locality: Austria: North Tyrol, Vent. HT ♂ NMW. Lindner 1930: 9 [description, figures of male and female terminalia, distribution, Austria]; Collart 1945: 5 [distribution, PA]; Schmid 1951:6 [closely related to *Thaumalea valdesia*]; Schmid 1958: 3 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 701 [distribution]; Martinovský & Rozkošný 1976: 194 [phylogenetic discussion]; Vaillant 1978a: 708 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Wagner 1995: 66 [records, Slovenia]; Wagner 1999: 83 [checklist, Germany]; Wagner 2002: 82 [redescription, male and female terminalia, distribution]; Haubrock *et al.* 2017: 528, 529, 530 [molecular phylogeny, phylogeography]

and genetic structure of European species].

brincki Vaillant. **PA:** Portugal (Madeira).

Thaumalea brincki Vaillant, 1963: 28. Type locality: Madeira: Rib. do Laga, east of Pico do Serrado, 900 m. HT ♂ MZLU (MZLU-TYPE00945) [on microscope slide]. Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1970: 170 [phylogenetic discussion]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 189 [catalogue, PA, 1960 incorrectly given as year of publication]; Stauder 1995: 721 [limnological fauna]; Wagner 2002: 78 [redescription, male and female terminalia, distribution]; Wagner & Báez 2002: 78 [distribution]; Sinclair 2008b: 294 [biogeography].

Thaumalea brinki [misspelling]. Hughes *et al.* 1998: 15 [checklist of Madeiran freshwater macroinvertebrates];

carinthica Wagner. **PA:** Austria, Slovenia.

Thaumalea carinthica Wagner, 1995: 67. Type locality: Austria: Kärnten, Saualpe, south Enzianhütte. HT ♂ RWC [stored in ethanol]. Wagner 2002: 94 [redescription, male and female terminalia, distribution].

carpathica Vaillant, **nomen nudum.**

Thaumalea carpathica Vaillant, 1978b: 460 [Limnofauna Europaea, from Carpathians]; Martinovský & Rozkošný 1988: 192 [as *nomen nudum*, catalogue, PA].

carthusiensis Vaillant, **nomen nudum.**

Thaumalea carthusiensis Vaillant, 1978b: 460 [Limnofauna Europaea, from Alps]; Martinovský & Rozkošný 1988: 192 [as *nomen nudum*, catalogue, PA].

caudata Bezzi. **PA:** Austria, Czech Republic, France, Germany, Italy, Norway, Poland, Slovakia, Spain, Switzerland.

Thaumalea caudata Bezzi, 1913: 257. Type locality: Austria: Styria; Italy: Val del Livrio; Scais; 2 ♂, 1 ♀ ST MSNM. Edwards 1929: 127 [redescription, distribution, figure of male terminalia]; Lindner 1930: 9 [description, figures of wing and male terminalia, distribution, PA]; Collart 1945: 5 [distribution, PA]; Tjeder 1949b: 106 [distribution, Norway]; Collart 1950b: 63 [distribution, France]; Schmid 1951: 4 [distribution, PA]; Vaillant 1953b: 123 [distribution]; Vaillant 1955: 94 [larvae, France, figure of male terminalia]; Schmid 1958: 7 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Stackelberg 1969: 247 [species of European USSR, figure of male terminalia]; Vaillant 1969: 692 [distribution]; Martinovský & Rozkošný 1976: 194 [distribution, figures of male and female terminalia]; Andersson 1977: 77 [records, Scandinavia]; Vaillant 1978a: 707 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 145 [key to females of European species]; Martinovský 1984: 83 [checklist, Slovakia]; Willassen 1987: 29 [distribution, Scandinavia]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Szadziewski 1991: 111 [checklist, Poland]; Rivosecchi 1995: 11 [distribution, Italy]; Wagner 1995: 66 [record, Austria]; Wagner & Niesiołowski 1997: 499 [records, Poland]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia]; Wagner 1997b: 188 [Thaumaleidae of North Europe, figures of male and female terminalia]; Arnaud 1998: 107 [checklist, Switzerland]; Martinovský 1999: 136 [distribution, Slovakia]; Wagner 1999: 83 [checklist, Germany]; Wagner 2002: 93 [redescription, male and female terminalia, distribution map]; Szadziewski 2007: 71 [checklist, Poland]; Wagner & Rulik 2008: 321 [record, Stilfserjoch National Park, Italy]; Håland 2011: 11 [record, Norway]; Ševčík 2012: 194 [record, Krkonoš Mountains, Czech Republic]; Palaczyk & Słowińska-Krysiak 2014: 58 [records, Tatra Mountains, Poland]; Haubrock *et al.* 2017: 528, 529, 530 [molecular phylogeny, phylogeography and genetic structure of European species].

Orphnephila caudata: Bertrand 1948: 166 [distribution].

cebennica Vaillant. **PA:** Croatia, France, Germany.

Thaumalea cebennica Vaillant, 1978a: 702. Type locality: France: Ardeche, Laviolle, Glueyre spring, tributary of Eyrieux, 980 m. HT ♂ MNHN [on microscope slide]. Martinovský & Rozkošný 1988: 189 [catalogue,

PA]; Wagner 1995: 66 [records, Croatia]; Martinovský 1997a: 212 [records, Czech Republic and Slovakia, synonym of *Thaumalea truncata*]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia, synonym of *Thaumalea truncata*]; Wagner 1999: 83 [checklist, Germany]; Wagner 2002: 78 [redescription, male and female terminalia, distribution map, possibly aberrant or undescribed species]; Andersen *et al.* 2013: 184 [probable synonym of *Thaumalea truncata*]; Haubrock *et al.* 2017: 524 [synonym of *Thaumalea truncata*].

Notes. Andersen *et al.* (2013) proposed *T. cebennica* as a synonym of *T. truncata* Edwards and considered *T. truncata sensu* Wagner (2002) as either an aberrant form or an un-named species. Haubrock *et al.* (2017) followed Andersen *et al.* (2013) and recognized *T. cebennica* as a synonym of *T. truncata*. Until the types of all three species are studied together, we recognize *T. cebennica* as a separate species.

chiosica Wagner. **PA:** Greece (Chios).

Thaumalea chiosica Wagner, 1981: 148. Type locality: Greece: Chios, Fita, 38°32'N 26°00'E, 510 m. HT ♂ RWC [stored in ethanol]. Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Wagner 2002: 83 [redescription, male and female terminalia, distribution]; Wagner & Bellstedt 2015: 485 [phylogenetic discussion].

corsica Edwards. **PA:** France (Corsica).

Thaumalea corsica Edwards, 1928: 174. Type locality: France: Corsica, Restonica Valley above Corte. HT ♂ BMNH (NHMUK013437559). Edwards 1929: 136 [redescription, figures of male and female terminalia]; Lindner 1930: 9 [description, figures of male and female terminalia, distribution, Corsica]; Collart 1945: 5 [distribution, PA]; Collart 1950b: 63 [distribution, France]; Bertrand 1955: 397 [morphology]; Schmid 1958: 4 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 704 [Group IV d of *Thaumalea*]; Vaillant 1970: 165 [distribution, Corsica]; Martinovský & Rozkošný 1976: 192 [phylogenetic discussion]; Vaillant 1978a: 709 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Wagner 2002: 73 [redescription, male and female terminalia, distribution map].

Orphnephila corsica: Bertrand 1948: 166 [distribution].

curtior Schmid. **PA:** Spain.

Thaumalea curtior Schmid, 1958: 6. Type locality: Spain: Ávila, Lac de Gredos, 2000 m. HT ♂ CNC (Type No. 17194; CNC804124). Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 703 [Group III b of *Thaumalea*]; Martinovský & Rozkošný 1976: 194 [phylogenetic discussion]; Vaillant 1978a: 707 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Blech & Rohlfien 1987: 215 [distribution, 1 ♂ PT in SDEI]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Vaillant & Vinçon 1988: 281 [endemic to Spain]; Cooper 1991: 79 [CNC type catalogue]; Wagner 2002: 94 [redescription, male terminalia, distribution map]; Wagner & Báez 2002: 78 [distribution]; Hancock 2016: 300 [distribution].

decussiferens Vaillant. **PA:** Poland, Slovakia.

Thaumalea decussiferens Vaillant, 1967: 396, *nomen nudum* [Limnofauna Europaea, from Carpathians].

Thaumalea decussiferens Vaillant, 1969: 694. Type locality: Poland: Tatra Mountains, between Morskie Oko and waterfalls of Mickiewicz, 1200 m. ST 3 ♂ MNHN [on microscope slide]. Martinovský & Rozkošný 1976: 194 [distribution, figures of male terminalia]; Vaillant 1978a: 707 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Wagner 1981: 150 [phylogenetic discussion]; Martinovský 1984: 83 [checklist, Slovakia]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Szadziewski 1991: 111 [checklist, Poland]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia]; Wagner 2002: 94 [redescription, male terminalia, distribution]; Szadziewski 2007: 71 [checklist, Poland].

digitata Edwards. **PA:** Austria, Germany, Italy.

