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Editorial

Hotspots of mite new species discovery: Parasitiformes (2013–2015)

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Abstract

A survey of type localities of new species of the Parasitiformes described in two journals (*Systematic & Applied Acarology* and *Zootaxa*) during the last three years (2013–2015) revealed interesting patterns of species discovery. Taxonomically, the 142 new species are unevenly distributed among 24 families with the top three families accounting for over 61% of the total. The economically important Phytoseiidae is the top-ranked family. Geographically, the 142 new species of the Parasitiformes are described from 29 countries in the world. The pattern of distribution of these new species among the countries is highly uneven—over half of the new species (52.8%) are from the top 3 countries (Brazil, Iran and Turkey), whereas most countries (65.5%) have only 1–3 new species each.

Key words: Mites, Parasitiformes, new species, hotspots, type locality, type depository

Introduction

A previous survey of type localities of new mite species described in two journals (*Systematic & Applied Acarology* and *Zootaxa*) during 2007–2012 revealed several interesting trends and patterns in new mite species discovery (Liu *et al.* 2013). These two journals published approximately 38% of the all new species of mites indexed in *Zoological Record* during that period, and among them, 55% are from the top ten countries—China, Australia, Iran, Brazil, Kenya, USA, Russia, India, Turkey and Vietnam (Liu *et al.* 2013). A series of follow-up surveys using the same approach examined hotspots for new species of the Trombidiformes (Liu & Zhang 2016) and the Sarcoptiformes (Li & Zhang 2016) described during 2013–2015. This is a continuation of this series to provide a survey of type localities and depositories of new species in the superorder Parasitiformes described in the same two journals during the last three years (2013–2015). The methods used follow that in Liu *et al.* (2013).

List of abbreviations for depositories

ACISTE—Acarological Collection, Institute of Science and High Technology and Environmental Sciences, Graduate University of Advanced Technology, Kerman, Iran.
AFCU—Acarology Laboratory, Department of Plant Protection, Çukurova University, Adana, Turkey.
ANIC—Australian National Insect Collection, in CSIRO Ecosystem Sciences, Canberra.
APAS—Acarological Laboratory, Department of Plant Protection, Agricultural College, Shahrekord University, Chaharmahal and Bakhtiari Province, Iran.
ARC-PPRI—Plant Protection Research Institute-Agricultural Research Center - Fruit Acarology Department, Dokki, Cairo, Egypt.

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BASU—Acarology Laboratory of the Bu-Ali Sina University, Hamedan, Iran.
BBM—Bernice P. Bishop Museum, Honolulu, Hawaii, USA.
CNAC—Colección Nacional de Ácaros del Instituto de Biología, Mexico.
DZSJRP—Departamento de Zoologia e Botânica, Universidade Estadual Paulista, São José do Rio Preto, São Paulo, Brazil.
ESALQ-USP—Collection of Departamento de Entomologia e Acarologia, ESALQ – Universidade de São Paulo, Piracicaba, São Paulo, Brazil.
EUE—Acarology Laboratory of Erzincan University, Erzincan, Turkey.
FACU—Faculty of Agriculture, Cairo University, Giza, Egypt.
HNHM—Soil Zoology Collection of Hungarian Natural History Museum, Budapest, Hungary.
INPA—Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil.
ISEA—Zoological Museum of Institute of Systematics and Ecology of Animals, Novosibirsk, Russia.
IZNASU—Institute of Zoology, National Academy of Sciences of Ukraine.
IZSAS—Institute of Zoology, Slovak Academy of Sciences, Bratislava, Slovakia.
JAZM—Jalal Afshar Zoological Museum, College of Agriculture, University of Tehran, Iran.
LAZUA—Laboratory of Agricultural Zoology and Entomology, Agricultural University of Athens, Greece.
MHNG—Natural History Museum of Geneva, Switzerland.
MNCN—Museo Nacional de Ciencias Naturales, Madrid, Spain.
MSNM—Milan Natural History Museum, Milan, Italy.
NHMG—Natural History Museum of Geneva, Switzerland.
NMNS—National Museum of Natural Science, Taichung, Taiwan, Rep. of China.
NZAC—New Zealand Arthropod Collection, Landcare Research, Auckland, New Zealand.
QM—Queensland Museum, Brisbane, Australia.
SRIAUF—Acarological Collection, Science and Research Branch, Islamic Azad University, Fars, Iran.
UGMC—University of Guilan Mite Collection, Rasht, Gilan Province, Iran.
UNIPA—Acari collection of the Laboratory of Applied Acarology "Eliahu Swirski, Department of Agricultural and Forest Sciences, University of Palermo, Italy.USC— University of San Carlos, Cebu, Republic of the Philipphines.
UNESP—Departamento de Zoologia e Botânica, Universidade Estadual Paulista, São José do Rio Preto, State of São Paulo, Brazil.
USNMENT—U.S. National Tick Collection, Georgia Southern University, Statesboro, George, USA.
YIAU—Acarological collection, Department of Plant Protection, Yazd Branch, Islamic Azad University, Iran.
ZAUMCN—Museu de Ciências Naturais, Centro Universitário, Lajeado, Rio Grande do Sul State, Brazil.
ZISP—Zoological Institute, Russian Academy of Sciences, Saint-Petersburg, Russia.
ZMT—Zoological Museum of Turku University, Turku, Finland.

Results and discussion

Trends in the number of new species

During 2013–2015, *SAA* published an average of over 7 new species of the Parasitiformes per year (Table 1), which is more than 7-fold increase over that during 2007–2012 (average 1 per year based on data in Liu *et al.* 2013). However, *Zootaxa* published an average of 40 new species of the Parasitiformes per year during 2013–2015 (Table 1) and this is only 71.4% of that during 2007–2012 (average 56 per year based on data in Liu *et al.* 2013). Overall, the number of new Parasitiformes species per year decreased from 57 during 2007–2012 to 47 during 2013–2015 (Table 1). This decrease is the opposite of that for the Trombidiformes (132 new species per year during 2007–2012 to 163 during 2013–2015; Liu & Zhang 2016) and the Sarcoptiformes (51 new species per year during 2007–2012 to 80 during 2013–2015; Li & Zhang 2016).

Taxonomic distribution of new species

Most (over 97%) of the 142 new species of the Parasitiformes described in the two journals during 2013–2015 are in the order Mesostigmata: the order Opilioacarida has only one new species and the order Ixodida has two new species (Table 3A, B).

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TABLE 1. The comparison of the number of new species in the superorder Parasitiformes between 2013–2015 and 2007–2012 described in *SAA* and *Zootaxa*. Data of 2007–2012 from Liu *et al.* (2013).

Year	*SAA*	*ZOOTAXA*	Total
2007	0	67	67
2008	3	90	93
2009	2	31	33
2010	0	29	29
2011	1	95	96
2012	0	25	25
2013	2	43	45
2014	13	37	50
2015	7	40	47
Total	**28**	**456**	**485**

TABLE 2. The comparison of taxonomic distribution of new species in the order Mesostigmata between 2013–2015 and 2007–2012 from *SAA* and *Zootaxa*. Data of 2007–2012 from Liu *et al.* (2013).

