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The Hemiptera Collection of Department of Natural History, Upper Silesian Museum in Bytom

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Abstract: A short rationale and historical background of the Upper Silesian Museum and its Department of Natural History is presented. The authors also discuss the mission of the museum as exemplified by the Natural History Department of the Upper Silesian Museum in Bytom. The collections of material of the hemipteran insects – Heteroptera, Fulgoromorpha, Cicadomorpha, and Sternorrhyncha: Psylloidea deposited in the collection of USMB is presented. The type specimens from USMB collection are listed and figured, these specimens cover representatives of the families Miridae, Cydnidae, Achilidae and Ricaniidae.

Key words: biodiversity, museum mission, entomology, insects collections, leafhoppers, planthoppers, psyllids, true bugs.

Introduction

The term “museum” is related to an institution, collecting, preserving and exhibiting objects of art, historical and archaeological items, but also the institutions protecting natural history objects and collections. Therefore the term “museum” does not always bears the same connotations and comprises a wide variety of institutions of different types. During the history the treatment of natural resources has changed. Purely utilitarian beginnings, as source of food, tools, adornments or garments, changed to institutional – specialised institutions devoted to the gathering and protection of various objects. It is extremely difficult to trace when (and where) *Homo sapiens* first began to gather plants and animals, as both living and lifeless collections. The primary goal of the earliest object collecting was utilitarian, but aesthetic needs were important at these times, as demonstrated by rock paintings, adornments and

ceremonies of ancient humans (POIKALAINEN 2001, IWAN 2007). Humanity's interest in nature, accompanying all of us up to present times, is the second element, inspiring the erection and development of museums, understood as institutions in recent meaning. An ascertainment of the fact that human contact with nature is a fundamental need and its necessity is deeply imprinted in humans' mind is truism (MILLER 2005, STOKES 2006, SAMWAYS 2007, SZWEDO & IWAN 2008). The historical records of objects gathered in the specialised collection and institutions can be traced back to the ancient Mesopotamia, to Ennigaldi's museum of city of Ur, ca. 530 BCE (WOOLEY 1952). The first historical records of famous natural history collections are from the time of the Library of Alexandria – the *Museion*, Alexandria, Egypt (JOHNSON 1970, BRUNDIGE 1991). The *Bibliotheca a Museion Alexandrinos* functioned in the years 295 BCE-415. It comprised the Library of Alexandria, Museum, botanical garden and zoological garden. The early museums began as private collections of wealthy individuals, families or institutions of art and rare or curious natural objects and artefacts. These were often displayed in so-called wonder rooms or cabinets of curiosities. The first public natural history museums were established in Europe (SZWEDO & IWAN 2008). Since the beginning there were several fundamental questions. Why does a museum exist? What is its purpose? What is it trying to achieve? What are its goals? Nothing is more important for a museum to sort out than its mission. The answers to these questions are to be found in the museum's values. Add together the mission and the values, project forward, and you identify the museum's vision (FLEMING 2015). Modern mission statement of the museum, in all likelihood, covers these three pillars of the museum world: preservation, education, and inspiration. Museums are not profit-driven, but value-driven. Museums are to deliver services to customers, not profits, nor dividends to shareholders. These three pillars and deliverables are fundamental also for natural history collections. The main mission points of the natural history museums can be identified as collecting specimens, preserving specimens, scientific elaboration of the specimens and sharing of the specimens and knowledge. These actions are tightly related to two global processes that brought new attention to the importance of natural history collections deposited in museums. The first phenomenon is the recent biodiversity crisis, the "Sixth extinction" (WILSON 1992, ELDRIDGE 2001, BARNOSKY *et al.* 2011, PEREIRA *et al.* 2012, PIMM *et al.* 2014, CEBALLOS *et al.* 2015), the violent pressure exerted by human activities on the environment, rapid destruction, disappearance and transformation of habitats and last untouched remnants of nature (IPBES 2019, TOLLEFSON 2019, TURVEY & CREES 2019). The second is the taxonomic impediment (GODFRAY 2002a, b; WHEELER 2004, ENGHOFF & SEBERG 2006, EVENHUIS 2007, SZWEDO 2007, EBACH *et al.* 2011, VINARSKY 2019).

