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The catalogue of the ant collection (Hymenoptera: Formicidae) from the entomological collection of Țării Crișurilor Museum, Oradea

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Abstract. The small ant collection of the Țării Crișurilor Museum in Oradea was revised, yielding a total of 82 individuals (9 males, 25 females and 48 workers), belonging to 12 species. The myrmecological material was collected mainly from the Western part of Romania between 1954 and 1990.

Key words: ants, museum collections, western Romania.

Introduction

Museum collections are of a great importance by preserving valuable and historical data (Miller et al. 2020). Natural history museums hold preserved biodiversity collections and associated specimen and ecological data that have

long been recognized as an invaluable and irreplaceable resource for biodiversity research and society (Johnson et al. 2011, Funk 2018, Nelson & Ellis 2019, Watanabe 2019, Lendemer et al. 2020).

Up to date the ant collections preserved in Romanian museums are to be found in Sibiu (Markó & Csősz 2002, Csősz & Markó, 2005), Bucharest (Paraschivescu 1975), Bacău (Goagă & Paraschivescu 1991), Cluj-Napoca and Oradea (Markó et al. 2006). It is very likely that within the entomological collections there is also myrmecological material preserved in other Romanian museums. The ant collections from Cluj-Napoca and Oradea are unpublished, whereas the other were revised or partially revised in the last decades.

The Natural Sciences department of Țării Crișurilor Museum was established formally in 1971, housing collections of geology, palaeontology and biology based on collecting started in 1950 by its first head of department, the palaeontologist Tibor Jurcsák, and his collaborators in the department. The entomological collection is made up of more than 4,600 specimens (the oldest was collected in 1952), and includes over 500 species from Europe, the Americas, Africa, Asia, and Australia.

The present paper aims to document the Formicidae specimens housed in the entomological collection of Țării Crișurilor Museum.

Material and methods

The habitus of the specimens was examined visually, with the help of a magnifying glass and of a Delta Optical binocular microscope, model SZ-450/SZ-430, and the identification and distribution data were checked using several ant-keys (Agosti & Collingwood 1987, Czechowski et al. 2012, Czekes et al. 2012, Markó et al. 2009, Seifert 2018).

Abbreviations: leg. = *legit* („collected by”, Latin); det. = determined by; spec(s). = specimen(s).

Results

Class Insecta

Order Hymenoptera

Infraorder Aculeata

Superfamily Formicoidea

Family Formicidae Latreille, 1809

Subfamily Formicinae Lepeletier, 1836

Camponotus herculeanus (Linnaeus, 1758)

5518/1-10 ♀♀, 15 May 1966, Paleu (forest), det. D. Paraschivescu, 10 specs.
(one on bark).

5518/11 [= ep 5192] ♀, 19 July 1969, Apuseni Mountains, Padiș, Glăvoi ("La
grajduri" = at the stables), leg. I. M. Paina, 1 spec.

5518/12 [= no number] ♀, 16 Aug. 1954, Apuseni Mountains, Padiș, leg. T.
Jurcsák, det. D. Paraschivescu, 1 spec.

5518/13-22 [= ep 3810, ic 3976] workers, 4 June 1965, Paleu (forest, on oak), det.
D. Paraschivescu, 10 specs.

5518/23-24 [= ep 5239] workers, 28 Sept. 1969, Apuseni Mountains, Padiș, leg. I.
M. Paina, 2 specs (one det. D. Paraschivescu).

5518/25-27 [= ep 6187] workers, 12 Aug. 1973, Apuseni Mountains, Drăganului
Valley, Ciripa, leg. I. M. Paina, det. D. Paraschivescu, 3 specs.

5518/28 [= ep 4114] worker, 21 July 1966, Nucet (Negru Hill), leg. I. M. Paina, det.
D. Paraschivescu, 1 spec.

5518/29 [= no number], *C. herculeanus* (Linnaeus, 1758) worker, 13 Oct. 1977,
Apuseni Mountains, Vărășoaia, leg. I. M. Paina, det. D. Paraschivescu, 1 spec.

Formica cunicularia Latreille, 1798

5518/30 [= ep 6186] (labeled "*cinerea*"), worker, 11 Aug. 1973, Apuseni
Mountains, Bohodei, leg. I. M. Paina, det. D. Paraschivescu, 1 spec.

5518/31 [= ep 6367] (labeled "*cinerea*"), worker, 6 Aug. 1975, Băile 1 Mai, leg. I. M. Paina, det. D. Paraschivescu, 1 spec.