Thaumalea digitata Edwards, 1929: 138. Type locality: Austria: North Tyrol, Gries-i-Sellr. HT ♂ NMW. Lindner 1930: 10 [description and figures of male and female terminalia, distribution: Alps]; Collart 1945: 5 [distribution, PA]; Schmid 1958: 4 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea];

Vaillant 1969: 701 [distribution]; Vaillant 1973: 145 [record, Parc de la Vanoise, France]; Vaillant 1978a: 709 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Wagner 1995: 66 [record, Austria]; Wagner 1999: 83 [checklist, Germany]; Wagner 2002: 79 [redescription, male and female terminalia, distribution]; Wagner & Rulik 2008: 321 [record, Stilfsererjoch National Park, Italy].

dinarica Schmid. **PA:** Bosnia & Herzegovina, Republic of North Macedonia, Romania.

Thaumalea dinarica Schmid, 1958: 10. Type locality: Bosnia & Herzegovina: Trebevic, 1200 m. HT ♂ CNC (Type No. 17196; CNC804149). Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 701 [distribution, Group III b of *Thaumalea*]; Vaillant 1970: 170 [phylogenetic discussion]; Martinovský & Rozkošný 1976: 192 [phylogenetic discussion]; Joost 1978: 118 [distribution]; Vaillant 1978a: 701 [distribution, figure of male terminalia, key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Wagner 1980: 16 [distribution, Romania]; Blech & Rohlfien 1987: 215 [distribution, 1 ♂ PT in SDEI]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Wagner 1988b: 204 [phylogenetic discussion]; Cooper 1991: 79 [CNC type catalogue]; Wagner 2002: 98 [redescription, male terminalia, distribution].

divaricata Bezzi. **PA:** Austria, France, Germany, Italy.

Thaumalea divaricata Bezzi, 1913: 256. Type locality: Italy: Alpi Valtellina, 1000–1600 m; Valle del Livrio; Scias; Monte Meriggio; Val Ventina, 2000 m; Val de Togno; Moncenisio. 8 ST MSNM, 2 ST BMNH (NHMUK013438299, NHMUK013438300) [sexes unknown]. Edwards 1929: 128 [redescription, distribution, figures of male and female terminalia]; Lindner 1930: 10 [description, figures of male and female terminalia, distribution, Alps]; Collart 1945: 5 [distribution, PA]; Collart 1950b: 63 [distribution, France]; Vaillant 1953b: 123 [distribution]; Schmid 1958: 3 [distribution, classification]; Zilahi-Sebess 1960: 36 [doubtful Hungarian record, key to known and expected Hungarian species]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 701 [distribution, Group II of *Thaumalea*]; Martinovský & Rozkošný 1976: 195 [distribution, figures of male terminalia]; Vaillant 1978a: 708 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Sinclair 1992: 492, 497 [male terminalia]; Rivosecchi 1995: 11 [distribution, Italy]; Wagner 1995: 66 [record, Austria]; Wagner 1999: 83 [checklist, Germany]; Wagner 2002: 70 [redescription, male and female terminalia, distribution map].

Orphnephila divaricata: Bertrand 1948: 166 [distribution].

edwardsi Tjeder. **PA:** Romania.

Thaumalea obscura Edwards, 1929: 131 [nec *Chenesia obscura* Zetterstedt, 1850]. Type locality: Romania: Herkulesbad. ST ♂, ♀ OUMNH. Lindner 1930: 12 [description, figure of male terminalia, distribution, Romania]; Collart 1945: 5 [distribution, PA]; Schmid 1958: 3 [distribution, classification]; Zilahi-Sebess 1960: 37 [record, Carpathian Basin, key to Hungarian species]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 701 [distribution, Group III b of *Thaumalea*]; Martinovský & Rozkošný 1976: 195 [phylogenetic discussion].

Thaumalea edwardsi Tjeder, 1949a: 106. Type locality: Romania: Herkulesbad, Banat. LT ♂ OUMNH [new name for *Thaumalea obscura* Edwards, 1929 nec Zetterstedt]. Martinovský & Rozkošný 1976: 195 [LT designated, distribution, figures of male terminalia]; Joost 1978: 118 [distribution]; Vaillant 1978a: 708 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Joost 1979: 90 [phylogenetic discussion]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Wagner & Niesiołowski 1997: 500 [may occur in Poland]; Wagner 2002: 89 [redescription, male terminalia, distribution]; Papp 2018: 179 [distribution, Romania].

freyi Edwards. **PA:** France, Italy, Switzerland.

Thaumalea freyi Edwards, 1929: 130. Type locality: Italy: Balme, Graian Alps. HT ♂ MZH (<http://id.luomus.fi/GV.28920>). Lindner 1930: 11 [description, figure of male terminalia, distribution, Alps]; Collart 1945: 5 [distribution, PA]; Collart 1950b: 63 [distribution, France]; Vaillant 1953a: 3 [figure of male terminalia, distribution]; Vaillant 1953b: 123 [distribution]; Vaillant 1956: 43 [madicolous species]; Schmid 1958: 3,

7 [distribution, classification, synonym of *furva* Edwards]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 701 [distribution, Group III b of *Thaumalea*]; Martinovský & Rozkošný 1976: 194 [phylogenetic discussion]; Vaillant 1978a: 701 [redescription and figure of male terminalia, key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 135 [phylogenetic discussion, key to females of European species, figure of female terminalia]; Vaillant & Vinçon 1986: 68 [phylogenetic discussion]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Arnaud 1998: 107 [checklist, Switzerland]; Wagner 2002: 102 [redescription, male terminalia, distribution]; Haubrock *et al.* 2017: 528, 529, 530 [molecular phylogeny, phylogeography and genetic structure of European species].

Orphnephila freyi: Bertrand 1948: 166 [distribution].

***furva* Edwards. PA:** Austria, Germany, France.

Thaumalea furva Edwards, 1929: 130. Type locality: Austria: Sölden, North Tyrol. HT ♂ NMW. Lindner 1930: 11 [description, figure of male and female terminalia, distribution, Alps]; Collart 1945: 5 [distribution, PA]; Schmid 1958: 3 [as synonym of *Thaumalea freyi* Edwards]; Vaillant 1973: 145 [record, Parc de la Vanoise, France, figures of male terminalia]; Martinovský & Rozkošný 1976: 192 [phylogenetic discussion]; Vaillant 1978a: 701 [phylogenetic discussion, key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 135 [phylogenetic discussion, key]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Wagner 1999: 83 [checklist, Germany]; Wagner 2002: 103 [redescription, male and female terminalia, distribution].

***galibierensis* Vaillant. PA:** Austria, France.

Thaumalea galibierensis Vaillant, 1953: 125. Type locality: France: Massif de Pelvoux, Col du Galibier, 2400 m. ST ♂, ♀ MNHN [multiple specimens on microscope slides]. Vaillant 1956: 43 [madicolous species]; Schmid 1958: 3 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 696 [figures of male terminalia, distribution]; Vaillant 1973: 145 [record, Parc de la Vanoise, France]; Vaillant 1978a: [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 131 [male terminalia, distribution, Eastern Alps]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Wagner 2002: 99 [redescription, male and female terminalia, distribution].

***gerecki* Wagner. PA:** Italy (Sardinia).

Thaumalea gerecki Wagner, 1988a: 10. Type locality: Italy, Sardinia, Gennargentu, headwaters of Bacu de Search, 1550–1600 m. HT ♂ RWC [stored in ethanol]. Rivosecchi 1995: 11 [distribution, Italy]; Wagner 1997a: 183 [phylogenetic discussion]; Wagner 2002: 73 [redescription, male and female terminalia, distribution map].

***gredosensis* Schmid. PA:** Spain.

Thaumalea gredosensis Schmid, 1951: 4. Type locality: Spain: Ávila, Lac de Gredos, 2000 m. HT ♂ CNC (Type No. 17197; CNC804251). Schmid 1958: 4 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1978a: 701 [redescription, figures of male terminalia, key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant & Vinçon 1986: 68 [phylogenetic discussion]; Vaillant & Vinçon 1986: 68 [phylogenetic discussion]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Vaillant & Vinçon 1988: 281 [endemic to Spain]; Cooper 1991: 80 [CNC type catalogue]; Wagner 2002: 101 [redescription, male terminalia, distribution]; Wagner & Báez 2002: 78 [distribution]; Hancock 2016: 300 [distribution].

***horvati* Wagner. PA:** Bosnia and Herzegovina.

Thaumalea horvati Wagner, 1992: 212. Type locality: Bosnia and Herzegovina: 5 km southwest Fojnica, Vranica Mountains, 1400 m. HT ♂ RWC [stored in ethanol]. Wagner 2002: 61 [redescription, male and female terminalia, distribution map].

***ikariae* Wagner. PA:** Greece (Ikaria).

Thaumalea ikariae Wagner, 1981: 148. Type locality: Greece: Ikaria, Chrisostomos, 26°13'N 37°35'E, 270 m, hydropetric rock face. HT ♂ RWC [stored in ethanol]. Martinovský & Rozkošný 1988: 190 [catalogue, PA];

Wagner 2002: 84 [redescription, male terminalia, distribution]; Wagner & Bellstedt 2015: 485 [phylogenetic discussion].