Year	Infraorder	*SAA*	*ZOOTAXA*	Total (% of order Mesostigmata)
2007–2012	Antennophorina	3	36	14.39%
	Uropodina	0	34	12.55%
	Gamasina	3	195	73.06%
2013–2015	Antennophorina	0	0	0%
	Uropodina	1	16	12.78%
	Gamasina	21	95	87.22%

TABLE 3A. Taxonomic distribution of new species among families of the superorder Parasitiformes from *SAA* and *Zootaxa* during 2013–2015; N_{sp}=number of new species within each paper, $N_{fam.}$=number of families with new species.

N_{sp}	$N_{fam.}$	Families of Parasitiformes
39	1	Phytoseiidae
38	1	Laelapidae
10	1	Pachylaelapidae
8	1	Ologanasidae
7	2	Macrochelidae, Rotundabaloghiidae,
5	1	Opilioacaridae
3	2	Dinychidae, Rhodacaridae
2	7	Ameroseiidae, Blattisociida, Digamasellidae, Eviphididae, Reginacharlottiidae, Trachytidae, Uropodidae
1	8	Argasidae, Discozerconidae, Polyaspididae, Rhinonyssidae, Trachytidae, Trachyuropodidae, Trematuridae, Urodinychidae

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Within Mesostigmata, the distribution of new species are highly uneven among infraorders, with most species in the Gamasina (Table 2). Overall the proportion of new species in the Gamasina increased from 73% during 2007–2012 to over 87% during 2013–2015.

The 142 new species of the Parasitiformes described in the two journals during 2013–2015 are unevenly distributed in 24 families (Table 3A). The majority of these new species (61%) are from the top 3 families: Phytoseiidae, Laelapidae and Pachylaelapidae. Most of the families (70.8%) have only 1–3 new species (Table 3A, B).

TABLE 3B. The comparison of the number of new species in the superorder Parasitiformes between 2013–2015 and 2007–2012 from *SAA* and *Zootaxa*. Data of 2007–2012 from Liu *et al.* (2013).

TAXA	2013–2015	2007–2012
Superorder **Parasitiformes**		
Order **Opilioacarida**		
Superfamily **Opilioacaroidea**		
Family **Opilioacaridae**	5	9
Order **Ixodida**		
Superfamily **Ixodoidea**		
Family **Argasidae**	1	0
Order **Mesostigmata**		
Suborder **Sejida**		
Superfamily **Sejoidea**		
Family **Reginacharlottiidae**	2	0
Superfamily **Heterozerconoidea**		
Family **Discozerconidae**	1	0
Suborder **Trigynaspida**		
Infraorder **Antennophorina**		
Superfamily **Celaenopsoidea**		
Family **Diplogyniidae**	0	8
Superfamily **Fedrizzioidea**		
Family **Fedrizziidae**	0	12
Family **Klinckowstroemiidae**	0	14
Superfamily **Parantennuloidea**		
Family **Philodanidae**	0	1
Superfamily **Paramegistoidea**		
Family **Paramegistidae**	0	2
Suborder **Monogynaspida**		
Infraorder **Uropodina**		
Superfamily **Uropodoidea**		
Family **Dinychidae**	3	2
Family **Metagynuridae**	0	1
Family **Polyaspididae**	1	0

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TABLE 3B. (Continued)

TAXA	2013–2015	2007–2012
Family **Rotundabaloghiidae**	7	2
Family **Trachytidae**	1	2
Family **Trachyuropodidae**	1	
Family **Trematuridae**	1	2
Family **Trigonuropodidae**	0	1
Family **Urodinychidae**	1	3
Family **Uropodidae**	2	21
Infraorder **Gamasina**		
Hyporder **Epicriiae**		
Superfamily **Epicrioidea**		
Family **Epicriidae**	0	1
Superfamily **Zerconoidea**		
Family **Coprozerconidae**	0	1
Family **Zerconidae**	0	18
Hyporder **Parasitiae**		
Superfamily **Parasitoidea**		
Family **Parasitidae**	0	1
Hyporder **Dermanyssiae**		
Superfamily **Veigaioidea**		
Family **Veigaiidae**	0	5
Superfamily **Rhodacaroidea**		
Family **Digamasellidae**	2	0
Family **Halolaelapidae**	0	2
Family **Ologamasidae**	8	2
Family **Rhodacaridae**	3	2
Superfamily **Eviphidoidea**		
Family **Eviphididae**	2	15
Family **Macrochelidae**	7	4
Family **Pachlaelapidae**	10	5
Superfamily **Ascoidea**		
Family **Ameroseiidae**	2	2
Family **Ascidae**	0	13
Family **Melicharidae**	2	2
Superfamily **Phytoseioidea**		
Family **Blasttisociidae**	2	4
Family **Phytoseiidae**	39	103
Family **Podocinidae**	0	2
Superfamily **Dermanyssoidea**		
Family **Laelapidae**	38	14
Family **Macronyssidae**	0	1
Family **Rhinonyssidae**	1	0

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Geographic distribution of new species

The 142 new species are described from 29 countries in the world and their distribution among the countries is highly uneven. Over half of the new species (52.8%) are from the top three countries (Brazil, Iran and Turkey), whereas most countries (65.5%) have only 1–3 new species (Table 4).

TABLE 4. Geographic distribution of new species in the superorder Parasitiformes from *SAA* and *Zootaxa* (2013–2015) among countries (or regions); N_{sp}=number of new species within each country (or region), N_c=number of countries with n_{sp} species.

N_{sp}	N_c	Name of countries (regions)
35	1	Brazil
24	1	Iran
16	1	Turkey
6	1	Madagascar
5	1	Italy
4	5	Argentina, Chile, Egypt, Indonesia, Russia
3	4	Australia, Bulgaria, Greece, Tanzania
2	8	China, Colombia, France, Mexico, Norway, Papua New Guinea, Romania, Slovakia
1	7	Bolivia, Malaysia, New Zealand, Peru, The Philippines, Thailand, Ukraine

List of type localities and depositories of new species in *SAA* 2013–2015

Superorder **Parasitiformes** (22 species)
Order **Mesostigmata (**22 species)
Suborder **Monogynaspida** (22 species)
Infraorder **Uropodina** (1 species)
Superfamily **Uropodoidea** (1 species)
Family **Trachytidae** (1 species)

***Acroseius weiri* Bloszyk, Halliday & Napierala, 2013: 274—**Holotype female (ANIC, ANIC561), rainforest, Broken river, Eungella National Park, Queensland, Australia (21°10'S, 148°31'E, 700 m).

