Russian Entomol. J. 34(2): 246–256

Long progress in taxonomy: V.I. Motschulsky collection, family Cryptophagidae (Coleoptera). Part 1. Cryptophaginae

Долгий прогресс систематики: коллекция В.И. Мочульского, сем. Cryptophagidae (Coleoptera). Часть 1. Cryptophaginae

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KEY WORDS: ZMMU, *Caenoscelis*, *Cryptophagus*, *Micrambe*, *Spaniophaenus*, *Telmatophilus.*
КЛЮЧЕВЫЕ СЛОВА: ZMMU, *Caenoscelis*, *Cryptophagus*, *Micrambe*, *Spaniophaenus*, *Telmatophilus.*

ABSTRACT. Beetles of the family Cryptophagidae (subfam. Cryptophaginae) from the collection of V.I. Motschulsky stored in the Zoological Museum of Moscow State University are studied and identified. Beetles of this subfamily in the Motschulsky's collection are represented by 9 genera and 60 species. The species unpublished by Motschulsky, but planned by him for description, are discussed. The assessment of V.I. Motschulsky's "taxonomic intuition", how well he distinguished the species represented in his collection, is provided.

РЕЗЮМЕ. Изучена и определена коллекция жуков семейства Cryptophagidae (подсем. Cryptophaginae) из коллекции В.И. Мочульского. Коллекция хранится в Зоологическом музее МГУ. Коллекция жуков этого подсемейства включает 9 родов и 60 видов. Обсуждается описание таксонов, не опубликованных Мочульским, но планируемых к описанию. Дана оценка «таксономического чутья» В.И. Мочульского — насколько хорошо он видел виды, представленные в его коллекции.

Introduction

The Zoological Museum of Moscow State University houses a collection of beetles and other insects by Viktor Ivanovich Motschulsky (1810–1871, Fig. 1), a Russian entomologist who was mainly interested in beetles, a diplomat, a colonel, an intelligence officer of the General Staff, and a participant in the "Great Game", a 19th-century rivalry between the British and Russian empires for influence in Central Asia.

V.I. Motschulsky collected beetles during his travels and diplomatic trips, and also exchanged them with other collectors.

Motschulsky's travels included: 1) 1836 — France, Switzerland and the Alps, northern Italy and Austria; 2) 1839–1840 — the Russian Caucasus, Astrakhan, Kazan and Siberia; 3) 1847 — Kyrgyzstan; 4) 1850–1851 — Germany, Austria, Egypt, India, France, England, Belgium and Dalmatia; 5) 1853 — United States of America, Panama, returning to St. Petersburg via Hamburg, Kiel and Copenhagen; 6) 1853 — Germany, Switzerland and Austria. Most of Motschulsky's publications date back to 1850–1870.

In 2013, V.I. Motschulsky's memories were published, in which his adventures were described [Motschulsky, 2013]. Motschulsky was the first Russian entomologist-scout. The role of an itinerant entomologist was a good cover for his missions, and Paganel's image had not yet been created (Jules Verne's novel "The Children of Captain Grant" was published only in 1859).

The Motschulsky's collection of beetles is one of the oldest and largest insect collections in the Zoological Museum of Moscow State University. It contains the types of species described by Viktor Ivanovich, as well as species, which he intended to describe, but that were not published. Several families from his collection are revised earlier (e.g., Kryzhanovsky [1968], Keleinikova [1976]). A significant part of the specimens of the collection have not been determined. For almost two centuries, the collection has been repeatedly flooded and damaged by fungi and anobiid beetles. Some materials are poorly preserved, specimens are badly damaged, destroyed or completely lost.

Motschulsky did not specialize in the study of Cryptophagidae, his area of interest were beetles of the families Carabidae, Curculionidae, Chrysomelidae. Nevertheless, he collected significant amount of cryptophagid specimens and described several interesting species.

How to cite this article: Lyubarsky G.Yu. 2025. Long progress in taxonomy: V.I. Motchulsky collection, family Cryptophagidae (Coleoptera). Part 1. Cryptophaginae // Russian Entomol. J. Vol.34. No.2. P.246–256. doi: 10.15298/rusentj.34.2.07

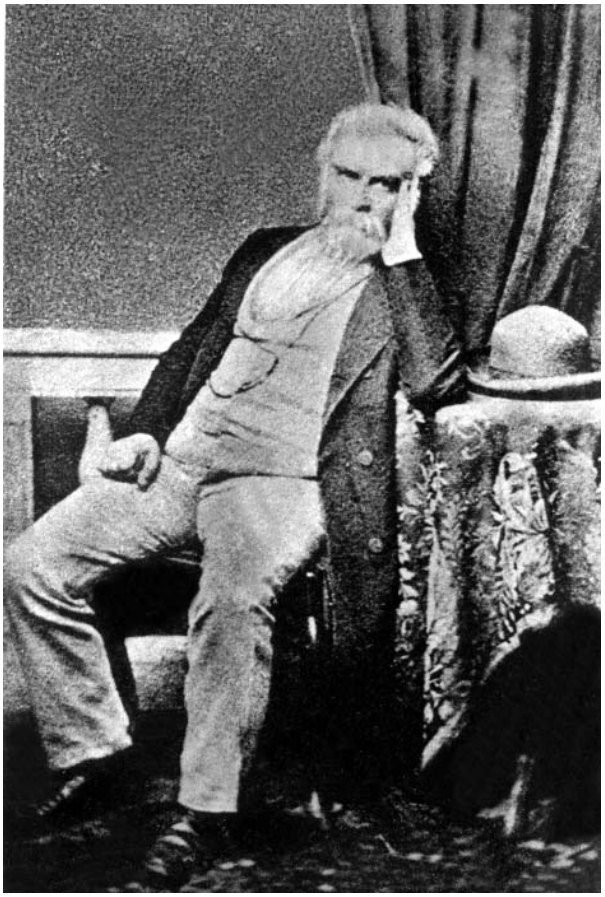

Fig. 1. Viktor Ivanovich Motschulsky (1810–1871).
Рис. 1. Виктор Иванович Мочульский (1810–1871).

Motschulsky's collection of beetles contains beetles from Europe, Asia, Africa, North and South America, as well as Australia. Many groups of these beetles have not yet been studied, there are no reviews or identification keys, so it has not been possible to identify materials from the collection for a long time. The full list of Motschulsky's publications: https://www.zin.ru/animalia/coleoptera/rus/motsch1.htm , see also https://species.wikimedia.org/w/index.php?title=Victor_Ivanovich_Motschulsky; 541 taxa names authored by Victor Ivanovich Motschulsky (https://species.wikimedia.org/wiki/Category:Victor_Ivanovich_Motschulsky_taxa).

