



## Editorial

urn:lsid:zoobank.org:pub:BE8BE638-A9E4-415D-8ADA-493BBCCE55B7

### Describing undiscovered insect diversity: an introduction to collected papers describing 150 new taxa

ZHI-QIANG ZHANG

New Zealand Arthropod Collection, Landcare Research, 231 Morrin Road, St. Johns, Auckland 1072, New Zealand;  
E-mail: zhangz@landcareresearch.co.nz

The number of species on earth is estimated to be 8.7 million, with 87% of them to be discovered and described (Mora *et al.* 2011). The total of 8.7 million seems to be an underestimate, because for Animalia alone, over 1.5 million species have been described (Zhang 2011b). The most successful group, the Insecta, accounts for almost two-thirds of all animals.

*Zootaxa* has been a major force in facilitating the descriptions of undiscovered animal species in the world—publishing about 20% of all new species indexed in *Zoological Record* each year (Zhang 2011a). In the first week since the publication of the ICZN amendment allowing e-only publication (ICZN 2012), *Zootaxa* has published 484 new taxa. In this special volume highlighting undiscovered global diversity of insects, *Zootaxa* publishes 150 new taxa (143 species + 7 genera) of 12 insect orders in 44 papers by authors from different parts of the world (Table 1).

**TABLE 1.** Numbers of new taxa (species-group and genus-group) by insect order (listed following sequence in Zhang 2011c) with references.

Insect order	Number of new taxa		References
	Species-group	Genus-group	
<b>Ephemeroptera</b>	1	0	Flowers (2012)
<b>Orthoptera</b>	2	2	Bolfarini <i>et al.</i> (2012)
<b>Plecoptera</b>	1	0	Li <i>et al.</i> (2012)
<b>Phthiraptera</b>	3	0	Ricardo (2012)
<b>Thysanoptera</b>	4	0	Mound <i>et al.</i> (2012)
<b>Hemiptera</b>	1	0	Rosa <i>et al.</i> (2012)
	1	0	Coelho & Da-Silva (2012)
	1	0	Lagos <i>et al.</i> (2012)
	1	0	Gil-Santana (2012)
	1	1	Blinn (2012)
	12	0	Yasunaga <i>et al.</i> (2012)
<b>Hymenoptera</b>	1	0	Packer & Dumesht (2012)
	1	0	Nemésio & Ferrari (2012)
	4	0	Reshchikov (2012)
<b>Coleoptera</b>	2	0	Melika <i>et al.</i> (2012)
	2	0	Sampaio <i>et al.</i> (2012)
	3	0	Zhou & Zhou (2012)

..... continued on the next page

**TABLE 1** (continued)

Insect order	Number of new taxa		References
	Species-group	Genus-group	
<b>Coleoptera</b>	7	0	Monné & Monné (2012)
	1	1	Yan <i>et al.</i> (2012)
	1	0	Zhao <i>et al.</i> (2012)
	1	0	Deler-Hernández & Delgado (2012)
	1	0	Giorgi & Vandenberg (2012)
	1	1	Oberprieler & Oberprieler (2012)
	2	0	Manzo & Archangelsky (2012)
	2	0	Bocakova <i>et al.</i> (2012)
<b>Neuroptera</b>	3	1	Khramov (2012)
<b>Trichoptera</b>	2	0	Saini & Lakhwinder (2012)
	7	0	Pandher & Saini (2012)
	8	0	Wells & Johanson (2012)
<b>Lepidoptera</b>	8	0	Aarvik <i>et al.</i> (2012)
	5	0	Zhang & Li (2012)
	5	0	Durante (2012)
	1	0	Rajaei Sh. & Xue (2012)
	2	0	Jiang <i>et al.</i> (2012)
	2	0	Volynkin (2012)
	1	0	Viidalepp <i>et al.</i> (2012)
<b>Diptera</b>	4	0	Lukashevich & Przhiboro (2012)
	6	0	Fu <i>et al.</i> (2012)
	2	0	Sorokina (2012)
	10	0	Chen & Máca (2012)
	13	0	Norrbom & Korytkowski (2012)
	2	1	Ibáñez-Bernal & Hernández-Ortiz (2012)
	4	0	Grootaert Meuffels (2012)
	1	0	Ivković <i>et al.</i> (2012)
<b>Total</b>	143	7	

On average, a paper is 13 pages in length, with 3 new species. The largest paper (Norrbom & Korytkowski 2012: 510–553) described 13 new species of *Anastrepha* (Diptera), whereas the shortest paper by Yasunaga *et al.* (2012: 111–112) made available 12 new names of mirid species from Japan. The three large orders (Diptera, Coleoptera and Lepidoptera) combined account for 60% of the new taxa described in this volume.

