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ON SOME “LOST” TYPES OF *CERAMBYX* AND *LEPTURA* SPECIES DESCRIBED BY LINNAEUS (1758), AND A NEW SYNONYMY IN RHINOTRAGINI (COLEOPTERA, CERAMBYCIDAE)

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ABSTRACT

The depository institution of the types of five species described by Linnaeus (1758), which is currently recorded as “unknown”, is reported to be at the Naturhistoriska Riksmuseet, Stockholm, Sweden: Cerambyx auratus; C. festivus; C. glaucus; C. stigma; and Leptura necydalea. The synonymy between Acyphoderes odyneroide White, 1855 (currently, Acutiphoderes odyneroide) and Leptura necydalea Linnaeus, 1758 is proposed, resulting in a new combination: Acutiphoderes necydalea.

KEY-WORDS: Cerambycinae; De Geer; Lamiinae; Prioninae.

INTRODUCTION

Frequently, to find the types of the species described by Linnaeus is not an easy task. Usually, it is also difficult to be sure if a specimen is or is not the type of the species. For example, according to Wallin (2001): “The establishment of material being ‘Linnaean’ or not (for the ultimate purpose of a typification) involves a study of the history of the collections and a scrutiny of individual specimens. An important obstacle to an unequivocal interpretation is, in many cases, the fact that Linné did not label any of the specimens included in the present ‘Linnaean collection’ in Uppsala (at least there are no surviving labels or inscriptions with his handwriting or referable to his own marking of specimens; a single exception will be pointed out below in the historical survey).”

Fortunately, the work by Dobreff (2010) allowed to know where the specimens of Cerambycidae described by Linnaeus (1758) and collected

by Daniel Rolander in Suriname are deposited. According to him: “In 1758 Linnaeus published the tenth edition of his famous *Systema Naturae* [...] The tenth edition includes Daniel Rolander and his journey to Surinam and St. Eustatius as one of Linnaeus’s sources [...] Moreover, Charles De Geer, the most famous Swedish entomologist of Linnaeus’s age, used Rolander the same way in his own publications [...] However, I have mentioned above that Rolander had never allowed Linnaeus to examine his collections [...] If we turn back to the mystery of how Linnaeus got hold of Rolander’s insects, we only have to travel a short distance from Linnaeus’s residence in Uppsala to Charles De Geer’s Leufsta manor, a country estate [...] A letter from former Linnaeus student Daniel Solander (1733-1782) to his fellow Linnean Eric Gustaf Lidbeck (professor of natural history at Lund University) solves everything. Linnaeus, according to Solander, had gone to Leufsta in either December 1756 or January 1757 to study Rolander’s insects.”

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Although the specimens sent to De Geer by Rolander are "probably duplicates" (Dobreff, 2010), the eventual specimens of species of Cerambycidae described by Linnaeus (1758) in Rolander's collection are not syntypes because they were not examined or directly mentioned by Linnaeus.

Currently, De Geer's Collection is deposited at Naturhistoriska Riksmuseet, Stockholm, Sweden.

***Cerambyx auratus* Linnaeus, 1758**
(Currently, *Hileolaspis auratus*
(Prioninae, Mallaspini))

Linnaeus (1758) described *Cerambyx auratus*, based on a specimen collected by Daniel Rolander in Suriname, as follows (translated): "*Cerambyx* with lateral thoracic tooth somewhat golden-green, antennae black, hind femora dark blue. Habitat in America. *Rolander*. It is similar to *C. violaceo*. Head and thorax golden-green. Thoracic margin concave excavated between base and lateral tooth. Elytra red-green-gold, slightly longer than body. Abdomen and whole underside of body green-bronze. Legs purple: hind femora dark-blue."

According to Monné (2015c): "**Type locality** – America. (Depository unknown)." However, De Geer (1775) recorded (translated): "this beautiful Capricorn, also from Suriname, from where Mr. Rolander sent it to me, has eight lines of length and three lines and a half, so it has a short body, but broad and flattened, and the antennae, that are somewhat thick, have the length of the body. The elytra are large and rounded at apex."