Modern natural history collections must prepare a good strategy to overwhelm these difficulties. And such an effort is done in the Department of Natural History of the Upper Silesian Museum in Bytom. The strategy is going far beyond the traditional preservation of the collections – don't touch model of preservation and an encyclopedic dryness to education. Scientific and educational collections are gathered, curated and developed at all levels: regional, national and global. Co-operation with Silesian Entomological Society and other scientific institutions and societies enabled new possibilities for collecting and curating specimens. This is giving a new level of gathering facts, stats, and summary information on the specimens (databases) and gives the promise of the inspirational museum experience (education and exhibitions). The collections are base for scientific activities of the Museum, but also are fundamental for exhibition and educational purposes. Balanced strategy makes the museum collection a living organism, a part of scientific, cultural and social ecosystem at local, regional, national and global scale (Fig. 1).

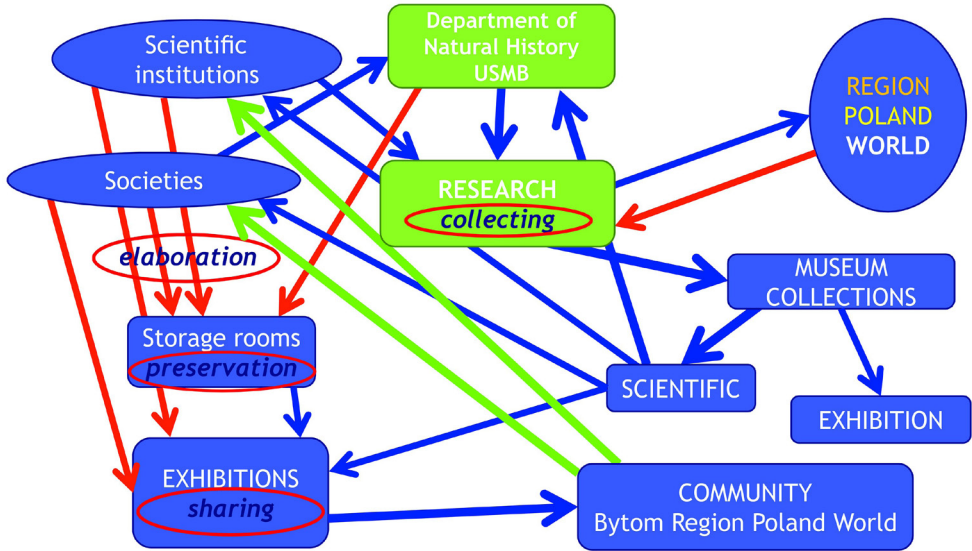


Fig. 1. “Ecosystem relations” within the Natural History Department, Upper Silesian Museum (the four cornerstones of the museum’s mission are ringed in red).

History

The beginnings of the modern Upper Silesian Museum in Bytom go back to 1910 when a group of social activists and history enthusiasts founded the Bytom Historical-Museum Society [Beuthener Geschichts-und Museumsverein]. Museum activities were initiated by building up collections based on private and public donations. Initially the collections were exhibited in school rooms and later on in a modest building of the Municipal Museum at Klosterstrasse (today Szymanowskiego St.).

