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Magyar Nemzeti Múzeum
Közgyűjteményi Központ

Magyar Természettudományi Múzeum

A Magyar Nemzeti Múzeum Közgyűjteményi Központ –
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az Emberi Erőforrások Minisztériuma
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Emberi Erőforrások
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(forrás: Lipthay Antal)

Baron Béla Lipthay, entomologist, paleobotanist, curator
(source: Antal Lipthay)

Lipthay Béla báró (*1892: Lovrin, Torontál megye [ma Románia] – †1974: Szécsény) – entomológus, paleobotanikus, muzeológus. Az egyik legrégebbi felső-magyarországi (Liptó vármegye) nemes család leszármazottja. Tisztként végigharcolta az I. világháborút, számos kitüntetést szerzett. A család bánáti birtokaira visszatérve gazdálkodni kezdett, gyümölcskonzerv- és keményítőgyárat alapított. Eközben részt vett báró Nopcsa Ferenc Hunyad megyei „dinoszaurusz" feltárásain. Intenzíven kutatta az Al-Duna, a Bánát és a Délnyugati-Kárpátok lepkefaunáját, birtokán pedig lepketenyésztési kísérleteket végzett. A II. világháború végén Magyarországra települt, miután megvásárolta a szarvasi és a szécsényi uradalmakat. Az államosítás után 1952-től a Palóc Múzeumban muzeológusi állást kapott, és Nógrád vármegyében sok helyütt gyűjtött. Közel 60 ezer példányból álló lepkegyűjteménye a Magyar Természettudományi Múzeumba került, paleobotanikai anyagait a Nógrádi Természettudományi Gyűjtemény őrzi.

Bálint Zsolt

Baron Béla Lipthay (*1892: Lovrin, Torontál County [now Romania] – †1974: Szécsény) – entomologist, paleobotanist, curator. He is a descendant of one of the oldest noble families in Upper Hungary (Liptó County). Fought as an officer in the World War I and won numerous awards. Returning to the family's estates in the region Banat, he started farming and founded a factory for producing fruit cans and strach. Meanwhile, he participated in the "dinosaur" excavations in Hunyad County lead by baron Ferenc Nopcsa, and intensively researched the butterfly fauna of the Banat, the Danube Gorge region and the Southwestern Carpathians. On his property he conducted butterfly breeding experiments. At the end of World War II, he settled in Hungary after buying the manors of Szarvas and Szécsény. Following the nationalisation, from 1952 he was employed as a curator at the Palóc Museum and widely collected in Nógrád County. His collection of butterflies, consisting of nearly 60,000 specimens, was transferred to the Hungarian Natural History Museum, and his paleobotanical materials are kept by the Natural History Collection of Nógrád County.

Zsolt Bálint

Szemere László, mikológus, ornitológus
(forrás: Jaskó György)

László Szemere, mycologist, ornithologist
(source: György Jaskó)

Szemere László (*1884: Lasztomér [ma: Lastomír, Szlovákia] – †1974: Veszprém) – mikológus, ornitológus. Régi nemesi család sarja, jogászként végzett. Természettudományos ismereteit önképzéssel szerezte. Részt vett az első világháborús honvédő harcokban, 1919-ben kitoloncolták Erdélyből. Menekültként ezután Budapesten, a Magyar Királyi Madártani Intézetben kapott állást. Egész életében madarászott, számos szakcikket közölt. 1920-tól foglalkozott intenzíven gombákkal. 1926-ban a Magyar Királyi Állami Növényélet- és Kórtani Állomás Gombászati Osztályának újjászervezésével bízták meg, amelyet 1938-ig vezetett. Ebben az időszakban megszervezte a magyarországi gombaszakoktatást, számos gombaismerői tanfolyamot tartott. 1926-ban saját festményekkel illusztrált képanyaggal jelent meg *Gombáskönyv kezdők részére* c. műve. A második világháborút követően a kommunista rendszerben sok megpróbáltatás érte. Nyugdíjasként főleg föld alatti gombákkal foglakozott, előbb Pamukon (1946), majd Somogyfajszon élt (1953), végül Hárskútra költözött (1960). Európai viszonylatban is kiemelkedő *Die unterirdischen Pilze des Karpatenbeckens* [A Kárpát-medence föld alatti gombái] című könyve (1965). Kiváló megfigyelő volt, gyönyörűen rajzolt és festett; 787 gombaakvarellből álló gyűjteményét a Magyar Természettudományi Múzeumban őrizzük. Gyűjteseiből közel 500, főleg 1945 után gyűjtött gombapreparátum ma is megtalálható a Növénytár Gombagyűjteményében.

LOCSMÁNDI CSABA

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László Szemere (*1884: Lasztomér [now: Lastomír, Slovakia] – †1974: Veszprém) – mycologist, ornithologist. Member of an old noble family, graduated as a lawyer. He acquired his natural science knowledge through self-education. Taking part as an officer in the First World War; he was expelled from Transylvania in 1919. As a refugee, he got a job in Budapest, at the Hungarian Royal Institute of Ornithology. He studied birds in all his life and published numerous papers. Starting to work intensively on mushrooms from 1920, he was entrusted with the reorganization of the Fungi Department of the Hungarian Royal Institute for Plant Physiology and Pathology in 1926, and worked there until 1938. During this period, he established the mycological education and held numerous courses to disseminate the knowledge on mushrooms in Hungary. In 1926, his guide for beginners on mushrooms was published, illustrated with his own coloured drawings. After the Second World War, he suffered many trials by the communist regime. During his retirement he mainly worked with underground (ascomycete) mushrooms, first living in Pamuk (1946), then Somogyfajsz (1953), and finally moving to Hárskút (1960). His book *Die unterirdischen Pilze des Karpatenbeckens* [Underground fungi of the Carpathian Basin] (1965) is outstanding in Europe. He was an excellent observer and remarkable illustrator. His collection of 787 mushroom watercolours is preserved in the Hungarian Natural History Museum. Nearly 500 mushroom specimens from his collections, mostly collected after 1945, are in the Mushroom Collection of the museum.

CSABA LOCSMÁNDI

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New taxa described by the staff of the Hungarian Natural History Museum in 2023

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Abstract – In this paper an overview and a list are given of the new taxa described by the scientific staff members and volunteer researchers of the Hungarian Natural History Museum in 2023. The list contains 115 species-group names, five genus-group names, and one family-group name proposed by the authors. With one figure.

Key words – biodiversity, description, overview, new genera, new species, new subgenus, new subtribe, new subspecies, taxonomy

INTRODUCTION

Natural history museums of the world traditionally play the most important role in taxonomical research, given their large and historical collections. These institutions serve as a base both for acquiring the taxonomical expertise and for continuously providing novel discoveries by researchers working on their holdings.

Since 2019, annual overviews and lists of taxa described as new to science by the researchers (both scientific staff members and volunteers) of the Hungarian Natural History Museum (HNHM) were published online as blog posts of the HNHM (Jókuthy 2020, Vas 2021, Vas & Szőke 2022*a*, 2023*a*, Szőke & Vas 2024). These compilations are in Hungarian, with the purpose of communicating the scientific results of ongoing research activities in the HNHM to the society. From 2022 on, the annual overview and a complete list of new taxa are also published in the present journal, serving as a traditional, long-term archiving tool (Vas & Szőke 2022*b*, 2023*b*).

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TAXONOMICAL AND GEOGRAPHICAL COVERAGE

In 2023, researchers of the HNHM described 102 species new to science, as well as 13 subspecies, 4 genera, one subgenus, and one subtribe. The majority of them is animal taxa: newly described vertebrates include one blind mole rat subspecies (Mammalia) (Németh *et al.* 2023), and 3 species of South American frogs (Amphibia) (Székely *et al.* 2023), whereas invertebrates are represented by 95 species, 12 subspecies, 4 genera, one subgenus, and one subtribe of insects (Insecta) (see details and references below), and by 3 species of potworms (Annelida) (Nagy *et al.* 2023). The newly described insect taxa consist of 70 species, 12 subspecies, 4 genera, one subgenus and one subtribus of butterflies (Lepidoptera) (Bálint *et al.* 2023, Bartsch *et al.* 2023*a*, *b*, Boyle *et al.* 2023, Pan *et al.* 2023, Ronkay *et al.* 2023, Sáfián & Belcastro 2023, Sáfián *et al.* 2023, Volynkin *et al.* 2023), 15 species of ichneumon wasps (Hymenoptera) (Vas 2023*a*, *b*, *c*, *d*), one species of dustywings and one species of spongillaflies (Neuroptera) (Sziráki 2023, Szőke 2023), one species of dragonflies (Odonata) (Kovács & Theischinger 2023), 3 species of stoneflies (Plecoptera) (Murányi *et al.* 2023), and 4 species of flat bugs (Heteroptera) (Vásárhelyi 2023, Vásárhelyi & Heiss 2023). Newly described plants are represented by a fossil species of gymnosperms (Gymnospermae) (Barbacka *et al.* 2023).

Figure 1. Collecting localities of the type material of new species and subspecies at county level (light blue), and their numbers per continents (compiled by Viktória Szőke)

New species and subspecies were described from 30 countries of the world: 3 European (Albania, Croatia, Italy), 17 Asian (Armenia, Azerbaijan, China, Georgia, India, Indonesia, Malaysia, Mongolia, Myanmar, Nepal, North Korea, Pakistan, Philippines, Taiwan, Thailand, Turkmenistan, Vietnam), 7 African (Algeria, Ethiopia, Guinea, Ivory Coast, Liberia, Madagascar, Sierra Leone), 2 American countries (Ecuador, United States), and Australia (Fig. 1). Numbers of newly described species per continents are also indicated in Fig. 1.

LIST OF NEW TAXA

Collecting localities of the type material of new species and subspecies are indicated in square brackets at country level. Extinct taxa are marked with the † symbol (in this case, the geological period is also indicated in square brackets).

Phylum: Chordata
Class: Mammalia
ORDER: RODENTIA
Family: Spalacidae

Nannospalax hellenicus nopcsai Csorba, Mizsei, Czabán et Németh, 2023 (Nopcsa-földikutya) [Albania]

Class: Amphibia
ORDER: ANURA
Family: Strabomantidae

Pristimantis numbala Székely, Székely, Armijos-Ojeda, Hualpa-Vega et Vörös, 2023 [Ecuador]
Pristimantis paladines Székely, Székely, Armijos-Ojeda, Hualpa-Vega et Vörös, 2023 [Ecuador]
Pristimantis sagedunneae Székely, Székely, Armijos-Ojeda, Hualpa-Vega et Vörös, 2023 [Ecuador]

Phylum: Arthropoda
Class: Insecta
ORDER: LEPIDOPTERA
Family: Lycaenidae

Cooksoniina Sáfián, Boyle et Pierce, 2023
Neurellipes helpsi ziama Sáfián et Belcastro, 2023 [Guinea]

Family: Noctuidae

Acronicta (*Molybdonycta*) *confusa* Kiss, 2023 [China]
Anacronicta himalaya Hreblay, Katona et Tóth, 2023 [Nepal]
Antha magna Hreblay, Katona et Tóth, 2023 [Thailand, China]
Antitrisuloides catocalina cyclica Hreblay, Katona et Tóth, 2023 [Thailand, Myanmar]
Apamea alterna Hreblay, Katona et Tóth, 2023 [Thailand, Myanmar]
Apamea siamica Hreblay, Katona et Tóth, 2023 [Thailand]
Axylia clavifera Hreblay, Katona et Tóth, 2023 [Nepal]
Axylia kontrasta Hreblay, Katona et Tóth, 2023 [Nepal]
Axylia obtusa Hreblay, Katona et Tóth, 2023 [Thailand]
Axylia orbiculata Hreblay, Katona et Tóth, 2023 [Thailand]
Axylia putris philippinensis Hreblay, Katona et Tóth, 2023 [Philippines]
Bornolis siamica Hreblay, Katona et Tóth, 2023 [Thailand]
Chalconyx tinta Hreblay, Katona et Tóth, 2023 [Thailand]
Conisania sejilaensis Pan, Zheng, Volynkin, Saldaitis, Gyulai et Tóth, 2023 [China]
Cosmia aureofusca Hreblay, Katona et Tóth, 2023 [Thailand]
Cosmia trigonifera Hreblay, Katona et Tóth, 2023 [Thailand]
Cranionycta formosana Kiss, 2023 [Taiwan]
Diarsia excelsa ayubia Hreblay, Katona et Tóth, 2023 [Pakistan]
Diarsia maculifera Hreblay, Katona et Tóth, 2023 [Thailand]
Diarsia parvimaculosa Hreblay, Katona et Tóth, 2023 [Thailand]
Diarsia siamicola Hreblay, Katona et Tóth, 2023 [Thailand]
Diarsia tinctoides Hreblay, Katona et Tóth, 2023 [Thailand]
Dioszeghyana albonigra Hreblay, Katona et Tóth, 2023 [Thailand]
Feliniopsis angusta Hreblay, Katona et Tóth, 2023 [Thailand]
Feliniopsis aversa Hreblay, Katona et Tóth, 2023 [Thailand]
Feliniopsis hyposcota continentalis Hreblay, Katona et Tóth, 2023 [Thailand, Nepal]
Feliniopsis hyposcota pygmaea Hreblay, Katona et Tóth, 2023 [Taiwan]
Feliniopsis manifesta Hreblay, Katona et Tóth, 2023 [Thailand]
Feliniopsis rubrofusa Hreblay, Katona et Tóth, 2023 [Taiwan]
Feliniopsis similata Hreblay, Katona et Tóth, 2023 [Nepal]
Feliniopsis stimulata Hreblay, Katona et Tóth, 2023 [Thailand]
Fuscotrachea Hreblay, Katona et Tóth, 2023
Fuscotrachea boluangi Hreblay, Katona et Tóth, 2023 [Thailand]
Hermonassa csoevarii Hreblay, Katona et Tóth, 2023 [Nepal]
Hermonassa sherpae sherpani Hreblay, Katona et Tóth, 2023 [Thailand]
Hermonassa thomasi obscurata Hreblay, Katona et Tóth, 2023 [Thailand]
Herzinycta Kiss, 2023
Hyalobole changae thailandica Hreblay, Katona et Tóth, 2023 [Thailand]

Iceleucania Hreblay, Katona et Tóth, 2023
Isochlora hreblayi Volynkin, Tóth, Titov et Saldaitis, 2023 [Mongolia]
Isolasia intermedia Hreblay, Katona et Tóth, 2023 [Thailand]
Karana bacsovi Hreblay, Katona et Tóth, 2023 [Vietnam]
Karana falcata Hreblay, Katona et Tóth, 2023 [Thailand]
Karana yangzi Hreblay, Katona et Tóth, 2023 [Thailand]
Kisegira diluta Hreblay, Katona et Tóth, 2023 [Thailand]
Leucania (*Iceleucania*) *rosa* Hreblay, Katona et Tóth, 2023 [Thailand]
Mniotype putyi Hreblay, Katona et Tóth, 2023 [Thailand]
Odontestra mikuslaci Hreblay, Katona et Tóth, 2023 [Thailand]
Pareuplexia asymmetrica Hreblay, Katona et Tóth, 2023 [Thailand]
Pareuplexia chiangstigma Hreblay, Katona et Tóth, 2023 [Thailand]
Pareuplexia illusoria Hreblay, Katona et Tóth, 2023 [China]
Pareuplexia interposita Hreblay, Katona et Tóth, 2023 [China]
Pareuplexia latizona Hreblay, Katona et Tóth, 2023 [China]
Pareuplexia nyima Hreblay, Katona et Tóth, 2023 [Nepal]
Pareuplexia peteri Hreblay, Katona et Tóth, 2023 [Thailand, China]
Pareuplexia phahompoki Hreblay, Katona et Tóth, 2023 [Thailand]
Pareuplexia tapaishana Hreblay, Katona et Tóth, 2023 [China]
Phlogophora aspersa Hreblay, Katona et Tóth, 2023 [Thailand]
Phlogophora griseomarginata Hreblay, Katona et Tóth, 2023 [Thailand]
Potnyctycia recta Hreblay, Katona et Tóth, 2023 [Thailand]
Prometopus sopkha Hreblay, Katona et Tóth, 2023 [Thailand]
Rhynchaglaea pua Hreblay, Katona et Tóth, 2023 [Thailand]
Saalmuellerana orientalis Hreblay, Katona et Tóth, 2023 [Thailand]
Thalatha accreta Hreblay, Katona et Tóth, 2023 [Thailand, India]
Thalatha sincera Hreblay, Katona et Tóth, 2023 [Thailand, China, India]
Thalathoides lucida Hreblay, Katona et Tóth, 2023 [Philippines]
Thalathoides pygmea Hreblay, Katona et Tóth, 2023 [Myanmar, Thailand]
Trachea tonkinata Hreblay, Katona et Tóth, 2023 [Vietnam]
Transtrachea Hreblay, Katona et Tóth, 2023
Transtrachea nubiliformis Hreblay, Katona et Tóth, 2023 [Thailand]
Transtrachea tortuosa Hreblay, Katona et Tóth, 2023 [Thailand]
Xanthia aurantiaca Hreblay, Katona et Tóth, 2023 [Thailand]
Xanthia melonina fuscomedia Hreblay, Katona et Tóth, 2023 [Thailand]
Xenotrachea albifusa palawana Hreblay, Katona et Tóth, 2023 [Philippines]
Xenotrachea moha Hreblay, Katona et Tóth, 2023 [Thailand]
Xenotrachea parvicultа Hreblay, Katona et Tóth, 2023 [Thailand]
Xestia aquila viridicosta Hreblay, Katona et Tóth, 2023 [Nepal]
Xestia gloria Hreblay, Katona et Tóth, 2023 [Nepal]
Xestia mingma Hreblay, Katona et Tóth, 2023 [Nepal]
Xestia phahompoki Hreblay, Katona et Tóth, 2023 [Thailand]

Family: Nymphalidae

Precis koivoguii Sáfián, Florczyk et Takano, 2023 [Guinea, Ivory Coast]

Family: Sesiidae

Cicinnoscelis grandiosus Bartsch et Sáfián, 2023 [Sierra Leone, Liberia]
Fortikona Bartsch et Sáfián, 2023
Fortikona aethiopica Bartsch et Sáfián, 2023 [Ethiopia]
Fortikona dalaba Sáfián et Bartsch, 2023 [Guinea]
Fortikona rhynchiformis Sáfián et Bartsch, 2023 [Liberia]

Order: Hymenoptera
Family: Ichneumonidae

Bathyplectes dbari Vas, 2023 [Turkmenistan]
Campoletis koreana Vas, 2023 [North Korea]
Campoplex csorgoi Vas, 2023 [Australia]
Campoplex reiczigeli Vas, 2023 [Australia]
Campoplex rozsai Vas, 2023 [Australia]
Enytus australiensis Vas, 2023 [Australia]
Eriborus biroi Vas, 2023 [Australia]
Hyposoter hangayi Vas, 2023 [Australia]
Hyposoter pinyo Vas, 2023 [Australia]
Leptoperilissus horstmanni Vas, 2023 [Algeria]
Melalophacharops chryseus Vas, 2023 [Australia]
Melalophacharops nitens Vas, 2023 [Taiwan]
Meloboris pektusana Vas, 2023 [North Korea]
Picacharops arantia Vas, 2023 [Australia]
Venturia criminalis Vas, 2023 [Australia]

Order: Neuroptera
Family: Coniopterygidae

Nimboa benyovszkyi Sziráki, 2023 [Madagascar]

Family: Sisyridae

Sisyra mononoke Szőke, 2023 [India]

Order: Heteroptera
Family: Aradidae

Acantharadus flora Vásárhelyi, 2023 [Indonesia]
Chelonocoris bakonyii Vásárhelyi, 2023 [Malaysia]
Chelonocoris heissi Vásárhelyi, 2023 [Indonesia]
Kema pamae Vásárhelyi, 2023 [Indonesia]

Order: Plecoptera
Family: Nemouridae

Protonemura apetor Murányi, Kovács, Vinçon et Manko, 2023 [Georgia]
Protonemura boris Murányi, Manko, Kovács, Vinçon et Žiak, 2023 [Azerbaijan, Georgia]
Protonemura soad Murányi, Manko, Kovács et Vinçon, 2023 [Armenia, Georgia]

Order: Odonata
Family: Platycnemididae

Nososticta peti Kovács et Theischinger, 2023 [Indonesia]

Phylum: Annelida
Class: Clitellata
Order: Enchytraeida
Family: Enchytraeidae

Enchytraeus adrianensis Nagy, Dózsa-Farkas et Felföldi, 2023 [Croatia]
Enchytraeus andrasi Nagy, Dózsa-Farkas et Felföldi, 2023 [Italy]
Enchytraeus andrasiformis Nagy, Dózsa-Farkas et Felföldi, 2023 [Italy]

Phylum: Gymnospermae
Class: incertae sedis
Order: incertae sedis
Family: incertae sedis

†*Hanophyllum varioserratum* Barbacka, Pacyna et Pott, 2023 [USA (Alaska), Jurassic]

*

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A 2023. év tudományra új taxonjai a Magyar Természettudományi Múzeumban

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Összefoglalás – Jelen munkában a szerzők a Magyar Természettudományi Múzeum tudományos munkatársai és önkéntes kutatói által 2023-ban tudományra újként leírt taxonokat tekintik át és összegzik. A listában 115 fajcsoport-, öt nemzetségcsoport- és egy családcsoportnevet sorolnak fel. Egy ábrával.

Kulcsszavak – áttekintés, biodiverzitás, új alfajok, új alnemzetség, új altribusz, új fajok, új nemzetségek, taxonómia

ÁBRAMAGYARÁZAT

1. ábra. A tudományra új fajok és alfaj típusanyagának országszintű lelőhelyei (világoskék) és kontinensenként összegzett száma (a grafikát Szőke Viktória készítette)

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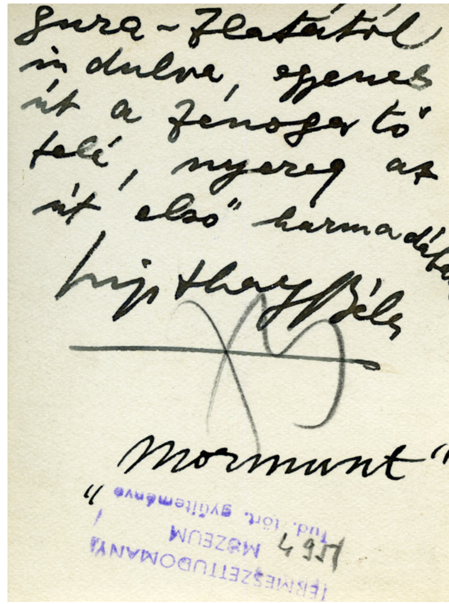
* levelező szerző



Gura-Zlatától indulva, egyenes út a Zenoga-tó felé, nyereg az út első harmadában.
Lipthay Béla. „Mormunt”

Starting from Gura-Zlata, straight road towards Lake Zenoga, saddle in the first third of the path. Béla Lipthay. “Mormunt”

Lassan száz éve, hogy 1935 nyarán Lipthay Béla és Antal öccse (mindketten az előtérben, világos sapkában) a Retyezát központi gerincén, a Zenoga-tó környékén gyűjtötték a magashegyi lepkéket. Vezetőjük Teleki Jenő barátjuk volt (hátrébb áll szalmakalapban), és az expedíción már felcseperedett gyermekeik is részt vettek. A felszerelést lóháton vitték ki a havasba, a tábori életet két helyi román kísérő segítette. A hely ma is hasonlóan néz ki, és még most is a legjobb megoldás, ha a málhát lovak viszik fel a 2000 méteres magasságba.

Bálint Zsolt, *Állattár*

Almost a hundred years ago, in the summer of 1935, Béla Lipthay and his younger brother Antal (both in the foreground, in light caps) collected alpine butterflies on the central ridge of the Retezat Mountains, around Lake Zenoga. Their guide was their friend Jenő Teleki (he is standing in the back in a straw hat). Their children, who had already grown up, also took part in the expedition. The load was taken up to the ridge on horseback. Camp life was helped by two local Romanian servants. The place still looks similar today, and even now horses are the best option to take the load up to the 2000-meter altitude.

Zsolt Bálint, *Department of Zoology*

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Diplopod types in the Hungarian Natural History Museum, II. (Arthropoda: Myriapoda: Diplopoda)

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Abstract – After forty years, the type specimens kept in the Myriapoda Collection of the Hungarian Natural History Museum are revisited, a current catalogue is provided, and the status of the old names are updated and reevaluated. A total of 239 nominal taxa (species, subspecies, varietas and forma) are listed which is an almost fivefold increase compared to the number (35) of the previous catalogue from 1983. Two collections of old type specimens arrived to the museum after 1983: a set of Daday's types from the Muséum d'Histoire Naturelle Genève in 2004, and another collection containing Loksa's material from the Department of Systematic Zoology and Ecology, Eötvös Loránd University, Budapest, in 2017. Thorough search in the collection revealed type material of 66 species-group taxa originally considered lost. 53 type specimens that were supposedly deposited in the Hungarian Natural History Museum are missing, and the possible reason for that is discussed. In addition, a comprehensive bibliography is given along with the names of all type taxa dealt in those publications. With 43 figures, 8 tables, and an appendix.

Key words – type specimens, millipedes, collection, labels, catalogue

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INTRODUCTION

Forty years ago the first list of type specimens kept in the Myriapoda Collection of the Hungarian Natural History Museum (HNHM) was published (Korsós 1983). At that time, a total of 100 type specimens belonging to 35 species were listed, in alphabetical order according to their species group names, with the number of specimens, old inventory records, locality details as exact as possible and references to the original descriptions.

The history of the Myriapoda Collection of the HNHM dates back to the middle of the 19th century (Korsós in prep.). According to the old inventory book (Fig. 1), the first Myriapoda specimens (seven individuals of two species, without closer identification) arrived to the museum in 1853 from "Bánát" (a region what was then in southern Hungary, now in Romania and Serbia), collected by János (= Johannes) Frivaldszky (1822–1895), who later became director of the Department of Zoology in 1870 (Korsós 2019). Fifty years later, 4364 myriapod specimens were counted in a summary by Horváth (1902). It was only near the turn of the 19th and 20th centuries that the Myriapoda collection received more attention through the activities of such prominent scientists as Jenő (= Eugene) Daday (1855–1920) and Ödön (= Edmund) Tömösváry (1852–1884). They mainly worked on two important collections brought from abroad by János (= John) Xántus (1825–1894) and Lajos (= Louis) Bíró (1856–1931). After them, coleopterist Ernő (= Ernest) Csiki (originally Dietl) (1875–1954) became curator of the combined spider–myriapod collection, and kept the records in the inventory book from 1899 until 1950 (Fig. 2).

The next curator of the Arachnoidea–Myriapoda collection of the HNHM was László Szalay (1887–1970), who was a specialist in Hydracarina, but also published some small faunistic papers on Diplopoda. He retired in 1950, but continued to work in the collection until 1960. For the next twenty years, up until 1982, world-famous acarologist Sándor Mahunka (1937–2012) took care of the collection. At that point, the Myriapoda Collection was separated from the arachnoids and Zoltán Korsós was appointed curator. It was his first myriapodological publication to prepare the list of old types preserved in the collection (Korsós 1983).

In this list, the species were listed in alphabetical order according to their specific nomen, without regard to their taxonomic affiliation. The following data appeared in the old list with respective species-group names: (1) author's name and year of description; (2) original use of binominal name; (3) citation of description; (4) type locality; (5) in parentheses: collector's name and year of collection (for lack of the latter: year of registration, marked with asterisk); (6) inventory number/total number of specimens of the taxon; and (7) in parentheses: type category. In the original publication a short list of the species grouped according to their relationships was also added, but the family-group names used have not been validated by the modern system. In total, type material of only 35 species could be found in the collection at that time.

There were two major subsequent additions to the collection in the following decades, which obviously could not be listed in 1983: Type material of 16 species described by Daday (Table 1) and one type specimen from Robert Latzel (1845–1919) arrived on 31 October 2004 from the Muséum d'Histoire Naturelle, Genève (MHNG), with contributions from Bernd Hauser and Sándor Mahunka, as a result of their close scientific collaboration.

Table 1. Millipede types returned to the HNHM from MHNG on 31 October 2004.

Species	Author/year	Collector	Locality	Inventory number
Platydesmus mediterraneus	Daday, 1889*c*	E. Reitter	Corfu	866/1889
Platydesmus typhlus	Daday, 1889*c*	E. Reitter	Corfu, Patras, Morea (Kumani)	866/1889
Julus acutesquamatus	Daday, 1889*c*	L. Örley	Sorrento	645/1883
Julus fuscifrons	Daday, 1889*c*	E. Reitter	Patras	866/1889

Species	Author/year	Collector	Locality	Inventory number
Julus fuscofasciatus	Daday, 1889*c*	E. Reitter	Patras	866/1889
Julus Hermani	Daday, 1889*c*	E. Reitter	Corfu	866/1889
Julus mediterraneus	Latzel, 1883	G. Horváth	Montpellier, Nimes	961a/1892
Lysiopetalum unicolor	Daday, 1889*c*	E. Reitter	Corfu	866/1889
Lysiopetalum longicorne	Daday, 1889*c*	E. Reitter	Patras	866/1889
Lysiopetalum unilineatum	Daday, 1889*c*	E. Reitter	Corfu	866/1889
Lysiopetalum trifasciatum	Daday, 1889*c*	E. Reitter	Corfu	866/1889
Brachydesmus chyzeri	Daday, 1889*a*	Ö. Tömösváry & G. Horváth	Fiume, Recsina-völgy	830/1888
Paradoxosoma granulatum	Daday, 1889*c*	E. Reitter	Corfu, Patras	866/1889
Polydesmus mediterraneus	Daday, 1889*c*	Ö. Tömösváry E. Reitter	Serbia (Negotin), Corfu, Patras	866/1889
Polydesmus gallicus	Daday, 1893*a*	G. Horváth	Palabas, Gall. Merid.	961/1892
Polydesmus graecus	Daday, 1889*c*	E. Reitter	Morea (Demiobas)	866/1889
Trachydesmus simonii	Daday, 1889*c*	E. Reitter	Corfu	866/1889

Later, a huge collection of Imre Loksa (1923–1992), professor at the Department of Systematic Zoology and Ecology, Eötvös Loránd University, Budapest (ELTE), arrived to the HNHM in October 2017 through the help of J. Török (head of Department), J. Farkas, G. Balázs, G. Szövényi, A. Tőke (ELTE) and L. Dányi, D. Angyal, E. Horváth, T. Szederjesi (HNHM). The 73 boxes contained more than 10 thousand alcohol jars of mixed soil fauna (myriapods, arachnids, insects, crustaceans, unsorted pitfall traps etc.), which were subsequently sorted into the corresponding collections of the Department of Zoology, HNHM. Those with myriapods were of various origins. Some were borrowed from the HNHM by I. Loksa decades ago to carry out taxonomical work, others as type specimens supposedly deposited in the HNHM (but never arrived there), the third part as unorganized type material intended to keep at the university. The rest was a complete mixture of identified, unidentified, improperly labelled, or even unsorted material. It was an enormous task to select or find the right type specimens which served as the basis for the new taxa described by Loksa. In many cases the condition of the material was far from satisfactory, the specimens were poorly labelled and their status was difficult to determine (see more in Discussion).

In addition to these new acqusitions, a thorough examination of the collection has led to the recovery of type material of further 66 species-group names that were thought to have been lost. In the past forty years, the collection has also been integrated into the international network of myriapodologists, with the results that vouchers of 85 newly described taxa have been deposited in the HNHM.

It is also important in terms of development of the collection, that Richard L. Hoffman (1927–2012), leading authority of myriapodology visited shortly the HNHM in 1980, and looked at certain diplopod type material described by Daday and Tömösváry. He marked the specimens with his identifications, in some cases even with holotype and lectotype indications, but subsequently only published one revisionary paper on Asiatic Harpagophoridae (Hoffman 1982). The situation is similar with Pavel Stoev, director of the National Museum of Natural History, Sofia, Bulgaria (NMNH), well-known expert on Myriapoda, who visited the HNHM in 2009, and labelled his identifications on Callipodida specimens. The taxonomical opinion of both authors, even they were not published properly, are mentioned in the Remarks section at the relevant species as "Hoffman 1980 *in litt.*" and "Stoev 2009 *in litt.*", respectively.

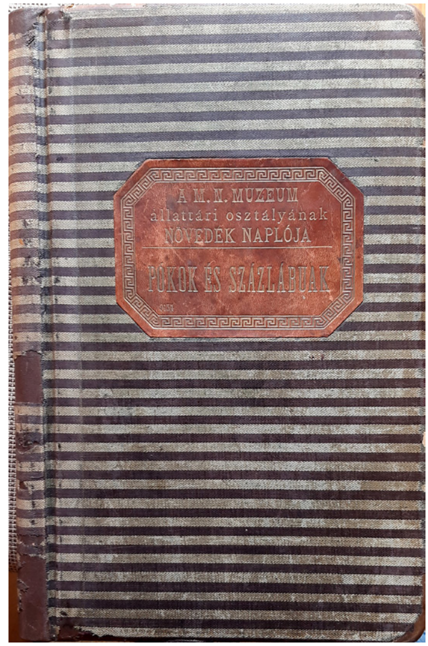
The present catalogue lists the type material of a total of 186 species-group names, which is more than five times higher than the number of 1983 (35).

METHODS

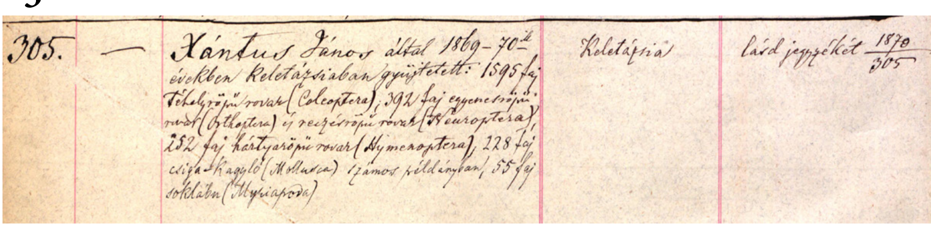
In the present catalogue we list the scientific binominal names (in their original spellings) according to the present system of Diplopoda (Shelley 2003, Shear 2011, Enghoff *et al.* 2015) (Table 2). The list of the existing types goes from number 1 to 186; after that 53 names are listed with missing types and numbered from 187 to 239. At the end, three interesting samples are added (Miscellaneous material), which were marked as types, but no proper descriptions are linked.

1

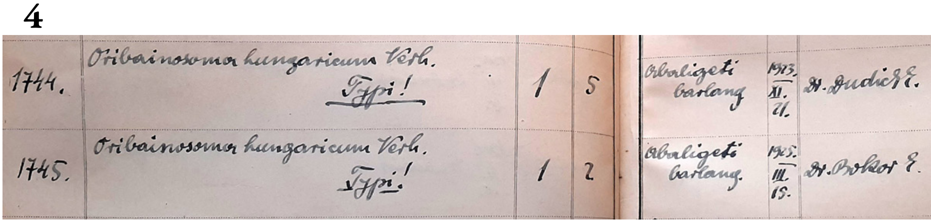
2



3



4



Figures 1–4. Details of old inventory books. 1 = Cover of the first inventory book of "Gerinctelenek" [Invertebrates] (1850–1898); 2 = Cover of the inventory book of "Pókok és százlábúak" [Spiders and centipedes] (1899–1950); 3 = Inventory record of the East Asian collection of J. Xántus, 55 species of myriapods, 305/1870; 4 = Inventory record of the types of *Orobainosoma hungaricum* Verh., Abaliget cave, 1744-1745/1928.

Table 2. System of millipedes followed in the present paper.

subclass	infraclass	subterclass	superordo	ordo
Penicillata				Polyxenida
Chilognatha	Pentazonia		Limacomorpha	Glomeridesmida
			Oniscomorpha	Glomerida Sphaerotheriida
	Helmintho-morpha	Colobognatha		Platydesmida Polyzoniida Siphonocryptida Siphonophorida
		Eugnatha	Juliformia	Julida Spirobolida Spirostreptida
			Nematophora	Callipodida Chordeumatida Stemmiulida
			Merochaeta	Polydesmida
		incertae sedis		Siphoniulida

Under the corresponding order, without further classification, the names follow alphabetic order according to the original generic name for easier search. All binomina are numbered, and an index is provided by the species-group names at the end of the paper. Data for every species-group names are given according to the followings: (1) The proposed binominal name with original spelling and combination with author's name and year of description; (2) Type material (with the total number of specimens, "n ="): number, sex and condition of the specimens (intact, dissected, certain parts in microvials, etc.; in the vial with separate inventory numbers new and old, if appropriate); collection details are as exact as possible, from comparison of label and the original description; date of collection (but marked with an asterisk, "*") if only the date of registration is known, what is not equivalent with the actual date of collecting), name of collectors (leg.); (3) Original description: bibliographical reference, number of pages and figures (with plates, if necessary); (4) Current status: valid name of the species, with references; (5) Remarks: any further annotations are included here on the conditions of the specimens or the status of the taxon involved.

For current status, we intended to refer the first publication where the current name is used, or to a recent revisionary work where the complete synonym history can be followed. All names were checked in *MilliBase* (Sierwald & Spelda 2023). For European taxa we also checked the Atlas of European Millipedes volumes by Kime & Enghoff (2011, 2017, 2021). In the case of Daday's varieties ("varietas") we follow Article 45.6.4. (ICZN 1999): from the contents of the original work by Daday (1889*a*) we consider that his varieties are unambiguously infrasubspecific entities, in which case they are unavailable names according to Article 45.5. (ICZN 1999).

Abbreviations for institutes – ELTE = Eötvös Loránd University, Budapest, Hungary; GNHM = Museo Civico di Storia Naturale "Giacomo Doria" or Genova Natural History Museum, Genova, Italy; HNHM = Hungarian Natural History Museum, Budapest, Hungary; MHNG = Muséum d'Histoire Naturelle, Genève, Switzerland; NHMW = Naturhistorisches Museum Wien, Austria; NHMH = National Museum of Natural History, Sofia, Bulgaria; ZMB = Zoologisches Museum Berlin, Germany; ZMMU = Zoological Museum of Moscow University, Moscow, Russia; ZSM = Zoologische Staatssammlung München, Germany; ZSUH = Zoologische Sammlung der Universität Heidelberg, Heidelberg, Germany.

LIST OF TYPE MATERIAL

Glomerida
Glomeridae

1. *Glomeris connexa* var. *hungarica* Daday, 1889
Type material (n = 2) – male and female syntypes (intact) (HNHM diplo–00134; 830/1888), [Romania]: Máramaros, 1888*, leg. J. Pável.
Original description – Daday (1889*a*): p. 75.
Current status – *Glomeris connexa* C. L. Koch, 1847.
Remarks – Daday's varieties are unavailable names according to the Article 45.5. (ICZN 1999), see also in Methods.

2. *Glomeris conspersa* var. *trisiriata* Daday, 1889
Type material (n = 3) – three female syntypes (intact) (HNHM diplo–04174; 830/1888), [Croatia]: Fiume [Rijeka], 1888*, leg. Ö. Tömösváry & G. Horváth.
Original description – Daday (1889*a*): p. 77.
Current status – *Glomeris klugii* Brandt, 1833 (Golovatch 2003, Golovatch *et al.* 2009).

3. *Glomeris hexasticha* var. *bihariensis* Daday, 1889
   Type material (n = 1) – female syntype (intact) (HNHM diplo–00398, 830/1888, My 55.801), [Romania]: Bihar, 1888*, leg. J. Pável.
   Original description – Daday (1889*a*): p. 76.
   Current status – *Glomeris hexasticha* Brandt, 1833.

4. *Glomeris prominens* ssp. *reunita* Jermy, 1942
   Type material (n = 10) – five female syntypes (intact) (HNHM diplo–00267, 3496/1951, My 1090) [Ukraine]: Hoverla, 1939.VIII.16., leg. Institute of Systematic Zoology, Budapest; female syntype (intact) (HNHM diplo–00276; 1273/1911; My1101) [Ukraine:] Körösmező, Lazescsina valley, 21 June 1911, leg. E. Csiki; two female syntypes (intact) (HNHM diplo–00281; 3496/1951; My1088) [Ukraine:] Hoverla, 1939.VIII.16., leg. Institute of Systematic Zoology, Budapest; female syntype (intact) (HNHM diplo–00282; 3496/1951; My1089), [Romania:] Kolibica, Bisztrica valley, 1000–1200m, 16 September 1941, leg. Dr. E. Dudich; female syntype (intact) (HNHM diplo–00287; 1273/1911; My1100) [Ukraine:] Körösmező, 1914, leg. E. Csiki.
   Original description – Jermy (1942): p. 44–45, figs. pl. VII, 141–149, pl. VIII. 156–163.
   Current status – uncertain.
   Remarks – The species *Glomeris prominens* Attems, 1903 became junior subjective synonym of *Glomeris transversestriata* Sidoriak, 1899 (Kime & Enghoff 2011). Although the subspecies is accepted in *MilliBase* (Sierwald & Spelda 2023), probably a more detailed population study on new material is needed to establish its validity.

5. *Hyleoglomeris armeniaca* Golovatch, 1989
   Type material (n = 2) – male and female paratypes (intact) (HNHM diplo–00789), USSR [Russia]: No. 247, Caucasus, Armenia, Gandakar S of Idjevan, 1000 m, *Quercus* & *Corylus* scrub, litter, 28.V.1987, leg. S. Golovatch & K. Eskov.
   Original description – Golovatch (1989): pp. 434–435, figs 23–25.
   Current status – *Hyleoglomeris armeniaca* Golovatch, 1989 (Golovatch *et al.* 2006).

6. *Hyleoglomeris aurata* Golovatch, Mikhaljova et Chang, 2010
   Type material (n = 1) – female paratype (intact) (HNHM diplo–00795), Taiwan: Taitung County, Lanyu Island, Yeyou village, Shia Tien Chi (small pond), 22°05'N–121°31'E, 208 m, sclerophyll "laurisilva" forest, under bark and in litter, 21 September 2007, leg. Z. & P. Korsós.

Original description – Golovatch *et al.* (2010*a*): pp. 6–8, figs 4–6, 12–14.
Current status – *Hyleoglomeris aurata* Golovatch, Mikhaljova et Chang, 2010 (Golovatch *et al.* 2010*a*).

7. *Hyleoglomeris cremea* Golovatch, 1983
Type material (n = 1) – female paratype (intact) (HNHM diplo–00784), Thailand: North Thailand, Chiang Dao, 1800m, 1958–59, leg. B. Degerbøl.
Original description – Golovatch (1983*a*): p. 114, figs 23–25.
Current status – *Hyleoglomeris cremea* Golovatch, 1983 (Golovatch *et al.* 2006; Likhitrakarn *et al.* 2023*a*).

8. *Hyleoglomeris magy* Nakama, Nakamura, Tatsuta et Korsós, 2022
Type material (n = 1) – male paratype (intact) (HNHM diplo–03201), Japan: Okinawa Pref., Okinawa Island, Kunigami-gun, Onna Village, Yamada hill, 26.421944N–127.785556E, 12 August 2011, leg R. & Z. Korsós; 1 female paratype (intact) (HNHM diplo–03202), Japan: Okinawa Island, Kunigami-gun, Onna Village, Yamada, 26.421944N–127.785556E, 12 August 2011, leg R. & Z. Korsós.
Original description – Nakama *et al.* (2022): pp. 6–11, figs 2–3.
Current status – *Hyleoglomeris magy* Nakama, Nakamura, Tatsuta et Korsós, 2022 (Nakama *et al.* 2022).

9. *Hyleoglomeris montana* Golovatch, 1983
Type material (n = 1) – female paratype (intact) (HNHM diplo–00792), Thailand: Prov. Chieng Mai, Doi Inthanon, summit, 2500 m, 7 October 1981, leg. Zool. Museum København.
Original description – Golovatch (1983*a*): p. 112, figs 16–19.
Current status – *Hyleoglomeris montana*: Golovatch *et al.* (2006); Likhitrakarn *et al.* (2023*a*).

10. *Hyleoglomeris proximata* Golovatch, Mikhaljova et Chang, 2010
Type material (n = 1) – female paratype (intact) (HNHM diplo–00796), Taiwan: No. 44, Taitung County, Central Mountain Range, Chihpen Forest Recreation Area, at waterfall, disturbed primary forest, 22°42.262'N–121°00.861'E, 258 m, 27 May 2008, leg. L. Dányi, Z. Korsós & E. Lazányi.
Original description – Golovatch *et al.* (2010*a*): pp. 11–13, figs 25–27, 34–36.
Current status – *Hyleoglomeris proximata* Golovatch, Mikhaljova et Chang, 2010 (Golovatch *et al.* 2010*a*).

11. *Hyleoglomeris sinuata* Golovatch, Mikhaljova et Chang, 2010
Type material (n = 3) – female paratype (intact) (HNHM diplo–00797), Taiwan: Nantou County, Shueili, Renluen, experimental forest area, mixed *Cryptomeria* & *Taiwania* forest, 23°42.783'N, 120°54.333'E, 1557 m, 17 May 2008, (No. 7), leg. L. Dányi, Z. Korsós & E. Lazányi; female paratype (intact) (HNHM diplo–00798), Taiwan (No. T09–1): Nantou County, Renai Township, Meizilin, Hiusun Forest Area, Fording Trail, 24°05.322'N, 121°01.763'E, disturbed secondary broad-leaved forest, 717 m, 7 October 2009, leg. L. Dányi & E. Lazányi; female paratype (intact) (HNHM diplo–00799), Taiwan: Nantou County, Kao-Leng Dyi, 18 km W of Wushe, 24°04.605'N, 121°07.583'E, 2074 m, 18–19 April 2002, leg. D. Austine, Gy. Fábián & O. Merkl.
Original description – Golovatch *et al.* (2010*a*): pp. 8–11, figs 15–24, 28–33.
Current status – *Hyleoglomeris sinuata* Golovatch, Mikhaljova et Chang, 2010 (Golovatch *et al.* 2010*a*).

12. *Hyleoglomeris specialis* Golovatch, 1989
Type material (n = 2) – male and female paratypes (intact) (HNHM diplo–00790), USSR [Russia]: N Caucasus, Checheno-Ingushetia, Karachoy SE of Vedeno, 950 m, *Fagus*, *Carpinus*, etc. forest, litter, under bark & stones, 17 July 1986, (No. 181), leg. S. Golovatch.
Original description – Golovatch (1989): pp. 423–426, figs 1–6.
Current status – *Hyleoglomeris specialis* Golovatch, 1989 (Golovatch *et al.* 2006).

13. *Hyperglomeris conspicua* Golovatch, 1983
Type material (n = 2) – male and female paratypes (intact) (HNHM diplo–00810), Vietnam: Prov. Hoa binh, Mai tiao distr., Von mai, secondary tropical forest, 6 December 1981, leg. D. A. Krivolutsky & L. B. Rybalov.
Original description – Golovatch (1983*a*): pp. 110–111, figs 11–14.
Current status – *Hyperglomeris conspicua* Golovatch, 1983 (Golovatch 2017; Likhitrakarn *et al.* 2023*b*).

14. *Hyperglomeris maxima* Golovatch, 1983
Type material (n = 1) – male paratype (intact) (HNHM diplo–00809), Vietnam: Prov. Hoa binh, Mai tiao distr., Von mai, secondary tropical forest, 12 December 1981, leg. D. A. Krivolutsky & L. B. Rybalov.
Original description – Golovatch (1983*a*): pp. 108–110, figs 6–10.
Current status – *Hyperglomeris maxima*: Golovatch, 1983 (Golovatch 2017; Likhitrakarn *et al.* 2023*b*).

15. *Mauriesia splendida* Golovatch, Mikhaljova et Chang, 2010
Type material (n = 1) – female paratype (in three pieces) (HNHM diplo–800), Taiwan: Nantou County, Lugu Township, Sitou, 31 October 1997, leg. S. H. Wu.
Original description – Golovatch *et al.* (2010*a*): pp. 5–6, figs 1–3, 7–11.
Current status – *Mauriesia splendida* Golovatch, Mikhaljova et Chang, 2010 (Golovatch *et al.* 2010*a*).

16. *Peplomeris magna* Golovatch, 1983
Type material (n = 1) – holotype male (with leg-pairs 17–18 and telopods removed, mounted on slide, individual and slide preparation with the same code) (HNHM diplo–00811), Vietnam: Prov. Ninbinh, Cuc phuong, from pitfall traps in forest, 5–18 May 1966 (No. 385), leg. Gy. Topál.
Original description – Golovatch (1983*a*): p. 107, figs 1–5.
Current status – *Peplomeris magna* Golovatch, 1983 (Enghoff *et al.* 2004).

Sphaerotheriida
Zephroniidae

17. *Sphaerobelum clavigerum* Verhoeff, 1924
Type material (n = 1) – male syntype (intact) (HNHM diplo–00900, 2859/1936) [Vietnam]: Tonkin, 1936*, leg. H. Fruhstorfer.
Original description – Verhoeff (1924): pp. 65–66, figs 35–36.
Current status – *Sphaerobelum clavigerum* Verhoeff, 1924 (Jeekel 2001*a*).
Remarks – The species is accepted in its original combination, *S. clavigerum* being the type species of the genus (Jeekel 2001*a*, Wonggthamwanich *et al.* 2012, Wesener 2016*b*).

18. *Sphaeropoeus falcicornis* Tömösváry, 1885
Type material (n = 17) – three male and eleven female syntypes (intact), three female syntypes (in pieces) (HNHM diplo–00898, 305/62), [Malaysia]: Borneo, Matang, 1870*, leg. J. Xántus.
Original description – Tömösváry (1885): p. 68, pl. IV: figs 14–15.
Current status – *Castanotherium falcicorne* (Tömösváry, 1885) (Jeekel 2001*a*).
Remarks – The species was transferred to *Castanotherium* Pocock, 1895 by Jeekel (2001*a*), and listed in the catalogue of Wesener (2016*b*). The 17 syntype specimens were removed by Richard L. Hoffman in 1980 during his visit to HNHM (Hoffman 1980 *in litt.*) from their original wine spirit jar

with the dry label outside and put in ethanol (Fig. 5). The specimens differ from each other not only by size (Fig. 6), but also in male telopods, perhaps a closer examination would reveal them as representatives of a separate species.

19. *Sphaeropoeus granulatus* Tömösváry, 1885
Type material (n = 7) – five female syntypes (intact), two female syntypes (in pieces; one head missing) (HNHM diplo–00899, 305.60), [Malaysia]: Borneo, Matang, 1870*, leg. J. Xántus
Original description – Tömösváry (1885): p. 68, pl. IV: figs 16–17.
Current status – *Castanotherium granulatum* (Tömösváry, 1885) (Jeekel 2001*a*).
Remarks – It is listed in the new combination indicated above in the catalogues of Jeekel (2001a) and Wesener (2016*b*).

20. *Sphaeropoeus tatusiaeformis* Daday, 1889
Type material (n = 5) – male syntype (intact), three male syntypes (without head), female syntype (intact) (HNHM diplo–00902, 648.14.d), [Indonesia]: Sumatra, 1873*, leg. J. Machik.
Original description – Daday (1889*c*): p. 141.
Current status – *Sphaeropoeus tatusiaeformis* Daday, 1889 (Jeekel 2001*a*).
Remarks – It is listed in the original combination in the catalogues by Jeekel (2001*a*) and Wesener (2016*a*, 2016*b*).

21. *Tonkinobelum maculatum* Verhoeff, 1924
Type material (n = 1) – male lecotype (with telopods and some walking legs dissected, placed in separate vial next to the specimen) (HNHM diplo–00903, 2858/1936), [Vietnam]: “Tonkin”, Lang Son Province, Mau Son (= Mau Son Mountains), 1936*, leg. H. Fruhstorfer.
Original description – Verhoeff (1924): pp. 62–63, fig. 31.
Current status – *Sphaeropoeus maculatus* (Verhoeff, 1924) (Jeekel 1974).
Remarks – The genus *Tonkinobelum* Verhoeff, 1924 was synonymized by Jeekel (1974) under *Sphaeropoeus* Brandt, 1833, and the species was later listed in the new combination indicated above by Jeekel (2001*a*) and Wesener (2016*a*, 2016*b*). According to Jeekel (2001*a*), this species could represent a synonym of *Sphaeropoeus tigratus* Silvestri, 1897, based on erroneously labeled material (Wesener 2016*b*). However, Semenyuk *et al.* (2020) examined the only extant male syntype, proved its identity, and designated the specimen (NHMB 2858/1, now HNHM diplo–00903) as lectotype.

Figures 5–8. Labels and type specimens. 5 = *Sphaeropoeus falcicornis* Tömösváry, 1885, labeled by Hoffman (1980 *in litt.*) with the old label from outside the original jar; 6 = Type specimens of *S. falcicornis* showing different sizes; 7 = Hoffman's label of *Alloporus transvalicus* Daday, 1889; 8 = Hoffman's label of *Spirostreptus pusillus* Daday, 1889.

Platydesmida
Andrognathidae

22. *Brachycybe disticha* Mikhaljova, Golovatch, Korsós, Chen et Chang, 2010
Type material (n = 9) – female paratype (intact) (HNHM diplo–01077), Taiwan: No. T09-23, Nantou County, Ren-ai Township, Wushe, Western slope of Meifeng, 24°04.913' N, 121°09.434' E, 1659 m, disturbed secondary broad-leaved forest, 13 October 2009, leg. L. Dányi & E. Lazányi; female paratype (intact) (HNHM diplo–01078), Taiwan: Nantou County, Ren-ai Township, Meifeng, 24°06' N, 121°12' E, 2300 m, 5–6 September 2003, leg. G. Csorba & Z. Korsós, No. 157; female paratype (intact) (HNHM diplo–01079), Taiwan: No. 6, Nantou County, Shueili, Renluen, experimental forest area, primary forest, 23°42.7' N, 120°56.2' E, 1901 m, 16 May 2008, leg. L. Dányi, Z. Korsós & E. Lazányi; four male and two female paratypes (intact specimens) (HNHM diplo–01080), Taiwan: Pingtung County, Mutan, 8 December 1998, leg. Gy. Fábián & Z. Korsós.
Original description – Mikhaljova *et al.* (2010*b*): pp. 52–56, figs 1–16, 18.
Current status – *Brachycybe disticha* Mikhaljova, Golovatch, Korsós, Chen et Chang, 2010 (Mikhaljova *et al.* 2010*b*).

23. *Platydesmus mediterraneus* Daday, 1889
Type material (n = 8) – male (intact), three male syntypes (in pieces; one with missing gonopods), female syntype (intact), probably two female syntypes (in pieces), plus a juvenile syntype (intact) (HNHM diplo–01068, 866/1889), [Greece]: Corfu, 1889*, leg. E. Reitter.
Original description – Daday (1889*c*): p. 118, pl. IV: figs 1–2, 4–5.
Current status – *Fioria mediterranea* (Daday, 1889) (Strasser 1974).
Remarks – A detailed description is given under the original combination by Verhoeff (1900*a*). Jeekel (1971) used the generic name *Phaeacobius* Attems, 1926, but Strasser (1974, 1976) already listed as *Fioria mediterranea* (Daday), and it appears also as such in Kime & Enghoff (2011).

24. *Platydesmus typhlus* Daday, 1889
Type material (n = 5) – male syntype (gonopods missing), female syntype (in two pieces) (HNHM diplo–01066, 866/1889), [Greece]: Patras, 1889*, leg. E. Reitter; ca. three syntypes (all in pieces, no heads, at least one male, but with dissected gonopods) (HNHM diplo–01067; 866/1899) [Greece]: Morea (Kumani).
Original description – Daday (1889*c*): pp. 117–118, pl. IV: figs 3, 6–11.
Current status – *Plutodesmus typhlus* (Daday, 1889) (Jeekel 1971).

Remarks – A detailed description is given under the original combination by Verhoeff (1900*a*). Jeekel (1971) designated *P. typhlus* as the type species of *Plutodesmus* Silvestri, 1903, and synonymized *Corcyrozonium* Verhoeff, 1921 under *Plutodesmus*. However, the species was still mentioned as *Corcyrozonium typhlus* (Daday) by Strasser (1974). It appears as *Plutodesmus typhlus* (Daday) in Kime & Enghoff (2011).

25. *Siphonophora quadrituberculata* Tömösváry, 1885
Type material (n ≈ 30) – probably 30 male or female syntypes (in many pieces) (HNHM diplo–01065, 305/1870), [Malaysia]: Borneo, Matang et Sarawak, 1870*, leg. J. Xántus
Original description – Tömösváry (1885): p. 7, pl. V: figs 6–11.
Current status – *Pseudodesmus quadrituberculatus* (Tömösváry, 1885) (Carl 1912; Jeekel 2001*b*).
Remarks – The specimens are severely damaged in many fragments, so their exact number cannot be counted. The species was erroneously associated to Siphonophorida by Tömösváry, and this was first corrected by Carl (1912), who put it in the order Platydesmida under the genus *Pseudodesmus*. This was accepted by Jeekel (2001*b*) in his catalogue.

26. *Yamasinaium latum* Mikhaljova, Golovatch, Korsós, Chen et Chang, 2010
Type material (n = 33) – male, six female, six juvenile paratypes (intact) (HNHM diplo–01070), Taiwan: Anmashan, Tahsueh-shan Forest Recreation Area, 2900 m, 24°16.66' N, 121°01.50' E, 2 December 1998, leg. Gy. Fábián & Z. Korsós; two male and two female paratypes (intact) (HNHM diplo–01071), Taiwan: No. T09-59, Taichung County, Alishan township, Alishan National Forest Recreation Area, Mt. Da-Hsue-san, SE slope of Shaolai Shan, 24°13.734' N, 120°58.738' E, 2003 m, primary broad-leaved forest, 24 October 2009, leg. L. Dányi & E. Lazányi; male and female paratypes (intact) (HNHM diplo–01072), Taiwan, Nantou County, Shueili, Renluen, experimental forest area, *Cryptomeria japonica* plantation, 23°43.4' N, 120°54.9' E, 1335 m, 16 May 2008, leg. L. Dányi, Z. Korsós & E. Lazányi; female paratype (intact) (HNHM diplo–01073), Taiwan: No. 2, Nantou County, Shueili, Renluen, experimental forest area, primary forest, 23°42.5' N, 120°55.3' E, 1615 m, 15 May 2008, leg. L. Dányi, Z. Korsós & E. Lazányi; two male and ten juvenie paratypes (intact) (HNHM diplo–01074), Taiwan: No. 210, Taichung County, Mts Da-Hsue-san, logging road, *Cryptomeria* plantation, 2000 m a.s.l., 14 October 2007, leg. Z. Korsós; male paratype (intact) (HNHM diplo–01075), Taiwan: No. 5, Nantou County, Shueili, Renluen, experimental forest area, *Cryptomeria japonica* plantation, 23°43.2' N, 120°55.1' E, 1405 m, 16 May 2008, leg. L. Dányi, Z. Korsós & E. Lazányi.

Original description – MIKHALJOVA *et al.* (2010*b*): pp. 57–60, figs 19–30.
Current status – *Yamasinaium latum* Mikhaljova, Golovatch, Korsós, Chen et Chang, 2010 (MIKHALJOVA *et al.* 2010*b*).

POLYZONIIDA
Siphonotidae

27. *Rhinotus densepilosus* Golovatch et Korsós, 1992
Type material (n = 1) – 1 juvenile male paratype (intact) (HNHM diplo–01044), Seychelles: Silhouette Isl., mist mountainous tropical forest on ridge, above La Passe, 540–590 m, 24–25 August 1984, (No. 7.b), leg. S. I. Golovatch.
Original description – GOLOVATCH & KORSÓS (1992): pp. 4–5, figs 5–7.
Current status – *Rhinotus densepilosus* Golovatch et Korsós, 1992 (GOLOVATCH et KORSÓS 1992).

28. *Siphonotus setosus* Silvestri, 1899
Type material (n = 1) – female syntype (intact) (HNHM diplo–01043, 1124/1897), [Papua New Guinea]: Ins. Tamara (Berlinhafen), 8–18 November 1869, leg. L. Bíró.
Original description – SILVESTRI (1899): pp. 205–206, pl. IX: figs 3–4.
Current status – *Siphonotus setosus* Silvestri, 1899 (CHAMBERLIN 1920).
Remarks – Although the exact date does not appear in the oiriginal publication, here we add it from the original label handwritten by Silvestri.

SIPHONOCRYPTIDA
Siphonocryptidae

29. *Hirudicryptus taiwanensis* Korsós, Enghoff et Chang, 2008
Type material (n = 3) – two male paratypes (intact, but one specimen with removed gonopods for permanent slide preparation) (HNHM diplo–01085), Taiwan: Taichung County, Heping township, Da-Hsueh-Shan, Anma-Shan, 2000 m a.s.l., soil sample (0–5 cm), 28 May 1996, leg. R.-F. Chao; male syntype (intact, but gonopods removed for permanent slide preparation (HNHM diplo–01086), Taiwan: Ilan County, Chialo-hu, Shiji, N24°28' – E121°28', 2200 m a.s.l., coniferous forest, 20 June 2002, leg. Y. M. Chen & W. C. Yeh.
Original description – KORSÓS *et al.* (2008): pp. 152–155, figs 2–15.
Current status – *Hirudicryptus taiwanensis* Korsós, Enghoff et Chang, 2008 (KORSÓS *et al.* 2008)

30. *Siphonocryptus canariensis* Loksa, 1967

Type material (n = 15) – male syntype (without gonopods), three female syntypes (intact) and one fragment (without head and first segments) (HNHM diplo–04371), Spain: Canary Islands, La Gomera, Monte "El Cedro", 22 April 1965, (No. 1065), leg. H. Franz; four male, female, four juvenile syntypes (intact) (HNHM diplo–04372), Spain: Canary Islands, La Gomera, Monte "El Cedro", 22 April 1965, (No. 1064), leg. H. Franz; male syntype (intact) (HNHM diplo–4373), Spain: Canary Islands, Tenerife, Mts Anapa, Pico del Ingles, 8 April 1965, (No. 1037), leg. H. Franz.

Original description – LOKSA (1967*a*): pp. 142–145, figs 47–54.

Current status – *Hirudicryptus canariensis* (Loksa, 1967) (ENGHOFF & GOLOVATCH 1995).

Remarks – The specimens were found only with Loksa's handwritten label such as "Colobognatha Fr. 1064" (Fig. 9), and not marked as types. The number of specimens and locality numbers were neither indicated in the paper of LOKSA (1967*a*), but because the numbers found in the vials correspond with Herbert Franz's handwritten expedition notes, received from the NHMW by the courtesy of N. Akkari, we believe that these samples served as the basis for the description. One male with the missing gonopods (HNHM diplo–04371) was obviously used by Loksa for the drawing (but the slide is lost). The intact male specimen from Tenerife (HNHM diplo–04373) could be designated as lectotype. ENGHOFF & GOLOVATCH (1995) erected the new genus *Hirudicryptus* Enghoff et Golovatch, 1995 based on *S. canariensis*.

SIPHONOPHORIDA

Siphonophora quadrituberculata Tömösváry, 1885 see No. 25 under Platydesmida.

JULIDA

Julidae

31. *Anaulaciulus acaudatus* Korsós, 2001

Type material (n = 2) – male paratype (in pieces in microtube; gnathochilarium, left antenna, limbus, penis, walking legs on slide prep. "AN-111"), female paratype (in pieces in microtube; vulvae on slide prep. "AN-112"; gnathochilarium, left antenna, limbus, walking legs on slide prep. "AN-113") (HNHM diplo–04157), India: West Sikkim, Kangchendzonga area, Dzongri, 3990 m, 17 September 1983, leg. S. Ae, S.-I. Uéno & Y. Nishikawa.

Original description – Korsós (2001*b*): p. 76, figs 25–27.
Current status – *Anaulaciulus acaudatus* Korsós, 2001 (Korsós 2001*b*).

32. *Anaulaciulus bilineatus* Korsós, 2001
Type material (n = 4) – male paratype (in pieces in microtube; gnathochilarium, left antenna, 1st leg-pair, limbus, penis, walking legs on slide prep. AN–51), female paratype (intact) (HNHM diplo–04158), Nepal: Dolpo District, Northern Dhaulagiri Himal, Ringmo on Lake Phoksumdo, 4000 m, forest clearing, close to timberline, 15 June 1973, (No. 26), leg. J. Martens; female paratype (in pieces in microtube; gnathochilarium, left antenna, limbus, walking legs on slide prep. "AN–52"; vulvae on slide prep. "AN–53") (HNHM diplo–04159), Nepal: Dolpo Distr., Ringmo on Lake Phoksumdo, 4000–4100 m a.s.l., alpine meadows, 34 June 1970, (No. 24), leg. J. Martens; female paratype (in two pieces) (HNHM diplo–04160), Nepal: Dolpo Distr., Gompa near Tarakot, 3300–3400 m, *Picea–Betula* forest, 11–16 May 1970, leg. J. Martens.
Original description – Korsós (2001*b*): pp. 76–78, figs 4, 6, 9, 11, 28–32.
Current status – *Anaulaciulus bilineatus* Korsós, 2001 (Korsós 2001*b*).

33. *Anaulaciulus enghoffi* Korsós, 2001
Type material (n = 2) – male paratype (in pieces in microtube; gnathochilarium, 1st leg-pair, penis, limbus, walking legs on slide prep. "AN–61"), female paratype (in pieces in microtube; vulvae on slide prep. "AN–62", gnathochilarium, right antenna, walking legs, limbus on slide prep. "AN–63") (HNHM diplo–04161), China: Kansu, southern wall of the pass Latschi-san, Karyn Valley, 4 May 1885, leg. G. N. Potanin.
Original description – Korsós (2001*b*): p. 78, figs 33–40.
Current status – *Anaulaciulus enghoffi* Korsós, 2001 (Korsós 2001*b*).

34. *Anaulaciulus multiarticulatus* Mikhaljova, Golovatch et Chang, 2011
Type material (n = 2) – male paratype (in two pieces), female paratype (intact) (HNHM diplo–04156), Taiwan: Nantou County, Huisun timberland, 27 December 1997, leg. S.–H. Wu.
Original description – Mikhaljova *et al.* (2011*a*): pp. 9–11, figs 27–39.
Current status – *Anaulaciulus multiarticulatus* Mikhaljova, Golovatch et Chang, 2011 (Mikhaljova *et al.* 2011*a*).

35. *Anaulaciulus nepalensis* Korsós, 2001
Type material (n = 6) – female paratype (in two pieces; not dissected) (HNHM diplo–04170), Nepal: Mustang District, Thaksang above Tukche, 3150 m, *Pinus excelsa–Abies* forest, forest clearing, Berlese sample, 26–29 April 1980, leg. J. Martens & A. Ausobsky; male paratype (in pieces; gonopods dissected in microtube), female paratype (in pieces in microtube;

gnathochilarium, left antenna, walking legs, limbus on slide prep. "AN–72", vulvae on slide prep. "AN–73") (HNHM diplo–04171), Nepal: Mustang District, Thaksang, 3150–3400 m, clearing, 26–29 April 1980, (No. 157), leg. J. Martens & A. Ausobsky; male and female paratypes (intact) (HNHM diplo–04173), Nepal: Miyagdi District, Western Dhaulagiri Himal, Thankur, 3350 m, pine-fir forest, 26–27 May 1970, leg. J. Martens; female paratype (in pieces in microtube; gnathochilarium, left antenna, walking legs, limbus on slide prep. "AN–94"; vulvae on slide prep. "AN–95") (HNHM diplo–04172), Nepal: Sankhua Sabha District, above Pahakhola, 2600–2800 m, *Quercus semeacarpifolia*, *Rhododendron*, 31 May–3 June 1988, (No. 404), leg. J. Martens & W. Schawaller.
Orginal descrtiption: Korsós (2001*b*): pp. 79–80, figs 1–3, 7, 10, 47–51.
Current status – Anaulaciulus nepalensis Korsós, 2001 (Korsós 2001*b*).

36. *Anaulaciulus niger* Korsós, 2001
Type material (n = 2) – male paratype (in pieces, dissected small parts in microtube; telson removed for SEM, gnathochilarium, left antenna, 1st leg-pair, walking legs, limbus, penis on slide prep. "AN–81") (HNHM diplo–04168), Nepal: Taplejung District, S Gunsa, 4270 m, alpine meadows, dwarf bushes, rock debris, 10 September 1983, (No. 281), leg. J. Martens & B. Daams; female paratype (in pieces in microtube; gnathochilarium, left antenna, walking legs, limbus on slide prep. "AN–82", vulvae on slide prep. "AN–83") (HNHM diplo–04169), Nepal: Taplejung District, Pass Anda Deorali, between Simbua and Gunsa Khola, 4250–4500 m, alpine meadows, 9 September 1983, (No. 280), leg. J. Martens & B. Daams.
Original description – Korsós (2001*b*): p. 80–81, figs 52–55.
Current status – Anaulaciulus niger Korsós, 2001 (Korsós 2001*b*).

37. *Anaulaciulus oligosegmentatus* Mikhaljova, Golovatch et Chang, 2011
Type material (n = 2) – male paratype (in pieces, gonopods in microtube) (HNHM diplo–04153), Taiwan: Hualien County, Taroko National Park, Mt Hohuan-Shan, Shihmon Trail, high mountain bamboo shrub (*Yushania niitakayamensis*), 24°08.785' N, 121°17.056'E, ca. 3140 m, 23 May 2008, leg. L. Dányi, Z. Korsós & E. Lazányi; female paratype (intact) (HNHM diplo–04154), Taiwan: Nantou County, Huisun timberland, 24 October 1997, leg. S.–H. Wu.
Original description – Mikhaljova *et al.* (2011*a*): pp. 6–9, figs 15–26.
Current status – Anaulaciulus oligosegmentatus Mikhaljova, Golovatch et Chang, 2011 (Mikhaljova *et al.* 2011*a*).

38. *Anaulaciulus pakistanus* Korsós, 2001
Type material (n = 1) – male paratype (in pieces, gonopods in microtube; gnathochilarium, left antenna, walking legs, penis, limbus on slide

prep. "AN–21") (HNHM diplo–04162), Pakistan: Swat, Malam Jabba, 2500–2600 m, *Abies* forest, sifted leaves and mosses, 18 May 1983, leg. C. Besuchet & I. Löbl.
Original description – Korsós (2001*b*): p. 83, figs 56–57.
Current status – *Anaulaciulus pakistanus* Korsós, 2001 (Korsós 2001*b*).

39. *Anaulaciulus setulifer* Mikhaljova, Golovatch et Chang, 2011
Type material (n = 2) – male paratype (intact), female paratype (in two pieces) (HNHM diplo–04155), Taiwan: Pingtung County, Chunri Township, Mt Dahan, 22°24'25" N, 120°45'21" E, 1200 m a.s.l., 15 December 2009, leg. M.H. Hsu.
Original description – Mikhaljova *et al.* (2011*a*): p. 12–13, figs 40–45.
Current status – *Anaulaciulus setulifer* Mikhaljova, Golovatch et Chang, 2011 (Korsós 2001).

40. *Anaulaciulus tibetanus* Korsós, 2001
Type material (n = 1) – female paratype (in pieces, some dissected parts in microtube; gnathochilarium, walking legs, limbus on slide prep. "AN–122", vulvae on slide prep. "AN–123") (HNHM diplo–04163), China: East Tibet, valley of Dü Chu, July 1936, leg. R. Kaulbeck.
Original description – Korsós (2001*b*): p. 83, fig. 58.
Current status – *Anaulaciulus tibetanus* Korsós, 2001 (Korsós 2001*b*).

41. *Anaulaciulus tigris* Korsós, 2001
Type material (n = 1) – male paratype (in pieces in microtube; gnathochilarium, right antenna, walking legs, limbus, penis on slide prep. "AN–13") (HNHM diplo–04164), Pakistan: Swat, above Miandam, 2400–2500 m, *Abies* forest, under stones, 17 May 1983, leg. C. Besuchet & I. Löbl.
Original description – Korsós (2001*b*): p. 83–84, figs 5, 12, 59–64.
Current status – *Anaulaciulus tigris* Korsós, 2001 (Korsós 2001*b*).

42. *Anaulaciulus topali* Korsós, 2001
Type material (n = 7) – holotype male (in pieces, gonopods in microtube, gnathochilarium, right antenna, 1st leg-pair, walking legs, limbus, penis on slide prep. "AN–41") (HNHM diplo–04165), India: Jammu and Kashmir, Pahalgam, 2300 m, under stones in forest, 13 June 1967, (No. 516), leg. Gy. Topál; two female paratypes (intact) and three female paratypes (in pieces; one female dissected, and gnathochilarium, left antenna, walking legs, limbus mounted on slide prep. "AN–42", vulvae on slide prep. "AN–43", specimen in separate microtube) (HNHM diplo–04166), India: Jammu and Kashmir, Yusmarg (50 km W Srinagar), ca. 2300 m, under bark of trees in coniferous forest, 29 May 1967, (No. 400), leg. Gy. Topál; male paratype (in pieces, gonopods in microtube) (HNHM diplo–04167), India: Jammu and

Kashmir, Yusmarg (50 km W Srinagar), ca. 2300 m, under bark of trees in coniferous forest, 29 May 1967, (No. 400), leg. Gy. Topál.
Original description – Korsós (2001*b*): p. 84–85, figs 65–70.
Current status – Anaulaciulus topali Korsós, 2001 (Korsós 2001*b*).

43. *Ansiulus aberrans* Mikhaljova et Korsós, 2003
Type material (n = 2) – holotype male (in three pieces; gonopods, antenna, leg-pairs 1, 2, 7 on permanent slide "N1", leg-pair 7 on permanent slide "N2") (HNHM diplo–04145), North Korea: Ryanggang Prov., Mt. Paekdu-san, Unhung, Nr. 6., 15 September 1989, leg. Han, Eng Hi; male paratype (in pieces; both gonopods, leg-pairs 1, 7 on permanent slide "N6") (HNHM–04146), North Korea: North Pyongan Prov., Mt. Myonhyang-san, Isonnan, 12 October 1987, (No. 1039), leg. Z. Korsós & L. Ronkay.
Original description – Mikhaljova & Korsós (2003): pp. 230–233, figs 42–49.
Current status – Skleroprotopus aberrans (Mikhaljova et Korsós, 2003) (Mikhaljova 2019).

44. *Ansiulus legitimus* Golovatch, 1980
Type material (n = 8) – holotype male (intact) (HNHM diplo–01096), North Korea: North Hwanghae Province, Sinpyong, Pyongwa-ri, under stones at forest edge, 15 October 1978, (No. 512), leg. A. Vojnits & L. Zombori; male paratype (in pieces, first part of the body and the gonopods in microtube) (HNHM diplo–01095), North Korea: North Hwanghae Province, Sinpyong, Pyongwa-ri, under stones at forest edge, 15 October 1978, (No. 512), leg. A. Vojnits & L. Zombori; three male paratypes (males in pieces; two slides with removed gnathochilarium, 1, 2, 3, 7, 10, 11 leg-pairs, gonopod of two males, mandibules, head dissected), two female paratypes (intact), female paratype (in pieces) (HNHM diplo–01097), North Korea: North Hwanghae Province, Sinpyong, Pyongwa-ri, under stones at forest edge, 15 October 1978, (No. 512), leg. A. Vojnits & L. Zombori.
Original description – Golovatch (1980): pp. 51–53, figs 3–8.
Current status – Skleroprotopus legitimus (Golovatch, 1980) (Mikhaljova 2019).

45. *Chromatoiulus hortensis* Golovatch, 1981
Type material (n = 2) – male and female paratypes (intact) (HNHM diplo–03365), [Georgia]: Caucasus, Abkhazia, Sukhumi, hortus botanicus suchumiensis, 20 October 1978, leg. S. I. Golovatch.
Original description – Golovatch (1981): 110–112, figs. 14–26.
Current status – Omobrachyiulus hortensis (Golovatch, 1981) (Vagalinski & Lazányi 2018).

46. *Chromatoiulus transsilvanicus* ssp. *transdanubicus* Loksa, 1962

Type material (n = 79) – nine male syntypes (intact), three male syntypes (in pieces; two with missing gonopods), eight female syntypes (intact), two female syntypes (in pieces), seven juvenile syntypes (HNHM diplo–03296), Hungary: Mecsek Mts., Mt. Tubes, 1959, leg. I. Loksa; 16 male syntypes (intact), four male syntypes (in pieces), 19 female synytpes (intact), eight female syntypes (in pieces), three juvenile syntypes (HNHM diplo–03297), Hungary: Mecsek Mts., Mt. Tubes, 1959, leg. I. Loksa.

Original description – LOKSA (1962*b*): p. 163, figs 44–48.

Current status – *Megaphyllum transsylvanicum* (Verhoeff, 1897) (LAZÁNYI & VAGALINSKI 2013).

Remarks – LOKSA (1962*b*) wrote that "zahlreiche (cca. 150)" specimens were collected from two localities: Mt. Tubes in the Mecsek Mts, and Tenkes Hill in the Villányi Mts. No details about the deposition of type material were given. In the Loksa's material we found only the specimens from Mt. Tubes. On the labels there were no markings as "types", but because the locality data and year of collection agree with the original description we consider them to be part of the type series.

47. *Cylindroiulus ponticus* Golovatch, 1978

Type material (n = 2) – male and female paratypes (intact) (HNHM diplo–01896), Russia: Crimea, near the village Krasnolesye, wood litter, 10 July 1975, leg. S. I. Golovatch.

Original descritpion: GOLOVATCH (1978): p. 456, figs 5–11.

Currents status: Cylindroiulus horvathi (Verhoeff, 1897) (KORSÓS & READ 1994).

48. *Diploiulus truncorum* Silvestri, 1896

Type material (n = 3) – three female syntypes (in pieces) (HNHM diplo–02096, 1110/1897), Tunisia: Babouch, A'in Draham, 1896*, leg. F. Silvestri.

Original description – SILVESTRI (1896*a*): pp. 160–161, figs 11–13.

Current status – *Cylindroiulus truncorum* (Silvestri, 1896) (KORSÓS & ENGHOFF 1990).

49. *Julus acutesquamatus* Daday, 1889

Type material (n = 3) – male syntype (intact), two juvenile male syntypes (in pieces) (HNHM diplo–04175, 645/1883), Italia: Sorrento, leg. L. Örley.

Original description – DADAY (1889*c*): pp. 122–123.

Current status – uncertain.

Remarks – The species is not listed by KIME & ENGHOFF (2017). Having an intact male, it is worth for a closer investigation.

50. *Julus Frivaldszkyi* Daday, 1889

Type material (n = 2) – two female syntypes (in pieces; one head missing) (HNHM diplo–04176, 61/1855; Revid.: Loksa 206/1955), [Hungary]: “Hungaria meridionalis”, 1855*, leg. Dr. J. Frivaldszky.

Original description – Daday (1889*a*): p. 54.

Current status – uncertain.

Remarks – In his revisionary work of Daday’s collection Loksa (1957) identified this species as *Chromatoiulus frivaldszkyi* (Daday), Lazányi & Vagalinski (2013) mentioned it under *Megaphyllum unilineatum* (C. L. Koch, 1838). In *MilliBase* (Sierwald & Spelda 2023) it is accepted as *Julus frivaldszkyi* (Daday, 1889), but it is missing from Kime & Enghoff (2017). The species is named after János Frivaldszky (1822–1895), head of the Department of Zoology, HNHM.

51. *Julus fuscifrons* Daday, 1889

Type material (n = 1) – female syntype (intact) (HNHM diplo–04177, 866/1889), [Greece]: Patras, 1889*, leg. E. Reitter.