Based only on that information, evidently it is not possible to be sure that Linnaeus (1758) used the specimen deposited in De Geer Collection to describe *C. auratus*. Nevertheless, that becomes evident when the information published by Dobreff (2010) is added (see introduction). Thus, there is no doubt that the specimen used by Linnaeus to describe *C. auratus* belonged to De Geer's Collection. And, as De Geer (1775) gave only the dimension of a single specimen, it is evident that only a holotype exists.

The holotype of *C. auratus* should be deposited at Naturhistoriska Riksmuseet, Stockholm, Sweden. However, according to Dobreff (2010) on *C. auratus*: "*Cerambyx auratus* L. / *Sys. Nat.* (1758), p. 395, #179 / NRM box 14 (label present; specimen missing)."

Following De Geer (1775) it is possible to give a more accurate type locality: Suriname (originally recorded as "America").

***Cerambyx festivus* Linnaeus, 1758**
(Currently, *Chlorida festiva*
(Cerambycinae, Bothriospilini))

As occurred with *C. auratus*, Linnaeus (1758) described *Cerambyx festivus*, based on specimen(s) collected by Daniel Rolander in Suriname, as follows (translated): "*Cerambyx* with thorax bidentate at each side, elytra bidentate, green with yellow line. Habitat in America. *Rolander*. Thorax reddish variegated with black; antennae with reddish base, slightly longer than body. Elytral apex bidentate, green, with two elevate carinae; with longitudinal yellow line near lateral margin."

According to Monné (2015a): "**Type locality** – America. (LSUK) [Linnaean Society, London, United Kingdom]."

The website of The Linnaean Society of London (2015) actually shows photographs of three specimens of *Cerambyx festivus* (LINN 3627; LINN 3628; LINN 3629) that belonged to Linnaeus' Collection. Only two of them have labels: "Cayenne / W. Roe" (LINN 3629); and "afer? I. festivus" (LINN 3627). However, as seen above, the specimen used by Linnaeus was collected by Rolander, and did not belong to Linnaeus' collection. Thus, the three specimens in The Linnaean Society of London are not syntypes of *C. festivus* (notably the specimen collected by W. Roe).

One more time, De Geer (1775) recorded (translated): "This Capricorn was sent to me from Suriname by Mr. *Rolander*. It is slightly longer than an inch and with width of three lines and a half; this is the measure of the female, the male being smaller than half, but also of the same appearance and colors." De Geer (1775) used two names to refer to this species: "*Cerambyx* (spinosus) *thorax depressed...*"; and "*Cerambyx* (festivus) *thorax bidentate at each side...* *Linn. Syst. Ed. 12. p. 623. n° 11.*" At the same time, he listed two works where the species was figured: "*Gronov. Zooph. n° 541. Tab. 16. Fig. 5*"; and "*Drury Ins. Exot. Pl. 37. Fig. 5.*"

Dobreff (2010: figure 3.5) published a photograph of a specimen of *C. festivus* deposited in De Geer's Collection that belonged to Daniel *Rolander*. Without doubt, this is one of the syntypes of *C. festivus* (see introduction). As De Geer had more than one specimen, it is possible to infer that Linnaeus studied more than one specimen. The syntypes of *C. festivus* are deposited at the Naturhistoriska Riksmuseet (at least one specimen survived).

According to Monné (2015a): "*Cerambyx spinosus* De Geer, 1775: 100, pl. 13, fig. 14. **Type local-**



FIGURES 1-4: (1, 2) *Acutiphoderes odyneroideus* (White, 1855), male: (1) Lateral view; (2) Dorsal view. (3, 4) *Necdalis nitida* De Geer, 1775 (after De Geer (1775), Plate 15, figures 2-3) (= *Leptura necydalea* Linnaeus, 1758; = *Necdalis glaucescens* Linnaeus, 1767): (3) Lateral view; (4) elytra.

ity – Surinam. (NHRS) [Naturhistoriska Riksmuseet, Stockholm, Sweden].” De Geer’s description makes clear that there were two specimens (one male and one female). Thus there are “syntypes” and not holotype.