A special mention for *Eulaema quadragintanovem* Nemésio & Ferrari, 2012, which honors the famous Brazilian soccer player Ronaldo de Assis Moreira (‘Ronaldinho’ or ‘Ronaldinho Gaúcho’). ‘Quadraginta novem’ (forty-nine) is the number of Ronaldinho’s t-shirt at Clube Atlético Mineiro in Brazil.

*Acknowledgements.* I thank my co-editors of *Zootaxa* and all authors of this volume for their contributions.

## References

- Aarvik, L., Karisch, T. & Marthinsen, G. (2012) Review of the Afrotropical genus *Dracontogena* Diakonoff, 1970 (Lepidoptera, Tortricidae) with descriptions of eight new species. *Zootaxa*, 3478, 345–372.

- Blinn, R.L. (2012) *Arenaecoris enervatus* (Hemiptera: Heteroptera: Reduviidae: Stenopodainae), a new genus and species from the Southeastern United States. *Zootaxa*, 3478, 105–110.
- Bocakova, M., Baciakova, B. & Nascimento, E.A.D. (2012) Revision of the genus *Falsocaenia* (Coleoptera: Lycidae). *Zootaxa*, 3478, 282–296.
- Bolfarini, M.P., Capellari, R.S. & De Mello, F.D.A.G. (2012) Two new genera of Pteronemobiini crickets from the Brazilian Atlantic forest (Orthoptera, Grylloidea, Trigonidiidae, Nemobiinae). *Zootaxa*, 3478, 19–31.
- Chen, H. & Máca, J. (2012) Ten new species of the genus *Phortica* from the Afrotropical and Oriental regions (Diptera: Drosophilidae). *Zootaxa*, 3478, 493–509.
- Coelho, L.B.N. & Da-Silva, E.R. (2012) A new species of *Curtara* DeLong & Freytag (Insecta: Hemiptera: Cicadellidae) from Middle Western Brazil. *Zootaxa*, 3478, 77–80.
- Deler-Hernández, A. & Delgado, J.A. (2012) The Hydraenidae of Cuba (Insecta: Coleoptera) I: Contribution to the fauna of eastern Cuba. *Zootaxa*, 3478, 213–238.
- Durante, A. (2012) The genus *Afrasura* Durante, 2009 in Gabon, with description of five new species and a new species group (Erebidae: Arctiinae: Lithosiini). *Zootaxa*, 3478, 383–398.
- Flowers, R.W. (2012) A new species of *Atopophlebia* Flowers (Ephemeroptera: Leptophlebiidae) from western Ecuador with ecological and biogeographic notes on the genus. *Zootaxa*, 3478, 11–18.
- Fu, Y., Sæther, O.A. & Wang, W. (2012) A review of *Paratrichocladius* Santos Abreu from the Sino-Indian Region (Diptera: Chironomidae: Orthocladinae). *Zootaxa*, 3478, 453–482.
- Gil-Santana, H.R. (2012) *Rhyparoclopius aokiae* sp. nov., a remarkable Stenopodainae (Hemiptera: Heteroptera: Reduviidae) from Mato Grosso do Sul, Brazil, with taxonomical notes on other species of *Rhyparoclopius* Stål. *Zootaxa*, 3478, 93–104.
- Giorgi, J.A. & Vandenberg, N.J. (2012) Review of the lady beetle genus *Phaenochilus* Weise (Coleoptera: Coccinellidae: Chilocerini) with description of a new species from Thailand that preys on cycad aulacaspis scale, *Aulacaspis yasumatsui* Takagi (Hemiptera: Sternorrhyncha: Diaspididae). *Zootaxa*, 3478, 239–255.
- Grootaert, P. & Meuffels, H. (2012) New *Griphophanes* Grootaert & Meuffels (Diptera, Dolichopodidae, Pelorocephalidae) from Southeast Asia. *Zootaxa*, 3478, 570–580.