Until recently, it was difficult to fully determined all specimens from the collections of the world fauna of the silken fungus beetles (Cryptophagidae). The situation has changed only in recent years. An excellent review of the Cryptophagidae of North America [Pelletier, Hebert, 2019], has been published. The African fauna of the genus *Micrambe* [Otero, 2023] and the Picrotini tribe of South America and Australia [Leschen, Gimmel, 2012] were reviewed. Thanks to these review papers and many other articles on the fauna of Cryptophagidae, it has become possible to almost completely identify the silken fungus beetles from Motschulsky' collection, which includes materials from all over the world.

Material and methods

In the Motschulsky's collection, materials from the Palaearctic (excluding North Africa) have white labels (made of unpainted paper), materials from North Africa have light yellow labels, materials from North America (Nearctic) have light green labels, materials from the South Asia (Oriental region) have bright yellow labels, materials from sub-Saharan Africa (Ethiopian region) — dark blue, materials from South America (Neotropics) — dark green labels.

All labels in the collection are handwritten. The designations of locations in the Motschulsky's collection are very general: usually a country or an entire region is indicated. Many materials do not have labels, but are only marked with a colored billet indicating the region of collection. In cases when the material is labeled, it is often impossible to make out Motschulsky's handwriting, and a locality remains undeciphered. Motschulsky used celluloid plates instead of cotton mattresses to store insect collections: he pasted dozens of small beetles from different families on them. In such cases, this article indicates taxonomic affiliation only to the Cryptophagidae family, while the rest of the beetles are defined only to the family.

Taxonomy

Family Cryptophagidae Kirby, 1826
Subfamily Cryptophaginae Kirby, 1826

Antherophagus Dejean, 1821

All the species (four species) of this genus in the Motschulsky's collection have been identified correctly (taking into account modern synonymy).

Antherophagus ochraceus Melsheimer, 1844
Fig. 2.

LABELS: light green round billet, "ochraceus", "Antherophagus ochraceus Melsh. Am bor.". 1 spec.

REMARKS. America N. The specimen is well preserved.

Antherophagus pallens (Linnaeus, 1758)

LABELS: "Antherophagus nigricornis Petropol". 2 spec.

REMARKS. Russia, Saint Petersburg. The specimens are almost completely destroyed.

Antherophagus silaceus (Herbst, 1792)

LABELS: "Antherophagus silaceus Hrbst. Helvetia". 1 spec.

REMARKS. Switzerland. The specimen is almost completely destroyed.

Antherophagus similis Curtis, 1835

LABELS: "Antherophagus pallens Ol. Gallia". 1 spec.

REMARKS. France. The specimen is partially destroyed.

Caenoscelis C.G. Thomson, 1863

Most of the species of this genus (four species) from the Motschulsky's collection were described after the completion of his scientific work. He designated one species for description, but the name of that species was not published.

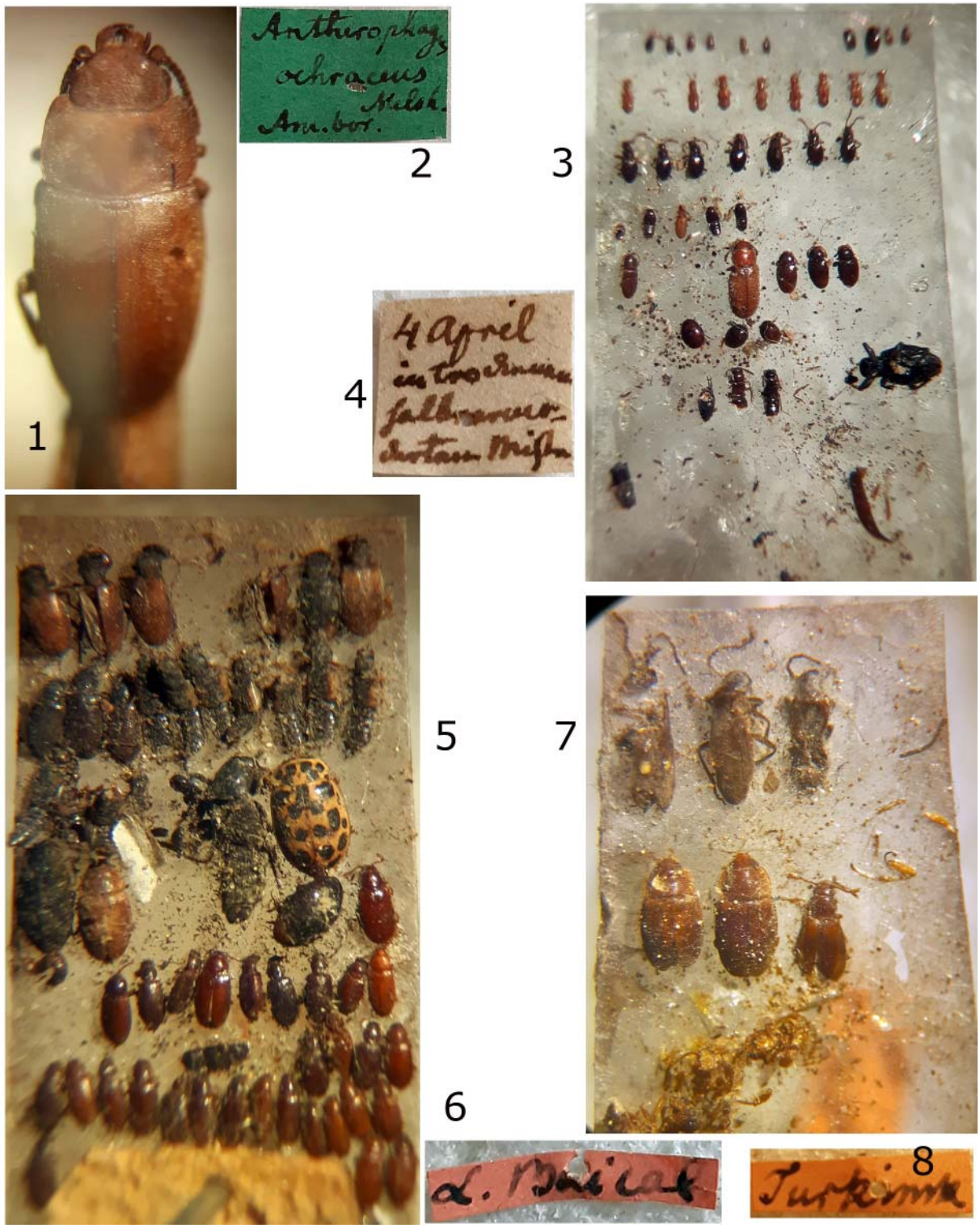

Fig. 2. V.I. Motschulsky's collection: 1 — *Antherophagus ochraceus*, specimen from Motschulsky's collection; 2 — same, label; 3 — *Cryptophagus cellaris*, specimen on celluloid plate, together with of small beetles from different families; 4 — same, label; 5 — *Henoticus serratus*, specimen on celluloid plate, together with of small beetles from different families; 6 — same, label; 7 — *Cryptophagus quadrimaculatus*, specimen on celluloid plate, together with of small beetles from different families; 8 — same, label.

