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XVI. 3

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THE CATALOGUE OF THE KIMAKOWICZ MALACOLOGICAL COLLECTION FROM THE NATURAL HISTORY MUSEUM IN SIBIU (PART III)

Ana-Maria PĂPUREANU*

Abstract. *The paper lists 2532 specimens from the Mollusca Kimakowicz Collection, sheltered by the Natural History Museum in Sibiu. The specimens are registered at inventory numbers 999 (6434) to 1644 (10650). The aim of the inventory was to review and reorganize the specimens according to today's taxonomy. As a result, all the specimens were measured and catalogued as belonging to 29 families. The museum curatorial research project was initiated in 2018.*

Keywords: *Kimakowicz Malacological collections, catalogue, Natural History Museum Sibiu.*

Rezumat. *Lucrarea de față cuprinde inventarul a 2532 de specimene din Colecția Malacologică Kimakowicz, aflată în gestiunea Muzeului de Istorie Naturală din Sibiu. Pieseile sunt catalogate de la numărul de inventar 999 (6434) până la 1644 (10650). Scopul acestui studiu a fost revizuirea și reorganizarea specimenelor din colecție în concordanță cu taxonomia actuală. Astfel, exemplarele au fost măsurate și încadrate ca aparținând la 29 de familii. Proiectul de cercetare muzeal a fost inițiat în 2018.*

Cuvinte cheie: *colecția malacologică Kimakowicz, catalog, Muzeul de Istorie Naturală Sibiu.*

Introduction

On March 5th, 2021, we commemorated 100 years since the passing of Mauritius Hieronymus von Kimakowicz-Winnicki (1849-1921). According to his obituary, written by no other than Carl Friedrich Jickeli (1850–1925) (1922, 58-62), at the time of his death M. von Kimakowicz was Director of the Natural History Museum from Sibiu; Director of the Transylvanian Society of Natural Sciences from Sibiu (*Siebenbürgischer Verein für Naturwissenschaften zu Hermannstadt*) and Custodian of the archaeological collection within the Brukenthal Museum.

The Mollusca Kimakowicz Collection, sheltered by the Natural History Museum in Sibiu, was initiated in 1887 by M. von Kimakowicz and enriched by his son Richard Emanuel von Kimakowicz-Winnicki (1876 – 1973). The collection of 305,431 specimens was grouped and catalogued by R. von Kimakowicz as follows: the General Collection 115,279 specimens of which 2,211 fossils (inventory numbers 14,497 to 16,707); the *Alopi*a special collection 73,321 specimens, of which 37,190 doubles; and the Doubles Collection 116,831 specimens. The collection is still categorised today as the family organised it.

The first catalogue of the Kimakowicz Malacological Collection from the Natural History Museum Sibiu presented 113 species belonging to 11 families and 64 genres, from the Kimakowicz General Collection.

Most of the species catalogued then belonged to the superfamily *Muricoidea*, family *Muricidae* (Mesaroş 2013, 469-486).

The second part of the catalogue listed 897 inventory numbers belonging to 123 genres (Păpureanu 2019, 629-656).

This paper catalogues the inventory numbers 999 (6434) to 1644 (10650).

Materials and results

Each specimen has been measured and identified according to today's taxonomy.

Information included in the original label is presented in this catalogue:

- the new inventory number and written in parenthesis the old inventory number;
- the current scientific name;
- the scientific name of the species as it is written on the original label;
- the number of specimens found under that inventory number;
- the collecting sites.

The majority of the specimens are a result of scientific exchange among specialists. Unfortunately, the original labels do not include the name of the donor or of the collector.

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For the species lists the binomial nomenclature is taken from the World Register of Marine Species (WoRMS Editorial Board 2020) and MolluscaBase (2020); the taxonomic sequences of families follow those of Bouchet *et al.* (2005) updated by MolluscaBase (2020), Beu (2008) for the *Cassidae* families.

Class *Gasteropoda*
Order *Littorinimorpha*
Superfamily *Tonnoidea*
Family *Cassidae*
Subfamily *Cassinae*

- 999 (6434) *Galeodea echinophora* (Linnaeus, 1758), label *Cassis sp.*, 2 specimens, Split, Dalmatia, Croatia;
1000 (3727) *Galeodea echinophora* (Linnaeus, 1758), label *Cassis sp.*, 1 specimen, Split, Dalmatia, Croatia;
1008 (3730) *Cypraecassis testiculus* (Linnaeus, 1758), label *Cassis testiculus*, 1 specimen, Lesser Antilles;
1010 (3731) *Cypraecassis testiculus* (Linnaeus, 1758), label *Cassis testiculus*, 1 specimen, Indian Ocean;
1014 (3734) *Galeodea echinophora* (Linnaeus, 1758), label *Cassidaria echinophora* (Linnaeus, 1758), 1 specimen, Adriatic Sea, Zadar;
1015 (3735) *Galeodea echinophora* (Linnaeus, 1758), label *Cassidaria echinophora* (Linnaeus, 1758), 1 specimen, Adriatic Sea, Fiume;
1016 (3736) *Galeodea echinophora* (Linnaeus, 1758), label *Cassidaria echinophora* (Linnaeus, 1758), 1 specimen, Mediterranean Sea;
1017 (10590) *Galeodea echinophora* (Linnaeus, 1758), label *Cassidaria sp.*, 1 specimen, Split, Dalmatia, Croatia;
1018 (6436) *Galeodea rugosa* (Linnaeus, 1771), label *Cassidaria tyrrhena* (Gmelin, 1791), 1 specimen, Adriatic Sea.

Family *Cassidae*

Subfamily *Phaliinae*

- 1001 (3732) *Casmaria erinaceus* (Linnaeus, 1758), label *Cassis erythraea*, 2 specimens, Massawa, Eritrea, Red Sea;
1002 (3725) *Semicassis granulata* (Born, 1778), label *Cassis granulosa*, 1 specimen, Brasilia;
1003 (5234) *Semicassis granulata* (Born, 1778), label *Cassis granulosa*, 1 specimen, Cuba;
1004 (3728) *Phalium glaucum* (Linnaeus, 1758), label *Cassis glauca* (Linnaeus, 1758), 1 specimen, Philippines;
1005 (6435) *Casmaria erinaceus* (Linnaeus, 1758), label *Cassis erinacea*, 1 specimen, Indian Ocean;

- 1006 (5235) *Phalium areola* (Linnaeus, 1758), label *Cassis areola* (Linnaeus, 1758), 1 specimen, Ambon Island, the Maluku Islands of Indonesia;
1007 (5233) *Casmaria erinaceus* (Linnaeus, 1758), label *Cassis erinacea*, 4 specimens, Ambon Island, the Maluku Islands of Indonesia;
1009 (3733) *Casmaria erinaceus* (Linnaeus, 1758), label *Cassis erinacea*, 1 specimen, Massawa, Eritrea, Red Sea;
1011 (3726) *Semicassis undulata* (Gmelin, 1791), label *Cassis undulata* (Gmelin, 1791), 1 specimen, China;
1012 (3724) *Semicassis bisulcata* (Schubert & J. A. Wagner, 1829), label *Cassis pila* Reeve, 1848, 2 specimens, China;
1013 (10589) *Semicassis bisulcata* (Schubert & J. A. Wagner, 1829), label *Cassis pila* Reeve, 1848, 1 specimen, East Indies (Southeast Asia);
1020 (3737) *Casmaria erinaceus* (Linnaeus, 1758)n label *Cassidaria voighti*, 1 specimen, Massawa, Eritrea, Red Sea.

Family *Tonnidae*

- 1021 (5236) *Tonna allium* (Dillwyn, 1817), label *Dolium costatum* Menke, 1828, 2 specimens, Ambon Island, the Maluku Islands of Indonesia;
1022 (3739) *Tonna sulcosa* (Born, 1778), label *Dolium fasciatum* (Bruguière, 1789), 1 specimen, Philippines;
1023 (5237) *Tonna canaliculata* (Linnaeus, 1758), label *Dolium olearium* (Linnaeus, 1758), 1 specimen, Mauritius;
1024 (3744) *Malea pomum* (Linnaeus, 1758), the same on the label, 1 specimen, Red Sea, Suez Canal;
1025 (3741) *Tonna perdix* (Linnaeus, 1758), label *Dolium perdix* (Linnaeus, 1758), 1 specimen, Red Sea;
1026 (3750) *Malea pomum* (Linnaeus, 1758), the same on the label, 1 specimen, Philippines;
1031 (3743) *Tonna variegata* (Lamarck, 1822), label *Dolium (Dolium) variegatum* Lamarck, 1822, 1 specimen, China;
1032 (3756) *Tonna ampullacea* (Philippi, 1845), label *Dolium ampullaceum* Philippi, 1845, 1 specimen, Massawa, Eritrea, Red Sea;
1033 (10591) *Tonna zonata* (Green, 1830), label *Dolium sp.*, 1 specimen, East Indies.

Class *Gasteropoda*

Order *Neogastropoda*

Superfamily [unassigned] *Neogastropoda*

Family *Harpidae*

Subfamily *Moriminae*

- 1019 (3738) *Morum oniscus* (Linnaeus, 1767), label *Oniscia triseriata* Menke, 1830, 1 specimen, West Indies.

Class *Gasteropoda*
Order *Littorinimorpha*
Superfamily *Ficoidea*
Family *Ficidae*

1027 (3749) *Ficus gracilis* (G. B. Sowerby I, 1825), label *Sycotypus Dusumieri* Adams, 1 specimen, China;

1028 (3746) *Ficus ficoides* (Brocchi, 1814) †, label *Sycotypus ficoides*, 1 specimen, East Indies;

1029 (3747) *Ficus ficoides* (Brocchi, 1814) †, label *Sycotypus ficoides*, 2 specimens, Red Sea, Dahlak Archipelago;

1030 (3748) *Ficus ficoides* (Brocchi, 1814) †, label *Sycotypus ficoides*, 2 specimens, China;

1034 (3745) *Ficus ficus* (Linnaeus, 1758), label *Sycotypus laevigatus*, 1 specimen, Indian Ocean.

Class *Gasteropoda*
Order *Littorinimorpha*
Superfamily *Cypraeoidea*
Family *Velutinidae*
Subfamily *Velutinae*

1035 (3754) *Velutina velutina* (O. F. Müller, 1776), label *Velutina haliotoides*, 1 specimen, Bohus Suedia;

1036 (3753) *Velutina velutina* (O. F. Müller, 1776), label *Velutina laevigata* (O. F. Müller, 1777), 1 specimen, England;

1037 (3755) *Velutina pulchella* Derjugin, 1950, the same on the label, 1 specimen, Île Bourbon, Réunion.

Class *Gasteropoda*
Order *Littorinimorpha*
Superfamily *Naticoidea*
Family *Naticidae*
Subfamily *Naticinae*

1038 (3757) *Naticarius hebraeus* (Martyn, 1786), label *Natica adpersa* Menke, 1830, 1 specimen, Adriatic Sea, Zadar, Croatia;

1039 (3758) *Naticarius hebraeus* (Martyn, 1786), label *Natica adpersa* Menke, 1830, 1 specimen, Adriatic Sea, Brevilacqua today Privlaka, municipality in Zadar County in Croatia;

1040 (3789) *Cryptonatica affinis* (Gmelin, 1791), label *Natica affinis* (Gmelin, 1791), 1 specimen, Greenland Sea;

1041 (3792) *Naticarius canrena* (Linnaeus, 1758), same on the label, 1 specimen, West Indies;

1044 (6438) *Naticarius onca* (Röding, 1798) label *Natica chinensis* Lamarck, 1816, 1 specimen, China;

1045 (3762) *Naticarius onca* (Röding, 1798) label *Natica chinensis* Lamarck, 1816, 2 specimens, Massawa, Eritrea, Red Sea;

1046 (3763) *Naticarius onca* (Röding, 1798) label *Natica chinensis* Lamarck, 1816, 1 specimen, Dahlak Archipelago, Red Sea;

1047 (6439) *Cryptonatica affinis* (Gmelin, 1791) *Natica clausa* Broderip & G. B. Sowerby I, 1829, 2 specimens, Spitsbergen, Svalbard Archipelago in northern Norway;

1048 (6440) *Cryptonatica affinis* (Gmelin, 1791) *Natica clausa* Broderip & G. B. Sowerby I, 1829, 1 specimen, Green Harbour Spitsbergen, Svalbard Archipelago in northern Norway;

1049 (10599) *Cryptonatica affinis* (Gmelin, 1791) *Natica clausa* Broderip & G. B. Sowerby I, 1829, 1 specimen, West Spitsbergen, Svalbard Archipelago in northern Norway;

1050 (3760) *Natica buriasiensis* Récluz, 1844, same on the label, 6 specimens, Massawa, Eritrea, Red Sea;

1051 (3793) *Naticarius hebraeus* (Martyn, 1786), label *Natica conspureata*, 1 specimen, Adriatic Sea, Zadar, Croatia;

1052 (3765) *Natica forskalii* G. B. Sowerby I, 1825, same on the label, 2 specimens, Dahlak Archipelago, Red Sea;

1057 (3795) *Tanea lineata* (Röding, 1798), label *Natica lineata* (Röding, 1798), 1 specimen, Singapore;

1058 (1426) *Naticarius hebraeus* (Martyn, 1786), label *Natica maculata* (von Salis, 1793), 4 specimens, Mediterranean Sea, Provence, southeastern France;

1059 (3796) *Natica marochiensis* (Gmelin, 1791), same as the label, 1 specimen, North Africa;

1060 (3797) *Naticarius stercusmuscarum* (Gmelin, 1791), label *Natica millepunctata* Lamarck, 1822, 1 specimen, Adriatic Sea, Split, Croatia;

1061 (3773) *Naticarius stercusmuscarum* (Gmelin, 1791), label *Natica millepunctata* Lamarck, 1822, 6 specimens, Indian Ocean;

1062 (3782) *Naticarius stercusmuscarum* (Gmelin, 1791), label *Natica punctata*, 1 specimen, Adriatic Sea, Zadar, Croatia;

1063 (3783) *Natica spadicea* (Gmelin, 1791), same on the label, 2 specimens, Singapore;

1064 (3784) *Notocochlis gualtieriana* (Récluz, 1844), label *Natica tessellata* Philippi, 1849, 1 specimen, Dahlak Archipelago, Red Sea;

1065 (5239) *Paratectonatica tigrina* (Röding, 1798), label *Natica tigrina* (Röding, 1798), 3 specimens, Strait of Malacca, Penang, Peninsular Malaysia;

1066 (3786) *Natica vitellus* (Linnaeus, 1758), same on the label, 1 specimen, Indian Ocean;

1067 (6437) *Natica vitellus* (Linnaeus, 1758), same as on the label, 1 specimen, Philippines;
 1068 (3774) *Natica marochiensis* (Gmelin, 1791), label *Natica lurida* Philippi, 1836, 1 specimen, Massawa, Eritrea, Red Sea;
 1069 (3775) *Natica marochiensis* (Gmelin, 1791), label *Natica lurida* Philippi, 1836, 1 specimen, Dahlak Archipelago, Red Sea;
 1096 (6447) *Natica pseustes* R. B. Watson, 1881, label *Natica Scopoli*, 1777, 2 specimens, Port Jackson, Australia, Pacific Ocean;
 1097 (6444) *Natica pseustes* R. B. Watson, 1881, label *Natica Scopoli*, 1777, 2 specimens, Port Jackson, Australia, Pacific Ocean;
 1098 (5959) *Natica pseustes* R. B. Watson, 1881, label *Natica Scopoli*, 1777, 2 specimens, Port Jackson, Australia, Pacific Ocean;
 1099 (5962) *Natica pseustes* R. B. Watson, 1881, label *Natica Scopoli*, 1777, 1 specimen, Port Jackson, Australia, Pacific Ocean;
 1100 (5960) *Natica pseustes* R. B. Watson, 1881, label *Natica Scopoli*, 1777, 1 specimen, Port Jackson, Australia, Pacific Ocean;
 1101 (5961) *Natica pseustes* R. B. Watson, 1881, label *Natica Scopoli*, 1777, 1 specimen, Port Jackson, Australia, Pacific Ocean;
 1102 (10601) *Natica marochiensis* (Gmelin, 1791), label *Natica Scopoli*, 1777, 1 specimen, Naples, Mediterranean Sea;
 1103 (10602) *Natica marochiensis* (Gmelin, 1791), label *Natica Scopoli*, 1777, 2 specimens, Mediterranean Sea.

Family Naticidae

Subfamily Polinicinae

1042 (3493) *Euspira catena* (da Costa, 1778), label *Natica catena* (da Costa, 1778), 4 specimens, Great Britain;
 1043 (3761) *Euspira catena* (da Costa, 1778), label *Natica catena* (da Costa, 1778), 1 specimen, Sandwich Islands today Hawaiian Islands;
 1053 (3785) *Euspira intricata* (Donovan, 1804), label *Natica intricata* (Donovan, 1804), 1 specimen, Adriatic Sea, Fiume today Rijeka;
 1054 (1427) *Euspira guilleminii* (Payraudeau, 1826), label *Natica guilleminii* Payraudeau, 1826, 2 specimens, Mediterranean Sea, Provence Auray, Morbihan department in Brittany in northwestern France;
 1055 (3766) *Euspira intricata* (Donovan, 1804), label *Natica intricata* (Donovan, 1804), 2 specimens, Adriatic Sea, Zadar, Croatia;
 1056 (10598) *Euspira intricata* (Donovan, 1804), label *Natica intricata* (Donovan, 1804), 1 specimen, Adriatic Sea;
 1070 (3759) *Polinices intemeratus* (Philippi, 1853), label *Natica alabaster* L.A. Reeve, 1855, 1 specimen, Dahlak Archipelago, Red Sea;
 1071 (3791) *Euspira nitida* (Donovan, 1803), label *Natica alderi* Forbes, 1838, 2 specimens, Great Britain;
 1072 (6443) *Neverita duplicata* (Say, 1822), label *Natica duplicata* Say, 1822, 2 specimens, America (on the label);
 1073 (3788) *Neverita duplicata* (Say, 1822), label *Natica duplicata* Say, 1822, 1 specimen, Atlantic Ocean;
 1074 (3779) *Euspira catena* (da Costa, 1778), label *Natica monilifera* Lamarck, 1822, 1 specimen, Mediterranean Sea;
 1075 (3790) *Polinices albumen* (Linnaeus, 1758), label *Natica albumen*, 1 specimen, China;
 1076 (10600) *Polinices albumen* (Linnaeus, 1758), label *Natica albumen*, 1 specimen, China;
 1077 (3764) *Conuber conicum* (Lamarck, 1822), label *Natica conica* Lamarck, 1822, 2 specimens, New Holland today mainland Australia;
 1078 (3767) *Neverita josephina* Risso, 1826, label *Natica josephina* (Risso, 1826), 3 specimens, Adriatic Sea, Sicily, Italy;
 1079 (6442) *Neverita josephina* Risso, 1826, label *Natica aegyptiaca*, 4 specimens, Mediterranean Sea, Port Said, north east Egypt;
 1080 (3778) *Neverita olla* (de Serres, 1829) †, label *Natica olla* de Serres, 1829 †, 1 specimen, Mediterranean Sea;
 1081 (6442) *Neverita josephina* Risso, 1826, label *Natica josephina* (Risso, 1826), 2 specimens, Mediterranean Sea, Port Said, north east Egypt;
 1082 (3794) *Neverita didyma* (Röding, 1798), label *Natica glaucina* Lamarck, 1822, 1 specimen, Adriatic Sea;
 1083 (3776) *Neverita didyma* (Röding, 1798), *Natica lamarckiana* Récluz in Reeve, 1855, 1 specimen, Dahlak Archipelago, Red Sea;
 1084 (3777) *Neverita didyma* (Röding, 1798), *Natica lamarckiana* Récluz in Reeve, 1855, 1 specimen, Massawa, Eritrea, Red Sea;
 1085 (3771) *Mammilla melanostoma* (Gmelin, 1791), label *Natica melanostoma* (Gmelin, 1791), 2 specimens, Massawa, Eritrea, Red Sea;
 1086 (5238) *Mammilla melanostoma* (Gmelin, 1791), label *Natica melanostoma* (Gmelin, 1791), 3 specimens, Mauritius;
 1087 (3772) *Mammilla melanostoma* (Gmelin, 1791), label *Natica melanostoma* (Gmelin, 1791), 1 specimen, Red Sea;
 1089 (3770) *Polinices mammilla* (Linnaeus, 1758), label *Natica mamilla* (Linnaeus, 1758), 1 specimen, Indian Ocean;

1090 (6445) *Polinices mammilla* (Linnaeus, 1758), label *Natica mamilla* (Linnaeus, 1758), 6 specimens, Dahlak Archipelago, Red Sea;
 1081 (6446) *Polinices mammilla* (Linnaeus, 1758), label *Natica mamilla* (Linnaeus, 1758), 7 specimens, Massawa, Eritrea, Red Sea;
 1092 (3781) *Polinices mammilla* (Linnaeus, 1758), label *Natica ponderosa* Philippi, 1852, 1 specimen, China, Pacific Ocean;
 1093 (3780) *Polinices powisianus* (Récluz, 1844), label *Natica powisiana* Récluz, 1844, 2 specimens, Dahlak Archipelago, Red Sea;
 1094 (3799) *Euspira pallida* (Broderip & G. B. Sowerby I, 1829), label *Natica pusilla* Gould, 1841, 1 specimen, Massachusetts, U.S.A.;
 1095 (3798) *Euspira nitida* (Donovan, 1803), *Natica nitida* (Donovan, 1803), 1 specimen, Suez Canal.

Family Naticidae

Subfamily Sininae

1104 (3800) *Sinum haliotoideum* (Linnaeus, 1758), label *Sigaretus haliotoideus* (Linnaeus, 1758), 1 specimen, Mediterranean Sea;
 1105 (3801) *Sinum perspectivum* (Say, 1831), *Sigaretus leachii* (Blainville, 1818), 1 specimen, China;
 1106 (3802) *Sinum perspectivum* (Say, 1831), label *Sigaretus perspectivus* Say, 1831, 1 specimen, U.S.A.;
 1107 (3804) *Eunaticina papilla* (Gmelin, 1791), label *Sigaretus* Lamarck, 1799, 2 specimens, Suez Canal, Red Sea;
 1108 (3803) *Sinum maculatum* (Say, 1831), label *Sigaretus zonatus* d'Orbigny, 1842, 1 specimen, New Holland, U.S.A.

Class Gasteropoda

Order Neogastropoda

Superfamily Buccinoidea

Family Nassariidae

Subfamily Nassariinae

1088 (3787) *Reticunassa zanzibarensis* (Kool & Dekker, 2007), label *Natica zanzibarensis*, 1 specimen, Massawa, Eritrea, Red Sea.

Class Gasteropoda

Order Caenogastropoda

Superfamily Epitonioidea

Family Epitoniidae

1109 (3805) *Epitonium scalare* (Linnaeus, 1758), label *Scalaria pretiosa* Lamarck, 1816, 1 specimen, Indian Ocean;
 1110 (3807) *Scalaria principalis* Gray, 1826, 1 specimen, Colombia;

1111 (3806) *Epitonium clathrus* (Linnaeus, 1758), label *Scalaria clathrus* (Linnaeus, 1758), 2 specimens, Adriatic Sea, Zadar, Croatia;
 1112 (3810) *Epitonium clathrus* (Linnaeus, 1758), label *Scalaria communis* Lamarck, 1822, 1 specimen, England;
 1113 (3809) *Epitonium clathrus* (Linnaeus, 1758), label *Scalaria communis* Lamarck, 1822, 2 specimens, Scheveningen beach, Holland;
 1114 (5240) *Gyroscala commutata* (Monterosato, 1877), *Scalaria perplexa* Pease, 1868, 2 specimens, Mauritius;
 1115 (10603) *Epitonium clathrus* (Linnaeus, 1758), label *Scalaria communis* Lamarck, 1822, 3 specimens, Split, Dalmatia, Croatia; 1116 (3812) *Boreoscala greenlandica* (Perry, 1811), label *Scalaria planicosta* Kiener, L.C., 1838, 1 specimen, Adriatic Sea, Fiume;
 1117 (6448) *Epitonium turtonis* (W. Turton, 1819), label *Scalaria turtonae* Locard, 1891, 1 specimen, Adriatic Sea;
 1118 (3811) *Gyroscala commutata* (Monterosato, 1877), label *Scalaria lamellosa* Lamarck, 1822, 2 specimens, Mediterranean Sea;
 1119 (3814) *Gyroscala coronata* (Lamarck, 1816), label *Scalaria coronata* Lamarck, 1816, 2 specimens, Massawa, Eritrea, Red Sea;
 1120 (3813) *Gregorioiscla sarsii* (Kobelt, 1903), label *Scalaria kobeltae*, 2 specimens, Massawa, Eritrea, Red Sea;
 1121 (3808) *Acrilla acuminata* (G. B. Sowerby II, 1844), label *Scalaria acuminata* G. B. Sowerby II, 1844, 2 specimens, Massawa, Eritrea, Red Sea;
 1122 (3815) *Gyroscala rupicola* (Kurtz, 1860), label *Scalaria lineata* Say, 1822, 2 specimens, Dahlak Archipelago, Red Sea;
 1123 (3822) *Epitonium muricatum* (Risso, 1826), label *Scalaria pharaonis*, 3 specimens, Jeddah, Red Sea;
 1124 (3818) *Epitonium jomardi* (Audouin, 1826), label *Scalaria jomardi* Audouin, 1826, 1 specimen, Dahlak Archipelago, Red Sea;
 1125 (6449) *Epitonium jomardi* (Audouin, 1826), label *Scalaria festiva*, 1 specimen, Dahlak Archipelago, Red Sea;
 1126 (3819) *Epitonium jomardi* (Audouin, 1826), label *Scalaria sp.*, 2 specimens Red Sea, Jeddah;
 1127 (3816) *Epitonium jomardi* (Audouin, 1826), label *Scalaria jomardi* Audouin, 1826, 2 specimens, Red Sea, Jeddah;
 1128 (3817) *Epitonium jomardi* (Audouin, 1826), label *Scalaria jomardi* Audouin, 1826, 1 specimen, Massawa, Eritrea, Red Sea;
 1129 (3823) *Epitonium elenense* (G. B. Sowerby II, 1844), label *Scalaria rarivaricosa*, 2 specimens, Red Sea, Jeddah;

- 1130 (3820) *Recluzia johnii* (Holten, 1802), label *Scalaria erythraea*, 1 specimen, Red Sea, Jeddah;
 1131 (3821) *Epitonium* sp., label *Scalaria pharaonis*, 1 specimen, Suez Canal, Red Sea;
 1132 (10604) *Epitonium jukesianum* (Forbes, 1852), label *Scalaria* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1134 (10605) *Scalaria* sp., 1 specimen, Dahlak Archipelago, Red Sea.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order *Caenogastropoda*
 Superfamily *Cerithioidea*
 Family *Scaliolidae*

- 1133 (3824) *Scaliola elata* Issel, 1869, same species on the label, 11 specimens, Red Sea, Jeddah.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order *Neogastropoda*
 Superfamily *Conoidea*
 Family *Terebridae*

- 1135 (5241) *Oxymeris areolata* (Link, 1807), label *Terebra muscaria* Lamarck, 1822, 2 specimens, Ambon Island, Maluku Islands of Indonesia;
 1136 (3836) *Oxymeris maculata* (Linnaeus, 1758), label *Terebra maculata* (Linnaeus, 1758), 2 specimens, Indian Ocean;
 1137 (3836) *Oxymeris dimidiata* (Linnaeus, 1758), label *Terebra dimidiata* (Linnaeus, 1758), 2 specimens, Haiti;
 1138 (3835) *Oxymeris* sp., label *Terebra erythraea*, 1 specimen, Suez Canal, Red Sea;
 1139 (3834) *Oxymeris crenulata* (Linnaeus, 1758), label *Terebra crenulata* (Linnaeus, 1758), 1 specimen, Indian Ocean;
 1140 (3829) *Hastula hectica* (Linnaeus, 1758), label *Terebra caerulescens* Lamarck, 1822, 1 specimen, Sore (unknown present day name);
 1141 (6450) *Duplicaria duplicata* (Linnaeus, 1758), label *Terebra duplicata* (Linnaeus, 1758), 1 specimen, Zanzibar, Tanzania;
 1142 (3837) *Duplicaria duplicata* (Linnaeus, 1758), label *Terebra lamarckii* Kiener, 1839, 1 specimen, South Sea;
 1143 (3840) *Hastula nimbosea* (Hinds, 1844), label *Terebra nimbosea* Hinds, 1844, 4 specimens, Massawa, Eritrea, Red Sea;
 1144 (12242) *Terebra consobrina* Deshayes, 1857, label *Terebra* sp., 2 specimens, Indian Ocean;
 1146 (6451) *Hastula aciculina* (Lamarck, 1822), label *Terebra aciculina* Lamarck, 1822, 1 specimen, Mazatlán, Sinaloa;

- 1147 (3825) *Hastula aciculina* (Lamarck, 1822), label *Terebra aciculina* Lamarck, 1822, 1 specimen, California;
 1148 (6452) *Terebra subulata* (Linnaeus, 1767), 3 specimens, Port Said, Mediterranean Sea;
 1149 (3826) *Myurella affinis* (Gray, 1834), label *Terebra affinis* Gray, 1834, 1 specimen, Red Sea;
 1150 (3830) *Terebra robusta* Hinds, 1844, label *Terebra collumelaris* (Hinds, 1844), 2 specimens, Massawa, Eritrea, Red Sea;
 1151 (3832) *Terebra consobrina* Deshayes, 1857, 2 specimens, Massawa, Eritrea, Red Sea;
 1152 (3842) *Terebra subulata* (Linnaeus, 1767), 1 specimen, Dahlak Archipelago, Red Sea;
 1153 (3833) *Terebra subulata* (Linnaeus, 1767), 1 specimens, Massawa, Eritrea, Red Sea;
 1154 (3828) *Terebra babylonica* Lamarck, 1822, 2 specimens, Massawa, Eritrea, Red Sea;
 1155 (3843) *Terebra* sp., 2 specimens, Massawa, Eritrea, Red Sea;
 1156 (3839) *Terebra* sp., 1 specimen, Massawa, Eritrea, Red Sea;
 1157 (3841) *Terebra corrugata* Lamarck, 1822, label *Terebra regina* Deshayes, 1857, 1 specimen, Dahlak Archipelago, Red Sea;
 1158 (3827) *Terebra* sp., 2 specimens, Dahlak Archipelago, Red Sea.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order *Neogastropoda*
 Superfamily *Buccinoidea*
 Family *Columbellidae*

- 1145 (3831) *Mazatlaniania cosentini* (Philippi, 1836), label *Terebra cosentini* Philippi, 1836, 1 specimen, Mediterranean Sea.

Class *Gasteropoda*
 Subclass *Heterobranchia*
 Infraclass *Euthyneura*
 Subterclass *Tectipleura*
 Superorder *Pylopolmonata*
 Family *Pyramidellidae*

- 1159 (3847) *Otopleura mitralis* (A. Adams, 1854), label *Pyramidella mitralis* A. Adams, 1854, 2 specimens, Dahlak Archipelago, Red Sea;
 1160 (3844) *Pyramidella corrugata* Lamarck, 1822, 2 specimens, Massawa, Eritrea, Red Sea;
 1161 (3846) *Otopleura mitralis* (A. Adams, 1854), label *Pyramidella mitralis* A. Adams, 1854, 2 specimens, Massawa, Eritrea, Red Sea;
 1162 (3845) *Pyramidella corrugata* Lamarck, 1822, 3 specimens, Dahlak Archipelago, Red Sea;
 1163 (3848) *Otopleura nitida* (A. Adams, 1854), label *Pyramidella nitida* (A. Adams, 1854), 1 specimen, Dahlak Archipelago, Red Sea;

- 1164 (3849) *Pyramidella dolabrata* (Linnaeus, 1758), label *Obeliscus dolobratus* (L.), 1 specimen, Atlantic Ocean;
- 1165 (3850) *Pyramidella* sp., label *Obeliscus kieueri*, 1 specimen, Red Sea, Jeddah;
- 1166 (3852) *Pyramidella* sp., label *Obeliscus kieueri*, 2 specimens, Dahlak Archipelago, Red Sea;
- 1167 (3851) *Pyramidella* sp., label *Obeliscus kieueri*, 1 specimen, Suez Canal, Red Sea;
- 1168 (3853) *Longchaeus maculosus* (Lamarck, 1822), label *Obeliscus maculosus*, 1 specimen, Red Sea;
- 1169 (3856) *Pyramidella dolabrata* (Linnaeus, 1758), label *Obeliscus terebellum*, 1 specimen, Indian Ocean;
- 1170 (3855) *Longchaeus maculosus* (Lamarck, 1822), label *Obeliscus sulcatus* A. Adams, 1854, 3 specimens, Red Sea, Jeddah;
- 1171 (3529) *Obeliscus* sp., 1 specimen, Mauritius, Indian Ocean;
- 1172 (3854) *Longchaeus maculosus* (Lamarck, 1822), label *Obeliscus sulcatus* A. Adams, 1854, 1 specimen, Suakin or Sawakin, northeastern Sudan, on the west coast of the Red Sea;
- 1177 (3862) *Turbonilla* sp., label *Chemnitzia fulocincta*, 2 specimens, Suez Canal, Red Sea;
- 1178 (3861) *Turbonilla* sp., label *Chemnitzia fenesbrata*, 1 specimen, Britania;
- 1179 (3863) *Parthenina emaciata* (Brusina, 1866) label *Chemnitzia pygmaea*, 2 specimens, Adriatic Sea;
- 1180 (1428) *Turbonilla kraussi* Clessin, 1890, label *Chemnitzia lactea* F. Krauss, 1848, 2 specimens, Mediterranean Sea, Provence, France;
- 1181 (3860) *Turbonilla lactea* (Linnaeus, 1758), label *Turbonilla (Chemnitzia) elegantissima* (Montagu, 1803), 1 specimen, Suez Canal;
- 1182 (3859) *Turbonilla lactea* (Linnaeus, 1758), label *Turbonilla (Chemnitzia) elegantissima* (Montagu, 1803), 1 specimen, Mediterranean Sea;
- 1183 (3864) *Pyrgiscus rufescens* (Forbes, 1846), label *Chemnitzia rufescens* Forbes, 1846, 1 specimen, Suez Canal;
- 1184 (6464) *Turbonilla lactea* (Linnaeus, 1758), label *Turbonilla (Chemnitzia) elegantissima* (Montagu, 1803), 3 specimens, Split, Croatia, Adriatic Sea;
- 1185 (6460) *Turbonilla penistoni* Bush, 1899, label *Chemnitzia (Turbonilla) procera*, 1 specimen, Dahlak Archipelago, Red Sea;
- 1186 (6454) *Turbonilla* sp., label *Chemnitzia (Turbonilla) tenuicostata* 1 specimen, Dahlak Archipelago, Red Sea;
- 1187 (6458) *Turbonilla* sp., label *Chemnitzia (Turbonilla) crassicostis* 1 specimen, Dahlak Archipelago, Red Sea;
- 1188 (6465) *Turbonilla* sp., label *Chemnitzia (Turbonilla) sp.*, 1 specimen, Split, Dalmatia, Croatia, Adriatic Sea;
- 1189 (6462) *Turbonilla* sp., label *Chemnitzia (Turbonilla) pleurata*, 5 specimens, Dahlak Archipelago, Red Sea;
- 1190 (6461) *Turbonilla amoena* (Monterosato, 1878), label *Chemnitzia (Turbonilla) venusta*, 1 specimen, Dahlak Archipelago, Red Sea;
- 1191 (6457) *Turbonilla magnifica* Seguenza G., 1880, label *Chemnitzia (Turbonilla) magnifica*, 8 specimens, Dahlak Archipelago, Red Sea;
- 1192 (6459) *Turbonilla* sp., label *Chemnitzia (Turbonilla) catestoma*, 2 specimens, Massawa, Eritrea, Red Sea;
- 1193 (6456) *Turbonilla magnifica* Seguenza G., 1880, label *Chemnitzia (Turbonilla) magnifica*, 1 specimen, Massawa, Eritrea, Red Sea;
- 1194 (6455) *Turbonilla nitida* A. Adams, 1860, label *Chemnitzia (Turbonilla) nitidissima*, 13 specimens, Massawa, Eritrea, Red Sea;
- 1195 (6453) *Nisiturreis crystallina* (Clessin, 1900), label *Chemnitzia (Turbonilla) crystallina*, 3 specimens, Dahlak Archipelago, Red Sea;
- 1196 (6463) *Turbonilla* sp., label *Chemnitzia (Turbonilla) cochleaformis*, 1 specimen, Massawa, Eritrea, Red Sea;
- 1197 (3867) *Parthenina decussata* (Montagu, 1803), label *Odostomia decussata* (Montagu, 1803), 1 specimen, Britania;
- 1198 (3873) *Spiralinella spiralis* (Montagu, 1803), label *Odostomia spiralis*, 3 specimens, Britania;
- 1199 (3871) *Brachystomia eulimoides* (Hanley, 1844), label *Odostomia novegradensis* Brusina, 1865, 2 specimens, Adriatic Sea;
- 1200 (3872) *Brachystomia eulimoides* (Hanley, 1844), label *Odostomia pallida* (Montagu, 1803) sensu Jeffreys, 1867, 3 specimens, Britania;
- 1201 (3868) *Brachystomia* sp., label *Odostomia culimoides*, 3 specimens, Adriatic Sea, Novegradi (Novigrad, near Zadar);
- 1202 (3865) *Odostomia unidentata* (Montagu, 1803), label *Odostomia albella* (Lovén, 1846), 2 specimens, Britania;
- 1203 (3880) *Eulimella acicula* (Philippi, 1836), label *Odostomia intersecta*, 2 specimens, Britania;
- 1204 (3874) *Odostomia unidentata* (Montagu, 1803), 3 specimens, Britania;
- 1205 (3869) *Brachystomia eulimoides* (Hanley, 1844), label *Odostomia euxina*, 3 specimens, North Sea;

- 1206 (3866) *Megastomia conoidea* (Brocchi, 1814), label *Odostomia conoidea* (Brocchi, 1814), 2 specimens, Britania;
- 1207 (6478) *Odostomia* sp., label *Odostomia arabica*, 1 specimen, Suez Canal, Red Sea;
- 1208 (6468) *Eulimella* sp., label *Odostomia eulimella*, 5 specimens, Massawa, Eritrea, Red Sea;
- 1209 (12260) *Odostomia* sp., 182 specimens, Dahlak Archipelago, Red Sea;
- 1210 (6467) *Odostomia hyalina* A. Adams, 1860, 1 specimen, Massawa, Eritrea, Red Sea;
- 1211 (6466) *Odostomia* sp., label *Odostomia globosa*, 1 specimen, Dahlak Archipelago, Red Sea;
- 1212 (6470) *Ondina warreni* (W. Thompson, 1845), label *Odostomia decorata* Jeffreys, 1850, 3 specimens, Massawa, Eritrea, Red Sea;
- 1213 (6480) *Odostomia* sp., label *Odostomia erythraea*, 1 specimen, Dahlak Archipelago, Red Sea;
- 1214 (12259) *Ondina warreni* (W. Thompson, 1845), label *Odostomia decorata* Jeffreys, 1850, 39 specimens, Dahlak Archipelago, Red Sea;
- 1215 (6469) *Ondina warreni* (W. Thompson, 1845), label *Odostomia decorata* Jeffreys, 1850, 18 specimens, Dahlak Archipelago, Red Sea;
- 1216 (6471) *Odostomia solidula* C. B. Adams, 1850, 268 specimens, Dahlak Archipelago, Red Sea;
- 1217 (6475) *Odostomia laevigata* (d'Orbigny, 1841), label *Chrysallida laevigata*, 2 specimens, Dahlak Archipelago, Red Sea;
- 1218 (6474) *Eurathea rissoiformis* Peñas & Rolán, 2017, label *Chrysallida rissoiformis*, 1 specimen, Dahlak Archipelago, Red Sea;
- 1219 (10856) *Eurathea rissoiformis* Peñas & Rolán, 2017, label *Chrysallida rissoiformis*, 5 specimens, Massawa, Eritrea, Red Sea;
- 1220 (6473) *Eurathea rissoiformis* Peñas & Rolán, 2017, label *Chrysallida rissoiformis*, 1 specimen, Massawa, Eritrea, Red Sea;
- 1221 (6477) *Eulimella acicula* (Philippi, 1836), label *Chrysallida laevis*, 4 specimens, Massawa, Eritrea, Red Sea;
- 1222 (10855) *Eurathea rissoiformis* Peñas & Rolán, 2017, label *Chrysallida rissoiformis*, 3 specimens, Dahlak Archipelago, Red Sea;
- 1223 (6476) *Eulimella acicula* (Philippi, 1836), label *Chrysallida laevis*, 2 specimens, Dahlak Archipelago, Red Sea;
- 1225 (6479) *Styloptygma* sp. A. Adams, 1860, label *Styloptygma cylindrica*, 20 specimens, Dahlak Archipelago, Red Sea;
- 1226 (6479) *Styloptygma* sp. A. Adams, 1860, label *Styloptygma cylindrica*, 77 specimens, Dahlak Archipelago, Red Sea.
- 1227 (3875) *Eulimella ventricosa* (Forbes, 1844) label *Eulimella affinis* (Philippi, 1844), 1 specimen, Dalmatia, Adriatic Sea;
- 1228 (12256) *Eulimella arabica* Issel, 1869, 1 specimen, Dahlak Archipelago, Red Sea;
- 1229 (6483) *Eulimella* sp. Forbes & M'Andrew, 1846, *Eulimella planolabre*, 1 specimen, Dahlak Archipelago, Red Sea;
- 1230 (6482) *Eulimella* sp. Forbes & M'Andrew, 1846, label *Eulimella turiformis*, 2 specimens, Dahlak Archipelago, Red Sea;
- 1231 (6481) *Eulimella* sp., 4 specimens, Split, Dalmatia, Croatia;
- 1233 (1430) *Euparthenia humboldti* (Risso, 1826), label *Monoptygma humboldti*, 1 specimens, Mediterranean Sea, Provence;
- 1234 (6485) *Monoptygma* G. B. Sowerby II, 1839, label *Monoptygma tricirculata*, 2 specimens, Dahlak Archipelago, Red Sea;
- 1235 (10607) *Tibersyrnola bacillum* (Pilsbry, 1901), label *Monoptygma (Triphosis) bacillum*, 1 specimen, Red Sea, Suez Canal;
- 1236 (10606) *Tibersyrnola bacillum* (Pilsbry, 1901), label *Monoptygma (Triphosis) bacillum*, 2 specimens, Dahlak Archipelago, Red Sea;
- 1237 (6484) *Monoptygma* sp. Lea, 1833 sensu A. Adams, 1853, label *Monoptygma densespira*, 5 specimens, Massawa, Eritrea, Red Sea;
- 1238 (6486) *Monoptygma* G. B. Sowerby II, 1839, label *Monoptygma tricirculata*, 2 specimens, Massawa, Eritrea, Red Sea;
- 1242 (3556) *Eulimella* Forbes & M'Andrew, 1846, 3 specimens, Singapore.
- Class Gasteropoda
Subclass Heterobranchia
Infraclass Euthyneura
Subterclass Ringipleura
Superorder Ringiculimorpha
Superfamily Ringiculoidea
Family Ringiculidae
- 1173 (3858) *Ringicula auriculata* (Ménard de la Groye, 1811), 1 specimen, Mediterranean Sea, Golfo di Napoli.
- Class Gasteropoda
Subclass Caenogastropoda
Order Neogastropoda
Superfamily Conoidea
Family Raphitomidae
- 1174 (6472) *Taranidaphne hongkongensis* (Sowerby III, 1889), label *Ringicula erythraea*, 1 specimen, Red Sea, Jeddah;

1175 (3857) *Taranidaphne* sp., label *Ringicula cingulata*, 10 specimens, Red Sea, Jeddah;
 1176 (6472) *Taranidaphne hongkongensis* (Sowerby III, 1889), label *Ringicula erythraea*, 1 specimen, Red Sea, Jeddah.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order *Littorinimorpha*
 Superfamily *Vanikoroidea*
 Family *Vanikoridae*

1224 (1429) *Constantia* sp. A. Adams, 1860 specimens, label *Constantia (Pyrulina) excavata*, 1 specimen, Mediterranean Sea, north of Algeria.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order *Littorinimorpha*
 Superfamily *Vanikoroidea*
 Family *Eulimidae*

1239 (5244) *Melanella flexuosa* (A. Adams, 1854), label *Eulima flexuosa* A. Adams, 1854, 1 specimen, Mauritius Island;
 1240 (1431) *Melanella polita* (Linnaeus, 1758), label *Eulima polita* (Linnaeus, 1758), 5 specimens, Mediterranean Sea, Provence;
 1241 (5243) *Eulima hastata* (A. Adams, 1863), 2 specimens, Mauritius Island;
 1243 (3556) *Eulima* Risso, 1826, 1 specimen, South Africa;
 1244 (3877) *Melanella alba* (da Costa, 1778), label *Eulima polita* auct. non Linnaeus, 1758, 1 specimen, Britania;
 1245 (10708) *Melanella acicula* (Gould, 1849), label *Eulima acicularis* A. Adams, 1861, 4 specimens, Tahiti;
 1246 (1432) *Melanella boscii* (Payraudeau, 1826), label *Eulima brevis* Requier, 1848, 2 specimens, Mediterranean Sea;
 1247 (10608) *Eulima* sp. Risso, 1826, 10 specimens, Pacific Ocean, Port Jackson, Australia;
 1248 (12257) *Eulima* sp. Risso, 1826, 2 specimens, Red Sea;
 1251 (12258) *Eulima gentilomiana* Issel, 1869, 2 specimens, Massawa, Eritrea, Red Sea;
 1252 (6488) *Hypermastus acutus* (A. Adams, 1854), label *Eulima acuta* A. Adams, 1854, 1 specimen, Dahlak Archipelago, Red Sea;
 1254 (3878) *Pelseneeria styliifera* (W. Turton, 1825), label *Stylifer turtoni* Broderip, 1832, 1 specimen, Suez Canal.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order [unassigned] *Caenogastropoda*
 Superfamily *Cerithioidea*
 Family *Planaxidae*

1232 (3876) *Fissilabia decollata* (Quoy & Gaimard, 1833), label *Monoptygma melanoides* I. Lea, 1833, 1 specimen, Tukangbesi Islands, Banda Sea, Maluku Islands of Indonesia.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order [unassigned] *Caenogastropoda*
 Superfamily *Cerithioidea*
 Family *Pleuroceridae*

1249 (6489) *Pleurocera* sp. Rafinesque, 1818, label *Eulima pharaonis*, 1 specimen, Red Sea, Suez Canal;

1250 (6487) *Pleurocera pyrenella* (Conrad, 1834), label *Eulima planogyra*, 1 specimen, Dahlak Archipelago, Red Sea.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order [unassigned] *Caenogastropoda*
 Superfamily *Cerithioidea*
 Family *Cerithiopsidae*

1253 (3879) *Cerithiopsis tubercularis* (Montagu, 1803), 1 specimen, California.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order [unassigned] *Caenogastropoda*
 Superfamily *Cerithioidea*
 Family *Litiopidae*

1255 (10611) *Alaba* sp. H. Adams & A. Adams, 1853, 346 specimens, Dahlak Archipelago, Red Sea;

1256 (10613) *Alaba* sp. H. Adams & A. Adams, 1853, 49 specimens, Dahlak Archipelago, Red Sea.
 1257 (10609) *Alaba* sp. H. Adams & A. Adams, 1853, label *Alaba doriae*, 29 specimens, Dahlak Archipelago, Red Sea;

1258 (10614) *Alaba* sp. H. Adams & A. Adams, 1853, 3 specimens, Massawa, Eritrea, Red Sea;
 1259 (10612) *Alaba* sp. H. Adams & A. Adams, 1853, 1 specimen, Dahlak Archipelago, Red Sea;
 1260 (10610) *Alaba* sp. H. Adams & A. Adams, 1853, 1 specimen, Split, Dalmatia, Croatia.

Class *Gasteropoda*
 Subclass *Heterobranchia*
 Infraclass "Lower Heterobranchia"
 Superfamily *Architectonicoidea*
 Family *Architectonicidae*

1261 (3883) *Architectonica perspectiva* (Linnaeus, 1758), label *Solarium perspectivum* (Linnaeus, 1758), 1 specimen, Indian Ocean.

- 1262 (3884) *Architectonica perspectiva* (Linnaeus, 1758), label *Solarium perspectivum* (Linnaeus, 1758), 2 specimens, Massawa, Eritrea, Red Sea;
 1263 (3881) *Heliacus areola* (Gmelin, 1791), label *Solarium variegatum auct.*, 3 specimens, Dahlak Archipelago, Red Sea;
 1264 (3880) *Heliacus areola* (Gmelin, 1791), label *Solarium variegatum auct.*, 2 specimens, Massawa, Eritrea, Red Sea;
 1265 (3882) *Heliacus areola* (Gmelin, 1791), label *Solarium variegatum auct.*, 1 specimen, Holland;
 1266 (10615) *Solarium sp.* Lamarck, 1799, 1 specimen, Pacific Ocean, Port Jackson, Australia.

Class *Gasteropoda*Subclass *Vetigastropoda*Order *Lepetellida*Superfamily *Scissurelloidea*Family *Scissurellidae*

- 1267 (10616) *Scissurella costata* d'Orbigny, 1824, label *Scissurella plicata* Philippi, 1836, 4 specimens, Adriatic Sea, Zadar;
 1268 (10617) *Scissurella sp.* d'Orbigny, 1824., 1 specimen, Dahlak Archipelago, Red Sea.

Class *Gasteropoda*Subclass *Caenogastropoda*Order *Neogastropoda*Superfamily *Conoidea*Family *Conidae*

- 1269 (3982) *Conus imperialis* Linnaeus, 1758, 1 specimen, Maluku Islands;
 1270 (3983) *Conus imperialis* Linnaeus, 1758, label *Conus viridulus* Lamarck, 1810, 2 specimens, Mauritius Island;
 1271 (5250) *Conus fuscatus* Born, 1778, 1 specimen, Mauritius Island;
 1272 (3979) *Conus marmoreus* Linnaeus, 1758, 2 specimens, Singapore;
 1273 (3980) *Conus bandanus* Hwass in Bruguière, 1792, 1 specimen, Philippines;
 1274 (10618) *Conus sp.*, 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1275 (3981) *Conus nocturnus* [Lightfoot], 1786, 1 specimen, Ambon Island, part of the Maluku Islands of Indonesia;
 1276 (5249) *Conus pulicarius* Hwass in Bruguière, 1792, 3 specimens, New Britain, Islands Region of Papua New Guinea;
 1277 (3985) *Conus distans* Hwass in Bruguière, 1792, 1 specimen, Ambon Island, part of the Maluku Islands of Indonesia;
 1278 (3986) *Conus distans* Hwass in Bruguière, 1792, 1 specimen, Indian Ocean;

- 1279 (6526) *Conus cedonulli* Linnaeus, 1767, 1 specimen, Indian Ocean;
 1280 (3984) *Conus distans* Hwass in Bruguière, 1792, 1 specimen, Mauritius Island;
 1281 (6573) *Conasprella rutila* (Menke, 1843), label *Conus rutilus* Menke, 1843, 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1282 (10620) *Conus sp.*, 1 specimen Pacific Ocean, Port Jackson, Australia;
 1283 (3990) *Conus varius* Linnaeus, 1758, 1 specimen, Ambon Island, part of the Maluku Islands of Indonesia;
 1284 (6527) *Conus lividus* Hwass in Bruguière, 1792, 1 specimen, Indian Ocean;
 1285 (5252) *Conus lividus* Hwass in Bruguière, 1792, 1 specimen, Samoa, Pacific Ocean;
 1286 (9061) *Conus monachus* Linnaeus, 1758, label *Conus nebulosus* Gmelin, 1791, 1 specimen, West Indies, Atlantic Ocean;
 1287 (3989) *Conus balteatus* G. B. Sowerby I, 1833, label *Conus pigmentatus* A. Adams & Reeve, 1848, 2 specimens, Mauritius Island;
 1288 (3991) *Conus arenatus* Hwass in Bruguière, 1792, 8 specimens, Red Sea, Dahlak;
 1289 (3992) *Conus arenatus* Hwass in Bruguière, 1792, 1 specimen, Maluku Islands;
 1290 (3993) *Conus arenatus* Hwass in Bruguière, 1792, 8 specimens, Massawa, Eritrea, Red Sea;
 1291 (5253) *Conus stercusmuscarum* Linnaeus, 1758, label *Conus stercus muscarum*, Linnaeus, 1758, 2 specimens, Ambon Island, part of the Maluku Islands of Indonesia;
 1292 (9062) *Conus vautieri* Kiener, 1847, label *Conus (Puncticulis) vautieri* Kiener, 1847, 4 specimens, Pacific Ocean, Port Jackson, Australia;
 1293 (3995) *Conus ebraeus* Linnaeus, 1758, 1 specimen, Indian Ocean;
 1294 (3994) *Conus chaldaeus* (Röding, 1798), label *Conus vermiculatus* Lamarck, 1810, 1 specimen, Upolu Island, Samoa;
 1295 (3996) *Conus miliaris* Hwass in Bruguière, 1792, 1 specimen, Red Sea, Suez Canal;
 1296 (3997) *Conus coronatus* Gmelin, 1791, label *Conus minimus* Linnaeus, 1758, 2 specimens, Madagascar;
 1297 (3987) *Conus mus* Hwass in Bruguière, 1792, 1 specimen, Lesser Antilles;
 1298 (3998) *Conus musicus* Hwass in Bruguière, 1792, 1 specimen, Mauritius Island;
 1299 (372) *Conus taeniatus* Hwass in Bruguière, 1792, 5 specimens, Massawa, Eritrea, Red Sea;
 1300 (4001) *Conus sp.*, label *Conus spondilus*, 1 specimen, South Sea;
 1301 (3999) *Conus taeniatus* Hwass in Bruguière, 1792, 1 specimen, Red Sea;

- 1302 (5968) *Conus* sp., 4 specimens, Pacific Ocean, Port Jackson, Australia;
- 1303 (4002) *Conus sulcatus* Hwass in Bruguière, 1792, 2 specimens, China;
- 1304 (4005) *Conus geographus* Linnaeus, 1758, 5 specimens, Massawa, Eritrea, Red Sea;
- 1305 (6545) *Conus cuvieri* Crosse, 1858, 6 specimens, Massawa, Eritrea, Red Sea;
- 1306 (6555) *Conus cuvieri* Crosse, 1858, 1 specimen, Red Sea, Dahlak Archipelago;
- 1307 (4003) *Conus geographus* Linnaeus, 1758, 1 specimen, Maluku Islands of Indonesia;
- 1308 (4006) *Conus tulipa* Linnaeus, 1758, 2 specimens, Ambon Island, part of the Maluku Islands of Indonesia;
- 1309 (10619) *Conus cuvieri* Crosse, 1858, label *Conus deshayesii* Reeve, 1843, 3 specimens, Massawa, Eritrea, Red Sea;
- 1310 (3515) *Conus striatus* Linnaeus, 1758, 2 specimens, Mauritius Island;
- 1311 (5966) *Conus striatus* Linnaeus, 1758, 2 specimens, Pacific Ocean, Port Jackson, Australia;
- 1312 (6547) *Conus striatus* Linnaeus, 1758, 1 specimen, Mauritius Island;
- 1313 (6546) *Conus striatus* Linnaeus, 1758, 2 specimens, Massawa, Eritrea, Red Sea;
- 1314 (4008) *Conus figulinus* Linnaeus, 1758, 1 specimen, Ambon Island, part of the Maluku Islands of Indonesia;
- 1315 (6548) *Conus striatus* Linnaeus, 1758, 1 striatus, Red Sea, Dahlak Archipelago;
- 1316 (12268) *Conus betulinus* Linnaeus, 1758, 1 specimen, Indian Ocean;
- 1317 (12268) *Conus betulinus* Linnaeus, 1758, 1 specimen, Indian Ocean;
- 1318 (12269) *Conus quercinus* [Lightfoot], 1786, *Conus (Dendroconus) quercinus*, 2 specimens, Singapore;
- 1319 (6509) *Conus quercinus* [Lightfoot], 1786, 2 specimens, Singapore;
- 1320 (6498) *Conus quercinus* [Lightfoot], 1786, 1 specimen, Red Sea, Suez Canal;
- 1321 (6493) *Conus litteratus* Linnaeus, 1758, 2 specimens, Singapore;
- 1322 (3516) *Conus litteratus* Linnaeus, 1758, 1 specimen, South Sea;
- 1323 (6494) *Conus litteratus* Linnaeus, 1758, 1 specimen, Adriatic Sea;
- 1324 (5248) *Conus flavidus* Lamarck, 1810, 1 specimen, Ambon Island, part of the Maluku Islands of Indonesia;
- 1325 (6496) *Conus flavidus* Lamarck, 1810, 3 specimens, Massawa, Eritrea, Red Sea;
- 1326 (6495) *Conus leopardus* (Röding, 1798), label *Conus millepunctatus* Lamarck, 1822, 1 specimen, Indian Ocean;
- 1327 (6492) *Conus eburneus* Hwass in Bruguière, 1792, 1 specimen, Indian Ocean;
- 1328 (4000) *Conus pulcher* [Lightfoot], 1786, label *Conus prometheus* Hwass in Bruguière, 1792, 1 specimen, Australia;
- 1329 (3517) *Conus tessulatus* Born, 1778, 1 specimen, South Sea;
- 1330 (6572) *Conus tessulatus* Born, 1778, 1 specimen, Pacific Ocean, Port Jackson, Australia;
- 1331 (4007) *Conus pulcher* [Lightfoot], 1786, label *Conus papilionaceus* Hwass in Bruguière, 1792, 1 specimen, Guinea, West Africa;
- 1332 (6490) *Conus tessulatus* Born, 1778, 2 specimens, Red Sea, Suez Canal;
- 1333 (4247) *Conus generalis* Linnaeus, 1767, 3 specimens, Ambon Island, part of the Maluku Islands of Indonesia;
- 1334 (6504) *Conus litoglyphus* Hwass in Bruguière, 1792, 2 specimens, Indian Ocean;
- 1336 (6505) *Conus magus* Linnaeus, 1758, 1 specimen, Singapore;
- 1336 (6505) *Conus maldivus* Hwass in Bruguière, 1792, 1 specimen, Mauritius Island;
- 1337 (6501) *Conus monile* Hwass in Bruguière, 1792, 1 specimen, Indian Ocean;
- 1338 (6512) *Conus mustelinus* Hwass in Bruguière, 1792, 1 specimen, Ambon Island, part of the Maluku Islands of Indonesia;
- 1339 (6497) *Conus virgo* Linnaeus, 1758, 1 specimen, Mauritius Island;
- 1340 (6514) *Conus planorbis* Born, 1778, label *Conus vulpinus* Hwass in Bruguière, 1792, 1 specimen, Papua Noua Guinee;
- 1341 (6515) *Conus namocanus* Hwass in Bruguière, 1792, label *Conus badius* Kiener, 1845, 2 specimens, Massawa, Eritrea, Red Sea;
- 1342 (6524) *Conus cinereus* Hwass in Bruguière, 1792, 2 specimens, Massawa, Eritrea, Red Sea;
- 1343 (6578) *Conus classarius* Hwass in Bruguière, 1792 (nomen dubium), 2 specimens, Red Sea, Dahlak Archipelago;
- 1344 (6521) *Conus classarius* Hwass in Bruguière, 1792 (nomen dubium), 2 specimens, Massawa, Eritrea, Red Sea;
- 1345 (6503) *Conus capitaneus* Linnaeus, 1758, 1 specimen, Singapore;
- 1346 (6502) *Conus capitaneus* Linnaeus, 1758, 2 specimens, Indian Ocean;
- 1347 (6520) *Conus classarius* Hwass in Bruguière, 1792 (nomen dubium), 12 specimens, Red Sea, Dahlak Archipelago;
- 1348 (6519) *Conus classarius* Hwass in Bruguière, 1792 (nomen dubium), 10 specimens, Red Sea, Dahlak Archipelago;
- 1349 (6522) *Conus classarius* Hwass in Bruguière, 1792 (nomen dubium), label *Conus*

- classarius castanea*, 6 specimens, Massawa, Eritrea, Red Sea;
 1350 (6523) *Conus classarius* Hwass in Bruguière, 1792 (nomen dubium), 13 specimens, Massawa, Eritrea, Red Sea;
 1351 (6525) *Conus coffeae* Gmelin, 1791, 5 specimens, Massawa, Eritrea, Red Sea;
 1352 (371) *Conus hyaena* Hwass in Bruguière, 1792, label *Conus incarnatus* Reeve, 1844, 3 specimens, Red Sea, Dahlak Archipelago;
 1353 (6510) *Conus miles* Linnaeus, 1758, 2 specimens, Indian Ocean;
 1354 (6556) *Conus coffeae* Gmelin, 1791, 1 specimen, Massawa, Eritrea, Red Sea;
 1355 (6508) *Conus miles* Linnaeus, 1758, 2 specimens, Singapore;
 1356 (6509) *Conus miles* Linnaeus, 1758, 1 specimen, Ambon Island, part of the Maluku Islands of Indonesia;
 1357 (6506) *Conus namocanus* Hwass, 1792, 2 specimens, Mauritius Island;
 1358 (6507) *Conus vexillum* Gmelin, 1791, label *Conus sumatrensis* Hwass in Bruguière, 1792, 4 specimens, Massawa, Eritrea, Red Sea;
 1359 (6513) *Conus rattus* Hwass in Bruguière, 1792, label *Conus taitensis* Hwass in Bruguière, 1792, 2 specimens, Mauritius Island;
 1360 (6511) *Conus vexillum* Gmelin, 1791, 1 specimen, Indian Ocean;
 1361 (5965) *Conus vexillum* Gmelin, 1791, 3 specimens, Pacific Ocean, Port Jackson, Australia;
 1362 (6540) *Conus magus* Linnaeus, 1758, label *Conus raphanus* Hwass in Bruguière, 1792, 1 specimen, Indian Ocean;
 1363 (3511) *Conus lynceus* G. B. Sowerby II, 1858, 1 specimen, South Sea;
 1364 (963) *Conus (Rhizoconus) sp.*, 2 specimens, Singapore;
 1365 (6529) *Conus achatinus* Gmelin, 1791, 2 specimens, Red Sea, Suez Canal;
 1366 (6530) *Conus achatinus* Gmelin, 1791, 2 specimens, West Indies;
 1367 (6558) *Conus achatinus* Gmelin, 1791, 2 specimens, Red Sea, Suakin;
 1368 (9066) *Conus achatinus* Gmelin, 1791, 1 specimen, Guinea, West Africa;
 1369 (6532) *Conus magus* Linnaeus, 1758, label *Conus adansonii sensu* G. B. Sowerby II, 1858, 2 specimens, Samoa;
 1370 (9064) *Conus aristophanes* G. B. Sowerby II, 1857, 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1371 (6528) *Conus boeticus* Reeve, 1844, 1 specimen, Indian Ocean;
 1372 (6539) *Californiconus californicus* (Reeve, 1844), 1 specimen, Gulf of California;
 1373 (6531) *Conus catus* Hwass in Bruguière, 1792, 2 specimens, Mauritius Island;
 1374 (6534) *Conus cinereus* Hwass in Bruguière, 1792, 1 specimen, Ambon Island, part of the Maluku Islands of Indonesia;
 1375 (6541) *Conus erythraeensis* Reeve, 1843, 4 specimens, Red Sea, Dahlak Archipelago;
 1376 (6541) *Conus erythraeensis* Reeve, 1843, 5 specimens, Red Sea, Dahlak Archipelago;
 1377 (6542) *Conus erythraeensis* Reeve, 1843, 7 specimens, Red Sea, Dahlak Archipelago;
 1378 (6543) *Conus erythraeensis* Reeve, 1843, 6 specimens, Red Sea, Dahlak Archipelago;
 1379 (5967) *Conus infrenatus* Reeve, 1848, 10 specimens, Pacific Ocean, Port Jackson, Australia;
 1380 (6544) *Conus furvus* Reeve, 1843, label *Conus lignarius* Reeve, 1843, 3 specimens, Manila, Philippines;
 1381 (6536) *Conus ventricosus* Gmelin, 1791, label *Conus mediterraneus* Hwass in Bruguière, 1792, 1 specimen, Adriatic Sea, Zadar;
 1382 (6538) *Conus ventricosus* Gmelin, 1791, label *Conus mediterraneus* Hwass in Bruguière, 1792, 11 specimens, Adriatic Sea, Ragusa;
 1383 (6537) *Conus ventricosus* Gmelin, 1791, label *Conus mediterraneus* Hwass in Bruguière, 1792, 1 specimen, Adriatic Sea, Split;
 1384 (6537) *Conus ventricosus* Gmelin, 1791, label *Conus mediterraneus* Hwass in Bruguière, 1792, 9 specimens, Adriatic Sea;
 1385 (6535) *Conus monachus* Linnaeus, 1758, 1 specimen, Guinea, West Africa;
 1386 (6516) *Conasprella puncticulata* (Hwass in Bruguière, 1792), label *Conus pygmaeus* Reeve, 1844, 2 specimens, West Africa;
 1387 (10621) *Conus sp.*, 4 specimens, Pacific Ocean, Port Jackson, Australia;
 1388 (10622) *Conus sp.*, 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1389 (10623) *Conus sp.*, 11 specimens, Adriatic Sea, Lovran;
 1390 (6549) *Conus locumtenens* Blumenbach, 1791, label *Conus acuminatus* Hwass in Bruguière, 1792, 11 specimens, Massawa, Eritrea, Red Sea;
 1391 (6549) *Conus locumtenens* Blumenbach, 1791, label *Conus acuminatus* Hwass in Bruguière, 1792, 5 specimens, Massawa, Eritrea, Red Sea;
 1392 (6550) *Conus locumtenens* Blumenbach, 1791, label *Conus acuminatus* Hwass in Bruguière, 1792, 9 specimens, Massawa, Eritrea, Red Sea;
 1393 (6554) *Conus locumtenens* Blumenbach, 1791, label *Conus acuminatus* Hwass in

Bruguière, 1792, 8 specimens, Massawa, Eritrea, Red Sea;
 1394 (10624) *Conus locumtenens* Blumenbach, 1791, label *Conus acuminatus* Hwass in Bruguière, 1792, 12 specimens, Massawa, Eritrea, Red Sea;
 1395 (6551) *Conus locumtenens* Blumenbach, 1791, label *Conus acuminatus* Hwass in Bruguière, 1792, 9 specimens, Red Sea, Dahlak Archipelago;
 1396 (6551) *Conus locumtenens* Blumenbach, 1791, label *Conus acuminatus* Hwass in Bruguière, 1792, 4 specimens, Red Sea, Dahlak Archipelago;
 1397 (6552) *Conus locumtenens* Blumenbach, 1791, label *Conus acuminatus* Hwass in Bruguière, 1792, 6 specimens, Red Sea, Dahlak Archipelago;
 1398 (6553) *Conus locumtenens* Blumenbach, 1791, label *Conus acuminatus* Hwass in Bruguière, 1792, 6 specimens, Red Sea, Dahlak Archipelago;
 1399 (6566) *Conus aulicus* Linnaeus, 1758, label *Conus auratus* Hwass in Bruguière, 1792, 1 specimen, Indian Ocean;
 1400 (6567) *Conus canonicus* Hwass in Bruguière, 1792, 2 specimens, Ambon Island, part of the Maluku Islands of Indonesia;
 1401 (3513) *Conus canonicus* Hwass in Bruguière, 1792, 1 specimen, Mauritius Island;
 1402 (3512) *Conus amadis* Gmelin, 1791, 1 specimen, Indian Ocean, Sri Lanka;
 1403 (6500) *Conus amadis* Gmelin, 1791, 1 specimen, Indian Ocean;
 1404 (6517) *Conus amadis* Gmelin, 1791, 2 specimens, Indian Ocean, Madras;
 1405 (5246) *Conus pennaceus* Born, 1778, label *Conus episcopus* Hwass in Bruguière, 1792, 4 specimens, Indian Ocean;
 1406 (6562) *Conus textile* Linnaeus, 1758, 1 specimen, Indian Ocean;
 1407 (6563) *Conus omaria* Hwass in Bruguière, 1792, 1 specimen, Mauritius Island;
 1408 (6565) *Conus pennaceus* Born, 1778, 2 specimens, Mauritius Island;
 1409 (6564) *Conus pennaceus* Born, 1778, label *Conus rubiginosus* Hwass in Bruguière, 1792, 2 specimens, Mauritius Island;
 1410 (3514) *Conus textile* Linnaeus, 1758, label *Conus verriculum* Reeve, 1843, 2 specimens, Massawa, Eritrea, Red Sea;
 1411 (6557) *Conus locumtenens* Blumenbach, 1791 label *Conus schech* Weinkauff, 1873, 1 specimen, Mauritius Island;