- Ibáñez-Bernal, S. & Hernández-Ortiz, V. (2012) The new genus *Acrocephalomyia*, and a new species of *Ropalomera* from Costa Rica, with additional records for other Mesoamerican species (Diptera: Ropalomeridae). *Zootaxa*, 3478, 554–569.
- International Commission on Zoological Nomenclature (2012) Amendment of Articles 8, 9, 10, 21 and 78 of the *International Code of Zoological Nomenclature* to expand and refine methods of publication. *Zootaxa*, 3450, 1–7
- Ivković, M., Plant, A. & Horvat, B. (2012) A new species of *Wiedemannia* (Diptera: Empididae: Clinocerinae) from Balkan Peninsula. *Zootaxa*, 3478, 581–585.
- Jiang, N., Xue, D. & Han, H. (2012) A review of *Peratophyga* Warren, 1894 in China, with descriptions of two new species (Lepidoptera: Geometridae, Ennominae). *Zootaxa*, 3478, 403–415.
- Khramov, A.V. (2012) The new fossil lacewings of Grammolingiidae (Neuroptera) from the Jurassic of Central Asia and Mongolia, with notes on biogeography. *Zootaxa*, 3478, 297–308.
- Lagos, D.M., Puttler, B., Voegtlin, D.J. & Giordano, R. (2012) A new species of *Aphis* (Hemiptera: Aphididae) in Missouri on St. John's Wort, *Hypericum kalmianum*, and re-description of *Aphis hyperici* Monell. *Zootaxa*, 3478, 81–92.
- Li, W., Wang, G. & Lu, W. (2012) Species of *Neoperla* (Plecoptera: Perlidae) from Hubei, China. *Zootaxa*, 3478, 32–37.
- Lukashevich, E.D. & Przhiboro, A.A. (2012) Pupae of Mesozoic *Jurochilus* Kalugina, 1985 (Diptera: Chironomidae), with description of four new species. *Zootaxa*, 3478, 434–452.
- Manzo, V. & Archangelsky, M. (2012) Two new species of Elmidae (Coleoptera) from Argentina. *Zootaxa*, 3478, 267–281.
- Melika, G., Tang, C.-T., Yang, M.-M., Bihari, P., Bozsó, M. & Zsolt Péntzes (2012) New species of cynipid inquilines of the genus *Ufo* Melika & Pujade-Villar, 2005 (Hymenoptera: Cynipidae: Synergini). *Zootaxa*, 3478, 143–163.
- Monné, M.A. & Monné, M.L. (2012) New species of Acanthocinini from South America (Coleoptera: Cerambycidae). *Zootaxa*, 3478, 192–200.
- Mora, C., Tittensor, D.P., Adl, S., Simpson, A.G.B. & Worm, B. (2011) How many species are there on earth and in the ocean? *PLoS Biology*, 9: e1001127. DOI:10.1371/journal.pbio.1001127.
- Mound, L.A., Masumoto, M. & Okajima, S. (2012) The Palaetropical genus *Craspedothrips*, with new species from Africa and Malaysia (Thysanoptera, Thripinae). *Zootaxa*, 3478, 49–61.
- Nemésio, A. & Ferrari, R.R. (2012) The species of *Eulaema* (*Eulaema*) Lepeletier, 1841 (Hymenoptera: Apidae: Euglossina) from eastern Brazil, with description of *Eulaema quadragintanovem* sp. n. from the state of Ceará. *Zootaxa*, 3478, 123–132.
- Norrbom, A.L. & Korytkowski, C.A. (2012) New species of *Anastrepha* (Diptera: Tephritidae), with a key for the species of the *megacantha* clade. *Zootaxa*, 3478, 510–553.
- Oberprieler, R.G. & Oberprieler, S.K. (2012) *Talbragarus averyi* gen. et sp. n., the first Jurassic weevil from the southern

