

Karawajew's ant type specimens (Hymenoptera, Formicidae) in the National Museum of Natural History of the National Academy of Sciences of Ukraine

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Abstract

The collection of W.A. Karawajew is one of the richest and most famous ant collections of the World. Much of this collection consists of dry mounted specimens, including types of about 550 taxa, housed in the Shmalhausen Institute of Zoology of the National Academy of Sciences of Ukraine (Kiev). Nevertheless, we located a considerable part of Karawajew's collection, containing about 25,000 specimens in alcohol, that is preserved in the National Museum of Natural History of the National Academy of Sciences of Ukraine (Kiev). The latter material was recently examined and we found types of 24 taxa. This type material was partly mounted, re-ordered and catalogued. In this paper we present a catalogue of these type specimens housed in the National Museum of Natural History.

Key words: ants, Formicidae, Karawajew's collection, type specimens, Catalogue, Kiev, Ukraine

Introduction

Vladimir Afanasevich Karawajew (also spelled as Karavaiev or Karavajev) (1864–1939) was one of the outstanding myrmecologists during the first third of the twentieth century. He was born in Kiev (Ukraine), graduated from Kiev University in 1890 and started his scientific career as an assistant in the Department of Zoology in that University. In 1898 and again in 1912–1913 he made expeditions to Java and other Indonesian Islands, where he collected a very rich assortment of various groups of animals, including ants (Karawajew 1899, 1900, 1901a, b, 1913, 1916a, b). In 1919 Karawajew was one of the founders of the Zoological Museum of the Ukrainian Academy of Sciences (Kiev), and he became its first Custodian, donating his huge private zoological collection. He became Director of the Museum in 1927 and remained so until his retirement in 1934. Thereafter, until his death, he remained a senior scientist attached to the Institute of Zoology of the Ukrainian Academy of Sciences (Kiev) (Paramonov 1941).

Besides Indonesia Karawajew collected ants in various European countries, North Africa and the former Soviet Union, especially Ukraine, Crimea, Middle Asia and Caucasus. He published more than 50 papers on taxonomy of ants from the various parts of the Palaearctic and Oriental Regions. In total, he described 3 new genera, 4 subgenera and 260 species and infraspecific forms, about 145 of which are currently considered as good species or subspecies.

As a result, he left for the next generations of entomologists a large collection, in which all specimens are splendidly mounted, labelled, determined and arranged. This collection includes two main parts: mounted dry material, and material in vials with alcohol. The first one consists of about 20,000 dry mounted specimens, including types of about 550 taxa described not only by Karawajew but also donated by his colleagues—A. Forel, C. Emery, M. Ruzsky, W. M. Wheeler, F. Santschi, B. Finzi, K. Menozzi, H. Viehmeier, N. Kuznetzov-Ugamsky, K. Arnoldi and others. It is now preserved in the Shmalhausen Institute of Zoology of the Ukrainian Academy of Sciences (Kiev) (SIZK). The first catalogue of the type specimens of this collection was published by Kostyuk

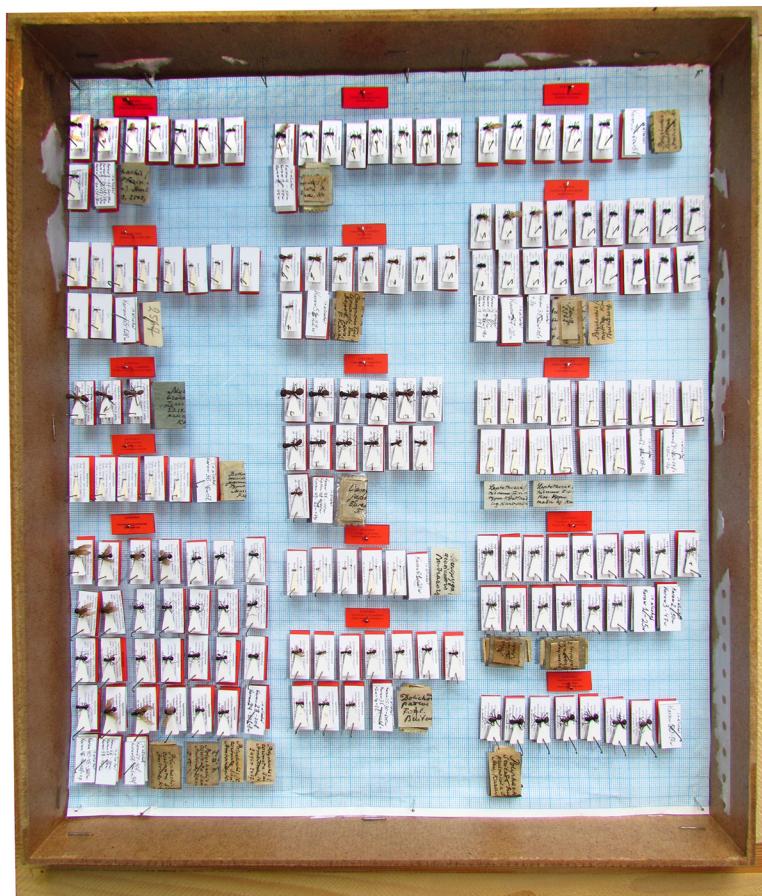
(1976) and a new upgraded catalogue is now under preparation. The alcohol material (Fig. 1) is preserved in the National Museum of Natural History of the National Academy of Sciences of Ukraine (NMNH NASU) and contains about 25,000 ant specimens, including type specimens of 24 taxa. The majority of the material was collected by Karawajew in Java and Ambon Islands (Indonesia) in 1912–1913, though samples from Ukraine, Iran, Russia and various European countries are also preserved in this collection.

