

The Giant Butterfly-Moths (*Lepidoptera Castniidae*) of the Upper Silesian Museum (Muzeum Górnośląskie) in Bytom, Poland, with notes on the history of the Museum

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ABSTRACT

The Upper Silesian Museum was founded in 1910, and besides the struggles and restrictions suffered during World War II it still remains as a relevant showcase for culture and science of Silesia, its surrounding regions, the country and even the world. Its Natural History collections are recognized as one of the largest and most important in the country. In an effort to revise and curate the Lepidoptera collection, we found an interesting and well maintained group of giant butterfly moths (*Castniidae*). Besides providing historical information on the Museum and its origins, we also include a list with notes about the *Castniidae* under their care.

KEY WORDS

Giant Butterfly-Moths; *Castniidae*; Biodiversity; Natural History.

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INTRODUCTION

It was 1910 when a group of history enthusiasts founded the Bytom Historical-Museum Society (Beuthener Geschichts-und Museumsverein). A Museum was created with the private collections of Mr. Simon Mach and the teacher Kurt Bimler, as well as some city memorabilia and archival materials donated by the Bytom municipality. The lawyer William Immerwahr, the priest Emanuel Buchwald and the architect Carl Brugger were also among the founders of the association. The holdings of the museum were exhibited in two rooms assigned by the school (Oberrealschule) at Klosterstraße (now Szymanowski Street) in the present Sikorski square. One of the rooms housed the collections donated by the founders, while the other

showed a collection of minerals supervised by the Upper Silesian Association of Technical and Mining Officials (Verein Bergtechnische Beamten Oberschlesiens).

During the years 1929-1930 a new building (where the Museum still stands today) (Fig. 1) was built to host the collections, but the then named "National Museum of the Upper Silesian" (Oberschle-sisches Landesmuseum) officially opened its doors the 24th of October 1932 (Fig. 2). The new Museum included a Natural History Department after acquiring a large collection of animal specimens, but mainly birds, from the keen ornithologist Major Johann Nepomuk Walter Eberhard Drescher (1872-1938), a landowner near the Ligota Otmuchów who actively collected in the vicinities of Paczków and Otmuchów in Upper Silesia (Cempulik & Hadaś,



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Figure 1. Upper Silesian Museum, Bytom, Poland (1940).
Figure 2. Hall of the Museum exhibiting mounted birds.

1995). The first curator of the Department was Hubert Emanuel Kotzias (1892-1941) (Fig. 3).

In October 1939, slightly over a month after the German invasion, the Silesian Museum in Katowice (which was in the Polish part of Silesia) was closed and its entire collection was transported to Bytom's Museum and placed in storage. By 1943-1944 the most valuable collections (including those from Katowice) were moved to the western part of Upper Silesia. As a result of the war, the activities of Soviet war commissioner and looters, the Bytom's Museum building was damaged and the remains of the collection were destroyed and dispersed. During the stressful times of the World War II the curator of the Natural History Department was the widely recognized entomologist Sergiusz Toll (1893-1961) (Reisser, 1962) (Fig. 4).

By March 1945, a group of people that were members of the staff of the Silesian Museum helped rescue and recover parts of the Katowice and Bytom's collections. These collections became the basis for the reactivation of the museum in Bytom, aiming to continue pre-war Museum traditions established at the Silesian Museum. On May 10th, 1946, the Museum of Silesia in Bytom opened its first post-war exhibition which was devoted to the Silesian uprisings. Permanent exhibitions dedicated to natural, archaeological, and ethnographic issues and a Polish art gallery opened to the public later in 1946 and in 1947. By this time, the museum had the following departments: Archaeology, Ethnography, History, History and Culture of Lviv, Nature and Art. A library was also established, and it hosts today over 50,000 volumes.

The Natural History Department inventory revealed the presence of 54,320 objects by that time. Included were also nature collections owned by the museum but hosted in the cities of Gliwice, Chorzow, Cieszyn and Pszczyna. Those, which were also called "abandoned property" of the Department of Natural History, included insect collections assembled by both the renowned coleopterologist Theodor Franz Wilhelm Kirsch (1818-1889) (Anonymous, 1889; Kraatz, 1889) and the entomologist Hans Nowotny (1897-1971). Witold Niesiołowski (1866-1954), a retired military man but knowledgeable amateur who volunteered as an entomologist after retirement from the Austrian Army, was then in charge of the Department (Feliksiak, 1987).