Infraorder **Gamasina** (21 species)
Hyporder **Dermanyssiae** (21 species)
Superfamily **Eviphidoidea** (5 species)
Family **Pachylaelapidae** (5 species)

***Olopachys* (*Olopachylaella*) *transversalis* Özbek & Halliday, 2015a: 140—**Holotype female (EUE), rotting wood, Örümcek Forest, Kürtün Town, Gümüşhane Province, Turkey (40°39'85"N, 39°02'15"E, 1239 m).

***Olopachys (Olopachys) elongatus* Özbek & Halliday, 2015a: 145—**Holotype female (EUE), in moss, Dumanli Forest, Refahiye Town, Erzincan Province, Turkey (39°54'03"N, 38°41'41"E, 2030 m).

***Olopachys (Olopachys) ovatus* Özbek & Halliday, 2015a: 143—**Holotype female (EUE), litter under *Rubus* sp., between Çamoluk and Alucra Towns, Gümüşhane Province, Turkey (40°08'98"N, 38°48'48"E, 1301 m).

***Olopachys* (*Olopachys*) *prolixus* Özbek & Halliday, 2015a: 147—**Holotype female (EUE), litter under *Laurus nobilis*, Örümcek Forest, Kürtün Town, Gümüşhane Province, Turkey (40°39'85"N, 39°02'13"E, 1239 m).

***Pachyseius crymophilus* Mašán & Fenďa, 2014: 138—**Holotype female (IZSAS), soil substrate with roots of grass, alpine meadow, Vîrf Viştea Mare (Refugiul Alpin), Făgăraş Mountains, Romania (Braşov County) (45°36'19"N, 24°44'44"E, 2320 m).

Superfamily **Phytoseioidea** (1 species)
Family **Phytoseiidae** (1 species)

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***Typhloseiella improvisa* Kolodochka, Bondarev & Gwiazdowicz, 2015: 843—**Holotype female (IZNASU, #C–533/323), on glandular globe-thistle (*Echinops spherocephalus*), flood plain of river Verkhneje Provalie, branch of the Lugansk Natural Reserve, around the village Provalie, Sverdlovsky district, Luganskaya oblast, Ukraine (48°08'N, 39°49'E).

Superfamily **Dermanyssoidea** (15 species)

Family **Laelapidae** (14 species)

***Gymnolaelaps longiosetae* Ramroodi, Joharchi & Hajizadeh, 2015: 130—**Holotype female (UGMC), in nest of *Myrmica* sp., Chobar Forest, Shaft, Guilan Province, Iran (37°05'N, 49°24'E).

***Hypoaspis alborzensis* Razavi Susan & Joharchi, 2014 *in* Susan, Kheradmand, Joharchi & Saboori, 2014: 52**—Holotype female (JAZM, ARS-20130311-1a), on adult female of *Oryctes* sp. under plane trees (*Platanus* sp.), Karaj, Alborz province, Iran (35°48'N, 50°59'E, 1384 m).

***Pseudolaelaps barbatus* Mašán, 2014: 287—**Holotype female (IZSAS), needle and leaf litter, spruce forest (*Picea abies*) with admixed beech (*Fagus sylvatica*), Poiana Mărului Pass, Poiana Mărului Village, Braşov County, Munţii Perşani Mts., Romania (740 m).

***Pseudolaelaps brevipilis* Mašán, 2014: 288—**Holotype female (IZSAS), beech forest (*Fagus sylvatica*) with admixed *Carpinus betulus* and *Quercus* sp., Vitinya Pass, Gorno Kamartsi Village, Stara Planina Mts., Bulgaria (970 m).

***Pseudolaelaps jozefi* Mašán, 2014: 292—**Holotype female (IZSAS), leaf litter and soil, oak-hornbeam forest (*Quercus* sp. and *Carpinus* sp.), Vrontou Village, Oros Olympos Mts., Greece (800 m).

***Pseudolaelaps lepidus* Mašán, 2014: 293—**Holotype female (IZSAS), soil and decaying plant detritus from under a heap of hay, meadow, Cascine del Riccio, Settlement, Florence city, Valdarno Valley, Italy (70 m).

***Pseudolaelaps mirandus* Mašán, 2014: 295—**Holotype female (IZSAS), old beech forest (*Fagus sylvatica*), Ravnogor Village, Rhodope Mts., Bulgaria (1200 m).

***Pseudolaelaps pallidus* Mašán, 2014: 297—**Holotype female (IZSAS), leaf litter and soil detritus, broad-leaved deciduous wood (park), Parco di Villa Montalto Gardens, Florence City, Valdarno Valley, Italy (95 m).

***Pseudolaelaps propinquus* Mašán, 2014: 299—**Holotype female (IZSAS), broad-leaved deciduous wood, leaf litter, soil and wood detritus, Parco delle Cascine Gardens, Florence City, Valdarno Valley, Italy (45 m).

***Pseudolaelaps regularis* Mašán, 2014: 301—**Holotype female (IZSAS), old beech forest (*Fagus sylvatica*), Petrokhan Pass, Gintsi Village, Stara Planina Mts., Bulgaria (1400 m).

***Pseudolaelaps rotundus* Mašán, 2014: 302—**Holotype female (IZSAS), leaf litter and soil detritus, oak-hornbeam forest (*Quercus* sp., *Carpinus* sp.) with cherry (*Cerasus avium*), Humenský Sokol Nature Reserve, Humenné Town, Vihorlatské Vrchy Hills, Slovakia (400 m).

***Pseudolaelaps scaber* Mašán, 2014: 304—**Holotype female (IZSAS), humid needle litter with tussocks of grass and mushrooms, pine forest (*Pinus* sp.) on a slope with loose rock debris (limestone), Gorges du Guil Canyon, Arvieux Village, Alpes Cottiennes Mts., France (1180 m).

***Pseudolaelaps stellifer* Mašán, 2014: 305—**Holotype female (IZSAS), leaf litter and soil detritus, steppe with solitary acacia trees (*Robinia pseudoacacia*) and oaks (*Quercus* sp.), Tarbucka Mt. (southward slope), Malý Kamenec Village, Východoslovenská Rovina Flatland, Slovakia (190 m).

***Scissuralaelaps huberi* Seeman & Alberti, 2015: 708—**Holotype female, *Acladocricus* sp., near Busay Cave, Moalbal, south-west Cebu, Republic of the Philippines (9°54'57.5"N, 123°26'13.2"E).

Family **Rhinonyssidae** (1 species)

***Rhinonyssus dobromiri* Dimov & Spicer, 2013: 292—**Holotype female (ZISP, ZISP4820), from *Vanellus vanellus*, Sovetsky village, Leningrad province, Russia (60°32'N, 28°40'E).

List of type localities and depositories of new species in *Zootaxa* 2013–2015

Superorder **Parasitiformes** (120 species)

Order **Opilioacarida** (5 species)

Superfamily **Opilioacaroidea** (5 species)

Family **Opilioacaridae** (5 species)

***Amazonacarus paraensis* Vázquez, Araújo & Feres, 2014: 162—**Holotype female (ZMT), from thick layer of litter on root turf in primary forest, 11km SE of Santarém, Santarém, Pará, Brazil.