Original description – Daday (1889*c*): p. 122, pl. IV: figs 14–15.

Current status – uncertain.

Remarks – The species does not appear in Loksa (1957) and in Kime & Enghoff (2017).

52. *Julus fuscofasciatus* Daday, 1889

Type material (n = 27) – five male, 22 female (or juvenile) synytpes (in pieces) (HNHM diplo–04178, 866/1889), [Greece]: Patras, 1889*, leg. E. Reitter.

Original description – Daday (1889*c*): pp. 121–122, pl. IV: figs 16–17.

Current status – uncertain.

Remarks – The species does not appear in Loksa (1957) and in Kime & Enghoff (2017). The sample with males needs a closer examination, because it seemingly contains at least two different species.

53. *Julus Hermani* Daday, 1889

Type material (n = 8) – male and female syntypes (intact), three male and three female synytpes (in pieces; six forebodies but seven telson) (HNHM diplo–04179, 866/1889), [Greece]: Corfu, 1889*, leg. E. Reitter.

Original description – Daday (1889*c*): p. 121, pl. IV: figs 12–13.

Current status – uncertain.

Remarks – The species does not appear in Loksa (1957) and in Kime & Enghoff (2017). The intact male is worth for a closer examination to settle its status. The species was named after Ottó Herman (1835–1914), Hungarian naturalist and politician.

54. *Julus (Orescoiulus) jedryczkowskii* Golovatch, 1981
Type material (n = 2) – male and female paratypes (intact) (HNHM diplo–02757), [Russia]: Caucasus,: North Osetia, North Osetian State Reservation, Tseiss Valley, Tseidon River, northern slope, ca. 2160 m a.s.l., 8 August 1977, leg. M. Rudakowsky.
Original description – GOLOVATCH (1981): pp. 105–107, figs 1–7.
Current status – *Julus jedryczkowskii* Golovatch, 1981 (EVSYUKOV *et al.* 2018).

55. *Julus sabulosus* var. *flavo-fuscus* Daday, 1889
Type material (n = 2) – female syntype (in three pieces), juvenile syntype (intact) (HNHM diplo–04183, 830/1888; Revid.: Loksa 207/1955), [Romania]: Kazán, 1888*, leg. K. Chyzer & Ö. Tömösváry.
Original description – DADAY (1889*a*): p. 55.
Current status – *Ommatoiulus sabulosus* (Linné, 1758) (JEEKEL 1968*b*).
Remarks – The species does not appear in LOKSA (1957), although there is a label that he has seen it (Revid. Loksa 207/1955). As a variety it has no taxonomical value.

56. *Julus strictus* var. *hungaricus* Daday, 1889
Type material (n = 1) – female syntype (in two pieces) (HNHM diplo–04184, 830/1888; Revid.: Loksa 26/1955), [Hungary]: "Hungaria meridionalis".
Original description – DADAY (1889*a*): p. 49.
Current status – uncertain.
Remarks – In his revision of Daday's material LOKSA (1957) listed the species as *Cylindroiulus strictus* var. *hungarica* (Daday) (revid. Loksa 26/1955), although as a variety it has no taxonomical value. In *MilliBase* (SIERWALD & SPELDA 2023) the species appears accepted as *Typhloiulus strictus* (Latzel, 1882). VERHOEFF (1899, p. 186) discussed Daday's variety *hungaricus*, and said that it is either the same as Latzel's *Julus strictus* var. *nematodes*, which is valid as *Geopachyiulus nematodes* (Latzel, 1884), or it is just an abnormal colour form without standing in taxonomy. Both Latzel's *nematodes* and Daday's var. *hungaricus* were based on females, so they probably remain a nomenclatorial enigma, where the question to which species belongs *Julus strictus* var. *hungaricus* Daday, 1889 is not possible to settle.

57. *Julus terrestris balatonensis* Sziráki, 1967
Type material (n = 1) – holotype male (in three pieces, gonopods in microtube) (HNHM diplo–02758), Hungary: Somogy county, Fonyód, Bélatelep, pitfall trap, July 1962, leg. K. Dózsa-Farkas.
Original description – SZIRÁKI (1967): p. 261, fig. 6.
Current status – *Julus terrestris balatonensis* (Sziráki, 1967) (KORSÓS 1994, 1998).

Remarks – New topotypic material should be collected and examined to clarify the taxonomic status of this subspecies.

58. *Julus Tömösváryi* Daday, 1889

Type material (n = 1) – syntype female (HNHM diplo–04182, 830/1888; Revid.: Loksa 28/955), [Hungary]: "Hungaria meridionalis".
Original description – Daday (1889*a*): p. 49.
Current status – uncertain.
Remarks – In his revision of Daday's material Loksa (1957) identified the single female specimen as *Cylindroiulus Tömösváryi* (Dad.) (revid. Loksa 28/955). In *MilliBase* (Sierwald & Spelda 2023) it is accepted as *Julus tomosvaryi* Daday, 1889, but it does not appear in Kime & Enghoff (2017). Verhoeff (1899, p. 185) synonymized it under "*Pachyiulus* (*Geopachyiulus*) *nematodes* (Latz.) mihi", but it is not clear whether he really meant *Geopachyiulus nematodes* (Latzel, 1884), or his concept of *G. nematodes* ("mihi").

59. *Julus transylvanicus* Daday, 1889

Type material (n = ~ 8) – ca. eight male syntypes (two intact, others in pieces: four heads but six telson; one of them is dissected with missing gonopods) (HNHM diplo–04185, 830/1888; My1280; Revid.: Loksa 77/1955), [Romania]: Retyezát, Comit. Hunyad, 1888*, leg. G. Entz & Ö. Tömösváry.
Original description – Daday (1889*a*): p. 56, figs 4, 18–19.
Current status – *Leptoiulus transsylvanicus* (Daday, 1889) (Loksa 1957).
Remarks – There are two papers by Daday (1889*a*, 1889*b*) where he described the species as new (and used the abbreviation „n. sp.") with essentially the same text, the second being an "abstract" of the first one according to Daday's intention. Moreover, because figures were only published in Daday (1889*a*), we consider this publication as the original one. Unfortunately, Daday himself spelt the specific name differently: *J. transylvanicus* (Daday 1889*a*), and *J. transsylvanicus* (Daday 1889*b*). Loksa (1957) as first reviser in his publication on Daday's material identified the specimens as *Leptoiulus transsylvanicus* with two "s", and this was followed by Kime & Enghoff (2017).

60. *Megaphyllum (Megaphyllum) cygniforme* Lazányi et Korsós, 2012

Type material (n =3) – holotype male (in pieces, gonopods and small dissected parts in microtube) (HNHM diplo–03373), Greece: Rodopi county, Papikio Mts., brook in a secondary forest 5 km N of Sostis, 442 m, N41°09.859' E25°16.939', 4 April 2007, (2007/51), leg. L. Dányi, Z. Erőss, Z. Fehér, J. Kontschán & D. Murányi; juvenile paratype (intact) (HNHM diplo–03374), Greece: Rodopi county, Papikio Mts., brook in a secondary forest 5 km N of Sostis, 442 m, N41°09.859' E25°16.939', 4 April 2007,

(2007/51), leg. L. Dányi, Z. Erőss, Z. Fehér, J. Kontschán & D. Murányi; male paratype (in pieces, gonopods and small dissected parts in microtube) (HNHM diplo–03375), Greece: Kavala county, Lekanis Mts., rocky pasture beneath Kechrokambos, 370 m, N41°09.972' E24°38.587', 2 April 2007, (2007/32), leg. L. Dányi, Z. Erőss, Z. Fehér, J. Kontschán & D. Murányi.
Original description – LAZÁNYI *et al.* (2012): pp. 29–30, figs 37–52.
Current status – *Megaphyllum (Megaphyllum) cygniforme* Lazányi et Korsós, 2012 (VAGALINSKI & LAZÁNYI 2018).

61. *Megaphyllum danyii* Lazányi et Korsós, 2012
Type material (n = 1) – holotype male (in pieces, gonopods and small dissected parts in microtube) (HNHM diplo–03376), Greece: Arkadia county, Elliniko, Gortis ruins, *Platanus* gallery of Lousios River, 320 m, N37°32.378' E22°02.788', 6 April 2009, (2009/47), leg. L. Dányi, J. Kontschán & D. Murányi.
Original description – LAZÁNYI *et al.* (2012): pp. 34–36, figs 53–68.
Current status – *Byzantorhopalum (Ioniulus) danyii* (Lazányi et Korsós, 2012) (VAGALINSKI & LAZÁNYI 2018).

62. *Megaphyllum (Cyphobrachyiulus) digitatum* Lazányi et Korsós, 2012
Type material (n = 1) – holotype male (in pieces, gonopods and small dissected parts in microtube) (HNHM diplo–03377), Greece: Arkadia county, Aroania Mts., Zarelia, spruce forest and grassland SE of the village, 1310 m, N37°55.386' E22°14.191', 7 April 2009, (2009/59), leg. L. Dányi, J. Kontschán & D. Murányi.
Original description – LAZÁNYI *et al.* (2012): pp. 34, 37–39, figs 69–83.
Current status – *Cyphobrachyiulus (Cyphobrachyiulus) digitatus* (Lazányi et Korsós, 2012) VAGALINSKI & LAZÁNYI (2018).

63. *Megaphyllum (Parancistrum) arcuatum* Vagalinski, Lazányi et Golovatch, 2013
Type material (n = 1) – male paratype (intact) (HNHM diplo–03378), Israel: Adolam Nature Reserve, nr. Beit Gurvin, pitfall trapping, November 2001, (No. 17/4), leg. Y. Mandelik.
Original description – VAGALINSKI *et al.* (2013): pp. 514–517, figs 41–55.
Current status – *Megaphyllum (Parancistrum) arcuatum* Vagalinski, Lazányi et Golovatch, 2013 (VAGALINSKI & LAZÁNYI 2018).

64. *Microiulus dudichi* Verhoeff, 1927
Type material (n = 2) – male paratype (intact), female paratype (in two pieces) (HNHM diplo–03177, 1439a/1926), Hungary: Nyírbátor, Bátorliget mire, 16–18 April 1926, leg. E. Dudich & Gy. Éhik.
Original description – VERHOEFF (1927): pp. 82–83, 121–122, fig. 1.

Current status – *Xestoiulus laeticollis dudichi* (Verhoeff, 1927) (Korsós 1991, 1994, 1998).
Remarks – Loksa (1953) corrected Verhoeff and considered the taxon as a subspecies of a formerly established species (*Microiulus laeticollis* ssp. *dudichi*). Verhoeff (1927) based his description only on 2 males and 1 female, one of the males being deformed. The genus *Microiulus* Verhoeff, 1895 was later placed under synonymy of *Xestoiulus* Verhoeff, 1898 by Hoffman (1980*a*). Korsós (1991, 1994, 1998) initially accepted the subspecific status (*Xestoiulus laeticollis dudichi* Verhoeff, 1927). The species was named after Endre Dudich (1895–1971), eminent Hungarian zoologist, head of the Department of Zoosystematics, Pázmány Péter University (later ELTE).

65. *Nepalmatoiulus formosae* Korsós et Lazányi, 2013
Type material (n = 11) – male paratype (in piece; gonopods dissected for SEM), two female paratypes (in pieces; vulvae and head with first rings in microtube), five female paratypes (some in pieces), three juveniule paratypes (HNHM diplo–04148), Taiwan: Nantou county, Kao-Leng Dyi, 18 km W of Wushe, 24°05'N–121°08'E, 2074 m a.s.l., singled from rotten wood, 18–19 April 2002, (No. 30), leg. D. Anstine, Gy. Fábián & O. Merkl.
Original description – Korsós & Lazányi (2013): pp. 4–5, figs 4–6, 16–18, 25–27, 32, 38.
Current status – *Nepalmatoiulus formosae* Korsós et Lazányi, 2013 (Mikhaljova 2020).

66. *Nepalmatoiulus taiwanensis* Korsós et Lazányi, 2013
Type material (n = 8) – 2 male paratypes (in pieces; one with gonopods dissected for SEM), two female paratypes (in pieces; both with dissected vulvae in microtubes) (HNHM diplo–04149), Taiwan: Ilan county, Mingchyh Forest Recreation Area, singled from beneath bark, 6 April 2002, (No. 9), leg. Gy. Fábián & O. Merkl; four female paratypes in pieces (one with dissected vulvae in microtube) (HNHM diplo–04150), Taiwan: Taitung County, Central Mountain Range, Li-Jai logging road, secondary subtropical forest, 22°48'N–121°02'E, 915 m a.s.l., 27 May 2008, (No. 42), leg. L. Dányi, Z. Korsós & E. Lazányi.
Original description – Korsós & Lazányi (2013): pp. 3–4, figs 1–3, 13–15, 22–24, 31, 38.
Current status – *Nepalmatoiulus taiwanensis* Korsós et Lazányi, 2013 (Mikhaljova 2020).

67. *Nepalmatoiulus yaeyamaensis* Korsós et Lazányi, 2013
Type material (n = 6) – male and female paratypes (intact) (HNHM diplo–04151), Japan: Southern Ryukyus, Yaeyama Group, Iriomote Island,

Otomi, Ordando–Otomi forest trail, 24°18'N–123°50'E, 250 m a.s.l., 27 August 2009, (No. 16), leg. M. Izawa; male (in pieces, gonopods and head plus first segments in separate microtube), three female paratypes (two in pieces, with dissected vulvae and head plus first segments in separate microtubes) (HNHM diplo–01452), Southern Ryukyus, Yaeyama Group, Ishigaki Island, Kabira, Mt. Mae–dake, secondary forest, 24°26'N–124°07'E, 29 August 2009, (No. 21), leg. Z. Korsós & Y. Nakamura.
Original description – Korsós & Lazányi (2013): pp. 5–7, figs 7–12, 19–21, 28–30, 33–35, 38.
Current status – *Nepalmatoiulus yaeyamaensis* Korsós et Lazányi, 2013 (Mikhaljova 2020).

Mongoliulidae

68. *Skleroprotopus chollus* Mikhaljova et Korsós, 2003
Type material (n = 10) holotype male (intact) (HNHM diplo–04143), South Korea: South Cholla Prov., Mt. Paekun-san, at the vicinity of the pass towards to the Mts Chiri-san, 800–860 m, ca. 3 km NNW of Nonshil, under bark, stones and trunks, 31 October 1993, (No. 1662), leg. L. Peregovits & L. Ronkay; male paratype (in pieces, gonopods partly in separate microtube and on permanent slide "micropr. N3") (HNHM diplo–04144), South Korea: South Cholla Prov., Mt. Paekun-san, at the vicinity of the pass towards to the Mts Chiri-san, 800–860 m, ca. 3 km NNW of Nonshil, under bark, stones and trunks, 31 October 1993, (No. 1662), leg. L. Peregovits & L. Ronkay; male paratype (intact) and male paratype (in pieces, some dissected parts on permanent slide "micropr. N4", the remaining part of the dissected male), four female and two juvenile paratypes (intact) (HNHM diplo–01447), South Korea: South Cholla Prov., Mt. Paekun-san, at the vicinity of the pass towards to the Mts Chiri-san, 800–860 m, ca. 3 km NNW of Nonshil, under bark, stones and trunks, 31 October 1993, (No. 1662), leg. L. Peregovits & L. Ronkay.
Original description – Mikhaljova & Korsós (2003): pp. 220–222, figs 6–13.
Current status – *Skleroprotopus chollus* Mikhaljova et Korsós, 2003 (Mikhaljova & Korsós 2003)

69. *Skleroprotopus costatus* Mikhaljova et Korsós, 2003
Type material (n = 3) – holotype male (in pieces, gonopods in microtube) (HNHM diplo–01115), North Korea: South Hwanghae Prov., Haeju, Mt. Suyong-san, deciduous forest of the SE slope, 16 October 1987, (No. 1049), leg. Z. Korsós & L. Ronkay; female paratype (intact) (HNHM diplo–01113), North Korea: South Hwanghae Prov., Haeju, Mt. Suyong-san, deciduous forest of the SE slope, 16 October 1987, (No. 1049), leg. Z. Korsós &

L. Ronkay; male paratype (in pieces, some dissected particles in microtube, gonopod on permanent slide "micropr. N7") (HNHM diplo–01114), North Korea: South Hwanghae Prov., Haeju, Mt. Suyong-san, deciduous forest of the SE slope, 16 October 1987, (No. 1049), leg. Z. Korsós & L. Ronkay.
Original description – Mikhaljova & Korsós (2003): pp. 222–224, figs 14–25.
Current status – *Skleroprotopus costatus* Mikhajlova et Korsós, 2003 (Mikhaljova & Korsós 2003).

Spirobolida

Pachybolidae, Rhinocricidae, Spirobolellidae, Spirobolidae

70. *Aulacobolus brevipygus* Golovatch et Korsós, 1990
Type material (n = 3) – holotype male (in pieces, gonopods in microtube) (HNHM diplo–04195), Vietnam: Prov. Ninh binh, Cuc phuong, in forest, 7 May 1966, (No. 266–267), leg. Gy. Topál; two juvenile paratypes (intact) (HNHM diplo–04196), Vietnam: Prov. Ninh binh, Cuc phuong, in forest, 7 May 1966, (No. 266–267), leg. Gy. Topál.
Original description – Golovatch & Korsós (1990): pp. 26–28, figs 1–7.
Current status – *Aulacobolus brevipygus* Golovatch et Korsós, 1990 (Pachybolidae) (Enghoff *et al.* 2004).

71. ?*Eucarlia hoffmani* Golovatch et Korsós, 1992
Type material (n = 3) – female and two juvenile paratypes (intact) (HNHM diplo–04199), Seychelles: Farquhar Atoll, coconut plantation with some *Casuarina* trees, ca. 100 m W offshore & 0,5 km S of settlement, 16–17. August 1984, leg. S. I. Golovatch.
Original description – Golovatch & Korsós (1992): pp. 14–17, figs 34–40.
Current status – ?*Eucarlia hoffmani* Golovatch et Korsós, 1992 (Pachybolidae) (Golovatch & Korsós 1992).
Remarks – The original description mentioned only one juvenile male paratype in addition to the female paratype, but actually we have two juvenile paratypes whose sex cannot be determined.

72. ?*Eucarlia mauriesi* Golovatch et Korsós, 1992
Type material (n = 2) – male and female paratypes (both in two pieces) (HNHM diplo–04198), Seychelles: Silhouette Isl., tropical mist forest on ridge, above La Passe, 540–590 m, 24–25 August 1984, leg. S. I. Golovatch, L. B. Rybalov, A. A. Zakharov, G. M. Dlussky & L. Filatova.

Original description – Golovatch & Korsós (1992): pp. 12–14, figs 27–33.
Current status – ?*Eucarlia mauriesi* Golovatch et Korsós, 1992 (Pachybolidae) (Golovatch & Korsós 1992).

73. *Microspirobolus aequatorialis* Carl, 1909
Type material (n = 4) – four female paraylectotpyes (intact) (HNHM diplo–04192, 1268/1911), [East Africa]: Rwanda, 1911*, leg. I. Carl. From the paper: "Fundorte: Njarugenje (Central–Ruanda), im Tal des Njaranda, an sonnigem Abhang unter Dracaenen, bis 2 dm tief im trockenen, lockeren, hauptsächlich aus Laubmoder und Wurzelwerk gebildeten Boden, seltener in Bananenpflanzungen. Jinja (Busoga), bei den Riponfällen des Nils auf dem Ufervorsprung rechts von don Fällen, in lockerem Boden."
Original description – Carl (1909): pp. 356–359, pl. 7: figs 25–30.
Current status – *Brachyspirobolus aequatorialis* (Carl, 1909) (Pachybolidae) (Hollier *et al.* 2020).
Remarks – Although the label written by Carl indicates only the name and locality: "*Microspirobolus aequatorialis* Carl Ruanda / D. O. Afrika" (Fig. 10), we are of the opinion that our vial contains type specimens of the species. Hollier *et al.* (2020) mentioned "some 70 specimens in alcohol in two jars" in MHNG, and designated a lectotype, under the name *Brachyspirobolus aequatorialis* (Carl, 1909). Following that, we have 4 female paralectotype specimens.

74. *Physobolus pulvinipes* Golovatch et Korsós, 1990
Type material (n = 3) holotype male (in pieces, gonopods in microtube) (HNHM diplo–04193), Vietnam: Prov. Hoang lien son, 17 km SE of Lao cai, Dang khao valley, from under bark and trees, 29 Nov. 1971, (No. 163), leg. Gy. Topál & I. Matskási; two female paratypes (in pieces) (HNHM diplo–04194), Vietnam: Prov. Hoang lien son, 17 km SE of Lao cai, Dang khao valley, from under bark and trees, 29 Nov. 1971, (No. 163), leg. Gy. Topál & I. Matskási.
Original description – Golovatch & Korsós (1990): pp. 29–32, figs 8–13.
Current status – *Physobolus pulvinipes* Golovatch et Korsós, 1990 (Spirobolellidae) (Enghoff *et al.* 2004).

75. *Rhinocricus furcatus* Silvestri, 1899
Type material (n ≈ 8) – three male syntypes (in pieces; one with dissected left sided gonopods in microtube – the right side is missing), four female syntypes (two intact, two in pieces), juvenile paratype (in two pieces) (altogether two intact individuals, and six heads but eight telsons) (HNHM diplo–04188, 1124/1897), Papua New Guinea: Erima, Astrolabe bay, 25 October 1897, leg. Bíró L.

Original description – Silvestri (1899): p. 209, pl. XII: fig. 27–29.
Current status – *Salpidobolus furcatus* (Silvestri, 1899) (Rhinocricidae) (Jeekel 2001*c*; Marek *et al.* 2003).

76. *Spirobolus dentatus* Daday, 1893
Type material (n = 2) – two male syntypes (in pieces, one with gonopod in separate tube) (HNHM diplo–04186), Papua New Guinea: Wilhelmsland, 1892*, leg. S. Fenichel.
Original description – Daday (1893*a*): p. 101, pl. III: fig. 1–7; Daday (1893*b*): pp. 3–4.
Current status – *Acanthiulus blainvillei* (Le Guillou, 1841) (Spirobolidae) (Jeekel 2001*c*).
Remarks – In the original description Daday (1983*a*) writes about 1 male and 1 female. The gonopods in the microtube are dissected by Daday, as his handwriting indicates on the label ("organe copulateur"= gonopods). However, the other specimen seems to be also a male (in many pieces), but with missing gonopods. Hoffman (1980 *in litt.*) has also identified it as male, and trasferred to an other genus resulting the new combination *Acanthiulus dentatus*, in the family Pachybolidae. He (Hoffman 1980 *in litt.*) designated an intact individual as lectotype, but unfortunately now both specimens we have are broken into many pieces. One of the male specimens is "intact" considering the first half of the body but the gonopods are just removed from the gonopod sinus.

77. *Spirobolus erythropus* Tömösváry, 1885
Type material (n = 12) – male syntype (in pieces, gonopods and first seven segments in microtubes), juvenile male syntype (in pieces), ca. ten female/juvenile syntypes (in pieces, altogether nine heads but twelve telsons) (HNHM diplo–04197, 866/1889.33), [Malaysia]: Borneo, Matang et Sarawak, 1870*, leg. J. Xántus.
Original description – Tömösváry (1885): p. 70, pl. IV: fig. 21, pl. V: figs 1–2.
Current status – *Trigoniulus erythropus* (Tömösváry, 1885) (Pachybolidae) (Silvestri 1896*b*).

78. *Spirobolus Fenicheli* Daday, 1893
Type material (n = 4) – three male syntypes (in pieces, one with dissected gonopods in separate microtube), juvenile syntype (in pieces) (HNHM diplo–04187, 974a/1892), Papua New Guinea: Wilhelmsland, 1892*, leg. S. Fenichel.
Original description – Daday (1893*a*): p. 102, pl. IV: fig. 1–4; Daday (1893*b*): p. 4.

Current status – *Salpidobolus fenicheli* (Daday, 1893) (Rhinocricidae) (Marek *et al.* 2003).
Remarks – Jeekel (2001*c*) listed "*Rhinocricus*" *fenicheli* under "uncertain generic position"; Hoffman (1974) synonymized the genus *Dinematocricus* Brölemann, 1913 under *Salpidobolusi* Silvestri, 1897; Marek *et al.* (2003) listed the species as *Salpidobolus fenicheli* (Daday, 1891) (erroneously spelled as "*coerulolimbatus*"), and attributed the synonymy to Hoffman, who actually did not mention Daday's species. The species was named after Sámuel Fenichel (1868–1893), Hungarian naturalist, who died young in Papua New Guinea.

79. *Spirobolus Hegedüsii* Daday, 1889
Type material (n = 2) – male syntype (intact), female syntype (in two pieces) (HNHM diplo–04189, 799/1887), Panama, 1887, leg. J. Vadona.
Original description – Daday (1889*c*): p. 130.
Current status – *Anadenobolus hegeduesii* (Daday, 1889) (Rhinocricidae) (Hoffman (1999).
Remarks – Hoffman (1980, *in litt.*) "designated" the male as lectotype, but did not publish it. Korsós (1983) followed this invalid designation. Also the name "*hegedussi*" does not correspond to the original spelling by Daday, who wrote "*Hegedüsii*", named after Alexander Hegedüs (1847–1896), journalist and politician, member of the Hungarian legislative body; so the correct spelling of the specific name should be *hegeduesii*. Unfortunately, wrong spelling is repeated by Pocock (1910, p. 70: as "*hagedussii*"), Loomis (1968, p. 88: as "*hagedussi*"), Hoffman (1999, p. 76: as "*hegedusi*"), and Marek *et al.* (2003, p. 19: as "*hegedussi*").

80. *Trigoniulus gracilis* Silvestri, 1899
Type material (n = 5) – male syntype (in pieces, gonopods in separate microvial), four female syntypes (in pieces, altogether four heads but four telsons) (HNHM diplo–04191, 1124/1897), Papua New Guinea: Berlinhafen, Ins. Tamara, 8–18. November 1896, leg. L. Bíró.
Original description – Silvestri (1899): p. 210, pl. XII–XIII: figs 33–36.
Current status – *Plokamostrophus gracilis* (Silvestri, 1899) (Pachybolidae) (Chamberlin 1920; Jeekel 2001*c*).
Remarks – Although the exact date of collection does not appear in the original publication, here we add it from the handwritten label by Silvestri.

81. *Trigoniulus venatorius* Silvestri, 1899
Type material (n = 1) – male syntype (in pieces, gonopods in microvial) (HNHM diplo–04190, 1124/1897), Papua New Guinea: Ins. Tamara, Berlinhafen, 8–18. November 1896, leg. L. Bíró.
Original description – Silvestri (1899): p. 210, pl. XII: figs 30–32.

Current status – *Plokamostrophus venatorius* (Silvestri, 1899) (Pachybolidae) (Chamberlin 1920; Jeekel 2001*c*).
Remarks – The locality details on the label and in the article are not completely the same: in the paper "Hab. Erima (Astrolabebai)" is written.

Spirobolus rufo-marginatus Tömösváry, 1885 see No. 89. under Spirostreptida.

Spirostreptida
Cambalidae, Harpagophoridae, Odontopygidae, Spirostreptidae

82. *Alloporus transvalicus* Daday, 1889
Type material (n = 1) – holotype female (in two pieces) (HNHM diplo–04208, 866/1889), South Africa: Transval, leg. E. Reitter.
Original description – Daday (1889*c*): p. 123, pl. IV: figs 19–22.
Current satus: uncertain.
Remarks – The female was labeled as holotype by Hoffman in 1980 during his visit to HNHM, and the specimen was identified as a representative of the family Spirostreptidae. In the original paper the specific name is spelt as "*transvalicus*" (with one "a"), but Hoffman's handwriting on the label can be read either with one or two "a" (Fig. 7). Although the original geographical name is "Transvaal", according to ICZN Art. 32.5 Daday's spelling is not to be considered inadvertent error. The status of the species, however, remains uncertain because of the single female holotype specimen (Krabbe 1982).

83. *Ctenorangoon meggittii* Verhoeff, 1940
Type material (n = 2) – male and female syntypes (in pieces) (HNHM diplo–04200, 2857/1936), Burma: Rangoon, 1936*, leg. Meggitt.
Original description – Verhoeff (1940): p. 191, figs 5–10.
Current status – *Ctenorangoon feae* (Pocock, 1893) (Demange 1961)
Remarks – *Ctenorangoon meggittii* was synonymized by Demange (1961), then followed by Jeekel (1971, 2006); the taxon was placed in the family Harpagophoridae.

84. *Eumastigonus hallelujah* Korsós et Johns, 2009
Type material (n = 19) – eight male and eight female paratypes (intact, gonopods of 1 male and vulva of 1 female removed into separate microtubes (HNHM diplo–04245), New Zealand: Craigieburn Range, Cave Stream, in *Nothofagus* forest, 8 February 1995, leg. Z. Korsós & Aorangi Exp.; two male and female paratypes (intact, gonopod of one male removed into separate microtube) (HNHM diplo–04246), New Zealand: Craigieburn Forest Park, Lyndon Hut, S43°09'–E171°43', picnic area, 821 m, in *Nothofagus cliffortioides* forest, 28 May 2006, leg. Z. Korsós.

Original description – Korsós & Johns (2009): pp. 12–14, figs 25, 27–32, 50.
Current status – *Eumastigonus hallelujah* Korsós et Johns, 2009 (Korsós et Johns 2009).
Remarks – The family classification of the genus *Eumastigonus* Chamberlin, 1920 is sometimes debated, some authors associate it with Iulomorphidae (Mauriès 1992, Korsós & Johns 2009), others place it in Cambalidae (Hoffman 1980*a*, Shelley 2003).

85. *Eumastigonus waitahae* Korsós et Johns, 2009
Type material (n = 2) – female paratype (intact), female paratype (dissected, vulva removed into separate microtube) (HNHM diplo–04244), New Zealand: Kaikoura, Mt. Fyffe Conservation Area, S42° 21' – E173° 34', 192 m a.s.l., coastal broadleaf forest, 3 June 2006, leg. Z. Korsós & P. M. Johns
Original description – Korsós & Johns (2009): pp. 14–23, figs 26, 33–49, 51.
Current status – *Eumastigonus waitahae* Korsós et Johns, 2009: (Korsós et Johns 2009).
Remarks – The family classification of the genus *Eumastigonus* Chamberlin, 1920 is sometimes debated, some authors associate it with Iulomorphidae (Mauriès 1992, Korsós & Johns 2009), others place it in Cambalidae (Hoffman 1980*a*, Shelley 2003).

86. *Lophostreptus bicolor* Carl, 1909
Type material (n = 2) – two female paralectotypes (in pieces) (HNHM diplo–04202, 1268/1911), [East Africa]: Rwanda, Kirehe in Kissaka (Südost-Ruanda), in Bananen-pflanzungen; Njarugenje bis Niansa (Central-Ruanda), 1911*, leg. J. Carl
Original description – Carl (1909): pp. 319–321, pl. 6: fig. 20.
Current status – *Lophostreptus bicolor* Carl, 1909 (Spirostreptidae) (Krabbe 1982); Hollier *et al.* 2020).
Remarks – The original label by Carl has been misread later as "*Leptostreptus*" (Fig. 11), with only a simple locality name: "Ruanda / D. O. Afr." (= Deutsch-Ostafrika). In the original publication at least two different localities are mentioned ("Südost-Ruanda" and "Central-Ruanda"). From the 53 specimens of the collection of MHNG, Demange & Mauriès (1975) designated the lectotype (Hollier *et al.* 2020), the rest becoming paralectotypes. Our two female specimens can also be considered as paralectotypes.

87. *Odontopyge ollieri* Silvestri, 1907
Type material (n = 1) – holotype male (in two pieces) (HNHM diplo–04203, 1268/1911), [East Africa]: Rwanda, Toro, 1911*, leg. J. Carl.
Original description – Silvestri (1907): pp. 9–10.

Current status – *Geotypodon ollieri* (Silvestri, 1907) (Odontopygidae) (Enghoff 2016).
Remarks – Attems (1914) listed the species as *Haplothysanus ollieri* (Silvestri, 1907), which was recently transferred to the genus *Geotypodon* Enghoff, 2016.

88. *Odontopyge socialis* Carl, 1909
Type material (n = 3) – male paralectotype (intact) and two female paralectotypes (in pieces) (HNHM diplo–04201, 1268/1911), [East Africa]: Rwanda, "Njarugenje-Niansa (Central-Ruanda) sehr häufig in Bananenpflanzungen; Kirehe in Kissaka (Südost-Ruanda); Busch vom Kagera durch Süd-Karagwe bis Mabira in Ost-Ussuwi; Niakahanga (Central-Karagwe) in trockenen Bananengärten unter Steinen und faulenden Bananenstämmen; Entebbe (Uganda)", 1911*, leg. I. Carl.
Original description – Carl (1909): pp. 330–332, pl. 8: figs 51–52.
Current status – *Haplothysanus socialis* (Carl, 1909) (Odontopygidae) (Attems 1914; Hollier *et al.* 2020).
Remarks – In the original description Carl (1909) only mentioned one male specimen, but from several different localities ("Central-Ruanda, Südost-Ruanda, Central Karagwe, Uganda"). From the 53 specimens of the collection of MHNG, Demange (1988) designated the lectotype (Hollier *et al.* 2020), the rest becoming paralectotypes. On the basis of Demange's account our three specimens can also be considered paralectotypes.

89. *Spirobolus rufo-marginatus* Tömösváry, 1885
Type material (n = 4) – lectotype male (in pieces, gonopod in microvial), three female paralectotypes (in pieces) (HNHM diplo–04207, 305/35), [Malaysia]: Borneo, Matang, 1870*, leg J. Xántus.
Original description – Tömösváry (1885): p. 69, pl. IV: figs 19–20.
Current status – *Sculptulistreptus rufomarginatus* (Tömösváry, 1885) (Hoffman 1980*b*, 1982).
Remarks – Tömösváry erroneously described it as *Spirobolus*, in the order Spirobolida, as it actually belongs to Spirostreptida (Hoffman 1980*b*). The male specimen was designated as lectotype by Hoffman (1982), gonopods properly illustrated, and the species was transferred to the genus *Sculptulistreptus* Demange, 1961. It belongs in the family Harpagophoridae, subfamily Rhynchoproctinae (Pimvichai *et al.* 2010).

90. *Spirostreptus flavomarginatus* Daday, 1889
Type material (n = 4) – lectotype male (in fours pieces, gonopods in microvial) (HNHM diplo–04205, 305/44), [Malaysia]: Borneo, Matang, 1870*, leg. J. Xántus; three female paralectotypes (in pieces) (HNHM diplo–04206, 305/44), [Malaysia]: Borneo, Matang, 1870*, leg. J. Xántus.

Original description – DADAY (1889*c*): pp. 128–129.
Current status – *Remulopygus javanicus* (Brandt, 1841) (Harpagophoridae) (HOFFMAN & GOLOVATCH 1998).
Remarks – HOFFMAN (1982) designated the male specimen as lectotype, with proper illustration of the male gonopods. The lectotpye designation was accepted by KORSÓS (1983). Later the species was synonymized under *Remulopygus javanicus* (Brandt, 1841) by HOFFMAN & GOLOVATCH (1998).

91. *Spirostreptus politus* Daday, 1889
Type material (n = 1) – holotype female (in pieces) (HNHM diplo–04209, 832/1889), East India, leg. J. Vadona.
Original description – DADAY (1889*c*): pp. 127–128.
Current status – *Fageostreptus* sp., *incertae sedis* HOFFMAN, 1982 (Harpagophoridae) (JEEKEL 2006).
Remarks – According to HOFFMAN (1982) "the species cannot be identified with certainty but is possibly referable to the genus *Fageostreptus*". During his visit to HNHM he labeled the specimen as holotype (Hoffman 1980 *in litt.*), what was followed by KORSÓS (1983).

92. *Spirostreptus pusillus* Daday, 1889
Type material (n = 1) – holotype juvenile female (in two pieces) (HNHM diplo–04210, 866/1889), South Africa: Transval, leg. E. Reitter.
Original description – DADAY (1889*c*): p. 124, pl. V: figs 1–5.
Current status – uncertain.
Remarks – The specimen was labeled as holotype of *"Spirostreptus" pusillus* by Hoffman (1980 *in litt.*) (Fig. 8) during his visit to HNHM, but the action was not properly documented and published. The status of the specimen was accepted by KORSÓS (1983). It belongs to the family Odontopygidae.

93. *Spirostreptus trilineatus* Daday, 1889
Type material (n = 1) – holotype male (in pieces, gonopods in microtube) (HNHM diplo–04211, 305/42), [Malaysia]: Borneo, Matang, 1870*, leg. J. Xántus.
Original description – DADAY (1889*c*): p. 125.
Currents status – *Cystogonopus trilineatus* (Daday, 1889) (Harpagophoridae) (HOFFMAN 1982).
Remarks – HOFFMAN (1982) identified the male specimen as holotype, illustrated the gonopods, and transferred the species into the genus *Cystogonopus* Demange, 1961.

94. *Spirostreptus trisulcatus* Daday, 1889
Type material (n = 1) – holotype female (in three pieces) (HNHM diplo–04204), Panama, 1870*, leg. I. Vereby.

Original description – Daday (1889*c*): p. 127.
Current status – *Orthoporus trisulcatus* (Daday, 1889) (Spirostreptidae) (Loomis 1968; Krabbe 1982).
Remarks – The specimen was labeled as holotype by Hoffman (1980 *in litt.*) (Figs 12–13) during his visit to HNHM. This action was followed by Korsós (1983).

Callipodida
Callipodidae

95. *Lysiopetalum longicorne* Daday, 1889
Type material (n = 1) – holotype male (in pieces first segments, 7th leg-pair, gonopods in microvial) (HNHM diplo–04216, 866/1889), [Greece]: Patras, leg. E. Reitter.
Original description – Daday (1889*c*): p. 133, pl. V: fig. 6.
Current status – uncertain.
Remarks – Stoev *et al.* (2008) mentioned the species as *species inquirenda*, but later Stoev (2009 *in litt.*) considered it as junior synonym of *Prolysiopetalum scabratum* (L. Koch, 1867).

96. *Lysiopetalum trifasciatum* Daday, 1889
Type material (n = 3) – two female syntypes (intact) and female syntype (in pieces) (HNHM diplo–04215, 866/1889), [Greece]: Corfu, leg. E. Reitter.
Original description – Daday (1889*c*): p. 131.
Current status – uncertain.
Remarks – Stoev *et al.* (2008) mentioned the species as *species inquirenda*, but later Stoev (2009 *in litt.*) considered it as junior synonym of *Prolysiopetalum scabratum* (L. Koch, 1867). At present it is listed as a junior synonym of *Callipodella fasciata* (Latzel, 1882) in *MilliBase* (Sierwald & Spelda 2023).

97. *Lysiopetalum unicolor* Daday, 1889
Type material (n = 15) – male syntype (in pieces, head, pregonopodal segments, gonopods, 7th leg-pair in microvial) (HNHM diplo–04217, 866/1889), [Greece]: Corfu, leg. E. Reitter; male and thirteen female syntypes (some in pieces) (HNHM diplo–04218, 866/1889), [Greece]: Corfu, leg. E. Reitter.
Original description – Daday (1889*c*): pp. 131–132.
Current status – uncertain.

Remarks – Stoev *et al.* (2008) mentioned the species as *species inquirenda*, but later Stoev (2009 *in litt.*) placed it in the genus *Dorypetalum*. Stoev during his visit to HNHM in 2009 considered it as a valid species. Kime & Enghoff (2011) did not list this species.

98. *Lysiopetalum unilineatum* Daday, 1889
Type material (n = 1) – subadult male syntype (in two pieces) (HNHM diplo–04214, 866/1889), [Greece]: Corfu, leg. E. Reitter.
Original description – Daday (1889*c*): p. 132, pl. V: fig. 9.
Current status – uncertain.
Remarks – Stoev *et al.* (2008) mentioned the species as *species inquirenda*, but later during his visit in HNHM (2009) identified the taxon as junior synonym of *Callipodella dorsovittata* (Verhoeff, 1900).

99. *Lysiopetalum vinciguerrae* Silvestri, 1894
Type material (n = 1) – female syntype (intact) (HNHM diplo–04213, 1110/1897), Italy: Bevagna.
Original description – Silvestri (1894*a*): p. 42, fig. 2.
Current status – *Callipodella vinciguerrae* (Silvestri, 1894) (Strasser & Minelli 1984).
Remarks – The specimen in HNHM is labeled by Silvestri as "*Callipus vinciguerrae*, Silv. cotypi Bevagna – Silv." (Fig. 14). In the original description ("*Lysiopetalum vinciguerrae*, n. sp.") the number of specimens is not mentioned, and there is a figure of male gonopod as well. The species is listed as valid by Stoev *et al.* (2008) and Kime & Enghoff (2011).

Chordeumatida

Cleidogonidae, Craspedosomatidae, Diplomaragnidae, Haaseidae, Kashmireumatidae, Megalotylidae, Metopidiothrichidae, Niponiosomatidae, Verhoeffiidae

100. *Atractosoma cecconii* Silvestri, 1898
Type material (n = 2) – two male syntypes (in two pieces with intact gonopods) (HNHM diplo–04455, 1110/1897), Italy: Vallombrosa (Firenze), 1897*, leg. F. Silvestri.
Original description – Silvestri (1898*b*): pp. 159–160.
Current status – *Atractosoma cecconii* Silvestri, 1898 (Craspedosomatidae) (Kime & Enghoff 2021).
Remarks – On the original label it is written "varietas", but in the publication Silvestri (1898*b*) clearly indicates the status as "sp. n." (Fig. 16). It is accepted by Kime & Enghoff (2021).

Figures 9–16. Labels and type specimens. 9 = Loksa's handwritten label "Colobognatha FR. 1064" from the vial containing specimens of *Siphonocryptus canariensis* Loksa, 1967; 10 = Handwritten label by Carl of *Microspirobolus aequatorialis* Carl, 1909; 11 = Carl's label of *Lophostreptus bicolor* Carl, 1909; 12 = *Spirostreptus trisulcatus* Daday, 1889: female syntype; 13 = Hoffman's label of *Orthoporus trisulcatus* Dad.; 14 = Silvestri's label of *Callipus vinceguerrae* Silvestri, 1894; 15 = Label by Mikhaljova of *Koreadesmus proprius* Mikhaljova et Korsós, 2003; 16 = Silvestri's label of "*Atractosoma cecconii* Silv. varietas Cotypi Vallombrosa (Firenze) Silv.".

101. *Cleidogona scandens* Hoffman, 1975

Type material (n = 3) – male paratype and two female paratypes (all intact) (HNHM diplo–04231), Mexico: Chiapas, 17 km SE of San Cristobal de las Casas, 2195 m, within *Tillandsia* sp. 9 m from ground level on *Quercus* sp., 15 January 1973, leg. K. E. Lucas.

Original description – Hoffman (1975): pp. 33–36, figs 1–7.

Current status – *Cleidogona scandens* Hoffman, 1975 (Cleidogonidae) (Hoffman (1975).

Remarks – The specimens were donated to Zoltán Korsós by R. Hoffman during his visit to Radford, Virginia, in 2000.

102. *Diplomaragna korsosi* Shear, 1990

Type material (n = 3) – holotype male (in pieces, gonopods in microtube) (HNHM diplo–04222), North Korea: North Pyongyang Province, Mt. Myoh-yang-san, from sifted litter in a rocky forest along Isonnam Pathway, 11 October 1987, (No. 1035), leg. Z. Korsós and L. Ronkay; paratype female (intact) (HNHM diplo–04223), North Korea: North Pyongyang Province, Mt. Myoh-yang-san, from sifted litter in a rocky forest along Isonnam Pathway, 11 October 1987, (No. 1035), leg. Z. Korsós and L. Ronkay; paratype female (in pieces) (HNHM diplo–04224), North Korea: North Pyongyang Province, Mt. Myoh-yang-san, from sifted litter in a rocky forest along Isonnam Pathway, 11 October 1987, (No. 1035), leg. Z. Korsós and L. Ronkay.

Original description – Shear (1990): pp. 36–37, figs 97–98.

Current status – *Pterygostegia korsosi* (Shear, 1990) (Diplomaragnidae) (Mikhaljova 2000).

103. *Diplomaragna ronkayi* Shear, 1990

Type material (n = 1) – holotype male (in two pieces, gonopods in microvial) (HNHM diplo–04221), North Korea: Kangwan Province, Onjong-ri, T. Kumgang-san, singled in the forest above the Hotel Kumgang-san, 20 October 1987, (No. 1056), leg. Z. Korsós and L. Ronkay.

Original description – Shear (1990): pp. 37–38, figs 99–100.

Current status – *Tokyosoma ronkayi* (Shear, 1990) (Diplomaragnidae) (Mikhaljova 2000).

104. *Metopidiothrix melanocephala* Golovatch, 1984

Type material (n = 2) – male and female paratypes (intact) (HNHM diplo–04487), Vietnam: Prov. Thai Nguyen, Buong luoi, 35 km N An khe, tropical rainforest, litter, 4 January 1981, leg. A. Druk.

Original description – Golovatch (1984*a*): pp. 71–73, figs 32–35.

Current status – *Metopidiothrix melanocephala* Golovatch, 1984 (Metopidiothrichidae) (Shear 2002).

105. *Nepalella vietnamica* Golovatch, 1983
Type material (n = 10) – holotype male (intact) (HNHM diplo–4482), Vietnam: Prov. Yen bai, Chay River valley, Luc yen, 300 m, beaten from bushes at forest edge, 5 December 1971, (No. 238), leg. Gy. Topál & I. Matskási; male and five female paratypes (all intact) (HNHM diplo–04484), Vietnam: Prov. Yen bai, Chay River valley, Luc yen, 300 m, beaten from bushes at forest edge, 5 December 1971, (No. 238), leg. Gy. Topál & I. Matskási; male paratype (in two pieces) and two female paratypes (gnathochilarium, legpairs 6–11 and antenna of the male on separate slide) (HNHM diplo–04483), Vietnam: Prov. Yen bai, Chay River valley, Luc yen, 300 m, beaten from bushes at forest edge, 1 December 1971, (No. 177), leg. Gy. Topál & I. Matskási.
Original description – GOLOVATCH (1983*b*): pp. 123–126, figs 1–6.
Current status – *Nepalella vietnamica* Golovatch, 1983 (Megalotylidae) (ENGHOFF *et al.* 2004).

106. *Orobainosoma hungaricum* Verhoeff, 1928
Type material (n = 5) – male syntype (intact) and a half individual (caudal half) (HNHM diplo–04228, 1745/1928), Hungary: Abaligeti Cave, 15 March 1925, leg. Dr. E. Bokor; three male syntypes (intact), female syntype (intact) and some fragments (HNHM diplo–04229; 1744/1928), Hungary: Abaligeti Cave, 21 November 1923, leg. E. Dudich.
Original description – VERHOEFF (1928): pp. 195–199, figs 8–10.
Current status – *Haasea hungarica* (Verhoeff, 1928) (Haaseidae) HOFFMAN (1980*a*); KIME & ENGHOFF (2021).
Remarks – ANTIĆ & AKKARI (2020) revised the genus *Haasea* in detail, and they mentioned three syntype slide preparations in ZSM. Two microscope slides of syntypes also exist in ZMB (MORITZ & FISCHER 1978). The inventory records in the HNHM book clearly states that type material has arrived to our museum, too (Fig. 4). Lectotype, however, has never been designated.

107. *Protochordeuma gestri* Silvestri, 1898
Type material (n = 1) – female syntype (intact) (HNHM diplo–04457, 1110/1897), Italy: Genova, 1897*, leg. F. Silvestri.
Original description – SILVESTRI (1898*a*): pp. 659–660, pl. IV: figs 22, 26, 28, pl. V: figs 31–33.
Current status – *Haplogona gestri* (Silvestri, 1898): KIME & ENGHOFF (2021), Verhoeffiidae.
Remarks – On the label Silvestri wrote "*Protochordeuma gestri*, Silv. cotypus, Genova – Silvestri" (Fig. 17). According to the species catalogue of Silvestri (VIGGIANI 1973), more specimens of the type series may exist in GNHM.

108. *Taiwaneuma ramuligerum* Mikhaljova, Golovatch et Chang, 2011
Type material (n = 2) – two female paratypes (intact) (HNHM diplo–04232), Taiwan: Taichung County, Mt Da-Shue-Shan, (Ali shan township, Alishan National Forest Recreation area), SE slope of Mt Shaolai Shan, 24°13.734'N, 120°58.738'E, ca 2000 m, primary broad-leaved forest, 24 October 2009, (No. T09–59), leg. L. Dányi & E. Lazányi.
Original description – MIKHALJOVA *et al.* (2011*b*): pp. 55–58, figs 19–31.
Current status – *Taiwaneuma ramuligerum* Mikhaljova, Golovatch et Chang, 2011 (Niponiosomatidae) (MIKHALJOVA *et al.* 2011*b*).

109. *Tokyosoma flexuosum* Mikhaljova et Korsós, 2015
Type material(n = 1) – holotype male (in two pieces, gonopods in microvial) (HNHM diplo–04219), Japan: Central Ryukyus, Okinawa Island, Katsuren Peninsula, next to White Beach, secondary forest, 26°18'43" N, 127°53'59" E, 60 m, 22 October 2010, (No. 268), leg. Z. Korsós.
Original description – MIKHALJOVA & KORSÓS (2015): pp. 571–574, figs 1–4.
Current status – *Tokyosoma flexuosum* Mikhaljova et Korsós, 2015 (Diplomaragnidae) (MIKHLAJOVA & KORSÓS 2015).

110. *Tokyosoma hallum* Mikhaljova et Korsós, 2003
Type material (n = 6) – holotype male (intact) (HNHM diplo–04226), South Korea: Cheju Prov., Halla-san National Park, ca. 1300 m, 126°00'E, 33°15'N, border zone between the mixed deciduous forest and the mixed evergreen (pine) forest, litter, from beneath stones and trunks, 30 Oct 1993, (No. 1657), leg. L. Peregovits & L. Ronkay; two male paratypes (in pieces, gonopods in microvial) and three female paratypes (all intact) (HNHM diplo–04227), South Korea: Cheju Prov., Halla-san National Park, ca. 1300 m, 126°00'E, 33°15'N, border zone between the mixed deciduous forest and the mixed evergreen (pine) forest, litter, from beneath stones and trunks, 30 Oct 1993, (No. 1657), leg. L. Peregovits & L. Ronkay.
Original description – MIKHALJOVA & KORSÓS (2003): pp. 218–219, figs 1–5.
Current status – *Tokyosoma hallum* Mikhaljova et Korsós, 2003 (Diplomaragnidae) (MIKHLAJOVA & KORSÓS 2003).

111. *Tokyosoma serratum* Mikhaljova, Golovatch et Chang, 2010
Type material (n = 1) – male paratype (in two pieces) (HNHM diplo–04225), Taiwan: Nantou County, Shueili, Renluen, experimental forest area, primary forest, 23°42.501' N, 120°55.275' E, 1615 m, 15 May 2008, leg. L. Dányi, Z. Korsós & E. Lazányi.

Original description – MIKHALJOVA *et al.* (2010*a*): pp. 24–25, figs 1–4, 33.
Current status – *Tokyosoma serratum* Mikhaljova, Golovatch et Chang, 2010 (Diplomaragnidae) (MIKHALJOVA *et al.* 2010*a*).

112. *Tokyosoma taroko* Mikhaljova, Golovatch et Chang, 2010
Type material (n = 1) – male paratype (intact) (HNHM diplo–04220), Taiwan: Nantou County, Xiulin Township, Taroko National Park, Dayuling, SE slope of Wufanaiwe Shan, 24°12.000' N, 121°18.024' E, 2546 m, disturbed secondary broad-leaved forest with stream, 12 October 2009, leg. L. Dányi & E. Lazányi.
Original description – MIKHALJOVA *et al.* (2010*a*): pp. 26–27, figs 9–11.
Current status – *Tokyosoma taroko* Mikhaljova, Golovatch et Chang, 2010 (Diplomaragnidae) (MIKHALJOVA *et al.* 2010*a*).

113. *Vieteuma topali* Golovatch, 1984
Type material (n = 8) – holotype male (intact) (HNHM diplo–04485), Vietnam: Prov. Lao cai, Q quy ho, Sa pa Distr., pass between Lao cai and Lai chau provinces, 2160 m a.s.l., sifted litter, 22–25 November 1971, (No. 117), leg. Gy. Topál & I. Matskási; five male and two female paratypes (two males dissected on separate slides) (HNHM diplo–04486), Vietnam: Prov. Lao cai, Q quy ho, Sa pa Distr., pass between Lao cai and Lai chau provinces, 2160 m a.s.l., sifted litter, 22–25 November 1971, (No. 117), leg. Gy. Topál & I. Matskási.
Original description – GOLOVATCH (1984*a*): pp. 74–76, figs 36–45.
Current status – *Vieteuma topali* Golovatch, 1984 (Kashmireumatidae) (ENGHOFF *et al.* 2004).

STEMMIULIDA
Stemmiulidae

114. *Diopsiiulus parvulus* Silvestri, 1899
Type material (n = 1) – female syntype (in three pieces) (HNHM diplo–04230, 1124/1897), Papua New Guinea: Erima, Astrolabe bay, 1896*, leg. L. Bíró.
Original description – SILVESTRI (1899): pp. 210–211, pl. 13: figs 37–40.
Current status – *Diopsiulus parvulus* Silvestri, 1899 (JEEKEL 1971; MAURIÈS 1981).
Remarks – The specimen is labeled by Silvestri as "*Diopsiiulus parvulus*, Silv. Typus N. Guinea: Erima" (Fig. 18). Also, in the paper the original spelling is *Diopsiiulus*, but later SILVESTRI (1916) himself used *Diopsiulus*. JEEKEL (1971) in his *Nomenclator* also corrected the name to *Diopsiulus*, stating that "The name has been misspelled occasionally as Diopsiiulus".

POLYDESMIDA
Paradoxosomatidae

115. *Arthrogonopus proletarius* Golovatch, 1996
Type material (n = 1) – holotype male (in two pieces, right gonopod removed to separate tube) (HNHM diplo–04383), Indonesia: Borneo, Kalimantan Barat, Gunung Palung National Park, Caban Panti Research site (1°13'S, 110°7'E), primary lowland rainforest, under bark, 20 July 1993 (No. 13), leg. O. Merkl.
Original description – GOLOVATCH (1996): pp. 182–184, figs 90–93.
Current status – *Arthrogonopus proletarius* Golovatch, 1996 (GOLOVATCH 1996).

116. *Atropisoma Horváthi* Silvestri, 1899
Type material (n = 2) – two male syntypes (one in 6 pieces without gonopods, one in three pieces with intact gonopods) (HNHM diplo–04377, 1124/1897), Papua New Guinea: "Ruldemenge", 25 October 1897, leg. L. Bíró.
Original description – SILVESTRI (1899): p. 207, pl. X: figs 9–12.
Current status – *Silvattia horvathi* (Silvestri, 1899) (JEEKEL 2009)
Remarks – The locality "Ruldemenge" on the label by Silvestri, and mentioned in KORSÓS (1983), is probably based on a misreading of "Kuldemenye", which means "delivery" in Hungarian (= "küldeménye"), written on the package sent by Daday to Silvestri (see also under No. 179). In the paper, Silvestri (1899) gave the locality as "Erima, (Astrolabebai)". Silvestri's gonopod drawing (SILVESTRI 1899: fig. 12) is probably based on a slide which has not been found in HNHM. We do not know any lectotype designation in other museum specimens. If such does not exist, than our specimen with intact gonopods could be designated as lectotype. The species was named after Géza Horváth (1847–1937), entomologist, director of the Department of Zoology of the HNHM at that time.

117. *Atropisoma insulare* Silvestri, 1899
Type material (n = 2) – two male syntypes (in four pieces without gonopods, and two fragments from another specimen without head and first segments) (HNHM diplo–04378, 1124/1897), Papua New Guinea: Berlinhafen, Ins. Tamara, 1897*, leg. L. Bíró.
Original description – SILVESTRI (1899): p. 207, pl. X: figs 13–14.
Current status – *Caloma insulare* (Silvestri, 1899) (HOFFMAN 2005*a*).
Remarks – The fragments clearly belong to two specimens, one is larger and has almost all the parts (four pieces), while the other is smaller and lacks the head and the first part of the body. The gonopods illustrated by SILVESTRI (1899: fig. 14) can not be found in the HNHM.

118. *Cawjeekelia gloriosa* Golovatch, 1980
Type material (n = 2) – holotype male (intact) (HNHM diplo–04381), North Korea: Ryanggang Prov., Samjiyon, under *Larix* tree in moss and litter, 3 October 1978, (No. 448), leg. A. Vojnits & L. Zombori; male paratype (broken, one gonopod removed in a separate tube) (HNHM diplo–04382), North Korea: Ryanggang Prov., Chann-pay Plateau, Samjiyon, 1700 m, *Larix-Betula* forest litter, 25 August 1971, leg. J. Papp & S. Horvatovich.
Original description – Golovatch (1980): p. 55, figs 14–16.
Current status – *Cawjeekelia gloriosa* Golovatch, 1980 (Golovatch 2011).
Remarks – According to the original paper we should have one more male and one female paratype from the locality of the holotype, but in the collection we have only two specimens altogether.

119. *Curiosoma bispinosum* Golovatch, 1984
Type material (n = 1) – holotype male (in three parts, right gonopod removed in separate microtube) (HNHM diplo–04387), India: Maharashtra, Bhaja, 800 m, on slopes above the village, 6 August 1967, (No. 591), leg. Gy. Topál.
Original description – Golovatch (1984*b*): pp. 331–333, figs 5–7.
Current status – *Curiosoma bispinosum* Golovatch, 1984 (Golovatch 1984*b*).

120. *Desmoxytes jeekeli* Golovatch et Enghoff, 1994
Type material (n = 1) – female paratype (HNHM diplo–04384), Thailand: Chieng Mai Province, Doi Sutep, 1100 m, 31 October 1958, (No. 1766), leg. B. Degerbøl.
Original description – Golovatch & Enghoff (1994): pp. 48–50, figs 1–10.
Current status – *Hylomus jeekeli* (Golovatch et Enghoff, 1994): Srisonchai *et al.* (2018); Likhitrakarn *et al.* (2023).
Remarks – According to the original description, one male paratype should have been deposited in HNHM; instead we have one female paratype specimen in a very bad condition.

121. *Desmoxytes rubra* Golovatch et Enghoff, 1994
Type material: (n = 1) – male paratype (in two pieces, with intact gonopods) (HNHM diplo–04385), Thailand: Satun Province, Thale Ban National Park (6°42’N, 100°10’E), lowland rainforest, <400 m, on vegetation & under bark, 20 October 1991, leg. M. Andersen, O. Martin & N. Scharff.
Original description – Golovatch & Enghoff (1994): pp. 53–55, figs 29–40.
Current status – *Desmoxytes delfae* (Jeekel, 1964) (Srisonchai *et al.* 2018, Likhitrakarn *et al.* 2023*a*).

Remarks – According to the original description, one female paratype should have been deposited in HNHM; instead we have one male paratype specimen in good condition.

122. *Koreadesmus proprius* Mikhaljova et Korsós, 2003
Type material (n = 3) – holotype male (in several pieces, right gonopod removed in separate microtube) (HNHM diplo–04393), and two female paratypes (in several pieces) (HNHM diplo–04394): North Korea: Ryanggang Prov., Konchang, 800 m, stream valley with shrubs of willow and rich under wood, beneath stones along the bank of river, 30 June 1988, (No. 1369), leg. O. Merkl & G. Szél. (Fig. 15)
Original description – Mikhaljova & Korsós (2003): pp. 234–238, figs 50–57.
Current status – *Cawjeekelia propria* (Mikhaljova et Korsós, 2003) (Golovatch 2011).

123. *Laterogonopus simplex* Golovatch, 1984
Type material (n = 4) – holotype male (in three pieces, right gonopod removed in separate microtube) (HNHM diplo–04389), India: Maharashtra, Wenchi, 700 m, under stones and cattle dung, 7 August 1967, (No. 612), leg. Gy. Topál; male paratype (in five pieces, right gonopod removed in separate microtube) and female paratype (in four pieces, in separate tube) (HNHM diplo–04390), India: Maharashtra, Pune, 700 m, in and around town, 5 August 1967, (No. 585), leg. Gy. Topál; female paratype (in fours pieces) (HNHM diplo–04388), India: Maharashtra, Wenchi, 700 m, under stones and cattle dung, 7 August 1967, (No. 612), leg. Gy. Topál.
Original description – Golovatch (1984*b*): pp. 342–344, figs 32–37.
Current status – *Laterogonopus simplex* Golovatch, 1984 (Golovatch 1984*b*).

124. *Orientosoma koreanum* Golovatch, 1980
Type material (n = 1) – holotype male (with one gonopod removed to a separate tube, other gonopod on a slide) (HNHM diplo–04386), North Korea: Ryanggang Prov., Chann-pay Plateau, Samjiyon, 1600 m, *Larix-Betula* forest, along a road, 25 August 1971 (No. 197), leg. J. Papp & S. Horvatovich.
Original description – Golovatch (1980): pp. 56–57, figs 17–18.
Current status – *Cawjeekelia koreana* (Golovatch, 1980) (Jeekel 1988, Golovatch 2011).

125. *Paradesmus flavocarinatus* Daday, 1889
Type material (n = 15) – eight male and seven female syntypes (based on the number of heads and gonopodal segments) in many pieces (HNHM, diplo–04422, 305/1870), [Thailand]: Siam, Bangkok, leg. J. Xantus.
Original description – Daday (1889*c*): pp. 136–137.
Current status – *Asiomorpha coarctata* (De Saussure, 1860): Enghoff (2005); Likhitrakarn *et al.* (2023*a*).
Remarks – On the old inventory label "Japan, Bangkok" is written; an obvious mistake.

126. *Paradoxosoma* (n. gen.) *granulatum* Daday, 1889
Type material (n = 8) – male and six female syntypes (based on the number of heads and one gonopodal segment) in many pieces (HNHM diplo–04423, 866/1889), [Greece]: Corfu, leg. E. Reitter; male syntype (in two pieces, with intact gonopods) (866/1889, HNHM diplo–04424), [Greece]: Patras, 1889*, leg. E. Reitter.
Original description – Daday (1889*c*): p. 135, pl. V: figs 19–20, 22–23.
Current status – *Stosatea granulata* (Daday, 1889) (Jeekel 1968*a*).
Remarks – The species was transferred to a different genus, but its original generic name, *Paradoxosoma*, still stands as type genus of the family Paradoxosomatidae Daday, 1889 (Figs 19–21). The family name was first introduced by Daday in his extensive paper on foreign myriapod material deposited in the Hungarian National Museum (Daday 1889*c*) for two species: *P. granulatum* and *Trachydesmus simonii*, both genera later becoming junior subjective synonyms of *Stosatea* Gray, 1843. Daday provided a detailed description in Latin, but did not give any etymology, and even the words "paradoxon" or "paradox" did not appear in his description: "*Paradoxosoma*, n. gen. Corpore subteri, parum juliformi; numero segmentonim undeviginti; scutis dorsalibus in medio sulco sat piofundo exaratis, tuberculis parvis setigeris 12 in seriebus tribus positis, carinatis, cariuis linearibus, evanescentibus; pedum paribus in femina 29, in mare 8; articulo tertio pedum tertiorum valde infiato pulvilloque piligero preedito." One can only guess that he might refer to the "uneven" shape of the segments of the animals, *i.e.* prozona and metazona differing so much from each other. The male specimen with intact gonopods could be designated as lectotype. The species is listed as *Stosatea granulata* in Kime & Enghoff (2011).

127. *Paranedyopus elongissimus* Golovatch, 1984
Type material (n = 2) – holotype male (intact, right gonopod removed in separate microtube), and 1 juvenile female paratype (HNHM diplo–04391), India: W Bengal, Darjeeling distr., Kurseong, 1000 m, on mosses on bark of trees, 18 October 1967, (No. 851), leg. Gy. Topál.

Original description – Golovatch (1984*b*): pp. 351–352, figs 51–53.
Current status – *Anoplodesmus elongissimus* (Golovatch, 1984) (Golovatch 2000).

128. *Paratylopus strongylosomoides* Korsós et Golovatch, 1989
Type material (n = 1) – holotype male (intact, left gonopod removed in separate microtube) (HNHM diplo–04425), Vietnam: Prov. Vinh phu, Tam dao, N of the village, singling from under stones and barks, 21 January 1986, (No. 27), leg. S. Mahunka & J. Oláh.
Original description – Korsós & Golovatch (1989): pp. 215–217, figs 6–10.
Current status – *Tylopus strongylosomoides* (Korsós et Golovatch, 1989) (Golovatch & Enghoff 1993).

129. *Parchondromorpha indica* Golovatch, 1984
Type material (n = 2) – holotype male (intact with left gonopod removed in separate microtube) (HNHM diplo–04395), India: Maharashtra, Kanheri near Bombay, 200 m, beaten from bushes in sparse forest on hill-side, 27 August 1967, (No. 725), leg. Gy. Topál; female paratype (in three pieces) (HNHM diplo–04396), India: Maharashtra, Kanheri near Bombay, 200 m, beaten from bushes in sparse forest on hill-side, 27 August 1967, (No. 725), leg. Gy. Topál.
Original description – Golovatch (1984*b*): pp. 337–338, figs 20–25.
Current status – *Parchondromorpha indica* (Golovatch 1984*b*).

130. *Parchondromorpha similis* Golovatch, 1984
Type material (n = 1) – holotype male (in four pieces, left gonopod removed) (HNHM diplo–04392), India: Maharashtra, Bhaja, 800 m, on slopes above the village, 6 August 1967, (No. 591), leg. Gy. Topál.
Original description – Golovatch (1984*b*): pp. 339–340, figs 26–28.
Current status – *Parchondromorpha similis* Golovatch, 1984 (Golovatch 1984*b*).

131. *Phaeodesmus complicatus* Loksa, 1967
Type material (n = 3) – holotype male (in two pieces without gonopods) and female (in two pieces) (HNHM-diplo–04369), Brazzaville–Congo [Republic of Kongo]: No. 82, Kindamba, Meya, Louolo river, beaten from high, riverside vegetation, 2 November 1963, leg. J. Balogh & A. Zicsi; male paratype (in two pieces with right gonopod *in situ*) (HNHM-diplo–04370), Brazzaville–Congo [Republic of Kongo]: Nr. 66, Kindamba, Meya, Louolo river, singled in litter of galery forest with formol, 2 November 1963, leg. J. Balogh & A. Zicsi.
Original description – Loksa (1967*b*): pp. 206–207, figs 1–3.

Current status – *Campsogon complicatus* (Loksa, 1967) (Jeekel 1968*a*).
Remarks – The gonopods of the holotype male (originally marked by Loksa) was probably prepared for a microscope slide, but we did not find it. Fortunately, one of the gonopods of the male paratype is still intact *in situ*. The species was not mentioned by Hoffman (2004) in his synopsis of *Phaeodesmus* Cook, 1898.

132. *Podochresimus (Allochresimus* n. subgen.*) pallidus* Loksa, 1967
Type material (n = 5) – holotype male (in two pieces without gonopods), and four juvenile patatypes (HNHM diplo–04374), Brazzaville–Congo [Republic of Kongo]: No. 310, Bouenza waterfall, netted along dry path of rainforest, 30 November 1963, leg. J. Balogh & A. Zicsi.
Original description – Loksa (1967*b*): pp. 207–209, figs 4–7.
Current status – *Allochresimus pallidus* (Loksa, 1967) (Jeekel 1968*a*).

133. *Polydrepanum horridum* Golovatch, 1984
Type material (n = 8) – holotype male (with intact gonopods) (HNHM diplo–04397), two male and five female paratypes (in several pieces) (HNHM diplo–04398), India: Maharashtra, Wenchi, 700 m, under stones and cattle dung, 7 August 1967, (No. 612), leg. Gy. Topál.
Original description – Golovatch (1984*b*): pp. 333–335, figs 12–17.
Current status – *Polydrepanum horridum* Golovatch, 1984 (Golovatch 1984*b*).

134. *Strongylosoma italicum* Latzel, 1886
Type material (n = 4) – four males syntypes (intact with gonopods *in situ*) (HNHM diplo–04462, 1110/1897), Italy: Bevagna, leg. F. Silvestri.
Original description – Latzel (1886): p. 309.
Current status – *Stosatea italica* (Latzel, 1886) (Jeekel 1967).
Remarks – The original label reads "*Strongylosoma italicum*, Latz. Paratypi, Bevagna – Silv." (Fig. 22), whereas in the paper Latzel (1886) it is written "Patria: Italia (Serravalle Scrivia; Lombardia)".

135. *Strongylosoma pallipes* var. *albidum* Daday, 1889
Type material (n = 1) – female syntype (in two pieces) (HNHM diplo–04475), 830/1889), [Romania]: Retyezát (= Retezat), 1889*, leg. G. Entz & Ö. Tömösváry.
Original description – Daday (1889*a*): p. 66.
Current status – *Strongylosoma stigmatosum* (Eichwald, 1830) (Jeekel 1967).
Remarks – The vials are not labeled as "types", only "Daday" and "det. Daday" are indicated, but the localities correspond to the ones listed in the

description, so the specimens can be considered as type material. The taxon was proposed as an individual variation, therefore the name is not available under the authorship of Daday (see also Methods).

136. *Strongylosoma pallipes* var. *flavum* Daday, 1889
Type material (n = 2) – two female syntype (in fours pieces) (HNHM diplo–04476, 830/1889), [Romania]: Kazán, 1889*, leg. K. Chyzer & Ö. Tömösváry.
Original description – Daday (1889*a*): p. 66.
Current status – *Strongylosoma stigmatosum* (Eichwald, 1830) (Jeekel 1967).
Remarks – The vials are not labeled as "types", only "Daday" and "det. Daday" are indicated, but the localities correspond to the ones listed in the description, so the specimens can be considered as type material.

137. *Strongylosoma pallipes* var. *fulvum* Daday, 1889
Type material (n = 10) – female syntype (intact) (HNHM diplo–04472, 830/1889), [Romania]: Bihar county, Kóly [= Cadea], 1889*, leg. L. Bíró; female syntype (intact) (HNHM diplo–04473, 830/1889), [Romania]: Kazán, l889*, leg. K. Chyzer & Ö. Tömösváry; eight syntypes (based on heads; in many pieces (HNHM diplo–04474, 830/1889), [Romania]: Mehádia [= Mehadia], 1889*, leg. K. Chyzer, J. Pável & Ö. Tömösváry.
Original description – Daday (1889*a*): p. 66.
Current status – *Strongylosoma stigmatosum* (Eichwald, 1830) (Jeekel 1967).
Remarks – The vials are not labeled as "types", only "Daday" and "det. Daday"are indicated, but the localities correspond to the ones given in the description, so the specimens can be considered as type material.

138. *Strongylosoma pallipes* var. *fuscum* Daday, 1889
Type material (n = 3) – male and two female syntypes (in 1three pieces) (HNHM diplo–04477, 830/1889), [Hungary]: Budapest, Madarászkert, 1889*, leg. J. Pável & Ö. Tömösváry.
Original description – Daday (1889*a*): p. 66.
Current status – *Strongylosoma stigmatosum* (Eichwald, 1830) (Jeekel 1967).
Remarks – The vials are not labeled as "types", only "Daday" and "det. Daday are indicated", but the localities correspond to the ones given in the description, so the specimens can be considered as type material.

139. *Strongylosoma vagans* Carl, 1909
Type material (n = 2) – male and female syntypes (intact) (HNHM diplo–04412, 1268/1911), East Africa: Ussuwi, 1911*, leg. J. Carl.

Original description – Carl (1909): pp. 291–293, pl. 6: fig. 3.
Current status – *Xanthodesmus vagans* (Carl, 1909) (Jeekel 2004, Hollier *et al.* 2020).
Remarks – Hollier *et al.* (2020) listed 38 syntype specimens deposited in the collection of MHNG, and labeled by Hoffman as "*Xanthodesmus vagans*", but no lectotype has been designated. There are further syntype specimens in several museums (Hollier *et al.* 2020).

140. *Substrongylosoma distinctum* Golovatch, 1984
Type material (n = 54) – holotype male (with intact gonopods) (HNHM diplo–04399), India: W Bengal, Darjeeling distr., Lopchu, 1500 m, beaten from bushes in forest, 20 October 1967, (No. 857), leg. Gy. Topál; five male and four female paratypes (in several pieces, one gonopod removed in separate microtube) (HNHM diplo–04400), India: W Bengal, Darjeeling, below North Point, 1200 m, beaten from bushes after sunset, 16 October 1967, (No. 838), leg. Gy. Topál; 22 males and 22 females paratypes (in several pieces) (HNHM diplo–04401), India: W Bengal, Darjeeling distr., Lopchu, 1500 m, beaten from bushes in forest, 20 October 1967, (No. 857), leg. Gy. Topál.
Original description – Golovatch (1984*b*): pp. 345–346, figs 38–42.
Current status – *Substrongylosoma distinctum* Golovatch, 1984 (Golovatch 1984*b*).

141. *Substrongylosoma falcatum* Golovatch, 1984
Type material (n = 8) – holotype male (in two pieces, right gonopod removed in separate microtube) (HNHM diplo–04302), India: W Bengal, Darjeeling, below North Point, 1400 m, beaten from bushes, 18 October 1967, (No. 850), leg. Gy. Topál; two male and five female paraytpes (in several pieces) (HNHM diplo–04303), India: W Bengal, Darjeeling, below North Point, 1400 m, beaten from bushes, 17 October 1967, (No. 843), leg. Gy. Topál.
Original description – Golovatch (1984*b*): pp. 346–347, figs 43–46.
Current status – *Substrongylosoma falcatum*: Golovatchm 1984 (Golovatch 1984*b*).

142. *Szechuanella grandis* Golovatch, 1984
Type material (n = 2) – holotype male (in three pieces, right gonopod in situ, left gonopod missing (HNHM diplo–04413), Vietnam: Prov. Ninh binh, Cuc phuong, forest on limestone hill, 3 May 1966, (No. 247), leg. Gy. Topál; female paratype (in two pieces) (HNHM diplo–04414), Vietnam: Prov. Ninh binh, Cuc phuong, forest on limestone hill, 16 May 1966, (No. 380), leg. Gy. Topál.
Original description – Golovatch (1984*a*): pp. 56–57, figs 4–6.

Current status – *Sellanucheza grandis* (Golovatch, 1984) (Enghoff *et al.* 2004).
Remarks – The new genus name *Sellanucheza* was necessary to replace *Szechuanella* Hoffman, 1961, which became a junior homonym of *Szechuanella* Zhang et Fan, 1960, an extinct trilobite. Özdikmen (2007), as an example of inadvertance in taxonomy, tried to introduce a new name for this taxon (*Cemsunguria grandis*), without noticing that it already has been replaced.

143. *Topalodesmus communis* Golovatch, 1988
Type material (n = 101) – holotype male (intact) (HNHM diplo–04406), India: Darjeelin Distr., Ghum, Senchal Reserve Forest, 2200 m, beaten from bushes in forest, 8 October 1967, (No. 779), leg. Gy. Topál; 24 male and 15 female paratypes (HNHM diplo–04407), India: West Bengal, Darjeeling District, Ghum, Senchal Reserve Forest, 2200 m, beaten from bushes in forest and pitfall traps, 13 October 1967, (No. 812), leg. Gy. Topál; 17 male and eight female paratypes (HNHM diplo–04408), India: West Bengal, Darjeeling District, Ghum, Senchal Reserve Forest, 2200 m, beaten from undergrowth in forest, 7 October 1967, (No. 772), leg. Gy. Topál; seven male and 14 female paratypes (HNHM diplo–04409), India: West Bengal, Darjeeling District, Ghum, Senchal Reserve Forest, 2200 m, pitfall traps in forest, 10–21 October 1967, (No. 871), leg. Gy. Topál; five male and six female paratypes (HNHM diplo–04410), India: West Bengal, Darjeeling District, Ghum, Senchal Reserve Forest, 2200 m, beaten from bushes in forest, 8 October 1967, (No. 779), leg. Gy. Topál; two male and two female paratypes (HNHM diplo–04411), India: West Bengal, Darjeeling District, Ghum, Senchal Reserve Forest, 2000 m, beaten from undergrowth in forest, 11 October 1967, (No. 807), leg. Gy. Topál.
Original description – Golovatch (1988): pp. 44–46, figs 7–18.
Current status – *Topalodesmus communis* Golovatch, 1988 (Golovatch 1988).

144. *Topalosoma setiferum* Golovatch, 1984
Type material (n = 2) – holotype male (with intact gonopods) (HNHM diplo–04044), India: W Bengal, Darjeeling, below North Point, 900 m, in grass, 17 October 1967, (No. 844–847), leg. Gy. Topál; male paratype (in three pieces, left gonopod removed in separate microtube) (HNHM diplo–04405), India: W Bengal, Darjeeling, below North Point, 900 m, in grass, 17 October 1967, (No. 844–847), leg. Gy. Topál.
Original description – Golovatch (1984*b*): pp. 329–330, figs 1–4.
Current status – *Topalosoma setiferum* Golovatch, 1984 (Golovatch 1984*b*).

145. *Trachydesmus* (n. gen.) *Simonii* Daday, 1889
Type material (n = 13) – male and twelve female syntypes (in many pieces; first body half of the male with intact gonopods separated in microtube) (HNHM diplo–04426, 866/1889), [Greece]: Corfu, 1889*, leg. E. Reitter
Original description – Daday (1889*c*): p. 134, pl. V: figs 7–8, 10–18.
Current status – *Stosatea simonii* (Daday, 1889) (Jeekel 1968*a*, see Nguyen & Sierwald 2013, Jeekel 1971).
Remarks – It is one of the two species with which Daday introduced the family Paradoxosomatidae (see under 126. *Paradoxosoma granulatum*). On the old label "*Brachydesmus Simonii* Dad. Typ" is mistakenly written.

146. *Tylopus crassipes* Golovatch, 1984
Type material (n = 3) – holotype male (in two pieces, left gonopod missing) (HNHM diplo–04430), Vietnam: Prov. Lao cai, O quy ho, near Sa pa, 1900 m, under bark of trees near stream, 24 November 1971, (No. 100), leg. Gy. Topál & I. Matskási; male (intact) and female paratype (in five pieces) (HNHM diplo–04431), Vietnam: Prov. Lao cai, O quy ho, near Sa pa, 1900 m, 23 November 1971, (No. 85), leg. Gy. Topál & I. Matskási.
Original description – Golovatch (1984*a*): pp. 62–64, figs 14–16.
Current status – *Tylopus crassipes* Golovatch, 1984 (Enghoff *et al.* 2004).

147. *Tylopus granulatus* Golovatch, 1984
Type material (n = 2) – holotype male (in three pieces, with intact gonopods) (HNHM diplo–04432), Vietnam: Prov. Ninnh binh, Cuc phuong, from pitfall traps in forest, 5–18 May 1966, (No. 385), leg. Gy. Topál; male paratype (in four pieces, with intact gonopods) (HNHM diplo–04433), Vietnam: Prov. Ninnh binh, Cuc phuong, from pitfall traps in forest, 5–18 May 1966, (No. 385), leg. Gy. Topál.
Original description – Golovatch (1984*a*): pp. 68–69, figs 24–26.
Current status – *Tylopus granulatus* Golovatch, 1984 (Enghoff *et al.* 2004).

