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# *Urania sloanus* (Cramer, 1779), an extinct species in the collection of the Upper Silesian Museum (Muzeum Górnośląskie), Bytom, Poland (Lepidoptera: Uraniidae)

P. Domagała, A. Larysz, R. Dobosz & J. M. González

## Abstract

*Urania sloanus* (Cramer, 1779) is an endemic Lepidoptera species from Jamaica. It is believed to be extinct since the end of the 19th century or the beginning of the 20th. While revising the exotic Lepidoptera' collection of the Upper Silesian Museum in Bytom, Poland, a well preserved specimen of this species was found. As far as we know, it could be one of the very few specimens of that species in Polish museum collections.

KEY WORDS: Lepidoptera, Uraniidae, Biodiversity, extinct species, *Omphalea*, Jamaica, Venezuela.

*Urania sloanus* (Cramer, 1779), una especie extinguida en la colección del Upper Silesian Museum (Muzeum Górnośląskie), Bytom, Polonia (Lepidoptera: Uraniidae)

## Resumen

*Urania sloanus* (Cramer, 1779) es un Lepidoptera endémico de Jamaica. Se cree extinta desde finales del siglo 19 o principios del 20. Mientras se revisaba la colección de mariposas exóticas del Upper Silesian Museum en Bytom, Polonia, encontramos un ejemplar bien conservado de esta especie. En lo que a nosotros respecta, este podría ser uno de pocos ejemplares de la especie en las colecciones de museos polacos.

PALABRAS CLAVE: Lepidoptera, Uraniidae, Biodiversidad, especie extinta, *Omphalea*, Jamaica, Venezuela.

## Introduction

The family Uraniidae contains roughly 700 species, included within four subfamilies (Auzeinae, Epipleminae, Microniinae and Uraniinae) and ninety genera (GONZÁLEZ, 2013). The members of the genus *Urania* are medium sized moths with very characteristic wing shape, pattern and colors, and to the novice they might be confused with swallowtails (Papilionidae) (GOSSE 1851). Their imagoes are active during the day, sometimes at dusk or at night and feed on the nectar of flowers of several plant families (LEES & SMITH, 1991). Their larvae feed on various species of Euphorbiaceae, mainly those in the pantropical genus *Omphalea* (GONZÁLEZ, 2013; LEES & SMITH, 1991). The genus *Urania* consists of six species, characteristic of the Neotropics. Three species (*Urania leilus*, *U. brasiliensis* and *U. fulgens*) occur in the continental Americas, while the other three species are found on some Caribbean islands. *Urania poei* and *U. boisduvali* are endemic to Cuba, while *U. sloanus* was endemic to Jamaica (LEES & SMITH, 1991).

*Urania sloanus* was originally described by Pieter Cramer (as *Papilio sloanus*) and named to honor the British naturalist Hans Sloane (1660-1753) who had observed and collected them during

his time in Jamaica (CRAMER, 1779; SLOANE, 1725). Sloane explored Jamaica from 1687 to 1689, and collected several specimens of what he thought were “*Papilio caudatus*” which together with many flora and fauna specimens of his natural history collection were eventually hosted at the British Museum (Natural History Museum) in London (HAWKINS, 2010; SLOANE, 1725).

The biology of *U. sloanus* was described in detail by GOSSE (1851, 1881, 1882), who found it similar to other *Urania* species. Moths were active during the day and at dusk, visiting mango and avocado flowers (*Mangifera indica* L., Anacardiaceae, and *Persea americana* (L.) Cockerell, Lauraceae, respectively) early in the morning (before 10:00 - 11:00) and during the evening (17:00 - 18:00) (GOSSE, 1851, 1881). Adults were found perching head down with extended wings during the hot hours close to noon (GOSSE 1881). They were also reported flying in large groups during March, April and June; however single specimens could be seen during the whole year (GOSSE, 1851). The species was found in lowland rainforests in areas up to 700 meters above sea level and within the surroundings of their host plant *Omphalea triandra* (Euphorbiaceae). The species was first discovered as larvae feeding in large quantities on *O. triandra* in Bogue Bay near Ocho Ríos, Jamaica (GOSSE, 1851, 1881). However, the species might have fed on other species of *Omphalea* (i.e. *O. diandria*) also found on the island (LEES & SMITH, 1991). The last living specimen of this species was seen supposedly between 1894 and 1895 (LEES & SMITH, 1991), however some Museum specimens have been found labeled years later (VINCIGUERRA, 2009). It has been suggested that extinction of this species was probably caused by habitat destruction, extinction of its main host, and environmental causes, such as hurricanes which frequently hit Jamaica (LEES & SMITH, 1991).

Material Examined: 1 ♂, Venezuela, 5959/32300, coll. Upper Silesian Museum (USMB) Bytom, Poland (Figs. 1-2).

In general, the insect is well preserved, without any damage made by pests. The specimen lacks the right antenna, however an antennae from another lepidopteran was glued instead (Figs. 1-2).