***Amazonacarus setosu* Vázquez, Araújo & Feres, 2014: 155—**Holotype female (INPA), sifted litter from littoral rainforest, Alter do Chão, Pará, Brazil (2°30'29.87"S, 54°57'13.63"W).

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***Brasilacarus cocaris* Vázquez, Araújo & Feres, 2015: 377—**Holotype male (ZMT, 10.IX.1983), litter of sparse *terra-firme* forest, near Negro river and Taruma-Mirim stream, Manaus, Amazonas, Brazil.

***Neocarus chactemalensis* Vázquez & Klompen, 2015: 537—**Holotype female (CNAC 007215), under stones and in litter, medium-high tropical forest, campus Quintana Roo State University, Chetumal, Quintana Roo, Mexico (18°31'22.8"N88°16'13"W, 8 m).

***Neocarus comalensis* Vázquez & Klompen, 2015: 538—**Holotype female (CNAC 007217; 4 slides), under stones in low tropical forest, in Guerrero Mountains on Pacific side, El Comal, Guerrero, Mexico (18°27'36"N, 99°24'36"W, 1749 m).

Order **Ixodida** (1 species)

Superfamily **Ixodoidea** (1 species)

Family **Argasidae** (1 species)

***Ornithodoros guaporensis* Nava, Venzal & Labruna, 2013 *in* Nava, Venzal, Terassini, Mangold, Camargo, Casás & Labruna, 2013: 580—**Holotype larva (USNMENT 00861410), reared from adults, Amazonian forest in north-eastern Bolivia (12º55'S, 62º52'W).

Order **Mesostigmata** (114 species)

Suborder **Sejida** (3 species)

Superfamily **Sejoidea** (2 species)

Family **Reginacharlottiidae** (2 species)

***Reginacharlottia braziliensis* Walter, 2013:314—**Holotype female (UNESP), from*Trichodamon froes*i Mello-Leitão, Caverna Agua Fina, Carinhanha, Bahia, Brazil.

***Reginacharlottia lordhowensis* Walter, 2013: 304—**Holotype female (UNESP), from leaf litter in closed rainforest (a mixture of *Cleistocalyx* and *Chionanthus*), on Boat Harbour walking trail 400m before harbour, Lord Howe Island, New South Walter, Australia (31°33'32"S, 159°05'34"E).

Superfamily **Heterozerconoidea** (1 species)

Family **Discozerconidae** (1 species)

***Berzercon ferdinandi* Seeman & Baker, 2013: 132—**Holotype female (NZAC), from *Megadromus* sp., Mt Holdsworth, Wairarapa, New Zealand.

Suborder **Monogynaspida** (111 species)

Infraorder **Uropodina** (16 species)

Superfamily **Uropodoidea** (16 species)

Family **Dinychidae** (3 species)

***Afrodinychus africanus* Kontschán & Starý, 2013: 276—**Holotype female (HNHM), typical elfin forest on the main summit, Kindorko Forest Reserve, Nwaga district, North Pare Mts., Tanzania (2110 m).

***Dinychus lepus* Kontschán & Starý, 2014: 553—**Holotype female (MHNG), prélèvement de sol, vers la Petite Cascade, forêt primaire, Parc National Montagne d'Ambre (= Ambohitra), Province Antsiranana [Diego-Suarez], Sous-préf. Antsiranana, Madagascar (980m).

***Pulchellaobovella madagascarica* Kontschán & Starý, 2014: 559—**Holotype female (MHNG), prélèvement de sol au pied d'un grand arbre, forêt primaire près Ampasindava, île Nosy Be, Réserve Lokobe, Sous-préf. Andoany [Hell-Ville], Province Antsiranana [Diego-Suarez], Madagascar (85 m).

Family **Polyaspididae** (1 species)

***Polyaspis (Polyaspis) madagascarensis* Kontschán & Starý, 2014: 548—**Holotype female (MHNG), prélèvement de sol au pied d'un grand arbre mort, forêt primaire, Réserve Analamazoatra (Perinet) près d'Andasibe, Sous-préf. Moramanga, Prov. Toamasina [Tamatave], Madagascar (960 m).

Family **Rotundabaloghiidae** (7 species)

***Angulobaloghia pedunculata* Kontschán & Kiss, 2015: 516—**Holotype female (MHNG), primary forest, 12km N of Bukittinggi, *Rafflesia* Sanctuary, Batang Palupuh, West Sumatra Province, Sumatra, Indonesia (0°14'32"S, 100°21'10"E, 900–1100 m).

***Depressorotunda (Depressorotunda) hirca* Kontschán & Kiss, 2015: 524—**Holotype female (MHNG), primary forest, 12 km N of Bukittinggi, Rafflesia Sanctuary, Batang Palupuh, West Sumatra Province, Sumatra, Indonesia (0°14'32"S, 100°21'10"E, 900–1100 m).

***Depressorotunda (Depressorotunda) robusta* Kontschán & Kiss, 2015: 524—**Holotype female (MHNG), primary forest, 12 km N of Bukittinggi, Rafflesia Sanctuary, Batang Palupuh, West Sumatra Province, Sumatra, Indonesia (0°14'32"S, 100°21'10"E, 900–1100 m).

***Rotundabaloghia (Circobaloghia) ermilovi* Kontschán & Starý, 2014: 563—**Holotype female (MHNG), prélèvement de sol au pied d'un grand arbre, forêt primaire près Ampasindava, Réserve Lokobe, île Nosy Be, Sous-préf. Andoany [Hell-Ville], Province Antsiranana [Diego-Suarez], Madagascar (85 m).

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***Rotundabaloghia (Circobaloghia) javaensis* Kontschán & Kiss, 2015: 521—**Holotype female (MHNG), soil between buttresses of a large tree at the tourist path near the waterfall, forest of *Lithocarpus-Castanopsis* above the botanical garden, Cibodas, Java, Indonesia (1380 m).

***Rotundabaloghia (Circobaloghia) kaydani* Kontschán & Starý, 2014: 565—**Holotype female (MHNG), prélèvement de sol au pied d'un grand arbre, forêt primaire près Ampasindava, Réserve Lokobe, île Nosy Be, Sous-préf. Andoany [Hell-Ville], Province Antsiranana [Diego-Suarez], Madagascar (85 m).

***Rotundabaloghia (Rotundabaloghia) wangi* Kontschán & Kiss, 2015: 518—**Holotype female (MHNG), primary forest, 4 km N of Brastagi, Mt Sibayak, North Sumatra Province, Sumatra, Indonesia (3°13'16"N, 98°29'50"E, 1600 m).

Family **Trachyuropodidae** (1 species)

***Trachyibana sarawakiensis* Kontschá, 2015: 273—**Holotype female (NHMG, AS-EM07/4), primary forest, near Lundu, Gunung Gading National Park, Sarawak, Borneo, E-Malaysia (01°42'50"N, 109°50'09"E, 600–800 m).