1412 (5251) *Conus textile* Linnaeus, 1758, label *Conus verriculum* Reeve, 1843, 2 specimens, Massawa, Eritrea, Red Sea;
 1413 (6559) *Conus locumtenens* Blumenbach, 1791, label *Conus vicarius* (Röding, 1798), 6 specimens, Red Sea, Dahlak Archipelago;
 1414 (6560) *Conus locumtenens* Blumenbach, 1791, label *Conus vicarius* (Röding, 1798), 2 specimens, Fiji, South Pacific Ocean;
 1415 (6561) *Conus locumtenens* Blumenbach, 1791, label *Conus vicarius* (Röding, 1798), 1 specimen, Guernsey, Petit Bot Bay, Channel Islands;
 1416 (6575) *Conus australis* Holten, 1802, 1 specimen, Ambon Island, part of the Maluku Islands of Indonesia;
 1417 (65868) *Conus glans* Hwass in Bruguière, 1792, 1 specimen, Ambon Island, part of the Maluku Islands of Indonesia;
 1418 (6571) *Conus nussatella* Linnaeus, 1758, 2 specimens, Pacific Ocean, Port Jackson, Australia;
 1419 (9065) *Conus nussatella* Linnaeus, 1758, 1 specimen, Red Sea;
 1420 (6570) *Conus nussatella* Linnaeus, 1758, 1 specimen, Ambon Island, part of the Maluku Islands of Indonesia;
 1421 (6569) *Conus terebra* Born, 1778, 2 specimens, Brazilian coastline.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order *Littorinimorpha*
 Superfamily *Stromboidea*
 Family *Strombidae*

1422 (6578) *Strombus alatus* Gmelin, 1791, 1 specimen, Cuba;
 1423 (6577) *Strombus gracilior* G. B. Sowerby I, 1825, 2 specimens, Indian Ocean;
 1424 (6579) *Persististrombus granulatus* (Swainson, 1822), label *Strombus granulatus* Swainson, 1822, 1 specimen, Mauritius Island;
 1425 (6580) *Lentigo lentiginosus* (Linnaeus, 1758), label *Strombus lentiginosus* Linnaeus, 1758, 1 specimen, Cuba;
 1426 (6581) *Lobatus raninus* (Gmelin, 1791), label *Strombus lobatus* Swainson, 1823, 1 specimen, Cuba;
 1427 (6576) *Strombus pugilis pugilis* Linnaeus, 1758, 2 specimens, Cuba;
 1428 (6582) *Lobatus raninus* (Gmelin, 1791), label *Strombus lobatus* Swainson, 1823, 1 specimen, West Indies;
 1429 (6584) *Euprotomus aurisdianae* (Linnaeus, 1758), label *Strombus aurisdianae* Linnaeus, 1758, 1 specimen, Mauritius Island;

- 1430 (6586) *Euprotomus aurisdianae* (Linnaeus, 1758), label *Strombus lamarckii* Gray, 1842, 1 specimen, Indian Ocean;
- 1431 (6585) *Euprotomus aurisdianae* (Linnaeus, 1758), label *Strombus aurisdianae* Linnaeus, 1758, 1 specimen, Indian Ocean;
- 1432 (5254) *Euprotomus aurora* Kronenberg, 2002, label *Strombus guttatus* Reeve, 1843, 3 specimens, Ambon Island, part of the Maluku Islands of Indonesia;
- 1433 (6587) *Tricornis tricornis* ([Lightfoot], 1786), label *Strombus tricornis* [Lightfoot], 1786, 1 specimen, Indian Ocean;
- 1434 (6588) *Tricornis tricornis* ([Lightfoot], 1786), label *Strombus tricornis* [Lightfoot], 1786, 1 specimen, Red Sea, Dahlak Archipelago;
- 1435 (6591) *Tricornis tricornis* ([Lightfoot], 1786), label *Strombus tricornis* [Lightfoot], 1786, 6 specimens, Massawa, Eritrea, Red Sea;
- 1436 (6591) *Tricornis tricornis* ([Lightfoot], 1786), label *Strombus tricornis* [Lightfoot], 1786, 8 specimens, Massawa, Eritrea, Red Sea;
- 1437 (6589) *Tricornis tricornis* ([Lightfoot], 1786), label *Strombus tricornis* [Lightfoot], 1786, 1 specimen, Red Sea, Suakin;
- 1438 (6590) *Tricornis tricornis* ([Lightfoot], 1786), label *Strombus tricornis* [Lightfoot], 1786, 2 specimens, Red Sea, Dahlak Archipelago;
- 1439 (6583) *Aliger gigas* (Linnaeus, 1758), label *Strombus gigas* Linnaeus, 1758, 1 specimen, Indian Ocean;
- 1440 (6592) *Laevistrombus canarium* (Linnaeus, 1758), label *Strombus canarium* Linnaeus, 1758, 2 specimens, Indian Ocean;
- 1441 (6594) *Labiostrombus epidromis* (Linnaeus, 1758), label *Strombus epidromis* Linnaeus, 1758, 1 specimen, Indian Ocean;
- 1442 (6593) *Laevistrombus turturella* (Röding, 1798), label *Strombus isabella* Lamarck, 1822, 2 specimens, Indian Ocean;
- 1443 (12225) *Strombus* sp., 2 specimens, Indian Ocean;
- 1444 (6598) *Margistrombus septimus* (Duclos, 1844), label *Strombus succinctus* Linnaeus, 1767, 1 specimen, Indian Ocean;
- 1445 (6595) *Doxander vittatus* (Linnaeus, 1758), label *Strombus vittatus* Linnaeus, 1758, 1 specimen, Indian Ocean;
- 1446 (6597) *Dolomena columba* (Lamarck, 1822), label *Strombus columba* Lamarck, 1822, 2 specimens, Massawa, Eritrea, Red Sea;
- 1447 (6599) *Ministrombus minimus* (Linnaeus, 1771), label *Strombus minimus* Linnaeus, 1771, 2 specimens, Pacific Ocean, Port Jackson, Australia;
- 1448 (6596) *Doxander vittatus* (Linnaeus, 1758), label *Strombus vittatus* Linnaeus, 1758, 2 specimens, China;
- 1449 (6611) *Canarium elegans* (G. B. Sowerby II, 1842), label *Strombus elegans* G. B. Sowerby II, 1842, 2 specimens, Red Sea, Dahlak Archipelago;
- 1450 (3502) *Conomurex fasciatus* (Born, 1778), label *Strombus fasciatus* Born, 1778, 1 specimen, Philippines;
- 1451 (6601) *Conomurex fasciatus* (Born, 1778), label *Strombus fasciatus* Born, 1778, 2 specimens, Red Sea, Suakin;
- 1452 (6608) *Dolomena plicata* (Röding, 1798), label *Strombus plicatus* (Röding, 1798), 1 specimen, Indian Ocean;
- 1453 (6609) *Canarium elegans* (G. B. Sowerby II, 1842), label *Strombus elegans* G. B. Sowerby II, 1842, 1 specimen, Red Sea, Dahlak Archipelago;
- 1454 (6610) *Canarium elegans* (G. B. Sowerby II, 1842), label *Strombus elegans* G. B. Sowerby II, 1842, 5 specimens, Massawa, Eritrea, Red Sea;
- 1455 (6600) *Conomurex fasciatus* (Born, 1778), label *Strombus fasciatus* Born, 1778, 4 specimens, Red Sea, Dahlak Archipelago;
- 1456 (6622) *Gibberulus gibberulus albus* (Mörch, 1850), label *Strombus gibberulus* var. *rhodostomus* E. von Martens, 1869, 4 specimens, Massawa, Eritrea, Red Sea;
- 1457 (6614) *Canarium mutabile* (Swainson, 1821), label *Strombus floridus* Lamarck, 1822, 2 specimens, Massawa, Eritrea, Red Sea;
- 1458 (6613) *Canarium mutabile* (Swainson, 1821), label *Strombus floridus* Lamarck, 1822, 2 specimens, Indian Ocean;
- 1459 (6620) *Gibberulus gibberulus albus* (Mörch, 1850), label *Strombus gibberulus* var. *rhodostomus* E. von Martens, 1869, 1 specimen, Mauritius Island;
- 1460 (6621) *Gibberulus gibberulus albus* (Mörch, 1850), label *Strombus gibberulus* var. *rhodostomus* E. von Martens, 1869, 1 specimen, Indian Ocean;
- 1461 (6623) *Gibberulus gibberulus albus* (Mörch, 1850), label *Strombus gibberulus* var. *rhodostomus* E. von Martens, 2 specimens, Red Sea, Dahlak Archipelago;
- 1462 (6629) *Gibberulus gibberulus albus* (Mörch, 1850), label *Strombus gibberulus* var. *rhodostomus* E. von Martens, 1 specimen, Red Sea, Suez Canal;
- 1463 (6618) *Conomurex luhuanus* (Linnaeus, 1758), label *Strombus luhuanus* Linnaeus, 1758, 2 specimens, Indian Ocean;
- 1464 (6607) *Tridentarius dentatus* (Linnaeus, 1758), label *Strombus samar* Dillwyn, 1817, 2 specimens, Mauritius Island;

1465 (6603) *Canarium urceus* (Linnaeus, 1758), label *Strombus urceus* Linnaeus, 1758, 1 specimen, Indian Ocean;
 1466 (6602) *Canarium urceus* (Linnaeus, 1758), label *Strombus urceus* Linnaeus, 1758, 2 specimens, Indian Ocean;
 1467 (6619) *Conomurex decorus* (Röding, 1798), label *Strombus mauritanus* Lamarck, 1822, 2 specimens, Mauritius Island;
 1468 (10625) *Strombus* sp., 1 specimen, Singapore;
 1469 (10626) *Strombus* sp., 2 specimens, Singapore;
 1470 (6612) *Strombus* sp., 2 specimens, Pacific Ocean, Port Jackson, Australia;
 1471 (5995) *Strombus* sp., 2 specimens, Pacific Ocean, Port Jackson, Australia;
 1472 (5997) *Strombus* sp., 6 specimens, Pacific Ocean, Port Jackson, Australia;
 1473 (5996) *Strombus* sp., 6 specimens, Pacific Ocean, Port Jackson, Australia;
 1474 (6625) *Strombus* sp., 12 specimens, Pacific Ocean, Port Jackson, Australia;
 1475 (10627) *Strombus* sp., 5 specimens, Pacific Ocean, Port Jackson, Australia;
 1476 (10628) *Strombus* sp., 2 specimens, Pacific Ocean, Port Jackson, Australia;
 1477 (10629) *Strombus* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1478 (6606) *Strombus* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1479 (6604) *Strombus* sp., 4 specimens, Indian Ocean;
 1480 (6605) *Strombus* sp., 5 specimens, Pacific Ocean, Port Jackson, Australia;
 1481 (6615) *Strombus* sp., 4 specimens, Massawa, Eritrea, Red Sea;
 1482 (6616) *Strombus* sp., 1 specimen, Massawa, Eritrea, Red Sea;
 1483 (6617) *Strombus* sp., 1 specimen, Red Sea, Suakin;
 1484 (5999) *Strombus* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1485 (10632) *Strombus* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1486 (12228) *Strombus* sp., 2 specimens, Red Sea;
 1487 (12227) *Strombus* sp., 1 specimen, Trieste, Adriatic Sea;
 1488 (12226) *Strombus* sp., 5 specimens, Lovran, Croatia, Adriatic Sea;
 1489 (6631) *Harpago chiragra* (Linnaeus, 1758), label *Pterocera chiragra* (Linnaeus, 1758), 1 specimen, Indian Ocean;
 1490 (6629) *Lambis crocata* (Link, 1807), label *Pterocera crocata* Link, 1807, 1 specimen, Indian Ocean;

1491 (6630) *Lambis scorpius* (Linnaeus, 1758), label *Pterocera scorpius* (Linnaeus, 1758), 1 specimen, Indian Ocean;
 1492 (6627) *Lambis lambis* (Linnaeus, 1758), label *Pterocera lambis* (Linnaeus, 1758), 1 specimen, Zanzibar, Unguja, Tanzania;
 1493 (6628) *Lambis lambis* (Linnaeus, 1758), label *Pterocera lambis* (Linnaeus, 1758), 1 specimen, Indian Ocean;
 1494 (6628) *Lambis lambis* (Linnaeus, 1758), label *Pterocera lambis* (Linnaeus, 1758), 1 specimen, Indian Ocean;
 1495 (5245) *Ophioglossolambis digitata* (Perry, 1811), label *Pterocera elongata* Swainson, 1821, 1 specimen, Mauritius Island.

Class Gasteropoda
 Subclass Caenogastropoda
 Order Littorinimorpha
 Superfamily Stromboidea
 Family Rostellariidae

1496 (6634) *Tibia curta* (G. B. Sowerby II, 1842), label *Rostellaria curta* G. B. Sowerby II, 1842, 2 specimens, Massawa, Eritrea, Red Sea;
 1497 (6632) *Tibia insulaechorab* Röding, 1798, label *Rostellaria curvirostra* Lamarck, 1816, 2, Massawa, Eritrea, Red Sea;
 1498 (6632) *Tibia insulaechorab* Röding, 1798, label *Rostellaria curvirostra* Lamarck, 1816, 1 specimen, Massawa, Eritrea, Red Sea;
 1499 (6633) *Tibia curta* (G. B. Sowerby II, 1842), label *Rostellaria curta* G. B. Sowerby II, 1842, 3 specimens, Massawa, Eritrea, Red Sea.

Class Gasteropoda
 Subclass Caenogastropoda
 Order Littorinimorpha
 Superfamily Stromboidea
 Family Aporrhaidae

1500 (6635) *Aporrhais pespelecani* (Linnaeus, 1758), 2 specimens, Adriatic Sea, Rijeka (Fiume);
 1501 (6636) *Aporrhais pespelecani* (Linnaeus, 1758), 1 specimens, Adriatic Sea, Zadar;
 1502 (2252) *Aporrhais pespelecani* (Linnaeus, 1758), 2 specimens, St. Brides Bay, West Wales;
 1503 (10630) *Aporrhais pespelecani* (Linnaeus, 1758), 1 specimens, Montpellier, southern France, Mediterranean Sea;
 1504 (6637) *Aporrhais serresiana* (Michaud, 1828), label *Aporrhais pescarbonis* (Brongniart, 1823) sensu Forbes & Hanley, 1853, 1 specimen, Sicily, Mediterranean Sea;
 1505 (10631) *Aporrhais* sp., 2 specimens, Adriatic Sea.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order *Littorinimorpha*
 Superfamily *Stromboidea*
 Family *Struthiolariidae*

1506 (6638) *Struthiolaria papulosa* (Martyn, 1784), label *Struthiolaria pestruthscameli*, 1 specimen, New Zealand.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order *Littorinimorpha*
 Superfamily *Stromboidea*
 Family *Seraphsidae*

1507 (5255) *Terebellum terebellum* (Linnaeus, 1758), label *Terebellum subulatum* Lamarck, 1811, 2 specimens, New Britain Island, Bismarck Archipelago;

1508 (5969) *Terebellum terebellum* (Linnaeus, 1758), label *Terebellum subulatum* Lamarck, 1811, 2 specimens, Pacific Ocean, Port Jackson, Australia.

Class *Gasteropoda*
 Subclass *Caenogastropoda*
 Order *Littorinimorpha*
 Superfamily *Cypraeoidea*
 Family *Cypraeidae*

1509 (5257) *Arestorides argus* (Linnaeus, 1758), label *Cypraea argus* Linnaeus, 1758, 1 specimen, New Britain Island, Bismarck Archipelago;

1510 (6639) *Macrocyprea zebra* (Linnaeus, 1758), label *Cypraea exanthema* Linnaeus, 1767, 2 specimens, West Indies;

1511 (6647) *Bistolida hirundo neglecta* (G. B. Sowerby I, 1832), label *Cypraea neglecta* G. B. Sowerby I, 1832, 3 specimens, Indian Ocean;

1512 (6648) *Bistolida hirundo neglecta* (G. B. Sowerby I, 1832), label *Cypraea neglecta* G. B. Sowerby I, 1832, 1 specimen, Pacific Ocean, Port Jackson, Australia;

1513 (6649) *Bistolida hirundo* (Linnaeus, 1758), label *Cypraea hirundo* Linnaeus, 1758, 2 specimens, Maldives, Indian Ocean;

1514 (6646) *Bistolida ursellus* (Gmelin, 1791), label *Cypraea ursellus* Gmelin, 1791, 3 specimens, Mauritius Island;

1515 (6645) *Melicerona felina* (Gmelin, 1791), label *Cypraea felina felina* Gmelin, 1791, 2 specimens, Massawa, Eritrea, Red Sea;

1516 (6651) *Purpuradusta microdon* (J.E. Gray, 1828), label *Cypraea microdon* J.E. Gray, 1828, 2 specimens, Mauritius Island;

1517 (6650) *Purpuradusta fimbriata* (Gmelin, 1791), label *Cypraea fimbriata* Gmelin, 1791, 3 specimens, Massawa, Eritrea, Red Sea;

1518 (6643) *Luria isabella* (Linnaeus, 1758), label *Cypraea isabella* Linnaeus, 1758, 4, Mauritius Island;

1519 (5979) *Luria isabella* (Linnaeus, 1758), label *Cypraea isabella* Linnaeus, 1758, 3 specimens, Pacific Ocean, Port Jackson, Australia;

1520 (6642) *Luria lurida* (Linnaeus, 1758), label *Cypraea lurida* Linnaeus, 1758, 1 specimen, Adriatic Sea;

1521 (6641) *Luria lurida* (Linnaeus, 1758), label *Cypraea lurida* Linnaeus, 1758, 2 specimens, Adriatic Sea, Spalato;

1522 (6640) *Talparia talpa* (Linnaeus, 1758), label *Cypraea talpa* Linnaeus, 1758, 1 specimen, Indian Ocean;

1523 (6692) *Monetaria annulus* (Linnaeus, 1758), label *Cypraea annulus* Linnaeus, 1758, 11 specimens, Indian Ocean;

1524 (5982) *Monetaria annulus* (Linnaeus, 1758), label *Cypraea annulus* Linnaeus, 1758, 5 specimens, Pacific Ocean, Port Jackson, Australia;

1525 (6644) *Talostolida teres* (Gmelin, 1791), label *Cypraea teres* Gmelin, 1791, 2 specimens, Réunion Island, Indian Ocean;

1526 (6668) *Cypraea* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;

1527 (5985) *Monetaria annulus* (Linnaeus, 1758), label *Cypraea annulus* Linnaeus, 1758, 7 specimens, Pacific Ocean, Port Jackson, Australia;

1528 (6672) *Mauritia arabica* (Linnaeus, 1758), label *Cypraea arabica* Linnaeus, 1758, 5 specimens, Massawa, Eritrea, Red Sea;

1529 (6681) *Pseudozonaria arabicula* (Lamarck, 1810), label *Cypraea arabicula* Lamarck, 1810, 1 specimen, Panama;

1530 (6685) *Monetaria caputserpentis* (Linnaeus, 1758), label *Cypraea caputserpentis* Linnaeus, 1758, 5 specimens, Indian Ocean;

1531 (5976) *Mauritia arabica* (Linnaeus, 1758), label *Cypraea arabica* Linnaeus, 1758, 4 specimens, Pacific Ocean, Port Jackson, Australia;

1532 (6671) *Mauritia arabica* (Linnaeus, 1758), label *Cypraea arabica* Linnaeus, 1758, 4 specimens, Indian Ocean;

1533 (5978) *Monetaria caputserpentis* (Linnaeus, 1758), label *Cypraea caputserpentis* Linnaeus, 1758, 5 specimens, Pacific Ocean, Port Jackson, Australia;

1534 (6656) *Lyncina carneola* (Linnaeus, 1758), label *Cypraea carneola* Linnaeus, 1758, 1 specimen, Indian Ocean;

- 1535 (6657) *Lyncina carneola* (Linnaeus, 1758), label *Cypraea carneola* Linnaeus, 1758, 1 specimen, Pacific Ocean;
- 1536 (6658) *Lyncina carneola* (Linnaeus, 1758), label *Cypraea carneola* Linnaeus, 1758, 6 specimens, Massawa, Eritrea, Red Sea;
- 1537 (6659) *Lyncina carneola* (Linnaeus, 1758), label *Cypraea carneola* Linnaeus, 1758, 3 specimens, Red Sea, Suakin;
- 1538 (6660) *Lyncina carneola* (Linnaeus, 1758), label *Cypraea carneola* Linnaeus, 1758, 3 specimens, Port Said, Mediterranean Sea, north of the Suez Canal;
- 1539 (6661) *Erronea caurica* (Linnaeus, 1758), label *Cypraea caurica* Linnaeus, 1758, 2 specimens, Indian Ocean;
- 1540 (6682) *Mauritia mauritiana* (Linnaeus, 1758), label *Cypraea mauritiana* Linnaeus, 1758, 1 specimen, Ins. Fiji Island, South Pacific Ocean;
- 1541 (6683) *Mauritia mauritiana* (Linnaeus, 1758), label *Cypraea mauritiana* Linnaeus, 1758, 2 specimens, Indian Ocean;
- 1542 (6665) *Lyncina camelopardalis* (Perry, 1811), label *Cypraea melanostoma* G. B. Sowerby I, 1825, 5 specimens, Massawa, Eritrea, Red Sea;
- 1543 (10633) *Lyncina camelopardalis* (Perry, 1811), label *Cypraea melanostoma* G. B. Sowerby I, 1825, 2 specimens, Red Sea, Dahlak Archipelago;
- 1544 (10634) *Mauritia histrio* (Gmelin, 1791), label *Cypraea histrio* Gmelin, 1791, 1 specimen, Indian Ocean;
- 1545 (6693) *Monetaria obvelata* (Lamarck, 1810), label *Cypraea obvelata* Lamarck, 1810, 1 specimen, Sandwich Islands;
- 1546 (6677) *Mauritia histrio* (Gmelin, 1791), label *Cypraea histrio* Gmelin, 1791, 1 specimen, Indian Ocean;
- 1547 (6676) *Mauritia histrio* (Gmelin, 1791), label *Cypraea histrio* Gmelin, 1791, 1 specimen, Indian Ocean;
- 1548 (5984) *Monetaria moneta* (Linnaeus, 1758), label *Cypraea moneta* Linnaeus, 1758, 10 specimens, Pacific Ocean, Port Jackson, Australia;
- 1549 (6689) *Monetaria moneta icterina* (Lamarck, 1810), label *Cypraea icterina* Lamarck, 1810, 2 specimens, Indian Ocean;
- 1550 (6690) *Cypraea* sp., 13 specimens, Indian Ocean;
- 1551 (6691) *Cypraea* sp., 2 specimens, Zanzibar Archipelago, Indian Ocean;
- 1552 (5983) *Cypraea* sp., 2 specimens, Pacific Ocean, Port Jackson, Australia;
- 1553 (6688) *Cypraea* sp., 2 specimens, Indian Ocean;
- 1554 (6686) *Cypraea* sp., 4 specimens, Indian Ocean;
- 1555 (6687) *Cypraea* sp., 3 specimens, Zanzibar Archipelago, Indian Ocean;
- 1556 (6684) *Cypraea* sp., 3 specimens, West Indies;
- 1557 (6655) *Lyncina ventriculus* (Lamarck, 1810), label *Cypraea ventriculus* Lamarck, 1810, 1 specimen, Australia;
- 1558 (6655) *Lyncina ventriculus* (Lamarck, 1810), label *Cypraea ventriculus* Lamarck, 1810, 1 specimen, Kingsmill, Australia;
- 1559 (6680) *Mauritia histrio* (Gmelin, 1791), label *Cypraea reticulata* Martyn, 1784, 1 specimen, Brisbane, Queensland;
- 1560 (6679) *Mauritia histrio* (Gmelin, 1791), label *Cypraea reticulata* Martyn, 1784, 2 specimens, Indian Ocean;
- 1561 (6694) *Trona stercoraria* (Linnaeus, 1758), label *Cypraea stercoraria* Linnaeus, 1758, 2 specimens, Senegal;
- 1562 (6664) *Lyncina vitellus* (Linnaeus, 1758), label *Cypraea vitellus* Linnaeus, 1758, 3 specimens, Indian Ocean;
- 1563 (5977) *Lyncina vitellus* (Linnaeus, 1758), label *Cypraea vitellus* Linnaeus, 1758, 2 specimens, Pacific Ocean, Port Jackson, Australia;
- 1564 (6698) *Lyncina lynx* (Linnaeus, 1758), label *Cypraea lynx* Linnaeus, 1758, 1 specimen, Seychelles Islands;
- 1565 (6699) *Lyncina lynx* (Linnaeus, 1758), label *Cypraea lynx* Linnaeus, 1758, 3 specimens, Indian Ocean;
- 1566 (5988) *Lyncina lynx* (Linnaeus, 1758), label *Cypraea lynx* Linnaeus, 1758, 2 specimens, Pacific Ocean, Port Jackson, Australia;
- 1567 (6708) *Palmadusta asellus* (Linnaeus, 1758), label *Cypraea asellus* Linnaeus, 1758, 4 specimens, Indian Ocean;
- 1568 (6709) *Palmadusta asellus* (Linnaeus, 1758), label *Cypraea asellus* Linnaeus, 1758, 2 specimens, Pacific Ocean, Port Jackson, Australia;
- 1569 (6729) *Naria cernica* (G. B. Sowerby II, 1870), label *Cypraea cernica* G. B. Sowerby II, 1870, 1 specimen, Mauritius Island;
- 1570 (6713) *Palmadusta clandestina* (Linnaeus, 1767), label *Cypraea clandestina* Linnaeus, 1767, 4 specimens, Pacific Ocean, Port Jackson, Australia;
- 1571 (6712) *Palmadusta clandestina* (Linnaeus, 1767), label *Cypraea clandestina* Linnaeus, 1767, 3 specimens, Indian Ocean;
- 1572 (6714) *Cribrarula cribraria* (Linnaeus, 1758), label *Cypraea cribraria* Linnaeus, 1758, 1 specimen, Indian Ocean;

- 1573 (6701) *Erronea erronea* (Linnaeus, 1758), label *Cypraea erronea* Linnaeus, 1758, 2 specimens, Indian Ocean, Sri Lanka;
- 1574 (6702) *Erronea erronea* (Linnaeus, 1758), label *Cypraea erronea* Linnaeus, 1758, 1 specimen, Pacific Ocean;
- 1575 (6723) *Cypraea flaveola* Linnaeus, 1758 (nomen dubium), 3 specimens, Veracruz, Mexico;
- 1576 (6653) *Bistolida erythraeensis* (G. B. Sowerby I, 1837), label *Cypraea erythraeensis* G. B. Sowerby I, 1837, 1 specimen, Massawa, Eritrea, Red Sea;
- 1577 (6652) *Purpuradusta gracilis* (Gaskoin, 1849), label *Cypraea gracilis* Gaskoin, 1849, 1 specimen, Réunion Island, Indian Ocean;
- 1578 (6700) *Lyncina lynx* (Linnaeus, 1758), label *Cypraea lynx* Linnaeus, 1758, 6 specimens, Mauritius Island;
- 1579 (6697) *Cypraea pantherina* [Lightfoot], 1786, 8 specimens, Massawa, Eritrea, Red Sea;
- 1580 (6697) *Cypraea pantherina* [Lightfoot], 1786, 4 specimens, Massawa, Eritrea, Red Sea;
- 1581 (6696) *Cypraea pantherina* [Lightfoot], 1786, 3 specimens, Indian Ocean;
- 1582 (6705) *Palmadusta lentiginosa* (J.E. Gray, 1825), label *Cypraea lentiginosa* J.E. Gray, 1825, 11 specimens, Massawa, Eritrea, Red Sea;
- 1583 (6666) *Leporicypraea mappa* (Linnaeus, 1758), label *Cypraea mappa* Linnaeus, 1758, 1 specimen, Indian Ocean;
- 1584 (6711) *Palmadusta lentiginosa* (J.E. Gray, 1825), label *Cypraea lentiginosa* J.E. Gray, 1825, 3 specimens, Port Said, Egypt, Mediterranean Sea;
- 1585 (6667) *Leporicypraea mappa* (Linnaeus, 1758), label *Cypraea mappa* Linnaeus, 1758, 1 specimen, Indian Ocean;
- 1586 (10636) *Cypraea* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
- 1587 (5256) *Naria ocellata* (Linnaeus, 1758), label *Cypraea ocellata* Linnaeus, 1758, 3 specimens, Indian Ocean, Sri Lanka;
- 1588 (5258) *Erronea onyx* (Linnaeus, 1758), label *Cypraea onyx* Linnaeus, 1758, 2 specimens, Hong Kong;
- 1589 (6695) *Cypraea tigris* Linnaeus, 1758, 3 specimens, Indian Ocean;
- 1590 (6704) *Zonaria pyrum* (Gmelin, 1791), label *Cypraea pyrum* Gmelin, 1791, 3 specimens, Mediterranean Sea;
- 1591 (6728) *Naria poraria* (Linnaeus, 1758), label *Cypraea poraria* Linnaeus, 1758, 2 specimens, Pacific Ocean;
- 1592 (6727) *Naria poraria* (Linnaeus, 1758), label *Cypraea poraria* Linnaeus, 1758, 2 specimens, Réunion Island, Indian Ocean;
- 1593 (6703) *Staphylaea semiplota* (Mighels, 1845), label *Cypraea semiplota* Mighels, 1845, 1 specimen, Sandwich Islands;
- 1594 (6722) *Naria spurca* (Linnaeus, 1758), label *Cypraea spurca* Linnaeus, 1758, 1 specimen, Mediterranean Sea;
- 1595 (6706) *Palmadusta diluculum* (Reeve, 1845), label *Cypraea undata* Lamarck, 1822, 4 specimens, Indian Ocean;
- 1596 (6662) *Ovatipsa chinensis variolaria* (Lamarck, 1810), label *Cypraea variolaria* Lamarck, 1810, 1 specimen, Ambon Island, the Maluku Islands of Indonesia;
- 1597 (6663) *Ovatipsa chinensis variolaria* (Lamarck, 1810), label *Cypraea variolaria* Lamarck, 1810, 1 specimen, New Guinea;
- 1598 (6707) *Palmadusta ziczac* (Linnaeus, 1758), label *Cypraea ziczac* Linnaeus, 1758, 1 specimen, Mozambique;
- 1599 (5986) *Naria erosa* (Linnaeus, 1758), label *Cypraea erosa* Linnaeus, 1758, 3 specimens, Pacific Ocean, Port Jackson, Australia;
- 1600 (6724) *Naria erosa* (Linnaeus, 1758), label *Cypraea erosa* Linnaeus, 1758, 2 specimens, Pacific Ocean;
- 1601 (6725) *Naria erosa* (Linnaeus, 1758), label *Cypraea erosa* Linnaeus, 1758, 3 specimens, Indian Ocean;
- 1602 (10635) *Naria erosa* (Linnaeus, 1758), label *Cypraea erosa* Linnaeus, 1758, 1 specimen, Indian Ocean;
- 1603 (6730) *Naria helvola* (Linnaeus, 1758), label *Cypraea helvola* Linnaeus, 1758, 6 specimens, Indian Ocean;
- 1604 (6715) *Naria miliaris* (Gmelin, 1791), label *Cypraea miliaris* Gmelin, 1791, 2 specimens, Ambon Island, the Maluku Islands of Indonesia;
- 1605 (6718) *Naria turdus* (Lamarck, 1810), label *Cypraea turdus* Lamarck, 1810, 1 specimen, Dahlak Archipelago, Red Sea;
- 1606 (6721) *Naria turdus* (Lamarck, 1810), label *Cypraea turdus* Lamarck, 1810, 10 specimens, Singapore;
- 1607 (6719) *Naria turdus* (Lamarck, 1810), label *Cypraea turdus* Lamarck, 1810, 6 specimens, Massawa, Eritrea, Red Sea;
- 1608 (6720) *Naria turdus* (Lamarck, 1810), label *Cypraea turdus* Lamarck, 1810, 1 specimen, Port Said, Mediterranean Sea;
- 1609 (6678) *Cypraea* sp., 1 specimen, Indian Ocean;
- 1610 (6670) *Cypraea* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
- 1611 (6669) *Cypraea* sp., 2 specimens, Pacific Ocean, Port Jackson, Australia;

1612 (6710) *Cypraea* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1613 (6731) *Cypraea* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1614 (5981) *Cypraea* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1615 (10641) *Cypraea* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1616 (6716) *Cypraea* sp., 1 specimen, Island of São Vicente, Cape Verde, Porto Grande Bay;
 1617 (5989) *Cypraea* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1618 (6717) *Cypraea* sp., 1 specimen, Port Said, Egypt, Mediterranean Sea;
 1619 (5987) *Cypraea* sp., 3 specimens, Pacific Ocean, Port Jackson, Australia;
 1620 (6675) *Cypraea* sp., 1 specimen, Massawa, Eritrea, Red Sea;
 1621 (6726) *Cypraea* sp., 9 specimens, Port Said, Egypt, Mediterranean Sea;
 1622 (6674) *Cypraea* sp., 1 specimen, Massawa, Eritrea, Red Sea;
 1623 (6673) *Cypraea* sp., 6 specimens, Massawa, Eritrea, Red Sea;
 1624 (10639) *Cypraea* sp., 4 specimens, Pacific Ocean, Port Jackson, Australia;
 1625 (10640) *Cypraea* sp., 6 specimens, Pacific Ocean, Port Jackson, Australia;
 1626 (10642) *Cypraea* sp., 5 specimens, Pacific Ocean, Port Jackson, Australia;
 1627 (10643) *Cypraea* sp., 6 specimens, Pacific Ocean, Port Jackson, Australia;
 1628 (10644) *Cypraea* sp., 4 specimens, Pacific Ocean, Port Jackson, Australia;
 1629 (10637) *Cypraea* sp., 2 specimens, Pacific Ocean, Port Jackson, Australia;
 1630 (10638) *Cypraea* sp., 11 specimens, Pacific Ocean, Port Jackson, Australia;
 1631 (10651) *Cypraea* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1632 (10652) *Cypraea* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1633 (5991) *Cypraea* sp., 1 specimen, Pacific Ocean, Port Jackson, Australia;
 1634 (12219) *Monetaria annulus* (Linnaeus, 1758) label *Cypraea annulus* Linnaeus, 1758, 8 specimens, Indian Ocean;
 1635 (12220) *Cypraea* sp., 1 specimen, Indian Ocean;
 1636 (12221) *Cypraea* sp., 1 specimen, Lovrano, Croatia, Adriatic Sea;
 1637 (12222) *Cypraea* sp., 1 specimen, Adriatic Sea, Split, Croatia;
 1638 (12229) *Cypraea* sp., 1 specimen, Lovrano, Croatia, Adriatic Sea;

1639 (10645) *Cypraea* sp., 1 specimen, Lovrano, Croatia, Adriatic Sea;
 1640 (10646) *Cypraea* sp., 2 specimens, Lovrano, Croatia, Adriatic Sea;
 1641 (10647) *Cypraea* sp., 1 specimen, Lovrano, Croatia, Adriatic Sea;
 1642 (10648) *Cypraea* sp., 1 specimen, Lovrano, Croatia, Adriatic Sea;
 1643 (10649) *Cypraea* sp., 1 specimen, Lovrano, Croatia, Adriatic Sea;
 1644 (10650) *Cypraea* sp., 1 specimen, Lovrano, Croatia, Adriatic Sea.

Conclusions

The paper lists 2532 specimens, registered at inventory numbers 999 (6434) to 1644 (10650), specimens belonging to 29 families, as follows:

1. Family *Cassidae* – inventory numbers 999 (6434) to 1020 (3737), 27 specimens;
2. Family *Tonnidae* – inventory numbers 1021 (5236) to 1033 (10591), 10 specimens;
3. Family *Harpidae* – inventory number 1019 (3738), 1 specimen;
4. Family *Ficidae* – inventory numbers 1027 (3749) to 1034 (3745), 7 specimens;
5. Family *Velutinidae* – inventory numbers 1035 (3754) to 1037 (3755), 3 specimens;
6. Family *Naticidae* – inventory numbers 1038 (3757) to 1108 (3803), 180 specimens;
7. Family *Nassariidae* – inventory number 1088 (3787), 1 specimen;
8. Family *Epitoniidae* – inventory numbers 1109 (3805) to 1134 (10605), 40 specimens;
9. Family *Scaliolidae* – inventory number 1133 (3824), 11 specimens;
10. Family *Terebridae* – inventory numbers 1135 (5241) to 1158 (3827), 37 specimens;
11. Family *Columbellidae* – inventory number 1145 (3831), 1 specimen;
12. Family *Pyramidellidae* – inventory numbers 1159 (3847) to 1242 (3556), 756 specimens;
13. Family *Ringiculidae* – inventory number 1173 (3858), 1 specimen;
14. Family *Raphitomidae* – inventory number 1174 (6472) to 1176 (6472), 12 specimens;
15. Family *Vanikoridae* – inventory number 1224 (1429), 1 specimen;
16. Family *Eulimidae* – inventory numbers 1239 (5244) to 1254 (3878), 32 specimens;
17. Family *Planaxidae* – inventory number 1232 (3876), 1 specimens;
18. Family *Pleuroceridae* – inventory numbers 1249 (6489) to 1250 (6487), 2 specimens;
19. Family *Cerithopsidae* – inventory number 1253 (3879), 1 specimens;

20. Family *Litiopidae* – inventory numbers 1255 (10611) to 1260 (10610), 429 specimens;
 21. Family *Architectonicidae* – inventory numbers 1261 (3883) to 1266 (10615), 10 specimens;
 22. Family *Scissurellidae* – inventory numbers 1267 (10616) to 1268 (10617), 5 specimens;
 23. Family *Conidae* – inventory numbers 1269 (3982) to 1421 (6569), 405 specimens;
 24. Family *Strombidae* – inventory numbers 1422 (6578) to 1495 (5245), 159 specimens;
 25. Family *Rostellariidae* – inventory numbers 1496 (6634) to 1499 (6633), 8 specimens;
 26. Family *Aporrhaidae* – inventory numbers 1500 (6635) to 1505 (10631), 9 specimens;

27. Family *Struthiolariidae* – inventory number 1506 (6638), 1 specimen;
 28. Family *Seraphsidae* – inventory numbers 1507 (5255) to 1508 (5969), 4 specimens;
 29. Family *Cypraeidae* – inventory numbers 1509 (5257) to 1644 (10650), 378 specimens.

The majority of the specimens were collected from the Red Sea and Adriatic Sea.

Museum natural history collections, as it is the case of the presented material, are in a state of constant change and one of the reasons is that the specimens need to be reviewed and reorganized due to taxonomic development .

REFERENCES

- Beu 2008 Beu Alan G., *Recent deep-water Cassidae of the world. A revision of Galeodea, Oocorys, Sconsia, Echinophoria and related taxa, with new genera and species (Mollusca, Gastropoda)*. In: Héros, V. et al. (Ed.) *Tropical Deep-Sea Benthos 25. Mémoires du Muséum national d'Histoire naturelle*, 196 (2008), p. 269-387
- Bouchet et al. 2005 Bouchet Philippe, Rocroi Jean-Pierre, Fryda Jiri, Hausdorf Bernhard, Ponder Winston, Valdés Ángel, Warén Anders, *Classification and nomenclator of Gastropod families*. In: *Malacologia, International Journal of Malacology*, Vol. 47(1–2), ConchBooks (2005), p. 1-397.
- Jickeli 1922 Jickeli Karl Friedrich, Moritz v. Kimacowicz. In: *Verhandlungen und Mitteilungen des Siebenbürgischen Vereins für Naturwissenschaften zu Hermannstad* 71 (1922) Sibiu, p. 58-62.
- Mesaroş 2013 Mesaroş Ana-Maria, *The catalogue of the Kimakowicz malacological collection from the Natural History Museum in Sibiu (Part I)*. In: *Brukenthal Acta Musei*, VIII.3 (2013) Sibiu, p. 469-486.
- Păpureanu 2019 Păpureanu Ana-Maria, *The catalogue of the Kimakowicz malacological collection from the Natural History Museum in Sibiu (II Part)*. In: *Brukenthal Acta Musei*, XIV.3 (2019), p. 629-656.
- * <https://www.molluscabase.org/>
- ** <http://www.marinespecies.org/index.php>

THE GENUS *CARABUS* LINNAEUS, 1758 (COLEOPTERA: CARABIDAE) FROM THE NATURAL HISTORY MUSEUM OF SIBIU ENTOMOLOGICAL COLLECTIONS

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Abstract. *There is clear evidence that museum collections add a significant contribution to species knowledge in terms of distribution, biology, and ecology. Therefore, efforts in revising such collection are crucial to unreveal missing information on species in general. Insect collections are rather overlooked in Romania despite the valuable data which is to be found in such collections. Our efforts aim to bring to light both well-known and rather local importance collection specimens throw reliable catalogues. Thus, in the present paper we highlight the data available on the genus Carabus Linnaeus, 1758 found in the Brukenthal National Museum collection, with an extensive data on the specimens and former distribution of the species.*

Keywords: *distribution, hotspot, biodiversity, faunistics.*

Rezumat. *Există dovezi concludente care atestă importanța colecțiilor muzeale în termeni de distribuție, biologie și ecologie. Astfel, sunt necesare studii exhaustive care să completeze golurile cunoașterii în cazul multor specii. Colecțiile entomologice sunt adesea ignorate în România, deși există date valoroase prezente în acestea. Eforturile noastre sunt ținute spre a scoate în evidență deopotrivă colecțiile cunoscute și mai puțin cunoscute prin cataloage de calitate. Astfel, în prezenta lucrare subliniem datele regăsite în colecțiile entomologice ale Muzeului Brukenthal privind genul Carabus Linnaeus, 1758, cu accent pe speciile regăsite în colecții și prin prezentarea distribuției istorice ale acestora.*

Cuvinte cheie: *distribuție, hot-spot, biodiversitate, faunistica.*

Introduction

Museum collections are a key component in nature conservation (Pike, Ehrlich 2010).

The collections from the Natural History Museum of Sibiu (Brukenthal National Museum) consist of important data that can be used for taxonomical revisions. In the last decades many studies emphasized the importance of this collection and covered a wide spectrum of scientific groups (see Cuzepan *et al.* 2015).

Going into details, entomological collections are some of the most important in terms of scientific and historical values in Romania. Alongside the collections from Grigore Antipa Natural History Museum the collections from Sibiu are a consistent database for researchers world-wide.

The entomological collections from the Natural History Museum of Sibiu consist of 265.777 specimens distributed in 14 collections and posses a special value, both historic and scientific.

Most of the specimens were collected form Transylvania but also from otherregions in Romania and it consists of many types, especially

beetles and rare and endemic species (Cuzepan *et al.* 2015)

The objectives of this paper were: updating the names of species, studying of Natura 2000 species, making distribution maps of collecting points and examining habitat transformation.

Material and methods

The analysed material consisted of 1494 specimens from the genus *Carabus* (Carabidae family) from two of entomological collections in the Natural History Museum in Sibiu: „Transylvanian Society for Natural Sciences” Collection – 1107 pieces and „Dr. Eugen Worell” Collection – 387 pieces.

The species were identified with the keys from Gidei & Popescu (2012) and Trautner & Geigenmuller (1987).

The scientific names of species were updated using the the Global Biodiversity Information Facility (<https://www.gbif.org/species/>).

The labels on the museum pieces contain collecting location in Hungarian, German or Romanian. Using the collecting information available on the labels, specimens were georeferenced using Google Maps, Google Earth, topographic maps or historical maps. We used

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ArcGIS 10.4 (ESRI 2013) and the WGS1984 Web Mercator projection system to generate maps. Showing the distribution of species and species richness. Species richness was rendered as number of species in every grid cell; for the general map the size of the cell is 100 km², while for the map of Romania the size of the cell is 10 km².

Results

List of species

The material of the Entomological Collections from the Natural History Museum of Sibiu is given bellow.

Family Carabidae Latreille, 1802

Subfamily Carabinae Latreille, 1802

Tribe Carabini Latreille, 1802

Subtribe Carabina Latreille, 1802

Genus *Carabus* Linnaeus, 1758

„Transylvanian Society for Natural Sciences” Collection

Subgenus *Archicarabus* Seidlitz, 1887

***Carabus rossii* Lemoult, 1912:** 2 specs as *Archicarabus rossii* (Inventory no 779 – 642, Inventory no 780 – 643), Piemt. (Piemont, Italia), leg. Bielz 58.

***Carabus alysidotus* Illiger, 1798:** 1 spec as *Archicarabus alysidotus* (Inventory no 1648 – 1353), Toscan, leg. Bielz 58.

***Carabus montivagus* Palliardi, 1825:** 5 specs as *DeuteroCarabus montivagus* (Inventory no 1683 – 1383, Inventory no 1684 – 1384, Inventory no 1685 – 1385, Inventory no 1686 – 1386, Inventory no 1687 – 1387), Mehadia 1886, leg. Birthler 1895; 1 spec as *DeuteroCarabus montivagus* (Inventory no 1688 – 1388), Mehadia, leg. R. Albrecht 1910; 1 spec as *DeuteroCarabus montivagus* (Inventory no 1689 – 1389), Mehadia; 3 specs as *DeuteroCarabus montivagus* (Inventory no 1690 – 1390, Inventory no 1691 – 1391, Inventory no 1692 – 1392), Kanabe Dezso Ferenezfalva; 1 spec as *DeuteroCarabus montivagus* v. *velebiticus* (Inventory no 1701 – 1399), Velebit, Dobiasch, leg. Birthler 1895.

***Carabus montivagus* subsp. *blandus* Frivaldszky, 1865:** 3 specs as *DeuteroCarabus montivagus* v. *blendus* (Inventory no 1694 – 1393, Inventory no 1695 – 1394, Inventory no 1696 – 1395), Kapellenberg, leg. Deubel; 1 spec as *DeuteroCarabus montivagus* v. *blendus* (Inventory no 1697 – 1396), Martin Dorf., leg. Kimakowicz;

1 spec as *DeuteroCarabus montivagus* v. *blendus* (Inventory no 1698 – 1397), M. Vasarh 1890, leg. Birthler 1895; 1 spec as *DeuteroCarabus montivagus* v. *blendus* (Inventory no 1699 – 1398), Deva Schloss, leg. Kimak.

***Carabus wiedemanni* subsp. *wiedemanni* Menetries, 1836:** 2 specs as *Archicarabus Wedemanni* (Inventory no 1703 – 1400, Inventory no 1704 – 1401), Turcia, leg. Blz. 58; 1 spec as *Archicarabus Wedemanni* (Inventory no 1705 – 1402), Turc., Merkl, leg. Birthler 1895.

***Carabus nemoralis* Müller, 1764:** 1 spec as *Archicarabus nemoralis* (Inventory no 1707 – 1403), Germ. Dr. Szidlitz, leg. Birthler 1895; 1 spec as *Archicarabus nemoralis* (Inventory no 1708 – 1404), W. Preuj, 1888, leg. Birthler 1895; 1 spec as *Archicarabus nemoralis* (Inventory no 1709 – 1405), Marburg, leg. Weber; 1 spec as *Archicarabus nemoralis* (Inventory no 1710 – 1406), Marburg, Weber; 1 spec as *Archicarabus nemoralis* (Inventory no 1711 – 1607), leg. Km. 95, Austr., A. F., VII:90; 2 specs as *Archicarabus nemoralis* (Inventory no 1712 – 1408, Inventory no 1713 – 1409), Elasz, leg. Birthler 1895; 2 specs as *Archicarabus nemoralis* (Inventory no 1714 – 1410, Inventory no 1715 – 1411), Unt. Elsass, Zalberg, Giebler, leg. Birthler 1895; 1 spec as *Archicarabus nemoralis* (Inventory no 1716 – 1412), Bases, Alpes, leg. Birthler 1895; 1 spec as *Archicarabus nemoralis* aber. *prassinotinctus* (Inventory no 1718 – 1413), Hispan, Dobiasch, leg. Birthler 1895.

***Carabus monticola* Dejean, 1826:** 1 spec as *Archicarabus monticola* (Inventory no 1719 – 1414), Gallia, Reitter, leg. Birthler 1895; 1 spec as *Archicarabus monticola* (Inventory no 1720 – 1415), Pienant, Dobiasch, leg. Birthler 1895.

Subgenus *Aulonocarabus* Reitter, 1896

***Carabus canaliculatus* Adams, 1812:** 1 spec as *Aulonocarabus canaliculatus* (Inventory no 1874 – 1547), Sibirien, Reitter, leg. Birthler 1895.

Subgenus *Carabus* Linnaeus, 1758

***Carabus menetriesi* Faldermann in Hummel, 1827:** 1 spec as *Carabus menetriesi* (Inventory no 1035 – 883), Kgl. Dombrowka, Ob. Schlesien, Wendroth, Silesia de sus V1927.

***Carabus granulatus* Linnaeus, 1758:** 1 spec as *Carabus granulatus* (Inventory no 1037 – 834), West, Schubellg; 1 spec as *Carabus granulatus* (Inventory no 1038 – 835), Bob. Slonjuice, Bohemia orientalis; 1 spec as *Carabus granulatus* (Inventory no 1039 – 836), leg. Km 95, Siles, Sil 91; 2 specs as *Carabus granulatus*

(Inventory no 1040 – 837, Inventory no 1044 – 838), Sil 21.91, leg. Kimak.; 1 spec as *Carabus granulatus* (Inventory no 1041 – 839), Halizia Reitter (Galicia); 2 specs as *Carabus granulatus* (Inventory no 1043 – 840, Inventory no 1044 – 841), Ungvlgy; 1 spec as *Carabus granulatus* (Inventory no 1045 – 842), 26.71, Tatra, 17.V.885, leg. Biro L.; 1 spec as *Carabus granulatus* (Inventory no 1046 – 843), Buda, 10.15; 2 specs as *Carabus granulatus* (Inventory no 1047 – 844, Inventory no 1048 – 845), Kanabe Dezso Resiezabanya (Reșița); 1 spec as *Carabus granulatus* (Inventory no 1049 – 846), Temesvar (Timișoara), leg. Birthler; 1 spec as *Carabus granulatus* (Inventory no 1050 – 847), Regen (Reghin), leg. Birthler; 1 spec as *Carabus granulatus* (Inventory no 1051 – 848), 3.3.91, leg. Hopffg.; 1 spec as *Carabus granulatus* (Inventory no 1052 – 849), 17.5.90, leg. Kimak, Lăpuciu de sus; 1 spec as *Carabus granulatus* (Inventory no 1053 – 850), Sussee (Austria), 1886, leg. Birthler 1895; 3 specs as *Carabus granulatus* aber. *rubripes* (Inventory no 1056 – 851, Inventory no 1057 – 852, Inventory no 1058 – 853), 79 Jeni Schwarb aep. Visnon, Simo, Germania (SV); 1 spec as *Carabus granulatus* aber. *rubripes* (Inventory no 1059 – 854), Sil. 21.91, leg. Km 95, Siles.; 1 spec as *Carabus granulatus* aber. *rubripes* (Inventory no 1060 – 855), Kronsladter Gbg – leg. Deubel (Brașov); 1 spec as *Carabus granulatus* aber. *rubripes* (Inventory no 1061 – 856), Fogarasch 1885, leg. Birthler 1895; 2 specs as *Carabus granulatus* aber. *rubripes* (Inventory no 1062 – 857, Inventory no 1063 – 858), Rp. VI.91, Dietl. (Csiki), Turnu Roșu; 1 spec as *Carabus granulatus* aber. *rubripes* (Inventory no 1064 – 859), Gotzenberg (Măgura), Sibiu, leg. A. Muller, 25.X.925; 1 spec as *Carabus granulatus* aber. *rubripes* (Inventory no 1065 – 860), Gb. 10/5.91, Dietl, Măgura Cisnădioarei; 1 spec as *Carabus granulatus* aber. *rubripes* (Inventory no 1066 – 861), Gb., 1/8.87, leg. Kimak, Măgura Cisnădioarei; 1 spec as *Carabus granulatus* aber. *rubripes* (Inventory no 1067 – 862), Gb 57, leg. Kimak.; 1 spec as *Carabus granulatus* aber. *forticostis* (Inventory no 1069 – 863), Dees. 1890; 4 specs as *Carabus granulatus corticolis* (Inventory no 1078 – 870, Inventory no 1079 – 871, Inventory no 1080 – 872, Inventory no 1081 – 873), Caucas, leg. Birthler 1895; 1 spec as *Carabus granulatus corticolis* (Inventory no 1082 – 874), Syrien, Deubel, 26, 1900; 1 spec as *Carabus granulatus interstitialis* (Inventory no 1070 – 864), Tirol, leg. Bielz 58.

***Carabus arvensis* Paykull, 1790:** 1 spec as *Carabus arvensis* (Inventory no 1285 – 1040),

Unt. Elsass, Zabern, Giebelen, leg. Birthler 1895; 1 spec as *Carabus arvensis* (Inventory no 1286 – 1041), Gotting, leg. Deubel; 1 spec as *Carabus arvensis* (Inventory no 1287 – 1042), Austria Inf. Schnieberg, Ad. Hoffmann; 1 spec as *Carabus arvensis* (Inventory no 1288 – 1043), Tatra, 17.V.889, leg. Biro L.; 1 spec as *Carabus arvensis* (Inventory no 1289 – 1044), Ungv.; 1 spec as *Carabus arvensis* (Inventory no 1291 – 1045), Fag. Geb, leg. Birthler; 1 spec as *Carabus conciliator* (Inventory no 1076 – 868), Siberia, leg. Birthler 1895; 6 specs as *Carabus arvensis* v. *carpathus* (Inventory no 1309 – 1059, Inventory no 1310 – 1060, Inventory no 1311 – 1061, Inventory no 1312 – 1062, Inventory no 1313 – 1063, Inventory no 1314 – 1064), leg. Deubel, Rodnaer – Gb., alpin; 1 spec as *Carabus arvensis* v. *carpathus* (Inventory no 1316 – 1065), Bucsecs, leg. Deubel, alpin; 1 spec as *Carabus arvensis* v. *carpathus* (Inventory no 1317 – 1066), Bucsecs, 14.918.

***Carabus arvensis* subsp. *sylvaticus* Dejean, 1826:** 5 specs as *Carabus arvensis sylvaticus* (Inventory no 1300 – 1052, Inventory no 1301 – 1053, Inventory no 1302 – 1054, Inventory 1303 – 1055, Inventory no 1304 – 1056), Unt. Elsass, Zabern, Giebeler, leg. Birthler 1895.

***Carabus deyrollei* Gory, 1839:** 1 spec as *Carabus deyrollei* (Inventory no 1319 – 1067), Husfo. Klager, leg. Birthler 1895.

Subgenus *Cavazzuticarabus* Imura, 1998

***Carabus latreilleanus* Csiki, 1927:** 2 specs as *Orinocarabus latreillei* (Inventory no 1831 – 1508, Inventory no 1832 – 1509), Alpes, Dr Sidlitr, leg. Birthler 1895; 1 spec as *Orinocarabus latreillei* (Inventory no 1833 – 1510), M. Rosa, leg. Birthler 1895.

Subgenus *Chaetocarabus* C.G. Thomson, 1875

***Carabus intricatus* Linnaeus, 1760:** 1 spec as *Chaetocarabus intricatus* (Inventory no 707 – 579), Unt. Elsass, Zabern, Giebeier, leg. Birthler 1895; 1 spec as *Chaetocarabus intricatus* (Inventory no 708 – 580), Austria; 1 spec as *Chaetocarabus intricatus* (Inventory no 709 – 581), leg. R. Albrecht, Wien, 06.1909; 1 spec as *Chaetocarabus intricatus* (Inventory no 710 – 582), Usngel, Wien, 07.1909, leg. Albrecht; 1 spec as *Chaetocarabus intricatus* (Inventory no 711 – 583), Wiener, Wald; 1 spec as *Chaetocarabus intricatus* (Inventory no 713 – 584), Frencsin, Deubel, leg. Birthler 1895; 1 spec as *Chaetocarabus intricatus* (Inventory no 714 – 585), Schassberg; 3 spec as *Chaetocarabus intricatus* (Inventory no 715 – 586, Inventory no

716 – 587, Inventory no 717 – 588), Schassberg, leg. Petri; 1 spec as *Chaetocarabus intricatus* (Inventory no 718 – 589), Schassberg; 1 spec as *Chaetocarabus intricatus* (Inventory no 719 – 590), Schassberg, leg. Petri, 4.11; 1 spec as *Chaetocarabus intricatus* (Inventory no 720 – 591), Sb. Fuchglasch, 16.X.1909; 1 spec as *Chaetocarabus intricatus* (Inventory no 721 – 592), Fuchslooh, Schassburg, Mulm in Nussbaum, 10.XI.1899; 1 spec as *Chaetocarabus intricatus* (Inventory no 722 – 593), Schassberg, Petri; 1 spec as *Chaetocarabus intricatus* (Inventory no 723 – 594), Schassberg, Petri, 18.IV, Brika; 1 spec as *Chaetocarabus intricatus* (Inventory no 724 – 595), Schassberg; 1 spec as *Chaetocarabus intricatus* (Inventory no 725 – 596), Keroly, 1886, leg. Birthler 1895; 1 spec as *Chaetocarabus intricatus* (Inventory no 726 – 597), Siebenburgen, Fogarascher Geb, leg. R. Albrecht; 2 specs as *Chaetocarabus intricatus* (Inventory no 727 – 598, Inventory no 728 – 599), Zibinsgeb. Czootal, VII.1931, C. Orendi; 1 spec as *Chaetocarabus intricatus* (Inventory no 729 – 600), Mehadia, 1886; 2 specs as *Chaetocarabus intricatus* (Inventory no 730 – 601, Inventory 731 – 602), Mehadia, 1886, leg. Birthler 1895; 2 specs as *Chaetocarabus intricatus* (Inventory no 732 – 603, Inventory 733 – 604), Serb, leg. Birthler 1895; 1 spec as *Chaetocarabus intricatus* aber. *bohemicus* (Inventory no 734 – 605), Bohem, Steigern, leg. Birthler 1895; 3 specs as *Chaetocarabus intricatus* aber. *liburnicus* (Inventory no 736 – 606, Inventory no 737 – 607, Inventory no 738 – 608), Croatien, Dobiasch, leg. Birthler 1895; 4 specs as *Chaetocarabus intricatus* v. *angustulus* (Inventory no 740 – 609, Inventory no 741 – 610, Inventory no 742 – 611, Inventory no 743 – 612), Kronstadt, Deubel, leg. Birthler 1895; 1 spec as *Chaetocarabus intricatus* v. *angustulus* (Inventory no 744 – 613), leg. Hopffg., 3.388 Krg; 1 spec as *Chaetocarabus intricatus* v. *angustulus* (Inventory no 745– 614), Siebenburgen, Fogarascher, leg. R. Albrecht; 1 spec as *Chaetocarabus intricatus* v. *angustulus* (Inventory no 746 – 615), leg. Kimak, Raia Sza; 1 spec as *Chaetocarabus intricatus* v. *angustulus* (Inventory no 747 – 616), Gotzenberg, leg. Muller, 25.X.1925; 1 spec as *Chaetocarabus intricatus* v. *angustulus* (Inventory no 748 – 617), Szurduk, P.V., leg. Petri, 1910; 1 spec as *Chaetocarabus intricatus* v. *angustulus* (Inventory no 749 – 618), Schassberg; 1 spec as *Chaetocarabus intricatus* v. *angustulus* (Inventory no 750 – 619), Schassberg, leg. Petri; 1 spec as

Chaetocarabus liburnicus (Inventory no 863 – 688).

Subgenus *Chrysocarabus* C.G. Thomson, 1875

***Carabus hispanus* Fabricius, 1787:** 3 specs as *Chrysocarabus hispanus* (Inventory no 864 – 704, Inventory no 865 – 705, Inventory no 868 – 706), Cevenan, leg. Bielz 58.

***Carabus rutilans* Dejean, 1826:** 1 spec as *Chrysocarabus rutilans* (Inventory no 869 – 707), Merkl, Pyron, leg. Birthler 1895; 1 spec as *Chrysocarabus rutilans* (Inventory no 870 – 708), Pyrenaeu, Getrin, leg. Birthler 1895.

***Carabus solieri* Dejean, 1826:** 1 spec as *Chrysocarabus solieri* (Inventory no 875 – 710), Spanien, leg. Bielz 58; 1 spec as *Chrysocarabus solieri* (Inventory no 876 – 711), Pyrinae, Dobiasch, leg. Birthler 1895; 1 spec as *Chrysocarabus solieri* (Inventory no 877 – 712), Pyr., Klager, leg. Birthler 1895.

***Carabus splendens* Olivier, 1790:** 1 spec as *Chrysocarabus splendens* (No inventory number), Schuler Geb., leg. Km; 1 spec as *Chrysocarabus splendens* (No inventory number), Knonstadt, Deubel, leg. Birthler 1895; 1 spec as *Chrysocarabus splendens* (Inventory no 879 – 713), Gallia, Merkl, leg. Birthler 1895; 2 specs as *Chrysocarabus splendens* (Inventory no 880 – 714, Inventory no 881 – 715), Pyrenaeu, Merkl, leg. Birthler 1895.

***Carabus lineatus* Quensel, 1806:** 1 spec as *Chrysocarabus lineatus* (Inventory no 883 – 716), Asturia, Getschman 1379, Reitter, leg. Birthler 1895; 1 spec as *Chrysocarabus lateralis* (Inventory no 884 – 717), Pyr, Klager, leg. Birthler 1895.

***Carabus auronitens* Fabricius, 1792:** 2 specs as *Chrysocarabus punctatoauratus* (Inventory no 886 – 718, Inventory no 887 - 719), Pyrenae, leg. Bielz 58; 2 specs as *Chrysocarabus punctatoauratus* (Inventory no 888 – 720, Inventory no 889 – 721), Pyr, Klager, leg. Birthler 1895; 1 spec as *Chrysocarabus punctatoauratus* (Inventory no 890 – 722), Pyrenaeu, Gehim, leg. Birthler 1895.

***Carabus auronitens* subsp. *auronitens* Fabricius, 1792:** 1 spec as *Chrysocarabus auronitens* (Inventory no 893 – 723), Oetscher, auronitens; 1 spec as *Chrysocarabus auronitens* (Inventory no 894 – 724), Aufsee, leg. Birthler 1895; 1 spec as *Chrysocarabus auronitens* (Inventory no 895 – 725), Carm, leg. Bielz 58; 1 spec as *Chrysocarabus auronitens* (Inventory no 899 – 726), Rlalino, Dobiasch, leg. Birthler 1895; 4 specs as *Chrysocarabus auronitens* (Inventory

no 900 – 727, Inventory no 901 – 728, Inventory no 902 – 729, Inventory no 903 – 730), Unt. Elsass, Zabern, Giebler, leg. Birthler 1895; 1 spec as *Chrysocarabus auronitens* (Inventory no 904 – 731), Helv, Hopffg., leg. Birthler 1895; 2 specs as *Chrysocarabus auronitens* (Inventory no 905 – 732, Inventory no 906 – 733), Gallia, Merkl, leg. Birthler 1895; 1 spec as *Chrysocarabus auronitens* v. *subcatenulatus* (Inventory no 907 – 734), Foret de Lorge, Merkl, dec. 85, leg. Birthler 1895; 2 specs as *Chrysocarabus auronitens* v. *nigrepes* (Inventory no 909 – 735, Inventory no 910 – 736), Neusohl Dr Bothar, Waterland, richtig; 2 specs as *Chrysocarabus auronitens auronitens* v. *zwickii* (Inventory no 912 – 737, Inventory no 913 – 738), Halv., Dobiasch, leg. Birthler 1895.

***Carabus auronitens* subsp. *festivus* Dejean, 1826:** 1 spec as *Chrysocarabus auronitens festivus* (Inventory no 915 – 739), Pyr. Klager, leg. Birthler 1895.

***Carabus auronitens* subsp. *cupreonitens* Chevrolat, 1861:** 2 specs as (Inventory no 917 – 740, Inventory no 918 – 741), Colvados, L. Bleuse, leg. Birthler 1895.

***Carabus auronitens* subsp. *escheri* Palliardi, 1825:** 1 spec as *Chrysocarabus auronitens* v. *Escheri* (Inventory no 922 – 745), leg. Deubel Nh. 1894; 2 specs as *Chrysocarabus auronitens* v. *Escheri* (Inventory no 923 – 746, Inventory no 924 – 747), Kanabe Dezso F. Jalva; 1 spec as *Chrysocarabus auronitens* v. *Escheri* (Inventory no 925 – 748), Szemenis, Merkl, leg. Birthler 1895; 1 spec as *Chrysocarabus auronitens* v. *Escheri* (Inventory no 926 – 749), 3.3.83, Kzg., leg. Hopffg.; 1 spec as *Chrysocarabus auronitens* v. *Escheri* (Inventory no 927 – 750), Gohanberg, 3.X.925, Smoth, Winberlauyer; 1 spec as *Chrysocarabus auronitens* v. *Escheri* (Inventory no 928 – 751), Pr. 26 – 14.5.87, leg. Kimak; 1 spec as *Chrysocarabus auronitens* v. *Escheri* (Inventory no 929 – 752), Negevan, Bielz, leg. Birthler 1895; 1 spec as *Chrysocarabus auronitens* v. *Escheri* (Inventory no 930 – 753), Du-28-7, leg. Km 1895; 2 specs as *Chrysocarabus auronitens* v. *laevipennis* (Inventory no 933 – 754, Inventory no 934 – 755), leg. Deubel, Rodnaer – Gb., alpin; 1 spec as *Chrysocarabus auronitens* v. *laevipennis* (Inventory no 935 – 756), Mester hara; 3 specs as *Chrysocarabus auronitens* v. *laevipennis* (Inventory no 936 – 757, Inventory no 937 – 758, Inventory no 938 – 759), Mester hara, leg. Birthler 1895; 1 spec as *Chrysocarabus auronitens* v. *laevipennis* (Inventory no 939 – 760), Kronstadt, 1925, H. Connot; 1 spec as *Chrysocarabus auronitens* v.

laevipennis (Inventory no 940 – 761), Kronstadt, Deubel, leg. Birthler 1895; 2 specs as *Chrysocarabus auronitens* v. *laevipennis* (Inventory no 941 – 762, Inventory 942 – 763), Schuler – Geb, leg. Km Wfs; 1 spec as *Chrysocarabus auronitens* v. *laevipennis* (Inventory no 943 – 764), Bucsecs, leg. Km, Jpthl 1900.

***Carabus kraussi* Vacher de Lapouge, 1898:** 1 spec as *Chrysocarabus auronitens* v. *vindobonensis* (Inventory no 921 – 742), Windinhganten, LV. 4. H. BI. D. M. Priesner.

Subgenus *Ctenocarabus* Thomson, 1875

***Carabus galicianus* Gory, 1839:** 1 spec as *Ctenocarabus galicianus* (Inventory no 841 – 686), Lusit (Portugalia), Klager, leg. Birthler 1895.

***Carabus melancholicus* Fabricius, 1798:** 1 spec as *Rhabdotocarabus melancholicus* (Inventory no 946 – 765), Tanger, Dr. Kratr., leg. Birthler 1895; 1 spec as *Rhabdotocarabus costatus* (Inventory no 948 – 766), leg. Bielz 58, Hiip.

Subgenus *Cytilocarabus* Reitter, 1896

***Carabus cribratus* (Motschulsky, 1850):** 1 spec as *Cytilocarabus cribratus* (Inventory no 1875 – 1548), Kaukasus, Swanetien, Leder Reitter, leg. Birthler 1895; 1 spec as *Cytilocarabus cribratus* (Inventory no 1876 – 1549), Caucas Reitter, leg. Birthler 1895.

Subgenus *Eucarabus* Géhin 1876

***Carabus italicus* Dejean, 1826:** 1 spec as *Carabus italicus* (Inventory no 1283 – 1039), Ital., leg. Bielz 58.

***Carabus cumanus* Fischer, 1823:** 1 spec as *Tylocarabus cumanus* (Inventory no 1642 – 1348), Cauc., leg. Birthler 1895.