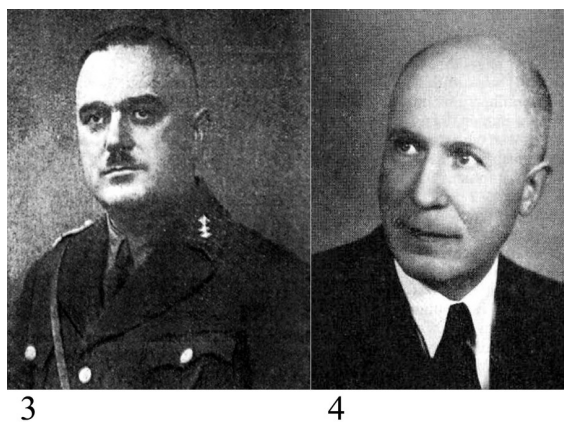


Figure 3. Hubert Emanuel Kotzias (1892-1941), first curator of the Natural History Department.

Figure 4. Sergiusz Toll (1893-1961), curator of the Natural History Department during the World War II years.

Today, the Natural History Department has one of Poland's largest natural sciences collections, with 700,000 insects and about 150,000 only in the order *Lepidoptera*. The entire nature collection was created after those taken from the Oberschlesisches Landesmuseum, the former Silesian Museum. These collections document the flora and fauna of Silesia and other regions of Poland and worldwide. The entomological (mainly butterflies and moths, beetles, dragonflies, wasps, lacewings) and the ornithological (bird dermoplasties, nests, eggs) collections are the most valuable and largest at the Bytom's museum today. Noteworthy are also the collections of mammals, arachnids, mollusks and the more than 12,000 herbarium sheets of vascular plants.

The Bytom's collection of *Castniidae* is a part of the newly created entomological collection of the Museum, which gathered specimens from different collections. After a detailed investigation of the archives of the museum we found a total of 20 specimens belonging to 14 species and 17 taxa of Giant Butterfly-moths (Figs. 5-16). However, we could not find any information on how they were obtained. Even though all pre-war archives were destroyed during the war, we are certain that all specimens were probably bought during pre-war times, after the German Occupation of Poland, as evidenced by the labels written in German. Fortunately enough, the specimens have been maintained well and are in very good to excellent condition.

ANNOTATED LIST OF CASTNIIDAE OF THE UPPER SILESIAN MUSEUM SPECIMENS

Eupalamides cyparissias amazonensis (Houlbert, 1917)

This crepuscular species is known as pest of several Palms (Arecaceae) including some crops (i.e. *Coccothraupis nucifera* L., *Elaeis guineensis* L.), and it is distributed along the Amazon basin, in Northern Brazil, Colombia and Peru (Houlbert, 1917; Miller, 1986; González et al., 2010; Hernández-Baz et al., 2012). The Bytom's specimen is in very good condition, except for a light damage in its left hind wing (Fig. 1) which was repaired by using a piece of wing from an unknown Lepidoptera.

EXAMINED MATERIAL. 1 male, Iquitos, Omaguas, 150 m. [Perú], 360, *Castnia daedalus* Am, 5959/3286, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Amauta cacica angusta (Druce, 1907) (Fig. 7)

Described originally from Ecuador (as *Castnia angusta*), not much is known about this subspecies (Druce, 1907; Miller & Sourakov, 2009). Larvae of this subspecies are associated with *Heliconia* (Heliconiaceae) and *Musa* (Musaceae) plants in Ecuador (Suárez-Capello et al., 2002; Miller & Sourakov, 2009).

EXAMINED MATERIAL. 1 male, Macas, Ecuador or., 359, *Castnia angusta* Am, 5959/32960, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Amauta cacica procera (Boisduval, [1875]) (Fig. 5)

This large species is distributed from Guatemala to Panama, but very few specimens with adequate data are known from museum collections (Miller, 1986; González & Stünning, 2007; Miller & Sourakov, 2009; González & Hernández-Baz, 2012). This subspecies has been observed feeding on flowers of *Heliconia pogonantha* Cuf. (Heliconiaceae), which is also a possible larval hostplant (Miller & Sourakov, 2009).

EXAMINED MATERIAL. 1 male, Chiriqui, Panama, 358, *Castnia cacica* Am., 5959/32176, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Amauta papilionaris velutina (Houlbert, 1917)

This beautiful subspecies, was originally described (as *Castnia velutina*) based on a female from Ecuador (Houlbert, 1917). It has only subtle differences from the nominate species which is of Colombian distribution (Miller, 1986). It has been suggested that all four supposed subspecies of *A. papilionaris* could be nothing more than simple sexual dimorphisms or local geographic variations (Miller, 1986).

