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Psocid News

The Psocidologists' Newsletter

No. 23 (Feb 28, 2021)



Cross section of the thorax of *Neotrogla curvata* taken with SPring-8 Synchrotron.

ADDITIONS AND CORRECTIONS (PART 20) TO LIENHARD & SMITHERS, 2002: "PSOCOPTERA (INSECTA) – WORLD CATALOGUE AND BIBLIOGRAPHY"

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1. Introduction

This is the 20th part of a series of "Additions and Corrections to the World Catalogue and Bibliography" (Lienhard & Smithers, 2002) published in "Psocid News". Parts 1-19 were published in Psocid News no. 4-22 (see below); a **Synthesis of Parts 1-10** is given by Lienhard (2016d).

Please send me regularly copies of your papers on Psocoptera, and please inform me about errors that you find in Lienhard & Smithers (2002). If papers which came to your notice are not treated in the "Additions", please send me the bibliographical references by e-mail. In the "Additions to the Bibliography", references to the papers which I have not yet seen are marked with "(Not seen)" or "(Only abstract seen)". Please send me a copy or PDF of these papers if you feel concerned. Only papers which I have seen are analysed for the "Additions to the Catalogue", or those where the matter they deal with is clearly indicated in the title or in the abstract.

In general these "Additions" present the information in the style of the catalogue (Lienhard & Smithers, 2002), according to the criteria mentioned there (pp. ix-xli) and using the same abbreviations (pp. xl-xli). For each family, newly published changes concerning supra-generic taxa are mentioned at the beginning of the family treatment. For genus-group names and species-group names already listed by Lienhard & Smithers (2002) only the author is cited here. For new names the complete reference (author, year, page) is given in their first entry, where new genus-group names are marked with two asterisks (**) and new species-group names with one asterisk (*). For a name not listed by Lienhard & Smithers (2002), but cited in a preceding part of the "Additions", author and year are always mentioned. Genera are listed alphabetically within each family. Species are listed alphabetically within each genus. Species names are cited in the combination used by Lienhard & Smithers (2002), if not an explicit change of combination (or a new synonymy) has been published since.

No nomenclatural act is published in the "Additions to the Catalogue" because articles in "Psocid News" are not considered as published works under the rules of ICZN (see Editorial: Disclaimer). Sometimes recommendations to future revisers are given concerning nomenclatural acts which eventually should be published. Only some mandatory changes are made in the "Additions to the Catalogue" (e. g. adaptation of species name ending to the grammatical gender of the genus name).

2. List of countries mentioned in the "Additions and Corrections to the World Catalogue" (Parts 1-20)

Country checklists of Psocoptera species extracted from Lienhard & Smithers (2002) are given by Lienhard (2016b).

All additional species records are mentioned in the "Additions and Corrections to the World Catalogue" and all countries mentioned in Parts 1 to 20 of these Additions are listed below, arranged according to the main geographical regions defined for the Catalogue (**I-X**), with a separate heading for fossils (**A**), mainly from amber. This list is provided to facilitate computer searching for distributional references in the online version of the different parts (see Psocid News no. 4-23) or in the **Synthesis of Parts 1-10** given by Lienhard (2016d = PN S3) which can be found at <http://hdl.handle.net/2115/35519>.

- Part 1 – Psocid News, no. 4 (2003): 2-24 (= Lienhard, 2003a)
- Part 2 – Psocid News, no. 5 (2003): 2-37 (= Lienhard, 2003b)
- Part 3 – Psocid News, no. 6 (2004): 1-23 (= Lienhard, 2004a)
- Part 4 – Psocid News, no. 7 (2005): 1-16 (= Lienhard, 2005a)
- Part 5 – Psocid News, no. 8 (2006): 1-18 (= Lienhard, 2006a)
- Part 6 – Psocid News, no. 9 (2007): 1-17 (= Lienhard, 2007a)
- Part 7 – Psocid News, no. 10 (2008): 1-18 (= Lienhard, 2008a)
- Part 8 – Psocid News, no. 11 (2009): 2-16 (= Lienhard, 2009a)
- Part 9 – Psocid News, no. 12 (2010): 1-18 (= Lienhard, 2010)
- Part 10 – Psocid News, no. 13 (2011): 1-18 (= Lienhard, 2011a)

Synthesis of Parts 1-10, see Lienhard (2016d)

- Part 11 – Psocid News, no. 14 (2012): 1-13 (= Lienhard, 2012a)
- Part 12 – Psocid News, no. 15 (2013): 1-21 (= Lienhard, 2013)
- Part 13 – Psocid News, no. 16 (2014): 1-20 (= Lienhard, 2014)
- Part 14 – Psocid News, no. 17 (2015): 1-17 (= Lienhard, 2015)
- Part 15 – Psocid News, no. 18 (2016): 1-12 (= Lienhard, 2016a)
- Part 16 – Psocid News, no. 19 (2017): 1-18 (= Lienhard, 2017)
- Part 17 – Psocid News, no. 20 (2018): 4-17 (= Lienhard, 2018)
- Part 18 – Psocid News, no. 21 (2019): 10-34 (= Lienhard, 2019)
- Part 19 – Psocid News, no. 22 (2020): 16-29 (= Lienhard, 2020b)
- Part 20 – Psocid News, no. 23 (2021) (= present issue)

(**I**) Albania (Parts 14, 16), Armenia (Part 19), Austria (Parts 1, 3, 4, 5, 6, 8, 9), Bahrain (Part 8), Belarus (Part 20), Belgium (Parts 3, 6, 8, 10, 16, 17, 18, 19, 20), Bosnia-Herzegovina (Part 14), Bulgaria (Parts 8, 14, 16, 17, 18, 19, 20), Croatia (Parts 6, 7, 11, 12), Cyprus (Part 11), Czech Republic (Parts 1, 4, 5, 6, 7, 8, 10, 11, 13, 14, 16), Denmark (Parts 10, 12), Egypt (Part 6), Europe (Parts 10, 11, 12, 19), Finland (Parts 1, 7, 10, 11, 12, 13, 15), France (Parts 1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 18, 20), Germany (Parts 1, 3, 4, 5, 7, 8, 10, 11, 12, 14, 16, 19, 20), Great Britain (Parts 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19), Greece (Parts 5, 6, 11, 14, 17, 18, 19, 20), Greenland (Part 15), Hungary (Parts 1, 3, 10), Iceland (Part 10), Iran (Parts 6, 8, 15, 16, 17, 18), Ireland (Parts 6, 9, 13, 17, 19), Israel (Parts 4, 6, 8, 11, 15, 16), Italy (Parts 1, 3, 5, 6, 7, 8, 9, 10, 17, 18, 19), Kosovo (Part 14), Lebanon (Parts 6, 7, 9, 10, 11, 13, 14, 19), Lithuania (Part 8), Luxembourg (Parts 1, 3, 7, 8, 10, 13, 17, 18, 20), Macedonia (Part 14), Malta (Parts 15, 16), Montenegro (Part 14), Morocco (Parts 10, 15), Netherlands (Parts 4, 7, 9,