***inflata* Bezzi. PA:** Austria, France, Germany, Italy.

Thaumalea inflata Bezzi, 1913: 251. Type locality: Italy: Moncenisio. LT ♂ BMNH (NHMUK013437560). Edwards 1929: 135 [redescription, figure of male terminalia]; Lindner 1930: 11 [description, figure of male terminalia, distribution, Alps]; Collart 1945: 5 [distribution, PA]; Schmid 1958: 4 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1968: 83 [phylogenetic discussion]; Vaillant 1978a: 707 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Wagner 1986a: 70 [LT designated]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Rivossecchi 1995: 11 [distribution, Italy]; Wagner 1995: 66 [records, Austria]; Wagner 2002: 63 [redescription, male and female terminalia, distribution map]; Wagner & Bellstedt 2015: 485 [phylogenetic discussion].

Thaumalea dentata Edwards, 1929: 138. Type locality: Italy: Bessans, Graian Alps. HT ♂ MZH (<http://id.luomus.fi/GV.28919>). Lindner 1930: 10 [description, figure of male terminalia, distribution, Alps.]; Collart 1945: 5 [distribution, PA]; Collart 1950b: 63 [distribution, France]; Vaillant 1953b: 123 [distribution]; Schmid 1958: 4 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 694 [figures of male terminalia, distribution]; Vaillant 1973: 145 [record, Parc de la Vanoise, France]; Martinovský & Rozkošný 1976: 192 [phylogenetic discussion]; Vaillant 1978a: 709 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Wagner 1986a: 70 [as synonym of *Thaumalea inflata* Bezzi]; Martinovský & Rozkošný 1988: 189 [catalogue, PA]; Martinovský 1997a: 212 [records, Czech Republic and Slovakia]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia]; Wagner 1999: 83 [checklist, Germany]; Wagner 2002: 63 [as synonym of *Thaumalea inflata*]; Ševčík 2005: 273 [endangered species, Czech Republic].

Orphnephila dentata: Bertrand 1948: 166 [distribution].

***kykladica* Wagner. PA:** Greece (Evia, Andros, Naxos).

Thaumalea kykladica Wagner, 1981: 144. Type locality: Greece: Evia (Euboea), south Komiton, 24°32'N 38°04'E, 380 m. HT ♂ RWC [stored in ethanol]. Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Wagner 2002: 88 [redescription, male and female terminalia, distribution map]; Wagner & Bellstedt 2015: 485 [male and female terminalia, phylogenetic discussion].

Thaumalea kyladica [misspelling]. Wagner & Bellstedt 2015: 485.

***lesbica* Wagner. PA:** Greece (Lesvos).

Thaumalea lesbica Wagner, 1981: 148. Type locality: Greece: Lesvos (Lesbos), 2 km E Ipsilometopo, 39°19'N 26°16'E, 420 m. HT ♂ RWC [stored in ethanol]. Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Wagner 2002: 61 [redescription, male and female terminalia, distribution map].

***libanica* Edwards. PA:** Lebanon.

Thaumalea libanica Edwards, 1932: 33. Type locality: Lebanon: Becharré, 1400 m, Mt. Lebanon. LT ♂ BMNH (NHMUK013437561). Collart 1945: 5 [distribution, PA]; Martinovský & Rozkošný 1976: 194 [phylogenetic discussion]; Wagner 1986b: 82 [redescription, male terminalia, LT designation]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Wagner 2002: 91 [redescription, male and female terminalia, distribution].

***macedonica* Schmid. PA:** Republic of North Macedonia.

Thaumalea macedonica Schmid, 1958: 10. Type locality: Republic of North Macedonia: Perister, 2200–2400 m. HT ♂ CNC (Type No. 17203; CNC804256). Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 701 [distribution, Group II of *Thaumalea*]; Joost 1978: 118 [distribution]; Vaillant 1978a: 709 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Blech & Rohlfien 1987: 216 [distribution, 1 ♂ PT in SDEI]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Cooper 1991: 80 [CNC type catalogue]; Wagner 2002: 81 [redescription, male terminalia, distribution].

***major* Bezzi. PA:** France, Italy, Switzerland.

Thaumalea major Bezzi, 1913: 254. Type locality: Italy: Alpi della Valtellina, 1500–2000 m; Valle del Livrio; Chiareggio in Valmalenco; Val di Tegno, Val Venina, Scais. 6 ST MSNM, 2 ST BMNH (NHMUK 013438297, NHMUK 013438298) [sexes unknown]. Edwards 1929: 127 [redescription, distribution, male and female terminalia, ST referred to as PT in error]; Lindner 1930: 11 [description, figure of male terminalia, distribution: Central Europe, Alps]; Collart 1945: 5 [distribution, PA]; Schmid 1951: 1 [cited as first recorded species from Switzerland by Edwards (1929)]; Vaillant 1953a: 4 [record, France]; Vaillant 1953b: 124 [male and female terminalia]; Vaillant 1956: 43 [madicolous species]; Vaillant 1967: 396 [Limnofauna Europaea]; Stackelberg 1969: 247 [species of European USSR, figure of male terminalia]; Vaillant 1969: 696 [figures of male terminalia, distribution]; Martinovský & Rozkošný 1976: 195 [phylogenetic discussion]; Sæther 1977: 11 [female terminalia]; Vaillant 1978a: 708 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 141 [female terminalia, key to females of European species]; Vaillant & Vinçon 1986: 68 [phylogenetic discussion]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Rivosecchi 1995: 11 [distribution, Italy]; Arnaud 1998: 107 [checklist, Switzerland]; Wagner 2002: 68 [redescription, male and female terminalia, distribution map].

Thaumalea mayor [misspelling]. Schmid 1958: 6 [distribution, classification].

Prothaumalea major: Bertrand 1955: 397 [male terminalia figured].

malickyi Theischinger. **PA:** Greece (Crete).

Thaumalea malickyi Theischinger, 1979: 51. Type locality: Greece: Crete, Fassas Valley, 35°24'N 23°53'E, W Chliaro, 270 m. HT ♂ OLL [stored in ethanol]. Theischinger 1980: 240 [type catalogue]; Wagner 1981: 146 [distribution, Crete, descriptions and illustrations of male and female terminalia]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Wagner 2002: 88 [redescription, male and female terminalia, distribution map]; Wagner & Bellstedt 2015: 485 [phylogenetic discussion].

martinovskiyi Joost. **PA:** Russia (Kabardino-Balkaria).

Thaumalea martinovskiyi Joost, 1979: 89. Type locality: Russia: Central Caucasus, Kabardino-Balkaria Republic, right tributary of the Dongusorun-Baskan near Terskol, 43°15'19"N 42°30'55"E. HT ♂ RWC. Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Wagner & Bellstedt 2015: 485 [redescription, male and female terminalia].

micomicona Schmid. **PA:** Spain.

Thaumalea micomicona Schmid, 1951: 5. Type locality: Spain: Granada, Durcal, Gorges du Guardalfeo". HT ♂ CNC (Type No. 17210; CNC804306). Schmid 1958: 4 [distribution, classification]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Cooper 1991: 80 [CNC type catalogue]; Wagner 2002: 67 [redescription, male and female terminalia, distribution map]; Wagner & Báez 2002: 78 [distribution]; Hancock 2016: 300 [distribution].

Thaumalea micromicoma [misspelling]. Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1978b: 460 [Limnofauna Europaea].

Thaumalea micromicon [misspelling]. Vaillant 1978a: 707 [key to males of European species]; Vaillant & Vinçon 1988: 281 [endemic to Spain].

miki Edwards. **PA:** Andorra, Austria, Czech Republic, France, Poland, Republic of North Macedonia, Slovakia.

Thaumalea miki Edwards, 1929: 131. Type locality: Austria: Gastein. HT ♂ NMW. Lindner 1930: 12 [description, figures of male and female terminalia, distribution: Alps]; Collart 1945: 5 [distribution, PA]; Schmid 1958: 6, 10 [records, France, Macedonia, figures of male terminalia]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1968: 81 [record, Pyrenees, figures of male terminalia]; Vaillant 1969: 701 [distribution, Group III b of *Thaumalea*]; Martinovský & Rozkošný 1976: 195 [distribution, figures of male and female terminalia]; Joost 1978: 118 [distribution]; Vaillant 1978a: 707 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 135 [phylogenetic discussion, key to females of European species]; Wagner 1981: 143 [distribution, PA]; Martinovský 1984: 83 [checklist, Slovakia]; Vaillant & Vinçon 1986: 65 [distribution, Pyrenees, Europe, phylogenetic discussion]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Martinovský 1997b: 42 [checklist,

Czech Republic and Slovakia]; Wagner & Niesiołowski 1997: 499 [records, Poland]; Wagner & Cobo 2001: 31 [record, Andorra]; Wagner & Báez 2002: 78 [distribution]; Wagner 2002: 101 [redescription, male and female terminalia, distribution]; Szadziewski 2007: 71 [checklist, Poland]; Ševčík 2012: 195 [record, Krkonoš Mountains, Czech Republic]; Palaczyk & Słowińska-Krysiak 2014: 59 [records, Tatra Mountains, Poland]; Hancock 2016: 300 [distribution].

minuta Wagner. **PA:** Greece (Andros).