***Carabus ulrichii* subsp. *ulrichii* Germar, 1824:** 1 spec as *Carabus ulrichii* (Inventory no 1224 – 991), Germanber, leg. Daniel 1899; 1 spec as *Carabus ulrichii* (Inventory no 1225 – 992), 1 spec as *Carabus ulrichii* (Inventory no 1226 – 993), A. 889, Fischau, leg. Kimakowicz; 1 spec as *Carabus ulrichii* (Inventory no 1227 – 994), leg. Km 95Austr, A. F. VII.90; 2 specs as *Carabus ulrichii* (Inventory no 1228 – 995, Inventory no 1229 – 996), Umg. Wien 906, R. Albrecht; 1 spec as *Carabus ulrichii* (Inventory no 1230 – 997), Temesvar, leg. Birthler; 1 spec as *Carabus ulrichii* (Inventory no 1231 – 998), Temesvar, 15/V/1887, leg. Birthler 1895; 1 spec as *Carabus ulrichii* v. *stussineri* (Inventory no 1233 – 999), Carn, leg. Bielz 58; 1 spec as *Carabus ulrichii* v. *leuckanti* (Inventory no 1234 – 1000), Kronstadter

– Gbg., leg. Deubel; 1 spec as *Carabus ulrichii* v. *leuckanti* (Inventory no 1235 – 1001), Kapellenberg, leg. Deubel; 1 spec as *Carabus ulrichii* v. *leuckanti* (Inventory no 1236 – 1002), VIII.08; 1 spec as *Carabus ulrichii* v. *leuckanti* (Inventory no 1237 – 1003), H 3E, 28/8.89, leg. Kimak; 1 spec as *Carabus ulrichii* v. *leuckanti* (Inventory no 1238 – 1004), Markins Dorf. Markere, leg. Kimak; 2 specs as *Carabus ulrichii* v. *leuckanti* (Inventory no 1239 – 1005, Inventory no 1240 – 1006), Mediasch Weber 1885, leg. Birthler 1895; 1 spec as *Carabus ulrichii* v. *leuckanti* (Inventory no 1241 – 1007), Sohassbg. Leg. Petri; 1 spec as *Carabus ulrichii* v. *leuckanti* (Inventory no 1242 – 1008), leg. Kimak.; 1 spec as *Carabus ulrichii* v. *leuckanti* (Inventory no 1243 – 1009), Nagy Enyeel, Pinis Petri; 1 spec as *Carabus ulrichii* v. *leuckanti* (Inventory no 1244 – 1010) Regien, leg. Birthler; 1 spec as *Carabus ulrichii* v. *leuckanti* (Inventory no 1245 – 1011), Hadad – Dr. Kiss.

***Carabus ulrichii* subsp. *fastuosus* Palliardi, 1825:** 1 spec as *Carabus ulrichii fastuosus* (Inventory no 1250 – 1012), Mehm, via; 1 spec as *Carabus ulrichii fastuosus* (Inventory no 1251 – 1013), Hung, leg. Merkl; 2 specs as *Carabus ulrichii* v. *fastuosus* (Inventory no 1252 – 1014, Inventory no 1253 – 1015), Banat, leg. Merkl; 1 spec as *Carabus ulrichii fastuosus* (Inventory no 1254 – 1016), Banat, leg. Merkl, Birthler 1895; 3 specs as *Carabus ulrichii fastuosus* (Inventory no 1255 – 1017, Inventory no 1256 – 1018, Inventory no 1260 – 1019), Banat, leg. Merkl; 1 spec as *Carabus ulrichii fastuosus* (Inventory no 1257 – 1020), Mehadia, 1886, leg. Birthler 1895; 2 specs as *Carabus ulrichii fastuosus* v. *parallelus* (Inventory no 1261 – 1021, Inventory no 1262 – 1022), Bocsa, 1886, Birthler 1895; 3 specs as *Carabus ulrichii fastuosus* v. *parallelus* (Inventory no 1263 – 1023, Inventory no 1264 – 1024, Inventory no 1265 – 1025), Banat, leg. Merkl; 1 spec as *Carabus ulrichii fastuosus* v. *parallelus* (Inventory no 1267 – 1026), Banat, Merkl, leg. Birthler 1895; 1 spec as *Carabus ulrichii* v. *viridilimbatus* (Inventory no 1269 – 1027), Hung Anina, leg. Dr. Bannetk; 1 spec as *Carabus ulrichii fastuosus* v. *cupreonitens* (Inventory no 1270 – 1028), Banat, Merkl, leg. Birthler 1895; 1 spec as *Carabus ulrichii* v. *superbus* (Inventory no 1271 – 1029), Banat, Merkl, leg. Birthler 1895; 1 spec as *Carabus ulrichii* v. *superbus* (Inventory no 1272 – 1030), Banat, leg. Merkl; 2 specs as *Carabus ulrichii* v. *superbus* (Inventory no 1273 – 1031, Inventory no 1274 – 1032), Hung, leg. Merkl; 1 spec as

Carabus ulrichii v. *superbus* (Inventory no 1275 – 1033), Hung, Merkl, leg. Birthler 1895.

***Carabus ulrichii* subsp. *arrogans* Schaum, 1859:** 5 specs as *Carabus ulrichii* v. *arrogans* (Inventory no 1277 – 1034, Inventory no 1278 – 1035, Inventory no 1279 – 1036, Inventory no 1281 – 1037, Inventory no 1282 – 1038), Serbien, Merkl, leg. Birthler 1895.

***Carabus catenulatus* Scopoli, 1763:** 1 spec as *Carabus catenatus* (Inventory no 1321 – 1068), Croat, leg. Dobiasch; 1 spec as *Carabus calenatus* (Inventory no 1322 – 1069), Dobiasch, leg. Birthler 1895; 2 specs as *Carabus catenatus* (Inventory no 1323 – 1070, Inventory no 1324 – 1071), Gospic, Dobiasch, leg. Birthler 1895; 1 spec as *Carabus catenatus* (Inventory no 1325 – 1072), Croat, Dobiasch, leg. Birthler 1895; 1 spec as *Carabus calenatus* (Inventory no 1326 – 1073), Pola, VII.1915; 1 spec as *Carabus calenatus* (Inventory no 1328 – 1074), Car C. Sptichat; 1 spec as *Carabus catenatus* (Inventory no 1329 – 1075), Herkulesf; 2 specs as *Carabus catenulatus* v. *herbsti* (Inventory no 1330 – 1076, Inventory no 1331 – 1077), Croat. Dobiasch, leg. Birthler 1895; 1 spec as *Carabus catenulatus* v. *herbsti* (Inventory no 1332 – 1078), Fuzine.

***Carabus parreyssii* subsp. *parreyssii* Palliardi, 1825:** 5 specs as *Carabus parreyssii* (Inventory no 1334 – 1079, Inventory no 1335 – 1080, Inventory no 1336 – 1081, Inventory no 1337 – 1082, Inventory no 1339 – 1083), Croat Dobiasch, leg. Birthler 1895; 3 specs as *Carabus parreyssii* v. *gattereri* (Inventory no 1340 – 1084, Inventory no 1341 – 1085, Inventory no 1342 – 1086), 1340 – 1084: Bosnia, Livno, leg. Dr. Grabowski.

***Carabus obsoletus* Sturm, 1815:** 1 spec as *Loxocarabus obsoletus* (Inventory no 1352 – 1093), Beskizi, Gangl, 1895, Beskiden, Vizonfod, C.S.S.R., V. Zaufal; 1 spec as *Loxocarabus obsoletus* (Inventory no 1353 – 1094), Beskizi, Ganglbauer, 1895, Beskiden, Vizonfod, C.S.S.R., V. Zaufal; 1 spec as *Loxocarabus obsoletus* (Inventory no 1354 – 1095), Trencsen, Reitter, leg. Birthler 1895, C.S.S.R.; 2 specs as *Loxocarabus obsoletus* (Inventory no 1355 – 1096, Inventory no 1356 – 1097), Galicia, Ganglb., leg. Birthler 1895; 1 spec as *Loxocarabus obsoletus* (Inventory no 1357 – 1098), Tatra, 17.V.889, leg. Biro L.; 1 spec as *Loxocarabus obsoletus* (Inventory no 1358 – 1099), Hring. Car, Dobiasch, leg. Birthler 1895; 1 spec as *Loxocarabus obsoletus* (Inventory no 1359 – 1100), Carpth, leg. Birthler 1895; 5 specs as *Loxocarabus obsoletus* (Inventory no 1360 –

1101, Inventory no 1361 – 1102, Inventory no 1362 – 1103, Inventory no 1363 – 1104, Inventory no 1364 – 1105), Neusohl, Dr. Bothaz, leg. Birthler 1895; 1 spec as *Loxocarabus obsoletus* (Inventory no 1365 – 1106), Ratosnya, leg. Birthler 1895; 1 spec as *Loxocarabus obsoletus* (Inventory no 1366 – 1107), Bekas, V.917, Arch. E. Connet, Lt. Feldean Rgt.; 1 spec as *Loxocarabus obsoletus* (Inventory no 1367 – 1108), Schuler, Gbg., leg. Deubel; 1 spec as *Loxocarabus obsoletus* (Inventory no 1368 – 1109), Kapellenberg, leg. Deubel; 1 spec as *Loxocarabus obsoletus* (Inventory no 1369 – 1110), Siebenburgen, Fogarascher Geb., leg. R. Albrecht; 1 spec as *Loxocarabus obsoletus* (Inventory no 1370 – 1111), Kerzesoar, Reitter; 1 spec as *Loxocarabus obsoletus* (Inventory no 1371 – 1112), Gb., 18/6.89, leg. Kimak.; 1 spec as *Carabus obsoletus obsoletus* aber. *Czizii* (Inventory no 1374 – 1113), Deubel Tr., Rodnaer G.; 1 spec as *Loxocarabus obsoletus* aber. *uhligi* (Inventory no 1376 – 1114), Nagy – Hagymas – Gbg., leg. Deubel; 2 specs as *Loxocarabus obsoletus* aber. *uhligi* (Inventory no 1378 – 1116, Inventory no 1379 – 1117), Siebenburgen, Fogarascher Geb., leg. R. Albrecht; 3 specs as *Loxocarabus obsoletus* v. *euchromus* (Inventory no 1381 – 1118, Inventory no 1382 – 1119, Inventory no 1383 – 1120), Neusohl, Dr. Dothar, leg. Birthler 1895; 1 spec as *Loxocarabus obsoletus* v. *euchromus* (Inventory no 1384 – 1121), Knanstaat, Hopffgrt., Kimak.; 1 spec as *Loxocarabus obsoletus* v. *euchromus* (Inventory no 1385 – 1122), Kronstadter, Gbg., leg. Deubel; 1 spec as *Loxocarabus obsoletus* v. *euchromus* (Inventory no 1386 – 1123), 3.3.89, Kzg. Korzor Gebenge, leg. Kimak; 2 specs as *Loxocarabus obsoletus* v. *euchromus* (Inventory no 1387 – 1124), Tog. Geb, Deubel 1885, leg. Birthler 1895; 1 spec as *Loxocarabus obsoletus* v. *euchromus* (Inventory no 1388 – 1125), Tog. Geb, Deubel 1885, leg. Birthler 1895; 2 specs as *Loxocarabus obsoletus* v. *euchromus* (Inventory no 1389 – 1126, Inventory no 1390 – 1127), Gb, 16/5.91; 1 spec as *Loxocarabus obsoletus* v. *euchromus* (Inventory no 1391 – 1128), Retezet, 28.IV.91, Kontzen; 3 specs as *Loxocarabus obsoletus* v. *euchromus* (Inventory no 1392 – 1129, Inventory no 1393 – 1130, Inventory no 1395 – 1131), Kanabe Dezso, Ferenezfalva; 1 spec as *Loxocarabus obsoletus* v. *euchromus* (Inventory no 1396 – 1132), Krasiom (Szeneic); 2 specs as *Loxocarabus obsoletus* aber. *Bielzi* (Inventory no 1397 – 1133, Inventory no 1398 – 1134), Siebenburgen, Fogarascher Geb., leg. R. Albrecht; 1 spec as *Loxocarabus obsoletus* aber. *Bielzi*

(Inventory no 1399 – 1135), Vârfu mare, VII.90; 1 spec as *Loxocarabus obsoletus* aber. *Bielzi* (Inventory no 1400 – 1136), Riu Szad, Deubel, leg. Birthler 1895; 1 spec as *Loxocarabus obsoletus* aber. *Bielzi* (Inventory no 1401 – 1137), tone Rinne 106; 2 specs as *Loxocarabus obsoletus* aber. *Bielzi* (Inventory no 1402 – 1138, Inventory no 1404 – 1140), Negovan, Bielz, leg. Birthler 1895; 1 spec as *Loxocarabus obsoletus* v. *nagyagensis* (Inventory no 1410 – 1143), S. V. f. n., leg. Birthler 1895; 1 spec as *Loxocarabus obsoletus* v. *nagyagensis* (Inventory no 1409 – 1144), Neusahl, Dr. Bothar, leg. Birthler 1895; 1 spec as *Loxocarabus obsoletus* v. *nagyagensis* (Inventory no 1412 – 1145), Nagyag., Mallasz.

Subgenus *Eurycarabus* Géhin, 1885

***Carabus genei* Géné, 1839:** 2 specs as *Eurycarabus genei* (Inventory no 777 – 640, Inventory no 778 – 641), Italia, Reitter, leg. Birthler 1895.

***Carabus famini* subsp. *maillei* Solier, 1835:** 1 spec as *Eurycarabus Maillei* (Inventory no 965 – 779), Oran, leg. Birthler 1895.

***Carabus famini* subsp. *famini* Dejean, 1826:** 1 spec as *Eurycarabus famini* (Inventory no 966 – 780, Sicil, leg. Bielz 58.

Subgenus *Hemicarabus* Géhin, 1876

***Carabus nitens* Linnaeus, 1758:** 2 specs as *Hemicarabus nitens* (Inventory no 1007 – 813, Inventory 1008 – 814) Berlin, Hopffgrt, leg. Birthler 1895; 5 specs as *Hemicarabus nitens* (Inventory no 1009 – 815, Inventory no 1010 – 816, Inventory no 1011 – 817, Inventory no 1012 – 818, Inventory no 1013 – 819), W. Preus, leg. Birthler 1895; 1 spec as *Hemicarabus nitens* (Inventory no 1016 – 820), Perbenyik.

Subgenus *Hygrocarabus* C.G. Thomson, 1875

***Carabus variolosus* Fabricius, 1787:** 1 spec as *Hygrocarabus variolosus* (Inventory no 844 – 689), Kr. 20, Helden-graben (Brașov), leg. Deubel; 1 spec as *Hygrocarabus variolosus* (Inventory no 845 – 690), leg. Kr. A. Deubel, Odweg (Brașov); 1 spec as *Hygrocarabus variolosus* (Inventory no 846 – 691), Rosenauer – Gbg, leg. Deubel (M. Râșnov); 1 spec as *Hygrocarabus variolosus* (Inventory no 847 – 692), Siebenburgen, Fogarascher Geb, leg. R. Albrecht; 2 specs as *Hygrocarabus variolosus* (Inventory no 848 – 693, Inventory 849 – 694), 3.3.82, Kzg, Hopffg, Trans, 1889; 1 spec as *Hygrocarabus variolosus* (Inventory no 850 – 695), Pr 26, 14/5.87, leg. Km 95, Trans; 1 spec as *Hygrocarabus variolosus* (Inventory no 851 –

696), Sb. H. VII.90, leg. Km 95, Trans; 1 spec as *Hygrocarabus variolosus* (Inventory no 852 – 697), Siebenburgen, Hermanstadt, leg. R. Albrecht; 1 spec as *Hygrocarabus variolosus* (Inventory no 853 – 698), 5n.106, 24/6.88, leg. Kimak; 1 spec as *Hygrocarabus variolosus* (Inventory no 854 – 699), Sb. 1887, *Hygrocarabus variolosus*, leg. Petri; 1 spec as *Hygrocarabus variolosus* (Inventory no 855 – 700), Băile Keroly, Trans, 1886, leg. Birthler 1895.

Subgenus *Iniopachys* Solier, 1848

***Carabus pyrenaeus* Audinet-Serville, 1821:** 2 specs as *Iniopachys pyrenaeus* (Inventory no 549 – 449, Inventory no 550 – 450), leg. Bielz 1858, Pirenee (Munti); 1 spec as *Iniopachys pyrenaeus* (Inventory no 551 – 451), Henbert, P.; 6 specs as *Iniopachys pyrenaeus* (Inventory no 553 – 452, Inventory no 554 – 453, Inventory no 555 – 454, Inventory no 556 – 455, Inventory no 557 – 456, Inventory no 558 – 457), Frz. Ztr. Pyrenae, 25 – 29.VII. 1932, Midi Bigorre 2600, leg. A. Muller.

Subgenus *Lamprostus* Motschulsky, 1865

***Carabus calleyi* subsp. *nigrinus* Motschulsky, 1866:** 1 spec as *Lamprostus nigrinus* (Inventory no 508 – 416), Graecia Reitter, Kinderland, leg. Birthler 1895.

***Carabus torosus* subsp. *spinolae* Cristoforis&Jean, 1837:** 2 specs as *Lamprostus bonplandi* (Inventory no 509 – 417, 510 – 418), Amasia (Turcia), Reitter, leg. Birthler 1895; 2 specs as *Lamprostus bonplandi* (Inventory no 511 – 419, Inventory no 512 – 420), Amasia Kraatz – Koschlau, leg. Birthler 1895.

***Carabus torosus* subsp. *lamprus* Chaudoir, 1850:** 1 spec as *Lamprostus lamprus* (Inventory no 514 – 421), Spinolau vor Nordmamsi Syria (Gosch), leg. Bielz 1858.

***Carabus torosus* subsp. *nordmanni* Chaudoir, 1848:** 1 spec as *Lamprostus nordmanni* (Inventory no 515 – 422), Caucas Reitter, leg. Birthler 1895.

***Carabus torosus* subsp. *torosus* Frivaldsky, 1835:** 2 specs as *Lamprostus torosus* (Inventory no 516 – 423, Inventory no 517 – 424), Dobrogea, Kavarna, Mihalbeital, 17 April 1924, Lepsi; 1 spec as *Lamprostus torosus* (Inventory no 518 – 425), Kavarna, 1925, Lepsi; 1 spec as *Lamprostus torosus* (Inventory no 519 – 426), Kavarna, Dobrogea, 16.VII.1926; 1 spec as *Lamprostus torosus* (Inventory no 520 – 427), Kavarna, Dobrogea, 14.VII.1926; 1 spec as *Lamprostus torosus* (Inventory no 521 – 428), Calliacra,

Iailahushe, 20.VII.1926; 1 spec as *Lamprostus torosus* (Inventory no 522 – 429), Dobrogea, Kavarna, Mihalbeital, 17.10.1924, Lepsi; 1 spec as *Lamprostus torosus* (Inventory no 523 – 430), Kavarna, Dobrogea, 16.VII.1926, leg. A. Muller; 3 specs as *Lamprostus torosus* (Inventory no 1900 – 1570, Inventory no 1901 – 1571, Inventory no 1902 – 1572), Dobrogea, Kavarna, Mihalbeital, 17.okt.1924, Lepsi, Ist Tchri; 1 spec as *Lamprostus torosus* (Inventory no 1903 – 1573), Dobrogea, Kavarna, Mihalbeital, April 1924, leg. Lepsi; 3 specs as *Lamprostus torosus* (Inventory no 1905 – 1574, Inventory no 1906 – 1575, Inventory no 1908 – 1576), Dobrogea, Kavarna, Mihalbeital, 17.okt.1924, Lepsi, Ist Tchri; 1 spec as *Lamprostus torosus* (Inventory no 1909 – 1577), Dobrogea, Kavarna, Mihalbeital, April 1924, Lepsi.

Subgenus *Limnocarabus* Géhin, 1876

***Carabus clathratus* Linnaeus, 1761:** 1 spec as *Limnocarabus clathratus* (Inventory no 1030 – 829), leg. Hopffgarten, Croat; 1 spec as *Limnocarabus clathratus* (Inventory no 1031 – 830), Bam, 6/4.884, Temesvar, leg. Birthler; 1 spec as *Limnocarabus clathratus* (Inventory no 1032 – 831), Debe; 1 spec as *Limnocarabus clathratus* (Inventory no 1033 – 832), Germania Reiter.

Subgenus *Lipaster* Motschulsky, 1865

***Carabus stjernvalli* Mannerheim, 1830:** 1 spec as *Lipaster stjernvalli* v. *humboldti* [Faldermann 1836 (Inventory no 525 – 431), Kaukas Leder, leg. Birthler 1895.

Subgenus *Macrothorax* Desmarest, 1850

***Carabus rugosus* subsp. *boeticus* Deyrolle, 1852:** 1 spec as *Macrothorax rugosus* v. *boeticus* (Inventory no 949 – 767), Andal, Klager, leg. Birthler 1895.

***Carabus rugosus* subsp. *celtibericus* Germar, 1824:** 1 spec as *Macrothorax rugosus* v. *celtiberica* (Inventory no 950 – 768), Lusit Klager, leg. Birthler 1895; 1 spec as *Macrothorax rugosus* (Inventory no 951 – 769), leg. Bielz 58, Hisp.

***Carabus morbillosus* Fabricius, 1792:** 2 specs as *Macrothorax morbillosus* (Inventory no 953 – 770, Inventory no 954 – 771), Orans, Merkl, leg. Birthler 1895; 1 spec as *Macrothorax morbillosus* (Inventory no 955- 772), leg. Bielz 58, Algier.

***Carabus morbillosus* subsp. *alternans* Palliardi, 1825:** 1 spec as *Macrothorax morbillosus* v. *servillei* (Inventory no 957 – 773), Sicil, leg.

Birthler 1895; 1 spec as *Macrothorax morbillosus* v. *servillei* (Inventory no 958 – 775), Hips Reitter; 1 spec as *Macrothorax morbillosus* v. *servillei* (Inventory no 960 – 774), Sicil, leg. Birthler 1895.

Subgenus *Megodontus* Motschulsky, 1865

***Carabus punctatus* Laporte, 1834:** 1 spec as *Procrustocarabus punctatus* (Inventory no 504 – 414), Syria, Jtgy, leg. Birthler 1895.

***Carabus schoenherri* Fischer von Waldheim, 1822:** 1 spec as *Pachycranion schoenherri* (Inventory no 582 – 477), Sibiria, leg. Bielz 58.

***Carabus caelatus* Fabricius, 1801:** 1 spec as *Megodontus caelatus* (Inventory no 583 – 478), Carniolia (Krain), leg. Bielz 58.

***Carabus caelatus* subsp. *dalmatinus* Duftschmid, 1812:** 7 specs as *Megodontus macretus* (Inventory no 584 – 479, Inventory no 585 – 480, Inventory no 586 – 481, Inventory no 587 – 482, Inventory no 588 – 483, Inventory no 589 – 484, Inventory no 590 – 485), Croatien, Dobiasch, leg. Birthler 1895; 1 spec as *Megodontus caelatus* v. *procerus* (Inventory no 593 – 486), Mostar, Hercegovina, 1916; 2 specs as *Megodontus caelatus* v. *dalmatinus* (Inventory no 594 – 487; Inventory no 595 – 488), Dalm., leg. Bielz 58; 2 specs as *Megodontus caelatus* v. *dalmatinus* (Inventory no 596 – 489), Croatien, Dobiasch, leg. Birthler 1895; 1 spec as *Megodontus caelatus* v. *dalmatinus* (Inventory no 598 – 491), Velebit (munti), Hopftgt, leg. Birthler 1895, Jugoslavia.

***Carabus bonvouloiri* Chaudoir, 1863:** 1 spec as *Megodontus bonvouloiri* (Inventory no 600 – 492), Syria, leg. Deubel 27, 1900.

***Carabus croaticus* Dejean, 1826:** 3 specs as *Megodontus croaticus* (Inventory no 601 – 493, Inventory no 602 – 494, Inventory no 604 – 495), Croatia, leg. Bielz 58; 1 spec as *Megodontus croaticus* (Inventory no 605 – 496), Vaganski Vrh. (1758 m), Jugoslavia VS.

***Carabus planicollis* subsp. *planicollis* Küster, 1846:** 1 spec as *Megodontus planicollis* (Inventory no 606 – 497), Bucsecs, leg. Deubel; 1 spec as *Megodontus planicollis* (Inventory no 607 – 498), Bucsecs, leg. Km; 1 spec as *Megodontus planicollis* (Inventory no 610 – 501), Siebenburgen, Bursers, leg. R. Albrecht, 25.VI.1918; 1 spec as *Megodontus planicollis* (Inventory no 611- 502), Kronst, Deubel, leg. Birthler 1895; 1 spec as *Megodontus planicollis* (Inventory no 612 – 503), Km 95, Transilvania, VI.1892, Negoï, leg. Birthler 1895; 1 spec as *Megodontus planicollis* (Inventory no 613 – 504), Fad, Gegb, Omarf, leg. Kimakowicz 95, M. Făg. 1892; 1 spec as *Megodontus planicollis* (Inventory

no 614 – 505), Siebenburgen, Fogarascher, leg. R. Albrecht.

***Carabus planicollis* subsp. *verae* Csiki, 1905:** 1 spec as *Megodontus Deubeli* v. *verae* (Inventory no 616 – 506), Zlata (Retiezat), 22.V.922, leg. Dr. Kontzei.

***Carabus violaceus* Breuning, 1972:** 2 specs as *Megodontus violaceus* (Inventory no 618 – 507, Inventory no 619 – 508), Sil. R., 91, leg. Kimak. 95, Silezia; 1 spec as *Megodontus violaceus* (Inventory no 620 – 509), Oliva, Bov. Occ. (Polonia), v. Lengerken; 1 spec as *Megodontus violaceus* (Inventory no 621 – 510), leg. Kimak. 95, Austr., A. F., VIII.91; 1 spec as *Megodontus violaceus* (Inventory no 622 – 511), Tirol, Agrw, leg. Birthler 1895; 1 spec as *Megodontus violaceus* (Inventory no 623 – 512), Ungvlg; 1 spec as *Megodontus violaceus* (Inventory no 624 – 513), Sud Ungarn Herkulesbad v. Bodemeyer; 1 spec as *Megodontus violaceus* (Inventory no 625 – 514), Krishiania, 7.VI.906 Au; 3 specs as *Megodontus violaceus auricholceus* (Inventory no 633 – 520; Inventory no 634 – 521, Inventory no 635 – 522), Cirque Gavarnie, Pirenee – Franța, 25-29.VII.932, leg. A. Muller; 1 spec as *Megodontus violaceus fulgens* (Inventory no 639 – 524), Pyren, Merkl, leg. Birthler 1895; 1 spec as *Megodontus violaceus fulgens* (Inventory no 640 – 525), Gallea, Dobiasch, leg. Birthler 1895; 1 spec as *Megodontus violaceus fulgens* (Inventory no 641 – 526), Frz., Ztr. Pyrenaen, 25/29.07.1932, Valle de Luchon, leg. A. Muller; 1 spec as *Megodontus violaceus aber. candisatus* (Inventory no 652 – 534), Bohemia, leg. Birthler 1895; 1 spec as *Megodontus violaceus aber. candisatus* (Inventory no 653 – 535), Bohemia, Steigereo, leg. Birthler 1895; 1 spec as *Megodontus violaceus v. sublaevis* (Inventory no 697 – 572), Russld., leg. Bielz 58.

***Carabus violaceus* subsp. *purpurascens* Fabricius, 1787:** 3 specs as *Megodontus violaceus purpurascens* (Inventory no 627 – 515, Inventory no 628 – 516, Inventory no 629 – 517), Unf. Elsass, Zabern (Franta), Giebelen, leg. Birthler 1895; 1 spec as *Megodontus violaceus purpurascens* (Inventory no 631 – 518), Pyrinae, Dobiasch, leg. Birthler 1895; 1 spec as *Megodontus violaceus purpurascens* (Inventory no 632 – 519), FRZ ZTR, Pyrenaen, 25/29.VII.932, Valle de Luchon, leg. A. Muller; 1 spec as *Megodontus violaceus purpurascens v. crenatus* (Inventory no 637 – 523), Rhesyrr, Dobiasch, leg. Birthler 1895.

***Carabus violaceus* subsp. *azurescens* Dejean, 1826:** 3 specs as *Megodontus violaceus azurescens* (Inventory no 645 – 528, Inventory no

646 – 529, Inventory no 647 – 530), Croatia, Dobiasch, leg. Birthler 1895; 1 spec as *Megodontus violaceus azureus* (Inventory no 648 – 531), Velebit, Dobiasch, leg. Birthler 1895, Jugoslavia; 1 spec as *Megodontus violaceus azureus* (Inventory no 650 – 532), Serb., Klager, leg. Birthler 1895; 1 spec as *Megodontus violaceus azureus* (Inventory no 651 – 533), Zepse, Bosnien.

***Carabus violaceus* subsp. *volfii* Dejean, 1826:** 2 specs as *Megodontus violaceus* v. *Wolffi* (Inventory no 669 – 547, Inventory no 670 – 548), Kanabe Dezso, Resiezabanya; 4 specs as *Megodontus violaceus* v. *Wolffi* (Inventory no 671 – 549, 672 – 550, Inventory no 673 – 551, Inventory no 674 – 552), Mehadia, 1886, leg. Birthler 1895; 1 spec as *Megodontus violaceus* v. *meheeyi* (Inventory no 676 – 553), Csik, Deubel, leg. Birthler 1895; 1 spec as *Megodontus violaceus* v. *mehelyi* (Inventory no 677 – 554), Bad. Tusnad, Skt, Annensee, 26-27.07.1930, leg. A. Muller; 3 specs as *Megodontus violaceus* v. *mehelyi* (Inventory no 678 – 555, Inventory no 679 – 556, Inventory no 680 – 557), Kronstadt, Deubel, leg. Birthler 1895; 1 spec as *Megodontus violaceus* v. *meheeyi* (Inventory no 681 – 558), Schuler, leg. R. Albrecht; 1 spec as *Megodontus violaceus* v. *mehelyi* (Inventory no 682 – 559), Dusees, 07.1918; 1 spec as *Megodontus violaceus* v. *mehelyi* (Inventory no 683 – 560), Bucsecs, leg. Km, 1900, Jpehl; 1 spec as *Megodontus violaceus* v. *mehelyi* (Inventory no 684 – 561), Bucsecs, leg. Km; 1 spec as *Megodontus violaceus* v. *Meheeyi* (Inventory no 685 – 562), Hopffg., 3.8.59; 1 spec as *Megodontus violaceus* v. *mehelyi* (Inventory no 686 – 563), Kerzeschora, leg. Hopff.; 1 spec as *Megodontus violaceus* v. *mehelyi* (Inventory no 687 – 564), Vislirara, 1891, leg. Birthler 1895; 2 specs as *Megodontus violaceus* v. *mehelyi* (Inventory no 688 – 565, Inventory no 689 – 566), Zibinsgeb., Czoodtal, 07.1931, C. Orendi; 1 spec as *Megodontus violaceus* v. *Meheeyi* (Inventory no 690 – 567), 1925; 2 specs as *Megodontus violaceus* v. *mehelyi* (Inventory no 691 – 568, Inventory no 692 – 569), S. Regien, leg. Birthler 1895; 1 spec as *Megodontus violaceus* (Inventory no 1911 – 1578), Rod. Geb. Petri; 1 spec as *Megodontus violaceus* (Inventory no 1912 – 1579), Retyzat riu steria 28.IV.921, Kontrei; 1 spec as *Megodontus violaceus volffii* v. *mehelyi* (Inventory no 1914 – 1580), Siebenburgen, leg. R. Albrecht; 1 spec as *Megodontus violaceus volffii* v. *mehelyi* (Inventory no 1915 – 1581), Siebenburgen, leg. R. Albrecht, Bucsecs.

***Carabus germarii* Sturm, 1815:** 1 spec as *Megodontus exasperatus* (Inventory no 643 – 527), Croatia, Dobiasch, leg. Birthler 1895; 1 spec as *Megodontus germarii exasperatus* var. *glabrellus* (Inventory no 696 – 571), Bob. of. Staujurice.

***Carabus germarii* subsp. *germarii* Sturm, 1815:** 1 spec as *Megodontus germarii* v. *obliquus* (Inventory no 655 – 536), Bachern, Jugoslavia, St. Weber; 2 specs as *Megodontus germarii* v. *obliquus* (Inventory no 656 – 537, Inventory no 657 – 538), Corynth, Knaatz, leg. Birthler 1895; 1 spec as *Megodontus germarii* v. *obliquus* (Inventory no 658 – 539), Tirol, Steiger, leg. Birthler 1895; 2 specs as *Megodontus germarii* v. *obliquus* (Inventory no 659 – 540, Inventory no 660 – 541), Tirol, D. Kraatz, leg. Birthler 1895; 1 spec as *Megodontus germarii* v. *obliquus* (Inventory no 662 – 542), Illyrien, D. Kraatz, leg. Birthler 1895; 2 specs as *Megodontus germarii* (Inventory no 663 – 543, Inventory no 664 – 544), leg. Bielz 58, Carniol; 1 spec as *Megodontus germarii* (Inventory no 665 – 545), Illyrien, Sdrseiber.

***Carabus germarii* subsp. *neesii* Hoppe & Hornschuch, 1825:** 1 spec as *Megodontus violaceus* v. *neesii* (Inventory no 667 – 546), leg. Bielz 58, Tirol.

***Carabus septemcarinatus* Motschulsky, 1840:** 1 spec as *Aulacocarabus septemcarinatus* Motsch (Inventory no 789 – 648), Kaukasus, Swasetien, Leder Reitter, leg. Birthler 1895.

***Carabus exaratus* Quensel, 1806:** 1 spec as *Megodontus exaratus* (Inventory no 791 – 649), Asia min., leg. Bielz 58; 1 spec as *Megodontus exaratus* v. *multicostis* Reitter 1888 (Inventory no 792 – 650), Caucasus, Tbaini 79, Leder Reitter, leg. Birthler 1895.

Subgenus *Mesocarabus* C. G. Thomson, 1875

***Carabus problematicus* Herbst, 1786:** 1 spec as *Mesocarabus catenulatus* (Inventory no 763 – 621), VII.90, leg. Kimak, Austria; 1 spec as *Mesocarabus catenulatus* (Inventory no 764 – 622), Oetscher cpt.; 1 spec as *Mesocarabus catenulatus* (Inventory no 765 – 623), Corynth, Dobiasch, leg. Birthler 1895; 1 spec as *Mesocarabus catenulatus* (Inventory no 766 – 624), Velebit (Jugoslavia); 1 spec as *Mesocarabus catenulatus* (Inventory no 767 – 625), Nest – Deutsch, leg. Birthler 1895; 1 spec as *Mesocarabus catenulatus* (Inventory no 768 – 626), Germ. Occ., Seidlitz, leg. Birthler 1895; 2 specs as *Mesocarabus catenulatus* (Inventory no 769 – 627, Inventory no 770 – 628), Unt. Elsass

(Aesacia), Zabern, Giebeler, leg. Birthler 1895; 1 spec as *Mesocarabus catenulatus* (Inventory no 771 – 629), Elsafs (Aesacia), Dobiasch, leg. Birthler 1895; 1 spec as *Mesocarabus catenulatus* v. *angustior* (Inventory no 754 – 630), leg. Kimak, Cs (*problematicus*, Dorr), Panin, 1890; 2 specs as *Mesocarabus catenulatus* v. *angustior* (Inventory no 755 – 631, Inventory no 756 – 632), Csik, Deubel, Panin, leg. Birthler 1895; 2 specs as *Mesocarabus catenulatus* v. *angustior* (Inventory no 757 – 633, Inventory no 758 – 634), leg. Deubel, Nh. 1894, Panin, Hășmașul Mare; 1 spec as *Mesocarabus catenulatus* v. *angustior* (Inventory no 761 – 637), Schuler – Gbg. (Postăvarul, Brașov), leg. Deubel, Panin; 1 spec as *Mesocarabus catenulatus* v. *angustior* (Inventory no 762 – 638), Retyezat, Szilady, Panin.

***Carabus problematicus* subsp. *planiusculus* Géhin, 1885:** 1 spec as *Mesocarabus catenulatus* v. *mayeti* (Inventory no 775 – 639), Fbz. Ztr. Pyrenaen, 25/29.VII.1932, Vallee de Luchon, leg. A. Muller.

***Carabus problematicus* subsp. *problematicus* Herbst, 1786:** 1 spec as *Mesocarabus catenulatus* (Inventory no 1917 – 1582), Balan, 1902; 1 spec as *Mesocarabus catenulatus* (Inventory no 1918 – 1583), Schuttagb. 1902.

***Carabus macrocephalus* Dejean, 1826:** 1 spec as *Mesocarabus macrocephalus* (Inventory no 782 – 644), Austrien, Getschman 1379, Reitter, leg. Birthler 1895.

***Carabus lusitanicus* Fabricius, 1801:** 1 spec as *Mesocarabus lusitanicus* (Inventory no 786 – 647), Lusit, Reitter, leg. Birthler 1895.

***Carabus lusitanicus* subsp. *latus* Dejean, 1826:** 1 spec as *Mesocarabus latus* (Inventory no 783 – 645), Hsp Reitter, leg. Birthler 1895.

***Carabus lusitanicus* subsp. *helluo* Dejean, 1826:** 1 spec as *Mesocarabus helluo* (Inventory no 784 – 646), Gall., leg. Bielz 58.

Subgenus *Mimocarabus* Géhin, 1885

***Carabus maurus* (Adams, 1817):** 2 specs as *Mimocarabus maurus* (Inventory no 1643 – 1349, Inventory no 1644 – 1350), Caucas, leg. Bielz 58; 1 spec as *Mimocarabus maurus* (Inventory no 1645 – 1351), Kaukas, Leder; 1 spec as *Mimocarabus maurus* (Inventory no 1646 – 1352), Caucasus, Tbatani 79, Leder (Reitter).

Subgenus *Morphocarabus* Géhin, 1885

***Carabus monilis* subsp. *monilis* Fabricius, 1792:** 1 spec as *Morphocarabus monilis* (Inventory no 1413 – 1146), Bovar, Hopffg, leg. Birthler 1895; 1 spec as *Morphocarabus monilis* (Inventory no 1414 – 1147), Viav Hopffg, leg. Birthler 1895; 1

spec as *Morphocarabus monilis* (Inventory no 1415 – 1148), Lechfeld, Hopffg., leg. Birthler 1895; 6 specs as *Morphocarabus monilis* (Inventory no 1416 – 1149, Inventory no 1417 – 1150, Inventory no 1418 – 1151, 1419 – 1152, Inventory no 1420 – 1153, Inventory no 1421 – 1154), Unt. Elsass, Zabern, Giebelen, leg. Birthler 1895; 1 spec as *Morphocarabus monilis* (Inventory no 1422 – 1155), Germ, leg. Bielz 58; 1 spec as *Morphocarabus monilis* (Inventory no 1423 – 1156), Gallia, leg. Birthler 1895; 1 spec as *Morphocarabus monilis* (Inventory no 1424 – 1157), Hant. Haumes, Yoy 10.7.85, leg. Reitter; 2 specs as *Morphocarabus monilis consitus* (Inventory no 1426 – 1158, Inventory no 1427 – 1159), Paris, Hgrv, leg. Birthler 1895; 1 spec as *Morphocarabus monilis consitus* (Inventory no 1428 – 1160), Heyden, Rlvier, Hopffg., leg. Birthler 1895; 1 spec as *Morphocarabus monilis consitus* (Inventory no 1429 – 1161), Germ, leg. Bielz 58; 1 spec as *Morphocarabus monilis consitus* (Inventory no 1430 – 1162), Germ, Dseidhi, leg. Birthler 1895; 1 spec as *Morphocarabus monilis* v. *schartowi* (Inventory no 1432 – 1163), Unt Elsass Zeibern Giebelen.

***Carabus scheidleri* Panzer, 1799:** 1 spec as *Morphocarabus scheidleri preysleri* (Inventory no 1451 – 1178), Bohem Hergerw, leg. Birthler 1895; 4 specs as *Morphocarabus scheidleri preysleri* (Inventory no 1452 – 1179, Inventory no 1453 – 1180, Inventory no 1454 – 1181, Inventory no 1455 – 1182), Boh. Reitter, leg. Birthler 1895; 1 spec as *Morphocarabus scheidleri preysleri* (Inventory no 1456 – 1183), Norav, Reitter, leg. Birthler 1895; 1 spec as *Morphocarabus scheidleri preysleri* (Inventory no 1457 – 1184), Hungaria, Com. Trencsin, Dr. Brancsik; 1 spec as *Morphocarabus scheidleri preysleri* (Inventory no 1458 – 1185), Selmecz 1885; 4 specs as *Morphocarabus scheidleri preysleri* (Inventory no 1459 – 1186, Inventory no 1460 – 1187, Inventory no 1461 – 1188, Inventory no 1462 – 1189), Neusohl, Dr. Dathor, leg. Birthler 1895; 1 spec as *Morphocarabus scheidleri preysleri* (Inventory no 1463 – 1190), Hung, leg. Blz 58; 1 spec as *Morphocarabus Scheidleri* v. *jucundus* (Inventory no 1465 – 1193), VII.22.85, Ofen armay, leg. Birthler 1895; 2 specs as *Morphocarabus monilis* v. *illigeri* (Inventory no 1466 – 1194, Inventory no 1467 – 1195), Croat, Dobiasch, leg. Birthler 1895; 1 spec as *Morphocarabus monilis* v. *illigeri* (Inventory no 1468 – 1196), Croația; 1 spec as *Morphocarabus monilis* v. *illigeri* (Inventory no 1469 – 1197), Serbia, Dr. Knaate, leg. Birthler 1895.

***Carabus scheidleri* subsp. *scheidleri* Panzer, 1799:** 2 specs as *Morphocarabus scheidleri* (Inventory no 1433 – 1164, Inventory no 1434 – 1165), Austr., leg. Birthler 1895; 1 spec as *Morphocarabus scheidleri* (Inventory no 1434 – 1165), Austr., leg. Birthler 1895; 1 spec as *Morphocarabus scheidleri* (Inventory no 1435 – 1166), Austria, Reitter, leg. Birthler 1895; 1 spec as *Morphocarabus scheidleri* (Inventory no 1436 – 1167), Tirol, leg. Bielz 58; 2 specs as *Morphocarabus scheidleri* (Inventory no 1437 – 1168, Inventory no 1438 – 1169), Linz, Dz. Kraatz, leg. Birthler 1895; 1 spec as *Morphocarabus scheidleri* (Inventory no 1439 – 1170), Austr., leg. Km 95, A. 889, Fischer; 1 spec as *Morphocarabus scheidleri* (Inventory no 1440 – 1171), Aloravis, Hopffg., leg. Birthler 1895; 1 spec as *Morphocarabus scheidleri* (Inventory no 1441 – 1172), Moravia, Hopffg., leg. Birthler 1895; 4 specs as *Morphocarabus scheidleri* (Inventory no 1442 – 1173, Inventory no 1443 – 1174, Inventory no 1444 – 1175, Inventory no 1445 – 1176), Trencsin, Dr. Brancsik, leg. Birthler 1895; 1 spec as *Morphocarabus scheidleri* (Inventory no 1446 – 1177), Ungl 99.

***Carabus scheidleri* subsp. *helleri* Ganglbauer, 1892:** 1 spec as *Morphocarabus Scheidleri* v. *Helleri* (Inventory no 1448 – 1191); 1 spec as *Morphocarabus Scheidleri* v. *Helleri* (Inventory no 1449 – 1192), Hungaria, Com Trencsin, leg. Dr. Brancsik.

***Carabus kollari* Palliardi, 1825:** 2 specs as *Morphocarabus kollari* (Inventory no 1624 – 1334, Inventory no 1625 – 1335), Mehadia, 1886, leg. Birthler 1895; 2 specs as *Morphocarabus kollari* (Inventory no 1626 – 1336, Inventory no 1627 – 1337), Mehadia, 1888 V., leg. Birthler 1895; 2 specs as *Morphocarabus kollari* (Inventory no 1628 – 1338, Inventory no 1629 – 1339), Banat, leg. Birthler 1895; 1 spec as *Morphocarabus kollari* v. *magnificus* (Inventory no 1630 – 1340), Ban.; 1 spec as *Morphocarabus kollari* v. *magnificus* (Inventory no 1631 – 1341), Mehad., 1888 V, leg. Birthler 1895; 1 spec as *Morphocarabus kollari* v. *magnificus* (Inventory no 1632 – 1342), Ban., leg. Km 95.

***Carabus versicolor* subsp. *simulator* Kraatz, 1876:** 1 spec as *Morphocarabus versicolor simulator* (Inventory no 1471 – 1198), Serbia, Merkl, leg. Birthler 1895; 1 spec as *Morphocarabus versicolor simulator* v. *serbicus* (Inventory no 1472 – 1199), Serbia, Hopff, leg. Birthler 1895.

***Carabus excellens* Fabricius, 1798:** 1 spec as *Morphocarabus excellens* (Inventory no 1474 –

1200), Galirien, leg. Bielz 58; 1 spec as *Morphocarabus excellens* (Inventory no 1475 – 1201), Volvynien (Oly Ca) Connerth; 1 spec as *Morphocarabus excellens* (Inventory no 1477 – 1202), Rufs m. Merkl, leg. Birthler 1895; 1 spec as *Morphocarabus excellens* (Inventory no 1476 – 1203), Padol, Reitter, leg. Birthler 1895; 1 spec as *Morphocarabus excellens* (Inventory no 1478 – 1204), Ross moriw, leg. Bielz 58; 1 spec as *Morphocarabus excellens* (Inventory no 1479 – 1205), Rossia, leg. Bielz 58.

***Carabus rothi* Dejean, 1829:** 1 spec as *Morphocarabus rothi* (Inventory no 1548 – 1265), Hermannstadt, VI.892, leg. M. Schuller; 1 spec as *Morphocarabus rothi* (Inventory no 1549 – 1266), H.98, 20/07.91, leg. Kimak; 1 spec as *Morphocarabus Rothi* (Inventory no 1550 – 1267), Alzen, Kimakowicz; 2 specs as *Morphocarabus rothi* (Inventory no 1551 – 1268, Inventory no 1552 – 1269), Al., IX.88, leg. Kimakowicz; 8 specs as *Morphocarabus rothi* v. *varistriatus* (Inventory no 1577 – 1291, Inventory no 1578 – 1292, Inventory no 1579 – 1293, Inventory no 1580 – 1294, Inventory no 1581 – 1295, Inventory no 1582 – 1296, Inventory no 1583 – 1297, Inventory no 1584, 1298), Gr. Schenz, leg. Birthler; 1 spec as *Morphocarabus rothi* v. *varistriatus* (Inventory no 1585 – 1299), Grass Schenk, leg. Km.; 1 spec as *Morphocarabus rothi* v. *varistriatus* (Inventory no 1586 – 1300), Siebenburgen, Hermannstadt, R. Albrecht, leg. Birthler; 1 spec as *Morphocarabus rothi* v. *varistriatus* (Inventory no 1587 – 1301), H. 35, VII.91, leg. Kimak.; 1 spec as *Morphocarabus rothi* aber. *quadricafenatus* (Inventory no 1589 – 1302), Gr. Schenz, leg. Birthler; 1 spec as *Morphocarabus rothi* aber. *quadricafenatus* (Inventory no 1590 – 1303), Schenz, leg. Birthler 1895; 1 spec as *Morphocarabus rothi* aber. *quadricafenatus* (Inventory no 1591 – 1304), Gr. Schenz, leg. Birthler; 2 specs as *Morphocarabus rothi* aber. *quadricafenatus* (Inventory no 1592 – 1305, Inventory no 1593 - 1306), Schassburg, Garten, 7.VI.19; 1 spec as *Morphocarabus rothi* aber. *quadricafenatus* (Inventory no 1594 – 1307), H. 3E7, 23/6.88, leg. Kimak.; 4 specs as *Morphocarabus rothi* v. *latestriatus* (Inventory no 1596 – 1308, Inventory no 1597 – 1309, Inventory no 1598 – 1310, Inventory no 1599 – 1311), Gr. Schenz, leg. Birthler; 5 specs as *Morphocarabus rothi* v. *latestriatus* (Inventory no 1600 – 1312, Inventory no 1601 – 1313, Inventory no 1602 – 1314, Inventory no 1603 – 1315, Inventory no 1604 – 1316), G. Schenz, 1884, leg. Birthler; 7 specs as *Morphocarabus rothi* v. *latestriatus*

(Inventory no 1605 – 1317, Inventory no 1606 – 1318, Inventory no 1607 – 1319, Inventory no 1608 – 1320, Inventory no 1609 – 1321, Inventory no 1610 – 1322, Inventory no 1612 – 1323), Gr. Schenz, leg. Birthler; 1 spec as *Morphocarabus rothi* v. *latestriatus* (Inventory no 1613 – 1324), Mediasch, leg. Birthler 1895; 1 spec as *Morphocarabus rothi* v. *latestriatus* (Inventory no 1614 – 1325), Alzen, leg. Kimakowicz; 1 spec as *Morphocarabus rothi* v. *latestriatus* (Inventory no 1615 – 1326), Al. IX.88, leg. Kimak.; 2 specs as *Morphocarabus rothi* v. *latestriatus* (Inventory no 1616 – 1327, Inventory no 1617 – 1328), Al. IX.95, leg. Kimak, Tr.; 1 spec as *Morphocarabus rothi* v. *latestriatus* (Inventory no 1618 – 1329), H.57, 21/6.87, leg. Kimak.; 1 spec as *Morphocarabus rothi* v. *latestriatus* (Inventory no 1619 – 1330), H.22.97, VI.88, leg. Kimak.; 1 spec as *Morphocarabus Rothi* aber. *latestriatus* (Inventory no 1620 – 1331), Sb. 19.01, Petri; 1 spec as *Morphocarabus rothi* v. *latestriatus* (Inventory no 1621 – 1332), S. Maessb., leg. Kimak.; 1 spec as *Morphocarabus rothi* v. *latestriatus* (Inventory no 1622 – 1333), Mehadia, 1886, leg. Birthler 1895.

***Carabus rothi* subsp. *hampei* Küster, 1846:** 2 specs as *Morphocarabus hampei* (Inventory no 1481 – 1206, Inventory no 1482 – 1207), 2.8.89, K., leg. Km 95, Tr.; 3 specs as *Morphocarabus hampei* (Inventory no 1483 -1208, Inventory no 1484 – 1209, Inventory no 1487 – 1210), P. Almbj, 1886, leg. Birthler 1895; 1 spec as *Morphocarabus hampei* (Inventory no 1485 – 1211), S. Regen 883, leg. Birthler 1895; 1 spec as *Morphocarabus hampei* (Inventory no 1486 – 1212), leg. Kentelke 1886; 7 specs as *Morphocarabus hampei* v. *aurosericeus* (Inventory no 1489 – 1213, Inventory no 1490 – 1214, Inventory no 1491 – 1215, Inventory no 1492 – 1216, Inventory no 1493 – 1217, Inventory no 1494 – 1218, Inventory no 1495 – 1219), Sz. Regen, 1888, leg. Birthler 1895; 2 specs as *Morphocarabus hampei* v. *aurosericeus* (Inventory no 1496 – 1220, Inventory no 1497 – 1221), Nyarad, Szereda, 1884, leg. Birthler 1895; 1 spec as *Morphocarabus hampei* v. *aurosericeus* (Inventory no 1498 – 1222), M. Vasda holy, leg. Birthler 1895; 1 spec as *Morphocarabus hampei* v. *validus* (Inventory no 1531 – 1250), leg. Deubel, Tr., Bodzaer G.; 1 spec as *Morphocarabus hampei* v. *dacicus* (Inventory no 1503 – 1225), leg. Kimak, Ds 83; 1 spec as *Morphocarabus hampei* v. *dacicus* (Inventory no 1504 – 1226), s. v. f. n. Dees; 1 spec as *Morphocarabus hampei* v. *diffinis* (Inventory no 1505 – 1227), Hivek, Szamos; 1 spec as

Morphocarabus hampei v. *spectabilis* (Inventory no 1506 – 1228), alpin, leg. Deubel, rodnaer – Gb.; 1 spec as *Morphocarabus hampei* v. *spectabilis* (Inventory no 1508 – 1230), Kovonjis Ronaer, G. 1900; 2 specs as *Morphocarabus hampei* v. *spectabilis* (Inventory no 1509 – 1231, Inventory no 1511 – 1232), Rodnaer Geb, Kulshorn Coronjs, 17-18.VII.980, leg. A. Muller; 1 spec as *Morphocarabus hampei* v. *mehelyanus* (Inventory no 1514 – 1234), Nagy – Hagymas – Gbg., leg. Deubel; 1 spec as *Morphocarabus hampei* v. *mehelyanus* (Inventory no 1515 – 1235), leg. Deubel, Nl. 1894; 3 specs as *Morphocarabus hampei incompus* (Inventory no 1517 – 1236, Inventory no 1518 – 1237, Inventory no 1519 – 1238), Kronstadter – Gbg. – Deubel; 1 spec as *Morphocarabus hampei* v. *incompus* (Inventory no 1520 – 1239), Kronst., Deubel, 1885, leg. Birthler 1895; 1 spec as *Morphocarabus hampei* v. *incompus* (Inventory no 1521 – 1240), Kronst., 1886, leg. Birthler 1895; 1 spec as *Morphocarabus hampei* v. *incompus* (Inventory no 1522 – 1241), Kronst., leg. Birthler 1895; 1 spec as *Morphocarabus hampei* v. *incompus* (Inventory no 1523 – 1242), leg. Birthler 1895; 1 spec as *Morphocarabus hampei* v. *incompus* (Inventory no 1524 – 1243), Kronstr., leg. Birthler 1895; 1 spec as *Morphocarabus hampei* v. *incompus* (Inventory no 1525 – 1244), Kronstr., leg. Birthler 1895; 2 specs as *Morphocarabus hampei* v. *incompus* (Inventory no 1526 – 1245, Inventory no 1527 – 1246), Kronstadter – Gbg. – Deubel; 1 spec as *Morphocarabus hampei* v. *incompus* (Inventory no 1528 – 1247), Schuler Geb., Km, Wfs.; 1 spec as *Morphocarabus hampei* v. *incompus* (Inventory no 1529 – 1248), Rosenauer – Gbg. – Deubel; 1 spec as *Morphocarabus hampei* v. *incompus* (Inventory no 1530 – 1249), Bnsero, leg. R. Albrecht; 1 spec as *Morphocarabus hampei* v. *incompus* (Inventory no 1510 – 1251), Rodnaer Ofb, Kuhkorn, Goronjib, 17 – 18.VII.930, leg. A. Muller; 1 spec as *Morphocarabus hampei* v. *schaumi* (Inventory no 1547 – 1264), Oestr. Mu Grenz. Hutterb 78, leg. Birthler 1895; 9 specs as *Morphocarabus rothi* v. *vitiosus* (Inventory no 1554 – 1270, Inventory no 1555 – 1271, Inventory no 1556 – 1272, Inventory no 1557 -1273, Inventory no 1558 – 1274, Inventory no 1559 – 1275, Inventory no 1560 – 1276, Inventory no 1561 – 1277, Inventory no 1562 – 1278), Alzen, IX.1888, leg. Km 95; 2 specs as *Morphocarabus rothi* v. *vitiosus* (Inventory no 1563 – 1279, Inventory no 1564 – 1280), G. Scherb Birthler; 1 spec as *Morphocarabus rothi* v. *vitiosus* (Inventory no

1565 – 1281), Siebenburgen, Fogarascher Geb., leg. R. Albrecht; 1 spec as *Morphocarabus rothi* v. *vitiosus* (Inventory no 1566 – 1282), T(l), 28/9/90, leg. Kimak.; 1 spec as *Morphocarabus rothi* v. *vitiosus* (Inventory no 1568 – 1283), Deva, leg. Petri Schlossbg.

***Carabus rothi* subsp. *comptus* Dejean, 1831:** 4 specs as *Morphocarabus comptus* (Inventory no 1537 – 1255, Inventory no 1538 – 1256, Inventory no 1539 – 1257, Inventory no 1540 – 1258), Szoreny, Hopffgrt., leg. Birthler 1895; 2 specs as *Morphocarabus comptus* (Inventory no 1541 – 1259, Inventory no 1542 – 1260), Szoreny, Merkl, leg. Birthler 1895; 1 spec as *Morphocarabus comptus* aber. *hopffgarteni* (Inventory no 1543 – 1261), Banat, Hopffgrt., leg. Birthler 1895; 1 spec as *Morphocarabus comptus* v. *hopffgarteni* (Inventory no 1544 – 1262), Ban. 5 za renyez, Ayen, leg. Birthler 1895; 1 spec as *Morphocarabus comptus* v. *hopffgarteni* (Inventory no 1545 – 1263), leg. Deubel 10, Hu.

***Carabus zawadzkii* Kraatz, 1854:** 1 spec as *Morphocarabus zawadzkii* (Inventory no 1533 – 1252), Galizien, leg. Bielz 58; 2 specs as *Morphocarabus zawadzkii* (Inventory no 1534 – 1253, Inventory no 1535 – 1251), Galicia, Dr. Kraatz, leg. Birthler 1895.

***Carabus hummeli* subsp. *tristiculus* Kraatz, 1878:** 1 spec as *Morphocarabus tristiculus* (Inventory no 1634 – 1343), leg. Deubel 1900, Ost. Sibirin.

***Carabus panzeri* Panzer, 1803:** 1 spec as *Morphocarabus Panzeri* (Inventory no 1636 – 1344), Sibiu, leg. Bielz 58.

***Carabus regalis* Fischer, 1822:** 1 spec as *Morphocarabus regalis* (Inventory no 1637 – 1345), Sibiu, leg. Bielz 58.

***Carabus henningi* subsp. *henningi* Fischer von Waldheim, 1817:** 1 spec as *Morphocarabus sahlbergi* (Inventory no 1639 – 1346), leg. Deubel 1900, Sibirien.

***Carabus aeruginosus* subsp. *aeruginosus* Fischer, 1822:** 1 spec as *Pancarabus aeruginosus* (Inventory no 1641 – 1347), Sibirien, leg. Bielz 58.

Subgenus *Oreocarabus* Géhin, 1885

***Carabus hortensis* Linnaeus, 1758:** 2 specs as *Euporocarabus hortensis* (Inventory no 1722 – 1416, Inventory no 1723 – 1417), Germ. Bvar. Seidlitz, leg. Birthler 1895; 1 spec as *Euporocarabus hortensis* (Inventory no 1724 – 1418), W. Prey, leg. Birthler 1895; 1 spec as *Euporocarabus hortensis* (Inventory no 1725 – 1419), Tatra, Farbeg 87, leg. Biro L.; 1 spec as

Euporocarabus hortensis (Inventory no 1726 – 1420), Tirol, leg. Bielz 58; 2 specs as *Euporocarabus hortensis* (Inventory no 1727 – 1421, Inventory no 1728 – 1422), Hotschach car. Weber; 1 spec as *Euporocarabus hortensis* (Inventory no 1729 – 1423), Slavon; 2 specs as *Euporocarabus hortensis* (Inventory no 1730 – 1424, Inventory no 1731 – 1425), Croația, Dobiasch, leg. Birthler 1895.

***Carabus preslii* subsp. *neumeyeri* Schaum, 1856:** 1 spec as *Euporocarabus hortensis* v. *Neumeyeri* Schaum. (Inventory no 1734 – 1426), Dalm., Dobiasch, leg. Birthler 1895; 1 spec as *Euporocarabus hortensis* v. *preslii* Dej. (Inventory no 1736 – 1427), Graecia, Dobiasch, leg. Birthler 1895.

***Carabus ghilianii* subsp. *ghilianii* LaFerté Sénectere, 1847:** 1 spec as *Oreocarabus Ghilianii* (Inventory no 1737 – 1428), Lusitan, Dr. Seldltr, leg. Birthler 1895.

***Carabus amplipennis* Vacher de Lapouge, 1925:** 1 spec as *Oreocarabus errans* (Inventory no 1738 – 1429), Lusit, Klager, leg. Birthler 1895.

Subgenus *Orinocarabus* Kraatz, 1878

***Carabus sylvestris* subsp. *transsylvanicus* Dejean, 1826:** 1 spec as (Inventory no 1183 – 959), Siebenburgen, Fogarasch Geb, leg. R. Albrecht; 4 specs as *Orinocarabus* v. *transsylvanicus* (Inventory no 1765 – 1448, Inventory no 1766 – 1449, Inventory no 1767 – 1450, Inventory no 1768 – 1451), Rodnaer Geb. Kuhhorn Coronjis 17 – 19.VII.930, leg. A. Muller; 1 spec as *Orinocarabus* v. *transsylvanicus* (Inventory no 1769 – 1452), Keroly, 1886, leg. Birthler 1895; 2 specs as *Orinocarabus* v. *transsylvanicus* (Inventory no 1770 – 1453, Inventory no 1771 – 1454), Kronstad, leg. Deubel, V.892; 1 spec as *Orinocarabus* v. *transsylvanicus* (Inventory no 1773 – 1455), Ducus, VI.918; 1 spec as *Orinocarabus* v. *transsylvanicus* (Inventory no 1774 – 1456), Bu ja, Consiza, leg. Deubel; 1 spec as *Orinocarabus* v. *transsylvanicus* (Inventory no 1772 – 1457), Siebenburgen, Buosus, leg. R. Albrecht; 6 specs as *Orinocarabus* v. *transsylvanicus* (Inventory no 1775 – 1458, Inventory no 1776 – 1459, Inventory no 1777 – 1460, Inventory no 1778 – 1461, Inventory no 1779 – 1462, Inventory no 1780 – 1463), Bucsecs, Deubel; 2 specs as *Orinocarabus* v. *transsylvanicus* (Inventory no 1781 – 1464, Inventory no 1782 – 1465), Bucsecs, leg. Km.; 2 specs as *Orinocarabus* v. *transsylvanicus* (Inventory no 1783 – 1466, Inventory no 1784 – 1467), Fag. Geb. Deubel, leg. Birthler 1895; 4 specs as *Orinocarabus* v. *transsylvanicus*

(Inventory no 1785 – 1468, Inventory no 1786 – 1469, Inventory no 1787 – 1470, Inventory no 1788 – 1471), Siebenburgen, Fogarasher Geb., leg. R. Albrecht; 1 spec as *Orinocarabus v. transsilvanicus* (Inventory no 1789 – 1472), Tr. Bulia See, Km., 24.6.88; 1 spec as *Orinocarabus v. transsilvanicus* (Inventory no 1790 – 1473), Blj 108, 24.6.88, v. Kimak.; 1 spec as *Orinocarabus v. transsilvanicus* (Inventory no 1791 – 1474), Calteru, 20.9.920; 1 spec as *Orinocarabus v. transsilvanicus* (Inventory no 1792 – 1475), Negoi, 10/920; 1 spec as *Orinocarabus v. transsilvanicus* (Inventory no 1793 – 1476), n. Spitze, v. Kimak.; 1 spec as *Orinocarabus v. transsilvanicus* (Inventory no 1794 – 1477), Tr. Negoi Sp., Km., VI.92; 2 specs as *Orinocarabus v. transsilvanicus* (Inventory no 1795 – 1478, Inventory no 1796 – 1479), Serbota, 23.VII.905, Fog. Geb Petri; 1 spec as *Orinocarabus v. transsilvanicus* (Inventory no 1797 – 1480), Paving; 1 spec as *Orinocarabus v. transsilvanicus* (Inventory no 1798 – 1481).

***Carabus sylvestris* subsp. *sylvestris* Panzer, 1793:** 1 spec as *Orinocarabus sylvestris sylvestris* (Inventory no 1754 – 1440), German, leg. Birthler 1895; 1 spec as *Orinocarabus sylvestris sylvestris* (Inventory no 1755 – 1441), Germ., Henev., German, leg. Birthler 1895; 1 spec as *Orinocarabus sylvestris sylvestris* (Inventory no 1756 – 1442), Harz Germania E. Manzek; 1 spec as *Orinocarabus sylvestris sylvestris* (Inventory no 1757 – 1443), Roscalyl. A. Rx VI.91; 1 spec as *Orinocarabus sylvestris sylvestris* (Inventory no 1758 – 1444), Tirol, leg. Bielz 58; 2 specs as *Orinocarabus sylvestris sylvestris v. silesiacus* (Inventory no 1766 – 1445, Inventory no 1767 – 1446), Silesia, leg. Birthler 1895; 1 spec as *Orinocarabus sylvestris sylvestris v. nivalis* (Inventory no 1763 – 1447), Helv. Klager, leg. Birthler 1895; 1 spec as *Orinocarabus sylvestris sylvestris v. micklitzi* (Inventory no 1808 – 1489), Hoh. Wochsol.

***Carabus sylvestris* subsp. *redtenbacheri* Géhin, 1876:** 2 specs as *Orinocarabus v. redtenbacheri* (Inventory no 1800 – 1482, Inventory no 1801 – 1483), Gglb 1890, Koralpe; 2 specs as *Orinocarabus v. redtenbacheri* (Inventory no 1802 – 1484, Inventory no 1803 – 1485), Koralpe, Weber.

***Carabus concolor* Fabricius, 1792:** 4 specs as *Orinocarabus concolor* (Inventory no 1748 – 1435, Inventory no 1749 – 1436, Inventory no 1750 – 1437, Inventory no 1751 – 1438), M. Rosa 1888, leg. Birthler 1895; 1 spec as *Orinocarabus concolor* (Inventory no 1752 – 1439), M. Klager, leg. Birthler 1895; 1 spec as *Orinocarabus*

concolor v. bernhardinus (Inventory no 1805 – 1486), St. Brn. H. Bernhard, leg. Birthler 1895.

***Carabus fairmairei* Thomson, 1875:** 1 spec as *Orinocarabus concolor v. fairmairei* (Inventory no 1806 – 1487), M. Rosa Dr. Kraatr., leg. Birthler 1895.

***Carabus putzeysianus* Géhin, 1876:** 1 spec as *Orinocarabus pedemontanus* (Inventory no 1809 – 1488), Pederno Reitter, leg. Birthler 1895.

***Carabus alpestris* Sturm, 1815:** 1 spec as *Orinocarabus alpestris* (Inventory no 1810 – 1490), 2 specs as *Orinocarabus alpestris* (Inventory no 1811 – 1491, Inventory no 1812 – 1492), Tirol, leg. Bielz 58; 1 spec as *Orinocarabus alpestris* (Inventory no 1813 – 1493), Tyrol, leg. Reitter; 1 spec as *Orinocarabus alpestris* (Inventory no 1814 – 1494), Tyrol, Reitter, leg. Birthler 1895; 1 spec as *Orinocarabus alpestris* (Inventory no 1815 – 1495), Corynth, Merkl, leg. Birthler 1895; 1 spec as *Orinocarabus alpestris* (Inventory no 1816 – 1496), Monte Canin Weber.

***Carabus alpestris* subsp. *hoppii* Germar, 1824:** 2 specs as *Orinocarabus alpestris v. hoppei* (Inventory no 1818 – 1497, Inventory no 1819 – 1498), Sekau, Dr. Ksaatr, leg. Birthler 1895; 2 specs as *Orinocarabus alpestris v. hoppei* (Inventory no 1820 – 1499, Inventory no 1821 – 1500), Zirbitakogal, St. Weber; 1 spec as *Orinocarabus alpestris v. hoppei* (Inventory no 1822 – 1501), Tirol, leg. Bielz 58; 1 spec as *Orinocarabus alpestris v. hoppei* (Inventory no 1823 – 1502); 1 spec as *Orinocarabus alpestris v. hoppei* (Inventory no 1824 – 1503).

***Carabus carinthiacus* Sturm, 1815:** 2 specs as *Orinocarabus carinthiacus* (Inventory no 1826 – 1504, Inventory no 1827 – 1505), Kornteu, leg. Bielz 58; 1 spec as *Orinocarabus carinthiacus* (Inventory no 1828 – 1506), Tirol, leg. Bielz 58; 1 spec as *Orinocarabus carinthiacus* (Inventory no 1829 – 1507), Tir. Klager, leg. Birthler 1895.