148. *Tylopus hilaroides* Golovatch, 1984
Type material (n = 2) – holotype male (in two pieces, one gonopod removed into separate microtube) (HNHM diplo–04434), Vietnam: Prov. Ninh binh, Cuc phuong, 16 May 1966, (No. 380), leg. Gy. Topál; male paratype (in five pieces, one gonopod removed into separate microtube) (HNHM diplo–04435), Vietnam: Prov. Ninh binh, Cuc phuong, 16 May 1966, (No. 380), leg. Gy. Topál.
Original description – Golovatch (1984*a*): pp. 58–59, figs 7–8.
Current status – *Tylopus hilaroides* Golovatch, 1984 (Enghoff *et al.* 2004).

149. *Tylopus maculatus* Golovatch, 1984
Type material (n = 1) – holotype male (right gonopod removed into separate microtube) (HNHM diplo–04436), Vietnam: Prov. Lao cai, O quy ho, near Sa pa, 1950 m, beaten from bushes near stream, 24 November 1971, (No. 101), leg. Gy. Topál & I. Matskási.
Original description – GOLOVATCH (1984*a*): pp. 61–62, figs 12–13.
Current status – *Tylopus maculatus* Golovatch, 1984 (ENGHOFF *et al.* 2004).

150. *Tylopus magicus* Golovatch, 1984
Type material (n = 5) – holotype male (in two pieces, with intact gonopods) (HNHM diplo–04437), Vietnam: Prov. Lao cai, O quy ho, near Sa pa, 1950 m, under bark of trees by a stream, 25 November 1971, (No. 116), leg. Gy. Topál & I. Matskási; male paratype (in two pieces, both gonopods are removed and missing), and three juvenile paratypes (in several pieces) (HNHM diplo–04438), Vietnam: Prov. Lao cai, O quy ho, near Sa pa, 1950 m, under bark of trees by a stream, 25 November 1971, (No. 116), leg. Gy. Topál & I. Matskási.
Original description – GOLOVATCH (1984*a*): pp. 60–61, figs 9–11.
Current status – *Tylopus magicus* Golovatch, 1984 (ENGHOFF *et al.* 2004).

151. *Tylopus procurvus* Golovatch, 1984
Type material (n = 7) – holotype male (in three pieces, right gonopod removed and missing) (HNHM diplo–04439), Vietnam: Prov. Lao cai, O quy ho, near Sa pa, 1950 m, under bark of trees by a stream, 25 November 1971, (No. 116), leg. Gy. Topál & I. Matskási; female paratype (in two pieces) (HNHM diplo–04440), Vietnam: Prov. Lao cai, O quy ho, near Sa pa, 1950 m, under bark of trees by a stream, 25 November 1971, (No. 57), leg. Gy. Topál & I. Matskási; two male and three female paratypes (HNHM diplo–04441), Vietnam: Prov. Lao cai, O quy ho, near Sa pa, 1950 m, under bark of trees by a stream, 25 November 1971, (No. 116), leg. Gy. Topál & I. Matskási.
Original description – GOLOVATCH (1984*a*): pp. 64–65, figs 17–19.
Current status – *Tylopus procurvus* Golovtch, 1984 (ENGHOFF *et al.* 2004).

152. *Tylopus tamdaoensis* Korsós et Golovatch, 1989
Type material (n = 14) – holotype male (intact) (HNHM diplo–04442), Vietnam: Prov. Vinh phu, Tam dao, N from the village, singling from under stones and barks, 21 January 1986, (No. 27), leg. S. Mahunka & J. Oláh; five male and four female paratypes (HNHM diplo–04443), Vietnam: Prov. Vinh phu, Tam dao, N from the village, singling from under stones and barks, 21 January 1986, (No. 27), leg. S. Mahunka & J. Oláh; three male and one female paratypes (HNHM diplo–04444), Vietnam: Prov. Vinh phu,

Tam dao, forest, ca. 1000 m, 20 January 1986, (No. 19), leg. S. Mahunka & J. Oláh.
Original description – Korsós & Golovatch (1989): pp. 212–214, figs 1–5.
Current status – *Tylopus tamdaoensis* Korsós et Golovatch, 1989 (Enghoff *et al.* 2004).

153. *Tylopus topali* Golovatch, 1984
Type material (n = 4) – holotype male (in five pieces, left gonopod removed and missing) (HNHM diplo–04446),Vietnam: Prov. Ninnh binh, Cuc phuong, from pitfall traps in forest, 5–18 May 1966, (No. 385), leg. Gy. Topál; male and two female paratypes (HNHM diplo–04447), Vietnam: Prov. Ninnh binh, Cuc phuong, from pitfall traps in forest, 5–18 May 1966, (No. 385), leg. Gy. Topál (Fig. 27).
Original description – Golovatch (1984*a*): pp. 65–67, figs 20–23.
Current status – *Tylopus topali* Golovatch, 1984 (Enghoff *et al.* 2004).

154. *Vaulogerodesmus mahunkai* Korsós et Golovatch, 1989
Type material (n = 8) – holotype male (in five pieces, right gonopod placed in separate microtube) (HNHM diplo–004419), Vietnam: Prov. Vinh phu, Tam dao, singling from under stones, 20 January 1986, (No. 19), leg. S. Mahunka & J. Oláh; two male and four female paratypes (HNHM diplo–04420), Vietnam: Prov. Vinh phu, Tam dao, singling from under stones, 20 January 1986, (No. 19), leg. S. Mahunka & J. Oláh; female paratype (HNHM diplo–04421), Vietnam: Prov. Vinh phu, Tam dao, N from the village, singling from under stones and barks, 21 January 1986, (No. 27), leg. S. Mahunka & J. Oláh.
Original description – Korsós & Golovatch (1989): pp. 217–219, figs 11–14.
Current status – *Nedyopus mahunkai* (Korsós et Golovatch, 1989) (Chen *et al.* 2006).

155. *Vietnamorpha spiralis* Golovatch, 1984
Type material (n = 16) – holotype male (intact) (HNHM diplo–04416), Vietnam: Prov. Ninh binh, Cuc phuong, pitfall traps in forest, 5–18 May 1966, (No. 385), leg. Gy. Topál; 7 male paratypes (one gonopod removed), three female and two juvenile paratypes (HNHM diplo–04417), Vietnam: Prov. Ninh binh, Cuc phuong, pitfall traps in forest, 5–18 May 1966, (No. 385), leg. Gy. Topál; male and two juvenile paratypes (HNHM diplo–04418), Vietnam: Prov. Ninh binh, Cuc phuong, pitfall traps near creek, 6–18 May 1966, (No. 387), leg. Gy. Topál.
Original description – Golovatch (1984*a*): pp. 54–56, figs 1–3.

Current status – *Vietnamorpha spiralis* Golovatch, 1984 (Enghoff *et al.* 2004).
Remarks – On the original label "*Vietomorpha spiralis*" is written by Golovatch, but in the publication he changed it to *Vietnamorpha*.

Polydesmidae

156. *Brachydesmus attemsi* ssp. *tenkesensis* Loksa, 1962
Type material (n = 1) – male holotype (HNHM diplo–04233), Hungary: Villányi Mts, Tenkes Hill, pitfall traps, 8 December 1960, leg. I. Loksa.
Original description – Loksa (1962*b*): p. 159, fig. 8.
Current status – *Brachydesmus attemsi tenkesensis* Loksa, 1962 (Korsós 1994, 1998).
Remarks – The single male ("Typus") was originally deposited in the Department of Zoosystematics of ELTE. The specimen we found in HNHM is labeled as "tipus" by Loksa (Fig. 23). The subspecies was accepted by Korsós (1994, 1998).

157. *Brachydesmus Chyzeri* Daday, 1889
Type material (n = 4) – male (intact), and three female synytypes (in several pieces (HNHM diplo–04463, 830/1888,), [Croatia]: Fiume [Rijeka], Vallis Recsina, 1888*, leg. Ö. Tömösváry & G. Horváth.
Original description – Daday (1889*a*): p. 72, pl. 2: figs 15–16.
Current status – *Brachydesmus chyzeri* Daday, 1889 (Kime & Enghoff 2011).
Remarks – Although it is not marked as "type" on the label, it is written that "det. Dr. Daday", and also the locality corresponds to the one mentioned in the original description. (Fig. 24). The species was not revised by Loksa (1957), but it is listed as an accepted taxon by Kime & Enghoff (2011). The intact male would perhaps be worthwhile to study for claryfiying the real status of *B. chyzeri*.

158. *Brachydesmus hungaricus* Daday, 1889
Type material (n = 1) – holotype (incomplete specimen in three pieces, in very bad condition; fragmets moved to a separate microtube) (HNHM diplo–04464, 830/1888), [Romania]: Comit. Szilágy, Peér, 1888*, leg. Ö. Tömösváry & L. Bíró.
Original description – Daday (1889*a*): p. 71, pl. 2: fig. 14.
Current status – *Brachydesmus hungaricus* Daday, 1889 (Loksa 1957) .
Remarks – The specimen is almost unrecognizable (torn to pieces), but probably a male, as Daday wrote in the original description about the single

specimen he described: "femina ignota" (= female unknown). It is not marked as "type" on the label, but it is written "Det. Dr. Daday", and also the locality corresponds to the one mentioned in the original description (Fig. 25). The species was accepted by Loksa (1957) but not listed by Kime & Enghoff (2011).

159. *Brachydesmus Latzelii* Silvestri, 1894

Type material (n = 2) – male (intact; with gonopods *in situ*) and juvenile male (in three pieces) syntypes (HNHM diplo–04458, 1110/1897), Italy: Hab. Roma, Bracciano, Colle Pezzo, Bevagna (from the description), 1897*, leg. F. Silvestri.

Original description – Silvestri (1894*b*): p. 197.

Current status – *Brachydesmus proximus* Latzel, 1889 (Kime & Enghoff 2011).

Remarks – The material is without original label by Sivestri, but the 1897 label indicates "Cotyp." The species is listed as synonym under *B. proximus* by Kime & Enghoff (2011).

160. *Brachydesmus troglobius* Daday, 1889

Type material (n = 3) – three snytypes (based on heads, in several pieces) (HNHM diplo–04465, 830/1888), [Hungary]: Abaligeti-barlang [cave].

Original description – Daday (1889*a*): p. 71, pl. 2: fig. 17.

Current status – *Brachydesmus troglobius*: Daday, 1889 (Angyal *et al.* 2017).

Remarks – Although it is not marked as "type" on the label, it is written "Det. Dr. Daday" (Fig. 26), and the locality and its inventory also correspond to the one mentioned in the original description. Angyal *et al.* (2017) already considered these specimens as the type series.

161. *Polydesmus albidus* Daday, 1889

Type material (n = 1) – female holotype (in two pieces) (HNHM diplo–04466, 830/1888), [Romania]: Comit. Szilágy, Zilah, 1888*, leg. L. Bíró.

Original description – Daday (1889*a*): p. 67.

Current status – uncertain.

Remarks – The specimen is a female, and since Daday wrote in the original description "mas ignotus" (= male unknown), the species status cannot be settled. It is not indicated as "type" on the label, it is only written "Det. Dr. Daday", but because the locality corresponds to the one mentioned in the original description, the specimen can be considered as a type. However, its taxonomic status remains uncertain; it is not listed by Loksa (1954) or Kime & Enghoff (2011).

162. *Polydesmus banaticus* Daday, 1889
Type material (n = 4) – two male (in pieces without gonopods), and two female synytpes (HNHM diplo–04467, 830/1888), [Romania]: Orsova, 1888*, leg. Ö. Tömösváry & K. Chyzer
Original description – DADAY (1889*a*): pp. 69–70, pl. 2: figs 8–9.
Current status – *Polydesmus subscabratus* Latzel, 1884 (ATTEMS 1927).
Remarks – The specimens are in bad conditions and the gonopods of the males are missing. They are not marked as "type" on their labels, only "Det. Dr. Daday" is indicated, but because the locality corresponds to the one mentioned in the original description, the specimens can be considered as syntypes. The species synonymy with *Polydesmus subscabratus* has been established already by ATTEMS (1927), then followed by LOKSA (1954) and TABACARU & NEGREA (1961), as well. Not listed by KIME & ENGHOFF (2011).

163. *Polydesmus dispar* Silvestri, 1894
Type material (n = 4) – male (intact), male (in two pieces with gonopods *in situ*), and two female (in several pieces) syntypes (HNHM diplo–04459, 1110/1897), Italy: Genova, 1897*, leg. F. Silvestri
Original description – SILVESTRI (1894*a*): p. 43, fig. 4.
Current status – *Polydesmus asthenestatus* Pocock, 1894 (KIME & ENGHOFF 2011).
Remarks – On the label (with Silvestri's original handwriting) the locality is written as "Genova", whereas in the paper "Ad villa Pamphyliam (Roma) in humo" is indicated.

164. *Polydesmus gallicus* Daday, 1893
Type material (n = 5) – male syntype (in two pieces with intact gonopods in separate microtube), and four female syntypes (in several fragments) (HNHM diplo–04468, 961/1892), [France]: Gallia Meridionalis, Palavas, 1892*, leg. G. Horváth.
Original description – DADAY (1893*a*): pp. 104–105, pl. V: figs 1–4.
Current status – uncertain.
Remarks – On the label the type status is clearly stated: "*Polydesmus gallicus* Dad. n. sp. Det. Dr. Daday Jenő Typus". However, it is uncertain, because there is a *P. gallicus* Latzel, 1884 which is junior synonym of *P. coriaceus* Porat, 1871 (KIME & ENGHOFF 2011). Accordingly, *P. gallicus* Daday, 1893 is a junior homonym of *P. gallicus* Latzel, 1884, and if it is a different species, then it should have a replacement name.

165. *Polydesmus genuensis* Pocock, 1894
Type material (n = 4) – male syntype (in two pieces with intact gonopods), three female syntypes (two intact, one in several pieces) (HNHM diplo–04460, 1110/1897), Italy: Genova, 1897*, leg. F. Silvestri.
Original description – Pocock (1894): pp. 509–510, fig. 1.
Current status – *Polydesmus genuensis* Pocock, 1894 (Kime & Enghoff 2011).
Remarks – The original label is written by Silvestri as "Polydesmus genuensis, Poc. Cotypi, Genova – Silv." (Fig. 28). In the paper Pocock (1894) gives the locality as "Genova and Busalla".

166. *Polydesmus graecus* Daday, 1889
Type material (n = 6) – two male syntypes (in pieces with intact gonopodes, in separate microtube), and four female syntypes (HNHM diplo–04469, 866/1889), [Greece]: Morea, Demiobas, 1889*, leg. E. Reitter.
Original description – Daday (1889*c*): p. 139, pl. V: fig. 24.
Current status – *Polydesmus graecus* Daday, 1889 Daday (1889*c*)
Remarks – Marked as "n. sp. Typus" on the original label. The species is listed in Kime & Enghoff (2011).

167. *Polydesmus mediterraneus* Daday, 1889c
Type material (n = 68) – male syntype (intact, in separate microtube; and many further fragmented specimens not possible to count) (HNHM diplo–04478, 866.56-58/1889) [Greece]: Patras, 1889*, leg. E. Reitter; eight male syntypess (four intact and four in pieces in separate tube), and 54 female syntypes (intact and fragmented) (HNHM diplo–04481, 866/1889), [Greece]: Corfu, leg. E. Reitter; male and four female syntypes (HNHM diplo–04480, 866/.58/1889), Serbia: Negotin (= Неготин), 1889*, leg. Ö. Tömösváry.
Original description – Daday (1889*c*): p. 140, pl. V: figs 25–27.
Current status – *Polydesmus mediterraneus* Daday, 1889 (Kime & Enghoff 2011).
Remarks – The vials are labeled as "Dad. n. sp. Typus!" and "det. Daday", and the localities correspond to the ones listed in the description.

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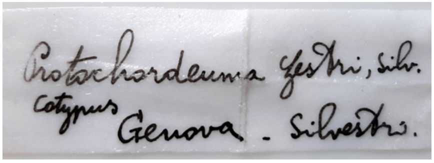

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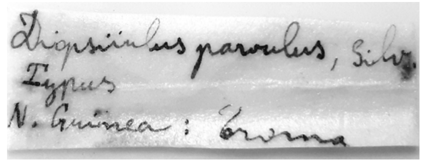

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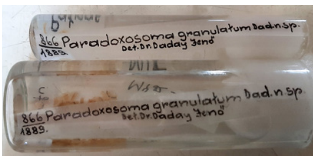

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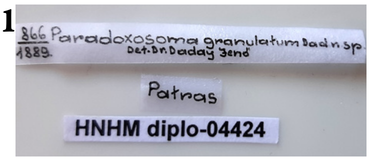

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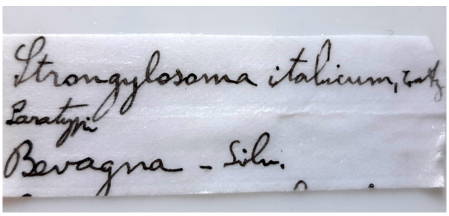

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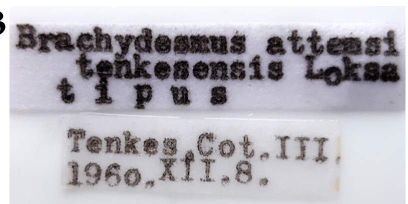

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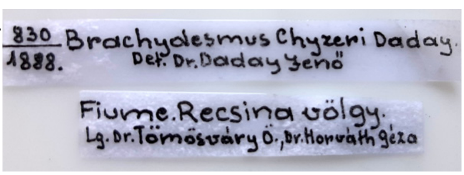

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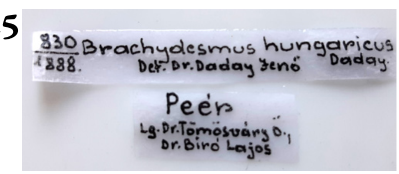

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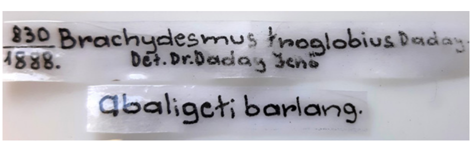

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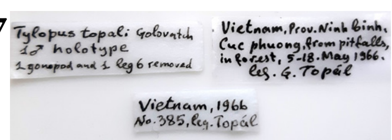

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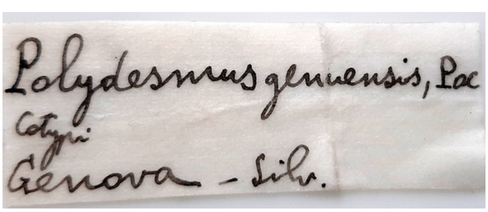

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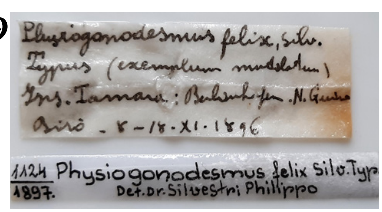

Figures 17–29. Labels and type specimens. 17 = Silvestri's label of *Protochordeuma gestri* Silvestri, 1898; 18 = Silvestri's label of *Diopsiiulus parvulus* Silvestri, 1899; 19–21 = Type specimens and labels of *Paradoxosoma granulatum* Daday, 1889, the type species of the family Paradoxosomatidae; 22 = Silvestri's label of *Strongylosoma italicum* Latzel, 1886; 23 = Label of *Brachydesmus attemsi tenkesensis* Loksa, 1962 typewritten by Loksa; 24 = Old inventory labels of Daday's *Brachydesmus Chyzeri* Daday, 1889; 25 = Old inventory labels of *Brachydesmus hungaricus* Daday, 1889; 26 = Old inventory labels of *Brachydesmus troglobius* Daday, 1889; 27 = Labels by Golovatch of *Tylopus topali* Golovatch, 1984; 28 = Silvestri's label of *Polydesmus genuensis* Pocock, 1895; 29 = *Plusigonodesmus felix* Silvestri, 1899: Silvestri's label "*Plusigonodesmus felix*, Silv. Typus (exemplum mutilatum) Ins. Tamara: Berlinhafen, N. Guinea, Biró 8–18.XI.1896" and the old inventory label.

168. *Polydesmus montanus* Daday, 1889

Type material (n = 5) – three male and two female syntypes (in several pieces) (HNHM diplo–04470, 830/1888), [Romania]: Transylvania, Comit. Kolos, Vlegyásza, Oncsászai-barlang, leg. Ö. Tömösváry.

Original description – Daday (1889*a*): p. 69, pl. 2: fig. 6.

Current status – *Polydesmus montanus* Daday, 1889 (Loksa 1954, Kime & Enghoff 2011).

Remarks – They are not marked as "type" on the label, it is written only that "Det. Dr. Daday", but because the locality corresponds to the one mentioned in the original description, the specimens may be considered as type series.

169. *Polydesmus pulcher* Silvestri, 1894

Type material (n = 4) – four female syntypes (in several pieces) (HNHM diplo–04461, 1110/1897), Italy: Nemi (Roma), 1897*, leg. F. Silvestri.

Original description – Silvestri (1894*a*): pp. 43–44, fig. 5.

Current status – *Polydesmus pulcher* Silvestri, 1894 (Kime & Enghoff 2011).

Remarks – On the label (with Silvestri's original handwriting) the locality is written as "Nemi (Roma)", whereas in the paper "Sub saxis ad montes Sublacenses (Subiaco)" is given.

170. *Polydesmus transylvanicus* Daday, 1889

Type material (n = 1) – holotype (specimen in several undefineable fragments) (HNHM diplo–04471, 830/1888), [Romania]: Comit. Hunyad, Déva, 1888*, leg. Ö. Tömösváry

Original description – Daday (1889*a*): p. 69, pl. 2: fig. 13.

Current status – *Polydesmus transsylvanicus* Daday, 1889 (Loksa 1954).

Remarks – The specimen is in very bad condition, even its sex cannot be determined. According to the original description (Daday 1889*a*) it must have been a male. There are two papers by Daday (1889*a*, 1889*b*) where he described the species as new (and used the abbreviation „n. sp.") with essentially the same text. However, because figures were only published in Daday (1889*a*), we consider this publication as the original one. Loksa (1954) as first reviser used the name *Polydesmus transsylvanicus* with two "s".

Aphelidesmidae, Chelodesmidae, Cryptodesmidae, Gomphodesmidae, Haplodesmidae, Opisotretidae, Platyrhacidae, Pyrgodesmidae, Xystodesmidae

171. *Cryptocorypha (Afrocorypha* n. subgen.*) nympha* Loksa, 1967
Type material (n =1) – holotype male (in two pieces, gonopods removed and missing) (HNHM diplo–04234), Brazzaville–Congo [Republic of Kongo]: Brazzaville, ORSTOM Park, soil traps in forest of park (24 traps for 14 days), 16 January 1964, (No. 695), leg. J. Balogh & A. Zicsi.
Original description – Loksa (1967*b*): pp. 218–219, fig. 21.
Current status – *Cryptocorypha nympha* Loksa, 1967 (Pyrgodesmidae) (Golovatch *et al.* 2017, Golovatch 2019).
Remarks – Loksa (1967) erected the new subgenus *Afrocorypha* for this species, which was elevated to genus level by Hoffman (1980*a*), but later synonymized under *Cryptocorypha* Attems, 1907 by Golovatch *et al.* (2017).

172. *Endioporus plasticus* ssp. *congoensis* Loksa, 1967
Type material (n = 14) – four male paratypes (intact), two male paratypes (in several pieces, one with gonopods removed and missing) (HNHM diplo–04238), Brazzaville–Congo [Republic of Kongo]: Sibiti, IRHO, primary forest, pitfall traps, 1 December 1963, (Nos. 316, 317), leg. J. Balogh & A. Zicsi; juvenile paratype (intact) (HNHM diplo–04239), Brazzaville–Congo [Republic of Kongo]: Kindamba, Meya village, 4 November 1963, (No. 102), leg. J. Balogh & A. Zicsi; male paratype (intact) and another male paratype (in three pieces) (HNHM diplo–04240), Brazzaville–Congo [Republic of Kongo]: Sibiti, IRHO, primary forest, 24 November 1963, (No. 227), leg. J. Balogh & A. Zicsi; male and two juvenile paratypes (all intact) (HNHM diplo–04241), Brazzaville–Congo [Republic of Kongo]: Sibiti, IRHO, sifted from litter layer of rain forest, 29 November 1963, (No. 292), leg. J. Balogh & A. Zicsi; male paratype (in two pieces), and female paratype (intact) (HNHM diplo–04242), Brazzaville–Congo [Republic of Kongo]: Sibiti, IRHO, singled in litter layer of rain forest, 29 November 1963, (No. 294), leg. J. Balogh & A. Zicsi.
Original description – Loksa (1967*b*): pp. 217–218, figs 19–20.
Current status – *Endioporus plasticus congoensis* Loksa, 1967 (Cryptodesmidae) (Loksa 1967*b*).
Remarks – In the original publication only six males, four females and one juvenile specimens were mentioned. The holotype was not individually marked from the localities No. 316, 317 and 318, so all the specimens found are considered here as paratypes.

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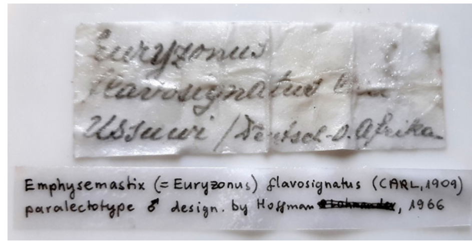

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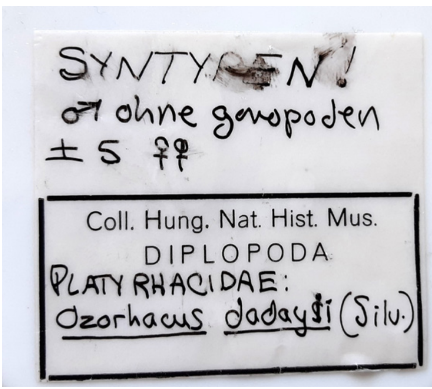

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Figures 30–33. Type specimens and their labels. 30–31 = *Euryzonus flavosignatus* Carl, 1909: paralectotype male and Carl's label; 32–33 = *Eutrachyrhachis Dadayi* Silvestri, 1899: Hoffman's label and female syntype.

173. *Euryurus flavocarinatus* Daday, 1889

Type material (n = 1) holotype female (intact) (HNHM diplo–04428, 799/1887), Mexico, 1887*, leg. J. Vadona.

Original description – Daday (1889*c*): p. 137.

Current status – uncertain.

Remarks – During his visit to the HNHM in 1980, Hoffman labeled the jar as "*Amplinus flavocarinatus* holotypus female", and placed the taxon in the family Aphelidesmidae, These actions, however, were never published, so without having seen the specimen, Jorgensen (2004) considered *Euryurus flavocarinatus* as "*incertae sedis*".

174. *Euryzonus flavosignatus* Carl, 1909

Type material (n = 1) – male paralectotype (in two pieces with intact gonopods) (HHHM diplo–04380, 1268/1911), East Africa, Tanzania [today Burundi]: Ussuwi (in the paper: Kagera bis Njarowungo in Ost–Ussuwi, im Busch, October 1908), 1911*, leg. J. Carl.

Original description – Carl (1909): pp. 307–309, pl. 6: fig. 15.
Current status – *Emphysemastix flavosignatus* (Carl, 1909) (Gomphodesmidae) (Hoffman 1966, 2005b).
Remarks – According to Hoffman (1966, 2005*b*) several type specimens exist, distributed among different museums. He clearly designated a lectotype male from MHNG holdings (Hoffman 1966), although it was not acknowledged by Hollier *et al.* (2020). Accordingly, the male specimen in HNHM, with Carl's original label "*Euryzonus flavosignatus* Carl Ussuwi / Deutsch–O. Afrika" has been checked and labeled as paralectotype after Hoffman (1966). (Figs 30–31)

175. *Eutrachyrhachis Dadayi* Silvestri, 1899 (Fig. 33)
Type material (n = 6) – male syntype (without gonopods) and five female syntypes (all intact) (HNHM diplo–04427, 1124/1897), New Guinea: Erima (Astrolabebai), 25 October 1897, leg. L. Bíró.
Original description – Silvestri (1899): p. 208, pl. X–XI: figs 15–21.
Current status – *Ozorhacus dadayi* (Silvestri, 1899) (Platyrhacidae) (Jeekel 2007).
Remarks – On the original labels with Silvestri's handwriting, both in HNHM and GNHM, the locality appears as "Ruldemenge" or "Kuldemenye", "N. Guinea, Biro" (Figs 34–35). This was repeated by Korsós (1983) as well, but it is most probably a misreading of the Hungarian word "Küldeménye" meaning "delivery", written on the package sent by Daday, curator of the collection at that time, to Silvestri. A locality name "Ruldemenge" could not be found in the inventory book, nor in the detailed diaries by L. Bíró of New Guinea (Bíró 1923). It is a plausible assumption, corroborated by Dr. R. Poggi, Honorary Curator of GNHM, that Silvestri, not understanding Hungarian, wrote "Biro kuldemenye" on the label, when he received the package from HNHM. In the publication Silvestri (1899) already gave the locality as Erima (Astrolabebai). In the original description (Silvestri 1899) eight males and ten females are mentioned. According to Dr. Maria Tavano, curator of GNHM, the other specimens (7 males and 5 females) stored in alcohol and with microscope slides (Figure 36) are in GNHM. When Richard Hoffman visited the HNHM in 1980, he labeled the jar with *Ozorhacus dadayi* syntypes (Fig. 32), and the classification of the genus was followed by Jeekel (2007).

176. *Eutrichodesmus taiwanensis* Golovatch, Mikhaljova, Korsós et Chang, 2010
Type material (n =5) – two male and three female paratypes (HNHM diplo–04375), Taiwan: Taipei City, Wenshan Distr., Chih-Nan Temple, March 2002, leg. C.C. Chen *et al.*

Original description – Golovatch *et al.* (2010*b*): pp. 28–32, figs 1–2.
Current status – *Eutrichodesmus taiwanensis* Golovatch, Mikhaljova, Korsós et Chang, 2010 (Haplodesmidae) (Golovatch *et al.* 2010*b*).

177. *Opisthoporodesmus obtectus* Silvestri, 1899
Type material (n = 1) – male syntype (in three pieces without gonopods) (HNHM diplo–04376, 1124/1897), New Guinea: Ins. Tamara, Berlinhafen, 1897*, leg. L. Bíró.
Original description – Silvestri (1899): p. 206, pl. 60: figs 5–8.
Current status – *Opisthoporodesmus obtectus* Silvestri, 1899 (Opisotretidae) (Jeekel 1971).
Remarks – Silvestri in his description also published a gonopod figure (Silvestri 1899: fig. 8). Unfortunately, the individual in our collection lacks the gonopods and the corresponding segments; probably they were removed for a microscope slide, which can not be found in the HNHM. According to the information received from M. Tavano, in GNHM there are two more syntype specimens and also a typus slide.

178. *Oxyurus rosulans* Tömösváry, 1885
Type material (n = 3) – male syntype (in two pieces with intact gonopods), and two male syntypes (one with removed gonopods into separate microtube) (HNHM diplo–04429, 305/1870), Japan, Nagasaki, 1870*, leg. J. Xántus.
Original description – Tömösváry (1885): p. 69, pl. IV: fig. 18.
Current status – *Riukiaria rosulans* (Tömösváry, 1885) (Xystodesmidae) (Korsós *et al.* 2011).
Remarks – During his visit to the HNHM in 1980, Hoffman labeled the jar as "*Riukiaria rosulans* (Töm.) Nagasaki, male lectotype, 2 male lectoparatypes" (Fig. 37), but this action was never published. The generic classification of the species in *Riukiaria* Attems, 1938, proposed by Hoffman, was confirmed by Korsós *et al.* (2011).

179. *Paltophorus desaillyi* ssp. *paucistachys* Loksa, 1967
Type material (n = 2) – holotype male (in three pieces, only right gonopod *in situ*) (HNHM diplo–04367), Brazzaville–Congo [Republic of Kongo]: Nr. 295, Sibiti, IRHO–Urwald, 29 November 1963, leg. J. Balogh & A. Zicsi; male paratype (in three pieces without gonopods) (HNHM diplo–04368), Brazzaville–Congo [Republic of Kongo]: Nr. 317, Sibiti, IRHO-Urwald, 1 December 1963, in Bodenfallen des Urwaldes, leg. J. Balogh & A. Zicsi.
Original description – Loksa (1967*b*): pp. 210–211, figs 8–10.
Current status – *Basacantha paucistachys* (Loksa, 1967) (Chelodesmidae) (Demange & Mauriès 1975).

180. *Paltophorus taeniatus* Loksa, 1967
Type material (n = 1) – holotype male (in three pieces, gonopods removed and missing) (HNHM diplo–04236), Brazzaville–Congo [Republic of Kongo]: Kindamba, Meya, 11 November 1963, (No. 167), leg. J. Balogh & A. Zicsi.
Original description – Loksa (1967*b*): pp. 213–214, figs 14–15.
Current status – *Basacantha taeniatus* (Loksa, 1967) (Chelodesmidae) (Demange & Mauriès 1975).

181. *Paltophorus velifer* Loksa, 1967
Type material (n = 1) – holotype male (gonopods missing) (HNHM diplo–04235), Brazzaville–Congo [Republic of Kongo]: Reservat Lefinie, Mbéokala primary forest, 10 January 1964, (No. 638), leg. J. Balogh & A. Zicsi.
Original description – Loksa (1967*b*): pp. 214–215, figs 16–17.
Current status – *Basacantha velifer* (Loksa, 1967) (Chelodesmidae) (Demange & Mauriès 1975).

182. *Paracordyloporus capreolus* Loksa, 1967
Type material (n = 1) – holotype male (gonopods missing) (HNHM diplo–04237), Brazzaville–Congo [Republic of Kongo]: Sibiti, IRHO oil palm plantation, 23 November 1963, (No. 224), leg. S. Endrődy-Younga.
Original description – Loksa (1967*b*): pp. 215–216, fig. 18.
Current status – *Paracordyloporus capreolus* Loksa, 1967 (Chelodesmidae) (Demange & Mauriès 1975).

183. *Riukiaria jamila* Tanabe, 1990
Type material (n = 3) – male paratype (HNHM diplo–4452), Japan: Kagoshima-ken, Yaku-shima Island, Yaku-cho, Kurio, along Oku-rindo, 200 m from the entrance, 12 May 1987, leg. T. Tanabe; male paratype (HNHM diplo–4453), Japan: Kagoshima-ken, Yaku-shima Island, Yaku-cho, along Oku-rindo, 200 m from the entrance, 26 April 1986, leg. A. Moroto; female paratype (HNHM diplo–4454), Japan: Kagoshima-ken, Yaku-shima Island, Yaku-cho, Kurio, along Oku-rindo, 200 m from the entrance, 12 May 1987, leg. T. Tanabe.
Original description – Tanabe (1990): pp. 444–447, figs 1–16.
Current status – *Riukiaria jamila* Tanabe, 1990 (Xystodesmidae) (Korsós *et al.* 2011).

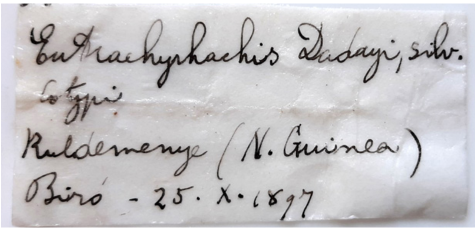
184. *Riukiaria maculata* Korsós, Nakamura et Tanabe, 2011
Type material (n = 4) – two female and two juvenile paratypes (HNHM diplo–04451), Japan: Northern Ryukyus, Osumi Group, Tane-ga-shima Island, Nakatane Town, Cryptomeria mixed forest close to the airport, 260 m alt., N30.6401° E130.9797°, 7 July 2010, (No. 238), leg. R. & Z. Korsós.
Original description – Korsós *et al.* (2011): pp. 58–62, figs 2–3, 7–13.
Current status – *Riukiaria maculata* Korsós, Nakamura et Tanabe, 2011 (Xystodesmidae) (Korsós *et al.* 2011).

185. *Riukiaria mundyi* Korsós, Nakamura et Tanabe, 2011
Type material (n = 17) – male, three female and two juvenile paratypes (HNHM diplo–04448), Japan: Southern Ryukyus, Yaeyama Group, Yonaguni-jima Island, Mt. Dunandake, primary forest, N24.4577° E122.9711°, 146 m alt., 31 August 2009, (No. 27), leg. Z. Korsós & Y. Nakamura; female paratype (in five pieces, right vulva removed into separate microtube) (HNHM diplo–04449), Japan: Southern Ryukyus, Yaeyama Group, Yonaguni-jima Island, Mt. Dunandake, primary forest, N24.4577° E122.9711°, 146 m alt., 31 August 2009, (No. 27), leg. Z. Korsós & Y. Nakamura; three male, four female and three juvenile paratypes (HNHM diplo–04450), Japan: Southern Ryukyus, Yaeyama Group, Yonaguni-jima Island, Kubura-bari, N24°27.4' E122°56.6', 50 m alt., rocky grassland, 14 February 2010, (No. 157), leg. R. & Z. Korsós.
Original description – Korsós *et al.* (2011): pp. 62–66, figs 4–6, 14–19.
Current status – *Riukiaria mundyi* Korsós, Nakamura et Tanabe, 2011 (Xystodesmidae) (Korsós *et al.* 2011).

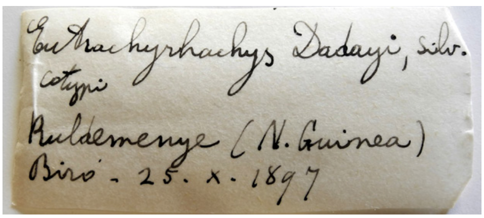
Polydesmida *incertae sedis*

186. *Plusiogonodesmus felix* Silvestri, 1899
Type material (n = 1) – syntype (probably male) (in five pieces) (HNHM diplo–04379, 1124/1896), New Guinea: Ins. Tamara, Berlinhafen, 8–18 November 1896, leg. L. Bíró.
Original description – Silvestri (1899): p. 209, pl. XI–XII: fig. 22–26.
Current status – *Plusiogonodesmus felix* Silvestri, 1899 (Silvestri 1899).
Remarks – The original label of Silvestri was misread as "*Physiogonodesmus*" in the earlier inventory record (Fig. 29). In the generic description of "*Plusiogonodesmus* nov." Silvestri wrote "*Exemplum incompletum*: *9 segmenta*" (on the label: "*exemplum mutilatum*"), which is in agreement with the five small fragments found (head, collum, three midbody segments), and their shape corresponds to the figures published (Silvestri 1899: figs 23–24). Gonopods were also illustrated (Silvestri 1899: fig. 26), and a typus slide exists in GNHM (M. Tavano, *pers. comm.*).

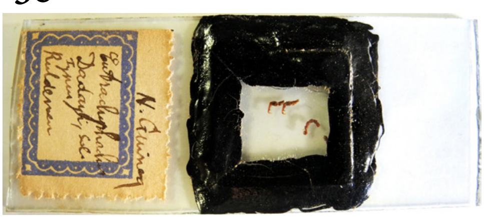
34



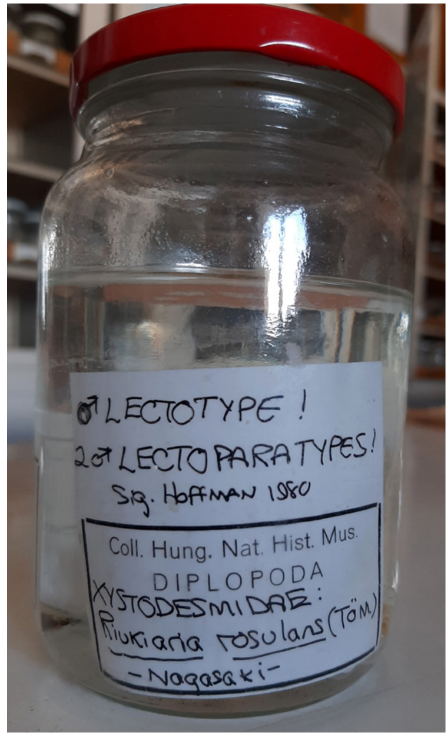
35



36



37



Figures 34–37. Labels and type specimens. 34 = Silvestri's label of *Eutrachyrhachis Dadayi* Silvestri, 1899, with the locality "Ruldemenge" (Korsós 1983) or "Kuldemenye" (HNHM); 35 = Silvestri's identical label of *Eutrachyrhachis Dadayi* in the Genova Museum (photo: M. Tavano, GNHM); 36 = Microscope slide of *Eutrachyrhachis Dadayi* made by Silvestri in the Genova Museum (photo: M. Tavano, GNHM); 37 = *Riukiaria rosulans* (Tömösváry) jar with Hoffman's label.

MISSING TYPES

In this part of the paper we provide a list 53 species-group names (Nos 187–239) which, according to their original descriptions, should have type material deposited in the Myriapod Collection of the HNHM. The names here are listed in alphabetical order under the millipede orders (Table 2). The species described by Daday (1891) from ZSUH are all missing, as well as those described by Loksa (1960*a*) from Chinese caves. The possible reasons are explained under the Discussion. Because no specimens could be found, under the "Type material" we can only list details about the number of type specimens (if available), locality and collector, and the status of the types [between squared brackets] implied from the original description.

Polyxenida

187. *Trichoproctus Birói* Silvestri, 1899

Type material – New Guinea: Ins. Tamara (Berlinhaven), leg. L. Biró [syntypes].

Original description – Silvestri (1899): p. 205, fig. 2.

Current status – *Trichoproctus biroi* (Silvestri, 1899), *incertae sedis* (Nguyen Duy-Jacquemin & Geoffroy 2003).

Remarks – Silvestri (1899) erected a new genus for this species. Both are listed as *incertae sedis* by Nguyen Duy-Jacquemin & Geoffroy (2003).

Glomerida

188. *Gervaisia noduligera* ssp. *hungarica* Jermy, 1942

Type material – six males and one female, [Romania]: Nagysomkút (= Șomcuta Mare), Törökfalu (= Buciumi), 15 September 1940, leg. A. Kesselyák; 1 male, Gyulaszeg (= Ciula), 11 June 1941, leg. T. Jermy [syntypes]

Original description – Jermy (1942): p. 60, pl. XI: fig. 201.

Current status – *Trachysphaera schmidtii* Heller, 1858 (Antić *et al.* 2021).

Remarks – The genus name *Gervaisia* Waga, 1858 was preoccupied by the name *Gervaisia* Bonaparte, 1854 (Aves), its senior synonym became *Trachysphaera* Heller, 1858 (Jeekel 1971). In addition, *Gervaisia noduligera* Verhoeff, 1906, turned out to be a junior subjective synonym of *Trachysphaera schmidtii* Heller, 1858 (Sillaber 1987). Jermy's subspecies does not show substantial differences, so it is not accepted (Antić *et al.* 2021).

189. *Glomeris simplex* Tömösváry, 1880

Type material – only locality mentioned, [Romania]: Trányis (= Tarányos = Tranişu; Cluj county) [syntypes].

Original description – Tömösváry (1880): p. 33, figs 12–14.

Current status – uncertain.

Remarks – Jermy (1942) could not find Tömösváry's specimens, so he could not confirm its status. He only referred to Daday (1889*a*), who wrote that in his opinion *G. simplex* Tömösváry was close to *G. tyroliensis* Latzel, 1884 (= *Onychoglomeris tyrolensis*) or may even be the same. The species is listed as "uncertain – *nomen dubium*" in *MilliBase* (Sierwald & Spelda 2023).

190. *Trachysphaera Transylvanica* Tömösváry, 1880
Type material – four specimens, [Romania]: Vlegyásza (=Vlădeasa), Oncsásza cave, 10 September 1878, leg. Ö. Tömösváry [syntypes].
Original description – Tömösváry (1880): pp. 31–32, figs 1–8.
Current status – uncertain.
Remarks – Jermy (1942), referring to Daday (1889*a*), writes that *T. transylvanica* is identical with *Gervaisia costata* var. *acutula* Latzel, 1884 (= *Trachysphaera schmidtii* Heller, 1858: Antić *et al.* 2021). However, because he could not find Tömösváry's specimens, he could not confirm its status, and considered it as "*incertae sedis*". It is also listed as "uncertain – *nomen dubium*" in *MilliBase* (Sierwald & Spelda 2023).

Julida

191. *Allotyphloiulus polypodus* Loksa, 1960
Type material – male and female, Hungary: Bükk Mts., Lillafüred, Forrás (Anna) cave, pitfall trap, September 1958–April 1959, leg. I. Loksa [syntypes].
Original description – Loksa (1960*b*): p. 418, figs 12–16.
Current status – *Typhloiulus polypodus* (Loksa, 1960) (Korsós 1994; Vagalinski *et al.* 2015).
Remarks – According to the description, the types were deposited in the Department of Zoosystematics of ELTE. Unfortunately, no specimens were found there, nor in the HNHM. The species was first mentioned by Loksa as *Allotyphloiulus bükkensis* (Loksa 1962*a*: as *nomen nudum* in the Table). Sziráki (1966) listed it as *Cylindroiulus polypodus*.

192. *Brachyiulus pusillus* ssp. *kaszabi* Loksa, 1956
Type material – 47 adults and juveniles, Hungary: Sukoró, Lake Velence shore, extracted from reed detritus, 12 November 1951, leg. Z. Kaszab; 4 juveniles, Hungary: Sukoró, Lake Velence shore, extracted from under willows, 12 November 1951, leg. Z. Kaszab [syntypes].
Original description – Loksa (1956): p. 389, figs 5–6.
Current status – *Brachyiulus bagnalli* (Curtis, 1845) (Korsós 1994).
Remarks – In the original paper no details about the deposition of type material were given. The synonymy with *B. bagnalli* was established on the basis of the gonopod drawings by Korsós (1994). The subspecies was named after Zoltán Kaszab (1915–1986), coleopterist and general director of the HNHM.

193. *Choneiulus franzi* Loksa, 1967
Type material – several males and females, Spain: Canary Islands, Tenerife, Anaga-Gebirge, Pico del Ingles, 8–13 April 1965; Montes de las Mercedes,

8–13 April 1965; südlich Erjos, 4 April 1965; Fruca, östlich Tacofonte, 5 April 1965; Barranco zwischen San Juan de la Rambla und Puerto de la Cruz, 4 April 1965; Spain, Canary Islands, La Gomera, Monje el Cedro, 22 April 1965; Monte de Asure, 21 April 1965, leg. H. Franz [syntypes].
Original description – Loksa (1967*a*): pp. 138–140, figs 15–25.
Current status – *Acipes franzi* (Loksa, 1967) (Enghoff 1983).

194. *Chromatoiulus bicolor* Loksa, 1970
Type material – seemingly a single male, [Greece]: Rhodes, without details of locality, April 1966, leg. H. Franz [holotype?].
Original description – Loksa (1970): p. 268, figs 22–23, 25.
Current status – *Italoiulus bicolor* (Loksa, 1970) (Vagalinski & Lazányi 2018).
Remarks – Although type specimens could not be found, the original drawings were sufficiently good enough for serving as a solid basis to transfer the species into the genus *Italoiulus* Attems, 1940.

195. *Chromatoiulus bosniensis* ssp. *cotinophilus* Loksa, 1962
Type material – three males and two females, Hungary: Keszthely Mts, Pető Hill, pitfall trap, May–November 1960, leg. I. Loksa [syntypes].
Original description – Loksa (1962*b*): p. 163, figs 42–43.
Current status – *Megaphyllum bosniense* (Verhoeff, 1897) (Lazányi & Vagalinski 2013).
Remarks – Although type specimens could not be found, the original drawings were sufficiently good enough for serving as a solid basis to prove the synonymy of the subspecies.

196. *Leptophyllum tatranum* ssp. *evae* Loksa, 1968
Type material – male, Hungary: Bükk Mts, Szalajka valley, October 1949, leg. É. Wenk [holotype].
Original description – Loksa (1968): pp. 61–62, figs 28–29.
Current status – *Enantiulus tatranus* (Verhoeff, 1907) (Lazányi & Korsós 2009).
Remarks – The description is based on a single male with gonopods illustrated. Deposition of type material is not mentioned in the paper.

197. *Microiulus imbecillus* ssp. *beszkidensis* Loksa, 1957
Type material – male ("Androptypus"), Poland: Northeast Carpathian Mts, Mt. Beszkid, leg. K. Chyzer [holotype].
Original description – Loksa (1957): p. 194, fig. 5.
Current status – uncertain.

Remarks – The short description was published together with the revision of Daday's millipede collection (Loksa 1957). It is based on a single male with gonopods illustrated, and the type was supposedly deposited in the Department of Zoosystematics of ELTE. A more detailed population study on new material is needed to clarify its status.

198. *Microiulus laeticollis* ssp. *evae* Loksa, 1965
Type material – male and female, Hungary: Somogy county, Nagybajom, 15 September 1964, leg. I. Loksa [syntypes].
Original description – Loksa (1965): pp. 217–218, figs 1–9.
Current status – uncertain.
Remarks – The description is based on a male (gonopods illustrated) and a female. Deposition of type material is not mentioned in the paper. The subspecies is accepted in *MilliBase* (Sierwald & Spelda 2023), but a more detailed population study on new material may confirm its validity.

199. *Ophiiulus fallax* ssp. *brevispinosus* Loksa, 1962
Type material – specimen number unknown, Hungary: Mts Mecsek, Villány Hills, Tenkes Hill; Hungary: Tolnai Hills, without exact locality details [syntypes].
Original description – Loksa (1962*b*): pp. 162–163, figs 35–41.
Current status – uncertain.
Remarks – The status of the species *Ophiiulus fallax* (Meinert, 1868) has been clarified as *Ophyiulus pilosus* (Newport, 1843) (Jeekel 1971). According to Loksa's description, several specimens were collected in two localities. No details about the deposition of type material were given. In order to clarify the identity of the subspecies a more detailed population study on new material is needed.

200. *Styrioiulus pelidnus* ssp. *orientalis* Loksa, 1962
Type material – several specimens, Hungary: "Vindornyaszöllős, 20 km von Keszthely, auf dem Kovács-Berg in einem Tilio-Fraxinetum Bestand", leg. J. Papp [syntypes].
Original description – Loksa (1962*b*): p. 160, figs 12–13.
Current status – uncertain.
Remarks – According to the description, several specimens ("einige Exemplare") served as basis for the description, but no details about the deposition of type material were given. Although the subspecies is accepted in *MilliBase* (Sierwald & Spelda 2023), probably a more detailed population study on new material is needed to establish its validity.

Spirobolida

201. *Spirobolus coeruleolimbatus* Daday, 1891
Type material – male, [Australia]: Queensland [holotype].
Original description – Daday (1891): pp. 139–140, pl. VII: figs 6–7.
Current status – *Salpidobolus coeruleolimbatus* (Daday, 1891) (Marek *et al.* 2003).
Remarks – Chamberlin (1920) listed the species as *Dinematocricus coeruleolimbatus* (Daday, 1891); Jeekel (2001*c*) listed it under "uncertain generic position". Hoffman (1974) synonymized the genus *Dinematocricus* under *Salpidobolus*, and Marek *et al.* (2003) listed it as *Salpidobolus coerulolimbatus* (Daday, 1891) (erroneously spelled), and attributed the synonymy to Hoffman (1974), who actually did not mention Daday's species.

202. *Spirobolus ferrugineus* Daday, 1889
Type material – the description only mentioned a single specimen kept in ethanol, collected by Dr. I. Vereby in Panama [holotype].
Original description – Daday (1889*c*): p. 130.
Current status – *Anadenobolus ferrugineus* (Daday, 1889) (Hoffman 1999, Marek *et al.* 2003).
Remarks – Based on the short description without illustration, the species was transferred to the genus *Rhinocricus* Karsch, 1881 by Pocock (1910).

203. *Spirobolus politus* Daday, 1891
Type material – female, [India]: India orientalis [holotype].
Original description – Daday (1891): pp. 138–139.
Current status – uncertain.
Remarks – There is the senior, homonymous taxon *Spirobolus politus* Porat, 1888, known at present as *Anadenobolus politus* (Porat, 1888) in the family Rhinocricidae (Marek *et al.* 2003). Because Daday's type is missing, and the description is based on a single female, its status probably will never be clarified.

204. *Spirobolus virescens* Daday, 1891
Type material – female, [Trinidad and Tobago]: Insula Trinidad [holotype].
Original description – Daday (1891): p. 140, pl. VII: figs 8–10.
Current status – *Anadenobolus monilicornis* (Porat, 1876) (Pocock 1893).
Remarks – Based on the original description and the drawings, the species was synonymized with *Spirobolus monilicornis* Porat, 1876, now classified as *Anadenobolus monilicornis* (Porat, 1876) (Marek *et al.* 2003, Bueno-Villegas *et al.* 2019).

Spirostreptida

205. *Sechelleptus unilineatus* Golovatch et Korsós, 1992
Type material – female and six juvenile paratypes, Seychelles: Silhouette Isl., oligodominant tropical forest, Mt. Pot-à-Eau, 550 m, 23 August 1984, leg. S. I. Golovatch.
Original description – Golovatch & Korsós (1992): pp. 21–24, figs 46–49.
Current status – *Sechelleptus unilineatus* Golovatch et Korsós, 1992 (Golovatch & Korsós 1992)
Remarks – According to the original paper, the holotype male, one male, one female and six juvenile paratypes were deposited in ZMMU. One female and 6 juvenile paratypes should be in HNHM, but unfortunately we did not find them.

206. *Spirobolus ater* Tömösváry, 1885
Type material – two males, [Malaysia]: Borneo, Matang, leg. J. Xántus [syntypes].
Original description – Tömösváry (1885): p. 70, pl. V: figs 3–5.
Current status – *Rhynchoproctus ater* (Tömösváry, 1885) (Harpagophoridae) (Silvestri 1896*b*).
Remarks – Originally described as *Spirobolus* in Spirobolida, but Daday (1889*c*) later transferred it to another genus resulting the new combination *Spirostreptus ater* in Spirostreptida. He mentioned two specimens collected by Xántus in Matang, but those are also missing from the collection in HNHM. Silvestri (1896*b*) transferred the species to the genus *Rhynchoproctus* Pocock, 1894, a placement still considered to be valid (Pimvichai *et al.* 2010).

207. *Spirostreptus flavocingulatus* Daday, 1891
Type material – female, [USA]: California [holotype].
Original description – Daday (1891): p. 137, pl. VII: fig. 4.
Current status – uncertain.
Remarks – The species is missing from all North American faunal lists (Loomis 1968, Hoffman 1999), and it is listed as "uncertain – *nomen dubium*" in *MilliBase* (Sierwald & Spelda 2023).

208. *Spirostreptus gracilis* Daday, 1889
Type material – female in two pieces (HNHM diplo–04212, 648/14.c), [Indonesia]: Sumatra, 1883*, leg. J. Machik [holotype].
Original description – Daday (1889*c*): pp. 126–127.
Current status – uncertain.

Remarks – The specimen what we found in the HNHM had no original label whatsoever, only a handwritten note with the species name and the locality: "Sumatra". We recorded it in the inventory, but its type status cannot be confirmed. The name itself is preoccupied by *Spirostreptus gracilis* (Brandt, 1840) which is now *Zinophora gracilis* (Brandt, 1840) (Jeekel 2006).

209. *Spirostreptus maculatus* Daday, 1889

Type material – female, [Indonesia]: Sumatra, 1883*, leg. J. Machik (648/14.a) [holotype].

Original description – Daday (1889*c*): p. 126.

Current status – preoccupied (junior homonym).

Remarks – The name is preoccupied by *Spirostreptus maculatus* Newport, 1844, and also by *Spirostreptus maculatus* Karsch, 1881 (= *Callistodontopyge maculata* (Karsch, 1881)) (Jeekel 2006).

210. *Spirostreptus nitidus* Daday, 1891

Type material – five females, [Trinidad and Tobago]: Insula Trinidad [syntypes].

Original description – Daday (1891): pp. 137–138, pl. VII: fig. 5.

Current status – *Orthoporus nitidus* (Daday, 1891) (Chamberlin 1918).

Remarks – Chamberlin (1918) transferred the species to the genus *Orthoporus* Silvestri, 1897, and this combination has been accepted as valid by Krabbe (1982). Hoffman (1996) placed the species in the family Spirostreptidae.

211. *Spirostreptus sulcaticollis* Daday, 1891

Type material – three males and females (dry), [Venezuela]: Caracas [syntypes].

Original description – Daday (1891): pp. 136–137, pl. VII: figs 1–3.

Current status – *Orthoporus sulcaticollis* (Daday, 1891) (Krabbe 1982).

Remarks – It is a valid species as *Orthoporus sulcaticollis* in the family Spirostreptidae (Krabbe 1982, Bueno-Villegas *et al.* 2019).

212. *Spirostreptus unicolor* Daday, 1889

Type material – one specimen, [Indonesia]: Sumatra, 1883*, leg. J. Machik (648/14.b) [holotype].

Original description – Daday (1889*c*): p. 126.

Current status – uncertain.

Remarks – Inferred from the otherwise poor original description, it must have been based on a single female [holotype] specimen.

213. *Octoglyphus pulcher* Loksa, 1960
Type material – male and several females specimens, China: "aus der Höhle Nyu-Jie bei dem in der Nähe der Grenze gegen Vietnam gelegenen Dorf Pulung", 26–27 March 1959, leg. D. Balázs [syntypes].
Original description – Loksa (1960*a*): pp. 143–145, figs 32–38.
Current status – *Glyphiulus pulcher* (Loksa, 1960) (Murakami 1975).
Remarks – Based on the detailed description and the gonopod drawings, its valid status could be verified and confirmed (Golovatch *et al.* 2007).

214. *Trogloglyphus anophthalmus* Loksa, 1960
Type material – several male specimens, China: "aus der Höhle Nyu-Jie bei dem in der Nähe der Grenze gegen Vietnam gelegenen Dorf Pulung", 26–27 March 1959, leg. D. Balázs [syntypes].
Original description – Loksa (1960*a*): pp. 139–141, figs 17–24.
Current status – *Glyphiulus anophthalmus* (Loksa, 1960) (Mauriès & Nguyen Duy-Jacquemin 1997).
Remarks – Loksa (1960*a*) also introduced the new genus *Trogloglyphus* for his two new species, *T. anophthalmus* and *T. balazsi*, collected in Chinese caves. The status of the taxon in discussion is confirmed in the genus *Glyphiulus* Gervais, 1847 by Golovatch *et al.* (2007).

215. *Trogloglyphus Balázsi* Loksa, 1960
Type material – one male and one female specimens, China: "aus einer Wasserschlund-Höhle des Dorfes Lódjen in Süd-Kujtschoui", 27 January 1959, leg. D. Balázs [syntypes].
Original description – Loksa (1960*a*): pp. 141–142, figs 25–31.
Current status – *Glyphiulus balazsi* (Loksa, 1960) (Mauriès 1970).
Remarks – The species was named after Dénes Balázs (1924–1994), Hungarian geographer, traveller, founder of the Hungarian Geographical Museum in Érd. The status of theCurrent taxon in the genus *Glyphiulus* Gervais, 1847 is confirmed by Golovatch *et al.* (2007).

Chordeumatida

216. *Acrochordum (Heteracrochordum* subgen n.*) evae* Loksa, 1960
Type material – female, Hungary: Bükk Mts., near Bánkút, 15 September 1949, leg. Mrs. E. Loksa; one male and five juveniles, Hungary: Bükk Mts., Hosszúbérc, 20 July 1954, leg. I. Loksa [syntypes].
Original description – Loksa (1960*b*): pp. 414–415, figs 5–11.
Current status – *Heteracrochordum evae* (Loksa, 1960) (Mock *et al.* 2019).

Remarks – Loksa (1960*b*) established a new subgenus for the species, which was later elevated to genus level. According to the paper, the types were deposited in the Department of Zoosystematics of ELTE. In the HNHM we found one male and one juvenile specimen labeled by Loksa as "*Heteracrochordum evae*" (HNHM diplo–04536) (Fig. 38), but there is no supporting evidence that they can be considered as types.

217. *Ceratosoma (Triakantazona) caroli* ssp. *hungaricum* Loksa, 1968
Type material – specimen number unknown, Hungary: Bakony Mts, Zirc, Pintérhegy, 1947, leg. L. Szalay & I. Kovács; Hungary: Bakony, Miklóspálhegy, November 1965, leg. I. Loksa & Zs. Szombathelyi [syntypes].
Original description – Loksa (1968): pp. 57–59, figs 1–19.
Current status – uncertain.
Remarks – The number of specimens is not mentioned in the paper, but male gonopods are illustrated. Deposition of type material is also not mentioned. Without a more detailed study of new topotypic material the identity of the subspecies cannot be clarified.

218. *Ceratosoma (Triakantazona) caroli* ssp. *somlóense* Loksa, 1968
Material found: only one broken specimen (HNHM diplo–04243), Hungary: Somló Hill, October 1967, leg. I. Loksa [holotype].
Original description – Loksa (1968): pp. 60–61, figs 20–27.
Current status – uncertain.
Remarks – The number of specimens and deposition of type material is not mentioned in the paper. We have found a vial with a broken specimen (hind body part only) and a separate microtube with male gonopods. They are labeled with the name "*Ceratosoma caroli evae*" and corresponding locality ("Somló, 1967. X.") (Loksa's handwriting) (Fig. 39), so it is possible that this sample served as basis for the description where male gonopods were also illustrated. Without a more detailed study of new topotypic material the identity of the subspecies cannot be clarified.

219. *Craspedosoma transsylvanicum* f. *barcsicum* Loksa, 1981
Type material – specimen number unknown, Hungary: Baranya county, Barcs, *Juniperus* woodland, pitfall traps, 1975–1976, 1980–1981, leg. I. Loksa [syntypes].
Original description – Loksa (1981): p. 47, figs 1–3.
Current status – uncertain.
Remarks – No details on number of specimens, exact localities, or about the deposition of type material were indicated. The species *Craspedosoma transsylvanicum* Verhoeff, 1897 is now accepted as a subspecies of *Craspedosoma raulinsii* Leach, 1816 (Sierwald & Spelda 2023). Names

proposed as “forma” cannot be applied, but even the specific or subspecific status can only be clarified with a detailed study of new topotypic material.

220. *Craspedosoma transsylvanicum* f. *pákozdense* Loksa, 1956
Type material – 15 individuals, Hungary: Velencei Hills, Nadap, 24 October 1951, from litter sieving, leg. Z. Kaszab; 2 individuals, Hungary: Pákozd, Bella valley, 9 October 1951, leg. Z. Kaszab [syntypes].
Original description – Loksa (1956): pp. 385–386, fig. 1.
Current status – uncertain.
Remarks – In the paper 17 specimens were mentioned from two different localities as basis for the description. No details about the deposition of type material were indicated. The species *Craspedosoma transsylvanicum* Verhoeff, 1897 is now accepted as a subspecies of *Craspedosoma raulinsii* Leach, 1816 (Sierwald & Spelda 2023). Names propsed as “forma” cannot be applied, but even the specific or subspecific status can only be clarified with a detailed study of new topotypic material.

221. *Heteroporatia bosniense* ssp. *hungaricum* Loksa, 1953
Type material – seven male and nine female specimens, Hungary: Bátorliget, 30 September 1949, leg. Z. Kaszab; Hungary: 6 males and 20 females, Bátorliget, 29 September 1949, leg. J. Fodor; 47 males and 26 females, Hungary: Bátorliget, pitfall traps, 28 September–1 October 1949, leg. Z. Kaszab [syntypes].
Original description – Loksa (1953): pp. 179, figs 32–33.
Current status – *Mastigona bosniensis* (Verhoeff, 1897) (Lazányi & Korsós 2009).
Remarks – The description is based on a total of 60 male and 55 female syntypic specimens from the protected mire habitat in Bátorliget, W Hungary. No details about the deposition of type material were indicated. Based on newly collected topotypic material, the subspecific status was not considered convincing (Korsós 1991).

222. *Hylebainosoma tatranum* spp. *jósvaense* Loksa, 1962
Type material – two male specimens, Hungary: Aggtelek, Jósvafő, Nagyoldal, *Orno-Quercetum*, pitfall traps, September-November 1958, leg. I. Loksa [syntypes].
Original description – Loksa (1962*b*): pp. 158–159, figs 9–11.
Current status – uncertain.
Remarks – The description is based on two males with gonopods illustrated, and were supposedly deposited in the Department of Zoosystematics of ELTE. In his paper Loksa (1962) elevated Verhoeff’s *Hylebainosoma tatranum* var. *dudichi* (Verhoeff, 1941) to subspecific rank, and at the same

time described the new subspecies "*jósvaense*". Without type material the subspecific status can only be clarified with a detailed study of new topotypic material.

223. *Microchordeuma brölemanni* ssp. *gebhardti* Loksa, 1962
Type material – several male and female specimens, Hungary: Mecsek Mts, "Misinatető und Dömörkapu", 1959, leg. A. Gebhardt; same locality, pitfall traps, 1959–1960, leg. I. Loksa [syntypes].
Original description – Loksa (1962*b*): pp. 157–158, figs 1–7.
Current status – uncertain.
Remarks – According to the original description, the "Typus" should have been deposited in the collection of the Janus Pannonius Museum, Pécs, South Hungary, but we could not find it there. It was named after Antal Gebhardt (1887–1972), Hungarian biologist and cave researcher, explorer of the Abaliget Cave, Mecsek Mts, South Hungary. The species itself is listed as *Melogona broelemanni* (Verhoeff, 1897) by Kime & Enghoff (2021). Without type material the subspecific status can only be clarified with a detailed study of new topotypic material.

224. *Microchordeuma transsilvanicum* ssp. *hungaricum* Sziráki, 1967
Type material – specimen number unknown, Hungary: Nógrád county, Karancs Hill, Kercseg hilltop, 1 March 1966, leg. Gy. Sziráki [syntypes].
Original description – Sziráki (1967): pp. 259–261, figs 1–5.
Current status – uncertain.
Remarks – No details of the type material, including its depository, are known. The subspecies was initially accepted by Korsós (1994, 1998) under *Melogona transsilvanica* (Verhoeff, 1897). Without type material the subspecific status can only be clarified with a detailed study of new topotypic material.

Stemmiulida

225. *Diopsiulus (Plusiochaeturus) Madaraszi* Silvestri, 1916
Type material – several male specimens, "Exempla descripta a Cl. Dr. J. Madarasz, cui species dicata est, ad Kala-wera (Ceylan) lecta sunt." (The specimens described by Dr. J. Madarasz, to whom the species is dedicated, were collected at Kala-wera, Ceylon) [syntypes].
Original description – Silvestri (1916): pp. 339–340, figs XLVI: 1–13.
Current status – *Diopsiulus madaraszi* Silvestri, 1916 (Silvestri 1916).
Remarks – According to the original publication, male specimens (with gonopods illustrated) were probably collected by (and named after) Gyula Madarász (1858–1931), Hungarian ornithologist and nature illustrator of

the Hungarian National Museum who conducted a collecting trip to Ceylon in 1895–1896. The specimens were properly illustrated by SILVESTRI (1916).

226. *Stemmiulus Biroi* Silvestri, 1916
Type material – holotype, "Exemplum descriptum in M. Hanseman (Nova Guinea) L. Birò, cui species dicata est, legit." (The specimen described in M. Hanseman (New Guinea) by L. Biró, to whom the species is dedicated.).
Original description – SILVESTRI (1916): pp. 322–323, fig. XXX (1–5).
Current status – *Stemmiulus biroi* Silvestri, 1916 (SILVESTRI 1916).
Remarks – It is not clear what "M. Hanseman" means in the original description; however, it is for sure that the single specimen has been collected by L. Bíró in Papua New Guinea. It was probably a female, because no gonopods were illustrated.

POLYDESMIDA

227. *Centrodesmus longispinus* Loksa, 1960
Type material – a single male, China: "aus einer Höhle neben dem Dorf Pien-Ja in Mittel-Kuloui", 28 Januar 1959, leg. D. Balázs [holotype].
Original description – LOKSA (1960*a*): pp. 135–137, figs 1–11.
Current status – *Hylomus longispinus* (Loksa, 1960) (SRISONCHAI *et al.* 2018).
Remarks – The species was first transferred to *Desmoxytes* Chamberlin, 1923, then the new combination *Hylomus longispinus* was established (GOLOVATCH & ENGHOFF 1994, NGUYEN & SIERWALD 2010).

228. *Paltophorus tuberculifer* Loksa, 1967
Type material – holotype male, Brazzaville–Congo [Republic of Kongo]: Brazzaville, ORSTOM Park, Berlese sample, 27 December 1963, (No. 525), leg. J. Balogh & A. Zicsi; six male, six female and nine juvenile paratypes, from different localities (Nos. 215, 219, 248, 479, 492, 493, 526, 535, 543, 575, 648, 656, 695).
Original description – LOKSA (1967*b*): pp. 211–212, figs 11–13.
Current status – *Basacantha tuberculifer* (Loksa, 1967) (DEMANGE & MAURIÈS 1975).
Remarks – It is strange and disappointing that although all Brazzaville–Congo material have been found in the HNHM, the types of this species are missing.

229. *Polydesmus csikii* Loksa, 1954
Type material – specimen number unknown, [Romania]: Strázsa Hill, Vulkan Gorge, leg. E. Csiki [syntypes].

Original description – LOKSA (1954): p. 219, figs 13–14.
Current status – *Polydesmus csikii* Loksa, 1954 (TABACARU & NEGREA 1961).
Remarks – The species, even without available type material, is accepted by GIURGINCA *et al.* (2007), KIME & ENGHOFF (2011).

230. *Polydesmus edentulus bidentatus* f. *hungarica* Loksa, 1958
Type material – ten male and four female specimens, Hungary, Szakonyfalu, SW from Szentgotthárd, pitfall traps, 16 August–16 October 1957, leg. I. Loksa [syntypes].
Original description – LOKSA (1958): pp. 49–54, figs 1–12.
Current status – *Polydesmus edentulus* C. L. Koch, 1847 ssp. *bidentatus* Verhoeff, 1895 (KORSÓS 2001*a*).
Remarks – The infrasubspecific names proposed as "forma" cannot be applied in zoological nomenclature.

231. *Polydesmus geminidentatus* Loksa, 1954
Type material – male specimens (number unknown), [Ukraine]: Körösmező (Ясіня), Mts Mencsil, 1911, leg. E. Csiki [syntypes].
Original description – LOKSA (1954): p. 220, figs 15–17.
Current status – *Polydesmus geminidentatus* Loksa, 1954 (KOSYANENKO & CHUMAK 2008).

232. *Polydesmus graecus* ssp. *rhodosensis* Loksa, 1970
Type material – one male and four female specimens, [Turkey]: "Gebirge bei Marmaris, Gesiebe aus einem hohlen Baum und aus Moosrasen neben einem kleinen Gerinne", 12 April 1966, leg. H. Franz [syntypes].
Original description – LOKSA (1970): pp. 264–268, figs 12–21.
Current status – *Polydesmus graecus* Daday, 1889 ssp. *rhodosensis* (Loksa, 1970) (STRASSER 1976); ĆURČIĆ *et al.* 2001).
Remarks – Although the name of the taxon is "*rhodosensis*" but actually it was collected in Turkey, near the port city Marmaris to Rhodos island (Greece).

233. *Polydesmus griseoalbus* ssp. *kesselyáki* Loksa, 1954
Type material – specimen number unknown, [Romania]: Pálfa, 27 September 1940, leg. A. Kesselyák [syntypes].
Original description – LOKSA (1954): p. 221, fig. 26.
Current status – uncertain.
Remarks – It was named after Adorján Kesselyák (1906–1951) Hungarian zoologist. The species, *Polydesmus griseoalbus* Verhoeff, 1898, is listed without any subspecies in KIME & ENGHOFF (2011). As type material is not available, the subspecific status of the taxon can only be clarified with a detailed study of new topotypic material.

234. *Polydesmus hamatus* Loksa, 1960

Type material – three male and two female specimens, China: "aus einer Wasserschlund-Höhle neben dem Dorf Lódjen in Süd-Kujtschoui", 27 January 1959, leg. D. Balázs [syntypes].

Original description – Loksa (1960*a*): pp. 137–139, figs 12–16.

Current status – *Pacidesmus sinensis* (Golovatch & Hoffman, 1989) (Golovatch & Geoffroy 2006).

Remarks – *Polydesmus hamatus* Loksa, 1960 is a preoccupied name, becasue it is a junior primary homonym of *P. hamatus* Brandt, 1841; the latter has been transferred to *Dalodesmus* Cook, 1896 resulting the combination *D. hamatus* (Brandt, 1841) (Golovatch & Hoffman 1989). Without being able to examine the type material, based on the insufficient details of the gonopod drawings, the replacement name *Epanerchodus sinensis* Golovatch et Hoffman, 1989 was proposed. Overlooking this replacement name, Chen & Meng (1990) renamed *P. hamatus* Loksa, 1957 as *P. guizhouensis* Chen et Meng, 1990, but this name immediately became junior subjective synonym of *E. sinensis*, as pointed out by Golovatch (1991). Later, Golovatch & Geoffroy (2006) transferred the species-group name *sinensis* to the genus *Pacidesmus* Golovatch, 1991, resulting in the new combination *P. sinensis* (Golovatch et Hoffman, 1989). Golovatch *et al.* (2010) and Liu & Golovatch (2020) confirmed this placement.

235. *Polydesmus (Propolydesmus) miguelinus* ssp. *laevidentatus* Loksa, 1967

Type material – specimen number unknown, Spain: Canary Islands, Tenerife, "N-Hang des Teide-Massivs, oberhalb Oratava beim Brothaus de las Fuentes, Lorbeerwald, 1000 m", "Barranco oberhalb Oratava, 750 m", 7 April 1965, leg. H. Franz [syntypes].

Original description – Loksa (1967*a*): pp. 133–134, figs 1–9.

Current status – *Propolydesmus laevidentatus* (Loksa, 1967) (Djursvoll *et al.* 2001).

Remarks – The subspecies was first elevated to species level as *Polydesmus laevidentatus* (Loksa, 1967) by Vicente & Enghoff (1999), then transferred to the genus *Propolydesmus* Verhoeff, 1895 (Djursvoll *et al.* 2001), followed by Enghoff & Golovatch (2003), Arndt *et al.* (2008) and Kime & Enghoff (2011).

236. *Polydesmus monticola* ssp. *kőszegensis* Loksa, 1954

Type material – specimen number unknown, Hungary: Kőszegi Mts, 600 m, 13 July 1936, leg. S. Pongrácz [syntypes].

Original description – Loksa (1954): p. 219, fig. 5.

Current status – *Polydesmus monticola* Latzel, 1884 (Korsós & Lazányi 2020).

Remarks – Without type material available, in order to clarify the status of the taxon a detailed study of new topotypic material is necessary.

237. *Rachis californicus* Daday, 1891

Type material – holotype male (“specimen unicum”), [USA]: California.

Original description – Daday (1891): p. 142, pl. VII: fig. 12.

Current status – *Leptherpum californicum* (Daday, 1891) (Hoffman 1992).

Remarks – Unfortunately we could not find the type specimen, as it was already stated as lost by Hoffman (1992). The species, however, is widely accepted as *Leptherpum californicum* (Daday, 1891) (see e.g. Hoffman 1999).

238. *Strongylosoma mediterraneum* Daday, 1891

Type material – 33 male and female syntypes, [Greece]: Panormo (Graecia) and [Italy]: Palermo (Sicilia).

Original description – Daday (1891): p. 141, pl. VII: fig. 11.

Current status – *Stosatea italica* (Latzel, 1886) (Jeekel 1967).

Remarks – Despite the numerous specimens examined by Daday, we could not find any material under this name. Hoffman & Lohmander (1968) listed *Strongylosoma mediterraneum* under *Enthothalassinum* Attems, 1914, overlooking Jeekel’s publication (1967) one year earlier, where he established the priority of *Stosatea* Gray, 1843.

239. *Strongylosoma pallidicephalus* ssp. *franzi* Loksa, 1970

Type material – [Greece]: a single male, [Greece]: “Insel Rhodos zwischen Kolimbia und Arrgipolis”, 10 April 1966, leg. H. Franz [holotype].

Original description – Loksa (1970): pp. 263–264, figs 1–5.

Current status – *Tetrarthrosoma pallidicephalum* (Schubart, 1934) ssp. *franzi* (Loksa, 1970) (Sierwald & Spelda 2023).

MISCELLANEOUS MATERIAL

Glomerida

Glomeris hexasticha var. *cingulata* Daday, 1889

Material – female (intact) (HNHM diplo–00403, 830/1888, My 55.794); N. Parlag.

Original description – ?

Current status – uncertain.

Remarks – Although the specimen we found is labeled by Daday as “n. v.” (= “new variety”) we could not find any description in the relevant publications (Daday 1889*a*, 1889*b*, 1889*c*). Even the given locality “N. Parlag” is dubious and could not be found. The names proposed as individual variation (“varietas”) cannot be applied.

Julida

Cylindroiulus n. sp. Verhoeff, 1941

Material – two females (in pieces) (HNHM diplo–01898), [Slovakia]: Körmöcbánya, Nándor altáró [Nándor mine], 300 m mélyben [in 300 m depth], 20 August 1936, leg. E. Dudich.

Description: Verhoeff (1941): p. 239.

Current status – uncertain.

Remarks – Karl Wilhelm Verhoeff (1867–1945) has been in regular contact with Professor Endre Dudich (1895–1971), head of the Department of Zoosystematics of the Budapest University, from whom he frequently received myriapod material for identification. In the 1941 paper on page 239, Verhoeff mentioned a sample of females "Julidae? gen.", from: "K. 20. VIII. 1936 in Nándor-Erbstollen, etwa in 300 m Tiefe". "K." is Körmöcbánya. The given locality is the same as in our sample, labeled with "*Cylindroiulus* n. sp." by Verhoeff (Fig. 40). As it is stated in the paper that "Es ist nicht möglich ohne Kenntnis der Mänchens über die Stellung dieser Form ins Klare zu kommen", we can only add that these female specimens have an unclarified identity.

Chordeumatida

Atractosoma bensae Silvestri, ?

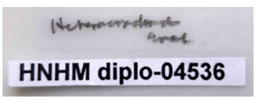
Material – male (in three pieces with intact gonopods), and female "cotypi"(intact) (1110/1897, HNHM diplo–04456), Italy: Genova, Gr. Pollera, 1897*, leg. F. Silvestri.

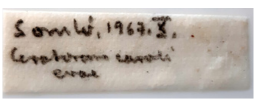
Original description – ?