The right fore wing has a 3 x 1 mm sized hole in the median cell, which was repaired by attaching a piece of wing from another lepidopteran on the ventral side. The external margin has some tiny tears, the largest being about 1 mm long. A triangle shaped piece of wing from another lepidoptera is attached on the ventral side of the wing, along the external margin from the anal region to the middle of the wing (on the external margin region) (Fig. 2). A small tear, about 2 mm deep, is above the middle of the external margin, and was not repaired. Left forewing and hind wings are all well preserved, without visible damage. Colors on the wings, dorsally and ventrally, are not faded.

The label that we encountered with the specimen was made of paper measuring 18 x 11 mm. It has a printed border in the shape of a double octagon. The only information appearing on the label is the hand-written locality “Venezuela”. The label also shows three pin holes, two of which have the same diameter, and one is smaller than the other two. No records on how this specimen was obtained by the Museum were found in our archives.

## Discussion

The well preserved specimen of *U. sloanus* at the Upper Silesian Museum clearly indicates that the moth was never exposed for long periods to the sun or bright lights and it was stored in good conditions. Professionally taped holes in two sections of the right forewing and glued right antenna may suggest that the original collector wanted to keep the aesthetic values of the specimen. By the beginning of the twentieth century *U. sloanus* was possibly very valuable to collectors since it was difficult to obtain back then. Analyzing the lepidoptera catalog of STAUDINGER & BANG-HAAS (1919), which was one of the largest entomological suppliers in the world at that time, we could not find specimens of this species offered for sale. However, specimens of *Papilio homerus* (Papilionidae), another rare species, also endemic to Jamaica, were listed (STAUDINGER & BANG-HAAS, 1919).

Even though the label attached to the specimen indicates that it comes from Venezuela, South

America, this seems to be a negligible possibility (G. Lamas and A. Viloria, personal communication). The typical host of *U. sloanus* was *O. triandra* (Euphorbiaceae) also endemic to Jamaica, although all *Urania* species are oligophagous. Thus it is possible that they could feed on other *Omphalea* species such as *O. diandra*, also present in Jamaica but distributed in Central America and northern South America, including Venezuela (LEES & SMITH, 1991; FUNK *et al.*, 2007). Two species of *Urania* (*U. fulgens* and *U. leilus*) are known from Venezuela and they have been reported flying long distances and even involved in migrations (BEEBE, 1951; MANARA, 1994; OSUNA, 2000; RAYMOND, 1982; SANDOVAL *et al.*, 2007; SCHMID & ENDICOTT, 1967). And even though *U. sloanus* was once reported from Cuba (SAGRA, 1857), such a possibility was discarded by other researchers. Furthermore, the Uraniidae have been recognized as great flyers and involved in long distance migrations, and with the help of strong Caribbean winds some individuals may have reached the coast of northern South America. Thus, hypothetically, it may be possible that a vagrant specimen arrived in Venezuela to be later collected. However, the species has never been reported before from continental South America, as its possible alternative host plant (*O. diandra*).

The date and how the specimen was obtained are unknown to us, but during the detailed exploration of the Upper Silesian Museum collection several other specimens with the same or very similar label design and handwriting were found (Fig. 3). They are: *Papilio memnon*, labeled "Tonkin", *Cethosia cydippe damasippe*, labeled "D. N. Guin." *Eurytides serville*, labeled "Ecuador" and *Ornithoptera priamus euphorion*, dated 1884 in a similar but non-octagonal "framed" label, with an extra label written in pencil with handwriting similar to the three above mentioned. Tonkin is the name of North Vietnam and south of China's Yunnan and Guangxi provinces, during the Sino-French war (1884-1885) and while the region was a French protectorate from 1885 to 1945; "D. N. Guin." clearly refers to "Deutsch-Neuguinea" or German New Guinea, a protectorate between 1884 and 1914, covering the island of New Guinea and several surrounding islands in the Pacific Ocean. The similarity of these labels may suggest that the specimen of *U. sloanus* was probably part of this small group of insects that possibly belonged to the same collection or it was bought from a dealer sometime between 1884 and 1914. This brings us to another possibility. Old museums are filled with specimens bought from dealers, many with few scruples, thus it is also possible that the label was placed in the dealership but the specimen simply was not from that site (G. Lamas, personal communication). Interestingly, the three specimens with identical labels than the *U. sloanus* (Fig. 3) are from countries where those particular insects are commonly found. However, three holes can be seen in the label of our specimen, clearly implying pin removal (Fig. 3). One of the holes is smaller than the other two, these being of similar size to the pin that is actually holding the insect. This suggests that the label may have originally belonged to another specimen, pinned with a smaller size pin and such a label was clearly misplaced.

The origin of the specimen, as well as those with similar labels, is not known and they came possibly from one of the pre-war German collections that were eventually gathered and placed in the Upper Silesian Museum. Currently, the species is part of the newly formed entomological collection, in which the material from several collections has been mixed, but identified and systematically arranged in new display cases and cabinets.