EXAMINED MATERIAL. 1 male, Riobamba, Ecuador, 2000 m., 357, *Castnia papilionaris* Am, 5959/32763, coll. Upper Silesian Museum (USMB) Bytom, Poland.

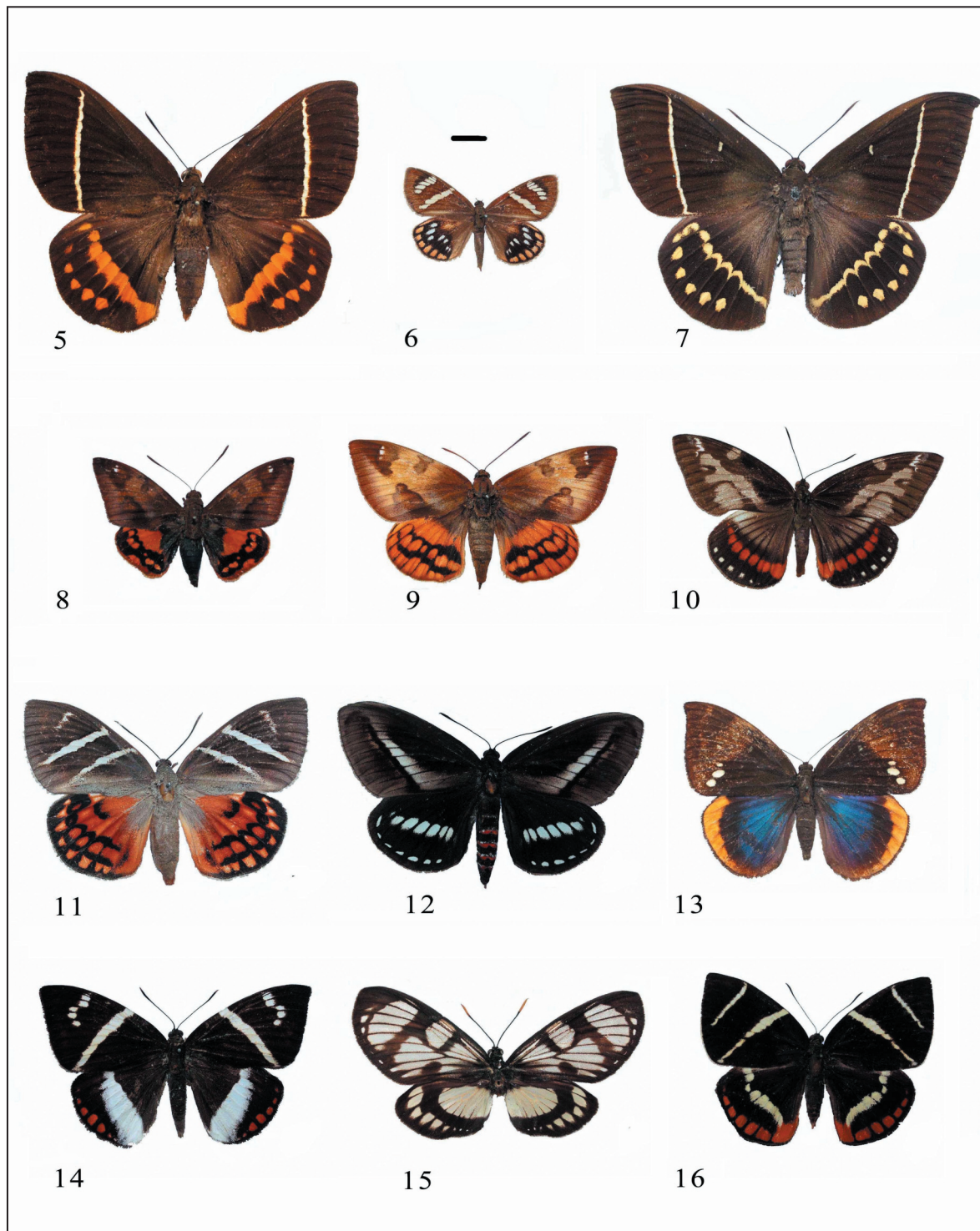
Hista fabricii (Swainson, 1823) (Figs. 8, 9)

This species used to be considered as two to four different ones by some authors, while others considered it to have several subspecies (Dalla Torre, 1913; Houlbert, 1918; Lamas, 1995; Miller, 1995). Those treatments were mainly based on simple intrapopulation variations but its real status has been clarified and the species is actually considered monotypic (Moraes et al., 2010). The scarcity of collection information is likely one of primary factors limiting our understanding of the morphological-geographical variations of the species (Moraes et al., 2010). It was, however, interesting to find that both sexes of the species collected from the same region are in Bytom's Museum collection.