- hemisphere (Coleoptera: Curculionoidea: Nemonychidae). *Zootaxa*, 3478, 256–266.
- Packer, L. & Dumesh, S. (2012) *Mirnapis ohloweni* Packer and Dumesh, new species with notes on *M. inca* Urban (Hymenoptera: Apidae: Eucerini). *Zootaxa*, 3478, 113–122.
- Palma, R.L. (2012) Three new species of the louse genus *Saemundssonina* (Insecta: Phthiraptera: Philopteridae). *Zootaxa*, 3478, 38–48.
- Pandher, M.S. & Saini, M.S. (2012) Seven new species of the genus *Chimarra* Stephens (Trichoptera: Philopotamidae) from India. *Zootaxa*, 3478, 313–329.
- Rajaei Sh., H. & Xue, D. (2012) A new species of the genus *Lithostege* (Geometridae: Larentiinae) from China. *Zootaxa*, 3478, 399–402.
- Reshchikov, A.V. (2012) *Priopoda* Holmgren, 1856 (Hymenoptera, Ichneumonidae) from Nepal with a key to the Oriental and Eastern Palaearctic species. *Zootaxa*, 3478, 133–142.
- Rosa, J.A.D., Rocha, C.S., Gardim, S., Pinto, M.C., Mendonça, V.J., Filho, J.C.R.F., Carvalho, E.O.C.D., Camargo, L.M.A., Oliveira, J.D. Nascimento, J.D., Cilense, M. & Almeida, C.E. (2012) Description of *Rhodnius montenegrensis* n. sp. (Hemiptera: Reduviidae: Triatominae) from the state of Rondônia, Brazil. *Zootaxa*, 3478, 62–76.
- Saini, M.S. & Lakhwinder, K. (2012) Two new species of the genus *Rhyacophila* Pictet (Trichoptera: Rhyacophilidae) from the Indian Himalayas. *Zootaxa*, 3478, 309–312.
- Sampaio, B.H.L., Passos, M.I.D.S.D. & Ferreira-Jr, N. (2012) Two new species of *Macrelmis* Motschulsky (Coleoptera: Elmidae) and a new record of *Macrelmis isis* (Hinton) from Southeastern Brazil. *Zootaxa*, 3478, 164–168.
- Sorokina, Y.S. (2012) Two new species and new records of Muscidae (Diptera) from Wrangel Island, Russia. *Zootaxa*, 3478, 483–492.
- Viidalepp, J., Lindt, A. & Han, H. (2012) *Pelagodes cancriformis*, a new emerald moth species from the north of Thailand, Laos and southern China (Lepidoptera, Geometridae: Geometrinae). *Zootaxa*, 3478, 429–433.
- Volynkin, A.V. (2012) A review of the genus *Dasypolia* Guenée, 1852 from the Russian part of the Altai Mountain Country, with descriptions of two new species (Lepidoptera, Noctuidae). *Zootaxa*, 3478, 416–428.
- Wells, A. & Johanson, K.A. (2012) Review of the New Caledonian species of *Paroxyethira* Mosely, 1924 (Trichoptera: Hydroptilidae). *Zootaxa*, 3478, 330–344.
- Yan, Z., Bai, M. & Ren, D. (2012) A new fossil Hybosoridae (Coleoptera: Scarabaeoidea) from the Yixian Formation of China. *Zootaxa*, 3478, 201–204.
- Yasunaga, T., Schwartz, M.D. & Aukema, B. (2012) Availability and type depository of twelve Japanese plant bug species (Hemiptera: Heteroptera: Miridae). *Zootaxa*, 3478, 111–112.
- Zhang, A. & Li, H. (2012) Descriptions of five new species of the genus *Rhopobota* Lederer (Lepidoptera, Tortricidae) in China, along with a checklist of all the described Chinese species. *Zootaxa*, 3478, 373–382.
- Zhang, Z.-Q. (2011a) Accelerating biodiversity descriptions and transforming taxonomic publishing: the first decade of *Zootaxa*. *Zootaxa*, 2896, 1–7.
- Zhang, Z.Q. (2011b) Animal biodiversity: An introduction to higher-level classification and taxonomic richness. *Zootaxa*, 3148, 7–12.
- Zhang, Z.-Q. (2011c) Phylum Arthropoda von Siebold, 1848. In: Zhang, Z.-Q. (Ed.) Animal biodiversity: An outline of higher-level classification and survey of taxonomic richness. *Zootaxa*, 3148, 99–103.
- Zhao, S., Hájek, J., Jia, F. & Pang, H. (2012) A taxonomic review of the genus *Neptosternus* Sharp of China with the description of a new species (Coleoptera: Dytiscidae: Laccophilinae). *Zootaxa*, 3478, 205–212.
- Zhou, Y.-L. & Zhou, H.-Z. (2012) Taxonomy of the genus *Medhiama* Bordoni, 2002 (Coleoptera: Staphylinidae, Staphylininae, Xantholinini) with descriptions of three new species. *Zootaxa*, 3478, 169–191.