Material and methods

There are 7165 type specimens of ants in the NMNH NASU collection. All material (except two specimens) was preserved in vials with alcohol before our investigation. Type specimens were partly mounted recently, and the rest of material was placed in new vials with 80–85% ethanol (Figs 6–8). All material was catalogued.



FIGURES 1–5. Examples of original vials and labels from the Karawajew's ant collection: 1—original vials; 2–5—original labels of the type material.



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handwritten «*Leptothorax*
(Leptothorax) / tuberum F.
v. nigriceps Kar. /
typus Gotland, H. Lohmander /
leg. Karavaiv dt.»
des. Martynov A. 2014

SYNTYPUS
Leptothorax (Leptothorax)
tuberum F.
v. nigriceps Kar.

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FIGURES 6–8. The current storage method for the Karawajew's type material: 6—one of the boxes with the recently mounted material; 7—new container with vials; 8—example of the new labels for mounted and fluid-stored type material.

Some vials have additional labels with inventory numbers (e.g. "№ 99", "№ 89", "№ 104", see Fig. 1) that were put into vials by scientists of NMNH NASU after Karawajew's death. Since those labels give no additional information, they are omitted from the data reported below.

The following abbreviations are used in the catalogue: w—workers; q—queens (gynes); m—males; IN—in alcohol (e.g. IN 314/BAMS1/Karaw43).

In the catalogue we provide first the original combination, with original spellings, accompanied by the year and page of description and caste(-s) described. Then we give the current taxonomic status of the taxon. This is followed by the type locality or localities, a direct citation from the original papers using their language; if the original Karawajew's labels are in Russian, we give their original spelling, and then translation to English [in brackets]. Finally we provide the number of preserved specimens and their current Museum inventory numbers. Taxonomic notes are provided where necessary. The catalogue is ordered alphabetically, by genus, species, and infraspecific taxon.

Catalogue of the type specimens

Acantholepis frauenfeldi var. *splendens* Karawajew, 1912: 586, w, q.

Current status: *Lepisiota splendens*. Combination in *Lepisiota*: Bolton, 1995: 228. Raised to species: Agosti, Collingwood, 1987: 57.

Type locality(-ies): “Umgegend von Kanea, Kreta, am Meerestrand “in Tuff” (13.III.1910. Th. Shebunin und N. Tshebotarev), ww und 1 flugelloses q (Königin).—Ebenda, auf einem Kartoffelfeld unter einem Steine (5.III.1910, Dieselben Sammler), ww”.

Original Karawajew label(-s): “*Acantholepis / frauendorfii / v. splendens* Kar. / typus”, “Крит, Канея [= Crete, Kanea] / Шебунин и Чеботарев [= Shebunin and Chebotarev] / 1910 г.”.

Material: SYNTYPES, 7 w (newly mounted, IN 314/6/2), 403 w (in alcohol, IN 314/BAMS1/Karaw63).

Acropyga acutiventris var. *javana* Karawajew, 1933: 308, w, m.

Current status: junior synonym of *Acropyga acutiventris* Roger, 1862: 243, Sri Lanka. Synonymy: LaPolla, 2004: 31.

Type locality(-ies): “Depok, W. Java, Djungeln, 22.XII.1912 (Nr. 2344), zahlreiche ww von 2,5-3 mm Länge. Kolonie im Boden zwischen den Wurzeln eines großen Baumes, in der Nachbarschaft einer Termitenkolonie.—Buitenzorg, Java, Botan. Garten (Nr. 2370), zahlreiche ww von 3-3,5 mm Länge und mm. Kolonie in der Erde”.

Original Karawajew label(-s): “*Acropyga (Acropyga) / acutiventris v. javana* Kar. / Buitenzorg, 2370.”.

Material: SYNTYPES, 5 w (newly mounted, IN 314/6/1), 211 w (in alcohol, IN 314/BAMS1/Karaw61).

Bothriomyrmex meridionalis Rog. var. *communista* Santschi, 1919: 206, w.