5518/32 [= ep 6174] (labeled "*rufibarbis*"), worker, 6 July 1973, Apuseni Mountains, Bulz Valley ("la canton"), leg. I. M. Paina, det. D. Paraschivescu, 1 spec.

F. fusca Linnaeus, 1758

5518/33 [= ep 6174] (labeled "*cinerea*"), worker, 6 July 1973, Apuseni Mountains, Bulz Valley ("la canton"), leg. I. M. Paina, det. D. Paraschivescu, 1 spec.

F. sanguinea Latreille, 1798

5518/34 [= ep 3536/2, ic 3579], worker, 13 April 1964, Paleu (forest, on oak), leg. T. Jurcsák (?), det. D. Paraschivescu, 1 spec.

F. pratensis Retzius, 1783

5518/35-39, workers, 2 May 1966, Săldăbagiu (Paleu commune) (forest), leg. T. Jurcsák (?), det. D. Paraschivescu, 5 specs.

5518/40-43, workers, 8 May 1966, Băile 1 Mai (on the ground), leg. T. Jurcsák (?), det. D. Paraschivescu, 4 specs.

F. rufibarbis Fabricius, 1793

5518/44-45 [= no number], workers, 8 Apr. 1990, no locality, leg. I. M. Paina, det. A. Găgiu, 2 specs.

Lasius fuliginosus (Latreille, 1798)

5518/46-52 [= ep 6485], workers, 17 Apr. 1976, Răbăgani, leg. I. M. Paina, det. D. Paraschivescu, 7 specs.

Lasius flavus (Fabricius, 1782)

5518/53-54, worker, 15 Apr. 1966, Oradea (on the Criș riverbank), leg. T. Jurcsák (?), det. D. Paraschivescu, 2 specs.

5518/55 [= ep 6187] *Lasius* sp. (labeled "flavus"), ♀, 12 Aug. 1973, Apuseni Mountains, Drăganului Valley (Ciripa), leg. I. M. Paina, det. D. Paraschivescu, 1 spec.

5518/56 [= ep 5222] *Lasius* sp. (labeled "flavus"), ♀, 13 Aug. 1969, Apuseni Mountains, Râtu Florilor, leg. I. M. Paina, det. D. Paraschivescu, 1 spec.

5518/57 [= ep 6174] *Lasius* sp. (labeled "niger"), ♂, 6 July 1973, Apuseni Mountains, Bulz Valley ("la canton"), leg. I. M. Paina, det. D. Paraschivescu, 1 spec.

5518/58-63 [= ep 7331] *Tetramorium* sp., ♂♂, 17 Apr. 1983, Oradea (house), leg. I. M. Paina, 6 specs.

Subfamily Myrmicinae Lepeletier, 1835

Myrmica schencki Viereck, 1903

5518/63-69 [= ep 7331], ♀♀, 12 Sept. 1983, Oradea, leg. I. M. Paina, 6 specs.

5518/70 [= ep 7331] ♀ ?, 12 Sept. 1983, Oradea, leg. I. M. Paina, 1 spec.

Myrmica ruginodis Nylander, 1846

5518/71-75 [= ep 6253] (labeled "*Leptothorax unifasciatus*" = *Temnothorax unifasciatus*), 3 ♀♀, 2 workers, 27 Aug. 1974, Apuseni Mountains, Padiș, leg. I. M. Paina, det. D. Paraschivescu, 5 specs.

5518/76 [= ep 7331] *Myrmica* sp., ♂, 12 Sept. 1983, Oradea, leg. I. M. Paina, 1 spec.

Manica rubida (Latreille, 1802)

5540/1, ♂, 20-21 Aug. 1970, Apuseni Mountains, Mt. Bihor, leg. I. M. Paina, 1 spec.

5540/2 [= ep 5239], ♀, 28 Sept. 1969, Apuseni Mountains, Padiș, leg. I. M. Paina, det. D. Paraschivescu, 1 spec.

Subfamily Dolichoderinae Forel, 1878

Liometopum microcephalum (Panzer, 1798)

5518/77-80, workers, 11 Apr. 1960, Tinca (museum yard), leg. T. Jurcsák (?), 4 specs.