When in 1929 the Silesian Museum was founded in Katowice to present cultural and natural heritage of Upper Silesia in Poland, German authorities decided to create its counterpart in the German part of Upper Silesia. To reduce the costs, instead of offering new premises they relocated the Municipal Museum in Bytom to a considerably enlarged building of the Municipal Bank of Savings in Moltkeplatz (today Jan III Sobieski Square) and established a new institution. The municipal library was also located there. During the years 1929-1930 the new building, where the Museum still stands today, was built to host the collections, but the then named “National Museum of the Upper Silesian” (Oberschlesisches Landesmuseum) officially opened its doors the 24th of October 1932 (GONZÁLEZ *et al.* 2013). Formally, it was still a municipal museum. It was only in 1937 that the Upper Silesian Province took over the management and maintenance of the Museum and the town started to cover 20% of the budget expenditures. The staff became the employees of the Province but the exhibits and the buildings remained the property of the town although the Province invested much more in the museum acquisitions. The new Museum included a Natural History Department after acquiring a large collection of animal specimens from Major Johann Nepomuk Walter Eberhard Drescher (1872-1938), a landowner near Ligota Otmuchów, who actively collected in Upper Silesia (DRESCHER 1928).

After 1st September 1939 the institution was renamed as the Silesian Museum of Borderland (Schlesisches Grenzlandmuseum). The collections from the destroyed Silesian Museum in Katowice were transferred to Bytom and deposited as ‘Dienststelle Kattowitz’ in different temporary warehouses within and outside the Museum premises. In 1941 the original name started to be used again (Oberschlesisches Landesmuseum). Apart from overtaking Polish collections from Katowice, between 1942 and 1944 the museum began to make expensive purchases organising a large gallery of German art.

From 1942 the collections were systematically evacuated to different temporary locations in the vicinity of Lubliniec, Prudnik, Koźle and Tarnowskie Góry and the museum closed for visitors on 1st September 1944 (NADOLSKI 2011). During the war an outstanding lepidopterologist Sergiusz Toll was employed in the Natural History Department. He actively protected and managed to save natural collections including the ones of the Silesian Museum in Katowice.

In January 1945 Bytom was captured by the Red Army and until 20th March occupied by the Soviets. Later the town was officially controlled by the civil administration but the museum remained closed to public and “guarded” by soldiers who plundered and destroyed natural collections and books. Józef Matuszczak, a new Museum Director, was allowed to enter the building on 21st March. He was nominated by the authorities of the province (voivodship) to fill in the position of the former Director Tadeusz Dobrowolski, who was dismissed from his post and arrested by the Germans in November 1939. Józef Matuszczak was replaced by Longin Malicki in April 1945 and in May new staff included also a naturalist Marian Bielewicz, who co-operated closely with Zdzisław Stuglik from the Silesian Museum in Katowice before the war. Marian Bielewicz became the Curator and the Head of the Department of Natural History and held his post to 1982. As early as in May 1945 the staff started to make an inventory of collections and tried to reclaim the exhibits taken out of the country. Simultaneously renovation of the seriously damaged building of the Museum were initiated (the building was hit by two artillery shells). In 1946 the staff of the Museum consisted of 3 employees (including the Director).

In 1948 the curators formulated new concepts of the post-war museum in new premises and new conditions. Continuing an inter-war period tradition, the Silesian Museum in Bytom was to present cultural and natural heritage of Upper Silesia in Poland in the following departments: Prehistoric, Ethnographic, Medieval Sacred Art, Art, Silesian Uprisings and the Plebiscite and Natural History (DROŃ 2011).

The museum was formally nationalised on 9th December 1949 and fell under the administration of the Minister of Culture and Art. The Act was signed in Bytom on 15th December. At first the museologists hoped to achieve greater financial and organisational stability, but the first regulation of the Minister of 9th June 1950 disappointed them and the local community. By decree of the Minister the traditional name of the museum was changed into Upper Silesian Museum in Bytom. Although formally the decree ceased to be in force on 15th February 1969 (The Protection of National Treasures Act), it proved impossible to return to the original name (DROŃ 2011).

Thus the Upper Silesian Museum in Bytom has the heritage of the history and collections of two museums: the Upper Silesian National Museum in Bytom and Silesian Museum in Katowice.