Рис. 2. Коллекция В.И. Мочульского: 1 — *Antherophagus ochraceus*, экземпляр из коллекции Мочульского; 2 — то же, этикетка; 3 — *Cryptophagus cellaris*, экземпляр на целлулоидной пластинке, вместе с мелкими жуками различных семейств; 4 — то же, этикетка; 5 — *Henoticus serratus*, экземпляр на целлулоидной пластинке, вместе с мелкими жуками различных семейств; 6 — то же, этикетка; 7 — *Cryptophagus quadrimaculatus*, экземпляр на целлулоидной пластинке, вместе с мелкими жуками различных семейств; 8 — то же, этикетка.

Caenoscelis antennalis (Casey, 1924)

LABELS: light green round billet. 1 spec.

REMARKS. America N. The specimen is almost completely destroyed.

Caenoscelis cryptophaga Reitter, 1875

LABELS: light green round billet. 3 spec.

REMARKS. America N. The specimens are well preserved.

Caenoscelis ferruginea (C.R. Sahlberg, 1820)

LABELS: "Atomaria ferruginnea Sahlb. Sib.or. Baical". 3 spec.

REMARKS. Russia. On the plate together with *Caenoscelis subdeplanata*. The specimens are well preserved.

LABELS: Baical". 2 spec.

REMARKS. Russia, East Siberia. The specimens are well preserved.

LABELS: "Turkinsk", "Latridius au ??". 1 spec.

REMARKS. Russia, Republic of Buryatia, Goryachinsk. A large plate with different beetles. On the plate together with *Henoticus serratus* and *Micrambe bimaculata*. The specimen is well preserved.

LABELS: pink label "L. Baical". 1 spec.

REMARKS. Russia, Siberia. On the plate together with *Henoticus serratus*, *Atomaria vespertina* and beetles from other families (Coccinellidae, Latridiidae, Nitidulidae, Staphylinidae etc.). The specimen is well preserved.

Caenoscelis parallela Casey, 1900

LABELS: light green round billet, "Atlanta", "Atomaria attenuata Motsch. Am. Bor.". 1 spec.

REMARKS. USA, Georgia. This species was planned for description, at the time of its designation it had not yet been described by anyone, but the species name has not been published. The specimen is well preserved.

Caenoscelis subdeplanata C.N.F. Brisout de Barneville, 1882

LABELS: "Atomaria ferruginnea Sahlb. Sib.or. Baical". 1 spec.

REMARKS. Russia, East Siberia. On the plate together with *Caenoscelis ferruginea.* The specimen is well preserved.

Cryptophagus Herbst, 1792

Many species of this genus were described after the completion of Motschulsky's work. He correctly identified most of the species in this genus.

Cryptophagus acutangulus Gyllenhal, 1827

LABELS: white label "Omsk", 1 spec.

REMARKS. Russia, W. Siberia, Omsk. The specimen is well preserved.

LABELS: white label "Cryptophagus acutangulus Gyl. Fen. Mer.". 2 spec.

REMARKS. Finland. One specimen is well preserved, another specimen is completely destroyed.

LABELS: white label "Aus ?? Lokal ?? Berliner Museum". 1 spec.

REMARKS. Europe? The specimen is well preserved.

LABELS: light pink square label. 1 spec.; light pink square label. 4 spec.

REMARKS. Europe? The specimens are well preserved.

LABELS: white cream shade round billet "M" "Cryptophagus puberulus Mus.Ber. Mesopotamia". 1 spec.

REMARKS. Iraq? The name of this species has not been published. The specimen is well preserved.

LABELS: pink label "Zv. Zarizin a. Astrakhan", white label "acutangulus". 10 spec.

REMARKS. Russia, Volgograd, Volgograd Oblast. The specimens are well preserved.

LABELS: white label "Ural", white label "villosus". 3 spec.

REMARKS. Russia, Ural. The specimens are well preserved.

LABELS: white label "Daghestan Timirhan" "sericeus". 3 spec.

REMARKS. Russia, Daghestan, Buynaksk. The name of this species has not been published. The specimens are well preserved.

LABELS: white label "innocendus m. Sib. <?>aceed.". 2 spec.

REMARKS. Russia, Siberia. The name of this species has not been published. The specimens are well preserved.

LABELS: pink label "Lithuania" white label "pilosus". 10 spec.

REMARKS. Lithuania. Six specimens are almost completely destroyed.

LABELS: white label "<??> uberig<?> Poroschino L<?>ivkau<?>aly 13 Mai". 1 spec.

REMARKS. N Russia? On the plate together with *Atomaria analis*, *A. fuscata*, *A. nitidula*, and beetles from other families. The specimen is well preserved.

Cryptophagus badius Sturm, 1845

LABELS: white label "Cryptophagus badius Sturm" "Lithuania". 1 spec.

REMARKS. Lithuania. The specimen is well preserved.

LABELS: white label "Cryptophagus fumatus Horch Hirzyn Germania". 1 spec.

REMARKS. Germany. On the plate together with *C. lapponicus*. The specimen is well preserved.

Cryptophagus caucasicus (Motschulsky, 1845)

LABELS: white label "Dapsa caucasica mihi Alp. Cauc." "Caucasus, Pa?ma". 1 spec.

Remarks. Lectotype of *Dapsa caucasica* Motschulsky, 1845. Russia. The male genitalia are dissected and stored in glycerin on a plastic card with a lectotype (Lyubarsky, 2007). The specimen is well preserved.

LABELS: white label "caucasica m." "Alp. Caucas.". 1 spec.

REMARKS. Paralectotype is *Cryptophagus osseticola* Lyubarsky 1992. Russia. The specimen is well preserved.

Cryptophagus cellaris (Scopoli, 1763)
Fig. 2.

LABELS: white label "<?>Macnille am <?>Murc". 1 spec.

REMARKS. Europe? The specimen is well preserved.

LABELS: white label "German". 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: white label "E. Eisleben". 1 spec.

REMARKS. Germany, Saxony-Anhalt. The specimen is well preserved.

LABELS: white round billet. 1 spec.

REMARKS. Europe? The specimen is well preserved.

LABELS: white label "Dresden". 1 spec.

REMARKS. Germany, Saxony. The specimen is well preserved.

LABELS: white label “4 April in tro<?????> salbar<??> <?????> Mish<?>. 1 spec.

REMARKS. Europe? On the plate together with *Atomaria linearis*, *A. testacea*, and beetles from other families (Curculionidae, Latridiidae, Ptiliidae, Scydmaenidae, Staphylinidae etc.). The specimen is well preserved.

Cryptophagus chthonius Esser, 2021

LABELS: white labels “Creta” “Cryptophagus albispilus Mots. Creta”. 1 spec.

REMARKS. Greece, Crete. This species was planned for description, at the time of its designation it had not yet been described by anyone, but the species name has not been published. The specimen is well preserved.