Current status: *Bothriomyrmex communistus*. Raised to species: Emery, 1925: 10.

Type locality(-ies): “Russie (Crimée) (Karawajew leg.) w”.

Original Karawajew label(-s) : “*Bothriomyrmex / meridionalis* Rog. / v. *communista* Sant. / Typus: Santschi / Магарацъ [= Magarach], 26.III.1903. / Рязанцевъ [= Ryazantsev]. № 1600.”.

Material: PARALECTOTYPES, 5 w (newly mounted, IN 314/6/1), 46 w, 5 larvae (in alcohol, IN 314/BAMS1/Karaw36).

Notes. Santschi (1919) described *Bothriomyrmex meridionalis* var. *communista* from workers collected in Crimea by Karawajew, but he did not provide precise locality information or Karawajew's sample number. Later Dubovikoff designated one specimen with the label “Crimée Karawajew” preserved in the collection of the Natural History Museum Basel (Switzerland) as the lectotype, and the second specimen with the same label as the paralectotype (these data were published first by Seifert in 2012).

In the collection of NMNH NASU we found 51 workers with the original Karawajew label “*Bothriomyrmex / meridionalis* Rog. / v. *communista* Sant. / Typus: Santschi / Магарацъ, 26.III.1903. / Рязанцевъ. № 1600” [= Magarach, Ryazantsev] (see also Fig. 2). There are also 3 workers in the Karawajew collection in SIZSK with Karawajew labels “Magaratsh, Tauria, Rjasanzev, 26.III.1903”, “*Bothriomyrmex meridionalis* Rog. v. *communista* Santschi, typus”; the latter workers where designated by Kostyuk (1976) as “Syntypus”. We propose to consider all the material from Magarach as paralectotypes of *B. communista*.

Camponotus japonicus Mayr. var. *sanguinea* Karawajew, 1929b: 212, w, q.

Current status: junior synonym of *Camponotus japonicus* Mayr 1866: 885, Japan. Synonymy: Yasumatsu, Brown, 1951: 36; Radchenko, 1997a: 556.

Type locality(-ies): “Borovnitschi, Sutshan-Rayon im Ussurigebiet, 27.VIII.1926 (Nr. 3109, 3110), P. Verestshak, zahlreiche Soldaten und ww aus der Kolonie.—Strand der Bucht Kosmina in der grösseren Buht Amerika bei Vladivostok, 12.V.1900 (Nr. 3789), P. Schmidt, Soldaten, ww und geflügelte und flügellose qq.—Sivakovka am See Chanka, Ussurigebiet, V.1927 (Nr. 3549), A. Kistjakovskij, 2 Soldaten.—Chailar, Mandshorei (Nr. 3639), Coll. Karavajevi, 1 Soldat.—Zwischen Tshyktenj und Tshaansa, Nordkorea, 3.VIII.1900 (Nr. 3589), P. Schmidt, 1 Soldat”.

Original Karawajew label(-s): “*Camponotus (Camponotus) / japonicus* Mayr / Бровничи Сучан. р. Примор. об. / П. Верещак. 3109 и др. [Brownichi Suchan Distr. Primorsky Prov. / P. Vereschak. Nr. 3109 et al.]” (see also Fig. 3).

Material: SYNTYPES, 13 w (newly mounted, IN 314/6/1), 232 w, 10 pupae (in alcohol, IN 314/BAMS1/Karaw47–49).

Notes. Despite the original Karawajew label identifying this taxon as *Camponotus japonicus*, the locality and collection numbers correspond to the data for the type specimens of var. *sanguinea* (Karawajew 1929b). Moreover, in the Karawajew collection at SIZK there is abundant material with the same labels and an additional original Karawajew label “*Camponotus (Camponotus) japonicus* Mayr v. *sanguinea* Karawajew typus”.

Camponotus leonardi Em. var. *grisea* Karawajew, 1929c: 243, ww.

Current status: *Camponotus leonardi griseus*.

Type locality(-ies): “Depok bei Bujtenzorg, Java, 12.XII.1912 (Nr. 2351), Soldaten. – Tjampea bei Bujtenzorg, 20.XII.1912 (Nr. 2389), Soldaten und ww.—Bujtenzorg (Nr. 3851), ww”.

Original Karawajew label(-s): “*Camponotus (Colobopsis) / leonardi* Em. v. *grisea* Kar. / Depok, Java, 12.XII.1912, 2351 / V. Karavaiev”.

Material: SYNTYPES, 8 w (newly mounted, IN 314/6/1), 22 w, 10 pupae (in alcohol, IN 314/BAMS1/Karaw51).

Leptothorax (Leptothorax) tuberum F. var. *nigriceps* Karawajew, 1930: 146, w, q (also described as a new taxon: Karawajew, 1931: 212).