Family **Trematuridae** (1 species)

***Trichouropoda madagascarica* Kontschán & Starý, 2014: 553—**Holotype female (MHNG), sifting sample of forest litter, Winkler apparatus extraction, Ankarafantsika National Park, Madagascar (16°18'47.7"S, 46°48'57.1"E, 83 m).

Family **Urodinychidae** (1 species)

***Malagana rotunda* Kontschán & Starý, 2014: 556—**Holotype female (MHNG), prélèvement de sol au pied d'un grand arbre, forêt primaire près Ampasindava, île Nosy Be, Réserve Lokobe, Sous-préf. Andoany [Hell-Ville], Province Antsiranana [Diego-Suarez], Madagascar (85 m).

Family **Uropodidae** (2 species)

***Bloszykiella grebennikovi* Kontschán & Starý, 2013: 268—**Holotype female (HNHM), litter from mid-altitude afromontane deciduous forest, Bunduki village, Uluguru Mts., Tanzania (1592 m).

***Spinossisuropoda tanzanica* Kontschán & Starý, 2013: 272—**Holotype female (HNHM), litter from mid-altitude afromontane deciduous forest, Bunduki village, Uluguru Mts., Tanzania (1592 m).

Infraorder **Gamasina** (95 species)

Hyporder **Dermanyssiae** (95 species)

Superfamily **Rhodacaroidea** (1 species)

Family **Digamasellidae** (2 species)

***Dendrolaelaps linjianzheni* Ma, Ho & Wang, 2014: 52—**Holotype female (NMNS), from soil under eggplant at Jiuru, Pintung County, Taiwan, China.

***Dendroseius vulgaris* Ma, Ho & Wang, 2014: 44—**Holotype female (NMNS), from soil at "Lady beetle organic farm", Tungshih District, Taichung City, Taiwan, China.

Family **Ologamasidae** (8 species)

***Desectophis anthuriumsetis* Rueda-Ramirez, Castilho & Moraes, 2013: 522—**Holotype female (ESALQ-USP), from soil in a fragment of secondary alpine forest at "Setor San José" "Vereda Mundo Nuevo", municipality of "La Calera", Departamento de Cundinamarca, Colombia (04°39'N, 73°51'W).

***Gamasiphis angaridis* Marchenko, 2013a: 382—**Holotype female (ISEA), in litter from *Pinus sylvestris—Abies sibirica—Betula pubescens* forest near Kebezen village, Turochak district, North-Eastern Altai, South Siberia, Russia (51°55'N, 87°06'E).

***Gamasiphis ochotensis* Marchenko, 2013b: 173—**Holotype female (ISEA), from litter of a forest with *Betula ermanii*—bamboo *Sasa* spp. and *Abies sakhalinensis—Picea glehnii* at Chekhov Mounting Susunaiskii Ridge, south of Sakhalin Island, Russia (47°00'N, 142°50'E).

***Hydrogamasellus alagoensis* Santos, Castilho, Silva & Moraes, 2013: 82—**Holotype female (ESALQ-USP), from litter at the base of *Tapirira guianensis* at Teotônio Vilela, of Alagoas, Brazil (09°56'19.5"S, 36°22'17.1"W).

***Ologamasus delaliberai* Santos, Castilho, Silva & Moraes, 2015a: 272—**Holotype female (ESALQ-USP) from litter at the base of *Tapirira guianensis* Aublet at Teotônio Vilela, Alagoas, Brazil (9°56'19"S, 36°22'17"W).

***Ologamasus lucasi* Santos, Castilho, Silva & Moraes, 2015a: 268—**Holotype female (ESALQ-USP) from litter at the base of *Mimosa* sp., Olho d'Água das Flores, Alagoas, Brazil (9°31'54"S, 73°16'76"W).

***Rykellus anibali* Santos, Castilho, Silva & Moraes, 2015b: 112—**Holotype female (ESALQ-USP), from the rhizosphere of *Attalea dubia*, from "Polo Regional Vale do Ribeira Pariquera-Açu São Paulo, Brazil (24°36'41"S, 47°53'23"W).

***Rykellus mineiroi* Santos, Castilho, Silva & Moraes, 2015b: 116—**Holotype female (ESALQ-USP), from lit-

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ter of a disturbed natural vegetation at ESALQ-USP, Piracicaba, São Paulo, Brazil (22°42'30"S, 47°38'30"W).

Family **Rhodacaridae** (23 species)

***Multidentorhodacarus aegypticus* Abo-Shnaf, Castilho & Moraes, 2013: 29—**Holotype female (ARC-PPRI), from soil under mango tree (*Mangifera indica*) at El- Ahram, Giza governorate, Egypt.

***Multidentorhodacarus colombianus* Rueda-Ramirez, Castilho & Moraes, 2013: 528—**Holotype female (ESALQ-USP), from soil in a grassland and from a fragment of secondary alpine forest at "Setor San José" of "Vereda Mundo Nuevo", municipality of "La Calera", Colombia (04°39'N 73°51'W).

***Protogamasellopsis zaheri* Abo-Shnaf, Castilho & Moraes, 2013: 33—**Holotype female (ARC-PPRI), from soil under apricot tree (*Prunus armeniaca*) at Senuris, Fayoum governorate, Egypt.

Superfamily **Eviphidoidea** (14 species)

Family **Eviphididae** (2 species)

***Loricaseius lepontinus* Plumari & Mašán, 2014: 11—**Holotype female (MSNM, Iv81), habitat with *Larix decidua*, *Rhododendron ferrugineum* and *Vaccinium* sp., litter, Alpe Devero, Baceno, Alpe Veglia–Devero Nature Park, Verbano-Cusio-Ossola Province, Piemonte, Italy.

***Pedoniphis persicus* Joharchi, Mašán & Babaeian, 2014: 280—**Holotype female (JAZM), in sandy soil, Sabalan Mountains, Ardabil Province, Iran (38°19'N, 47°51'E, 1875 m).

Family **Macrochelidae** (7 species)

***Geholaspis (Geholaspis) pennulatus* Babaeian, Halliday & Saboori, 2015: 424—**Holotype female (JAZM), leaf litter, Kheyroodkenar forest. Nowshahr, Mazandaran province, Iran (36°35.265'N, 051°34.271'E, 532 m).

***Longicheles ayyildizi* Özbek, Bal & Doğan, 2013: 465—**Holotype female (EUE), from litter, Niksar, Tokat, Turkey (40°32'03"N, 36°53'08"E, 408 m).

***Longicheles ozkani* Özbek, Bal & Doğan, 2013: 462—**Holotype female (EUE), from litter under *Salix* sp. Köse, Gümüşhane, Turkey (40°16'39"N, 39° 37'59"E, 1769 m).

***Nothrholaspis anatolicus* Özbek & Bal, 2013: 43—**Holotype female (EUE), in nest of ant, Köse mountain, Gümüşhane, Turkey (40°16'N, 39°37'E, 1862 m).

