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Additional type designations for fireflies
(Coleoptera: Lampyridae) of the Biologia Centrali Americana
housed in the Natural History Museum, London

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Additional type designations for fireflies (Coleoptera: Lampyridae) of the Biologia Centrali Americana housed in the Natural History Museum, London

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Abstract. Firefly (Coleoptera: Lampyridae) taxonomy has undergone numerous changes over the past 100 years. In order to help provide stability to the group, types for several of the Lampyridae of the Biologia Centrali Americana were determined or designated in early 2019. Here we provide treatments for the remaining Lampyridae and determine the holotype specimens for four species and designate lectotype specimens for 33 species.

Key words. Lectotype, holotype, natural history collection.

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Introduction

The Lampyridae are a cosmopolitan group (~2,000 species) of mostly bioluminescent beetles. The fireflies of South America were treated within the Biologia Centrali Americana (1879–1911; B.C.A.) in two parts by Gorham in 1881 and 1884. At the time, Gorham failed to designate types for most species which has resulted in nomenclatural confusion and lack of stability within a relatively diverse and charismatic taxon. Those fireflies discussed in the main text (Gorham 1881) were treated in an earlier work by Martin and Powell (2020). More recently, the current authors were able to study the material pertinent to the supplement (Gorham 1884). In the supplement Gorham (1884) treats 74 species of the family Lampyridae, providing descriptions for 38 of them. We were able to designate type material for 37 these species following ICZN (1999) articles 73.1 and 74.1. We located nine specimens of *Aspisoma physonotum* (Gorham, 1884) at the NHM, none of which matched the two localities Gorham (1884) mentioned. Due to the incompatible labels we did not designate a lectotype for this species. Further work needs to be done to locate the original specimens examined by Gorham in order to make the appropriate designations. Subfamilies are listed according to Martin et al. (2019) and genera/species within are listed according to the order presented by Gorham (1884).

Materials and Methods

Abbreviations of collections utilized are as follows:

NHM—Natural History Museum, London, England

All label information is given verbatim within quotations; line breaks are denoted with “/”. Multiple labels are listed in succession in unique quotations. All new labels were printed or written on colored acid-free card stock, holotype and lectotype labels are added in red, paralectotype labels in yellow.

Photurinae Lacordaire, 1857

Photuris Dejean, 1833

Type species. *Lampyrus versicolor* Fabricius, 1798, by original designation.

Photuris livida Gorham, 1884

Photuris livida Gorham 1884: 273

Current name *Photuris homonyma* Blackwelder, 1945, synonymy by McDermott (1966).

A single female was located, corresponding to the one specimen that Gorham (1884) both examined and figured. This single specimen bears the “Sp. figured” and therefore is confidently determined to be the holotype specimen. Labels for the determined holotype specimen are as follows: “♀” “Type” “V. de Chiriqui, /2-3000 ft./Champion.” “B.C.A.Col.III.(2)./Photuris/livida,/Gorham ♀” “Photuris/livida/Gorham ♀” “Type. /Sp. figured.” “Pyrogaster/livida Gor./I.H. Davidson det. 1973”. A red label is added with the following text: “HOLOTYPE/*Photuris livida* Gorham/Determined by/Martin and Saxton 2020”.

Bicellonycha Motschulsky, 1853

Type species. *Bicellonycha deleta* Motschulsky, 1854, designated by McDermott (1966).

Bicellonycha crassa (Gorham, 1884)

Photuris crassa Gorham 1884: 274

One male specimen was found bearing a red “type” label and a “Sp. figured” label. Gorham (1884) imaged both a male a female but indicated the female was of a different variation. He also mentions a wide range of variation, particularly in color, among the many specimens he examined. These varieties are left for future study in the taxonomy of the group. Here we designate the above male specimen as the lectotype. Labels for the designated lectotype specimen are as follows: “Bugaba,/Panama./Champion.” “Type ♂” “Type. ♂/ Sp. figured.” “Photuris/crassa/Gorham” “SYN-/TYPE”. A red label is added with the following text: “LECTOTYPE/*Photuris crassa* Gorham/Designated by/Martin and Saxton 2020”.