Despite the highly possible incorrect locality label, this specimen of *U. sloanus* is still a valuable one mainly because of its scarcity and the fact that it is most probably an extinct species. The exact number of preserved specimens of *U. sloanus* in Poland is not known. We know for certain that the Natural History Museum in London with one of the largest collections of Lepidoptera in the world has some 50+ specimens, including the type material; most with labels stating they come from Jamaica, but a few lack locality labels (J. Chainey, personal communication). However, it is known that there are not many specimens of this extinct species in most museums worldwide, thus the presence of this as well as other interesting Neotropical insects [i.e. Castniidae (GONZÁLEZ *et al.*, 2013)] in the Upper Silesian Museum indicates the high scientific value of its entomological collection.

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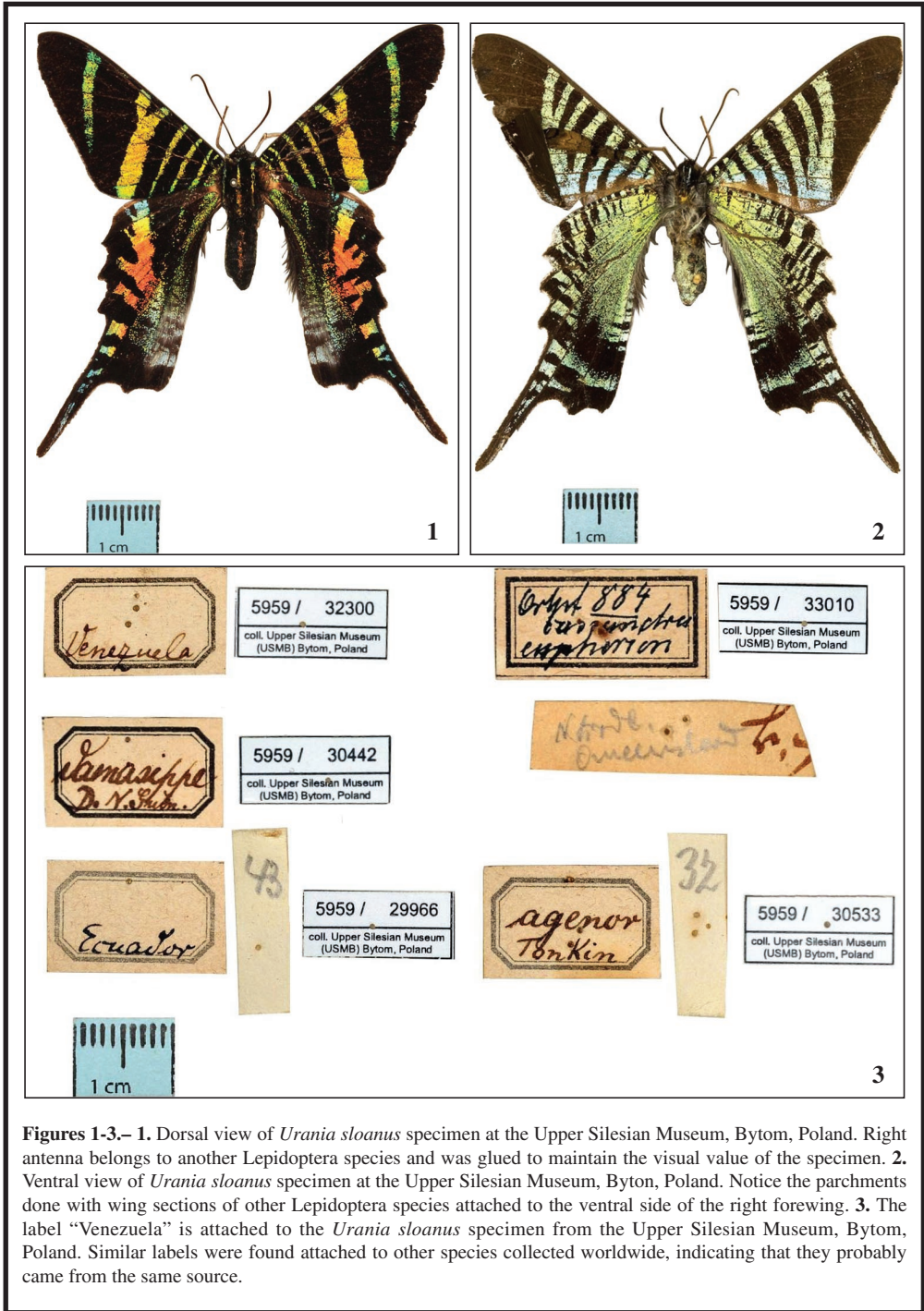
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Figures 1-3.– 1. Dorsal view of *Urania sloanus* specimen at the Upper Silesian Museum, Bytom, Poland. Right antenna belongs to another Lepidoptera species and was glued to maintain the visual value of the specimen. 2. Ventral view of *Urania sloanus* specimen at the Upper Silesian Museum, Bytom, Poland. Notice the parchments done with wing sections of other Lepidoptera species attached to the ventral side of the right forewing. 3. The label “Venezuela” is attached to the *Urania sloanus* specimen from the Upper Silesian Museum, Bytom, Poland. Similar labels were found attached to other species collected worldwide, indicating that they probably came from the same source.