11, 14, 16, 17, 19), Norway (Parts 4, 10, 13), Oman (Part 8), Poland (Part 13), Portugal (Parts 6, 7, 18, 19), Romania (Parts 10, 14, 16, 17), Russia (Parts 6, 8, 10, 12, 13, 14, 16, 20), Saudi Arabia (Parts 8, 15), Serbia (Part 14), Slovakia (Parts 1, 11, 13), Spain (Parts 1, 5, 7, 8, 9, 11, 12, 13, 17, 18, 20), Sweden (Part 8, 10, 17), Switzerland (Parts 1, 3, 4, 6, 7, 8, 11, 12), Turkey (Parts 5, 10, 15, 20), UAE (Parts 8, 9), Ukraine (Part 6), Yemen (Parts 4, 8, 18, 20)

(II) Ascension Island (Parts 11, 15), Azores (Parts 5, 11), Canary Islands (Parts 1, 4, 5, 10, 11), Cape Verde Islands (Parts 5, 11, 15), Gough Island (Parts 5, 6), Madeira (Parts 5, 8, 15), Saint Helena (Parts 5, 11), Selvagens Islands (Parts 1, 8)

(III) Bahamas (Part 13), Canada (Parts 4, 6, 7, 8, 13, 18, 19, 20), North America (Parts 11, 12), USA (Parts 1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20)

(IV) Antigua (Part 15), Aruba (Part 15), Belize (Parts 1, 4, 6, 8, 9, 10, 15), Costa Rica (Parts 1, 6, 8, 15, 17, 18, 20), Cuba (Parts 6, 11), Curaçao (Part 15), Dominica (Parts 5, 6, 11), Dominican Republic (Parts 4, 6, 7, 8, 12, 13, 14, 18, 19, 20), Guadeloupe (Part 15), Guatemala (Parts 1, 4, 7, 8, 11, 15, 16, 17), Haiti (Parts 1, 4), Hispaniola (Part 10), Honduras (Parts 8, 15), Jamaica (Parts 7, 8, 9, 15, 19), Mexico (Parts 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20), Middle America (Part 11), Nicaragua (Parts 1, 3, 4, 6, 7, 8, 13), Panama (Parts 4, 6, 8, 17, 20), Puerto Rico (Parts 1, 7, 10, 13), Trinidad (Parts 1, 16)

(V) Argentina (Parts 3, 4, 8, 9, 14, 19), Bolivia (Parts 1, 5, 9, 10, 17), Brazil (Parts 1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20), Chile (Parts 1, 4, 6, 8), Colombia (Parts 1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20), Ecuador (Parts 1, 6, 8, 13, 15, 16, 18, 20), French Guiana (Part 18), Paraguay (Parts 13, 14, 15), Peru (Parts 1, 5, 6, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 20), Suriname (Part 10), Venezuela (Parts 1, 4, 6, 7, 8, 10, 15, 17, 18)

(VI) Ethiopia (Part 20), Ghana (Parts 4, 18), Guinea (Parts 1, 20), Kenya (Parts 4, 15, 16, 18, 20), Liberia (Part 15), Madagascar (Part 5), Malawi (Part 3), Mozambique (Parts 15, 20), Namibia (Parts 1, 6, 7, 8, 10, 19), Rwanda (Part 15), Senegal (Parts 15, 20), South Africa (Parts 3, 6, 7, 8, 11, 20), Tanzania (Parts 3, 4), Togo (Part 15), Uganda (Part 6)

(VII) Reunion (Part 15)

(VIII) Brunei (Parts 5, 6), China (Parts 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20), Hong Kong (Part 5), India (Parts 3, 5, 6, 7, 11, 15, 20), Indonesia (Parts 1, 3, 5, 6, 10, 15), Japan (Parts 1, 4, 6, 7, 8, 9, 10, 12, 16, 18, 19, 20), Kazakhstan (Part 13), Korea (Part 17), Kuril Islands (Part 4), Kyrgyzstan (Part 5), Laos (Parts 5, 6, 17), Malaysia (Parts 1, 5, 6, 8, 10, 14, 15, 18, 19), Myanmar (Parts 6, 8, 13, 14, 16, 17, 18, 19, 20), Nepal (Parts 7, 18), New Guinea (Parts 3, 5, 8), Pakistan (Part 14), Philippines (Parts 3, 5, 6, 14, 18, 20), Russia (Parts 1, 10, 11, 20), SE-Asia (Part 7), Singapore (Parts 5, 14, 15), Sri Lanka (Parts 4, 6, 19), Taiwan (Parts 1, 6, 7, 8, 13, 15, 17, 18), Thailand (Parts 1, 4, 5, 6, 9, 11, 15, 18, 20), USSR (Parts 4, 9), Vietnam (Parts 4, 5, 6, 8, 13, 14, 15, 17, 20)

(IX) Australia (Parts 1, 4, 5, 6, 7, 8, 10, 12, 13, 14, 20), Lord Howe Island (Parts 4, 7), New Zealand (Parts 1, 4, 13, 16, 18), Subantarctic islands (Part 13), Tasmania (Part 9)

(X) Easter Island (Parts 13, 16), Fiji (Parts 8, 15), Galapagos (Parts 5, 12), Hawaii (Parts 8, 13, 14), New Caledonia (Part 12)

(A) Amber and Copal (or other fossils) (Parts 1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20)

3. Additions to the Catalogue

Paraneoptera

Chesters, 2019: Paraneoptera (= Psocoptera, Phthiraptera, Thysanoptera and Hemiptera) recovered as monophyletic and sister to the Holometabola, although IC support not convincing (53) (see p. 8 and Supporting information: Fig. 6).

Psocodea

Huber, 2010: behaviour, copulation. Azar *et al.*, 2019: André Nel sixtieth anniversary Festschrift, with list of publications. Cockx *et al.*, 2019: Psocodea mentioned from Upper Cretaceous (A), Canada (III). Garrouste *et al.*, 2019: Psocodea mentioned from Upper

Carboniferous (A), France (I). Montagna *et al.*, 2019: insect evolutionary timescale (Psocodea mentioned in Fig. 3) (A). de Moya *et al.*, 2020: Phylogeny, new classification proposed in Table 3 (Phthiraptera, considered as infraorder of Troctomorpha, contains 5 parvorders).

Psocoptera

Ferreira *et al.*, 2016: Psoc. in caves, Brazil (V). Anonymous 2018: Kazunori Yoshizawa, *Ig Nobel Prize Fanbook*. Anonymous 2019: Rodrigo Ferreira and Charles Lienhard, *Ig Nobel Prize Fanbook*. Delclos *et al.*, 2019: Psoc. mentioned from Early Cretaceous amber (A), Spain (I). Portela *et al.*, 2019: soil fauna, ecology. Ross, 2019: Burmese amber (A), checklist (p. 33). Atencia *et al.*, 2020: psocid mentioned as prey of Amphibia, Colombia (V). Babaei & Vadas, 2020: psocid as allergen causing anaphylaxis. De Kerdrel *et al.*, 2020: multilocus barcoding, Psoc. mentioned. Endshaw & Hiruy, 2020: pest in stored faba beans, Ethiopia (VI). Feng Yi-Xi *et al.*, 2020: control of stored product booklouse. Krueger *et al.*, 2020: psocid mentioned as prey of carnivorous plants, Australia (IX). Lienhard, 2020b: Additions to the World Catalogue and Bibliography, Part 19. Luna-Cozar *et al.*, 2020: psocids in ball moss *Tillandsia recurvata*, Mexico (IV). Maia & Siqueira, 2020: psocids as dwellers of insect galls, Brazil (V). Mizuno *et al.*, 2020: cleanliness of facilities for cell therapy (Psoc. mentioned). Panche-Chocue *et al.*, 2020: diversity and vertical distribution in forest, Colombian Amazon (V). Pires *et al.*, 2020: witches' brooms as microhabitats of psocids. Ross, 2020a, b: Burmese amber (A), checklist. Yoshizawa (ed.), 2020: Newsletter. Silva-Neto & Garcia Aldrete, 2020: Checklist of Psocoptera species from Brazil with key to families (V). Souza Silva *et al.*, 2020: cave psocids, Brazil (V). Stiegel *et al.*, 2020: flying in canopies in deciduous forests, Germany (I). Sundukov *et al.*, 2020: skink (Reptilia) as predator of psocids, Far East of Russia (VIII). Tezcan, 2020: Turkey (I), only families mentioned, no species explicitly mentioned.