Lampyrinae Rafinesque, 1815

Cratomorphini Green, 1948

Aspisoma Laporte, 1833

Type species. *Lampyrus ignita* Linnaeus, 1767, designated by McDermott (1966).

Aspidosoma aelianum (Gorham, 1884)

Aspidosoma aelianum Gorham 1884: 272

We located eight specimens belonging to *A. aelianum* with seven bearing “syn-type” labels. The specimen not bearing a “syn-type” label also had a locality not matching that listed by Gorham (1884) and is therefore excluded from the paralectotype series. Among the seven specimens matching the type locality, one was found with a “type” label. We designate this specimen bearing a “type” label as the lectotype and the other six specimens with matching locality labels as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “Paso Antonio,/400 ft./Champion.” “B.C.A.Col.III.(2)./Aspidosoma/aelianum,/Gorham” “Aspidosoma/aelianum/Gorham” “Type.”. A red label is added with the following text: “LECTOTYPE/*Aspidosoma aelianum* Gorham/Designated by/Martin and Saxton 2020”.

Cratomorphus Motschulsky, 1853

Type species. *Photinus fabricii* Laporte, 1840, by original designation.

***Cratomorphus altivolans* Gorham, 1884**

Cratomorphus altivolans Gorham 1884: 270

One specimen was located bearing a red “type” label. Gorham (1884) mentions only seeing a single specimen which he figured. The specimen located did not indicate if it was figured, however, due to confidence in the rest of the labels including those which are handwritten, we determine that this specimen is the holotype. Labels for the determined holotype specimen are as follows: “♂” “Type” “V. de Chiriqui, /2-3000 ft./Champion.” “B.C.A.Col.III.(2)./Cratomorphus/altivolans/Gorham” “Cratomorphus/altivolans/Gorham.” “NHMUK 013584671”. A red label is added with the following text: “HOLOTYPE/*Cratomorphus altivolans* Gorham/Determined by/Martin and Saxton 2020”.

***Cratomorphus ovatus* Gorham, 1884**

Cratomorphus ovatus Gorham 1884: 271

Gorham (1884) examined only a single male specimen, which was also figured. We located a single specimen bearing both a red “type” label and a “Sp. figured” label. This specimen is therefore determined here to be the holotype specimen. Labels for the determined holotype specimen are as follows: “Type” “V. de Chiriqui, /4000-6000 ft./Champion.” “Type./Sp. figured.” “B.C.A.Col.III.(2)./Cratomorphus/ovatus,/Gorham” “Cratomorphus/ovatus/Gorh.” “NHMUK 013584673”. A red label is added with the following text: “HOLOTYPE/*Cratomorphus ovatus* Gorham/Determined by/Martin and Saxton 2020”.

***Cratomorphus fasciatus* Gorham, 1884**

Cratomorphus fasciatus Gorham 1884: 271

One specimen was located bearing a red “type” label and a “sp. figured” label. Gorham (1884) mentioned examining a single specimen not in very good preservation. Here we determine that this single specimen is the holotype. Labels for the determined holotype specimen are as follows: “♂” “Type” “Costa Rica./Van Patten.” “B.C.A.Col.III.(2)./Cratomorphus/fasciatus/Gorham” “Cratomorphus/fasciatus/Gorham” “Type./Sp. figured.” “NHMUK 013584672”. A red label is added with the following text: “HOLOTYPE/*Cratomorphus fasciatus* Gorham/Determined by/Martin and Saxton 2020”.

Pyrectomena Melsheimer, 1846

Type species. *Pyrectomena lucifera* Melsheimer, 1846, designated by McDermott (1966).