Current status: **junior synonym** of *Temnothorax tuberum* Fabricius, 1775, w, Sweden. Synonymy: Radchenko, 1995: 14 (as synonym of *Leptothorax tuberum*; see also Bolton, 2003).

Type locality(-ies): “Gotland (44 Fundorte, 47 Proben): 2, 3, 11, 12, 31, 32, 38, 39, 41, 43, 68, 72, 75, 79, 79*, 80, 81, 91, 103, 107, 108, 111, 192, 193, 194, 206, 207, 217, 218, 220, 221, 221*, 225, 226, 228, 229.”

Oeland: (19 Fundorte, 21 Proben): 2,b, 3, 9, 12,c, 15,c, 15,e, 18,a, 18,f, 22, 27,e, 35,d, 35,h, 36,a, 36,c, 41,b, 42,b, 51,c, 52,b, 55, 57,a, 69,c, 80,c” (for details of these localities see Karawajew, 1930, pp. 110–144).

Original Karawajew label(-s): “*Leptothorax (Leptothorax) / tuberum* F. v. *nigriceps* Kar. / typus. Gotland, H. Lohmander / leg. Karavaiev dt.”; “*Leptothorax (Leptothorax) / tuberum* F. v. *nigriceps* Kar. typus. Oeland, Loh- / mader leg. Karavaiev det.”.

Material: SYNTYPES, 12 w, 2 q, 1 m (newly mounted, IN 314/6/1), 1078 w, 61 q, 40 m, 12 pupae (in alcohol, IN 314/BAMS1/Karaw62, 64).

Notes. Karawajew (1930, 1931) had investigated abundant material from Sweden (including Islands Gotland and Öland) collected by H. Lohmander. He had recorded for these territories only three species from the former genus *Leptothorax*: *L. acervorum* (F.), *L. muscorum* (Nyl.), and *L. tuberum nigriceps* (for the details of the taxonomic history of this genus see Bolton 2003). Thus, any material of var. *nigriceps* collected by Lohmander in Sweden and preserved in Karawajew’s collection could be considered as syntypes of this taxon.

Liometopum microcephalum Panz. var. *orientalis* Karawajew, 1927b: 339, w.

Current status: *Liometopum orientalis*. Raised to species: Kupyanskaya, 1988: 29.

Type locality(-ies): “Sutsch-Bergmine, Ussurigebiet, 20.VII.1926 (Nr. 3082), Kotschubej, zahlreiche ww”.

Original Karawajew label(-s): “*Liometopum / microcephalum* Panz. / Сучанский рудн. Уссур. об. / Кочубей / Караваев det. 3082 [Suchansky mine, Ussuri Prov. / Kochubei leg. / Karawajew det.”.

Material: SYNTYPES, 5 w (newly mounted, IN 314/6/2), 266 w (in alcohol, IN 314/BAMS1/Karaw69, 70).

Myrmecocystus (Cataglyphis) bicolor F. subsp. *bellicosus* Karawajew, 1924: 307, w.

Current status: *Cataglyphis bellicosus*. Combination in *Cataglyphis*: Agosti, 1990: 1487. Raised to species: Radchenko, 1997b: 434.

Type locality(-ies): “Steinbruch bei Douchat-abad, 4 Kilometer südwärts von Teheran (Persien), 23.IX.1916, Bocquillon, Arbeiter. Typen in meiner Sammlung und dem Kaukasischen Museum (Tiflis)”.

Original Karawajew label(-s): “*Myrmecocystus (Cataglyphis) / bicolor* F. subsp. *Bellicosus* Karav. / Типус V. Karavaiev, 1916 / 23.IX.1916 Доухан-абадъ бл. Теге- / рана, Персия. Неизв. собиратель. Кавк. Муз. [= Doukhan-abad near Teheran, Persia, Unknown collector, Caucasian Museum]” (see also Fig. 4).

Material: SYNTYPES, 3 w (newly mounted, IN 314/6/1).

Notes. The type locality was given in the original description as “Douchat-abad” (in German), but in the original labels this place was spelled in Russian as “Доухан-абадъ” [= Doukhan-abad, in English].

Radchenko (1997b) believed that the type specimens of *C. bellicosus* were lost and designated the neotype worker: “Керман, ю-в Персия, В. Кузнецов, 23.III.928” [= Kerman, SE Persia, V. Kuznetsov]. As the syntype specimens of this species have been found, the neotype specimen has lost its taxonomic value.

Myrmica rugulosa Nyl. var. *minuta* Karawajew, 1929b: 206, w, m. Junior primary homonym of *Myrmica minuta* Say, 1836: 294 and *Myrmica laevinodis* var. *minuta* Ruzsky, 1905: 670. Replacement name: *Myrmica constricta* Karawajew, 1934: 74.

Current status: *Myrmica constricta* (see also Note below).