Trogiomorpha

Checklist of known species from Cretaceous amber. Alvarez-Parra *et al.*, 2020: Table 1.

Cormopsocidae

New family defined and its phylogenetic position within Psocodea discussed: Yoshizawa & Lienhard, 2020a: 209. Type genus: *Cormopsocus* Yoshizawa & Lienhard.

*Cormopsocus*** Yoshizawa & Lienhard, 2020a: 209. Gender: M. Type species: *Cormopsocus groehni* Yoshizawa & Lienhard.

*Cormopsocus groehni** Yoshizawa & Lienhard, 2020a: 211. Myanmar (VIII), mid-Cretaceous amber (A).

Prionoglarididae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Evolution of knowledge on family Prionoglarididae: Lienhard, 2020a.

Neotroglia Lienhard, 2010. History of discovery of female penis: Anonymous, 2018, 2019; Hollier & Hollier, 2020. Biol.: Czekanski-Moir & Rundell, 2020: 9. Female penis: Zwart, 2019: p. 44 (Psychology: phallus in human erotic activities and phantasies); Franklin-Hall, 2020 (Philosophy of Science: sexes as historical explanatory kinds); Hayssen, 2020.

Neotroglia aurora Lienhard, 2010. Brazil (V): Ferreira *et al.*, 2016 (in caves).

Neotroglia curvata Lienhard & Ferreira, 2013. Female penis (Figs): Hollier & Hollier, 2020.

Prionoglaris stygia Enderlein. Bulgaria (I): Georgiev, 2020c.

Speleketor flocki Gurney. USA (III) Colorado: Uhey & Kendall, 2020 (first record outside of a cave).

Psyllipsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Dorypteryx domestica (Smithers). Bulgaria (I): Georgiev, 2020c. USA (III) Alaska: Sikes & Callegari, 2020 (domestic in Museum).

Psyllipsocus ramburii Selys-Longchamps. Belarus (I): Ostrovsky & Georgiev, 2020. Bulgaria (I): Georgiev, 2020b, 2020c.

*Psyllipsocus yoshizawai** Alvarez-Parra, Peñalver, Nel & Delclòs, 2020: 3. Cretaceous amber (A), Myanmar (VIII).

Empheriidae

*Burmempheria*** Li Sheng, Wang Qiuzhu & Yao Yunzhi 2020: 2. Gender: F. Type species: *Burmempheria densuschaetae* Li Sheng, Wang Qiuzhu & Yao Yunzhi.

*Burmempheria densuschaetae** Li Sheng, Wang Qiuzhu & Yao Yunzhi 2020: 3. Myanmar (VIII), mid-Cretaceous Burmese (A).

*Burmempheria raruschaetae** Li Sheng, Wang Qiuzhu & Yao Yunzhi 2020: 3. Myanmar (VIII), mid-Cretaceous Burmese (A).

Trogiidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Cerobasis guestfalica (Kolbe). Bulgaria (I): Georgiev, 2020c. Greece (I): Georgiev, 2020a.

*Cretolepinotus*** Cockx, McKellar, Tappert, Vavrek & Muehlenbachs, 2020: 382. Gender: M. Type species: *Cretolepinotus tankei* Cockx, McKellar, Tappert, Vavrek & Muehlenbachs, 2020.

*Cretolepinotus tankei** Cockx, McKellar, Tappert, Vavrek & Muehlenbachs, 2020: 382. Canada (III), Upper Cretaceous amber (A).

Lepinotus inquilinus Heyden. Belarus (I): Ostrovsky & Georgiev, 2020. Bulgaria (I): Georgiev, 2020b, 2020c.

Lepinotus reticulatus Enderlein. Bulgaria (I): Georgiev, 2020b, 2020c. Greece (I): Georgiev, 2020a.

Trogium pulsatorium (Linnaeus). Bulgaria (I): Georgiev, 2020c. Greece (I): Georgiev, 2020a.

Psoquillidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Lepidopsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Echmepteryx spec. Brazil (V): Rafael *et al.*, 2020.

Echmepteryx (Loxopholia) dominicanus (sic!) Hakim *et al.*, 2018. Mid-Miocene Dominican Amber (A) (IV): Hakim *et al.*, 2019c.

Soa flaviterminata Enderlein. Brazil (V): Rafael *et al.*, 2020.

*Soa papanasam** Ramesh, Babu & Subramanian, 2020: 384. India (VIII).

Troctomorpha

Checklist of known species from Cretaceous amber. Alvarez-Parra *et al.*, 2020: Table 1.

Compsocidae

*Burmacompsocus pouilloni** Ngo-Muller, Garrouste & Nel, 2020: 5. Myanmar (VIII), mid-Cretaceous amber (A).

Troctopsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Troctopsocidae nymph. Russia (I), Baltic amber (A): Poinar & Vega, 2020 (entomopathogenic fungus).

Troctopsocopsis spec. Dominican Republic (IV), Dominican amber (A): Poinar & Vega, 2020 (entomopathogenic fungus).

Musapsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Amphientomidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Nanopsocetae

New classification by de Moya *et al.*, 2020 (Table 3): Nanopsocetae no longer considered as a valid infraorder. It is replaced by the following three infraorders: **Sphaeropsocetae** de Moya *et al.*, 2020, **Pachytroctetae** de Moya *et al.*, 2020, **Liposcelidetae** Smithers, 1972 and **Phthiraptera** (the latter containing 5 parvorders).

Sphaeropsocidae

de Moya *et al.*, 2020 (Table 3): infraorder **Sphaeropsocetae** de Moya *et al.*, 2020 proposed for Sphaeropsocidae within suborder Troctomorpha.

Pachytroctidae

de Moya *et al.*, 2020 (Table 3): infraorder **Pachytroctetae** de Moya *et al.*, 2020 proposed for Pachytroctidae within suborder Troctomorpha.

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Nanopsocus oceanicus Pearman. Courtship and mating behavior: Young & Mockford, 2020.

Peritroctes bengalensis Thornton & Wong. Courtship and mating behavior: Young & Mockford, 2020.

Tapinella spec. Courtship and mating behavior: Young & Mockford, 2020.

Tapinella maculata Mockford & Gurney. Courtship and mating behavior: Young & Mockford, 2020.

Liposcelididae

de Moya *et al.*, 2020 (Table 3): infraorder **Liposcelidetae** Smithers, 1972 proposed for Liposcelididae within suborder Troctomorpha.

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Belaphopsocus dominicus Grimaldi & Engel, 2006. Mid-Miocene Dominican Amber (A) (IV): Hakim *et al.*, 2019c.