The Department of Natural History houses the largest natural history collections among the institutions under the Ministry of Culture and National Heritage. The collections comprise over a million specimens and are comparable to those of Polish Academy of Sciences and university Museums of Natural History (DOBOSZ 2011).

The collections represent mainly the fauna of Poland and Europe but they also document intensive field studies carried out by researchers from the Natural History Department and the members of Silesian Entomological Society (established in 1992 and affiliated with the Department) in New Caledonia, Namibia, Kirghizstan, Turkey, Greece, Iran, Georgia, Russian Far East and others. The museum also keeps expanding entomological collections in co-operation with other scientific centers in Europe and world-wide.

The collection of Hemiptera is definitely worth attention. It includes material belonging to the following groups: Heteroptera, Fulgoromorpha & Cicadomorpha and Psylloidea.

Collection of Heteroptera

The Heteroptera collection consists of 20,000 specimens, including:

- 6,000 – systematic collection, mainly from the area of Poland (Fig. 2A, Fig. 3)
- 4,000 – material from Namibia
- 6,000 – material from New Caledonia (Figs 2B, C)
- 4,000 – material from other parts of the world, such as South Europe, Turkey, Madagascar and Tanzania.



Fig. 2. Example cabinet of systematic collection from Poland (A), Cydnidae from New Caledonia (B), Cicadidae from New Caledonia (C), various Cicadidae (D).

Among the systematic collection from Poland (Fig. 2A), private German collections of insects (which the Museum entered into as abandoned property) deserve special attention. In this way, part of the entomological collection of Franz Kirsch (Fig. 3A) and Hans Nowotny (Fig. 3B) was saved from destruction. Their collections contain extensive material collected

in the thirties of the twentieth century in the contemporary area of Silesia. Also the Eberhard Drescher collection comes from this area and time period (Fig. 3C). A large part of these collections has been described in the works on the distribution of representatives of individual systematic groups in Poland (e.g., LIS J.A. 1989a, b, 1990a, b, LIS B. 1996, GIERLASIŃSKI *et al.* 2019a, b) and in a monograph of true-bugs of the Silesian Upland (LIS J.A 1989c).

Among other collections, the rich material of Cydnidae (LIS & ZIAJA 2014) and Lygaeidae s. l. is especially noteworthy.



Fig. 3. Examples of specimens from the collection of Franz Kirsch (A) Hans Nowotny (B) and Eberhard Drescher (C); scale bar = 2 mm.

The Heteroptera collection consists of 15 type specimens.

Miridae

Euchilofulvius heissi GORCZYCA, 1998

Euchilofulvius heissi GORCZYCA, 1998: 96, Figs 6, 7 (original description), 95 (key).

The holotype is deposited in USMB (donation of J. Gorczyca):

Holotype: ♂: India, Goa, Umg. Varca, 21–24 Feb 1994, leg. E. Heiss (Fig. 4A).

Current status. Synonym: *Euchilofulvius carinatus* (POPPIUS, 1913) (see GORCZYCA 2006).

Euchilofulvius zdzislawi GORCZYCA, 1998

Euchilofulvius zdzislawi GORCZYCA, 1998: 97, Figs 2, 3 (original description), 95 (key).

The holotype is deposited in USMB (donation of J. Gorczyca):

Holotype: ♂: N Sumatra, Brastagi – Toba, 20 Jul 1980, leg. E. Heiss (Fig. 4B).

Current status. Valid species *Euchilofulvius* (*Euchilofulvius*) *zdzislawi* GORCZYCA, 1998 (see GORCZYCA 1999).

Linnavuorifulvius cheroti GORCZYCA & WOLSKI, 2016

Linnavuorifulvius cheroti GORCZYCA & WOLSKI, 2016: 105–108, Figs 1, 2 (original description), 105–106 (key).

The holotype and one paratype are deposited in USMB

Holotype: ♂: Namibia, Kawango Region, Kaisosi River Lodge, 3 Dec 2014, 1075 m, at light, Okawango 9 km. leg., R. Dobosz & D. Chłond (Fig. 4C).