Type locality(-ies): "Umgegend von Kiew, jenseits des Dnjepr, Kiefernwald hinter der Nikolskaja Slobodka, 1.VIII.1919 (Nr. 2770), W. Karawajew, ww und einige mm aus dem Nest".

Original Karawajew label(-s): "*Myrmica (Myrmica) rugulosa* var. *slobo-* / *densis* Karav. / Никольск. слоб. бл. / Киева. Караваев [= Nikolskaya Slobodka near Kiev Karawajew], 2770" (see also Fig. 5).

Material: SYNTYPES, 12 w (newly mounted, IN 314/6/2), 621 w (in alcohol, IN 314/BAMS1/Karaw52, 53).

Notes. The name *M. rugulosa* var. *minuta* Karawajew, 1929b was preoccupied and Karawajew (1934) proposed the replacement name *M. rugulosa* var. *constricta*. Simultaneously Arnoldi (1934) also gave the replacement name var. *slobodensis* for Karawajew's var. *minuta*, referring it to "Karavajev 1932," Most probably Arnoldi expected that a paper by Karawajew would be published in 1932 using this name because he had discussed the matter with Karawajew and in private correspondence (see Karawajew 1936: 274). Later Karawajew (1936) believed that Arnoldi's name *slobodensis* had priority and used it instead *constricta*. However, Arnoldi's (1934) name *Myrmica rugulosa rugulosa* var. *slobodensis* is unavailable (quadrinomen) and therefore the first available use of the name *M. rugulosa* var. *slobodensis* was made by Karawajew (1936). Consequently, the name *M. rugulosa* var. *constricta* Karawajew, 1934 has priority over *slobodensis* and the latter must be considered as an unnecessary proposed replacement name. Later Arnoldi considered var. *slobodensis* (= *constricta*) to be a junior synonym of *M. rugulosa* (Arnoldi 1970; see also Radchenko 1994), whereas Radchenko (2009) believed it to be a synonym of *M. hellenica* Finzi. Most recently, Seifert et al. (2009) showed that *M. constricta* is morphologically distinct from *M. hellenica* and can be considered as a good species (see also Radchenko & Elmes 2010).

***Podomyrma basalis reyi* Karawajew, 1935: 99, w.**

Current status: ***Podomyrma basalis reyi*.**

Type locality(-ies): "Ambo, 18.II.1913, W. Karawajew, Nr. 2490, 6 w, im Garten des Herrn Rey auf Palmen gesammelt.—Tifo auf der Insel Boeroe Derslebe, Nr. 2438, zahlreiche ww".

Original Karawajew label(-s): "*Podomyrma basalis / reyi* Karavaiev, typus / Tifu auf Buru, 2438.".

Material: SYNTYPES, 9 w (newly mounted, IN 314/6/2), 26 w (in alcohol, IN 314/BAMS1/Karaw59).

***Polyrhachis (Myrmatopa) fruhstorferi* Em. var. *arcuata* Karawajew, 1927a: 9, w.**

Junior secondary homonym of *Polyrhachis arcuata* (Le Guillou, 1842: 315); junior primary homonym of *Polyrhachis hostilis* var. *arcuata* Stitz, 1911: 378. Replacement name: *Polyrhachis (Myrmatopa) fruhstorferi* var. *torta* Santschi, 1928: 139.

Current status: ***Polyrhachis (Myrmatopa) fruhstorferi torta*.**

Type locality(-ies): "Ambo, 10.II.1913, ww".

Original Karawajew label(-s): "*Polyrhachis (Myrmatopa) / fruhstorferi* Em. v. *torta* / Sant. (n. nom.) Amboina, / Karavaev, 2443".

Material: SYNTYPES, 7 w (newly mounted, IN 314/6/2), 29 w (in alcohol, IN 314/BAMS1/Karaw54).

***Polyrhachis (Hagiomyrma) denticulata* Karawajew, 1927a: 13, w.**

Current status: ***Polyrhachis (Hagiomyrma) denticulata*.**

Type locality(-ies): "Amboina, 11.I.1913 (Nr. 3008), ww".

Original Karawajew label(-s): "*Polyrhachis (Hagiomyrma) / denticulata* Karav. typus / Amboina, Karavaev, 3008.".

Material: SYNTYPES, 7 w, 1 q (newly mounted, IN 314/6/1), 134 w (in alcohol, IN 314/BAMS1/Karaw4–6).

***Polyrhachis (Myrmatopa) schang* For. var. *gracilior* Karawajew, 1927a: 11, w, q, m.**

Junior primary homonym of *Polyrhachis furcata* r. *gracilior* Forel, 1893: 25. Replacement name: *Polyrhachis (Myrmatopa) schang* For. var. *amboinæ* Santschi, 1928: 139.