***Pyrectomena discoidea* Gorham, 1884**

Pyrectomena discoidea Gorham 1884: 269; genus misspelled by Gorham.

We were only able to locate two of the three specimens mentioned by Gorham (1884), one from each locality mentioned. Both specimens are female. One of the specimens had several “type” labels and is designated as the lectotype. The other specimen is designated as a paralectotype. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “♀” “Type” “San Miguel,/Pearl Isl./Champion.” “B.C.A.Col.III.(2)./Pyrectomena/discoidea,/Gorham ♀” “Pyrectomena/discoidea/Gorham” “Type.” “NHMUK 013584700”. A red label is added with the following text: “LECTOTYPE/*Pyrectomena discoidea* Gorham/Designated by/Martin and Saxton 2020”.

Photinini LeConte, 1881***Lucidota* Laporte, 1883**

Type species. *Lucidota banoni* Laporte, 1883, fixed by Motschulsky (1853).

***Lucidota incompta* Gorham, 1884**

Lucidota incompta Gorham 1884: 253

Eight specimens were located in the collection. Four of the specimens had both syntype labels and locality labels which fell within the elevation range listed by Gorham (1884). The other four specimens had other elevations not within this range. One specimen was found bearing a red “type” label and a “sp. figured” label. That specimen is here designated as the lectotype, while the other three syntypes are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “Type” “♂” “V. de Chiriqui,/4000-6000 ft./Champion.” “Type./Sp. figured.” “B.C.A.Col.III.(2)./Lucidota/incompta, ♂/Gorham” “Lucidota/incompta/Gorh.” A red label is added with the following text: “LECTOTYPE/*Lucidota incompta* Gorham/Designated by/Martin and Saxton 2020”.

***Lucidota fuscata* Gorham, 1884**

Lucidota fuscata Gorham 1884: 253

Over fifty specimens were located in the collection bearing syntype labels; however, not all specimens had labels that matched Gorham’s description, while several additional specimens did have the B.C.A label. Gorham did not specify how many specimens of *L. fuscata* that he saw, only that it was a “large number” (1884). In order to ensure the specimens we designated were examined by Gorham, we chose to designate only the fifteen specimens with a syntype label, a correct locality label, and a Biologia Centrali Americana (III) (BCA) label. One of these fifteen specimens also bore a red “Type” label and is here designated as the lectotype. The remaining fourteen specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “♂” “SYN-/TYPE” “Type” “Lucidota/fuscata/Gorham.” “B.C.A.Col.III.(2)./Lucidota/fuscata, ♂/Gorham” “Bugaba,/Panama./Champion.” A red label is added with the following text: “LECTOTYPE/*Lucidota fuscata* Gorham/Designated by/Martin and Saxton 2020”.

***Lucidota xanthopleura* Gorham, 1884**

Lucidota xanthopleura Gorham 1884: 254

Nine specimens were located, all of which bear syntype labels and matching locality labels. The specimen bearing the red “type” label and the “Sp. figured” is here designated as the lectotype. The other eight specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “Type” “B.C.A.Col.III.(2)/Lucidota/xanthopleura.” “Lucidota/xanthopleura/Gorh.” “Type./Sp. figured.” “V. de Chiriqui,/8000 ft./Champion.” A red label is added with the following text: “LECTOTYPE/*Lucidota xanthopleura* Gorham/Designated by/Martin and Saxton 2020”.

***Lucidota tincta* Gorham, 1884**

Lucidota tincta Gorham 1884: 255

We located sixteen specimens, two of which lacked syntype labels and BCA labels. Here we chose to designate the most “complete” specimen as the lectotype. Thirteen additional specimens, excluding the two without syntype labels, are here designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “V. de Chiriqui,/25-4000 ft./Champion.” “B.C.A.Col.III.(2)/Lucidota/tincta.” “Lucidota/tincta.” A red label is added with the following text: “LECTOTYPE/*Lucidota tincta* Gorham/Designated by/Martin and Saxton 2020”.