Cryptophagus croceus Zimmerman, 1869

LABELS: light green round billet. 1 spec.

REMARKS. N. America. The specimen is well preserved.

Cryptophagus decoratus Reitter, 1874

LABELS: orange square label, pink rectangular label. 1 spec.

REMARKS. Japan? It was placed in the collection next to *Cryptophilus quadrisignatus* Motschulsky, 1860. On the plate together with *C. quadrisignatus*. The specimen is well preserved.

Cryptophagus dentatus Herbst, 1793

= *quadridentatus* Mannerheim, 1843

LABELS: red square billet. 1 spec.

REMARKS. Europe? It was placed in the collection next to *Micrambe abietis* from Saxonia. The specimen is well preserved.

LABELS: white round billet. 1 spec.

REMARKS. Europe? The specimen is well preserved.

LABELS: white label “Cryptophagus pilosus Gyll. Paris”. 1 spec.

REMARKS. France. The specimen is well preserved.

LABELS: white label “Timirhar schura” “punctatus”. 1 spec.

REMARKS. Russia, Daghestan, Buynaksk (Temir-Khan-Shurá). On the plate together with *C. punctipennis*. The specimen is well preserved.

Cryptophagus denticulatus Heer, 1841

= *pseudodentatus* Bruce, 1934

LABELS: light green round billet. 2 spec.

REMARKS. N. America. The specimens are well preserved.

LABELS: white round billet. 2 spec.

REMARKS. Germany. It was placed in the collection next to specimens from Saxonia. One specimen is almost completely destroyed.

LABELS: white label “Cryptophagus cellaris Scop. Germania”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: white label “Sax.” “Cryptophagus dentatus Hrbst Saxonia”. 1 spec.

REMARKS. Germany, Saxony. The specimen is well preserved.

LABELS: white label “28 Aug 1861 Dresd”. 3 spec.

REMARKS. Germany, Saxony. The specimens are well preserved.

LABELS: white label “Paramecosoma melanocephala”. 1 spec.

REMARKS. Europe? The specimen is destroyed.

LABELS: white label “Styria”. 1 spec.

REMARKS. Austria? The specimen is well preserved.

LABELS: pink label “Kody <?>umaie<?>”. 3 spec.

REMARKS. ? S. Europe. The specimens are well preserved.

LABELS: white label “Tiflis” “testaceus”. 1 spec.

REMARKS. Georgia. On the plate together with *Cryptophagus reflexus.* The specimen is well preserved.

LABELS: white label “Icelandia”. 1 spec.

REMARKS. Iceland. The specimen is well preserved.

LABELS: white label “cellaris Paris”. 1 spec.

REMARKS. France. A large plate with different beetles. On the plate together with *Cryptophagus punctipennis*, *C. distinguendus*, *C. dilutus.* The specimen is well preserved.

LABELS: without labels. 2 spec.

REMARKS. Europe? It was placed in the collection next to specimens from Saxonia. The specimens are well preserved.

Cryptophagus dilutus Reitter, 1874

LABELS: white label “Dalmatien”. 1 spec.

REMARKS. Croatia. The specimen is well preserved.

LABELS: light green round billet. 2 spec.

REMARKS. N. America. One specimen is almost destroyed.

LABELS: white label “cellaris Paris”. 2 spec.

REMARKS. France. A large plate with different beetles. On the plate together with *Cryptophagus punctipennis*, *C. distinguendus*, *C. denticulatus.* The specimens are well preserved.

Cryptophagus distinguendus Sturm, 1845

LABELS: white label “cellaris Paris”. 2 spec.

REMARKS. France. A large plate with different beetles. On the plate together with *Cryptophagus punctipennis*, *C. dilutus*, *C. denticulatus.* One specimen is well preserved, and the other is destroyed.

LABELS: white label “Dagestan”. 1 spec.

REMARKS. Russia, Caucasus. A large plate with different beetles. On the plate together with Scydmaenidae, Latridiidae etc. The specimen is well preserved.

LABELS: white label “Polonia и Piatigorsk” “abietis”. 2 spec.

REMARKS. Russia, Caucasus? One specimen is well preserved, and the other is destroyed.

LABELS: white label “Laibach”, “Cryptophagus distinguendus? Er. Carniolia”. 1 spec.

REMARKS. Slovenia. The specimen is well preserved.

LABELS: without label. 2 spec.

REMARKS. It was placed in the collection next to specimens from Europe. The specimens are well preserved.

LABELS: pink label “Timirhar Schura”, white label “recticollis”. 4 spec.

REMARKS. Russia, Daghestan, Buynaksk (Temir-Khan-Shurá). The specimens are well preserved.

Cryptophagus dorsalis C.R. Sahlberg, 1819

LABELS: white label “Kissingen”. 2 spec.

REMARKS. Germany, Bavaria. Two specimens are well preserved, one specimen is fully destroyed.

Cryptophagus fallax Balfour-Browne, 1953

LABELS: white label “Wien”. 1 spec.

REMARKS. Austria. The specimen is destroyed.

LABELS: white label “type”, “Cryptophagus fumatus Gyll. German. Ausb”. 1 spec.

REMARKS. Germany. The specimen is destroyed.
LABELS: pink label “Lithuania” “gibbulus”. 4 spec.
REMARKS. Lithuania. On the plate together with *C. reflexus*. Three specimens are well preserved, one specimen is damaged.

Cryptophagus hexagonalis Tournier, 1872
LABELS: white label. 1 spec.
REMARKS. Russia, W. Siberia. The specimen is well preserved.
LABELS: pink label “Petropol”, white label “cellaris”. 1 spec.
REMARKS. Russia, Saint Petersburg. The specimen is well preserved.
LABELS: white label “Dalm”, “Cryptophagus flavus Motsch. Illyr. Dalm.”. 1 spec.
REMARKS. Croatia? This species was planned for description, at the time of its designation it had not yet been described by anyone, but the species name has not been published. The specimen is well preserved.
LABELS: white label “Sib. allid.”. 1 spec.
REMARKS. Rissia, W. Siberia. On the plate together with *Atomaria nitidula*, *A. peltatula* and beetles from families: Carabidae, Staphylinidae and other families. The specimen is well preserved.

Cryptophagus insulicola Roubal, 1919
LABELS: white label “Laibach”. 1 spec.
REMARKS. Slovenia. The specimen is well preserved.

Cryptophagus labilis Erichson, 1846
LABELS: white label “Cryptophagus pilosus Styria Grimnu<?>”. 1 spec.
REMARKS. Austria. The specimen is well preserved.
LABELS: white label “Styria”. 1 spec.
REMARKS. Austria. The specimen is well preserved.

Cryptophagus lapponicus Gyllenhal, 1827
LABELS: white label “Cryptophagus fumatus Horch Hirzyn<?> Germania”. 1 spec.
REMARKS. Germany. On a pin together with *C. badius*. The specimen is well preserved.