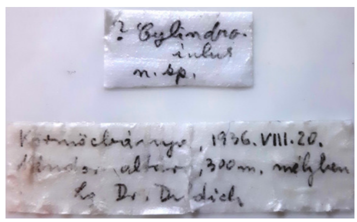
Current status – *nomen nudum.*

Remarks – It seems that "*Atractosoma bensae*" as a new species has never been described by Silvestri, although he labeled the specimens as "*cotypi*" (Figs 42–43). The name itself (*A. bensae*) appears in some publications (Bensa 1900: p. 106, Verhoeff 1900*b*: p. 391, Franciscolo 1951: p. 51, Bologna & Vigna-Taglianti 1985 p. 189), but without proper description, therefore it is a *nomen nudum*. Moreover, from the original locality, Pollera cave, only one chordeumatid millipede is known, and that is *Litogona* (originally *Atractosoma*) *hyalops* (Latzel, 1889) (Manfredi 1932, 1953). Based on the superficial comparison of the drawings by Latzel (1889: figs 3–4) and Manfredi (1953: figs 8–9), most probably *A. bensae* is identical with this species. This has already been foreseen by Verhoeff (1900*b*: p. 391): "Ich erhielt vom Autor 1 ♀ zugesandt. Silvestri tauschte mir 1 ♂ ein, das aus der Grotta Pollera in Ligurien stammt, unter dem Namen "*Atractosoma Brusae* [this is certainly a misreading of "*Bensae*"] Silv. i. litt." Eine genauere

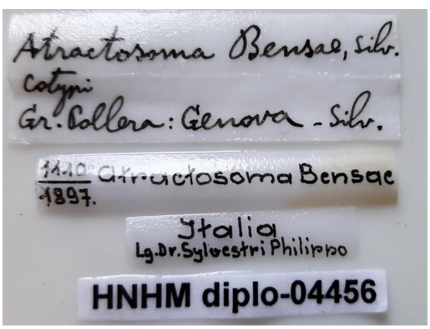
Prüfung ergab, dass es sich zweifellos um *hyalops* Latz. handelt. Die Abbildungen, welche L. seiner Diagnose beigab, sind zwar roh und morphologisch ganz unrichtig, aber sie lassen sich doch mit grosser Wahrscheinlichkeit auf das mir von S. gesandte Thier beziehen." Later, Franciscolo (1951: p. 51) also wrote that he got the information directly from Silvestri, that "the species is still waiting for description", and "it cannot be excluded that it is a synonymy of *A. hyalops* Latzel". Since we have a male specimen with intact gonopods, with a more detailed investigation it would be worthwhile to prove all this assumptions.

38


39


40


41


42


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Figures 38–43. Labels and type specimens. 38 = Label of the possible type of *Heterachrochordum evae* (Loksa, 1960) with Loksa's handwriting; 39 = Label of the possible type of *Ceratosoma caroli somlóense* Loksa, 1968, with Loksa's handwriting "*Ceratosoma caroli evae*"; 40–41 = Labels and two specimens of the undescribed "*Cylindroiulus* sp. n." by Verhoeff; 42–43 = Labels and specimen of the undescribed species "*Atractosoma bensae* Silv. Cotypi Gr. Pollera: Genova – Silv." *nomen nudum*.

DISCUSSION

As it can be seen from the lists above, the condition of the different type materials is not uniform. Some specimens are preserved in good shape, others are difficult to study and their status can only be estimated from the original descriptions if proper details and figures were published. In many cases, the current taxonomical classification has changed, new combinations and synonymies have been established, or the status remains uncertain – *nomen dubium*. Spelling alterations have also been corrected when Hungarian personal names with accents and capital letters were used in the specific name. Nomenclatorial or taxonomical actions like name amendments and lectotype designations, however, have not been made and have been left for future studies of the individual taxa.

In the case of the 53 species-group names indicated by numbers from 187 to 239 (section Missing types), several hypotheses can be proposed to explain the situation of missing material. In every case, the historical background should be taken into consideration, even if the circumstances cannot be clarified completely. The Department of Zoology of the HNHM moved to its present building in Baross street, Budapest, in 1928 ("on a temporary basis") where it still houses the majority of the entomological collections (Korsós 2019). During the Hungarian uprising in 1956, the building in Baross street was hit by a Russian artillery shell and many collections suffered significant damage. Fortunately, the Myriapoda Collection was not among them, and old material could survive. However, curatorial work was not specifically focussed on centipedes and millipedes, and until the employment of a permanent myriapodologist in 1982, the specimens received little attention. Even after that, the Myriapoda Collection had to be moved to different locations in the same building, which was not in the best interest of the scientific material. In order to get a better overview of the missing types, we have summarised the relevant major historical collections in several tables (Tables 3–9).

The oldest scientific contribution to Hungarian myriapod taxonomy was given by Tömösváry (1885), who described seven new species from the collection of J. Xántus from East Asia (Table 3). Xántus took part in the Austro-Hungarian Expedition to East Asia between 1869–1870 which he departed in Yokohama, Japan, and continued his collecting trip independently to Borneo (Xántus 1880). According to the old inventory book, he collected 55 species of myriapods under registry number 305/1870 (Fig. 3). Of these, Tömösváry described seven new millipede species, six of which exist in the present Myriapoda Collection of the HNHM. Four of them (marked with asterisk in Table 3) were already listed in Korsós (1983), while two of the other three could be found as documented by the present investigation. Unfortunately, the type of *Spirobolus ater* Tömösváry, 1885 could not be located.

Table 3. Species described by Tömösváry (1885) from the collection of J. Xántus (1 out of 7 is missing). Asterisks mark those species which were already listed in Korsós (1983).

Species	Author	Collector	Locality	Inventory number	Present/ absent
*Sphaeropoeus falcicornis**	Tömösváry	J. Xántus	Borneo, Matang	305/1870	+
*Sphaeropoeus granulatus**	Tömösváry	J. Xántus	Borneo, Matang	305/1870	+
*Oxyurus rosulans**	Tömösváry	J. Xántus	Japonia, Nangasaki	305/1870	+
*Spirobolus rufo-marginatus**	Tömösváry	J. Xántus	Borneo, Matang, Sarawak	305/1870	+
Spirobolus erythropus	Tömösváry	J. Xántus	Borneo, Matang, Sarawak	305/1870	+
Spirobolus ater	Tömösváry	J. Xántus	Borneo, Matang	305/1870	–
Siphonophora quadrituberculata	Tömösváry	J. Xántus	Borneo, Matang, Sarawak	305/1870	+

After the fruitful yet tragically short life of Ödön Tömösváry (Korsós 2003), J. Daday took over the curation of the Myriapoda collection. Daday was rather a specialist in Crustacea (Forró 1982) and his myriapodological activity is laden with many errors and by numerous misidentifications. In his monograph of the *Fauna Regni Hungariae*, Daday (1889*a*) described ten new species and nine new varieties of millipedes from the Carpathian Basin, whose types are found in the HNHM. Most of them are females or juveniles, or varieties; their current statuses are discussed in the previous chapter.

Daday also described a number of exotic species, and because of that early period of invertebrate taxonomy, those names are mostly still valid today. The two major publications are those on the foreign material preserved in the HNHM (Daday 1889*c*), and on the material borrowed from the Zoologische Sammlung der Universität Heidelberg, Germany (Daday 1891). All new species names, with their collectors, localities, old inventory numbers and their availability, are listed in Table 4 and Table 5.

Table 4. Species described by Daday (1889*c*) from foreign collections (4 out of 28 is missing). Asterisks mark those species which were already listed in Korsós (1983).

Species	Author	Collector	Locality	Inventory number	Present/ absent
Platydesmus typhlus	Daday	E. Reitter	Corfu, Patras	866/2.3.4.	+
Platydesmus mediterraneus	Daday	E. Reitter	Corfu	866/5	+
Julus Hermani	Daday	E. Reitter	Corfu	866/23	+
Julus fuscofasciatus	Daday	E. Reitter	Patras	866/28	+
Julus fuscifrons	Daday	E. Reitter	Patras	866/29	+
Julus acutesquamatus	Daday	L. Örley	Italia, Sorrento	645/116	+
*Alloporus transvalicus**	Daday	E. Reitter	Transval	866/32	+
*Spirostreptus pusillus**	Daday	E. Reitter	Transval	866/34	+
*Spirostreptus trilineatus**	Daday	J. Xántus	Borneo, Matang	305/42	+
Spirostreptus maculatus	Daday	J. Machik	Sumatra	648/14.a.	–
Spirostreptus unicolor	Daday	J. Machik	Sumatra	648/14.b.	–
Spirostreptus gracilis	Daday	J. Machik	Sumatra	648/14.c.	–
*Spirostreptus trisulcatus**	Daday	I. Vereby	Panama	–	+
*Spirostreptus politus**	Daday	J. Vadona	India orientalis	832/1	+
*Spirostreptus flavomarginatus**	Daday	J. Xántus	Borneo, Matang	305/44	+
Spirobolus ferrugineus	Daday	I. Vereby	Panama	–	–
*Spirobolus Hegedüsii**	Daday	J. Vadona	Panama	799/1	+
Lysiopetalum trifasciatum	Daday	E. Reitter	Corfu	866/40	+
Lysiopetalum unicolor	Daday	E. Reitter	Corfu	866/41	+
Lysiopetalum unilineatum	Daday	E. Reitter	Corfu	866/44	+
Lysiopetalum longicorne	Daday	E. Reitter	Corfu	866/45	+

Species	Author	Collector	Locality	Inventory number	Present/ absent
Trachydesmus Simonii	Daday	E. Reitter	Corfu	866/47	+
Paradoxosoma granulatum	Daday	E. Reitter	Corfu	866/48.49	+
Paradesmus flavocarinatus	Daday	J. Xántus	Siam, Bangkok	305/51	+
*Euryurus flavocarinatus**	Daday	J. Vadona	Mexico	799/2	+
Polydesmus graecus	Daday	E. Reitter	Morea, Demiobas	866/54	+
Polydesmus mediterraneus	Daday	Ö. Tömösváry E. Reitter	Serbia, Negotin Corfu, Patras	866/58 866/56-58	+
*Sphaeropoeus tatusiaeformis**	Daday	J. Machik	Sumatra	648/1.d.	+

Table 5. Species described by Daday (1891) from the Heidelberg collection (all 8 are missing).

Species	Author	Collector	Locality	Present/ absent
Spirostreptus sulcaticollis	Daday	?	Caracas	–
Spirostreptus flavocingulatus	Daday	?	California	–
Spirostreptus nitidus	Daday	?	Insula Trinidad	–
Spirobolus politus	Daday	?	India orientalis	–
Spirobolus coeruleolimbatus	Daday	?	Queensland	–
Spirobolus virescens	Daday	?	Insula Trinidad	–
Strongylosoma mediterraneum	Daday	?	Panormo (Graecia) et Palermo (Sicilia)	–
Rachis californicus	Daday	?	California	–

While 24 of the 28 "foreign" types deposited originally in the HNHM could be retrieved (eight of them were already listed in Korsós (1983), marked with an asterisk in Table 4), partly thanks to the material returned from the MHNG by B. Hauser (see Table 1), the whereabouts of the Heidelberg collection could not be brought to light. Daday received 137 myriapod specimens in 49 alcohol jars and five dry specimens from Otto Bütschli (1848–1920), professor at the University of Heidelberg, and from this material he described eight new millipede species (Daday 1891). Unfortunately, data on exact collections and about the collectors are all missing (Table 5).

When we inquired about the current situation of the Zoological Collection of Heidelberg University (now under the Centre for Organismal Studies, Universität Heidelberg), Dr. Thomas Holstein (professor of Molecular Evolution and Genomics) provided the following information (11 October 2023): "The zoological collection, last curated before World War II by Clara Hamburger, had a turbulent history in the post-war period. With the move from Sophienstrasse to the new institute in Neuenheimer Feld 230 [in Heidelberg], many of the specimens were lost. In addition, the character of the museum changed; a scientific collection became a didactically oriented collection for students and the interested public. The last transfer of material took place around 2004 when collection items were passed on to the Senckenberg Museum in Frankfurt am Main. Unfortunately, again there are no records of this [Daday's material] either."

The next important historical myriapod collection in the HNHM from exotic regions originated from Lajos Bíró, who spent seven years in Papua New Guinea between 1896 and 1902 (Bíró 1923). His collected material, more than 200 thousand invertebrate specimens, arrived to the museum in several phases. At an intermediate occasion Daday sent a package of millipedes to Filippo Silvestri (1873–1949), a well-known Italian entomologist, born in Bevagna (Umbria, Perugia county), who served as director of the Institute of Entomology and Zoology at the Agricultural College in Portici for 45 years. Silvestri described eleven new species from Bíró's material (Table 6), and the types of all of them with one exception, could be retrieved in the HNHM (those already listed in Korsós 1983 are marked with asterisk in Table 6). Unfortunately, we could not find the correspondence about this material exchange between Daday and Silvestri. Silvestri instructed in his testament that his collection should be deposited at the Museo Civico di Storia Naturale di Genova, but his descendants did not oblige and the material arrived there only in 2005 (letter by Dr. Roberto Poggi, honorary curator of Museo Civico di Storia Naturale). According to the information from Dr. Maria Tavano (curator of the GNHM), the millipede types of Silvestri are kept partly in the general collection of the Genova Museum (returned by Silvestri after the study) or in part in his personal collection curated separately (where he retained some duplicates, when present). This is important, because in some cases, indicated in our type catalogue, male gonopods are removed and missing from our specimens, and microscope slides made of the same specimens by Silvestri might have been retained in this personal collection (e.g. Fig. 36). The indication "Cotypi" on the labels (Figs 34–35) may refer also to the fact that there are type specimens in other collections. Silvestri generally considered "Typus" (e.g. Fig. 18) what is now a holotype and "Cotypi" or "Paratypi" (Fig. 22) what we call now paratypes.

Table 6. Species described by Silvestri (1899) from the material collected by L. Bíró in New Guinea (only 1 out of 11 is missing). Asterisks mark species already listed in Korsós (1983).

Species	Author	Collector	Locality	Inventory number	Present/ absent
Trichoproctus birói	Silvestri	L. Bíró	Ins. Tamara, Berlinhafen	1124/1897	–
*Siphonotus setosus**	Silvestri	L. Bíró	Ins. Tamara, Berlinhafen	1124/1897	+
*Opisthoporodesmus obtectus**	Silvestri	L. Bíró	Ins. Tamara, Berlinhafen	1124/1897	+
*Atropisoma Horváthi**	Silvestri	L. Bíró	Erima, Astrolabebai	1124/1897	+
*Atropisoma insulare**	Silvestri	L. Bíró	Ins. Tamara, Berlinhafen	1124/1897	+
*Eutrachyrhachis Dadayi**	Silvestri	L. Bíró	Erima, Astrolabebai	1124/1897	+
*Plusiogonodesmus felix**	Silvestri	L. Bíró	Ins. Tamara, Berlinhafen	1124/1897	+
*Rhinocricus furcatus**	Silvestri	L. Bíró	Erima, Astrolabebai	1124/1897	+
*Trigoniulus venatorius**	Silvestri	L. Bíró	Erima, Astrolabebai	1124/1897	+
*Trigoniulus gracilis**	Silvestri	L. Bíró	Erima, Astrolabebai	1124/1897	+
*Diopsiiulus parvulus**	Silvestri	L. Bíró	Erima, Astrolabebai	1124/1897	+

In the second half of the 20th century Imre Loksa provided the most important contributions to Hungarian myriapodology (Korsós 1993). He worked on almost all soil macroinvertebrates, and beside taxonomy his main interest was the ecology of Hungarian forests (Loksa 1966). From millipedes, he described 19 species, 19 subspecies, two forms new to science from the Hungarian fauna, whose type material, wherever mentioned, was supposed to be deposited in the Department of Zoosystematics, ELTE. Unfortunately, all of them are missing except for two (*Chromatoiulus transsilvanicus* ssp. *transdanubicus* Loksa, 1962 and *Brachydesmus attemsii* ssp. *tenkesensis* Loksa, 1962, see Nos. 46 and 155).

Loksa dealt with relatively little foreign millipede material, and his connection with other myriapodologists was also modest (Dózsa-Farkas 1992). However, he was asked by Herbert Franz (1908–2002), notable Austrian entomologist and soil zoologist, to work on his material collected in the Canary Islands and Rhodos. Loksa described four new millipede species and two new subspecies (Table 7) from this material (Loksa 1967*a*, 1970). We tried to track the correspondence between Franz and Loksa with the help of Nesrine Akkari and Jürgen Gruber (NHMW), but apart from the handwritten list of exact localities by Franz which correspond to the publications and labels by Loksa, no further indications of the identifications could be found. Because of the matching data, we nevertheless consider one sample received from ELTE in 2017 as the only possible type material of *Siphonocryptus canariensis* Loksa, 1967 (No. 30) (Fig. 9). Unfortunately, the types of all the other five species and subspecies collected by Franz could not be located.

Table 7. New species and subspecies described by Loksa (1967*a*, 1970) from the material collected by H. Franz (Tenerife and Rhodos) (only 1 exist out of 6).

Species	Author	Collector	Locality	Present/ absent
Choneiulus franzi	Loksa, 1967	H. Franz	Tenerife	–
Chromatoiulus bicolor	Loksa, 1970	H. Franz	Rhodos	–
Polydesmus graecus rhodosensis	Loksa, 1970	H. Franz	Rhodos	–
Propolydesmus miguelinus laevidentatus	Loksa, 1967	H. Franz	Tenerife	–
Siphonocryptus canariensis	Loksa, 1967	H. Franz	Tenerife	+
Strongylosoma pallidicephalus franzi	Loksa, 1970	H. Franz	Rhodos	–

Loksa's two other papers dealing with exotic millipede material are those about the collections from China (Balázs 1962, Loksa 1960*a*) and from Brazzaville–Congo, today Republic of Congo (Balogh *et al.* 1965, Loksa 1967*b*). The Chinese material was collected by the eminent geographer and cave researcher Dénes Balázs (1924–1994) who – among others – is notable for the establishment of the Hungarian Geographical Museum in the town of Érd. Loksa (1960*a*) in his paper stated that the material which served as basis for the description of five new species (Table 8) was deposited in the HNHM. Unfortunately, none of those samples could be found.

Table 8. New species described by Loksa (1960*a*) from material collected in Chinese caves (none exist in HNHM).

Species	**Author**	**Collector**	**Locality**	**Present/ absent**
Centrodesmus longispinus	Loksa, 1960*a*	D. Balázs	Pien-Ja	–
Polydesmus hamatus	Loksa, 1960*a*	D. Balázs	Lódjen	–
Trogloglyphus anophthalmus	Loksa, 1960*a*	D. Balázs	Pulung, Nyu-Jie	–
Trogloglyphus Balázsi	Loksa, 1960*a*	D. Balázs	Lódjen	–
Octoglyphus pulcher	Loksa, 1960*a*	D. Balázs	Pulung, Nyu-Jie	–

The Brazzaville–Congo expedition was carried out by János Balogh (1913–2002) and András Zicsi (1928–2015), two eminent zoologists of ELTE, specialists of Acari and Lumbricidae, respectively (Balogh *et al.* 1965). Loksa (1967*b*) described 7 new millipede species and 2 subspecies from their material, and stated in the publication that the type material were deposited in the HNHM. With extreme luck, we found all the types with the exception of one species (*Paltophorus tuberculifer* Loksa, 1967, No. 228) (Table 9). The vials were labeled by Loksa's pencil handwriting with abbreviated species names and words like "type" or "typus", and with locality numbers exactly corresponding to the type localities given in the paper. Gonopods of some of the male millipedes were removed into microtubes in a separate jar and labeled with codes, but unfortunately they could not be retrieved.

Table 9. New species and subspecies described by Loksa (1967*b*) from Brazzaville–Congo (8 out of the 9 forms exist).

Species	**Author**	**Collector**	**Locality**	**Present/ absent**
Phaeodesmus complicatus	Loksa, 1967*b*	J. Balogh & A. Zicsi	Nr. 66, Kindamba	+
Podochresimus pallidus	Loksa, 1967*b*	J. Balogh & A. Zicsi	Nr. 310, Bouenza	+
Paltophorus desaillyi paucistachys	Loksa, 1967*b*	J. Balogh & A. Zicsi	Nr. 295, 317, Sibiti	+

Species	**Author**	**Collector**	**Locality**	**Present/ absent**
Paltophorus tuberculifer	Loksa, 1967*b*	J. Balogh & A. Zicsi	Nr. 215, 219, 248, 479, 492, 493, 525, 535, 543, 575, 648, 656, 695	–
Paltophorus taeniatus	Loksa, 1967b	J. Balogh & A. Zicsi	Nr. 167, Kindamba	+
Paltophorus velifer	Loksa, 1967*b*	J. Balogh & A. Zicsi	Nr. 638, Lefinie	+
Paracordyloporus capreolus	Loksa, 1967*b*	J. Balogh & A. Zicsi	Nr. 224, Sibiti	+
Endioporus plasticus congoensis	Loksa, 1967*b*	J. Balogh & A. Zicsi	Nr. 316, 317, 318, 102, 227, 292, 294	+
Cryptocorypha nympha	Loksa, 1967*b*	J. Balogh & A. Zicsi	Nr. 695, Brazzaville	+

Summarizing the results of our efforts presented above, we can state that there is not much hope to find any of the missing millipede types. Some of them probably got lost during the various transportations between and inside museums, others were improperly curated, handled or labeled in a hurry to make sure that they can be found for later identification. In a few cases the descriptions with proper figures are or can be sufficient to confirm the present status of the taxa, but in other cases their real identity will always remain as uncertain – *nomina dubia*, and only new topotypic material may help to clarify the situation.

As for the future, there are still some possible developments to be achieved with regards to the existing type material in the HNHM. It would be necessary to compile all information into a digital database which should be available and updated regularly online. Individual specimen and label photos could contribute to the identification of the types, including microscopic slides if any, and a collaboration with partner institutes, where similar type material might exist from the same authors, could be also fruitful.

*

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APPENDIX: AN INDEX

Species-group names are in the original spelling in alphabetical order. The number in bold indicates the serial number given in the section List of types. Names that were described before 1983 but not present in KORSÓS (1983) are underlined (n = 66), except for numbers from 187 to 239, which indicate material missing from the collection (n = 53).

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A Magyar Természettudományi Múzeum ikerszelvényes-típusai II. (Arthropoda: Myriapoda: Diplopoda)

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Összefoglalás – A korábbi összefoglaló publikáció után 40 évvel újra áttekintettük a Magyar Természettudományi Múzeum Soklábúak (Myriapoda) Gyűjteményének típuspéldányait, és aktualizáltuk, értékeltük az eredetileg leírt nevek jelenlegi taxonómiai státuszát. A jelen katalógus összesen 186 fajcsoporttaxont (faj, alfaj, változat és forma) tartalmaz, amely több mint ötször több, mint az eredeti 1983-as listában (35). Azóta két nagyobb gyűjtemény érkezett a múzeumba: Daday Jenő típuspéldányainak nagyobbik részét 2004-ben küldték vissza a genfi Muséum d'Histoire Naturelle-ből, a másik anyag pedig 2017-ben Loksa Imre után érkezett vissza a budapesti Eötvös Loránd Tudományegyetem Állatrendszertani és Ökológiai Tanszékéről. A Myriapoda Gyűjtemény alapos végigkeresésével 66 fajcsoportnevet képviselő típuspéldányt sikerült azonosítani, melyeket eredetileg elveszettnek hittünk. Továbbra is hiányzik azonban 53

taxon típuspéldánya, aminek lehetséges okait igyekeztünk feltárni. A katalógus végét részletes bibliográfia zárja, amelyben az egyes publikációkban hivatkozott taxonok neveit is feltüntettük. Végül az összes fajcsoportnévhez a sorszámot és oldalszámot tartalmazó mutatót állítottunk össze. 43 ábrával, 8 táblázattal, egy függelékkel.

Kulcsszavak – típuspéldányok, ikerszelvényesek, gyűjtemény, gyűjtési adatok, katalógus

ÁBRAMAGYARÁZATOK

1–4. ábra. Régi leltárkönyvek. 1 = Az első „Gerinctelenek” (1850–1898) leltárkönyv borítója; 2 = A „Pókok és százlábúak” (1899–1950) leltárkönyv borítója; 3 = Xántus János kelet-ázsiai gyűjteményének leltári bejegyzése, 305/1870; 4 = Az abaligeti *Orobainosoma hungaricum* Verh. típuspéldányok leltári bejegyzése, 1744-1745/1928

5–8. ábra. Típuspéldányok és céduláik. 5 = *Sphaeropoeus falcicornis* Tömösváry, 1885: Hoffman (1980 *in litt.*) cédulája, és a száraz felirat az eredeti üvegről; 6 = *S. falcicornis* különböző méretű típuspéldányai; 7 = *Alloporus transvalicus* Daday, 1889: Hoffman cédulája; 8 = *Spirostreptus pusillus* Daday, 1889: Hoffman cédulája

9–16. ábra. Típuspéldányok és céduláik. 9 = Loksa kéziratos cédulája „*Colobognatha* Fr. 1064” a *Siphonocryptus canariensis* Loksa, 1967 példányokat tartalmazó fiolában; 10 = *Microspirobolus aequatorialis* Carl, 1909: Carl kéziratos cédulája; 11 = *Lophostreptus bicolor* Carl, 1909 Carl kéziratos cédulája; 12 = *Spirostreptus trisulcatus* Daday, 1889: nőstény szüntípuspéldány; 13 = *Orthoporus trisulcatus* Dad.: Hoffman cédulája; 14 = *Callipus vinceguerrae* Silvestri, 1894: Silvestri cédulája; 15 = *Koreadesmus proprius* Mikhaljova et Korsós, 2003: Mikhaljova cédulája; 16 = Silvestri cédulája: „*Atractosoma cecconii* Silv. varietas Cotypi Vallombrosa (Firenze) Silv.”

17–29. ábra. Típuspéldányok és céduláik. 17 = *Protochordeuma gestri* Silvestri, 1898: Silvestri cédulája; 18 = *Diopsiiulus parvulus* Silvestri, 1899: Silvestri cédulája; 19–21 = *Paradoxosoma granulatum* Daday, 1889, Paradoxosomatidae család típusfajának fiolái, példányai és cédulái; 22 = *Strongylosoma italicum* Latzel, 1886: Silvestri cédulája; 23 = *Brachydesmus attemsi tenkesensis* Loksa, 1962: Loksa írógéppel írt cédulája; 24 = *Brachydesmus Chyzeri* Daday, 1889; 25 = *Brachydesmus hungaricus* Daday, 1889: régi leltári cédulák; 26 = *Brachydesmus troglobius* Daday, 1889: régi leltári cédulák; 27 = *Tylopus topali* Golovatch, 1984: Golovatch cédulái; 28 = *Polydesmus genuensis* Pocock, 1895: Silvestri cédulája; 29 = *Plusigonodesmus felix* Silvestri, 1899: Silvestri cédulája „*Plusigonodesmus felix*, Silv. Typus (exemplum mutilatum) Ins. Tamara: Berlinhafen, N. Guinea, Biró 8–18.XI.1896” és a régi leltári cédula

30–33. ábra. Típuspéldányok és céduláik. 30–31 = *Euryzonus flavosignatus* Carl, 1909: hím paralektotípus-példány és Carl cédulája; 32–33 = *Eutrachyrhachis Dadayi* Silvestri, 1899: Hoffman cédulája és egy nőstény szüntípuspéldány

34–37. ábra. Típuspéldányok és céduláik. 34 = *Eutrachyrhachis Dadayi* Silvestri, 1899: Silvestri cédulája a lelőhely megnevezésével „Ruldemenge” (Korsós 1983) vagy „Kuldemenye” (HNHM); 35 = *Eutrachyrhachis Dadayi*: Silvestri azonos cédulája a genovai múzeumban (fotó: M. Tavano, GNHM); 36 = *Eutrachyrhachis Dadayi*: Silvestri mikroszkópos tárgylemeze a genovai múzeumban (photo: M. Tavano, GNHM); 37 = *Riukiaria rosulans* (Tömösváry) üvege Hoffman cédulájával

38–43. ábra. Típuspéldányok és céduláik. 38 = „*Heterachrochordum evae*": Loksa kézzel írt cédulája a *Heterachrochordum evae* (Loksa, 1960) faj lehetséges típuspéldánya mellől; 39 = „*Ceratosoma caroli evae*": Loksa kézzel írt cédulája a *Ceratosoma caroli somlóense* Loksa, 1968 faj lehetséges típuspéldánya mellől; 40–41 = „*Cylindroiulus* sp. n.": a Verhoeff által megjelölt, de leíratlan faj cédulája és példányai; 42–43 = Az „*Atractosoma bensae* Silvestri" leíratlan faj, nomen nudum, cédulája és példánya

TÁBLÁZATMAGYARÁZATOK

1. táblázat. A genfi múzeumból 2004. október 31-én visszakapott, Daday Jenő által leírt ikerszelvényesfajok típusai.

2. táblázat. Az ikerszelvényeseknek (Diplopoda) a jelen katalógusban használt rendszere.

3. táblázat. TÖMÖSVÁRY (1885) által Xántus János gyűjtéseiből leírt fajok (a hétből egynek a típusa hiányzik). Csillag jelzi azokat a fajokat, melyeket KORSÓS (1983) is listázott.

4. táblázat. DADAY (1889*c*) által idegenföldi gyűjtésekből leírt fajok (a 28-ból négynek a típusa hiányzik) . Csillag jelzi azokat a fajokat, melyeket KORSÓS (1983) is listázott.

5. táblázat. DADAY (1891) által a heidelbergi múzeum gyűjteményéből leírt fajok (mind a nyolc típus hiányzik).

6. táblázat. SILVESTRI (1899) által Bíró Lajos új-guineai gyűjtéséből leírt fajok (egy típus hiányzik a 11-ből). Csillag jelzi azokat a fajokat, melyeket KORSÓS (1983) is listázott.

7. táblázat. LOKSA (1967*a*, 1970) által Herbert Franz kanári-szigeteki és rhodoszi gyűjtéseiből leírt alakok (csak egynek a típusa van meg a hatból).

8. táblázat. LOKSA (1960*a*) által kínai barlangokból leírt fajok (mindnek hiányzik a típusa).

9. táblázat. LOKSA (1967*b*) által Brazzaville–Kongóból leírt alakok (egynek a típusa hiányzik a kilencből).

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Descriptions of four new species of Capys from East and West Africa with notes on adult morphology and biogeography (Lepidoptera: Lycaenidae: Theclinae)

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Abstract – Four new species of the hairstreak butterfly genus *Capys* Hewitson, [1865] (Lepidoptera: Lycaenidae: Theclinae: Deudorigini) are described: *C. arba* Sáfián et Fric, sp. n. (type locality: Ethiopia, Dorze Lodge), *C. moroto* Sáfián et Collins, sp. n. (type locality: Uganda, Mount Moroto), *C. robertsi* Collins et Sáfián, sp. n. (type locality: Kenya, Mount Kenya, moorland above Marania Bredt), and *C. smithi* Takano et Sáfián, sp. n. (type locality: Ivory Coast, Comoé National Park). Morphological features such as male genitalia, dorsal hindwing surface, androconia and labial palps, previously used in the separation of *Capys* species, are reviewed. Biogeography of the newly described species is also discussed using evidence from molecular analysis. With 74 figures.

Key words – androconia, *Capys arba* sp. n., *Capys moroto* sp. n., *Capys robertsi* sp. n., *Capys smithi* sp. n., COI barcodes, endophagy, labial palps, male genitalia, *Protea*, scent patch

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INTRODUCTION

The subfamily Theclinae (Lepidoptera: Lycaenidae), commonly known as the Hairstreaks, was divided into 18 tribes by John Nevill Eliot (1912–2003) in his tentative Lycaenidae classification (Eliot 1973), indicating the triplet of Deudorigini (exclusively Old World), Eumaeini (Holarctic and Neotropical) and Tomarini (exclusively Palaearctic) as being monophyletic (Eliot 1973: fig. 1), an arrangement that was subsequently confirmed by molecular analyses (Robbins *et al.* 2022). This triplet of hairstreaks can be characterised by the great variety of alar androconia, by the lack of juxta in the male genitalia and by their peculiar life history with the larvae of many genera known to be endophagous living in the inflorescence or in the fruit of their hostplants (Murray 1935, Larsen 2005, Libert 2005, Robbins 2010, Benyamini 2023). The exclusively African deudorigine genus *Capys* Hewitson, [1865] is a typical representative of this group: males have a dorsal hindwing surface scent pad in the postbasal region below the costa, the male genitalia lack the juxta and the larvae live exclusively in the large flower buds of *Protea* (Proteaceae), a characteristic angiosperm genus of sub-Saharan Africa, especially rich in the Cape Floral Region (Rourke 1998). Since the revision of the genus by Henning & Henning (1988), that covered all possible details from minor morphological characters to the distribution of the larval foodplants across sub-Saharan Africa of the then known taxa and those described in the paper, it was considered that not much information could be added by subsequent authors.

Nevertheless, in less than two decades since the paper of Henning & Henning (1988), researchers of the African Butterfly Research Institute continued to look for the presence of *Protea* stands in East Africa and wherever the signs of *Capys* larvae were present in *Protea*, the adults were bred, resulting in another species, *Capys usambarae* Congdon et Collins, 1998 from Tanzania. Moreover, two further species, *C. stuarti* Collins et Larsen, 2000 and *C. vorgasi* Larsen et Collins, 2003 were described from West Africa, where the presence of *Protea* had already been indicated by Henning & Henning (1988). Besides the taxa listed in Henning & Henning (1988), Congdon & Collins (1998), Collins & Larsen (2000) and Larsen & Collins (2003), additional taxa were discovered in Kenya and Uganda which could not be assigned to any existing species. More recently, a single male *Capys* specimen was collected by the African Natural History Research Trust in a lowland savannah locality in Ivory Coast which was found to be conspecific with three specimens collected near Mole National Park, another lowland savannah locality in northern Ghana. The ground colour of these males are visibly different from that of *C. vorgasi*, a species that occurs in the upland savannah habitats of the Togo Mountains (Volta Region, Ghana) (Larsen 2005). These specimens represent a yet undescribed species, the first *Capys* taxon that genuinely inhabits lowland biotopes. Despite the presence of at least two *Protea* in the country (iNaturalist)([1]), no species of *Capys* were previously recognised from Ethiopia. However, a few *Capys* specimens were collected near Arba Minch, which belong to another undescribed species.

This paper aims to report these new findings with the goals of (1) formally describing the new species based on both phenotypic and male genitalia traits, as well as geographical patterns of distribution, (2) documenting and figuring the type material and genitalia structures, and (3) briefly discussing the results in light of Henning & Henning (1988), especially the use of the characteristics of androconia, labial palps and male genitalia for taxonomic discrimination.

MATERIALS AND METHODS

Acronyms and abbreviations – ABRI = African Butterfly Research Institute (Nairobi, Kenya); ANHRT = African Natural History Research Trust (Leominster, United Kingdom); APLORI = A. P. Leventis Ornithological Research Institute (Jos, Nigeria); BOLD = Barcode Of Life Data System([2]); CEPUJ = Nature Education Centre of the Jagiellonian University (Kraków, Poland); CER = Institute of Technical Physics and Materials Science, Centre for Energy Research (Budapest, Hungary); HNHM = Hungarian Natural History Museum (Budapest, Hungary); gen. prep. = genitalia preparation; ICZN = International Commission on Zoological Nomenclature; IECA = Biology Centre, Czech Academy of Sciences, Institute of Entomology (České Budějovice, Czechia); LG = Gyula László (for ANHRT dissections); n = number of sample; reg. = registration code (for ABRI genitalia dissections); SAFI = Szabolcs Sáfián (for genitalia samples); TB = Balázs Tóth (for HNHM dissection numbers); ZF = Zdenek F. Fric.

Specimens – Beside the 104♂♂, 36♀♀ (= 140) specimens serving as type material of species described in the present paper, a further 89♂♂, 73♀♀ (= 162) *Capys* specimens have been examined. Authors of binomens and their years of descriptions of each species are given below in the checklist. Holotype data are given verbatim according to the corresponding label.

Capys alpheus (n = 3) – SOUTH AFRICA: Western Cape, Sommerset West env., Hottentot Mts., 34°02’25.0”S 19°37’35.3”E, 7. XII. 2014, Selb H. & Faltýnek Fric Z. leg. (IECA: ZF-LY-002725, ZF-LY-002726, ZF-LY-002727) (2♂♂, 1♀).

Capys disjunctus (n = 1) – SOUTH AFRICA: Gauteng, Pretoria, hills above Walter Sisulu Botanical Gardens, 26°4’48.32”S, 27°49’45.05”E, 1720 m, 27. XI. 2019, Sáfián Sz., & Dobson, J. leg. (CEPUJ: DNA 3028, AZ 705) (♂).

Capys juliae (n = 65) – KENYA: Cherangani Hills (most specimens bred), various dates between VIII.1977 and V.1992, leg. ABRI (ABRI paratypes: 3♂♂, 1♀; 8♂♂, 23♀♀); Eldoret, various dates ABRI leg. (ABRI: 17♂♂, 13♀♀).

[1] https://shorturl.at/rvSX7

[2] https://www.boldsystems.org

Capys meruensis (n = 23) – KENYA: Meru 7000 ft. I.1977. Bred from *Protea*, Collins S. C. leg. (ABRI paratypes: 3♂♂, 1♀); Meru, Mount Kenya, 5000 ft, XII. 1989. Collins S. C. leg.; gen. prep.: SAFI00406 (ABRI: 1♂); Meru, Mount Kenya 5000 ft, various dates between VII. 1977 and III. 1991 (bred), Collins S. C. leg. (ABRI: 11♂♂); Meru, Mount Kenya, 5000 ft, various dates between II. 1991, Collins S. C. leg. (ABRI: 7 ♀♀).

Capys sp. (near *moroto* sp. n.) (n = 11) – KENYA: Mount Sekerr, 8000 ft, I. 1992, Collins S. C. leg. (ABRI: 3♂♂, 1♀); Mount Sekerr, Loima Hills, no date, ABRI leg. (ABRI: 3♂♂, 4♀♀).

Capys stuarti (n = 11) – NIGERIA: Plateau State, Jos Amurum, no date, ABRI leg. (ABRI: 1♂, 1♀); Plateau State, Jos Amurum (APLORI) 17. X. 2007, hatched from pupa, Brattström O. leg. (ABRI: 2♂♂, 7♀♀).

Capys vorgasi (n = 46) – Holotype, GHANA: Likpe Mate, Volta Region, VII. 2000, Vorgas R. leg.; gen. prep.: SAFI00403 (ABRI holotype: ♂, paratypes: 24♂♂, 2♀♀); Likpe Mate, Volta Region various dates between 2000 and 2013, Vorgas R. leg. (ABRI: 7♂♂, 11♀♀); Oti Region, Kyabobo National Park, Laboum River Valley, 8°19’55.09”N, 0°34’54.20”E, 300–550 m, 11–20. XII. .2022, Sáfián, Sz. & Győri, G. leg. (HNHM: ♂); Likpe, 15. VIII. 2022, Lwandi P. leg. (IECA, 1♂, 1♀: HK-001, HK-002).

Labial palps – Labial palps were taken from the specimens listed below. The organ is stored with the corresponding specimen in micro vial and kept with the voucher deposited in ABRI, ANHRT and CEPUJ.

Capys arba sp. n.: ZF-LY-002867 (holotype); *C. juliae*: SAFI00401; *C. moroto* sp. n.: SAFI00400 (holotype), SAFI00412 (paratype); *C. robertsi* sp. n.: PAL 001, SAFI00405 (paratype); *C. smithi* sp. n.: ANHRTUK00194563 (holotype), SAFI00402; *C.* sp. near *moroto* (“Sekerr”): SAFI00410; *Capys vorgasi*: SAFI00411.

Genitalia – Abdomens were taken from the specimens listed below. The dissected genitalia are stored with the corresponding specimen in micro vials, or mounted on microscope slide and kept in the institute where the voucher is deposited (see references throughout this paper).

Capys arba sp. n.: ZF-LY-002867 (holotype); *Capys juliae*: SAFI00401, SAFI00411, TB2314m, TB2317m; *Capys meruensis*: SAFI00406, TB2306m; *Capys moroto* sp. n.: SAFI00412, TB2307m (paratype); *Capys robertsi* sp. n.: SAFI00404, SAFI00405, TB2313m (holotype), TB2316m (paratype); *Capys smithi* sp. n.: LG4162 (holotype); *Capys stuarti*: SAFI00408, SAFI00409, TB2308m, TB2305m; *Capys vorgasi*: SAFI00403: TB2315m (holotype), TB2331m.

Identification, checklist and distribution – Identifications and distributional interpretations were based on Henning & Henning (1988) and the comprehensive iconography of d’Abrera (2009), where most species were illustrated in high quality colour photographs, including many types. Williams (2023) compiled all references and composed a list of taxa using an updated classification system and nomenclature, followed also in this paper, updating the known distribution of each taxon as given in the presented checklist below. Our taxonomic decisions are compatible with the approach of Henning & Henning (1988), as well as Collins & Larsen (2000, 2003), who recognised each taxon geographically separate and isolated from its relatives as distinct species rather than subspecies. This standpoint also corresponds with the biological species concept as discussed by de Queiroz (2007), who highlighted that in many cases geography carries crucial information in species delimitation, which should be more often taken into consideration. Since no phylogeny has been previously established for all members of the genus, the species are listed in alphabetical order with indications to their distribution based on the papers of Henning & Henning (1988), Larsen (1991), Congdon & Collins (1998), Collins & Larsen (2000), Heath et al. (2002), Larsen (2005), d'Abrera (2009), Congdon et al. (2010), Armstrong (2020), Williams (2023), Sáfián (2023).

Methods of morphological investigations – Comparative material and types kept as pinned, set, dried and labelled specimens in curated taxonomic collections of ABRI, ANHRT, CEPUJ, and HNHM. Labial palps were investigated using optical stereo-microscopes in HNHM using an OLYMPUS SZX12. Optical imaging of the scent patch was carried out in CER using a Nikon Eclipse LV150N (Shinagawa, Tokyo, Japan) microscope in reflected light. For better visibility, we used focus stacking to compensate for the narrow depth of field of the high-resolution microscope objectives. Genitalia dissections were performed applying the standard procedures (Winter 2000). The process of digital images of photographed specimens, labial palps and genitalia dissections follows those described in Sáfián (2020) and in Bálint *et al.* (2022).

COI public sequences – Publicly accessible COI sequences were downloaded from BOLD as Electropherogram Trace Files:

Capys disjunctus: ♂, Democratic Republic of Congo, Katanga, BOLD sample ID: BC-TB7635 (specimen depository: Research Collection of Thierry Bouyer)([3]).

Capys disjunctus: ♀, Democratic Republic of Congo, Katanga, BOLD sample ID: BC-TB7650 (specimen depository: Research Collection of Thierry Bouyer)([4]).

DNA extraction and COI sequencing – For further clarification of the taxonomic statuses and relationships of West African *Capys* taxa, specimens of *C. vorgasi* from its type locality and *C. stuarti* from near the type locality were selected for DNA extraction and COI sequencing. Geographically distant species, such as the South African *C. alpheus*, *C. disjunctus* and the Ethiopian *C. arba* sp. n., were selected as ingroup species. An African member of the tribe Deudorigini, *Deudorix lorisona* (Hewitson, [1863)] and a more distant European

[3] http://boldsystems.org/index.php/Public_RecordView?processid=TBBUT482-11&fbclid=IwAR38odGUqnQIJPNbMoswBxh4Aaqfp1AWEvrr2V2e6iMDycAGPLYg6ukhEA

[4] http://boldsystems.org/index.php/Public_RecordView?processid=TBBUT497-11&fbclid=IwAR0l03qceS1R6Qejgxvat8v2THlGEjU0YBhOZ7BUtmzy6rHQJgGh4bvszoI

member of the subfamily Theclinae, *Tomares nogelii* (Herrich-Schäffer, 1851) were selected as outgroup species for maximum likelihood tree reconstruction.

DNA was extracted from two legs or the anterior part of the abdomen using the Geneaid Blood and Tissue extraction kit. We sequenced the mitochondrial gene Cytochrome c oxidase subunit I (COI), often referred to as "barcode region", regularly used for species identification, and thus comparative samples are also often publicly available. We used two forward-reverse primer pairs: LCO/HCO and in the case of more degraded material, Ron/HCO (Wahlberg & Wheat 2008). The universal tails T7 and T3 Promoter were attached to all primers. For the PCR, we followed the protocols of Monteiro & Pierce (2001), Wahlberg & Wheat (2008) and Vila *et al.* (2011). The PCR products were sequenced by Macrogen Inc. (Korea) using an ABI 3730XL DNA analyser. We checked and aligned the sequences with Geneious v.7.1.9. (Kearse *et al.* 2012) and submitted them to GenBank([5]) (Accession codes PP096867-PP096886). The COI sequence of the *C. smithi* sp. n. holotype was obtained using Single Molecule Real-Time sequencing through the Sequel (PacBio) pipeline at the Canadian Centre for DNA Barcoding, Biodiversity Institute of Ontario, University of Guelph (Hebert *et al.* 2018).

COI maximum likelihood tree reconstruction – We constructed a Maximum Likelihood tree using IQ-Tree 1.6.5 (Nguyen *et al.* 2015) with 10,000 bootstraps. This method calculates the tree with the best likelihood, and prior to the calculation it tests for an appropriate substitution model (in this case TIM2+F+I, -LnL = 1506.4, BIC = 3300.3), selected by Bayesian Information Criterion (BIC) (cf. Kalyaanamoorthy *et al.* 2017). For compatibility with other barcoding studies, we measured the paired barcode distance using K2P substitution model in MEGA11 (Tamura *et al.* 2021).

Maps – The distribution maps were edited in Adobe Photoshop CS5 with the aid of Google Earth Pro GIS.

RESULTS

Classification

Superfamily PAPILIONOIDEA Latreille, 1802
Family LYCAENIDAE Leach, 1815
Subfamily THECLINAE Swainson, 1831
Tribe Deudorigini Doherty, 1886
Genus *Capys* Hewitson, [1865]
Type species: *Papilio alpheus* Cramer, 1775; by monotypy

[5] http://www.ncbi.nlm.nih.gov/

Generic diagnosis – Ocelli absent, chaetosemata present, no tympanal organ, hindwing without frenulum (Papilionoidea); tibial spurs 0-2-2, foretibia without epiphysis, tibiae unspined, tarsal claws not bifid; labial palpi with average length and upcurved, functional and normal in length (Lycaenidae); antennal club cylindrical, hind wing with tornal lobe, male genitalia without juxta, eyes hairy (Theclinae); forewing with 11 or 12 veins, male fore tarsus terminus with tapered, down curved point (Deudorigini); no structural colour, hindwing with scent patch at vein 7 erection, hostplant exclusively *Protea* (Eliot 1973; Heppner 1998).

Checklist and distribution

Capys alpheus (Cramer, [1777]) – ssp. *alpheus* (Cramer, [1777]): South Africa, Northern Cape Province via Western Cape to southern part of Eastern Cape Province; ssp. *extentus* Quickelberge, 1979: South Africa from northern Eastern Cape Province via KwaZulu-Natal, Free State and Mpumalanga Provinces to Limpopo Province. Also in Eswatini.

Capys arba Sáfián et Fric, sp. n. – Ethiopia, south on the escarpment along the Rift.

Capys bamendanus Schultze, 1909 – Cameroon, Bamenda Highlands. Potentially also on the Adamawa Plateau and in the adjacent eastern Nigerian high-altitude areas.

Capys bamptoni Henning et Henning, 1988 – South Sudan, Imatong and Didinga Mountains.

Capys brunneus Aurivillius, 1916 – ssp. *brunneus* Aurivillius, 1916: Tanzania, southern mountainous areas, Malawi, Mount Mulanje; ssp. *heathi* Henning et Henning, 1988: Zambia, North-western Province.

Capys calpurnia Henning et Henning, 1988 – Kenya, Mount Nyiro.

Capys catharus Riley, 1932 – Tanzania.

Capys collinsi Henning et Henning, 1988 – Kenya, Ol'Doniyo Sabuk Mountain.

Capys connexiva Butler, 1897 – ssp. *connexiva* Butler, 1897: Tanzania, Malawi, Zimbabwe, Zambia, Angola, possibly also Mozambique; ssp. *gardineri* Henning et Henning, 1988: Zambia, Mufulira.

Capys cupreus Henning et Henning, 1988 – Kenya, Mau Escarpment (Henning & Henning 1988).

Capys disjunctus Trimen, 1895 – Mozambique, Zimbabwe, South Africa, Eswatini.

Capys hermes Henning et Henning, 1988 – Kenya, Central Highlands.

Capys juliae Henning et Henning, 1988 – Kenya, Cherangani Hills and other isolated mountain areas in central-western Kenya.

Capys meruensis Henning et Henning, 1988 – Kenya, Meru, lower, north-eastern slopes of Mount Kenya.

Capys moroto Sáfián et Collins, sp. n. – Uganda, Mount Moroto. Possibly in other extinct volcanoes in the Karamoja Region.

Capys penningtoni Riley, 1932 – South Africa, KwaZulu Natal.

Capys rileyi Stoneham, 1938 – Kenya (west), Uganda (east).

Capys robertsi Collins et Sáfián, sp. n. – Kenya, Mount Kenya, high altitude moorland above the treeline.

Capys smithi Takano et Sáfián, sp. n. – Ghana, Ivory Coast, lowland savannah areas west of the Volta River system.

Capys stuarti Collins et Larsen, 2000 – Nigeria, Jos Plateau and possibly other higher altitude areas in north-central Nigeria.

Capys usambarae Congdon et Collins, 1998 – Tanzania, West Usambara.

Capys vorgasi Larsen et Collins, 2003 – Ghana, Togo Mountains (Likpe and Kyabobo), probably also in Togo, since the localities are situated right on the Ghana-Togo border with habitat and foodplant available also in Togo.

Species descriptions

Capys arba Sáfián et Fric, **sp. n.**
(Figs 24, 29, 42, 67)

Type material – Holotype ♂: ETHIOPIA: Dorze Lodge (2400 m), 11–30.I.2015. N 06 10 56, E 037 34 35, Vladimir Major leg.; unique code: ZF-LY-002867; deposited in CEPUJ (Fig. 24). Paratypes: ETHIOPIA: near Dorze (2401 m), 11–30.I.2015. N 6 10 838, E 37 34 793. Leg.: M. Ströhle. (9♂♂, 1♀); deposited in Ströhle's collection. GenBank Accession code PP096874 (Fig. 29).

Diagnosis – The external characters of all potentially similar *Capys* species had to be examined but in general appearance none of the taxa in the geographic proximity could be considered very similar to *C. arba* sp. n. In the males, the most similar species with its narrow dull red patch interrupting by the brown veins on both forewing and hindwing is *C. brunneus* (distributed in Western Tanzania, Malawi and as a distinct subspecies *C. b. heathi* in Zambia), whose males also share a concave outer forewing margin (Heath *et al.* 2002, Williams 2023). Moreover, the male *C. brunneus* lacks visible androconia in the subbasal area of hindwing dorsal surface and the hindwing ventral surface has a strong pattern (in both subspecies) compared to that of *C. arba* sp. n. Geographically, the nearest taxa are *C. bamptoni*, *C. calpurnia, C. juliae*, and *C. rileyi*, but none of them seem to be close to *C. arba* sp. n. as males of the first three species express more extensive orange-red colouration on the dorsal surface, extending into the basal area (setting them far apart from *C. arba* sp. n.), while the last species has smaller, but visibly much brighter orange-red patches, compared to any males in the type series of *C. arba* sp. n.. The ten known males of *C. arba* sp. n. vary in wingspan (see at description) and the width of the red patch of the forewing dorsal surface, but the red colouration does not penetrate the basal area. The extent of the red patch on the hindwing dorsal surface also varies, being almost diffuse in one of the paratype specimens.

Description – Male: Tip of labial palp narrow, second segment long with large fan-like scales, third segment 1/5× as long as second segment (Fig. 67). Forewing length: 13.5–17.0 mm. Wingspan: 27.5–34.0 mm (n = 10). Outer edge of forewing distinctly concave between veins 2 and 4, median area of dorsal forewing surface and outer half of hindwing with narrow patches; patches dull deep reddish orange, crossing brown veins moderately conspicuous on hindwing. Inner edge of forewing reddish patch with a strong, v-shaped incision along vein 2. Subbasal area of dorsal surface of hindwing with a conspicuous androconial patch at fork of veins 6 and 7 (width of patch = 2 mm). Ground colour of ventral surface dark graphite-grey with an orange shade identical to forewing. Bands of hindwing formed by dark pearly spots well-developed and complete; some spots overlayed by dull reddish scales. Hindwing margin with a row of dull reddish lunules in spaces 1b, 2, 3 and 4, rest of the submarginal area slightly darker than the rest of the wing (Fig. 24). Ground plan of genitalia similar to other *Capys* species with the dorsally bi-lobed and sparsely haired uncus, slender, in dorso-ventral view upcurved brachia, characterless tegumen, rudimental, basally fused lanceolate valvae, and with fine hairs on the terminal half. Aedeagus slightly bent, slightly longer than capsula, with finely down curved subzonal posterior end, suprazonal portion straight and somewhat shorter than subzonal part. Vesica with a single membranous cornutus (Fig. 42).

Female: Forewing length: 19.5 mm. Wingspan: 38 mm. General appearance similar to congeneric species. Entire dorsal surface light slivery grey, slightly darker in forewing basal and apical area. Marginal line dark grey with whitish fringes. Ventral surface also light silvery grey with well-defined and distinctly darker, pearly median bands, and with a cell-closing spot. Marginal lunules of hindwing diffuse, reddish on dorsal surface, dark grey with reddish scales on ventral surface (Fig. 29).

Etymology – The name "arba" refers to the Ethiopian city of Arba Minch (Forty Springs), which is near the type locality of *C. arba* sp. n.; noun in apposition.

Capys moroto Sáfián et Collins, **sp. n.**
(Figs 9–10, 14, 34–35, 53–55)

Type material – Holotype ♂: UGANDA, Mount Moroto, XI.2013. Leg.: Jean-Pierre Lecieux, ABRI; deposited in ABRI (Fig. 9). Paratypes: UGANDA: Mount Moroto, XI.2013. Leg.: Jean-Pierre Lecieux, ABRI (ABRI: 15♂♂ 2♀♀); UGANDA: Mount Moroto, IV–XII.2014. Jean-Pierre Lecieux, ABRI leg. (ABRI: 35♂♂ 19♀♀), UGANDA: Mount Moroto, I–XI.2015. Jean-Pierre Lecieux, ABRI leg. (ABRI: 11♂♂ 2♀♀) (Figs 10, 14).

Diagnosis – No other *Capys* species is known with a completely brown dorsal wingsurface in both sexes. *Capys moroto* sp. n. shares the almost straight outer margin of the forewing and the violet sheen on the dorsal surface only with the nearby distributed *C. juliae* (Figs 12–13: males, 15–16: females, 37: male genitalia, Figs 60–61: palps) but differs from it by the lack of coppery patch on the dorsal surface of males and by the much less conspicuous ochreous area on the forewing dorsal surface of females. The intensity of the violet iridescence varies, some male specimens appear with stronger coppery colour in the centre of the forewing. In males, the colour of the oval androconial spot also varies from lighter to darker brown, sometimes with stronger violet sheen.

Description – Male: Labial palp second segment short with ribbon-like scales, third segment short, with 1/6th second segment length (Figs 53–55). Forewing length: 14.5–18.0 mm. Wingspan: 28.5–33.0 mm (n = 70). Forewing outer margin almost straight, similar to that of *C. juliae*. Dorsal wingsurface completely greyish brown with an inconspicuous coppery area in the centre of the forewing and with a violet sheen, more visible on the hindwing. Hindwing marginal copper-coloured spots disjunct and inconspicuous, margin strongly scalloped. A conspicuous oval androconial spot present in the fork of veins 6 and 7 and in space 7, not reaching vein 8. Ventral surface silvery graphite-grey with a triangular pale ochre area between the inner margin and the discal cell on forewing, and with the usual "*Capys* bands", formed by the pearl-spots on the hindwing. Spots fused into two short bands, one starting from the costa and the other from the inner margin; not connected to each other. Marginal area between the apex and the tornus of the hindwing also darkened. Groundplan of genitalia similar to other *Capys* species with the dorsally bi-lobed and sparely haired uncus, slender upcurving brachia in lateral view, characterless tegumen and rudimental, basally fused lanceolate valvae, with fine hairs on their terminal half. Aedeagus almost straight, two times longer than the entire genitalia capsula, having a relatively wide zonal region in lateral view resulting subzonal and suprazonal portions somewhat narrowing at their middles, and slightly bent subzonal portion terminus. Vesica with a single membranous cornutus (Figs 34–35). Female: Forewing length: 16–18.5 mm. Wingspan: 31.5–36 mm (n = 22). As male, only forewing apex slightly less acute and its outer margin slightly convex (Fig. 14).

Etymology – The species is named after its type locality Mount Moroto in northeast Uganda; noun in apposition.

Remarks – Previously, only *Capys rileyi* has been known from Uganda (www.abdb-africa.org). *Capys moroto* sp. n. is very different in appearance and is morphologically closer to *C. juliae*, which species occur in western Kenya. Based on current knowledge, *C. moroto* sp. n. is restricted to the mountainous areas near Mount Moroto in northeast Uganda, but might be present locally in other mid-altitude mountains in the Karamoja Region of Uganda (Toror Hills, Mount Kadam). There is a *Capys* population in the mountainous areas near Sekerr in western Kenya, which in general appearance is even closer to *C. moroto* sp. n. Its taxonomical assessment needs further material to be examined as this population may represent an undescribed species (Figs 11, 36, 56–59 as "*Capys* n. *moroto*").

Capys robertsi Collins et Sáfián, **sp. n.**
(Figs 1–2, 5–6, 30–31, 62)

Type material – Holotype ♂: KENYA, Mount Kenya, 25.X.2003. Mount Kenya, 10 400 Ft, moorlands above Marania Bred. Collins/ABRI coll. Coordinates: 0°1'22.80"N, 37°24'12.64"E.; deposited in ABRI (Fig. 1). Paratypes: KENYA, Mount Kenya, 10 400 Ft, moorlands above Marania, Bred. Collins (ABRI: 19♂♂); KENYA, Mount Kenya, 10 400 Ft, moorlands above Marania 5.X.2003. Bred/Ex-pupa Collins (ABRI: 12♀♀) (Figs 2, 5–6).

Diagnosis – In size, pattern and wingshape, both sexes of *C. robertsi* sp. n. are very similar to, but readily separable from *C. meruensis* (Figs 3–4: males, 7–8: females, 32–33: male genitalia). Males of *C. robertsi* sp. n. have darker and brighter coppery-red dorsal surface patches on the surface of both wings, which are orange-red with slight golden sheen in *C. meruensis*. The female of *C. robertsi* sp. n. has a prominent pale orange patch on the forewing dorsal surface. The forewing dorsal surface of *C. meruensis* females is completely dark grey with only inconspicuous ochre colouration between veins 2 and 5, from the discal cell towards the submarginal area of the outer margin, stronger only between veins 4 and 5, where a very inconspicuous, narrow ochre band is present. In the male genitalia *C. robertsi* sp. n. differs from *C. meruensis* by the distinctly narrower fused base of the valvae, while the central dip of the uncus is also less incised in *C. robertsi* sp. n. Subzonal aedeagus of *C. robertsi* sp. n. is slightly bent terminally in lateral view, while it is straight in *C. meruensis*. The male of *C. connexiva* is also similar in appearance, but its female is completely dark grey on the dorsal surface, with only reddish marginal spots on the hindwing (D'Abrera 2009: 785, Williams 2022). Both sexes vary significantly in size, which most probably depends on food availability.

Description – Male: Labial palp second segment long with ribbon-like scales, third segment short, 1/7× as long as second segment (Fig. 62). Forewing length: 12–17.5 mm. Wingspan: 23.5–33.5 mm (n = 20). A large discal copper-red spot on both wings covering slightly more than half of the entire wing surface, leaving the base, the rather narrow costa, wider apex and outer margin on the forewing, as well as the broad costa and apex dark brown on the hindwing. Outer margin of the copper-red patch strongly lobed in spaces 1b, 2, 3 and 4. A plectrum-shaped androconial patch present in the subbasal area on the hindwing dorsal surface, in the fork of veins 6 and 7, reaching quite deeply into space 7, broadening from the base of the veins. Hindwing veins darkened inside the copper-red patch. Ventral surface silvery graphite-grey with a triangular pale ochre area between the inner margin and the discal cell on forewing, usual "*Capys* bands" also present on ventral surface, formed by the pearl-spots on the hindwing. Spots fused into two short bands, one starting from the costa and the other from the inner margin; being not connected to each other. Marginal area between the apex and the tornus of the hindwing also darkened (Figs 1–2). Groundplan of genitalia similar to other *Capys* species with the dorsally bi-lobed and sparely haired uncus, slender upcurving brachia, characterless tegumen and rudimental, basally fused lanceolate valvae, with fine hairs laterally on their terminal half. Aedeagus almost straight and two times longer than the entire genitalia capsula with slightly downcurved subzonal posterior end. Vesica with a single cornutus (Figs 30–31). Female (Figs 5–6): Forewing length: 11.5–20.5 mm. Wingspan: 24.5–39.5 mm (n = 12). Wing shape and pattern like those of male.

Etymology – The species is dedicated to Michael Roberts (Kenya), who first found the locality and collected the first specimens.

Remarks – The species *C. robertsi* sp. n. is superficially similar to the parapatric *C. meruensis*, but based on extensive breeding experiments by ABRI researchers, the former occurs only in the higher slopes of Mount Kenya from about 3000 m ASL and utilises *Protea gaguedi* J.F. Gmelin as a foodplant, whilst *C. meruensis* is apparently a lower altitude species found at 1500 m ASL where its foodplant is *P.* (*caffra*) *kilimandscharica* (Engl.) Chisumpa & Brummitt.

Capys smithi Takano et Sáfián, **sp. n.**
(Figs 17–19, 25–26, 38–39, 43–44, 63–64)

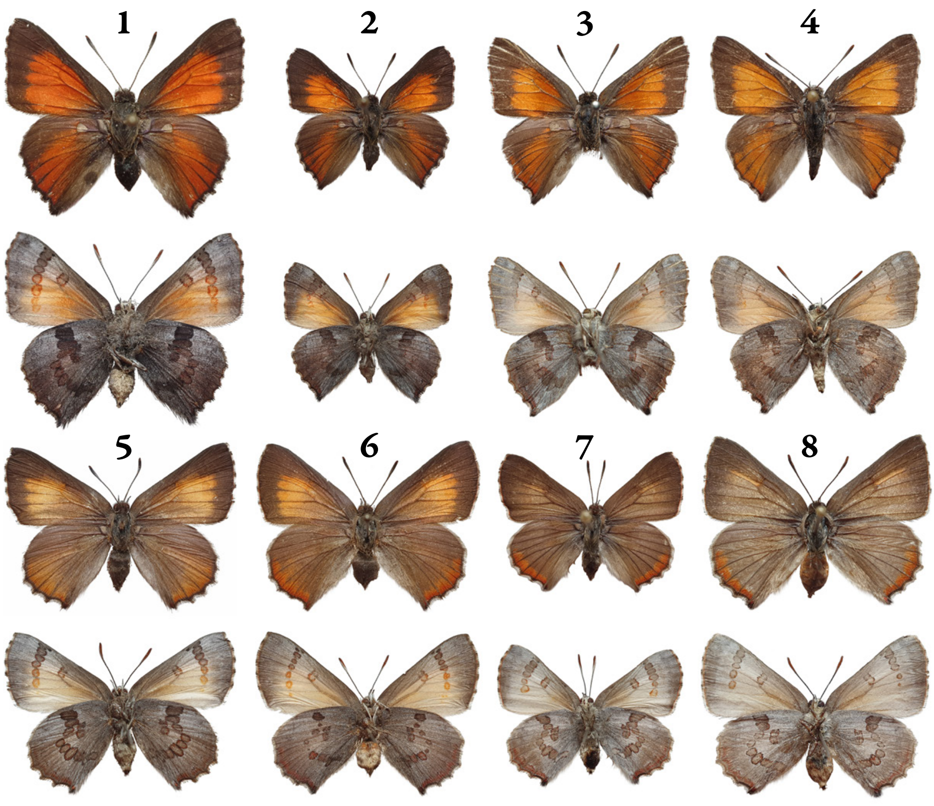
Type material – Holotype ♂: IVORY COAST: Comoe National Park, Comoe 2, N08 40 03, W03 47 03 27.VI–02.VII.15. Open forest. Leg. Aristophanous, M., Moretto, P., Ruzzier, E. ANHRT unique number: ANHRTUK00194563; deposited in ANHRT (Fig. 17). Paratypes: 2♂♂ GHANA, Mole; 1♀ GHANA, Mole, July 2012 R.V. ABRI leg.; all deposited in ABRI (Figs 18–19, 25–26).

Diagnosis – Only *Capys stuarti* (Figs 23: male, 41: male genitalia, 47–48: androconia) and *C. vorgasi* (Figs 20–22: males, 27–28: females, 40: male genitalia, 45–46 and 49–52: androconia, 65–66: palps) were known to occur in West Africa, and *C. smithi* sp. n. differs from both by the duller brownish coppery patches on the dorsal wing surfaces, which are brighter red in *C. vorgasi* and paler orange in *C. stuarti*. Males vary significantly in size, most likely depending on food availability. Colouration pattern do not seem to vary among the three males available for examination. Contrary to the diagnoses provided by Collins & Larsen (2000) and Larsen & Collins (2003), an androconial patch appears in the fork of veins 6 and 7 on the dorsal surface of the hindwing in males of both *C. stuarti* and *C. vorgasi*, although it is much reduced in size and inconspicuous in the latter species, largely restricted to the triangular area between these two veins, visible only under high magnification (width of patch = 1 mm along the vein on the illustrated specimen). In the examined specimens of *C. vorgasi* the androconia are larger (width = 2 mm along the vein of the holotype) and are visible to the naked eye, while androconia are small and inconspicuous in *C. smithi* sp. n. (width >1 mm in the holotype, width = 1 mm in the paratypes). *Capys smithi* sp. n., as expected, seems to be a sister species of *C. vorgasi* and *C. stuarti*, according to the results of the COI analysis. In the COI section of mithochondrial DNA sequence, *C. smithi* sp. n. differs only slightly from *C. stuarti* by 0.03% and from *C. vorgasi* by 0.12% by K2P distances.

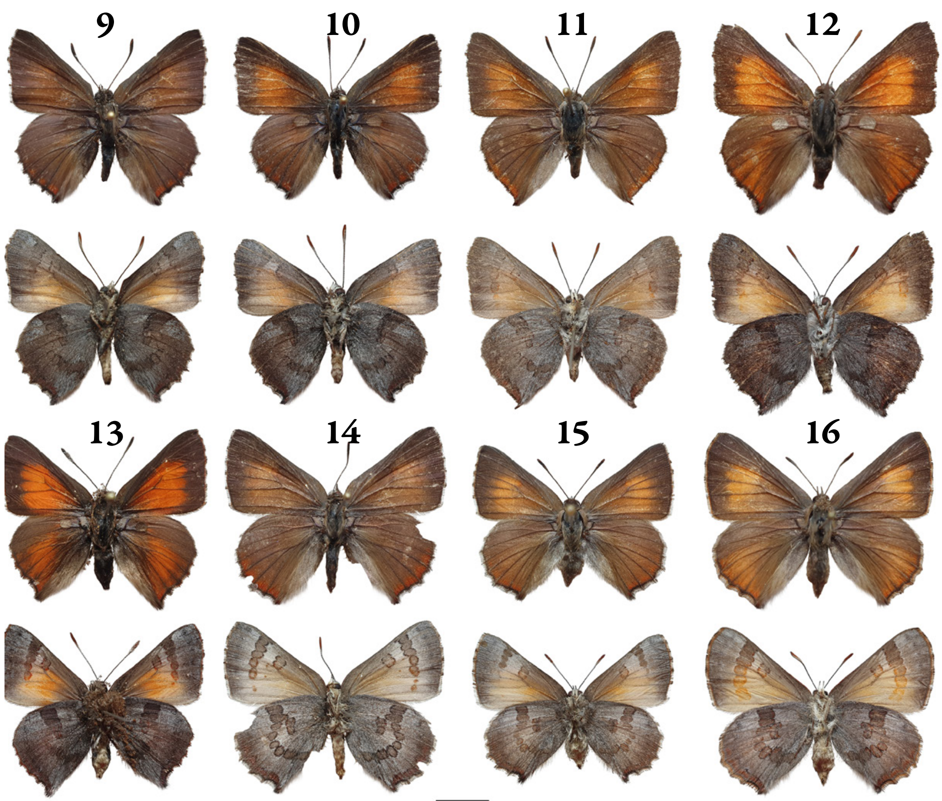
Description – Male: Labial palp second segment short with ribbon-like scales, third segment 1/4× as long as the second segment (Figs 63–64). Forewing length: 13.4–20.2 mm. Wingspan (n = 3): 26.5–38.5 mm. Forewing outer margin very slightly concave between veins 2 and 4. A narrow patch present in the median area of the forewing dorsal surface, tapering towards the inner margin, another patch being present on the outer half of the hindwing. These patches dull deep reddish orange in colour, with the brown veins across being moderately conspicuous only on hindwing. Reddish patch of forewing with a slight v-shaped incision on its inner margin along vein 2. A minute, but visible (width = 1 mm) androconial patch being present in the subbasal area of the hindwing dorsal surface, in the fork of veins 6 and 7. Ground colour of ventral surface pale graphite-grey, with a shade of orange identical to forewing. In the hindwing the bands formed by darker pearly spots being very poorly developed and not complete. Some spots sparsely overlayed by dull reddish scales. Margin with a row of dull reddish lunules in spaces 1b, 2, 3 and 4, sometimes missing or forming a sub-marginal reddish band. Rest of the submarginal area slightly darker than rest of the wing (Figs 17–18, 43–44). Groundplan of genitalia similar to other *Capys* species with the dorsally bi-lobed and sparsely setose uncus, slender upcurving brachia in lateral view, characterless tegumen and rudimental, basally fused lanceolate valvae, with only a few fine hairs on their terminal half. Aedeagus straight and 1.5 times longer than the entire genital capsule, with slightly bent subzonal portion terminus in lateral view. Vesica with a single membraneous cornutus (Figs 38–39). Female: Appearance almost identical to *C. vorgasi* and *C. stuarti*. Ground colour on both surfaces slightly lighter than the other two species, and the pearly pattern on the ventral surface on the hindwing less conspicuous (Figs 25–26).

Etymology – The species is dedicated to Richard Smith, Chairman of the Board of Trustees, ANHRT for his continued dedication to and support of taxonomy and Afrotropical entomology.

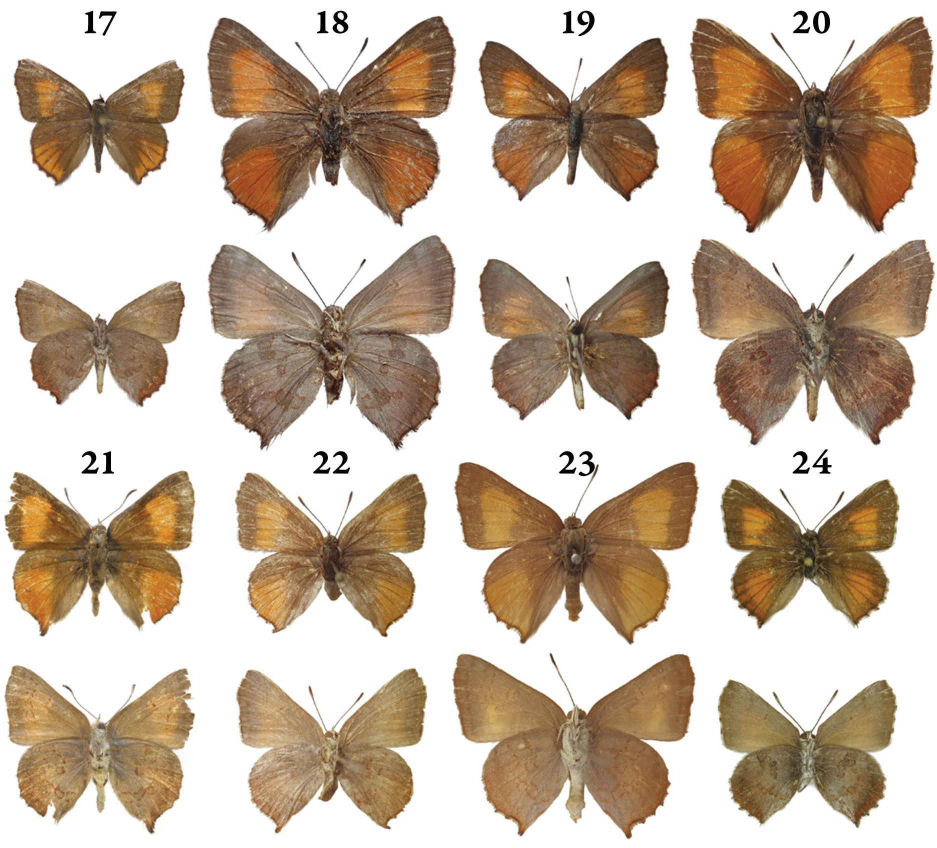
Remarks – Previously, only two *Capys* species were known from West Africa: (1) *Capys stuarti*, described and known only from the Jos Plateau of central-northern Nigeria, and (2) the more recently discovered *C. vorgasi*, which was collected only from hilly localities in the Likpe Mountains, Volta Region, Ghana. The Likpe region is part of the broader Togo Mountains, encompassing the Volta biogeographical subregion, a rather large, isolated and partially forested mountainous area in the Dahomey Gap (Larsen 2005). Although *Capys* are rarely found in lowland areas, as *Protea* stands usually occur in hills and mountains in East and West Africa, the newly described *C. smithi* sp. n. was found in two lowland localities in typical Guinea savannah in Ghana and Ivory Coast (200–400 m ASL) with different ecological conditions from habitats of other congeners and could be the only truly lowland *Capys* species.



Figures 1–8. *Capys* species, in dorsal (upper image) and ventral (lower image) views. 1 = *C. robertsi* sp. n. (holotype); 2 = *C. robertsi* sp. n. (male paratype, Kenya, Mount Kenya); 3 = *C. meruensis* (male paratype, Kenya, Mount Kenya, Meru); 4 = *C. meruensis* (male, Kenya, Mount Kenya, Meru); 5 = *C. robertsi* sp. n. (female paratype, Kenya, Mount Kenya); 6 = *C. robertsi* sp. n. (female paratype, Kenya, Mount Kenya) ventral surface; 7 = *C. meruensis* (female, Kenya, Mount Kenya, Meru); 8 = *C. meruensis* (female, Kenya, Mount Kenya, Meru) (photos: Sz. Sáfián). Scale bar = 10 mm.

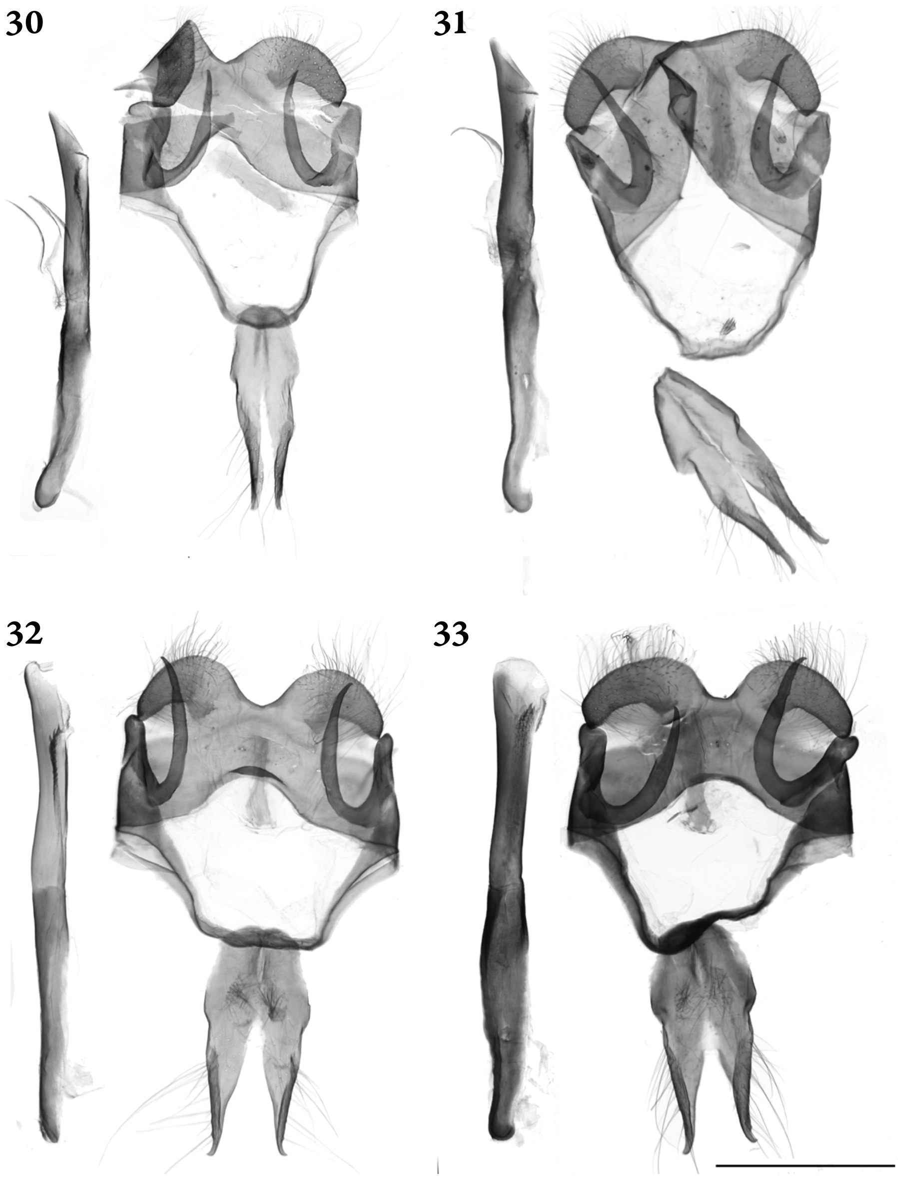


Figures 9–16. *Capys* species, in dorsal (upper image) and ventral (lower image) views. 9 = *C. moroto* sp. n. (holotype); 10 = *C. moroto* sp. n. (male paratype, Uganda, Mount Moroto); 11 = *C.* nr. *moroto* (male, Kenya, Sekerr Mountain); 12 = *C. juliae* (male, Kenya, Mount Cherangani Hills); 13 = *C. juliae* (male, Kenya, Eldoret); 14 = *C. moroto* sp. n. (female paratype, Uganda, Mount Moroto); 15 = *C. juliae* (female, Kenya, Mount Cherangani Hills); 16 = *C. juliae* (female, Kenya, Eldoret) (photos: Sz. Sáfián). Scale bar = 10 mm.