Thaumalea minuta Wagner, 1981: 146. Type locality: Greece: Andros, Apikia, 37°51'N 24°54'E, 220 m. HT ♂ RWC [stored in ethanol]. Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Wagner 2002: 59 [redescription, male and female terminalia, distribution map].

mixta Edwards. **PA:** Austria.

Thaumalea mixta Edwards, 1929: 129. Type locality: Austria: North Tyrol, Kühtal. HT ♂ NMW. Lindner 1930: 12 [description, figure of male and female terminalia, distribution, Alps]; Collart 1945: 5 [distribution, PA]; Schmid 1951:6 [*Thaumalea valdesia* is closely related]; Schmid 1958: 3 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 701 [distribution, Group III b of *Thaumalea*]; Martinovský & Rozkošný 1976: 197 [phylogenetic discussion]; Vaillant 1978a: 708 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Wagner 2002: 95 [redescription, male and female terminalia, distribution].

monikae Wagner & Bellstedt. **PA:** Russia (Karachay-Cherkessia).

Thaumalea monikae Wagner & Bellstedt, 2015: 485. Type locality: Russia: Central Caucasus, Karachay-Cherkessia province, Itkol, 43°15'2"N 42°34'13"E, 2000 m. HT ♂ RWC [stored in ethanol].

nevadensis Vaillant, **nomen nudum**.

Thaumalea nevadensis Vaillant & Vinçon, 1988: 281 [endemic to Spain].

nigronitida Papp. **OR:** Thailand.

Thaumalea nigronitida Papp in Papp *et al.*, 2006: 122. Type locality: Thailand: Doi Inthanon National Park. HT ♀ HNHM.

pachystyla Vaillant. **PA:** France.

Thaumalea pachystyla Vaillant, 1978a: 701. Type locality: France: Hautes-Pyrénées, Estibère, tributary of Neste d'Aure. HT ♂ MZLS (GBIFCH00597465) [on microscope slide]. Vaillant & Vinçon 1986: 65 [endemic to Pyrenees]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Wagner 2002: 104 [redescription, male terminalia, distribution]; Hancock 2016: 300 [distribution].

popovi Joost. **PA:** Bulgaria.

Thaumalea popovi Joost, 1978: 118. Type locality: Bulgaria: Stara Planina Mountains, Sopot, spring of Stryama, 1600 m. HT ♂ RWC [stored in ethanol]. Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Wagner 1992: 212 [phylogenetic discussion]; Wagner 2002: 61 [redescription, male and female terminalia, distribution map].

provincialis Vaillant. **PA:** France.

Thaumalea provincialis Vaillant, 1978a: 702. Type locality: France: Alpes-Maritimes, Belvédère, spring of Gordolasque, 500 m. HT ♂ MNHN [on microscope slide]. Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 141 [female terminalia, key to females of European species]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Wagner 2002: 78 [redescription, male and female terminalia, distribution map]; Haubrock *et al.* 2017: 528, 529, 530 [molecular phylogeny, phylogeography and genetic structure of European species].

pulla Edwards. **PA:** Austria; Germany, France.

Thaumalea pulla Edwards, 1929: 130. Type locality: Austria: North Tyrol, Kühtal. HT ♂ NMW. Lindner 1930: 13 [description, figures of male and female terminalia, distribution, Alps]; Collart 1945: 5 [distribution, PA]; Schmid 1958: 3 [as synonym of *Thaumalea freyi* Edwards]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 696 [figures of male terminalia, distinct species]; Vaillant 1973: 145 [record, Parc de la Vanoise, France]; Martinovský & Rozkošný 1976: 194 [phylogenetic discussion]; Vaillant 1978a: 707 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 135 [phylogenetic discussion, key]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Wagner 1995: 66 [record, Austria]; Wagner 1999: 83 [checklist, Germany]; Wagner 2002: 103 [redescription, male and female terminalia, distribution].

pyrenaica Edwards. PA: Andorra, France, Spain.

Thaumalea pyrenaica Edwards, 1929: 135. Type locality: France: Vemet-les-Bains. HT ♂ NMW. Lindner 1930: 13 [description, figure of male terminalia, distribution: southern France]; Collart 1945: 5 [distribution, PA]; Collart 1950b: 63 [distribution, France]; Vaillant 1953b: 123 [distribution]; Schmid 1958: 4 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1968: 82 [record, Pyrenees, figures of male terminalia]; Vaillant 1969: 701 [distribution, Group IV c of *Thaumalea*]; Vaillant 1978a: 706 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Wagner 1981: 144 [distribution, Spain]; Vaillant & Vinçon 1986: 65 [endemic to Pyrenees]; Martinovský & Rozkošný 1988: 190 [catalogue, PA];]; Carles-Tolrá 2001: 82 [record, Iberian Peninsula]; Wagner & Cobo 2001: 31 [distribution]; Wagner 2002: 84 [redescription, male and female terminalia, distribution map]; Wagner & Báez 2002: 78 [distribution]; Hancock 2016: 299 [distribution]; Carles-Tolrá 2020: 106 [distribution, Spain]; Carles-Tolrá 2022: 179 [distribution, Spain].

Orphnephila pyrenaica: Bertrand 1948: 166 [distribution].

remota Martinovský & Rozkošný. PA: Czech Republic, Hungary, Romania, Slovakia.

Thaumalea remota Martinovský & Rozkošný, 1976: 197. Type locality: Czech Republic: Moravia, Hrubá Voda. HT ♂ MMB (ENT 1540). Vaillant 1978a: 706 [key to males of European species]; Vaillant 1981: 145 [key to females of European species]; Martinovský 1984: 83 [Slovakia checklist]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia checklist]; Martinovský & Rozkošný 1988: 190 [catalogue, PA]; Wagner & Niesiołowski 1997: 500 [may occur in Poland]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia]; Martinovský 1999: 136 [distribution, Slovakia]; Papp & Majer 2000: 237 [records, Hungaria]; Papp 2001: 89 [checklist, Hungary]; Wagner 2002: 80 [redescription, male and female terminalia, distribution]; Papp 2003: 311 [checklist, Hungary, distribution]; Ševčík 2005: 273 [vulnerable species in Czech Republic]; Papp *et al.* 2008: 262 [diversity, Hungary]; Keresztes & Dénes 2021: 122 [distribution, Romania].

restonica Vaillant. PA: France (Corsica).

Thaumalea restonica Vaillant, 1970: 170. Type locality: France: Corsica, vallée de la Restonica, 1900 m. ST 3 ♂ MNHN [multiple specimens on microscope slides]. Vaillant 1978a: 708 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 145 [key to females of European species]; Wagner 1987: 18 [new collections from Corsica, France]; Wagner 2002: 95 [redescription, male and female terminalia, distribution].

Thaumalea restonica [misspelling]. Martinovský & Rozkošný 1988: 191 [catalogue, PA].

rivosecchii Wagner. PA: Italy.

Thaumalea rivosecchii Wagner, 1997a: 183. Type locality: Italy: Abruzzi, Firme Veza. HT ♂ RWC [stored in ethanol]. Wagner 2002: 73 [redescription, male and female terminalia, distribution map]; Wagner & Rulik 2008: 321 [Stilfserjoch National Park, Italy].

rumanica Edwards. PA: Romania.

Thaumalea rumanica Edwards, 1929: 136. Type locality: Romania: Herkulesbad (Băile Herculane), Banat District. HT ♂ ZMHB (ZMHB_Dipt_S013144). Lindner 1930: 13 [description, figure of male terminalia, distribution, Romania]; Collart 1945: 5 [distribution, PA]; Schmid 1958: 4 [distribution, classification];

Zilahi-Sebess 1960: 38 [Carpathian Basin record, key to expected and known Hungarian species]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1968: 81 [phylogenetic discussion]; Vaillant 1969: 701 [distribution, Group IV d of *Thaumalea*]; Martinovský & Rozkošný 1976: 198 [distribution, figure of male terminalia]; Joost 1978: 118 [distribution]; Vaillant 1978a: 709 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 191 [catalogue]; Wagner 2002: 81 [redescription, male terminalia, distribution]; Keresztes & Dénes 2021: 126 [distribution, first record from Romania in 100 years].

sandaliae Wagner. **PA:** Italy (Sardinia).

Thaumalea sandaliae Wagner, 1987: 18. Type locality: Italy: Sardinia, Desulo, on Rio Aratu, 40°02'N 9°15'E, 970 m. HT ♂ RWC [stored in ethanol]. Rivosecchi 1995: 11 [distribution, Italy]; Wagner 2002: 75 [redescription, male and female terminalia, distribution map].

schmidi Martinovský & Rozkošný. **PA:** Austria.