Cryptophagus laticollis Lucas, 1846
LABELS: white label “Georgia” “setulosus”. 3 spec.
REMARKS. Georgia. Two specimens are well preserved, one is destroyed.
LABELS: white label “Nahiturwan”. 1 spec.
REMARKS. Europe? On a pin together with beetles from other families. The specimen is well preserved.

Cryptophagus lycoperdi (Scopoli, 1763)
LABELS: white label “Styria”. 1 spec.
REMARKS. Austria. The specimen is well preserved.
LABELS: white label “Cryptophagus pilosus Er. Islandia”. 3 spec.
REMARKS. Iceland. On the plate together with *C. punctipennis*. The specimens are well preserved.
LABELS: white label “licoperdi Herfss Scho<?> Paris”. 1 spec.
REMARKS. France. The specimen is well preserved.
LABELS: white label “Sax” “Cryptopagus Lycopordi Hrbst. Saxonia”. 1 spec.
REMARKS. Germany. The specimen is well preserved.
LABELS: white label “Curnis<?> 59”. 2 spec.
REMARKS. Europe? The specimens are damaged.
LABELS. White label “Carniolia”. 1 spec.
REMARKS. Slovenia. The specimen is well preserved.

Cryptophagus mainensis Casey, 1924
LABELS: light green round billet. 2 spec.
REMARKS. N. America. One specimen is well preserved, the other is destroyed.

Cryptophagus nitidulus Miller, 1858
LABELS: white label “Transsylvania” “Cryptophagus nitidulus Miller Transsylv.”. 1 spec.
REMARKS. Romania. The specimen is well preserved.

Cryptophagus populi Paykull, 1800
LABELS: pink label “Petropol” white label “populi”. 1 spec.
REMARKS. Russia, Saint Petersburg. The specimen is well preserved.

Cryptophagus porrectus Casey, 1900
LABELS: light green square billet. 1 spec.
REMARKS. N. America. The specimen is well preserved.

Cryptophagus pubescens Sturm, 1845
LABELS: white label “Sax” “Spavius pubescens Sturm Austr. Sapon”. 1 spec.
REMARKS. Germany. The specimen is well preserved.
LABELS: white label “Wien”. 2 spec.
REMARKS. Austria. The specimens are well preserved.
LABELS: white label “Cryptoph. Fontenbl”. 1 spec.
REMARKS. France. The specimen is well preserved.

Cryptophagus puncticollis P.H. Lucas, 1846
LABELS: white label “Laibach”. 1 spec.
REMARKS. Slovenia. The specimen is well preserved.

Cryptophagus punctipennis
C.N.F. Brisout de Barneville, 1863
LABELS: white label “cellaris Paris”. 3 spec.
REMARKS. France. On the plate together with *Cryptophagus denticulatus*, *C. distinguendus*, *C. dilutus*. Two specimens are well preserved, and one is destroyed.
LABELS: white label “Cryptophagus pilosus Er. Islandia”. 1 spec.
REMARKS. Iceland. On the plate together with *C. lycoperdi*. The specimen is destroyed.
LABELS: light green round billet. 2 spec.
REMARKS. N. America. One specimen is well preserved, the other is destroyed.
LABELS: light green round billet. 1 spec.
REMARKS. N. America. The specimen is well preserved.
LABELS: white label “Kahetia”. 1 spec.
REMARKS. Georgia. On one plate together with beetles of different families. The specimen is well preserved.
LABELS: white label “St Germainx au <?>anda<?>a<?> Paris”. 1 spec.
REMARKS. France. The specimen is well preserved.
LABELS: pink label “Timirhan schura” white label “punctatus”. 3 spec.
REMARKS. Russia, Daghestan, Buynaksk (Temir-Khan-Shurá). On the plate together with *C. dentatus*. The specimens are well preserved.
LABELS: white label “Wien”. 5 spec.
REMARKS. Austria. The specimens are well preserved.

Cryptophagus quadrimaculatus Reitter, 1877
Fig. 2.

LABELS: pink label “Turkinsk”. 1 spec.

REMARKS. Russia, Buryatia. On the plate together with beetles from different families: Nitidulidae, Cantharidae etc. The specimen is well preserved.

LABELS: pink label “Tschertovkino Sib.or. Baical”. 5 spec.

REMARKS. Russia, Buryatia. On the plate together with *C. saginatus*. The specimens are well preserved.

Cryptophagus quercinus Kraatz, 1852

LABELS: white label “type”, “Cryptophag. quercinus mihi Berol. v. Kraatz”. 1 spec.

REMARKS. Europe? The specimen is badly damaged.

Cryptophagus reflexus Rey, 1889

LABELS: white label “Tiflis” “testaceus”. 1 spec.

REMARKS. Georgia. On the plate together with *Cryptophagus denticulatus*. The specimen is well preserved.

LABELS: pink label “Lithuania”, white label “gibbulus”. 1 spec.

REMARKS. Lithuania. On the plate together with *C. fallax*. The specimen is well preserved.

LABELS: pink label “Lithuania”, white label “connatus”. 4 spec.

REMARKS. Lithuania. One specimen was destroyed, two specimens were damaged, and one specimen is well preserved.

LABELS: without label. 1 spec.

REMARKS. Europe? The specimen is well preserved.

Cryptophagus saginatus Sturm, 1845

LABELS: white label “Laibach au Wein fassern”, “Cryptophagus saginatus Schupp. Carniolia”. 1 spec.

REMARKS. Slovenia, Ljubljana. The specimen is well preserved.

LABELS: white label “Laibach au Wein fassern”. 3 spec.

REMARKS. Slovenia, Ljubljana. The specimens are well preserved.

LABELS: white label “Liez”. 1 spec.

REMARKS. France. The specimen is well preserved.

LABELS: pink label “Tschertovkino Sib.or. Baical”. 1 spec.

REMARKS. Russia, Buryatia. On the plate together with C. *quadrimaculatus*. The specimen is well preserved.

Cryptophagus scanicus (Linnaeus, 1758)

LABELS: white label “Sax.” “Cryptophagus scanicus L. Saxonia”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: without label. 2 spec.

REMARKS. Europe? In the collection was placed next to specimens from Saxonia. The specimens are well preserved.

LABELS: pink label “Lithuan”, white label “2-maculatus”. 21 spec.

REMARKS. Lithuania. Three specimens are damaged, the rest are well preserved.

LABELS: white label “collaris Gyll. Helvetia Bnochs.”. 1 spec.

REMARKS. Switzerland. The specimen is well preserved.

LABELS: white label “Langenfeld Corniolia”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: white label “scanicus Paris”. 2 spec.

REMARKS. France. The specimens are well preserved.

LABELS: white label “N.1. Versailles N. 2. Br<??>ch<?> im Wa<???>au tal<???>oos”. 2 spec.

Remarks. France. The specimens are well preserved.

Cryptophagus schmidtii Sturm, 1845

LABELS: white label “type”, “Cryptophagus schmidtii Sturm Germania”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

Cryptophagus scutellatus Newman, 1834

LABELS: white label “obscuricollis mihi Gallia”. 3 spec.