***Lucidota sinuatocollis* Gorham, 1884**

Lucidota sinuatocollis Gorham 1884: 255

Only two specimens were located, although Gorham (1884) said he saw three males. The specimen bearing a red “type” label is here designated as the lectotype, while the other specimen is designated as a paralectotype. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “Type” “V. de Chiriqui,/2-3000 ft./Champion.” “Type.” “B.C.A.Col.III.(2)./Lucidota/sinuatocollis,/Gorham ♂” “Lucidota/sinuatocollis/Gorham.” A

red label is added with the following text: "LECTOTYPE/*Lucidota sinuatocollis* Gorham/Designated by/Martin and Saxton 2020".

***Lucidota difformis* Gorham, 1884**

Lucidota difformis Gorham 1884: 255

We located twelve specimens. Gorham described both males and females of this species. There is obvious sexual dimorphism in the color of the specimens we examined with the only two female specimens lacking the dark apices of the elytra as noted by Gorham (1884). Because Gorham (1884) described the male first we here designate the male specimen bearing the red "type" label as the lectotype. The other eleven specimens we designate as paralectotypes. Labels for the designated lectotype specimen are as follows: "SYN-/TYPE" "Type" "Bugaba,/Panama./Champion." "Lucidota/difformis/Gorham ♂" "♂ Type." "B.C.A.Col.III.(2)./Lucidota/difformis.". A red label is added with the following text: "LECTOTYPE/*Lucidota difformis* Gorham/Designated by/Martin and Saxton 2020".

***Lucidota vitricollis* Gorham, 1884**

Lucidota vitricollis Gorham 1884: 256

Gorham (1884) mentions that he saw five specimens of this species. However, we were only able to locate three. The specimen bearing a red "type" label is designated as the lectotype and the other two are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: "SYN-/TYPE" "Type" "Purula,/Vera Paz./Champion." "B.C.A.Col.III.(2)./Lucidota/vitricollis,/Gorham" "Lucidota/vitricollis/Gorh. ♂". A red label is added with the following text: "LECTOTYPE/*Lucidota vitricollis* Gorham/Designated by/Martin and Saxton 2020".

***Lucidota chiriquiana* Gorham, 1884**

Lucidota chiriquiana Gorham 1884: 256

Specimens of this species examined by Gorham (1884) were collected at two different localities. We located two specimens from Volcan de Chiriqui and four specimens from Bugaba. The male specimen from Bugaba, bearing a red "type" label, is here designated as the lectotype. The other five specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: "SYN-/TYPE" "♂" "Type" "Bugaba,/Panama./Champion." "B.C.A.Col.III.(2)./Lucidota/chiriquiana,/Gorham ♂" "Lucidota/chiriquiana/Gorham ♂". A red label is added with the following text: "LECTOTYPE/*Lucidota chiriquiana* Gorham/Designated by/Martin and Saxton 2020".

***Lucidota complanata* Gorham, 1884**

Lucidota complanata Gorham 1884: 257

Gorham (1884) did not mention how many specimens he saw; however, he did list multiple localities. We located thirteen specimens from both Volcan de Chiriqui and Bugaba. The specimen bearing the red "type" label is here designated as the lectotype. The other twelve specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: "SYN-/TYPE" "♂" "Type" "Bugaba,/800-1500ft./Champion." "Type." "B.C.A.Col.III.(2)./Lucidota/complanata/Gorham. ♂" "Lucidota/complanata/Gorh. ♂". A red label is added with the following text: "LECTOTYPE/*Lucidota complanata* Gorham/Designated by/Martin and Saxton 2020".