Thaumalea schmidi Martinovský & Rozkošný, 1976: 198. Type locality: Austria: Styrian Alps. HT ♂ MMB (ENT 1549). Vaillant 1978a: 708 [key to males of European species]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Wagner 2002: 72 [redescription, male and female terminalia, distribution map].

seguyi Vaillant. **PA:** France.

Thaumalea seguyi Vaillant, 1969: 697. Type locality: France: Massif de la Vanoise, l'Arpont, 2200 m. ST 4 ♂ MNHN. Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1973: 147 [record, Parc de la Vanoise, France]; Martinovský & Rozkošný 1976: 200 [phylogenetic discussion]; Vaillant 1978a: 708 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Wagner 2002: 101 [redescription, male terminalia, distribution].

serbica Wagner. **PA:** Serbia.

Thaumalea serbica Wagner, 1980: 15. Type locality: Serbia: along road from Temska to Topli Do, north of Pirot. HT ♂ RWC [stored in ethanol]. Wagner 1981: 150 [distribution, PA]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Wagner 1992: 212 [phylogenetic discussion]; Wagner 2002: 62 [redescription, male and female terminalia, distribution map].

serrata Edwards. **PA:** Austria, France.

Thaumalea serrata Edwards, 1929: 139. Type locality: Austria: North Tyrol, Kühtal. HT ♂ NMW. Lindner 1930: 13 [description, figure of male terminalia, distribution: Alps]; Collart 1945: 5 [distribution, PA]; Vaillant 1953b: 125 [male terminalia described and figured]; Schmid 1958: 4 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 697 [figures of male terminalia, distribution]; Martinovský & Rozkošný 1976: 192 [phylogenetic discussion]; Vaillant 1978a: 709 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Wagner 1980: 14 [phylogenetic discussion]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Wagner 1995: 66 [record, Austria]; Wagner 2002: 60 [redescription, male and female terminalia, distribution map].

similis Wagner. **PA:** Romania.

Thaumalea dinarica: Vaillant 1978a: 701 [misidentification].

Thaumalea similis Wagner, 1988b: 204. Type locality: Romania: Mont Harghita, Carpathian Mountains, between Harghita Bai and Madara. HT ♂ FVC [on microscope slide]. Wagner 2002: 99 [redescription, male terminalia, distribution]; Papp 2018: 179 [distribution, Romania].

spinata Vaillant. **PA:** France.

Thaumalea spinata Vaillant, 1955: 94. Type locality: France: Signal de Molines, above Molines-en-Queyras, 2100 m. ST ♂ MNHN [on microscope slide]. Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 699 [comparison of male terminalia, distribution]; Vaillant 1978a: 707 [key to males of European species];

Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Wagner 2002: 86 [redescription, male and female terminalia, distribution map]; Kettani & Wagner 2022: 143 [distribution, interpretation of Morocco localities to *T. spinata*, in error].

stelviana Wagner & Rulik. **PA:** Italy.

Thaumalea stelviana Wagner & Rulik, 2008: 324. Type locality: Italy: Province Bolzano, Trentino-Alto Adige, Parco Nazionale dello Stelvio, Tartscher Valley south of Trafoi, 46°32'33.9"N 010°30'17.2"E, 1630 m. HT ♂ ZMHB [currently in RWC] [stored in ethanol].

subafricana (Becker). **PA:** Spain (Canary Islands).

Orphnephila subafricana Becker, 1908: 70. Type localities: Canary Islands: Tenerife; La Palma. 1 ♂ ST BMNH (NHMUK 013437564); 12 ST ZMHB (ZMHB_Dipt_S013156) [sexes unknown]; 4 ST MSNM [sexes unknown].

Thaumalea subafricana: Bezzi 1913: 249 [redescription, World catalogue]; Edwards 1929: 139 [redescription, figure of male terminalia, discussion of ST as PT, in error]; Lindner 1930: 14 [description, figure of male terminalia, distribution: Canary Islands]; Collart 1945: 5 [distribution, PA]; Storå 1946: 31 [distribution, ecology, figure of larval head and mandible]; Schmid 1958: 4 [distribution, classification]; Vaillant 1963: 26 [phylogenetic discussion]; Vaillant 1969: 703 [Group IV a, Edwards listed as author]; Vaillant 1970: 170 [phylogenetic discussion]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Peterson *et al.* 1989: 50 [redescription and figures of adult male and female terminalia, description and figures of larva and pupa]; Sinclair 1992: 496 [comparison of larval head capsule between genera]; Hughes *et al.* 1998: 15 [checklist, Madeiran freshwater macroinvertebrates]; Wagner & Báez 2002: 78 [distribution]; Wagner 2002: 78 [redescription, male and female terminalia, distribution]; Sinclair 2008b: 294 [biogeography]; Haubrock *et al.* 2017: 528, 529, 530 [molecular phylogeny, phylogeography and genetic structure of European species].

suzonae Schmid. **PA:** Iran.

Thaumalea suzonae Schmid, 1958: 14. Type locality: Iran: Mazandaran, Barajan (Ost. 2), 2100 m. HT ♂ CNC (Type No. 17212; CNC804392). Blech & Rohlfien 1987: 216 [distribution, 1 ♂ PT in SDEI]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Cooper 1991: 81 [CNC type catalogue].

tatrica Vaillant. **PA:** Czech Republic, Poland, Romania, Slovakia, Slovenia.

Thaumalea tatrica Vaillant, 1967: 396, *nomen nudum* [Limnofauna Europaea].

Thaumalea tatrica Vaillant, 1969: 699. Type locality: Romania: Bucegi Mountains, Central Carpathians, 2025 m. HT ♂ MNHN [on microscope slide]. Martinovský & Rozkošný 1976: 200 [distribution, figures of male and female terminalia]; Joost 1978: 118 [distribution]; Vaillant 1978a: 708 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 145 [key to females of European species]; Martinovský 1984: 83 [checklist, Slovakia]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Szadziewski 1991: 111 [checklist, Poland]; Wagner 1995: 66 [distribution, Slovenia]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia]; Martinovský 1999: 136 [distribution, Slovakia]; Wagner 2002: 81 [redescription, male and female terminalia, distribution]; Szadziewski 2007: 71 [checklist, Poland]; Ševčík 2012: 195 [records, Krkonoš Mountains, Czech Republic]; Palaczyk & Słowińska-Krysiak 2014: 59 [records, Tatra Mountains, Poland].

testacea Ruthe. **PA:** Austria, Belgium, Czech Republic, Denmark, France, Germany, Great Britain, Hungary, Ireland, Italy, Netherlands, Northern Ireland, Norway, Poland, Russia, Slovakia, Spain, Sweden, Switzerland.

Thaumalea testacea Ruthe, 1831: 1211. Type locality: Germany: Frankfurt an der Oder. HT ♂ UGMD [type not confirmed, collection temporarily inaccessible]; Loew 1847a : 66 [synonymy discussed]; Loew 1847b: 368 [redescription, figures of palpus, antenna and wing, distribution]; Zetterstedt 1852: 4343 [brief description]; Bezzi 1913: 252 [redescription, World catalogue]; Tonnoir 1927: 109 [figure of wing]; Edwards 1928: 173 [Corsica record by Kuntze (1913) probably erroneous, presumably *Thaumalea corsica*]; Hendel 1928: 61