REMARKS. France. The species name has not been published. The specimens are well preserved.

LABELS: white label “hirtus Gyll. Volhyn.”. 1 spec.

REMARKS. Ukraine? The specimen is well preserved.

LABELS: white label “34 Carn <?>vet.” “fludnsumm<?> Coll. St. Kans<???> <?>Gvollen”. 2 spec.

REMARKS. Norway? One specimen is completely destroyed, the other is well preserved.

LABELS: white label “bicolor Sturm”. 1 spec.

REMARKS. Germany? The specimen is well preserved.

LABELS: white label “Cryptophagus bicolor v Kraatz Sturm German”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

Cryptophagus setulosus Sturm, 1845

LABELS: white label “Styria”, “Cryptophagus villosus Grimer Styria setulosus Sturm”. 1 spec.

REMARKS. Austria. The specimen is well preserved.

LABELS: white label “Cryptophagus porculus Mgl. Austria”. 1 spec.

REMARKS. Austria. The specimen is well preserved.

LABELS: white label “villosus Ull. Schen Baden”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: light green round billet. 2 spec.

REMARKS. N. America. The specimens are well preserved.

LABELS: light green billet, red square. 3 spec.

REMARKS. N. America. The specimens are well preserved.

LABELS: light green square. 1 spec.

REMARKS. N. America. The specimen is well preserved.

Cryptophagus subdepressus Gyllenhal, 1827

LABELS: white label “Cryptophagus fuscicornis ? Er. Creta”. 1 spec.

REMARKS. Greece, Crete. The specimen is well preserved.

LABELS: white label “Wien Theresinu”. 1 spec.

REMARKS. Austria. The specimen is well preserved.

Cryptophagus uncinatus Stephens, 1830

LABELS: white label “Dalmatien”. 1 spec.

REMARKS. Croatia. The specimen is well preserved.

Cryptophagus valens Casey, 1900

LABELS: light green small square. 1 spec.

REMARKS. N. America. The specimen is well preserved.

Henoticus C.G. Thomson, 1868

By the time of Motschulsky's work, only one species of this genus had been described. He correctly identified it and designated several specimens of this species to describe new species, but did not publish these descriptions.

Henoticus serratus (Gyllenhal, 1808)
Fig. 2.

LABELS: white label “Turkinsk”, “Latridius au <??>”. 1 spec.

REMARKS. Russia, Republic of Buryatia, Goryachinsk. A large plate with different beetles. On the plate together with *Caenoscelis ferruginea, Micrambe bimaculata*. The specimen is well preserved.

LABELS: pink label “L. Baical”. 1 spec.

REMARKS. Russia, Siberia. On the plate together with beetles from other families (Latridiidae: *Corticaria*; Nitidulidae: *Epuraea*). The specimen is well preserved.

LABELS: pink label “L. Baical”. 2 spec.

REMARKS. Russia, Siberia. On the plate together with *Caenoscelis ferruginea*, *Atomaria vespertina* and beetles from other families (Coccinellidae, Latridiidae, Nitidulidae, Staphylinidae etc.). The specimens are well preserved.

LABELS: white label “Bohem.”, “Smolandia”, “Paramecosoma serrata Gyll. Suecia Petropol”. 1 spec.

REMARKS. Germany? The specimen is well preserved.

LABELS: without labels. 2 spec. in one plate.

REMARKS. The specimens are well preserved.

LABELS: white label “columbinus m. Columb.”. 1 spec.

REMARKS. S. America. The species name has not been published. The specimen is well preserved.

LABELS: white label “castaneus m. Sib. Bor.”. 1 spec.

REMARKS. Russia, Siberia. The species name has not been published. The specimen is well preserved.

LABELS: pink label “Turkinsk <???> Danu<???>vi<??>s”. 1 spec.

REMARKS. Russia, Republic of Buryatia, Goryachinsk. On the plate together with *Micrambe bimaculata, Atomaria elongatula* and beetles of other families. The specimen is well preserved.

Micrambe C.G. Thomson, 1863

By the time of Motschulsky's work, 6 species had been described: *M. abietis* Paykull, 1798, *hesperia* Wollaston, 1863, *occidentalis* Wollaston, 1863, *pilosula* Erichson, 1846, *ulicis* Stephens, 1830, *bimaculata* Panzer, 1798. Without taking into account the species described from the Canary Islands, he correctly identified the rest, although he sometimes confused them with other species. Motschulsky designated one of the species from South Africa for description as new, but did not publish this description.

Micrambe (*Micrambe*) *abietis* (Paykull, 1798)

LABELS: white label “Paramecosoma abietis Payk Germania”. 1 spec.

REMARKS. Germany. The specimen is completely destroyed.

LABELS: white label “Saxonia”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: pink label “Petropol”, white label “Cryptophagus puncticollis m. Petropol”. 1 spec.

REMARKS. Russia, Saint Petersburg. The species name has not been published. The specimen is well preserved.

LABELS: white label “ferrugineus Schup. Saxon”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: white label “Cryptophagus ferrugineus Schup.”, white label “Cryptophagus affinis Sturm Saxon. Creta”. 1 spec.

REMARKS. Germany? The specimen is well preserved.

Micrambe (*Micrambe*) ?*anguliformis* (Bruce, 1957)

LABELS: dark blue small round billet, dark blue label “Cryptophagus subangulatus Motsch. Cap”. 1 spec.

REMARKS. Republic of South Africa. The species name has not been published. The specimen is well preserved.

Micrambe (*Micrambe*) ?*parvula* (Bruce, 1952)

LABELS: dark blue small round billet, dark blue label “Cryptophagus dichroa Dej. Cap”. 1 spec.

REMARKS. Republic of South Africa. The specimen is well preserved.

Micrambe (*Micrambe*) *pilosula* (Erichson, 1846)

LABELS: white label “Sax.” “Paramecosoma pilosula Er. Saxonia”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

Micrambe (*Micrambe*) ?*simoni* Grouvelle, 1895

LABELS: dark blue label “rubidus Chev. Cap”. 1 spec.

REMARKS. Republic of South Africa. The specimen is well preserved.

Micrambe (*Micrambe*) *ulicis* (Stephens, 1830)

LABELS: white label “Cryptophagus ulicis Irlande” “Cryptophagus ulicis Irlandia”. 1 spec.

REMARKS. Ireland. The specimen is well preserved.

LABELS: light green round billet. 2 spec.

REMARKS. N. America. One specimen is destroyed, the other is well preserved.

Micrambe (*Micrambinus*) *bimaculata* (Panzer, 1798)

LABELS: white label “Omsk”. 1 spec.

REMARKS. Russia, W Siberia. The specimen is well preserved.

LABELS: white label “type”, “Cryptophagus bimaculatus Gyll. Suecia”. 1 spec.

REMARKS. Sweden. The specimen is well preserved.