EXAMINED MATERIAL. 1 male, Brasilien, Santa Catharina, Timbo-Blumenau, 400 m., 347, Dez.-Januar., *Castnia boisduvali* Am, 5959/32823, coll. Upper Silesian Museum (USMB) Bytom, Poland; 1 male, Brasil, *Castnia*[sic] *basckei*[sic] leg., 5959/30745, coll. Upper Silesian Museum (USMB) Bytom, Poland [beheaded specimen]; 1 female, idem, 5959/32869, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Imara pallasia (Eschscholtz, 1821) (Fig. 10)

This species is restricted to South-Eastern Brasil (Miller, 1986; González & Stünning, 2007; González et al., 2010). It is a species found within the cloud forests ecosystem (Miller, 1986). Unfortunately not much more is known about the ecology and biology of this species.



Figures 5-16. Castniidae of the Upper Silesian Museum, Bytom, Poland. Fig. 5: *Amauta cacica procera*, Chiriqui, Panama. Fig. 6: *Geyeria hubneri*, Santa Catharina, Brasil. Fig. 7: *Amauta cacica angusta*, Macas, Ecuador. Fig. 8: *Hista fabricii* male, Brasil. Fig. 9: *Hista fabricii* female, Brasil. Fig. 10: *Imara pallasia*, Rio de Janeiro, Brasil. Fig. 11: *Castnia invaria volitans*, Magdalena, Colombia. Fig. 12: *Prometheus cochrus*, Riobamba, Ecuador. Fig. 13: *Divana diva diva*, St. Laurent, French Guiana (?). Fig. 14: *Telchin licus magdalena*, Caqueta, Colombia. Fig. 15: *Gazera heliconioides*, Amazonas, Brasil. Fig. 16: *Xanthocastnia evalthe evalthoides*, Riobamba, Ecuador. Scale: 10 mm.

EXAMINED MATERIAL. 1 female, Rio [de] Janeiro, [Brasil], 361, *Castnia umbratula* Am, 5959/32535, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Imara satrapes (Kollar, 1839)

This beautiful species is sympatric with the above mentioned *I. pallasia* and it is commonly found in the southeastern region of Brazil. The forewing patterns of both species are very different, but the hindwing markings are highly variable in *I. satrapes* and in some specimens they might resemble those of *I. pallasia* (González & Stünning, 2007; Ríos & González, 2011). Its larvae are borers of Bromeliaceae (Biezanko, 1961a,b; Miller, 1986; Ríos & González, 2011). The Bytom's specimen was originally collected and determined by the Polish Entomologist Czeslaw Marian Biezanko (1895-1986). Biezanko (1961a,b) mentions that the species is common in Pelotas, Brasil, and that it flies in December and January, from 11:00 to 15:00 along wood clearings. He also named the "form" found in Pelotas as "*Castnia satrapes catharina*" (Biezanko, 1961a,b) (= *Imara satrapes catharina*), which is now synonymized under *I. satrapes* (see Ríos & González, 2011).

EXAMINED MATERIAL. 1 male, Pelotas [Rio Grande do Sul, Brasil], 23.I.[19]52, C. Biezanko leg.; *Castnia satrapes* Kollar, 1839, C. Biezanko det., 5959/31825, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Castnia invaria volitans Lamas, 1995 (Fig. 11)

A subspecies commonly found in northern regions of South America, north of the Amazon, and along the Orinoco River basin, from Colombia, through Venezuela and east to the Guianas (González & Stünning, 2007; González et al., 2010). This singular specimen clearly confirms the presence of the species in Colombia, however several specimens belonging to this ssp. are known from the country (J. Salazar, pers. comm.).