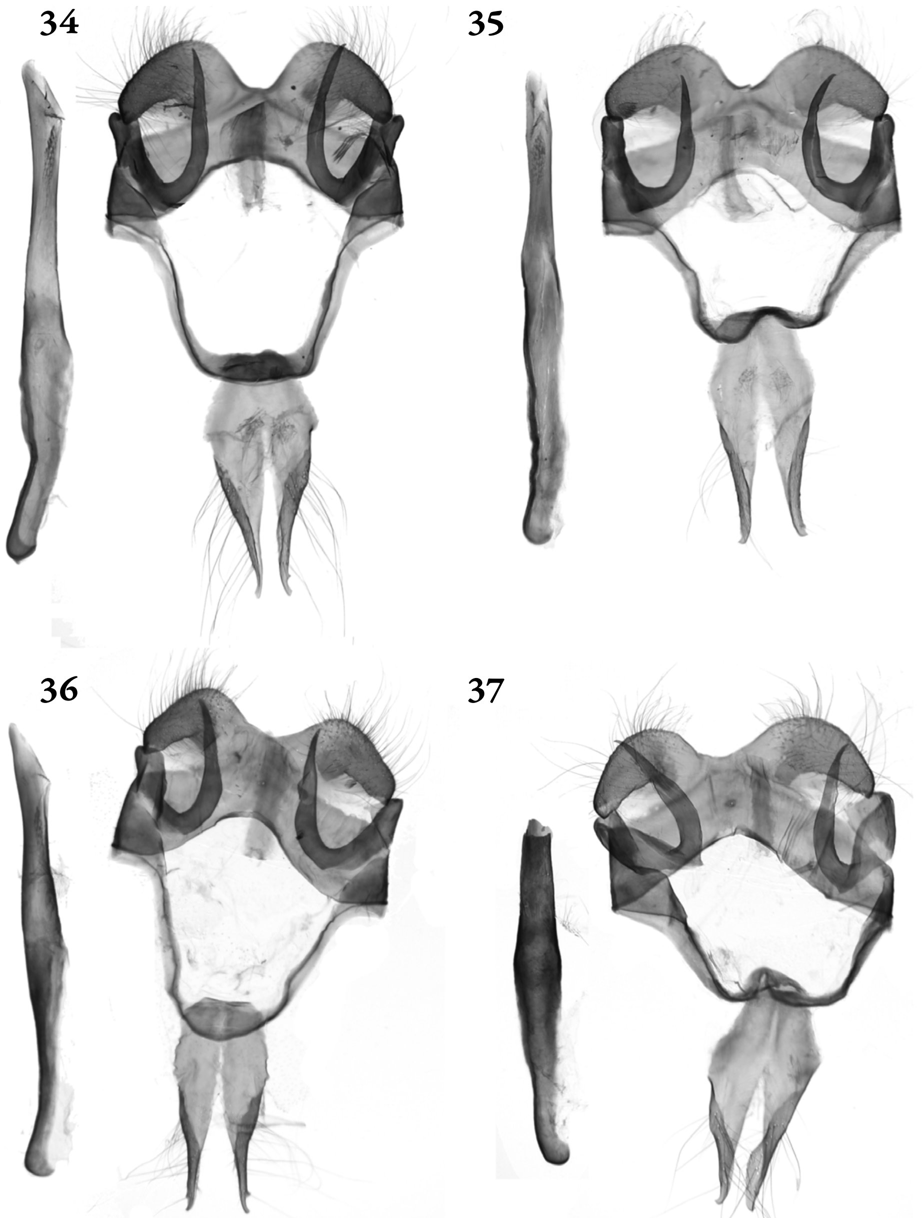


Figures 17–24. *Capys* males, in dorsal (upper image) and ventral (lower image) views. 17 = *C. smithi* sp. n. (holotype); 18 = *C. smithi* sp. n. (paratype, Ghana, Mole); 19 = *C. smithi* sp. n. (paratype, Ghana, Larabanga); 20 = *C. vorgasi* (holotype); 21 = *C. vorgasi* (paratype, Ghana, Likpe); 22 = *C. vorgasi* (Ghana, Kyabobo National Park); 23 = *C. stuarti* (Nigeria, Kaduna); 24 = *C. arba* sp. n. (holotype) (photos: Sz. Sáfián). Scale bar = 10 mm.

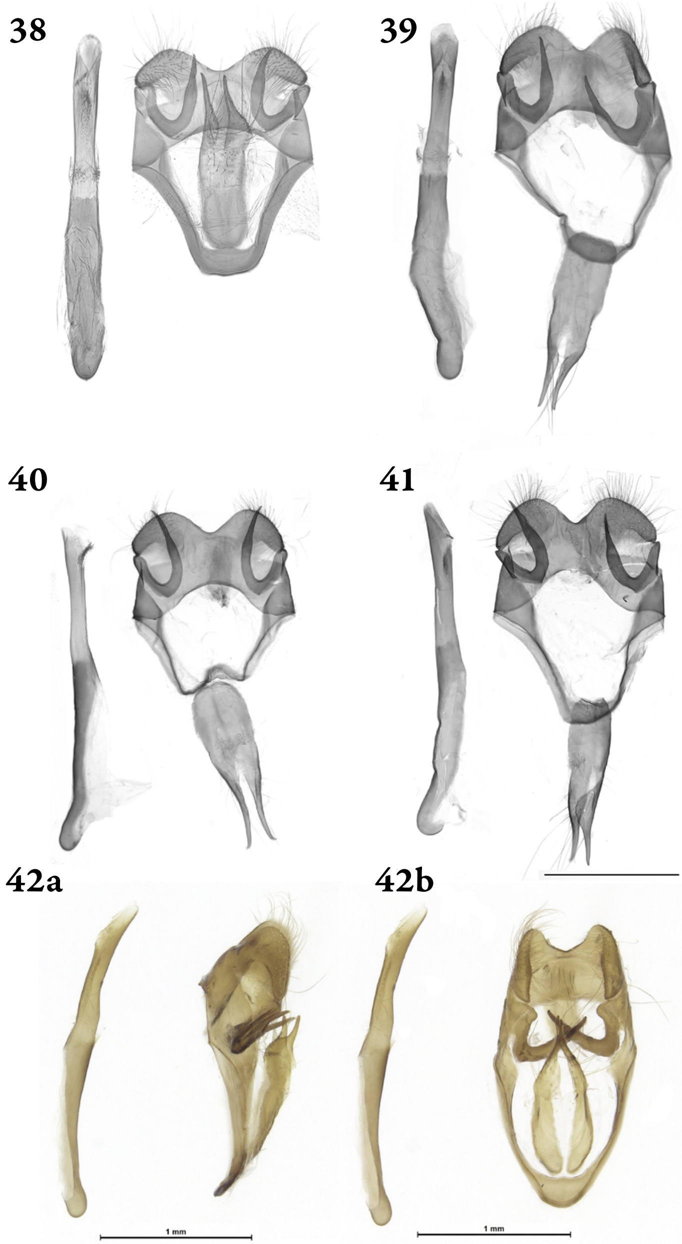
Figures 25–29. *Capys* females, in dorsal (upper image) and ventral (lower image) views. 25 = *C. smithi* sp. n. (paratype, Ghana, Larabanga); 26 = *C. smithi* sp. n. (paratype, Ghana, Larabanga), dorsal surface; 27 = *C. vorgasi* (Ghana, Likpe); 28 = *C. vorgasi* (Ghana Likpe); 29 = *C. arba* sp. n. (paratype, Ethiopia, Dorze) (photos: Sz. Sáfián). Scale bar = 10 mm.



Figures 30–33. Male genitalia of *Capys* species mounted on slides (aedeagus on left and flattened armature on right). 30 = *C. robertsi* sp. n. (holotype); 31 = *C. robertsi* sp. n. (paratype); 32 = *C. meruensis* (Kenya, Mount Kenya); 33 = *C. meruensis* (Kenya, Mount Kenya) (photos: B. Tóth). Scale bar = 1 mm.



Figures 34–37. Male genitalia of *Capys* species mounted on slides (aedeagus on left and flattened armature on right). 34 = *C. moroto* sp. n. (holotype); 35 = *C. moroto* sp. n. (paratype); 36 = *C.* nr. *moroto* (Kenya, Sekerr Mountains); 37 = *C. juliae* (Kenya, Cherangani Hills) (photos: B. Tóth). Scale bar = 1 mm.

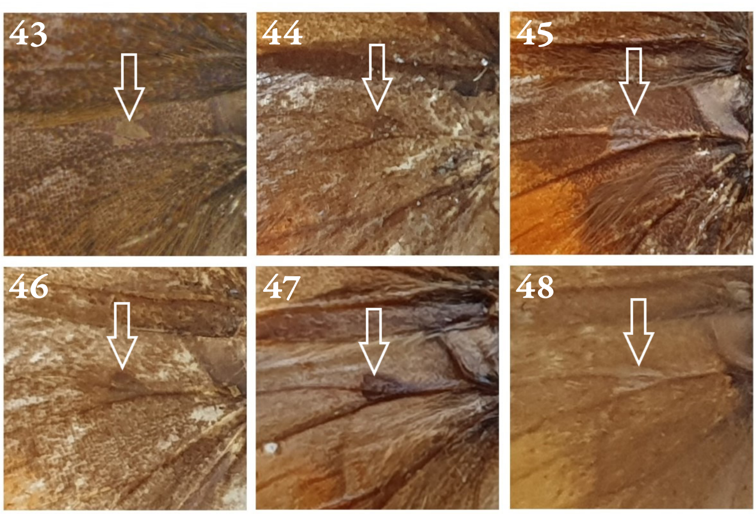


Figures 38–42. Male genitalia of *Capys* species mounted on slides (aedeagus on left and flattened armature on right). 38 = *C. smithi* sp. n. (holotype); 39 = *C. smithi* sp. n. (paratype, Ghana, Larabanga); 40 = *C. vorgasi* (holotype); 41 = *C. stuarti* (Nigeria, Jos Plateau) (photos: B. Tóth); 42 = *C. arba* (holotype in lateral view (a)), plus armature in dorsal view in extreme right (b) (photos: N. Ignatev and M. Rindoš). Scale bars = 1 mm.

DISCUSSION

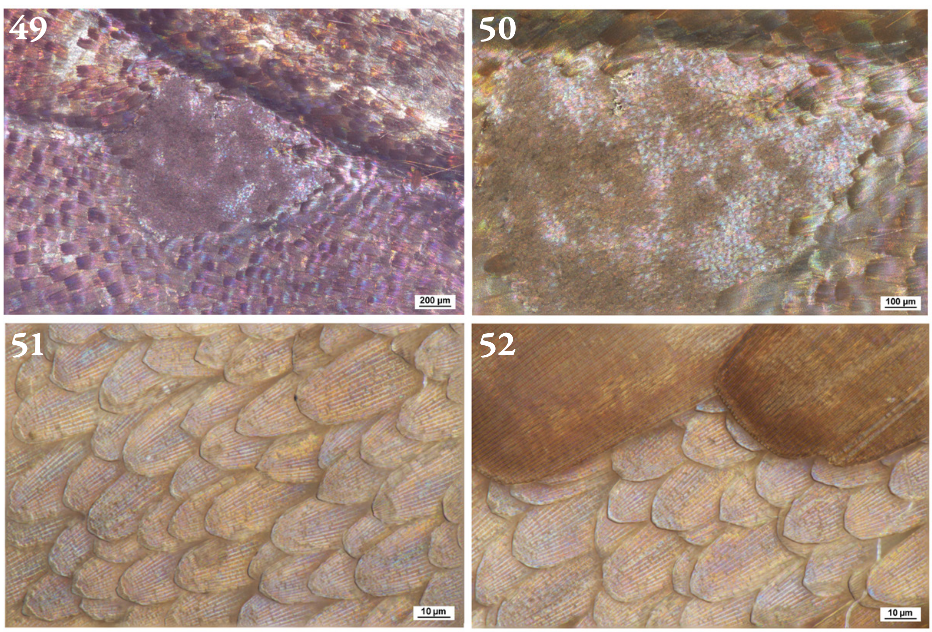
Androconia

Murray (1935) recorded and illustrated the presence of androconia for *Capys* stating that "the scent patch is covered by a brush of long hair-like structures, i.e. setae or modified scales… [but] the brush of prominent bristles is attached to the lower edge of the scent patch itself, on the upper surface of the hindwing and point upwards". Later Stempffer (1967: 171) repeated this observation made on male secondary characters as "on underside of fore wing a tuft of hairs in the middle of the inner margin, on upperside of hind wing a small scaly spot at the origin of vein 7". He remarked that these characters are missing on *C. brunneus* and *C. catharus*. Henning & Henning (1988) used this trait in their "Key for *Capys* species" based on males. However, the presence of hairiness in the middle region of the inner margin of the forewing was erroneously recorded as a tuft of hairs. This latter trait is indeed typical for many deudorigine hairstreaks, but it is completely absent in *Capys* (Figs 43–48). In fact, a series of long hairs is present on the inner margin of the forewing, a trait that is widely distributed in papilionoid butterflies, and can also be found in females, hence it does not necessarily connect to the androconia. Probably it has a mechanical function in helping the synchrony of the movement of the forewing and hindwing musculature.



Figures 43–48. Androconial patch on the hindwing dorsal surface of *Capys* males indicated by an arrow. 43 = *Capys smithi* sp. n., holotype; 44 = *Capys smithi* sp. n., paratype, Ghana, Larabanga; 45 = *C. vorgasi*, holotype; 46 = *C. vorgasi*, Ghana, Likpe; 47 = *C. stuarti,* Nigeria, Jos; 48 = *C. stuarti,* Nigeria, Kaduna (photos Sz. Sáfián); for scale see previous figures.

The "sex patch" of Murray (1935), the "small scaly spot" of Stempffer (1967), and the "scent brand" of Eliot (1973) and Henning & Henning (1988), androconial patch of Collins & Smith (2000) and Larsen & Collins (2003) all refer to a "scent patch" sensu Robbins (1991), as it cannot be detected in the ventral wing surface (Faynel & Bálint 2012). Indeed, it consists of scales which can be considered as androconia as their morphology reveals: the dimensions of these scales are different from the ordinary cover and ground scales (Figs 49–52). Moreover, it is situated on the principal vein which suggests the androconial scales form an organ supported by living cells (Salcedo & Socha 2020, Tsai *et al*. 2020). The form and extension of this scent pad around the (radial) vein 7 erection seems to be species specific, but further investigations on larger sample sizes are necessary.



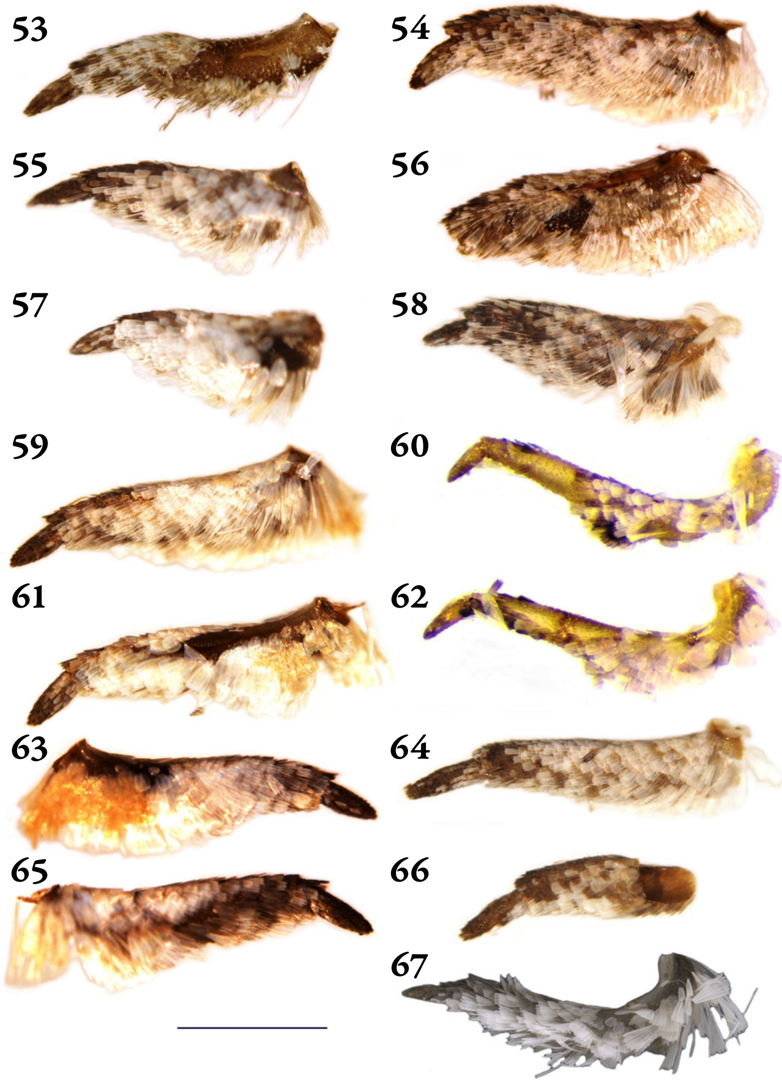
Figures 49–52. Micrographs of scent patch of dorsal surface of hindwing of *Capys vorgasi* (Ghana, Kyabobo), situated at the erection of vein 7 under various magnifications. 49 = the whole patch surrounded by ordinary scales; 50 = only the patch shows various reflectivity, caused by the different position of the scales; 51 = androconia under larger magnification; 52 = pigment-loaded cover scales (upper part) and androconia (lower part), note that the androconial scales are remarkably smaller than ordinary scales and are somewhat different in shape (photos: G. Piszter).

Although most of the *Capys* species possess androconia, there are references to its absence in *C. brunneus*, *C. catharus* and *C. stuarti* (Stempffer 1967, Henning & Henning 1988, Collins & Larsen 2000, Larsen & Collins 2003). However, we present here two remarks which contradict the observations of missing androconia, and underline that the absence or presence of androconia in *Capys* needs further investigation: (1) the examined paratype specimen of *C. stuarti* possesses a minute scent patch in the usual region (Figs 47–48); (2) the documentations provided by Kielland (1998) and d'Abrera (2009) also indicate that *C. brunneus* and *C. catharus* have androconia, but their size is similarly small like that of *C. stuarti,* therefore easy to overlook. Although it is well-known in various Lycaenidae genera that there are congeneric species with and without androconia (cf. Druce 1907, Murray 1935, Bálint *et al.* 2017), this is most probably not the case in *Capys*.

Labial palps

Henning & Henning (1988) presented identification keys separately for males and females of *Capys* species. In the key, "sex brands" (scent patches), wing colouration pattern, traits of labial palps, male and female genitalia were considered to be diagnostic features. Labial palps were documented for twelve taxa in 26 line drawings (Henning & Henning 1988: figs 61–84), but the numbers of the examined specimens were not given and the infraspecific variation was not further elaborated upon. They stated that "palpi with second segment laterally compressed, tapering gradually distally, usually white or pale grey; third segment short in male but longer in female and pale brown to charcoal black in color".

We examined the male palps of seven taxa (Figs 53–67) and our findings correspond with those reported in Henning & Henning (1988): the second segment is laterally compressed, tapering gradually distally and the third segment is short. Nevertheless, we remark here that the basal part of the inner surface of the second segment is covered in different types of dark-coloured (charcoal or dark brown) scales as compared to the rest of the segment, where the scales bear no pigments in their lumen. Although there is a large amount of literature about lepidopteran scales, most of them concentrate on the scales covering the wing membrane. Further investigations are required to describe and understand the different type of scales in palps of *Capys* species we recorded.



Figures 53–67. Labial palps of *Capys* species in lateral view. 53 = *C. moroto* sp. n. (holotype), left palp, inner side; 54 = *C. moroto sp. n.* (paratype), right palp with broken base, inner side; 55 = *C. moroto* sp. n. (paratype), left palp, outer side, left palp with broken base; 56 = *C.* n. *moroto,* left palp, outer side; 57 = *C.* n. *moroto*, right palp, inner side; 58 = *C.* n. *moroto* left palp, inner side; 59 = *C.* n. *moroto*, right palp, outer side; 60 = *C. juliae,* left palp, outer side; 61 = *C. juliae*, right palp, inner side with broken apex; 62 = *C. robertsi* sp. n. (paratype), left palp, outer side; 63 = *C. smithi* sp. n., holotype, left palp, outer side; 64 = *C. smithi* sp. n., holotype, right palp, inner side; 65 = *C. vorgasi*, left palp, outer side, 66 = *C. vorgasi*, right palp with broken base, inner side (photos: Zs. Bálint), 67 = *C. arba* sp. n., right palp, outer side (photo: N. Ignatev and M. Rindoš). Scale bar = 1 mm.

Characteristics of male genitalia

Stempffer (1967) stated that the male genitalia of *Capys* species are basically similar, however he pointed out some useful characters. Henning & Henning (1988) expressed the opinion that the slight observed differences were not species specific. In spite of this remark, they used male genitalia characters in their species descriptions, such as width and shape of valva, size of vesica and the associated cornutus, and width of brachia. Descriptions presented after 1988 all emphasised that “there appear to be no significant differences between male genitalia in *Capys*” (Collins & Larsen 2000). According to our experience, male genitalia exhibit minor but, in some cases, very distinctive characteristics, especially in the shape of the aedeagus and valvae in lateral view, and thus they were used in our diagnoses. A statistical analysis of male genitalia traits certainly could yield results which may work together well with the female genitalia characteristics used in identification of the species of the genus by Henning & Henning (1988).

COI maximum likelihood tree

COI-based maximum likelihood analysis was performed mainly to understand the genetic distance and position between the very similar West African *Capys* taxa. Despite the generally low K2P distances among the taxa, which is however usual within Theclini (Busby *et al.* 2017), the results fully support the distinctness and validity of *C. stuarti* and *C. vorgasi*, as well as the newly described *C. smithi* sp. n. (Fig. 68). It must be noted that due to incomplete taxon sampling, the true relationship of the latter to other species of the genus is only tentative. Interestingly, the COI sequence obtained from a single *C. disjunctus*, collected recently by the first author, took a very distant (1.852%) position from those accessed through BOLD and indeed, examination of the supporting photo material (illustrated only via a recto surface on BOLD) revealed that these specimens (collected in the Katanga Region of DRC) belong to a species of very different appearance, potentially to *C. brunneus heathi* or *C. catharus*, both of which occur in neighbouring Zambia, or to a yet undescribed similar taxon.

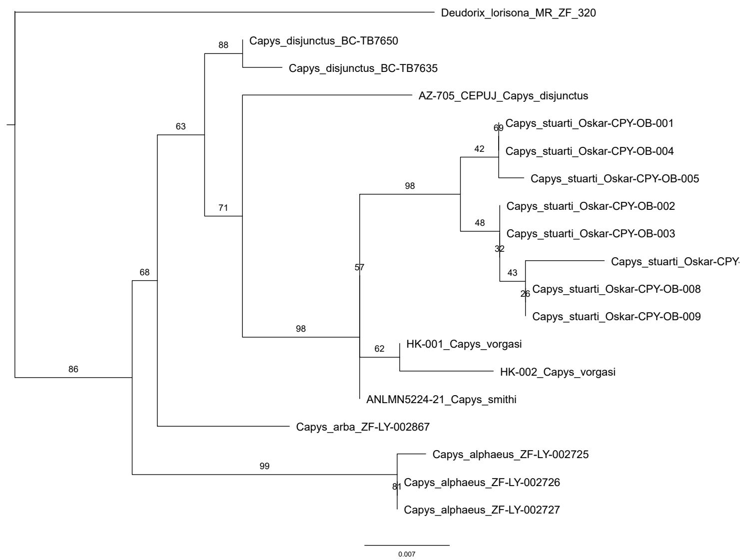


Figure 68. Maximum likelihood tree of the barcoded *Capys* species, including *C. arba* sp. n. and *C. smithi* sp. n.

Notes on the biogeography

In sub-Saharan Africa species distribution of butterflies is still under-documented and therefore biogeographical boundaries are usually poorly understood, and even more vaguely defined (LARSEN 2005, SÁFIÁN 2021). This is particularly important in the case of the West African *Capys*, which are clearly closely related (differing mainly in androconia and colour shades of males and only slightly in the COI gene region). They also utilise the same foodplant, *Protea madiensis occidentalis*, but are very clearly separated geographically (Figs 69–70).

In the case of *Capys smithi* sp. n., the populations are also separated ecologically from those of *C. vorgasi* and the limits between these taxa are well defined (as reflected in their differences discussed above), despite relative spatial proximity between them. The species *C. stuarti* is known only from the central-northern highlands of Nigeria (Jos Plateau), completely isolated from the neighbouring species, *C. bamendanus*, which was described and is still known only from the western and northern highlands of Cameroon (Bamenda Highland, Adamawa Plateau). The distribution of *C. vorgasi* is also separate, according to present knowledge, restricted to the upland plateaus and hills of the Togo Mountains (so far documented only from the eastern border area of Ghana but may also occur in Togo) (LARSEN 2005).

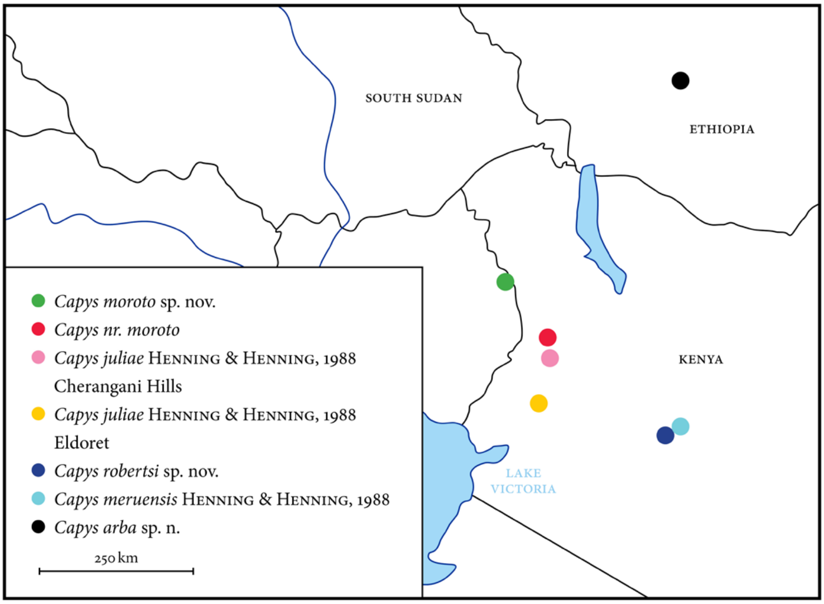


Figure 69. Type localities of *Capys arba* sp. n., *C. robertsi* sp. n., and *C. moroto* sp. n. and known occurrences of other congeners.

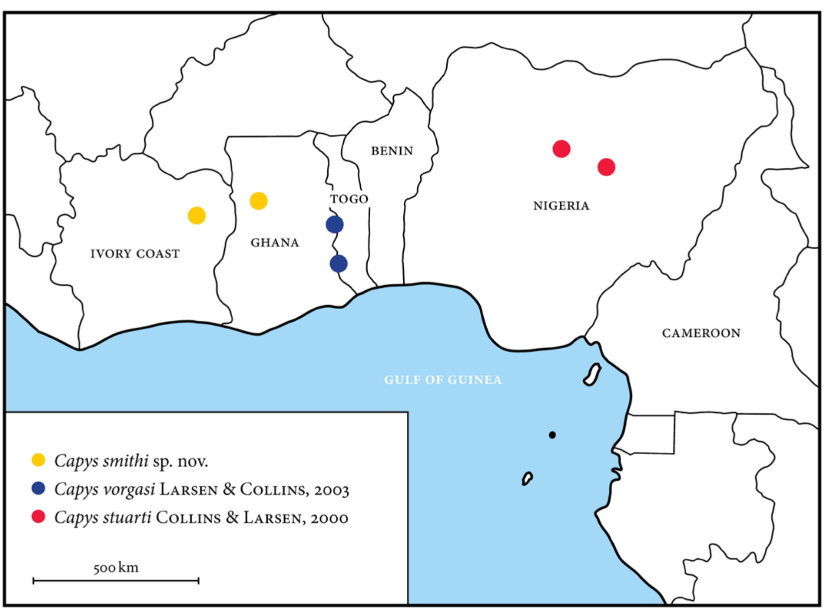


Figure 70. Known localities of *Capys smithi* sp. n., and occurrences of similar congeners.

Figures 71–74. Habitat and hostplant of *C. smithi* sp. n., and its conservation threats in Larabanga, Ghana. 71 = *C. smithii* sp. n. (female) in nature on hostplant *Protea madiensis occidentalis* (photo: Clement O. Selorm); 72 = *Protea madiensis occidentalis* bush; 73 = habitat of *C. smithi* sp. n., threatened by regular burning; 74 = clearing of *Protea* bushes turns the site suitable for farming (photos: Sz. Sáfián).

The newly described *C. smithi* sp. n. is apparently a lowland species, adapted to much drier and warmer climatic conditions in the Guinea savannah zone of central-northern Ghana and eastern-central Ivory Coast, where the foodplant also has unusual lowland occurrences.

The nominotypical population of *C. smithi* sp. n. occurs west of the Volta River system, and the Ghanaian population lies to the west of the White and Red Volta confluence and north of the Black Volta, almost directly connected to the type population through the Guinea savannah landscape. The Volta River system is a well-recognised boundary of distribution of numerous forest butterflies (Larsen 2005, Libert 2010, 2014, 2020, Sáfián 2021) as well as other forest-dwelling animals, and the forest area west of the river is widely recognised as the Upper Guinean Forest Zone. The biogeographical significance of the River Volta is poorly understood in the Guinea Savannah Zone, but generally, those butterfly species of restricted range and those with specialised life history e.g. monophagy in West African savannahs, are very scarce. *Capys* seem to be unique in both and might well become indicators of biogeographic separation within the West African Guinea savannah zone.

The Jos Plateau in north-central Nigeria is a completely isolated block of mountains of Cambrian, Ordovician and Jurassic granite formations (Couvreur *et al.* 2021), separated from the Nigeria-Cameroon Highlands by a broad stretch of lowland savannah, and also by the Benue River. It is highly possible that further undescribed species will be found in mountainous areas in Africa and therefore newly discovered populations should be carefully examined while the apparently disjunct distributional areas should be revisited and reassessed. There is some urgency as most of the *Protea* dominated habitats are being cleared for potential agriculture (Figs 71–74).

*

Authorship contributions – conceptualisation: Sz. Sáfián Zs. Bálint; Correcting and editing: Zs. Bálint, S. C. Collins, Z. F. Fric, G. Katona, G. Piszter, Sz. Sáfián, H. Takano, B. Tóth; methodology: Zs. Bálint, Z. F. Fric, G. Katona, G. Piszter, Sz. Sáfián, B. Tóth; resources: Zs. Bálint, S.C. Collins, Z. F. Fric, Sz. Sáfián, H. Takano; writing original draft: Sz. Sáfián. All authors have read and agreed to the published version of the manuscript.

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Négy új Capys-faj leírása Kelet- és Nyugat-Afrikából, a lepkék morfológiájával és életföldrajzával kapcsolatos jegyzetekkel (Lepidoptera, Lycaenidae, Theclinae)

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Összefoglalás – Az afrikai Deudorka-rokonúak (Deudorigini) tribusz *Capys* nemzetségét képviselő négy új faj kerül leírásra: *C. arba* Sáfián et Fric, sp. n. (típuslelőhely: Etiópia, Dorze Lodge), *C. robertsi* Collins et Sáfián, sp. n. (típuslelőhely: Kenya, Mount Kenya, Marania Bredt feletti láp), *C. moroto* Sáfián et Collins, sp. n. (típuslelőhely: Uganda, Mount Moroto), valamint *C. smithi* Takano et Sáfián, sp. n. (típuslelőhely: Elefántcsontpart, Comoé Nemzeti Park). Áttekintésre kerülnek a *Capys* fajok diagnosztizálására és elkülönítésére korábban alkalmazott morfológiai jellemzők, úgymint a szklerotizálódott hím ivarszervek a potrohban, androkóniális pikkelyek a hátulsó szárnyak felszínén és a fejen levő ajaktapogatók. Az újonnan leírt fajok életföldrajza is tárgyalás alá kerül a molekuláris adatok elemzésének fényében. 74 ábrával.

Kulcsszavak – ajaktapogatók, androkónia, *Capys arba* sp. n., *Capys moroto* sp. n., *Capys robertsi* sp. n., *Capys smithi* sp. n., COI vonalkódok, endofágia, hímivarszerv, illatfolt, *Protea*

* levelező szerző.

ÁBRAALÁÍRÁSOK

1–8. ábrák. *Capys* imágók szárnyainak felszíne (fenti kép) és fonákja (alsó kép).
9–16. ábrák. *Capys* imágók szárnyainak felszíne (fenti kép) és fonákja (alsó kép).
17–24. ábrák. *Capys* hím imágók szárnyainak felszíne (fenti kép) és fonákja (alsó kép).
25–29. ábrák. *Capys* nőstény imágók szárnyainak felszíne (fenti kép) és fonákja (alsó kép).
30–33. ábrák. *Capys* hím imágók ivarszervei tárgylemezen (aedeagus balra, fogókészülék jobbra).
34–37. ábrák. *Capys* hím imágók ivarszervei tárgylemezen (aedeagus balra, fogókészülék jobbra).
38–42. ábrák. *Capys* hím imágók ivarszervei tárgylemezen (aedeagus balra, fogókészülék jobbra).
43–48. ábrák. *Capys* hím imágók illatfoltja a hátulsó szárny felső szegélyterében.
49–52. ábrák. A *Capys vorgasi* (Ghána, Kyabobo) hátulsó szárny felszínének szegélytéri illatfoltja, amely a 7. ér tövénél található, különböző nagyítás alatt. 49 = az egész illatfolt fedőpikkelyek által körülvéve; 50 = csak a folt, amely felülete néhány folton a pikkelyek eltérő helyzete miatt eltérő visszaverődést mutat; 51 = az illatpikkelyek nagyobb nagyítás alatt; 52 = pigmenttel töltött fedőpikkelyek (felső rész) és illatpikkelyek (alsó rész), jól látható, hogy az illatpikkelyek feltűnően kisebbek és némileg eltérő alakúak a fedőpikkelyeknél.
53–67. ábrák. *Capys* imágók ajaktapogatói oldalnézetben.
68. ábra. Vonalkóddal jelölt *Capys* fajok maximális valószínűségi fája, benne a *C. arba* sp. n. és *C. smithi* sp. n. fajokkal.
69. ábra. A *Capys arba* sp. n. és a *C. robertsi* sp. n. típuslelőhelyei és a *C. moroto* sp. n. és más rokon fajok ismert előfordulási pontjai.
70. ábra. A *Capys smithi* sp. n. ismert lelőhelyei és hasonló rokon fajok előfordulási pontjai.
71–74. ábrák. A *C. smithi* sp. n. élőhelye, tápnövénye és veszélyeztetése Larabanga (Ghána) környékén. 71 = *C. smithii* sp. n. (nőstény) élő példány a faj *Protea madiensis occidentalis* tápnövényén (fotó: Clement O. Selorm); 72 = *Protea madiensis occidentalis* bokor; 73 = A *C. smithi* sp. n. élőhelyeit rendszeresen felégetik; 74 = a *Protea*-bokrok irtása alkalmassá teszi a élőhelyet gazdálkodásra (fotók: Sáfián Szabolcs).

Kárpát-medencében gyűjtött Csíkos szender (*Hippotion celerio*) példány a Lipthay-gyűjteményből.

Silver-striped hawk-moth (*Hippotion celerio*) collected in the Carpathian Basin, originating from the Lipthay-collection.

A Lipthay-gyűjteményben számos, a Kárpát-medencében csak szórványosan előforduló lepke bizonyítópéldánya található. Az itt bemutatott, a Földközi-tenger vidékén és Afrikában honos szenderfajnak faunaterületünkről alig féltucat előfordulási adata ismert. Ezek legtöbbje irodalmi hivatkozás, nem egyszer legendaszerű körítéssel, de bizonyítópéldány nélkül. Ismerve Pannon-térségbeli ritkaságát, a példányok begyűjtését kísérő andekdotákon nincs mit csodálkozni. De Lipthay Béla báró nemcsak a bánáti példányt őrizte meg, hanem annak gyűjtési körülményeit is dokumentálta, az egyik eredeti cédula szerint: „Zichy Irma Labarius nevű kocsisa fogta pészaki szőllőjében".

Bálint Zsolt és Katona Gergely, *Állattár*

In the Lipthay-collection, there are many voucher specimens of butterflies and moths which occur only sporadically in the Carpathian Basin. There are half a dozen records for our fauna of the hawk-moth species presented here, native to the Mediterranean region and Africa. Most of these records are literary references, sometimes in a legendary robe, but without a voucher specimen. Knowing the rarity of the species in the Pannonian region, there is nothing surprising about the anecdotes accompanying the capture of specimens. However Baron Béla Lipthay not only preserved the specimen collected in the Banat region, but also documented the circumstances, according to one of the original labels: "Collected by Irma Zichy's coachman, called Labarius, in the Pészak vineyards".

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A Kisebb rovarrendek gyűjteményének története

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Összefoglalás – Jelen írásunkban áttekintjük a Magyar Természettudományi Múzeum Kisebb rovarrendek gyűjteményének történetét a természetrajzi gyűjtemények létrejöttétől napjainkig. Összefoglaljuk a gyűjteményt érintő legfontosabb eseményeket az alapítástól a gyors fejlődésen és gyarapodáson, majd a kényszerű újrakezdésen át a mai gyűjteményi szerkezet kialakulásáig. Bemutatjuk a korábban és jelenleg itt dolgozó gyűjteményvezetők, kutatók, preparátorok tevékenységét, a gyűjtemény fejlődéséhez való hozzájárulását. Felsoroljuk és röviden összefoglaljuk azon személyek gyűjteményfejlesztő tevékenységét is, akik nem álltak a múzeum alkalmazásában, de jelentős hozzájárulásuk okán említésük indokolt. 54 ábrával.

Kulcsszavak – tudománytörténet, rovargyűjtemény, természetrajz, Állattár, Magyar Természettudományi Múzeum, Magyar Nemzeti Múzeum

Ajánljuk közleményünket mindazoknak, akik tisztelik és őrzik azon emberek emlékét, akik hozzájárultak a Magyar Természettudományi Múzeum gyűjteményeinek gazdagságához és megbecsülik, értékelik a minden egyes tűre tűzött, konzervált, cédulázott és tudományosan feldolgozott példány mögött rejlő befektetett, elhivatott munkát.

BEVEZETÉS

Az elmúlt két évtizedben több olyan publikáció is megjelent, amelyek a Magyar Természettudományi Múzeum (MTM) egészének vagy egyes részeinek, gyűjteményeinek történetével foglalkoznak (Matskási 2002, Bálint 2008, Korsós 2008, 2019, Vas 2015, Merkl *et al.* 2015). Ezt a sort követve jelen írásunkban a Kisebb rovarrendek gyűjteményének történetét tekintjük át.

* levelező szerző.

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Munkánk során átfogó tudománytörténeti kutatómunkára volt szükség, mivel a múzeum százéves évfordulója alkalmából született összefoglaló munkák óta (Horváth 1902*a*, *b*, Kuthy 1902, Mocsáry 1902) e gyűjtemény történetét nem dolgozták fel, így a múzeum bő 220 éves múltján végighaladtunk, és összegyűjtöttük a releváns információkat. Ehhez a munkához a kapcsolódó irodalom feldolgozásán kívül szükséges volt segítséget kérnünk az MTM Központi Könyvtárától: a Tudománytörténeti gyűjteményben régi dokumentumokat, leltárjegyzékeket, valamint egykori múzeumi dolgozók hagyatékát (fondját) tekintettük át, és válogattunk a Fotóarchívum képei közül is. Továbbá számos volt és jelenlegi múzeumi kollégánk is segítséget nyújtott emlékeik felidézésével.

Kutatómunkánk eredményeképpen a lehetőségek adta részletességgel mutatjuk be, hogyan alakult a múzeumban e kisebb fajszámú rovarrendek példányait őrző gyűjtemény – azaz a Kisebb rovarrendek gyűjteménye – a mai képére, az alapítástól kezdve különféle történelmi eseményeken átívelve napjainkig. Az áttekintést kiegészítjük az intézményünk egészére, illetve annak állattári részlegére vonatkozó megjegyzésekkel, információkkal is.

A KISEBB ROVARRENDEK GYŰJTEMÉNYE NAPJAINKBAN

A történeti áttekintés előtt röviden bemutatjuk a Kisebb rovarrendek gyűjteményét. Az MTM Állattárának ez az egysége hagyományosan számos, egymással közeli rokon, illetve egymástól rendszertanilag igen távol eső rovarrend számára is helyet biztosít. Habár rendkívül változatos rovarcsoportok példányait őrizzük együtt, ezeknek a rovarrendeknek közös jellemzője, hogy relatíve kis fajszámúak, így nem indokolt egy intézményen belül külön szervezeti egységként kezelni őket, hiszen együttes faj- és példányszámuk nem tesz ki annyit, mint egy-egy nagyobb rovarrendé (pl. bogarak). Együttes kezelésük nem rendhagyó; praktikus okokból ez a gyakorlat más, jelentős természettudományi múzeumokban is (pl.: a Bécsi Természettudományi Múzeum (Naturhistorisches Museum Wien) „Neuropterida und angeschlossene Sammlungen” nevű gyűjteménye).

Jelenleg a rovarok 19 rendjének képviselőit őrizzük a Kisebb rovarrendek gyűjteményében. Rendszertani sorrendben a következőket: Ephemeroptera (kérészek), Odonata (szitakötők), Plecoptera (álkérészek), Embioptera (szövőlábúak), Grylloblattodea (gleccsersáskák), Dermaptera (fülbemászók vagy bőrszárnyúak), Blattodea (csótányok), Mantodea (fogólábúak), Isoptera (termeszek), Phasmatodea (botsáskák), Orthoptera (egyenesszárnyúak), Psocoptera (fürgetetvek), Thysanoptera (tripszek), Strepsiptera (legyezőszárnyúak), Megaloptera (vízi recésszárnyúak), Raphidioptera (tevenyakúak), Neuroptera (igazi recésszárnyúak), Trichoptera (tegzesek), Mecoptera (csőrösrovarok). Egy részük nem feltűnő, míg mások dekoratív vagy bizarr megjelenésűek; találhatunk közöttük 1 mm-nél kisebb „parányokat” és 30 cm-nél nagyobb „óriásokat” is. Az itt őrzött rovarok jelentős része tűre tűzött (több mint 187 000 példány 1500 tárlófiókban), de számottevő az alkoholos gyűjteményrész is (a 3000 tárolóüvegben elhelyezett 53 000 fiola legalább annyi példányt tartalmaz, mint a tűzött gyűjteményrész), és figyelemre méltó a tárgylemezeken őrzött anyag mennyisége is (11 000 preparátum). Három termeszvár teszi még változatosabbá a több mint negyedmilliós példányszámú Kisebb rovarrendek gyűjteményét.

A gyűjtemény nagy része Kárpát-medencei, de jelentős a balkáni, az ázsiai és az afrikai régiókból származó anyag is. A legjobban reprezentált csoportok az egyenesszárnyúak, az álkérészek, a szitakötők, az igazi recésszárnyúak és a tegzesek. Ez utóbbi rovarrend kapcsán kiemeljük, hogy jelentős a jelenleg tartós kölcsönzésben lévő Trichoptera szakanyag, amelyen Oláh János (1942–; trichopterológus, ny. egyetemi tanár, Debrecen) végez tudományos feldolgozómunkát, így folyamatosan fejleszti a tegzesgyűjteményt (pl. OLÁH *et al.* 2022*a*, *b*). A kölcsönzött gyűjteményi anyag több mint 500 faj példányait, típuspéldányait foglalja magába, de e számértékek a folyamatos feldolgozás révén egyre növekednek[1]. Továbbá feltétlenül megemlítendő a tudományos szempontból igen jelentős Dermaptera-gyűjtemény, amely 150-nél is több faj több mint 300 típuspéldányát foglalja magába.

Elhelyezését tekintve a Kisebb rovarrendek gyűjteménye az MTM Állattár Baross utcai épületében, a földszinten található (1–6. ábrák). Két bejárata van, egy a belső udvar felől (6. ábra), egy pedig a lépcsőház felől (1. ábra). Utóbbi, jelenleg használatos bejáratán át, ami a régi könyvtáré volt, az egykori olvasóterembe jutunk (2. ábra). Itt egy korábbi felújítás során galériát alakítottak ki a könyvek számára. Egy ideig (2023. júliusig) a Magyar Biológiai Társaság irodája az alsó szinten működött, de jelenleg már (2023. augusztus végétől) a teljes alsó szint a gyűjteményi térhez tartozik (ez idő szerint átrendezés alatt áll)[2], míg a galériát jelenleg az MTM Központi Könyvtára használja. Ebből a teremből nyílik egy kutatószoba (3. ábra), majd gyűjteményi tér következik (a belőle nyíló kiszolgáló helyiségekkel) (5. ábra), végül az udvari bejárathoz közel egy kisebb kutatószoba (4. ábra) zárja a Kisebb rovarrendek gyűjteményét. Maga a gyűjteményi anyag nagyobb részben itt, a Baross utcai gyűjteményben, kisebb részben a Ludovika téri épület mélyraktárában van elhelyezve (7. ábra).

[1] Oláh János nem csupán a feldolgozatlan tegzesanyagon végzett munkájával, hanem gyűjtőutak anyagi támogatásával is hozzájárult és járul a Kisebb rovarrendek gyűjteményének fejlesztéséhez.

[2] A korábbi olvasóteremből az utcafront felé nyílik még egy szintén galériás terem, ahol az Országos Pedagógiai Könyvtár és Múzeum anyagai találhatók.

1–6. ábrák. A Kisebb rovarrendek gyűjteményének Baross utcai helyiségei 2023-ban. 1 = folyosó felőli bejárat; 2 = egykori olvasóterem; 3 = kutatószoba; 4 = belső udvar felőli kutatószoba; 5 = gyűjteményi terem a szemből nyíló konyhával; 6 = udvari bejárat. (fotók: Szőke Viktória)

7. ábra. A Ludovika téri épület mélyraktárában tárolt gyűjteményi anyag elhelyezése kompaktuszrendszerben. (fotó: Szőke Viktória)

TÖRTÉNETI ÁTTEKINTÉS

Kezdeti évek és a gyűjtemény(ek) megalapítása

Gróf Széchényi Ferenc (1754–1820) 1802. november 25-én kelt alapítólevelével felajánlotta a mintegy 17 000 kötetből álló könyvtárát, valamint térkép-, kép- és éremgyűjteményét egy magyar nemzeti múzeum létesítésére (Anonymus 1896). Ez az a dátum, amelyhez a Magyar Nemzeti Múzeum és a később belőle kivált Magyar Természettudományi Múzeum alapítását kötjük. Ezzel kapcsolatban érdemes megemlíteni, hogy Széchényi Ferenc könyvtára, bár kis számban, de tartalmazott múzeumunk jelenlegi gyűjtőköréhez tartozó botanikai, zoológiai és ásványtani műveket is (Somkuti 1973). A Magyar Nemzeti Múzeum szervezeti szabályzata 1810-ben felsorolja önálló entitásként a jelenlegi Természettudományi Múzeum ősét *Camera Naturae et Artis Productorum* néven, és megjelöli, hogy az a következő egységekből áll:

„*1. állatország, 2. ásványország, 3. növényország, 4. Producta-technologia*[3]" (Anonymus 1896). A *Camera Naturae et Artis Productorum* magyar megnevezése nem egyöntetű a múzeum és egységeinek történetét feldolgozó irodalmi forrásokban, „természettár" vagy „Természetiek Tára" néven is szerepel. Mivel jelen írásban szűken véve a *Camera Naturae* szerepel, azaz a természetrajzi gyűjteményeket összefoglaló egységre vonatkozóan írunk, a továbbiakban az eredeti latin megnevezést használjuk.

Hamarosan természetrajzi tárgyakkal is gyarapodott a Magyar Nemzeti Múzeum, amikor gróf Festetics Julianna (1753–1824; Széchényi Ferenc felesége) 1804-ben a múzeumnak ajándékozta értékes ásványgyűjteményét, ezzel megalapozva a múzeum természettudományos részlegét. A további tárgyi adományokon kívül pénzbeli felajánlások is érkeztek az új múzeum számára. Erre nagy szükség is volt, mivel a Magyar Nemzeti Múzeumnak még nem volt önálló épülete; anyaga különböző egyéb intézményeknél és épületekben nyert ideiglenes elhelyezést. A Magyar Nemzeti Múzeum ma is álló épületének építési munkálatait 1836-ban kezdték meg, a gyűjtemények pedig 1846–47-ben kerültek (akkor véglegesnek szánt) helyükre (Anonymus 1896).

Az első két állattani szerzemény 1811-ben került a múzeum tulajdonába. Az egyik Stipsics Ferenc[4] (1745–1817) rovargyűjteménye (1867 példány „*lepke és másféle rovar*"), míg a másik a nagyszombati (ma: Trnava, Szlovákia) illetőségű özvegy Anna Jordántól származott, és lepkéket, kagylókat, csigákat tartalmazott (ez utóbbi gyűjtemény múzeumba juttatásában is szerepet játszott Stipsics Ferenc) (Anonymus 1896, Horváth 1902*a*, Nagy 2002). A legkorábbról fennmaradt leltár vonatkozó lapja (8. ábra) szerint 1821-ben a Magyar Nemzeti Múzeumban éppen 1876 példány rovart (nagyobb részben lepkét, kisebb részben bogarat) őriztek, mindegyiket külön kis üvegdobozkában.

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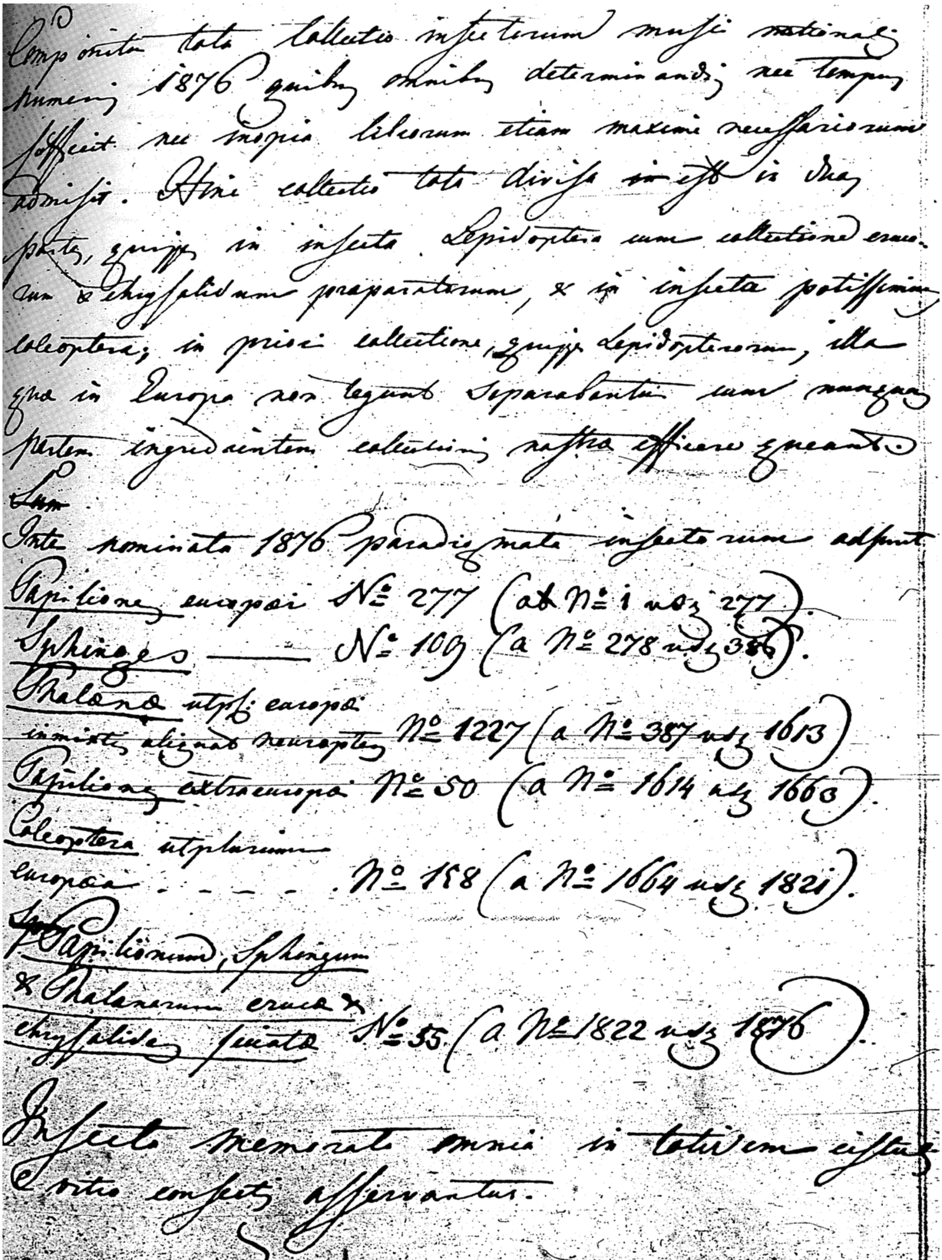
[3] A *Producta-technologia* József nádor szándéka szerint a „természetes testek" mesteri alakításával, felhasználásával készült alkotásokat volt hivatott megőrizni, azaz egy „Kézműves Gyűjtemény" nevű kollekciót felállítani a „Természeti Alkotások" keretén belül. E gyűjtemény a későbbiekben elveszítette alapvetően kézműves jellegét, majd 60 év múltán anyaga a Magyar Nemzeti Múzeumból más intézményekhez került (Anonymus 1896, Nagy 2002).

[4] Stipsics Ferencet a múzeumtörténeti publikációk (így pl. Anonymus 1896, Frivaldszky 1880) mint esztergomi kanonokot említik. Élete során különböző egyházi tisztségeket töltött be, gyűjteménye eladásának évében és azt követően honti főesperes volt. Nem teológiai jellegű oktatási intézményeket is vezetett, amelyek az élő természetre vonatkozó ismereteket is nyújtottak. Az óbudai plébániai iskola igazgatójaként végzett nevelői munkájának elismeréséül II. József császár 1778-ban arany érdemrenddel tüntette ki; 1804-től 1807-ig a Pozsonyi Királyi Akadémia rektora, majd 1810 után a Nagyszombati Líceum igazgatóhelyettese volt (Koczó 2020, Dékány 2022). Érdeklődött a rovarok iránt, és jelentős rovargyűjteményt állított össze, amelyet később a Magyar Nemzeti Múzeumnak ajánlott fel megvételre.



Composita tota collectio insectorum musei nationalis
numeris 1876 quibus omnibus determinandis nec tempus
sufficit nec copia librorum etiam maxime necessariorum
admisit. Hinc collectio tota divisa in esse in duas
partes, quarum in insecta Lepidoptera cum collectione eruca-
rum & chrysalidum praeparatorum, & in insecta potissimum
Coleoptera; in prima collectione, quarum Lepidopterorum, illa
quae in Europa non legunt separabantur cum magnam
partem ingredientem collectionis nostrae efficere queant.
~~Sum~~
Inter nominata 1876 paradigmata insectorum adsunt
Papiliones europaei N: 277 (a N: 1 usq 277).
Sphinges ——— N: 109 (a N: 278 usq 386).
Phalaenae utpl: europaei
immistis aliquot neuropteris N: 1227 (a N: 387 usq 1613)
Papiliones extraeuropaei N: 50 (a N: 1614 usq 1663).
Coleoptera utplurimum
europaea . . . . . N: 158 (a N: 1664 usq 1821).
Papilionum, Sphingum
& Phalaenarum erucae &
chrysalides parata N: 55 (a N: 1822 usq 1876).
Insecta memorata omnia in totidem cistu-
lis vitro confectis asservantur.

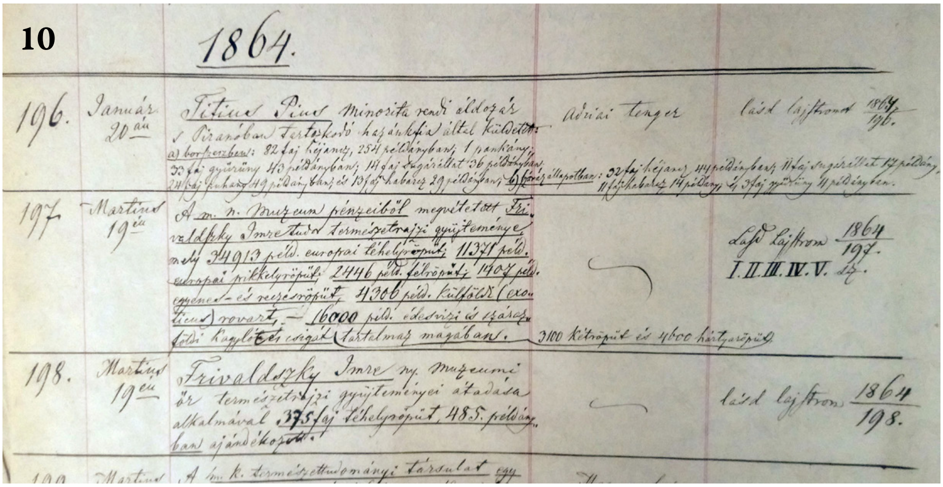
8. ábra. Az 1821-es leltárjegyzék fénymásolata. (Papp Gábor, MTM jóvoltából)

A gerinctelen állatok gyűjteményeinek szakszerű gondozása és fejlesztése 1822-től indult, és Frivaldszky Imre (1799–1870; múzeumi tisztviselő 1822 és 1851 között[5]; 9. ábra) nevéhez köthető, akit ekkor neveztek ki segédőrnek – „*…ekkor kezdődött el tulajdonképpen az állattani gyűjteményeknek céltudatos alapvetése, szakszerű gyarapítása, valamint a hazai faunának tudományos kutatása*" (ANONYMUS 1896). Feladata a múzeum zoológiai anyagának gondozása volt, de egy időre – külön díjazás nélkül – a Régiségtár kezelésével is megbízták (ANONYMUS 1896, BÁLINT & FRIVALDSZKY 2009). A gerinctelen gyűjteményrész gyarapodását elégtelennek látta, ezért 1822 és 1827 között több külföldi rovargyűjtemény megvásárlását is kieszközölte (ANONYMUS 1896).

9. ábra. Frivaldszky Imre.
(forrás: MTM Fotóarchívum és Médiatár)

Kora talán legjelentősebb magyarországi rovargyűjtőjének, Tobias Koynak (1757–1829) gyűjteményére viszont a múzeumnak már nem volt pénze, így azt Frivaldszky Imre – Koy halála után – saját maga számára vette meg. A Koy-gyűjtemény 1800-ban készült jegyzéke szerint az tartalmazott számos, a kisebb rovarrendek valamelyikébe tartozó példányt is (többek közt kérészeket, szitakötőket, igazi recésszárnyúakat, tevenyakúakat, csőrösrovarokat, csótányokat, fogólábúakat és egyenesszárnyúakat) (KOY 1800, FRIVALDSZKY 1868). Frivaldszky Imre gyűjteménye később vásárlás útján a Magyar Nemzeti Múzeumba került (HORVÁTH 1902, MOCSÁRY 1902, BÁLINT & FRIVALDSZKY 2009), amely a leltárjegyzék (10–11. ábrák) szerint 1407 példány „*egyenes és reczésröpű*" rovart tartalmazott. Ugyanakkor nincs arra vonatkozó konkrét adat, hogy volt-e köztük olyan példány, amely eredetileg Koy gyűjteményéből származhatott vagy egyedi üvegdobozkában lett volna a múzeumba kerülésekor.

[5] Frivaldszky Imre a pesti egyetem orvosi karára járt, ahol többek között botanikát és zoológiát is tanult. Már egyetemi évei alatt is rendszeresen gyűjtött rovarokat és növényeket, doktori értekezését pedig kígyókról írta. Orvosként sohasem praktizált; az abszolutórium megszerzését követően rögtön a Magyar Nemzeti Múzeumhoz került (BÁLINT & FRIVALDSZKY 2009).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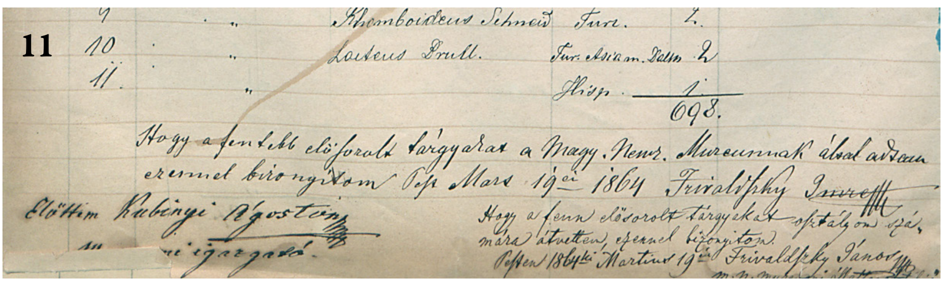
1864.

196. Január 20án Titius Pius minorita rendi áldozár s Piranóban tartózkodó hazánkfia által küldetett: a) borszeszben: 82 faj héjanc, 254 példányban; 1 pankány; 33 faj gyürüny 43 példányban; 14 faj sugárállat 36 példányban; 24 faj puhany 49 példányban; és 13 faj habarcz 29 példányban; b) száraz állapotban: 32 faj héjanc 44 példányban; 11 faj sugárállat 17 példány; 11 faj habarcz 14 példány; 3 faj gyürüny 4 példányban. Adriai tenger. lásd lajstromot 1864/196.

197. Martius 19én A m. n. Muzeum pénzeiből megvétetett Frivaldszky Imre tudor természetrajzi gyüjteménye, mely 34913 péld. europai tehelyröpüt; 11371 péld. europai pikkelyröpüt; 2446 péld. félröpüt; 1407 péld. egyenes- és recésröpüt, 4306 péld. külföldi (exoticus) rovart, – 16000 péld. édesvizi és szárazföldi kagylót és csigát tartalmaz magában. 3100 kétröpüt és 4600 hártyaröpüt. Lásd Lajstrom 1864/197. I. II. III. IV. V. sz.

198. Martius 19én Frivaldszky Imre ny. muzeumi ör természetrajzi gyüjteményei átadása alkalmával 375 faj tehelyröpüt, 485 példányban ajándékozott. lásd lajstrom 1864/198.

199. Martius A m. k. természettudományi társulat egy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9 . " Rhomboideus Schneid Turc. 2.
10 . " Laetens Drull. Tur. Asia m. Dalm 2
11 . " Hisp. 1.
698.

Hogy a fentebb elősorolt tárgyakat a Magy. Nemz. Muzeumnak átadtam ezennel bizonyitom Pest Mars 19én 1864 Frivaldszky Imre

Előttem Kubinyi Ágoston m. n. m. igazgató.

Hogy a fenn elősorolt tárgyakat osztályom számára átvettem, ezennel bizonyitom. Pesten 1864ki Martius 19én Frivaldszky János

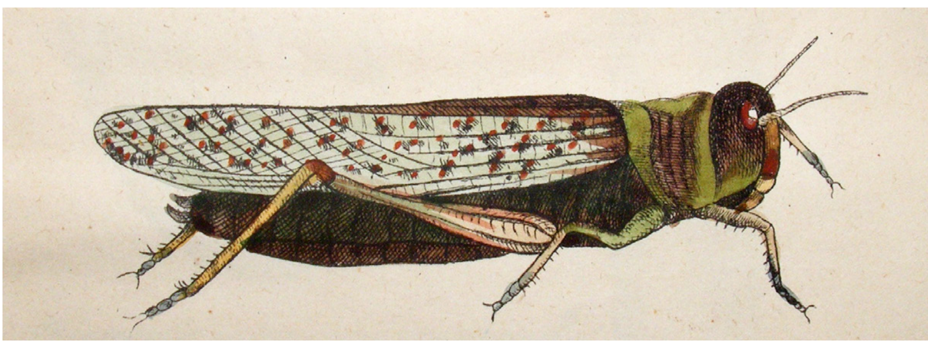
10–11. ábrák. Frivaldszky Imre gyűjteményének átadásáról szóló feljegyzések. 10 = 1864/197. számú gyarapodásinapló-bejegyzés a megvásárolt gyűjteményről: a 62 143 példányból álló rovargyűjtemény valamint a 16 000 példányos puhatestűgyűjtemény jutányos áron történő megvásárlása volt az Állattár 1870-es önállósodása előtti legnagyobb tétel; 11 = az átadott anyag lajstromának végén Frivaldszky Imre és Frivaldszky János átadás-átvételt tanúsító zárszavai. (forrás: MTM Tudománytörténeti gyűjtemény)

Frivaldszky Imre 1834-ig egyedül volt a múzeum állattári anyagának gondozója. 1834-től a gerinces gyűjteményrész felügyeletét az akkor kinevezett Petényi Salamon János (1799–1855) vette át. Abban az időben a gyűjtés nem tartozott a múzeum alkalmazottainak feladatai közé, és ez így volt még évtizedekkel később is. Ettől függetlenül Frivaldszky Imre múzeumi évei alatt (és még később is) intenzíven és igen eredményesen gyűjtött és gyűjtetett állatokat és növényeket – elsősorban saját maga, illetve gyűjteménye számára.

Az 1838-as budapesti árvíz jelentős károkat okozott a Magyar Nemzeti Múzeum anyagaiban és az épülőfélben lévő, majdani múzeumépületben is. Az állattani gyűjtemények nagyrészt megsemmisültek – „*...majdnem mindent ismét elől kellett kezdeni*" (Anonymus 1896). Mégis, 1849-ben már 3500 gerinces és 32 170 gerinctelen állat példányát tartották számon, ugyanis az árvizet követő években számos ajándékozás és gyűjtőexpedíció révén, valamint vásárlások[6] útján jelentősen gyarapodott az állattani anyag.

A Kisebb rovarrendek gyűjteményéhez tartozó rovarok legelső dokumentált képviselői is ebben az időben, 1847-ben kerültek a *Camera Naturae* gyűjteményeibe: báró Ocskay Ferenc (1775–1851; zoológus) ajándékozta a múzeumnak néhány, általa leírt egyenesszárnyúfaj példányait (Anonymus 1896, Kuthy 1902, Bálint & Frivaldszky 2009).

Frivaldszky Imre munkájának eredményességéhez és színvonalához nem fért kétség; ő volt az első olyan szerző, aki a múzeum alkalmazottjaként szakcikket írt egy, a Kisebb rovarrendek gyűjteményéhez tartozó fajról, nevezetesen a keleti vándorsáskáról (*Locusta migratoria* (Linnaeus, 1758); Frivaldszkynál: „*Acridium migratorium* Latreille. *Gryllus migratorius* Linne"; 12. ábra) (Frivaldszky 1848).



12. ábra. A vándorsáska egyik illusztrációja Frivaldszky Imre értekezéséből: „*a tökélletesen kinőt vánd. sáska*". (forrás: Frivaldszky 1848)

Ennek ellenére Frivaldszky Imre sokáig nem került előbbre a hivatali ranglétrán, csak 1846-ban lett segédőrből tiszteletbeli őr, majd 1850-ben őr. Ezután nem sokkal megpályázta a *Camera Naturae* rendes őrének állását, de azt a korábban Bécsben tevékenykedő Kovács Gyula (1815–1873; botanikus és zoológus) kapta meg, aki nála szerényebb szakmai teljesítményű volt. Végül 1851. március 20-án múzeumi állásáról lemondott Frivaldszky János javára, aki díjazás nélkül már az előző év nyarától a Magyar Nemzeti Múzeumban dolgozott (Bálint & Frivaldszky 2009).

Frivaldszky János (1822–1895; 13. ábra) 1840-ben érkezett a Pesti Királyi Magyar Tudományegyetemre – apja kívánságát teljesítve – jogot tanulni. Pesten kapcsolatba került Frivaldszky Imrével[7], aki pártfogásába vette,

[6] Az árvíz utáni vásárlások közül kiemelkedő volt a Treitschke-féle lepkegyűjtemény megszerzése 1842-ben, Frivaldszky Imre javaslatára (Bálint 2008).

[7] Bár Frivaldszky Imre és Frivaldszky János rokoni kapcsolata távoli volt – több mint kétszáz évvel korábban élt felmenőik voltak testvérek – Frivaldszky János ezt a rokonságot számon tartotta, így kerültek személyes ismeretségbe (Frivaldszky 2015).

taníttatta (lebeszélte a jogi pályáról és műszaki tanulmányok felé irányította).

Frivaldszky Jánosnak elsősorban a rovarok gyűjtése, preparálása és csomagolása volt a feladata pártfogójánál – ezalatt sokat tanult és megalapozta későbbi tudományos pályafutását a szükséges szaktudás elsajátításával (FRIVALDSZKY 2015).

13. ábra. Frivaldszky Jánosról készült rajz, amint állattári íróasztalánál dolgozik. (forrás: PULSZKY 1887)

Mire Frivaldszky János a Magyar Nemzeti Múzeumba került, addigra már a rovarokat és a rovargyűjtés összes fortélyát ismerő zoológussá vált, ugyanis a szokásos, rovargyűjtéssel kapcsolatos mindennapi feladatai mellett 1845-ben Frivaldszky Imre őt küldte a múzeumban addigra már tervszerűen szervezett balkáni, majd krétai és kis-ázsiai gyűjtőutakra. Sőt, 1846-ban együtt indultak egy hasonló területeket érintő expedícióra (BÁLINT & FRIVALDSZKY 2009).

Frivaldszky János 1852. január 29-től lett segédőrként a múzeum fizetett alkalmazottja (előtte egy évig fizetés nélküli alkalmazottként már a múzeumban tevékenykedett), majd ugyanezen év decemberétől lett rendes őr (FRIVALDSZKY 2015). 1870 januárjáig ebben a beosztásban dolgozott a múzeum állattani gyűjteményeiben. Ezalatt 1855-től 1866-ig a gerincesek gyűjteményét is gondozta, illetve három évig az ásványtári részleget is (VIG 2019), így három éven át a teljes *Camera Naturae* vezetője volt, majd 1870-től az önállósult Állattár vezetője lett[8] (HORVÁTH 1902*a*, KORSÓS 2002). 1895-ben bekövetkezett haláláig több mint 40 évet töltött a Magyar Nemzeti Múzeum szolgálatában. Eközben fáradhatatlan gyűjtő-, feldolgozó és rendszerező munkájával megalapozta többek közt a tár egyenesszárnyú- és recésszárnyú-gyűjteményét.

Frivaldszky János főleg rovarokkal foglalkozott, az MTM Állattárának minden jelenlegi rovargyűjteményéhez köthetők taxonómiai, faunisztikai vagy legalább ismeretterjesztő jellegű publikációi, mindemellett ornitológiai

[8] A *Camera Naturae et Artis Productorum* mint szervezeti egység 1870-ben megszűnt és természettudományi részlegei tári rangra emelkedtek, mivel a gyűjteményi anyagok mennyisége olyan tekintélyes méretűre nőtt, hogy szükségessé vált elkülönült kezelésük (HORVÁTH 1902*a*). Eképpen alakult meg az önálló Állattár, a Növénytár és az Ásvány-őslénytár. Az Állattár vezetője – természetszerűleg – Frivaldszky János lett, egészen 1895-ben bekövetkezett haláláig (ANONYMUS 1896, FRIVALDSZKY 2015).

munkássága is jelentős (Frivaldszky 2015). Szakcikkeinek többsége azonban a bogarak rendjéhez köthető; koleopterológusként hazai és nemzetközi elismertségre is szert tett. Ugyanakkor az egyenesszárnyúaknak is komoly figyelmet szentelt: akadémiai székfoglaló értekezését erről a csoportról írta *„A magyarországi egyenesröpűek magánrajza. (Monographia Orthopterorum Hungariae.)*” címmel (Frivaldszky 1868)[9].

A Kisebb rovarrendek gyűjteménye az öt világrész faunáját képviselő *„általános*” Orthoptera gyűjtemény *„megalkotását s fejlesztését*” Frivaldszky Jánosnak köszönhette (Kuthy 1902), valamint a (tág értelemben vett) Neuroptera gyűjtemény *„első alapját*” is ő vetette meg, amikor 1850-ben és 1851-ben e csoport 80 fajának 190, illetve 31 fajának 82 példányát ajándékozta a múzeumnak[10] (Mocsáry 1902). Így joggal tekinthetjük Frivaldszky Jánost a Kisebb rovarrendek gyűjteménye alapítójának.

Frivaldszky János a hazai koleopterológia legnagyobb tekintélye lett. Támogatta a gyűjtőket, gyűjtőutakat (Vig 2019) és állattári igazgatósága alatt csatlakoztak a tárhoz olyan tehetséges fiatalok, mint például Mocsáry Sándor (1841–1915; hymenopterológus, múzeumi tisztviselő 1870 és 1914 között), Horváth Géza (1847–1937; hemipterológus, múzeumi tisztviselő 1873 és 1874 között, majd 1896 és 1924 között) és Herman Ottó (1935–1914; természettudós, múzeumi tisztviselő 1875 és 1879 között). Fiatal kollégái nagyra becsülték Frivaldszky Jánost, akiknek útmutatást nyújtott és elkötelezettségben példát mutatott. Halála után utódának Horváth Gézát nevezték ki. Temetésén Mocsáry Sándor mondott beszédet; fennmaradt gyászbeszéd-kéziratából idézünk (MTM Tudománytörténeti gyűjtemény, Mocsáry Sándor fond):

„…Frivaldszky János egymaga tíznek a helyét is betöltötte. Benne a leíró állattan s különösen a leíró rovartan hazánkban első úttörőjét, atyját vesztette el. Mi mindnyájan, kik e szakmával foglalkozunk (…) többé-kevésbé az ő tanítványai, az ő gyermekei vagyunk. Ő mutatta meg nekünk a helyes utat, melyen haladva, a tudományt művelni, hazánk hírnevét emelni lehet. (…) Csak elmúló, elporladó részedet viszik ki a házból; neved, lelked, szellemed örökre itt marad! Mert hisz az állattári gyűjtemények ezekkel vannak összeforrva, egybenőve s jövő századoknak is hirdetni fogják neved nagyságát, dicsőségét.”

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[9] E művének megírásakor 117, tág értelemben vett egyenesszárnyú (Dermaptera, Blattodea, Mantodea, Orthoptera) faj volt ismeretes az akkor közigazgatásilag a Magyar Királysághoz tartozó területekről. A 117 fajból 104-et tartalmazott a Magyar Nemzeti Múzeumnak az a gyűjteménye, amelynek anyagát Frivaldszky János maga gyűjtötte, határozta, rendezte. Frivaldszky Imre (akkor már a múzeum tulajdonában lévő) gyűjteménye is tartalmazott további kilenc fajt, míg másik négy faj magyarországi jelenlétét külföldi szerzők mutatták ki (Frivaldszky 1868).

[10] A Magyar Nemzeti Múzeum vonatkozó gyarapodási jegyzéke szerint 1850-től 1894-ig ezen felül is sok száz, saját gyűjtésű rovarfaj több ezer példányát ajándékozta a múzeumnak Frivaldszky János, és jelentős volt azoknak a rovarpéldányoknak a száma is, amelyeket az általa elvégzett identifikálások fejében kapott az intézmény.

Önállósodás és gyarapodás az Állattárban

A *Camera Naturae* szakanyaga már az 1870 előtti évtizedekben is igen gyorsan gyarapodott, és tekintélyes méretűre nőtt – ezért vált szükségessé a három természettudományi egység korábban említett tári rangra emelése, elkülönült kezelése. A gyarapodás az önállósulást követően új lendületet vett.

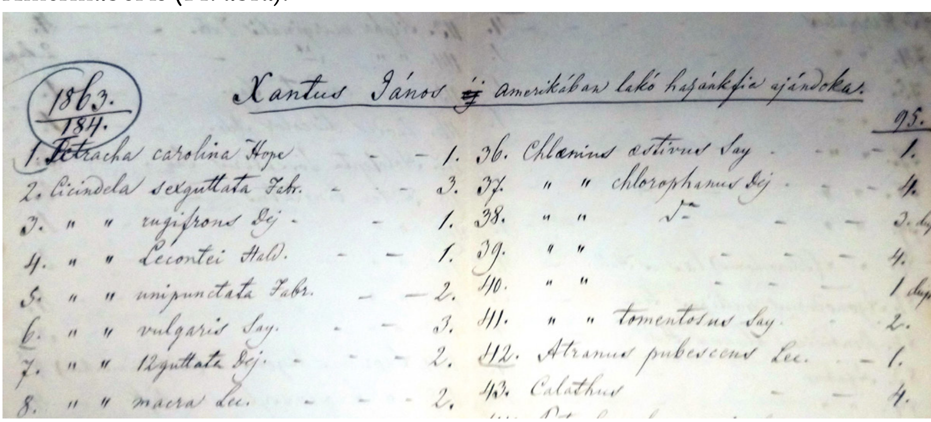
A zoológiai szakanyag ezidőben való gyarapodásáról részletesebb összefoglalót készítettünk, mivel ebben az időszakban jeles személyek, nagy gyűjtők járultak hozzá a gyűjtemények (köztük a mai Kisebb rovarrendek gyűjteményének gyűjtőkörébe tartozó rovarcsoportok) példány- és fajszámának növeléséhez. Közülük többen idejüket, pénzüket szánták a múzeum fejlesztésére, és akár életüket is kockáztatták gyűjtőútjaik során, így külön szólunk róluk és érdemeikről.

A szakanyag gyarapodását számszerű adatokkal röviden összefoglalhatjuk. 1895-ben mintegy 279 842 nyilvántartott példányt birtokolt az Állattár, amelyből 165 380 volt rovar, ezen belül pedig 800 Neuroptera és 1200 Orthoptera (Anonymus 1896). Néhány évvel később az Állattárban már 910 200 gerinctelen állat példányát tartották számon, köztük 775 200 rovart (Horváth 1902*a*). A mai Kisebb rovarrendek gyűjteményébe sorolt taxonok képviselőinek számát ekkor 13 200 példányra becsülték (Horváth 1902*b*, Mocsáry 1902, Kuthy 1902). A gyűjtemények összetételére pedig az alábbiak vonatkoztak: „*A gyűjteményekre nézve az a vezérelv lett felállítva, hogy az általános nagy gyűjteményen kívül minden állatosztályból és rendből még egy külön magyarországi gyűjtemény is létesíttessék, hogy így a magyar birodalom állatvilága külön bemutatható és szemléltethető legyen*" (Anonymus 1896).

Még az önállósodás előtt lépett a múzeum szolgálatába Pável János (1842–1901): 1864-től haláláig a Magyar Nemzeti Múzeum alkalmazottja volt. Először preparátorként dolgozott, majd hivatalos beosztása „múzeumi gyűjtő" lett. Így kísérhette el Frivaldszky Imrét utolsó balkáni gyűjtőútjára 1870-ben (Frivaldszky 2017) és Máramarosba az akkor már állattári igazgató Frivaldszky Jánost (Abafi Aigner 1898). Különösen jelentősek erdélyi, bánáti, valamint kis-ázsiai és balkáni gyűjtései is (Abafi Aigner 1898). Számos, tudományra új rovarfajt gyűjtött útjai során – többek közt egy tarszát, amelyet később róla nevezett el leírója (*Isophya pavelii* Brunner von Wattenwyl, 1878). A hazai fauna tekintetében is jelentős anyaggal gyarapította a múzeumot – Mocsáry (1903) így jellemzi a Neuroptera gyűjtemény tükrében a múzeumi kollégák, kiemelve Pável János gyűjtőmunkáját: „*…bármely muzeumnak díszére válnék ama gyűjtemény, mely a Nemzeti Muzeum tisztviselőinek, Pável János gyűjtőnek s egyeseknek ügybuzgalmából, a hazánkban előforduló és szabatosan meghatározott 153 nemben 365 fajt foglal magában.*"

Az intenzív fejlődést és gyarapodást a tári rangra való emelkedés és a személyi állomány növekedése is nagyban támogatta. Így például az 1870-es években múzeumi szolgálatba lépett Mocsáry Sándor, Horváth Géza[11] és Herman Ottó is jelentős hazai anyaggal gazdagította az Állattárat (Horváth 1902*a*, Mocsáry 1902, Kuthy 1902). A fejlődéssel együtt járó támogatási lehetőségek bővülése több vásárlást is lehetővé tett. A kisebb rovarrendek szempontjából ezek közül kiemelkedő fontosságú volt Fuss Károly (1817–1874; nagyszebeni lelkész, entomológus) egyenesszárnyú-gyűjteményének megszerzése (Kuthy 1902).