LABELS: pink label “Simbirsk”, white label “affinis”. 5 spec.

REMARKS. Russia, Ulyanovsk. The specimens are well preserved.

LABELS: pink label “Petropol”. 2 spec.

REMARKS. Russia, Saint Petersburg. The specimens are well preserved.

LABELS: pink label “Turkinsk”, “Latridius au <??>”. 1 spec.

REMARKS. Russia, Republic of Buryatia, Goryachinsk. A large plate with different beetles. On the plate together with *Henoticus serratus*, *Caenoscelis ferruginea*. The specimens is well preserved.

LABELS: white label “Turkinsk”, “Latridius au <??>”. 1 spec.

LABELS: pink label “Turkinsk <???> Danu<???>vi<??>s”. 1 spec.

REMARKS. Russia, Republic of Buryatia, Goryachinsk. On the plate together with *Henoticus serratus*, *Atomaria elongatula* and beetles of other families. The specimen is well preserved.

Paramecosoma Curtis, 1833

Motschulsky correctly identified the only species of this genus, although he confused some specimens with other species.

Paramecosoma melanocephalum (Herbst, 1793)

LABELS: white label “nigricollis Maevk.”. 1 spec.

REMARKS. Europe? The specimen is well preserved.

LABELS: white label “Erlang”, “329”, “Paramecosoma melanocephala Hrbst Bavaria”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: white label “Styria”. 1 spec.

REMARKS. Austria. The specimen is well preserved.

LABELS: white label “L. Eisleben”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: without label. 1 spec.

REMARKS. Europe? The specimen is well preserved.

LABELS: white label “Saxonia”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: white label “nigricollis <?>Markal Saxon.”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: white label “nigricollis Shevr. Paris”. 2 spec.

REMARKS. France. The specimens are well preserved.

Spaniophaenus Reitter, 1875

By the time of Motschulsky was working, two species had been described in this genus: *S. lapidarius* Fairmaire, 1862 and *laticollis* L. Miller, 1858. There was only one species of this genus in Motschulsky's collection, which was not described at that time. Motschulsky intended to describe both specimens as two different species, but he did not publish these descriptions.

Spaniophaenus caucasicus Reitter, 1888

LABELS: white label “Spavius hirtus m. Schirvan”. 1 spec.

REMARKS. Azerbaijan. The species name has not been published. The specimen is well preserved.

LABELS: white label “Spavius abbreviatus m. Daghestan”. 1 spec.

REMARKS. Russia. The species name has not been published. The specimen is well preserved.

Spavius Motschulsky, 1844

Motschulsky correctly identified the only species of this genus.

Spavius glaber (Gyllenhal, 1808)

LABELS: white label “135”, “F. rufa Saxonia”, “Emphylus glaber Gyll. Saxonia”. 2 spec.

REMARKS. Germany. The specimens are well preserved.

Telmatophilus Heer, 1841

By the time of Motschulsky's work, almost all species of this genus had already been described. He correctly identified two species, but gave the third the wrong name.

Telmatophilus brevicollis Aubé, 1862

LABELS: white label “Telmatophilus sparganii Ahrens Germ. Herse<???>”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

Telmatophilus caricis (A.G. Olivier, 1790)

LABELS: white label “Lyon” “Telmatophilus caricis Ol. Gal. mer. Lyon”. 2 spec.

REMARKS. France. The specimens are well preserved.

LABELS: white label “Dresden”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: white label “German”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

LABELS: white label “Cryptophagus obscurus F. Austria”. 1 spec.

REMARKS. Austria. The specimen is well preserved.

LABELS: white label “Samara”. 1 spec.

REMARKS. Russia. The specimen is well preserved.

Telmatophilus typhae (Fallen, 1802)

LABELS: white label “Cryptophagus ater Mgl. Austria”. 1 spec.

REMARKS. Austria. The specimen is well preserved.

LABELS: white label “Cryptophagus nigrinus Kz. Saxonia”. 1 spec.

REMARKS. Germany. The specimen is well preserved.

Species from other families, which were placed by Motschulsky among the materials on cryptophagids

In the collection of Motschulsky, among Cryptophaginae, there are several specimens belonging to other families. These are specimens from North America and South Africa. Motschulsky intended to describe many of these specimens as belonging to different genera of Cryptophaginae.

Ahasverus advena (Waltl, 1834)

LABELS: white label “Am. Mer. Petrop.”, “Cryptophagus brasiliensis m. Brasil”. 1 spec.

REMARKS. America S. The species name has not been published. The specimen is well preserved. The specimen does not belong to the family Cryptophagidae, but to the genus *Ahasverus*, belonging to the Silvanidae family.

LABELS: light green round billet. 1 spec.

REMARKS. America N. The specimen is well preserved. The specimen does not belong to the family Cryptophagidae, but to the genus *Ahasverus*, belonging to the family Silvanidae.

Gen., sp. indet.

LABELS: “Cryptophagus punctatus Ches Cap.”. 1 spec.

REMARKS. S. Africa. The species name has not been published. The specimen is well preserved. This specimen does not belong to the family Cryptophagidae.

Gen., sp. indet.

LABELS: pink round billet, white label “Port Philip”, pink label “Telmatophilus australis Motsch. Nov. Holl.”. 1 spec.

REMARKS. Australia, Victoria. The species name has not been published. The specimen is well preserved. This specimen does not belong to the family Cryptophagidae.

Gen., sp. indet.

LABELS: dark blue round billet, dark blue label “Telmatophilus punctatus Cap.”. 1 spec.

REMARKS. S. Africa. The species name has not been published. The specimen is well preserved. This specimen does not belong to the family Cryptophagidae.

Discussion

As for the genus *Antherophagus*, the vast majority of specimens in the Motschulsky's collection are from the Holarctic region. To date, 12 species of this genus have been described from these zoogeographic regions. The Motschulsky's collection comprises 4 species. This is one third of the list of species (in these zoogeographic regions) described to date. All species are identified correctly.

To date, 20 species have been described in the genus *Caenoscelis* from the Holarctic region. The Motschulsky's collection includes 5 species (3 from North America). This is a quarter of the list of species described to date. Most of the species of this genus (four species) from the Motschulsky's collection were described after the completion of his scientific work. These species have not been identified in the Motschulsky's collection. He designated one species for description, but it was not published.

As for the genus *Cryptophagus,* the vast majority of Motschulsky's collections are collected in the Holarctic region. To date, 187 species have been described from these zoogeographic regions. The Motschulsky's collection includes 37 species. This is the fifth part of the list of species (described to date from these zoogeographic regions. 6 species were identified correctly (this is one sixth part of all species in the collection for this genus): *C. nitidulus*, *populi*, *pubescens*, *quercinus*, *saginatus*, *schmidtii*. Motschulsky prepared for the description (or described) three species, and subsequently these species were described by other authors. Motschulsky described (although in a different genus, *Dapsa*) one species (*D. caucasica* Mots.) and planned to describe two more. They were described much later: *C. hexagonalis* Tournier, 1872, and *C. chthonius* Esser, 2021.