[figure of wing]; Edwards 1929: 133 [redescription, distribution, figures of male and female terminalia]; Lindner 1930: 14 [description, figures of wing and male and female terminalia, distribution, Europe, North America in error]; Sherborn 1931: 6459 [listed and dated 1831]; Johannsen 1934: 56 [comparison of larva with *Androprosopa americana*]; Storå 1936: 31 [larva compared with *Thaumalea subafricana*]; Collart 1936: 274 [distribution, Belgium]; Coe 1945: 342 [checklist, British insects]; Collart 1945: 5 [distribution, PA, redescription and figure of male terminalia]; Tjeder 1949b: 106 [distribution, Scandinavia]; Collart 1950b: 63 [Séguy (1925) record probably *Thaumalea truncata*]; Hennig 1950: 193 [larvae]; Schmid 1951: 5 [distribution, Switzerland]; Séguy 1951a: 114 [description, figure of wing and coloured figure of adult]; Séguy 1951b: 626 [figure of male, distribution, western Europe]; Tollet 1951: 25 [distribution, Belgium]; Popham 1952: 60 [microhabitat, larval movement]; Vaillant 1953b: 123 [male terminalia described and figured]; Vaillant 1956: 43 [madicolous species]; Hinton 1958: 250 [structure and metamorphosis of colour pattern similar to *Thaumalea verralli*]; Schmid 1958: 4, 7 [distribution, classification]; Kidd 1959: 63 [distribution, Lancashire/Cheshire, England]; Zilahi-Sebess 1960: 38 [doubtful Hungarian record, key to known and expected Hungarian species]; Mandaron 1963: 97 [mating, egg, first instar larva]; Vaillant 1967: 396 [Limnofauna Europaea]; Cole 1969: 85 [habitat]; Stackelberg 1969: 246 [species of European USSR, figure of male terminalia]; Vaillant 1969: 700 [figures of male terminalia, distribution]; Hutson 1975: 9 [checklist of British insects]; Martinovský & Rozkošný 1976: 200 [distribution, figures of male and female terminalia]; Andersson 1977: 77 [records, Scandinavia]; Vaillant 1978a: 706 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Wagner 1981: 143 [distribution, PA]; Vaillant 1981: 144 [figure of female terminalia, key to females of European species]; Vaillant & Vinçon 1986: 65 [distribution, Pyrenees, Europe]; Ashe 1987: 118 [distribution, Ireland]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Willassen 1987: 29 [distribution, Scandinavia]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Vaillant & Vinçon 1988: 281 [widespread distribution]; Gosseries & Goddeeris 1991: 39 [distribution, Belgium]; Szadziewski 1991: 111 [checklist, Poland]; Sinclair 1992: 496 [immature stages studied]; Matile 1993: 204 [Diptera of Western Europe]; Gillespie *et al.* 1994: 161 [larvae]; Rivosecchi 1995: 11 [distribution, Italy]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia]; Wagner 1997b: 188 [Thaumaleidae of North Europe, figures of male and female terminalia]; Wagner & Niesiołowski 1997: 499 [records, Poland]; Arnaud 1998: 107 [checklist, Switzerland]; Chandler 1998: 51 [checklist, British Isles]; Disney 1999: 90 [key to British species, morphology]; Wagner 1999: 83 [checklist, Germany]; Martinovský & Barták 2000: 121 [fauna of industrially affected region, Czech Republic]; Wagner 2002: 85 [redescription, male and female terminalia, distribution map]; Wagner & Báez 2002: 78 [distribution]; Wagner & Beuk 2002: 131 [checklist, Netherlands]; Papp 2003: 311 [checklist, distribution, Hungary]; Theischinger 2004: 671 [description of egg]; Szadziewski 2007: 71 [checklist, Poland]; Papp *et al.* 2008: 262 [diversity, Hungary]; Håland 2011: 11 [records, Norwegian]; Lock 2013: 160 [record, Flanders, Belgium, biology]; Hancock 2016: 300 [distribution]; Haubrock *et al.* 2017: 523 [molecular phylogeny, phylogeography and genetic structure of European species].

Orphnephila devia Haliday in Curtis, 1831: 248, *nomen nudum* (Chandler 1998: 51).

Orphnephila devia Haliday, 1832: 350. Type locality: Northern Ireland: Holywood, County Down; Ireland: County Galway. 1 ST BMNH (BMNH(E)236613) [sex unknown], 6 ST [no. 108] [sexes unknown] NMI, ST 1 ♂, 1 ♀, ZMHB (ZMHB_Dipt_S013148) [called PTs by Edwards (1929: 133), in error]. Haliday 1833: 156 [distribution: Ireland and North Ireland, collection details]; Curtis 1837: 234 [list, British insects]; Loew 1847a: 67 [as synonym of *Thaumalea testacea*]; Kieffer 1909: 38 [cited as type of new subfamily Orphnephilinae]; Coquillett 1910: 581 [catalogue, type species]; Sherborn 1925b: 1890 [listed and dated 1832].

Chenesia testacea Macquart, 1834: 152. Type locality: Belgium: Liège, Chênée. ST ♂ MNVL [lost (Collart, 1945: 3)], 1 ST ♂ OUMNH [ENT-DIPT0575]. Meigen 1838: 51 [description, figures of head and adult]; Zetterstedt 1850: 3452 [phylogenetic discussion]; Zetterstedt 1852: 4343 [as synonym of *Thaumalea testacea*]; Loew 1871: 31 [identical with *Thaumalea testacea*]; Sherborn 1931: 6455 [listed and dated 1834]; Collart 1945: 3 [name is a homonym, uncertain assignment to species as types were believed to be lost and at least three species of *Thaumalea* occur in Belgium]; Evenhuis *et al.* 2016: 42 [Macquart catalogue].

Chenesia castanea: Duponchel 1843: 469 [error for *Chensia testacea* Macquart].

Chenesia obscura Zetterstedt, 1850: 3452. Type locality: Norway: Dowre. HT ♂ MZLU (MZLU07146).

Zetterstedt 1838: 867–868 [description but un-named new genus and species from Dowre, Norway, related to *Cyrtomae*, “Familia Platypezinae”]; Zetterstedt 1852: 4343 [as synonym of *Thaumalea testacea*]; Zetterstedt 1860: 6494 [listed]; Loew 1871: 31 [phylogenetic discussion]; Tjeder 1949a: 105 [confirmed as synonym of *Thaumalea testacea*].

Orphnephila obscura: Kertész 1902: 293 [World catalogue, possible synonym of *Thaumalea testacea*]; Kertész 1903: 160 [catalogue, PA, possible synonym of *Thaumalea testacea*]; Becker 1908: 70 [taxonomic discussion]; Morge 1976: 405 [variation of *Thaumalea testacea* in Strobl collection]; Joost 1978: 118 [distribution].

Orphnephila testacea: Haliday 1856: 73, 80, pl. 2 [internal anatomy]; Walker 1856: 265 [brief description, recorded from Great Britain, figures of male habitus, antenna, mouthparts]; Schiner 1864a: 643 [description, synonymy]; Schiner 1864b: 23 [European Diptera catalogue]; Loew 1871: 31 [phylogenetic discussion]; van der Wulp 1877: 311 [one of three European species]; Thalhammer 1900: 16 [checklist, Hungary, none from present limits]; Kertész 1902: 293 [catalogue, World]; Kertész 1903: 160 [catalogue, PA]; Wingate 1906: corrections [checklist, Durham, England]; Becker 1908: 70 [taxonomic discussion]; Thienemann 1909: 54 [hydropetric fauna, metamorphoses and description of larva and pupa, mode of life]; Kuntze 1913: 545 [doubtful Corsica record (Edwards 1928)]; Tonnoir 1919: 114 [distribution, Belgium]; Saunders 1923: 631 [description and illustrations of larva and pupa, habits of immature stages]; Séguy 1925: 18 [distribution, figures of larva, pupa, adult, antenna and male terminalia]; Imms 1930: 626 [distribution]; Wesenberg-Lund 1943: 552 [figure of larva]; Bertrand 1948: 165 [phenology; distribution]; Bertrand 1955: 394 [male terminalia]; Morge 1976: 430 [Strobl collection].

Thaumalea devia: Edwards 1929: 133 [as synonym of *Thaumalea testacea*]; Lindner 1930: 14 [as synonym of *Thaumalea testacea*].

Thaumalea testacea Rondani: Hendel 1936: 1908 [figure of wing].

Thaumalea obscura: Stackelberg 1969: 247 [species of European USSR, figure of male terminalia].

thalhammeri Zilahi-Sebess. **PA:** Austria, Hungary.

Thaumalea thalhammeri Zilahi-Sebess, 1956: 433. Type locality: Hungary: Pecs. HT ♂ HNHM [type destroyed (Papp & Majer 2000: 235)]. Zilahi-Sebess 1960: 37 [key to Hungarian species]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Papp & Majer 2000: 238 [records, Austria, Hungary]; Papp 2001: 89 [checklist, Hungary]; Wagner 2002: 91 [redescription, male terminalia, distribution]; Papp 2003: 311 [checklist, Hungary, distribution]; Theischinger 2004: 671 [eggs described and illustrated]; Papp *et al.* 2008: 262 [diversity, Hungary].

thomasi Vaillant. **PA:** France.

Thaumalea thomasi Vaillant, 1968: 83. Type locality: France: Pyrenees, Hospitalet, 1436 m. HT ♂ MZLS (GBIFCH00597459) [on microscope slide]. Vaillant 1969: 701 [distribution, Group IV a of *Thaumalea*]; Vaillant 1970: 170 [phylogenetic discussion]; Vaillant 1978a: 701, [phylogenetic discussion, key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant & Vinçon 1986: 65 [endemic to Pyrenees]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Wagner 2002: 92 [redescription, male terminalia, distribution]; Hancock 2016: 300 [distribution].

toscanica Vaillant. **PA:** Italy.

Thaumalea toscanica Vaillant, 1981: 135. Type locality: Italy: Monte Falco, North of Stia, North-east of Firenze, 1500 m. HT ♂ MNHN [on microscope slide]. Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Rivosecchi 1995: 11 [distribution, Italy]; Wagner 2002: 91 [redescription, male terminalia, distribution].

truncata Edwards. **PA:** Austria, Belgium, Czech Republic, Finland, Germany, Great Britain, Ireland, Norway, Poland, Russia, Slovakia, Sweden.