***Lucidota fenestrata* Gorham, 1884**

Lucidota fenestrata Gorham 1884: 257

Two specimens of this species were examined by Gorham (1884). We were only able to locate one male specimen bearing the red "type" label. Since we did not locate the other specimen, the specimen with the red "type" label is designated as the lectotype. Labels for the designated lectotype specimen are as follows: "♂" "Type" "V. de Chiriqui,/25-4000 ft./Champion." "B.C.A.Col.III.(2)./Lucidota/fenestrata,/Gorham ♂" "Lucidota/

fenestrata/Gorham.” A red label is added with the following text: “LECTOTYPE/*Lucidota fenestrata* Gorham/Designated by/Martin and Saxton 2020”.

***Lucidota comitata* Gorham, 1884**

Lucidota comitata Gorham 1884: 258

Specimens in the series Gorham (1884) examined came from two localities. Fifteen specimens were located. One specimen lacked the B.C.A. label, however, we decided to include it in the paralectotype series because it had the same locality labels as the other specimens as well as a blue syntype label. The male specimen bearing the red “type” label is here designated as the lectotype. The other fourteen specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “♂” “Type” “V. de Chiriqui,/2-3000 ft./Champion.” “Type” “*Lucidota/comitata/Gorh.*” “B.C.A.Col.III.(2)./*Lucidota/comitata.*” A red label is added with the following text: “LECTOTYPE/*Lucidota comitata* Gorham/Designated by/Martin and Saxton 2020”.

***Lucidota armata* (Gorham, 1884)**

Photinus armatus Gorham 1884: 265

Gorham (1884) examined six specimens from each locality he studied of both males and females of this species. He specifically mentioned two specimens that were collected in copula that allowed this association to be confirmed. Both the male and female specimens in copula were card-mounted together. We were able to locate these two specimens as well as seven others bearing syntype labels. We designate the male of the pair, located on the left, as the lectotype. The remaining eight specimens, including the female, matching the label data given, are here designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “Type” “Bugaba,/800-1500 ft./Champion.” “Type./ Sp. figured” “*Photinus ’armatus/Gorham.*” “B.C.A.Col.III.(2)./*Photinus/armatus,/Gorham*” . A red label is added with the following text: “LECTOTYPE/*Photinus armatus* Gorham/Designated by/Martin and Saxton 2020”

***Lucidota purulana* (Gorham, 1884)**

Photinus purulanus Gorham 1884: 267

Five specimens were located, however, only four matched the label data given by Gorham (1884). The specimen bearing the red “type” and “Sp. figured” labels is here designated as the lectotype. The other three specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “Type” “Purula,/Vera Paz./Champion.” “Type./ Sp. figured.” “*Photinus/purulanus/Gorham*” “B.C.A.Col.III.(2)/*Photinus/purulanus,/Gorham*” . A red label is added with the following text: “LECTOTYPE/*Photinus purulanus* Gorham/Designated by/Martin and Saxton 2020”

***Photinus* Laporte, 1833**

Type species. *Lampyrus pallens* Fabricius, 1798, fixed by Fleutiaux et al. (1947).

***Photinus incongruus* Gorham, 1884**

Photinus incongruus Gorham 1884: 258

Eleven specimens were located, however, Gorham (1884) does not specify how many he examined. Ten specimens were collected in Panama (Volcan de Chiriqui), and one specimen was collected in Guatemala (Chinantla). Both localities are listed by Gorham (1884). The male specimen bearing two “type” labels is here designated as the lectotype. The other ten specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “♂” “Type” “Type.” “V. de Chiriqui,/4000-6000 ft./Champion.” “*Photinus/incongruus/Gorh.*” “B.C.A.Col.III.(2)./*Photinus/incongruus,/Gorham* ♂”. A red label is added with the following text: “LECTOTYPE/*Photinus incongruus* Gorham/Designated by/Martin and Saxton 2020”.