***Carabus linnaei* Panzer, 1810:** 1 spec as *Carpathophilus linnei* (Inventory no 1835 – 1511), Bohemia, Prachatitz; 2 specs as *Carpathophilus linnei* (Inventory no 1836 – 1512, Inventory no 1837 – 1513), Riesgeb. Henevg., leg. Birthler 1895; 2 specs as *Carpathophilus linnei* (Inventory no 1838 – 1514, Inventory no 1839 – 1515), Siles. Barani, Km abrg 95, Sil., leg. Birthler 1895; 1 spec as *Carpathophilus linnei* (Inventory no 1840 – 1516), 1 spec as *Carpathophilus linnei* (Inventory no 1841 – 1517), Rod. Geb., leg. Petri; 1 spec as *Carpathophilus linnei* (Inventory no 1842 – 1518), Bo, 88, leg. v. Kimak.; 1 spec as *Carpathophilus linnei* (Inventory no 1843 –

1519), Rotosnya, leg. Birthler; 1 spec as *Carpathophilus linnei* (Inventory no 1844 – 1520), Hopffg., 3.38, Kr.; 2 specs as *Carpathophilus linnei* (Inventory no 1845 – 1521, Inventory no 1846 – 1522), Bucsecs, leg. Deubel; 1 spec as *Carpathophilus Linnei* (Inventory no 1847 – 1523), Bucsecs, leg. Deubel, alpin; 1 spec as *Carpathophilus linnei* (Inventory no 1848 – 1524), Siebenburgen, Fogarascher Gb., leg. R. Albrecht; 1 spec as *Carpathophilus linnei* (Inventory no 1849 – 1525), Go, X.915; 1 spec as *Carpathophilus linnei* (Inventory no 1850 – 1526), Santa armay, leg. Birthler 1895; 2 specs as *Carpathophilus linnei* (Inventory no 1851 – 1527, Inventory no 1852 – 1528), Tr. Sibinn ca, leg. Km 1895, xj. 29/8/91; 1 spec as *Carpathophilus Linnei* (Inventory no 1853 – 1529), Parâng, leg. Petri; 3 specs as *Carpathophilus Linnei* (Inventory no 1854 – 1530, Inventory no 1855 – 1531, Inventory no 1856 – 1532), Retezat, 30.VIII.921; 1 spec as *Carpathophilus Linnei* (Inventory no 1857 – 1533), Retezat, Szilady; 1 spec as *Carpathophilus Linnei* (Inventory no 1858 – 1534); 1 spec as *Carpathophilus Linnei* (Inventory no 1859 – 1535), Knabe Dezso P.; 1 spec as *Carpathophilus Linnei* (Inventory no 1860 – 1536), Knabe Dezso P., Ferenezfalva; 1 spec as *Carpathophilus Linnei* (Inventory no 1862 – 1537), Romanien, leg. Km. Wal. R., 20/8/91; 1 spec as *Carpathophilus Linnei* v. *Ludovicus* (Inventory no 1868 – 1542), Hopffg., 3.3.81, Kr.; 1 spec as *Carpathophilus Linnei* v. *Ludovicus* (Inventory no 1869 – 1543), N., VIII.90; 1 spec as *Carpathophilus Linnei* v. *Ludovicus* (Inventory no 1870 – 1544), Siebenburgen, Fogarascher Geb., leg. R. Albrecht; 1 spec as *Carpathophilus Linnei* v. *Ludovicus* (Inventory no 1871 – 1545), Negovan, Bielz, leg. Birthler 1895; 1 spec as *Carpathophilus Linnei* v. *Ludovicus* (Inventory no 1873 – 1546), Oa, 7/7.89; 1 spec as *Carpathophilus Linnei* v. *Macarei* (Inventory no 1863 – 1538), Bucsecs, leg. R. Albrecht; 1 spec as *Carpathophilus Linnei* v. *Macarei* (Inventory no 1864 – 1539), Negoii, Ocor, leg. Birthler 1895; 1 spec as *Carpathophilus Linnei* v. *Macarei* (Inventory no 1865 – 1640), Bucsecs, leg. Deubel; 1 spec as *Carpathophilus Linnei* v. *Macarei* (Inventory no 1866 – 1541), Kronstadter, Geb. – Deubel.

Subgenus *Oxycarabus* Semenov 1898

***Carabus saphyrinus* Cristoforis & Jan, 1837:** 1 spec as *Procrusticus saphyrinus* (Inventory no 507 – 415), Asia min., leg. Birthler 1895.

Subgenus *Pachycarabus* Géhin, 1876

***Carabus staehlini* subsp. *staehlini* M.F. Adams, 1817:** 1 spec as *Pachycarabus Stahlini* (Inventory no 1741 – 1431), Daghestan, Leder Reitter, leg. Birthler 1895.

***Carabus koenigi* Ganglbauer, 1887:** 2 specs as *Pachycarabus koenigi* (Inventory no 1743 – 1432, Inventory no 1744 – 1433), Abekhasien, Arabica, 7000, E. Konig, Cauc., Stgmolo, leg. Birthler 1895.

***Carabus swaneticus* subsp. *swaneticus* Reitter, 1883:** 1 spec as *Pachycarabus swanscicus* (Inventory no 1746 – 1434), Kaukasus, Swanetian, Leder Reitter, leg. Birthler 1895.

Subgenus *Pachystus* Motschulsky, 1865

***Carabus graecus* Dejean, 1826:** 1 spec as *Pachystus morio* (Inventory no 527 – 432), Turcia, leg. Bielz 1858; 1 spec as *Pachystus trojanus* (Inventory no 536 – 438), Asia min., leg. Bielz 1858.

***Carabus graecus* subsp. *graecus* Dejean, 1826:** 2 specs as *Pachystus graecus* (Inventory no 531 – 434, Inventory no 532 – 435), Graecia, leg. Bielz 1858; 2 specs as *Pachystus graecus* (Inventory no 533 – 436, 534 – 437), Graecia, Reitter, leg. Birthler 1895.

***Carabus morio* Ziegler, 1812:** 1 spec as *Pachystus morio* var. *cavernicola* (Inventory no 530 – 433), Kavarna, VI.1925, Lepsi, det Csiki.

***Carabus hungaricus* Fabricius, 1792:** 1 spec as *Pachystus hungaricus* (Inventory no 538 – 439), Banat, leg. Bielz 1858; 1 spec as *Pachystus hungaricus* (Inventory no 539 – 440), Vaterland folsch, Dalmatia, leg. Bielz 1858; 1 spec as *Pachystus hungaricus* (Inventory no 540 – 441), Dalmatia, Bielz 1858; 1 spec as *Pachystus hungaricus* (Inventory no 541 – 442), Hung., leg. Bielz 1858; 1 spec as *Pachystus hungaricus* (Inventory no 542 – 443), Hung., Merkl, leg. Birthler 1895; 1 spec as *Pachystus hungaricus* (Inventory no 543 – 444), Hung., Merkl, leg. Birthler 1895; 1 spec as *Pachystus hungaricus* (Inventory no 544 – 445, 26, 55; 1 spec as *Pachystus hungaricus* (Inventory no 545 – 446), Buda (Ungaria); 1 spec as *Pachystus hungaricus perforatus* (Inventory no 547 – 447), Sibirien, leg. Bielz 1858.

***Carabus cavernosus* Frivaldsky, 1837:** 1 spec as *Pachystus cavernosus* (Inventory no 548 – 448), Ital., Klager, leg. Birthler 1895.

***Carabus glabratus* Paykull, 1790:** 1 spec as *Phricocarabus glabratus* (Inventory no 1878 – 1550), Bohemia; 1 spec as *Phricocarabus glabratus* (Inventory no 1879 – 1551), Tirol, leg.

Bielz 1858; 1 spec as *Phricocarabus glabratus* (Inventory no 1880 – 1552), Bo. 88, Kimak.; 1 spec as *Phricocarabus glabratus* (Inventory no 1881 – 1553), Kronstadt Clement; 1 spec as *Phricocarabus glabratus* (Inventory no 1882 – 1554), Kapellenberg, leg. Deubel; 1 spec as *Phricocarabus glabratus* (Inventory no 1883 – 1555), Kronstadter – Gbg. – Deubel; 1 spec as *Phricocarabus glabratus* (Inventory no 1884 – 1556), Bucsecs, leg. Deubel, alpin; 1 spec as *Phricocarabus glabratus* (Inventory no 1885 – 1557), leg. Hopffg., 3.3.79, Tr. Kz.; 1 spec as *Phricocarabus glabratus* (Inventory no 1886 – 1558), leg. v. Kimak., O.o., 14/91; 1 spec as *Phricocarabus glabratus* (Inventory no 1887 – 1559), Zibinagebirge Kmb. Winter; 1 spec as *Phricocarabus glabratus* (Inventory no 1888 – 1560), Siebenburgen, Cibin Gebirge, leg. R. Albrecht; 1 spec as *Phricocarabus glabratus* (Inventory no 1889 – 1561), Siebenburgen, Hermanstadt, leg. R. Albrecht; 1 spec as *Phricocarabus glabratus* (Inventory no 1890 – 1562), Schassbg., leg. Petri, 21.III; 1 spec as *Phricocarabus glabratus* (Inventory no 1891 – 1563), Straza b. P. Vulkan; 1 spec as *Phricocarabus glabratus* (Inventory no 1893 – 1564), Kanabe Dezso Ferenezfalva.

***Carabus glabratus* subsp. *extensus* Kraatz, 1885:** 1 spec as *Phricocarabus glabratus* v. *extensus* (Inventory no 1894 – 1565), Fancsal, 3/VI/89, leg. Birthler 1895; 2 specs as *Phricocarabus glabratus* v. *extensus* (Inventory no 1895 – 1566, Inventory no 1896 – 1567), Kronst. Deubel, leg. Birthler 1895; 1 spec as *Phricocarabus glabratus* v. *extensus* (Inventory no 1897 – 1568), Bucsecs, leg. Deubel, alpin; 1 spec as *Phricocarabus glabratus* v. *extensus* (Inventory no 1898 – 1569).

***Carabus manifestus* Kraatz, 1881:** 1 spec as *Carabus manifestus* (Inventory no 1077 – 869), leg. Deubel, 1900, E Ost – Siberian.

Subgenus *Platycarabus* Morawitz, 1886

***Carabus creutzeri* (Fabricius, 1801):** 5 specs as *Platycarabus creutzeri* (Inventory no 793 – 651, Inventory no 794 – 652, Inventory no 795 – 653, Inventory no 796 – 654, Inventory no 797 – 655), Croatia, Dobiasch, leg. Birthler 1895; 1 spec as *Platycarabus creutzeri* (Inventory no 798 – 656), Rismjak, 1528 m, Jugoslavia, 20.VIII.1889; 1 spec as *Platycarabus creutzeri* (Inventory no 800 – 657), Gangeb, 1893, Muntii Cerna – prst.

***Carabus creutzeri* subsp. *kircheri* Germar, 1838:** 1 spec as *Platycarabus czentzeri kircheri* (Inventory no 802 – 658), Tirol, leg. Bielz 58.

***Carabus depressus* Bonelli, 1810:** 1 spec as *Platycarabus depressus* (Inventory no 804 – 659), Helvetia (Helv), Merkl, leg. Birthler 1895; 2 specs as *Platycarabus depressus* v. *Bonelli* (Inventory no 806 – 660, Inventory no 807 – 661), Nowtirol (Tirol – Nord), Alpii Centrali, Volalpm., Warnde; 2 specs as *Platycarabus depressus* v. *bonelli* (Inventory no 808 – 662, Inventory no 809 – 663), Tyrol, Dobiasch, leg. Birthler 1895; 1 spec as *Platycarabus depressus lucens* (Inventory no 812 – 664), M. Viso, Dr. Kraatz, leg. Birthler 1895.

***Carabus fabricii* subsp. *fabricii* Panzer, 1810:** 1 spec as *Platycarabus fabricii* (Italia NV) (Inventory no 814 – 665), Muntii Tatra, Muntii Krivan (1711 m), var. Dr. Branoitz, leg. Birthler 1895; 2 specs as *Platycarabus fabricii* (Inventory no 815 – 666), Galizien, Dobiasch, leg. Birthler 1895; 1 spec as *Platycarabus fabricii* (Inventory no 816 – 667), Galizien, Dobiasch, leg. Birthler 1895; 1 spec as *Platycarabus fabricii* (Inventory no 817 – 668), A. S., 10.10.1890, leg. Kimak 95, Austria; 1 spec as *Platycarabus fabricii* (Inventory no 818 – 669); 1 spec as *Platycarabus fabricii* (Inventory no 819 – 670); 1 spec as *Platycarabus fabricii* (Inventory no 820 – 671), leg. R. Albrecht, 1916; 1 spec as *Platycarabus fabricii* (Inventory no 821 – 672), Fabricii, Hochwechsel, Ad. Hoffmann; 1 spec as *Platycarabus fabricii* (Inventory no 822 – 673), Gglh., 1890, M. Karalpe (2144), Jugoslavia/Austria; 1 spec as *Platycarabus fabricii* var. *heerii* (Inventory no 826 – 674), Scheenberg (Tirol), leg. Birthler 1895; 1 spec as *Platycarabus fabricii* var. *heerii* (Inventory no 827 – 675), Carph. (Carpati), Stgrv (Steigerwald), leg. Birthler 1895; 1 spec as *Platycarabus poloniensis* (Inventory no 829 – 676), Salezion, leg. Bielz 58; 1 spec as *Platycarabus poloniensis* (Inventory no 830 – 677), Salezion, Galicia, leg. Bielz 58.

***Carabus fabricii* subsp. *malachiticus* C.G. Thomson, 1875:** 2 specs as *Platycarabus fabricii* v. *malachiticus* (Inventory no 832 – 678, Inventory no 834 – 679), Deubel, Rodnaer – Gb., alpin; 1 spec as *Platycarabus fabricii* v. *malachiticus* (Inventory no 835 – 680), Munții Rodnei, alpin, leg. Deubel; 1 spec as *Platycarabus fabricii* v. *malachiticus* (Inventory no 836 – 681), leg. Deubel, Rodnaer – Gb., alpin; 1 spec as *Platycarabus fabricii* v. *malachiticus* (Inventory no 837 – 682), Munții Rodnei, alpin, leg. Deubel; 1 spec as *Platycarabus fabricii* v. *malachiticus* (Inventory no 838 – 683), Siebenburgen, Rodna, Marn; 1 spec as *Platycarabus fabricii* v. *malachiticus* (Inventory no 839 – 684), M. Rodnei, leg. A. Muller; 1 spec as *Platycarabus*

fabricii v. *malachiticus* (Inventory no 840 – 685), Tatra, Urgarn, leg. Birthler 1895.

Subgenus *Procerus* Dejean, 1826

***Carabus syriacus* L.Redtenbacher, 1843:** 1 spec as *P. syriacus* (Inventory no. 412-342), Syrien, leg. Deubel 25, 1900; 1 spec as *P. syriacus* (Inventory no. 414-343), Saira Gen, Kraatz, leg. Birthler 95.

***Carabus gigas* Creutzer, 1799:** 1 spec as *P. gigas* (Inventory no. 415-344), leg. Bielz, 58, Car; 1 spec as *P. gigas* (Inventory no. 416-345Sp), Cl. lichal, leg. Krain; 1 spec as *P. gigas* (Inventory no. 417-346), Crc. Dobiasch, leg. Birthler 1895; 1 spec as *P. gigas* (Inventory no. 418-347), Crc., Dobiasch, leg. Birthler 1895.

***Carabus scabrosus* G.A.Olivier, 1790:** 2 specs as *P. scabrosus* (Inventory no 424 – 350, Inventory no 425 – 351), Turcia, Dobiasch, leg. Birthler 1895; 3 specs as *P. scabrosus* (Inventory no 426 – 352, Inventory no 427 – 353, Inventory no 428 – 354), Asia min., Dobiasch, leg. Birthler 1895.

***Carabus scabrosus* subsp. *caucasicus* M.Adams, 1817:** 1 spec as *Procerus caucasicus* (Inventory no 422 – 349), Ca., Merkl. leg. Birthler 1895.

***Carabus scabrosus* subsp. *amasicus* Csiki, 1927:** 1 spec as *P. scabrosus* v. *modestus* (Inventory no 431 – 355), Asia min., leg. Deubel 1900; 1 spec as *P. scabrosus* v. *modestus* (Inventory no 433 – 356), leg. Birthler 95, Amasia, Gen. Kraatz; 3 specs as *P. scabrosus* v. *modestus* (Inventory no 434 – 357, Inventory no 435 – 358, Inventory no 436 – 359), Amasia Klager, leg. Birthler 1895.

***Carabus scabrosus* subsp. *tauricus* Bonelli, 1810:** 1 spec as *P. scabrosus tauricus* (Inventory no 438 – 360), leg. Birthler 1895, Kraatz; 1 spec as *P. scabrosus tauricus* (Inventory no 439 – 361), Astek., Italia, Ivisn, L., 13.V.949, var. *viridissimus* Kraatz, 1876.

Subgenus *Procrustes* Bonelli, 1810

***Carabus coriaceus* Linnaeus, 1758:** 1 spec as *P. coriaceus* (Inventory no 441 – 363), A. F., VII.91, leg. Kimak. 95, A. Fischau; 1 spec as *P. coriaceus* (Inventory no 442 – 364), Silenzia, 89, leg. Kimak. 95; 1 spec as *P. coriaceus* (Inventory no 443 – 365), Germania, Hapft., leg. Birthler 1895; 2 specs as *P. coriaceus* (Inventory no 444 – 366; Inventory no 445 – 367), Unt. Elsass, Zabern, Giebelen, leg. Birthler 1895; 1 spec as *P. coriaceus* (Inventory no 446 – 368), Croatia, Dobiasch, leg. Birthler 1895; 1 spec as *P. coriaceus* (Inventory no 448 – 369), Croatia, Dobiasch, leg. Birthler 1895; 2 specs as *P. coriaceus* var. *rugosus* (Inventory no 449 – 370,

Inventory no 450 – 371), Dalmatia, Dobiasch, leg. Birthler 1895; 1 spec as *P. coriaceus* var. *rugosus* (Inventory no 451 – 372), Dalmatia, Klager, leg. Birthler 1895; 1 spec as *P. coriaceus* var. *foudrasi* (Inventory no 453 – 373), Graecia, Dobiasch, leg. Birthler 1895; 1 spec as *P. coriaceus* var. *foudrasi* (Inventory no 454 – 374), Graecia, leg. Bielz 58; 1 spec as *P. coriaceus* var. *foudrasi* (Inventory no 455 – 375), Gr., leg. Bielz 58; 1 spec as *P. coriaceus* var. *ceresyi* (Inventory no 457 – 376), Graecia, Dobiasch, leg. Birthler 95; 1 spec as *P. coriaceus* var. *hopffgantenii* (Inventory no 458 – 377), Serbia, Hopff., leg. Birthler 1895; 1 spec as *P. coriaceus* aber. *subrugosus* (Inventory no 460 – 378), Mehadia, 1885, leg. Birthler 1895; 2 specs as *P. coriaceus* aber. *subrugosus* (Inventory no 461 – 379, Inventory no 462 – 380), Mehadia, 1886, leg. Birthler 1895; 1 spec as *P. coriaceus* aber. *subrugosus* (Inventory no 463 – 381), Mehadia, 1885, leg. Birthler 1895; 1 spec as *P. coriaceus* aber. *subrugosus* (Inventory no 464 – 382), Mehadia; 1 spec as *P. coriaceus* aber. *subrugosus* (Inventory no 465 – 383), Mehadia, leg. Birthler 1895; 1 spec as *P. coriaceus* var. *spretus* (Inventory no 468 – 384), Dalmatia, Hopffgarten, leg. Birthler 1895; 1 spec as *P. coriaceus* var. *spretus* (Inventory no 469 – 385), Dalmatia, Lesina, Hopffgarten, leg. Birthler 1895; 1 spec as *P. coriaceus* var. *spretus* (Inventory no 470 – 386), Dalmatia, Dobiasch, leg. Birthler 1895.

***Carabus coriaceus* subsp. *banaticus* L.Redtenbacher, 1858:** 1 spec as *P. coriaceus* aber. *banaticus* (Inventory no 472 – 387), 11.10, P. Maroi.

***Carabus coriaceus* subsp. *rugifer* (Kraatz, 1877):** 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 474 – 388), VII.1909, Csik; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 475 – 389), 1894, D.; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 476 – 390), Kronstadter, Gbg. – Deubel; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 477 – 391), Heldinf, Deubel, leg. Birthler 1895; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 478 – 392), 1886, Keroly, leg. Birthler 1895; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 479 – 393), Sohassbg., leg. Petri; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 480 – 394), Sb. Allesloche, Km., 28.09.1900; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 481 – 395), Sb, 1892, uvefaesf. Tgh; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 482 – 396), Hopffg, Tr. F., 3.1898; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 483– 397), Du. G., 25.08.1891, leg. Kimakowicz; 1 spec as *P.*

coriaceus v. *Megifer* (Inventory no 484 – 398); 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 485 – 399), Michelsdorf, B. Marklschel Kan, leg. Kimakowicz; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 486 – 400), Cau. Waw, b. IV. Encot 1891; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 487 – 401), Td. Fs, 10.08.1889, leg. Kimakowicz; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 488 – 402), Deva – Schlossbrg, leg. Kimakowicz; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 489 – 403), Sr. Regen, leg. Birthler; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 490 – 404), Borszek, leg. Petri; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 491 – 405), Rodnaugub, Szaka 92; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 492 – 406), Marinare, april 1886, leg. Birthler 1895; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 493 – 407), Koronjis, in gaus 19 ore VII; 1 spec as *P. coriaceus* v. *Megifer* (Inventory no 494 – 408), Banat, leg. Birthler.

***Carabus chevrolati* Cristoforis & Jan, 1837:** 2 specs as *P. chevrolati* (Inventory no 498 – 409, Inventory no 499 – 410), Syria, Merkl, leg. Birthler 1895; 1 spec as *P. thirki* (Inventory no 502 – 411), det. Bielz 1858, Caucaz.

***Carabus anatolicus* (Chaudoir, 1857):** 1 spec as *P. anatolicus* (Inventory no 503 – 412), leg. Bielz 1858, Grac.

***Carabus banonii* Dejean, 1829:** 1 spec as *P. banoni* (Inventory no 504 – 413), leg. Bielz 1858, G. Creta.

Subgenus *Pseudocechenus* A. Morawitz, 1886

***Carabus irregularis* subsp. *irregularis* Fabricius, 1792:** 1 spec as *Pseudocechenus irregularis* (Inventory no 559 – 458), Silesia, Kimakowicz V 89, det. Kimakowicz 1895; 1 spec as *Pseudocechenus irregularis* (Inventory no 560 – 459), Sil., 1891, leg. Kimakowicz; 1 spec as *Pseudocechenus irregularis* (Inventory no 561 – 460), A.s., 10.10.90, Austria, Kimakowicz 1895, det K; 2 specs as *Pseudocechenus irregularis* (Inventory no 563 – 461; Inventory no 564 – 462), Hanover, Hapffg., leg. Birthler 1895; 1 spec as *Pseudocechenus irregularis* (Inventory no 565 – 463), Thuring (Germania), leg. Birthler 1895.

***Carabus irregularis* subsp. *montandoni* Buysson, 1882:** 4 specs as *Pseudocechenus irregularis* v. *montandoni* (Inventory no 566 – 464, Inventory no 567 – 465, Inventory no 568 – 466, Inventory no 569 – 467), Knonstadt, Deubel, leg. Birthler 1895; 2 specs as *Pseudocechenus irregularis* v. *montandoni* (Inventory no 571 – 468, Inventory no 572 – 469), det Deubel, Sg. Gros, Krukur, Postavarul (Gross Krukur), leg.

Kimakowicz; 1 spec as *Pseudocechenus irregularis* v. *montandoni* (Inventory no 473 – 470), Kleiner, Krukur, Deubel, Postavarul (Gross Krukur); 1 spec as *Pseudocechenus irregularis* v. *montandoni* (Inventory no 574 – 471), Bekas (Bicaz), V 1917.

***Carabus irregularis* subsp. *bucephalus* Kraatz, 1879:** 1 spec as *Pseudocechenus irregularis* v. *bucephalus* (Inventory no 576 – 472), Korresoare (Cartisoara), Hopftgart, Trans., leg. Birthler 1895; 1 spec as *Pseudocechenus irregularis* v. *bucephalus* (Inventory no 577 – 473), 06.VIII. 1890, U, Kimak, Negoii; 1 spec as *Pseudocechenus irregularis* v. *bucephalus* (Inventory no 578 – 474), Retezat, Dioszeghy, (1000 m), 28.VII.27; 2 specs as *Pseudocechenus irregularis* v. *bucephalus* (Inventory no 579 – 475; Inventory no 580 – 476), Croatia, Dobiasch, leg. Birthler 1895.

Subgenus *Sphodristocarabus* Géhin, 1885

***Carabus varians* subsp. *janthinus* Ganglbauer, 1887:** 1 spec. as *Sphodristocarabus varians* (Inventory no 698 – 573), Cauc., leg. Bielz 58; 1 spec as *Sphodristocarabus varians* (Inventory no 699 – 574: Cauc., Reitter, leg. Birthler 1895; 2 specs as *Sphodristocarabus varians* (Inventory no 700 – 575, Inventory no 701 – 576), Kasber, leg. Birthler 1895.

***Carabus armeniacus* Mannerheim, 1830:** 1 spec as *Sphodristocarabus varians armeniacus* (Inventory no 703 – 577), Caucas, leg. Birthler 1895.

***Carabus adamsi* M.Adams, 1817:** 1 spec as *Sphodristocarabus adamsi* v. *eichnvaldi* Fischer, 1828 (Inventory no 705 – 578), Cauc, Reitter.

Subgenus *Tachypus* Weber, 1801

***Carabus auratus* Linnaeus, 1761:** 1 spec as *Tachypus auratus* (Inventory no 1017 – 821), 19/6, Schwab, cuj Linson, leg. Birthler 1895; 3 specs as *Tachypus auratus* (Inventory no 1018 – 822, Inventory no 1019 – 823, Inventory no 1020 – 824), Unt. Elsass, Zabern, Giebel, leg. Birthler 1895; 2 specs as *Tachypus auratus* (Inventory no 1021 – 825, Inventory no 1022 – 826), Germania Tübingen, leg. Birthler 1895.

***Carabus auratus* subsp. *lotharingus* Dejean, 1826:** 1 spec as *Tachypus auratus lotharingus* (Inventory no 1026 – 827), leg. Bielz 58, Ni 3/8.

***Carabus auratus* subsp. *auratus* Linnaeus, 1761:** 1 spec as *Tachypus auratus* v. *perauratus* (Inventory no 1028 – 828), Pyreszan, Merkl, leg. Birthler 1895.

***Carabus vagans* Olivier, 1795:** 2 specs as *Tachypus vagans* (Inventory no 1084 – 875, Inventory no 1085 – 876), Gall., leg. Bielz 58; 1

spec as *Tachypus vagans* (Inventory no 1086 – 877), Gallia, leg. Birthler 1895.

***Carabus cancellatus* subsp. *cancellatus* Illiger, 1798:** 1 spec as *Carabus cancellatus* (Inventory no 1088 – 878), Temosvar, leg. Birthler, Bag 11/5/84; 1 spec as *Carabus cancellatus* (Inventory no 1089 – 879), 26.75; 1 spec as *Carabus cancellatus* (Inventory no 1090 – 880), Tatra, 16.VIII.890, leg. Biro L.; 1 spec as *Carabus cancellatus* (Inventory no 1091 – 881), A. F., VII 90, leg. Km 95, Austr.; 6 specs as *Carabus cancellatus* (Inventory no 1092 – 882, Inventory no 1093 – 883, Inventory no 1094 – 884, Inventory no 1095 – 885, Inventory no 1096 – 886, Inventory no 1097 – 887), Aufsee 1886, leg. Birthler 1895; 1 spec as *Carabus cancellatus* v. *turbeculatus* (Inventory no 1108 – 895), Knanst., leg. Deubel; 2 specs as *Carabus cancellatus* v. *turbeculatus* (Inventory no 1109 – 896, Inventory no 1110 – 897), Siebenburgen, Fogarascher, Geb., leg. R. Albrecht; 4 specs as *Carabus cancellatus* v. *turbeculatus* (Inventory no 1111 – 898, Inventory no 1112 – 899, Inventory no 1113 – 900, Inventory no 1114 – 901), Vallujmein, VI. 916; 1 spec as *Carabus cancellatus* v. *turbeculatus* (Inventory no 1116 – 902), Chatebar, Stgrwld, leg. Birthler 1895; 1 spec as *Carabus cancellatus tibiscinus* (Inventory no 1124 – 908), Temesvar, Birthler, leg. Birthler 1895; 1 spec as *Carabus cancellatus* v. *soproniensis* (Inventory no 1201 – 973), Temesvar, leg. Birthler; 1 spec as *Carabus cancellatus* v. *soproniensis* (Inventory no 1202 – 974), Temesvar, leg. Birthler, Ban, 4/5.884.

***Carabus cancellatus* subsp. *excisus* Dejean, 1826:** 1 spec as *Carabus cancellatus* aber. *femoralis* (Inventory no 1099 – 888); 1 spec as *Carabus cancellatus* aber. *femoralis* (Inventory no 1100 – 889), Erdely; 1 spec as *Carabus cancellatus* aber. *femoralis* (Inventory no 1101 – 890), A. F. VII 90, leg. Km 95, Austr.; 1 spec as *Carabus cancellatus* aber. *femoralis* (Inventory no 1102 – 891), Austr. Merkl, leg. Birthler 1895; 1 spec as *Carabus cancellatus* aber. *femoralis* (Inventory no 1103 – 892), Unt. Elsass Zabern Giebler; 1 spec as *Carabus cancellatus* aber. *femoralis* (Inventory no 1104 – 893), Unt. Elsass Zabern Giebler; 1 spec as *Tachypus cancellatus excisus* v. *letzneri* (Inventory no 1118 – 903), Sil. 26.91, leg. Km 95, Siles; 2 specs as *Tachypus cancellatus excisus* v. *pseudotuberculatus* (Inventory no 1119 – 904, Inventory no 1120 – 905), Ratosnya 1886, leg. Birthler 1895; 1 spec as *Carabus cancellatus* v. *brdensis* (Inventory no 1193 – 967), Bohem. Stgwlv, leg. Birthler 1895,

Ich.; 1 spec as *Carabus cancellatus excisus* (Inventory no 1197 – 970), Becs; 2 specs as *Carabus cancellatus excisus* (Inventory no 1198 – 971, Inventory no 1199 – 972), Umg. Wien, 906, leg. R. Albrecht.

***Carabus cancellatus* subsp. *carinatus* Charpentier, 1825:** 1 spec as *Carabus cancellatus* v. *carinatus* (Inventory no 1106 – 894), Gallia Dobiasch, leg. Birthler 1895.

***Carabus cancellatus* subsp. *graniger* Palliardi, 1825:** 2 specs as *Carabus cancellatus* v. *graniger* (Inventory no 1147 – 927, Inventory no 1148 – 928), Banat, leg. Bielz 58; 1 spec as *Carabus cancellatus* v. *graniger* (Inventory no 1148 – 928), Banat, leg. Bielz 58; 1 spec as *Carabus cancellatus* v. *graniger* (Inventory no 1149 – 929), Hung, Merkl, leg. Birthler 1895; 1 spec as *Carabus cancellatus* v. *graniger* (Inventory no 1150 – 930), Dr. Branesik, Hung. Anina; 1 spec as *Carabus cancellatus* v. *graniger* (Inventory no 1151 – 931), Hung Hatrfeld, leg. Birthler 1895; 1 spec as *Carabus cancellatus* v. *graniger* (Inventory no 1152 – 932), Kanabe Dezso, Fer. Falva; 1 spec as *Carabus cancellatus* v. *graniger* (Inventory no 1153 – 933), Kanabe Dezso, Resiezabanya; 2 specs as *Carabus cancellatus* v. *graniger* (Inventory no 1154 – 934, Inventory no 1155 – 935), Kanabe Dezso, Resiezabanya; 1 spec as *Carabus cancellatus* v. *graniger* (Inventory no 1156 – 936), Erdely, 26-82; 1 spec as *Carabus cancellatus* v. *graniger* (Inventory no 1157 – 937), VI.928; 1 spec as *Carabus cancellatus* v. *graniger* (Inventory no 1158 – 938), Siebenburgen, Fogarasch. Geb., R. Albrecht; 1 spec as *Carabus cancellatus* v. *graniger* (Inventory no 1159 – 939), Kronst. Hopffgt; 2 specs as *Carabus cancellatus* v. *muehlfeidi* (Inventory no 1126 – 909, Inventory 1127 – 910), Kronstadter, leg. Gbg. Deubel; 1 spec as *Carabus cancellatus* v. *muehlfeidi* (Inventory no 1128 – 911), Kronst. Hopffgt., leg. Birthler 1895; 1 spec as *Carabus cancellatus* v. *muehlfeidi* (Inventory no 1129 – 912), leg. S. Regen 1889; 1 spec as *Carabus cancellatus* v. *muehlfeidi* (Inventory no 1130 – 913), Nij. Jecred., leg. Birthler; 1 spec as *Carabus cancellatus* v. *muehlfeidi* (Inventory no 1131 – 914), Kesetehr 1886, leg. Birthler 1895; 1 spec as *Carabus cancellatus* v. *biharicus* (Inventory no 1133 – 915), Keroly 1886, leg. Birthler 1895; 1 spec as *Carabus cancellatus* v. *biharicus* (Inventory no 1134 – 916), Kronstader Gbg. Deubel; 1 spec as *Carabus cancellatus* v. *biharicus* (Inventory no 1135 – 917), Kronst. Hopffgt.; 1 spec as *Carabus cancellatus* v. *biharicus* (Inventory no 1136 – 918), N. 3E, leg.

Kimak, Kalb.; 1 spec as *Carabus cancellatus* v. *biharicus* (Inventory no 1137 – 919), Mediasch, Weber 1885, Kalb; 1 spec as *Carabus cancellatus* v. *biharicus* (Inventory no 1138 – 920), Nagy Ented Pilis Kalbe Vedit; 1 spec as *Carabus cancellatus* v. *biharicus* (Inventory no 1139 – 921), Transilvania Viertl Kolbe Vedit; 1 spec as *Carabus cancellatus* v. *subgraniger* (Inventory no 1141 – 922), Csik Deubel, Birthler 1895, Jn. Kalb.; 2 specs as *Carabus cancellatus* v. *subgraniger* (Inventory no 1142 – 923, Inventory no 1143 – 924), Heldnrf, Deubel, leg. Birthler 1895; 1 spec as *Carabus cancellatus* v. *subgraniger* (Inventory no 1144 – 925), Rosenauer, Gbg. Deubel, Jn. Kalb; 1 spec as *Carabus cancellatus* v. *assimilis* (Inventory no 1146 – 926), Hime. Stgnvbr, leg. Birthler 1895; 3 specs as *Carabus cancellatus* v. *moestus* (Inventory no 1161 – 940, Inventory no 1162 – 941, Inventory no 1163 – 942), Kanabe Dezso, Fev. Falva; 1 spec as *Carabus cancellatus* v. *moestus* (Inventory no 1164 – 943), Kanabe Deszo, Resiezabanya; 1 spec as *Carabus cancellatus* v. *moestus* (Inventory no 1165 – 944), Hung. Merkl, leg. Birthler 1895; 1 spec as *Carabus cancellatus* v. *moestus* (Inventory no 1166 – 945), Zlata (Retyezat), 22.V.922, leg. Dr. Kontrei; 1 spec as *Carabus cancellatus* v. *moestus* (Inventory no 1167 – 946), P. Zanvg, Vullr. P., Kim Tr.; 1 spec as *Carabus cancellatus* v. *moestus* (Inventory no 1168 – 947), Salzburg Km 20.8.00; 1 spec as *Carabus cancellatus* v. *moestus* (Inventory no 1169 – 948), Rin Sadului, leg. Km.; 1 spec as *Carabus cancellatus graniger* v. *mazurai* (Inventory no 1172 – 949), Riu Szad, Deubel, Birthler 1895, Feisch, Sch. Kalba; 1 spec as *Carabus cancellatus graniger* v. *szobroniensis* (Inventory no 1195 – 968), Siebenburgen, Hermnanstadt, leg. R. Albrecht.

***Carabus cancellatus* subsp. *intermedius* Dejean, 1826:** 1 spec as *Carabus cancellatus* v. *nigricornis* (Inventory no 1196 – 969), Siebenburgen, Hermnanstadt, leg. R. Albrecht; 2 specs as *Carabus cancellatus intermedius* (Inventory no 1217 – 985, Inventory no 1218 – 986), Zara Stgw, Birthler 1895; 2 specs as *Carabus cancellatus intermedius* (Inventory no 1219 – 987, Inventory no 1220 – 988), Dalm Stgw, leg. Birthler 1895; 1 spec as *Carabus cancellatus intermedius* (Inventory no 1221 – 989), Dalm. Bielz 58, leg. Dobiasch; 1 spec as *Carabus cancellatus intermedius* (Inventory no 1222 – 990), Zara, leg. Muller.

***Carabus cancellatus* subsp. *emarginatus* Duftschmid, 1812:** 1 spec as *Carabus cancellatus* v. *emarginatus* (Inventory no 1204 – 975), Croat.

Dobiasch, leg. Birthler 1895; 1 spec as *Carabus cancellatus* v. *emarginatus* (Inventory no 1205 – 976), Capella; 1 spec as *Carabus cancellatus* v. *emarginatus* (Inventory no 1207 – 977); 1 spec as *Carabus cancellatus* v. *emarginatus* (Inventory no 1208 – 978), M. Herbst; 1 spec as *Carabus cancellatus* v. *bohatschi* (Inventory no 1209 – 979), Italia, Dobiasch, leg. Birthler 1895; 1 spec as *Carabus cancellatus emarginatus* v. *generosensis* (Inventory no 1210 – 980), Ital., leg. Bielz 58; 1 spec as *Carabus cancellatus* v. *trentinus* (Inventory no 1211 – 981), Rovereto, Dania 1893; 1 spec as *Carabus cancellatus* v. *trentinus* (Inventory no 1212 – 982), Italia, leg. Bielz 58; 1 spec as *Carabus cancellatus* v. *trentinus* (Inventory no 1213 – 983), Bertarini, Bergam Alp.; 1 spec as *Carabus cancellatus* v. *oblongus* (Inventory no 1215 – 984), Carniol, leg. Dobiasch.

***Carabus durus* Reitter, 1896:** 1 spec as *Carabus cancellatus durus* (Inventory no 1122 – 906), C. Trencsen, leg. Dr. Brancsik; 1 spec as *Carabus cancellatus* v. *pseudograniger* (Inventory no 1123 – 907), leg. Deubel, Tr. Rodnaer G., subalpin.

***Carabus scythicus* Schaum, 1856:** 1 spec as *Carabus cancellatus scythicus* (Inventory no 1173 – 950), Riu Szad, leg. Km Tr.; 1 spec as *Carabus cancellatus scythicus* (Inventory no 1174 – 951), Fancsae, leg. Birthler; 1 spec as *Carabus cancellatus scythicus* (Inventory no 1175 – 952), leg. Deubel, Nh. 1894; 1 spec as *Carabus cancellatus scythicus* (Inventory no 1177 – 954), Bekas, V.917; 1 spec as *Carabus cancellatus scythicus* (Inventory no 1178 – 955), Talgyeo, leg. R. Albrecht; 1 spec as *Carabus cancellatus scythicus* (Inventory no 1179 – 956), T., VIII.89, leg. Kimak; 1 spec as *Carabus cancellatus scythicus* (Inventory no 1180 – 957), Siebenburgen, Hermanstadt, leg. R. Albrecht; 1 spec as *Carabus cancellatus scythicus* (Inventory no 1182 – 958), m. VI.892, leg. Kimak.; 1 spec as *Carabus cancellatus scythicus* v. *bucsecsianus* (Inventory no 1185 – 960), Kronst. Deubel, leg. Birthler 1895; 4 specs as *Carabus cancellatus scythicus* v. *bucsecsianus* (Inventory no 1186 – 961, Inventory no 1187 – 962, Inventory no 1189 – 963, Inventory no 1190 – 964), Bucsecs, leg. Deubel, subalpin.

***Carabus cristoforii* Spence, 1823:** 1 spec as *Carabus cristoforii* (Inventory no 1344 – 1087), Pyren, leg. Bielz 1858; 1 spec as *Carabus cristoforii* (Inventory no 1345 – 1088), Pyrenae, Krastr., leg. Birthler 1895; 3 specs as *Carabus cristoforii* (Inventory no 1346 – 1089, Inventory no 1347 – 1090, Inventory no 1348 – 1091), Frz. Ztr. Pyrenae, 25/29.VII.932, Midi Gigorre 2600,

leg. Muller; 1 spec as *Carabus cristoforii* (Inventory no 1351 – 1092), Hisfs. Dobiasch, leg. Birthler 1895.

Subgenus *Tomocarabus* Reitter, 1896

***Carabus convexus* Fabricius, 1775:** 1 spec as *Tomocarabus convexus* (Inventory no 968 – 781), Aufsee, 1887, leg. Birthler 1895; 1 spec as *Tomocarabus convexus* (Inventory no 969– 782), leg. Bielz 58, Tirol, Sszfolatutus Dej; 1 spec as *Tomocarabus convexus* (Inventory no 970 – 783), leg. Bielz 58, Casn; 1 spec as *Tomocarabus convexus* (Inventory no 971 – 784), Sil. 89 Dg v, Km 95, Siles; 1 spec as *Tomocarabus convexus* (Inventory no 972 – 785), Tatra, 10.V.889, leg. Biro. L; 1 spec as *Tomocarabus convexus* (Inventory no 973 – 786), Biro Pecs; 1 spec as *Tomocarabus convexus* (Inventory no 974 – 787), leg. Ban Birthler 1895; 1 spec as *Tomocarabus convexus* (Inventory no 975 – 788), leg. Duft 95; 1 spec as *Tomocarabus convexus* (Inventory no 976 – 789), leg. Bielz 58, Sicil m. Pyronaicola, M. Csiki; 1 spec as *Tomocarabus convexus* (Inventory no 977 – 790), leg. Bielz 58, Sicil m. Pyronaicola, M. Csiki; 1 spec as *Tomocarabus convexus v. merkliei* (Inventory no 990 – 798), Jzalar, 3/VII.89, leg. Birthler 1895; 1 spec as *Tomocarabus convexus v. merkliei* (Inventory no 991 – 799), Keraly 1886, leg. Birthler 1895, C. conv., Ramof F.; 1 spec as *Tomocarabus convexus v. merkliei* (Inventory no 992 – 800), Kapellonberg, leg. Deubel, C. conv., Ramof F.; 1 spec as *Tomocarabus convexus v. merkliei* (Inventory no 993 – 801), Holxsehlag, Kranstadt, leg. Deubel; 1 spec as *Tomocarabus convexus v. merkliei* (Inventory no 994 – 802), Rp. Lt, 29/9/91, leg. Kimak; 1 spec as *Tomocarabus convexus v. merkliei* (Inventory no 995 – 803), Gb, 16/5/91, leg. Kimak; 1 spec as *Tomocarabus convexus v. merkliei* (Inventory no 996 – 804), C. convexus, Ramof F., Msib 89, leg. Km; 1 spec as *Tomocarabus convexus v. merkliei* (Inventory no 997 – 805), Reşiuor, 28/V/918, C. convexus, leg. Ramof F; 1 spec as *Tomocarabus convexus* (Inventory no 1920 – 1584), Oszod; 1 spec as *Tomocarabus convexus* (Inventory no 1921 – 1585), Sz. Fehervar Hungaria, Chinarany.

***Carabus convexus* subsp. *dilatatus* Dejean, 1826:** 2 specs as *Tomocarabus convexus v. honschuchi* (Inventory no 980 – 791, Inventory no 981 – 792), Croat, Dobiasch, leg. Birthler 1895, Ss p Irlatatus, Zann, Dej; 2 specs as *Tomocarabus convexus v. dilatatus* (Inventory no 983 – 793, Inventory no 984 – 794), Tirol Pof. Sajo; 2 specs as *Tomocarabus convexus v. dilatatus* (Inventory

no 985 – 795, Inventory no 986 – 796), Croat, Dobiasch, leg. Birthler 1895; 1 spec as *Tomocarabus convexus v. Weisei* (Inventory no 988 – 797), Dalmatia Hopffgrt., Birthler 1895, C. conv. Ssp. dilatatus, leg. M Weisei Hopff.

***Carabus rumelicus* subsp. *rumelicus* Chaudoir, 1867:** 1 spec as *Tomocarabus rumelicus* (Inventory no 998 – 806), Turcia, leg. Dlz. 58.

***Carabus marginalis* Fabricius, 1794:** 1 spec as *Callistocarabus marginalis* (Inventory no 999 – 807), Germ. Bor, Soidlitr, leg. Birthler 1895; 2 specs as *Callistocarabus marginalis* (Inventory no 1002 – 810, Inventory no 1003 – 811), W. Preuj, leg. Birthler 1895.

Subgenus *Trachycarabus* Géhin, 1876

***Carabus sibiricus* Fischer, 1822:** 1 spec as *Trachycarabus sibiricus* (Inventory no 1651 – 1355), Sibirien, leg. Birthler 1895.

***Carabus scabriusculus* A.G. Olivier, 1795:** 1 spec as *Trachycarabus scabruesculus* (Inventory no 1653 – 1356), Germania, leg. Bielz 58; 1 spec as *Trachycarabus scabruesculus* (Inventory no 1654 – 1357), Galicien, Tufts, leg. Birthler 1895; 1 spec as *Trachycarabus scabruesculus* (Inventory no 1655 – 1358), Volhynien, Olyka VI.916, Connerth; 1 spec as *Trachycarabus scabruesculus* (Inventory no 1656 – 1359), Vil/by, 2.III.03; 1 spec as *Trachycarabus scabruesculus* (Inventory no 1657 – 1360), Sz. Reg, leg. Birthler; 1 spec as *Trachycarabus scabruesculus* (Inventory no 1658 – 1361), Csik, Deubel 1885, leg. Birthler 1895; 1 spec as *Trachycarabus scabruesculus* (Inventory no 1659 – 1362), Eloyatok, 1886; 2 specs as *Trachycarabus scabruesculus* (Inventory no 1660 – 1363, Inventory no 1661 – 1364), Kronstadter – Gbg. – Deubel; 1 spec as *Trachycarabus scabruesculus* (Inventory no 1662 – 1365), Negoj, leg. Kimakowicz; 2 specs as *Trachycarabus scabruesculus* (Inventory no 1663 – 1366, Inventory no 1664 – 1367), Rp. F., 22/3.91, leg. Kimak.; 1 spec as *Trachycarabus scabruesculus* (Inventory no 1665 – 1368), Gm Sahz. 1885, leg. Birthler 1895; 1 spec as *Trachycarabus scabruesculus* (Inventory no 1666 – 1369), Trans., leg. Birthler; 2 specs as *Trachycarabus scabruesculus* (Inventory no 1667 – 1370, Inventory no 1668 – 1371), Bam. Birthler; 1 spec as *Trachycarabus scabruesculus* (Inventory no 1669 – 1372), Eessarabien, Torutino, 19-21.VII.1927, leg. Muller; 1 spec as *Trachycarabus scabruesculus* (Inventory no 1670 – 1373), Dobruoscha, Tekirghiol, VI.932, leg. Worell.

***Carabus scabriusculus* subsp. *lippii* Dejean, 1826:** 1 spec as *Trachycarabus scabruesculus v.*

Lippi (Inventory no 1672 – 1374), Trnsi, leg. Bielz 58; 1 spec as *Trachycarabus scabriusculus* v. *lippi* (Inventory no 1673 – 1375), Trans. Tufts, leg. Birthler 1895; 1 spec as *Trachycarabus scabriusculus* v. *lippi* (Inventory no 1674 – 1376), Transilvania, Reitter; 1 spec as *Trachycarabus scabriusculus* v. *lippi* (Inventory no 1675 – 1377), Ky. Szered, 1884; 1 spec as *Trachycarabus scabriusculus* v. *lippi* (Inventory no 1676 – 1378), Schaeff., leg. Birthler; 1 spec as *Trachycarabus scabriusculus* v. *lippi* (Inventory no 1677 – 1379), mb., leg. Kimak; 1 spec as *Trachycarabus scabriusculus* v. *Lippi* (Inventory no 1678 – 1380), Nruyew, Elores, leg. Birthler.

***Carabus besseri* Fischer, 1822:** 1 spec as *Trachycarabus besseri* (Inventory no 1680 – 1381), Rossia, leg. Bielz 58; 1 spec as *Trachycarabus besseri* (Inventory no 1681 – 1382), R. Mor. Klager.

Subgenus *Tribax* Fischer von Waldheim, 1817:

***Carabus osseticus* M.F. Adams, 1817:** 1 spec as *Tribax osselicus* (Inventory no 859 – 701), Caucas, Reitter, leg. Birthler 1895.

***Carabus nothus* Adams, 1817:** 1 spec as *Tribax nothus* (Inventory no 860 – 702), Caucas, Reitter, leg. Birthler 1895.

***Carabus puschkini* subsp. *kolenatii* Chaudoir, 1846:** 1 spec as *Tribax puschkini kolenatii* v. *suramensis* (Inventory no 861 – 703), Kuban, Caucas, Juthner.

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Subgenus *Archicarabus* Seidlitz, 1887

***Carabus rossii* Lemoult, 1912:** 1 spec, Abruzzo, Gran Sasso, Lug 94, A. Fiori; 1 spec, no data.

***Carabus montivagus* Palliardi, 1825:** 2 specs, Kasidol, Matzenauer.

***Carabus montivagus* subsp. *blandus* Frivaldszky, 1865:** 1 spec, Kapellenberg, Deubel; 1 spec, Kronstadtierg – Gbg., Deubel.

***Carabus monticola* Dejean, 1826:** 1 spec, Gallia, Bass. Alp., Reitter; 1 spec, no data.

***Carabus nemoralis* Müller, 1764:** 2 specs, no data; 2 specs, Zakeisberg, Stolzenburg, Dr. Worell, 3.VI.1948; 4 specs, Hermannstadt, VII.1953, E. Schneider; 5 specs, Westphahlem, Scheubel, 1892; 1 spec, Austria inferioară, Schneeberg., Ed. Wunder; 1 spec, Durlfort, Montagus Noires.

***Carabus victor* Fischer von Waldheim, 1836:** 1 spec, Borah., 1886; 1 spec, 1881.

Subgenus *Archiplectes* Gottwald, 1982

***Carabus reitteri* Appel, 1916:** 1 spec, Circassia, Reitter.

***Carabus agnatus* (Ganglbauer, 1889):** 1 spec, Nord – Elbrus, Malka Fluss, Russel S. V.

***Carabus obtusus* Thunberg, 1784:** 1 spec, Caucas occ., Circassien, Leder Reitter.

***Carabus edithae* Reitter, 1893:** 1 spec, no data.

Subgenus *Aulonocarabus* Reitter, 1896

***Carabus canaliculatus* Adams, 1812:** 1 spec, B. V. Bedemeyer, Siberia orient.

Subgenus *Carabus* Linnaeus, 1758

***Carabus granulatus* Linnaeus, 1758:** 8 specs, no data, leg. Worell; 2 specs, III.1925, Hermannstadt, leg. Worell; specs, IV.1924, Hermannstadt, leg. Worell; 4 specs, VI.1932, Hermannstadt, leg. Worell; 2 specs, 3.I.1926, Hermannstadt, leg. Worell; 1 spec, III.1925, Hermannstadt, leg. Worell; 2 specs, 3.I.1926, Hermannstadt, Jung. Wild, leg. Worell; 9 specs, III.1924, Hermannstadt, Jung. Wild, leg. Worell; 3 specs, Cariathia, Reitter; 2 specs, Lienz.

***Carabus arvensis* Paykull, 1790:** 2 specs, Hermannstadt, Umgebung, 11.V.1946, leg. Dr. Worell; 1 spec, Hermannstadt, Umgebung, 10.V.1955, leg. Dr. Worell; 1 spec, Hermannstadt, Umgebung, 5.V.1943, leg. Dr. Worell; 1 spec, Kronstadt, H. Bomer, 8.VIII.1951; 1 spec, Michesberg, Hermannstadt, 16.IV.1948, leg. Dr. Worell; 2 specs, Grădina Sibiu, 18.VII.1956, leg. Dr. Worell; 3 specs, Umg. Wien, Ad. Hoffmann; 10 specs, no data; 2 specs, Kor-Alpe Car., Ad. Hoffmann; 1 spec, Nied Oest., Schneeberg; 1 spec, Negoi; 15 specs, Siara, Vi.1924; 6 specs, Troker Goge, Bărcăciu, VII.1925; 1 spec, Gârbova, VI.1924; 1 spec, Hoch - Wechsel, Ad. Hoffmann; 1 spec, Lienz.

***Carabus punctulatus* (Reiche & Saulcy, 1855):** 2 specs, Dr. F. Leuthner Ladijye, 1885. N. Syrien.

***Carabus moestus* Duftschmid, 1812:** 1 spec, Asia minor, Bulghar, v. Bodemeyer.

***Carabus schmidtii* Apfelbeck, 1890:** 2 specs, Vellebit, Croatien, Reitter.

***Carabus adonis* Hampe, 1853:** 1 spec, Paraass, Graecia, Reitter, 1895.

***Carabus campestris* M. Adams, 1817:** Sebastopol, Krim., 19.03.1908, W. Plliginskly

Subgenus *Cechenochilus* Motschulsky, 1850

***Carabus heydenianus* Starck, 1889:** 2 specs, Portugal, Monh.

Subgenus *Chaetocarabus* C.G. Thomson, 1875

***Carabus intricatus* Linnaeus, 1760:** 6 specs, no data; 1 spec, Herkules Bad, 9.VI.1942, Dr. Worell; 4 specs, ZOOOOT Tal, Dr. Worell,

9.VIII.1893; 8 specs, Werner Hald; 1 spec, Rat Turm, Petri; 2 specs, Berg. Cozia, Călimănești, Dr. Worell, 23.VII.1948; 8 specs, Herkules Bad, VI.1927; 1 spec, Michesbirg, Hermannstadt, Dr. Worell, 13.Ix.1956; 1 spec, N. Oestera, VI.1907; 1 spec, Kimak 95, Austria/Fischau, A. 1889; 1 spec, Kronstadter Gbg., Deubel; 2 specs, Bekas, V.1917.

Subgenus *Chrysocarabus* C.G. Thomson, 1875

***Carabus auronitens* Fabricius, 1792:** 2 specs, Austria inferioară, Rax, Dr. Stolz, V.1904; 4 specs, Basses, Alpes; 1 spec, Retyezat, VIII.1930; 1 spec, Schuller, VII.1923; 3 specs, F. Tar. Hu. Mehadia; 1 spec, Foret Coat. Loch Finistere; 1 spec, Gallia, Merkl, det Birthler 1895; 3 specs, no data; 3 specs, Hohe Rinne; 1 spec, Trecher See, VI.1924.

***Carabus auronitens* subsp. *auronitens* Fabricius, 1792:** 5 specs, no data; 3 specs, Hohe Rinne, VI.1923.

***Carabus auronitens* subsp. *escheri* Palliardi, 1825:** 1 spec, no data; 6 specs, Negoi; 1 spec, Retyezat, VIII.1930; 3 specs, Frocher – See, Zusammen mit C. Oponaes, VI.1924; 10 specs, Hohe Rinne, VI.1923; 1 spec, Pietros, Roza G., 24.VI.1955; 1 spec, V. Vinului, 29.VI.1955, Rus; 1 spec, Kuhhon, 28.VI.1955, Rus; 1 spec, Pietros, Rodna Gb., 26.VI.1955.

***Carabus auronitens* subsp. *festivus* Dejean, 1826:** 1 spec, Torn, Foret der l'Arguier, Le Molt, I.1903

***Carabus lineatus* Quensel, 1806:** 1 spec, M. Priela, Austria

***Carabus hispanus* Fabricius, 1787:** 1 spec, no data; 1 spec, R. Albrecht; 1 spec, Gallia, Stgrvlv, det Birthler 1895; 2 specs, Circassia, Reitter.

***Carabus rutilans* Dejean, 1826:** 1 spec, no data; 1 spec, Pyrenaen, Gehin; 1 spec, Pyrenaen, Gehin, det Birthler 1895.

***Carabus splendens* Olivier, 1790:** 3 specs, Canterets, Hautes Pyrenees; 1 spec, no data; 3 specs, AUDE, Forest des Fanges.

***Carabus olympiae* Sella, 1855:** 1 spec, no data.

Subgenus *Ctenocarabus* Thomson, 1875

***Carabus galicianus* Gory, 1839:** 1 spec, Lusit, Klager.

***Carabus melancholicus* Fabricius, 1798:** 1 spec, Espinar, leg. J. Ardois – Spania; 1 spec, Hispania, Gallaecia - Spania, leg. Worell; 1 spec, no date, leg. Worell.

Subgenus *Cytilocarabus* Reitter, 1896

***Carabus cribratus* (Motschulsky, 1850):** 1 spec, no data; 1 spec, Borjom – Geb., nordl. Der Kura, Juthner.

Subgenus *Eucarabus* Géhin 1876

***Carabus ulrichii* Germar, 1824:** 12 specs, no data; 1 spec, Kronstadt; 1 spec, Neppend Zibin, Hermanstadt, 29.V.1948, leg. Dr. Worell; 3 specs, Neppendorf Zibin, V.1925; 1 spec, Hermanstadt, Hammersd, Bg., 17.VII.1945, leg. Dr. Worell; 1 spec, Kronstadt, VII.1923, Kelter; 4 specs, Kronstadt, VII.1923; 1 spec, Garten Sibiu, 4.VI.1954, leg. Dr. Worell; 1 spec, V.1927, Oradea mare; 2 specs, Hermanstadt, V.1932, leg. Dr. Worell; 1 spec, Banat; 2 specs, Mehadia; 2 specs, România, Ceris, F. Salay; 1 spec, Oradea mare, V.1927; 1 spec, Graz. A. Weber; 1 spec, Polonia, 18.X.1927; 1 spec, Pitești, apr.1949; 1 spec, Băneasa, V.1949.

***Carabus ullrichii* subsp. *fastuosus* Palliardi, 1825:** 10 specs, Herkules Bad, VI.1928; 5 specs, Herkules Bad, VI.1929; 2 specs, Herkules Bad, , Winkler; 1 spec, Herkules Bad, VI.1927.

***Carabus ulrichii* subsp. *arrogans* Schaum, 1859:** 2 specs, Samml. O. Langen, han. Kauf 1931

***Carabus catenulatus* Scopoli, 1763:** 23 specs, no data; 3 specs, Podnagy, hugorn; 2 specs, Baian, 1902; 6 specs, Velebit, Muller; 1 spec, Croația.

***Carabus cumanus* Fischer, 1823:** 1 spec, Caucaz, Occidental; 1 spec, Nord Cuacaz, Elborus G.

***Carabus obsoletus* Sturm, 1815:** 2 specs, Dotika, 8.6; 2 specs, Hungar Centr, Reitter; 1 spec, Ruman., Azuga; 1 spec, Neusohl, Dothar, det Birthel 1895; 1 spec, Podnagy, Scheub. 1892; 1 spec, Hungaria, Kassa, E. Bokor; 1 spec, Neusohl, Dothar, det Birthel 1895; 2 specs, Czoodt; 2 specs, Gotzenberg, VII.1925; 1 spec, Gotzenberg, V.1925; 1 spec, Collegieumg., N. Enyad, 1891; 1 spec, Tomnatic, Păltiniș, Schneider, 15.VI.1953; 2 specs, no data; 3 specs, Prasbe, VII.1925.

***Carabus parreyssi* Palliardi, 1825:** 1 spec, Croația, Reitter; 1 spec, Livno, Matzenauer; 1 spec, Bjelaenica, Bosnia.

***Carabus italicus* Dejean, 1826:** 1 spec, Vorius, Italia; 2 specs, Roveredo, Nalbher, 1895.

Subgenus *Hemicarabus* Géhin, 1876

***Carabus nitens* Linnaeus, 1758:** 3 specs, Velsow, Stolpi. Pom., J. Kniephof.

Subgenus *Hygrocarabus* C.G. Thomson, 1875

***Carabus variolosus* Fabricius, 1787:** 1 spec, Carpathen, Reitter; 1 spec, Kronstadter – Gbg., Deubel; 2 specs, Herkules Bad, VII.1927; 1 spec,

Stezi – Tal, Bei – Hermannstadt, Dr. Worell, 10.VIII.1939; 1 spec, Kanabe Deszo.

Subgenus *Iniopachys* Solier, 1848

***Carabus pyrenaicus* Audinet-Serville, 1821:** 3 specs, Frz. Ztr. Pyrenaen, 25/29.VII.1932, Midi Bigorre, 2600, A. Muller

***Carabus auriculatus* Putzeys, 1872:** 1 spec, Picos de Europa, La Liebana, A. Kricheldorf; 1 spec, Pic., VI.90, Silesia, A. Nicolas; 1 spec, Pyren, Reitter.

Subgenus *Limnocarabus* Géhin, 1876

***Carabus clathratus* Illiger, 1798:** 1 spec, Albaron, Camargue, DF. A. Chobaut; 1 spec, Pomnarn, Lange 1892; 2 specs, Talychgeb, Transcaucaz, Leder, Reitter.

Subgenus *Macrothorax* Desmarest, 1850

***Carabus morbillosus* Fabricius, 1792:** 1 spec, T. Le Kef, leg. Dr. Normand – Tunisia.

***Carabus morbillosus* subsp. *alternans* Palliardi, 1825:** 1 spec, Sardinien – Italia, leg. Worell; 1 spec, Sicilia - Italia, leg. Worell.

***Carabus rugosus* Fabricius, 1792:** 6 specs, no data; 1 spec, Lussin.

***Carabus rugosus* subsp. *boeticus* Deyrolle, 1852:** 1 spec, Andalusia Monl, leg. Uynirus – Spania.

***Carabus rugosus* subsp. *celtibericus* Germar, 1824:** 1 spec, S. Maptinho, leg. C. de Barros – Portugalia

Subgenus *Megodontus* Solier, 1848

***Carabus caelatus* subsp. *dalmatinus* Duftschmid, 1812:** 4 specs, no data.

***Carabus croaticus* Dejean, 1826:** 2 specs, Bjelasnica, Matzenauer.

***Carabus croaticus* subsp. *bosnicus* Apfelbeck, 1890:** 1 spec, Freskavica, Matzenau.

***Carabus violaceus* Breuning, 1972:** 2 specs, Wesx, Pseufrc., f. Typ; 1 spec, Herkules Bad, VII.1930; 1 spec, Nenmttd, Tavern, Konecrni; 1 spec, Debanttal Tyr, Tavern, Konecrni; 3 specs, Westpseus; 1 spec, N. Pane; 2 specs, Negoii; 1 spec, Kerzensoare, Hopffgarten; 1 spec, Pr. 26, 14.V.1887, Kimakowicz; 1 spec, Utsioa1891, Birthler; 2 specs, Kavan, Schuld, 1892; 3 specs, no data; 3 specs, Illyrien Schniber; 3 specs, Hermannstadt, Dr Worell, P25 Hoke Reitter; 12 specs, Hermannstadt, Dr Worell, V.1932; 2 specs, Hermannstadt, Garten, III.1925; 3 specs, Retyezat, VIII.1930; 1 spec, Retyezat; 2 specs, Vințisoara; 3 specs, Hohe Rinne, Zibin Nb. – Geb., Dr. Worell, 22.IX.1940; 1 spec, Bucegi, 92, Deubel, 5.IX.1953; 2 specs, Grădină, Sibiu, Dr. Worell, 24.VI.1955; 1 spec, Sighișoara, Dr. Worell,

14.VIII.1896; 1 spec, Gotrenberg, VII.1923; 5 specs, Negoii; 2 specs, KleinKopisch, 10.IV.1928; 3 specs, Hohe Rinne, VI.1923; 4 specs, Iotzenberg, VII.1925; 2 specs, no data; 1 spec, Gaittel; 1 spec, Bularda, 25.VI.1935; 1 spec, Bularda, Orhei, 23.VI.1933; 3 specs, Retyezat, VIII.1930; 1 spec, BFRG Cozia, Călimănești, Dr. Worell, 8.VI.1943; 3 specs, BFRG Cozia, Călimănești, Dr. Worell, 13.VIII.1943; 2 specs, Caucasus, Meskech Gb., Leder Reitter; 2 specs, Caucasus, Armen Geb., Leder Reitter.

***Carabus violaceus* subsp. *purpurascens* Fabricius, 1787:** 2 specs, no data.

***Carabus violaceus* subsp. *azureus* Dejean, 1826:** 1 spec, no data; 1 spec, Dalmatien; 1 spec, Eug. Strauch, Rihae, Sosnien.

***Carabus violaceus* subsp. *volfii* Dejean, 1826:** 11 specs, Herkules Bad, VI.1927; 7 specs, Herkules Bad, VI.1929; 2 specs, Herkules Bad, 9.VI.1932, Dr. Worell.

***Carabus septemcarinatus* Motschulsky, 1840:** 1 spec, no data.

***Carabus exaratus* Quensel, 1806:** 2 specs, Caucas occ., Circassien, Leder Reitter.

***Carabus planicollis* Küster, 1846:** 1 spec, Transilvania Alp. Butschetsch, Ad. Hoffmann; 1 spec, Fricher Poc., VI.1914; 1 spec, Moscau, Negoii; 1 spec, Bulea – Sec., 5.VII.1025; 6 specs, N. 578, Km. 1898; 3 specs, Fruker/Frecker – Sec., VI.1914.

***Carabus planicollis* subsp. *verae* Csiki, 1905:** 1 spec, no data; 2 specs, Fruhstachatein, Negoii, VI.1924.

Subgenus *Mesocarabus* C. G. Thomson, 1875

***Carabus problematicus* Herbst, 1786:** 2 specs, Ceahlău, Scheider, 26.VI.1954; 2 specs, Stuhleck, 1700 m, Styria, Breuning

***Carabus problematicus* subsp. *occitanus* Lapouge, 1910:** 1 spec, Durfort, Tarn; 1 spec, Tarn, Ductort Montagnes, Nafrea Collection, le Moul.

***Carabus macrocephalus* Dejean, 1826:** 2 specs, Hispania, Reitter; 1 spec, Hispania, Reitter.

***Carabus lusitanicus* Fabricius, 1801:** 1 spec, no data

Subgenus *Mimocarabus* Géhin, 1885

***Carabus maurus* Duftschmid, 1812:** 1 spec, Kars., 1901, Korb.

Subgenus *Morphocarabus* Géhin, 1885

***Carabus scheidleri* Panzer, 1799:** 12 specs, no data; 3 specs, Cepelak, Trencin, Slovak; 2 specs, Cepelak, Trencin, Slovak; 1 spec, Austria

inferioară, Wachau; 1 spec, Neusohl, Merkl; 2 specs, Hildesheim, Germ.

***Carabus scheidleri* subsp. *helleri* Ganglbauer, 1892:** 3 specs, Cepelak, Trencin, Slovak; 1 spec, Chişinău, Besahbien, 6.VI.1937.

***Carabus kollari* Palliardi, 1825:** 1 spec, no data; 1 spec, Herkules Bad, VI.1929; 1 spec, Cozia, Roter Turm, VI.1925; 1 spec, Kanabe Dezso, Ferenzlalva; 1 spec, Sighi;oara, Dr. Worell, 29.VIII.1957.

***Carabus excellens* Fabricius, 1798:** 1 spec, no data.

***Carabus rothi* Dejean, 1829:** 2 specs, M. v. Kimakowicz, IX.1888; 7 specs, no data; 1 spec, Hermannstadt, Hammersd, Sg., Dr. Worell, 8.VI.1946; 1 spec, VI.1928, Klein Kopinh; 1 spec, Sighişoara, Dr. Worell, 26.VIII.1957; 1 spec, Birthler, Sohenk; 1 spec, Hermannstadt, Friedhof N., V.1926; 1 spec, Alzen; 2 specs, Transilvania, Reitter; 3 specs, Klein Ropirk, VI.1928; 1 spec, 25.IV.1926; 2 specs, Schenr, Birthler.

***Carabus rothi* subsp. *hampei* Küster, 1846:** 1 spec, Transilvania, Karlsburg; 1 spec, Schuller, VII.1923; 1 spec, Sărmaş Băi, Klausenberg, V.1930; 1 spec, Rosenauer Burg, Worell, 4.V.1943; 1 spec, Rosenauer Berg, Worell, 4.V.1943; 1 spec, Sz. Rogeu, Birthler 1895; 1 spec, Zeidner Berg, VII.1923; 1 spec, Lina Kr., VII.1922; 2 specs, Linne; 3 specs, Schuller, VII.1923; 1 spec, Kanabe Dezso, Szemenik; 1 spec, Nussbach, Burrenland.

***Carabus regalis* Fischer von Waldheim, 1820:** 2 specs, Semipalatinsk, Gassner.

***Carabus monilis* Fabricius, 1792:** 1 spec, Tomnatic, Păltiniş, Schneider, 15.VI.1953; 1 spec, Presbe, 20.7.1951; 1 spec, Cindrel, 7.II.1953, Schneider; 3 specs, H. R., 12.6.1954; 2 specs, Gallicia, det Birthel 1895; 1 spec, Chasseral, Herrmann, 11.VII.1919; 1 spec, Chasseral, Schweiz, Herrmann; 1 spec, no data.

***Carabus monilis* subsp. *consitus* Panzer, 1809:** 1 spec, Waser EmmenZhal; 1 spec, Snecia, Rimmingen; 1 spec, Polonia, 22.V.1927.