Jeles gyűjtők közül következőként megemlítendő Xántus János (1825–1894; etnográfus, a Magyar Nemzeti Múzeum Néprajzi osztályának igazgató őre 1872-től), aki növény- és állattani gyűjtéseivel jelentősen gazdagította a múzeum természettudományos szakanyagát. Az 1869-es kelet-ázsiai expedíciójáról többek között (a gyarapodásinapló vonatkozó része szerint) 315 faj egyenesszárnyút és 62 faj recésszárnyút hozott a múzeum számára. Egyébként Xántus János több alkalommal küldött jelentős számú rovart Észak-Amerikából is (14. ábra).


1863. 184.
Xantus János amerikában lakó hazánkfia ajándoka.
95.
1. Tetracha carolina Hope – – 1. 36. Chlaenius aestivus Say – – 1.
2. Cicindela sexguttata Fabr. – – 3. 37. " " chlorophanus Dej. – 4.
3. " " rufifrons Dej. – 1. 38. " " do – – 3. dup.
4. " " Lecontei Hald. – 1. 39. " " – – 4.
5. " " unipunctata Fabr. – 2. 40. " " – – 1 dup.
6. " " vulgaris Say. – 3. 41. " " tomentosus Say – 2.
7. " " 12guttata Dej. – 2. 42. Atranus pubescens Lec. – 1.
8. " " macra Lec. – 2. 43. Calathus – – 4.

14. ábra. Gyarapodásinapló-bejegyzés részlete 1863-ból: „*Xántus János amerikában lakó hazánkfia ajándéka*" (1863/184.). (forrás: MTM Tudománytörténeti gyűjtemény)

Külön, kiemelten kell megemlékeznünk Bíró Lajosról (1856–1931; utazó, gyűjtő, zoológus, entomológus, etnográfus), aki kora ifjúsága óta vonzódott a rovarászathoz – már diákként komoly rovargyűjteménye volt. Később, amikor huszonkét évesen Budapesten teológiát tanult, bejárt a Magyar Nemzeti Múzeum Állattárába. Részt vett a tragikusan korán, új-guineai gyűjtőútján elhunyt Fenichel Sámuel (1868–1893; természettudós, etnográfus, utazó) búcsúztatásán, ahol Herman Ottó szavai és a bemutatott gyűjtött anyag hatására elhatározta,

[11] Horváth Géza abban az időszakban, amikor nem volt a múzeum alkalmazottja (1874 és 1896 között), több külföldi utat is tett a filoxéra elleni védekezés nemzetközileg elismert szakértőjeként. Hosszabb időt töltött Oroszország déli területein és a Kaukázus vidékén, ahonnan gazdag rovaranyagot hozott haza a Magyar Nemzeti Múzeum számára (Orosz András, személyes közlés).

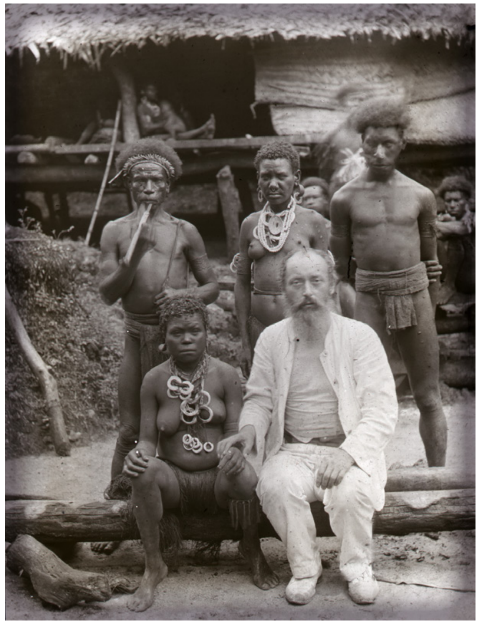
hogy folytatja Fenichel munkáját, és Új-Guineába utazik. Bíró megtervezte, hogy milyen támogatások révén tudja megvalósítani utazását, azonban ezek a tervek kudarcba fulladtak. Végül a közel egy évig tartó tárgyalást követően, Herman Ottó hathatós közbenjárásának is köszönhetően sikerült megegyeznie a Magyar Nemzeti Múzeum akkori főigazgatójával[12], hogy korábbi gyűjteményét 1000 forintért megveszi a múzeum, amiből el tud utazni Új-Guineába. A megegyezés része volt, hogy minden gyűjtött anyagot hazaküld a múzeumnak, ám majd csak annak fényében küld az intézmény további pénzbeli támogatást Bírónak, hogy abból mennyit tart megtartásra érdemes anyagnak a múzeum (Asztalos 1953).

Végül 1895-ben Bíró Lajos Új-Guineába utazhatott, hogy ott természettudományi, illetve néprajzi gyűjtő- és kutatómunkát végezzen a Magyar Nemzeti Múzeum számára. 1896-tól 1902-ig dolgozott Új-Guineában (15. ábra), de közben felkereste Ausztrália, Malajzia és Borneó egyes területeit, Jávát és Szingapúrt. Útjáról mintegy 200 000 rovart (16. ábra), hüllőt és madarat küldött haza – a nagyjából 6000 tárgyból álló néprajzi gyűjteményen kívül (Bura *et al.* 2002). Természetrajzi anyagaiból mostanáig több mint 2500 új állatfaj került leírásra, és egyes csoportjainak feldolgozása, azokból tudományra új fajok közlése még napjainkban is zajlik (pl. Tumbrinck 2014, Vas 2020, 2023).

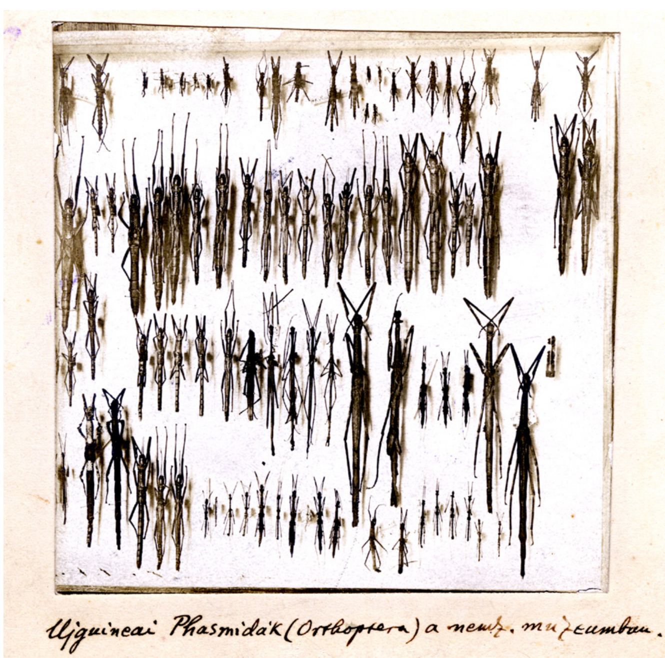
Hazatérte után a Magyar Nemzeti Múzeum tiszteletbeli őrévé nevezték ki, ahol élete végéig főként a Hymenoptera gyűjteményben dolgozott (1902 és 1931 között tiszteletbeli őr, illetve 1919 áprilisa és augusztusa között rendes őr) (17–18. ábrák) (Bura *et al.* 2002). A múzeumban töltött ideje alatt a recésszárnyúak faunisztikájával is foglalkozott: elsőként közölt átfogó, kétrészes írást a magyarországi hangyalesőfajokról, amelyben a lárvák életmódján és jellemzésén túl a hazai fajok imágóihoz határozókulcsot és egy annotált fajlistát is készített (Bíró 1885*a*, *b*).

Bíró Lajos a huszadik század első éveiben további jelentős gyűjtőutakat tett, többek között Máltán és Tunéziában (1903), Krétán (1906), később Törökországban és Bulgáriában is. Mindenhonnan értékes anyaggal tért haza (Bura *et al.* 2002); jellemző volt rá, hogy rovargyűjtéskor a néhány milliméteres apróságok sem kerülték el a figyelmét. Az általa gyűjtött anyagból tudományra új fajok kerültek leírásra a Kisebb rovarrendek gyűjteményének gyűjtőkörébe tartozó Isoptera, Embioptera, Orthoptera, Phasmatodea, Odonata, Psocoptera és Neuroptera rendekből is. Mocsáry (1903) így foglalta össze Bíró Lajos gyűjtőmunkáját a Neuroptera gyűjteményre vonatkozóan: „*Az idegenföldi fajokat illetőleg is, aligha van muzeum, mely Bíró Lajos hazánkfiának gyűjtése alapján, az újguineai és ausztráliai Psocidákban és szitakötő-félékben a miénknél gazdagabb volna*”.

[12] Szalay Imre (1846–1917; muzeológus), akiről Bíró Lajos így írt barátjának, Chyzer Kornélnak (1836–1909; orvos, balneológus, zoológus) az új-guineai utazásának támogatásához kötődő hadakozása idején: „*…akarni sincs bátorsága, és nem akarni nem mer…*” (Asztalos 1953).



15. ábra. Bíró Lajos új-guineai útján pápuák körében. (forrás: MTM Fotóarchívum és Médiatár)



16. ábra. Bíró Lajos gyűjtötte botsáskák a múzeum gyűjteményében.
(forrás: MTM Fotóarchívum és Médiatár)

17–18. ábrák. Vágó Aladár szigetszentmiklósi háza. 17 = 1908-ban itt lakott Bíró Lajos; 18 = emléktábla a ház falán. (fotók: Sziráki György)

Ebben az időszakban számos más, a Magyar Nemzeti Múzeumtól független gyűjtő és szakember munkájának köszönhetően is gyarapodott a múzeum állattani anyaga. Közülük azokat a legfontosabb személyeket soroljuk fel (a teljesség igénye nélkül), akik a Kisebb rovarrendek gyűjteményének gyűjtőkörébe tartozó rovaranyaggal is jelentősen gyarapították a szakanyagot.

Magyarország faunáját tekintve kiemelkedő anyaggal gyarapította a gyűjteményt Anker Lajos, Anker Rudolf, Chyzer Kornél és Török József (Horváth 1902*a*, Mocsáry 1902, Kuthy 1902). Továbbá nem kevés olyan gyűjtő és adományozó neve is megemlítendő, akik számottevő külföldi anyaggal gyarapították a gyűjteményt: Doleschall Lajos (1856-ban Jáva és Ambon), Nendtwich Károly (1856-ban Észak-Amerika), Duka Tivadar (1861-ben Kelet-India), Verebélyi Imre (1868-ban Mexikó), Gerster Árpád (1874-ben Észak-Amerika), Ónody Bertalan (1876-ban Közép-Ázsia), Sarkady Károly (1876-ban Brazília), gróf Széchenyi Béla (1879-ben Kelet-Ázsia), Machik Gyula (1879-ben Szumátra), Stockinger Ferenc (1886-ban Kelet-India), Vadona János (1886 és 1889 között Amerika, Ázsia és Afrika), Flesch Aladár (1891-ben és 1900-ban Kelet-India), Procopp Jenő (1892-ben Mexikó), Hopp Ferenc (1894-ben Seychelles-szigetek), Almásy György (1897-ben Dobrudzsa, 1901-ben Turkesztán), Zichy Jenő (1899-ben Kaukázus, Szibéria, Mongólia és Kína) és Fenichel Sámuel (1891–1892-ben Új-Guinea) (Mocsáry 1902, Kuthy 1902).

A fellendülés évei – amikor „gazdára" lelnek a gyűjtemények

A személyi állomány növekedése lehetővé tette, hogy a rovargyűjtemények vonatkozásában is megkezdődjön a specializáció. Kezdtek kialakulni az önálló entitásként, egy-egy személyhez köthetően működő gyűjtemények, azaz a különféle csoportok, illetve rovarrendek „gazdára" leltek. A Kisebb rovarrendek gyűjteményének (egyik) elődje, az Orthoptera-gyűjtemény első, speciálisan ezzel a csoporttal foglalkozó őre Kuthy Dezső (1844–1917) volt.

19. ábra. Kuthy Dezső.
(forrás: MTM Fotóarchívum és Médiatár)

Kuthy Dezső (19. ábra) jogot végzett, de egészségügyi okokból hivatásától visszavonult, és a rovargyűjtést választotta új szenvedélyének, majd a rovarászatot új hivatásának. 1894-ben, 50 éves korában lett az Állattár segédőre Frivaldszky János mellett, a Bogárgyűjteményben. Feladata kizárólag a Bogárgyűjtemény gondozása volt; ennek az időszaknak köszönhető, hogy a millennium alkalmából kiadott Magyar Birodalom Állatvilága (*Fauna Regni Hungariae*) sorozat bogárkatalógusát Kuthy Dezső készítette el[13] (Kuthy 1897).

Frivaldszky János halála után nem sokkal a Bogárgyűjteménynek új gazdája lett[14], Kuthy Dezsőt pedig 1897-ben az egyenesszárnyú-gyűjtemény gondozásával bízták meg – amibe nagy elszántsággal vágott bele. Mind a preparálásban, mind pedig a rovaranyag rendezésében, tudományos feldolgozásában állhatatos volt és precíz munkát végzett. Az ebben az időszakban a múzeum tulajdonába került jelentős szöcske és sáska világanyagot is feldolgozta, többek közt Lendl Adolf kis-ázsiai, valamint Bíró Lajos új-guineai anyagait is (Szél Győző, szóbeli közlés), így Kuthy munkájának köszönhetően nemzetközileg is elismertté fejlődött az egyenesszárnyú-gyűjtemény. „*Rovargyűjteményünk kiváló gyöngyét képezik két külön gyűjteménybe foglalt Orthopteráink. Az egyik gyűjtemény a magyar Birodalom, a másik az egész földkerekség faunáját képviseli.*" – írja Kuthy (1903).

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[13] Amíg a később az egyenesszárnyúak gazdájává váló Kuthy Dezső a bogarak fejezetét készítette el a *Fauna Regni Hungariae* munkában, addig az egyenesszárnyúakról és rokonaikról (Dermaptera, Blattodea, Mantodea, Phasmatodea, Orthoptera rendekről) szóló fejezetet Pungur Gyula (1843–1907) (Pungur 1899). Ebben 173 faj szerepelt Frivaldszky János 117 fajával szemben. Pungur Gyula, bár nem az Állattárban dolgozott, 1893-tól a Herman Ottó javaslatára akkor megalakult, és a Magyar Nemzeti Múzeum egyik egységét képező Magyar Ornitológiai Központ munkatársa volt, így a múzeumi entomológusoknak tulajdonképpen kollégája volt. Az egyenesszárnyúak különösen érdekelték; már 1891-ben, amikor (a ma Romániához tartozó) Zilahon volt tanító, megjelent minden részletre kiterjedő, kiváló monográfiája a magyarországi tücsökfélékről (Pungur 1891, Csiki 1907).

[14] Csiki Ernő (1875–1954; 1898-ig Ernst Dietl, állatorvos, múzeumigazgató).

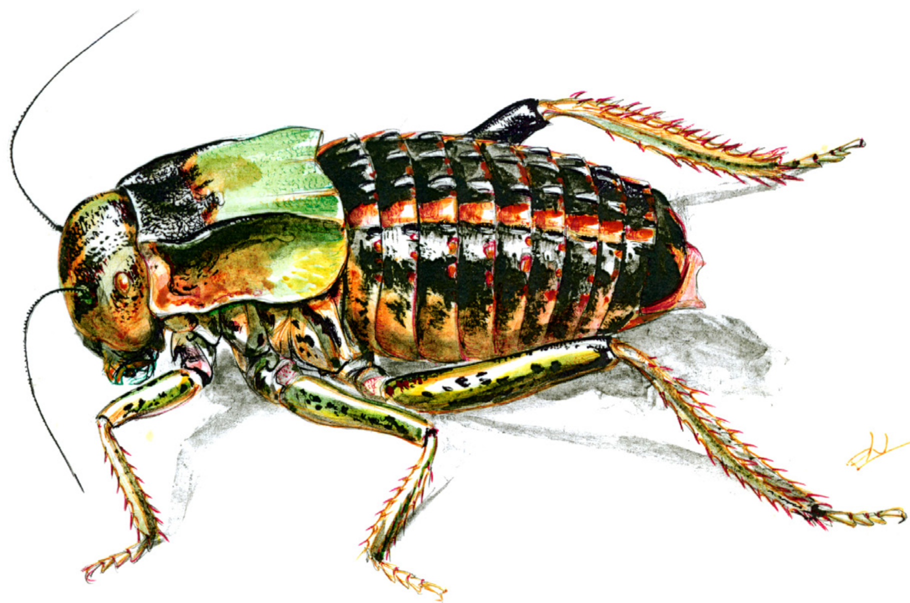
Kuthy Dezső 1914-ben történt nyugdíjba vonulásáig dolgozott az egyenesszárnyú-gyűjteményben[15] (Csiki 1918). A múzeumban töltött évei alatt Kuthy közeli barátságba került Mocsáry Sándorral (20. ábra), a hártyásszárnyúak nemzetközileg elismert kutatójával. Ezekben az években az Állattár gyűjteményei és szakkönyvtára nyolc zsúfolt teremben helyezkedett el a Magyar Nemzeti Múzeum II. emeletén. Külön dolgozószobák hiánya miatt a könyvtárban, illetve a gyűjteményi térben voltak a dolgozói munkaállomások (Anonymus 1896). Kuthy Dezső és Mocsáry Sándor két szomszédos ablak mellett ült és dolgozott éveken keresztül: „*Mint Castor és Pollux mindig együtt voltak, egyfelé laktak, együtt jöttek, együtt távoztak*” (Soós 2012).

Mocsáry, bár elsősorban a hártyásszárnyúak kutatója volt, szitakötőkről, sáskákról, recésszárnyúakról, szipókás rovarokról, legyekről, bogarakról, lepkékről, sőt csigákról és halakról is publikált. Azaz több olyan rovarcsoporttal is foglalkozott tudományos szinten, ami a mai Kisebb rovarrendek gyűjteményének gyűjtőkörébe tartozik. Számos szakcikke mellett a *Fauna Regni Hungariae* számára is elkészítette a „Pseudoneuroptera” (Isoptera, Psocoptera, Plecoptera, Ephemeroptera, Odonata) és a „Neuroptera” (Trichoptera, Raphidioptera, Megaloptera, Mecoptera, Neuroptera) fejezeteket (Mocsáry 1899*a*, *b*). Habár az említett rovarcsoportok jelentős gyűjteményi anyagának gondozása is ezekben az években minden bizonnyal Mocsáryra hárulhatott, és tudományos színvonalú munkát is végzett rajtuk, mégis megállapította, hogy „*...ez érdekes, de tanulmányozásra szerfölött nehéz rovarcsoportnak hazánkban eddig specialis művelője még nem akadt*” (Mocsáry 1900).

20. ábra. Mocsáry Sándor.
(forrás: MTM Fotóarchívum és Médiatár)

[15] Kuthy gyűjteményi munkájáról Kaszab Zoltán (1915–1986; a Bogárgyűjtemény vezetője és a múzeum egykori főigazgatója) így nyilatkozott sok év távlatából: „*Rendszeresen gyűjtötte Budapestnek és tágabb környékének a faunáját, a Nagy-Magyar-Alföldet, bejárta Csongrád és Csanád megyéket, gyűjtött az Arad megyei hegyvidéken és a Szerémségben. Kuthy sehol sem gyűjtött tömeganyagot, hanem speciális gyűjtő metódusaival ritkaságokra vadászott. Több, tudományra új faj felfedezése mellett számtalan az olyan fajoknak a száma, melyeket ő gyűjtött a Kárpát-medencében először*” (Szél Győző, szóbeli közlés).

A Bogárgyűjteményben töltött évei alatt Kuthy Dezső komoly szakmai munkát végzett, több tudományra új bogárfajt is leírt – az egyenesszárnyúak gazdájává válva viszont már kizárólag erre a csoportra koncentrált, irodalmi munkássága is csak erre irányult. Az egyenesszárnyúakon végzett taxonómiai munkája során összesen két tudományra új genuszt és 17 új fajt írt le, nagyobb részt Új-Guineából és Közép-Ázsiából. Egy tudományra új szöcskefajt barátjáról, Mocsáry Sándorról nevezett el, *Bradyporus mocsaryi* Kuthy, 1910 (21. ábra; jelenleg a *Bradyporus dasypus* (Illiger, 1800) szinonim neve) (Kuthy 1910*a*), illetve Bíró Lajos krétai gyűjtéseiből írta le a ma is érvényes *Chorthippus biroi* (Kuthy, 1907) sáskafajt.



21. ábra. *Bradyporus mocsaryi* Kuthy, 1910. (Pál János festménye)

Háborús idők – miközben a sokféleség egységbe került

A „Neuroptera”, illetve „Pseudoneuroptera” csoportokra specializált kutató érkezésére 1910-ig kellett várni: ekkor került az Állattárba Pongrácz Sándor (1887–1945). Az ő nevéhez köthető e csoportok átfogó tudományos feldolgozásának és a gyűjtemények felállításának kezdete.

Pongrácz Sándor (22. ábra) már középiskolás korában rendszeresen gyűjtött rovarokat, elsősorban szitakötőket és kérészeket, majd a pesti egyetem Bölcsészettudományi Karára jelentkezett természetrajz szakos tanárnak.

Viszont – Soós Lajos (1879–1972; zoológus, puhatestű-kutató, állattári őr) posztumusz megjelent visszaemlékezései szerint – a XX. század első évtizedében az egyetemen hirtelen nagyon megnőtt a természetrajz szakos tanárjelöltek száma, így elhelyezkedésük a tanári pályán bizonytalannak tűnt. Ezért öt fiatal, zoológia iránt komolyabban érdeklődő hallgató – köztük Pongrácz Sándor – az Állattárban jelentkezett Horváth Gézánál, hogy „*Különös céljaik egyáltalában nincsenek, csak tanulni, és valamely állatcsoporttal foglalkozni szeretnének, ha az igazgató úr kegyes volna megengedni, hogy valamelyik ablaknál letelepedhessenek*". Valójában ez megfelelt az Állattár érdekeinek, mivel rövid időn belül számítani lehetett több álláshely megüresedésére is. Később – hosszabb-rövidebb ideig – mind az öt egyetemi hallgató az Állattár alkalmazottja lett[16] (Soós 2012).

22. ábra. Pongrácz Sándor. (forrás: MTM Fotóarchívum és Médiatár)

Pongrácz Sándor tehát 1909-ben befejezte egyetemi tanulmányait, majd 1910-ben a Magyar Nemzeti Múzeum Állattárában kezdett dolgozni Mocsáry Sándor és Kuthy Dezső mellett, és az akkori értelemben vett recés- (Neuroptera), illetve álrecésszárnyúak (Pseudoneuroptera) kurátora lett; eleinte önkéntes, fizetés nélküli gyakornokként, 1914. július 22-től (Kuthy nyugdíjazása után) fizetés nélküli segédőrként, később, 1916 augusztusától fizetéses segédőrként, majd 1919-től rendes őrként dolgozott az Állattárban. Zárkózott, halk szavú ember volt, de munkájáról Kuthy és Mocsáry is elismeréssel nyilatkozott (Boros 1957*a*).

[16] Fényes Dezső, Bolkay István, Szabó-Patay József, Szombathy Kálmán és Pongrácz Sándor (Soós 2012).

Első tudományos eredményeit a recésszárnyúak vizsgálatával érte el, és már 1910-ben leírt egy tudományra új hangyalesőfajt, amelyet Mocsáry Sándorról nevezett el (*Myrmeleon mocsaryi* Pongrácz, 1910, jelenleg a *Gymnocnemia variegata* (Schneider, 1845) szinonim neve) (Pongrácz 1910, 1914). A recésszárnyúak csoportjából került ki annak a dolgozatának tárgya is, amelynek alapján doktori címet szerzett (Pongrácz 1912). Kuthy Dezső nyugdíjba vonulása után az egyenesszárnyú-gyűjtemény gondozása is Pongrácz Sándor feladata lett, így lényegében ekkor alakult ki a Kisebb rovarrendek gyűjteményének (egy korábbi nevén Orthopteroidea-Neuropteroidea gyűjteménynek) alapja és a fő szerkezete. Az így kialakult komplex, sokféle rovarcsoportot egy egységként kezelő gyűjtemény összetettsége és Pongrácz Sándor sokrétű érdeklődési köre egymással szerencsésen össze is illettek. Élete során szerteágazó témákat feldolgozó publikációi jelentek meg: recens rovarokkal kapcsolatos szisztematikai és faunisztikai kutatásairól folyamatosan jelentek meg tudományos közleményei[17], közben ősrovartani munkái révén is nemzetközi hírnévre tett szert (pl. Pongrácz 1928). Mindezek mellett pedig élénken foglalkoztatták az evolúció általános kérdései, beleértve az emberi faj kialakulásának történetét, és jelentős ismeretterjesztő műveket is írt (pl. Pongrácz 1940, 1943).

Időközben kitört az első világháború, és Pongráczot kinevezték a megszállt területek tudományos kutatására kijelölt bizottság tagjának. 1916-ban Lengyelország keleti területeire utazott, ahol gyűjtött és ottani múzeumokban dolgozott a háború végéig (Boros 1957*a*).

Pongrácz Sándor múzeumi tevékenységének idején költözött el az Állattár a Magyar Nemzeti Múzeum központi épületéből. A költözés oka az 1900-as évek eleje óta fennálló helyszűke volt, az itt őrzött példányok száma már akkorra is megközelítette az egymilliót (23. ábra) (Horváth 1902*a*). Habár próbáltak teret nyerni galériaépítéssel, illetve 1905–1906 táján az akkor kiköltöző képtár tereit is elfoglalhatta az Állattár – aminek köszönhetően kicsit „fellélegezhettek" a gyűjtemények –, a tár költözése végül elkerülhetetlenné vált (24. ábra) (Soós 2012). 1926-ban a Szentkirályi utcában bérelt épületbe (Budapest, VIII. kerület, Szentkirályi utca 7.) került át a szakanyag, majd két évvel később, 1928-ban elfoglalta mai helyét az Állattár számára akkor megvásárolt Baross utcai épületben[18] (Budapest, VIII. kerület, Baross utca 13.) (Papp 2016, Korsós 2019). Később, amikor az Országos Természettudományi Múzeum mint szervezeti

[17] E sokrétűség mutatkozik meg egyik legjelentősebb munkájában is, amelyben 11 rovarcsoport (Psocoptera, Phthiraptera, Isoptera, Embioptera, Plecoptera, Ephemeroptera, Odonata, Thysanoptera, Neuroptera, Raphidioptera, Megaloptera) lelőhelyi adatokkal kiegészített magyarországi fajlistáját adja meg (Pongrácz 1914). Ez a tanulmány több mint 100 év múltán is alapműnek számít több rovarcsoport vonatkozásában is.

[18] Ez az akkor még háromemeletes belvárosi épület a XIX. század legvégén lakóháznak épült, illetve első két szintjén eredetileg pénzintézet működött (Salomváry 1985). Itt találhatóak jelenleg is a gerinctelen állatcsoportok gyűjteményei, köztük a Kisebb rovarrendek gyűjteménye, illetve a Hal- valamint a Kétéltű- és Hüllőgyűjtemény is.

egység megalakult (még a Magyar Nemzeti Múzeum keretén belül, 1933-ban)[19], ennek főigazgatósága is itt kapott helyet (Salomváry 1985), illetve később más szervezeti egységek is, mint például a Központi Könyvtár és az Embertani tár (Papp Gábor, szóbeli közlés).

23–24. ábrák. Az Állattár a Magyar Nemzeti Múzeum épületében. 23 = Daday Jenő (1855–1920, zoológus, állattári segédőr) a zömében Xántus által gyűjtött délkelet-ázsiai tengeri gerinctelenek példányai között 1887-ben. (forrás: Daday 1887); 24 = az Állattár zsúfolt elhelyezése 1920-ban: puhatestűek példányait bemutató tárlók elé helyezett rovarszekrények. (forrás: MTM Fotóarchívum és Médiatár)

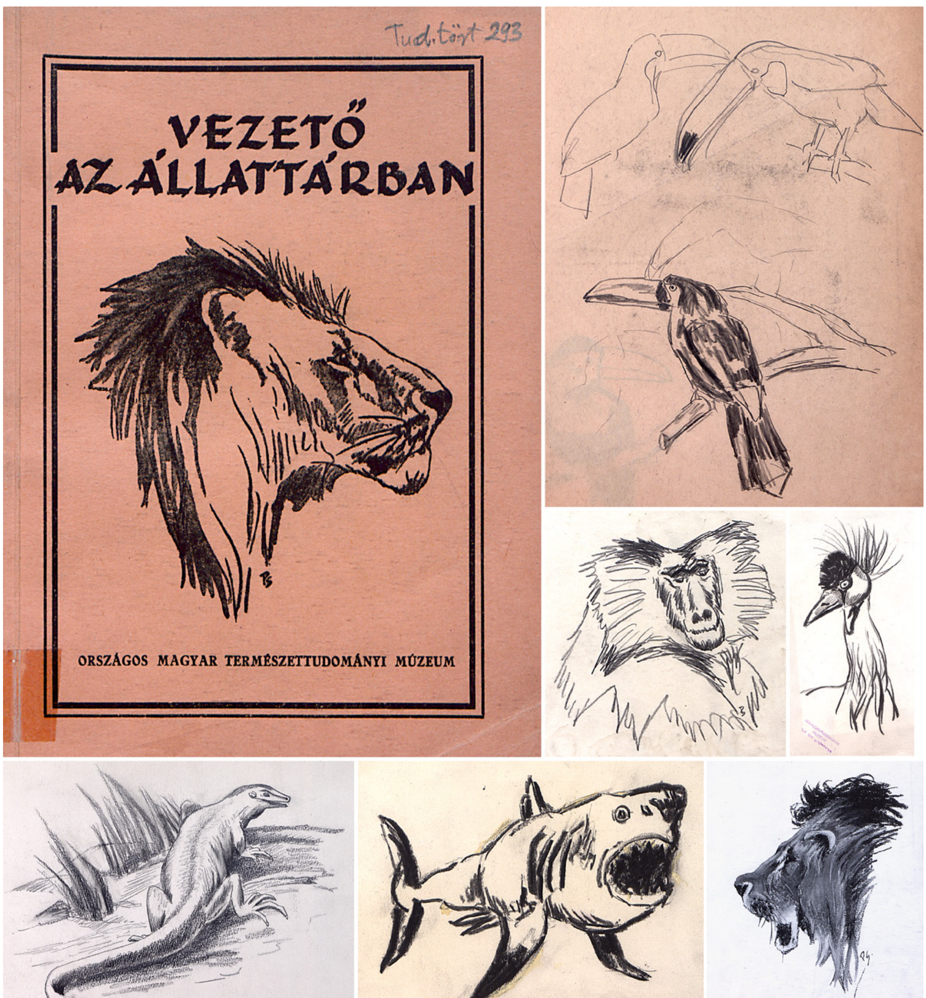
Pongrácz Sándor gyűjteményi munkája mellett 1931-ben a Debreceni Egyetemen[20] magántanári képesítést nyert, és az egyetem előadója lett. Tudományos tevékenysége mellett a gyűjteményekkel és a kiállításokkal kapcsolatos múzeumi munka 1934-től kezdte jobban lekötni, ugyanis ebben az évben nevezték ki az Állattár igazgatójának, 1936-ban pedig a Magyar Nemzeti Múzeum Országos Természettudományi Múzeumának főigazgatója lett, és ezt a tisztséget haláláig viselte (Boros 1957*a*).

Fontos volt számára, hogy az addig elhanyagolt kiállításokat a kor színvonalára emelje, az oktatás és közművelődés igényeihez igazítsa, valamint kiemelten fontosnak tartotta az élővilág evolúciójának szemléltetését. Jól ismerte a gyűjteményeket, átlátta a kiállítást, így készített az átrendezésre vonatkozó tervezetet. Hangsúlyozta, hogy *„a biológiai magyarázó szövegeknek*

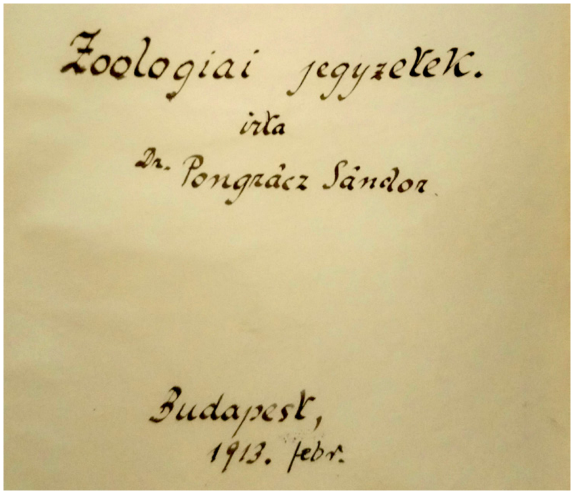
[19] A Természettudományi Múzeum csak jóval később, az 1949. évi 13. számú törvényerejű rendeletnek (az u.n. „Múzeumi törvénynek") köszönhetően vált – néhány más közgyűjteménnyel együtt – teljes mértékben önállóvá.

[20] Akkor debreceni Tisza István Tudományegyetem.

alkalmazása első rendű feladat”. Sokat dolgozott a kiállításvezetők (25. ábra) gondos összeállításán is. Sok jegyzete (26. ábra), rajza maradt fenn az MTM Tudománytörténeti gyűjteményében; ezekből merítve illusztráljuk Pongrácz sokszínű tevékenységét, amit a múzeumért és egyben a Kisebb rovarrendek gyűjteményéért tett. 1945-ben, Budapest ostroma során halt meg. Halálát a lakása ablakán át becsapódó gránát robbanása okozta, ahol azért tartózkodott (az óvóhely helyett), mert csak ott tudott rendesen dolgozni, koncentrálni (Boros 1957*a*).



25. ábra. A Pongrácz Sándor által összeállított kiállításvezető borítója, körülötte pedig rajzai, amelyek közül több a kiállításvezetőben illusztrációként is szerepel. (forrás: MTM Tudománytörténeti gyűjtemény)



26. ábra. Pongrácz Sándor egyik jegyzetfüzetének címoldala. (forrás: MTM Tudománytörténeti gyűjtemény)

Gondterhelt évek

Pongrácz Sándor halála (1945) után Steinmann Henrik 1957-es múzeumba érkezéséig (hivatalosan az 1960-as alkalmazásáig) nem volt gazdája a Kisebb rovarrendek gyűjteményének. Ugyanakkor nem szűnt meg teljesen a gyűjteményi anyag feldolgozása: Székessy Vilmos (1907–1970; zoológus-fizikus, koleopterológus[21]) tudományos érdeklődése az 1940-es évek végétől a bogaraktól a legyezőszárnyúak (Strepsiptera) felé fordult (Anonymus 1971). A legyezőszárnyúak jelenleg a Kisebb rovarrendek gyűjteményéhez tartoznak, de abban az időben még e csoport alkoholos anyaga a Bogárgyűjteményben volt, így Székessynek nem kellett másik gyűjteménybe költöznie, hogy e csoportot kutathassa (pl. Székessy 1959). De a csőrösrovarok (Mecoptera, szintén a Kisebb rovarrendek gyűjtőkörébe tartozó csoport) faunisztikájával is foglalkozott: írt egy igen rövid könyvrészletet a *Panorpa alpina* (Rambur, 1842) bátorligeti előfordulásának kérdéséről (Székessy 1953).

A gyűjtemény bő tíz év elhagyatottságát követően a múzeum egészének legsúlyosabb, pótolhatatlan károkat okozó eseménye következett be. Az 1956-os őszi forradalom során a budapesti harcok miatt tűzvész pusztított a kiállításban és a gyűjteményekben is (Boros 1957*b*, Papp 2016, 2022). November 5-én, valamivel 17 óra előtt célt tévesztett aknatalálat érte a Baross utcai Állattár épületét, ahol a legfelső, III. emeleten található Kétéltű- és Hüllőgyűjtemény alkoholos gyűjteményi anyaga rögtön kigyulladt, lángtengerré változtatva a tetőt, a lefolyó égő alkohol pedig az alsóbb szinteket (Boros 1957*b*, Papp 2022).

[21] 1945-től az Állattár igazgatója, majd 1960-tól főigazgató is volt.

Estére majdnem teljesen eloltották a tüzet, de másnap reggelre ismét égett az épület, amit végül a délelőtt során sikerült teljesen eloltania a tűzoltóságnak. A tűzben az épület harmada elpusztult (Papp 2022).

Az Állattárnak csaknem minden gyűjteménye súlyos kárt szenvedett. Voltak, amelyek teljesen vagy szinte teljesen megsemmisültek – köztük a Kisebb rovarrendek gyűjteménye is. Közrejátszott ebben akkori elhelyezése is: a III. emeleten, közvetlenül az alkoholos Kétéltű- és Hüllőgyűjtemény melletti teremben volt.

Az 1956-os tűzvész során valamennyi ide tartozó rovarrend csaknem teljes anyaga megsemmisült, a korábban több mint 60 000 példányra becsült szakanyagnak csupán a töredéke maradt meg. A külföldi szitakötőanyag (pl. Bíró Lajos krétai gyűjtése) és nagyjából 3000 meghatározatlan hazai és külföldi – tág értelemben vett – egyenesszárnyú mentsvára a földszinten lévő könyvtár egyik szobája volt, mivel a tűz idején éppen itt voltak elhelyezve, így ezek túlélték a pusztítást (Boros 1957*b*). Ezen felül szerencsésen megmaradtak Bíró Lajos gyűjtötte anyagból leírt Isoptera, Embioptera, Psocoptera és Neuroptera fajok típuspéldányai, köztük néhány tárgylemezen őrzött rovarpéldány is. A mostani, több mint negyedmilliós gyűjtemény tehát az újjáépítés erőfeszítéseinek, illetve a későbbi gyűjtéseknek, vásárlásoknak, ajándékozásoknak a gyümölcse. Érdekes egybeesésként a gyűjtemény mai elhelyezése részben megegyezik az egykor védelmet jelentő, régi könyvtár szobáival (27. ábra). Salomváry (1985) leírásából idézünk:

„*A kapualjtól balra nyílik a lépcsőház. Ennek egyik ékessége az eredeti épségében megmaradt ólomkeretes színes üveggel és más mintájú maratott ólomkeretes színes üveggel ellátott könyvtár ajtó. Az egészet szükség esetén lehúzható fémredőny óvja, ennek köszönhetően vészelte át a második világháború és az 1956-os események viharait.*"

Újjáépítés

Az 1956-os veszteséget követően a tár munkatársai intenzív hazai és külföldi gyűjtésekbe kezdtek, és nemzetközi összefogás is segítette a szakanyag pótlását. Külföldi múzeumok ajándékozásainak köszönhetően többek közt jelentős egyenesszárnyú-anyagot kapott a gyűjtemény (Nagy 2016).

A Kisebb rovarrendek gyűjteményében Steinmann Henrikre (1932–2009; biológia-kémia szakos tanár; 28. és 32. ábrák) hárult az újjáépítés feladata. Múzeumi munkásságát Papp (2010) megemlékezése és Steinmann Henrik fennmaradt önéletrajzai (MTM Tudománytörténeti gyűjtemény, Steinmann Henrik fond) alapján foglaljuk össze. Steinmann 1957-ben ösztöndíjas aspiránsként érkezett az Állattárba, kandidátusi fokozatának megszerzéséhez az egyenesszárnyú rovarok központi idegrendszerének összehasonlító vizsgálatát végezte. A fokozat megszerzését követően, 1960-ban bízták meg az Orthopteroidea-Neuropteroidea gyűjtemény gondozásával.

27. ábra. A Központi Könyvtár egykori olvasóterme. (forrás: MTM Fotóarchívum és Médiatár)

Nagy lendülettel hozzá is kezdett a csaknem teljesen a tűz martalékává vált gyűjtemény újbóli felállításához: egyrészt maga is számos hazai és külföldi (Balkán-félsziget, Németország, Olaszország, Kína, Észak-Korea) gyűjtőúton vett részt, másrészt rendszerezte, feldolgozta, illetve külföldi specialistákkal feldolgoztatta a gyűjtött rovarokat. Az állattani szakanyag gyarapodása ezekben az években különösen intenzív volt: gyakorlatilag az Állattár összes akkori szakalkalmazottja kivette részét e munkából. Ennek kapcsán érdemes megemlíteni a koreai szitakötő- (29. ábra) és egyenesszárnyú-gyűjteményt, illetve Kaszab Zoltán (1915–1986; tanár, zoológus, gyászbogárkutató, múzeumigazgató) mongóliai gyűjtéseit, amelyek számos tudományra új fajt eredményezett (30–31. ábrák).

Steinmann Henrik tudományos munkáját sokszínűség jellemezte. Habár kandidátusi dolgozatát rovaranatómiai témakörben készítette el, már az aspirantúra idején is jelentek meg szitakötőkről és egyenesszárnyúakról szóló faunisztikai jellegű közleményei (pl. STEINMANN 1960). Később, múzeumi alkalmazását követően is – ami értelemszerűen elsődlegesen a gyűjteményen végzett tudományos feldolgozómunkát helyezte munkavégzése előterébe – írt jelentős rovaranatómiai munkákat. Ez utóbbiak közül kiemelkedik egy neuroanatómiai kismonográfia (Steinmann 1965*a*), illetve az a magyar nyelvű általános rovaranatómiai könyvsorozat, amelyet Zombori Lajossal (1937–; 53. ábra), a múzeum Hymenoptera gyűjteményének kutatójával közösen írt (Steinmann & Zombori 1984*a*, 1986, 1991)[22].

28. ábra. Steinmann Henrik IV. emeleti dolgozóasztalánál, 1967-ben. (forrás: MTM Fotóarchívum és Médiatár)

Steinmann Henriknek élete során közel 170 rovartani témájú publikációja jelent meg, és több mint 300 új taxont írt le[23]. Jelentős eredményei születtek az igazi recésszárnyúak (Neuroptera), az egyenesszárnyúak (Orthoptera)[24] és a szitakötők (Odonata) faunisztikai és taxonómiai vizsgálatából, de munkásságának legfontosabb és nemzetközileg is legnagyobb elismerést kiváltó része a Dermaptera[25] rend kutatása volt. Elkészítette több rendszertani csoport revízióját, meghatározta, illetve revideálta számos külföldi múzeum Dermaptera-gyűjteményét, összeállította a rend világkatalógusát és négykötetes világmonográfiáját (Steinmann 1986, 1989*a*, *b*, 1990, 1993). A négy kötetből három már múzeumi állásának feladása után jelent meg.

[22] Rovaranatómiai könyveik angol nyelven is jelentek meg (Steinmann & Zombori 1981, 1984*b*, 1999).

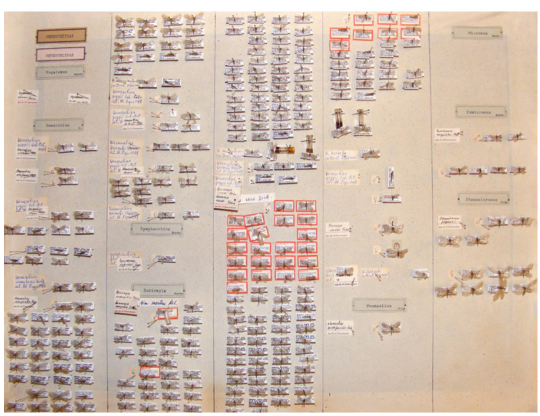
[23] Ezek egyike a *Chrysoperla* Steinmann, 1964 genusz, amelybe az Európában leggyakrabban előforduló zöldfátyolkák (Neuroptera: Chrysopidae) tartoznak.

[24] Összesen 7 genuszt valamint 49 fajt és alfajt írt le az Orthoptera rendben.

[25] Összesen 42 genuszt valamint 212 fajt és alfajt írt le a Dermaptera rendben.

29. ábra. Koreai szitakötőanyag a gyűjteményben. (fotó: Szőke Viktória)

30. ábra. Kaszab Zoltán (jobbra) gyűjtőútra készül az Állattár bejáratánál. (forrás: MTM Fotóarchívum és Médiatár)



31. ábra. Kaszab Zoltán gyűjtötte mongol barnafátyolka (Neuroptera: Hemerobiidae) anyag. (fotó: Szőke Viktória)

Kényszerűségből hagyta ott szeretett munkahelyét Steinmann 1987-ben: a Magyar Posta Kiadóhivatalánál helyezkedett el[26], hogy támogathassa családját és nyugdíjas éveire nagyobb anyagi biztonságot teremthessen. Tudományos munkássága végén – már a múzeumból való távozása után – visszatért (saját szavai szerint fiatalkori kedvenc csoportjához) a szitakötőkhöz, és összeállította azok két kötetben megjelent világkatalógusát (Steinmann 1997*a*, *b*). Mindezeken túl színvonalas és sikeres ismeretterjesztő jellegű könyveknek is szerzője volt, valamint a *Magyarország Állatvilága* sorozatban a Neuropteroidea, a Plecoptera, a Trichoptera és a Dermaptera köteteket ő készítette. Ezeknek nem csupán szövegét írta, de teljes ábraanyagát is ő maga rajzolta.

Az 1956-os tűzvészt követően a Baross utcai épületet helyreállították (1956 és 1958 között ideiglenesen a Károlyi-palotában (Budapest, V. kerület) kapott elhelyezést az Állattár; Papp Gábor, személyes közlés), sőt, négyemeletessé bővítették. Az épület új, legfelső szintjén kapott helyet az Orthopteroidea-Neuropteroidea gyűjtemény. Közel másfél évtizeddel később, 1970-ben Steinmann Henrik állattári igazgatói kinevezést kapott[27] az ugyanebben az évben főigazgatói posztra került Kaszab Zoltántól. Ez közrejátszhatott abban, hogy hamarosan a gyűjtemény előnyösebb helyhez jutott az épületben: leköltözött az első emeletre. Itt egy nagyobb terem, egy kisebb tároló helyiség és egy dolgozószoba – amelyek korábban az Emlősgyűjteményhez tartoztak – képezték a gyűjteményi tereket. Ezen felül a Főigazgatóság előterétől induló folyosó is a gyűjtemény rendelkezésére állt: a tűzött rovaranyag tárolására szolgáló szekrények zöme itt nyert elhelyezést (32–33. ábrák).

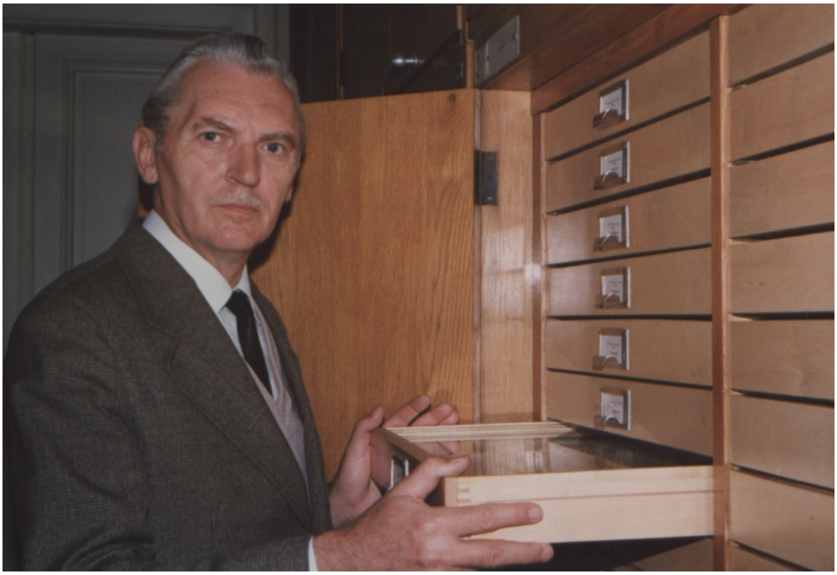
Steinmann Henrik munkájának köszönhetően újjáéledt a Kisebb rovarrendek gyűjteménye: múzeumban töltött évei alatt vált újra rendszerezett, százezres példányszámú gyűjteménnyé (Korsós 2022). Fő érdeklődési körének megfelelően a Dermaptera-gyűjtemény fejlődött a legszembeötlőbben, és vált – neki köszönhetően – világviszonylatban is kiemelkedő jelentőségűvé.

Közelmúlt és a gyűjtemény jelene

Steinmann Henrik távozása után rövid, átmeneti időszak következett, a gyűjtemény újra „alvó állapotba" került. Helyiségeibe az újonnan alakult ökológiai kutatócsoport munkatársai költöztek be, a legszükségesebb gyűjteményi feladatokat pedig Szél Győző (1958–), a Bogárgyűjtemény muzeológusa látta el.

[26] Az itt betöltött munkakör nem volt számára teljesen idegen, hiszen 1964-től (közel 20 éven át) volt technikai szerkesztője a *Magyarország Állatvilága* sorozatnak és 1964-től 1970-ig szerkesztője a *Folia entomologica hungarica* folyóiratnak, illetve a postai kiadványok közül a zoológiai témájú bélyegek már korábban is érdeklődési körébe tartoztak. Ez utóbbiakból az 1970-es években kiállítást is rendezett a múzeumban.

[27] 1970 és 1975 között volt Steinmann Henrik az Állattár igazgatója, majd saját kérésére ezután újból tudományos főmunkatársi beosztása lett.



32. ábra. Steinmann Henrik az I. emeletre költözött gyűjteményben, 1988-ban. (forrás: MTM Fotóarchívum és Médiatár)

33. ábra. A Baross utcai épület I. emeletén máig kint van a gyűjteményt jelző tábla. (fotó: Szőke Viktória)

Új vezetője 1989-ben lett a gyűjteménynek: ekkor kezdte meg munkáját Sziráki György (1942–) a Kisebb rovarrendek gyűjteményében, amit 2009-es nyugdíjba vonulásáig a múzeum alkalmazottjaként végzett. Ettől kezdve, illetve jelenleg is, önkéntes munkatársként a gyűjteményben dolgozik.

Sziráki György (34. ábra) 1965-ben szerzett biológia-földrajz szakos tanári diplomát az Eötvös Loránd Tudományegyetemen. Egyetemistaként az ikerszelvényesekkel foglalkozott – ugyanez a csoport képezte témáját 1967-ben megjelent első tudományos közleményének, valamint a még ugyanebben az évben megvédett egyetemi doktori disszertációjának is. Három év tanári működés után alkalmazott entomológusként helyezkedett el, előbb egy faanyagvédelmi laboratóriumban, majd a Kertészeti Kutatóintézetnél. Ez utóbbi helyen a növényvédelmi gyakorlattal közvetlenül összefüggő kérdések tanulmányozásán túl alkalma nyílt bekapcsolódni a hazai feromonkutatásba. Ebben az időben rovarfaunisztikai eredményei is születtek[28], és egy tudományra új lepkegenusz leírása Magyarországról is ezekhez az évekhez köthető (Sziráki 1990). Ezt követően tudományos pályáját a múzeumban folytatta.

34. ábra. Sziráki György a gyűjteményben, 2023-ban. (fotó: Szőke Viktória)

Az MTM Állattárának szervezésében – 1990-es évektől a kétezres évek elejéig – nagy lendülettel folyt nemzeti parkjaink és hazánk más, természetvédelmi szempontból fontos területeinek faunakutatása. Múzeumi munkájának megkezdésével e programba Sziráki György is bekapcsolódott, illetve a Fertő-Hanság Nemzeti Park kutatásának koordinátora volt. Múzeumi évei alatt Magyarország faunájára új Ephemeroptera-, Orthoptera-, Psocoptera-[29], Megaloptera-, Neuroptera- és Raphidioptera-fajokat, és a Kárpát-medencére nézve új Neuroptera-családot is kimutatott. Fő kutatási területe a lisztesfátyolkák (Neuroptera: Coniopterygidae) taxonómiája lett. Ebből a családból eddig mintegy 90 tudományra új fajt írt le, valamint az ivarszervek vizsgálatával lehetővé tette a legtöbb európai faj nőstényének meghatározását. Az MTA doktora 2006-ban lett, disszertációja a Coniopterygidae család annotált

[28] Három rovarrendbe tartozó 15, Magyarország faunájára új faj jegyzése.

[29] A fürgetetvek (Psocoptera) korábbi hazai kutatottságának szerény mértékére utal, hogy e rovarrend esetében 20 faunánkra új fajt publikált, ami az ismert magyarországi fajoknak több mint negyede.

világkatalógusa volt, amely később angol nyelven is megjelent (Sziráki 2011). Tudományos munkája kiterjedt többek közt összehasonlító anatómiai, morfológiai és filogenetikai vizsgálatokra (valamennyi Neuroptera család tekintetében), valamint fosszilis rovarokra is[30].

A Kisebb rovarrendek gyűjteményének szakanyagát gyűjtéssel, többek közt külföldi gyűjtőutak keretében (orosz Távol-Kelet 1990-ben, Vietnám 1994-ben és 1999-ben, Thaiföld 2001-ben és 2003-ban, Argentína 2006-ban), valamint identifikációs munkájával jelentősen gyarapította. Utóbbi, gyűjteményfeldolgozó tevékenysége során több külföldi múzeum Neuroptera szakanyagát is feldolgozta.

A Kisebb rovarrendek gyűjteményének ez időszak alatti gyarapodása kapcsán megemlítendő két jeles szakember, Ujhelyi Sándor (1902–1996; oktató-kutató tanár, egyetemi docens, entomológus) és Kis Béla (1924–2003; kolozsvári entomológus, egyetemi tanár), akiknek gyűjteményeit ekkor vásárolta meg a múzeum.

Sziráki György gyűjteményvezetői működésének idejéhez több nagyobb, a gyűjtemény szakanyagát érintő változás is köthető. A kérészek és álkérészek 1986 és 1992 között átmenetileg külön gyűjteményt képeztek, amelynek Tóth László (1937–1992; kémia-biológia szakos tanár, muzeológus) viselte gondját. Tóth László a Bogárgyűjteményben dolgozott 1970-től és eredetileg (többnyire) holyvákkal (Coleoptera: Staphylinidae) foglalkozott. Személyes jellegű okok miatt azonban távozott innen, helyette pedig 1986-ban megbízták a kérész- és álkérészgyűjtemények gondozásával. E két, akkoriban gazdátlan csoport kutatása menekülési lehetőséget jelentett számára: a II. emeleti Bogárgyűjtemény helyett a III. emeleten, a hátsó lépcsőházból nyíló helyiségben rendezte be dolgozószobáját (35. ábra; Szél Győző és Bálint Zsolt, személyes közlések).

Tóth László főként a Bakony faunájának kutatásával foglalkozott, faunisztikai eredményeket az említett két vízirovarcsoportból is publikált. Dolgozott a múzeum álkérész- és kérészszakanyagán, a két rend hazai „provizórikus" fajlistáját is összeállította (Tóth 1989, 1990, 1992*a, b*, Tóth 1993*a*, *b*).

35. ábra. Tóth László III. emeleti szobájában, 1988-ban. (forrás: MTM Fotóarchívum és Médiatár)

[30] Tudományra új lisztesfátyolkafajt írt le kréta időszaki burmai borostyánból, vizsgált balti borostyánban megőrzött Coniopterygidae anyagot is, és társszerzővel cikket irt egy észak-magyarországi fosszilis ízeltlábú együttesről – Kárpát-medencei kitekintéssel.

1989-ben az akkor megvásárolt, később említésre kerülő Ujhelyi-féle gyűjtemény kérész és álkérész anyagát is Tóth László kezelte. Az 1992-ben bekövetkezett halála után az általa gondozott rovarcsoportok anyagai újból a Kisebb rovarrendek gyűjteményéhez kapcsolódtak.

Szintén ebben az időszakban (de már az 1990-es évek második felében) az eredetileg a Bogárgyűjteményben őrzött legyezőszárnyúak (Strepsiptera) alkoholban őrzött példányai is átkerültek a Kisebb rovarrendek gyűjteményébe. A legutóbbi és egyben a mai gyűjteményi szerkezetet is kialakító változás 2005-ben történt, amikor az elsődlegesen szárnyatlan rovarok – Collembola (ugróvillások), Protura (félrovarok), Diplura (lábaspotrohúak), Archaeognatha (ugró ősrovarok) és Zygentoma (pikkelykék) – a Kisebb rovarrendek gyűjteményéből átkerültek a Talajzoológiai gyűjteménycsoporthoz.

A múzeum egészének elhelyezése kapcsán is változások voltak alakulóban: intézményünknek egy 1994 márciusában született kormányhatározat szerint egységesen, az egykori Ludovika Akadémia (Budapest, VIII. kerület, Ludovika tér 2–6.) épületében kellett volna helyet kapnia (Matskási 2002). A felújítási és fejlesztési munkálatok el is kezdődtek; többek között ekkor alakították ki a föld felszíne alatti mélyraktárakat, ahová 2004 júniusában a Kisebb rovarrendek gyűjteményének is mintegy 500 tárlófióknyi anyaga átkerült. Itt modern kompaktuszrendszerben nyert elhelyezést a szakanyag. Koncepcióváltozás miatt azonban a tervek nem válhattak valóra, az átköltöztetett gyűjteményi anyag viszont a mélyraktárban maradt, így – néhány más gyűjteményhez hasonlóan – a Kisebb rovarrendek gyűjteményi anyaga azóta két telephelyen található[31].

Sziráki György mellett 2003-tól muzeológusként dolgozott Murányi Dávid (1975–; 36. ábra), majd 2009-től 2017-ig gyűjteményvezetőként folytatta munkáját. Főbb kutatási területe az álkérészek taxonómiája és faunisztikai vizsgálata, de a szitakötők, a botsáskák és a kaszáspókok faunisztikai és taxonómiai vizsgálatával is foglalkozott. Földrajzi régiók tekintetében a Kárpát-medence, a Balkán-félsziget, a Kaukázus és Kelet-Ázsia faunájának feltárásában ért el jelentős eredményeket. Ezek közül kiemelhető a Balkán-kutatás, amelyben már 1996-tól részt vett (Barina 2007).

36. ábra. Murányi Dávid dolgozóasztalánál a gyűjteményben, 2010-ben. (fotó: José Manuel Tierno de Figueroa)

[31] Többek közt a szitakötő-gyűjtemény és a fogólábú-gyűjtemény nagy része, a mongóliai Neuroptera-anyag, illetve több szekrény Orthoptera is a ludovikai mélyraktárban található.

Murányi Dávidnak főként az álkérészek vonatkozásában születtek eredményei, de emellett más kisebb fajszámú rovarrend, így a kérészek, szitakötők, szövőlábúak, fülbemászók és termeszek kutatásába is bekapcsolódott. Gyűjteményi munkájának egyik fontos eredménye a számítógépes adatbázisban kereshető álkérész-gyűjtemény.

A múzeum adminisztratív feladatai időközben megnövekedtek, így a Főigazgatóság helyigénye is megnőtt, terjeszkedni pedig az első emeleti szomszéd, a Kisebb rovarrendek gyűjteményének terei felé tudott. Így a gyűjtemény „házon belül" ismét költözni kényszerült: ekkor (2010-ben) foglalta el mai helyét a Baross utcai épület földszintjén, ahol előtte a Központi Könyvtár és a Gondnokság működött. Ez utóbbi két részleg ekkor került át a végleges elhelyezésnek remélt Ludovika téri épületbe.

A költözködés előtti évben, 2009-ben érkezett a múzeumba Puskás Gellért (1981–; 37. ábra) egyenesszárnyú-kutató, aki később Murányi Dávidtól átvette a gyűjteményvezetői feladatokat, és 2020 novemberéig dolgozott a Kisebb rovarrendek gyűjteményében. Szöcskékkel és sáskákkal egyetemi évei alatt kezdett el foglalkozni, majd a Kisebb rovarrendek gyűjteményében muzeológusként fejlesztette tovább szaktudását. Az egyenesszárnyú rovarok Kárpát-medencei és balkáni képviselőinek taxonómiáját és elterjedési viszonyait tanulmányozta, de ökológiai, természetvédelmi és bioakusztikai vizsgálatokat is végzett (Kucska 2015*a*).

37. ábra. Puskás Gellért a gyűjteményben, 2015-ben. (forrás: Kucska 2015*a*)

Rendszeres résztvevője volt a már a Kisebb rovarrendek gyűjteményében is hagyományosnak tekinthető balkáni gyűjtőutaknak, amelyek keretében számos egyenesszárnyú-példánnyal gyarapította a gyűjteményt. Puskás Gellért 2023 augusztusától önkéntesként újból a Kisebb rovarrendek gyűjteményében dolgozik, taxonómiai és faunisztikai munkát végez balkáni egyenesszárnyúakon.

Társult kutatóként a Kisebb rovarrendek gyűjteményében töltötte életének utolsó aktív éveit Nagy Barnabás (1921–2020; 38. ábra), a növényvédelmi rovartan jeles szakembere és orthopterológus, miután a Magyar Kutatási Hálózat Agrártudományi Kutatóközpontjának Növényvédelmi Intézetében – korábban MTA Növényvédelmi Kutatóintézet (MTA ATK) – a nyugdíjas munkatársak számára már nem tették lehetővé kutatásaik ottani folytatását (Puskás *et al.* 2020). Nagy Barnabásnak korábbról voltak már kapcsolatai a múzeummal, többek közt Puskás Gellért szakmai munkájára is nagy hatással volt, így tudományos tevékenységét a múzeumban folytatta, és 2015-ben az általa összeállított jelentős rovargyűjtemény is az Állattárba került az MTA ATK és a múzeum közti ajándékozási szerződés keretében (Kucska 2015*a, b,* Nagy 2016). Nagy Barnabás az egyenesszárnyúakkal egyetemi hallgatóként kezdett foglalkozni, amiben Pongrácz Sándor, akkor már múzeumi főigazgató, segített neki: az 1940-es években egyetemi magántanárként Pongrácz Sándor rendszeresen megfordult a Debreceni Tudományegyetemen, ahol Nagy Barnabás is tanult. Továbbá nagy hatással volt rá, hogy lehetősége nyílt tanulmányozni a Herman Ottó gyűjtötte egyenesszárnyú-példányokat a Kolozsvári Egyetem Állattani Múzeumában (Kucska 2015*b*).

38. ábra. Nagy Barnabás a gyűjteményben, 2015-ben. (forrás: Kucska 2015*b*)

A Puskás Gellért távozását követő két hónapban a nyilvántartásért felelős muzeológus Tóth Balázs (1985–; lepidopterológus), a Lepkegyűjtemény muzeológusa volt, majd 2021 januárjától Szőke Viktória (1987–; biológus; 39. ábra) vette át a gyűjtemény vezetését. Szőke Viktória már 2014 decemberétől a múzeum alkalmazottjaként dolgozott a Kétéltű- és Hüllőgyűjteményben (preparátorként és gyűjteménykezelőként), mellette pedig rendszeresen részt vett rovargyűjtemények, főleg a Bogárgyűjtemény múzeumi gyűjtőútjain, így a gyűjteményi munka, a nyilvántartási és egyéb feladatok ismerős terepet jelentettek számára. Kutatási témául az igazi recésszárnyúak (Neuroptera) taxonómiai és faunisztikai vizsgálatát választotta. Első tudományos közleménye a Kisebb rovarrendek gyűjteményében töltött első évében jelent meg, ebben a hazai hangyalesőket (Neuroptera: Myrmeleontidae) dolgozta fel (Szőke 2021), majd faunisztikai eredményei mellett (Szőke 2022*a*, *b*, 2024) az első taxonómiai munkája is megszületett (Szőke 2023).

39. ábra. Szőke Viktória a gyűjteményben, 2023-ban. (fotó: Sziráki György)

A történeti áttekintés végén felsoroljuk a gyűjtemény muzeológusai mellett dolgozó preparátorokat is, hiszen az ő munkájuk elengedhetetlen részét képezi a mindennapi gyűjteményi munkának – mind az állagmegóvás, mind a példányok szakszerű preparálása, cédulázása, tudományos munkához való előkészítése terén. A gyűjtemény preparátorai voltak többek között: Papp Zoltán, Babinszky Tamás, az 1980-as évek végétől Bíró Mária, valamint Horváthné Nagy Katalin, aki 1992-től 2012-ig dolgozott a Kisebb rovarrendek gyűjteményében (ezután a Lepkegyűjteményben folytatta preparátori munkáját, egészen 2020 szeptemberéig, nyugdíjba vonulásáig). Horváthné Nagy Katalin áthelyezését követően nem érkezett új preparátor a Kisebb rovarrendek gyűjteményébe, így immár több mint tíz éve működik a gyűjtemény e fontos munkakörbe tartozó feladatok kényszerű hiányával.

A KÖZELMÚLT JELES GYŰJTEMÉNYGYARAPÍTÓI

Ujhelyi Sándor (40. ábra) a hozzávetőleg 30 000 példányt számláló, meghatározott és rendszertani sorrendben felállított, rovartűre tűzött gyűjteményét (41. ábra), valamint igen jelentős különlenyomat-gyűjteményét ajánlotta fel az MTM számára, amelyet az 1989-ben meg is vásárolt. Ujhelyi Sándor diákkorától kezdve több mint hét évtizeden át gyűjtött rovarokat, és szabadidejében végzett rovartani kutatómunkájával vált nemzetközileg is elismert entomológussá. Elsősorban a kérészeket, szitakötőket, álkérészekeket, tegzeseket és recésszárnyúakat kutatta, de gyűjteménye szép számban tartalmazott egyenesszárnyúakat is. A magyar rovarászok közül elsőként foglalkozott tudományos szinten a lisztesfátyolkákkal (Coniopterygidae). Cikkeiben 42, Magyarország faunájára új rovarfaj megtalálásáról számolt be, és leírt két tudományra új kérészfajt is.

Nevéhez fűződik a *Magyarország Állatvilága* sorozat két füzete, a szitakötők és a kérészek (Pais & Sziráki 2003), de publikálta például az MTM magyar gyűjtőktől származó közép-európai szitakötő-gyűjteményének faunisztikai adatait is (Ujhelyi 1955).

40. ábra. Ujhelyi Sándor (fotó: Nagy Barnabás)

41. ábra. Ujhelyi Sándor egyenesszárnyú-gyűjteményének részlete – egyedi szekrényben, egyedi rovardobozokban. (fotó: Szőke Viktória)

Kis Béla (42. ábra) a meghatározott és rendszertani sorrendben felállított, tűzött Neuropterida (Neuroptera, Megaloptera, Raphidioptera) gyűjteményének egy igen jelentős részét még életében a Kisebb rovarrendek gyűjteményének ajándékozta. Halála után a gyűjteménye további – részben alkoholban konzervált, illetve típuspéldányokat is tartalmazó – részeit megvásárolta a múzeum, beleértve Orthoptera gyűjteményét is, szintén számos típuspéldánnyal (43. ábra). Kis Béla több rovarrend (Plecoptera, Dermaptera, Orthoptera, Heteroptera, Raphidioptera, Neuroptera, Mecoptera) faunisztikai és taxonómiai kutatásával foglalkozott, valamint állatföldrajzi kutatásokat is végzett. Legtöbb publikációja az egyenesszárnyúakkal kapcsolatos, mégis a legtöbb új fajt (16-ot) az álkérészek rendjéből írta le. Utolsó éveiben elsősorban poloskákkal foglalkozott. Nagyobb munkái közül kiemelkednek a *Fauna Republicii Socialiste România* keretében megjelent Neuroptera, Plecoptera és Heteroptera: Pentatomoidea kötetek (Nagy *et al.* 2005).

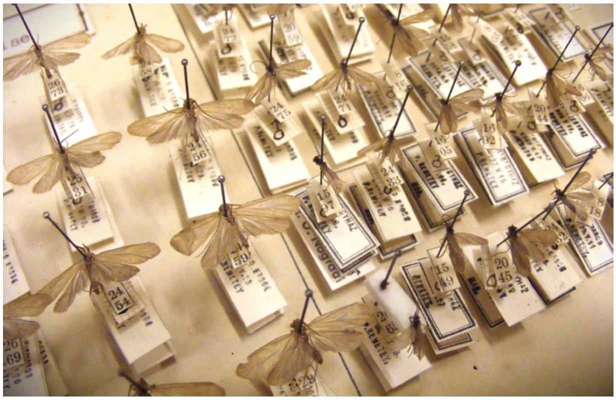
Ujhelyi Sándor és Kis Béla közös tudományos eredménye a magyarországi és romániai (erdélyi) példányok alapján leírt, Közép-Európa jelentős részén gyakori zöldfátyolkafaj, a *Chrysopa commata* Kis et Ujhelyi, 1965 leírása, amelynek típusanyagát a Kisebb rovarrendek gyűjteménye őrzi (Pais & Sziráki 2003).

42. ábra. Nagy Barnabás, Sziráki György, Papp Jenő és Kis Béla (balról jobbra) közös terepi gyűjtésen, Börzsöny, 1992. (fotó: Nagy Barnabás)

43. ábra. Kis Béla gyűjteményének részlete. (fotó: Bényi Andrea, MTM)

A múlt század második negyedében (1924–1955) gyűjtött tegzeseket (Trichoptera) Remetey Pál (1900–1975; MÁV-felügyelő, amatőr entomológus), aki állomásfőnök volt Veresegyház vasútállomáson. Elsősorban lakóhelyén, ezen kívül a Duna mellett, a Börzsönyben és a Balatonnál gyűjtött. A példányokat szépen preparálta, cédulázta, valamint gyűjteményének különös értéke, hogy reprezentatív: nemcsak a relatíve nagy, gyakori fajok találhatók meg benne, hanem a ritka és a kisebb, szerényebb küllemű fajok is. Gyűjteménye meghatározott példányokat tartalmaz, feldolgozó munkája kiemelkedő, bár tudományos publikációja nem jelent meg. Remetey Páltól már 1928-ban kerültek példányok a múzeumba, míg végül teljes gyűjteményének elhelyezése itt valósult meg. Még az 1980-as évek közepe táján is a Remetey-gyűjtemény (44. ábra) képezte az MTM mintegy 3700 példányból álló Trichoptera gyűjteményének[32] legnagyobb részét (U.-Nógrádi 1989, Sziráki 2002).

[32] A tegzesek kapcsán meg kell említeni Uherkovich Ákost (1941–; zoológus, a Janus Pannonius Múzeum természettudományi osztályának nyugalmazott vezetője) is, akinek a nevéhez a Trichoptera gyűjteményrész „tudományos gyarapítása" köthető. Az MTM-ben jelentős program volt a 2000-es években a Szigetköz zoológiai monitorozása, amelynek teljes tegzesanyagát Uherkovich dolgozta fel. Ez több mint 2700 db alkoholos fiolában őrzött, sok ezer példány faji szintű meghatározását jelentette.



44. ábra. Részlet a Remetey-gyűjteményből. (fotó: Szőke Viktória)

Igen értékes tripsz- (Thysanoptera) gyűjteményt állított össze és helyezett letétbe 1999-ben a Kisebb rovarrendek gyűjteményében Jenser Gábor (1931–2015). Gyűjteménye, amelyet 2015-ben a család a múzeumnak ajándékozott, 101 dobozban hozzávetőlegesen 8500 db tárgylemezes preparátumból áll (45–46. ábrák). Jenser Gábor a tripszek nemzetközi hírű kutatója volt, faunisztikai és taxonómiai publikációi mellett elkészítette a *Magyarország Állatvilága* sorozat Thysanoptera kötetét is, valamint a növényvédelmi állattan számos területén is jelentős eredményeket ért el. A Kertészti Kutatóintézet Növényvédelmi Osztályának vezetője volt, majd az 1980-as évek közepétől a Növényvédelmi Kutatóintézetben dolgozott. Nyugdíjba vonulása után ugyanitt tovább dolgozott, de 2014 elején az ő munkalehetősége is megszűnt (akárcsak Nagy Barnabásé), így ő is az MTM társult kutatója lett (a Talajzoológiai gyűjteménycsoportban) – sajnos már csak rövid időre.

45–46. ábrák. Tripszgyűjtemény. 45 = A tárgylemezes preparátumok elhelyezése a gyűjteményben; 46 = részlet Jenser Gábor ajándékából. (fotók: Szőke Viktória)

Legutóbb (2015-ben) a Nagy Barnabás által létrehozott egyenesszárnyú-gyűjtemény került be a múzeumba ajándékozás révén. E (földrajzi régiók szerint rendezett) gyűjtemény főleg faunisztikai, biológiai, ökológiai tanulmányok hátteréül szolgált és szolgálhat: túlnyomóan a Kárpát-medence fajait öleli fel, jelentős hangsúlyt fektetve a gazdasági kártevő fajokra is.

A gyűjtemény csaknem 50 000 példányt számlál, ez a legteljesebb egyenesszárnyú-gyűjtemény a Kárpát-medencéből – mennyiségileg jelentősebb, mint a korábbi gyűjteményi anyag. A zöme egyenesszárnyú, de kisebb arányban tartalmaz csótányokat, fülbemászókat és fogólábúakat is. Állapota változó, jelentős állományvédelmi, cédulázási és rendezési munkát igényel (47. ábra).

A gyűjtemény nagy részét Nagy Barnabás gyűjtötte 1950 és 2014 között, elsősorban a Kárpát-medence területén és a Mediterráneumban, kisebb részben Észak-Amerikában, Ázsiában, Észak-Afrikában és Európa más területein. Az MTA ATK által múzeumunknak ajándékozott gyűjtemény részét képezi a korábban a Növényvédelmi Kutatóintézet madártani részlegében tevékenykedő Szijj József (1927–2010; ornitológus) által összeállított néhány rovardoboznyi egyenesszárnyú-anyag is (Nagy 2016).

47. ábra. Részlet Nagy Barnabás gyűjteményéből. (forrás: Kucska 2015*b*)

A FAUNISZTIKAI ÉS TAXONÓMIAI KUTATÁSOK CÉLTERÜLETEI

A múzeumok zoológiai műhelyeiben folyó kutatásoknak magától értetődően központi szerepet betöltő diszciplínái a taxonómia és a faunisztika. Nem volt, jelenleg sincsen és nem is lehet ez másként a Magyar Természettudományi Múzeum esetében sem. Kezdetben az elsődleges cél a hazai fauna feltárása, a példányok begyűjtése, megőrzése és a nagyközönség számára való bemutatása volt. Ugyanakkor már a XIX. század első felében a magyar kutatók érdeklődési körébe kerültek a Magyarországtól délre fekvő területek, a Balkán-félsziget, az Égei-tenger szigetei és Anatólia nyugati, észak-nyugati vidékei is, valamint jelentős gyűjtőexpedíciók is megvalósultak, amelyek távoli tájak anyagaival gyarapították a múzeumot.

Balkán-kutatás és a Kelet-Mediterráneum

A Balkán-félsziget régóta kiemelt célpontja a magyar természettudósoknak, mivel állat- és növényvilágának lenyűgöző fajgazdagsága és a kizárólag itt előforduló endemikus fajok magas aránya miatt a terület biodiverzitási forrópontnak tekinthető. Kiemelkedő fajgazdagsága azonban csak fokozatosan vált ismertté.

Az MTM a kezdetektől fogva kivette részét a Balkán természeti kincseinek feltárásából. Ezt inspirálhatta a terület viszonylagos közelsége, valamint az, hogy e vidék flórájára és faunájára vonatkozó ismeretek akkoriban igencsak felszínesek voltak. Ezt felismerve indultak el 1830-tól a Frivaldszky Imre és Frivaldszky János által végzett, illetve szervezett, sok újdonságot eredményező gyűjtőutak. A Kisebb rovarrendek gyűjtőkörébe tartozó, ezeken az expedíciókon gyűjtött balkáni anyag feldolgozásáról múzeumi kollégától nem találtunk publikációt, de Frivaldszky Imre utóbb, 2017-ben könyv formájában kiadott törökországi útinaplójában olvasható, hogy útja során feljegyezte, majd listázta többek között a csótány-, szitakötő- és egyenesszárnyúfajokat is (Frivaldszky 2017).

Az 1848–1849-es szabadságharc leverése utáni csaknem két évtizedben a múzeum munkatársai számára a Balkán-kutatás folytatása lehetetlenné vált, ezt követően kezdett eltolódni a kutatói érdeklődés súlypontja az egzotikus, Európán túli térségek irányába. Ennek ellenére a XIX. század végén, illetve a XX. század első évtizedeiben is születtek írások a Kisebb rovarrendek gyűjteményének gyűjtőkörébe tartozó rovarok balkáni előfordulásáról (pl. Pongrácz 1923), illetve ki kell emelni Csiki Ernő zoológiai gyűjtéseit 1916 és 1918 között a mai Albánia, Montenegró és Koszovó területén. Maga írta meg a tágabb értelemben vett egyenesszárnyúakat (Dermaptera, Blattodea, Mantodea, Orthoptera) feldolgozó tanulmányt (Csiki 1922, 1940). A három gyűjtőútról származó 712 Orthopteroid rovar nagyobb részt elpusztult az 1956-os tűzvészben, 93 Orthoptera- és 16 Dermaptera-példány azonban túlélte a katasztrófát (Puskás 2016).

Az 1956-os tűzvészt követően a gyűjtemények pótlására, újjáépítésére számos expedíció szerveződött; ebben az időszakban a gyűjtemény akkori vezetője, Steinmann Henrik is járt a Balkán-félszigeten gyűjteni. Visszatekintve elmondható, hogy évtizedek óta rendszeresen indulnak múzeumi gyűjtőutak Bulgáriába, Görögországba, valamint az egykori Jugoszláviába, az 1990-es évektől kezdve pedig egyre gyakrabban Albániába is (Barina 2007).

A Kisebb rovarrendek gyűjteményének közelmúltbeli muzeológusai is jelentős mértékben kivették részüket a balkáni gyűjtőutakból (48–49. ábrák) és a Balkán-kutatásból, ami jelentősen hozzájárult ahhoz, hogy a Balkán-félsziget a térség országaiból származó példányok által a gyűjteményben jól reprezentált földrajzi régióvá váljon. A balkáni anyagok feldolgozása pedig folyamatosan tudományos eredményekkel szolgál, függetlenül attól, hogy az 1970-es években vagy 2014-ben gyűjtötték a példányokat (Szőke 2022*a*, *b*). Míg az 1956-ot követő évtizedek balkáni expedícióinak elsődleges célja a gyűjteménygyarapítás volt, addig az utóbbi másfél évtizedben a biogeográfiai, illetve célzott taxonómiai, faunisztikai kutatások váltak jellemzővé (pl.: Murányi 2007*b*, 2011, Sziráki 2013, 2014, Chobanov *et al.* 2014, Puskás *et al.* 2018, Oláh *et al.* 2022*a*).

48–49. ábrák. Balkán-kutatás. 48 = Murányi Dávid gyűjtőúton (Albánia, 2006, fotó: Fehér Zoltán); 49 = Murányi Dávid (jobbra) és Kovács Tibor (balra; MTM Mátra Múzeuma) kopogtat (Albánia, 2012, fotó: Juhász Péter).

Távoli tájak élővilágának kutatása

A XIX. század vége felé, a XIX–XX. század fordulója táján, majd újult erővel az 1960-as évektől kezdve a távoli, egzotikus területekről is jelentős mennyiségű szakanyag került a múzeumba. A századforduló táján főként a már említett neves gyűjtők tevékenysége révén, később pedig nemzetközi együttműködések által a múzeum kutatói vehettek részt gyűjtőutakon (50–53. ábrák).

50–53. ábrák. Sziráki György gyűjtőexpedíciókon. 50–51 = Argentína, 2006 (fotók: Horváth Edit); 52 = Thaiföld, 2003 (fotó: Orosz András); 53 = Vietnám, 1994, Zombori Lajos (bal szélen) társaságában (fotó: Mahunka Sándor).