Discussions

The specimens are well conserved and placed in horizontal rows in the entomological box. The genus, species and caste were typed, probably by the entomologist Ion Mircea Paina, a former head of the Natural Sciences Department, on larger labels at the lower side of the series of specimens. Most of the specimens are fixed on mounting boards and the others are pinned on standard entomological pins. The individual labels are handwritten and virtually all of them present the necessary identification data (Fig. 1). In a few cases, the collector was identified based on handwriting and his active period. Most of the specimens (45) were collected by I. M. Paina and the remainder were collected by the renowned Romanian myrmecologist Dinu Paraschivescu (20) and by T. Jurcsák (17), respectively.

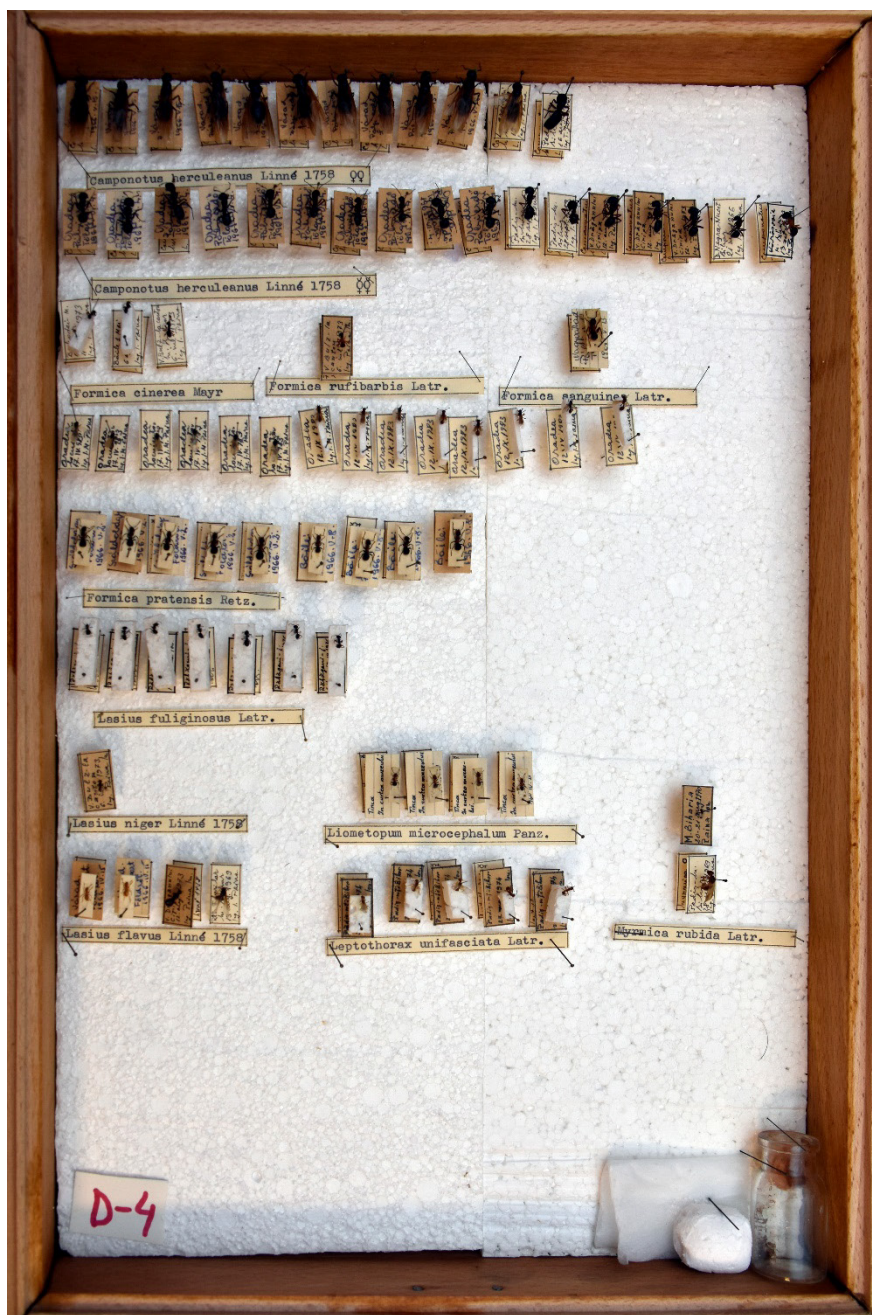


Fig. 1. The Formicidae specimens housed in the entomological collection of Țării Crișurilor Museum (box D4).

The collecting localities (all in Bihor County, northern-western Romania, and in Apuseni Mountains) are listed below. The most abundant locality (with 26 specs.) is Paleu, a commune near Oradea, followed by Apuseni Mountains and Oradea (Fig. 2).