***Photinus ignisfatuus* Gorham, 1884**

Photinus ignis-fatuus Gorham 1884: 259

Gorham (1884) examined eight specimens, three of which were males. We were able to locate all three of these males plus one additional female specimen. The male specimen bearing two “type” labels is here designated as a lectotype. The three other specimens, including the female, are all designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “♂” “SYN-/TYPE” “Type” “V. de Chiriqui,/4000-6000 ft./Champion.” “dense virgin forest/peculiar to 5000-6000/ not lower” “*Photinus/ignis-fatuus/Gorh.*” “B.C.A.Col.III.(2)./*Photinus/ignis-fatuus,/Gorham*” “Type”. A red label is added with the following text: “LECTOTYPE/*Photinus ignis-fatuus* Gorham/Designated by/Martin and Saxton 2020”

***Photinus radians* Gorham, 1884**

Photinus radians Gorham 1884: 261

Twenty-four specimens were located that matched both the collecting data given by Gorham (1884) and had a B.C.A. label. Both females and males were included in this series. Here we designate the male specimen in the best condition (unbroken antennae and legs) as the lectotype. The other twenty-three specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “V. de Chiriqui,/25-4000 ft./Champion.” “B.C.A.Col.III.(2)/*Photinus/radians*. ♂”. A red label is added with the following text: “LECTOTYPE/*Photinus radians* Gorham/Designated by/Martin and Saxton 2020”

***Photinus flohri* Gorham, 1884**

Photinus flohri Gorham 1884: 262

Gorham (1884) mentioned that he examined four specimens, however, only two were located. The male specimen is here designated as the lectotype. The other specimen is designated as the paralectotype. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “Mexico” “Flohr.” “*Photinus/flohri/Gorham.*” “B.C.A.Col.III.(2)./*Photinus/flohri*, Gorham”. A red label is added with the following text: “LECTOTYPE/*Photinus flohri* Gorham/Designated by/Martin and Saxton 2020”

***Photinus brevicornis* Gorham, 1884**

Photinus brevicornis Gorham 1884: 262

Only one specimen was located for this species, however two were examined by Gorham (1884). The single specimen located matched the locality data given by Gorham (1884) and was also figured. We designate this specimen as the lectotype. Labels for the designated lectotype specimen are as follows: “Type” “♀” “San Isidro,/1600 ft./Champion.” “Type./Sp. figured.” “*Photinus/brevicornis/Gorham* ♀” “B.C.A.Col.III.(2)./*Photinus ?/brevicornis,/Gorham*”. A red label is added with the following text: “LECTOTYPE/*Photinus brevicornis* Gorham/Designated by/Martin and Saxton 2020”

***Photinus montanus* Gorham, 1884**

Photinus montanus Gorham 1884: 263

Six specimens were located, one of which was figured by Gorham (1884). The figured specimen also bearing a red “type” label is here designated as the lectotype and the other five specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “Type” “V. de Agua,/85-10500 ft./Champion.” “V. de Agua/85-10000./Champion” “Type./Sp. figured.” “*Photinus/montanus/Gorham.*” “B.C.A.Col.III.(2)./*Photinus/montanus,/Gorham*”. A red label is added with the following text: “LECTOTYPE/*Photinus montanus* Gorham/Designated by/Martin and Saxton 2020”

***Photinus nigrolimbatus* Gorham, 1884**

Photinus nigro-limbatus Gorham 1884: 263

Sixteen specimens were found of this species, however, only six had label data matching Gorham's (1884) description. The male specimen bearing the red "type" label is here designated as the lectotype. The other five specimens bearing matching label data are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: "♂" "SYN-/TYPE" "Type" "V. de Agua, 85-10500 ft./Champion." "Val de/ Agua." "Type." "B.C.A.Col.III.(2)/Photinus/nigrolimbatus./Gorham" "Photinus/nigrolimbatus/Gorham." A red label is added with the following text: "LECTOTYPE/*Photinus nigro-limbatus* Gorham/Designated by/Martin and Saxton 2020"