***Carabus monilis* subsp. *alticola* Bellier, 1880:** 1 spec, Digne, Bann Alpi.

***Carabus hummelii* Fischer von Waldheim, 1823:** 1 spec, Siberia, Slanojinja.

***Carabus odoratus* Motschulsky, 1844:** 1 spec, Quell. D. Jrbut., Reitter.

***Carabus aereus* (G. Hauser, 1919):** specs, Transilvania, Leider, Reitter

Subgenus *Oreocarabus* Géhin, 1885

***Carabus hortensis* P.Rossi, 1792:** 1 spec, no data; 1 spec, Calunphour; 3 specs, Lienz.

***Carabus preslii* subsp. *neumeyeri* Schaum, 1856:** 1 spec, Hercegovina, Dolnji, Hrasno, E. v. D.

***Carabus ghiliani* LaFerté-Sénectere, 1847:** 1 spec, Balsain, J. Ardois.

Subgenus *Orinocarabus* Kraatz, 1878

***Carabus concolor* Panzer, 1809:** 1 spec, Schnee – Alpe, Steiermark, Dr. Worell; 9 specs no data; Hoker Wechsel, Ostereich, Dr. Worell; 1 spec, Carinthia, Koralpe, Dr. Stelz, VI.1906; 2 specs, Koralpe; 1 spec, V.d Albergian, Ganglb., 1908; 3 specs, Koralpe

***Carabus castanopterus* G.Hauser, 1913:** 1 spec, Mt. Legnone, Reimoser, Bergamasker, Alp., Italia.

***Carabus heteromorphus* K. Daniel, 1896:** 1 spec Aepocomba, 12.VIII.1895

***Carabus sylvestris* Panzer, 1793:** 2 specs, no data; 1 spec, Kohf Veitsch, Tirol, Dr. Worell.

***Carabus sylvestris* subsp. *sylvestris* Panzer, 1793:** 1 spec, Piora – Thal, 25 – 30.VI.1908.

***Carabus sylvestris* subsp. *transsylvanicus* Dejean, 1826 :** 29 specs, Nego; 8 specs, Nego, VI.1924; 1 spec, Hohe – Scharte, VI.1924; 8 specs, Scora, VI.1924; 2 specs, Gârbova, VI.1924.

***Carabus sylvestris* subsp. *haberfelneri* Ganglbauer, 1891:** 1 spec, Hohf Veitsch, Ad. Hoffmann.

***Carabus alpestris* Sturm, 1815:** 1 spec, Ganglb.1898, Rolle – Pass, Sud – Tirol; 11 specs, Lienz; 1 spec, Mallnitz, Tirol, Dr. Worell; 6 specs, no data; 1 spec, Mallnitz; 5 specs, Tirol – Nord, Alpen, Col. Handerek; 1 spec, Bosnien, Reitter, Leder.

***Carabus alpestris* subsp. *hoppii* Germar, 1824:** 21 specs, no data; 3 specs, Mallnitz; 1 spec, Tirol, Dr. Worell.

***Carabus linnaei* Panzer, 1812:** 1 spec, no data; 2 specs, Zirps, Beskiden; 21 spec, Retezat, VIII.1930; 2 specs, Lysi, Hora – R, Salina, 21.VII.1905; 10 specs, Scara, VI.1924; 4 specs, Gotzenberg, VII.1913; 13 specs, Nego; 17 specs, Cindrel; 2 specs, Hohe Rinne, VI.1923; 1 spec, HoHe Rinne, VII.1924; 1 spec, Hohe Rinne, Zibin – Geb., 10.VII.1953; 3 spec, Bucegi, Deubel, 10.VIII.1954; 3 spec, Bucegi, Deubel, 9.VIII.1954; 1 spec, Frecher – Sel, VI.1924; 1 spec, Nego, VII.1924; 2 specs, Fogaras Geb., Buiea, Dr. Worell, VII.1943.

***Carabus carinthiacus* Sturm, 1815:** 1 spec, Tirol, Reitter; 1 spec, Carinthia, Lange, 1892.

Subgenus *Pachystus* Motschulsky, 1865

***Carabus hungaricus* Fabricius, 1792:** 1 spec, no data; 1 spec, Pest. Hungaria.

***Carabus glabratus* Paykull, 1790:** 2 specs, no data; 3 specs, Retyezat, VIII.1930; 2 specs, D. V.; 11 specs, Hohe Rinne, Zibin – Geb., Dr. Worell; 1 spec, Hohe Rinne, V.1926; 2 specs, Zeidnee Berg, VII.1923; 1 spec, Hohe Rinne.

***Carabus graecus* Dejean, 1826:** 1 spec, Măcin, Iunie 1952; 1 spec, 1044, Murfatlar, Oct. 1951; 1 spec, 1045, Murfatlar, Oct. 1951.

Subgenus *Platycarabus* Morawitz, 1886

***Carabus fabricii* Panzer, 1810:** 17 specs, no data; 4 specs, Hahuhreeberg bein Hion, D. Worell, VII.1905; 2 specs, Austria inferioară, Raxalpe, Ed. Wunder; 1 spec, Kuh – Horn, Roana Sb., 28.VI.1955.

***Carabus fabricii* subsp. *malachiticus* C.G. Thomson, 1875:** 1 spec, Scheeberg, Wien, VII.1932; 2 specs, Deubel, Rodnaer – Gb., alpin.

Subgenus *Procerus* Dejean, 1826

***Carabus syriacus* L. Redtenbacher, 1843:** 1 spec, no data.

***Carabus gigas* Creutzer, 1799:** 2 specs, no data; 1 spec, Herkules Bad, VI.1929; 1 spec, Herkules Bad, VI.1928, col. Meine Mutter; 1 spec, Herkules Bad, VI.1927; 1 spec, Herkules Bad, VIII.1926; 1 spec, Mehadia.

***Carabus scabrosus* G.A. Olivier, 1790:** 1 spec, Scutari, Umgb. Asia minor, coll. Winkler.

***Carabus scabrosus* subsp. *caucasicus* Adams, 1817:** 1 spec, Novorossisk.

***Carabus scabrosus* subsp. *colchicus* Motschulsky, 1844:** 1 spec, Caucasi, Badadjanides.

***Carabus scabrosus* subsp. *bulgharmaadensis* (E. Bodemeyer, 1915):** 1 spec, no data.

***Carabus scabrosus* subsp. *tauricus* Bonelli, 1810:** 1 spec, 554, Krim.; 1 spec, Astek – Italia, Krim., Hl. Bostinus, 19.V.1943.

***Carabus scabrosus* subsp. *amasicus* Csiki, 1927:** 1 spec, no data; 1 spec, 449, Asia Minor; 1 spec, 432, Asia Minor, Deubel, 1900; 1 spec, 430, Merkl, det Birthle 1895.

***Carabus bosporanus* (Motschulsky, 1844):** 1 spec, Solletsch, 118.

Subgenus *Procrustes* Bonelli, 1810

***Carabus coriaceus* Linnaeus, 1758:** 7 specs, no data; 1 spec, Împrejurimile Sibiului, dr. Worell; 1

spec, Sb. A., 3/9.90, v. Kimakowicz; 1 spec, Kr. Burg Promenad., Deubel; 2 specs, Dalmatien, Reitter; 1 spec, Pola; 2 specs, Ombla; 1 spec, Halma, Sarajevo; 1 spec, 467, Herkules Bad, Juni 1928, Dr. Worell; 1 spec, Ohodus; 1 spec, Ins. Rhodus, Coll Winkler; 1 spec, Sb. A., 3/9.90, v. Kimakowicz; 1 spec, Kr. Burg Promenad., Deubel.

***Carabus coriaceus* subsp. *banaticus* Redtenbacher, 1849:** 8 spec, no data; 2 specs, Herkules Bad, VI.1928; 1 spec, Herkules Bad, VI.1927; 1 spec, Mehadia.

***Carabus coriaceus* subsp. *rugifer* Kraatz, 1877:** 1 spec, Dumbrava Sibiu, Dr. Worell, 21.IV.1955; 1 spec, Grădina Sibiului, Dr. Worell, 29.VI.1956; 1 spec, Grădina Sibiului, Dr. Worell, 18.VII.1956; 1 spec, Bucegi, Deubel, 20.VIII.1954; 1 spec, Hermannstadt, Junger Wald, 10.II.1925; 1 spec, Garten Sibiu, Dr. Worell, 28.VI.1954; 2 specs, Hermannstadt, VIII.1923; 1 spec, Retuerdt, VIII.1930; 1 spec, Rosonau; 2 specs, Sibiu; 1 spec, Chișinău Besarbien, 6.V.1936; 3 specs, Chișinău Besarbien, 19.V.1937.

***Carabus impressus* Fabricius, 1798:** 1 spec, Syrlen, Kalfa, Reitter.

***Carabus tamsi* Menetries, 1832:** 2 specs, Talyschgeb., Transcaucas, Leder, Reitter.

Subgenus *Pseudocechenus* A. Morawitz, 1886

***Carabus irregularis* Beuthin, 1896:** 4 specs, no data.

***Carabus irregularis* subsp. *montandoni* Buysson, 1882:** 1 spec, București, 8.XI.1929; 2 specs, Comuna Vlorgu, 17.V.1931; 2 specs, no data; 3 specs, Retyezat, 1300 m, Dioszeghy, 20.VII.1927; 1 spec, Retyezat, 1000 m, Dioszeghy, 28.VII.1927.

***Carabus irregularis* subsp. *bucephalus* Kraatz, 1879:** 1 spec, no data; 2 specs, Solsern, 6.IX.1905.

Subgenus *Tachypus* Weber, 1801

***Carabus auratus* (G.Hauser, 1913):** 6 specs, no date, leg. Worell

***Carabus auratus* subsp. *lotharingus* Dejean, 1826:** 1 spec, Beziers, L. Puel; 1 spec, leg. Worell.

***Carabus vagans* Olivier, 1795:** 1 spec, Provesiza Provesi, Bciscil.

***Carabus cancellatus* Illiger, 1798:** 3 spec, no data, leg. Worell; 1 spec, 5.V.1955, Grădină, Sibiu, leg. Worell; 2 specs, 8.VI.1937, leg. B. Sarbien; 2 specs, Hof. Mor. Scheerpeltz; 1 spec, Buharest, leg. Worell; 2 spec, VI.1924, Gotenberg, leg. Worell; 2 specs, V.1926, Hohe Rine, Drumul ursului, leg. Worell; 2 specs, VII.1923, Gotenberg, leg. Worell; 1 spec, V.1925, Gotenberg, leg. Worell; 1 spec, Sibiu, leg. Worell;

1 spec, 30.VI.1954, Hășmașul Mare, leg. Schneider; 1 spec, Bucsecs, leg. Petri; 1 spec, Bucsecs, leg. Deubel; 1 spec, Bucsecs, subalpin, leg. Deubel; 1 spec, VII.1933, Fogarascher berg, Negoi, leg. E. Brandsch.; 1 spec, Zenve; 1 spec, 30.VI.1954; 1 spec, Slavonien; 1 spec, Kroatia, Plesevice Gerg.; 1 spec, 1892, Kolbevidit, leg. Deubel

***Carabus cancellatus* subsp. *carinatus* Charpentier, 1825:** 1 spec, Galia, leg. Worell; 1 spec, 15. VIII.1904, Savoyen, Bioney, Sohaposchnikoff.

***Carabus cancellatus* subsp. *tuberculatus* Dejean, 1826:** 2 specs, no data, leg. Worell; 4 specs, 4.V.1943, Rosenauer Berg, leg. Worell.

***Carabus cancellatus* subsp. *graniger* Palliardi, 1825:** 2 spec, VII.1923, Kronstadt, leg. Worell; 1 spec, 7.IV.1925, Hermannstadt, leg. Worell; 1 spec, V.1930, Klausenburg, leg. Worell; 1 spec, 20.VI.1952, Garten Sibiu, leg. Worell; 1 spec, 1.V.1946, Hermannstadt, Umgebung, leg. Worell; 1 spec, VI.1924, Bărcăciu, Trecker; 2 spec, 23.V.1956, Împrejurimi Sibiu; 1 spec, VI.1939, Hermannstadt, leg. Worell; 1 spec, 3.V.1954, Garten Sibiu, leg. Worell; 2 specs, V.1932, Hermannstadt, leg. Worell; 4 specs, V.1925, Neppendorf, Wehr.; 2 specs, Sibiu, leg. Worell; 1 spec, V.1924, Hermannstadt, leg. Worell; 2 specs, VII.1925, Sotenberg, leg. Worell; 1 spec, 20.V.1943, Hermannstadt, Umgebung, leg. Worell; 1 spec, 5.V.1955, Garten Sibiu, leg. Worell; 1 spec, 8.V.1956, Garten Sibiu, leg. Worell; 1 spec, 24.VI.1955, Garten Sibiu, leg. Worell; 2 specs, no data, leg. Worell; 1 spec, VI.1928, Herkules – Bad, leg. Worell; 1 spec, 23.V.1896, Schassburg, Kolbe vidit, leg. Petri; 1 spec, leg. Kolbe.

***Carabus cancellatus* subsp. *excisus* Dejean, 1826:** 4 specs, no data, leg. Worell.

***Carabus cancellatus* subsp. *emarginatus* Duftschmid, 1812:** 1 spec, Buharest, leg. Worell; 1 spec, 1887, Krain, Nanos.

***Carabus cancellatus* subsp. *intermedius* Dejean, 1826:** 1 spec, Kanabe Dezso, Resiezabanya; 3 specs, no data, leg. Worell

***Carabus durus* Reitter, 1896:** 1 spec, leg. Reitter.

***Carabus cristoforii* Spence, 1823:** 1 spec, no data; 1 spec, Frz. Ztr. Pyrenaen, 25 – 29.VII.1932, Vallee de Lughon, A. Muller.

Subgenus *Tomocarabus* Reitter, 1896

***Carabus convexus* Fabricius, 1775:** 3 specs, no date, leg. Worell; 1 spec, VI. 1928, Hercules Bad (Băile Herculan), leg. Worell; 7 specs, Sibiu, leg.

Worell; 6 specs, III. 1925, Kamersd Bad; 3 specs, IV.1924, Hermanstadt, leg. Worell; 1 spec, VII.1939, Hermannstadt, Jung. Wild, leg. Worell; 1 spec, 19.IV.1947, Hermannstadt, Goetzenberg, leg. Worell; 2 specs, Transilvania, leg. Birthler; 2 specs, 24.V.1890, v. Kimakowicz.

***Carabus convexus* subsp. *dilatatus* Dejean, 1826:** 1 spec, Nevesinje, V. Zoufal.

***Carabus marginalis* Fabricius, 1794:** 1 spec, Mahnwiz, Stolpi. Pom., J. Kniephof; 1 spec, Wesemcunen, Schurbelgz; 1 spec, Velsow, Stolpi. Pom., J. Kniephof.

Subgenus *Trachycarabus* Géhin, 1876

***Carabus errans* A.G. Olivier, 1795:** 3 specs, S. Martihno, G. de Barros; 1 spec, Portugal, Monh

***Carabus besseri* Fischer von Waldheim, 1820:** 1 spec, Ivoneea Orhi, 20.VII.1930; 1 spec, Bularda, 12.VII.1935; 1 spec, Bularda, 28.VI.1927; 1 spec, Bularda, 1.VIII.1933.

***Carabus scabriusculus* A.G. Olivier, 1795:** 1 spec, Hamersd. Berg., III.1925; 2 specs, Hamersd. Berg., V.1925; 1 spec, Negoi; 2 specs, Cozia, Roar – Turm, VI.1925; 2 specs, Chișinău, Besarbien, 3.V.1906; 8 specs, Chișinău, Besarbien, 3.V.1936; 4 specs, Chișinău, Besarbien, 20.IV.1906; 1 spec, Transilvania, Reitter; 4 specs, no data.

Subgenus *Tribax* Fischer, 1817

***Carabus circassicus* (Ganglbauer, 1886):** 2 specs, Circassia, Reitter.

Discussions

The present paper contains data about specimens of genus *Carabus* (Carabidae) from entomological collections of Natural History Museum of Sibiu. For this study, 1494 museum pieces were examined; 1107 of them belong to „Transylvanian Society for Natural Sciences” Collection and 387 belong to „Dr. Eugen Worell” Collection.

The 1494 individuals are framed at 195 species and subspecies from 38 subgenus's. The dominant subgenuses were *Megodontus* Solier, 1848 and *Morphocarabus* Géhin, 1885. From the Romania's territory, 751 individuals were collected.

The Natura 2000 species of genus *Carabus* were the particular ones in this paper. Both collections studied contain these species. From these, *Carabus rothi hampei* Küster, 1846 was the best represented by the number of pieces.

The collecting points of the specimens are located in Europe, North Africa and East Asia (Fig. 1.).

Most of museum pieces came from Romania, Austria, Italy, Croatia, Poland and Spain (Fig. 2.). In Romania, the collecting points come from different regions, especially Transylvania (Fig. 3.). The greatest diversity of collected species was observed in Sibiu, Brașov and Caraș – Severin counties (Fig. 4.). Most of the specimens were also collected from the same counties. The distribution of *Carabus* species which are listed in the Annexes of the Habitats Directive is presented in the following separate maps: *Carabus rothi hampei* Küster, 1846 (Fig. 5.),

Carabus variolosus Fabricius, 1787 (Fig. 6.) and *Carabus hungaricus* Fabricius, 1792 (Fig. 7.).

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REFERENCES

- Cuzepan *et al.* 2015 Cuzepan Gabriela, Tăușan Ioan, Schneider, Eckbert, Torok Sergiu, *The entomological collection of the Natural History Museum of Sibiu – An overview*. In: *Brukenthal Acta Musei*, X.3, (2015), p. 375 -402.
- Gîdei, Popescu 2012 Gîdei Paul, Popescu Irinel, *Ghidul coleptereilor din România*, In *Ediura Pim* (2012), Iași, Romania.
- Pyke, Ehrlich 2010 Pyke Graham, Ehrlich Paul, *Biological collections and ecological/ environmental research: a review, some observations and a look to the future*. In: *Biol Rev.* 85, (2010), p. 247–26. pmid:19961469
- Trautner, Geigenmüller 1987 Trautner John, Geigenmüller, K, *Tiger beetles, ground beetles. Illustrated key to the Cicindelidae and Carabidae of Europe*. In *J. Margraf Publishing*, (1987), Aichtal, Germany.
- *** Environmental Systems Research Institute (ESRI). ArcGIS Release 10.4 (Redlands, CA, 2013)

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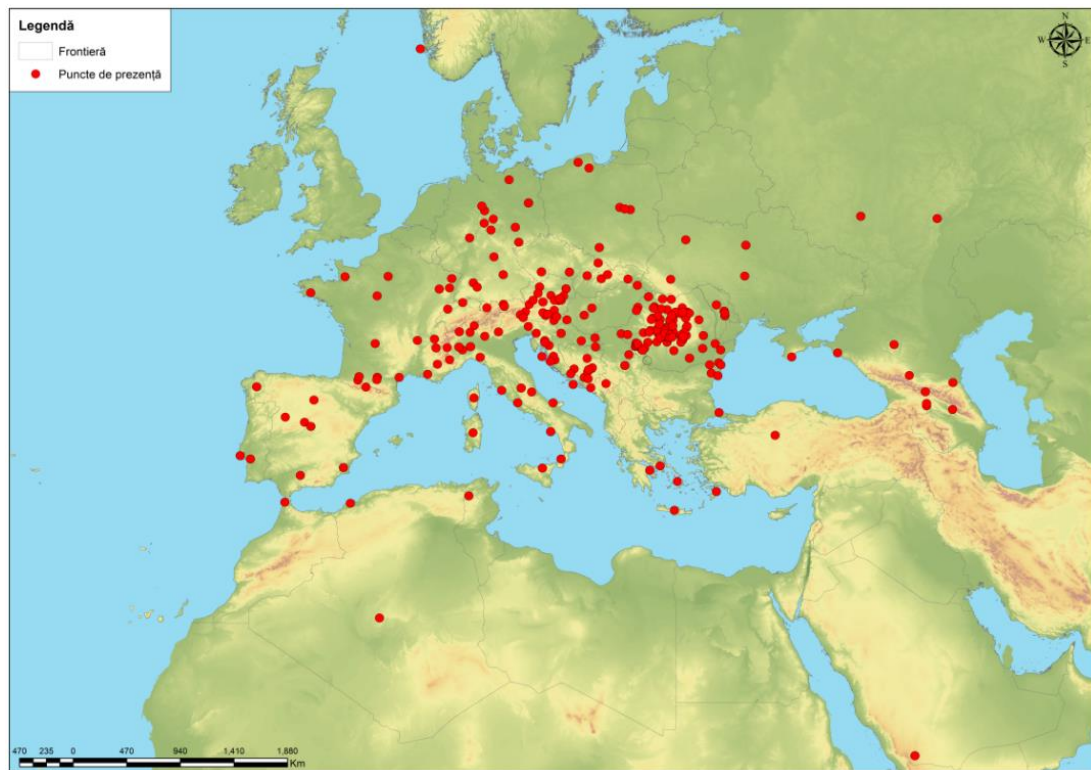


Fig. 1. The distribution of sampling points for specimens from both entomological collections

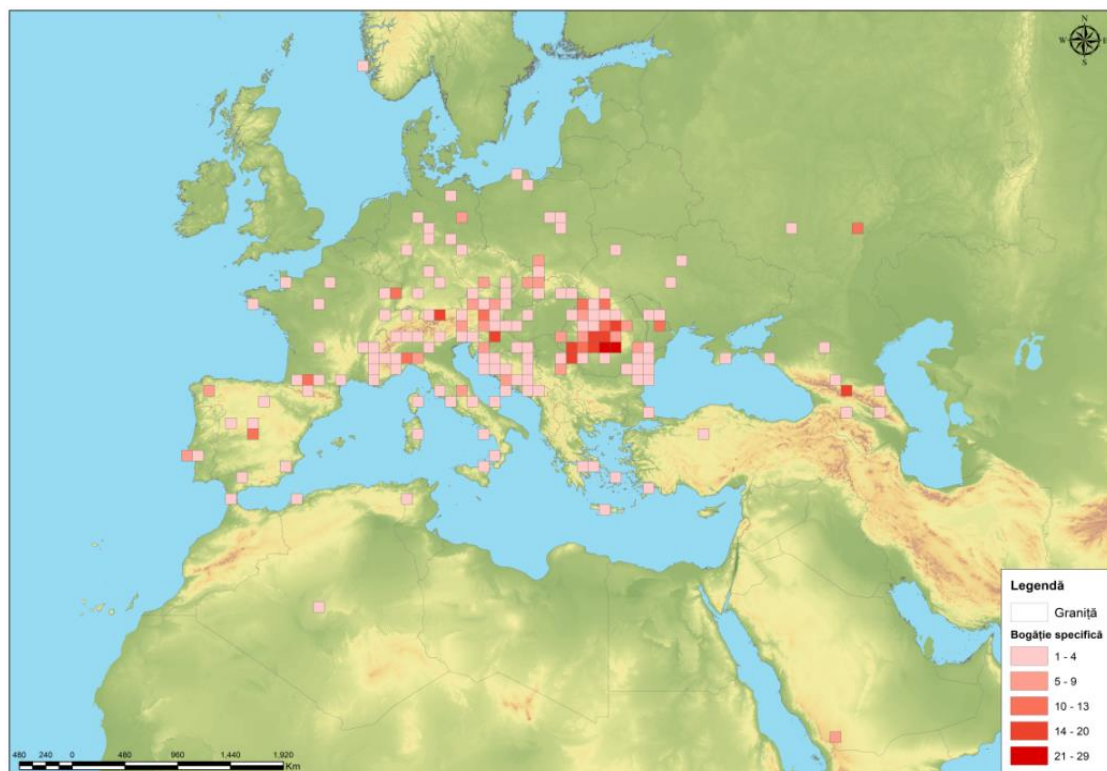


Fig. 2. Species richness (number of species) in the sampling points

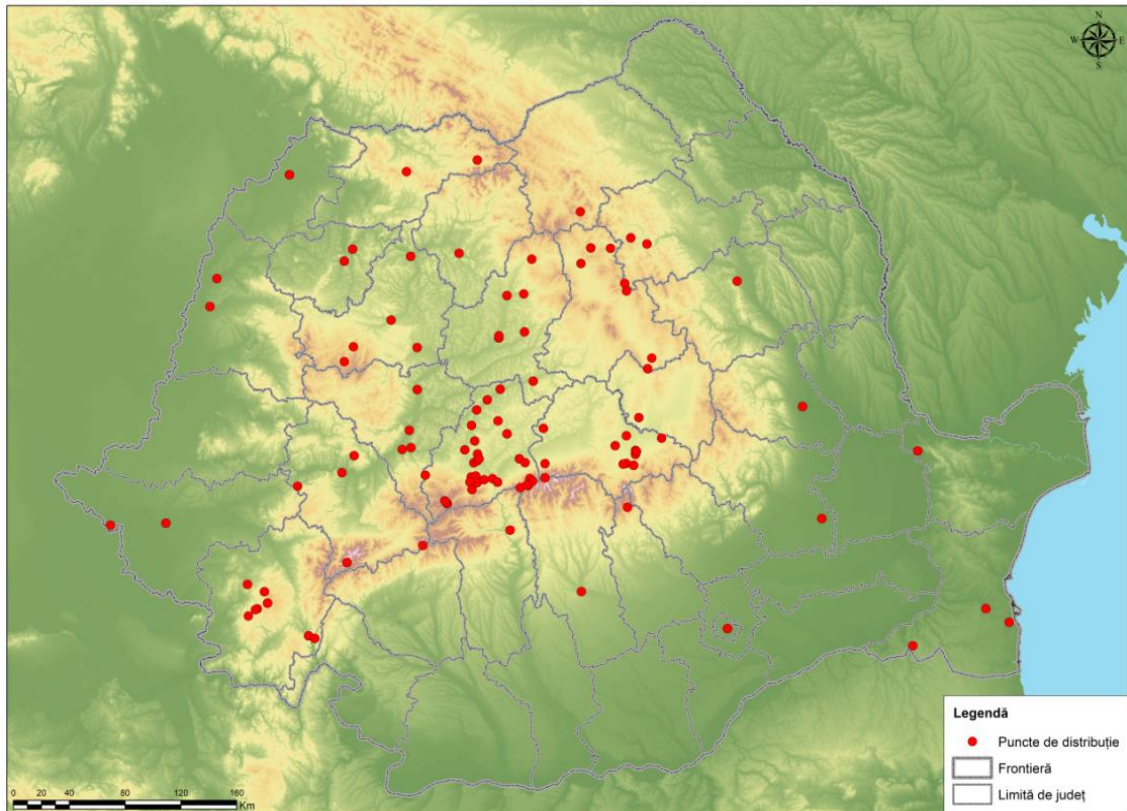


Fig. 3. The distribution of sampling points for specimens from Romania from both entomological collections

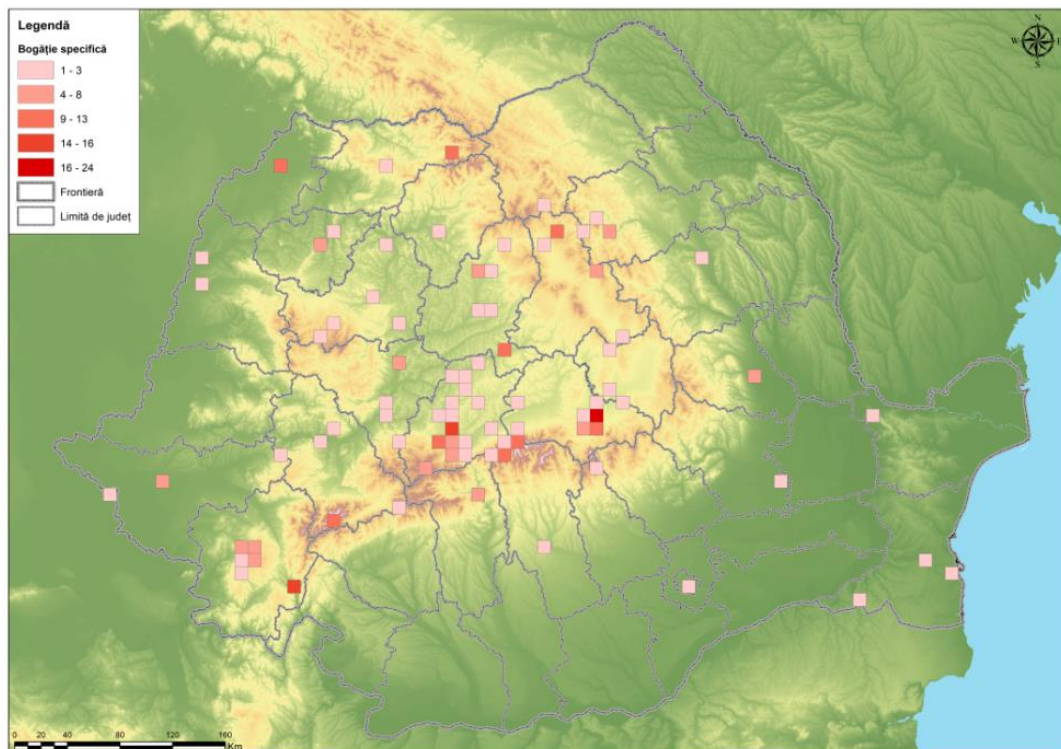


Fig. 4. Species richness (number of species) in Romania

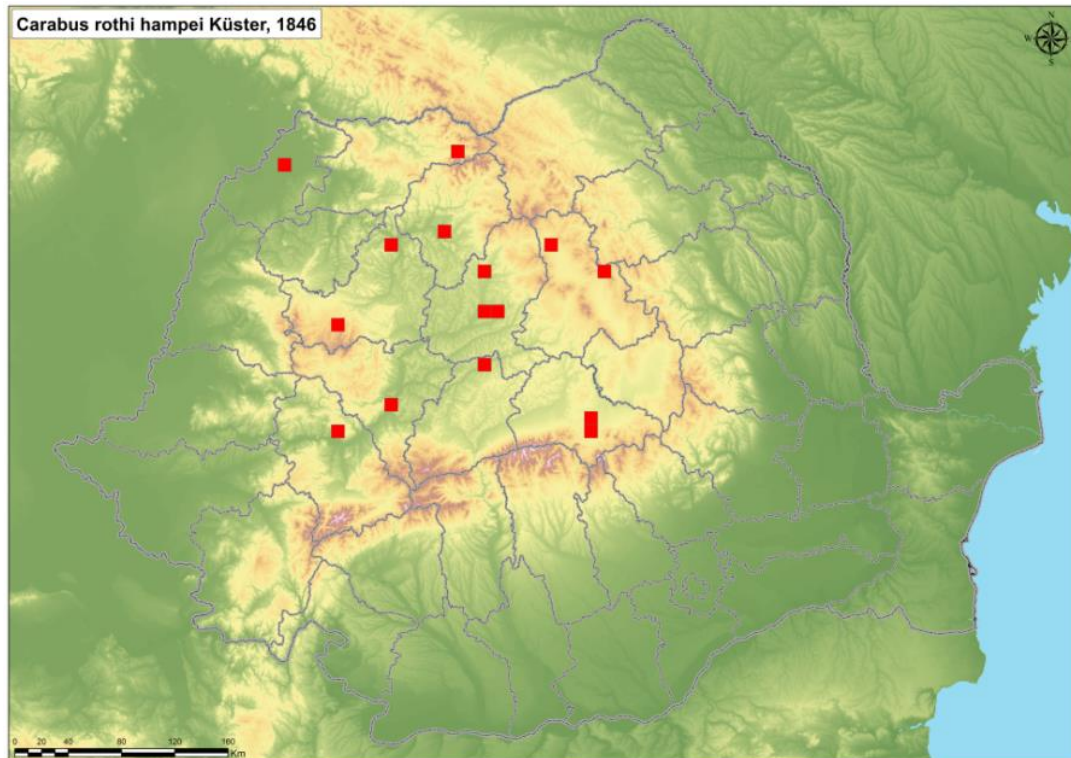


Fig. 5. Sampling locations for *Carabus rothi hampei* Küster, 1846

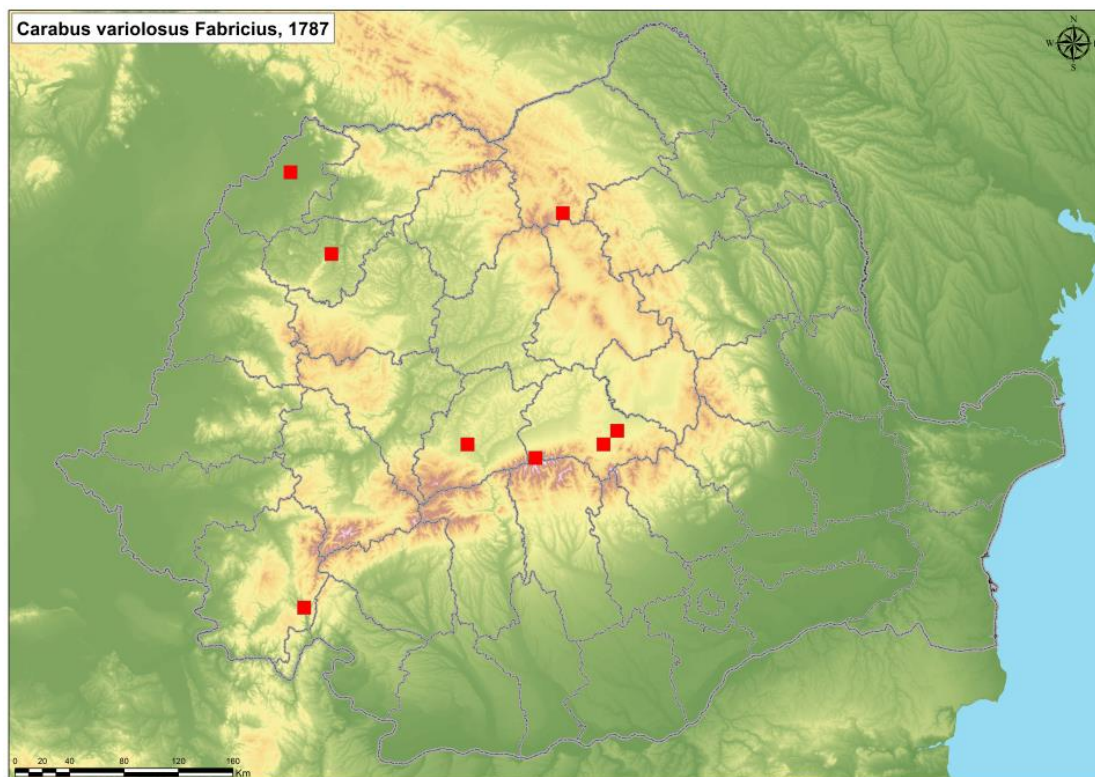


Fig. 6. Sampling locations for *Carabus variolosus* Fabricius, 1787

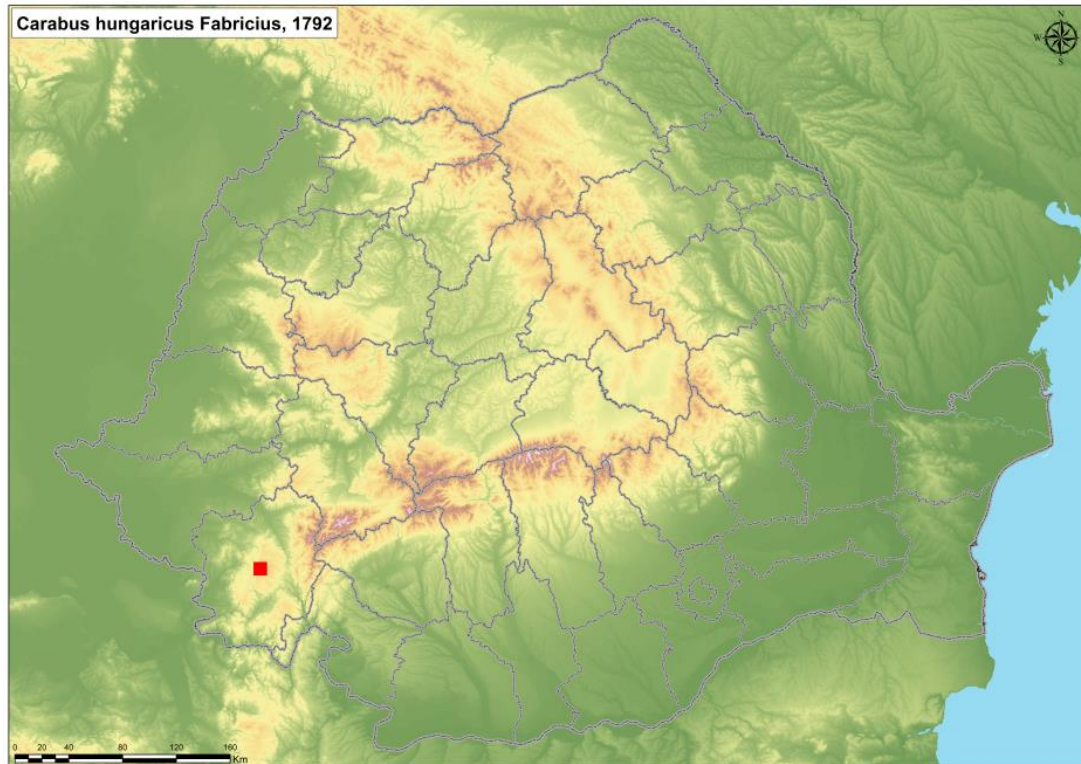


Fig. 7. Sampling locations for *Carabus hungaricus* Fabricius, 1792

SADLER'S MEDICINAL PLANT COLLECTION – A BOOK HERBARIUM OF NATURAL HISTORY MUSEUM SIBIU

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Cristina RUGINĂ

Abstract: The botanical heritage of the Natural History Museum from Sibiu includes also collections of medicinal plants, simple or book type, many of them having special historical-documentary value and one of them being J. Sadler's Herbarium. It is believed that this herbarium was used as a guide to knowledge of medicinal plants in the pharmaceutical practice of a disciple. This herbarium consists of five folders / notebooks with dried plants, collected from the Austro-Hungarian Empire (around Budapest, including also Transylvania). On the cover of each folder is mentioned the title "*Collectio plantarum medicinalium siccatarum Hungariae*" (Hungarian Collection of Dried Medicinal Plants), the file number, the name of the person who is supposed to have made up the herbarium "Josepho Sadler, Med. Doctor" and the year- (1823 - 1827). The numbers of the folders are put in ascending order (I-VI), with the mention that the numbers III and IV are missing and the first number has a supplement. Each book folder contains 25 sheets of pressed plants, except the number V, which contains 24 sheets of herbs, summing 124 herbs, belonging to many families, some better represented numerically and others highlighted in a single copy.

Key words: botanical museum heritage, book herbarium, medicinal plants, József Sadler, collection from 1823,.

Rezumat: Patrimoniul Muzeului de Istorie Naturală din Sibiu, include și colecții de plante medicinale, simple sau de tip carte, multe dintre ele având valoare istorico - documentară deosebită, unul dintre acestea fiind Ierbarul lui J. Sadler. Se consideră că acest ierbar era folosit ca și ghid de cunoaștere a plantelor medicinale în practica farmaceutică a unui ucenic. Acest ierbar este alcătuit din cinci mape / caiete cu plante presate, colectate din teritoriul Austro-Ungariei (jurul Budapestei, inclusiv și Transilvania). Pe coperta fiecărei mape, este menționat titlul "*Collectio plantarum medicinalium siccatarum Hungariae*" (Colecția de plante medicinale uscate a Ungariei), numărul de fascicol, numele persoanei care se presupune că a alcătuit ierbarul "Josepho Sadler, Med. Doctore" și anul (1823 – 1827). Numerele mapelor sunt puse în ordine crescătoare (I-VI), cu mențiunea că numerele III și IV lipsesc iar primul număr are și un supliment. Fiecare mapă tip carte, conține 25 coli cu plante medicinale presate, mai puțin numărul V, care conține 24 de coli cu plante, însumând 124 plante medicinale, aparținând la numeroase familii, unele mai bine reprezentate numeric iar altele evidențiate printr-un singur exemplar. Scopul acestui studiu este de a evalua contribuția unor ierbare de plante medicinale în studiul istoricului Florei Transilvaniei din punct de vedere botanic și importanța sa pentru etnofarmacologie și istoria farmaceutică.

Cuvinte cheie: patrimoniu muzeal botanic, ierbar tip carte, plante medicinale, József Sadler, colecție din 1823

Introduction

Pharmaceutical herbs are closely related to the history of pharmacy, a science that has its roots in antiquity, according to some written information about the pharmacotherapeutic knowledge of the ancient inhabitants (Maior, 2014; Roth, 1970; Spielmann *et al.*, 1994). The pharmaceutical practice appeared together with the medical practice, the two professions being

same person and this phenomenon being observed exercised over the centuries, by one and the quite frequently in the identifications of medicinal herbs or pharmaceutical collections of drugs. (Izsak, 1979; Maior, 2014; Roth, 1970). The remedies used in pharmaceutical practice were from the three fields: vegetable, kept either whole or in powder form, mineral remedies and animal remedies.

The book herbarium *Collectio plantarum medicinalium siccatarum Hungariae* is a medicinal plants collection dating from the early

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19th century (1823), made by Dr. Sadler József (1791 - 1849). Dr. Sadler József was born in Bratislava on May 6, 1791 and he studied in his hometown where he did his apprenticeship as a pharmacist at the Mercy-Order Pharmacy. Sadler J. studied pharmacy in Pest with a master's degree in 1810 and a doctorate medicine program in 1820. As a student, he was guided by Schuster John, his chemistry professor, becoming an assistant in chemistry and botany, and then a pharmacist, doctor of medicine.

He was a professor at the Botany Institute of the University from Pest in 1834 and director of the Botanical Garden, during he became concerned with the recent and fossil flora of Hungary and published the first collections of dried plants in Austro – Hungarian Empire (1823). Sadler J. was interested in botany from an early age. He collected with his students first in the vicinity of the Pest and Buda cities, later in several areas of Habsburg Monarchy territory. Among his main works is *De filicibus veris Hungariae, Transilvania, Croatiae Hungariae somnia instaurantionos semisecularis universitatis Hungariae die 28 Junii, anni 1830. Budae and Flora Comitatus Pestiensis* (Photo 1).

(https://de.wikipedia.org/wiki/Joseph_Sadler).

The plant sheets is a real value for pharmacists and botanists because it partly reproduces the knowledge and pharmaceutical practices of those times. At that time, floristic inventories were made according to Linne's nomenclature, and the botanical researches made by Western Europe scientists were put into action in Transylvania at the end of the 18th century. (Roth, 1970, 1976; Schneider-Binder, 1983).

The botanical collections made by Lerchenfeld (1753-1812) and the pharmacist Sigerus (1749-1831) are the first Linnaean herbaria in the country, being the oldest reference collections for the Transylvania flora. They are true documents for the development of plant science, raising the level of botanical knowledge about their use in folk medicine and the household industry (Schneider-Binder, 1983).

Material and methods

The plant sheets has been systematically reviewed and updated in terms of scientific name. The dichotomous key was used to identify the plants that raised a question mark and the WFO database was used to update the scientific names (World Flora Online, 2021). For each plant, the existing data on the label were noted and the active

principles contained in each plant, the vegetative organs of pharmaceutical importance as well as their uses were extracted from the literature. (Bojor *et al.*, 1976, 1977; Fischer, 2002; Farmacopeea Română, 1862; Kramer & Noah, 1959; Oroian, 2011; <https://ro.wikipedia.org>; <https://pfaf.org/>;))

The medicinal plants included in the herbarium were compared with the inventory of the botany collection of the Natural History Museum, entering all the data in the electronic inventory register (DOCPAT format).

Results and discussions

The enumeration of plant sheets from the book herbarium J. Sadler (inv. no. 84.611-84.615) is given in the following list, mentioning each inventory number, family, vegetative organ for pharmaceutical use / herbal drug, the content in active principles of each plant and how of the action or condition indicated for treatment.

Issue I - inventory number 84.611, Map / Notebook 1.274

Astragalus exscapus L. (84.611/1 – In pratis arenosis circa Pest. Majo) – Fam. Fabaceae; pharmaceutical use - root; contains glycosides, saponins, flavonoids, with uses in the treatment of syphilis, rheumatism, dermatitis, joint pain.

Veronica officinalis L. (84.611/2 – In umbrosis sylvaticis. Majo, Jun.) – Fam. Plantaginaceae; drug *Veronica officinalis* herba, without root; contains glycosides, saponins, tannins, bitter principles, resins, essential oil, caffeic acid, vanilla acid, with uses as an expectorant, gastroenteritis, bladder problems, treatment of hepatitis, asthma, cough, migraines, rheumatism, relief of menopausal symptoms, diarrhea, gout.

Stachys recta L. (84.611/3 – In pratis omnibus vulgaris. Majo, Jun.) – Fam. Lamiaceae; pharmaceutical use - leaves; contains caffeoylquinic acids, polyphenols, glycosides, phenylethanol, flavonoids, iridoids, with anti-inflammatory, antibacterial, anxiolytic, antioxidant action.

Plantago indica L. (sin. *Plantago arenaria* Waldst et Kit) (84.611/4 – In pratis arenosis per totam Hungariam. Jun-Aug.) – Fam. Plantaginaceae; pharmaceutical use - seeds; contains iridoid glycosides, phenylpropanoid glycoside, mucilages, with laxative uses, antioxidant, antimicrobial.

Elymus repens (L.) Gould (sin. *Triticum repens* L.) (84.611/5 – Frequentissime in omnibus pratis siccioribus. Jun-Aug.) – Fam. Poaceae; pharmaceutical use - root, contains fructose, malic

acid salts, nitrogenous organic substances, tritacin, inulin, with diuretic action, stimulator of pancreatic secretion, depurative in gout, liver diseases, rheumatism, digestive disorders, respiratory diseases.

Fumaria officinalis L. (84.611/6 – Ad margines viarum, vinearum. Majo-Jul.) – Fam. Fumariaceae; Drug Fumariae herba; contains alkaloids, resins, bitter substances, mucilages, mineral salts, flavonoids, organic acids, with action in chronic hepatobiliary diseases (biliary dyskinesias, biliary crises).

Achillea millefolium L. (84.611/7 – In pratis omnibus vulgaris. Majo-Jun.) – Fam. Asteraceae; Drug Millefolii flos - herba; contains volatile oil, flavonoids, coumarins, alkaloid (achileine) and tannin, with healing and sedative action in acute gastritis, cough, bronchitis, hemorrhoids, menstrual disorders.

Ononis spinosa L. (84.611/8 – In pratis frequens. Jun-Jul.) – Fam. Fabaceae; Drug Ononidis radix; contains saponosides, isoflavones, with diuretic action.

Colutea arborescens L. (84.611/9 – In dumetis, sylvis, ad margines vinearum circa Budam. Jun, Aug.) – Fam. Fabaceae; pharmaceutical use - leaves, seeds; contains isoflavonoids, with diuretic, purgative, laxative and emetic action (seeds).

Thymus serpyllum L. (84.611/10 – In pratis frequens. Majo-Aug.) – Fam. Lamiaceae; Drug Serpylli herba florens; contains volatile oil, bitter principle, flavone, with uses in cough, flu, diarrhea.

Pulmonaria officinalis L. (84.611/11 – In sylvis abunde. Apr, Majo.) – Fam. Boraginaceae; Drug Herba Pulmonariae; contains saponosides, mucilages, silicic acid, tanoids, polyphenolic derivatives; stearic acid, palmitic, myristic, mineral salts, vitamin C, with uses in bronchitis, laryngitis, kidney disease, respiratory diseases (relieves sputum, soothes cough and hoarseness), gastric and duodenal ulcer, in rhino-bladder diseases, in diarrhea.

Primula veris L. (84.611/12 – In sylvis omnibus. Apr, Majo.) – Fam. Primulaceae; Drug Primulae rhizome cum radicibus; contains saponins, phenolic glycosides, flowers contain flavonic pigments, with calming diuretic antispasmodic action in bronchitis, asthma, cough, whooping cough.

Clematis recta L. (sin. *Clematis erecta* L.) (84.611/13 – In drumetis frequens. Jun.-Aug.) – Fam. Ranunculaceae; pharmaceutical use - root; contains lignans, steroids, volatile oils, tannin, coumarins, triterpene saponins, alkaloids,

flavonoids, with diuretic action, in inflammation of the genitourinary organs, neuralgic pain, rheumatism, insomnia, gonorrhea.

Melilotus officinalis L. (84.611/14 – In pratis. Jun-Aug.) – Fam. Fabaceae; Drug Meliloti herba; contains coumarins, flavonoids, mineral salts, with action in minor circulatory disorders, varicose veins, thrombophlebitis or externally in eye care.

Matricaria chamomilla L. (84.611/15 – In pratis siccioribus, frequentissime in locis salsis. Majo, Jun.) – Fam. Asteraceae; Drug Chamomillae flos; contains volatile oils (azulene, camazulene), matrix, matricarin, chlorogenic acid, vitamin B, C, minerals, with antispasmodic, anesthetic, antiseptic, anti-inflammatory, carminative effects, slightly sedative, antispasmodics in stomach pain, facilitates digestion, and external with healing, emollient, antiseptic action in cosmetics.

Anemone pulsatilla L. (sin. *Pulsatilla vulgaris* Mill.) (84.611/16 – In pratis montanis et arenosis. Vere) – Fam. Ranunculaceae; pharmaceutical use - the aerial part; contains volatile oils, anemonic acid, alkaloids, with antispasmodic, antibacterial, sedative in nervous disorders dysmenorrhea, migraines, asthma diarrhea, boils, earaches, respiratory infections.

Anemone pratensis L. (sin. *Pulsatilla pratensis* L.) (84.611/17 - In pratis montanis et arenosis. Vere) – Fam. Ranunculaceae; pharmaceutical use - flowers, leaves; contains saponides, protoanemonine alkaloids, tannins, with action in abdominal pain, blurred vision, gout, rheumatism, sore throat, oral cavity, heart arrhythmias, chest pain, dyspnea, nausea, seizures.

Tussilago farfara L. (84.611/18 – Ad margines torentum, in humidis argillosis pratis. Mart, Apr.) – Fam. Asteraceae; Drug Farfarae folium et flos; contains mucilages, inulin, bitter substances, flavonoids, tannins, mineral substances, with antiasthmatic action, cough reliever.

Asarum europaeum L. (84.611/19 – In umbrosis sylvaticis. Maj. Jun.) – Fam. Aristolochiaceae; Drug Asari rhizome; contains volatile oil (asarona), with emetic action, expectorant, in menstrual disorders, diuretic.

Solanum dulcamara L. (84.611/20 – In dumetis, ad arbores humidis vulgaris. Jun. Jul.) – Fam. Solanaceae; pharmaceutical use young shoots; contains tannins glycosides (dulcamarine, solanine), saponins, vitamin C, with diaphoretic, depurative, slightly hypnotic and aphrodisiac action, adjuvant in the treatment of rheumatism, gout and externally in skin diseases.

Filipendula vulgaris Moench. (sin. *Spiraea filipendula* L.) (84.611/21 – In pratis abunde.

Majo-Jul.) – Fam. Rosaceae; pharmaceutical use flowers, roots, leaves; contains flavonoids, tannins, polyphenols, glycosides, essential oils, with antirheumatic, antipyretic, antioxidant, anti-inflammatory, gastroprotective, gout, fever, ulcer, sore throat, congestive, wheezing, diarrhea.

Lavandula angustifolia Mill. (sin. **Lavandula spica** L.) (84.611/22 – Colitur in hortis frequentissime. Jun-Jul.) – Fam. Lamiaceae; pharmaceutical use of flowers; contains essential oils, cineole, linalool, camphor, with antibacterial, antiviral, fungicidal, expectorant, analgesic in severe burns, ulcers, bedsores, psoriasis, skin, stings, fungal infections, bronchitis, laryngitis, sinusitis, otitis, rhinitis, , cramps, depression.

Ziziphus jujuba Mill. (sin. **Rhamnus zizyphus** L.) (84.611/23 – Sponte in litorali. Jun, Jul.) – Fam. Rhamnaceae; pharmaceutical use fruits, seeds, root; contains saponins, triterpenoids, alkaloids, with antifungal, antiulcer, anti-inflammatory, sedative, antispasmodic, antioxidant cardiotonic, contraceptive, antinephritic, antihepatic action.

Euphrasia officinalis L. (84.611/24 – In pratis sylvaticis. Jun, Jul.) – Fam. Orobanchaceae; pharmaceutical use the whole plant; contains bitter principles, tannins, volatile oils, rhinantine, resin, aucubosine, with action in eye inflammation, conjunctivitis, purulent secretions, tears, coughs, headaches.

Agrimonia eupatoria L. (84.611/25 – In pratis frequens. Jun-Aug.) – Fam. Rosaceae; Drug Agrimoniae herba; contains tannins, flavonoids with action in gastric, hepatobiliary, diarrhea, rheumatism.

Issue II – inventory number 84.612, Map / Notebook 1.275.

Rumex scutatus L. (84.612/1 – Colitur obique in hortis. Tota aestate.) – Fam. Polygonaceae; pharmaceutical use - leaves; contains oxalic acid with antiscorbutic action, astringents, diuretics, laxatives.

Succisa pratensis Moench. (sin. **Scabiosa succisa** L.) (84.612/2 – In pratis humidis frequentis. Jul.-Sept.) – Fam. Caprifoliaceae; Drug Scabiosa folia; contains iridoids, flavonoids, pentacyclic triterpenoids, with anthelmintic, depurative, diuretic, antipyretic action.

Knautia arvensis L.Coult. (sin. **Scabiosa arvensis** L.) (84.612/3 – Unique in graminosis. June-Aug.) – Fam. Caprifoliaceae; pharmaceutical use - flowering plant with or without root, the leaves are harvested before flowering; contains tannin, bitter substances, tannic acid, with action in eczema, contusions, pharyngeal inflammation, cough, tuberculosis, treatment of cuts, burns,

bruises.

Origanum vulgare L. (84.612/4 - Inter frutices, ad margines sylvarum frequens. Majo-Aug.) – Fam. Lamiaceae; Drug Origani herba; contains volatile oil, tannins, flavonoids, caffeic acid, anthocyanins, with convulsive cough, bronchitis, asthma.

Althaea officinalis L. (84.612/5 – In pratis humidis abunde. Jul-Sept.) – Fam. Malvaceae; Drug Althaea Radix et folium, flores; contains mucilages, starches, flavonoids, tannins, with action in inflammation of the respiratory and digestive mucosa.

Malva sylvestris L. (84.612/6 – Unique in ruderalis, ad domus, etc. Jul.-Sept.) – Fam. Malvaceae; Drug Flores, folia Malvae; contains mucilages, tannins, mineral salts (K, Ca, Na), in anthocyanin flowers, with action in pharyngitis, tracheitis, gastritis.

Linum catharticum L. (84.612/7 – In pratis sylvaticis, humidiusculis. Jun-Aug.) – Fam. Linaceae; pharmaceutical use - the aerial part; contains glycoside (linarin), bitter substance (lignin), essential oil, tannin, with purgative action, diuretic, anthelmintic, emetic.

Linaria vulgaris Mill. (84.612/8 – In pratis, propter vias. Majo-Ju.) – Fam. Scrophulariaceae; Drug Linariae herba; contains flavonoids, flavonolglycosides, linarin, pectolin, alkaloids, organic acids: formic, malic, citric, tannin, sugars, pectins, mineral salts, with diuretic, sweating, purifying, antihemorrhoidal action.

Artemisia vulgaris L. (84.612/9 – Ad marginem agrorum, viarum, in fruticetis. Jun-Aug.) – Fam. Asteraceae; Drug Artemisia radix, herba, flores; contains volatile oil, lactone, vulgarin, resin, mucilages, carbohydrates, with depurative action, antispastic, emmenagogue in digestion, toothache, kidney stones, treatment of epilepsy, colic, diarrhea, vomiting, stimulates the menstrual cycle.

Prunella vulgaris L. (84.612/10 – In graminosis. Majo-Jul.) – Fam. Lamiaceae; Drug Prunella herba; contains camphor, betulinic acid, linoleic acid, tannin, ursolic acid, with antiseptic, antihemorrhagic, astringent, antiviral, healing action.

Prunella laciniata L. (84.612/11 – In graminosis. Majo-Jul.) – Fam. Lamiaceae; pharmaceutical use - flowering stems; contains ursolic acid, triterpenoids, with action in liver disorders, heart disease, cancer, wound healing, diabetes, sore throat, inflamed gums.

Anagallis arvensis L. (84.612/12 – In agris. Apr.-Sept.) – Fam. Primulaceae; Drug Herba Anagallis; contains glucosaponosides, bitter substances, tanoids, enzymes, flavonoids, with diaphoretic,

diuretic, cholagogue, expectorant, stimulant of secretions of glands and mucous membranes, skin, liver, kidneys. Externally applied juice, decoction and ointment: wound treatment, varicose ulcers, skin diseases.

Gentiana cruciata L. (84.612/13 – In pratis sylvaticis. Jun.-Aug.) – Fam. Gentianaceae; pharmaceutical use - root; with digestive action, antipyretic, stomach pain, hoarseness treatment, sore throat and external for wounds.

Alchemilla acutiloba Bauser (sin. **Alchemilla vulgaris** L.) (84.612/14 – In pratis montanis, subalpinis et alpinis. Jun-Jul.) – Fam. Rosaceae; Drug Alchemilla herba; contains saponins, flavonoids, tannins, fatty substances, palmitic acid, stearic, phytosterols, mineral salts, with astringent, stomachic, antidiarrheal, antihemorrhoidal action in stomatitis and laryngitis, wound healing, treatment of metrorrhagia, fixation of surgeries, preparation of surgeries.

Lysimachia nummularia L. (84.612/15 – Ad margines sylvarum, in locis umbrosis humidiusculis. Tota acesate.) – Fam. Primulaceae; Drug Lysimachiae herba; contains saponosides, tanning substances, glycosides, mucilages, silicates, with action in gingivitis, furunculosis, cosmetics, diarrhea, ulcer, gastrointestinal bleeding, varicose ulcers, rheumatism, joint inflammation.

Ficus carica L. (84.612/16 – Sponte in parte meridionali montis Blodsberg inter saxa. Fructif. Aug.- Sept.) – Fam. Moraceae; Drug Caricae fructus, Caricae folium; contain carbohydrates, mucilages, pectins, proteolytic enzymes, vitamin C, B, flavonoids, tannins, furanocoumarins, with emollient, pectoral, laxative, slightly hypoglycemic, anti-inflammatory, analgesic, antipruritic in case of insect bites.

Lactuca serriola L. (sin. **Lactuca scariola** L.) (84.612/17 – Ad margines viarum, in fruticetis. Jun-Aug.) – Fam. Asteraceae; pharmaceutical use - the aerial part, the root; contains flavonoids, glycosides, saponins, phytosterols, phenolic compounds, tannins, carbohydrates, triterpenoids, with innocuous action, antispasmodics, diuretics, narcotic hypnotics, sedatives, antipyretic, emetic, antibacterial, can cause death by cardiac paralysis.

Sambucus ebulus L. (84.612/18 – Ad sepes. Jun - Jul) – Fam. Caprifoliaceae; Drug Fructus Ebuli; contains rutoside, amines, phenolic derivatives, bark contains tanoids, with purgative action, diuretic in digestion, cold, flu rheumatism.

Gratiola officinalis L. (84.612/19 – In humidis. Majo- Jun.) – Fam. Plantaginaceae; pharmaceutical use - the aerial part, the root;

contains glycosides, saponosides, bitter substances, fatty oils, resins, tannin, betulic acid, with diuretic action, heart tonic, vermifuge, purgative, vomiting effects, gout, atherosclerosis.

Mentha aquatica L. (sin. **Mentha hirsuta** L.) (84.612/20 – In humidis, ad paludes, fossas, etc. Jun-Aug.) – Fam. Lamiaceae; Drug folia Menthae; contains menthofuran, limonene, caryophyllene, essential oil, with antiseptic, antispasmodic, astringent, carminative, cholagogue, diaphoretic, emetic action.

Sanguisorba officinalis L. (84.612/21 – In pratis humidis. Jun-Aug.) – Fam. Rosaceae; pharmaceutical use - leaves, buds, roots; with action in kidney disease, bronchitis, cystitis, fermentation colitis, cephalic and leg venous congestion, abdominal cramps, diarrhea, dysentery, enterocolitis, pharyngitis, hemorrhage, intestinal infections, kidney, laryngitis, leukorrhea, lack of milk in mothers, menstruation and long-term menopausal metrorrhagia.

Eupatorium cannabinum K. (84.612/22 – In pratis humidis. Jun – Aug.) – Fam. Asteraceae; Drug Eupatorii cannabini rhizoma et folium; contains bitter substances, sesquiterpene lactones, acetylenic compounds, with action in hepatobiliary, renal diseases, homeopathic preparations (acute gastritis, inflammation of the bladder).

Potentilla erecta (L.) Raeusch. (sin. **Tormentilla erecta** L.) (84.612/23 – In pratis humidis. Majo-Aug.) – Fam. Rosaceae; Drug Tormentillae rhizoma; contains tannin, tormentor, quinovic acid, ellagic acid, resins, mineral substances, with antidiarrheal action, abstinence, bacteriostatic especially in dysentery, irritable bowel.

Arctium lappa L. (sin. **Arctium bardana** Willd) (84.612/24 – Ad vias, in ruderalis. Jun.-Sept.)

Arctium bardana Willd (sin. **Arctium lappa** L.) (84.612/25 - Ad vias, in ruderalis. Jun.-Sept.) – Fam. Asteraceae; Drug Bardana radix; contains inulin, traces of volatile oil, sterols, tannin, saturated compounds, arctiopicrin; with action in liver diseases, depurative in skin diseases (eczema, boils, dry hair seborrhea) antitumor, antipruritic.

Issue Supplement I – inventory number 84.613, Map / Notebook, 1.276.

Fraxinus ornus L. (84.613/1 - In sylvis Hungariae meridionalis abunde. Majo, Jun.) - Fam. Olaceae; Drug Fraxini folium; contains polysaccharides, resin, manite, resin, coumarin, glycosides, with diuretic action, elimination of uric acid, constipation, gout, rheumatism, men potency.

Cornus mas L. (sin. **Cornus mascula** L.) (84.613/2 – In sylvis primo vere.) – Fam. Cornaceae; pharmaceutical use - bark, fruits, leaves; contains tannin, anthocyanins, glycosides, anthocyanidins, phenolic compounds, flavonoids, vitamin C, with antidiarrheal, antimicrobial action.

Lolium temulentum L. (84.613/3 – Inter segetes abunde. Aestate.) – Fam. Poaceae; pharmaceutical use - seeds; contains alkaloids, temulin, loline, perloline, with sedative action, innocuous.

Morus alba L. (84.613/4 – Colitur abunde. Majo, Jun.) – Fam. Moraceae; Drug Mori folium et fructus; contains arginine, folic acid, volatile compounds, anthocyanins, tannins, organic acids, carbohydrates, pectins, vitamin C, minerals, with action in diabetes, constipation, diarrhea.

Linaria linifolia L. (84.613/5 – In pratis arenosis Pestini. Majo-Jul.) – Fam. Plantaginaceae; Drug Herba Linariae; contains iridoids, flavonoids, with diuretic action, sweating, depurative, erysipelas, cancer, for hemorrhoids.

Laurus nobilis L. (84.613/6 – In sylvis litoralis. Majo) – Fam. Lauraceae; Drug Laurii folium; contains volatile oil, mucilages, pectins, tannins, resins, with action in chronic dermatoses, cosmetics, spice.

Artemisia pontica L. (84.613/7 – In locis sicis, salsis, ad vias. Jul-Aug.) – Fam. Asteraceae; Drug flores cinae; contains essential oil (cineole, camphor, thujone, borneol), bitter substances, tannin, resins, flavonoids, carotenoids, vitamin B, C, with bitter tonic action, cholagogue, emenagogue, dewormer.

Anemone nemorosa L. (84.613/8 – In sylvis primo vere.) – Fam. Ranunculaceae; Drug Herba Anemonae; contains alkaloids (anemonol), with astringent, blistering properties that antirheumatic, antigout effect.

Asplenium acutum Bory (taxon incert) (84.613/9 – In saxis littoralis. Jun, Jul.) – Fam. Aspleniaceae

Artemisia campestris L. (84.613/10 – In pratis arenosis et montanis abunde. Aug-Sept.) – Fam. Asteraceae; pharmaceutical use - the aerial part; contains flavonoids, phenolic acids, terpenes, alkaloids, saponins, with antioxidant, antidiabetic, antihyperlipidemic, anti-inflammatory, antihypertensive, analgesic, hepatoprotective, nephroprotective, gastroprotective, neuroprotective action.

Phragmites australis (Cav) Trin. ex. Steud. (sin. **Arundo phragmites** L.) (84.613/11 – In paludosus frequens. Jul, Aug.) – Fam. Poaceae; pharmaceutical use - the aerial part, root, flowers; contains polysaccharides, anthocyanins, alkaloids, with antiemetic, antipyretic, antiasthmatic,

antiemetic, antipyretic, antitussive, depurative, diuretic, antipyretic, sedative action.

Mentha longifolia L. (sin. **Mentha sylvestris** L.) (84.613/12 – Ad latera torentum sylvestrium. Jul. Aug.) – Fam. Lamiaceae; Drug folium Menthae; contains menthol, chin, izomenton, neomenthol, limonem, methyl acetate, piperitone, tannin, flavonoids, with action to treat colds and aid digestion, colic, antiemetic.

Genista tinctoria L. (84.613/13 – In pratis udis, in pascuis, sylvis frequens) – Fam. Fabaceae; Drug flores Genistae; contains flavonoids, volatile oil, chitin, sparteine, luteolin, genistine, mucilages, bitter substances, with action in urinary transit and sweating, depurative, sweating, gallstones, gout, rheumatism, constipation, liver and spleen disorders, analgesia, analgesia thyroid gland, anorexia, sexually transmitted diseases.

Seratura tinctoria L. (84.613/14 – In pratis udis, sylvis. Jul.-Sept.) – Fam. Asteraceae; pharmaceutical use - leaves, flowers, flavonoid action, methylquercitin, luteolinic glycosides, with action in wound healing.

Cotinus coggygria Scop. (sin. **Rhus cotinus** L.) (84.613/15 – in lapidosis, inter vineas Budae) – Fam. Anacardiaceae; pharmaceutical use - leaves; contains essential oils, tannins, terpenoids, alkaloids, flavonoids, with antioxidant, antibacterial, antifungal, antiviral, anticancer, antigenotoxic, hepatoprotective, anti-inflammatory, cologne, febrifugal, eye diseases, antipyretic action.

Galium verum L. (84.613/16 – In pratis abunde. Majo-Aug.) – Fam. Rubiaceae; Drug Herba Galii Verii; contains polyphenols, asperuloside, monotropeoside, palustroside, chlorogenic acid, with diuretic, depurative, slightly sedative action.

Peganum harmala L. (84.613/17 – In unicum loco partis meridionalis des Blodsberges pone Budam. Majo-Jul.) – Fam. Nitrariaceae; pharmaceutical use - seeds, leaves; contain alkaloids, with anthelmintic, analgesic, hallucinogenic action, in diseases of the nervous system, in Parkinson's disease, encephalitis, ear pain.

Prunella grandiflora (L.) Scholler (84.613/18 – In pratis pinquioribus Budae et Pestini. Jun. Jul.) – Fam. Lamiaceae; pharmaceutical use - seeds; contains tannin, resins, bitter substances, with action in lung diseases, intestinal diseases.

Syringa vulgaris L. (84.613/19 – Ad sepes Budae abunde. Majo.) – Fam. Oleacea; pharmaceutical use - bark, leaves, flowers; contains the glycoside syringine, manite, syringopicrin, emulsin, invertin, with antioxidant action, analgesic, antipyretic, antitumor, antidiabetic, calming liver

colic, common cold, gastrointestinal disorders.

Salix alba L. (84.613/20 – In insulis danubialis , ad torrentes, fluvios, etc. Majo.) – Fam. Salicaceae; Drug *Salix cortex*; contains salicin, flavonoids, tanning substances, with rheumatic action, febrile states.

Salix repens L. (sin. ***Salix incubacea*** L.) (84.613/21 – In pratis humidioris arenosis Pestini. Majo) - Fam. Salicaceae

Alkanna tinctoria L. Tausch (sin. ***Anechusa tinctoria*** L.) (84.613/22 – In pratis arenosis Pestini. Majo, Jun.) – Fam. Boraginaceae; Drug *Alkana radix*; contains alkaline esters, with action in wound healing, anti-inflammatory, ulcer treatment.

Olea europaea L. (84.613/23 – In Littoralis Hungarico v.g. circa Flumen colitur abunde. Junio.) – Fam. Oleaceae; Drug *Olivae fructus*, *Olivae folium*; contains glycerides of fatty acids (acids: oleic, isoleic, palmitic, linoleic, myristic), with action in hepatobiliary diseases, gastric ulcer, slightly laxative.

Salix daphnoides Vill (sin. ***Salix cinerea*** Willd) (84.613/24 – Abunde ad paludes, torrentes, etc.) – Fam. Salicaceae; uz farmaceutic – scoarță, conține flavonoide, glicozide fenolice, cu acțiune în stări febrile.

Salix purpurea L. (sin. ***Salix lambertiana*** Smith) (84.613/25 – Cum priori frequens. Apr. Majo.) – Fam. Salicaceae; Drug *Salix cortex*; contains salicin, with anti-inflammatory, antiseptic, astringent, diuretic, antipyretic, hypnotic, sedative, tonic in minor febrile diseases, colic, cancerous wounds, arthritis, gout, inflammatory stages of autoimmune diseases.