Current status: ***Polyrhachis (Myrmatopa) schang amboinæ*.**

Type locality(-ies): "Amboina (Leitimor und Hito), 20.II.1913 (Nr. 2501, 2503), ww, geflüg. qq, 1 Königin, mm und 2 Ergatogynen".

Original Karawajew label(-s): "*Polyrhachis (Myrmatopa) / schang* For. v. *amboinæ* Sant. / (n. nom.). Amboina, Karavaev, / 2502, 2503, 2504".

Material: SYNTYPES, 4 w, 2 q, 2 m (newly mounted, IN 314/6/1), 142 w, 10 q, 13 m (in alcohol, IN 314/BAMS1/Karaw7–10).

Notes. In his original description Karawajew (1927a) provided the collection numbers 2501 and 2503 for the type series of this taxon, while in the single vial with alcohol material in NMNH NASU there are original Karawajew labels with collection numbers 2502, 2503 and 2504. We investigated several tens of workers, queens and males from this vial and confirm their conspecificity. We may only suppose that Karawajew did not provide all the collection numbers when describing this taxon, and we consider all the material from NMNH NASU as syntypes.

Polyrhachis (Myrmhopla) keratifera Karawajew, 1927a: 39, w, q.

Current status: ***Polyrhachis (Myrmhopla) keratifera***.

Type locality(-ies): “Amboina, 23.II.1913 (Nr. 2505), zahlreiche ww, geflüg. qq und Larven aus einem Nest”.

Original Karawajew label(-s): “*Polyrhachis (Myrmhopla) / keratifera* Karavaev, typus / 2505. Amboina, Karavaev”.

Material: SYNTYPES, 4 w, 1 q (newly mounted, IN 314/6/1), 60 w, 5 q (in alcohol, IN 314/BAMS1/Karaw22).

Polyrhachis (Aulacomyrma) mystica Karawajew, 1927a: 41, w, q, m.

Current status: **junior synonym of *Polyrhachis cryptoceroides* Emery, 1887: 228, w, Indonesia (Sulawesi).**

Synonymy: Dorow, 1995: 51.

Type locality(-ies): “Buitenzorg, 20.XII.1912 (Nr. 2323), ww, geflüg. qq und mm aus einem Nest”.

Original Karawajew label(-s): “*Polyrhachis (Aulacomyrma) / mystica* Kar. 2323 / Buitenzorg, Karavaev”; “*Polyrhachis (Aulacomyrma) / mystica* Karav. typus. / Tjiapus bei Buitenzorg, Java. 2362. / Leg. et det. V. Karavaiev” and “Tjiapus, Java, / Karav., 2362.”; “*Polyrhachis (Aulacomyrma) / mystica* Karav. typus. / Tjiapus bei Buitenzorg, Java. 2362. / Leg. et det. V. Karavaev” and “*Polyrhachis (Aulacomyrma) / mystica* Kar. 2362 / Buitenzorg Buitenzorg, Karavaiev.”.

Material: SYNTYPES, with original Karawajew number 2323: 4 w, 1 q, 1 m (newly mounted, IN 314/6/1), 208 w, 37 q, 12 m (in alcohol, IN 314/BAMS1/Karaw14–17); with original Karawajew number 2362: 11 w, 1 q (newly mounted, IN 314/6/1), 58 w, 25 larvae, 3 pupae (in alcohol, IN 314/BAMS1/Karaw37–38).

Notes. In his original description Karawajew (1927a) provided the collection number 2323 for the type series of this taxon. We found in the NMNH NASU two vials with *P. mystica*: one has the number 2323 (as in the original description), but in the other one bears n° 2362, while material was also marked as “typus” (see above). We compared material from both vials, as well as with the type specimens with collection number 2323 from SIZK, and confirm their conspecificity. We may only suppose that Karawajew did not provide both collection numbers when described this taxon, and we consider the specimens from both samples as syntypes.

Polyrhachis (Cyrtomyrma) obsidiana Karawajew, 1927a: 50, w, q, m.

Junior primary homonym of *Polyrhachis (Myrma) gagates* subsp. *obsidiana* Emery, 1921: 21. Replacement name: *Polyrhachis (Cyrtomyrma) coronata* Santschi, 1928: 140.

Current status: **junior synonym of *Polyrhachis goramensis* Emery, 1887: 239, w, Indonesia (Goram Isl.).** Synonymy: Kohout, 1998: 527.

Type locality(-ies): “Amboina, 19.II.1913 (Nr. 2496), zahlreiche ww.—Ebenda (Nr. 2479, 2490, 2497), ww, qq und mm”.