Paratype: ♀: Namibia: Zambezi Region, Namwi Island Lodge, Zambesi r. Katima Mulilo, 26 Nov 2014, at light, leg R. Dobosz, & D. Chłond (Fig. 4D).

Current status. Valid species

Peritropis waclawi GORCZYCA, 2015

Peritropis waclawi GORCZYCA, 2015: 272–274, Fig. 1 (original description).

The holotype is deposited in USMB

Holotype: ♂: Namibia, Onguma Lodge, 5 Dec 2014, 1055 m, at light, Etosha NP., leg. R. Dobosz (Fig. 4E).

Current status. Valid species.

Euchilofulvius heissi sp. n.
det. Gorczyca 1996

INDIA, Goa -
Uing Varca
21.-24.2.94 Heiss

HOLOTYPE



A

Euchilofulvius zdzislawi sp. n.
det. Gorczyca 1996

N - SUMATRA
Brastagi - Toba
20 VII 80 Heiss

HOLOTYPE



B

Linnavuorifulvius cheroti g. et sp. nov.,
det. Gorczyca & Wolski

Namibia Kavango
Region, Kaisosi
River Lodge

03. 12. 2014, 1075
m. at light.
Okavango 9 km
North Rundi

Holotype



C

Linnavuorifulvius cheroti g. et sp.
nov., det. Gorczyca & Wolski

Namibia Zambesi
Region, Namwi
Island Lodge,
Zambesi r. Katima
Mulilo

26. 11. 2014,
920 m, at light,

leg. R. Dobosz

PARATYPE



D

Peritropis waclawi sp. n.
det. J. Gorczyca

Namibia, Onguma
Lodge, 05. 12. 2014,
1055 m. at light.
Etosha NP,
leg. R. Dobosz.

Holotype



E

Fig. 4. Type specimens of the family Miridae: *Euchilofulvius heissi* (A), *Euchilofulvius zdzislawi* (B), *Linnavuorifulvius cheroti* (C, D), *Peritropis waclawi* (E); scale bar = 1 mm.

Aradidae

Stysaptera ikalalao HEISS, 1999

Stysaptera ikalalao HEISS, 1999: 86–90, Figs 1–3 (original description), 86 (key).

The paratype is deposited in USMB (donation of E. Heiss)

Paratype: ♂: Madagascar, Ile St. Marie, foret Ikalalao, 24–25 Oct 1995, leg. E. Heiss (Fig. 5).

Current status. Valid species.

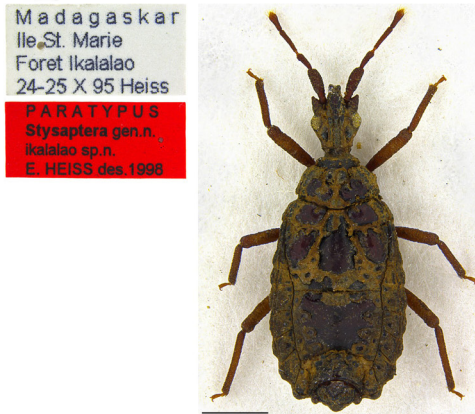


Fig. 5. Type specimen of the family Aradidae: *Stysaptera ikalalao*; scale bar = 1 mm.

Cydnidae

Geopeltus tuberculatus J.A. LIS, 1990

Geopeltus tuberculatus J.A. LIS, 1990: 227–228, Figs 12–17 (original description).

The holotype is deposited in USMB (donation of J.A. Lis):

Holotype: ♀: Ceylan, Jun 1889, leg. H. Frühstorfer (Fig. 6A).

Current status. Valid species

Macroscytus bipunctatus J.A. LIS, 1994

Macroscytus bipunctatus J.A. LIS, 1994: 214–215 (original description).