Issue V – inventory number 84.614, Map / Notebook 1.277.

Betula pubescens Ehrh. (sin. ***Betula alba*** L.) (84.614/1 – In sylvis Hungariae. Vere) – Fam. Betulaceae; Drug *Folium Betulae*, *Cortex Betulae*; contains polyphenols, flavonoids, volatile oil, tannin, betulin, oleanoic acid, oxalic acid, vitamin C, mineral salts, with diuretic, choleric, antibiotic action on the *Bacillus Coli*, *Staphylococcus aureus*, *Bacillus anthracis*.

Digitalis purpurea L. (84.614/2 – Colitur in hortis frequente. Jul.) – Fam. Scrophulariaceae; Drug *Digitalis Purpurea folium*; contains cardiotonic glycosides: digitoxin and digoxin, with action in heart failure, diuretic, increase tissue oxygenation.

Mentha pulegium L. (84.614/3 – In arvis et locis humidis. Jul, Aug.) - Fam. Lamiaceae; Drug *Pulegium herba*, flores; contains pulegona (ketone), essential oil, with action in gastrointestinal disorders, constipation,

hemorrhoids, itching and spots on the skin, toothache, antiseptic, antispasmodic, carminative, sedative, abdominal cramps, induces sweating, smallpox, tuberculosis , removal of the uterine lining.

Anemone sylvestris L. (84.614/4 – In pratis nemorosis. Majo) – Fam. Ranunculaceae

Gentiana pneumonanthe L. (84.614/5 – In pratis humidis. Aug, Sept.) – Fam. Gentianaceae; pharmaceutical use - root; contains bitter compounds, with action in lung diseases, tonic for the digestive system.

Verbena officinalis L. (84.614/6 – In pratis et ruderalis. Jul, Aug.) – Fam. Verbenaceae; Drug *Verbena*; contains saponosides, bitter substances, tannins, mucilages, iridoids, adenosine, beta-carotene, ursolic acid, verbenin, with action in treating insomnia, nervousness, physical and mental fatigue, stimulates metabolism, hypertension, neuralgia, stomach pain, cell intercostal, stabbing, gout, eye pain, in the treatment of wounds, abscesses, ulcers with healing effect, calming.

Antenarica dioica (L.) Gaertn. (sin. ***Gnaphalium dioicum*** L.) (84.614/7 – In pratis sylvestribus. Jun, Jul.) – Fam. Asteraceae; pharmaceutical use - flowers; contains mucilages, flavonoids, anthraquinones (traces), tannin, antitussive, astringent, diuretic, emollient, liver disease, gallbladder, diarrhea, hepatitis.

Artemisia absinthium L. (84.614/8 – In ruderalis, secus vias. Jul, Aug.) – Fam. Asteraceae; Drug *Herba Absynthii*; contains volatile oil, azulene, bitter substances, flavonoids, carotenoid substances, phytosterols, lactones, organic acids, vitamin C, vitamin B6, with action in coalescent anorexia, dyspepsia with constipation, exciting action of gastric secretion, mucosal anti-inflammatory and weak anthelmintic.

Artemisia austriaca Jacq. (84.614/9 – In pratis montanis et arenosis. Aug, Sept.) – Fam. Asteraceae; pharmaceutical use - the aerial part; contains essential oils, terpenoid bitter substances, with anti-inflammatory action, reduces morphine withdrawal syndrome, oil is antifungal, phytotoxic.

Glycyrrhiza echinata L. (84.614/10 – In pratis humidis ad Tibiscum. Jul, Aug.) – Fam. Leguminosaceae; Drug *Liquiritiae radix*; contains saponins, with hemolytic action, making detergents.

Convallaria majalis L. (84.614/11 – In sylvis. Vere) – Fam. Asparagaceae; Drug *Convallariae herba*; contains 30 cardiotonic glycosides, saponosides, with action in edematous heart failure, cardiac neurosis (tincture or extract), in

tachycardia, arrhythmia or hydrops.

Achillea setacea Waldst. et Kit (84.614/12 – In pratis arenosis. Vere) – Fam. Asteraceae; Drug Millefolii flos, Millefolii herba; contains volatile oil, flavonoids, coumarins, an alkaloid (achileine) bitter principle and tannin, with action in acute gastritis, cough, bronchitis, hemorrhoids, sedative, menstrual disorders, alkylin - healing, anti-inflammatory, antiseptic, antibiotic.

Achillea nobilis L. (84.614/13 – In pratis siccis, montanis. Jun, Jul.) – Fam. Asteraceae; pharmaceutical use - aerial part, contains flavonoids, glucoside, essential oil (monoterpenes, lactones), camphor, with choleretic action, spasmolytic, gastrointestinal disorders, diuretics, hepatobiliary, flatulence, diarrhea, abdominal pain, skin inflammation, antifungal, antifungal.

Euphorbia epithymoides L. (84.614/14 – In sylvis, pratis montanis. Majo) – Fam. Euphorbiaceae; pharmaceutical use - aerial part, root; contains cardiac glycosides, terpenoid alkaloids, gallic acid, tannin, steroids, anthraquinone, with antioxidant, anti-inflammatory, antibacterial action, treat abdominal tumors, rheumatism, gout, paralysis, arthritis.

Euphorbia seguieriana Neck (sin. ***Euphorbia gerardiana*** Jacq.) (84.614/15 – In arena mobili et pratis montanis. Majo, Jun.) – Fam. Euphorbiaceae.

Stachys officinalis (L.) Trevis (sin. ***Betonica officinalis*** L.) (84.614/16 – In pratis montanis. Jun, Jul.) – Fam. Lamiaceae; Drug Herba Stachys officinalis, contains tannins, bitter substances, betaine, choline, stachydrin, with action in wounds, varicose ulcers, lung catarrh, asthma, gout, gallstones and kidney stones, antidiarrheal, arthritis, remedy for drunkenness.

Lamium purpureum L. (84.614/17 – In ruderalis hortis. Vere) – Fam. Lamiaceae; pharmaceutical use - aerial part, root, contains essential oil, unsaturated esters: oleate, linoleic acid, glycosides, phenylethanoids, flavonoids with hemostatic action, emollient, in the treatment of abscesses, relaxes the nervous system, heals wounds, reduces muscle spasms, astringent, diaphoretic, diaphoretic, purgative.

Scolopendrium officinale L. (84.614/18 – In saxosis sylvaticis. Majo, Jun.) – Fam. Aspleniaceae; pharmaceutical use - leaves; contains tannins, choline, vitamin C, essential oil, mucilages, flavonoids, thiaminosis, sucrose, terpenoids, with splenic tonic action, liver disease, spleen, laxative, astringent, cholagogue, diaphoretic, diuretic, expectorant, asthma, cough, dysentery, stony deposits of the bladder, to remove obstructions of the liver and spleen.

Hypericum perforatum L. (84.614/19 – In graminosis. Jun, Jul.) – Fam. Hypericaceae; Drug Hyperici herba; contains anthracene derivatives, volatile oil, bioflavonoids, with healing action in gastroduodenal ulcer, leg ulcer, wounds, cholecystitis, depressive states, liver and stomach diseases.

Chaiturus marrubiastrum (L.) Ehrh.ex Rchb (sin. ***Leonurus marrubiastrum*** L.) (84.614/20 – In ruderalis, ad vias. Jul, Aug.) – Fam. Lamiaceae; pharmaceutical use - the aerial part, contains diterpenoid: leonubiastin, with sedative action.

Solanum nigrum L. (84.614/21 – In hortis, sylvis. Junio) – Fam. Solanaceae; pharmaceutical use - the aerial part; contains steroidal glucaloids, organic acids, sugars, fats, vitamin C, rutoside, saponosides, asparagine, with sedative action, analgesic, anesthetic, antirheumatic, antiasthmatic, antipruritic, in hepatic colic, antiseborrheic, in chronic otitis.

Euphrasia lutea (taxon incert) (84.614/22 – In graminosis. Jun, Jul.) – Fam. Scrophulariaceae

Chrysanthemum leucathemum L. (sin. ***Leucanthemum vulgare*** (Vail.) Lam.) (84.614/23 – In pratis graminosis. Jun.) – Fam. Asteraceae; pharmaceutical use - flowers, stem; contains acetylene compounds, with antispasmodic, antitussive, diaphoretic, diuretic, emenagogue, tonic, whooping cough, asthma, nervous excitability.

Juniperus rigida Siebold & Zucc. (sin. ***Juniperus communis*** L.) (84.614/24 – In sylvis. Vere) – Fam. Cupressaceae; Drug Iuniperi pseudofructus; contains volatile oil, carbohydrates, flavonoids, pectins, tannins, diuretic, urinary antiseptic, carminative, stomachic, antispasmodic.

Issue VI – inventory number 84.615, Map / Notebook 1.278.

Plantago media L. (84.615/1 – In pratis ubique. Majo-Jun) – Fam. Plantaginaceae; Drug Plantaginis folia; contains mucilages, tannins, glycosides, saponins, sugars, volatile oil, resins, protein substances, carotenoids, vitamins A, C, K, antibiotics, with action in chronic bronchitis, local itching, astringent, healing.

Consolida regalis Gray (sin. ***Delphinium consolida*** L.) (84.615/2 – In arvis, agris, ad vias. Majo- Jul.) – Fam. Ranunculaceae; Drug Calcatrippae flos; contains anthocyanins (dolphinidine), alkaloids, with action in rheumatic diseases, gout, asthma, sterility, hypertension, constipation, kidney disease, deworming, healing.

Levisticum officinale W.D.J.Koch (sin. ***Ligusticum levisticum*** L.) (84.615/3 – Ad vias Croatiae. Aestate.) – Fam. Apiaceae; Drug

Levistici radix; contains volatile oil, with diuretic action in urinary disorders, dropsy and pneumonia.

Orchis mario L. (sin. **Anacamptis morio** (L.) R. M. Bateman, Pridgeon & M.W.Chase) (84.615/4 – In pratis. Vere) – Fam. Orchidaceae; pharmaceutical use - tubers; contain mucilages, starch, dextrans, mineral salts, with action in covalent depletion states, irritations of the digestive tract or urinary tract, aphrodisiac.

Berberis vulgaris L. (84.615/5 – Ad margines vinearum, viarum. Jun, Jul.) – Fam. Berberidaceae; Drug Berberidis cortex; contains alkaloids (berberine), with action in hepatobiliary diseases, bacterial conjunctivitis, metrorrhagia.

Teucrium chamaedrys L. (84.615/6 – In pratis montanis, in sylvis. Jun.-Aug.) – Fam. Lamiaceae; Drug Chamaedrys herba; contains tanoids, bitter substances, volatile oil, with tonic action appetizer, antipyretic, stomachic, chronic bronchitis, rheumatism, gout.

Taxus baccata L. (84.615/7 – In sylvis Cttus Marmarosiensis et Banatus. majo) – Fam. Taxaceae; Drug Taxi cortex; contains taxin-alkaloid, taxicatin-glycoside, with action in hypertension, acute flatulence, myocarditis.

Tamarix gallica L. (84.615/8 – In humidis Littoralis. Jun.) – Fam. Tamaricaceae; pharmaceutical use - flowers, branches, leaves; contains tannin, phenolic acids, flavonoids, catechins, astringent, diuretic, antiallergic, cardioprotective, vasodilating, bacterial properties, stimulates the formation of red blood cells, reduces cholesterol levels, supports splenic function with improved general immunity.

Marrubium peregrinum L. (84.615/9 – In ruderalis, ad viam. Aestate.) – Fam Lamiaceae; pharmaceutical use - the aerial part; contains essential oil, glycosylated flavonoids, caffeic acid, diterpenoids, menthol, acetone, with antioxidant action, antihypertensives, antispasmodics, antimicrobials, carminatives, hepatoprotectives, antivirals.

Marrubium x paniculatum Desr. (sin. **Marrubium remotum** Kit) (84.615/10 – In ruderalis, ad vias cum Monte Peregrino. Aestate.) – Fam. Lamiaceae

Oenanthe aquatica (L.) (sin. **Phellandrium aquaticum** L.) (84.615/11 – In humidis abunde. Jun, Jul.) – Fam. Apiaceae; pharmaceutical use - upper part, contains volatile oil, with action in respiratory symptoms, bronchitis, whooping cough, emphysema, headache, nipple pain, drowsiness.

Sanicula europaea L. (84.615/12 – In umbrosis sylvaticis. Majo, Jun.) – Fam. Apiaceae; Drug

Herba Saniculae; contains saponosides (sanicula), tanoids, caffeic acid, chlorogenic acid, rosmarinic acid, syringe, lipids, with anti-inflammatory action in oral and respiratory diseases, antivirals.

Vitex agnus castus L. (84.615/13 – In maritimis littoralis. Aug, Sept.) – Fam. Lamiaceae; Drug Agni casti fructus; contains iridoids, volatile oil, diterpenes, lipophilic flavonosides, with action in premenstrual syndrome, dysmenorrhea, mastodynia, climatic disorders.

Gnaphalium arenarium L. (84.615/14 – In arenosis. Jul. Aug.) – Fam. Asteraceae; Drug Flores Helichrysi; contains bitter substances, flavonoids, astragaline, tannins, volatile oil, with diuretic, anthelmintic, rheumatism, gout, gallbladder diseases, chronic colic cystitis.

Cannabis sativa L. (84.615/15 – In ruderalis. Aestate.) – Fam Cannabaceae; Drug Cannabis herba; contains cannabinoid resin, volatile oil, with analgesic action.

Anthyllis vulneraria L. (84.615/16 – In pratis siccis frequens. Aestate) – Fam. Fabaceae; pharmaceutical use - leaves, flowers, root; contains dyes, tannins, saponosides, with antitussive, laxative, constipation, spring tonic, depurative, laxative.

Quercus robur L. (84.615/17 – In sylvis Hungarie. Vere.) – Fam. Fagaceae; Drug Quercus cortex; contains tannins, resin, sugar, pectin, citric acid, oxalic acid, with antiseptic action of microbial flora, healing, hemostatic, treatment of hemorrhoids, uterine bleeding, leukorrhea, stomach disorders, anus lesion, shortness of breath, transpiration, constipation.

Quercus pedunculata Willd (84.615/18 – In sylvis. Vere) – Fam. Fagaceae; pharmaceutical use - bark, leaves, fruits (acorns); contains tannic acid, lime tannins, magnesium, potassium, gallic acid, non-crystallized sugar, pectin, lignin, with regenerating and toning action on the glandular system, sexual asthenia, impotence, constipation, chronic fatigue in men, adrenal atrophy and respiratory collapse, stabilizes blood pressure.

Quercus pubescens Willd (84.615/19 – In sylvis. Vere.) – Fam. Fagaceae; pharmaceutical use - galas; contains tannin; with action in hemorrhages, chronic diarrhea, dysentery.

Quercus cerris L. (84.615/20 – In sylvis. Vere) – Fam. Fagaceae

Cota tinctoria (L.) J. Gay (sin. **Anthemis tinctoria** L.) (84.615/21 – In pratis siccis. Jun-aug.) – Fam. Asteraceae; pharmaceutical use - the aerial part; contains fatty acids, flavonoids, essential oil, sterols, with antispasmodic, diaphoretic, emetic, vesicant action.

Vitis vinifera L. (84.615/22 – Colitur, spontanea

in insulis danubialibus. Jun.)– Fam. Vitaceae, Drug Vitis viniferae semen, Vitis folium; contains organic acids, reducing sugars, with properties similar to vitamin P, with action in swollen legs, varicose veins, vascular fragility, rosacea, obesity.

Nigella arvensis L. (84.615/23 – In pratis, intersegetes. Jun.-Ag.) – Fam. Ranunculaceae; pharmaceutical use - seeds; contains alkaloids, terpenoids, proteins, essential oil, with action in indigestion, intestinal worms, nerve defects, to reduce flatulence, induce perspiration.

Galium odoratum (L.) Scop. (sin. ***Asperula odorata*** L.) (84.615/24 – In umbrosis sylvaticis. Vere)– Fam. Rubiaceae; Drug Herba Asperulae; contains coumarin glycosides, asperuloside, bitter substances, tannin, coumarin, nicotinic acid, mineral salts, fatty oil, with action in reducing blood clotting, depurative, liver disease, diuretic, sedative, sedative in insomnia.

Euphorbia virgata Waldst et Kit (sin. ***Euphorbia lamarckii*** Sweet) (84.615/25 – In pratis siccis, ad vias. Aestate)– Fam. Euphorbiaceae; pharmaceutical use - the aerial part; contains irritating esters of diterpene ingenol, flavonoids, tannin, alkanes, sterols, with action against warts. The medicinal plants of H. J. Sadler were analyzed from the perspective of the vegetative parts most often used in the treatment of various diseases (Fig. 1). The aerial part of medicinal plants is the most frequently used compared to the underground part, probably due to the greater accessibility of the first part. Regarding the above-ground part, it can be stated that the most used vegetative organs of medicinal plants are the leaves, flowers, which proves that they contain more beneficial chemical compounds compared to other organs. The least used vegetative parts are the floral stem and buds - foliar, probably due to the lack of information on gemotherapy or other complementary therapies.

Analyzing the medicinal plants according to the active constituent principles in the vegetable drug, it was observed the most common are tannins (Fig. 2) whose main action is astringent and hemostatic, followed by flavonoids with anti-inflammatory, antiallergic, antispasmodic, hepatoprotective actions. On the other hand, in small numbers we have carbohydrates and essential oils.

On the human body, medicinal plants act preventively or curatively, having the ability to change metabolism. Numerous plants existing in this herbarium are those used in the treatment of diseases of the digestive tract, followed by plants used in the treatment of respiratory, renal, hepatic and skin diseases (Fig. 3). Very few plant species

have been used in the treatment of: otitis, varicose veins, tumors, conjunctivitis, etc.

Conclusions

The Natural History Museum from Sibiu, through its patrimony, includes collections of medicinal plants, simple or book type, one of them being Sadler's Herbarium. This herbarium has on the cover, the title "Collectio plantarum medicinalium siccatarum Hungariae" (Hungarian Collection of Dried Medicinal Plants), the file number and the attending physician who is supposed to have made up the herbarium "Josepho Sadler, Med. Doctor" and the year 1823 (Foto 2). It is believed that this herb was used as a guide to medicinal plants in the pharmaceutical practice of an apprentice or pharmacist.

Currently, this old book-type herbarium, which contains 5 folders (each with approximately 25 sheets), is in the inventory of the botany collection within the Museum of Natural History in Sibiu. The herbarium contains frequent species, some of which are no longer found in today's pharmaceutical and traditional practices. The collection also contains plants found in Romania, mostly in Transylvania and Banat, cultivated plants or plants from other parts of the world (eg bay leaves).

Sadler medicinal herbarium contains 124 medicinal plants, belonging to 44 families and 97 genera of which the most representative families are the family Asteraceae with 19 genera, the family Lamiaceae with 16 genera, Ranunculaceae with 7 genera, and at the opposite pole the families with only one genus are: Aristolochiaceae, Betulaceae, Cannabaceae, Cornaceae, Hypericaceae, Leguminosaceae, Orchidaceae, Orobanchaceae, Polygonaceae, etc. (Tabel 1). Out of 124 species of medicinal herbs, 101 are still in use today, 23 are no longer used in modern medicine (eg. *Astragalus excapus* very rare in the Carpathian chain, *Stachys recta*, *Artemisia campestris*, *Salix repens*, *Euphorbia seguieriana*, *Gnaphalium arenarium*, etc.)

The five notebooks (folders) have a bundle number (I-II; V-VI, bundle supplement I), which is why it is assumed that this collection would be incomplete, because the year of their collection also varies (1823 for the first bundles respectively 1827, 1828), an inventory number (84,611-84,615) and a map number (1274-1278).

Sadler Herbarium is a standard of knowledge related to the knowledge of medicinal plants for the practice of the profession of pharmacist in the

early 19th century..

REFERENCES

- Bojor *et al.*, 1976 Bojor Ovidiu, Crăciun Florentin, Alexan Mircea, *Farmacia naturii* vol I., Ed.Ceres, București, (1976).
- Bojor *et al.*, 1977 Bojor Ovidiu, Crăciun Florentin, Alexan Mircea, *Farmacia naturii* vol II., Ed.Ceres, București, (1977).
- Fischer, 2002 Fischer Eugen, *Dicționarul plantelor medicinale*, Ed. Gemma Pres, București, (2002).
- Izsák, 1979 Izsák, S., *Farmacia de-a lungul secolelor*, Ed. Șt. Enc. București, 330, (1979), 419 p.
- Kramer & Noah, 1959 Kramer, Samuel Noah, La première pharmacopée, Sumer, III-ème millenaire, broșură 13/9 cm. 12 pag. Ed. Chavane, Paris, les Laboratoires Theraplax, MCMLIX, Colecția de Ist. Farm., Fac. Farm. București, (1959).
- Maior, 2014 Maior Ovidiu, „Contribuții la farmaco-istoria Transilvaniei” Oficinelor județului Sibiu, Teză de Doctorat, 30 Iunie 1979, Tg. Mureș; Revizuită și completată, Editura „Echinox”, Cluj-Napoca, (2014), 600 pp.
- Oroian, 2011 Oroian Silvia, *Botanică Farmaceutică*, Editura University Press, Târgu-Mureș, (2011).
- Roth, 1970 Roth F.J., *Primele farmacii din Sibiu și evoluția lor până în secolul al XIX-lea*. In: *Studii și comunicări*. Muzeul Brukenthal, Științe Naturale, Vol. 15, Sibiu, (1970), p. 321 – 336.
- Roth, 1976 Roth F.J., *Organizarea farmaceutică din secolele trecute în Transilvania și în special la Sibiu*. In: *Studii și comunicări*. Muzeul Brukenthal, Științe Naturale, Vol. 20, Sibiu, (1976), p. 347 – 355.
- Schneider-Binder, 1983 Schneider-Binder Erika, *Herbare transilvănene de la sfârșitul secolului al XVIII-lea la Muzeul de Istorie Naturală Sibiu*, In: *Studii și comunicări*, Muzeul Brukenthal, Științe Naturale, vol.25, Sibiu, (1983), p.79-86.
- Spielmann *et al.*, 1994 Spielmann Josif, Graziella Baicu (coord), *Începuturile cercetării farmaceutice*. In *Istoria Științelor Farmaceutice în România*, Ed. Medicală Amaltea, București, (1994), p. 9–11, 13–40, 70, 219–259.
- World Flora Online, 2021 WFO (2021): World Flora Online. Published on the Internet - <http://worldfloraonline.org/search>
- Farmacopeea Română, 1862 *** *Farmacopea Română*, ed. I. Tipografia Jurnalului Naționalului Oțelul Bossel, no.34, București, (1862).
- <https://de.wikipedia.org/> *** <https://en.wikipedia.org/wiki/>; <https://de.wikipedia.org/wiki/>.
- <https://pfaf.org/> *** <https://pfaf.org/> - Medicinal Plants Database

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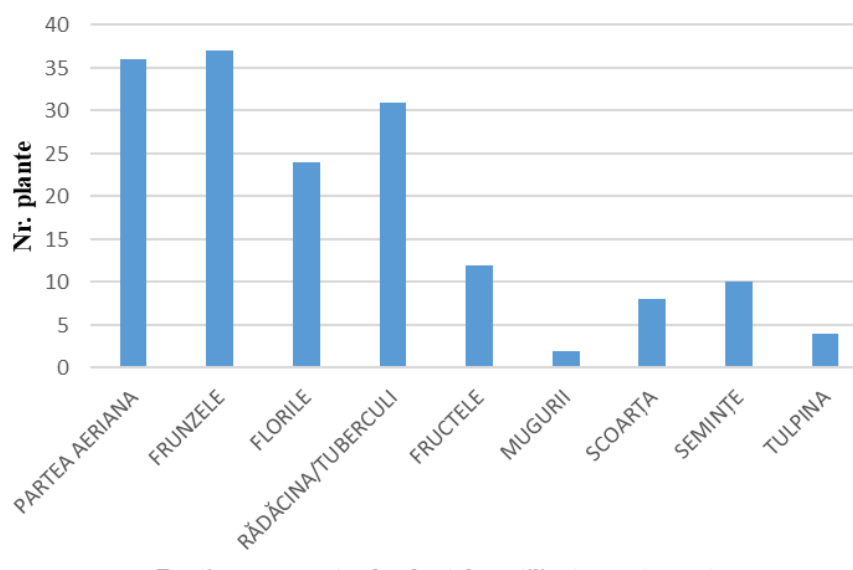


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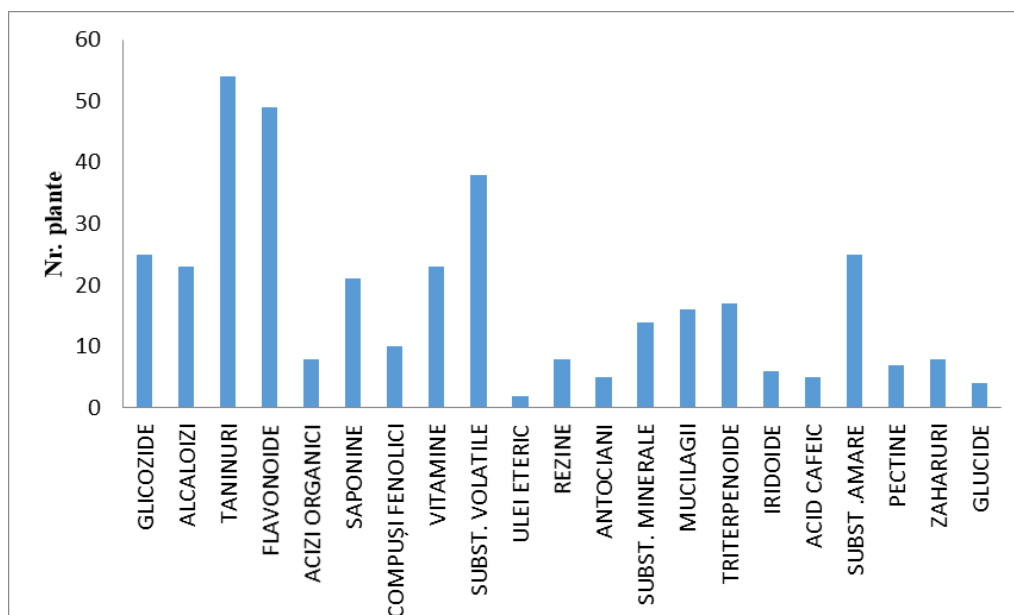


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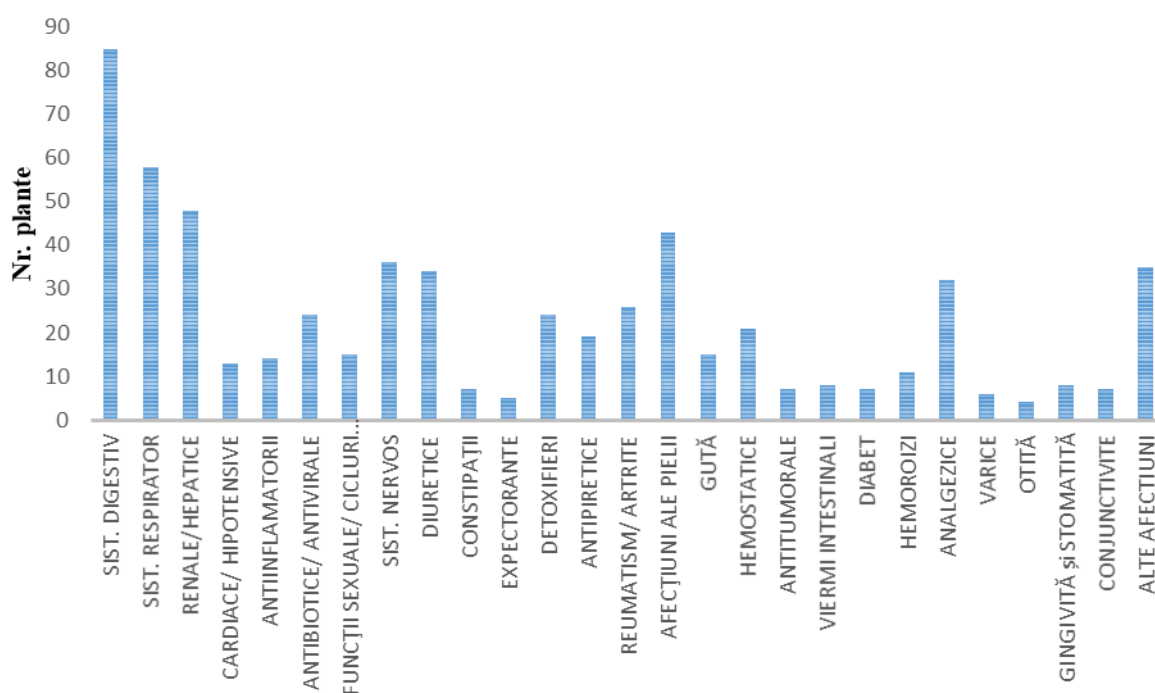


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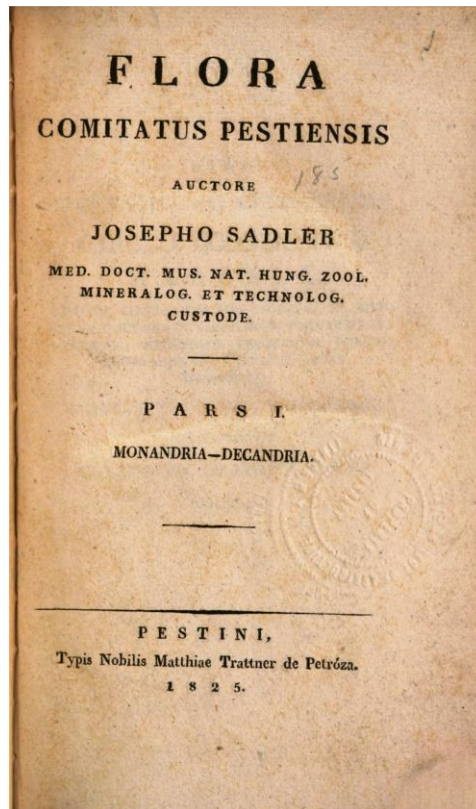


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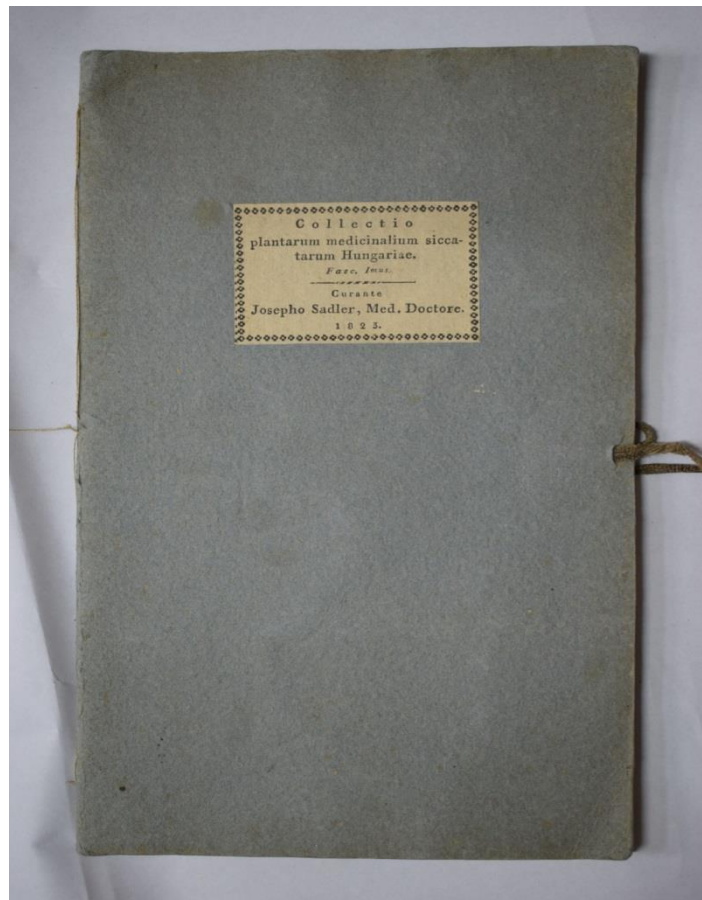


Photo 2. The first part of Herbarium – H. J. Sadler (the beginning of the 19th century). /

Table 1. List of plant genera in Sadler Herbarium *Collectio plantarum medicinalium siccatarum Hungariae*, 1823 (the data were taken from inventory of Natural History Museum)

Family/ Familia	Genus / Genul	No. of species / numar specii	Family/ Familia	Genus / Genul	No. of species / numar specii		
Anacardiaceae	Cotinus	1	Lauraceae	Laurus	1		
Apiaceae	Levistticum	3	Linaceae	Linum	1		
	Oenanthe		Leguminosaceae	Glycyrrhiza	1		
	Sanicula		Malvaceae	Althaea	2		
Aristolochiaceae	Asarum	1		Malva			
Asperagaceae	Convalaria	1	Moraceae	Ficus	2		
Aspleniaceae	Asplenium	2		Morus			
	Scolopendrium		Nitrariaceae	Peganum	1		
Asteraceae	Achillea	19	Oleaceae	Fraxinus	3		
	Antenaria			Olea			
	Arctium			Syringa			
	Artemisia		Orchidaceae	Anacamptis	1		
	Cota		Orobanchaceae	Euphrasia	1		
	Eupatorium		Plantaginaceae	Gratiola	5		
	Gnaphalium			Linaria			
	Lactuca			Plantago			
	Leucanthemum			Veronica			
	Matricaria		Poaceae	Elymus	3		
	Seratula			Lolium			
	Tussilago			Phragmites			
Berberidaceae	Berberis	1	Polygonaceae	Rumex	1		
Betulaceae	Betula	1	Primulaceae	Anagallis	3		
Boraginaceae	Alkanna	2		Lysimachia			
	Pulmonaria			Primula			
Cannabaceae	Cannabis	1	Ranunculaceae	Anemone	7		
Caprifoliaceae	Knautia	3		Clematis			
	Sambucus			Consolida			
	Succisa			Nigella			
Cornaceae	Cornus	1	Rhamnaceae	Ziziphus	1		
Cupressaceae	Juniperus	1	Rosaceae	Alchemila	5		
Euophorbiaceae	Euphorbia	4		Agrimonia			
	Stachys			Filipendula			
Fabaceae	Anthyllis	6				Potentilla	
	Astragalus					Sanguisorba	
	Colutea		Rubiaceae	Galium	2		
	Genista		Salicaceae	Salix	4		
	Melilotus		Scrophulariaceae	Digitalis	3		

	Onosis			Euphrasia	
Fagaceae	Quercus	4		Linaria	
Fumariaceae	Fumaria	1	Solanaceae	Solanum	2
Gentianaceae	Gentiana	2	Tamaricaceae	Tamarix	1
Hypericaceae	Hypericum	1	Taxaceae	Taxus	1
Lamiaceae	Chaiturus	16	Verbenaceae	Verbena	1
	Lamium		Vitaceae	Vitis	1
	Lavandula				
	Marrubium				
	Mentha				
	Origanum				
	Prunella				
	Stachys				
	Teucrium				
	Thymus				
	Vitex				

UPDATED DISTRIBUTION OF THE EUROPEAN FALSE HONEY ANT *PRENOLEPIS NITENS* (HYMENOPTERA: FORMICIDAE) IN ROMANIA

Ioan TĂUȘAN*

Abstract. Faunistics studies are more and more overlooked, and few data is available for many invertebrate species. However, there is a huge interest from the citizen science community and data is being produced constantly. Herein we give an updated distribution using, literature data, unpublished data and citizen science data for the European false honey ant, *Prenolepis nitens* with insights on its biology.

Keywords: faunistics, citizen science, new records.

Rezumat. Studiile faunistice sunt adesea ignorate și astfel există puține date privind multe specii de nevertebrate. Totuși, există un interes major manifestat de către publicul amator, care furnizează constant observații interesante și importante. Astfel, în prezenta lucrare indicăm o distribuție actualizată utilizând literatura de specialitate, date nepublicate și nu în cele din urmă informații furnizate de către comunitatea de amatori entomologi pentru specia *Prenolepis nitens*. În plus, oferim și date interesante privind biologia speciei.

Cuvinte cheie: faunistică, știința de popularizare, noi semnalări.

Introduction

The *Prenolepis* is a rather small genus of formicinae ants that includes thirteen species. Most of these species occur in China and southeastern Asia. One species is widespread found in North America and one species occurs in southeastern Europe (LaPolla *et al.* 2010).

Most of what is known about the biology and natural history of *Prenolepis* is based on studies on *Prenolepis imparis* (known as the false honey ant), which is widespread in North America. Like previously mentioned, most of the *Prenolepis* species occur in tropical habitats, therefore *P. imparis* which is rather a temperate species may have quite different requirements compared to most species belonging to this genus (Williams, La Polla 2016).

According to Lőrinczi (2016) *P. imparis* and *P. nitens*, the European false honey ant, have similar biology. Yet, more studies are needed in order to fully understand species biology, habitat requirements and distribution.

According to Seifert (2018) the nest is usually constructed deep in the soil, but also in hollow roots of trees and dead tree stumps, preferentially at spots protected against frost and wetness. Moreover, the species prefers warm deciduous woodland, especially *Quercus*, but also it may occur in open habitats with bushes, gardens or parks (Seifert 2018).

In Europe *Prenolepis nitens* is known from: Albania, Austria (type locality), Bosnia and Herzegovina, Bulgaria, Croatia, Georgia, Greece, Hungary, Italy, Montenegro, Republic of Macedonia, Russian Federation, Slovenia, Turkey, United Kingdom of Great Britain and Northern Ireland (Radchenko 2021).

In Romania, the species was reported from: Viile Sibiului, Cristian (Sibiu County (Csősz, Markó 2005), Șura Mare (Sibiu County) (Fuss, 1855), Babadag (Tulcea County) (Paraschivescu 1961), Telița (Tulcea County) (Fromunda *et al.* 1967), Arduzel (Maramureș County) (Markó 1999), Cheile Bicazului (Neamț County) (Cîrdei, Bulimar, 1965), Tușnad (Harghita County) (Cîrdei, Bulimar 1969), Comana Vlasca (Giurgiu County) (Montandon, Santschi 1910), Tășnad (Satu Mare County), Văliug, Oravița (Caraș-Severin County) (Mocsáry 1897).

Herein we give an updated distribution of the species and insights on its biology.

Results

Ants were collected from different sites in Romania. More precise, ants were hand collected from Enisala (Tulcea County – 5 workers, 16.05.2021, leg. Tăușan), Arad (Arad County – 5 workers 10.05.2020),

In addition, data retrieved from the Citizen Science Facebook Group, Insects of Romania and Europe. Namely, new data was retrieved as following: Bucharest (Ilfov County) – 02.04.2021, leg. Dana Milea & Mihai Zachi, Crivina (Giurgiu

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County), 15.06.2021, leg. Octavian Matei, Joița (Giurgiu County) – 15.07.2021, leg. Ionuț Iorgu.

Concerning nutrition, the species is known to tend Aphidae and Coccoidea. It consumes sweet fruits, nectar and elaiosomes but preys also on small invertebrates (Seifert 2018).

In Enisala forest we observed *Prenolepis nitens* feeding on *Paeonia peregrina* in high numbers (Fig. 1). In other observations, we spotted the species attending *Panaphis juglandis* (Goeze, 1778) on *Juglans regia* (Fig. 2).

Acknowledgments

I am grateful for the useful comments of dr. Sergiu Torok, which improved the manuscript. I owe special thanks to dr. Laurian Gheorghe for his help with the distribution map of the species. Finally, I would like to show my appreciation to amateurs from the Citizen science online group who offered valuable data on the species occurrence.

REFERENCES

- Csősz, Markó 2005 Csősz Sandor, Markó, Balint, *European ant species (Hymenoptera: Formicidae) in the ant collection of the Natural History Museum of Sibiu (Hermannstadt/Nagyszeben), Romania II. Subfamily Formicinae*. Annales Historico-Naturales Musei Nationalis Hungarici 97 (2005), p. 225-240.
- Mocsáry 1897 Mocsáry Alexander, *Ordo Hymenoptera*. In: *Fauna Regni Hungariae. III. Arthropoda (Insecta. Hymenoptera)*. In: Királyi Magyar Természettudományi Társulat, Budapest (1897), pp. 7-116
- Montandon, Santschi 1910 Montandon Arnold-Lucien, Santschi Felix, 1910: *Contributions á la faune entomologique de la Roumanie. Formicides*. In: *Bulletin de la Société Roumaine des Sciences* 19, (1910), p. 648-654.
- Cârdei, Bulimar 1965 Cârdei Filimon, Bulimar Felix, *Noi contribuții asupra studiului formicidelor (Fam. Formicidae) din Moldova*. In: *Analele Științifice ale Universității "Al. I. Cuza" din Iași Secțiunea II-a, Științele naturii, a. Biologie* 11, (1965), p. 311-319.
- Cârdei et al. 1969 Cârdei Filimon, Bulimar Felix, Boișteanu T., *Contribuții la studiul formicidelor (Fam. Formicidae) din Carpații Orientali*. In: *Studii și comunicări ale Muzeului de Științele Naturii Bacău*, (1969), p. 151-156.
- Markó 1999 Markó Balint, *Contribution to the knowledge of the myrmecofauna of the River Someș Valley*. In: Sárkány-Kiss, A. & Hamar, J. (Eds.): *The Someș/Szamos River Valley. A study of the geography, hydrobiology and ecology of the river system and its environment*. Tiscia Monograph Series 3, (1999), p. 297-301
- Fuss, 1855 Fuss Carl, *Beitrag zur Insectenfauna Siebenbürgens*. In: *Verhandlungen und Mitteilungen des siebenbürgischen Vereins für Naturwissenschaften in Hermannstadt* 6, (1855), p. 20-26.
- Paraschivescu 1961 Paraschivescu Dinu, *Contribuții la cunoașterea formicidelor din stepa și podișul Dobrogei*. In: *Studii și cercetări biologice, seria Biologie Animală* 13, (1961), p. 457-465.
- Paraschivescu 1974 Paraschivescu Dinu, *Die Fauna der Formiciden in dem Gebiet um Bukarest*. – *Travaux du Muséum d'Histoire Naturelle "Grigore Antipa"* 15: 297-302
- Fromunda et al. 1967 Fromunda V. Paraschivescu Dinu, Popescu S., Lungu V. *Cercetări asupra ecologiei gazdelor intermediare și complimentare pentru Dicrocoelium lanceatum în România, în legătură cu epizootologia invaziei*. In: *Lucrările ICVB Pasteur* 6 (1967), p. 305-323.
- Radchenko 2021 Radchenko Alexander, *Fauna Europaea – Hymenoptera. Formicidae (2021)* <https://fauna-eu.org/>
- Csősz et al. 2011 Csősz Sandor, Markó, Balint, Gallé, Laszlo, 2011. *The myrmecofauna (Hymenoptera: Formicidae) of Hungary: an updated checklist*. North-Western Journal of Zoology 7,

(2011), p. 55-62.

- Czechowski et al. 2012 Czechowski W., Radchenko Alexander, W. Czechowska, Vepsäläinen Kari, *The ants of Poland with reference to the myrmecofauna of Europe*. Fauna Poloniae 4. Natura Optima Dux Foundation (2012), Warsaw, Poland.
- LaPolla et al. 2010 LaPolla John, Brady Sean, Shattuck Steven, *Phylogeny and taxonomy of the Prenolepis genus-group of ants (Hymenoptera: Formicidae)*. In: *Systematic Entomology*, 35(1), (2010), p. 118-131.
- Lőrinczi 2016 Lőrinczi, Gábor, *Winter activity of the European false honeypot ant, Prenolepis nitens (Mayr, 1853)*. In: *Insectes Sociaux*, 63.1, (2016), p. 193-197.
- Markó et al. 2006 Markó Balint, Sipos Botond, Csősz Sándor, Kiss Klara, Boros Istvan, Gallé Laszlo, *A comprehensive list of the ants of Romania (Hymenoptera: Formicidae)*. In: *Myrmecological News* 9, (2006), p. 65-76.
- Seifert 2018 Seifert Bernhard, *The Ants of Central and North Europe*. In: *Lutra Verlags- und Vertriebsgesellschaft* (2018), Tauer, Germany
- Williams, LaPolla 2016 Williams Jason, LaPolla John, *Taxonomic revision and phylogeny of the ant genus Prenolepis (Hymenoptera: Formicidae)*. In: *Zootaxa* 4200(2), (2016), p. 201 – 258.

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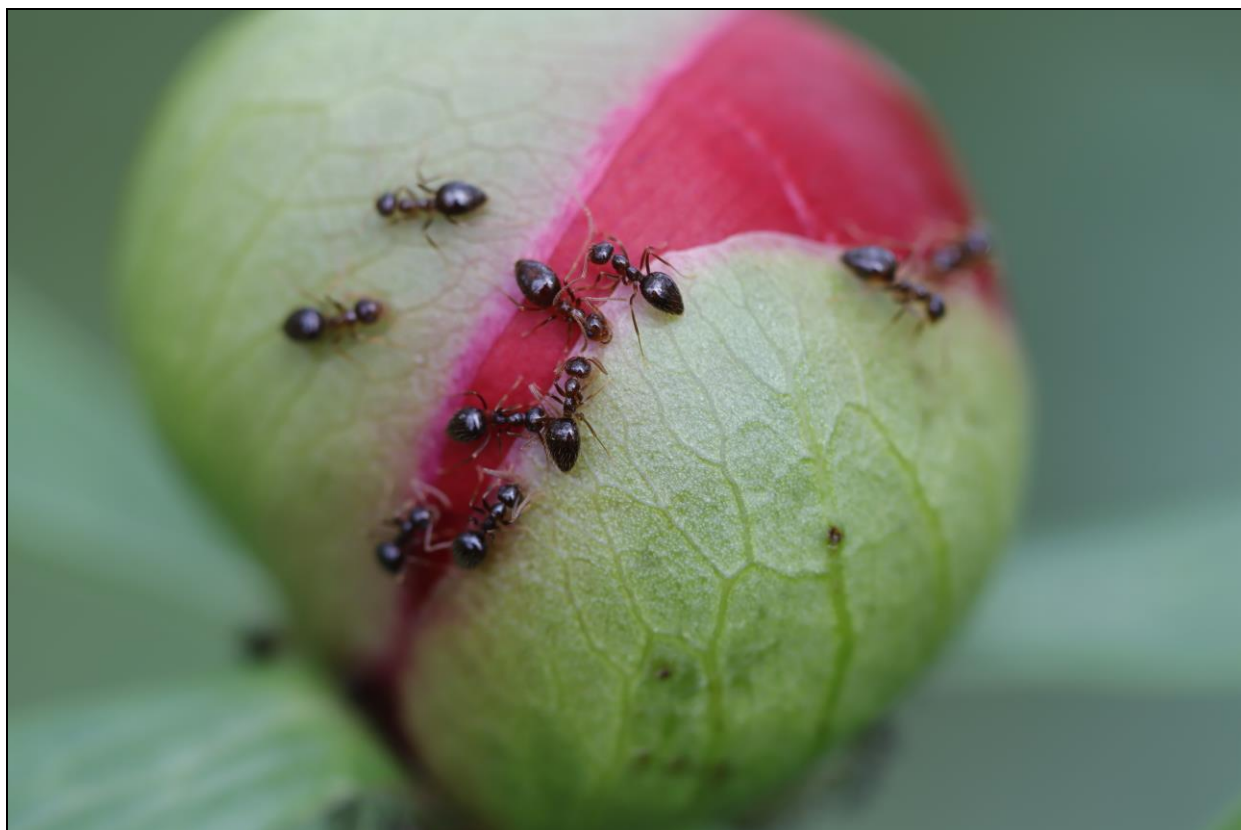


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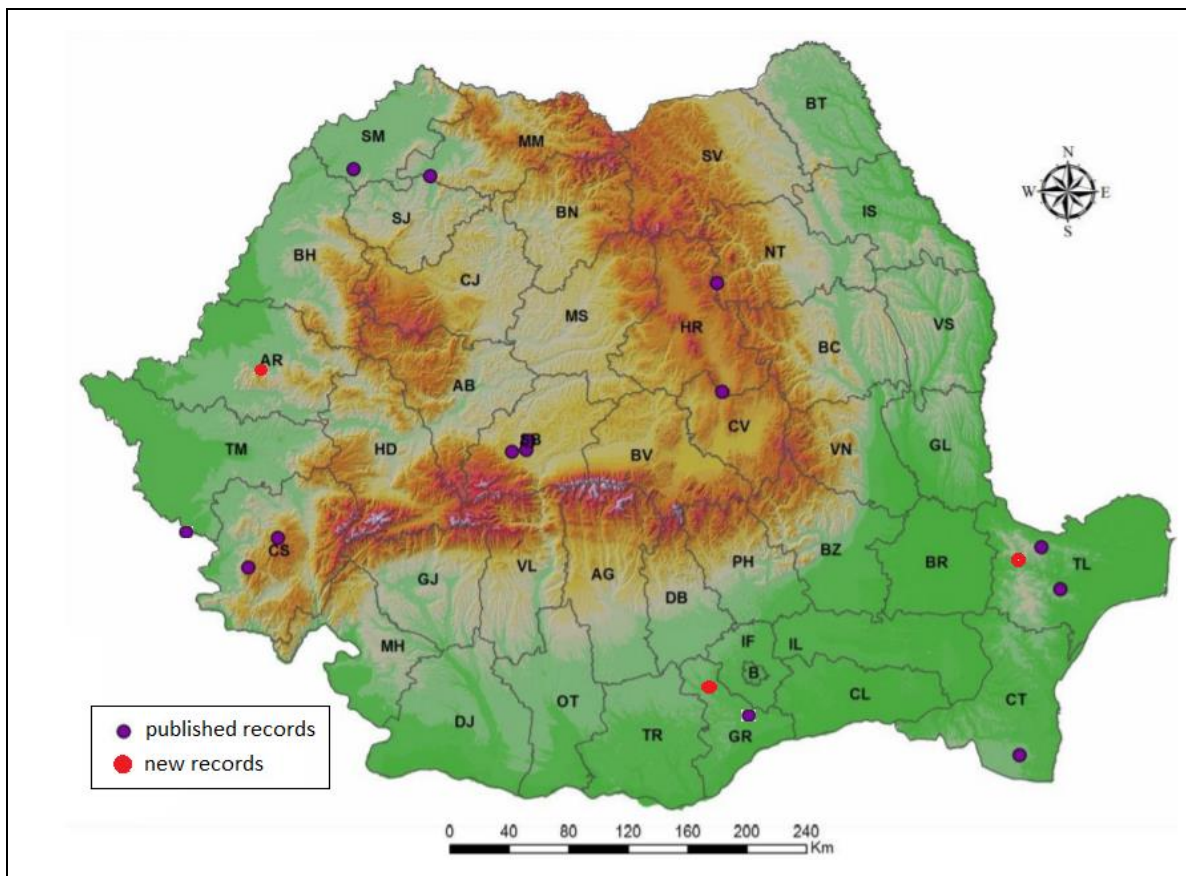


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THE CULTURAL-EDUCATIONAL PROJECT HISTORY OF PHARMACY TRADITIONS IN SIBIU (2016-2020)

Ana-Maria PĂPUREANU *

Ladislau ROSENBERG **

Abstract. Since 2016, the Brukenthal National Museum in Sibiu, through the Pharmacy History Museum department, is partner of the Romanian Society of Pharmacy History (SRIF) Sibiu section, in the realization of the cultural-educational project "History of Pharmacy Traditions in Sibiu". This paper presents the results of the activities carried out for four years within the project.

Keywords: cultural project, Pharmacy History Museum Sibiu, Romanian Society of Pharmacy History (S.R.I.F.).

Rezumat. Începând din anul 2016, Muzeul Național Brukenthal din Sibiu, prin compartimentul Muzeul de Istoria Farmaciei, este partener al Societății Române de Istoria Farmaciei (SRIF) secția Sibiu, în realizarea proiectului cultural-educational „Tradiții farmaceutice sibiene”. Lucrarea de față, prezintă rezultatele a patru ani de activități desfășurate în cadrul proiectului.

Cuvinte cheie: proiect cultural, Muzeul de Istoria Farmaciei din Sibiu, Societatea Română de Istoria Farmaciei (S.R.I.F.).

Introduction

The Romanian Society of Pharmacy History (S.R.I.F.), Sibiu section, in collaboration with the Brukenthal National Museum in Sibiu, the History of Pharmacy Museum department, and their partners Natural Gas Museum from Mediaș (Sibiu County), the Self-Help Association for Diabetics and Oncology Patients Mediaș, initiated in November 2016 the cultural - educational project "History of Pharmacy Traditions in Sibiu".

The thematic area of the project is *Pharmacy in Sibiu - over 500 years of history*. Also, through this project, the coordinators aimed to contribute to the dissemination of the concept of *health education* by: providing examples of good practice, by actively involving the locals in the field of health education.

According to the latest reports from the European Union on *Adult Health Education*, Romania is at the end of the list, in comparison to other European countries. *The European Association for the Education of Adults* has included in the E.U. 2020 program the concept of *Adult Health Literacy* (Pop *et al.* 2013, 35-43; Van der Heide *et al.* 2016, 906-911).

Health education is the process that gives the individual and communities the opportunity to increase their control over the factors that influence their health and health process (medical services, access to medical facilities and information), and through this improve their health.

Adult Health Literacy is a unifying concept for those who recognize the fundamental need to change both lifestyle and living conditions. Health promotion is a strategy of mediation between the individual and the environment, combining personal choice with social responsibility and aiming to ensure better health in the future (WHO 1997; Nutbeam 1998, 349-364).

The World Health Organization (WHO) has been emphasizing since 1986 that health is far too important to be left to health practitioners alone; education and policy-making must be central to the development of health at the individual, community and national levels (Kickbusch *et al.* 2013, 4-10).

The project "History of Pharmacy Traditions in Sibiu" addressed the general public, especially the local one, public educational and cultural institutions, non-governmental organizations involved in promoting *health education*.

The aim of the project was to increase the level of knowledge regarding the history of the development of pharmaceutical practice in Sibiu

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County and to support health education (*Health Literacy*) among the local population.

The general objectives of the cultural-educational project consisted in:

1. *Thematic guided tours in the general exhibition of the History of Pharmacy Museum in Sibiu.* The museum is a department of the Brukenthal National Museum. It is a museum visited especially by health care specialists or pharmacists. But this museum is a page in local history waiting to be read. Through this project the local public had access to a multidisciplinary cultural space and benefited from health education accumulated over 300 years of local pharmacy history;
2. *Thematic lectures* given by specialists in the field of *Health Literacy*. Thematic lectures were an accessible way of group education, using audio-video media;
3. *Organizing a research group* in the field of pharmacy history in Sibiu County;
4. *Supporting and organizing symposia / communication sessions* related to the thematic area of the project;
5. *Proposing/ consulting and curating temporary thematic exhibitions.*
6. *Book launches* in the pharmaco-historical, cultural and educational field.

General long-term expected results were:

- Generating a process of cultural recognition towards the History of Pharmacy Museum collections and exhibitions;
- Increasing the value of the museum's objects in the public consciousness due to thematic approaches through health education;
- Increasing the public awareness regarding the local cultural and educational value of the pharmacy history sector and the long tradition and implication in health education;
- Emphasizing the importance of museum objects in the process of scientific, historical or cultural research;
- Creating models of good practice regarding health education that locals can look in to and copy.

Results

The following results were reported taking into account the general objectives of the project:

1. *Thematic guided tours in the general exhibition of the History of Pharmacy Museum in Sibiu:* between November 2016 and December

2017, 119 people participated at the guided tours (Fig. 1 a, b).

In 2018, the Collaboration Agreement number 528/16.02.2018 (Brukenthal National Museum registration number) and 57/01.02.2018 ("S. von Brukenthal" National College from Sibiu, registration number). 8th grade students, coordinated by Professor Hadăr Mihaela, participated in a series of thematic guides in March.

Another 15 guided tours were scheduled and performed in the general exhibition of the museum. The participants were local students, age category 5th to 8th grades, but also at university level.

In total, there were 323 participants in the general and thematic guides.

On the occasion of each guide, elements of hygiene and health education were also presented in correlation to fun and interesting facts from pharmacy history.

2. Thematic lectures held by Conf. dr. pharmacist Ladislau Rosenberg, at the Natural History Museum and the History of Pharmacy Museum in Sibiu (Fig. 2 a, b, c, d):

- November 2016 - *Samuel Hahnemann, the founder of homeopathy, passing through Sibiu (1777-1779);*
- December 2016 - *Data about the history of the first pharmacies in Transylvania;*
- January 2017 - *How can we prevent and treat the flu by natural means?;*
- February 2017 - *Apitherapy, past, present and future;*
- March 2017 - *Aromatherapy, between tradition and modern;*
- April 2017 - *Natural products for treating obesity;*
- May 2017 - *Medicinal plants useful in the prevention of cardiovascular diseases;*
- June 2017 - *Breast cancer prevention with the help of complementary and alternative therapies;*
- July 2017 - *Effective complementary therapies in the adjuvant treatment of diabetes;*
- August 2017 - *The benefits of therapeutic massage for human health;*
- September 2017 - *Natural anti-aging therapies;*
- October 2017 - *Homeopathic remedies used in the treatment of the common flue;*
- November 2017 - *Integrative medicine or the medicine of the third millennium.*

The lectures were attended by 141 participants. On the occasion of the thematic lectures, monthly meetings of the S.R.I.F. Sibiu section, where held and at these meetings communications related to the history of pharmacy were presented.

Within the Mediaș Natural Gas Museum (Sibiu County) the thematic lectures, mentioned above, were recorded on digital support and transmitted online. At the end of the project, the recordings were viewed by 11,856 people, reach 38,041.

Simultaneously in Mediaș, within the Natural Gas Museum, thematic lectures were held between 2016 and 2018 (*Obesity, Vaccines in Romania, Diabetes and Cardiovascular Diseases, Allergic Diseases, Breast Cancer, How to live healthy ?, Gastrointestinal Diseases, Apitherapy, Hepato-biliary disorders, Central Nervous System*) supported by dr. Rosenberg, in collaboration with Oana Langa (Public Relations and Communication Specialist) and Rusanda Alec (Technician). Subsequently the recorded lectures were uploaded on the official Facebook page of the Natural Gas Museum. According to our partners the presentations were heard by 3,636 viewers, with a reach of 10,212.

In 2018, due to the immediate impact and the large number of online views of the 2017 lectures, the thematic presentations turned into posts on the blog and Facebook of the Natural History Museum in Sibiu:

- January 24, 2018, the exhibition: *History of Pharmacy traditions in Sibiu*, <https://brukenthalnaturale.wordpress.com/expoziti-i-2/>;
- January 31, 2018, the exhibition: *History of Pharmacy traditions in Sibiu*, [http://brukenthalnaturale.wordpress.com](http://brukenthalnaturale.wordpress.com;);
- February 20, 2018, *History of Pharmacy traditions in Sibiu* - Pharmacist Marin Vasile (1947-2015) Collection of Romanian Pharmacopoeia [http://brukenthalnaturale.wordpress.com](http://brukenthalnaturale.wordpress.com;);
- February 20, 2018, *History of Pharmacy traditions in Sibiu* - First Romanian Pharmacopoeia, [http://brukenthalnaturale.wordpress.com](http://brukenthalnaturale.wordpress.com;);
- February 26, 2018, *History of Pharmacy traditions in Sibiu* - *Cetaceum*, [http://brukenthalnaturale.wordpress.com](http://brukenthalnaturale.wordpress.com;);
- March 31, 2018, *History of Pharmacy traditions in Sibiu* - 2nd edition of the Romanian Pharmacopoeia, *Belladonna*, [http://brukenthalnaturale.wordpress.com](http://brukenthalnaturale.wordpress.com;);
- April 25, 2018, *History of Pharmacy traditions in Sibiu* - 2nd edition of the Romanian

- Pharmacopoeia, Lapides Cancrorum*, [https://brukenthalnaturale.wordpress.com](https://brukenthalnaturale.wordpress.com;);
- May 30, 2018, *History of Pharmacy traditions in Sibiu* - 3rd edition of the Romanian Pharmacopoeia, [https://brukenthalnaturale.wordpress.com/2018/05/30/file-de-istorie-a-farmaciei-in-romania-a-III-a-pharmacopee-romana](https://brukenthalnaturale.wordpress.com/2018/05/30/file-de-istorie-a-farmaciei-in-romania-a-III-a-pharmacopee-romana;);
- July 11, 2018, *History of Pharmacy traditions in Sibiu* - the first official pharmacopoeias, <https://brukenthalnaturale.wordpress.com/2018/07/11/file-de-istorie-a-farmaciei-primele-pharmacopoeia-with-official-character/>;
- July 19, 2018, *History of Pharmacy traditions in Sibiu* - Special edition of the Romanian Pharmacopoeia from 1915, <https://brukenthalnaturale.wordpress.com/2018/07/19/file-de-istorie-a-farmaciei-special-edition-of-the-Romanian-pharmacopoeia-from-1915/>;
- December 3, 2018, "Poetic", by Fontana Blanca, poems volume launch, <https://brukenthalnaturale.wordpress.com/2018/12/03/lansare-volum-de-poezii-poetice-de-fontana-blanca/>.

Thus, between January and December 2018, each presentation was read on the museum's blog by an average of 35 people, and on Facebook the Sibiu Museum of Natural History 9,730 people viewed the posts.

In 2018, our partner organized and supported educational activities in the Mediaș Natural Gas Museum, between January and December 2018:

- *Anti-Smoking Campaign*

For one week, the students from the four high schools in Mediaș (Sibiu County) and students from the School Group "N. Teclu" from Copșa Mică (Sibiu County) participated at awareness activities regarding the risk of tobacco use.

The participants were shown 3D holograms of the traumas to which the body is subjected through smoking.

- *Antibiotics - Beneficial but also Harmful*

One day a week, the local community were invited to view/ or attend live session held by specialists related to the administration of antibiotics only at the urging of the specialist / family doctor following a control, without using these medicines excessively.

Natural treatment alternatives were presented for the initial, mild forms of the disease.

- *Let's age healthy!*

Communication session held one day a week, in which the factors that accelerate the aging process

(stress, shocks, unhealthy diet, and lack of exercise) and methods to prevent the effects of these factors were addressed. The activity was opened for the local community.

- *Exercise and healthy eating*

The purpose of the thematic interview was to underline the need to establish a healthy lifestyle. The benefits on the body of a balanced diet combined with physical activity (sports) were presented to high school students or other members of the local community.

Between November 8 and 15, 2018, within the „History of Pharmacy Traditions in Sibiu” project, were held a series of activities dedicated to health education, aimed at informing the population about the possibilities of prevention and treatment of diabetes.

These activities also benefited from the support of some media partners from Mediaș, Radio Ring and Nova TV:

- November 8, 2018, dr. pharmacist Rosenberg Ladislau, during the show *Doctor Natura* (Radio Ring) spoke about: *Alternative remedies (phytotherapeutic, homeopathic) useful in the therapy of diabetes and its complications.*

- November 12, 2018, at the headquarters of the Post-secondary Sanitary School "dr. Balint Alexandru", future nurses, participated in a course that addressed the various types of diabetes, the primary prevention in this disease and the possible complications.

- November 13, 2018, dr. med. Dan Mihai Rusu, President of the *Association for Self-Help of Diabetics and Oncology Patients*, during the show *Health Pill* (Nova TV), spoke about the complications of diabetes.

- November 14, 2018, *World Diabetes Day*, was marked at the Natural Gas Museum in Mediaș, with a lecture on the prevention and effective treatment of diabetes, given by dr. pharmacist Rosenberg Ladislau in front of the students of the Post-secondary School "Auxila", nursing school.

- November 14, 2018, at the headquarters of the *Association for Self-Help of Diabetics and Cancer Patients*, was inaugurated the *Health Education Center*, designed to inform the population about modern means of prevention and treatment of diabetes.

- November 15, at Radio Ring, during the *Doctor Natura* show, a dialogue took place between dr. med. Dan Mihai Rusu, President of the Association and dr. pharmacist Rosenberg Ladislau, debated the importance of preventing

type two diabetes, which occurs in adults and the elderly. The role of proper nutrition and a healthy lifestyle, avoiding sedentary lifestyle, as an effective means against obesity was discussed.

Conf. dr. pharmacist Ladislau Rosenberg gave a thematic lecture dedicated to traditional healthy eating during the opening of the temporary exhibition "*Nature's Kitchen*", exhibition included in the minimal plan of the Natural History Museum in Sibiu.

The thematic lectures continued in 2020:

- *Pharmacy - The art of healing*, <https://brukenthalnaturale.wordpress.com/2020/06/26/farmacia-arta-vindecarii/>;
- *Testimonies of the past - Sibiu Pharmacy History Museum*, July 28, 2020, <http://ardealtv.ro/marturii-ale-trecutului-muzeul-de-istorie-a-farmaciei-sibiu-ana-maria-on-paper/>;
- application number 2536/24.06.2020, [https://www.agerpres.ro/cultura/2020/07/08/video-reportaj-sibiu-turistii-pot-afla-istoria-fascinanta-a-first-Romanian-pharmacy-founded-after-a-plague-pandemic-536830?fbclid=IwAR32ro_Cr8pAlOxt1XMReEzWG4FHeJmqoUxnzUDEuBDBNTOoAbtJVT776MU](https://www.agerpres.ro/cultura/2020/07/08/video-reportaj-sibiu-turistii-pot-afla-istoria-fascinanta-a-first-Romanian-pharmacy-founded-after-a-plague-pandemic-536830?fbclid=IwAR32ro_Cr8pAlOxt1XMReEzWG4FHeJmqoUxnzUDEuBDBNTOoAbtJVT776MU;);
- <https://www.oradesibiu.ro/2020/07/09/video-prima-farmacie-romaneasca-este-la-sibiu-a-fost-infiintata-dupa-o-pandemie-de-ciurma/>
- <https://stirileprotv.ro/divers/prima-farmacie-din-romania-infiintata-acum-mai-bine-de-cinci-secole-dupa-o-pandemie-de-ciurma.html>
- Over 500 years of history of pharmacy tradition in Sibiu, written by Mihai Colibaba, published on August 1, 2020, <http://secretdesibiu.ro/peste-500-de-ani-de-istorie-si-tradition-pharmaceutical-in-sibiu/>.

3. Organizing a research group in the field of pharmacy history in Sibiu County

Joint papers presented by the members of the research group during symposia/ communication sessions/ congresses were also published in specialized journals:

-May 25-27, 2017: The 26th National History of Pharmacy Conference, held at Drobeta - Turnu Severin, the research group presented the paper *200 years since the birth of the pharmacist, chemist and botanist Gustav Adolph Kayser (1817 - 1878)*, authors Ana-Maria Păpureanu and Ladislau Rosenberg;

-May 25-27, 2017: Brukenthal National Museum Bicentennial, Scientific Symposium *Samuel von Brukenthal - Promoter of Research in The Field of Natural Sciences*, the research group presented the paper *From mineral to homeopathic remedy.*

Celebrating 240 years since Samuel Hahnemann (1755 - 1843) came to Sibiu as "Medicine candidate and librarian of his excellence Baron Brukenthal" between 1777 and 1779, authors Ana-Maria Păpureanu, Ladislau Rosenberg, published in BAM, XII.3, p. 547-554.

-October 7, 2017: API-HISTORY satellite symposium within the National Apitherapy Congress 2017 in Sibiu, the research group presented the papers:

- *Apitherapy objects in the collection of the Pharmacy History Museum Collection from Sibiu*, author Ana-Maria Păpureanu;
- *Traditional and modern in Apitherapy*, author Ladislau Rosenberg.

-October 11-16, 2018: The Romanian Society of Apitherapy XI Congress, organized in Sibiu, API-PHYTO and API-HISTORY Sections, the research group presented the papers:

- *Remedies obtained from bee products in the Biertan pharmacy (Sibiu)*, authors Ladislau Rosenberg, Maria Magdalena Rosenberg;
- *Bee products from the homeopathy collection of the Pharmacy History Museum in Sibiu*, authors Daniela - Nicoleta Dordea, Elena - Nicoleta Deaconu;
- *Bee products from the Austro-Provincial Pharmacopoeia (1774) used in Sibiu*, author Ana-Maria Păpureanu.

-July 10-12, 2019: ASTRA Multicultural Seminar. Cultural heritage. Value. Perspectives, organized by the ASTRA Museum from Sibiu, the research group presented the paper: *The role of spice plants in Transylvanian gastronomy*, author Ladislau Rosenberg.

-October 3-5, 2019: The 28th Annual National Meeting S.R.I.F., Sibiu, the research group presented the paper: *Classification of the cultural national objects in the field of pharmacy history*, authors Ladislau Rosenberg, Ana-Maria Păpureanu.