***Photinus moestus* Gorham, 1884**

Photinus moestus Gorham 1884: 264

This species was incorrectly synonymized with *Ellychnia moesta* (Perty, 1830) by McDermott (1966). There are clear size (*E. moesta* is larger) and pronotal differences (*E. moesta* has a dark pronotum, whereas *P. moestus* has a mostly red pronotum). *Photinus moestus* was subsequently recognized as a valid species by Blackwelder and Arnett (1974). Eight specimens were located. The specimen bearing a red "type" label is designated as the lectotype. The remaining seven specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: "SYN-/TYPE" "Type" "Cubilguitz, Vera Paz./Champion." "B.C.A.Col.III.(2)/Photinus/moestus./Gorham ♀" "Photinus/moestus/Gorham." "NHMUK 013584683". A red label is added with the following text: "LECTOTYPE/*Photinus moestus* Gorham/Designated by/Martin and Saxton 2020"

***Photinus eous* Gorham, 1884**

Photinus eöus Gorham 1884: 264

Gorham (1884) specified that he examined hundreds of specimens belonging to this species. We located a very large series, some of which did not have BCA labels but bore syntype labels and matching locality labels to the one Gorham examined. We chose to include all of these specimens in the paralectotype series. A male specimen bearing a red "type" label is here designated as a lectotype while 54 specimens are designated as paralectotypes. The only specimen excluded from the type series lacked any sort of label. Labels for the designated lectotype specimen are as follows: "SYN-/TYPE" "Type" "Type. ♂" "V. de Chiriqui, 4000-6000 ft./Champion." "Photinus/eöus/Gorham." "B.C.A.Col.III.(2)/Photinus/eous./Gorham". A red label is added with the following text: "LECTOTYPE/*Photinus eöus* Gorham/Designated by/Martin and Saxton 2020"

***Photinus subfuscus* Gorham, 1884**

Photinus subfuscus Gorham 1884: 265

Gorham (1884) does not state how many specimens he saw but does mention he examined both males and females of this species. We located seven specimens total each bearing a B.C.A. label and syntype label. Here, we designate a male specimen with a red "type" label as the lectotype and the other six specimens as paralectotypes. Labels for the designated lectotype specimen are as follows: "SYN-/TYPE" "Type" "♂" "Tolé, Panama/Champion." "Type." "B.C.A.Col.III.(2)/Photinus/subfuscus./Gorham" "Photinus/subfuscus/Gorh.". A red label is added with the following text: "LECTOTYPE/*Photinus subfuscus* Gorham/Designated by/Martin and Saxton 2020"

***Photinus diurnus* Gorham, 1884**

Photinus diurnus Gorham 1884: 266

Gorham (1884) mentions that there were several hundred specimens collected for the locality he examined. He specifies that they were all collected at the altitude of 2500 to 4000 feet. Several specimens were located which were collected above this elevation that are not included in the type series. We here designate one of the more complete specimens as the lectotype. The lectotype is card-mounted on the right with another specimen on its left. The other 33 specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: "SYN-/TYPE" "V. de Chiriqui, 25-4000 ft./Champion." "B.C.A.Col.III.(2)/Photinus/diurnus." "B.C.A.Col.

III.(2)/Photinus/diurnus.” A red label is added with the following text: “LECTOTYPE/*Photinus diurnus* Gorham/Designated by/Martin and Saxton 2020”

***Photinus championi* Gorham, 1884**

Photinus championi Gorham 1884: 267

Based on Gorham's (1884) description of this species, it is clear that he examined four specimens from two different localities with some color variation between them. Unfortunately, we were only able to locate three of these specimens in the NHM. We here designate a male specimen bearing two “type” labels as the lectotype. The other two specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “Type” “♂” “V. de Agua,/85-10500 ft./Champion.” “B.C.A.Col.III.(2)./Photinus/championi/Gorham ♂” “Photinus/championi/Gorham” “Type.” A red label is added with the following text: “LECTOTYPE/*Photinus championi* Gorham/Designated by/Martin and Saxton 2020”