Az egzotikus anyagok feldolgozását kezdetben főként külföldi specialisták végezték, de azért akadt példa a magyar szakemberek közreműködésére is (Frivaldszky 1893, Kuthy 1905, 1907, 1910*b*, 1911). A múlt század második felétől kezdődően viszont jellemzővé vált, hogy a Kisebb rovarrendek gyűjteményének muzeológusai tudományos tevékenységüket egy vagy néhány rendszertani csoport tekintetében valamennyi kontinensre kiterjesztik. Ennek megfelelően a gyűjtemény kutatói Afrika (Steinmann 1962, Sziráki 1994, Vinçon & Murányi 2009), Ausztrália (Sziráki & Winterton 2012), Ázsia (Steinmann 1964, 1965*b*, Sziráki 2001, Murányi & Li 2013, Szőke 2023), Dél-Amerika (Murányi 2007*a*, Sziráki 2009) és Észak-Amerika (Steinmann 1971) faunájának kutatásából is kivették részüket.

ÁTTEKINTÉS

Befejezésül időrendi sorrendben bemutatjuk azokat, akik a Magyar Nemzeti Múzeumban, majd a Magyar Természettudományi Múzeumban muzeológusként, gyűjteményvezetőként vagy pályájuk végén felsőbb vezetőkként gondját viselték a Kisebb rovarrendek gyűjteményébe tartozó szakanyagnak, és tanulmányozták az ide tartozó rovarcsoportokat (zárójelben a gyűjteményt érintő szolgálati idejükkel).

Frivaldszky Imre
(1822–1851)

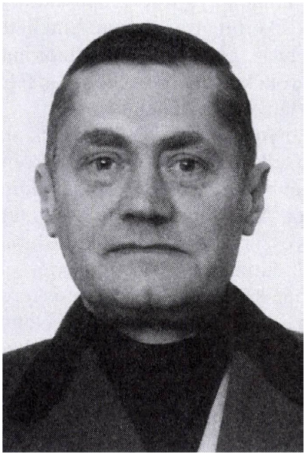
Frivaldszky János
(1852–1895)

Mocsáry Sándor
(1895–1909)

Kuthy Dezső
(1897–1914)

Pongrácz Sándor
(1910–1945)

Steinmann Henrik
(1960–1987)



Tóth László
(1986–1992)

Sziráki György
(1989–2009)

Murányi Dávid
(2003–2017)

Puskás Gellért
(2009–2020)

Szőke Viktória
(2021–)

54. ábra. Tabló. (képek forrásai: MTM Fotóarchívum és Médiatár, Sziráki György, Murányi Dávid, Puskás Gellért és Szőke Viktória)

A jelenlegi gyűjteményvezető muzeológus, Szőke Viktória mellett nyugdíjas önkéntesként Sziráki György és önkéntesként Puskás Gellért végez tudományos munkát; preparátora bő tíz éve nincs a gyűjteménynek. A főbb tudományos kutatási irányvonalak a gyűjteményben jelenleg az igazi recésszárnyúak és az egyenesszárnyúak taxonómiai és faunisztikai kutatása.

*

Köszönetnyilvánítás – Hálásan köszönjük a gyors és szakértő segítséget, valamint a történeti adatokkal, fényképekkel és irodalommal való hozzájárulást az MTM Központi Könyvtárában dolgozó kollégáinknak: Sebestyén Rékának, Nagy Enikőnek, Szopkó Róbertnek és Matuszka Angélának. Egykori, a gyűjteményben dolgozó kollégáinknak, Horváthné Nagy Katalinnak, Murányi Dávidnak és Puskás Gellértnek köszönjük, hogy hasznos információkkal egészítették ki a kéziratot. Köszönettel tartozunk Bálint Zsoltnak (MTM Lepkegyűjtemény), Matskási Istvánnak (MTM Parazitológiai gyűjtemény), Orosz Andrásnak (MTM Szipókás rovarok gyűjteménye), Papp Gábornak (MTM Ásványtár) és Szél Győzőnek (MTM Bogárgyűjtemény), hogy emlékeik felidézésével segítették, kiegészítették munkánkat. Köszönjük Korsós Zoltánnak (MTM Soklábúak gyűjteménye) és Papp Gábornak (MTM Ásványtár) hogy tudománytörténeti forrásokkal támogatták adatgyűjtő munkánkat. Köszönjük Kiss Magdolnának a nehezen olvasható, kézírásos latin nyelvű leltári lap általunk kért részének „megfejtését" és fordítását. Köszönjük a kézirat átnézését és az angol fordításban nyújtott segítséget Tóth Balázsnak (MTM Lepkegyűjtemény) és Vas Zoltánnak (MTM Hártyásszárnyúak gyűjteménye), illetve bírálóként Matskási István véleményét, hasznos kiegészítéseit.

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History of the Collection of Smaller Insect Orders of the Hungarian Natural History Museum

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Abstract – This paper overviews the history of the Collection of Smaller Insect Orders, Hungarian Natural History Museum, Budapest, by summarising the most important historical events of the collection and the museum as well, introducing the remarkable staff members who greatly contributed to the development of the collection. With 54 figures.

Key words – history of science, collection of insects, natural history, Department of Zoology, Hungarian Natural History Museum, Hungarian National Museum

This paper is dedicated to all who respect the memory of the people who contributed to the current richness of the collections of the Hungarian Natural History Museum, and value their works behind each pinned, conserved, labelled and identified specimen.

INTRODUCTION

In the past decades, several papers have been published on the history of the Hungarian Natural History Museum (HNHM) as a whole, or focussed on certain departments or collections (Bálint 2008, Matskási 2002, Korsós 2008, 2019, Vas 2015, Merkl *et al.* 2015). Following this line, we review the history of the Collection of Smaller Insect Orders.

Since the synopses dedicated to the museum's centenary (Horváth 1902*a*, *b*, Kuthy 1902, Mocsáry 1902), the history of this collection has not been compiled. Thus, to achieve our goal, comprehensive research was necessary to conduct. For the sake of completeness, many of our former and current colleagues helped by recalling their memories.

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In this paper, we present how the Collection of Smaller Insect Orders was formed and developed into its current stage, from the foundation across historical events to the present days, as detailed as reasonably possible.

THE COLLECTION NOWADAYS

The Collection of Smaller Insect Orders of the Department of Zoology, HNHM traditionally houses numerous, both closely related and taxonomically distant insect orders. These orders are characterised by a relatively small number of species (at least as compared to the large insect orders such as beetles or lepidopterans), therefore it is justified to treat and manage them in a single collection unit.

Currently the Collection of Smaller Insect Orders preserves representatives of 19 insect orders (listed here in phylogenetic sequence): Ephemeroptera, Odonata, Plecoptera, Embioptera, Grylloblattodea, Dermaptera, Blattodea, Mantodea, Isoptera, Phasmatodea, Orthoptera, Psocoptera, Thysanoptera, Strepsiptera, Megaloptera, Raphidioptera, Neuroptera, Trichoptera and Mecoptera.

A significant part of the material kept in the collection are pinned (more than 187,000 specimens in ca. 1,500 drawers); however, the number of specimens preserved in alcohol is also significant (53,000 vials, stored in ca. 3,000 jars, containing at least as many specimens as the pinned material). Furthermore, the samples preserved on slides are also noteworthy (ca. 11,000 slides). Altogether, more than a quarter of a million pinned individual specimens, vials (with specimens stored in alcohol) and slides are kept in the collection.

Large part of the collection specimens is originated from the Carpathian Basin; nevertheless, materials from the Balkan Peninsula, and the Asian and African regions are also significant. The orders represented by most specimens are Odonata, Plecoptera, Orthoptera, Neuroptera and Trichoptera. In addition, it is necessary to underline the importance of the Dermaptera collection: it includes more than 300 type specimens of more than 150 species.

The location of the Collection of Smaller Insect Orders is in the building of the Department of Zoology, HNHM at Baross Street 13, Budapest, on the ground floor (Figs 1–6). Most of the collection material is kept here, however a smaller part is currently housed in the underground storage of the insitution's other building at Ludovika square 2–6, Budapest (Fig. 7).

HISTORY OF THE COLLECTION

Prior to 1870 the zoological collections did not exist as a separate department; instead, they were parts of the *Camera Naturae et Artis Productorum* of the Hungarian National Museum. The earliest existing inventory list (from 1821;

Fig. 8) of the invertebrate zoological collections counts 1876 Lepidoptera and Coleoptera specimens. However, the professional management and focussed development of invertebrate collections started in 1822 by Imre Frivaldszky (1799–1870; Fig. 9). He was also the first author who, as an employee of the museum, wrote a scientific paper on a species representing the Collection of Smaller Insect Orders, namely on the migratory locust (*Locusta migratoria*) (Fig. 12) (FRIVALDSZKY 1848). Imre Frivaldszky's personal collection has been later purchased by the museum (Figs 10–11).

The natural history collections (*Camera Naturae*) were housed in the current building of the Hungarian National Museum between 1846–1847. Related to this period, the very first documented representatives of species belonging to the current Collection of Smaller Insect Orders arrived in 1847, when Baron Ferenc Ocskay (1775–1851), a distinguished Hungarian zoologist, donated some specimens of Orthoptera (ANONYMUS 1896, KUTHY 1902, BÁLINT & FRIVALDSZKY 2009).

János Frivaldszky (1822–1895; Fig. 13) is considered to be the founder of the Collection of Smaller Insect Orders. He was employed in the museum from 1852 to 1895. His tireless collecting, processing and organising work created and developed the general Orthoptera collection. His donations served as a base for the collection of Neuroptera and its closely related orders. Even though he was primarily a coleopterist, the subject of his academic thesis was the Orthoptera fauna of Hungary (FRIVALDSZKY 1868).

By that time, the natural history collections of the Hungarian National Museum grew to such a considerable size that it became necessary to treat them separately (HORVÁTH 1902*a*). Consequently the units of the *Camera Naturae* were elevated to departmental ranks in 1870. By this event the Department of Zoology, the Department of Botany and the Department of Mineralogy and Palaeontology were founded. Naturally, János Frivaldszky became the head of the Department of Zoology, and remained in service until his death (ANONYMUS 1896, FRIVALDSZKY 2015). In 1895 the zoological material consisted of 279,842 specimens, of which 165,380 were insects, including 800 (sensu lato) neuropterans and 1,200 orthopterans (ANONYMUS 1896). A few years later, the Department of Zoology housed about 910,200 specimens of invertebrates, including 775,200 insects (HORVÁTH 1902*a*). By that time, the number of representatives of taxa kept in the Collection of Smaller Insect Orders (as it is defined today) was estimated at about 13,200 (HORVÁTH 1902b, MOCSÁRY 1902, KUTHY 1902).

The years of the turn of the century indeed were a period of expansion in the Department of Zoology. Some remarkable collectors also enriched the zoological material. One of them was János Xántus (1825–1894; head of the Department of Ethnology), who also collected natural history objects for the museum in East Asia and in North America (Fig. 14). Another person was Lajos Bíró (1856–1931), who collected extraordinarily rich zoological material in Papua New Guinea (Figs. 15–16). Moreover, several European, Asian and African collecting trips were organised, partly financed by the museum, resulting in zoological materials of significant scientific and historical value. Broadened opportunities accompanying the development of the museum's role in the society made more purchases possible. From the point of view of the Collection of Smaller Insect Orders, the most important of these was the purchase of Károly Fuss's (1817–1874) Orthoptera collection (Kuthy 1902).

We also have to mention the most important collectors, who were not employed by the museum, yet contributed greatly to the enrichment of the collection. Lajos Anker, Rudolf Anker, Kornél Chyzer and József Török donated significant materials collected in the territory of the Hungarian Kingdom (Horváth 1902*a*, Mocsáry 1902, Kuthy 1902). Regarding exotic materials, the following people should be mentioned (with the date and place of their activity): Lajos Doleschall (1856, Java and Ambon Island), Károly Nendtwich (1856, North America), Tivadar Duka (1861, East India), Imre Verebélyi (1868, Mexico), Árpád Gerster (1874, North America), Bertalan Ónody (1876, Middle-Asia), Károly Sarkady (1876, Brazil), Béla Széchenyi (1879, East Asia), Gyula Machik (1879, Sumatra), Ferenc Stockinger (1886, East India), János Vadona (1886–1889, America, Asia and Africa), Aladár Flesch (1891–1900, East India), Jenő Procopp (1892, Mexico), Ferenc Hopp (1894, Seychelles), György Almásy (1897, Dobruja, and 1901, Turkestan), Jenő Zichy (1899, Caucasus, Siberia, Mongolia and China), and Sámuel Fenichel (1891–1892, New Guinea) (Mocsáry 1902, Kuthy 1902).

With the quantitative growth resulting an ever expanding diversity of the material, also the need arised that the collections should be curated by keepers, who are experts of the insect groups. The first specialised curator of Orthoptera was Dezső Kuthy (1844–1917; Fig. 19). He started to work in the museum in 1894, as János Frivaldszky's assistant curator in the Coleoptera Collection. Later, from 1897 to 1914, Kuthy had a new position as the curator of the Orthoptera Collection. He persistently and accurately worked on both domestic and exotic materials. His taxonomical work on orthopterans resulted two new genera and 17 new species, one of them named after Sándor Mocsáry (Fig. 21), his hymenopterist colleague and friend. By Kuthy's work the Orthoptera Collection achieved international regard and interest.

Sándor Mocsáry (1841–1915; Fig. 20) was an internationally acknowledged hymenopterist; however, he published some papers on other insect orders, such as Odonata, Orthoptera, and Neuroptera. He also wrote the chapters of "Pseudoneuroptera" (Isoptera, Psocoptera, Plecoptera, Ephemeroptera, Odonata) and "Neuroptera" (Trichoptera, Raphidioptera, Megaloptera, Mecoptera, Neuroptera) in *Fauna Regni Hungariae* (Mocsáry 1899*a*, *b*) – possibly because of the lack of a specialised curator of these groups, which he emphasised in Mocsáry (1900).

The first expert and curator of "Neuroptera" and "Pseudoneuroptera" was Sándor Pongrácz (1887–1945; Fig. 22), who joined the Department of Zoology in 1910. The comprehensive scientific elaboration and curation of these groups finally began. After the retirement of Dezső Kuthy, Sándor Pongrácz also took care of the Orthoptera material, thus the basis and main structure of the current Collection of Smaller Insect Orders (previously known as the Orthopteroidea-Neuropteroidea Collection) were formed at that time. Fortunately, the taxonomic diversity of the collection and Pongrácz's wide range of interests fit well. Accordingly, he published systematic and faunistic papers on a wide range of living and fossil insects, as well as on general questions of evolution. In addition, Pongrácz also wrote important educational works (e.g. Pongrácz 1940, 1943).

During Pongrácz's curatorial service, in 1928, the Department of Zoology moved to its current building at Baross street 13 (Budapest, District VIII), because the rapidly growing zoological collections could not be housed in the Hungarian National Museum's main building any more (Figs. 23–24) (Papp 2016, Korsós 2019). Pongrácz obtained a private teaching qualification in 1931 and became a lecturer at the University of Debrecen, where he was able to educate the next generation of scientists. A few years later, in 1934, he was appointed to the head of the Department of Zoology, then in 1936, he became the general director of all natural history collections (he held this position until his death) (Boros 1957*a*).

Related to his directorial duties, Pongrácz became interested in the exhibition activities of the museum. Hence, he renewed the zoological exhibitions and adapted them to the expectations of education and public relations, and to illustrate how evolution is taking place. He also compiled an exhibition guide (Fig. 25). Many of his notes (Fig. 26) and drawings are preserved in the Science Heritage Collection of the Central Library of the HNHM, which also prove Pongrácz's diverse activities. He died in 1945, during the siege of Budapest (Boros 1957*a*). After Pongrácz's death, the collection remained without a curator for 15 years.

In those times, in 1956, the greatest tragedy of its history befell on the HNHM: during the revolutionary fights against the Soviet Army, artillery shells hit the building of the Department of Zoology at Baross street. The event caused a devastating conflagration, which destroyed nearly half of the building, as well as the collections housed within the damaged parts. Almost the entire material of the Collection of Smaller Insect Orders (estimated at more than 60,000 specimens in that time) was annihilated. Only a fraction remained: exotic Odonata material and roughly 3,000 undetermined Hungarian and exotic orthopterans, which were temporarily stored in one of the undamaged rooms of the library on the ground floor (Boros 1957*b*; Fig. 27), and a few microscope slides – among them the type specimens of Isoptera, Embioptera, Psocoptera and Neuroptera species described from the material collected by Lajos Bíró.

Therefore, the current collection holdings, which exceed a quarter of a million specimens in size, are the result of the efforts of reconstruction, and originate from subsequent collecting activities, exchanges, purchases and gifts.

After 1956 the re-building of the Collection of Smaller Insect Orders started with Henrik Steinmann (1932–2009; Fig. 28) who was entrusted with the care of the Orthopteroidea-Neuropteroidea Collection in 1960. He took numerous Hungarian and foreign (Balkan, Germany, Italy, China, North-Korea) collecting trips. The material was processed either by himself or by the organised work of foreign specialists. The collection grew and developed once again (Figs 29–31). During his lifetime, Steinmann published nearly 170 entomological papers and described more than 300 new taxa: chiefly neuropterans, orthopterans (describing seven genera, 49 species and subspecies as new), and some dragonflies. However, the most important and internationally highly acknowledged part of his work was the research he carried on with Dermaptera, describing 42 genera, 212 species and subspecies as new. He also compiled the world catalogue and a four-volumed monograph of Dermaptera (Steinmann 1986, 1989*a*, *b*, 1990, 1993). After the reconstruction of the building at Baross street, the Orthopteroidea-Neuropteroidea Collection got its place on the fourth floor. In 1970, as Steinmann became the head of the Department of Zoology, the collection moved to the first floor (Figs 32–33). Steinmann held his position until 1975, and later he was employed again as curator until 1987.

After Steimann, the collection was temporarily curated by Győző Szél (1958–; coleopterist) for two years, until the arrival of the new curator, György Sziráki (1942–; Fig. 34) who started his activity in the museum in 1989. He immediately joined the zoological explorations of the Hungarian National Parks, a pilot project of the museum in those times. Sziráki published new faunistical records for Hungary and for the Carpathian Basin, regarding several insect orders (Ephemeroptera, Orthoptera, Psocoptera, Megaloptera, Neuroptera, and Raphidioptera). However, his main research topic is the taxonomy of Coniopterygidae (Neuroptera). As a result he described nearly 90 new species of the family, and compiled an annotated world catalogue of Coniopterygidae (Sziráki 2011). He also worked on materials collected in several expeditions (Russian Far East in 1990, Vietnam in 1994 and 1999, Thailand in 2001 and 2003, Argentina in 2006). During his curatorship, the collection formed into its present structure: Ephemeroptera and Plecoptera, which were kept in separate collections between 1985–1992 (temporarily curated by László Tóth, 1937–1992; Fig. 35) reunited with the main collection; Strepsiptera material was added to this collection in the 1990's (it was a part of the Colepotera Collection before); and, finally in 2005, Collembola, Protura, Diplura, Archaeognatha and Zygentoma were removed, and incorporated into the Soil Zoological Collection.

Meanwhile, the plan of a single museum building housing all of the natural history collections and exhibitions was set in motion again: according to a governmental decision in March 1994, the HNHM was supposed to be moved to the building of the former Ludovika Military Academy (Budapest, District VIII, Ludovika square 2–6) (Matskási 2002). Several collections and some departments moved to this renewed building. While the majority of the

Collection of Smaller Insect Orders remained at Baross street, about 500 drawers of the collection (Mongolian neuropterans and several cabinets of orthopterans collected by Zoltán Kaszab (1915–1986), and the pinned dragonflies, damselflies, and mantids) were transferred to the underground storage of the Ludovika building in June 2004. However, due to a change in concept, the main body of the collection was never moved from the Baross street; hence, the collection material of Smaller Insect Orders are kept in two different locations today.

From 2003, Dávid Murányi (1975–; Fig. 36) worked in the collection as a researcher, and in 2009, after the retirement of Sziráki he became the curator, until he left the museum in 2017. His main topic of research is the taxonomy and faunistics of Plecoptera; however, he has also studied odonates, phasmids and opilionids. He has participated in the Balkan research program since 1996 (Barina 2007), as well as he has achieved significant results in studying the fauna of the Carpathian Basin, Caucasus and East Asia. He also compiled a computer database of the Plecoptera material.

In 2010, the Collection of Smaller Insect Orders was forced to move again within the building: from the first floor to its current location at the ground floor. One year before the move, Gellért Puskás (1981–; Fig. 37) started his work in the collection. He is an expert of orthopterans, so he has studied the taxonomy, ecology and distribution of various species native in the Carpathian Basin and Balkan Peninsula, and also conducted bioacoustic observations. He was employed in the museum until November 2020; however, from August 2023, he has been a volunteer in the collection.

After his retirement from the Department of Plant Protection of the Hungarian Academy of Sciences, Barnabás Nagy (1921–2020; Fig. 38) spent his last active years in the collection as associate researcher. He was an applied entomologist, but specialised on orthopterans. His interest and career in orthopterology started when he, still as a student at the university in Debrecen, attended Sándor Pongrácz's classes. The Orthoptera collection assembled by Nagy was donated to the HNHM.

As Gellért Puskás left the museum in 2020, Balázs Tóth (1985–; lepidopterist) was assigned for the curatorial duties for a short period, until January 2021, when Viktória Szőke (1987–; biologist, Fig. 39) became the curator of the collection. She chose the taxonomy and faunistics of Neuroptera as research topic. She has published her faunistical results since she has started to work in the collection (Szőke 2021, 2022*a*, *b*, 2024), and the first taxonomical paper in 2023 (Szőke 2023).

As closing entry of our historical overview, we name the preparators (assistant workers) who served in the collection. Their contribution is an essential part of everyday duties in the collection in preservation, labelling and preparation of specimens for scientific work. They are listed as Zoltán Papp, Tamás Babinszky, Mária Bíró, and the last of them was Katalin Horváthné Nagy, who worked in the collection from 1992 to 2012 (after that she continued her work in the Lepidoptera Collection until her retirement in 2020). Since then, no new preparator has been employed for the Collection of Smaller Insect Orders, so the collection has been operating for more than ten years now without any assistance.

IMPORTANT CONTRIBUTORS

In the past, several people contributed to the developement of the Collection of Smaller Insect Orders by gifting or selling their private collections to the museum. The most important ones are listed below.

Sándor Ujhelyi (1902–1996; Fig. 40) sold his collection (approximately 30,000 pinned specimens organised by taxonomic order; Fig. 41) and scientific documents in 1989.

Béla Kis (1924–2003; Fig. 42) donated a significant part of his private collection of Neuropterida (Neuroptera, Megaloptera, Raphidioptera). After his death, the HNHM purchased the remaining parts, including type specimens and material of Neuropterida stored in ethanol, as well as orthopteran material, including type specimens (Fig. 43).

Pál Remetey (1900–1975) built a representative collection of Trichoptera, consisting of about 3,700 specimens which were first in parts, then completely deposited in the HNHM (Fig. 44).

A remarkably valuable Thysanoptera collection was assembled and became deposited in the HNHM by Gábor Jenser (1931–2015), consisting of approximately 8,500 slides in 101 boxes (Figs 45–46).

Most recently (in 2015), the Orthoptera collection compiled by Barnabás Nagy was donated to and deposited in the HNHM. The collection mainly includes species from the Carpathian Basin, with a significant emphasis on economic pests. The material contains almost 50,000 specimens: most of them are representatives of Orthoptera, but it also contains a few cockroaches, earwigs and mantids, too. The condition of the material varies, sometimes there is a need of significant preservational, sorting and labelling work (Fig. 47).

FAUNISTIC AND TAXONOMIC RESEARCH

Natural history museums, such as HNHM, determined by their collections, were, are and must remain leading institutes of taxonomic and faunistic research throughout the world. At the very beginning of establishment of the scientific collections, the primary goal was to explore the Hungarian (i.e., Carpathian Basin) fauna by collecting specimens, preserving and studying the material and composing exhibitions for the public. At the same time, Hungarian researchers became interested in the Balkan Peninsula and Anatolia, as well as significant collecting expeditions were organised to distant regions such as East Asia, Australasia, and Africa. These, naturally, largely increased the scientific collections both quantitatively and qualitatively.

The Balkan Peninsula has been a prominent destination for Hungarian scientists for a long time; from the very beginning. Museum staff members took part in the exploration of the natural treasures of the Balkans. From 1830, collecting expeditions were organised by Imre Frivaldszky and János Frivaldszky, resulting in many scientific novelties.

For almost two decades after the defeated Hungarian Revolution and War of Independence of 1848–1849, it became impossible for the museum's staff to continue the research on the Balkans, thus the focus of the interest turned to the more exotic regions. However, the collecting trips to the Balkans have not been finished for good: in 1870 János Pável (1842–1901; assistant) could return to the Balkans and Anatolia with Imre Frivaldszky, and Ernő Csiki (1875–1954; curator of the Coleoptera Collection) managed again to organise zoological expeditions between 1916 and 1918. After the devastating fire in 1956, several expeditions were organised to rebuild the collections; during these, among others, Henrik Steinmann also visited the Balkans to collect. For decades, there have been regular museum collecting trips to Bulgaria, Greece, the former Yugoslavia, and since the 1990's, increasingly to Albania as well (Barina 2007).

Recent curators of the Collection of Smaller Insect Orders also took a significant part in the collecting trips to the Balkans (Figs 48–49) and have contributed to the research of fauna of the peninsula. Therefore, this geographical region has became rather well represented in the collection. For decades after 1956, the primary goal of the expeditions to the Balkans was the quantitative development the collection, but in most recent times biogeographical, taxonomical and faunistical researches have became the main aspects (e.g., Murányi 2007*b*, 2011, Sziráki 2013, 2014, Chobanov *et al.* 2014, Puskás *et al.* 2018, Oláh *et al.* 2022*a*), continuously resulting in scientific novelties, regardless whether the specimens were collected back in the 1970's or in 2014 (Szőke 2022*a*, *b*).

Significant zoological material was sent to the museum from distant, exotic areas too, via the activities of the above-mentioned remarkable collectors, around the late 19th century and early 20th century, then again from the 1960's in the frame of international collaborations (Figs 50–53). The exotic materials were partly determined and published by the staff of the museum in the earliest times (Frivaldszky 1893, Kuthy 1905, 1907, 1910*b*, 1911), while the later curators even more extensively have left their scientific marks on the research of the fauna of Africa (Steinmann 1962, Sziráki 1994, Vinçon & Murányi 2009), Australia (Sziráki & Winterton 2012), Asia (Steinmann 1964, 1965*b*, Sziráki 2001, Murányi & Li 2013, Szőke 2023), South America (Murányi 2007*a*, Sziráki 2009) and North America (Steinmann 1971).

SUMMARY

Finally, we list those who worked on the material of the Collection of Smaller Insect Orders (in the Hungarian National Museum, then in the Hungarian Natural History Museum) as curators, collection managers, and/or took care of the scientific material (in chronological order, with their years of service in parentheses): Imre Frivaldszky (1822–1851), János Frivaldszky (1852–1895), Sándor Mocsáry (1895–1909), Dezső Kuthy (1897–1914), Sándor Pongrácz (1910–1945), Henrik Steinmann (1960–1987), László Tóth (1986–1992), György Sziráki (1989–2009), Dávid Murányi (2003–2017), Gellért Puskás (2009–2020), Viktória Szőke (2021–) (Fig. 54).

The current curator of the collection is Viktória Szőke, while György Sziráki and Gellért Puskás are also working in the collection as volunteers. The position of the assistant in collection has not been filled for more than ten years. Currently, the main scientific research topics in the collection are the taxonomy and faunistics of Neuroptera and Orthoptera.

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See above the chapter “Hivatkozások”.

FIGURE CAPTIONS

Figures 1–6. Rooms of the Collection of Smaller Insect Orders at Baross street, in 2023. 1 = main entrance from the corridor; 2 = former reading room of the library; 3 = researcher office; 4 = other researcher office at the inner courtyard; 5 = collection room; 6 = entrance from the courtyard. (photos by Viktória Szőke)

Figure 7. Part of the the Collection of Smaller Insect Orders deposited in the underground storage in the building of Ludovika square. (photo by Viktória Szőke)

Figure 8. Photocopy of the museum’s inventory from 1821. (source: Gábor Papp, HNHM)

Figure 9. Imre Frivaldszky. (source: HNHM Photo and Media Archive)

Figures 10–11. Rubrics regarding the purchase of Imre Frivaldszky’s collection. 10 = inventory note, numero 1864/197 about the purchased collection: totally 62,143 insect specimens and the mollusk collection (16,000 specimens), representing the largest incoming material before the independence of the Department of Zoology in 1870; 11 = certification of the handover of the collection by Imre Frivaldszky and János Frivaldszky at the end of the collection’s inventory. (source: HNHM Document Archive)

Figure 12. An illustration (locust) from Imre Frivaldszky’s dissertation. (source: Frivaldszky 1848)

Figure 13. A drawing on János Frivaldszky working at his desk in the museum. (source: Pulszky 1887)

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Figure 54. Tableau of the curators. (sources: HNHM Photo and Media Archive and personal archives of György Sziráki, Dávid Murányi, Gellért Puskás and Viktória Szőke)

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Embolemus reticulatus new to Hungary (Hymenoptera: Embolemidae)

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Abstract – *Embolemus reticulatus* van Achterberg, 2000 (Hymenoptera: Embolemidae) is reported for the first time from Hungary. The species was described from the Netherlands; hence, the current report represents its second country-level record. With three figures.

Key words – Aculeata, Europe, faunistics, new record

INTRODUCTION

Embolemidae (Hymenoptera: Aculeata: Chrysidoidea) is a small family of solitary parasitoid wasps with about 70 extant, valid species distributed worldwide (Chény *et al.* 2020). Hosts of the species of Embolemidae are planthopper nymphs of the families Achilidae and Cixiidae (Hemiptera: Auchenorrhyncha); however, it should be noted that hosts of most species are not yet known (van Achterberg & van Kats 2000).

The Palaearctic species were revised by van Achterberg & van Kats (2000). Two species of the family are known to occur in Europe: *Embolemus ruddii* Westwood, 1833 and *Embolemus reticulatus* van Achterberg, 2000; the former species is widely distributed in the Palaearctic region (and is present in Hungary as well), while the latter has been known only from the Netherlands so far (van Achterberg & van Kats 2000, Olmi *et al.* 2014, Chény *et al.* 2020). In this paper, we report *Embolemus reticulatus* from Hungary for the first time.

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Taxonomy, nomenclature and identification are based on van Achterberg & van Kats (2000). *Embolemus reticulatus* was originally described in combination with *Embolemus* Westwood, 1833, along with proposing *Ampulicomorpha* Ashmead, 1893 as a junior subjective synonym of *Embolemus* in the same paper (van Achterberg & van Kats 2000). However, Olmi *et al.* (2014) did not accept the synonym status of *Ampulicomorpha*, and put the species in new combination as *Ampulicomorpha reticulata*. Here we follow and accept the detailed and demonstrative argument of van Achterberg & van Kats (2000), rather than the argument of Olmi *et al.* (2014), thus we treat *Ampulicomorpha* as a junior subjective synonym of *Embolemus*, and present the newly recorded species in its original combination.

RESULTS

Embolemus reticulatus van Achterberg, 2000
(Figs 1–3)

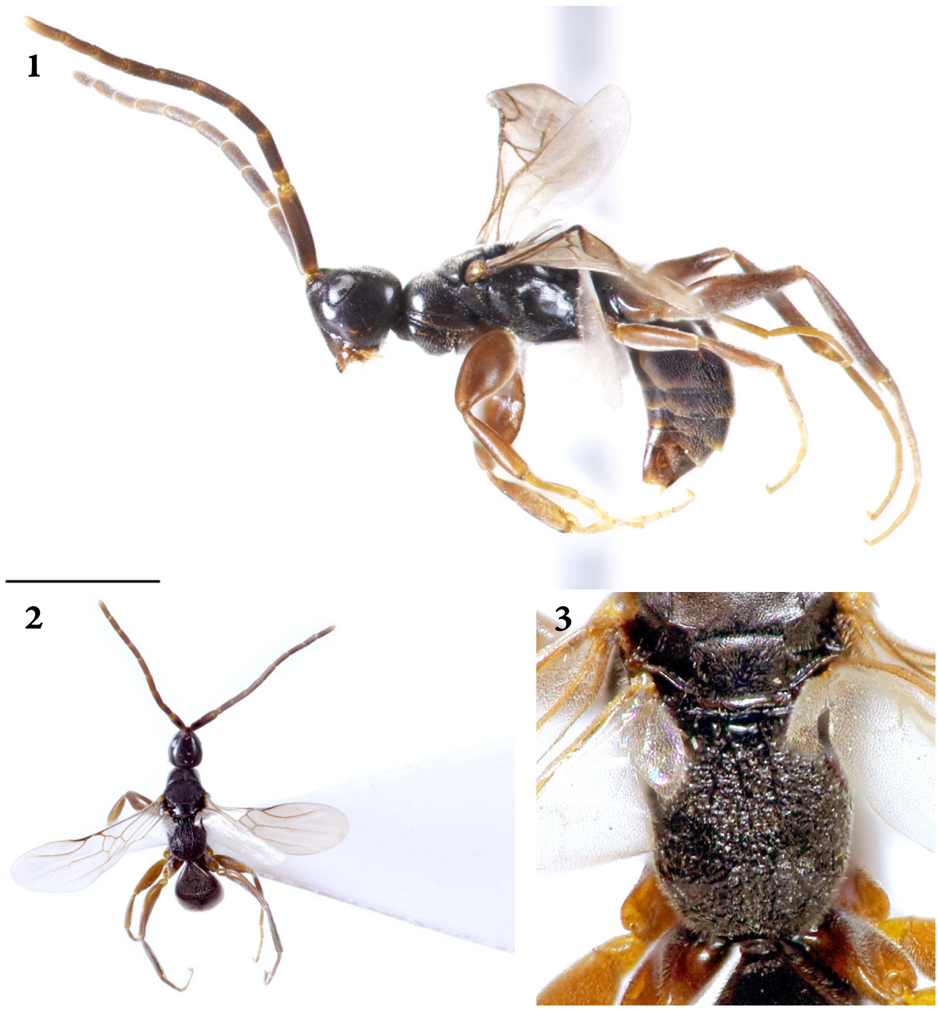
Embolemus reticulatus van Achterberg, 2000 – van Achterberg & van Kats 2000: 256.
Ampulicomorpha reticulata (van Achterberg, 2000) – Olmi *et al.* 2014: 633.

Material examined – One female: Hungary, Hajdú-Bihar County, Hajdúszoboszló, Ős-Kösely, 47.4558, 21.3184, 10–12.VI.2022, leg. V. Szőke & Z. Vas, Malaise-trap; det. Z. Vas (2022), det. P. Szöllősi-Tóth (2024); specimen card-mounted; deposited in the Hymenoptera Collection of the Hungarian Natural History Museum, Budapest (HNHM).

Distribution – First record from Hungary. The species has been known from the Netherlands hitherto, hence the current report represents its second country-level record.

Identification – Body length 3.4 mm. The conspicuously cone-shaped head unambiguously determines the family- and genus-level identification (Figs 1–2). Females of *Embolemus reticulatus* can be readily distinguished from the females of *Embolemus ruddii*, as females of the former species are macropterous (wings normal, reaching apex of metasoma) and have ocelli developed, while females of the latter species are micropterous (wings extremely reduced, barely longer than tegula) and have no ocelli. The characteristic carination of the propodeum of *Embolemus reticulatus* is also distinctive (Fig. 3). Male sex of *Embolemus reticulatus* is unknown. See van Achterberg & van Kats (2000) for a complete identification key to the genus.

Remarks – The Hungarian voucher specimen is slightly darker, more brownish than the type specimens from the Netherlands; other characteristic features agree with van Achterberg & van Kats (2000).



Figures 1–3. *Embolemus reticulatus* van Achterberg, 2000, voucher specimen from Hajdúszoboszló, Hungary. 1 = lateral habitus, scale bar = 1 mm; 2 = dorsal habitus; 3 = propodeum in dorsal view (photos by Anna Ágnes Somogyi)

*

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Új kúpfejűdarázsfaj Magyarország faunájában: *Embolemus reticulatus* (Hymenoptera: Embolemidae)

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Összefoglalás – Az *Embolemus reticulatus* van Achterberg, 2000 nevű kúpfejűdarázsfaj (Hymenoptera: Aculeata: Chrysidoidea: Embolemidae) első magyarországi előfordulási adatait közlik a szerzők. A fajt Hollandiából írták le, azóta máshonnan nem mutatták ki, így a hazai a második országszintű előfordulási adat. Három ábrával.

Kulcsszavak – Európa, faunisztika, fullánkosok, új adat

ÁBRAMAGYARÁZAT

1–3. ábrák. Az *Embolemus reticulatus* van Achterberg, 2000 magyarországi (hajdúszoboszlói) bizonyítópéldánya. 1 = oldalnézet, méretléc = 1 mm; 2 = felülnézet; 3 = áltorszelvény felülnézete (fotók: Somogyi Anna Ágnes)

* levelező szerző.

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New species and records of Palaearctic, Afrotropical and Neotropical ichneumon wasps (Hymenoptera: Ichneumonidae)

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Abstract – Palaearctic, Afrotropical and Neotropical species of the subfamilies Campopleginae, Acaenitinae, Cryptinae, Ophioninae and Tryphoninae (Hymenoptera: Ichneumonidae) are treated. Regarding Campopleginae, two new species are described, namely *Hyposoter daeva* sp. nov. from Iran and *Nemeritis centurio* sp. nov. from Argentina, and the first records of *Bathyplectes incisus* Horstmann, 1974 and *B. quinqueangularis* (Ratzeburg, 1852) from Ukraine, *Campoletis yaga* Vas, 2024 from Argentina, *Casinaria pyreneator* Aubert, 1960, *Diadegma compunctellae* Horstmann, 2013, *D. longicaudatum* Horstmann, 1969, *D. nigrostigmaticum* Horstmann, 1969 and *D. semiclausum* (Hellén, 1949) from Hungary, *Hyposoter caedator* (Gravenhorst, 1829) and *H. didymator* (Thunberg, 1822) from Malta, and *H. orbator* (Gravenhorst, 1829) from Iran are reported. Regarding Acaenitinae, *Hieroceryx pseudoglomiger* Benoit, 1951 is reported for the first time from Ghana. Regarding Cryptinae, *Gabunia coerulea* Kriechbaumer, 1895 is also reported for the first time from Ghana. Regarding Ophioninae, *Enicospilus babaulti* (Seyrig, 1935) and *E. biimpressus* (Brullé, 1846) are reported for the first time from Guinea, and *Thyreodon boliviae* Morley, 1912 is reported for the first time from French Guiana. Regarding Tryphoninae, *Netelia caucasica* (Kokujev, 1899) is reported for the first time from Hungary. With four figures.

Key words – *Bathyplectes*, *Campoletis*, *Casinaria*, *Diadegma*, distribution, *Enicospilus*, *Gabunia*, *Hieroceryx*, *Hyposoter*, *Nemeritis*, *Netelia*, species description, taxonomy, *Thyreodon*

INTRODUCTION

Recently revealed results of the ongoing identification process of Ichneumonidae (Hymenoptera) material in the Hungarian Natural History Museum, Budapest (HNHM) are presented in this paper: two new species of Campopleginae are described, namely *Hyposoter daeva* sp. nov. from Iran and *Nemeritis centurio* sp. nov. from Argentina.

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New distributional records are reported for 17 ichneumon wasp species of the subfamilies Acaenitinae, Campopleginae, Cryptinae, Ophioninae, and Tryphoninae, regarding the Palaearctic, Afrotropical and Neotropical regions.

Taxonomy and nomenclature follow Yu & Horstmann (1997) and Yu *et al.* (2016). Morphological terminology follows Gauld (1984, 1991) and Gauld *et al.* (1997); however, in cases of wing veins the corresponding terminology of Townes (1969) is also used. Terminology of body surface sculpturing follows Harris (1979). Identifications were based on the works of Cameron (1899, 1905, 1906), Krieger (1911), Morley (1912, 1913), Viereck (1925), Sonan (1929), Uchida (1932), Benoit (1951), Hedwig (1957), Horstmann (1969, 1973, 1974, 1975, 1978, 1994, 2013), Momoi (1970), Townes (1970*a*, *b*, 1971), Delrio (1975), Gupta & Maheshwary (1977), Gauld & Mitchell (1978), Gupta (1983, 1987), Gauld (1984), Chen *et al.* (2017), Riedel (2018), Vas (2020, 2023*a*, *b*, 2024*a*, *b*), Araujo & Di Giovanni (2021), Galsworthy *et al.* (2023), and on examination of adequate type materials (at least from photos of scientific quality). The specimens were identified by the author using a Nikon SMZ645 stereoscopic microscope. Label data of primary type specimens are given verbatim, with additions and explanations in square brackets if necessary. Taxa are listed alphabetically according to their genus-group names.

TAXONOMY

Family: Ichneumonidae Latreille, 1802
Subfamily: Campopleginae Förster, 1869

Genus: *Hyposoter* Förster, 1869

Type species: *Limnerium parorgyiae* Viereck, 1910; designation by Viereck (1910)
Diagnosis: Townes (1970*b*), Gauld (1984)

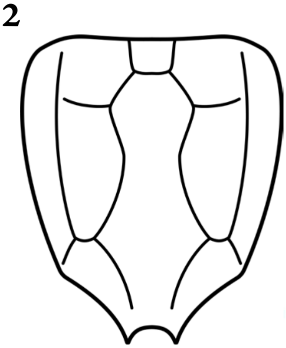
Hyposoter daeva sp. nov.
(Figs 1–2)

Type material – Holotype: female, "Iran, Abu Ask, Elburgsgeb. [= Alborz Mts], 2000 m, 12.VIII.1960, leg. [J. F.] Klapperich", specimen card-mounted, id. HNHM-HYM 155277; deposited in the Hymenoptera Collection of the HNHM.

Diagnosis – The new species can be distinguished from the known species of the genus by the following character states in combination: preapical flagellomeres longer than wide; inner eye orbits indented, distinctly convergent ventrad; mesopleuron densely and distinctly punctate on finely granulate to finely coriaceous background, with transverse and oblique rugae around the partly smooth speculum; propodeum relatively elongate, especially posteriorly, convex in profile, coarsely rugose; propodeal carinae distinct, except median section of posterior transverse carina absent; area superomedia about as long as wide, posteriorly opened; areolet short-stalked, second recurrent vein (2*m-cu*) distal to middle of areolet; nervulus (*cu-a*) slightly postfurcal; tarsal claws with weak basal pecten; first tergite slender, slightly decurved close to its base, glymma virtually absent; second tergite almost 2× as long as its apical width; posterior margin of seventh tergite slightly concave, not excised; flagellum brown, scapus almost entirely, pedicellus ventrally pale yellow; tegula ivory; metasoma orange except first to third tergites basally and sixth to seventh tergites medially dark; all coxae predominantly black; all trochanters and trochantelli entirely to predominantly ivory; hind femur and tibia orange, basal third of the latter externally ivory.

1

2



Figures 1–2. *Hyposoter daeva* sp. nov., 1 = holotype female, scale bar = 1 mm, 2 = propodeum (photo by Zoltán Vas, drawing by Viktória Szőke)

Description – Female (Figs 1–2). Body length ca. 5.5 mm, fore wing length ca. 4 mm.

Head: Antenna with 31 flagellomeres; first flagellomere slender, ca. 4× as long as its apical width; preapical flagellomeres distinctly longer than wide. Head transverse, matt, granulate with indistinct punctures, and with dense, short hairs. Ocular-ocellar distance 0.8× as long as ocellus diameter, distance between lateral ocelli 1.7× as long as ocellus diameter. Inner eye orbits indented, distinctly convergent ventrad. Gena very short, very strongly narrowed behind eyes, in dorsal view 0.3× as long as eye width. Occipital carina complete, reaching hypostomal carina distinctly before base of mandible; hypostomal carina slightly elevated. Frons flat, slightly impressed above toruli, median longitudinal carina absent. Face and clypeus weakly rugulose on granulate surface, both almost flat in profile; clypeus small, its apical margin weakly convex, weakly impressed, sharp. Malar space 0.6× as long as basal width of mandible. Mandible short, lower margin with a wide flange from base towards teeth, flange gradually narrowed before teeth; upper mandibular tooth slightly longer and wider than lower tooth.

Mesosoma: Mesosoma distinctly and densely punctate on granulate to coriaceous background, more or less rugulose, mostly matt with dense, short hairs. Pronotum with transverse wrinkles on lower half, epomia relatively weak but discernible. Mesoscutum slightly longer than wide, convex in profile; notaulus not developed. Scuto-scutellar groove wide and moderately deep. Scutellum moderately convex in profile, lateral carinae not developed. Mesopleuron densely and distinctly punctate on finely granulate to finely coriaceous background, with transverse and oblique rugae around speculum; speculum partly almost smooth and polished. Epicnemial carina complete, strong but not elevated, pleural part bent to anterior margin of mesopleuron reaching it about its middle height. Sternaulus indistinct. Posterior transverse carina of mesosternum complete, slightly elevated. Metanotum ca. 0.4× as long as scutellum, anteriorly with a pair of foveae. Metapleuron distinctly punctate, lower half rugulose, without juxtacoxal carina; submetapleural carina complete, elevated. Pleural carina of propodeum complete, strong; propodeal spiracle oval, separated from pleural carina by about its length, connected to pleural carina by a distinct ridge. Propodeum relatively elongate, especially posteriorly, convex in profile, coarsely rugose. Propodeal carinae distinct, except median section of posterior transverse carina absent. Area basalis trapezoid, about as long as its anterior width, laterally weakly delimited. Area superomedia with irregular and transverse rugae, hexagonal, about as long as wide, behind costulae distinctly convergent, posteriorly opened. Area petiolaris with irregular and transverse rugae, medially slightly impressed, confluent with area superomedia, their junction distinct. Fore wing with short-stalked areolet, 3*rs-m* present, second recurrent vein (2*m-cu*) distal to middle of areolet; distal abscissa of *Rs* straight; nervulus (*cu-a*) postfurcal by about its width, weakly inclivous; postnervulus (abscissa of *Cu*1 between 1*m-cu* and *Cu*1a + *Cu*1b) intercepted slightly above its middle by *Cu*1a; lower external angle of second discal cell acute. Hind wing with nervellus (*cu-a* + abscissa of *Cu*1 between *M* and *cu-a*) vertical, straight, not intercepted by discoidella (*Cu*1); discoidella spectral, proximally not connected to nervellus. Coxae finely granulate to coriaceous with weak, indistinct traces of punctures. Hind femur 5.7× as long as high. Inner spur of hind tibia ca. 0.6× as long as first tarsomere of hind tarsus. Hind tarsus without a midventral row of closely spaced, short hairs. Tarsal claws longer than arolium, basally weakly pectinate.

Metasoma: Compressed, very finely granulate to shagreened, and with dense, short hairs. First tergite very slender, 3.5× as long as its apical width, 1.3× as long as second tergite; petiolus slightly decurved close to its base; glymma virtually absent, a very shallow, narrow lateral impression in its place barely discernible; dorsomedian carina of first tergite indistinct. Second tergite almost 2× as long as its apical width; thyridium elongate oval, its distance from basal margin of tergite ca. 0.7× as long as its length. Posterior margin of sixth tergite straight, posterior margin of seventh tergite slightly concave, not excised. Ovipositor sheath shorter than apical depth of metasoma; ovipositor almost straight, dorsal preapical notch distinct.

Colour: Flagellum dark brown, scapus almost entirely and pedicellus ventrally pale yellow. Head black, palpi ivory, mandible pale yellow, mandibular teeth brownish. Mesosoma black, tegula ivory. Metasoma: basal half of first tergite black, apical half orange; second tergite orange except its basal third and narrow posterior margin blackish; third tergite orange except basal quarter brown; fourth and fifth tergites entirely orange; following tergites orange with wide, brown patches medially. Wings hyaline, veins brown, pterostigma light brown. Fore and middle legs: coxae predominantly black, apically narrowly ivory; trochanters and trochantelli ivory; femora pale orange; tibiae internally pale orange, externally ivory; tarsi basally extensively ivory, otherwise yellowish, apical tarsomeres slightly darkened. Hind leg: coxa black, apically very narrowly yellowish; trochanter pale orange to ivory, basally narrowly brownish; trochantellus ivory; femur orange; tibia orange, basal third externally ivory; tarsus orange-brown to brown, extreme base of first tarsomere narrowly ivory.

Male: Unknown.

Distribution – Iran.

Etymology – The specific epithet *daeva* is the name of the ancient Iranian (Zoroastrian) supernatural spirits or demons; noun in apposition, ending not to be changed.

Remarks on identification – Regarding its virtually absent glymma and the colouration of scapus, metasoma and legs, the new species is quite characteristic and cannot be confused with its congeners. By using the most complete identification key of the genus (Galsworthy *et al.* 2023), the new species keys out with *Hyposoter meridionellator* Aubert, 1965; this species is known from the Mediterranean area of Europe, and can be readily distinguished from the new species by its unusually short propodeum, somewhat flattened and straight petiolus with sharp dorsal and ventral edges in profile, orange-brown (subbasally and apically brownish) hind tibia with only a small ivory spot at its extreme base, and more extensively dark basal tergites.

Genus: *Nemeritis* Holmgren, 1860

Type species: *Campoplex macrocentrus* Gravenhorst, 1829; designation by Viereck (1914)
Diagnosis: Townes (1970*b*), Horstmann (1973, 1975, 1994)

Nemeritis centurio sp. nov.
(Figs 3–4)

Type material – Holotype: female, "S. Arg. [= South Argentina] Rio Negro [Province] El Bolsón, [leg. Gy.] Topál, 6.III.[19]61 Nr. 301 [= 350 m, netted along Arroyo Negro]", specimen pinned, id. HNHM-HYM 156118. Paratypes: four females, same locality and collector as holotype but 21.III.1961 Nr. 342 [= 480 m, Mt. Piltriquitron, beaten from various trees and bushes, mainly *Lomatia*], 1.IV.1961 Nr. 370 [= 700 m, Mt. Piltriquitron, beaten from *Lomatia obliqua* bushes, near creek], 5.IV.1961 Nr. 375 [= 480 m, NW valley between forehill and Mt. Piltriquitron, singled in grassy forest clearing], 21.IV.1961 Nr. 408 [= 350 m, netted during and after dusk in chilly weather, along Arroyo Negro]; four males, same label data as holotype (two males), same locality and collector as holotype but 17.III.1961 Nr. 330 [= 350 m, beaten from blossoming *Myrceugenia exsupca* trees along Arroyo Negro], 2.V.1961 Nr. 432 [= 620 m, Mt. Piltriquitron, netted around solitary *Lomatia* bushes on sunny slope]; paratype specimens pinned, id. HNHM-HYM 156119–156126, respectively. The holotype and all paratypes are deposited in the Hymenoptera Collection of the HNHM.

Diagnosis – The new species can be distinguished from the known species of the genus by the following character states in combination: second flagellomere ca. 3× as long as its apical width; inner eye orbits parallel; gena in female 0.50–0.55×, in male 0.6–0.7× as long as eye width in dorsal view; clypeus granulate with a few, indistinct traces of punctures; mandibular teeth equal; mesopleuron granulate, impunctate, speculum mostly smooth; propodeum granulate; propodeal carinae distinct, except median sections of longitudinal carinae weakened or obsolescent, and median section of posterior transverse carina absent; area superomedia ca. 1.3–1.4× as long as wide, its lateral sides behind costulae subparallel to slightly convergent, posteriorly opened; area petiolaris lying almost in the same level as area superomedia; fore wing with short-stalked areolet; second tergite in female ca. 1.5×, in male ca. 2× as long as its apical width; posterior margins of sixth and seventh tergites widely concave in female; ovipositor sheath 1.0–1.1× as long as hind tibia, ovipositor almost straight; tegula yellow; metasoma blackish to dark brown; fore and middle coxae pale orange, hind coxa dark; hind femur reddish orange; hind tibia orange, basally and apically slightly darkened.

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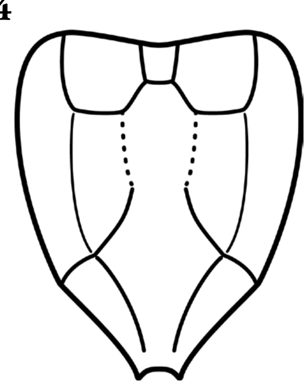

Figures 3–4. *Nemeritis centurio* sp. nov., 3 = holotype female, scale bar = 1 mm, 4 = propodeum (photo by Zoltán Vas, drawing by Viktória Szőke)

Description – Female (Figs 1–2). Body length 3.5–4.2 mm, fore wing length 3.0–3.4 mm.

Head: Antenna with 26–27 flagellomeres; first flagellomere ca. 4×, second flagellomere ca. 3× as long as its apical width; preapical flagellomeres quadrate to slightly transverse. Head transverse, matt, granulate without punctures, and with dense, moderately short hairs. Ocular-ocellar distance and distance between lateral ocelli as long as ocellus diameter. Inner eye orbits barely indented, parallel. Gena in dorsal view 0.50–0.55× as long as eye width, roundly narrowed behind eyes. Occipital carina complete, reaching hypostomal carina before base of mandible; hypostomal carina slightly elevated. Frons weakly convex in profile, slightly impressed above toruli, median longitudinal carina absent. Face and clypeus almost flat in profile; clypeus entirely granulate with a few, indistinct traces of punctures, wide, its apical margin weakly convex, not impressed, moderately sharp. Malar space 0.7× as long as basal width of mandible. Mandible strong, relatively long, lower margin with a relatively wide carina from base towards teeth, carina gradually narrowed before teeth; mandibular teeth equal.

Mesosoma: Mesosoma matt, granulate, virtually impunctate, with dense, short hairs. Pronotum with transverse wrinkles on lower half, epomia distinct. Mesoscutum about as long as wide, convex in profile; notaulus only anteriorly developed, short, weak but discernible. Scuto-scutellar groove wide and deep. Scutellum convex in profile, lateral carinae not developed. Mesopleuron granulate, impunctate; speculum mostly smooth, subpolished. Epicnemial carina complete, strong but not elevated, pleural part bent to anterior margin of mesopleuron reaching it about its middle height. Sternaulus indistinct. Posterior transverse carina of mesosternum complete, slightly elevated. Metanotum ca. 0.4× as long as scutellum. Metapleuron without juxtacoxal carina; submetapleural carina complete, elevated. Pleural carina of propodeum complete, distinct; propodeal spiracle small, circular, separated from pleural carina by 1.5–2.0× its length, connected to pleural carina by a distinct ridge. Propodeum elongate, weakly convex in profile, entirely granulate. Propodeal carinae: lateromedian longitudinal carina distinct, except its median section (i.e., between anterior and posterior transverse carinae) more or less obsolescent; lateral longitudinal carina complete, discernible along its entire length, with slightly weakened medial section; anterior transverse carina (including costulae) strong, except its section between lateral longitudinal carina and pleural carina absent; posterior transverse carina strong, except its median section absent. Area basalis trapezoid (sometimes almost triangular), apically narrow, slightly longer than its anterior width. Area superomedia entirely granulate, matt, about hexagonal, ca. 1.3–1.4× as long as wide, its lateral sides behind costulae subparallel to slightly convergent, posteriorly opened. Area petiolaris confluent with area superomedia, lying almost but not exactly in the same level as area superomedia, entirely granulate, matt, slightly impressed in the middle. Fore wing with short-stalked areolet, 3*rs-m* present, second recurrent vein (2*m-cu*) close to distal corner of areolet; distal abscissa of *Rs* relatively short, slightly curved towards wing margin; nervulus (*cu-a*) interstitial to slightly postfurcal, strongly inclivous, weakly curved; postnervulus (abscissa of *Cu*1 between 1*m-cu* and *Cu*1a + *Cu*1b) intercepted at about its middle by *Cu*1a; lower external angle of second discal cell almost right-angled. Hind wing with nervellus (*cu-a* + abscissa of *Cu*1 between *M* and *cu-a*) about vertical, weakly broken, intercepted by discoidella (*Cu*1) at about its lower third; discoidella spectral, proximally connected to nervellus. Coxae finely granulate. Hind femur 5.5–6.0× as long as high. Inner spur of hind tibia ca. 0.5× as long as first tarsomere of hind tarsus. Tarsal claws thin and small, about as long as arolium, simple.

Metasoma: Compressed, finely granulate to shagreened, with dense, short hairs. First tergite conspicuously slender, 3.7–3.9× as long as its apical width, 1.1× as long as second tergite; glymma absent; dorsomedian carina of first tergite indistinct. Second tergite elongate, 1.50–1.55× as long as its apical width; thyridium small, rather narrowly elongate, its distance from basal margin of tergite 1.5–2.0× as long as its length. Posterior margins of sixth and seventh tergites distinctly, widely concave, but not triangularly excised. Ovipositor sheath 1.0–1.1× as long as hind tibia; ovipositor almost straight, dorsal preapical notch distinct.

Colour: Antenna brown, scapus, pedicellus and basal flagellomeres narrowly yellowish brown at apices. Head black, palpi and mandible yellow, mandibular teeth brownish. Mesosoma black, tegula yellow. Metasoma blackish to dark brown, posterior margin of second tergite very narrowly yellowish brown, posterior margins of following tergites often indistinctly, very narrowly paler than rest of tergites. Wings hyaline, veins and pterostigma brown. Fore and middle legs, including coxae, pale orange, apical tarsomeres slightly darkened. Hind leg: coxa blackish to dark brown; trochanter orange with brownish patches; trochantellus orange; femur reddish orange; tibia orange, basally and apically slightly darkened; tarsus orange-brown.

Male: Similar to female in all characters described above, except: antenna with 28 flagellomeres, first flagellomere ca. 3.5×, second flagellomere ca. 2.5× as long as its apical width, preapical flagellomeres longer than wide; gena longer than in female, in dorsal view 0.6–0.7× as long as eye width, weakly narrowed behind eyes; hind femur stouter than in female, 5× as long as high; metasoma more elongate than in female, first tergite 4.1–4.5×, second tergite 2.0–2.2× as long as its apical width; posterior margins of sixth and seventh tergites straight; parameres wide, apically rounded.

Distribution – Argentina.

Etymology – The specific epithet *centurio* reflects that this species is the 100th ichneumon wasp species described as new by the author; noun in apposition, ending not to be changed.

Remarks on identification – The new species can be reliably distinguished from any congeners based on the diagnosis above. Among the three *Nemeritis* species known to occur in the New World, *Nemeritis macrura* (Viereck, 1925) and *Nemeritis scaramozzinoi* Di Giovanni et Araujo, 2021 can be immediately distinguished from the new species by their much longer ovipositor sheaths and very different colourations (see Araujo & Di Giovanni 2021). The third species of the New World, *Nemeritis lativentris* Thomson, 1887, known both from the Nearctic and Western Palaearctic regions, is somewhat more similar, however it can be readily distinguished from the new species by its significantly longer ovipositor sheath (1.6–1.7× as long as hind tibia), shiny area superomedia, brown fore and middle coxae, and as long as wide or only slightly longer than wide second tergite (Horstmann 1973, 1975, 1994, Araujo & Di Giovanni 2021).

NEW DISTRIBUTION RECORDS

Family: Ichneumonidae Latreille, 1802
Subfamily: Acaenitinae Förster, 1869

Hieroceryx pseudoglomiger Benoit, 1951

Material examined – Ghana: Volta Region, Bakpa, 6°49'55.96"N, 0°25'10.39"E, 487 m, 12.XI.2023, leg. Sz. Sáfián, 1♀.

Remarks – First record from Ghana. The species has been known from the Democratic Republic of Congo so far (Yu *et al.* 2016).

Subfamily: Campopleginae Förster, 1869

Bathyplectes incisus Horstmann, 1974

Material examined – Ukraine: Mt. Hoverla, 1000 m, 17.VI.1997, leg. V. Ermolenko, 1♀.

Remarks – First record from Ukraine. The species has been known from Germany, Poland, and Georgia so far (Yu *et al.* 2016, Riedel *et al.* 2023).

Bathyplectes quinqueangularis (Ratzeburg, 1852)

Material examined – Ukraine: Mt. Hoverla, 1000 m, 17.VI.1997, leg. V. Ermolenko, 1♀.

Remarks – First record from Ukraine. The species is widely distributed in the Palaearctic region (Yu *et al.* 2016, Vas 2023*a*).

Campoletis yaga Vas, 2024

Material examined – Argentina: Rio Negro, El Bolsón, 5.IV.1961, leg. Gy. Topál, 1♀; same locality and collector but 26.IV.1961, 1♀; Chubut, El Turbio, 19.XI.1961, leg Gy. Topál, 2♀; Chubut, El Hoyo, 14.II.1961, leg. Gy. Topál, 2♂.

Remarks – First records from Argentina. The species was recently described from Chile (Vas 2024*b*).

Casinaria pyreneator Aubert, 1960

Material examined – Hungary: Kőszeg, borospincék völgye [= valley of wine cellars], 6.V.1983, leg. I. Rozner, 1♀.

Remarks – First record from Hungary. The species is widely distributed in the Western Palaearctic region (Yu *et al.* 2016, Riedel 2018, 2022).

Diadegma compunctellae Horstmann, 2013

Material examined – Hungary: Noszvaj, Dóc-hegy [= Dóc Hill], 10.VI.2023, leg. V. Szőke & Z. Vas, 1♀.

Remarks – First record from Hungary. The species has been known from the United Kingdom so far (Yu *et al.* 2016).

Diadegma longicaudatum Horstmann, 1969

Material examined – Hungary: Noszvaj, Dóc-hegy [= Dóc Hill], 30.VI.2023, leg. Gy. Dudás, 1♀.

Remarks – First record from Hungary. The species is widely distributed in the Western Palaearctic region (Yu *et al.* 2016).

Diadegma nigrostigmaticum Horstmann, 1969

Material examined – Hungary: Kiskunhalas, along road no. 53 near Pirtó Sand Dunes, 13.V.2023, leg. V. Szőke & Z. Vas, 1♀.

Remarks – First record from Hungary. The species has been known from Germany, France, Poland, and Bulgaria so far (Yu *et al.* 2016).

Diadegma semiclausum (Hellén, 1949)

Material examined – Hungary: Páty, Mézeshegy, 19–27.V.2023, leg. V. Szőke & Z. Vas, 1♀.

Remarks – First record from Hungary. The species is widely distributed in the Old World (Yu *et al.* 2016).

Hyposoter caedator (Gravenhorst, 1829)

Material examined – Malta: Verdala Palace, 12–24.VI.2014, leg. D. Mifsud, 1♂.

Remarks – First record from Malta. The species is widely distributed in the Western Palaearctic region (Yu *et al*. 2016).

Hyposoter didymator (Thunberg, 1822)

Material examined – Malta: Marfa, 20.IV.2014, leg. T. Cassar, 1♀.

Remarks – First record from Malta. The species is widely distributed in the Palaearctic region, and also occurs in the Australasian region (Yu *et al*. 2016).

Hyposoter orbator (Gravenhorst, 1829)

Material examined – Iran: Alborz Mts, 2000 m, 12.VIII.1960, leg. [J. F.] Klapperich, 2♀.

Remarks – First record from Iran. The species is widely distributed in the Palaearctic region (Yu *et al*. 2016, Riedel *et al*. 2023).

Subfamily: Cryptinae Kirby, 1837

Gabunia coerulea Kriechbaumer, 1895

Material examined – Ghana: Oti Region, Kyabobo National Park, Laboum River Valley, waterfall trail hills 8°19'55.09"N, 0°34'54.20"E, 300–550 m, 11–20.XII.2022, leg. Sz. Sáfián & G. Győri, 1♀.

Remarks – First record from Ghana. The species is widely distributed in the equatorial area of the Afrotropical region (Yu *et al*. 2016, Vas 2022).

Subfamily: Ophioninae Shuckard, 1840

Enicospilus babaulti (Seyrig, 1935)

Material examined – Guinea: Coyah, 24.X.1967, leg. K. Ferencz, 1♀.

Remarks – First record from Guinea. The species is widely distributed in the Afrotropical region (Yu *et al*. 2016, Vas 2022).

Enicospilus biimpressus (Brullé, 1846)

Material examined – Guinea: Coyah, 6–7.I.1965, leg. K. Ferencz, 1♂.

Remarks – First record from Guinea. The species is widely distributed in the Afrotropical region (Yu *et al.* 2016, Vas 2022).

Thyreodon boliviae Morley, 1912

Material examined – French Guiana: Regina region, Mt. Kaw, Patawa camp, 21–30.XI.2022, leg. Sz. Kiss, 1♀.

Remarks – First record from French Guiana. The species has been known from Bolivia and Peru so far (Yu *et al.* 2016, Lima 2019).

Subfamily: Tryphoninae Shuckard, 1840

Netelia caucasica (Kokujev, 1899)

Material examined – Hungary: Orfalu, csarabos [= heath], 46.8876°N, 16.2697°E, leg. G. Katona et al., light trap, 1♀.

Remarks – First record from Hungary. The species is widely distributed in the Palaearctic region (Yu *et al.* 2016).

*

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Új fürkészdarázsfajok és előfordulási adatok a palearktikus, afrotropikus és neotropikus faunarégiókból (Hymenoptera: Ichneumonidae)

Vas Zoltán

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Összefoglalás – Jelen közlemény palearktikus, afrotropikus és neotropikus fürkészdarazsak (Hymenoptera: Ichneumonidae: Campopleginae, Acaenitinae, Cryptinae, Ophioninae és Tryphoninae) új fajait és előfordulási adatait tárgyalja. A Campopleginae alcsaládból két tudományra új fajt (*Hyposoter daeva* sp. nov. Iránból és *Nemeritis centurio* sp. nov. Argentínából) ír le a szerző, illetve az alábbi fajokat az adott ország faunájára újként közli: *Bathyplectes incisus* Horstmann, 1974 és *B. quinqueangularis* (Ratzeburg, 1852) Ukrajnából, *Campoletis yaga* Vas, 2024 Argentínából, *Casinaria pyreneator* Aubert, 1960, *Diadegma compunctellae* Horstmann, 2013, *D. longicaudatum* Horstmann, 1969, *D. nigrostigmaticum* Horstmann, 1969 és *D. semiclausum* (Hellén, 1949) Magyarországról, *Hyposoter caedator* (Gravenhorst, 1829) és *H. didymator* (Thunberg, 1822) Máltáról, *H. orbator* (Gravenhorst, 1829) Iránból. Első ghánai előfordulási adatait közli a *Hieroceryx pseudoglomiger* Benoit, 1951 (Acaenitinae) és *Gabunia coerulea* Kriechbaumer, 1895 (Cryptinae) fajoknak. Az Ophioninae alcsaládból az *Enicospilus babaulti* (Seyrig, 1935) és *E. biimpressus* (Brullé, 1846) fajokat elsőként jelzi Guineából, a *Thyreodon boliviae* Morley, 1912 fajt pedig Francia Guyana-ból. A Tryphoninae alcsaládba tartozó a *Netelia caucasica* (Kokujev, 1899) faj első magyarországi előfordulási adatait is közli. Négy ábrával.

Kulcsszavak – *Bathyplectes*, *Campoletis*, *Casinaria*, *Diadegma*, elterjedés, *Enicospilus*, fajleírás, *Gabunia*, *Hieroceryx*, *Hyposoter*, *Nemeritis*, *Netelia*, taxonómia, *Thyreodon*

ÁBRAMAGYARÁZAT

1–2. ábrák. *Hyposoter daeva* sp. nov., 1 = holotípus, oldalnézet, méretléc = 1 mm, 2 = áltorszelvény felülnézete (Vas Zoltán fotója, Szőke Viktória rajza)

3–4. ábrák. *Nemeritis centurio* sp. nov., 3 = holotípus, oldalnézet, méretléc = 1 mm, 4 = áltorszelvény felülnézete (Vas Zoltán fotója, Szőke Viktória rajza)

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The zoological results of Gy. Topál's collectings in South Argentina. 27. Ichneumonidae: Campopleginae: *Diadegma* Förster, 1869 (Hymenoptera)

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Abstract – Taxonomical results published in this paper are based on the Neotropical Campopleginae (Hymenoptera: Ichneumonidae) material collected in Argentina by György Topál in 1961, and by Andor Kovács in 1959. In this paper, the genus *Diadegma* Förster, 1869 is treated, and three new species are described: *Diadegma kovacsi* sp. nov., *Diadegma topali* sp. nov., and *Diadegma vezenyii* sp. nov. With seven photos.

Key words – Andor Kovács, Árpád Vezényi, György Topál, Neotropical region, species description, taxonomy

INTRODUCTION

Results published in this paper are based on the Neotropical Campopleginae (Hymenoptera: Ichneumonidae) material of the Hungarian National Museum Public Collection Centre – Hungarian Natural History Museum, Budapest (hereafter abbreviated by its usual and internationally recognised acronym in the taxonomical literature: HNHM), and have been achieved in the frame of the ongoing identification progress in the Hymenoptera Collection of the HNHM, focusing primarily on old, still unidentified expedition materials.

The ichneumon wasps (Hymenoptera: Ichneumonidae) treated in this paper were collected in Argentina, Rio Negro Province, El Bolsón, mostly in 1961 by György Topál (1931–2016, mammologist researcher and curator of the HNHM), except a few specimens which were collected in the same place in 1959 by Andor Kovács (1903–1999, Hungarian ornithologist who lived in Argentina since the 1950s, and hosted Topál's one-year long expedition in 1961). The identification of the ichneumon wasps gathered by Topál's expedition was intended by Erzsébet Bajári (1912–1963, hymenopterist and curator of the HNHM). However, due

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ZOOBANK: *https://zoobank.org/urn:lsid:zoobank.org:pub:6586715E-5B87-4EBA-B67F-70405522F0B4*

to her sudden death in 1963 and to the lack of a curator specialised in Ichneumonidae in the HNHM for the following more than 50 years, the material remained unidentified and virtually untouched.

Recently, the identification progress of the Neotropical Campopleginae housed in the HNHM has been started, already resulting two species new to science (*Nemeritis centurio* Vas, 2024 from Argentina and *Campoletis yaga* Vas, 2024 from Chile) (Vas 2024*a*, *b*) and faunistic records new to Argentina and Paraguay (Vas 2023, 2024*b*). It is worth noting that the holo- and paratype specimens of *N. centurio* and the voucher specimens provided the first Argentinian record of *C. yaga* were also collected by Topál in the same expedition.

Since 1961, many papers were published entirely or partly about the results of Topál's expedition in Argentina, regarding various animal taxa, most of them sequenced under the common title "The zoological results of Gy. Topál's collectings in South Argentina". Despite the more than 60 years delay of the results regarding ichneumon wasps from Topál's material, it is only appropriate to revive and continue this titled series in honour of the late collector. To my best knowledge, the last paper of the series under the common title was numbered as 24th (Négre 1973). However, at the bottom of the first page of Rücker (1979) there is a remark that it was considered the 26th paper of the series, but without any indication in its title. No paper numbered as 25th have been found; however, two different papers were published as the 21st of the series (Werner 1967, Hinton 1970), so there is a possibility that Rücker (1979) was considered as 26th instead of 25th in order to correct this mistake, however not in a quite straightforward way. Without any indication to the existence of the 27th or any subsequent parts in the series, I have decided to continue the original titled series from this number on, thus reviving the original series after 45 years.

In this paper, the genus *Diadegma* Förster, 1869 is treated. It is one of the most species-rich genus of the subfamily Campopleginae with nearly 250 valid species worldwide, which are koinobiont endoparasitoids of (almost exclusively) lepidopteran larvae, including several pests (Yu *et al.* 2016). However, *Diadegma* species of the Neotropics have been rather poorly studied: prior to this study, only ten valid species were known to occur in the region (Yu *et al.* 2016), and the last species description from the region was published more than 100 years ago (Brethes 1923). In this paper, three new *Diadegma* species are described from Argentina, while previously only two species (*Diadegma insulare* (Cresson, 1865) and *Diadegma leontiniae* Brethes, 1923) were recorded from the country. These results, together with Vas (2024*a*, *b*), clearly support Araujo & Di Giovanni (2021) in their conclusion that the apparently low diversity of Campopleginae in the Neotropics is seriously misleading, and is only explained by the lack of studies. The diversity of the subfamily in the Neotropical region is undoubtedly much higher than it currently seems.

MATERIAL AND METHODS

Taxonomy and nomenclature follow Yu & Horstmann (1997) and Yu *et al.* (2016). Morphological terminology follows Gauld (1984, 1991) and Gauld *et al.* (1997); however, in cases of wing veins the corresponding terminology of Townes (1969) is also used. Terminology of body surface sculpturing follows Harris (1979).

Identifications were based on the works of Haliday (1836), Spinola (1851), Cresson (1864, 1872), Ashmead (1890, 1894), Cameron (1904), Viereck (1905, 1906, 1916, 1917, 1925), Brethes (1913), Morley (1913), Enderlein (1921), Townes & Townes (1966), Walley (1967), Horstmann (1969, 1973), Aubert (1970), Townes (1970), Dbar (1984), Vas (2022), Azidah *et al.* (2000), and on examination of adequate type materials (at least from photos of scientific quality). The specimens were identified by the author using a Nikon SMZ645 stereoscopic microscope.

Photos were taken with a Nikon-D7200 camera, applied with Nikon AF-S Micro Nikkor 105mm objective and DCR-150 Raynox Macro Conversion lens managed by Helicon Remote, stacked by Helicon Focus.

Label data of specimens are given verbatim, with explanations and additions (mostly from Topál (1963)) in square brackets. Taxa are listed in alphabetical order. All the newly described species are dedicated to the memories of Hungarian zoologists who collected valuable Neotropical materials for the HNHM (see e.g., Vig (2024)).

TAXONOMY

Family: Ichneumonidae Latreille, 1802
Subfamily: Campopleginae Förster, 1869

Genus: *Diadegma* Förster, 1869

Type species: *Campoplex crassicornis* Gravenhorst, 1829; subsequent designation by Viereck (1914)

Diagnosis: Horstmann (1969), Townes (1970), Gauld (1984)

Diadegma kovacsi sp. nov.
(Figs 1–2)

Type material – Holotype: female, "Argentina, El Bolsón, 1959.X.25, leg. Kovács A.", specimen pinned, id. HNHM-HYM 155285; deposited in the Hymenoptera Collection of the HNHM.

Diagnosis – The new species can be distinguished from its congeners by the following character states in combination: body relatively stout; gena in dorsal view 0.5× as long as eye width, roundly narrowed behind eyes; occipital carina complete; mesopleuron granulate with small, weak, dense punctures, speculum finely granulate; propodeal carinae distinct, except median section of posterior transverse carina absent; area basalis short, triangular, posteriorly merged into a single median carina; area superomedia pentagonal, about as long as wide, its lateral sides weakly convergent behind costulae, junction with area petiolaris distinct; areolet short-stalked, 2*m-cu* slightly distal to middle of areolet; nervulus (*cu-a*) postfurcal; metasoma relatively short, weakly compressed; first tergite without dorsolateral depression above spiracle, glymma strong; second tergite 1.4× as long as its apical width; posterior margin of sixth tergite deeply, triangularly excised, posterior margin of seventh tergite widely concave; ovipositor sheath 1.2× as long as hind tibia; scapus and pedicellus dark; tegula yellow; metasoma black; all coxae and trochanters black; hind femur reddish orange; hind tibia reddish orange, basally indistinctly paler, subbasally slightly darker, apically narrowly brownish, banded pattern indistinct.

Figure 1. *Diadegma kovacsi* sp. nov., holotype female, scale bar = 1 mm (photo by Zoltán Vas)

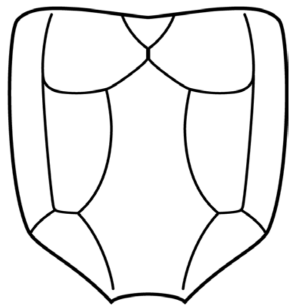


Figure 2. *Diadegma kovacsi* sp. nov., propodeum, dorsal view (drawing by Viktória Szőke)

Description – Female (Figs 1–2). Body length ca. 5.5 mm, fore wing length ca. 4.5 mm.

Head: Antenna with first flagellomere ca. 4× as long as its apical width. Head transverse, matt, granulate, impunctate except a few, weak punctures on clypeus, and with dense, short hairs. Ocular-ocellar distance as long as ocellus diameter, distance between lateral ocelli 1.5× as long as ocellus diameter. Inner eye orbits barely indented, almost parallel. Gena in dorsal view 0.5× as long as eye width, distinctly, roundly narrowed behind eyes. Occipital carina complete, reaching hypostomal carina distinctly before base of mandible; hypostomal carina slightly elevated. Frons almost flat, slightly impressed above toruli, median longitudinal carina absent. Face with very fine, indistinct rugulae on granulate surface, weakly convex in profile. Clypeus granulate with a few, weak punctures, almost flat, its apical margin weakly convex, moderately sharp. Malar space 0.7× as long as basal width of mandible. Lower margin of mandible with a wide carina from base towards teeth, flange gradually narrowed before teeth; mandibular teeth subequal.

Mesosoma: Mesosoma stout, matt, granulate, virtually impunctate except on mesopleuron and scutellum, and with dense, short hairs. Pronotum with distinct, transverse and diagonal wrinkles on lower half; epomia rather weak. Mesoscutum slightly longer than wide, convex in profile; notaulus not developed. Scuto-scutellar groove wide and deep. Scutellum with rather weak and small, indistinct punctures, convex in profile, lateral carinae not developed. Mesopleuron granulate with small, weak, dense punctures; speculum finely granulate, matt. Epicnemial carina complete, strong, pleural part bent to anterior margin of mesopleuron reaching it slightly below its middle height. Sternaulus indistinct. Posterior transverse carina of mesosternum complete, elevated. Metanotum ca. 0.5× as long as scutellum, anteriorly with a pair of foveae. Metapleuron without juxtacoxal carina, metepisternal pit not passed by carina; submetapleural carina complete, elevated. Pleural carina of propodeum complete, strong; propodeal spiracle oval, separated from pleural carina by about its length, connected to pleural carina by a distinct ridge. Propodeum short, strongly convex in profile, posteriorly not produced, posterior two-thirds transversely rugose. Propodeal carinae distinct, except median section of posterior transverse carinae absent. Area basalis short, triangular, about as long as its anterior width, posteriorly merged into a single median carina. Area superomedia granulate with fine rugae, pentagonal, about as long as wide, weakly convergent behind costulae, posteriorly opened. Area petiolaris wide, transversely rugose, medially slightly impressed, confluent with area superomedia, their junction distinct. Fore wing with short-stalked, petiolate areolet, 3*rs-m* present, second recurrent vein (2*m-cu*) slightly distal to middle of areolet; distal abscissa of *Rs* almost straight; nervulus (*cu-a*) postfurcal by about its width, weakly inclivous; postnervulus (abscissa of *Cu*1 between 1*m-cu* and *Cu*1a + *Cu*1b) intercepted at about its middle by *Cu*1a; lower external angle of second discal cell acute. Hind wing with nervellus (*cu-a* + abscissa of *Cu*1 between *M* and *cu-a*) slightly reclivous, not intercepted by discoidella (*Cu*1); discoidella spectral, proximally not connected to nervellus. Coxae finely granulate. Hind femur 5× as long as high. Inner spur of hind tibia ca. 0.55× as long as first tarsomere of hind tarsus. Tarsal claws small, barely longer than arolium, basally pectinate.