-October 4-5, 2019: National Symposium on Natural Complementary Therapies, organized by the Brukenthal National Museum, in collaboration with S.R.I.F. Sibiu section and "Lucian Blaga" University, Sibiu, Faculty of Medicine "Victor Papilian", Pharmacy Specialization, the research group presented the papers:

1. *Spa treatments in Bazna resort*, author Ladislau Rosenberg;

- *Pharmacists members of the Transylvanian Society for Natural Sciences from Sibiu*, author Ana-Maria Păpureanu;

- *The medical section of the Transylvanian Society for Natural Sciences from Sibiu*, author Ana-Maria Păpureanu;
- *The role of complementary therapies in current medicine*, author Ladislau Rosenberg;
- *Health education, an integral part of the project History of Pharmacy Traditions in Sibiu*, authors Oana Langa, Ladislau Rosenberg;
- *Homeopathy in Hahnemann's vision*, author Diana Rață;
- *Homeopathic herbal remedies from the Pharmacy History Museum Collection in Sibiu*, author Daniela-Nicoleta Dordea;
- *Homeopathic mineral remedies from the Pharmacy History Museum Collection in Sibiu*, author Carmen-Maria Tutelea;
- *240 years (2019-1779) since the departure of S. C. Hahnemann, the father of homeopathy, from Sibiu*, author Elena-Nicoleta Diaconu.

-October 8, 2020: *National Symposium on Agriculture and its implications in food and human health*, Sibiu, held online, organized by the Brukenthal National Museum in Sibiu, Natural History Museum section, together with its partners "Lucian Blaga" University of Sibiu through the Faculty of Agricultural Sciences, Food Industry and Environmental Protection, Faculty of Medicine, specialization Pharmacy and Romanian Society of Pharmacy History, Sibiu section, the research group presented the papers:

- *Aromatherapy, a natural method in the prophylaxis and adjuvant treatment of the new coronavirus infection*, author Ladislau Rosenberg;
- *Gemotherapy, a current therapeutic method*, author Ladislau Rosenberg;
- *The use of aromatic waters in pharmacy*, author Ladislau Rosenberg;
- *Molluscs as remedies in the collection of the Pharmacy History Museum in Sibiu*, author Ana-Maria Păpureanu.

Students of the "Lucian Blaga" University of Sibiu, Faculty of Medicine, Pharmacy specialization, presented thematic papers the meetings of the research group:

- Herciu (Mihălțean) Olimpia-Elena: "Data on the history of the first pharmacies in Transylvania", certificate of participation number 2363/17.05.2017;

- Bucoiu Andreea-Nicoleta: "Natural products used in the prophylaxis and treatment of obesity", certificate of participation number 2362/17.05.2017;

- Rață Diana-Teodora: "Changing the lifestyle to maximize the intake of antioxidants", certificate of participation number 2364/17.05.2017;
- Aldea Denisa-Maria: "The Use of Propolis in Apitherapy", certificate of participation number 3492/12.07.2017;
- Brîndușel Andreea: "Antioxidants used in the alternative treatment of diabetes", certificate of participation number 3493/12.07.2017;
- Răsunoiu Marius: "Smart medical devices used in the treatment and diagnosis of diabetes", certificate of participation number 3494/12.07.2017;
- Deaconu Elena-Nicoleta, study in the archive of the Brukenthal Museum Library, certificate of participation number 615/23.02.2018;
- Dordea Daniela-Nicoleta, study within the Homeopathic collection of the museum, certificate of participation number 613/23.02.2018;
- Puia Ada-Larisa, 31.10.2018, study within the Homeopathic collection of the museum, the homeopathic remedies kits, certificate of participation number 2709/05.11.2018;
- Tutelea Carmen-Maria: "Mineral remedies from the Pharmacy History Museum Collections in Sibiu", following the study of the Homeopathy collection of the Museum, certificate of participation number 2940/ 23.07.2018;
- Iordache Irina: "Animal remedies from the Pharmacy History Museum in Sibiu", following the study of the Homeopathy collection of the Museum, certificate of participation number 2941/ 23.07.2018.

In 2020, the following papers edited by the members of the research group were published:

- Daniela-Nicoleta Dordea, Elena-Nicoleta Deaconu, Ana-Maria Păpureanu, Ladislau Rosenberg, *Homeopathic remedies of botanical origine from the History of Pharmacy Museum collection, Brukenthal National Museum from Sibiu*, in: *Brukenthal Acta Musei*, XV(3), Sibiu (2020), 537-548.
- Ioana Iordache, Ana-Maria Păpureanu, Ladislau Rosenberg, *Homeopathic remedies of animal origin from the History of Pharmacy Museum collection in Sibiu (Brukenthal National Museum)*, in: *Brukenthal Acta Musei*, XV(3), Sibiu (2020), 549-560.
- Carmen-Maria Tutelea, Ana-Maria Păpureanu, Ladislau Rosenberg, *Homeopathic remedies of mineral origin from the History of Pharmacy Museum collection in Sibiu (Brukenthal National Museum)*, in: *Brukenthal Acta Musei*, XV(3), Sibiu (2020), 561-572.

The first bachelor's thesis in the field of pharmaco-history held at the "Lucian Blaga" University of Sibiu, specialization Pharmacy, belonged to student Olimpia Herciu (Mihălțan) member of the research group, entitled *Data on the history of the first pharmacies in Transylvania*, thesis presented in September 2017.

Two members of the research group Ladislau Rosenberg and Ana-Maria Păpureanu obtained in 2019 the certificate of Expert in Archaeological and Historical-Documentary Goods - History of Pharmacy, offered by the Romanian Ministry of Culture.

4. Supporting and organizing symposia / communication sessions related to the thematic area of the project.

2017 - Brukenthal National Museum and S.R.I.F. Sibiu section participated in the organization of the Api-History Satellite Symposium, within the National Apitherapy Congress 2017 in Sibiu, on October 7, 2017 (Fig. 3 a, b).

2018 - S.R.I.F. Sibiu section and the Brukenthal National Museum in Sibiu were partners (Partnership Convention number 848 / 13.03.2018) within the 11th *Congress of the Romanian Society of Apitherapy*, organized in Sibiu between October 10 and 16, 2018, the Satellite Symposia Section Api-Phyto and Api-History. The lectures took place in the Multimedia Hall, the Blue House, Sibiu (Fig. 4 a,b).

2019 - Brukenthal National Museum in Sibiu, Natural History Museum and the Pharmacy History Museum department, in collaboration with S.R.I.F. Sibiu section and "Lucian Blaga" University of Sibiu, Pharmacy specialization, organized the *National Symposium on Complementary Natural Therapies*, October 4-5, 2019. The symposium works addressed the role and place of complementary and alternative therapies in today's medicine. The possibilities of using phytotherapy, apitherapy, aromatherapy, homeopathy, diet therapy, balneotherapy and other traditional therapeutic methods in the prevention and treatment of diseases were highlighted. (Fig. 5 a, b, c, d).

2020 - The National Symposium *Agriculture and its implications in food and human health*, Sibiu took place Online, on October 8. Organized by the Brukenthal National Museum in Sibiu, Natural History Museum section, together with its partners "Lucian Blaga" University of Sibiu through the Faculty of Agricultural Sciences, Food Industry and Environmental Protection, Faculty of Medicine, specialization Pharmacy and

the Romanian Society of Pharmacy History, Sibiu section.

5. Proposing, consulting and curating temporary thematic exhibitions.

- Exhibition: *From mineral to homeopathic remedy. Hahnemann in Sibiu-240 years (1777-1779)*;

Venue: Museum of Pharmacy History in Sibiu;

Duration: 26.05-31.12.2017

Curator: Ana-Maria Păpureanu

Collaborator: Conf. dr. pharmacist Ladislau Rosenberg, Romanian Society of Pharmacy History (SRIF) Sibiu section.

2017 marked the 200th anniversary of the Brukenthal National Museum inauguration and 240 years since the visit to Sibiu of Christian Friedrich Samuel Hahnemann (1755 - 1843), the father of Homeopathy. The exhibition was part of the scientific symposium: *Samuel von Brukenthal - promoter of research in the field of natural sciences*, organized by the Natural History Museum in Sibiu (22-26.05.2017), included in the Brukenthal National Museum: Bicentennial 2017 Cultural Agenda. During the exhibition, minerals from the baron's personal collection were displayed for the first time next to the bottles with homeopathic remedies of the same mineral origin.

- Exhibition: History of Pharmacy Traditions in Sibiu

Venue: History of Pharmacy Museum in Sibiu;

Duration: 26.01-31.12.2018

Organizer: Romanian Society of Pharmacy History (SRIF), Sibiu section

Partners: Brukenthal National Museum (MNB)

Curators: Pharmacist Silvia Ionescu; Conf. Dr. Pharmacist Ladislau Rosenberg; Ana-Maria Păpureanu (MNB).

The exhibition was part of the agenda of the cultural-educational project *History of Pharmacy Traditions in Sibiu*, for 2018. It was displayed, for the first time at national level, a complete collection of pharmacopoeias (1862 - 1993) of the late primary pharmacist Marin Vasile (1947-2015), a representative personality in the field of pharmacy. The volumes were donated to the museum by pharmacist Anca Marin, his partner in life, passion and career. The ten volumes on display marked the development of the pharmaceutical sciences in Romania, commemorating the 155th anniversary of the First Romanian Pharmacopoeia starting with January 1863.

- Lecture and thematic exhibition: The Pharmacy History Collector - Dr. Farm. Ovidiu Maior (Fig. 6 a, b).

Venue: Pharmacy History Museum in Sibiu

Date: March 27, 2019.

Organizers: Romanian Society of Pharmacy History (SRIF), Sibiu section through Farm. Silvia Ionescu and the Brukenthal National Museum through the Pharmacy History Museum in Sibiu, museographer Ana-Maria Păpureanu.

Dr. Farm. Ovidiu Maior has dedicated numerous documentary-historical works to the field, he has contributed overwhelmingly to the cultural and scientific memory of the Transylvanian pharmacy and not only. At over 90 years old, Dr. Farm. Maior is still involved in educating young people, making available to the museum works from his personal library, in the hope that this branch of science history, namely the history of pharmacy to be studied and developed by the new generations.

- Exhibition: Present Day Natural Complementary Therapies

Venue: Natural History Museum in Sibiu

Duration: 4.10.2019 - 4.04.2020

Curators: Dr. Ghizela Vonica, Ana-Maria Păpureanu, Raluca Bugneriu, Nicolae Trif.

Partners: Romanian Society of Pharmacy History (S.R.I.F.) Sibiu section, "Lucian Blaga" University of Sibiu, Faculty of Medicine, specialization Pharmacy.

The Brukenthal National Museum in Sibiu, Natural History Museum section, organized the *National Symposium on Natural Complementary Therapies*, October 4-5, 2019. On the occasion of the symposium, the temporary exhibition and the volume *The role of complementary therapies in current medicine* were opened, including a rich informative material on therapeutic methods such as aromatherapy, apitherapy, phytotherapy or homeopathy. The temporary exhibition and volume have been dedicated to complementary and alternative therapeutic doctrines, which have played an important role over the millennia in the history of medicine and pharmacy. The Natural History Museum in Sibiu through its collections of botany (medicinal herbs) and the collections of the Pharmacy History Museum in Sibiu confirms the historical importance of natural therapies during the development of pharmaceutical sciences in Transylvania and beyond.

The exhibition also included the pre-Linnaean herbarium composed by Johann Georg Baußner. In 1735, the oldest herbarium in Romania, the collection of medicinal plants made by doctor Joseph Sadler, collected from Transylvania between 1823-1825 and specimens from the herbarium of the Sibiu pharmacist, chemist and botanist Gustav Adolph Kayser, one of the

founding fathers of the Natural History Museum in Sibiu.

The exhibition also commemorated a page in the history of homeopathy, because 240 years ago the father of homeopathy, the German doctor Samuel Hahnemann (1755-1843), left Sibiu, after being a guest of Baron Samuel von Brukenthal for two years, as librarian and medical student. The exhibition presented numerous pharmaceutical vials from the homeopathy collection of the museum collection.

- Exhibition: *Pharmacy - the art of healing*

Venue: Pharmacy History Museum in Sibiu

Duration: June 24-October 30, 2020

Curator: Ana-Maria Păpureanu

Collaborators: Dr. Ghizela Vonica, Iulia-Maria Munteanu, Nicolae Trif

Scientific advisor: Conf. Dr. Farm. Ladislau Rosenberg.

The temporary exhibition included objects from the Pharmacy History Museum Collection "explained" interdisciplinary and artistic in order to offer a new perspective to the visiting public. Thus, a pharmaceutical jar, from the 18th century, was described through the prism of history, and the contents of the container were analysed botanically, biochemically, mineralogical or zoologically. The exhibition included pharmaceutical jars with beetle dust and "crayfish eyes", manuscripts of old Sibiu pharmacists, devices used in the preparation of remedies and much more. The history of pharmacy is a fascinating field that deserves to be known, because the evolution of this science "in a white robe" can be considered an art of healing.

6. Book launches in the pharmaco-historical, cultural and educational field.

In 2018, the volume of "Poetic" poems published by pharmacist Felicia Gâtlan, under the pseudonym Fontana Blanca, was launched in November 10, 2018, in Sibiu, Multimedia Hall at the Museum of Natural History in Sibiu.

On the occasion of the *National Symposium on Complementary Natural Therapies* (October 4-5, 2019, organized by the Brukenthal National Museum, in collaboration with S.R.I.F. Sibiu section and "Lucian Blaga" University of Sibiu, specialization Pharmacy) was launched the volume *The role of complementary therapies in current medicine*, by Conf. Dr. Farm. Ladislau Rosenberg.

Conclusions

Because of the positive feedback obtained during the past activities held in the projects, in 2021, S.R.I.F. Sibiu section, will participate in the organization of two events:

- July 26, 2021, Communication Session "Aromatherapy - Past and Present", online;

- October 8, 2021, Communication session "Following the footsteps of Hahnemann", online.

The cultural - educational project "*History of Pharmacy Traditions in Sibiu*" has been a positive model and a starting point for future cooperation between local institutions, societies and the community

REFERENCES

- Kickbusch *et al.* 2013 Kickbusch Ilona, Pelikan Jürgen M., Apfel Franklin, Tsouros Agis D., *Health literacy - The solid facts*, World Health Organization, Regional Office for Europe, p. 4-10, <https://apps.who.int/iris/bitstream/handle/10665/128703/e96854.pdf> (Accessed January 2021).
- Nutbeam 1998 Nutbeam Don, Health promotion glossary. In: Health Promotion International, Volume 14, Number 4 (1998), p. 349-364.
- Pop *et al.* 2013 Pop Oana M., Brînzaniuc Alexandra, Sirlincan Emanuela O., Baba Cătălin O., Chereches Răzvan M., *Assessing health literacy in rural settings: a pilot study in rural areas of Cluj County, Romania*. In: *Glob Health Promotion* Volume 20, Issue 4 (2013), p. 35-43, <https://doi.org/10.1177/1757975913502686>.

Van der Heide et al. 2016	Van der Heide Iris, Uiters Ellen, Sørensen Kristine, Röthlin Florian, Pelikan Jürgen, Rademakers Jany, Boshuizen Hendriek, <i>Health literacy in Europe: the development and validation of health literacy prediction models</i> . In: <i>European Journal of Public Health</i> , Volume 26, Issue 6 (2016), p. 906–911, https://doi.org/10.1093/eurpub/ckw078 .
WHO (World Health Organization) 1997	WHO (1997) Health Promotion Bibliography. WHO, Geneva. http://www.who.ch/hep .

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Fig. 2 (a, b, c, d). The thematic lectures held between 2016 and 2017, within the museum.

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Fig. 4 (a, b). Parteneri în cadrul *Cel de-al XI-lea Congres al Societății Române de Apiterapie*, organizat la Sibiu în perioada 10 -16 octombrie 2018, *Secțiunea Api – Phyto și Api – History*.

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a.



b.

Fig. 1 (a, b). Aspects during the thematic guides.



a.



b.



c.



d.

Fig. 2 (a, b, c, d). The thematic lectures held between 2016 and 2017, within the museum.



a.



b.

Fig. 3 (a, b).

Fig. 3 (a, b). Partners in the *Api-History Satellite Symposium, National Apitherapy Congress 2017* in Sibiu, on October 7, 2017



a.



b.

Fig. 4 (a, b).

Fig. 4 (a, b). Partners during the *11th Congress of the Romanian Society of Apitherapy*, organized in Sibiu between October 10-16, 2018, *Api - Phyto* and *Api - History* Section.



a.



b.



c.



d.

Fig. 5 (a, b, c, d). Organizers within the *National Symposium on Complementary Natural Therapies*, between October 4-5, 2019, in Sibiu.



a.



b.

Fig. 6 (a, b). Lecture and thematic exhibition *Pharmacy History Collector* - Dr. Farm. Ovidiu Maior, organized by S.R.I.F. Sibiu section in 2019.

WOODEN PHARMACY JARS FROM THE PHARMACY HISTORY MUSEUM COLLECTION IN SIBIU (BRUKENTHAL NATIONAL MUSEUM) DONATED IN 1950 BY THE STATE PHARMACIES FROM SIGHIȘOARA (MUREȘ COUNTY)

Ana-Maria PĂPUREANU *

Ladislau ROSENBERG **

Abstract. On March 27, 1950, forty-three wooden pharmacy jars dated 18th and 19th century were donated to the Pharmacy History Museum in Sibiu by the State Pharmacies from Sighișoara (Mureș County). The following paper lists and describes the donated jars.

Keywords: Pharmacy History Museum Sibiu, pharmacy wooden jar, Sighișoara.

Rezumat. În 27 martie 1950, au fost donate de către farmaciile de stat din Sighișoara (județul Mureș), patruzeci și trei de borcane farmaceutice, datate secolele al XVIII-lea și al XIX-lea. Lucrarea de față prezintă și descrie borcanele din lemn donate.

Cuvinte cheie: Muzeul de Istoria Farmaciei din Sibiu, borcane farmaceutice din lemn, Sighișoara.

Introduction

In the 17th and 18th centuries, turned wooden (linden) drug jars with wooden lids were prevalent in central Europe Germanic counties and territories, like Transylvania. The jars were used for minerals, dried botanicals, and powders of animal origin.

As a result of the Decree number 134 of 1949 regarding the nationalization of health units such as private urban pharmacies, the State Pharmacy number 8 in Sighișoara (Mureș County) located, at that time, in V.I. Lenin Square (today Hermann Oberth Square) number 14, donated according to the delivery-receipt report number 185 from March 27, 1950 (from the museum archive reports), forty-three wooden pharmacy jars dated 18th and 19th century. The donor was Pharmacist Moga Octavian from the pharmaceutical unit while the receiving manager was Dr. Julius Bielz (1884-1958), ethnographer and art historian, from the Brukenthal Museum. According to Ban M. (2004, 279-280) the jars belonged to the „Lion” Pharmacy in Sighișoara.

Sighișoara, known in the past as *Schäßburg* or *Segesvár*, is a town with an important pharmaco-historic past.

According to Roth (Directory of pharmacy and pharmacist files from southern Transylvania until

the end of the 19th century, 15) in 1663 Sighișoara was mentioned the first pharmacist in town Bertramus Andreas.

The first pharmacy opened in town was the private pharmacy the „Crown” before 1700. Paveleanu T. (1995, 8) also states this aspect regarding the first pharmacy, but he notes 1705 as its establishment year. But 1705 was the last year for Jakob Georg Kannenberger as owner of the private pharmacy, because Georg Hetzeldorfer took the property until 1719, followed by Michael Kärstchen, according to Roth (1973, 229-262).

Michael Weisskicher is mentioned as owner between 1724 and 1742. Daniel Weber managed the pharmacy from 1742 to 1766.

In 1766 the pharmacy was closed until 1820, the reasons are unknown.

Josef Wagner obtained the right to reopen the „Crown” Pharmacy in 1820, and he worked there until 1846. Friedrich Schuster (born in 16.07.1816 Sighișoara, licensed at Vienna) replaced J. Wagner as owner.

Capesius Alvil Robert (born in 1857, in Agnita) graduated from Vienna in 1881, was a temporary pharmacist at the pharmacy between 1881 and 1888, when he became its tenant until 1889. The next tenant was Capesius Ernst (born at Groß-Schenk, today Cincu, Brașov County) until 1915. Klemens Okonsky (born 2.09.1871, licensed in 1895 at the university from Cluj-Napoca, did his practice in Sibiu) ran the „Crown” Pharmacy from 1915 to 1922 (Roth F.J. 1973, 229-262).

In 1720, was inaugurated the town pharmacy led by Daniel Stürzer (born in Brașov) between 1720

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and 1732. In 1732 Stürzer bought the town pharmacy, renaming it the „Lion” Pharmacy and was its owner until 1737 when his son took the lead until 1794.

Johann Theofil Misselbacher (born in 1766 in Sighișoara) took the ownership between 1798 and 1844, followed by Carl Misselbacher. Licensed at Vienna in 1839, Carl Misselbacher was also a member of the Transylvanian Society for Natural Sciences in Sibiu (Siebenbürgischer Verein für Naturwissenschaften in Hermannstadt) the founding society of the Natural History Museum in Sibiu.

In 1856, Carl Herbert is noted as possessor until 1862.

Carl Samuel Krafft (licensed at Vienna in 1861) became its owner between 1862 and 1874. During 1870 and 1875, Johann Heinrich Weber (born in 12.07.1829 in Sighișoara - died in 1909) was tenant and afterwards owner from 1875 to 1909.

Between 1902 and 1909, August Salmen (29.11.1869 Sighișoara – 20.06.1956 Sighișoara, licensed at Graz in 1891, practiced in pharmacies from Carintia (Austria), Stiria (Austria) and Brașov) came here as a student and in 1909 became its owner until 1949.

Various pharmacists did their practice at the pharmacy among them Daniel Binder (1890 to 1895) and Heinrich Binder (1897 to 1898).

The „Eagle” Pharmacy from Sighișoara was opened by Johann Miselbacher, who owned the practice until 1755. Gottfried Henrich was temporary working at the pharmacy from 1794 to 1813, becoming owner until 1846.

Gottfried Henrich Berwerth Friedrich, born in 1820 in Sighișoara, obtained his diploma in 1841 at Vienna, did his practice in Brașov and Sighișoara, was the „Eagle” Pharmacy owner between 1846 and 1883.

The pharmacy was afterwards owned by Friedrich Johann Folberth (born in 17.11.1843 at Sighișoara, obtained his diploma from Vienna in 1865, practiced for four years in Brașov, and between 1870 and 1882 opened the „Aesculap” from Feldioara, Brașov County) (Paveleanu 1995, 8; Roth F.J. 1973, 229-262; Roth F.J. manuscript, museum archives).

Andreas Lingner has dedicated his entire career the „Eagle” Pharmacy. After getting his diploma in 1888 in Vienna, he was temporarily named pharmacist here from 1889 to 1892, tenant from

1889 to 1892, and in 1899 became owner for thirty-one years.

The pharmacies in Sighișoara have been career starting points for various pharmacists:

- Michael Graeser – born in Mediaș, Sibiu County, practiced at the „Lion” Pharmacy in Sighișoara between 1886 and 1889, became the owner of the „Hygea” Pharmacy in Făgăraș, Brașov County, from 1894 to 1908;

- Michael Gutt – born in Sighișoara, he did his practice at the „Lion” Pharmacy between 1894 and 1897, became owner of the „Klagenfurt” Pharmacy in Austria;

- Josef Waeth – born in Sighișoara in 1866, was a student at the „Lion” Pharmacy between 1881 and 1882;

- August Melas – born in Mediaș (Sibiu County), did his practice at the „Lion” Pharmacy, for two years (1889-1890);

- Josef Orkisz – born in Suceava, trained at the „Lion” Pharmacy, between 1897 and 1901;

- Emil von Silbernagel, licensed at Vienna in 1887, worked at the „Crown” Pharmacy from 1888 to 1890 (Roth F.J. manuscript, Pharmacy History Museum from Sibiu archives).

It is not mentioned in the donation if the objects came from the same pharmacy or were gathered from different places after the nationalization.

Results

Inventory number F 649, 18th century

Wooden jar, cylindrical in shape, painted black, with lid. The base and lid have ring profiles turned in the lathe. It has the inscription OPIU THEBAL with red initials and black capital letters, on a white background with a shield shaped outline.

Size: Height (H) – 18,8 cm; General Diameter (G.D.) – 6,7 cm; Basal Diameter (B.D.) – 8,5 cm.

Inventory number F 650, 18th century

Wooden jar, cylindrical shape, painted black, with lid. It has the inscription PULV. CANTHARID with red initials and black capital letters, on a white background with a shield-shaped outline, which has a crown at the top. The inscription is difficult to read.

Size: H – 19,2 cm; D.G – 6,5 cm; D.B – 8,5 cm.

Inventory number F 651, 18th century (Fig. 1a).

Wooden jar, cylindrical in shape, painted black, with lid. The base and lid have turned ring profiles. It has the inscription CUPRUM ACETICUM with red initials and black capital letters, on a white background with a shield-shaped outline, decorated at the top and bottom with two leafy branches.

Size: H – 18,7 cm; G.D. – 6,5 cm; B.D. – 8,8 cm.

Inventory number F 652, 18th century (Fig. 1b).

Cylindrical black painted wooden jar with lid. The base and lid have turned profiles. It has the inscription NUCES VOMICAE with black capital letters and red initials, on a dark cream background, which has ornamental motifs, crown, at the top and at the base. The jar contains powder.

Size: H – 14,3 cm; G.D. – 6,1 cm; B.D. – 8,1 cm.

Inventory number F 653, 18th century

Wooden jar, cylindrical in shape, painted black, without lid. It has two diametrically opposed signatures. The first signature is inscribed in black capital letters, on a white background with a shield-shaped outline. First inscription: LEAD. OXYD. FLAV. The second signature has a black inscription on a white background with an oval outline, the second inscription PLUMB. OXYD. FL.

Size: H – 19 cm; G.D. – 6,6 cm; B.D. – 9,7 cm.

Inventory number F 654, 18th century

Wooden jar, cylindrical in shape, painted black, without lid. It has two diametrically opposed signatures. The first signature has a hard-to-read inscription in black capital letters on a white background with a shield-shaped outline. First inscription: MANG. HYPEROXID. The second signature has a black inscription on a white background with an oval outline. Second inscription: MANG. HIPEROX.

Size: H – 19 cm; G.D. – 6,6 cm; B.D. – 9,7 cm.

Inventory number F 655, 18th century

Wooden jar, cylindrical in shape, painted black, without lid. It has two diametrically opposed signatures. The first signature is inscribed in black capital letters, on a white background with a shield-shaped outline. First inscription: SANGVIS DRACON. The second signature has a black inscription on a white background with an oval outline. Second inscription: BLOOD: DRACO: On the lid, inside, it has a label with the inscription SANGUIS DRACONIS. The jar contains red powder.

Size: H – 20 cm; G.D. – 6 cm; B.D. – 9 cm.

Inventory number F 657, 18th century (Fig. 1c).

Wooden jar, cylindrical in shape, painted yellow brown, with lid. Inscription ARSEN E .. with red initials and black capital letters on a yellow background with an oval outline, framed by stylized plant ornaments. Above the inscription is a branch painted brown and has a red flower. On the cover, inside, on the paper label, it has an indecipherable inscription.

Size: H – 12,3 cm; G.D. – 5,3 cm; B.D. – 7,4 cm.

Inventory number F 659, 18th century

Wooden jar, cylindrical in shape, painted black, with lid. It has an erased signature with a white background and a shield-shaped outline and opposite it has the inscription PULV: LAURI BACC: with white capital letters, written directly on the black background of the jar. On the base, on the outside, it has another SEM inscription. ERUCA.

Size: H – 12,5 cm; G.D. – 5,2 cm; B.D. – 7,5 cm.

Inventory number F 660, 18th century (Fig. 1d)

Wooden jar, cylindrical in shape, painted black, with lid. It presents two inscriptions with the same content FABAE TONCA, diametrically opposed; an inscription written in black letters on a white background FABAE TONCA with a shield-shaped outline and another inscription FABA TONCA, ξβ 2.3 with white capital letters, written on the black background of the jar.

Size: H – 12,5 cm; G.D. – 5,8 cm; B.D. – 7,5 cm.

Inventory number F 661, 18th century

Wooden jar, cylindrical in shape, painted black, with lid. It has two diametrically opposed inscriptions on the outside. The first inscription PIPER LONGUM has black characters, on a cream background with a shield-shaped outline. The second inscription PIPER LONGUM is written in white capital letters directly on the jar. Inside the lid of the jar has the same inscription.

Size: H. – 12,5 cm; G.D. – 5 cm; B.D. – 6,7 cm.

Inventory number F 662, 18th century

Wooden jar, cylindrical in shape, painted black, without lid. It has the inscription PULV. ALUMINUM. PL written in white capital letters, directly on the jar.

Size: H. – 10,7 cm; G.D. – 5 cm; B.D. – 7,8 cm.

Inventory number F 663, 18th century (Fig. 2a).

Wooden jar, cylindrical in shape, painted black without lid. It has the inscription LACC: GLOBULI written in black characters on a cream background with a shield-shaped outline.

Size: H. – 11,5 cm; G.D. – 5 cm; B.D. – 7,3 cm.

Inventory number F 664, 18th century

Cylindrical wooden jar painted black without lid. It has the inscription PULV SAB ... written in black characters, difficult to read and partially erased, on a cream background with a shield-shaped outline. On the base, on the outside it has another inscription SEM CIN.

Size: H. – 11,4 cm; G.D. – 5,5 cm; B.D. – 7,5 cm.

Inventory number F 665, 18th century (Fig. 2b).

Wooden jar, cylindrical in shape, painted black, with lid. It has two diametrically opposed inscriptions. The first inscription CINNAB FACT: PRT: is written in black characters on a cream background with a shield-shaped outline and the second inscription CINNAB: PRAEP: with yellow capital letters written directly on the jar. They contain red powder.

Size: H. – 12,2 cm; G.D. – 5,4 cm; B.D. – 7,7 cm.

Inventory number F 666, 18th century

Wooden jar, cylindrical in shape, painted black, with lid. It has two diametrically opposed inscriptions. The first inscription PLUMB: USTUM is written in black characters on a cream background with a shield-shaped outline and the second inscription GUMMI KINO is marked with yellow capital letters written directly on the jar. The jar contains the original powder.

Size: H. – 12,4 cm; G.D. – 5 cm; B.D. – 7,2 cm.

Inventory number F 667, 18th century

Wooden jar, cylindrical in shape painted in black with lid. It has the inscription PULV. IPECAC written in black capital letters on a cream background with a shield-shaped outline.

Size: H. – 9,7 cm; G.D. – 4 cm; B.D. – 5,4 cm.

Inventory number F 668, 18th century

Wooden jar painted black cylindrical shape without lid. On the jar is an ornament consisting of two sticks with green leaves joined at the back. The jar has no inscription.

Size: H. – 11 cm; G.D. – 5,3 cm; B.D. – 7,8 cm.

Inventory number F 669, 18th century

Wooden jar, painted yellow, cylindrical shape, without lid. On the jar is an ornament consisting of two stalks with green leaves joined at the base. The jar has no inscription.

Size: H. -11,2 cm; G.D. – 5,4 cm; B.D. – 7,7 cm.

Inventory number F 670, 18th century

Wooden jar, cylindrical in shape, painted black, with lid. It has the inscription PULV VALERIAN painted in white capital letters, written directly on the jar. Diametrically opposite the inscription has a plant ornament two green branches. On the lid, inside, it has the same inscription.

Size: H. – 12,5 cm; G.D. – 5 cm; B.D. – 7,2 cm.

Inventory number F 672, end of the 18th century – beginning of the 19th century

Wooden jar, cylindrical in shape painted in black with lid. The base and lid have turned profiles. It has the inscription RES. LACCAE in black capital letters on white label paper with black outline. The jar contains resin.

Size: H. – 18,5 cm; G.D. – 7,5 cm; B.D. – 9,2 cm.

Inventory number F 678, 18th century

Cylindrical black painted wooden jar without lid. It has two diametrically opposed inscriptions, the first inscription SEM POEON: written in black characters, on a cream background with a shield-shaped outline. Second inscription PULV: GENTIAN: R: in yellow capital letters written directly on the jar.

Size: H. – 11,2 cm; G.D. – 5,5 cm; B.D. – 7,5 cm.

Inventory number F 679, 18th century

Wooden jar, painted black, cylindrical, without lid. It has two diametrically opposed inscriptions. The first inscription written on a yellow background with a shield-shaped outline is illegible. The second inscription PULV. SENNAE: F :, is written directly on the jar in yellow capital letters.

Size: H. – 11,2 cm; G.D. – 5 cm; B.D. – 7,3 cm.

Inventory number F 680, 18th century

Wooden jar, painted black, cylindrical, without lid. It has two diametrically opposed inscriptions. First inscription PULV. SODA .. AR, written in black characters on a yellow background with a shield-shaped outline. Second inscription PULV: ALUMINUM: CR. It is written directly on the jar in yellow capital letters.

Size: H. – 11,5 cm; G.D. – 5,6 cm; B.D. – 7,7 cm.

Inventory number F 681, 18th century

Wooden jar, painted black, cylindrical, without lid. It has two diametrically opposed inscriptions. First inscription PULV: PHELLAN: S:, written in black characters on a yellow background with a shield-shaped outline. The second inscription PULV: GUAJACI R. is written directly on the jar with yellow capital letters.

Size: H. – 11,3 cm; G.D. – 5,3 cm; B.D. – 7,3 cm.

Inventory number F 682, 18th century (Fig. 2c).

Wooden jar, painted black, cylindrical, without lid. It has two diametrically opposed inscriptions. The first inscription CANTHARID: ROSARY, written in black characters on a yellow background with a shield-shaped outline. The second inscription PULV: ROSAR: FLR: is written directly on the jar in yellow capital letters.

Size: H. – 11,4 cm; G.D. – 5,3 cm; B.D. – 7,4 cm.

Inventory number F 683, 18th century

Wooden jar, painted black, cylindrical, without lid. It has the inscription SPONG: PR... written in black on a white-cream background with a shield-shaped outline.

Size: H. – 11,5 cm; G.D. – 4,7 cm; B.D. – 7 cm.

Inventory number F 684, 18th century (Fig. 2d).

Wooden jar, painted black, cylindrical, without lid. It has two diametrically opposed inscriptions. The first inscription PULV: STIBII:, in black characters written on a white background with a shield-shaped outline. The second inscription PULV. DENTRIFR: N: it is written directly on the white capital jar.

Size: H. – 12,5 cm; G.D. – 5 cm; B.D. – 7 cm.

Inventory number F 685, 18th century

Wooden jar, painted black, cylindrical, without lid. It has two diametrically opposed inscriptions. The first inscription CROCUS AUSTRI, written in black characters on a cream background with a shield-shaped outline. The second inscription PULV: MYRHAE is written directly on the jar in yellow capital letters.

Size: H. – 11 cm; G.D. – 5,6 cm; B.D. – 7,3 cm.

Inventory number F 686, 19th century

Wooden jar, painted black, cylindrical in shape, with lid. The base and lid have turned ring profiles. It has the inscription PULV: IPECACUANH: in black capital letters, on a black outline paper label.

Size: H. – 13 cm; G.D. – 5,5 cm; B.D. – 7,5 cm.

Inventory number F 688, 18th century

Wooden jar, painted black, cylindrical, without lid. It has two diametrically opposed inscriptions. First inscription PULV. ANISI written in black characters on a white background with a shield-shaped outline. The second inscription PULV: ANISI SEM: is written directly on the jar with white capital letters.

Size: H. – 11,3 cm; G.D. – 5,2 cm; B.D. – 7,2 cm.

Inventory number F 690, 18th century

Wooden jar, cylindrical in shape, painted black, flat lid. The inscription AGAR WHITE: is painted in black on a white background with an oval outline.

Size: H. – 20 cm; G.D. – 6,5 cm; B.D. – 9,5 cm.

Inventory number F 691, 18th century

Wooden jar, cylindrical in shape, painted black, with lid. Presents inscription NATR BORAC. written in black letters on a white background with an oval outline. Diametrically opposite shows a signature with a shield-shaped outline.

Size: H. – 20 cm; G.D. – 6,7 cm; B.D. – 9,8 cm.

Inventory number F 692, 18th century

Wooden jar, cylindrical in shape, painted black, without lid. It has two diametrically opposed signatures. The first signature has the inscription SEM. CYNAE CAND. Painted in black letters on a white background with a shield-shaped outline. The second signature has inscription SEM. CINAЕ CAND. written in black letters on a white background with an oval outline.

Size: H. – 19 cm; G.D. – 6,5 cm; B.D. – 9,3 cm.

Inventory number F 693, 18th century

Cylindrical wooden jar painted black without lid. It has a signature with inscription RAD SALEP. written with black letters on a white background.

Size: H. – 19 cm; G.D. – 6 cm; B.D. – 9 cm.

Inventory number F 694, 18th century

Cylindrical wooden jar painted in black flat lid. Inscription CORT: CINNAM: ZEYL: in black on a white background with an oval outline.

Size: H. – 20 cm; G.D. – 7 cm; B.D. – 9,8 cm.

Inventory number F 695, 18th century

Wooden jar, cylindrical in shape painted in black with flat lid. It has two diametrically opposed signatures. The first signature has the inscription

PLUMB: HYPER: OXYD written in black capital letters on a brown background with a shield-shaped outline. The second signature has the inscription PLUMB: OXYD: R: in black characters, on a white background in an oval outline. The jar contains traces of powder.

Size: H. – 20 cm; G.D. – 6,5 cm; B.D. – 8,8 cm.

Inventory number F 1511, 18th century

Wooden jar, colored yellow-green, cylindrical, without a lid. It has an inscription with red initials and black capital letters, on a white background with an oval outline, framed in vegetal, stylized ornaments. The inscription is hard to read.

Size: H. – 11,4 cm; G.D. – 6 cm; B.D. – 7,6 cm.

Inventory number F 2027, 19th century

Wooden jar, brown, shaped parallelepiped, with lid. It has the name of the INDIGO remedy, written in black capital letters directly on the jar. An inscription label is affixed to the lid.

Size: H. – 18 cm; G.D. – 8,6 cm; B.D. – 9,3 cm.

Inventory number F 2028, 19th century

Wooden jar, brown, cylindrical in shape, with lid. The basal part is slightly embossed, and the lid has an annular profile. It has inscription. RAD SALEP. In black capital letters, written directly on the jar.

Size: H. – 18,5 cm; G.D. – 8,4 cm; B.D. – 9,2 cm.

Inventory number F 2029, 19th century

Wooden jar, brown, cylindrical in shape, with lid. The basal part is slightly embossed, and the lid has an annular profile. It has the inscription SEMEN. CARDAMOM written in black capital letters directly on the jar.

Size: H. – 19 cm; G.D. – 8,5 cm; B.D. – 9,3 cm.

Inventory number F 2030, 19th century

Wooden jar, painted brown, cylindrical shape, with lid. It has the inscription BISMUTHUM written in black capital letters, directly on the jar. An inscription label is affixed to the lid.

Size: H. – 17 cm; G.D. – 7,8 cm; B.D. – 9 cm.

Inventory number F 2031, 19th century

Wooden jar, brown, cylindrical in shape, with lid. It has the inscription SACHAR. WHITE. PULV.

In black capital letters written in two lines, directly on the jar.

Size: H. – 18,5 cm; G.D. – 8,2 cm; B.D. – 9 cm.

Discussion

The Pharmacy History Museum from Sibiu includes a total of 827 wooden jars, out of which 43 were donated by a pharmacy in Sighișoara in 1950.

The majority of the jars are dated 18th century, only six are from the 19th century, according to their general description and type of signature.

Analyzing the inscriptions, we can conclude that some jars have two inscriptions of the same or a different substance. According to the inscriptions the origins of the substances are of plant origin (28), animal sources (3), and mineral origin (17) while three jars have no inscription.

In the 18th century, Transylvania was part of the Austrian Empire. During that period, Empress Maria Theresa (1717-1780), addressed Gerard van Swieten (1700-1772), to reform the health care system starting with 1745.

In 1770, the sanitary bill „Sanitätshauptnormativ” or „Generalsanitätsnormativ”, with a supplement edited in 1773. The sanitary bill contained passages related to apothecary issues. The bill was applied in all territories of the Habsburg Empire. The Pharmacopoeia Austriaco-Provincialis was mandatory in all regions, including Transylvania (Kletter 2010, 387-409).

In the 18th century, the use of mineral or fossil substances was relatively common in European medicine and Pharmacy.

Hendriken (2018, 303-323) considers that the strong focus on mineral chemistry in 18th century pharmacy was possibly a particular French phenomenon, but this was also the case for German schooled pharmacists that practiced in current Transylvanian territory.

In the course of the 18th century the distinction between Galenical and chemical pharmacy (non-Galenical) ended, and all pharmaceutical preparations were considered chemical. As a result, mineral ingredients and mineral-based preparations listed in English, French and German pharmacopoeia grown as number. These aspects explain, the origin and type of remedies listed in this paper.

REFERENCE

- Ban, 2004 Ban Minodora, *Borcane farmaceutice de lemn, secolele XVIII și XIX, din Muzeul de Istorie a Farmaciei Sibiu*. In : *Muzeul Brukenthal – Studii și Comunicări – Științele Naturii*, no. 29 (2004), p. 278-280.
- Hendriksen, 2018 Hendriksen Marieke M.A., *Boerhaave's Mineral Chemistry and its Influence on Eighteenth – Century Pharmacy in the Netherlands and England*. In: *Ambix*, vol. 64, no. 4, p. 303-323.
- Kletter, 2010 Kletter Christa, *Austrian Pharmacy in the 18th and 19th Century*. In: *Scientia Pharmaceutica*, vol. 78, p. 387-409.
- Paveleanu, 1995 Paveleanu Teodor D., *Istoria farmaciilor din Transilvania, Vol. I – II, Brașov, Sibiu, împrejurimi și Bistrița-Năsăud*. Editura Tipocart Brașovia (1995), p. 8.
- Roth, 1973 Roth Friedrich Johann, *Registrul matricol al fostei Acosiații a farmaciștilor regiunii a VI-a Transilvania, districtul 21, recte 22 Sibiu, de la înființare până în anul 1919. Încercare de reconstituire a unui document pierdut*. In : *Studii și Comunicări – Științele Naturii, Muzeul Brukenthal*, vol. 18, Sibiu (1973), p. 229-262.
- Roth, unpublished manuscript Roth Friedrich Johann, *Directory of pharmacy and pharmacist files from southern Transylvania until the end of the 19th century*, Pharmacy History Museum in Sibiu, archives.

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Fig. 2. (a). Inventory number F 663, 18th century; (b). Inventory number F 665, 18th century; (c). Inventory number F 682, 18th century; (d). Inventory number F 684, 18th century.

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a.



b.



c.



d.

Fig. 1. (a). Inventory number F 651, 18th century; (b). Inventory number F 652, 18th century; (c). Inventory number F 657, 18th century; (d). Inventory number F 660, 18th century.



a.



b.



c.



d.

Fig. 2. (a). Inventory number F 663, 18th century; (b). Inventory number F 665, 18th century; (c). Inventory number F 682, 18th century; (d). Inventory number F 684, 18th century.

THE EOCENE ECHINOID FAUNA FROM TURNU ROȘU (TRANSYLVANIAN BASIN), ROMANIA

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Abstract. *The echinoid fauna from the Eocene locality Turnu Roșu (= Porcești, Portsesd; Paleogene Transylvanian Basin, Romania) is revised and updated. The materials collected mainly around mid-19th century, are housed in the Natural History Museum from Sibiu and in the Babeș-Bolyai University Paleontology-Stratigraphy Museum in Cluj Napoca (Romania). Sixty-two specimens have been examined, and the results presented to the scientific community as a systematic catalogue. The most interesting taxonomic data are highlighted and commented.*

Keywords: *Sea urchins (Echinoidea), Eocene, Transylvanian Basin, Romania, type specimens (holotypes)*

Rezumat. *Fauna de echinide din localitatea eocenă Turnu Roșu (= Porcești, Portsesd; Bazinul Paleogen al Transilvaniei, România) este revizuită și adusă la zi. Materialele colectate în mare parte în preajma mijlocului secolului 19 se află în Muzeul de Istorie Naturală din Sibiu și în Muzeul de Paleontologie și Stratigrafie al Universității Babeș-Bolyai din Cluj-Napoca (Romania). Șaizeci și două de specimene au fost examinate iar rezultatele sunt prezentate comunității științifice sub forma unui catalog sistematic. Cele mai interesante date taxonomice sunt evidențiate și comentate.*

Cuvinte cheie: *arici de mare (Echinoidea), Eocen, Bazinul Transilvaniei, Romania, specimene tip (holotipuri)*

Introduction

The Eocene deposits from Turnu Roșu are known before mid-19th century when some of the founding members of the organization "Siebenbürgischer Verein für Naturwissenschaften in Hermannstadt" (Transylvanian Society for Natural Sciences in Sibiu) started to talk and then write about the fossils collected from this locality. The first studies on Turnu Roșu fossils were the ones of the priests Johann Michael Ackner and Johann Ludwig Neugeboren. It is uncertain if Ackner discovered himself the fossil-bearing site, but it is certain that among these two he was the first to collect from this locality.

Though, the first one to publish was Neugeboren that in 1850 and 1851 writes, in two parts, a very well documented and self illustrated work about fossils sharks, "*Die vorweltlichen Squaliden-Zähne aus dem Großkalke bei Portsesd am Altfluße unweit Talmats*" (The prehistoric shark teeth from the limestone near Portsesd on the Olt River not far from the Tălmăciu) (Neugeboren, 1850, 1851).

Ackner published his finds from the area only in 1854 as a chapter in a much more extended study regarding the geology of the south-eastern Transylvania (Ackner, 1854). Ackner listed the first echinoids from Turnu Roșu as: *Ananchites ovata*, *Discoidea albogalera*, *Micraster cortestudinarium*, and *Spatangus coranguinum*.

He added also a few species based only on spines: *Cidaris blumenbachii*, *C. coronatus* and *C. claviger*. Ackner also mentioned the presence (existence) of another large, but unidentified species of echinoid. Unfortunately, none of these species are described or illustrated. Three decades later the well-known geologist Antal (Anton) Koch pays a visit to the collections of the Transylvanian Society for Natural Sciences in Sibiu and described, sometimes even illustrated, the echinoids that he found here (Koch, 1885). Koch's list includes: *Porocidariss pseudoserrata*, *Conoclypus conoideus*, *Conoclypus ackneri* nov. sp., *Sismondia occitana*, *Echinanthus pellati*, *Echinolampas (Clypeolampas) alienus*, *E. cf. globulus* and another five species represented only by spines: *Cidaris subularis*, *C. cf. spileccensis*, *C. porcsesdiensis*, nov. sp., *C. bielzi* nov. sp., and *Cidaris* sp. Unfortunately, due to several moves of the Society collections some of the specimens were lost so currently only a small part of all the echinoids mentioned by Koch can be found.

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In the following decades the echinoids were rarely mentioned by researchers which studied the deposits from Turnu Roşu. Şuraru et al. (1967) described and illustrated a new species from this locality, *Clypeaster* (*Palaeanthus*) *transsylvanicus*, while Tătărâm (1970) in a general study regarding the biostratigraphic and paleogeographic framework of Turnu Roşu Paleogene, listed from Valea Caselor deposits, that she considered to be Lutetian, the species *Echinanthus* sp. (cf. *E. varnensis*) and *Echinanthus* sp. (cf. *E. issyavensis*). The following researchers turned their attention to other groups of fossils such as calcareous algae (Bucur & Ianoliu, 1987), mollusks (Mészáros & Ianoliu, 1972, 1973) or fish (Ciobanu, 1994, 1995, 1996, 1997, 2002; Ciobanu & Trif, 2012, 2013, 2016) while the echinoids faded from focus.

It should be noted that the study of Eocene echinoids was not a priority for the paleontologists working in Romania in the last hundred years. Although these fossils are present in the vast majority of the marine deposits of this age from Romania no attempts were made to write monographs or reviews on this subject. As an exception we need to mention the work of Tătărâm (1963) on the stratigraphy of the Eocene from the south-west of Cluj-Napoca that has a small part dedicated to the echinoid taxonomy but without describing the specimens, providing only synonymy lists.

Geological setting

Turnu Roşu is located in the central part of Romania, on the southern margin of the Transylvanian Paleogene Basin (Fig. 1). There, on a small surface of a few tens of hectares Eocene sediments are preserved overlying the crystalline bedrock of the Făgăraş Mountains. Although the Eocene age is clearly accepted for the area (see Bombiţă, 1963; Tătărâm, 1967, 1970; Mészáros, 1960; Mészáros & Ianoliu, 1972, 1973) the precise determination of the stratigraphic time span comprised there is still to be established as well as the location of the presumed Eocene/Oligocene boundary (Mészáros & Ianoliu, 1971). The most recent approach regarding the stratigraphy of the locality indicates, based on foraminifera and mollusks, the presence of all the stages of the Eocene (Mészáros, 1996). Mészáros also coined three stratigraphic formations: Valea Nişului Fm., Strada Muntelui Fm., and Valea Satului Fm. as parts of the Turnu Roşu Group. However, their validity is uncertain. According to the International Stratigraphic Guide any

stratigraphic unit "must be duly proposed and duly described" (Murphy & Salvador, 1999, p. 257). Mészáros (1996) did not proposed type-sections and he did not include a litho-stratigraphic column. Also, the criteria of a Recognized Scientific Medium for a proposed stratigraphical unit (Murphy & Salvador, 1999, p. 258) is not met. A review of his formations is therefore, needed.

Material and Methods

The described material is stored at the Brukenthal National Museum, Natural History Museum Sibiu (herein abbreviated NHMS) and in the Babeş-Bolyai University Paleontology-Stratigraphy Museum in Cluj Napoca (abbreviated hereinafter, BBUPSM). Most of the NHMS material is very old and was collected before 1885. A small part was collected in the 1957 and 1958 by the former employees of the NHMS, M. Doltu and A. Gherasim (NHMS 42531, 42532, 42011, 42048, 41798 and 41804).

The exact stratigraphic origin of the material is uncertain. Even the most recently found material, as Şuraru's (1967) specimens or the ones collected by one of the authors (TN - BBUPSM 24194 and 24195) were not found *in-situ* but on the hill slopes, in ravines or at the base of the outcrops.

The photos of the specimens were taken using a Nikon D5300 camera and a 105 mm Sigma lens.

The systematic section follows the classification proposed by Kroh and Mooi (2020) in the World Echinoidea Database.

Systematics

Class Echinoidea Leske, 1778

Infraclass Irregularia Latreille, 1825

Family Gitolampadids (temporary name)

Genus *Gitolampas* Gauthier, 1889

Remarks – Smith, & Kroh (2011) in The Echinoid Directory and Kroh & Mooi (2018) in The World Echinoidea Database state that the family Gitolampadids is a temporary name for a paraphyletic group that includes the genus *Gitolampas*. On the other hand, there is a great deal of confusion between the species of *Gitolampas* and *Echinanthus*. We follow and recommend Kier (1962) taxonomic criteria to clarify this confusion.

Range and distribution – Late Cretaceous (Campanian) to Miocene, in Europe, North

Africa, Cuba, Japan, Oman, Tibet, Pakistan, United Arab Emirates and the United States of North America.

Gitolampas sp.

Material – Six specimens are housed in the NHMS with inventory numbers 39519, 39538, 39541, 39555, 39562 and 7402.

Gitolampas cf. *biarritzensis* (Cotteau, 1863)

Plate 1, fig. a-d

Material – Three specimens are housed in the NHMS with inventory numbers 25862, 39550 and 42011.

Gitolampas cf. *zitteli* (P. de Loriol, 1881)

Material – Three specimens are housed in NHMS with inventory numbers 7393, 7394 and 42048.

Gitolampas zitteli (P. de Loriol, 1881)

Plate 2, a-d

Material – Eight specimens are housed in the NHMS with inventory numbers 39552, 7388, 7392, 7396, 7401, 7387, 25852 and 25861.

Remarks – This species has been cited in Bartonian by Fourtau (1899) and in "den höchsten Schichten der Nummulitenformation" by Loriol (1883) from Egypt. Also, this species was found in the late Eocene from Bulgaria by Sapoundjieva (1964). The material herein examined is probably the first report in the Eocene of Romania.

Order Cassiduloida L. Agassiz & Desor, 1847

Cassiduloida indet.

Material – Twelve specimens are housed in the NHMS with inventory numbers 7384, 7390, 7391, 7398, 7404, 37571, 39537, 39539, 39549, 39551, 39554 and 39561.

Order Echinolampadoida Kroh & Smith, 2010

Family Echinolampadidae Gray, 1851

Echinolampas Gray, 1825

Remarks – Roman (1965) stated that this genus is very prolific, with a rich fossil record and also with a wide stratigraphic range, from Eocene to present and with a worldwide distribution. We recommend Roman (1965) to broaden the knowledge of this complex genus.

Echinolampas cf. *alienus* Bittner, 1882

Plate 3, a-d

Material – Four specimens are housed in NHMS with inventory numbers 7389, 25851 and 39572.

Remarks – The species was described by Bittner (1882) from the Lutetian of the province of Verona (Northern Italy). Later Oppenheim (1902) studied other material of the same species from Verona too. Koch (1885) finds 10 specimens from the Eocene of Turnu Roşu (Transylvania, Romania) and assigned them as *Echinolampas alienus* Bittner, 1882. Very possibly many of these specimens described by Koch (op. cit.) have been also examined herein.

Echinolampas cf. *globulus* Laube 1868

Plate 4, a-d

Material – Two specimens are examined herein (NHMS 39560 and BBUPSM 24194).

Remarks – Laube (1868) cited the species from the Middle Eocene of the province of Verona (Northern Italy) while Gregory (1898) found it in the Early Eocene (Libyan Series). Koch (1885) studied a corroded specimen he named *Echinolampas* cf. *globulus* Laube 1868 from the collection of the Siebenbürgische Museum in Klausenburg (= The Transilvanian Museum in Cluj-Napoca, now the BBUPSM collection), found in Turnu Roşu. The inventory number 39560 NHMS examined herein is Koch's specimen.

Order Clypeasteroida Agassiz, 1835

Family Conoclypidae Zittel, 1879

Genus *Conoclypus*, L. Agassiz, 1839

Remarks - Many authors have erroneously named the genus *Conoclypus* as *Conoclypeus*. Most likely Archiac & Haime (1853) have mistakenly transcribed the name for first time.

Range and distribution – Eocene of circum-mediterranean regions, Pakistan and Madagascar. Some species have been wrongly ascribed to the Cretaceous, but it has been shown that the materials studied really belong to another genus (Mitrović-Petrovic, 2002). Also, the species *Conolypus pignatorii* Airaghi, 1900 was assigned to the Miocene of Italy, but today this species is considered to belong to the genus *Hypsoclypus* in agreement with the opinions of Lambert & Thierry (1921) and Mortensen (1948).

Conoclypus sp.

Material examined – Five specimens are housed in the NHMS with inventory numbers 7397, 6578, 25848, 41804 and 42532.

Conoclypus cf. *akneri* Koch, 1884

Material examined – Four specimens are housed in the NHMS with inventory numbers 25863, 39520, 39536 and 42531.

Conoclypus ackneri Koch, 1885

Plate 5, a-d

Material examined – One specimen is housed with inventory numbers 7399 in the NHMS.

Remarks – The specimen examined herein is the holotype described and figured by Koch (1885, Pl. VI, figs. 2a-c) from Turnu Roşu. Koch, dedicated the name of the species to the naturalist Johann Michael Ackner who was the collector of the best-preserved specimens. This far the species has not been found in any other locality.

Family Clypeasteridae L. Agassiz, 1835

Genus *Clypeaster* Lamarck, 1801

Range and distribution – The species of *Clypeaster* have been known since the Middle Eocene. The genus was first cited in the Mediterranean region, and reached its maximum diversity and expansion in warm seas throughout the Middle Miocene. In the modern seas the genus is species' poor and he is not present in the Mediterranean.

Clypeaster cf. *transsylvanicus* Şuraru, 1967

Material– One specimen housed in the NHMS with inventory number 39553.

Clypeaster transsylvanicus Şuraru et al., 1967

Plate 6, a-d

Material– Nine specimens are examined. Eight are housed in the BBUPSM with inventory numbers 15391 (holotype), 15392a, 15392b, 15392c, 15393a, 15393b, 15393c, 15393d and one in the NHMS with number 39540.

Remarks – The holotype described by Şuraru et al. (1967) is the number BBUPSM 15391. Furthermore, six other specimens were designated as “tipoid” with the following current numbers BBUPSM 15392a, 15392b, 15392c, 15393b, 15293c and 15393d. In addition to holotype, all the “tipoids” were figured by Şuraru et al. (1967, fig. 4-5 and 7-13) The concept of “tipoid” is the equivalent to the one of syntype according to Richter (1948).

On the other hand, *Clypeaster transsylvanicus* Şuraru, 1967 should be considered a *nomen praeoccupatum* because the species *Clypeaster transsylvanicus* Vadász, 1915, found in the Miocene of Felsőorbó (now Gârbova de Sus,

Romania), had already been created previously. A *nomen novum* of replacement will be proposed in a future paper.

Superorder Atelostomata von Zittel, 1879

Order Spatangoida L. Agassiz, 1840

Suborder Paleopneustina Markov & Solovjev
2001

Family Schizasteridae Lambert, 1905

Genus *Schizaster* Agassiz, 1835

Schizaster sp.

Material examined – One specimen housed in the NHMS with inventory number 39525.

Suborden Brissidina Stockley et al., 2005

Family Macropneustidae Lambert, 1895

Genus *Macropneustes* in Agassiz & Desor, 1847

Macropneustes sp.

Material examined – One specimen with inventory number 24195, housed in the BBUPSM.

Irregularia indet.

Material – Two badly preserved specimens, housed in the NHMS with inventory numbers 7395 and 41798.

Results and discussion

Sixty-two specimens have been examined. The material is housed in the NHMS (52 specimens) and in the BBUPSM (10 specimens). All specimens belong to the Irregular infraclass and have been assigned to the following Orders: Cassiduloida, Echinolampadoida, Clypeasteroida and Spatangoida. The most interesting taxonomic data are highlighted below:

- nine specimens of *Clypeaster transsylvanicus* Şuraru, 1967 have been examined. Among them are the holotype and the syntypes. It is suggested herein that this species should be considered a *nomen praeoccupatum* because of this name is occupied by the species *Clypeaster transsylvanicus* Vadász, 1915 from the Middle Miocene of Romania;
- the holotype of *Conoclypus ackneri* Koch, 1885, has been identified and figured in order to increasing the data about this taxon; this species has not been cited so far in any other

locality probably representing an endemic species

- eight specimens are assigned as *Gitolampas zitteli* (P. de Loriol, 1881). The finding is the first report of this species from Romania. *Gitolampas zitteli* had previously been noticed from the Eocene of Egypt and Bulgaria.

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REFERENCES

- Akner, 1854 Akner, Michael Johann, Beitrag zur Geognosie und Petrefaetenkunde des südöstlichen Siebenbürgens, vorzüglich der schichten aus dem bereich des Hermannstaedter Bassins. Verhandlungen der Kaiserlichen Leopoldinisch-Carolinischen Akademie der Naturforscher, 24(2), (1854), p. 899-936.
- Archiac, Haime, 1853 Archiac Adolphe, Haime Jules, Description des Animaux Fossiles du groupe Nummulitique de l'Inde. Classe des Échinodermes pp. 195-223. Gide et J. Baudry, Libraires-Éditeurs, (1853), 373 pp.
- Bittner, 1882 Bittner Alexander, Beitrag zur Kenntniss der Echinidenfauna des alttertiärs von Vicenza und Verona. Beiträge zur Paläontologie von Österreich. Mitteilungen des Geologischen und Paläontologischen Institutes der Universität Wien, 1 (1882), p. 73-110.
- Bombiţă, 1963 Bombiţă Gheorghe, Contribuţii la corelarea eocenului epicontinental din România. Editura Academiei, Bucureşti, (1963), 113 pp.
- Ciobanu, 1994 Ciobanu Rodica, Addition to the Eocene Selachian fauna of Turnu Roşu (Porceşti). Studia Universitatis "Babeş-Bolyai", Geologie, 4, (1994), p. 299-309.
- Ciobanu, 1995 Ciobanu Rodica, Noi date privind selacienii eoceni de la Turnu Roşu (Porceşti): fam. Lamnidae, Cretoxyrhinidae şi Odontaspidae. Comunicări şi Referate, Muzeul de Ştiinţele Naturii Ploieşti, 7, (1995), p. 113-138.
- Ciobanu, 1996 Ciobanu Rodica, Evaluări paleoecologice pe baza rechinelor fosili. Comunicări şi referate, Muzeul Judeţean de Ştiinţele Naturii Prahova, 14, (1996), p. 59-62.
- Ciobanu, 1997 Ciobanu Rodica, Zusammensetzung der bearbeiteten Hai und Rochen Fauna aus dem Eozän von Turnu Rosu (Rümanien), In: Naturwissenschaftliche Forschung über Siebenburgen I. Beitrage zur Geographie, Botanik, Zoologie und Palaontologie. Siebenburgisches Archiv, 33, (1997), p. 18-22.
- Ciobanu, 2002 Ciobanu Rodica, Selacienii paleogeni din România, Editura Universităţii Lucian Blaga, Sibiu, (2002), 216 pp.
- Ciobanu, Trif, 2012 Ciobanu Rodica, Trif Nicolae, Diodontidae (Osteichthyes) from the Turnu Roşu Eocene Limestone Reserve. Brukenthal Acta Musei, 7(3), (2012), 631-642.
- Ciobanu, Trif, 2013 Ciobanu Rodica, Trif Nicolae, The pycnodont, Phacodus Dixon, 1850, In the Late Eocene of the fossil area Turnu Roşu (Romania). Brukenthal Acta Musei, 9(3), (2013), p. 587-601.
- Ciobanu, Trif, 2016 Ciobanu Rodica, Trif Nicolae, Cylindracanthus (Leidy, 1856) in the collections of the natural History Museum, Sibiu. Acta Palaeontologica Romaniae, 12(1), (2016), p. 25-31.
- Durham, Mojag, 1983 Durham John W., Mojag Fathollah, Clypeaster biarritzensis Cotteau (Echinoidea) in Lower Asmari Formation (Early Oligocen) of southwest Iran. Paleobios, 41, (1983), p. 1-12.
- Fourtau, 1899 Fourtau, René, Révision des Échinides fossiles de l'Égypte. Mémoires présentés a l'Institut Égyptien. 3(8), (1899), p. 633-692.
- Gregory, 1898 Gregory, J. W., A Collection of Egyptian Fossil Echinoidea. Geological Magazine, 4(5), (1898), p. 149-161.
- Kier, 1962 Kier Porter M., Revision of the cassiduloid echinoids. Smithsonian Miscellaneous Collections, 144(3), (1962), p. 1-262.

- Koch, 1885 Koch Anton, Die alttertiären Echiniden Siebenbürgens. Mittheilungen aus dem Jahrbuche der Königlich ungarischen Geologischen Anstalt, 7, (1885), p. 47-132.
- Kroh, Mooi, 2020 Kroh Andreas, Mooi Richard World Echinoidea Database. [Accessed at <http://www.marinespecies.org/echinoidea> on 2020-10-23]
- Laube, 1868 Laube Gustav C., Ein Beitrag zur Kenntnis der Echinodermen des vicentinischen. Tertiärgebietes. Denkschriften der Kaiserlichen Akademie der Wissenschaften - Mathematisch-Naturwissenschaftliche. Aus der kaiserlich königlichen hof Staatsdruckerei, Wien, (1868), 38 pp.
- Lambert, Thiéry, 1921 Lambert Jules, Thiéry Paul, Essai de Nomenclature Raisonnée des Échinides. Librairie L. Ferrière, Chaumont, (1921), 607 pp
- Loriol, 1883 Loriol, P. de, Eoeaene Echinoideen aus Aegypten und der libyschen Wüste. Beiträge zur Naturgeschichte der Vorzeit, Palaeontographica, 30, (1883), p. 1-60.
- Mészáros, 1960 Mészáros Nicolae, Stratigraphie und Molluskenfauna der Eozänablagerungen von Porcesti (Kreis Sibiu-Hermannstadt, Rumänien), Neues Jahrbuch für Geologie und Paläontologie, 5, (1960), p. 227-236.
- Mészáros, Ianoliu, 1971 Mészáros Nicolae, Ianoliu Constantin, Contribuții la problema limitei Eocen-Oligocen în regiune Turnu Roșu (Porcești), Studii și Comunicări, Muzeul Brukenthal, Științe Naturale, 16, (1971), p. 29-36.
- Mészáros, Ianoliu, 1973 Mészáros Nicolae, Ianoliu Constantin, Macrofauna eocenă de la Turnu Roșu - Porcești (1). Muzeul Brukenthal. Studii și Comunicări, Științele Naturii, 17, (1972), p. 21-30.
- Mészáros, Ianoliu, 1973 Mészáros Nicolae, Ianoliu Constantin, Macrofauna eocenă de la Turnu Roșu - Porcești (2). Muzeul Brukenthal. Studii și Comunicări, Științele Naturii, 18, (1973), p. 13-21.
- Mészáros, 1996 Mészáros, Nicolae, Stratigrafia regiunii Turnu Roșu-Porcești. Convergențe transilvane, 4, (1996), p. 42-45.
- Mitrović-Petrovic, 2002 Mitrović-Petrovic Jovanka, Paleoeological Features and Stratigraphic Significance of the genus Conoclypus (Echinoidea). Annales de la Péninsule Balkanique, 64, (2002), p. 89-105.
- Mortensen, 1948 Mortensen, T., A Monograph of the Echinoidea. IV. 1. Holoctypoida, Cassiduloida. C. A. Rietzel édit, Copenhagen, (1948), 371 pp.
- Murphy, Salvador, 1999 Murphy Michael A., Salvador Amos, International Stratigraphic Guide - An abridged version, Episodes, (22)4, (1999), p. 255-271.
- Neugeboren, 1850 Neugeboren Johann Ludwig, Die vorweltlichen Squaliden-Zähne aus dem Großkalke bei Portsesd am Altfluß unweit Talmats. Archiv des Vereins für Siebenbürgische Landeskunde, 2, (1850), p. 1-44.
- Neugeboren, 1851 Neugeboren Johann Ludwig, Die vorweltlichen Squaliden-Zähne aus dem Großkalke bei Portsesd am Altfluße unweit Talmats. Archiv des Vereins für Siebenbürgische Landeskunde, 3, (1851), p. 151-213.
- Oppenheim, 1902 Oppenheim Paul, Revision der tertiären Echiniden Venetiens und des Trentino, unter Mittheilung neuer Formen. Zeitschrift der Deutschen Geologischen Gesellschaft, 54, (1902), p. 159-279.
- Richter, 1948 Richter Rudolf, Einführung in die Zoologische Nomenklatur durch Erläuterung der Internationalen Regeln. Zweite, umgearbeitete Auflage mit der "Offiziellen Liste zoologischer Gattungs-Namen", W. Kramer, Frankfurt am Main, (1948), 152 pp.

- Roman, 1965 Roman J., Morphologie et Évolution des Echinolampas. Mémoires du Muséum National d'Histoire Naturelle, 15, (1965), p. 1-341.
- Sapoundjieva, 1964 Sapoundjieva Vassilka, Les fossiles de Bulgarie, VIb. Paléogène. Echinoidea. Academie Bulgare des Sciences, Sofia, (1964), 64 pp.
- Smith, Kroh, 2011 Smith, A. B. & Kroh, Andreas (editors), The Echinoid Directory. World Wide Web electronic publication. <http://www.nhm.ac.uk/researchcuration/projects/echinoid-directory> [accessed on 22-10-23].
- Şuraru, Gabos, Şuraru, 1967 Şuraru Nicolae, Gabos, L., Şuraru, Maria, Contribuţii la cunoaşterea clipeastridelor eocene. Studii şi cercetări de Geologie, Geofizica şi Geografie; Seria Geologie, 12(1), (1967), p. 193-199.
- Tătărm, 1963 Tătărm Niţa, Stratigrafia eocenului din regiunea de la sud-vest de Cluj. Editura Academiei, Bucureşti, (1963), 203 pp.
- Tătărm, 1970 Tătărm Niţa, Eocenul din Sud-vestul Transilvaniei. Consideraţii biostratigrafice şi paleogeografice. Analele Universităţii Bucureşti, Geologie, 19, (1970), p. 119-139.