***Photinus signaticornis* Gorham, 1884**

Photinus signaticornis Gorham 1884: 267

We located four specimens, however, one specimen had locality data that did not match Gorham (1884). We here designate the specimen bearing the red “type” label as the lectotype. The other two specimens with label data matching that given by Gorham (1884) are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “Type” “Bugaba,/Panama./Champion.” “Type.” “Photinus/signaticornis/Gorham.” “B.C.A.Col.III.(2)./Photinus/signaticornis,/Gorham”. A red label is added with the following text: “LECTOTYPE/*Photinus signaticornis* Gorham/Designated by/Martin and Saxton 2020”

***Photinus pusillus* Gorham, 1884**

Photinus pusillus Gorham 1884: 268

Eleven specimens were located that matched the locality data given by Gorham (1884). Other specimens were found, but due to label data not matching Gorham (1884) they were excluded from the type series. Two specimens were card-mounted together with a red “type” label. We here designate the specimen on the right as the lectotype. The other ten specimens are designated as paralectotypes. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “Type” “V. de Chiriqui,/4000-6000 ft./Champion.” “Photinus/pusillus/Gorham” “Type.” “B.C.A.Col.III.(2)/Photinus/pusillus,/Gorham”. A red label is added with the following text: “LECTOTYPE/*Photinus pusillus* Gorham/Designated by/Martin and Saxton 2020”

***Photinus minusculus* Gorham, 1884**

Photinus minusculus Gorham 1884: 268

We were able to locate both specimens Gorham (1884) examined. One specimen was glued to a card dorsally and the other specimen was glued to a card ventrally. Gorham mentioned that he was unable to determine the sexes of both specimens. Here we designated the specimen glued dorsally and bearing two “type” labels as the lectotype. The other specimen is designated as a paralectotype. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “Type” “V. de Chiriqui,/2-3000 ft./Champion.” “Type.” “Photinus/minusculus/Gorham.” “B.C.A.Col.III.(2)./Photinus/minusculus,/Gorham”. A red label is added with the following text: “LECTOTYPE/*Photinus minusculus* Gorham/Designated by/Martin and Saxton 2020”

***Macrolampis* Motschulsky, 1853**

Type species. *Macrolampis longipennis* Motschulsky, 1853, by original designation.

***Macrolampis volcanica* (Gorham, 1884)**

Photinus volcanicus Gorham 1884: 260

A large series of this species was located. Gorham (1884) did not specify how many specimens he examined. Here, we designate twenty-three specimens as paralectotypes. Four specimens are excluded from this series as

their label data does not match that given by Gorham (1884). A male specimen bearing two “type” labels is designated as the lectotype. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “♂” “Type” “Chontales,/Nicaragua./Janson.” “B.C.A.Col.III.(2)./Photinus/volcanicus,/Gorham ♂” “Photinus/volcanicus/Gorham” “Type.”. A red label is added with the following text: “LECTOTYPE/*Photinus volcanicus* Gorham/ Designated by/Martin and Saxton 2020”

***Macrolampis infirma* (Gorham, 1884)**

Photinus infirmus Gorham 1884: 260

Gorham (1884) stated that he saw “about two dozen” specimens of this species, evenly split between males and females. Gorham (1884) also mentioned that the males were noticeably larger than the females. We were able to locate eighteen specimens at the NHM that did have some noticeable variation in size and elytral coloring. Seventeen of these specimens are designated as paralectotypes as they match the information given by Gorham (1884). One specimen, specifically from the locality Bugaba as per Gorham (1884), is here designated as the lectotype. Labels for the designated lectotype specimen are as follows: “SYN-/TYPE” “♂” “Type” “Bugaba,/Panama./Champion.” “B.C.A.Col.III.(2)./Photinus/infirmus,/Gorham ♂” “Photinus/infirmus/Gorham” “Type.”. A red label is added with the following text: “LECTOTYPE/*Photinus infirmus* Gorham/Designated by/Martin and Saxton 2020”

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