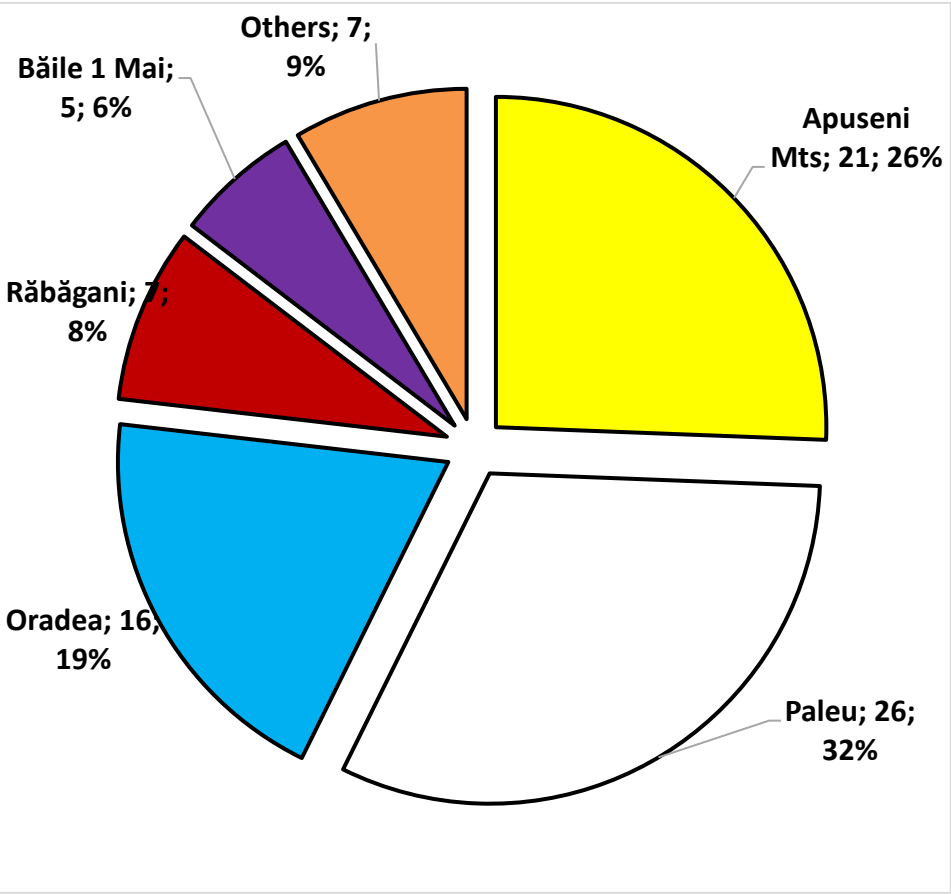


Fig. 2. The collecting frequency according to the sampling sites

The monthly distribution of the collecting records is illustrated in Fig. 3, even though the non-continuous collecting over the respective time and in the localities does not allow for a representative rendition of the ants' activity in Bihor County.