Original Karawajew label(-s): “*Polyrhachis (Cyrtomyrma) / obsidiana* Karavaev / typus. Amboina, 2497 / Karavaev.” and “*Polyrhachis (Myrmhopla) / coronata* Sant. (n. nom.) / Amboina, Karavaev, 2497”; “*Polyrhachis (Cyrtomyrma) / obsidiana* Karavaev, typus / Amboina, 2497, Karavaev” and “*Polyrhachis (Cyrtomyrma) / coronata* Sant. (n. nom.) / Amboina, Karavaev, 2497”; “*Polyrhachis (Cyrtomyrma) / coronata* Sant. (n. nom.) / Amboina, Karavaev, 2496”; “*Polyrhachis (Cyrtomyrma) / coronata* Sant. (n. nom.) / Amboina, Karavaev, / 2496+2497”.

Material: SYNTYPES, 18 w, 9 q (newly mounted, IN 314/6/1), 544 w, 190 q, 1 m, 1 pupa (in alcohol, IN 314/BAMS1/Karaw40–46, 56–58, 67, 68).

Polyrhachis (Myrmhopla) tibialis Sm. var. *orientalis* Karawajew, 1927a: 38, w, q.

Current status: *Polyrhachis (Myrmhopla) tibialis orientalis*.

Type locality(-ies): “Amboina (2508, 2457), zahlreiche ww aus einem Nest (2457) gesammelt.—Ebenda (Nr. 2480), ww und 1 geflüg. q.—Tifu (Ins. Buru), (Nr. 2439, 2737), ww”.

Original Karawajew label(-s): “*Polyrhachis (Myrmhopla) / tibialis* Sm. var. *orientalis* Kar. / typus. Amboina, 2480, Karavaev”; “*Polyrhachis (Myrmhopla) / tibialis* Sm. v. *orientalis* Kar. / typus. Amboina, 2457, 2508 / Karavaev leg.”.

Material: SYNTYPES, 15 w (newly mounted, IN 314/6/1), 122 w (in alcohol, IN 314/BAMS1/Karaw1–3).

Polyrhachis (Myrma) sericata Guér. subsp. *pruinosa* Karawajew, 1927a: 48, w.

Junior primary homonym of *Polyrhachis pruinosa* Mayr, 1872: 142. Replacement name: *Polyrhachis (Myrma) sericata* var. *pruinosa* Santschi, 1928: 139.

Current status: **junior synonym** of *Polyrhachis litigiosa* Emery, 1897: 581, w, New Guinea. Synonymy: Kohout, 1998: 522.

Type locality(-ies): “Wammar, Aru, 19.III.1913 (Nr. 2618), zahlreiche ww”.

Original Karawajew label(-s): “*Polyrhachis (Myrma) / sericata* Guér. subsp. / *pruinosa* Sant. (n. nom.) / Aru, Karavaev, 2618”.

Material: SYNTYPES, 7 w (newly mounted, IN 314/6/1), 17 w (in alcohol, IN 314/BAMS1/Karaw50).

Polyrhachis (Myrmhopla) dives Sm. var. *rectispina* Karawajew, 1927a: 35, w.

Current status: *Polyrhachis (Myrmhopla) dives rectispina*.

Type locality(-ies): “Amboina (Nr. 2495 und 2966), zahlreiche ww aus Nestern”.

Original Karawajew label(-s): “*Polyrhachis (Myrmhopla) / dives* Sm. v. *rectispina* / Karavaev, typus. / Amboina, 2462. Karavaev”; “*Polyrhachis (Myrmhopla) / dives* Sm. v. *rectispina* / Karavaev, typus. / Amboina, 2462. Karavaev” and “*Polyrhachis / 2462. Amboina*”; “*Polyrhachis (Myrmhopla) / dives* Sm. var. *rectispina* / Karavaev, typus. / Amboina, Kara- / vaiym, 2462”.

Material: SYNTYPES, 14 w (newly mounted, IN 314/6/2), 900 w (in alcohol, IN 314/BAMS1/Karaw21, 32–35, 39).

Notes. Karawajew (1927a) recorded as the type series of var. *rectispina* two nest samples with collecting numbers 2495 and 2966 sampled in Amboina (Indonesia). At the same time (*loc. cit.*) he determined as *P. dives* F. Smith workers and queens collected in Java (Tjibodas) with the collecting number 2966; the latter material (workers and queens) is preserved in the Karawajew collection at SIZK. Also in the SIZK collection there are 34 workers with the original Karawajew labels “Amboina, Karawajew, 2462”, “*Polyrhachis (Myrmhopla) dives v. rectispina* Karaw. typus” that corresponds to the label data from the collection of NMNH NASU. We suppose that in the original publication the number 2966 for the type series of var. *rectispina* was given erroneously and really should be 2462.

Polyrhachis (Myrmhopla) sexspinosa Latr. var. *sericea* Karawajew, 1927a: 26, w, q, m (also described as a new by Karawajew, 1928: 316).

Current status: **junior synonym** of *Polyrhachis sexspinosa* (Latreille, 1802): 126, w, “Indes orientales”. Synonymy: Bolton, 1975: 12.