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- Plate 3** *Echinolampas* cf. *alienus* Bittner, 1882, NHMS 25851; **a** - vedere aborală; **b** - vedere adorală; **c** - vedere laterală și **d** - vedere posterioară.
- Plate 4** *Echinolampas* cf. *globulus* Laube 1868, NHMS 39560; **a** - vedere aborală; **b** - vedere adorală; **c** - vedere laterală și **d** - vedere posterioară.
- Plate 5** *Conoclypus* *ackneri* Koch, 1885, NHMS 7399 - HOLOTYPE; **a** - vedere aborală; **b** - vedere adorală; **c** - vedere laterală și **d** - vedere posterioară.
- Plate 6** *Clypeaster transsylvanicus* Suraru et al., 1967; BBUPSM 15391 - HOLOTYPE; **a** - vedere aborală; **b** - vedere adorală; **c** - vedere laterală și **d** - vedere posterioară.

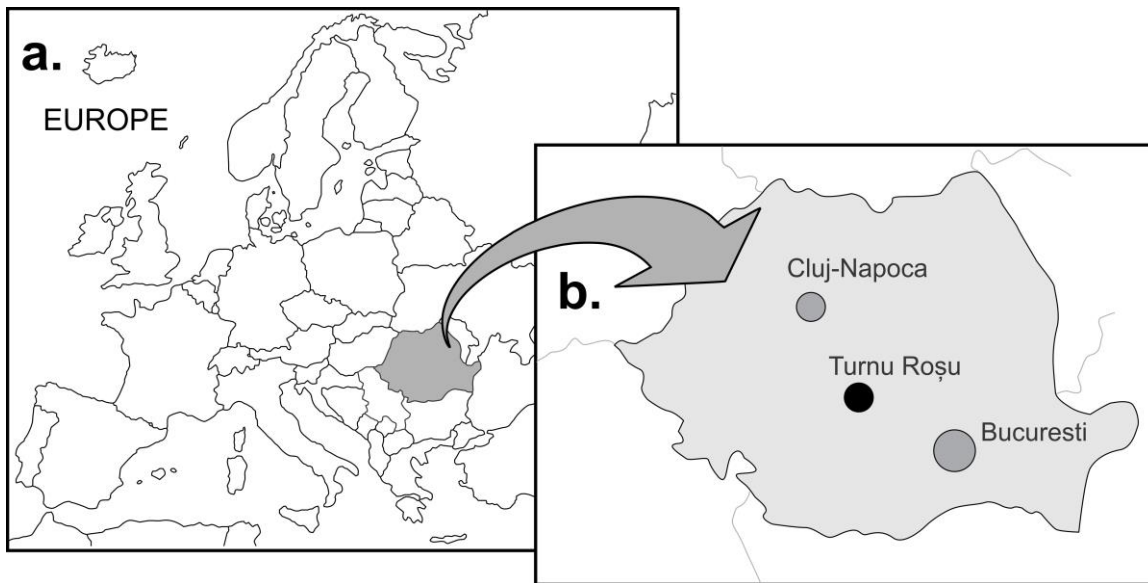


Figure 1. Location of the studied locality in **a.** Europe and **b.** Romania

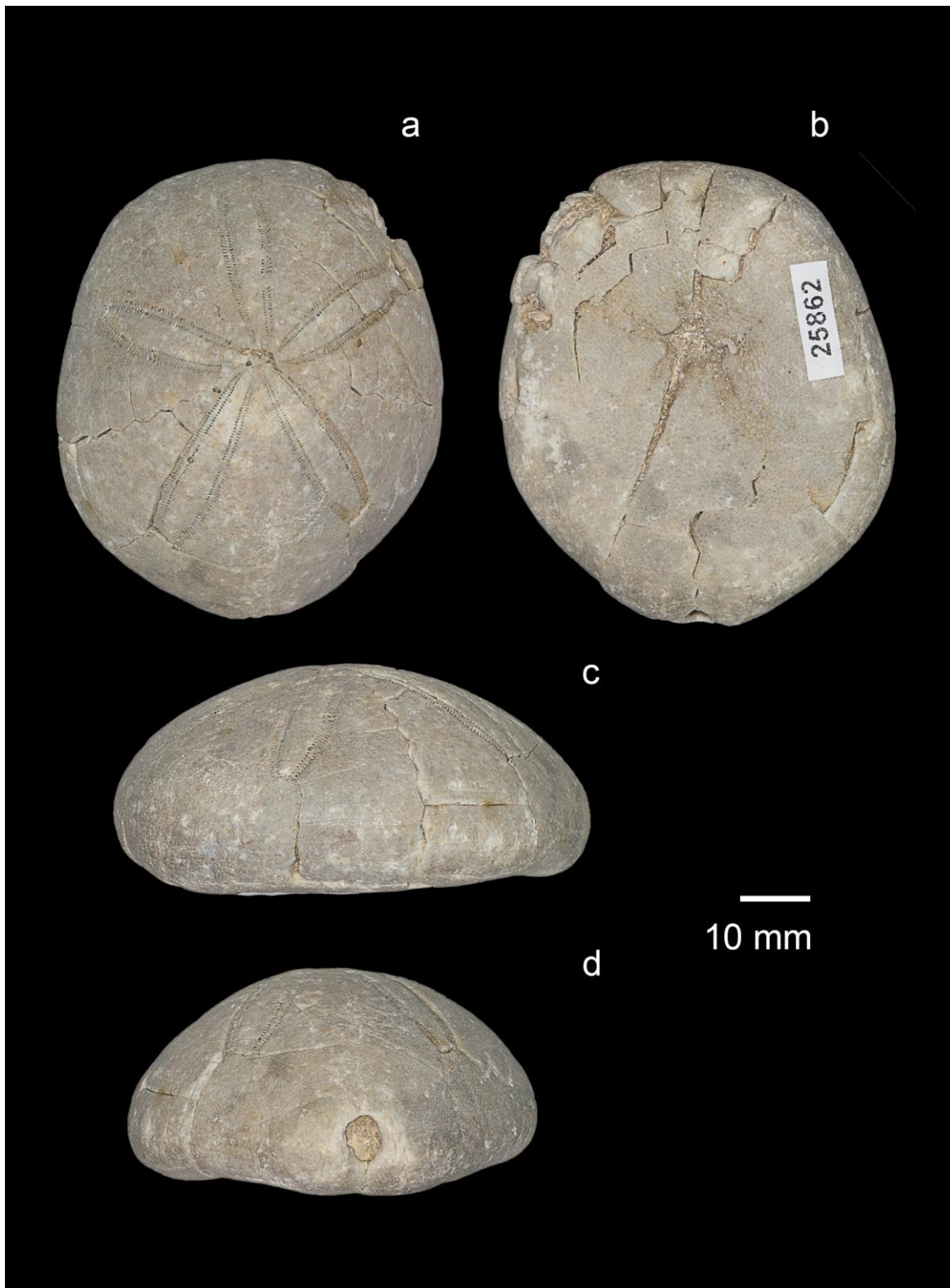


Plate 1. *Gitolampas* cf. *biarritzensis* (Cotteau, 1863), NHMS 25862;
a - aboral view; b - adoral view; c - lateral view and d - posterior view.

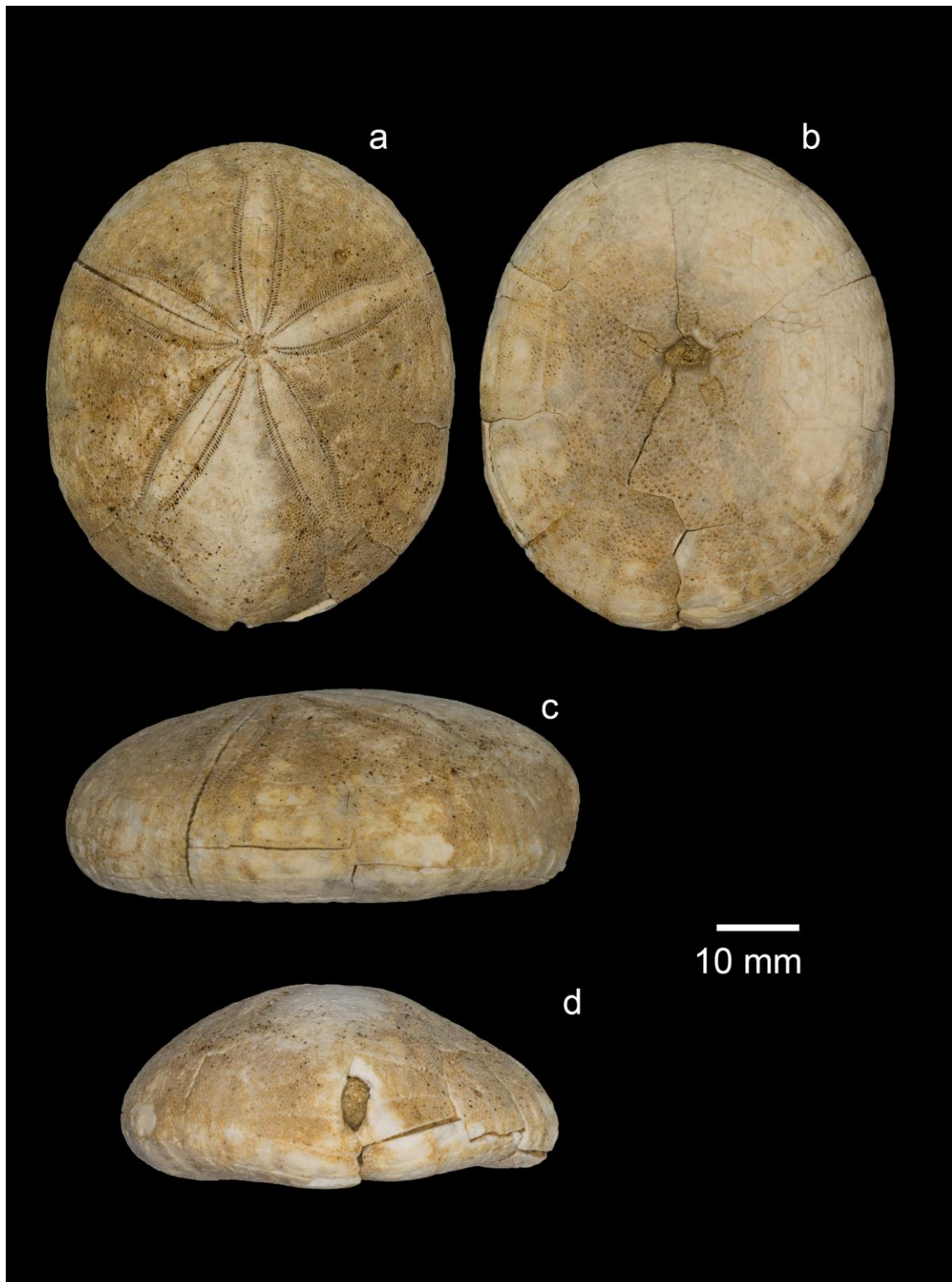


Plate 2. *Gitolampas zitteli* (P. de Loriol, 1881), NHMS 7388;
a - aboral view; b - adoral view; c - lateral view and d - posterior view.

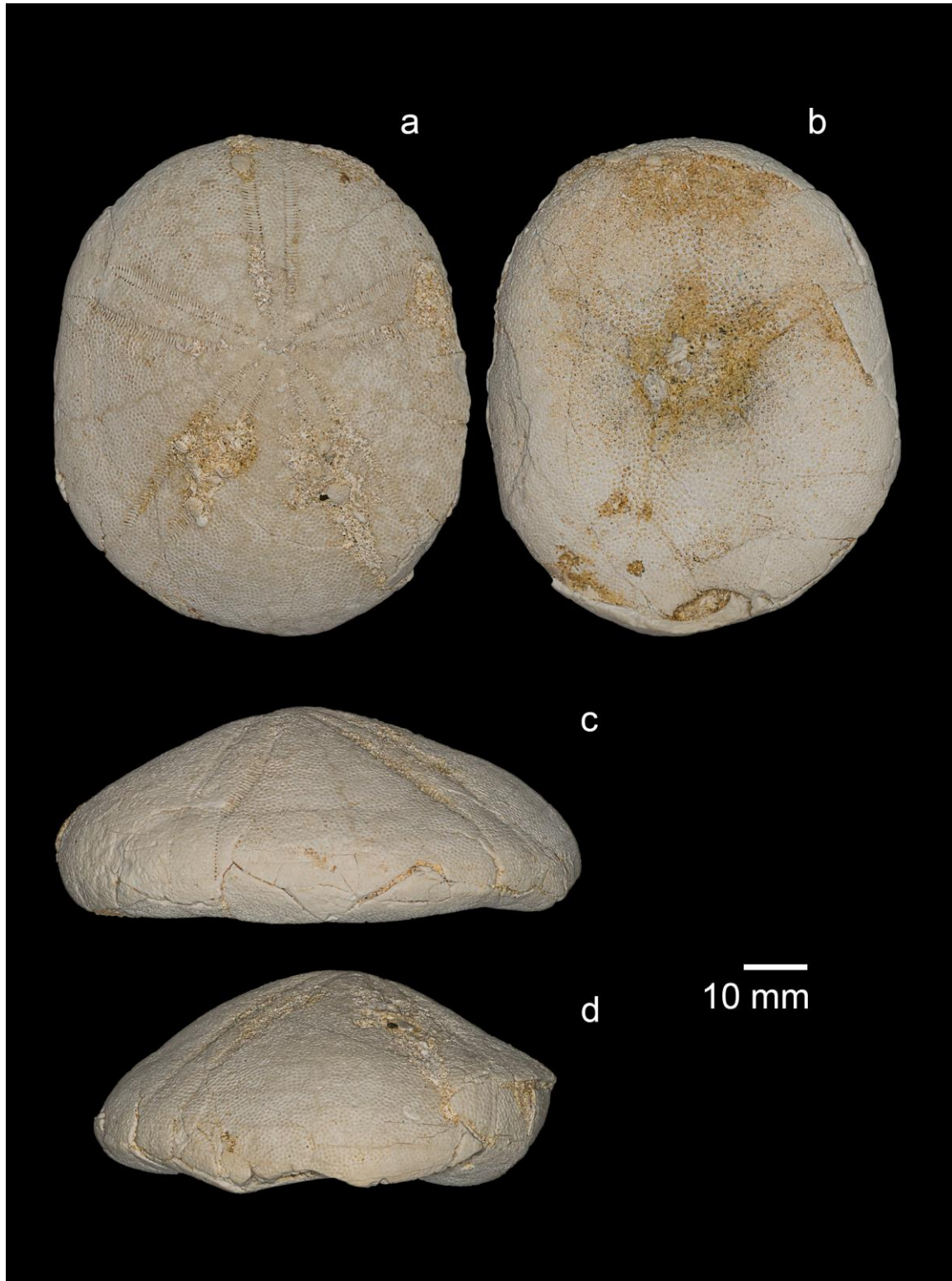


Plate 3. *Echinolampas cf. alienus* Bittner, 1882, NHMS 25851;
a - aboral view; b - adoral view; c - lateral view and d - posterior view.

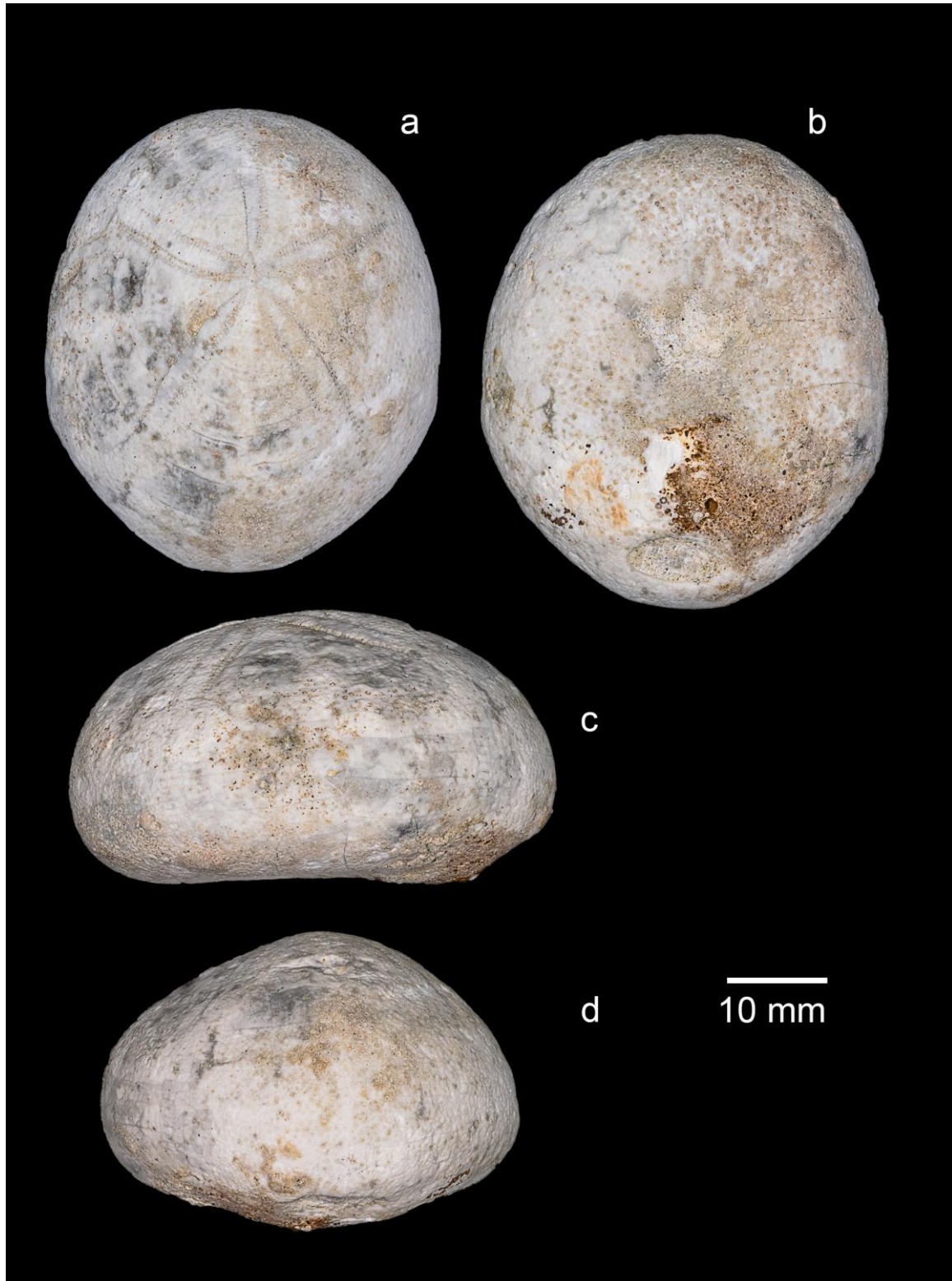


Plate 4. *Echinolampas cf. globulus* Laube 1868, NHMS 39560;
a - aboral view; b - adoral view; c - lateral view and d - posterior view.

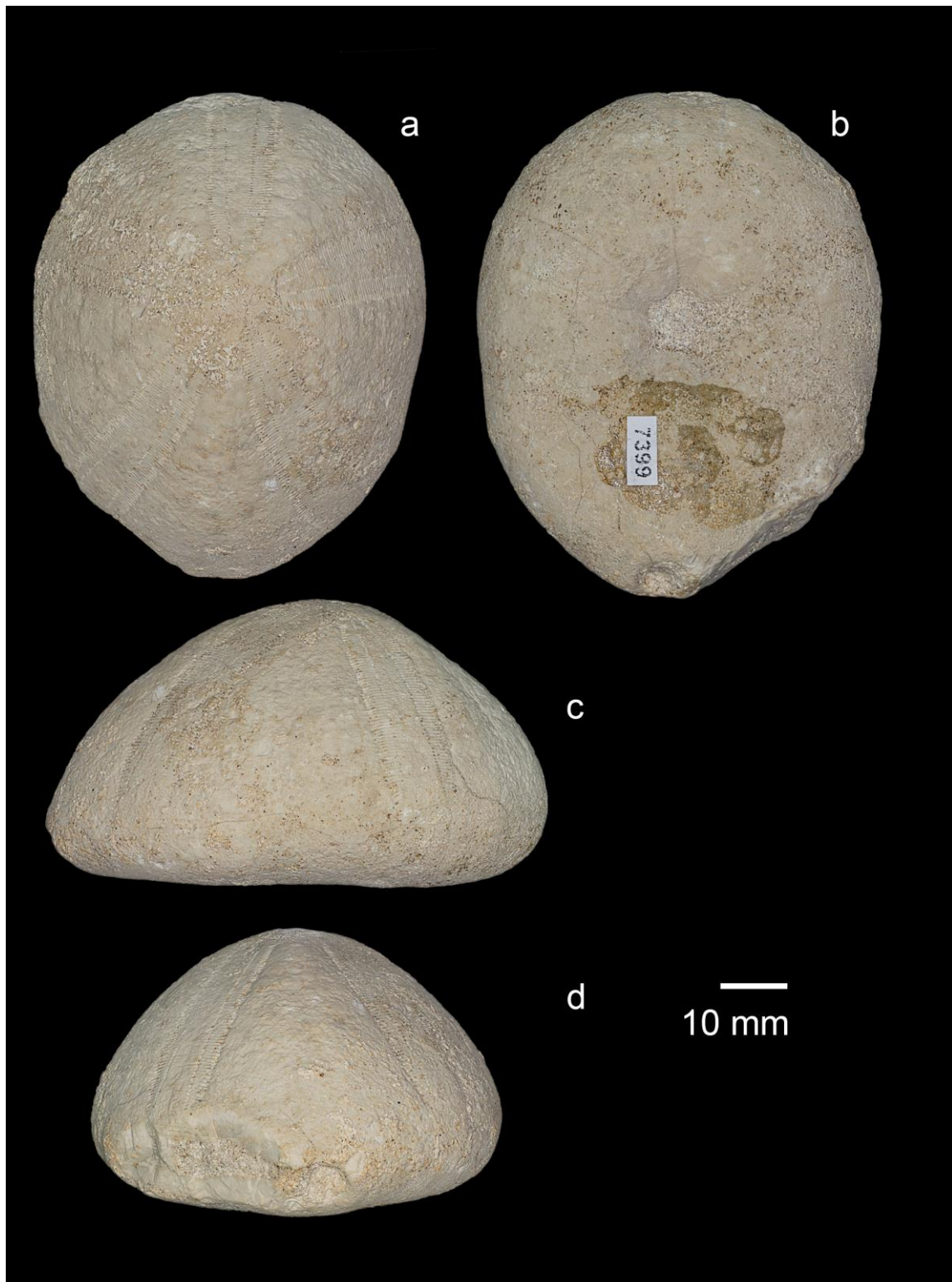


Plate 5. *Conoclypus ackneri* Koch, 1885, NHMS 7399 - HOLOTYPE;
a - aboral view; b - adoral view; c - lateral view and d - posterior view.

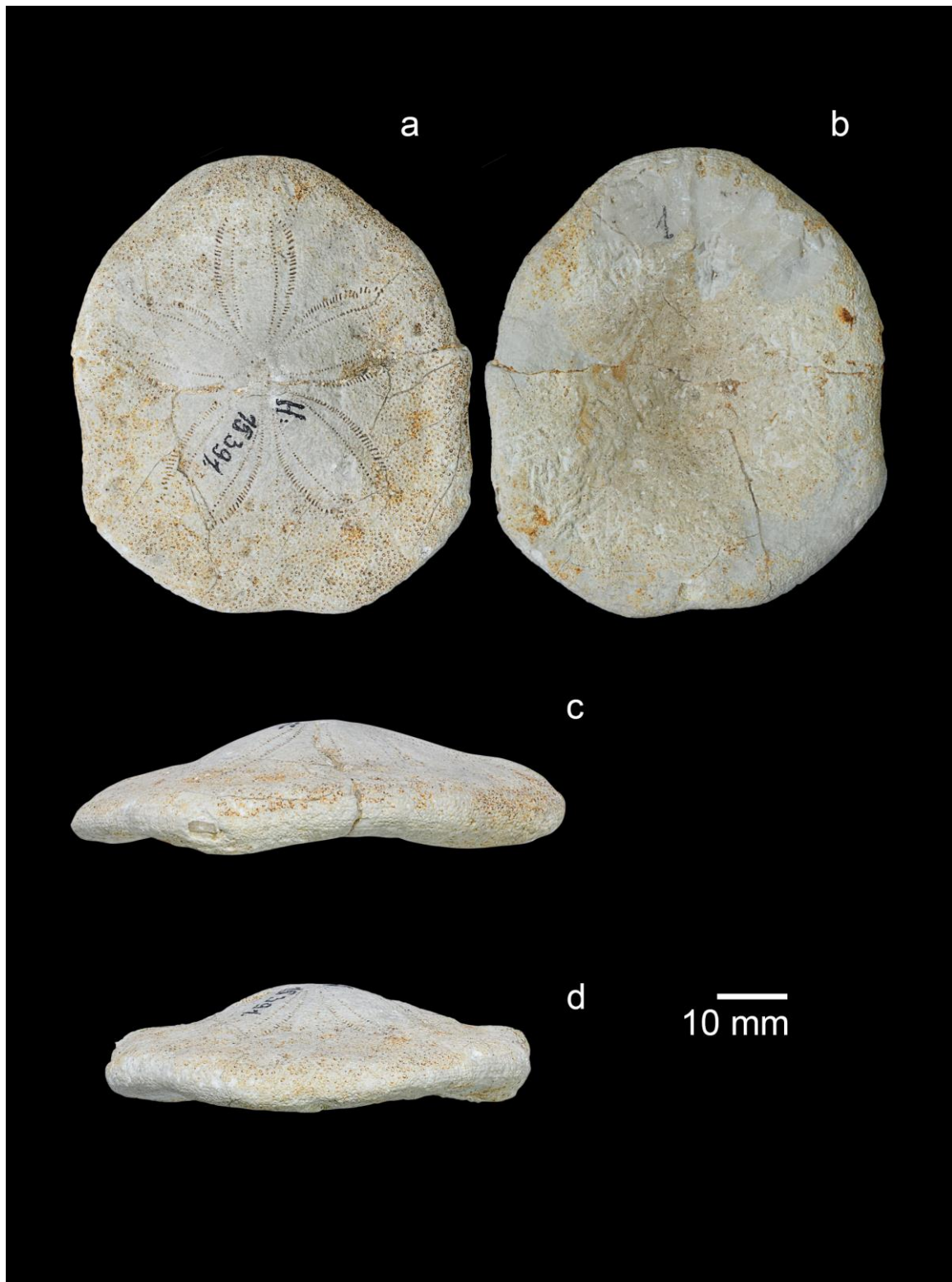


Plate 6. *Clypeaster transsylvanicus* Şuraru et al., 1967; BBUPSM 15391 - HOLOTYPE;
a - aboral view; b - adoral view; c - lateral view and d - posterior view.

PREPARATION AND CONSERVATION OF A FOSSIL SPECIMEN. CASE STUDY: *CAMPANILE GIGANTEUM*

Maria Iulia SASU*
Radu Ștefan PANĂ**
Nicolae TRIF***

Abstract. *The preparation of fossilized specimens facilitates their research and exhibition. Preparation is seldom discussed but this is an essential step for the conservation of specimens, whether we are talking about fossils or zoological preparations. In the following work we present the preparation of an internal mould of Campanile giganteum. The fragmented specimen was initially subjected to physico-chemical investigations and cleaning tests. After obtaining information about the chemical composition of the specimen and the degradations suffered, it was possible to plan the methodology of the intervention. The first step was the cleaning, then the specimen was volumetric completing and it was placed in a holder and in a display case. The specimen was labeled in order to preserve the essential information. Last but not least, a series of recommendations were offered regarding the conservation of the specimen after leaving the laboratory.*

Keywords: *paleontology, fossilization, internal mold, stabilization, preservation conditions.*

Rezumat. *Prepararea specimenelor fosilizate facilitează cercetarea și expunerea acestora. În laboratoarele de specialitate se vorbește puțin despre preparare, însă aceasta constituie un pas esențial pentru conservarea specimenelor biologice, fie că vorbim despre fosile sau despre preparatele zoologice. În cele ce urmează prezentăm prepararea unui mulaj intern de Campanile giganteum. Piesa fragmentată a fost inițial supusă unor investigații fizico-chimice și unor teste de curățare. După obținerea de informații despre compoziția chimică a specimenului și degradările suferite, s-a putut realiza planificarea metodologiei intervenției. Primul pas a fost curățarea și întregirea volumetrică, apoi specimenul a fost dispus într-un suport și într-o cutie de tip vitrină. Păstrarea informațiilor esențiale pentru identificarea obiectului s-a realizat prin etichetarea acestuia. Nu în ultimul rând, au fost oferite o serie de recomandări privind conservarea specimenului după ieșirea din laborator.*

Cuvinte cheie: *paleontologie, fosilizare, mulaj intern, stabilizare, condiții de conservare.*

Introduction

The preparation of fossils includes several steps performed in order to facilitate the research and exposure of a specimen. To understand paleontology we must understand what preparation entails. This paper presents a case study illustrating several processes that are used in the preparation and preservation of fossilized specimens (Lewis 1976, 73).

In general the fossil material collected from nature is composed of complex materials and requires processing to be available for study at any time. In the field of preparation, various chemicals or

techniques are used that prevent the alteration of the constituent materials (tilting the balance towards a more stabile composition) which in turn can react with the environmental factors (Moldoveanu 2009, 34). Fossils are discovered when they are exposed to the surface of the soil and transported by water (rivers or streams), during rains or after freeze and thaw or during mining operations (Handrea 1957, 316). Fossilization of organisms takes place in various forms due to various environmental conditions and is favored by the presence of hard structures of mineral origin (shells, skeletons), as well as the rapid removal from the destructive action of oxygen and other exogenous factors through the covering with sediments. There are several common fossilization processes, including: mineralization (silicification, calcification, phosphating, pyritization), carbonization,

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mummification, preservation in the natural state (embedding in resins), impressions and moldings (patterns) (Anastasiu *et al.* 2007, 121). Molds can be external or internal. The internal ones are formed in skeletal structures (shells). The shell is filled with various inorganic materials, such as sediment and in some cases with mineral rich solutions. When the shell dissolves, a pattern of its inner surface is formed (Hanganu *et al.* 1983, 62).

Campanile giganteum (Lamarck, 1804) is an extinct species that today we can only find fossilized, preserved as a shell or in the form of an internal mold, as is the case with our specimen. In Romania, it has been found so far only in the Transylvanian basin (Cluj-Jibou-Huedin and Turnu Roșu area), in the middle and late Eocene (48 to 33.9 million years) (Jung 1987, 44; Mikuz, Pavlovic 1995, 31; Isamoglu *et al.* 2011, 17). The specimen comes from the Prodănești quarry, Sălaj county. Where limestone is exploited for constructions and roads. In this quarry outcrops the Cluj Limestone Formation. Cluj Limestone is very rich in fossil remains: foraminifera, echinids, gastropods, bivalves, corals, crustaceans, turtles, sirenidae and fish. This is a subdivision of the Turea Group, it has a Priabonian age (38-33.9 million years) and is a precipitation limestone from the marine domain. The rock includes finely granular homogeneous rocks (micrites) and an input of terrigenous granules (clays and quartz coming from the mainland) (Popescu *et al.* 1978, 312; Rădulescu 1979, 124).

Materials and methods

The piece was recovered in a fragmented state with the five grouped fragments (Fig. 1 – A-E). The fragments were labeled, wrapped in paper and transported to the laboratory. The mold is incomplete, the apex and the siphon are missing. From the observation of other specimens from paleontological collections, the two missing parts are seldom fossilized (Lazăr *et al.* 2015, 98).

The fragments were collected from an inactive quarry level. It is not known how long they have been on the surface but there are signs of erosion. The state of preservation is typical for the location mentioned above, the internal molds of gastropods being often found fragmented and incomplete (Walker, Ward 1992, 157).

Analyzes and investigations

Macroscopic and microscopic investigations and measurements of the fragments were performed. The general dimensions of the specimen (assembled fragments) are: height = 19.8 cm, basal

diameter = 13.5 cm, apical diameter = 6 cm, weight = 2886 g.

Physico-chemical and physico-mechanical degradations were identified: superficial and deep cracks (Fig. 2 – C) present on different fragments, adherent deposits of calcareous crusts, non-adherent sand deposits and adhesive deposits (Fig. 2 – A, B) from a previous volumetric filling intervention.

The basal fragment contains the basal anfract and half of the first anfract. The aperture is completely filled-in by limestone with fragments of external molds of shells and corals; in the apical part we can observe fragments of diagenized columella and shell (lithified and crystallized). The fragments are in good condition and chemically stable.

The microscopic examination of the constituent material revealed an opaque cryptocrystalline aggregate (small crystals, sometimes visible also to the naked eye), less than 4 mm in diameter (micritic limestone), containing predominant carbonate minerals (calcite) and a low content of non-carbonated minerals (quartz and other types of allogenetic silicates) (Fig. 3 – A). Also, small fossils were observed in the adherent calcareous deposits present on the basal fragment (bivalves, corals – Fig. 4). The areas with sand deposits were also examined microscopically, identifying quartz sand granules (with small granulation, irregular appearance, white or transparent), muscovite fragments and rare tourmaline crystals (Fig. 3 – B, C) (Ianovici *et al.* 1979, 458; Anastasiu 1981, 29).

Chemical investigations were performed to confirm the visual examination. Carbonates from adherent deposits were identified by the acetolysis reaction (the result was a medium intensity effervescence). Cleaning tests were performed to determine the most effective method of cleaning. Distilled water was considered the most effective and harmless. We found that acetone and ammonia water can cause small material losses. Based on the information obtained through the investigations, the working methodology was established.

Cleaning interventions

The first step was the dry cleaning. We clean each fragment with a wide brush and the less adhesive sand deposits were successfully removed. The second step was wet cleaning (Fig. 5 – A, B). The materials and instruments were prepared (scalpel, spatula, cotton pads, and a 60°C hot water bowl). Hot water compresses were applied to each fragment on the contact surfaces with adhesive

deposits. The compresses were applied to each piece for 10-30 minutes. When it was not possible to keep the temperature of the compresses sufficiently high and long enough, they were reapplied. The hot water acted by softening the old adhesive, facilitating its mechanical removal. The softened adhesive was removed with the scalpel, then the brush was used to remove the remaining fragments from the specimen (Fig. 6 – A-E). This operation was repeated for each fragment. Our objective was to keep the piece as close as possible to its natural state, including the calcareous crusts and other fossil remains). It was not necessary to use other solvents to remove the deposits. After cleaning the adhesive fragments, the fragments were left to dry for a while on filter paper.

Making a support and a showcase

The next step was to build a support for the specimen to keep the parts of the specimen in a natural position, resting, without the need to fix all the fragments with adhesive. The specimen was assembled (without adhesive) and wrapped in transparent plastic foil to protect, maintain its shape and be easy to handle (Fig. 7 – A).

Using a thin and easily moldable wire cloth, a layer of laminated wood strips, a manual stapler for upholstery, a hammer, wire scissors and multifunctional pliers, a bed was created for the assembled specimen. The edges of the wire mesh were fastened with the help of wooden plate staples. The wire will act as a skeleton for the paper paste (Fig. 8 – A).

In the next stage, the necessary materials for paper paste were prepared: plaster, dextrin, water and cellulose fibers. We obtain a homogeneous paste that was modeled with a spatula in order to obtain the appearance of stone (Fig. 8 – B, Fig. 9).

After this, we proceeded to build a showcase (Fig. 10) the size of the ensemble (the piece arranged in its support). We used a wooden board, wooden sticks, putty (polyvinyl acetate and wood sawdust), glass (3 mm thick), transparent silicone adhesive, industrial acetone, 70% ethyl alcohol, fine steel wool, stain and varnish for wood.

Contextual integrations

The next step was the contextual integration of the support to create an „in situ” aspect of the specimen. Fragments of bivalves (shells), fossil snails, nummulites and sand of various grains were selected. They were fixed with transparent adhesive based on polyvinyl acetate. Subsequently, on the free surface of the support, a layer of

adhesive was applied with the brush over which sand of various granulations was pressed (Fig. 11).

Volumetric completion

The fragments are assembled and fixed in the support without being glued or glued with an adhesive that can be easily removed (and without degradation of the specimen), according to the proposed methodology and respecting the principle of reversibility of materials and minimal intervention. Due to the fact that the specimen is displayed a almost horizontal position the fragments settled naturally, completing the specimen in volume. However, we considered necessary to glue some of the fragments together because an unsightly space is observed between the fragments.

It can be noticed in the figure 12 the unsightly space is located in the apex area, so we consider that the fixation of the fragments B-C and D-E is sufficient. We selected a transparent adhesive based on thermoplastic resin (polyvinyl ester copolymer), which is reversible by water at 60°C responds well to dissolution with solvents (alcohol, ketones, acetates) (Koobs 1986, 11; Davidson, Alderson 2009, 56; Camaiti *et al.* 2011, 37; Davidson, Brown 2012, 96; Caponetti *et al.* 2016, 14).

In the initial phase, fragments D and E were glued. An adhesive point was applied to the fragmentation surface, then the other fragment was joined. The set was placed in a sandbox for 72 hours. The same was done with the set of fragments B and C.

Observing a naturally cemented crack, we considered that we can use a putty to seal the cracks that were still present after gluing the B-C and D-E fragments. Continuing in the idea to mimic the natural look, a putty composed of adhesive, water and small-grained sand was used. Using a spatula, the putty was inserted into the crack left behind after the gluing and then the excess was removed with a brush (Fig. 13).

Labeling of the specimen

The last step was to label the specimen (Fig. 14). The label shall contain identification, dating, location information and the name of the persons who collected, determined and prepared the specimen, the chemical composition and weight of the specimen.

Results and conclusions

The process of preparation and preservation was

carried out after careful planning. In a first stage, we carried out several investigations on the basis of which the working methodology was established. The second stage consisted in physical interventions, consisting in cleaning, gluing of the fragments and construction of a support and a display case with the purpose of preserving the specimen in a stable environment, free of dust and pollutants. And to mimic the „in situ” aspect. The third stage consisted in the labelling, containing identification data, dating a short history of the interventions applied to the. The moments in the object's life (investigations, interventions) were also recorded in the specific documentation, accompanied by the photographic documentation. The figures 1-15 show the stages followed by the object during the time it was in our laboratory.

A series of recommendations accompany the object in order to ensure its preservation (Fig. 15).

We indicated that the storage of the display case in a horizontal position and the careful handling are beneficial. The storage space must meet several

basic conditions: microclimatic stability (relative humidity with values between 45-65%, correlated with values has a temperature between 10-20 °C); a correct lighting level (the ideal value is between 60-75 lux) and avoid exposure to ultraviolet radiation. The object, the support and the display case must be periodically cleaned of dust (with a brush for the specimen and the support and with a fine cloth soaked in ethyl alcohol for the glass case). These minimal operations ensure the safe storage of a fossil specimen for a long period of time (Nadra 1955, 134; Papadopol 1964, 68).

Acknowledgements

We would like to thank Mihai Iancovescu Rudeanu (Brukenthal National Museum) and Dr. Mirel-Vasile Bucur (Lucian Blaga University of Sibiu) for their useful comments which improved the manuscript. Thanks are also due to Ioan Brai (Brukenthal National Museum) and Victor Arren Turcu (Brukenthal National Museum) for their contribution to this work of conservation.

REFERENCES

- | | |
|------------------------------|---|
| Anastasiu 1981 | Anastasiu, Nicolae – <i>Minerale si roci sedimentare – determinant</i> , 1981, București. |
| Anastasiu <i>et al.</i> 2007 | Anastasiu Nicolae, Grigorescu Dan, Mutihac Vasile, Popescu Gheorghe – <i>Dicționar de geologie</i> , Editura Didactică și Pedagogică, București (2007). |
| Camaiti <i>et al.</i> 2011 | Camaiti, Mara; Borgioli, Leonardo; Rosi, Laura – <i>Photostability of innovaton formulations for artworks restoration</i> , 2011, Florența. |
| Caponetti <i>et al.</i> 2016 | Caponetti, Eugenio; Ruffolo, Silvestro, Antonia; Gigante, Giovanni, Ettore – <i>Polymeric Dispersions for the Protection of Limestone: Aplication an Noto and Vomiso Stone</i> , 2016, Roma. |
| Davidson, Alderson 2009 | Davidson, Amy; Alderson, Samantha – <i>An introduction to solution and reaction adhesives for fossil preparation</i> , Methods In Fossil Preparation: Proceedings of the First Annual Fossil Preparation and Collections Symposium, p. 53-62, 2009. |
| Davidson, Brown 2012 | Davidson, Amy; Brown, Gregory – <i>Paraloid B-72: Practical tips for the vertebrate fossil preparator</i> , Collection Forum Journal, 26 (1-2): 99-119, 2012, Washington. |
| Handrea 1957 | Handrea, Iustin – <i>Muzeul școlar</i> , 1957, București. |
| Hanganu <i>et al.</i> 1983 | Hanganu, Nistor; Șuraru, Nicolae; Grigorescu, Dan – <i>Paleontologie</i> , Editura Didactică. Și Pedagogică, 1983, București. |
| Ianovici <i>et al.</i> 1979 | Ianovici, Virgil, Știopol, Victoria, Constantinescu, Emil – <i>Mineralogie</i> , Ed. Didactică și Pedagogică, 1979, București. |
| Isamoglu <i>et al.</i> 2011 | Isamoglu, Yeşim; Dominici, Stefano; Kowalke, Thorsten – <i>Early Eocene</i> |

- Caenogastropods (Mollusca, Gastropoda) from Haymana-Polatlı Basin, Central Anatolia (Turkey): taxonomy and palaeoecology*, Geodiversitas, vol. 33 (2), 2011, Paris.
- Jung 1987 Jung, Peter – *Giant gastropods of the genus Campanile from the Caribbean Eocene*, Eclogae geologicae Helvetiae, vol. 80 (3), 1987, Basel.
- Koobs 1986 Koobs, Stephen – *The use of Paraloid B-72 as an adhesive: its application for archaeological ceramics and other materials*, Studies in Conservation, 31 (7-17), 1986, London.
- Lazăr et al. 2015 Lazăr, Iuliana; Barbu, Victor; Păunescu, Octavian – *Geologie generală*, 2015, București.
- Lewis 1976 Lewis, Ralph – *Preparing Specimens for the Collection, Manual for Museums*. Washington, D.C.: National Park Service, 1976.
- Mikuz, Pavlovec 1995 Mikuz, Vasja; Pavlovec Rajko – *Polz Campanile giganteum (Lamarck, 1804) iz spodnjelutecijskih apnencev pri crnem kalu*, Annales, vol. 7, 1995, Koper.
- Moldoveanu 2009 Moldoveanu Aurel – *Conservarea preventivă a bunurilor culturale*, București (2009), 416 p.
- Nadra 1955 Nadra, Emil – *Colectarea, conservarea și naturalizarea vertebratelor pentru muzee*, 1955, Timișoara.
- Papadopol 1964 Papadopol, Aurel – *Confecționarea materialului didactic pentru științele naturii*, 1964, București.
- Popescu et al. 1978 Popescu, Bogdan; Bombiță, Gheorghe; Rusu, Anatol; Iva, Mariana; Gheța, Nicolae; Olteanu, Radu; Popescu, Daniela; Tăutu, Elena – *The Eocene of the Cluj - Huedin area*, D.S. Inst. Geol. Geofiz., LXIV/4 (1976-1977), 1978, București, p. 295-357.
- Rădulescu 1979 Rădulescu, Dan; Anastasiu, Nicolae – *Petrologia rocilor sedimentare*, 1979, București, p. 325.
- Walker, Ward 1992 Walker, Cyril; Ward, David – *Fossils*, 1992, London.

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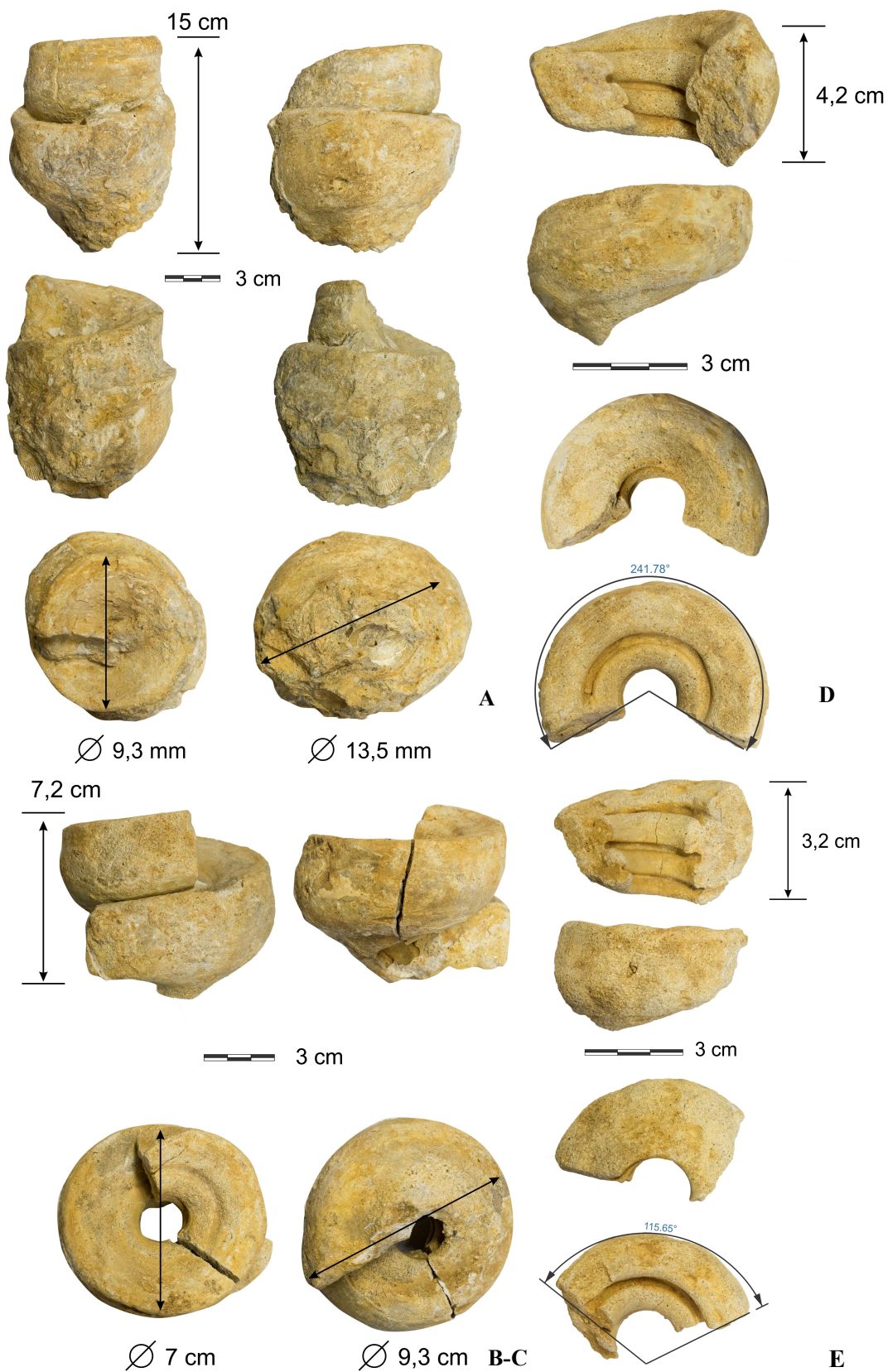


Fig. 1. General appearance of each fragment, seen from different angles.

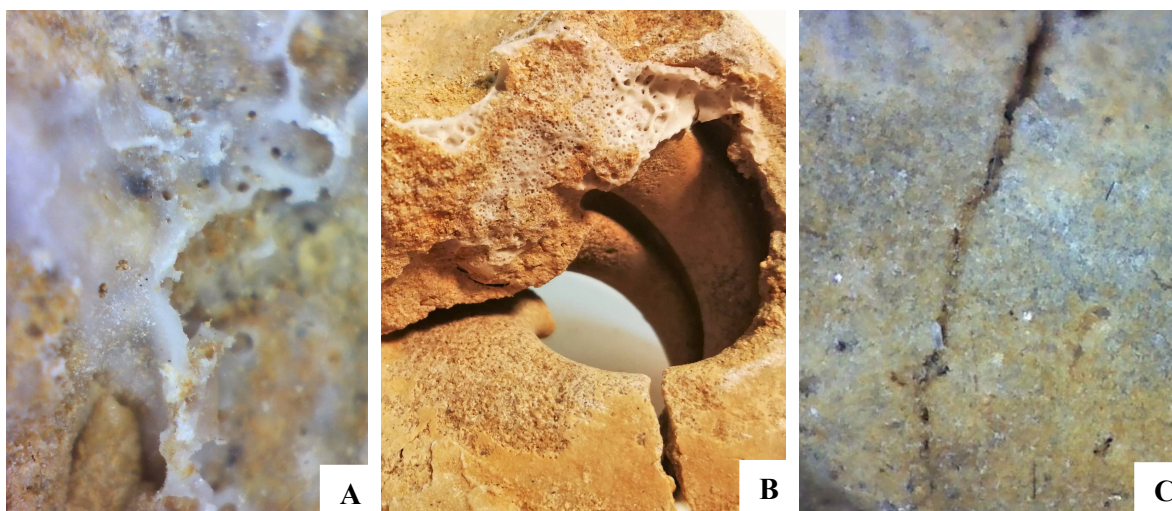


Fig. 2. Appearance of the old adhesive deposits (A, B) and a deep crack in a fragment (C).

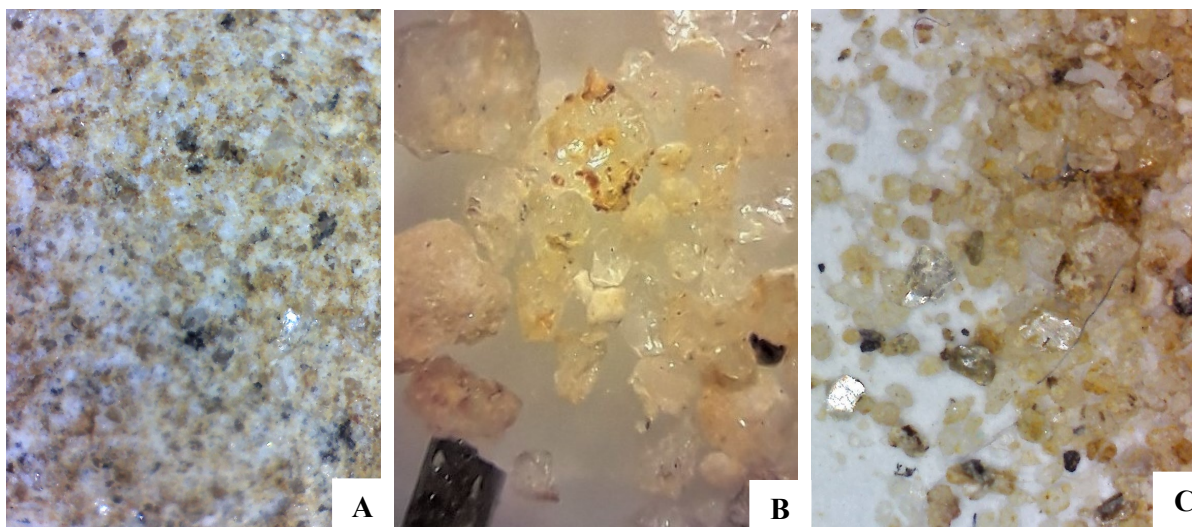


Fig. 3. Appearance of the sedimentary rock (A) and the deposits of quartz, muscovite and tourmaline in the sand (B, C).

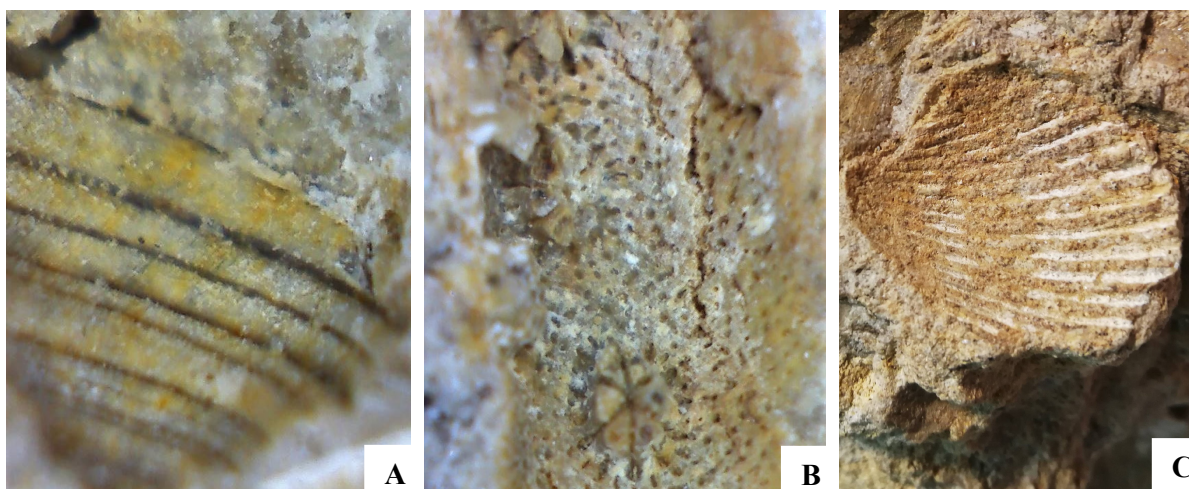


Fig. 4. External molds of bivalves (A, C) and fossilized corals (B) on the basal fragment.



Fig. 5. Aspects during wet cleaning of the basal fragment.

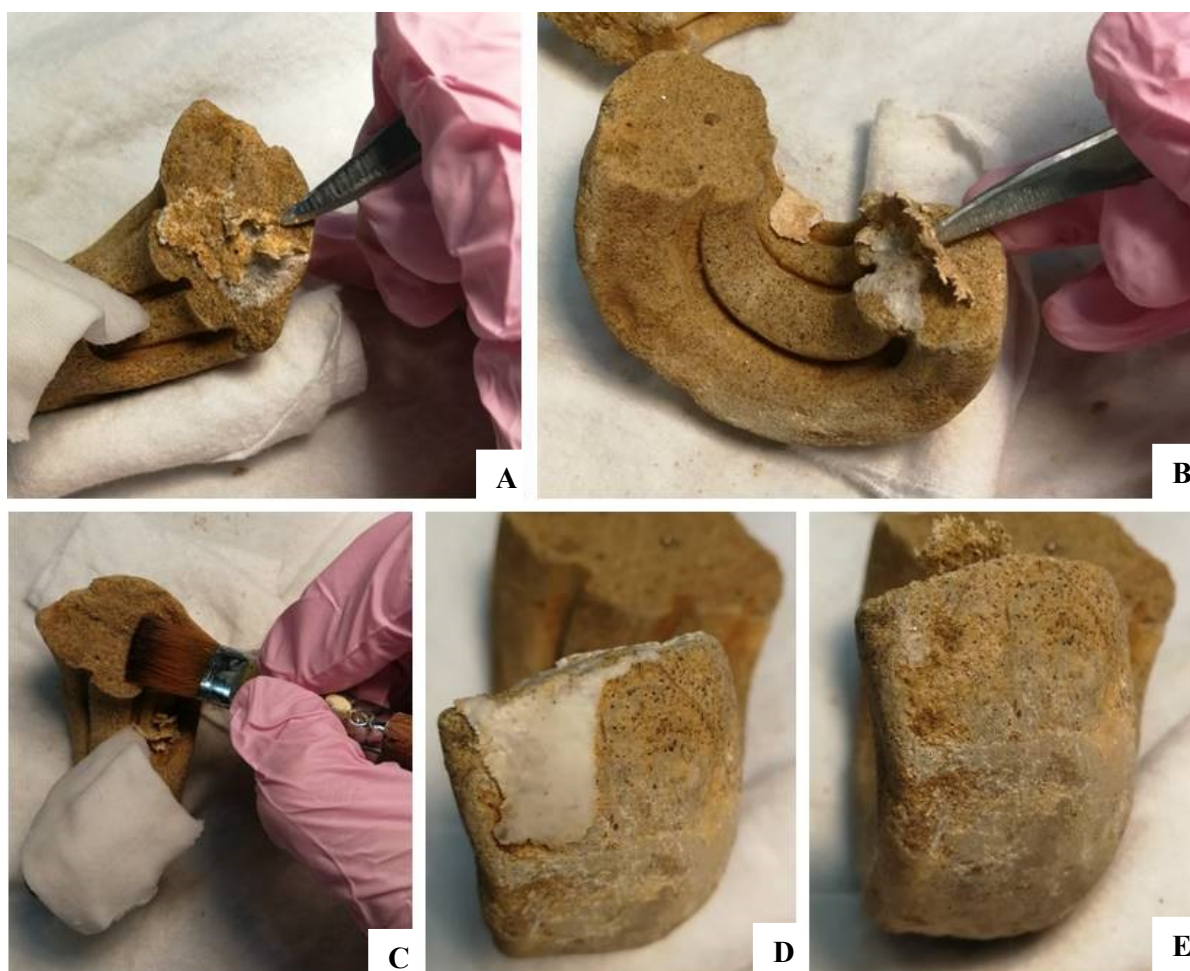


Fig. 6. Aspects during wet cleaning in fragment D.

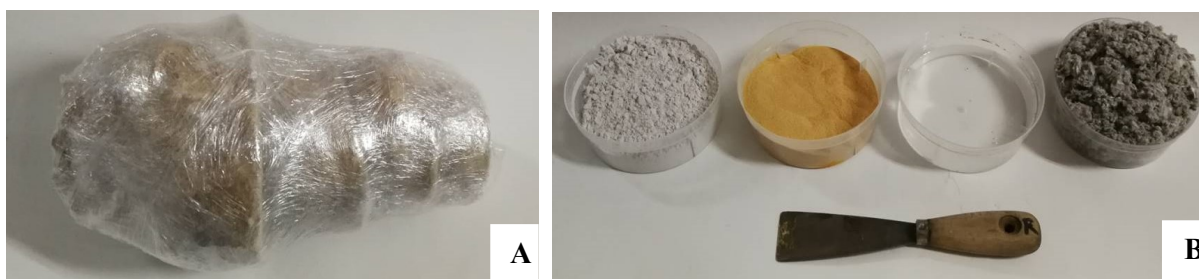


Fig. 7. Packing the specimen in polyethylene foil (A) and materials required for the paper paste (B)

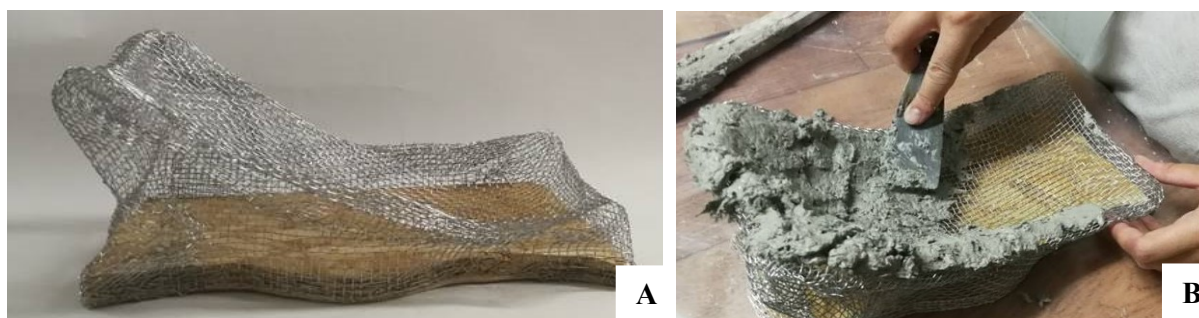


Fig. 8. Wire skeleton (A) and the modeling of the specimen support (B).

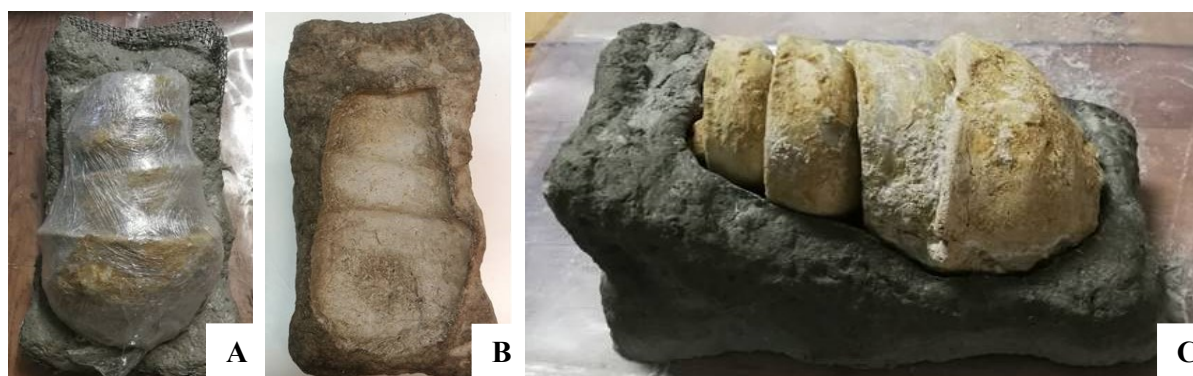


Fig. 9. Aspects during the formation of the mold footprint.



Fig. 10. The appearance of the showcase.

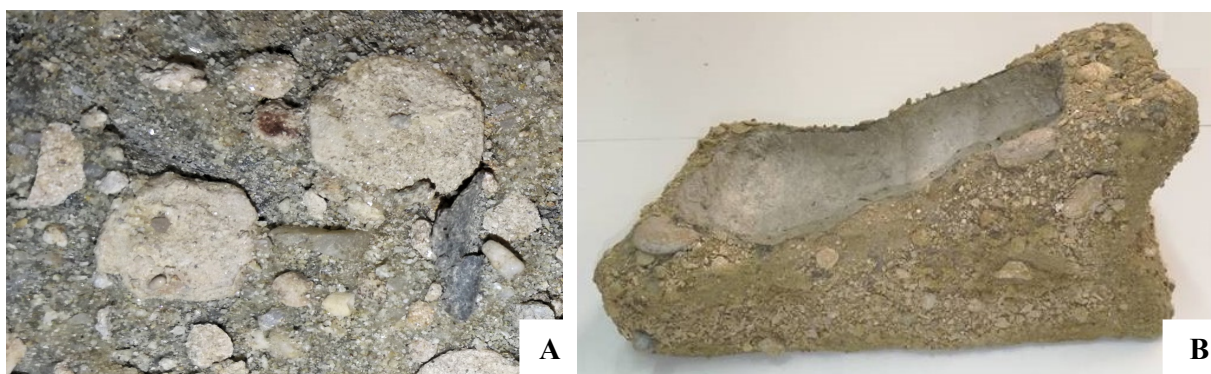


Fig. 11. Detail (A) and final appearance (B) of the paper paste support after contextual integration.



Fig. 12. Appearance of volumetrically completed fragments by assembly (without gluing).



Fig. 13. Appearance of the volumetric filling after gluing the fragments with adhesive and grouting.



Fig. 14. The appearance of the display case with the label on the side of the support.



Fig. 15. Final appearance of the specimen placed in the display case.

BRUKENTHAL NATIONAL MUSEUM IN 2020: A CHRONICLE OF NATURAL HISTORY EXHIBITIONS AND EVENTS

Dana Roxana HRIB*

Abstract: *The present study is a synthetic presentation of Brukenthal National Museum's cultural offer in the field of natural history during 2020.*

Keywords: *Brukenthal National Museum, natural history, 2020.*

Rezumat: *Articolul de față constituie o prezentare sintetică a ofertei culturale a Muzeului Național Brukenthal în domeniul istoriei naturale, pe parcursul anului 2020.*

Cuvinte cheie: *Muzeul Național Brukenthal, istorie naturală, 2020.*

1. Temporary exhibitions¹

Out of the 22 temporary exhibitions that were organized at the Museum's premises during 2020, 4 exhibitions displayed selections of exhibits in various fields of natural history.

_Pharmacy – de Art of Healing (Museum of Pharmacy, 24.06 – 30.10.2020): the exhibition presented objects from the patrimony of the Pharmacy Museum in Sibiu, interdisciplinary and artistic “explained”, in order to offer a new perspective to the visiting public. Thus, an 18th century pharmaceutical jar could be described through the prism of history while its content is botanically and biochemically analyzed, from a mineralogical point of view or from a zoological one. There were on display pharmaceutical jars containing beetle dust and “crayfish eyes”, manuscripts of old Sibiu pharmacists, devices used in the preparation of remedies and much more. The history of pharmacy is a fascinating field that deserves to be known, because the evolution of this science “in a white robe” can be considered an art of healing.

_Structure and colour in the living world (Museum of Natural History, Multimedia Room, 30.06 – 30.09.2020): nature is a perfect, well-functioning system with no need of human intervention. With the development of mankind, trade and industry, the environment has suffered greatly. For this reason, more and more specialists have approached and applied the study of biological systems in various branches of modern society. The exhibition presented these sources of inspiration for inventors, artists, engineers and architects over time. From Leonardo da Vinci who studied the bird flight for a flying machine, to modern self-cleaning paints inspired by water lily leaves, the subject reveals how specialists get their inspiration from nature, in various areas of development.

_Hunting Stories (“August von Spiess” Museum of Hunting, September-November, 2020): August Roland von Spiess (1864–1953) was a talented publicist. His descriptions are not only detailed, but also the narrator of vivid experiences. He was the author of the chapters dedicated to the bear and the lynx, along a prestigious group of specialists who elaborated the monumental hunting treaty “Die Hohe Jagd”, published in Berlin in 1922. His first monograph entitled “Gurghiu: Gorgeny St. Imbre” was published in 1929 in Sibiu. Von Spiess describes his adventures and battles when hunting the bison, how Prince Rudolf organized his famous bear hunters, how Count Samuel Teleky hunted his first deer or King Ferdinand shot his last deer, and many other distinguished personalities of the time and their guests at hunting. The second monograph written by Colonel Spiess was published in 1933 and is entitled “Die Wildkammern des Retezatmassif” (*The Chamois of the Retezat Massif*). Also in 1933, the work that will become a classic hunting novel “Im Zauber den Karpathen” (*In the Carpathians charm*) sees the light of day. Most of his books contain hunting stories happening in the Transylvanian Carpathians and have had many reprints by the German and Romanian publishing. The only book published by Spiess in Romanian was “From Transylvania to Kilimanjaro. Hunters in Africa” (1942) as a sign of respect addressed to the Royal House of Romania, which supported him during his expeditions. The temporary exhibition included objects that belonged to A. von Spiess, “protagonists” from his hunting stories told with such mastery and passion by him.

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¹ The short descriptions of temporary exhibitions are selected from the texts given by the curators for public information.

Explorer in the museum (Museum of Natural History, Multimedia Room, October 2020 – April 2021): the exhibition addressed the school curricular areas dedicated to the biodiversity of Romania. Through the exhibits, grouped according to their habitat, the visitors discovered the variety of Romanian natural ecosystems in Romania, unique in the world, comprising terrestrial, underground and aquatic ecosystems with a biodiversity still well preserved. This richness of species is due to the interference of five types of biogeographical regions. An occasion to meet in one place, plants and animals endemic to Romania, the unique fauna of the Black Sea and fossils that reconstruct past habitats. The specimens on display were part of the *Transylvanian Society for Natural Sciences in Sibiu* (*Siebenbürgischer Verein für Naturwissenschaften in Hermannstadt*) collections, the society that in 1895, 125 years ago, inaugurated the Museum of Natural History in Sibiu.

2. Projects

Sibiu Pharmaceutical Traditions

Since 2016, Brukenthal National Museum, through the Pharmacy Museum, is partner of the Romanian Society of Pharmacy History (Sibiu) in the development of the cultural and educational project "Sibiu Pharmaceutical Traditions". Thematic lectures and various activities were held monthly in the Multimedia Room of the Museum of Natural History or within the Museum of Pharmacy.

Scientific symposiums

Detailed coverage of invasive species (*Centaurea stoebe* group) threatening livelihood and the environment worldwide (06 – 09.2020): coordinated by the Institute of Geobotany / Plant of Ecology, Martin Luther University Halle, Germany, Dr. Cristoph Rosche with the participation of Dr. Ghizela Vonica from Brukenthal National Museum

3. Scientific symposiums

Online symposium: "Agriculture and its implications for food and human health" (8.10.2020): organized in partnership with "Lucian Blaga" University of Sibiu through the Faculty of Agricultural Sciences, Food Industry and Environmental Protection and the Faculty of Medicine, specialization Pharmacy and the Romanian Society of Pharmacy History, Sibiu section, the topics of the symposium were: Environment and climate influences on the agricultural ecosystem; Plant and animal resources for healthy eating; Flora and fauna; Pharmacology and natural remedies.

4. Published materials on historical subject

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REFERENCES

Raport Muzeul National Brukenthal 2020 http://www.brukenthalmuseum.ro/despre_noi/rapoarte.html
<http://www.brukenthalmuseum.ro/index2.php/virtuale>
<http://www.brukenthalmuseum.ro/index2.php/ro/expo>
<http://www.brukenthalmuseum.ro/publicatii/index.html>