*Liposcelis aleksandrowiczi** Georgiev, Ostrovsky & Lienhard, 2020: 42 (in discussion species name misspelled *alexandrowiczi*). Belarus (I).

Liposcelis bostrychophila Badonnel. Belarus (I): Ostrovsky & Georgiev, 2020 (in ant's nest). Bulgaria (I): Georgiev, 2020b, 2020c. Greece (I): Georgiev, 2020a. Senegal (VI): Parola *et al.*, 2015; Georgiev *et al.*, 2020 (sexual strain). China (VIII): Li Mengnan *et al.*, 2020 (phylogeny; pest in herbal medicines). Japan (VIII): Yoshinami *et al.*, 2020 (household pest). Philippines (VIII): Mangoba & Alvindia, 2020 (pest in stored products). Pest: Parola *et al.*, 2015 (possible transmission by *Liposcelis bostrychophila* of human infection by *Rickettsia felis*); Bai Chunqi *et al.*, 2020 (control); Gallant-Swofford *et al.*, 2020 (allergen causing anaphylaxis); Li Mengnan *et al.*, 2020 (in herbal medicines); Mangoba & Alvindia, 2020 (phosphine resistance); Pang Xue *et al.*, 2020 (control); Qi Xiao-Jie *et al.*, 2020 (control); Yoshinami *et al.*, 2020 (fungal feeding preferences). Phys.: Wei Dan-Dan *et al.*, 2020 (insecticide detoxification).

Liposcelis corrodens (Heymons). Belarus (I): Ostrovsky & Georgiev, 2020 (in ant's nest). Bulgaria (I): Georgiev, 2020b, 2020c. China (VIII): Cui Jixiang *et al.*, 2020.

Liposcelis decolor (Pearman). Belarus (I): Ostrovsky & Georgiev, 2020 (in ant's nest). Bulgaria (I): Georgiev, 2020b, 2020c. Greece (I): Georgiev, 2020a.

Liposcelis entomophila (Enderlein). China (VIII): Li Mengnan *et al.*, 2020 (phylogeny; pest in herbal medicines). Pest: Bai Chunqi *et al.*, 2020 (control); Lu Yujie *et al.*, 2020 (control).

Liposcelis formicaria (Hagen). Bulgaria (I): Georgiev, 2020c.

Liposcelis meridionalis (Rosen). Bulgaria (I): Georgiev, 2020c.

Liposcelis paeta Pearman. Pest: Saeed *et al.*, 2020 (control).

Liposcelis pearmani Lienhard. Belarus (I): Ostrovsky & Georgiev, 2020. Bulgaria (I): Georgiev, 2020b, 2020c. China (VIII): Li Mengnan *et al.*, 2020 (phylogeny; pest in herbal medicines).

Liposcelis priesneri Enderlein. Bulgaria (I): Georgiev, 2020b, 2020c. Greece (I): Georgiev, 2020a.

Liposcelis rufa Broadhead. Bulgaria (I): Georgiev, 2020c. China (VIII): Li Mengnan *et al.*, 2020 (phylogeny; pest in herbal medicines).
Liposcelis silvarum (Kolbe). Bulgaria (I): Georgiev, 2020b, 2020c.
Liposcelis tricolor Badonnel. China (VIII): Li Mengnan *et al.*, 2020 (phylogeny; pest in herbal medicines).

Psocomorpha

Checklist of known species from Cretaceous amber. Alvarez-Parra *et al.*, 2020: Table 1.

Archipsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Amphipsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Kolbia quisquiliarum Bertkau. Bulgaria (I): Georgiev, 2020b, 2020c.

Stenopsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Graphopsocus cruciatus (Linnaeus). Bulgaria (I): Georgiev, 2020b, 2020c. Greece (I): Georgiev, 2020a.

Stenopsocus immaculatus (Stephens). Bulgaria (I): Georgiev, 2020c.

Stenopsocus lachlani Kolbe. Bulgaria (I): Georgiev, 2020c.

Dasydemellidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Asiopsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Paracaeciliidae

Enderleinella obsoleta (Stephens). Bulgaria (I): Georgiev, 2020c.

Caeciliusidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Caecilius fuscopterus (Latreille). Bulgaria (I): Georgiev, 2020c. Greece (I): Georgiev, 2020a.

Valenzuela burmeisteri (Brauer). Bulgaria (I): Georgiev, 2020c.

Valenzuela despaxi (Badonnel). Bulgaria (I): Georgiev, 2020c.

Valenzuela flavidus (Stephens). Bulgaria (I): Georgiev, 2020b, 2020c.

Valenzuela piceus (Kolbe). Bulgaria (I): Georgiev, 2020b, 2020c.

Peripsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Peripsocus alboguttatus (Dalman). Bulgaria (I): Georgiev, 2020b, 2020c.

Peripsocus didymus Roesler. Bulgaria (I): Georgiev, 2020c.

Peripsocus milleri (Tillyard). Luxembourg (I): Lock & Van Butsel, 2020.

Peripsocus phaeopterus (Stephens). Bulgaria (I): Georgiev, 2020b, 2020c.

Peripsocus subfasciatus (Rambur). Bulgaria (I): Georgiev, 2020c.

Ectopsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Ectopsocopsis cryptomeriae (Enderlein), Greece (I): Georgiev, 2020a.

Ectopsocopsis xerophylla Vishnyakova. Greece (I): Georgiev, 2020a.

Ectopsocus axillaris (Smithers). Lock, 2019b: species erroneously recorded from Belgium (I) by Lock, 2019a (see *Protopsocus pulchripennis*).

Ectopsocus briggsi McLachlan. Bulgaria (I): Georgiev, 2020b, 2020c. Greece (I): Georgiev, 2020a.
Ectopsocus meridionalis Ribaga. Bulgaria (I): Georgiev, 2020b, 2020c.
Ectopsocus petersi Smithers. Bulgaria (I): Georgiev, 2020b, 2020c. Greece (I): Georgiev, 2020a.
Ectopsocus vachoni Badonnel. Bulgaria (I): Georgiev, 2020b, 2020c.

Lesneiidae

Systematic position of the family within Homilopsocidea: Yoshizawa *et al.*, 2020.
*Lesneia johnsoni** Yoshizawa & Lienhard, 2020: 3. South Africa (VI).
Lesneia nigra Broadhead & Richards. Kenya (VI): Yoshizawa & Lienhard, 2020 (figs).
*Lesneia testudinata** Yoshizawa & Lienhard, 2020: 4. South Africa (VI).

Elipsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.
Cuneopalpus cyanops (Rostock). Bulgaria (I): Georgiev, 2020b, 2020c. Greece (I): Georgiev, 2020a.
Elipsocus abdominalis Reuter. Bulgaria (I): Georgiev, 2020b, 2020c.
Elipsocus annulatus Roesler. Bulgaria (I): Georgiev, 2020b, 2020c.
Elipsocus hyalinus (Stephens). Bulgaria (I): Georgiev, 2020c.
Elipsocus moebiusi Tetens. Bulgaria (I): Georgiev, 2020b, 2020c.
Elipsocus pumilis (Hagen). Bulgaria (I): Georgiev, 2020b, 2020c.
Hemineura dispar Tetens. Bulgaria (I): Georgiev, 2020b (only males, "dispar complex"), 2020c.
Propsocus pulchripennis (Perkins). Belgium (I): Lock, 2019b.

Lachesillidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.
Key to genera of Graphocaeiliini: Gonzalez-Obando *et al.*, 2020c.
*Garcialdretiella*** Gonzalez-Obando, Sandoval-Arango, & Carrejo-Gironza, 2020c: 120.
Gender: F. Type species: *Garcialdretiella munchiquensis* Gonzalez-Obando, Sandoval-Arango, & Carrejo-Gironza, 2020c.
*Garcialdretiella munchiquensis** Gonzalez-Obando, Sandoval-Arango, & Carrejo-Gironza, 2020c: 120. Colombia (V).
*Lachesilla albrookensis** Garcia Aldrete & Silva Neto, 2020: 50. Panama (IV).
Lachesilla anura Badonnel. First description of male, redescription of female: Lienhard, 2020c. Yemen (I), Mozambique (VI).
[Not "*Lachesilla anura* (?)", male. Badonnel, 1948a: 85 (misidentification). See *Lachesilla guineensis* Lienhard, 2020c: 169.]
Lachesilla bernardi Badonnel. Bulgaria (I): Georgiev, 2020b, 2020c. Greece (I): Georgiev, 2020a.
Lachesilla cladoclastpers Garcia Aldrete & Silva Neto, 2014. Deposition of type material: Silva Ferreira *et al.*, 2020.
*Lachesilla concaensis** Garcia Aldrete & Silva Neto, 2020: 51. Mexico (IV).
Lachesilla diamantina Garcia Aldrete & Silva Neto, 2013. Deposition of type material: Silva Ferreira *et al.*, 2020.
Lachesilla dimorpha Lienhard. Greece (I): Georgiev, 2020a.
Lachesilla grandis Badonnel. First description of male, redescription of female: Lienhard, 2020c. Yemen (I), Mozambique (VI).
*Lachesilla guineensis** Lienhard, 2020c: 169. Guinea (VI).
"*Lachesilla anura* (?)", male. Badonnel, 1948a: 85 (misidentification). See Lienhard, 2020c: 169.
*Lachesilla herediana** Garcia Aldrete & Silva Neto, 2020: 52. Costa Rica (IV).
Lachesilla lapadoce Garcia Aldrete & Silva Neto, 2013. Deposition of type material: Silva Ferreira *et al.*, 2020.

Lachesilla nilopecanhensis Garcia Aldrete & Silva Neto, 2014. Deposition of type material: Silva Ferreira *et al.*, 2020.
*Lachesilla odontiforceps** Garcia Aldrete & Silva Neto, 2020: 53. Costa Rica, Panama (IV).
*Lachesilla oriximinaensis** Garcia Aldrete & Silva Neto, 2020: 55. Brazil (V).
Lachesilla pedicularia (Linnaeus). Bulgaria (I): Georgiev, 2020b, 2020c.
Lachesilla quercus (Kolbe). Bulgaria (I): Georgiev, 2020b, 2020c.
*Lachesilla raravis** Garcia Aldrete & Silva Neto, 2020: 56. Costa Rica (IV).
*Lachesilla tenuidenticulata** Garcia Aldrete & Silva Neto, 2020: 57. Panama, Guatemala, Mexico (IV).
*Lachesilla ticana** Garcia Aldrete & Silva Neto, 2020: 60. Costa Rica (IV).

Mesopsocidae

Mesopsocus immunis (Stephens). Bulgaria (I): Georgiev, 2020b, 2020c.
Mesopsocus unipunctatus (Müller). Bulgaria (I): Georgiev, 2020b, 2020c.

Philotarsidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.
Aaroniella badonneli (Danks). Bulgaria (I): Georgiev, 2020c.
Philotarsus parviceps Roesler. Bulgaria (I): Georgiev, 2020c.
Philotarsus picicornis (Fabricius). Bulgaria (I): Georgiev, 2020c.

Trichopsocidae

Trichopsocus daliü (McLachlan). Bulgaria (I): Georgiev, 2020c. Greece (I): Georgiev, 2020a.

Calopsocidae Kolbe, 1882 (= **Pseudocaeciliidae** Pearman, 1936 *sensu* Yoshizawa & Johnson, 2014)

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.
Trimerocaecilius becheti Meinander. Bulgaria (I): Georgiev, 2020c (cf. *T. becheti*).
Trimerocaecilius popovi Meinander. Bulgaria (I): Georgiev, 2020c.

Dolabellopsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Cladiopsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Spurostigmatidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.
Spurostigma caatinga Silva Neto & Garcia Aldrete, 2012. Deposition of type material: Silva Ferreira *et al.*, 2020.

Ptiloneuridae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.
Silva-Neto, 2017 (taxonomy and phylogeny of Ptiloneuridae, doctoral thesis).
Brasineura Silva Neto & Garcia Aldrete, 2015. Key to males: Lima *et al.*, 2020.
*Brasineura calori** Lima, Silva-Neto, Garcia Aldrete & Bravo, 2020: 376. Brazil (V).
Brasineura diamantina Silva Neto & Garcia Aldrete, 2015. Brazil (V): Lima *et al.*, 2020 (variation of wing venation).
Brasineura jiboia Silva Neto, Garcia Aldrete & Rafael, 2018. Deposition of type material: Silva Ferreira *et al.*, 2020.
*Brasineura morrense** Lima, Silva-Neto, Garcia Aldrete & Bravo, 2020: 379. Brazil (V).
Brasineura trogliphilica Silva Neto & Garcia Aldrete, 2015. Brazil (V): Lima *et al.*, 2020 (variation of wing venation).
Euplocania Enderlein. Checklist of Brazilian species: Araujo Barroso *et al.*, 2020 (Table 1).

- Euplocania quinquedivisa* Silva Neto, Garcia Aldrete & Rafael, 2019a. Description of female: Araujo Barroso *et al.*, 2020. Brazil (V).
- Loneura* Navas. Redefinition of genus, phylogenetic analysis: Garcia Aldrete *et al.*, 2020. Checklist of species, key to males: Gonzalez Obando *et al.*, 2020b.
- Loneura altaquerensis** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 213. Colombia (V).
- Loneura amazonica* (New). Garcia Aldrete *et al.*, 2020: 294 (**from** *Ptiloneura*).
- Loneura carijona** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 215. Colombia (V).
- Loneura colombiana* Garcia Aldrete, Gonzalez & Carrejo, 2011. Description of female: Gonzalez Obando *et al.*, 2020b. Colombia (V)
- Loneura erwini* (New & Thornton). Garcia Aldrete *et al.*, 2020: 294 (**from** *Ptiloneura*).
- Loneura garcialdretei** Gonzalez Obando & Carrejo Gironza, 2020: 138. Peru (V).
- Loneura gorgonaensis* Garcia Aldrete, Gonzalez & Sarria, 2011. Description of female: Gonzalez Obando *et al.*, 2020b. Colombia (V).
- Loneura javierensis** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 217. Colombia (V).
- Loneura koreguaje** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 220. Colombia (V).
- Loneura magdalenensis** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 206. Colombia (V).
- Loneura misak** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 220. Colombia (V).
- Loneura murui** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 239. Colombia (V).
- Loneura nonuya** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 223. Colombia (V).
- Loneura occidentalis** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 226. Colombia (V).
- Loneura orucapu** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 229. Colombia (V).
- Loneura quinaria* (Navas). Garcia Aldrete *et al.*, 2020: 294 (**from** *Ptiloneura*).
- Loneura tatama** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 232. Colombia (V).
- Loneura tayronensis** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 207. Colombia (V).
- Loneura tendalensis** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 210. Colombia (V).
- Loneura univalle* Mendivil Nieto, Garcia Aldrete & Gonzalez Obando, 2017. Colombia (V): Gonzalez Obando *et al.*, 2020b.
- Loneura zuluagai** Gonzalez Obando, Carrejo Gironza, Panche & Garcia Aldrete, 2020b: 235. Colombia (V).
- Ptiloneura* Enderlein. Redefinition of genus, phylogenetic analysis: Garcia Aldrete *et al.*, 2020. Checklist of species, key to males, phylogenetic analysis: Gonzalez Obando *et al.*, 2020a. *Loneuroides* Garcia Aldrete, 2006a. **Synonymy**: Garcia Aldrete *et al.*, 2020: 293.
- Ptiloneura andina* (Garcia Aldrete, Mendivil Nieto & Gonzalez Obando, 2012). Garcia Aldrete *et al.*, 2020: 293 (**from** *Loneuroides*). Colombia (V): Gonzalez Obando *et al.*, 2020a.
- Ptiloneura andoque** Gonzalez Obando, Garcia Aldrete & Carrejo Gironza, 2020a: 410. Colombia (V).
- Ptiloneura baiana* (Silva Neto, Garcia Aldrete & Rafael, 2018). Garcia Aldrete *et al.*, 2020: 293 (**from** *Loneuroides*). Deposition of type material: Silva Ferreira *et al.*, 2020.
- Ptiloneura bernali** Gonzalez Obando, Carrejo Gironza & Garcia Aldrete, 2020a: 413. Colombia (V).
- Ptiloneura bretanaensis* (Garcia Aldrete, Gonzalez Obando & Carrejo Gironza, 2016). Garcia Aldrete *et al.*, 2020: 293 (**from** *Loneuroides*).