***Nothrholaspis dogani* Özbek & Bal, 2013: 45—**Holotype female (EUE), from rotting wood, moss and lichen, Kürtün (Spider forest), Gümüşhane, Turkey (40°39'N, 39°01'E, 1375 m).

***Nothrholaspis saboorii* Babaeian & Joharchi, 2014 *in* Babaeian, Joharchi & Jamshidian, 2014: 586—**Holotype female (JAZM), in soil, Shahrestanak, Karaj, Iran (35°56'N, 51°22'E, 2330 m).

***Nothrholaspis turcicus* Özbek & Bal, 2013: 41—**Holotype female (EUE), from debris under *Pyrus* sp., Şiran, Gümüşhane, Turkey (40° 09'N, 38°57'E, 1457 m).

Family **Pachylaelapidae** (5 species)

***Pachyseius anisimovi* Marchenko, 2015b: 222—**Holotype female (ISEA), in litter from a forest with *Betula pubescens* and *Populus tremula*, around Basargino Village, Altaiskoe District, North Altai Mts., South Siberia, Russia (51°44'N, 85°25'E, 700 m).

***Pachyseius destitutus* Özbek & Halliday, 2015: 99—**Holotype female (EUE), litter under *Pinus* sp., Demirkapı Village, Trabzon Province, Turkey (40°34'23"N, 40°24'06"E, 1740 m).

***Pachyseius masani* Özbek & Halliday, 2014: 110—**Holotype female (EUE), from litter under *Salix* sp, between Şiran and Alucra, Gümüşhane Province, Turkey (40°09'96"N, 39°00'18"E, 1305 m).

***Pachyseius quadrigeminus* Özbek & Halliday, 2015: 101—**Holotype female (EUE), litter under *Abies* sp., Çıkrıkdüzü Wold, Gümüşhane Province, Turkey (40°39'58"N, 38°59'50"E, 1990 m).

***Pachyseius siranensis* Özbek & Halliday, 2014: 108—**Holotype female (EUE), from litter and moss under *Astragalus* sp. Çakırkaya Village, Şiran Town, Gümüşhane Province, Turkey (40°09'75"N, 39°04'24"E, 1326 m).

Superfamily **Ascoidea** (4 species)

Family **Ameroseiidae** (2 species)

***Ameroseius norvegicus* Narita, Abduch & Moraes, 2015 *in* Narita, Abduch, Moraes & Klingen, 2015: 391—**Holotype female (ESALQ-USP), from litter from a strawberry field at Sylling, Buskerud county, Norway (5954'00"N,1016'54"E, 170 m).

***Neocypholaelaps kreiteri* Narita, Pédelabat & Moraes, 2013: 2—**Holotype female (ESALQ-USP), from inflorescences of *Cocos nucifera* on La Réunion Island, France.

Family **Melicharidae** (2 species)

***Orolaelaps piracicabensis* Sourassou, Moraes & Santos, 2015: 315—**Holotype female (ESALQ-USP), from decaying corn grains and corn cobs under trees, the campus of Escola Superior de Agricultura "Luiz de

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Queiroz", Universidade de São Paulo, at Piracicaba, São Paulo, Brazil (22°42'16"S, 47°38'1"W).

Orolaelaps tupiniquim **Sourassou, Moraes & Santos, 2015: 319—**Holotype female (ESALQ-USP), from decaying carambola fruits on the ground, the campus of Escola Superior de Agricultura "Luiz de Queiroz", Universidade de São Paulo, Piracicaba, São Paulo, Brazil (22°42'18"S, 47°37'58"W; 22°42'28"S, 47°37'44"W).

Superfamily **Phytoseioidea** (40 species)

Family **Blattisociidae** (2 species)

Blattisocius thaicocofloris **Oliveira, Chandrapatya & Moraes, 2015: 94—**Holotype female (ESALQ-USP), from flowers of *Cocos nucifera* at Kamphaeng Saen District, Nakhon Pathom Province, Thailand (14°00' 22"N, 99°59'78"E).

Lasioseius piracicabensis **Moraes & Pérez-Madruga, 2015** ***in*** **Moraes, Abo-Shnaf, Pérez-Madruga, Sáchez, Karmakar & Ho, 2015: 22—**Holotype female (ESALQ-USP), from rice plants, Escola Superior de Agricultura "Luiz de Queiroz" (ESALQ) campus, Universidade de São Paulo (USP), Piracicaba, São Paulo, Brazil.

Family **Phytoseiidae** (38 species)

Amblydromalus insolitus **Nuvoloni & Lofego, 2015** ***in*** **Nuvoloni, Lofego, Castro & Feres, 2015: 262—**Holotype female (DZSJRP), collected from *H. brasiliensis*, clone FDR 5788, from Igrapiúna, Bahia, Brazil (13°48'S, 39°10'W).

Amblydromalus macroatrium **Barbosa & Castro, 2013: 317—**Holotype female (ESALQ-USP), from *Aparisthmium cordatum*, Cananéia, São Paulo, Brazil.

Amblyseius atlanticus **Moraes, Barbosa & Castro, 2013: 304—**Holotype female (ESALQ-USP), from *Erythrina speciosa*, Pariquera-Açu, São Paulo, Brazil.

Amblyseius caliginosus **Ferragut, 2015** ***in*** **Ferragut & Navia, 2015: 540—**Holotype female (MNCN 20.02/ 17391), on *Saxegothaea conspicua*, Tinquilco Lake near Pucón, Chile (39º10'09"S, 71º43'33"W, 814 m).

Amblyseius grandiporus **Ferragut, 2015** ***in*** **Ferragut & Navia, 2015: 538—**Holotype female (MNCN 20.02/ 17389), on *Eucryphia cordifolia*, Tinquilco Lake near Pucón, Chile (39º10'09"S, 71 43'33"W, 814 m).

Breviseius sennae **Barbosa & Castro, 2013: 336—**Holotype female (ESALQ-USP), from *Senna multijuga*, Cananéia, São Paulo, Brazil.

Chileseius australis **Ferragut, 2015** ***in*** **Ferragut & Navia, 2015: 527—**Holotype female (MNCN 20.02/ 17377), on *Tepualia stipularis*, near Ushuaia, Argentina (54º50'51"S, 68º29'19"W, 18 m).

Cocoseius paucisetis **Barbosa & Castro, 2013: 335—**Holotype female (ESALQ-USP), from *Syagrus romanzoffiana*, Glassman, Cananéia, São Paulo, Brazil.

Galendromimus (Galendromimus) roraimensis **Demite & Lofego, 2014** ***in*** **Demite, Gondim, Lofego & Moraes, 2014: 594—**Holotype female (ESALQ-USP), on unidentified Arecaceae, Iracema, Roraima, Brazil, (2º10'N, 61º03'W).