Redescribed and illustrated in LIS (2000).

The paratype is deposited in USMB (donation of J.A. Lis):

Paratype: 1 ♀: Borneo Sabah, Crocker Mt., Gununag Emas (Fig. 6B).

Current status. Valid species (see LIS 2000)

Macroscytus popovi J.A. LIS, 1991

Macroscytus popovi J.A. LIS, 1991: 213, Figs 11–15 (original description).

The holotype is deposited in USMB (donation of J.A. Lis):

Holotype: ♂: Vietnam, prov. Kien Giang, isl. Tho Tu, 9 Apr 1887, leg. A. Ponomarenko (Fig. 6C).

Current status. Valid species (see Lis 2000)

Macroscytus simulans J.A. Lis, 1999

Macroscytus simulans J.A. Lis, 1999: 429–430, Figs 6–10, 436 (key) (original description). Redescribed and illustrated in Lis (2000).

The holotype and three paratypes are deposited in USMB:

Holotype: ♂: Madagascar, Tamatave prov., Moramanga env., 14–18 Dec 1995, leg. J. Stolarczyk (Fig. 6D).

Paratypes: ♂, 2♀, Madagascar, Tamatave prov., Moramanga env., 13–17 Dec 1995, leg. J. Stolarczyk (Figs 6E, F).

Current status. Valid species (see Lis 2000)

Macroscytus tamatavei J.A. Lis, 1999

Macroscytus tamatavei J.A. Lis, 1999: 430–431, Figs 11–12, 436 (key) (original description). Redescribed and illustrated in Lis (2000).

The holotype is deposited in USMB:

Holotype: ♂: Madagascar, Tamatave prov., Moramanga env., 13–17 Dec 1995, leg. J. Stolarczyk (Fig. 7A).

Current status. Valid species (see Lis 2000)

Ochetostethomorpha secunda J.A. Lis & B. Lis, 2014

Ochetostethomorpha secunda J.A. Lis & B. Lis, 2014: 562–564, Figs 1a, 2b, 5a, 6a, 7a (original description).

The holotype is deposited in USMB:

Holotype: ♂: Namibia, Ovamboland, Ogongo Campus, 17°40'35.6" S, 15 °17'33.6" E, 29 Jan 2012, 1100 m, savanna: trees, shrubs, herbaceous vegetation; sifting, leg. R. Dobosz & G. Kopij (Fig. 7B).

Current status. Valid species

*Geopeltus
tuberculatus* sp.n.
89

Ceylan, VI-1889
H. Fruhstorfer

HOLOTYPE
11.11.1989



A

*Macroscytus
bipunctatus* Lis
det. J.A. LIS

BORNEO, Sabah
Mts. Crocker
16 miles N.W. of
Keningau, 1,400m
21.V.1983
Shinji NAGAI

PARATYPE
det. J.A. Lis



B

*Macroscytus
popovi* LIS
det. J.A. LIS

VIETNAM
prov.Kien Giang
Isl.Tho Tu
9.IV.1987
A.Ponomarenko leg.

HOLOTYPE
det. J.A. LIS



C

HOLOTYPE
*Macroscytus
simulans* Lis
det. J.A. Lis 1998

MADAGASKAR
Tamatave prov.
Moramanga env.
14-18.12.1995
leg. J. Stolarczyk



D

PARATYPE
*Macroscytus
simulans* Lis
det. J.A. Lis 1998

MADAGASKAR
Tamatave prov.
Moramanga env.
13-17.12.1995
leg. J. Stolarczyk



E

PARATYPE
*Macroscytus
simulans* Lis
det. J.A. Lis 1998

MADAGASKAR
Tamatave prov.
Moramanga env.
13-17.12.1995
leg. J. Stolarczyk



F

Fig. 6. Type specimens of the family Cydnidae: *Geopeltus tuberculatus* (A), *Macroscytus bipunctatus* (B), *Macroscytus popovi* (C), *Macroscytus simulans* (D-F); scale bar = 2 mm.