EXAMINED MATERIAL. 1 female, Rio Magdalena, Aipe, Columbién, 600 m, *Castnia icarus* Am, *Castnia icarus* Brm female, 5959/32625, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Telchin licus (Drury, 1773)

The species *T. licus* (Drury, 1773) is one of the most common Castniidae found in Lepidoptera collections worldwide, mainly because it is a pest of Sugarcane (*Saccharum officinarum* L., Poaceae), bananas (*Musa* spp., Musaceae) and heliconias (Heliconiaceae) (González & Cock, 2004; González & FernándezYépez, 1993; González & Stünning, 2007; González et al., 2010; Miller, 1987; Moraes & Duarte, 2009; Silva-Brandao et al., 2013). The taxonomy of the several associated subspecies is confusing since many specific and subspecific epithets have been proposed based sometimes in simple variations of wing color patterns (Miller, 1986; González & Stünning, 2007). Lamas (1995) would consider this as the ssp. *T. licus licoidella* (Strand, 1913). However, Silva-Brandão et al. (2013) studied several specimens from different regions of Brazil, and found that *T. licus albomaculata* (Houlbert, 1917) genetically corresponds well with those in the Amazon region including the Peruvian Amazon, where this specimen comes from. Could the supposed ssp. "*licoidella*" remain valid after a genetic comparison? Since specimens with these phenotypic characters have been found with more typical "*licus*" populations (Miller, 1986, 1995; González & Cock, 2004) we prefer to follow González & Stünning's (2007) approach and not include the Bytom's specimen in any other subspecies herein.

EXAMINED MATERIAL. 1 male, Ob. Hualaga, N. Peru, *Castnia licoidella* Am, Castn. Licoidella 80 Pfg., 5959/32911, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Telchin licus magdalena (Joicey et Talbot, 1925) (Fig. 14)

This subspecies was originally described by Joicey & Talbot (1925) based on a large series of male and female specimens originally collected in Villavicencio, Colombia. However, it appears that the subspecies has a wider distribution in the country (Julián Salazar, pers. comm.). Other than the fact that this ssp. might be a pest of sugarcane in the region where it occurs, not much else is known (Julián Salazar, pers. comm.).

EXAMINED MATERIAL. 1 female, *Castnia licus*, Motta Teff. Caquetá, Columbia[sic], 5959/34325, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Xanthocastnia evalthe evalthoides (Strand, 1913) (Fig. 16)

This subspecies was described from Bolivia (as *Castnia evalthoides*) by Strand (1913). However, specimens have been collected in the high Amazon and effluents from the Andes piedmonts in several localities from Bolivia, Brazil, Ecuador and Peru (Houlbert, 1918). Even though not much is known about the species and its supposed several subspecies it appears that their larvae feed on terrestrial Bromeliaceae (Miller, 1986).

EXAMINED MATERIAL. 1 male, Riobamba, Ecuador, 2000 m., *Castnia evalthoides* Am, 5959/33092, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Geyeria hubneri (Gray, 1838) (Fig. 6)

Some researchers still mention "Latreille, 1830" as author of this species (Miller, 1986, 1995), based on text and image presented by Pierre André Latreille in Cuvier (1830). However, Lamas (1995) has clearly stated that "*Castnia hübnerei* Latreille, 1830" should be considered a ghost name since the name "*Castnia hubneri*" was first made available by Gray (1838). Virtually nothing is known of this species, except that they are found in some areas of South East Brasil (Gray, 1838; Bucheker, [1880]; Miller, 1986; González et al., 2010).

EXAMINED MATERIAL. 1 female, Brasilien, Santa Catharina, Timbo-Blumenau, 400 m. Dez.-Januar, 630, *Castnia* sp. Am, 5959/32375, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Prometheus cochrus (Fabricius, 1787) (Fig. 12)

This species is also distributed throughout Southeast Brazil (González et al., 2010). It resembles *Parides ascanius* (Papilionidae) behaviorally, and they both might be copying some other model and be all part of a larger mimetic ring (Miller, 1986). Its larvae have been found feeding on *Bromelia antiacantha* Bertol, and *Tillandsia aeranthos* (Loisel) L.B. Smith, as well as other bromeliads (Bromeliaceae) (Biezanko, 1961a; Miller, 1986; González et al., 2010).

EXAMINED MATERIAL. 1 female, *C. garbei* Fott. female Brasil. Collection Niepelt, 5959/31706, coll.