Among the 9 species described before him (about a quarter of the species), he correctly identified some specimens, but confused them with other species, so that some specimens of these species were identified incorrectly (*C. acutangulus*, *badius*, *cellaris*, *denticulatus*, *distinguendus*, *lycoperdi*, *punctipennis*, *scanicus*, *setulosus*). These are species that have acquired a rich synonymy [Johnson, 2007], that is, difficult to identify species that have been the source of many doubts.

Motschulsky incorrectly identified 6 species: *C. dentatus*, *labilis*, *lapponicus*, *laticollis*, *scutellatus*, *subdepressus*.

4 species were described after Motschulsky finished his work, they are in his collection, and he tried to identify them, but called them by different names, which meant that he was not sure in their identification (*C. dilutus*, *fallax*, *hexagonalis*, *reflexus*). He did not identify 7 species; most of them species were described mainly from North America (*C. croceus*, *decoratus*, *insulicola*, *mainensis*, *porrectus*, *quadrimaculatus*, *valens*) after his work was completed. By the time of his work, 3 species had already been described, they were in his collection, but he did not identify them (*C. dorsalis*, *puncticollis*, *uncinatus*).

We can compare Motschulsky's collection not with the entire currently known fauna of the Palearctic and Nearctic, but only with the most studied region, Europe. Currently, there are 96 species of the genus *Cryptophagus* in Europe. The Motschulsky's collection contains 32 species of this genus from Europe, which is one third of the species of the European fauna of the genus. Motschulsky correctly identified 6 of them and described or planned to describe three more species, thus, he correctly identified about a third of the species composition available to him (9 species out of 33). In general, we can say that Motschulsky distinguished the species of the genus *Cryptophagus* quite well.

We can check the "intuition of a taxonomist" by V. Motschulsky. 6 species were confidently identified and 3 were planned for description or were described; 9 species were identified correctly, although Motschulsky sometimes confused them with others; we do not take into account those that were in the collection but not identified, against 6 incorrectly identified. "Intuition" can be expressed as 18:6. To properly assess his intuition, one needs to take into account the complexity of the group and the poor technical equipment: Motschulsky, most likely, used a magnifying glass. He identified the species of the genus *Cryptophagus* using a magnifying glass, without examining the male genitalia, and in most cases quite confidently distinguished the species of this complex genus. This is truly a manifestation of the intuition of a taxonomist.

As for the genus *Henoticus*, the vast majority of specimens from the Motschulsky were collected in the Palearctic and Nearctic regions. To date, 10 species have been described in these zoogeographic regions. There is only one species in Motschulsky's collection, *H. serratus*. Some specimens are identified correctly, others are not.

There are 22 described species of the genus *Micrambe* in the Holarctic. The Motschulsky's collection contains 7 species of this genus, 4 of which are collected in the Holarctic region. He correctly identified two species described before his work (*M. pilosula*, *ulicis*), in two other species he correctly identified some specimens (*M. abietis*, *bimaculata*). Of the numerous species of the Afrotropical region (73 species) known to date, Motschulsky's collection includes three species, one of which he designated for description (as *Cryptophagus*), while the rest he designated with the names of *Cryptophagus* species that are not relevant. Thus, the Motschulsky's collection of this genus represents an insignificant part of the species diversity, which is not very clearly defined. It should be noted that the genus *Micrambe* was described only in 1863, when Motschulsky was finishing his work.

The genus *Paramecosoma* in the Palearctic region is represented by 1 species described before Motschulsky's work. Motschulsky identified it correctly, but attributed some specimens to other species, which means that he did not identify them with certainty.

There are 4 species of the genus *Spaniophaenus* in the Palearctic region, 2 of which were described during Motschulsky's lifetime. His collection includes one

species that was described after he completed his work. Motschulsky considered it new and noted for description (but did not describe) two new species that actually belong to the same Caucasian species.

In the genus *Spavius,* which lives in the Palearctic region, there is one species that was described before Motschulsky's work. Motschulsky correctly identified this species. The genus *Spavius* was described by Motschulsky, and the only species of this genus was previously described by Gyllenhal.

According to the Palearctic catalogue [Johnson, 2007], the genus *Telmatophilus* contains 5 species. Currently [Otero, 2012], it is considered that there are 3 of them (*T. brevicollis* Aubé, 1862, *T. caricis* (Olivier, 1790), *T. typhae* (Fallén, 1802)). Motschulsky correctly identified two species, taking into account modern synonymy (*T. brevicollis*, *T. caricis*), but incorrectly named one species.

Conclusion

About 5 percent of the total number of specimens in the Motschulsky collection are completely lost. This was determined by the remains of beetles on the plates and empty pins.

Motschulsky's work can be evaluated in relation to the Cryptophaginae subfamily. The subfamily Cryptophaginae in the Motschulsky's collection includes 60 species and 9 genera. The vast majority of the materials were collected in the Palearctic and Nearctic regions. Of the 60 species represented in the collection, 33 were identified correctly (taking into account later synonymy). Many species had not been described at the time of Motschulsky's work, and 14 of them were intended for description (one species was mistakenly assigned to the genus *Dapsa* (Erotylidae)).

Motschulsky noted fourteen species for description (but most of them have not been described): 1 species of *Caenoscelis*, 7 species of *Cryptophagus*, 2 species of *Henoticus*, 2 species of *Micrambe*, 2 species of *Spaniophaenus*. Seven species were correctly identified for description (most of them were not described); these specimens belong to the new species described after the completion of Motschulsky's work. Seven species were identified incorrectly and belong to species already known at the time of Motschulsky's work. Thus, half of the species that Motschulsky planned to describe actually belong to species new to science, described after his work was completed.

Four species were mistakenly attributed by him to the family Cryptophagidae, they belong to other families. In particular, *Ahasverus* (Silvanidae) is classified as a cryptophagid. Motschulsky identified those species that were mistakenly assigned to the Cryptophagidae family as *Cryptophagus* and *Telmatophilus*.

It can be seen that Motschulsky picked up a representative collection of beetles, which makes up a significant proportion of the local fauna of all regions of the world. Of course, his materials from Europe are more complete than from other regions. However, the faunas of North America and South Africa are also represented by interesting specimens.

Taxonomy is indeed developing very slowly: after 150 years, it became possible to almost completely identify materials collected in the early to mid-19th century. Some of the species collected by Motschulsky were described quite recently, at the end of the last, 20th century.

Viktor Motschulsky did not have the opportunity to fully identify all the specimens from his collection. It took the lives of dozens of taxonomists to bring this possibility closer. Not only in the middle of the 19th century, but also in the middle of the 20th century, it was still impossible. Perhaps, over time, it will be possible to determine everything correctly.

Acknowledgments

The study was conducted under the state assignment of Lomonosov Moscow State University.

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