Fig. 7. Type specimens of the family Cydnidae: *Macroscythus tamatavei* (A), *Ochetostethomorpha secunda* (B); scale bar = 2 mm.

Collection of Fulgoromorpha & Cicadomorpha

16,000 specimens of Fulgoromorpha & Cicadomorpha

- 1,000 – material from Poland
- 4,000 – material from Namibia
- 6,000 – material from New Caledonia
- 5,000 – material from other parts of the world, such as Turkey, South and Central Europe

As in the case of Heteroptera, among the collection of planthoppers and leafhoppers there is valuable material from the area of Upper Silesia from the collections of Eberhard Drescher, Franz Kirsch and Hans Nowotny. It has been described to a large extent (BOKŁAK *et al.* 2003).

Among other collections, especially interesting seems to be a collection of Cicadidae from New Caledonia.

The Fulgoromorpha & Cicadomorpha collection consists of two type specimens.

Achilidae

Hebrotasa madagascariensis EMELJANOV, 2005

Hebrotasa madagascariensis EMELJANOV, 2005: 14, Fig. 3, 1–4 (original description)

Holotype is deposited in USMB

Original paper (EMELJANOV 2005), stated that the specimen was obtained from Yuri A. Popov, who frequently visited USMB and took some specimens on loan and is deposited in ZIN, St. Petersburg. In original citation of label data misspelling of collector's name is found 'Stolarzyk' instead of 'Stolarczyk'.

Current status: Valid species.

Holotype: ♀: Madagascar, Tamatave prov., Mormanga env., 13–17 Dec 1995, leg. J. Stolarczyk (Fig. 8A).

Ricaniidae

Paici cassani STROIŃSKI, 2010

Paici cassani STROIŃSKI, 2010: 577–582, Figs 1–33 (original description).

The paratype is deposited in USMB

Paratype: ♀: New Caledonia (N), 21°08.9'S, 165°19.4'E, Aoupinié (refuge), 420 m, at light, 19 Jan 2007, leg. R. Dobosz & M. Wanat (Fig. 8B).

Current status. Valid species

Holotype: ♂: New Caledonia (N) 21°00.3'S, 165°14.9'E, Tchamba (Wâo Uni), refuge 400 m, night coll. (lamp & beating), 16 Jan 2007, leg. M. Wanat & R. Dobosz. Specimen deposited in MNHN in Paris (ex. USMB).

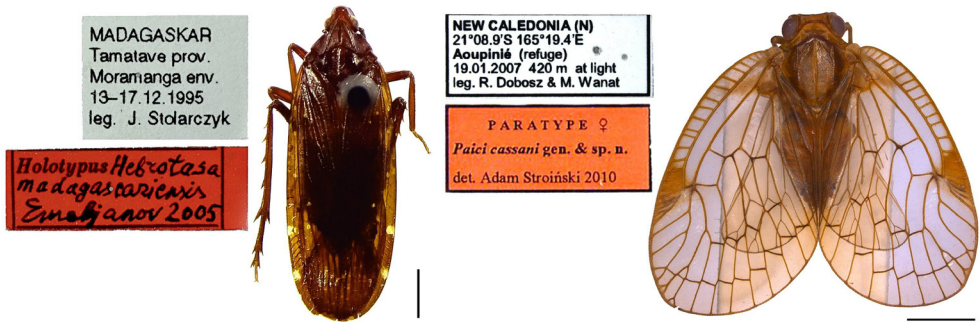


Fig. 8. Type specimens of the family Achilidae: *Hebrotasa madagascariensis* and Ricaniidae: *Paici cassani* (according STROIŃSKI 2010, changed); scale bar = 2 mm.

Collection of Psylloidea

2,000 specimens of Psylloidea

- material, among others, from Turkey (described by Drohojowska & Burckhardt 2014), Namibia and New Caledonia.

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