Upper Silesian Museum (USMB) Bytom, Poland [this is very interesting specimen. It appears that it was collected by José G. Foetterle (18??-1929), a well-known lepidopterist from Brasil. The specimen was traded with Friedrich Wilhelm Niepelt (1862-1936) who placed it in his collection. Since most of Niepelt's collection was scattered to several European Museums during and after WWII it is not surprising that this particular specimen ended up in Bytom's]; 1 female, Riobamba, Ecuador, 2000 m., 364, *Castnia garbei* Am, *Castnia garbei* female, 5959/32306, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Divana diva diva (Butler, 1870) (Fig. 13)

The unusual wing maculation and coloration of the species and its ssp., makes them one of the most beautiful Castniidae. Even though not much is known about the species, collection records seem to indicate that the genus is bivoltine, with crepuscular flight periods during December-January and July-August (Miller, 1986). This polytypic species is distributed from Mexico, throughout Central America, and to Colombia and Ecuador (Lamas, 1995; Miller, 1995; Vinciguerra, 2010). Specimens from the nominal ssp. have been collected in Colombia and Ecuador (Vinciguerra, 2010). The specimen owned by the Bytom's Museum is clearly the ssp. *diva*, which is commonly found from Mexico to Ecuador (Vinciguerra, 2010). It is even more curious that this specimen bears a label that clearly states that it was collected in French Guyana (see Material examined below). Beneluz & Gallard (2012) report the presence of 19 taxa of Castniidae in French Guyana after carefully studying several collections from the country. However, not a single specimen of *D. diva* is mentioned. In addition, our (J.M.G.) revising of several Castniidae collections worldwide has not revealed evidence of any specimen of this species collected in French Guyana. Curiously enough, González et al. (2010) report a specimen of *D. diva* (actually *D. diva chiriquiensis*) from Brazil at the Field Museum of Natural History, Chicago, Illinois, USA, which was originally traded or exchanged by Herman Strecker with Otto Staudinger. Since the ssp. *chiriquiensis* is Colombian-Panamanian in distribution (Strand, 1913; Salazar, 1999; Vinciguerra,

2010), the authors suspected that the specimen was mislabeled (González et al., 2010). Could it be that this supposedly French-Guyanese specimen of *D. diva diva* was also mislabeled?

EXAMINED MATERIAL. 1 male, St. Laurent, Maroni Fluß, Franz Guayana, 300 m, Januar-März, *Castnia diva* Am., 5959/32944, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Divana diva tricolor (Felder, 1874)

As with all subspecies in the group, not much is known of its biology and ecology. Even though Felder (1874) reported (and illustrated) this subspecies from specimens collected in Bogota and Chiriqui, it is more commonly found in the central regions of Colombia (Houlbert, 1918; Salazar, 1999; Vinciguerra, 2010).

EXAMINED MATERIAL. 1 male, Cartago, Cauca, [Cauca Valley], Columbian, 600 m, *Castnia diva* Am., 5959/33094, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Gazera heliconioides Herrich-Schäffer, [1853] (Fig. 15)

Members of this genus are easily recognized by a coloration pattern that resembles the genera *Lycorea* (Nymphalidae Danaidae) and *Thyridia* and *Methona* (Nymphalidae Ithomiinae), as well as the species *Notophyson heliconides* (Erebidae Arctiinae), and their interactions and possible mimetic significance have been studied (Lamas, 1973; Miller, 1986; Contreras, 2009; Ríos & González, 2011). The genus appears to be bivoltine, especially in the Amazon Basin (Miller, 1986). Several subspecies have been described from various regions in South America, from Venezuela and Colombia, southward to Bolivia, Paraguay and Southern Brazil (Miller, 1986; Contreras, 2009; Ríos & González, 2011). Even though their host is not known, suspect abounds about the possibility that its larvae feed on Bromeliaceae (Contreras 2009; Ríos & González, 2011).

EXAMINED MATERIAL. 1 female, Manacapuru, Amazonenstrom, [Brasil], 39 m. Febr - März, 316, *heliconioides* [sic]?, *Castnia heliconioides* [sic] Am., 5959/32191, coll. Upper Silesian Museum (USMB) Bytom, Poland.

Paysandisia archon (Burmeister, 1918)

This species was originally restricted to northern Argentina, South East Brasil, western Uruguay and Paraguay, but it was introduced in Europe sometime between 1985 and 1995 where it is now considered an important pest of ornamental palms (Arecaceae) (Aguilar et al., 2001; Sarto I Monteys, 2002; González & Stünning, 2007; Ríos & González, 2011).

EXAMINED MATERIAL. 1 female, Kongo, 1952, T. Spalstenstein, Coll. Tadeusz Spaltenstein. [The locality appears to refer to the Republic of the Congo (Kongo in German) in central Africa. *Paysandisia archon* was introduced in Europe sometime between the mid 80's and mid 90's (Aguilar et al., 2001) and as far as we know there are no reports of the species in any African country. We assume that the specimen was mislabeled.]

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