Evidently De Geer (1775) was just giving a new name (unnecessary *nomen novum*) for *C. festivus* (and for the same specimens). ICZN (1999: Article 72.7) makes clear that the types of *C. spinosus* are the same as *C. festivus*. Consequently, there are no different syntypes of the former, and the type locality is the same for both.

Following De Geer (1775) it is possible to give a more accurate type locality: Suriname (originally recorded as “America”).

***Cerambyx glaucus* Linnaeus, 1758**
(Currently, *Oreodera glauca glauca*
(Lamiinae, Acanthoderini))

According to Linnaeus (1758) (translated): “*Cerambyx* with thorax with five spines, grayish-blue, elytra muricate, laterally with black band, antennae long. Habitat in America. *Rolander*. Insect dorsally grayish-blue whitish, ventrally dark. Thorax dorsally with four spines, and a fifth at posterior half. Elytra truncate, unidentate, anteriorly spinose-muricate, laterally with short black side, posteriorly almost dividing elytra. Antennae about as long as twice body length.”

According to Monné (2015b): “**Type locality** – America. (Depository unknown).”

As seen above the holotype of *C. glaucus* should be deposited at Naturhistoriska Riksmuseet. However, according to Dobreff (2010): “*Cerambyx glaucus* L. = *C. tuberculatus* / *Sys. Nat.* (1758), p. 390, #179 / NRM box 14 (label present; specimen missing).”

De Geer (1775) gave a new name (unjustified *nomen novum*), *C. tuberculatus*, for *C. glaucus*, and recorded (translated): “This beautiful and singular Capricorn, from Suriname, is of moderate size, or about that of our Capricorns *charpentiers*, that means that its length is eight lines and a half and the width has three lines.”

As De Geer (1775) made clear that it is the same species described by Linnaeus as *C. glaucus*, there is no doubt that the specimen was collected by Rolander, and is the same used by Linnaeus to describe the species (holotype).

Monné (2015b) recorded: “*Cerambyx tuberculatus* De Geer, 1775: 112, pl. 14, fig. 4. **Type local-**

ity – Surinam. (NHRS) [Naturhistoriska Riksmuseet, Stockholm, Sweden].”

Notwithstanding, as with *C. spinosus* De Geer, 1775, according to ICZN (1999: Article 72.7), the holotype of *C. tuberculatus* is the same as *C. glaucus*. Consequently, the type locality is also the same.

***Cerambyx stigma* Linnaeus, 1758**
(Currently, *Megaderus stigma*
(Cerambycinae, Trachyderini))

Described by Linnaeus (1758) as follows (translated): “*Cerambyx* sub-short, roundish, coarsely punctate, body dark, elytra smooth: with white macula. Habitat in America. *Rolander*. Totally black. Thorax hemispherical, sub-margined, abundantly coarsely punctate, posteriorly excavated close to lateral tooth. Scutellum smooth, longer in the other species. Elytra smooth, black, on each side of scutellum with white line outward oblique.”

Monné (2015a) pointed out where the type of *C. stigma* was collected: “**Type locality** – America. (Depository unknown).”

According to De Geer (1775) (translated): “This Capricorn, that Mr. Rolander sent me from Surinam, is of a shape quite different from that of other species, having great body, but dorsally flattened and ventrally convex.” De Geer (1775) was describing the same specimen used by Linnaeus to describe *C. stigma*. The holotype of *C. stigma* belonged to De Geer’s Collection (see introduction).

Following De Geer (1775) it is possible to give a more accurate type locality: Suriname (originally recorded as “America”).