Metasoma: Metasoma relatively short and stout, weakly compressed, finely granulate to shagreened, and with moderately dense, short hairs. First tergite 3× as long as its apical width, 1.2× as long as second tergite, without dorsolateral depression above spiracle; glymma strong, deep; dorsomedian carina of first tergite weak. Second tergite 2× as long as its basal width, 1.4× as long as its apical width, 1.3× as long as third tergite; thyridium subcircular, its distance from basal margin of tergite about as long as its length. Posterior margin of sixth tergite deeply, triangularly excised; posterior margin of seventh tergite distinctly, widely concave. Ovipositor sheath long, 1.2× as long as hind tibia; ovipositor distinctly, evenly upcurved, dorsal preapical notch distinct, ventral valve without longitudinal ridges.

Colour: Antenna, including scapus and pedicellus, blackish to dark brown. Head black, palpi yellowish, mandible basally blackish, medially yellow, mandibular teeth brownish. Mesosoma black, tegula pale yellow. Metasoma black. Wings hyaline, wing veins brown, pterostigma ochre. Fore and middle legs: coxae black; trochanters black with very narrow, yellowish apices; trochantelli yellowish; femora orange; tibiae orange, externally more or less paler; tarsi yellowish orange, apical tarsomeres darkened. Hind leg: coxa black; trochanter black; trochantellus predominantly blackish; femur reddish orange; tibia reddish orange, basally indistinctly paler, subbasally slightly darker, apically narrowly brownish, banded pattern indistinct; tarsus brown, except base of first tarsomere pale yellowish.

Male: Unknown.

Distribution – Province Rio Negro, Argentina.

Etymology – The new species is dedicated to the memory of Andor Kovács (1903–1999), collector of the holotype specimen, a Hungarian ornithologist and museum specimen collector who lived in Argentina since the 1950s, and greatly contributed to the richness of natural history collections worldwide, including the HNHM; the specific epithet is proper noun in the genitive case.

Remarks on identification – The new species is not quite similar to any known species of the genus, and can be reliably identified based on the diagnosis above. Among the Neotropical *Diadegma* species, due to sharing the characteristic of having long ovipositor (i.e., ovipositor sheath is longer than hind tibia), the new species is most similar to the Mexican species *Diadegma longicauda* (Cameron, 1904); however, this species can be easily distinguished from the new species by its distinctly banded, externo-medially yellow hind tibia. Among the species of other biogeographical regions, *Diadegma kovacsi* sp. nov. is most similar to the Western Palaearctic *Diadegma longicaudatum* Horstmann, 1969, also due to the long ovipositor; however, this species can be readily distinguished from the new species by its straight, not excised posterior margin of sixth tergite.

Diadegma topali sp. nov.
(Figs 3–5)

Type material – Holotype: female, "S. Arg. [= South Argentina], Rio Negro [Province], El Bolsón, [leg. Gy.] Topál, Nr. 639 [= Loma del Medio, 350 m, beaten from plants in inundation area of Rio Quemquemtreu], 18.X.[19]61", specimen pinned, id. HNHM-HYM 155286; deposited in the Hymenoptera Collection of the HNHM. Paratype: male, "S. Arg. [= South Argentina], Rio Negro [Province], El Bolsón, [leg. Gy.] Topál, Nr. 357 [= Pampa Azcona, 350 m, beaten from various trees, mainly *Myrceugenia exsupca* after blossoming, near Arroyo Negro], 27.III.[19]61", specimen pinned, id. HNHM-HYM 155287; deposited in the Hymenoptera Collection of the HNHM.

Diagnosis – The new species can be distinguished from its congeners by the following character states in combination: body slender, metasoma conspicuously elongate, especially in female; gena moderately short, roundly narrowed behind eyes; occipital carina complete; mesopleuron granulate with small, weak punctures on lower half, speculum polished to subpolished; propodeum weakly convex, posteriorly distinctly produced; propodeal spiracle conspicuously small; propodeum with longitudinal carinae weak to obsolescent but discernible, transverse carinae obsolete except median section of anterior transverse carina distinct; area basalis short, triangular; area superomedia pentagonal, about as long as wide, laterally barely defined in female; areolet short-stalked, 2*m-cu* distal to middle of areolet; nervulus (*cu-a*) interstitial to weakly postfurcal; first tergite without dorsolateral depression above spiracle, glymma distinct; second tergite 3× as long as its apical width in female, 2.3× as long as its apical width in male;

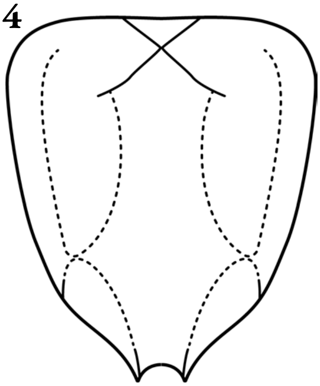
posterior margins of third to fifth tergites distinctly concave, posterior margins of sixth and seventh tergites deeply, triangularly excised in female; ovipositor sheath 0.8× as long as hind tibia, ovipositor slender, weakly upcurved, ventral valve with fine longitudinal ridges; scapus and pedicellus dark; tegula yellow; metasoma black; fore coxa yellow, at least basal third distinctly darkened, middle coxa blackish, at most narrowly yellowish at apex, hind coxa black; hind femur orange; hind tibia orange, apically weakly, indistinctly, narrowly darkened.

Description – Female (Figs 3–4). Body length ca. 6.5 mm, fore wing length ca. 4.5 mm.

Head: Antenna with first flagellomere ca. 4× as long as its apical width. Head transverse, matt, granulate, virtually impunctate, and with dense, short hairs. Ocular-ocellar distance 1.3× as long as long as ocellus diameter, distance between lateral ocelli 1.8× as long as ocellus diameter. Inner eye orbits barely indented, almost parallel. Gena in dorsal view 0.5× as long as eye width, moderately, roundly narrowed behind eyes. Occipital carina complete, ventrally slightly out-curved, reaching hypostomal carina little before base of mandible; hypostomal carina slightly elevated. Frons almost flat, slightly impressed above toruli, median longitudinal carina absent. Face and clypeus almost flat in profile; apical margin of clypeus convex, sharp. Malar space 0.7× as long as basal width of mandible. Lower margin of mandible with a wide carina from base towards teeth, flange gradually narrowed before teeth; upper mandibular tooth slightly longer than lower tooth.

Figure 3. *Diadegma topali* sp. nov., holotype female, scale bar = 1 mm (photo by Zoltán Vas)

4



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Figures 4–5. *Diadegma topali* sp. nov., 4 = propodeum, dorsal view; 5 = paratype male, scale bar = 1 mm (photo by Zoltán Vas, drawing by Viktória Szőke)

Mesosoma: Mesosoma moderately elongate, matt, granulate, virtually impunctate with only minute, barely discernible traces of punctures, and with dense, short hairs. Pronotum with distinct, transverse and diagonal wrinkles on lower half; epomia weak. Mesoscutum slightly longer than wide, convex in profile; notaulus not developed. Scuto-scutellar groove wide and deep. Scutellum convex in profile, lateral carinae not developed. Mesopleuron granulate with minute, barely discernible punctures on lower half; speculum large, smooth, shiny. Epicnemial carina complete, moderately strong, pleural part bent to anterior margin of mesopleuron reaching it slightly below its middle height. Sternaulus indistinct. Posterior transverse carina of mesosternum complete, not elevated. Metanotum ca. 0.6× as long as scutellum, anteriorly with a pair of foveae. Metapleuron without juxtacoxal carina, metepisternal pit interrupts passing carina; submetapleural carina complete, elevated. Pleural carina of propodeum complete, strong; propodeal spiracle conspicuously small, circular, separated from pleural carina by almost 2× its length, connected to pleural carina by a distinct ridge. Propodeum elongate, weakly convex in profile, posteriorly distinctly produced, its apex reaching almost 0.4× length of hind coxa in dorsal view; surface granulate, posterior two-thirds irregularly to transversely rugose. Propodeal carinae strongly reduced, longitudinal carinae rather weak and obsolescent but more or less discernible, transverse carinae obsolete except median section of anterior transverse carina distinct. Area basalis triangular, 0.6× as long as its anterior width. Area superomedia granulate with fine rugae, pentagonal, about as long as wide, laterally barely defined, posteriorly opened. Area petiolaris confluent with area superomedia, moderately narrow, transversely rugose, medially slightly impressed. Fore wing with short-stalked, petiolate areolet, 3*rs-m* present, second recurrent vein (2*m-cu*) close to distal corner of areolet; distal abscissa of *Rs* almost straight; nervulus (*cu-a*) interstitial, weakly inclivous; postnervulus (abscissa of *Cu*1 between 1*m-cu* and *Cu*1a + *Cu*1b) intercepted slightly above its middle by *Cu*1a; lower external angle of second discal cell acute. Hind wing with nervellus (*cu-a* + abscissa of *Cu*1 between *M* and *cu-a*) vertical, not intercepted by discoidella (*Cu*1); discoidella spectral, proximally not connected to nervellus. Coxae finely granulate. Hind femur 5.5× as long as high. Inner spur of hind tibia ca. 0.5× as long as first tarsomere of hind tarsus. Tarsal claws small, barely longer than arolium, basally with few, weak pecten.

Metasoma: Metasoma conspicuously elongate, strongly compressed, finely granulate to shagreened, and with dense, short hairs. First tergite very slender, 4× as long as its apical width, as long as second tergite, without dorsolateral depression above spiracle; glymma distinct; dorsomedian carina of first tergite weak, only basally discernible. Second tergite very slender, 3× as long as its apical width, 1.5× as long as third tergite, its lateral sides almost parallel along its entire length in dorsal view; thyridium subcircular, its distance from basal margin of tergite ca. 3× as long as its length. Third tergite slender, 1.6× as long as its apical width. Posterior margins of third to fifth tergites distinctly concave, posterior margins of sixth and seventh tergites deeply, triangularly excised. Ovipositor sheath moderately short, 1.8× as long as anterior width of sixth tergite in profile, 1.2× as long as first tergite, 0.8× as long as hind tibia; ovipositor slender, weakly upcurved, dorsal preapical notch distinct, ventral valve with fine longitudinal ridges.

Colour: Antenna, including scapus and pedicellus, blackish to dark brown. Head black, palpi pale yellow, mandible yellow, mandibular teeth brownish. Mesosoma black, tegula pale yellow. Metasoma black. Wings hyaline, wing veins brown, pterostigma light brown. Fore leg: coxa yellow, basal third distinctly darkened, brown; trochanter and trochantellus yellow; rest of leg yellowish orange, apical tarsomeres darkened. Middle leg similar to fore leg except coxa blackish, only narrowly yellowish at apex. Hind leg: coxa black; trochanter black, narrowly yellowish at apex; rest of leg orange, except tibia apically rather weakly, indistinctly, narrowly darkened, and tarsus predominantly brownish.

Male (Fig. 5): Similar to female in all characters described above, except: clypeus with a few, weak punctures; ocular-ocellar distance 1×, distance between lateral ocelli 1.4× as long as ocellus diameter; gena in dorsal view 0.65× as long as eye width; speculum subpolished; propodeum more strongly rugose, slightly less elongate and less produced posteriorly than in female; propodeal carinae weak but more distinct than in female, costula obsolescent but discernible; nervulus weakly postfurcal; nervellus weakly reclivous; metasoma less elongate and less compressed than in female; second tergite 2.3× as long as its apical width; posterior margins of middle and apical tergites slightly concave, almost straight; apex of paramere broadly concave; hind trochantellus extensively dark brown.

Distribution – Province Rio Negro, Argentina.

Etymology – The new species is dedicated to the memory of György Topál (1931–2016), collector of the type specimens, renowned mammalogist, curator and one of the most dedicated collectors of the HNHM, who greatly contributed to the richness of insect collections of the HNHM; the specific epithet is proper noun in the genitive case.

Remarks on identification – The new species belongs to the "stenosomum species group" sensu Walley (1967), characterised by conspicuously elongate propodeum and metasoma, and the presence of fine longitudinal ridges on the ventral valve of ovipositor. By using the identification key to the New World species of this group (Walley 1967), the new species runs to couplet 6, together with *Diadegma carolina* Walley, 1967 and *Diadegma californicum* Walley, 1967, however without matching to any halves of couplet 6. *Diadegma topali* sp. nov. can be readily distinguished from *D. carolina* by the colouration of hind tibia (distinctly black and white banded in *D. carolina*) and propodeal carination (quite different in *D. carolina*, cf. Walley (1967): fig. 5), and from *D. californicum* by the colouration of coxae and trochanters (all black in *D. californicum*) and the propodeal carination (stronger and more developed in *D. californicum*, cf. Walley (1967): fig. 3).

Diadegma vezenyii **sp. nov.**
(Figs 6–7)

Type material – Holotype: female, "S. Arg. [= South Argentina], Rio Negro [Province], El Bolsón, [leg. Gy.] Topál, Nr. 301 [= 350 m, netted along Arroyo Negro], 6.III.[19]61", specimen pinned, id. HNHM-HYM 155288; deposited in the Hymenoptera Collection of the HNHM.

Diagnosis – The new species can be distinguished from its congeners by the following character states in combination: body slender, metasoma conspicuously elongate; gena moderately short, roundly narrowed behind eyes; occipital carina complete; mesopleuron granulate with small, weak punctures on lower half, speculum polished; propodeum conspicuously elongate, rather weakly convex in profile, posteriorly strongly produced; propodeal spiracle conspicuously small; propodeal carinae almost entirely absent, except the obsolete, barely discernible, short and narrowly opened median section of anterior transverse carina; propodeal areae not delimited; areolet short-stalked, 2*m-cu* distal to middle of areolet; nervulus (*cu-a*) weakly postfurcal; first tergite without dorsolateral depression above spiracle, glymma small but distinct; second tergite 4× as long as its apical width; posterior margins of third and following tergites deeply, triangularly excised; ovipositor sheath 0.4× as long as hind tibia, ovipositor strong, distinctly upcurved, ventral valve with fine longitudinal ridges; scapus and pedicellus dark; tegula yellow; metasoma black; fore and middle coxae orange, basally blackish, hind coxa black; hind femur orange; hind tibia orange, apically weakly, narrowly darkened.

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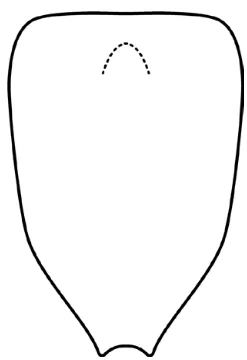
7



Figures 6–7. *Diadegma vezenyii* sp. nov., 6 = holotype female, scale bar = 1 mm; 7 = propodeum, dorsal view (photo by Zoltán Vas, drawing by Viktória Szőke)

Description – Female (Figs 6–7). Body length ca. 9.5 mm, fore wing length ca. 7 mm.

Head: Antenna with first flagellomere ca. 4× as long as its apical width. Head transverse, matt, granulate, virtually impunctate, and with dense, short hairs. Ocular-ocellar distance as long as long as ocellus diameter, distance between lateral ocelli 1.5× as long as ocellus diameter. Inner eye orbits weakly indented, subparallel. Gena in dorsal view 0.5× as long as eye width, moderately, roundly narrowed behind eyes. Occipital carina complete, ventrally slightly outcurved, reaching hypostomal carina little before base of mandible; hypostomal carina slightly elevated. Frons almost flat, slightly impressed above toruli, median longitudinal carina absent. Face and clypeus almost flat in profile; apical margin of clypeus convex, moderately sharp. Malar space 0.6× as long as basal width of mandible. Lower margin of mandible with a wide carina from base towards teeth, flange gradually narrowed before teeth; upper mandibular tooth slightly longer than lower tooth.

Mesosoma: Mesosoma elongate, matt, granulate, virtually impunctate with minute, barely discernible traces of punctures, and with dense, short hairs. Pronotum with distinct, transverse and diagonal wrinkles on lower half; epomia distinct. Mesoscutum slightly longer than wide, convex in profile; notaulus not developed. Scuto-scutellar groove wide and deep. Scutellum convex in profile, lateral carinae not developed. Mesopleuron granulate with minute, barely discernible traces of punctures on lower half; speculum large, smooth, shiny. Epicnemial carina complete, strong, pleural part bent to anterior margin of mesopleuron reaching it slightly below its middle height. Sternaulus indistinct. Posterior transverse carina of mesosternum complete, slightly elevated. Metanotum ca. 0.5× as long as scutellum, anteriorly with a pair of foveae. Metapleuron without juxtacoxal carina, metepisternal pit interrupts passing carina; submetapleural carina complete, elevated. Pleural carina of propodeum complete, moderately strong; propodeal spiracle conspicuously small, subcircular, separated from pleural carina by ca. 1.5× its length, connected to pleural carina by an obsolescent ridge. Propodeum conspicuously elongate, rather weakly convex in profile, posteriorly strongly produced, its apex reaching slightly beyond 0.5× length of hind coxa in dorsal view, medially slightly impressed; surface roughly granulate with fine, dense rugosity. Propodeal carinae reduced, almost entirely absent, except the obsolete, barely discernible, short and narrowly opened median section of anterior transverse carina. Propodeal areae not delimited. Fore wing with short-stalked, petiolate areolet, 3*rs-m* present, second recurrent vein (2*m-cu*) close to distal corner of areolet; distal abscissa of *Rs* slightly bent towards anterior wing margin; nervulus (*cu-a*) postfurcal by about its width, almost vertical; postnervulus (abscissa of *Cu*1 between 1*m-cu* and *Cu*1a + *Cu*1b) intercepted distinctly above its middle by *Cu*1a; lower external angle of second discal cell acute. Hind wing with nervellus (*cu-a* + abscissa of *Cu*1 between *M* and *cu-a*) reclivous, not intercepted by discoidella (*Cu*1); discoidella spectral, proximally not connected to nervellus. Coxae finely granulate. Hind femur 5.5× as long as high. Inner spur of hind tibia ca. 0.55× as long as first tarsomere of hind tarsus. Tarsal claws small, barely longer than arolium, basally with few, distinct pecten.

Metasoma: Metasoma rather conspicuously elongate, more than 2× as long as combined length of head and mesosoma, very strongly compressed, finely granulate to shagreened, and with moderately dense, short hairs. First tergite very slender, ca. 4.5× as long as its apical width, as long as second tergite, without dorsolateral depression above spiracle; glymma relatively small but distinct; dorsomedian carina of first tergite rather weak. Second tergite very slender, 4× as long as its apical width, 1.6× as long as third tergite, its lateral sides almost parallel along its entire length in dorsal view; thyridium elongate oval, its distance from basal margin of tergite ca. 1.5× as long as its length. Third tergite slender, 3× as long as its apical width. Posterior margins of third and following tergites deeply, triangularly excised. Ovipositor sheath short, 1.1× as long as anterior width of sixth tergite in profile, 0.6× as long as first tergite, 0.4× as long as hind tibia; ovipositor strong, distinctly upcurved, dorsal preapical notch distinct, ventral valve with fine longitudinal ridges.

Colour: Antenna, including scapus and pedicellus, black to dark brown. Head black, palpi and mandible yellow, mandibular teeth brownish. Mesosoma black, tegula yellow. Metasoma black. Wings hyaline, wing veins and pterostigma brown. Fore and middle legs orange, except coxae basally blackish, in middle coxa up to basal half. Hind leg: coxa black; trochanter black, narrowly yellowish at apex; rest of leg orange, except tibia apically weakly, narrowly darkened, and tarsus more or less brownish.

Male: Unknown.

Distribution – Province Rio Negro, Argentina.

Etymology – The new species is dedicated to the memory of Árpád Vezényi (1876–1960), Hungarian ornithologist, who collected valuable zoological material for the HNHM in Argentina and Paraguay, mainly between 1904 and 1906; the specific epithet is proper noun in the genitive case.

Remarks on identification – The new species belongs to the "stenosomum species group" sensu Walley (1967), characterised by conspicuously elongate propodeum and metasoma, and the presence of fine longitudinal ridges on the ventral valve of ovipositor. By using the identification key to the New World species of this group (Walley 1967), the new species keys out with *Diadegma pulicalvariae* Walley, 1967 at couplet 3, however without complete match to the characteristics given in the couplet. *Diadegma vezenyii* sp. nov. can be readily distinguished from *D. pulicalvariae* by the almost entirely absent propodeal carinae of the new species (in *D. pulicalvariae* carination anteriorly distinct, cf. Walley (1967): fig. 2) and the colouration of legs (in *D. pulicalvariae* fore and middle coxae entirely yellowish, hind femur basally and apically infuscate, hind tibia basally pale yellow, subbasally and apically dark brown, its banded pattern distinct).

*

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Topál György dél-argentínai gyűjtőútjának zoológiai eredményei. 27. Ichneumonidae: Campopleginae: *Diadegma* Förster, 1869 (Hymenoptera)

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Összefoglalás – Jelen közleményben három tudományra új, neotropikus fürkészdarázsfaj kerül leírásra: *Diadegma kovacsi* sp. nov., *Diadegma topali* sp. nov. és *Diadegma vezenyii* sp. nov. (Hymenoptera: Ichneumonidae: Campopleginae). Az eredmények főként Topál György 1961-es argentínai gyűjtőútjának anyagán alapulnak, kisebb részben pedig Kovács Andor ugyanott, 1959-ben gyűjtött példányain. Hét ábrával.

Kulcsszavak – fajleírás, Kovács Andor, neotropikus régió, taxonómia, Topál György, Vezényi Árpád

ÁBRAMAGYARÁZAT

1. ábra. *Diadegma kovacsi* sp. nov., holotípus nőstény, méretléc = 1 mm (Vas Zoltán fotója)

2. ábra. *Diadegma kovacsi* sp. nov., áltorszelvény felülnézete (Szőke Viktória rajza)

3. ábra. *Diadegma topali* sp. nov., holotípus nőstény, méretléc = 1 mm (Vas Zoltán fotója)

4–5. ábrák. *Diadegma topali* sp. nov., 4 = áltorszelvény felülnézete; 5 = paratípus hím, méretléc = 1 mm (Vas Zoltán fotója, Szőke Viktória rajza)

6–7. ábrák. *Diadegma vezenyii* sp. nov., 6 = holotípus nőstény, méretléc = 1 mm; 7 = áltorszelvény felülnézete (Vas Zoltán fotója, Szőke Viktória rajza)

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Lepidoptera from the Pantepui. Part XVI: A new species of *Thaeides* Johnson, Kruse & Kroenlein, 1997 (Lycaenidae: Theclinae: Eumaeini)

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Abstract – A new species of Lepidoptera (Papilionoidea) is described on the basis of specimens collected at upper elevations in the Guiana Shield: *Thaeides hyperion* Bálint, Costa & Grishin, **n. sp.** (Lycaenidae: Theclinae: Eumaeini). Due to its adaptation to mountainous areas, it is probably a taxon endemic to the biogeographic Pantepui Province. With 16 figures, one table.

Key words – Auyán Tepui, endemism, genitalia morphology, molecular analysis, Ptarí Tepui, spectral characteristics, Yaví Tepui, wing fragments.

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Resumen – Se describe una nueva especie de Lepidoptera (Papilionoidea) de las zonas elevadas del Escudo guayanés: *Thaeides hyperion* Bálint, Costa & Grishin, **n. sp.** (Lycaenidae: Theclinae: Eumaeini). Debido a su adaptación a zonas montañosas, es probablemente un taxón endémico de la Provincia biogeográfica del Pantepui. Con 16 figuras, y una tabla.

Palabras clave – Análisis molecular, Auyán Tepui, características espectrales, endemismo, fragmentos de alas, morfología de genitalia, Ptarí Tepui, Yaví Tepui.

INTRODUCTION

The genus *Thaeides* was erected by Johnson, Kruse & Kroenlein (1997) for the type species *Thecla theia* Hewitson, 1870 (type locality: Ecuador) and a south-eastern Brazilian species described as *Thaeides annandon* (Johnson, Kruse & Kroenlein, 1997). The genus was characterized as "known species with thick brush organs along dorsum of vinculum; male genitalia [stands out] from other macusiines by their narrow, elongate and terminally curvate valvae". Later, a male genitalic valval character was noted as "pincer-like valve tip", and because some other eumaeines also possess this trait (although differing in wing shape, colouration, and pattern), they were transferred from other genera and placed in *Thaeides* by Robbins (2004*a*). According to D'Abrera (1995), Robbins (2004*b*), and Warren *et al.* (2024) *Thaeides theia* (Hewitson, 1870) is a Transamerican species, recorded from the southern part of Mexico through Central America to the Venezuelan Cordillera de Merida, the Andes of Colombia, Ecuador, Peru, Bolivia, south to Argentina and to south-eastern Brazil, thus including *T. annandon* as a synonym or in subspecific status (Robbins 2004*b*).

Over the course of multiple expeditions to the Pantepui, carried out since 2012 (Bálint & Costa 2012; Costa *et al.* 2014*a,b*; 2016; 2017; 2018; 2019*a,b,c*; 2020; 2021*a,b*; 2022; 2023*a,b*), several specimens of a *Thaeides* species were collected or recorded. In the laboratory we found that these males and females have different colouration than specimens originating from the Central American, Andean, or Atlantic populations, and subtle differences in wing pattern and genitalia morphology were noted. Using whole genome sequencing, the distinctiveness of the Pantepui populations has been confirmed and a hidden genetic diversity of *T. theia* (*sensu auctorum*) has been revealed. In this work, we describe the new Pantepui taxon as a new species, *Thaeides hyperion*, and comment on the habitat, life history, genomic data, and dorsal wing surface colouration of *Thaeides.*

MATERIALS AND METHODS

Abbreviations –AM = collection of Alfred Moser, São Leopoldo, Brazil; HNHM = Hungarian Natural History Museum, Budapest, Hungary; LPD = Lycaenidae Pantepui Database of Mauro Costa; MB = collection of Mohamed Benmesbah, Toulouse, France; MC = collection of Mauro Costa, Caracas, Venezuela; MIZA = Museo del Instituto de Zoología Agrícola, Facultad de Agronomía, Universidad Central de Venezuela, Maracay, Venezuela; NECJU = Nature Education Center, Zoological Museum, Jagiellonian University, Krakow, Poland; PB = collection of Pierre Boyer, Le Puy Sainte Réparade, France; SP = spectral peak; [//] = line break.

In addition to the type material (n = 11), the following specimens (n = 17) were used for comparative purposes: *Thaeides annandon* – Brazil (n = 4): 2 males, 1 female (AM), male (HNHM); *Thaeides theia* – Costa Rica (n = 4): 2 males, 2 females (PB); Ecuador (n = 1): female (PB); Peru, Amazonas (n = 1): female (NECJU); Venezuela, Aragua (n = 6): 1 male, 1 female (NECJU), 2 males, 2 females (HNHM); Venezuela, Mérida (n = 1): male (NECJU). Information and data provided by Draudt (1919), D'Abrera (1995), and the website "Butterflies of America" (Warren *et al.* 2024) were also taken into consideration.

For populations representing different biogeographical regions in South America (Brown 1993) the species-group names *theia* (Transandean–Andean) and *annandon* (Atlantic) are employed. As our intent is to diagnose and describe the new species, and not to revise *Thaeides theia* (*sensu auctorum*), the usage of these names does not represent any taxonomic decision.

After capture, specimens were placed in glassin envelopes, then transferred to the laboratory where they were set, labelled, digitized, and inventoried with serial numbers of the Lycaenidae Pantepui Database (LPD), edited by MC with identifications by ZB. For morphological studies, we used standard lepidopterological techniques (Winter 2000). Two male and two female specimens of *Thaeides hyperion* **n. sp.** (HNHM Bálint genitalia preparations nos. 1527, 1725: males; 1723-1724: females), and one male and one female specimen of *Thaeides theia* were dissected (HNHM Bálint genitalia preparations nos. 1730: male; 1731: female). Furthermore, genitalic information provided by Johnson, Kruse & Kroenlein (1997) and dissections of NECJU were also used.

For spectral measurements, the following specimens (n = 7) were taken: *Thaeides annandon*, male, Brazil, Rio Grande do Sul, São Francisco de Paula, 900 m, 3. V. 1998, Moser; *Thaeides hyperion* **n. sp.**, male, Venezuela, Bolívar Auyán Tepui, Entre el Danto y El Peñón, 1750 m, 25. III. 2013, Costa; *Thaeides hyperion* **n. sp.**, female, Venezuela, Bolívar, Auyán Tepui, El Peñón, 1850 m 1. X. 2017, Costa; *Thaeides hyperion* **n. sp.**, female, Venezuela, Bolívar, Auyán Tepui, El Dragón, 1750 m, 4. II. 2019, Costa/Benmesbah; *Thaeides hyperion* **n. sp.**, male, Venezuela, Bolívar, Auyán Tepui, El Dragón, 1750 m, 6. II. 2019, Costa/Benmesbah; *Thaeides theia*, female, Venezuela, Aragua, Rancho Grande, 1100 m, X. 1967, Romero; *Thaeides theia*, male, Venezuela, Aragua, Rancho Grande, Cumbre, 1100 m V. 1995, Romero. Wing structural colouration was measured using our in-house spectroboard (Bálint *et al.* 2010, Kertész *et al.* 2021). The terminology of wing venation follows the Comstock-Needham nomenclature system (Miller 1970).

In genomic analysis, the following specimens (n = 6) were used: *Thaeides annandon*, male, Brazil, Rio Grande do Sul, São Francisco de Paula, 900 m, 3. V. 1998, Moser; *Thaeides hyperion* **n. sp.**, female, Venezuela, Bolívar, Auyán Tepui, Entre Libertador y El Oso, 2200 m, 24. XII. 2012, Costa; *Thaeides hyperion* **n. sp.**, male, Venezuela, Bolívar, Auyán Tepui, Entre el Danto y El Peñón, 1750 m, 25. III. 2013, Costa; *Thaeides hyperion* **n. sp.**, male, Venezuela, Bolívar, Auyán Tepui, El Dragón, 1750 m, 3. II. 2019, Costa/Benmesbah; *Thaeides theia*, female, Venezuela, Aragua, Rancho Grande, 1100 m, X. 1967, Romero; *Thaeides theia*, male, Venezuela, Aragua, Rancho Grande, Cumbre, 1100 m, V. 1995, Romero.

Protocol for genomic work followed previous publications (Li *et al.* 2019; Zhang *et al.* 2019). In brief, genomic DNA was extracted from a single leg, mate-pair libraries constructed and sequenced at 150 bp on Illumina platform. Protein-coding regions were assembled using DIAMOND (Buchfink *et al.* 2015) from the resulting sequence reads and a reference protein set of *Calycopis cecrops* (Fabricius, 1793) (Cong *et al.* 2016), and three phylogenetic trees were constructed using IQtree v1.6.12, utilizing the GTR+GAMMA model (Nguyen *et al.* 2015): (1) from autosomes in the nuclear genome, (2) from the gene predicted to be located in the Z chromosome, and (3) from the mitochondrial genome. Ultrafast bootstrap (Minh *et al.* 2013) was used to indicate statistical support of branches.

RESULTS

Thaeides hyperion Bálint, Costa & Grishin, **n. sp.**
(Figs. 1–3, 7–8)

Classification – Order: Lepidoptera, family: Lycaenidae, subfamily: Theclinae, tribe: Eumaeini, genus: *Thaeides* Johnson, Kruse & Kroenlein, 1997 (type species: *Thecla theia* Hewitson, 1870).

Generic placement – Representatives of *Thaeides* can be recognized by the warm-brown forewing ventral surface with dark-brown postbasal, median, postmedian, submarginal, and marginal transverse bands or lines from wing costa to inner margin. There is no similar member of the Lycaenidae with such a phenotype in the Neotropical fauna. Males have an oval-shaped scent pad (according to Faynel & Bálint 2012) in the forewing discal cell apical area. Phylogenetic analysis based on molecular sequencing results in grouping individuals of the new species within the same clade of the type species of *Thaeides*.

Figures 1–3. Type specimens of *Thaeides hyperion* **n. sp.**; in dorsal (above) and ventral (below) views (scale bar 1 cm): 1 = holotype male (LPD # 311); 2 = allotype female (LPD # 81); 3 = paratype female (LPD # 306); photos by G. Katona

Figures 4–6. Specimens of *Thaeides* species, in dorsal (above) and ventral (lower image) views (scale bar 1 cm): 4 = *T. theia*, male (Venezuela, Aragua); 5 = *ditto*, female; 6 = *T. annandon*, male (Brazil, Rio Grande do Sul); photos by G. Katona

Type material – Holotype male (LPD # 311), set dorsally, in good condition (dorsal wing surfaces slightly worn), forewing costa length: 14 mm; labelled as “VENEZUELA [//] Bolívar [//] Auyán Tepui, El Dragón [//] 1750 m, 6 II 2019 [//] Costa/Benmesbah” (label oblong, paper white, letters and numbers black printed), to be deposited in MIZA. Paratypes, all from Venezuela (n = 10; six males, four females): male (specimen), Amazonas, Cerro Yaví, 2200 m, 24–28. II.1995, 5°43’N;65°54’W; J. L. García, Exp. Terramar (LPD # 114; MIZA); female, ditto (LPD # 116; MIZA); female, Bolívar, Auyán Tepui, entre Libertador y El Oso, 2200 m, 24.XII.2012, M. Costa (LPD # 165; DNA sample NVG-23032D08; HNHM); male, Bolívar, Auyán Tepui, entre El Danto y El Peñón, 1750 m, 25.III.2013, M. Costa (gen. prep. Bálint no. 1527) (LPD # 158; DNA sample NVG-23032D07; HNHM); male, Bolívar, Talud Ptarí Tepui, 1500 m, 15.XII.2015, M. Costa (LPD # 368; MC, to be deposited in MIZA); male, Bolívar, Auyán Tepui, El Peñón, 1850 m, 10.I.2017, Costa/Benmesbah (LPD # 081; HNHM, to be deposited in MC); male (right hindwing), Bolívar, Auyán Tepui, El Dragón, 1750 m, 03.II.2019, Costa/Benmesbah (LPD # 292; DNA sample NVG-23032D09; HNHM, to be deposited in MB); female, Bolívar, Auyán Tepui, El Dragón, 1750 m, 04.II.2019, Costa/Benmesbah (LPD # 306; HNHM, to be deposited in MIZA); male (left forewing), Bolívar, Auyán Tepui, Campo Lecho, 1750 m, 05.II.2019, M. Costa (LPD # 369; MC; to be deposited in MIZA); male, Bolívar, Auyán Tepui, El Peñón, 1850 m, 07.II.2019, Costa/Benmesbah (LPD # 260; HNHM).

Diagnosis (Figs. 1–6) – In males of *Thaeides hyperion* **n. sp.**, the area around the scent pad in the forewing discal cell is black, whilst it is at least partly blue in all other known *T. theia*-like species and populations. Males of *T. hyperion* **n. sp.** have a shining blue (SP: 465 nm) dorsal wing surface, whilst the male of *T. annandon* is somewhat darker (SP: 450 nm), and in *T. theia*, the colour is closer to purple (SP: 415 nm). The female dorsal wing surface is deep blue (SP: 465 nm) or light purple (SP: 400 nm) in *T. hyperion* **n. sp.**, whilst in *T. theia* it is green (SP: 560 nm). In males of *T. hyperion* **n. sp.**, the ventral hindwing “*Thecla*” spot in the submarginal area of veins Cu1 and Cu2 is larger than in other known populations resulting in a more obvious pattern. Thorax and abdomen dorsal surfaces are a deeper blue in *T. hyperion* **n. sp.**, whilst in the other species these are gleaming blue.

Barcode sequence of a topotypic paratype – Sample NVG-23032D09, GenBankPQ585653, 658 base pairs:

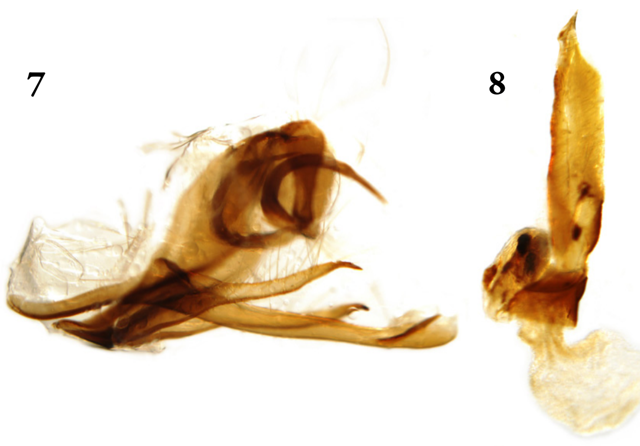
AACTTTATATTTTATTTTTGGAATTTGAGCAGGTATATTAGGTACATCCT
TAAGAATTTTAATTCGGATAGAATTAGGAACTCCAGGATCATTAATTG
GAGATGATCAAATTTATAATACTATTGTCACAGCTCATGCCTTTATTAT
AATTTTTTTCATAGTAATACCTATTATAATCGGAGGCTTTGGAAATTGA
TTAGTACCATTAATATTAGGAGCTCCTGATATAGCATTTCCACGAATAA
ATAATATAAGATTTTGATTATTACCCCCCTCTTTAATATTATTAATTTCA
AGAAGAATTGTAGAAAATGGAGCAGGAACAGGATGAACAATTTACC

CCCCATTGTCATCTAATATTGCACACAGAGGATCATCAGTTGATTTAG
CCATTTTTTCTTTACATTTAGCAGGTATTTCATCAATTTTAGGAGCTATT
AATTTTATTACAACTATTATTAATATACGAGTAAATAATTTATCTTTTGA
TCAAATATCATTATTTATCTGAGCTGTAGGATTACAGCTTTATTACTAT
TATTATCTCTTCCTGTATTAGCAGGAGCTATCACTATATTATTAACTGAT
CGAAATTTAAATACCTCATTCTTTGATCCAGCAGGAGGGGGAGATCC
TATTTTATATCAACATTTATTT

Description – Wings (Figs. 1–3): Shape: costa length measured from base to apex 11–15 mm (n = 11); hindwing vein Cu1 terminus with tail <1 mm, vein Cu2 terminus with filamentous tail longer than 2 mm; tornal area slightly lobed. Male (Fig. 1): Dorsal wing surface: fringes dark brown; forewing basal and medial area under cubital vein blue (SP: 460 nm) otherwise black in costal, postmedian and marginal areas; hindwing blue with black costa and apex, margin with grey scaling forming a delicate line, tornal lobe with orange scaling, anal fold grey. Ventral wing surface: fringes dark brown; forewing ground colour warm brown with a complicated pattern comprised of five transverse lines or bands (1) postbasal cell area with a short straight band, (2) median area with the widest dark band running straight from costa narrowing progressively to inner margin, (3) postmedian area with a nebulous band, fainter near costa and absent at inner margin, (4) a dark submarginal band slightly bent parallel to outer margin from costa to inner margin, and (5) a dark antemarginal line parallel to outer margin; hindwing ground colour as in forewing but with more complicated pattern comprised of transverse bands and lines basically separated by vein Cu2 to anterior and posterior regions; anterior region with pattern similar to forewing but bands and lines running towards tornal *Thecla* spot; posterior region with veins Cu2, 1A and 2A covered by black scales forming thin lines supplemented by a delicate line between vein 1A and outer margin, all running from base to tornal *Thecla* spot; space Cu1-Cu2 in submarginal area with large orange spot, additional but less extensive submarginal orange scaling in spaces between vein Cu1 and inner margin, tornal lobe black with long fringes. Female (Figs. 2–3): similar to male, but wing dorsal surface ground colour darker blue to purplish, hindwing antemarginal pattern darker, more developed.

Body: Male and female similar. Head: vertex and frontoclypeus covered by black hair-like scales, labial palpus with middle segment black-haired in its lower part with some white scales mixed, terminal segment short and pointed, eyes large and hairy; antennal flagellum and club dorsally black with white ventral scaling in each segment, club tip reddish brown. Thorax and legs: covered with dark hair-like scales, excluding tibia and tarsus with normal scaling. Abdomen: dorsally darker blue, ventrally lighter grey.

Genitalia (Figs. 7–8): Male capsule high and robust with prominent saccus and vinculum equal in length without tegumenal brush organ, tegumen large with a central depression visible only in dorso-ventral aspect, posterior parts sclerotized with a pair of strong gnathi bent 180 degrees in middle and with pointed apex, valva extremely long and narrow in lateral view with 0.5 length of aedeagus and pointed central process, but smoother and flat in dorso-ventral view, and valve terminus pincer-like, especially evident in dorso-ventral aspect, aedeagus prominent, twice length of valva, vesica with a single large sclerotized cornutus (Fig. 7). Female genitalia comprised of a centrally membranous but otherwise sclerotized ductus with pointed terminal plate, ductus bursae expanded and heavily sclerotized by entrance to corpus bursae, further expanded to the side in this area connecting with the ductus seminalis, and connected by a membranous area to the ductus, corpus bursae appears small, half of ductus length, signa faint (Fig. 8).



Figures 7–8. *Thaeides hyperion* **n. sp.** genitalia in lateral aspect: 7 = male; 8 = female. Scale bars = 1.2 mm; photos: Zsolt Bálint, compiled by G. Katona

Variation – There is a marked degree of variation in wing size, forewing length in both sexes is 11–15 mm. Female dorsal wingsurface may be purple instead of blue (see Discussion).

Distribution – *Thaeides hyperion* **n. sp.** is currently only known from three tepuis, at elevations between 1500 and 2200 m (Fig. 9): Auyán Tepui and Ptarí Tepui (in the eastern Pantepui) and from Cerro Yaví (in the north-western Pantepui). Because most tepuis are still unexplored and considering the great distance between Cerro Yaví and Ptarí Tepui (about 470 km), it is likely that this new species occurs on other local mountains in suitable habitat and at favourable elevations.

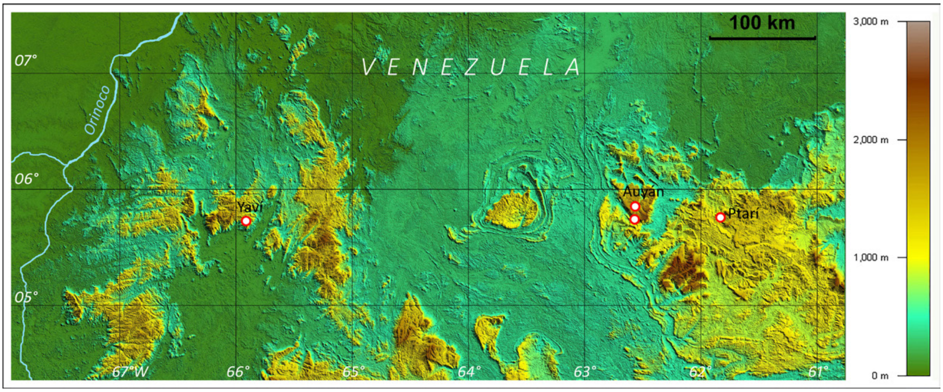


Figure 9. Known distribution of *Thaeides hyperion* **n. sp.** (red circled white points); compiled by M. Costa

Etymology – In Greek mythology, Hyperion was one of the titans, like Theia. Selecting this mythological name, we emphasize the close relationship between *T. theia* and *T. hyperion* **n. sp**. Furthermore, the name Hyperion means "the one who walks in the heights", indicating that the species does not occur in the lowlands, but in the highlands of the Pantepui.

DISCUSSION

Habitat – The habitat of *Thaeides hyperion* **n. sp.** is defined as upper montane evergreen low growing forest by Huber & Riina (1997). On most tepuis, between about 1600 and 2200 m elevation, there is a belt of low upper montane forest that usually extends along the higher slopes until it reaches the base of the vertical cliffs; this is the case of the cloud forest at El Peñón (Fig. 10) on Auyán Tepui, characterized by a very high frequency of orographic mist during most of the year. Predominant plants are members of the families Theaceae, Podocarpaceae, Magnoliaceae, Cunoniaceae, and Araliaceae. Tree trunks and branches are covered densely by lichens, mosses, ferns, and other epiphytes. The understorey is also very dense with Xyridaceae, Cyperaceae, Bromeliaceae, and bambusoid grasses, as well as numerous low shrubs. Similar habitat also occurs on the summits of some tepuis, where there are no vertical rock walls separating the summit from the slopes; this is the case of El Dragón (Fig. 11), also on Auyán Tepui, where there is a low evergreen high tepui forest that grows mostly on organic substrates (peat) overlying sandstone, with plants between 6 and 12 m high (Costa *et al.* 2020: 34–35).

Figure 10. Upper montane evergreen low growing cloud forest at El Peñón, Auyán Tepui, Bolívar, Venezuela; photo by M. Costa

Figure 11. Low growing evergreen high tepui forest at El Dragón, Auyán Tepui, Bolívar, Venezuela; photo by M. Costa

Life history – Very little is known about the behaviour of this species. The few specimens of the type series were collected in flight or feeding on flowers; their flight is fast and deceptive, which makes capture difficult. It appears to be a rare butterfly. However, the fact that rather fresh wings of *Thaeides hyperion* **n. sp.** were found on the ground (probably remains of bird predation events) in two different places (Auyán Tepui and Ptarí Tepui) (Figs. 12–13), indicates that perhaps it is more common than it appears to human observers and that the species is palatable to predators. In all our expeditions to the tepuis, it has been very rare to find fresh butterfly wings on the ground and this is the only case in which wings of the same species were found on two occasions. The presence of *Thaeides hyperion* **n. sp.** on the slope of Ptarí Tepui, where this species has never been seen alive, is confirmed by the finding of a single slightly worn male hindwing on the ground, extending its known distribution to the heights of the Sierra de Lema.

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Figures 12–13. *Thaeides hyperion* **n. sp.**, paratype male wings collected in the wild, showing left dorsal and right ventral surfaces. 12 = Campo Lecho, Auyán Tepui, 5. II. 2019, Costa (LPD # 369); 13 = Talud Ptarí Tepui, 1500 m, 15. XII. 2015, Costa (LPD # 368); photos by M. Costa

Genomic analysis – The analysis of protein-coding regions of autosomes in the nuclear genome, the Z chromosome, and the mitochondrial genome yields identical tree topologies (Fig. 14). *Thaeides muela* (Dyar, 1913) and *T. pyrczi* (Johnson, Le Crom & Constantino, 1997) form a sister clade to *T. theia* (which we define here as the *T. theia* species group, which is the genus *Thaeides* in strict sense; see Bálint 2022), in agreement with Robbins (2004b), who placed these species in *Thaeides*. In all three trees, *T. hyperion* **n. sp.** is sister to other sequenced members of the *T. theia* group and differs from them by 4.7–5.1% (31–34bp), being strongly differentiated genetically in all DNA regions. Furthermore, based on the genetic differentiation shown in the nuclear, Z chromosome and mitochondrial trees (Fig. 14 a, b, c), *T. annandon* seems to be distinct from *T. theia*, although its status would have to be verified through a larger number of samples.

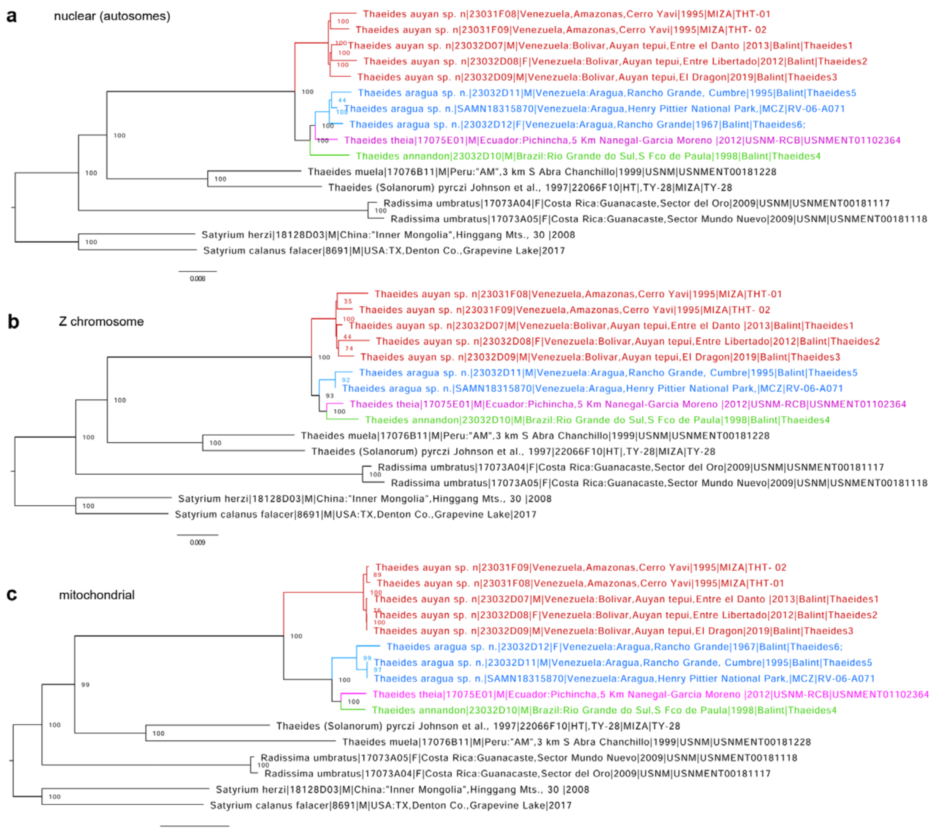

Figure 14. Phylogenetic trees of *Thaeides* and outgroups inferred from protein-coding regions of **a)** the nuclear genome (autosomes, 9,558,282 positions), **b)** the Z chromosome (227,031 positions, too few positions were sequenced in NVG-23032D12 to be included in this tree), and **c)** the mitochondrial genome. The sequence of SAMN18673399 is taken from the alignment provided by Kawahara *et al.* (2023). For each specimen, its species name is followed by the DNA sample number (without NVG- prefix), type status (if relevant; HT = holotype; PT = paratype), general locality, and year of collection (when known); compiled by N. Grishin

Diversity of Thaeides – Speciation among *T. theia* relatives needs further exploration. A recent study of Colombian *Thaeides* revealed an additional species in the Sierra Nevada de Santa Marta sympatric with *T. theia* (Prieto *et al.* 2024), although not as strongly differentiated genetically as *T. hyperion* **n. sp.** The results provided by genetic analysis (Fig. 14), and spectral measurements (Figs. 15–16) indicate that the Atlantic *Thaeides* population represents a distinct taxon. Many parallel cases of similar biogeographical patterns have been detected among the Papilionoidea, where the Atlantic forest representatives are divergent from their Pantepuian and even more from their Andean congeners; a few examples from the Lycaenidae are presented in Table 1.

Table 1. Examples of Panamerican Lycaenidae genera with divergent Atlantic representatives (according to the source given)

Genus	Atlantic species	Species in genus
Arcas Swainson, [1832]	*A. arcadia* Bálint, 2006, *A. ducalis* (Westwood, [1851])	10 (Bálint 2006)
Atlides Hübner, [1819]	*A. cosa* (Hewitson, [1867]), *A. mishma* D'Abrera, 1995, *A. polama* (Schaus, 1902)	20 (Robbins 2004*b*)
Denivia Johnson, 1992	*D. chaluma* (Schaus, 1902), *D. curitabaensis* Johnson, 1992, *D. deniva* (Hewitson, [1874]), *D. espiritosanto* Bálint & Moser, 2007	16 (Bálint & Moser 2007)
Ipocia Brévignon, 2000	*I. batesii* (Hewitson, [1865])	3 (Brévignon 2000)
Lamprospilus Geyer, [1832]	*L. japola* (Jones, 1912)	18 (Warren *et al.* 2024)
Paraspiculatus Johnson & Constantino, 1997	*P. catrea* (Hewitson, [1874]), *P. hannelore* Bálint & Moser, 2001, *P. vossoroca* Bálint & Moser, 2001	17 (Busby *et al.* 2017)
Theritas Hübner, 1818	*T. drucei* (Lathy, 1926)	8 (Bálint *et al.* 2007)

Wing dorsal surface colouration – The dorsal wing surface of *Thaeides hyperion* **n. sp.** males is blue, having normalized SP 465 nm (460 nm and 470 nm measured in two specimens) with a reflectance slightly less than 40%. The *T. hyperion* **n. sp.** spectrum shape is relatively flat, similar to that of *T. annandon*, but the latter specimen is more reflective and has a somewhat darker blue with SP 450 nm, therefore it shows a slightly different shape. The shape of the spectrum of the Aragua *T. theia* male differs from others. It has a steep side below 400 nm and a sharp peak at 410 nm, then the spectrum has a wide plateau smoothly descending to 500 nm (Fig. 15). This northern Venezuelan population has a characteristic female with the most different spectrum (Figs. 15–16), which may indicate a distinct taxonomic status.

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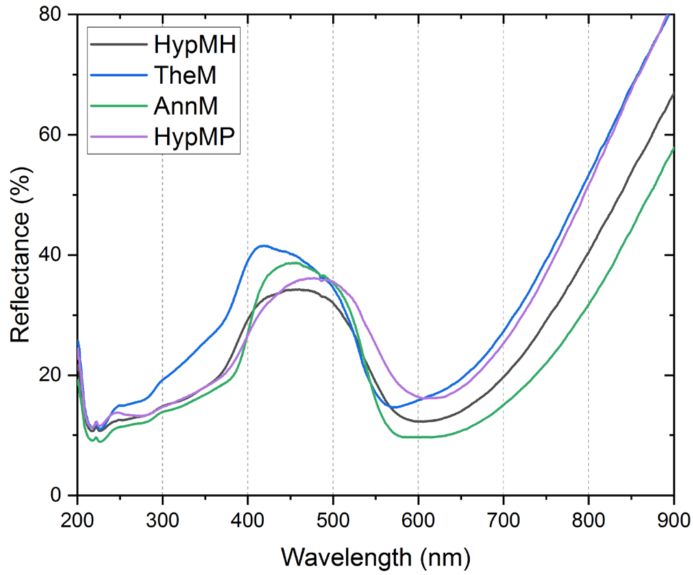

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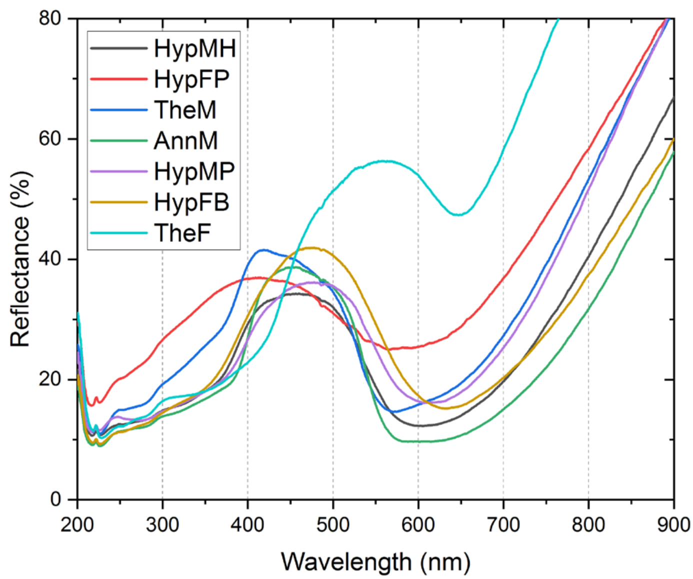

Figures 15–16. Normalized dorsal forewing spectra of *Thaeides* species. In Figure 15 only males are shown for clarity, in Figure 16 male and female spectra are shown together. HypMH= *T. hyperion* **n. sp.**, male (holotype); HypFP= *ditto*, female (purple morph); TheM= *T. theia*, male (Venezuela: Aragua); AnnM= *T. annandon*, male; HypMP= *T. hyperion* **n. sp.**, male (paratype); HypFB= *T. hyperion* **n. sp.**, female (blue morph); TheF= *T. theia*, female (Venezuela: Aragua); compiled by K. Kertész

Three of the four known *Thaeides hyperion* **n. sp.** female individuals have a dorsal wing surface ground colour that is similar to the male as evidenced by the specimens measured. The difference between the sexes is the degree of reflectance, which seems to be higher in the female. Notably, there is a purple-coloured female specimen with a spectrum characteristically shaped with a SP just over 400 nm and a 40% reflectance. Probably, there are two colour morphs of *T. hyperion* **n. sp.** female, a hypothesis that should be tested by additional sampling. Nevertheless, the females of the Andean and northern Venezuelan (Aragua) populations are green coloured with very high reflectance (Fig. 16, D'Abrera 1995: 1127; Prieto *et al.* 2024: fig. 5), which facilitates the distinction of *T. hyperion* **n. sp.** females.

*

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A pántepui lepkéi, XVI. rész: A *Thaeides* Johnson, Kruse & Kroenlein, 1997 génusz új faja (Lycaenidae: Theclinae: Eumaeini)

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Összefoglalás – A Guyana-pajzs táblahegyeinek (tepui) magaslatán gyűjtött példányok alapján új nappali lepkefaj (Lepidoptera:Papilionoidea) kerül leírásra: *Thaeides hyperion* Bálint, Costa & Grishin, **n. sp.** (Lycaenidae: Theclinae: Eumaeini = Lángszinérfélék: Farkröpérformák: Farkincás-rokonúak). A hegyvidéki területekhez való alkalmazkodása miatt valószínűleg a Pántepui állatföldrajzi tartomány endemikus faja. 16 ábrával, egy táblázattal.

Kulcsszavak – Auyán Tepui, Brazília, endemizmus, nemi szervek morfológiája, molekuláris analízis, Ptarí Tepui, spektrális jellemzők, szárnytöredékek, Yaví Tepui, Venezuela

* levelező szerző.

ÁBRA ÉS TÁBLAMAGYARÁZATOK

1–3. ábrák. *Thaeides hyperion* **n. sp.** típuspéldányok, a szárnyak felszíne (fenti kép) és fonákja (alsó kép) (méretléc: 1 cm). 1 = hím holotípus (LPD # 311); 2 = allotípus (nőstény) (LPD # 81); 3 = hím paratípus (LPD # 306); képek: Katona Gergely.

4–6. ábrák. *Thaeides* példányok, a szárnyak felszíne (fenti kép) és fonákja (alsó kép) (méretléc: 1 cm). 4 = hím *T. theia* (Venezuela, Aragua); 5 = nőstény, *ditto*, female; 6 = hím *T. annandon*, (Brazília, Rio Grande do Sul); képek: Katona Gergely.

7–8. ábrák. *Thaeides hyperion* **n. sp.** ivarszervek oldalnézetben. 7 = hím; 8 = nőstény; méretléc: 1.2 mm; képek: Bálint Zsolt, összeálította: Katona Gergely.

9. ábra. A *Thaeides hyperion* **n. sp.** ismert elterjedése (fehér pöttyök piros gyűrűvel); összeállította: Mauro Costa.

10. ábra. Táblahegy lábánál alacsonyan növő örökzöld esőerdő: Venezuela, Bolívar, Auyán Tepui, El Peñón; kép: Mauro Costa.

11. ábra. Táblahegy tetején alacsonyan növő örökzöld erdő: Venezuela, Bolívar, Auyán Tepui, El Dragón; kép: Mauro Costa.

12–13. ábrák. Szabadban gyűjtött *Thaeides hyperion* **n. sp.** paratípus hím szárnyak felszíne (bal oldal) és fonákja (jobb oldal). 12 = jobb elülső szárny, Campo Lecho, Auyán Tepui, 2019. II. 5., Costa (LPD # 369); 13 = bal hátulsó szárny, Talud Ptarí Tepui, 1500 m, 2015.XII.15, Costa (LPD # 368); képek: Mauro Costa.

14. ábra. A *Thaeides* génusz és külcsoportjainak fehérjekódoló régiókból kikövetkeztetett filogenetikus fái; a = nukleáris genomból (autoszómák, 9 558 282 pozíció); b = Z kromoszómából (227 031 pozíció, túl kevés pozíciót szekvenáltak az NVG-23032D12-ben ahhoz, hogy bekerüljenek ebbe a fába); c = a mitokondriális genom. A SAMN18673399 szekvenciáját a Kawahara és munkatársai (2023) által megadott illesztésből vettük. A *T. theia* csoport fajait különböző színekkel ábrázoltuk. Minden példány esetében a fajnevet követi a DNS-minta száma (NVG-előtag nélkül), a típus jellege (HT = holotípus és PT = paratípus), az általános lelőhely és a gyűjtés éve (ha ismert); összeállította: Nick Grishin.

15–16. ábrák. *Thaeides* fajok elülső szárnyainak felszínén mért normalizált spektrumok. Az áttekinthetőség kedvéért a 15. ábrán csak a hímek, a 16. ábrán a hím és nőstény spektrumok együtt láthatók. HypMH = *T. hyperion* **n. sp.**, hím (holotípus); HypFP = u. a., nőstény (lila változat); TheM = *T. theia*, hím (Venezuela: Aragua); AnnM = *T. annadon*, hím; HypMP= *T. hyperion* **n. sp.**, hím (paratípus); HypFB = *T. hyperion* **n. sp.**, nőstény (kék változat); TheF = *T. theia*, nőstény (Venezuela: Aragua). Összeállította: Kertész Krisztián.

1. táblázat. Pánamerikai elterjedésű Lángszinérfélék (Lycaenidae) nemzetségei, különösképpen eltérő atlantikus fajokkal (a megadott források szerint).

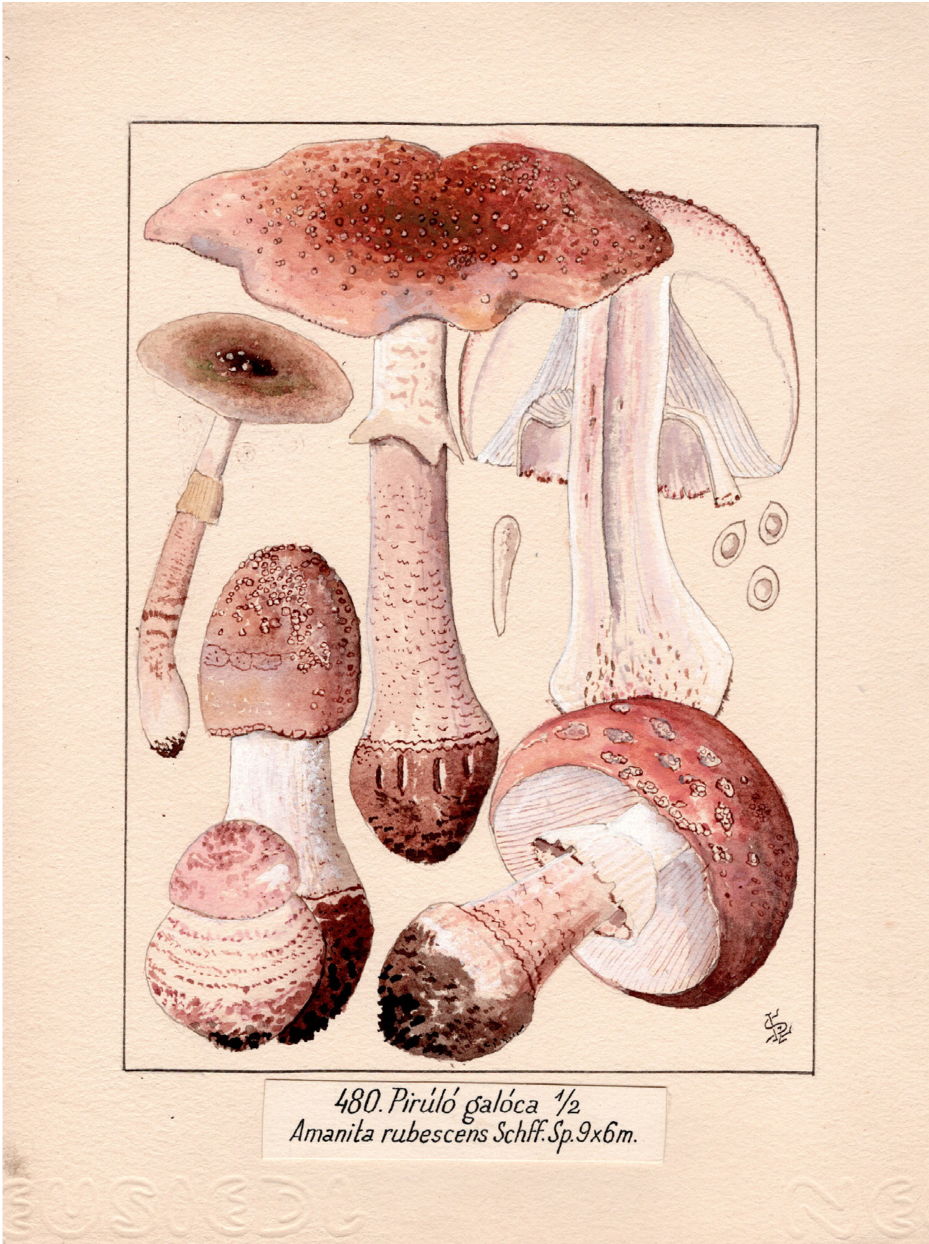
A gombák felismeréséhez nagyon fontos a termőtestek fejlődési állapotának, alakjának és színeinek alapos vizsgálata. Csak szöveges leírás alapján igen nehéz meghatározni a gombákat. Legjobb, ha a természetben vizsgáljuk őket. A megismerésben nagy segítség a kellő alapossággal kidolgozott gombarajzok vagy festmények sorozata, amely fajjellemzésekkel társul. A mikológus Szemere László élete végéig tudatában volt ennek, így kiváló megfigyelőképessége és rajzkészsége révén számtalan művészi akvarell került ki a kezei alól. 1960-ban a Természettudományi Múzeum megvásárolta 787 db saját készítésű, színes gombafestményét. Ezek között zömmel bazídiumos gombák ábrázolása található, de számos földalatti, aszkuszos (tömlős) gombafaj is része a kollekciónak. A festményekhez kézzel írott fogalmazványt mellékelt „Gombatábláim története" címmel, amelyből kiderül, hogy korábban Magyarország nagygombáiról részletesebb átfogó mű kiadását tervezte, amelyhez illusztrációként szerette volna felhasználni az akvarelleket. Más forrásokból úgy tudjuk, hogy ez azért nem valósult meg, mert a mű kézirata elveszett a második világháborús időszakban.

Locsmándi Csaba, *Gombagyűjtemény, Növénytár*

···•···

In order to recognize mushrooms, it is very important to thoroughly examine the actual developmental state, shape and colour of the fruiting bodies. It is very difficult to identify mushrooms based on solely textual descriptions. It is best to study them in nature. A series of drawings or paintings with sufficient thoroughness, associated with species characteristics, is a great help in getting to know mushrooms. In his whole life the mycologist László Szemere was aware of these, so thanks to his excellent observational and drawing skills, countless artistic watercolours were produced by his talented hands. In 1960 the Hungarian Natural History Museum acquired the collection of his 787 colorful mushroom paintings. Among them, there are mostly depictions of members of basidiomycota, but several species of ascomycota fungi are also represented. He attached a handwritten text to the paintings entitled "The Story of My Mushroom Plates", which reveals that he previously planned to publish a more detailed and comprehensive work on the larger mushrooms of Hungary, in which he wanted to use his own watercolours as illustrations. According to other sources, that could not be realised because his manuscript was lost during the Second World War.

Csaba Locsmándi, *Mycological Collection, Department of Botany*



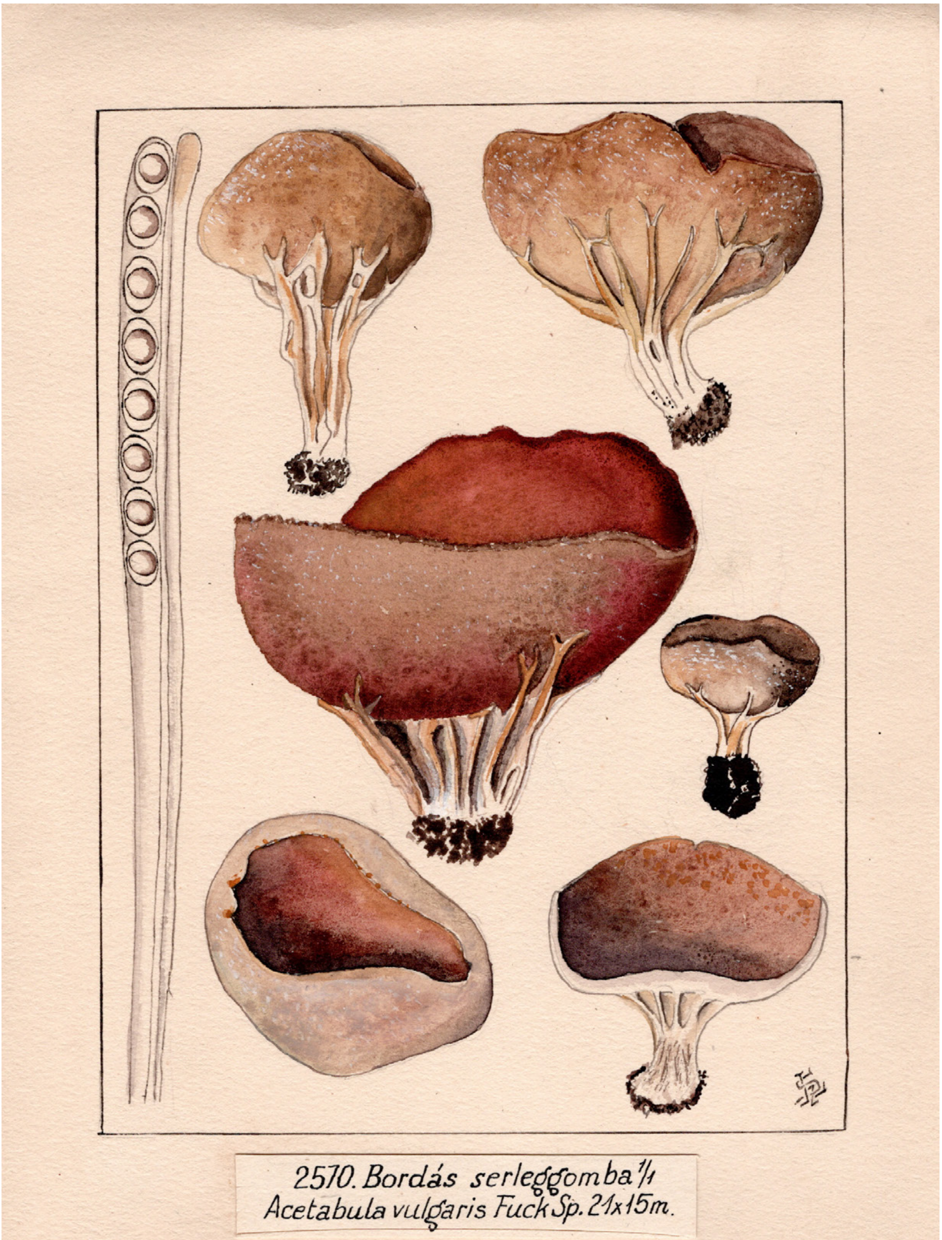
Piruló galóca (*Amanita rubescens*)

…•●•…

The Blusher (*Amanita rubescens*)

Gyapjas tintagomba (*Coprinus comatus*)

Shaggy Ink Cap (*Coprinus comatus*)



Bordás serleggomba (*Helvella acetabulum*)

Vinegar Cup (*Helvella acetabulum*)

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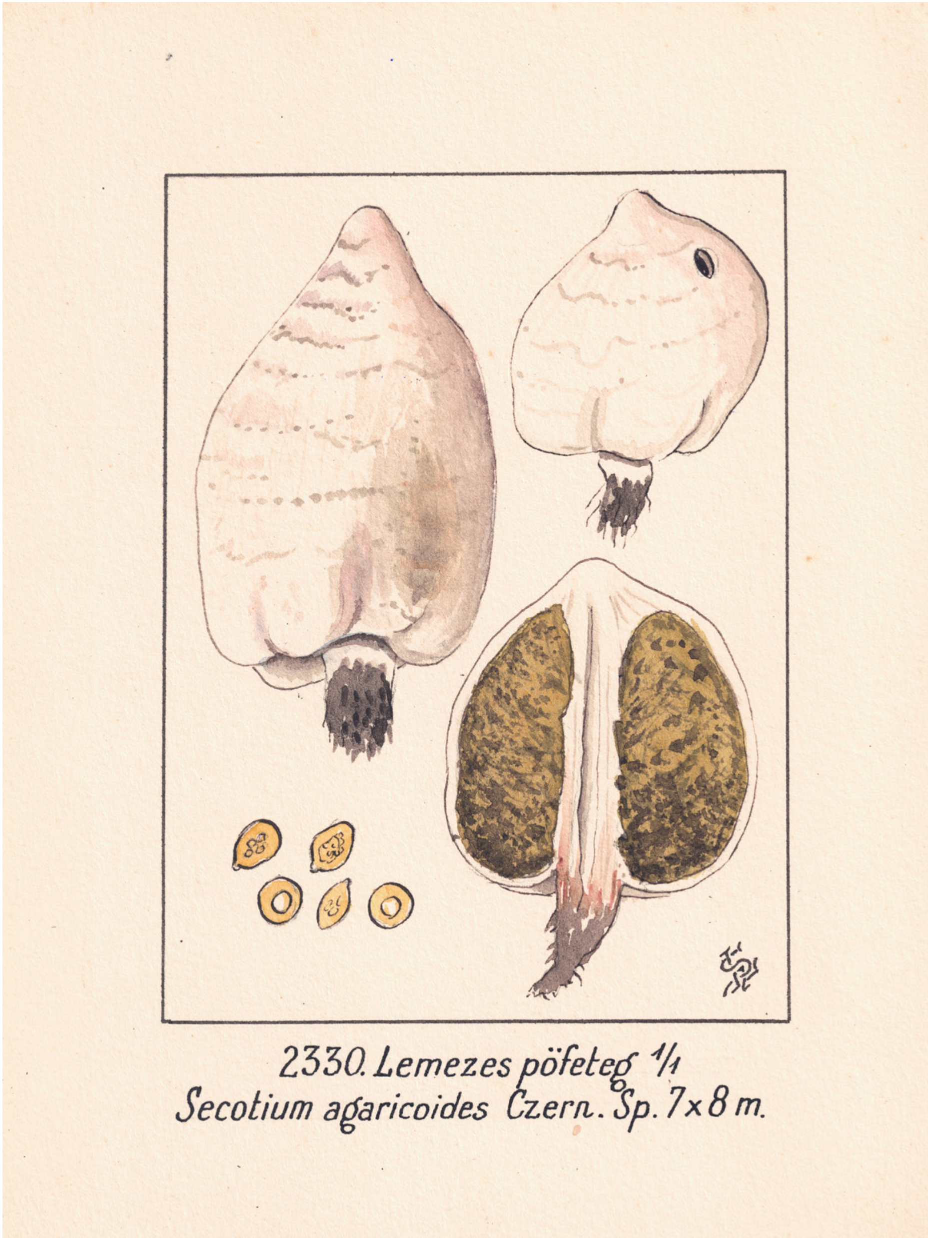

Lemezes pöfeteg (*Chlorophyllum agaricoides*)

Gasteroid lepiota (*Chlorophyllum agaricoides*)

ÚJ TAXONOK JEGYZÉKE

LIST OF NEW TAXA

Capys arba Sáfián & Fric, **sp. n.** – *Annales Musei historico-naturalis hungarici* **116**: 138 (available: 2024.06.03). Insecta: Lepidoptera: Lycaenidae: Theclinae. Holotype: male, Ethiopia: Dorze Lodge (2400 m), 11–30.I.2015. N 06 10 56, E 037 34 35, Vladimir Major leg.; unique code: ZF-LY-002867; deposited in Nature Education Centre of the Jagiellonian University (Kraków, Poland).

Capys moroto Sáfián & Collins, **sp. n.** – *Annales Musei historico-naturalis hungarici* **116**: 139 (available: 2024.06.03). Insecta: Lepidoptera: Lycaenidae: Theclinae. Holotype: male, Uganda: Mount Moroto, XI.2013. Leg.: Jean-Pierre Lecieux; deposited in African Butterfly Research Institute (Nairobi, Kenya).

Capys robertsi Collins & Sáfián, **sp. n.** – *Annales Musei historico-naturalis hungarici* **116**: 141 (available: 2024.06.03). Insecta: Lepidoptera: Lycaenidae: Theclinae. Holotype: male, Kenya: Mount Kenya, 25.X.2003, Mount Kenya, 10 400 Ft, moorlands above Marania, Bred. Collins; deposited in African Butterfly Research Institute (Nairobi, Kenya).

Capys smithi Takano & Sáfián, **sp. n.** – *Annales Musei historico-naturalis hungarici* **116**: 142 (available: 2024.06.03). Insecta: Lepidoptera: Lycaenidae: Theclinae. Holotype: male, Ivory Coast: Comoe National Park, Comoe 2, 27.VI–02.VII.[20]15. Open forest. Leg. Aristophanous, M., Moretto, P., Ruzzier, E. ANHRT unique number: ANHRTUK00194563; deposited in African Natural History Research Trust (Leominster, United Kingdom).

Diadegma kovacsi Vas, **sp. n.** – *Annales Musei historico-naturalis hungarici* **116**: 259 (available: 2024.10.28). Insecta: Hymenoptera: Ichneumonidae: Campopleginae. Holotype: female, Argentina: El Bolsón, 1959.X.25, leg. Kovács A., specimen pinned, id. HNHM-HYM 155285; deposited in the Hymenoptera Collection of the Hungarian Natural History Museum (Budapest, Hungary).

Diadegma topali Vas, **sp. n.** – *Annales Musei historico-naturalis hungarici* **116**: 244 (available: 2024.10.28). Insecta: Hymenoptera: Ichneumonidae: Campopleginae. Holotype: female, Argentina: S. Arg. [= South Argentina], Rio Negro [Province], El Bolsón, [leg. Gy.] Topál, Nr. 639 [= Loma del Medio, 350 m, beaten from plants in inundation area of Rio Quemquemtreu], 18.X.[19]61, specimen pinned, id. HNHM-HYM 155286; deposited in the Hymenoptera Collection of the Hungarian Natural History Museum (Budapest, Hungary).

Hyposoter daeva Vas, **sp. n.** – *Annales Musei historico-naturalis hungarici* **116**: 240 (available: 2024.07.15). Insecta: Hymenoptera: Ichneumonidae: Campopleginae. Holotype: female, Iran: Abu Ask, Elburgsgeb. [= Alborz Mts], 2000 m, 12.VIII.1960, leg. [J. F.] Klapperich, specimen card-mounted, id. HNHM-HYM 155277; deposited in the Hymenoptera Collection of the Hungarian Natural History Museum (Budapest, Hungary).

Nemeritis centurio Vas, **sp. n.** – *Annales Musei historico-naturalis hungarici* **116**: 244 (available: 2024.07.15). Insecta: Hymenoptera: Ichneumonidae: Campopleginae. Holotype: female, Agentina: S. Arg. [= South Argentina] Rio Negro [Province] El Bolsón, [leg. Gy.] Topál, 6.III.[19]61 Nr. 301 [= 350 m, netted along Arroyo Negro], specimen pinned, id. HNHM-HYM 156118; deposited in the Hymenoptera Collection of the Hungarian Natural History Museum (Budapest, Hungary).

Thaeides hyperion Bálint, Costa & Viloria, **sp. n.** – *Annales Musei historico-naturalis hungarici* **116**: 278 (available: 2024.11.25). Insecta: Lepidoptera: Lycaenidae: Theclinae. Holotype: male, Venezuela: Bolívar, Auyán Tepui, El Dragon, 1750 m, 6. II. 2019, Costa/Benmesbah; deposited in Museo del Instituto de Zoología Agrícola, Facultad de Agronomía, Universidad Central de Venezuela (Maracay, Venezuela).

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