Ingaseius silvaticus **Barbosa, Rocha & Ferla, 2014: 92—**Holotype female (ESALQ-USP), from *Inga* sp., Jundiaí, São Paulo, Brazil.

Metaseiulus (Metaseiulus) parabrevicollis **Ferragut, 2015** ***in*** **Ferragut & Navia, 2015: 546—**Holotype female (MNCN 20.02/17397), on *Chiliotrichum diffusum*, near Ushuaia, Argentina (54º50'51"S, 68º29'19"W, 18 m).

Neoparaphytoseius charapa **Jiménez, McMurtry & Morales, 2014: 294—**Holotype female (ESALQ-USP), on *Inga edulis*, from Iquitos Province, Loreto Department, Peru (03°44'S, 73°14'W).

Neoseiulus elisiensis **Stathakis, Kapaxidi & Papadoulis, 2013: 564—**Holotype female (LAZUA), on *Rubus* sp., collected at Kaiafas Lake, Co. Eleia, Peloponnesus, Greece.

Neoseiulus grumantensis **Kolodochka & Gwiazdowicz, 2014: 446—**Holotype female (IZNASU), plant communities with polar willow *Salix polaris* Wahlenb, Petuniabukta, Billefjord, Spitsbergen, Svalbard, Norway (78º42'N, 16º40'E).

Neoseiulus mapuche **Ferragut, 2015** ***in*** **Ferragut & Navia, 2015: 530—**Holotype female (MNCN 20.02/ 17379), on *Saxegothaea conspicua*, Puerto Blest, Bariloche, near the Argentina-Chile border, Argentina (41º 01'10"S, 71º 09'35"W, 837 m).

Neoseiulus neomarginatus **Stathakis, Kapaxidi & Papadoulis, 2013: 566—**Holotype female (LAZUA), on *Anchusa* sp., collected at Pithari, Co. Chania, Crete Island, Greece.

Neoseiulus sekeroglui **Döker & Stathakis, 2014** ***in*** **Döker, Stathakis, Kazak & Karut, 2014: 333—**Holotype female (AFCU) on *Pallenis spinosa*, Çukurova-Adana, Turkey.

Phytoseius ibrahimi **Döker & Kazak, 2015** ***in*** **Döker, Kazak & Karut, 2015: 440—**Holotype female (AFCU), on *Rubia* sp., Turkey.

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***Phytoseius litoralis* Silva, Rocha & Ferla, 2013: 596—**Holotype female (ESALQ-USP), from *Cecropia pachystachya*, Tramandaí, Rio Grande do Sul, Brazil.

***Proprioseiopsis ismailiaensis* Abo-Shnaf & Moraes, 2014: 12—**Holotype female (FACU), from soil under pomegranate tree, at Ismailia governorate, Egypt.

***Proprioseiospsis pariquerassuensis* Moraes, Barbosa & Castro, 2013: 312—**Holotype female (ESALQ-USP), from *Aciotis brachybotria*, Triana, Pariquera-Açu, São Paulo, Brazil.

***Serraseius caicara* Moraes, Barbosa & Castro, 2013: 315—**Holotype female (ESALQ-USP), from *Nectandra oppositifolia*, Cananéia, São Paulo, Brazil.

***Transeius kroeffis* Gonçalves & Ferla, 2015 *in* Gonçalves, Cunha, Bampi, Moraes & Ferla, 2015: 571—**Holotype female (ZAUMCN), from *Myrcia retorta*, São Francisco de Paula, Rio Grande do Sul, Brazil.

***Typhlodromalus araucariae* Gonçalves & Ferla, 2015 *in* Gonçalves, Cunha, Bampi, Moraes & Ferla, 2015: 573—**Holotype female (ZAUMCN), from *Bougainvillea spectabilis*, São Francisco de Paula, of Rio Grande do Sul, Brazil.

***Typhlodromalus feresisimilis* Barbosa & Castro, 2013: 323—**Holotype female (ESALQ-USP), from *Cordia curassavica*, Ilha Comprida, São Paulo, Brazil.

***Typhlodromalus ingae* Barbosa & Castro, 2013: 325—**Holotype female (ESALQ-USP), from *Inga vera*, Luis Antonio, São Paulo, Brazil.

***Typhlodromips corniformis* Barbosa & Castro, 2013: 330—**Holotype female (ESALQ, USP), from *Vochysia sp*., Pariquera-Açu, São Paulo, Brazil.

***Typhlodromips fissuratus* Ferragut, 2015 *in* Ferragut & Navia, 2015: 536—**Holotype female (MNCN 20.02/17388), on *Rubus* sp., Tinquilco Lake near Pucón, Chile (39º10'09"S, 71º43'33"W, 814 m).

***Typhlodromips pallinii* Gonçalves, Silva & Ferla, 2013: 364—**Holotype female (ESALQ-USP), from *Ilex paraguariensis*, Putinga, Rio Grande do Sul, Brazil.

***Typhlodromips paramilus* Nuvoloni & Lofego, 2015 *in* Nuvoloni, Lofego, Castro & Feres, 2015: 267—**Holotype female (DZSJRP), collected from *Hevea brasiliensis*, clone PMB 01, from Igrapiúna, Bahia, Brazil (13°48'S, 39°10'W).

***Typhlodromips pompeui* Gonçalves & Ferla, 2015 *in* Gonçalves, Cunha, Bampi, Moraes & Ferla, 2015: 576—**Holotype female (ZAUMCN-UNIVATES), from *Luehea divaricate*, São Francisco de Paula, Rio Grande do Sul, Brazil.

***Typhlodromips robustisetus* Barbosa & Castro, 2013: 331—**Holotype female (ESALQ-USP), from *Piptocarpha sp*., Cananéia, São Paulo, Brazil.

***Typhlodromips salvaadorii* Gonçalves & Ferla, 2015 *in* Gonçalves, Cunha, Bampi, Moraes & Ferla, 2015: 577—**Holotype female (ZAUMCN-UNIVATES), from *Myrcia retorta*, São Francisco de Paula, Rio Grande do Sul, Brazil.

***Typhlodromips valdivianus* Ferragut, 2015 *in* Ferragut & Navia, 2015: 533—**Holotype female (MNCN 20.02/17385), on *Saxegothaea conspicua* Puerto Blest, Bariloche, near the Argentina-Chile border, Argentina (41º 01'10" S, 71º 09'35" W, 837 m).

***Typhlodromus (Anthoseius) anomalos* Ferragut, 2015 *in* Ferragut & Navia, 2015: 543—**Holotype female (MNCN 20.02/17395), on *Araucaria araucana*. Mamuil-Malal Pass, 65 Km from Junín de los Andes (Argentina), near the border between Argentina and Chile, Chile (39º34'56"S, 71º27'44"W, 1210 m).

***Typhlodromus (Anthoseius) fayoumensis* Abo-Shnaf & Moraes, 2014: 46—**Holotype female (FACU), from soil under fig plant, at Senuris, Fayoum governorate, Egypt.