***Leptura necydalea* Linnaeus, 1758**
(Currently, *Isthmiade necydalea*
(Cerambycinae, Rhinotragini))

According to Linnaeus (1758) (translated): “*Leptura* with thorax subglobose, elytra notably acuminate towards apex, grayish-blue yellowish. Habitat in America. *Rolander*. Similar to *L. aquatica*. Elytra reduced and very acuminate towards apex, very glabrous, grayish-blue yellowish, margins somewhat purple. Head black. Antennae filiform, black, as long as half of body. Femora clavate. Abdomen black, ichneumoniform, margins maculated with white.”

Later, Linnaeus (1767) transferred the species to *Necydalis* Linnaeus, 1758, and gave it a new name (unjustified *nomen novum*), *Necydalis glaucescens*, and

commented (translated): “*Necydalis* with elytra notably acuminate towards apex, grayish-blue yellowish. Syst. Nat. 10. p. 399. n. 17. *Leptura necydalea*. Habitat in Suriname. Head black. Abdomen black with margins maculated with white. Antennae black, as long as half of body.”

Monné (2015a) recorded the type locality for *L. necydalea*: “**Type locality** – America. (Depository unknown).”

However, the holotype belonged to De Geer’s collection and is (or should be) deposited at the Naturhistoriska Riksmuseet (see introduction). According to De Geer (1775) (translated): “This remarkable *Necydalea*, that Mr. Rolander found in Suriname, has six lines of length and one line and a half of width.” De Geer (1775) made clear that it is the same species described by Linnaeus (1758) as *Leptura necydalea* and gave a new name for it: *Necydalis nitida*.

Regarding *Necydalis glaucescens* Linnaeus, 1767, and *N. nitida* De Geer, 1775, Monné (2015a) reported, respectively: “**Type locality** – Surinam. (Depository unknown);” and “Type locality – Surinam. (NHRS) [Naturhistoriska Riksmuseet, Stockholm, Sweden].” But both *N. glaucescens* and *N. nitida* are new names (both are unjustified *nomen novum*) for *Leptura necydalea* and, consequently, have no different “type” or type locality from *Leptura necydalea* (ICZN 1999: Article 72.7).

Linnaeus (1767) gave a more accurate type locality: “Habitat Surinami” (originally recorded as “America”). Fabricius (1787) incomprehensibly recorded: “N. elytris subulatis glaucis, corpora nigro, abdominis incisures albis. *Necydalis glaucescens* elytris subulatis glauco flavescens, femoribus clavatis. Linn. Syst. Nat. 2. 642. 7. Schaeff. Icon. Tab. 94. fig. 6. Habitat in Europa australiori.” Gmelin (1790) followed Fabricius (1787) and wrongly pointed out that the species is from Europe. Schönherr (1817) transferred *Necydalis glaucescens* to *Molorchus* Fabricius, 1793, but correctly pointed out that the species is from “America, Surinam.” According to Schönherr (1817), *Necydalis glaucescens sensu* Fabricius (1787, 1793, 1801) is equal to *Necydalis rufa* Linnaeus, 1767 (currently, *Stenopterus rufus*): “*Nec. glaucescens*, * Fabr. S. El. II. p. 373. 31. * Ent. S. I. II. p. 355. 24. * Mant. I. p. 171. 13. variatio forte. (Minime [not comparable] *N. glaucesc.* Linn.)” However, Schönherr (1817) did not comment on the error by Gmelin (1790). Nevertheless, following the reasoning by Schönherr (1817), *Necydalis glaucescens sensu* Gmelin (1790) also corresponds to *Necydalis rufa*, because according to him: “N. elytris glaucis, corpora nigro, abdominis incisures albis. *Fabr. mant. Ins. I. p. 171. n. 13* [...] / *Syst. Nat.*

X. p. 399. n. 17. Leptura necydalea [...] / *Habitat* in Europa magis australi.”

Olivier (1811) considered that species as belonging to *Oedemera* Olivier, 1789 (Oedemeridae). I have not been able to find another citation of the species in Oedemeridae, nor if some author formally corrected the erroneous transfer.