*Ptiloneura buitrensis** Gonzalez Obando, Carrejo Gironza & Garcia Aldrete, 2020a: 416. Colombia (V).

*Ptiloneura caguanensis** Gonzalez Obando, Carrejo Gironza & Panche, 2020a: 418. Colombia (V).

*Ptiloneura canoae** Gonzalez Obando, Carrejo Gironza & Panche, 2020a: 420. Colombia (V).

*Ptiloneura cipecca** Garcia Aldrete, Carrejo Gironza & Panche, 2020a: 420. Colombia (V).

Ptiloneura colombiana (Garcia Aldrete, Gonzalez Obando & Carrejo Gironza, 2016). Garcia Aldrete *et al.*, 2020: 293 (**from** *Loneuroides*).

*Ptiloneura columnaris** Garcia Aldrete, Gonzalez Obando, & Carrejo Gironza, 2020: 296. Colombia (V).

*Ptiloneura cuzcoensis** Garcia Aldrete, Gonzalez Obando, & Carrejo Gironza, 2020: 300. Peru (V).

Ptiloneura dapaensis (Mendivil Nieto, Garcia Aldrete & Gonzalez Obando, 2017). Garcia Aldrete *et al.*, 2020: 293 (**from** *Loneuroides*). Colombia (V): Gonzalez Obando *et al.*, 2020a.

Ptiloneura eberhardi (Mendivil Nieto, Garcia Aldrete & Gonzalez Obando, 2017). Garcia Aldrete *et al.*, 2020: 293 (**from** *Loneuroides*).

*Ptiloneura hernandezii** Gonzalez Obando, Carrejo Gironza & Garcia Aldrete, 2020a: 423. Colombia (V).

*Ptiloneura hinestrozae** Gonzalez Obando, Carrejo Gironza & Panche, 2020a: 425. Colombia (V).

Ptiloneura jinotegaensis (Garcia Aldrete, 2007a). Garcia Aldrete *et al.*, 2020: 293 (**from** *Loneuroides*).

*Ptiloneura kogui** Garcia Aldrete, Gonzalez Obando & Carrejo Gironza, 2020a: 428. Colombia (V).

Ptiloneura ledesmai (Garcia Aldrete, Gonzalez Obando & Carrejo Gironza, 2016). Garcia Aldrete *et al.*, 2020: 293 (**from** *Loneuroides*).

Ptiloneura mirandaensis (Garcia Aldrete, 2007). Garcia Aldrete *et al.*, 2020: 294 (**from** *Loneuroides*).

Ptiloneura monserate (Mendivil Nieto, Garcia Aldrete & Gonzalez Obando, 2017). Garcia Aldrete *et al.*, 2020: 294 (**from** *Loneuroides*). Colombia (V): Gonzalez Obando *et al.*, 2020a.

*Ptiloneura mutisi** Garcia Aldrete, Gonzalez Obando & Carrejo Gironza, 2020a: 430. Colombia (V).

*Ptiloneura otunensis** Carrejo Gironza, Gonzalez Obando & Garcia Aldrete, 2020a: 430. Colombia (V).

*Ptiloneura putumayensis** Gonzalez Obando, Carrejo Gironza & Panche, 2020a: 434. Colombia (V).

Ptiloneura quimbaya (Mendivil Nieto, Garcia Aldrete & Gonzalez Obando, 2017). Garcia Aldrete *et al.*, 2020: 294 (**from** *Loneuroides*). Colombia (V): Gonzalez Obando *et al.*, 2020a.

Ptiloneura rionegroensis (Garcia Aldrete, Gonzalez Obando & Carrejo Gironza, 2016). Garcia Aldrete *et al.*, 2020: 294 (**from** *Loneuroides*).

Ptiloneura santanderina (Garcia Aldrete, Gonzalez Obando & Carrejo Gironza, 2016). Garcia Aldrete *et al.*, 2020: 294 (**from** *Loneuroides*).

Ptiloneura tamaensis (Garcia Aldrete, Gonzalez Obando & Carrejo Gironza, 2016). Garcia Aldrete *et al.*, 2020: 294 (**from** *Loneuroides*).

*Ptiloneura timancoi** Carrejo Gironza, Gonzalez Obando & Garcia Aldrete, 2020a: 436. Colombia (V).

Ptiloneura tuluaensis (Garcia Aldrete, Mendivil Nieto & Gonzalez Obando, 2012). Garcia Aldrete *et al.*, 2020: 294 (**from** *Loneuroides*).

*Ptiloneura tunkwasi** Carrejo Gironza, Gonzalez Obando & Garcia Aldrete, 2020a: 438. Peru (V).

Ptiloneura venezolana (Garcia Aldrete, 2006a). Garcia Aldrete *et al.*, 2020: 294 (**from** *Loneuroides*).

- Ptiloneura yari** Carrejo Gironza, Gonzalez Obando & Panche, 2020a: 441. Colombia (V).
- Ptiloneuropsis diamantina* Silva Neto, Garcia Aldrete & Rafael, 2018. Deposition of type material: Silva Ferreira *et al.*, 2020.
- Triplocania* Roesler. Definition of *magnifica* species group: Silva-Neto *et al.*, 2019. Key to Ecuadorian (V) species: Silva Neto *et al.*, 2020.
- Triplocania alfonsoi** Silva Neto, Moreira de Castro & Rafael, 2020: 160. Ecuador (V).
- Triplocania magnifica* Roesler. Assigned to *magnifica* species group: Silva-Neto *et al.*, 2019.
- Triplocania manueli* Silva Neto, Garcia Aldrete & Rafael, 2016. Deposition of type material: Silva Ferreira *et al.*, 2020. Assigned to *magnifica* species group: Silva-Neto *et al.*, 2019.
- Triplocania pumas** Silva Neto, Moreira de Castro & Rafael, 2020: 161. Ecuador (V).
- Triplocania rosae* Silva Neto, Garcia Aldrete & Rafael, 2016b. Assigned to *magnifica* species group: Silva-Neto *et al.*, 2019. Brazil (V): Silva-Neto *et al.*, 2019.