Type locality(-ies): “Wammar, Aru, 24.III.1913 (Nr. 2642), ww, geflüg. qq und mm in einem Nest gesammelt”.

Original Karawajew label(-s): “*Polyrhachis (Myrmhopla) / sexspinosa* Latr. v. *sericea* / Karav. typus. / Wammar, Aru, 2597, 2642, Leg. / et det. V. Karavaev”.

Material: SYNTYPES, 6 w, 1 q (newly mounted, IN 314/6/2), 27 w (in alcohol, IN 314/BAMS1/Karaw11–13).

Notes. Karawajew (1927a) provided in the original description collection number 2462 for the type series of this taxon, while in the single vial with alcohol material in NMNH NASU there are original Karawajew labels with collection numbers 2642 and 2597. We investigated all workers from this vial and confirm their conspecificity. Moreover, among the mounted specimens of var. *sericea* from SIZK there are syntypes series with number 2462, and one worker labeled as “Wamman, Aru. 2671. Karawajew”, “*Polyrhachis (Myrmhopla) sexspinosa* Latr. v. *sericea* Karaw. typus” that also does not correspond to the collection number given in the original description.

We may only suppose that Karawajew did not provide all the collection numbers when describing this taxon, and we consider all the material from NMNH NASU as syntypes.

Polyrhachis (Myrmhopla) tubifex Karawajew, 1926: 143, w, q, m (also described as a new by Karawajew, 1927a: 31).

Current status: ***Polyrhachis (Myrmhopla) tubifex***

Type locality(-ies): in Karawajew, 1926 no concrete type locality given; in Karawajew, 1927a: “Buitenzorg, 26.XII.1912 (Nr. 2356), der untere Teil des Botan. Gartens. Zahlreiche ww, geflügelte qq, mm und Larven”.

Original Karawajew label(-s): “*Polyrhachis (Myrmhopla) / tubifex* Karawaiw, typus. / Buitenzorg, Karawaiw, 2356.”; printed, with handwritten inscription “Java, / Buitenzorg / Karavaev, / 2356” and handwritten “*Polyrhachis (Myrmhopla / tubifex* Karawaiw, / typus 1925”.

Material: SYNTYPES, 8 w, 3 q, 1 m (newly mounted, IN 314/6/2), 169 w, 33 q, 3 m, 29 pupae, 8 larvae (in alcohol, IN 314/BAMS1/Karaw18–20).

Pseudolasius trimorphus Karawajew, 1929a: 52, w, q, m.

Current status: ***Pseudolasius trimorphus***.

Type locality(-ies): “Tjibodas, Java (Nr. 3861, 3862, 3863), w min., med., und maj., zahlreiche flügellose und 1 geflüg. q.—Buitenzorg, Java (Nr. 2367), ww min. und med., zahlreiche mm und 1 flügellose q.—? Sundstrasse bei Bantan (Java), auf dem Deck des Dampfers (Nr. 2396), 2 q, etwas kleiner”.

Original Karawajew label(-s): “*Pseudolasius trimorphus* Kar. / Buitenzorg. Karavaev. 2367”.

Material: SYNTYPES, 6 w, 2 q (newly mounted, IN 314/6/2), 113 w, 218 q and m (in alcohol, IN 314/BAMS1/Karaw60).

Xiphomyrmex aruensis Karawajew, 1935: 105, w.

Current status: **junior synonym of *Tetramorium carinatum*** (F. Smith, 1859: 148), w, Aru Isl. Synonymy: Bolton, 1977: 86.

Type locality(-ies): “Wammar, Aroe Archipel, 9.III.1913, W. Karawajew, Nr. 2567, Kolonie in einem morschen Baumstamm, zahlreiche ww”.

Original Karawajew label(-s): “2567”.

Material: SYNTYPES, 11 w (newly mounted, IN 314/6/1), 128 w (in alcohol, IN 314/BAMS1/Karaw55).

Addendum

We found also “syntype” series of *Dolichoderus patens* r. *pubiventris* var. *karawaiewi* Forel, 1901. Despite this name being unavailable (quadrinomen), we provide data for this material, which may be useful for future investigations.

Dolichoderus patens May r. *pubiventris* Emery var. *karawaiewi* Forel, 1901: 303, w, q, m.

Current status: **Unavailable name**: Shattuck (1994: 73); confirmed here.

Type locality(-ies): “Buitenzorg, in einem Certonnest. Von Herrn Karawaïew erhalten”.

Original Karawajew label(-s): “*Dolichoderus (Hypoclinea) / patens* Mayr v. *Karawaiewi* / Forel. Typus + 2876. / Buitenzorg”.

Material: “SYNTYPES”, 8 w, 1 q, 1 m (newly mounted, IN 314/6/1), 641 w, 6 q, 2 m, 4 pupae (in alcohol, IN 314/BAMS1/Karaw25–31).

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