Thaumalea truncata Edwards, 1929: 137. Type locality: England: North Lancashire, Grange-over-Sands. HT ♂ BMNH (NHMUK013437562). Lindner 1930: 14 [description, figures of male and female terminalia, distribution, PA]; Coe 1945: 342 [checklist, British insects]; Collart 1945: 5 [distribution, PA, redescription and figure of male terminalia]; Tjeder 1949b: 106 [distribution, Norway]; Collart 1950a: 1 [comparison with *Thaumalea tricuspis*]; Collart 1950b: 63 [Séguy (1925:19) record of *Thaumalea testacea* from France

could be *Thaumalea truncata*]; Tollet 1951: 25 [distribution, Belgium, comments on male terminalia]; Schmid 1958: 4 [distribution, classification]; Kidd 1959: 63 [distribution, Lancashire/Cheshire, England]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1968: 83 [phylogenetic discussion]; Stackelberg 1969: 246 [species of European USSR, figure of male terminalia]; Vaillant 1969: 701 [distribution; Group IV b of *Thaumalea*]; Hutson 1975: 9 [checklist, British insects]; Martinovský & Rozkošný 1976: 201 [synonym with *Thaumalea tricuspis* confirmed, distribution, figures of male and female terminalia]; Andersson 1977: 77 [records, Scandinavia]; Vaillant 1978a: 709 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 145 [key to females of European species]; Wagner 1981: 143 [distribution, PA]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Willassen 1987: 29 [distribution, Scandinavia]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Håland 1990: 43 [record, Sandnessjøen in Norland, Norway (66° N), northernmost record of species]; Gosseries & Goddeeris 1991: 39 [distribution, Belgium]; Szadziewski 1991: 111 [checklist, Poland]; Martinovský 1997a: 212 [records, Czech Republic and Slovakia]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia]; Wagner 1997b: 188 [Thaumaleidae of North Europe, figures of male and female terminalia]; Chandler 1998: 51 [checklist, British Isles]; Disney 1999: 90 [key to British species, morphology]; Wagner 1999: 83 [checklist, Germany]; Wagner 2002: 77 [redescription, male and female terminalia, distribution map]; Salmela 2003: 150 [record, Finland]; Pärvi 2004: 190 [records, Piatra Craiului National Park, Romania]; Ševčík *et al.* 2005: 97 [fauna, Podyjí National Park, Czech Republic]; Salmela *et al.* 2007: 37 [diversity, Finnish wetland]; Szadziewski 2007: 71 [checklist, Poland]; Preisler *et al.* 2008: 154 [records, Jizerský hory Mountains, Czech Republic]; Håland 2011: 11 [records, Norway]; Andersen *et al.* 2013: 184 [*Thaumalea truncata* sensu Wagner (2002) likely undescribed species, northern Norway record, male terminalia compared]; Lock 2013: 161 [distribution, Belgium, biology]; Salmela *et al.* 2014: 39 [checklist, Finland]; Langton 2015: 57 [record, Ireland]; Haubrock *et al.* 2017: 523 [molecular phylogeny, phylogeography and genetic structure of European species].

Thaumalea tricuspis Tjeder, 1949b: 107. Type locality: Sweden: Scania, Ravlunda, Kyrkbyn. HT ♂ MZLU (MZLU-TYPE07151). Collart 1950a: 2 [as synonym of *Thaumalea truncata*]; Tjeder 1953: 213 [habitat]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 703 [Group IV b of *Thaumalea*]; Martinovský & Rozkošný 1976: 200 [phylogenetic discussion]; Vaillant 1978a: 709 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 191 [catalogue; PA, as synonym of *Thaumalea truncata* Edwards]; Wagner 1999: 83 [as synonym of *Thaumalea truncata*]; Andersen *et al.* 2013: 184 [probable synonym of *Thaumalea truncata*].

vallanti Martinovský & Rozkošný. **PA:** Czech Republic, Poland, Slovakia.

Thaumalea vallanti Martinovský & Rozkošný, 1976: 203. Type locality: Slovakia: West Tatras, Račkova Valley, Podbansko, 1000 m. HT ♂ MMB (ENT 1545). Vaillant 1978: 708 [key to males of European species]; Vaillant 1981: 145 [key to females of European species]; Martinovský 1984: 83 [checklist, Slovakia]; Martinovský & Rozkošný 1987: 55 [checklist, Czechoslovakia]; Martinovský & Rozkošný 1988: 191 [catalogue, PA]; Martinovský 1997b: 42 [checklist, Czech Republic and Slovakia]; Wagner & Niesiołowski 1997: 499 [records, Poland]; Martinovský 1999: 136 [distribution, Slovakia]; Wagner 2002: 72 [redescription, male and female terminalia, distribution map]; Ševčík 2005: 273 [vulnerable species in Czech Republic]; Szadziewski 2007: 71 [checklist, Poland]; Ševčík 2012: 195 [records, Krkonoš Mountains, Czech Republic]; Palaczyk & Słowińska-Krysiak 2014: 59 [records, Tatra Mountains, Poland].

valdesia Schmid. **PA:** Switzerland.

Thaumalea valdesia Schmid, 1951: 5. Type locality: Switzerland: Valais, Tanay, 1450 m. HT ♂ CNC (Type No. 17213; CNC804453). Schmid 1958: 3 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 701 [distribution]; Martinovský & Rozkošný 1976: 195 [phylogenetic discussion]; Vaillant 1978a: 708 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 192 [catalogue, PA]; Cooper 1991: 81 [CNC type catalogue]; Arnaud 1998: 107 [checklist, Switzerland]; Wagner 2002: 101 [redescription, male terminalia, distribution].

veletensis Vaillant. **PA:** Spain.

Thaumalea veletensis Vaillant, 1978: 704. Type locality: Spain: Sierra Nevada, Sol y Nieve, Mont Veleta, 2000

m. HT ♂ MZLS (GBIFCH00597460) [on microscope slide]. Wagner 1987: 20 [phylogenetic discussion]; Martinovský & Rozkošný 1988: 192 [catalogue, PA]; Wagner 2002: 68 [redescription, male and female terminalia, distribution map]; Wagner & Báez 2002: 78 [distribution]; Hancock 2016: 300 [distribution].

verralli Edwards. **PA:** Andorra, Belgium, Denmark, France, Germany, Great Britain, Iceland, Ireland, Norway, Spain. **NE:** Canada (Newfoundland*).

Thaumalea verralli Edwards, 1929: 132. Type locality: England: Cornwall, St. Ives. HT ♂ BMNH (NHMUK013437563). Lindner 1930: 15 [description, figures of male and female terminalia, distribution, PA]; Lindroth 1931: 272 [distribution, Iceland]; Edwards & Collin 1932: 264 [distribution, St. Kilda, Scotland]; Coe 1945: 342 [checklist, British insects]; Collart 1945: 5 [distribution, PA, redescription and figure of male terminalia]; Collart 1950b: 64 [distribution, France]; Schmid 1951: 6 [distribution, PA]; Tollet 1951: 25 [distribution, Belgium]; Vaillant 1953a: 3 [male terminalia described, distribution]; Vaillant 1953b: 123 [male terminalia described and illustrated]; Nielsen *et al.* 1954: 10 [distribution, Iceland, figures of larva]; Hinton 1955: 474 [muscles of anterior proleg]; Vaillant 1956: 43 [madicolous species]; Hinton 1958: 249 [structure and metamorphosis of larval colour pattern]; Schmid 1958: 4 [distribution, classification]; Kidd 1959: 63 [distribution, Lancashire/Cheshire, England]; Hinton 1960: 345 [chromatocytes]; Andersson 1967: 101 [only species of family in Iceland]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1968: 83 [record, Pyrenees]; Stackelberg 1969: 247 [species of European USSR, figure of male terminalia]; Vaillant 1969: 700 [figures of male terminalia, distribution]; Pedersen 1971: 17 [records, Faroes]; Lindroth *et al.* 1973: 23 [records, Iceland, absent from Surtsey]; Hutson 1976: 9 [checklist, British insects]; Arnaud 1977: 284 [larvae collected from hot spring]; Vaillant 1978a: 709 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Vaillant 1981: 143 [figure of female terminalia, key to females of European species]; Waterston 1981: 290 [records, Outer Hebrides, Great Britain]; Vaillant & Vinçon 1986: 65 [distribution, Pyrenees, widespread in Europe]; Ashe 1987: 119 [distribution, Ireland]; Willassen 1987: 29 [records, Scandinavia, figures of wing and male terminalia]; Martinovský & Rozkošný 1988: 192 [catalogue, PA]; Vaillant & Vinçon 1988: 281 [distribution, widespread]; Gosseries & Goddeeris 1991: 39 [distribution, Belgium]; O'Connor *et al.* 1992: 168 [distribution, County Waterford, Ireland]; Sinclair 1992: 496 [immature stages studied]; Sinclair 1996: 363 [record, NE, redescription, figures]; Wagner 1997b: 188 [Thaumaleidae of North Europe, figures of male and female terminalia]; Chandler 1998: 51 [checklist, British Isles]; Disney 1999: 90 [key to British species, morphology]; Wagner 1999: 83 [checklist, Germany]; Carles-Tolrá 2001: 82 [record, Iberian Peninsula]; Lichtwardt *et al.* 2001: 765 [fungal symbionts in larvae]; Wagner & Cobo 2001: 31 [distribution]; Wagner 2002: 65 [redescription, male and female terminalia, distribution map]; Wagner & Báez 2002: 78 [distribution]; White & Lichtwardt 2004: 901 [fungal symbionts in larvae]; Wood & Greenwood 2004: 35 [larvae, Peak Cavern threshold zone, Derbyshire, UK]; Courtney *et al.* 2008: 752 [ecology, distribution, larval Diptera, North America]; Sinclair 2008b: 294 [biogeography]; Håland 2011: 11 [record, Norway]; Lock 2013: 160 [records, Flanders, Belgium, biology]; Hancock 2016: 300 [distribution]; Haubrock *et al.* 2017: 524 [molecular phylogeny, phylogeography and genetic structure of European species]; Courtney *et al.* 2019: 992 [ecology, distribution, larval Diptera, North America]; Carles-Tolrá 2020: 106 [distribution, Spain].