Epipsocidae

- Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.
- Bertkauia lucifuga* (Rambur). Bulgaria (I): Georgiev, 2020b, 2020c.
- Epipsocus manausensis** Garcia Aldrete & Silva Neto, 2019: 2. Brazil (V).
- Goja bicuspidata** Casasola-Gonzalez, 2020: 144. Mexico (IV).
- Goja cuspidata** Casasola-Gonzalez, 2020: 143. Mexico (IV).
- Goja garcialdretei** Casasola-Gonzalez, 2020: 142. Mexico (IV).
- Neurostigma* Enderlein. Checklist of species and key to males: Mendivil Nieto *et al.*, 2020.
- Neurostigma enderleini* New. Fig.: Mendivil Nieto *et al.*, 2020.
- Neurostigma garcialdretei** Mendivil Nieto, Gonzalez Obando & Carrejo Gironza, 2020: 132. Colombia (V).
- Neurostigma xanthopterum* New. Figs: Mendivil Nieto *et al.*, 2020.

Hemipsocidae

- Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Psocidae

- Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.
- Psocidae gen. spec. Brazil (V): Rafael *et al.*, 2020.
- Amphigerontia contaminata* (Stephens). Bulgaria (I): Georgiev, 2020b, 2020c.
- Blaste conspurcata* (Rambur). Bulgaria (I): Georgiev, 2020b, 2020c.
- Elaphopsocus bahianus* Roman-P., Gonzalez Obando & Garcia Aldrete, 2015. Deposition of type material: Silva Ferreira *et al.*, 2020.
- Loensia fasciata* (Fabricius). Bulgaria (I): Georgiev, 2020c.
- Loensia pearmani* Kimmins. Bulgaria (I): Georgiev, 2020c.
- Loensia variegata* (Latreille). Bulgaria (I): Georgiev, 2020c.
- Metylophorus nebulosus* (Stephens). Bulgaria (I): Georgiev, 2020b, 2020c.
- Neopsocus rhenanus* Kolbe. Bulgaria (I): Georgiev, 2020b, 2020c.
- Oreopsocus montanus* (Kolbe). Bulgaria (I): Georgiev, 2020c.
- Psococerastis gibbosa* (Sulzer). Bulgaria (I): Georgiev, 2020c.
- Psocus bipunctatus* (Linnaeus). Bulgaria (I): Georgiev, 2020c.
- Symbiopsocus* Li Fasheng. Key to species: Ning Jinjin, Li Fasheng & Liu Xingyue, 2020.
- Symbiopsocus vietnamicus** Ning Jinjin, Li Fasheng & Liu Xingyue, 2020: 415. Vietnam (VIII).
- Trichadenotecnum affinifelix** Yoshizawa & Lienhard, 2020b: 174. Thailand (VIII).
- Trichadenotecnum alfonsoi** Yoshizawa & Lienhard, 2020b: 173. Thailand (VIII).
- Trichadenotecnum innuptum* Betz. Bulgaria (I): Georgiev, 2020c.
- Trichadenotecnum lingens** Yoshizawa & Lienhard, 2020b: 174. Thailand (VIII).
- Trichadenotecnum majus* (Kolbe). Bulgaria (I): Georgiev, 2020c.
- Trichadenotecnum palmula** Yoshizawa & Lienhard, 2020b: 174. Thailand (VIII).
- Trichadenotecnum separatum** Yoshizawa & Lienhard, 2020b: 175. Thailand (VIII).
- Trichadenotecnum sexpunctatum* (Linnaeus). Bulgaria (I): Georgiev, 2020c.

Myopsocidae

Checklist of species recorded from Brazil (V): Silva-Neto & Garcia Aldrete, 2020.

Myopsocus arthuri Nel., 2006. Mid-Miocene Dominican Amber (A) (IV): Hakim *et al.*, 2019c.

4. Additions to the Bibliography

NOTE: Complete bibliographical references to publications cited in the present paper, which are not listed here, can be found in the World Bibliography (Lienhard & Smithers, 2002: 493-664) or in Parts 1 to 19 of the "Additions"; see also **Synthesis of Parts 1-10** in Lienhard (2016d).

Remarks: Papers with two authors are listed in alphabetical order of second authors after the chronological list of papers with the first author as unique author. Papers with more than two authors (i. e. "first author *et al.*"-papers) are listed chronologically after the two-author papers. References to papers published in the same year are distinguished by suffix-letters added to the publication year. No cross-references to co-authors or editors are given.

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- Anonymous 2018. Kazunori Yoshizawa. *Ig Nobel Prize Fanbook* 15: 47 pp. (In Japanese).
- Anonymous 2019. Rodrigo Ferreira and Charles Lienhard. *Ig Nobel Prize Fanbook* 17: 59 pp. (In Japanese and English).
- Araujo Barroso, K. de, Silva-Neto, A. M. da, Garcia Aldrete, A. N. & Rafael, J. A. 2020. *Euplocania* Enderlein: description of the female of *E. quinquedivisa* Silva-Neto, Garcia Aldrete & Rafael (Psocodea, 'Psocoptera', Ptiloneuridae), with a checklist of *Euplocania* species in Brazil. *Papeis Avulsos de Zoologia* 60: e20206020, 6 pp., 11 figs.
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- Bai Chunqi, Hou Judong, Guo Xu, Liu Xinyu, Zhang Hao & Wang Dianxuan. 2020. Efficacy of ethylenesulphonyl fluoride against stored grain psocids, *Liposcelis bostrychophila* Badonnel and *Liposcelis entomophila* (Enderlein). *Journal of Stored Products Research* 88, article number 101674. **(Only abstract seen)**.
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5. Subject Bibliography for Part 20 of the Additions

NOTE: A Subject Bibliography for Lienhard & Smithers (2002) and for Parts 1-15 of the Additions is given by Lienhard (2016c).

Behaviour

- 2010 Huber, 2010 (Add. 20) (Psocodea, copulation)
 2020 Young & Mockford, 2020 (Add. 20) (courtship and mating behavior)

Biology, life history, physiology, genetics

- 2020 Georgiev *et al.*, 2020 (Add. 20) (parthenogenesis, *Liposcelis*)
 2020 Georgiev *et al.*, 2020 (Add. 20) (sexual strain of *Liposcelis bostrychophila* mentioned from Senegal)
 2020 Wei Dan-Dan *et al.*, 2020 (Add. 20) (*Liposcelis bostrychophila*, insecticide detoxification)

Collections

- 2020 Silva Ferreira *et al.*, 2020 (Add. 20) (type material deposited in a Brazilian Museum)

Ecology

- 2016 Ferreira *et al.*, 2016 (Add. 20) (cave psocids, Brazil)
 2019 Portela *et al.*, 2019 (Add. 20) (soil fauna)
 2020 Georgiev *et al.*, 2020 (Add. 20) (in ant's nest, *Liposcelis*)
 2020 Luna-Cozar *et al.*, 2020 (Add. 20) (in ball moss *Tillandsia recurvata*, Mexico)
 2020 Maia & Siqueira, 2020 (Add. 20) (psocids as dwellers of insect galls, Brazil)
 2020 Ostrovsky & Georgiev, 2020 (Add. 20) (domestic and in ant nests, *Liposcelis* etc.)