Aurivillius (1912) transferred *Necydalis necydalea* to *Isthmiade* Thomson, 1864. However, reading the description by De Geer (1775), it is possible to see that the species cannot belong to *Isthmiade* (length of antennae; presence of bands with dense setae on prothorax, etc.). Tippmann (1953) questioned the inclusion of that species in *Isthmiade*, when he described *I. laevicollis* (translated): “*I. necydalea* Lin. ruled out, because it involves a clear *Acyphoderes*-like”. Linsley (1961) pointed out: “*Leptura necydalea* Linnaeus, 1758 (= *Necydalis glaucescens* Linnaeus, 1767) (= *Necydalis nitida* DeGeer, 1775), from Surinam, has been referred to this genus by Aurivillius (1912). I do not know this species, but judging from the description and figure provided by DeGeer (1775) is does not appear to be congeneric with the Brazilian species, which include the type of the genus. However, the generic assignment provided by Aurivillius may have resulted from examination of the type specimen.” It is not possible to know whether or not Aurivillius examined the holotype, but there is no doubt that the inclusion in *Isthmiade* was a mistake.

Tavakilian & Peñaherrera-Leiva (2007) discussed the holotype of *Leptura necydalea* (translated): “... at Linnaeus’ time, “glauc” in Latin meant a pretty color between green and blue that today fallen into disuse”; “We could not find the typical material of this species nor in Stockholm (former De Geer collection) or in Uppsala (Gustave-Adolphe collection) or London (C. Linnaeus collection)... It is quite possible that Aurivillius have considered the type of De Geer and at least interpreted the pattern shown by him in 1775: pl. XV, Fig. 2. To date, no green species belonging to the genus *Isthmiade* is known and no species found in French Guiana have the proposed features.” Regarding the elytral color, according to De Geer (1775), the elytra are “flavi nitidissimis” (or in French, “Les etuis sont d’un jaune de citron pâle, très-luisants & polis comme une glace, ayant tout autour de leur étendue une espede de bordure brune”). That means that the elytra are pale lemon-yellow, shiny, margined with brown.

Dobreff (2010: appendix 1) listed *Leptura necydalea*, but apparently, he did not see the specimen, because the number of the box in NHRS was not mentioned. According to Johannes Bergsten (personal

communication): "I looked in the De Geer collection and there is a label in the drawer for *N. nitida* / *N. glaucescens*; there is a hole after a pin under the label, but there is no specimen. I do not know where the specimen could be, it is not due to any loan. I also looked in world collection and in our database but it is not indicated in our database which means it has not been in the collection for quite some time, it has not disappeared recently."

According to Linnaeus (1758) and De Geer (1775) the antennae are about half length of body. However, seeing the drawing (Fig. 3), apparently they are just longer than one-third of the body length.

I believe that *L. necydalea* is equal to *Acyphoderes odyneroides* White, 1855 (currently, *Acutiphoderes odyneroides* (Rhinotragini)), described from Brazil (Pará), because the description and drawings by De Geer (1775) (Figs. 3-4), and the specimens examined (Figs. 1-2), agree well with both. Thus, *Acyphoderes odyneroides* is a junior synonym of *L. necydalea*. Following the transference by Clarke (2015): *Acutiphoderes necydalea* comb. nov.

RESUMO

A instituição depositária dos tipos de cinco espécies de Cerambycidae descritos por Linnaeus (1758), atualmente considerada como "desconhecida", é indicada como sendo Naturhistoriska Riksmuseet, Estocolmo, Suécia: *Cerambyx auratus*; *C. festivus*; *C. glaucus*; *C. stigma*; e *Leptura necydalea*. A sinonímia entre *Acyphoderes odyneroides* White, 1855 (atualmente *Acutiphoderes odyneroides*) e *Leptura necydalea* Linnaeus, 1758 é proposta, resultando em uma nova combinação, *Acutiphoderes necydalea*.

PALAVRAS-CHAVE: Cerambycinae; De Geer; Lamiinae; Prioninae.

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