***Typhlodromus (Typhlodromus) antakyaensis* Stathakis & Döker, 2014 *in* Döker, Stathakis, Kazak & Karut, 2014: 335—**Holotype female (AFCU), on *Phaseolus vulgaris*, Samandağ-Antakya, Turkey.

***Typhlodromus sandrae* Ragusa & Tsolakis, 2015 *in* Tsolakis & Ragusa, 2015: 234—**Holotype female (UNIPA, No. 2710C), collected on *Vitis vinifera* at Ruvo di Puglia, Bari, Italy.

Superfamily **Dermanyssoidea** (24 species)

Family **Laelapidae** (24 species)

***Coleolaelaps massoumii surii* Khanjani, Ghaedi & Ueckermann, 2013: 473—**Holotype female (BASU), from *Polyphylla olivieri* collected from cherry trees, Hamadan, Iran.

***Cosmolaelaps barbatus* Moreira, Klompen & Moraes, 2014: 322—**Holotype female (ESALQ-USP), from a laboratory colony initiated with specimens collected from litter under *Capsicum chinense*, at Escola Superior de Agricultura "Luiz de Queiroz", Piracicaba, São Paulo, Brazil.

***Cosmolaelaps busolii* Moreira, Klompen & Moraes, 2014: 331—**Holotype female (ESALQ-USP), from soil under *Syagrus romanzoffiana* at Rodovia 226 (Parquera-Açu-Cananéia), Cananéia, São Paulo, Brazil.

***Cosmolaelaps confinisetarum* Moreira, Klompen & Moraes, 2014: 333—**Holotype female (ESALQ-USP),

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from litter under *Syagrus oleracea* at Rodovia Geraldo de Barros, São Pedro, São Paulo, Brazil.

***Cosmolaelaps dorfakiensis* Ramroodi, Hajizadeh & Joharchi, 2014: 534—**Holotype female (UGMC), in soil and leaf litter, Khotbesara Village, Astara Town, Guilan Province, Iran (38°25'N, 48°52'E).

***Cosmolaelaps jaboticabalensis* Moreira, Klompen & Moraes, 2014: 336—**Holotype female (ESALQ-USP), from a laboratory colony initiated with specimens collected from litter under *Eriobotrya japonica* at Jaboticabal, São Paulo, Brazil.

***Cosmolaelaps oliveirai* Moreira, Klompen & Moraes, 2014: 339—**Holotype female (ESALQ-USP), from soil under *Astrocaryum aculeatissimum* at Núcleo Agrícola Vale do Ribeira, IAC, Pariquera-Açu, São Paulo, Brazil.

***Cosmolaelaps pinnatus* Ramroodi, Hajizadeh & Joharchi, 2014: 538—**Holotype female (UGMC), in soil and leaf litter under box trees, Chobar Village, Shaft Town, Guilan Province, Iran (37°10'N, 49°23'E).

***Gaeolaelaps ahangarani* Kazemi & Beaulieu, 2014 *in* Kazemi, Rajaei & Beaulieu, 2014: 514—**Holotype female (ACISTE), from decayed wood of Beech trees, Tirom Forest, Tonekabon County, Mazandaran Province, northern Iran (40°62'69"N, 47°11'26"E).

***Gaeolaelaps farajii* Nemati & Mohseni, 2013: 72—**Holotype female (APAS), from soil, Izeh, Khuzestan province, Iran (31°49'52"N, 49°52'9"E, 845 m).

***Gaeolaelaps khajooii* Kazemi, Rajaei & Beaulieu, 2014: 510—**Holotype female (ACISTE), from soil and litter at an alfalfa farm, Baft County, Kerman Province, southern Iran (28°39'46"N, 56°45'37"E, 1044 m).

***Gaeolaelaps orbiculatus* Nemati & Mohseni, 2013: 76—**Holotype female (APAS), Izeh, Khuzestan province, Iran (31°49'52"N, 49°52'9"E, 845 m).

***Gymnolaelaps artavilensis* Joharchi & Halliday, 2013: 41—**Holotype female (JAZM), in nest of *Pheidole pallidula* (in JAZM), Ardabil, Iran (38°15'N, 48°17'E, 1875 m).

***Hypoaspis elegans* Joharchi, Ostovan & Babeian, 2014: 570—**Holotype female (SRIAUF), on adult female of *Oryctes elegans*, Bam, Kerman province, Iran.

***Hypoaspis (Hypoaspis) surii* Khanjani, Ghaedi & Ueckermann, 2013: 470—**Holotype female (BASU), from *Polyphylla olivieri* from potato farms at Bahar, Hamedan Province, Iran.

***Laelaspis morazae* Kazemi, 2015: 420—**Holotype female (ACISTE), from *Lepisiota semenovi* (Ruzsky), 1023 m above sea level, Mashad County, Khorasan Razavi Province, Northeastern Iran (59°58'N, 36°24'E).

***Myrmozercon crinitus* Joharchi, 2013 *in* Joharchi & Moradi, 2013: 245—**Holotype female (YIAU), clinging to the head of soldiers of *Pheidole pallidula* (in YIAU), Karaj, Alborz, Iran (35°48'N, 50°59'E, 1550 m).

***Myrmozercon hunteri* Joharchi, Babaeian & Seeman, 2015: 550—**Holotype female (JAZM), clinging to the abdomen of soldiers of *Myrmica* sp. ,Khoznan, Savojbolagh, Alborz province, Iran (36°71'N, 50°32'E, 1595 m).

***Myrmozercon michaeli* Joharchi, 2013 *in* Joharchi & Moradi, 2013: 248—**Holotype female (YIAU), in nest of *Messor* sp. (in YIAU), Damavand Mountain, Iran (35°52'N, 52°07'E, 2422 m).

***Promacrolaelaps propomacrus* Joharchi, Halliday & Beyzavi, 2013: 380—**Holotype female (YIAU), adult of *Propomacrus bimucronatus*, Kamfiruz region, Fars province, Iran.

***Reticulolaelaps hallidayi* Joharchi, Nemati & Babaeian, 2013 *in* Nemati, Joharchi, Babaeian & Gwiazdowicz, 2013: 76—**Holotype female (APAS), soil, Izeh, Khuzestan Province, Iran (31°49'52"N, 49°52'9"E, 845 m).

***Ulyxes autolycus* Shaw, 2014: 266—**Holotype female (BBM), from "*Pseuocheirus cupreus*" = *Pseudochirops cupreus*, Collin's Sawmill, Mt Otto, Papua New Guinea.

***Ulyxes euryclea* Shaw, 2014: 269—**Holotype female (QM), ex nestbox recently occupied by *Cacatua longirostris* Long-billed Corella, collected four days after last chick fledged, Candlebark Park, Templestowe, Victoria, Australia (37°31'56"S, 145°06'39"E).

***Ulyxes theoclymenus* Shaw, 2014: 283—**Holotype female (BBM, BBM-NG 22634), May River, West Sepik province, Papua New Guinea.

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