- 2020 Panche-Chocue *et al.*, 2020 (Add. 20) (diversity and vertical distribution in forest, Colombian Amazon)
- 2020 Pires *et al.*, 2020 (Add. 20) (witches' brooms as microhabitats of psocids)
- 2020 Sikes & Callegari, 2020 (Add. 20) (domestic psocids in Museum)
- 2020 Souza Silva *et al.*, 2020 (Add. 20) (cave psocids, Brazil)
- 2020 Stiegel *et al.*, 2020 (Add. 20) (deciduous forests, Central Germany)

General treatises, keys, bibliographies

- 2020 Lienhard, 2020b (Add. 20) (Additions to the World Catalogue and Bibliography, Part 19)
- 2020 Silva-Neto & Garcia Aldrete, 2020 (Add. 20) (Checklist of Psocoptera species from Brazil with key to families)

History, biographies

- 2018 Anonymous, 2018 (Add. 20) (Kazunori Yoshizawa, Ig Nobel Prize Fanbook)
- 2019 Anonymous, 2019 (Add. 20) (Rodrigo Ferreira and Charles Lienhard, Ig Nobel Prize Fanbook)
- 2019 Azar *et al.*, 2019 (Add. 20) (André Nel sixtieth anniversary Festschrift, with list of publications)
- 2020 Franklin-Hall, 2020 (Add. 20) (philosophy of Science, *Neotroglia* mentioned)
- 2020 Hollier & Hollier, 2020 (Add. 20) (history of discovery of female penis by Lienhard, Yoshizawa, Ferreira, Kamimura)
- 2020 Lienhard, 2020a (Add. 20) (evolution of knowledge on family Prionoglarididae)
- 2020 Navarrete-Heredia, 2020 (Add. 20) (homage to A. N. Garcia Aldrete)
- 2020 Turner, 2020 (Add. 20) (obituary Edward Broadhead)

Morphology, anatomy

- 2020 Lima *et al.*, 2020 (Add. 20) (variation of wing venation in Ptiloneuridae)
- 2020 Yoshizawa *et al.*, 2020 (Add. 20) (morphology of abdomen and absence of gonapophyses in Lesneiidae)

Palaeontology

- 2019 Cockx *et al.*, 2019 (Add. 20) (Upper Cretaceous, Canada)
- 2019 Delclos *et al.*, 2019 (Add. 20) (Early Cretaceous amber, Spain)
- 2019 Garrouste *et al.*, 2019 (Add. 20) (Upper Carboniferous, France)
- 2019 Hakim *et al.*, 2019c (Add. 20) (Mid-Miocene Dominican Amber)
- 2019 Montagna *et al.*, 2019 (Add. 20) (insect evolutionary timescale)
- 2019 Ross, 2019, 2020a, 2020b (Add. 20) (Burmese amber, checklist)
- 2020 Alvarez-Parra *et al.*, 2020 (Add. 20) (Cretaceous amber)
- 2020 Cockx *et al.*, 2020 (Add. 20) (Upper Cretaceous amber, Canada)
- 2020 Li Sheng *et al.*, 2020 (Add. 20) (Mid-Cretaceous Burmese amber)
- 2020 Ngo-Muller *et al.*, 2020 (Add. 20) (Mid-Cretaceous Burmese amber)
- 2020 Poinar & Vega, 2020 (Add. 20) (Dominican and Baltic amber)
- 2020 Yoshizawa & Lienhard, 2020a (Add. 20) (Mid-Cretaceous Burmese amber)

Pests

- 2015 Parola *et al.*, 2015 (Add. 20) (possible transmission by *Liposcelis bostrychophila* of human infection by *Rickettsia felis*)
- 2020 Babaei & Vadas, 2020 (Add. 20) (psocid as allergen causing anaphylaxis)
- 2020 Bai Chunqi *et al.*, 2020 (Add. 20) (*Liposcelis*, control)
- 2020 Endshaw & Hiruy, 2020 (Add. 20) (storage insect pest, Ethiopia)
- 2020 Feng Yi-Xi *et al.*, 2020 (Add. 20) (control of stored product booklouse)
- 2020 Gallant-Swofford *et al.*, 2020 (Add. 20) (*Liposcelis bostrychophila* as allergen causing anaphylaxis)
- 2020 Li Mengnan *et al.*, 2020 (Add. 20) (*Liposcelis* in herbal medicines)

2020 Lu Yujie *et al.*, 2020 (Add. 20) (*Liposcelis entomophila*, control, effects of sublethal fumigation)
2020 Mangoba & Alvindia, 2020 (Add. 20) (*Liposcelis bostrychophila*, phosphine resistance)
2020 Mizuno *et al.*, 2020 (Add. 20) (cleanliness of facilities for cell therapy)
2020 Pang Xue *et al.*, 2020 (Add. 20) (*Liposcelis bostrychophila*, control)
2020 Qi Xiao-Jie *et al.*, 2020 (Add. 20) (*Liposcelis bostrychophila*, control)
2020 Saeed *et al.*, 2020 (Add. 20) (control, *Liposcelis paeta*)
2020 Wei Dan-Dan *et al.*, 2020 (Add. 20) (*Liposcelis bostrychophila*, insecticide detoxification)
2020 Yoshinami *et al.*, 2020 (Add. 20) (*Liposcelis bostrychophila*, fungal feeding preferences)

Phylogeny, evolution, classification

2017 Silva-Neto, 2017 (Add. 20) (Ptiloneuridae)
2019 Chesters, 2919 (Add. 20) (Paraneoptera)
2020 de Moya *et al.*, 2020 (Add. 2020) (New classification of Psocodea proposed in Table 3: Phthiraptera, considered as infraorder of Troctomorpha, contains 5 parvorders)
2020 Li Mengnan *et al.*, 2020 (Add. 20) (*Liposcelis*)
2020 Yoshizawa & Lienhard, 2020a (Add. 20) (position of Cormopsocidae discussed)
2020 Yoshizawa *et al.*, 2020 (Add. 20) (phylogeny of Homilopsocidea, position of Lesneiidae)

Predators, parasites, parasitoids

2015 Parola *et al.*, 2015 (Add. 20) (*Rickettsia felis* in *Liposcelis bostrychophila*)
2020 Atencia *et al.*, 2020 (Add. 20) (psocid mentioned as prey of Amphibia, Colombia)
2020 Krueger *et al.*, 2020 (Add. 20) (psocid mentioned as prey of carnivorous plants, Australia)
2020 Poinar & Vega, 2020 (Add. 20) (entomopathogenic fungi, Dominican and Baltic amber)
2020 Sundukov *et al.*, 2020 (Add. 20) (Reptilia as predators of psocids: skink)

Techniques

2020 De Kerdrel *et al.*, 2020 (Add. 20) (multilocus barcoding)
2020 Wei Dan-Dan *et al.*, 2020 (Add. 20) (RNA interference method)

EDITORIAL

"Psocid News" publishes any kinds of topics (formal or informal) that may be interesting for psocidologists, but articles containing official nomenclatural acts (e.g. descriptions of new taxa, proposals of new combinations or new synonyms) will not be accepted for publication by the editor (see below).

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