Thaumalea veralli [misspelling]. Wagner 1981: 143 [distribution, widespread in Europe].

Orphnephila verralli: Bertrand 1948: 166 [male and female terminalia and larvae described].

Prothaumalea verralli: Bertrand 1955: 397 [male and female terminalia].

zernyi Edwards. **PA:** Albania.

Thaumalea zernyi Edwards, 1929: 129. Type locality: Albania: Korab, western slopes of mountain, 2000 m. HT ♂ NMW. Lindner 1930: 15 [description, figures of male and female terminalia, distribution, Albania]; Collart 1945: 5 [distribution, PA]; Schmid 1958: 3 [distribution, classification]; Vaillant 1967: 396 [Limnofauna Europaea]; Vaillant 1969: 701 [distribution, Group III a of *Thaumalea*]; Martinovský & Rozkošný 1976: 197 [phylogenetic discussion]; Joost 1978: 118 [distribution]; Vaillant 1978a: 708 [key to males of European species]; Vaillant 1978b: 460 [Limnofauna Europaea]; Martinovský & Rozkošný 1988: 192 [catalogue, PA]; Wagner 2002: 95 [redescription, male and female terminalia, distribution].

zwicki Wagner. **PA:** Serbia.

Thaumalea zwicki Wagner, 1980: 13. Type locality: Serbia: road from Temska to Topli Do, north of Pirot. HT

♂ RWC [stored in ethanol]. Wagner 1981: 150 [distribution, PA]; Martinovský & Rozkošný 1988: 192 [catalogue, PA]; Wagner 1992: 212 [phylogenetic discussion]; Wagner 2002: 62 [redescription, male and female terminalia, distribution map].

Genus *TRICHTHAUMALEA* Edwards

Trichothaumalea Edwards, 1929: 125. Type-species: *Thaumalea pluvialis* Dyar & Shannon by original designation. Edwards 1930: 111 [list of genera, distribution]; Curran 1934: 68 [key to world genera]; Hennig 1950: 193 [diversity, distribution]; Bertrand 1955: 394 [morphology]; Vaillant 1959: 31 [distribution]; Hennig 1960: 247 (1966: 21) [biogeography]; Stuckenberg 1960: 107 [compared with *Afrothaumalea*]; Vaillant 1963: 26 [distribution]; Stone 1964: 120 [key to NE genera]; Stone 1965: 120 [catalogue, NE]; Cole 1969: 85 [key to genera]; Sæther 1970: 76 [NE larvae]; Hennig 1973: 27 [distribution]; Arnaud 1977: 284 [distribution]; Cummins *et al.* 1978: 276 [ecological and distributional data for larval Diptera, North America]; Stone & Peterson 1981: 352, 353 [key to genera, North America, figure of wing]; Bickel 1982: 568 [distribution]; Arnett 1985: 667 [listed]; Sinclair 1992: 491, 496 [distribution of genus, description of new species from eastern Appalachians]; Arnaud & Boussy 1994: 126 [key, redescription of two western Nearctic taxa]; Courtney, Merritt & Cummins *et al.* 1996: 540 [ecology, distribution, larval Diptera, North America]; Sinclair 1996: 362 [key to adult, pupa and larva of one eastern US species]; Sinclair 2000: 175 [generic comparisons of immature]; Sinclair & Saigusa 2002: 176 [key to world species, new species, Japan, phylogeny]; Courtney *et al.* 2008: 752 [ecology, distribution, larval Diptera, North America]; Saigusa 2014: 211 [catalogue, Japan]; Sinclair 2017: 729, 730 [pupa compared to *Afrothaumalea*, wing description]; Pivar & Pinho *et al.* 2018: 489, 491, 493 [adult and pupa comparisons to *Afrothaumalea*, *Neothaumalea* and *Niphia*]; Sinclair 2018: 1271 [review, Japan]; Courtney *et al.* 2019: 992 [ecology, distribution, larval Diptera, North America].

elakalensis Sinclair. NE: United States of America (North Carolina, Tennessee, West Virginia).

Trichothaumalea elakalensis Sinclair, 1992: 492. Type locality: USA: West Virginia, Blackwater Falls State Park, Falls of Elakala, cliff face seepage. HT ♂ CNC (CNC803928). Arnaud & Boussy 1994: 45 [North American species]; Poole 1996: 308 [checklist, NE]; Sinclair 1996: 363 [keys to adult, pupa and larva of Thaumaleidae of eastern North America, new distribution records]; Sinclair & Saigusa 2002: 176 [key to species, phylogeny]; Sinclair 2018: 1271 [related to *Trichothaumalea japonica*].

japonica Sinclair & Saigusa. PA: Japan.

Trichothaumalea japonica Sinclair & Saigusa, 2002: 176. Type locality: Japan: Kyushu, Fukuoka Prefecture, Fukuoka-shi, Nogôchi, seeps along trail. HT ♂ KUMF. Saigusa 2014: 211 [catalogue, Japan]; Sinclair 2018: 1271 [Japanese fauna, keys, figures].

pilosa (Garrett). NE: Canada (British Columbia).

Orphnephila pilosa Garrett, 1925: 10. Type locality: Canada: British Columbia, Marysville. HT ♂ CNC (CNC803943) [abdomen on microscope slide]. Curran 1926: 99 [records, Canada]; Cooper 1991: 79 [CNC type catalogue]; Brooks *et al.* 2015: 76 [CNC type catalogue].

Trichothaumalea pilosa: Edwards 1929: 125 [new combination, as synonym of *Trichothaumalea pluvialis* without examination of types]; Stone 1965: 120 [catalogue, NE, as synonym of *Trichothaumalea pluvialis*]; Cole 1969: 86 [as synonym of *Trichothaumalea pluvialis*]; Sinclair 1992: 491 [second western NE species]; Arnaud and Boussy 1994: 127 [new status, redescription, LT designated - invalid (see Brooks *et al.* 2015)]; Poole 1996: 308 [checklist, NE]; Sinclair & Saigusa 2002: 176 [key to species, phylogeny].

pluvialis (Dyar & Shannon). NE: Canada (British Columbia), United States of America (Alaska, Washington*).

Thaumalea pluvialis Dyar & Shannon, 1924: 433. Type locality: Canada: British Columbia, Prince Rupert. LT ♂ USNM (Type No. 24760; USNMENT1028681) [on microscope slide, except left wing on pin].

Trichothaumalea pluvialis: Edwards 1929: 125 [designated type species of *Trichothaumalea*]; Curran 1934: 68 [cited in key]; Vaillant 1959: 31 [checklist, NE]; Stone 1965: 120 [catalogue, NE]; Cole 1969: 86

[distribution]; Stone & Peterson 1981: 353 [distribution, figure of wing]; Arnett 1985: 667 [listed]; Sinclair 1992: 491, 492 [western North America, undescribed pupa from Glacier National Park, British Columbia]; Arnaud & Boussy 1994: 130 [redescription, LT designation]; Poole 1996: 308 [checklist, NE]; Sinclair & Saigusa 2002: 176 [key to species, phylogeny].

Specimen Data for New Records

Androprosopa americana. USA. Mississippi, Tishomingo State Park, Outcroppings Trail, waterfall, 34°36'32"N 88°10'31"W, 20.v.2013, J.M. Cumming (2 ♂, CNC).

Thaumalea verralli. CANADA. Newfoundland, Gros Morne, National Park, Green Gardens Trail, 6.viii.2017; beach cliff seepage, 49°30.477'N 58°06.004'W, B.J. Sinclair (1 ♂, CNC); Newfoundland, Trout River, Eastern Point Trail, 49°29'18.04"N 58°07'25.11"W, 15.ix.2021, B.J. Sinclair, ex. riparian veg. along stream (4 ♂, 1 ♀, CNC); Newfoundland, Shoal Brook, nr Gros Morne National Park, 49°28.972'N 57°55.696'W, 16.ix.2021, B.J. Sinclair, ex. roadside cascade (6 ♂, 4 ♀, CNC). [new records for western Newfoundland].

Trichothaumalea pluvialis. USA. Washington, Pierce Co., Mt. Rainier National Park, WA-123, 1.vii.2014, 46°49'33.4"N 121°32'36.1"W, ex. roadcut seeps, J.K. Moulton & R.J. Pivar (1 ♂, 1 ♀, Pivar personal collection); Washington, Skagit Co., Mt. Baker-Snoqualmie National Fork, 19.vii.2012, 935 m, 48°38.760'N 120°51.368'W, roadcut seeps, B.J. Sinclair (1 ♂, CNC).

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