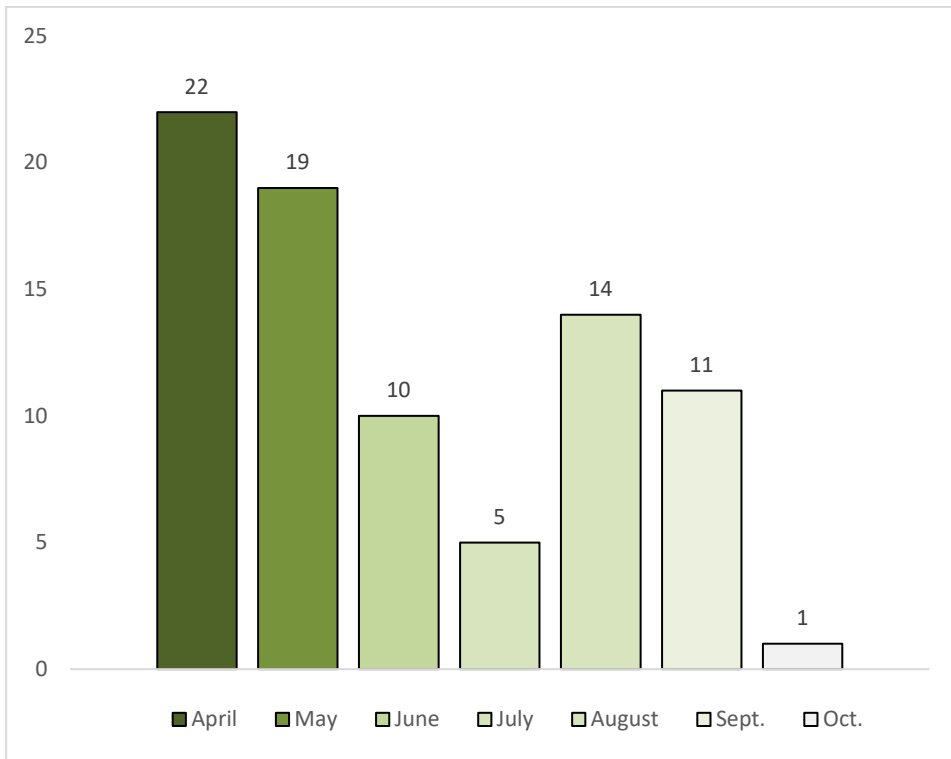


Fig. 3. Monthly phenogram for the number of ant individuals sampled which are preserved in the entomological collection of Țării Crișurilor Museum, Oradea.

The collecting period spans non-continuously over 36 years (1954-1990), with a peak in 1966 (Fig. 4). The low number of individuals collected in each case did not pose a threat to the respective populations. Of the 82 ant species known in Romania, 12 are included in the present collection, belonging to 3 subfamilies and 7 genera, and the best represented is the genus *Formica*, with 5 species. Among the more interesting species in the collection there are *Liometopum microcephalum*, an arboreal, xerophilous species, therefore an indicator for conservation (Csősz 2000), and *Myrmica schencki*, a xerophilous, Palearctic species important to nature conservation because it is a host for the larvae of the vulnerable Lycaenids (blue butterflies) *Phengaris rebeli* and *P. arion*.

Compared to other Romanian museum collections, this collection is rather small. Probably the most valuable collection is found in Brukenthal National

Museum in Sibiu, followed by the Bacău Museum Collection and the collection housed at the “Grigore Antipa” National Museum of Natural History in Bucharest. However, ant collections in Romania are quite rare. Thus, the small collections add value to the knowledge of the Romanian myrmecofauna.

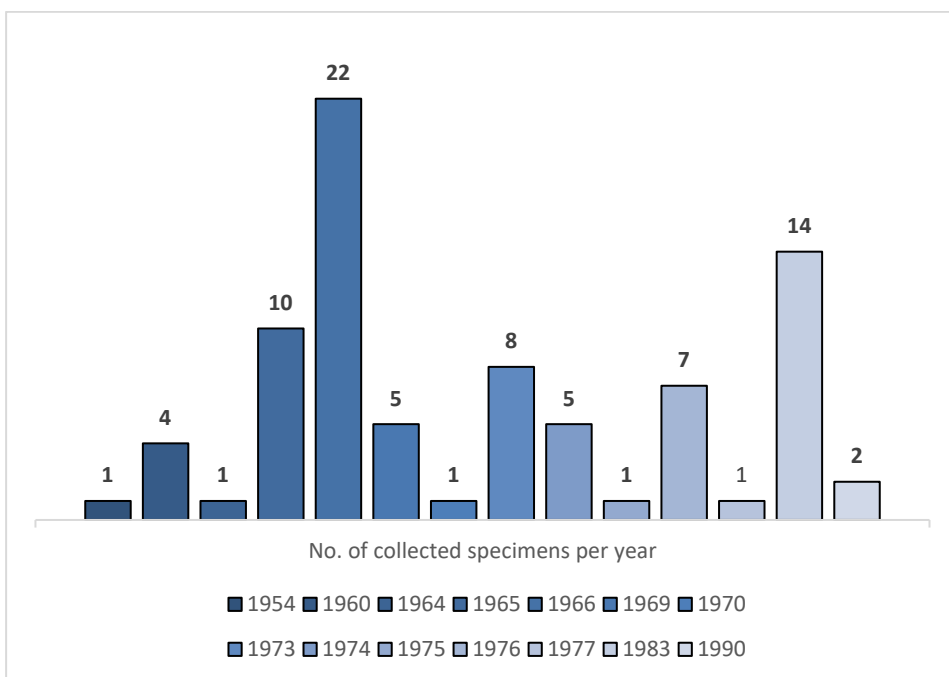


Fig. 4. Collecting data abundance per year for the Formicidae in the entomological collection of Țării Crișurilor Museum, Oradea.

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