Supplementary Material 1. Material examined of the outgroup taxa.

Lampyrinae

Lampyrini

Lampyris noctiluca. Italy. Sorrento, 1/VII/1987, J.J.Anderson and Emily Foust col (USNM).

Photinini

Alychnus suturalis. (♂, IAvH-E-219233): "COLOMBIA, Cundinamarca, Guasca, Vereda Rincón del Oso, Finca Suasié, 4°43′15.2″ N 73°51′50.6″ W, 3310 m, 15 November 2014, Colecta directa en Páramo bajo, D. Martínez col.//Alychnus suturalis"

Costalampys delicata. Holotype. BRAZIL. Rio de Janeiro: 1♂, Teresópolis, P.N. Serra dos Órgãos, Malaise trap, PVE9B (22°26'57.8"S, 43°0'13.7"W, 1,236 m), I.2016, L. Silveira col. (DZRJ).

Dilychnia guttula. BRAZIL. Acre: Cruzeiro do Sul, Ilha Florianópolis, 1 male, 12–17.V.1981, Norman & Elias (INPA). Brazil. Amazonas. São Paulo Olivença, 10.VIII.1925, 1 female and 1 male, H.L. Boy (MNRJ).

Dadophora hyalina. Brazil. Without other provenance data. 1 Male. (BMNH);

Ethra marginata. Brazil. Rio de Janeiro. Teresópolis, without date, 1 male (DZRJ).

Haplocauda albertinoi. BRAZIL.Acre: Bujari, FES Antimary, 09 20001" S–68 19017" W, 21.x-04. xi, 2016, Malaise grande, E. F. Morato, & J. A. Rafael cols–Rede BIA //HAPLOCAUDA ALBERTINOI HOLOTYPE".

Lucidota atra. United States of America. NC, Cullowhee, VIII/2020, 1 male (WCCA).

Lucidota banoni. French Guiana. Without other provenance data, 1 male, 1 female (DZRJ).

Luciuranus josephi. PARATYPES. BRAZIL. Rio de Janeiro. Teresópolis. PREPVE Pt.5 A 22°27'16.7'' S 43°01'13.7'' W 1961m, 11M, 7F, VIII/2014, Silveira & Khattar col. (DZRJ); idem, 1M, 1F, IX/2014, Silveira & Khattar col. (DZRJ); PREPVE Pt.5 B 22°27'18.0'' S 43°01'12.2'' W 1949m, 1M, 3F, VIII/2014, Silveira & Khattar col. (DZRJ); PREPVE Pt.6C 22°27'18.0'' S 43°01'12.2'' W 2190 m, 2M, 1F, VII/2014, Silveira & Khattar col. (DZRJ); idem, 1F VIII/2014, Silveira & Khattar col. (DZRJ); idem PENSA RIO Pt.5 22°27'18.7'' S 43°01'32'' W 1630m, VIII/2013, 17M, 2F R. Monteiro col. (MZSP); idem PENSA RIO Pt.3 22°26'55.6'' S 43°00'44.3'' W 1250m, 5M, VIII/2013, R. Monteiro col (MNRJ).

Luciuranus sinistrus. PARATYPES. BRAZIL. Rio de Janeiro. Itatiaia. PENSA RIO Pt.1 22°26'01.4'', S 44°36'49.3'' W 1070m, 10M, 15F, X/2014, R. Monteiro col. (DZRJ); PENSA RIO Pt.1 22°26'01.4'', S 44°36'49.3'' W 1070 m, Male, X/2014, R.

Scissicauda disjuncta. Brazil. Rio de Janeiro. Teresópolis, Serra dos Órgãos N. P., 1050m,

XII/2013, Malaise trap, 1 male and 1 female, R. Monteiro col. (DZRJ)
Uanauna angaporan. PARATYPES. Brazil. Rio de Janeiro, Itaguaí, Parque Estadual Cunhambebe, 22º 50’ 53.4” S 43º 54’ 29.3” W, 150m, IX.2011, 1 male L. Silveira, Clarkson Sampaio & Ferreira-Jr col. (DZRJ); Angra dos Reis, Parque Estadual da Ilha Grande (PEIG), approx. 23º 10’ 30.4’’ S 44º 11’ 11.3’’ W, IX.2008, 2 females, Projeto Coleoptera [J. Mermudes] col. (MNRJ).
Ybytyramoan praeclarum. PARATYPE. Brazil. Rio de Janeiro, Teresópolis, P.N. Serra dos Órgãos, Pedra do Sino, Abrigo 4, 23.IX.2011, 1 male, N.C., C.L., J.C., Manuella Folly col. (DZRJ).
Ybytyramoan diasi. PARAYPE. Brazil. Rio de Janeiro. Teresópolis, P.N. Serra dos Órgãos, Pedra do Sino, Abrigo 4, 23/IX/ 2011, NC, CL, JC, Manuella Folly col. (DZRJ).
Ybytyramoan monteirorum. PARATYPE. Brazil. Teresópolis, P.N. Serra dos Órgãos, Represa do Rio Beija-Flor, 980m, 28/XI/ 2013, L. Silveira, R. Monteiro, M. Macedo col. (DZRJ).
Photinus corruscus. UNITED STATES OF AMERICA. North Carolina: Jackson county, Sylva (35.3281198,-83.1756354), VII/2020, 5M, 1F, L. Silveira col. (WCCA)
Photinus pyralis. UNITED STATES OF AMERICA. North Carolina: Jackson county, Sylva (35.3281198,-83.1756354), VII/2020, 2M, 2F, L. Silveira col. (WCCA)
Photinus macdermotti. UNITED STATES OF AMERICA. North Carolina: Jackson county, Sylva (35.3281198,-83.1756354), VI/2022, 2M, L. Silveira col. (WCCA)
Phosphoanopterus metzneri. Examined from Nunes et al. (2021): Nunes, V., Figueira, G., Lopes, L. F., & Souto, P. (2021, September). On the Natural History of the Black Winged Firefly, Phosphaenopterus metzneri Schaufuss, 1870 with Comparative Notes on Phosphaenina (Coleoptera: Lampyridae). In Annales Zoologici (Vol. 71, No. 3, pp. 661-691). Museum and Institute of Zoology, Polish Academy of Sciences.
Phosphaenus hemipterus. PORTUGAL. Leiria: São de Alge (40°01’22.3’’N, 8°15’47.2’’W), 1M collected by colored pan traps, 23/V/2019; Coimbra: Fajão (40°09’ 54.9’’N, 7°55’22.2’’W), 1M collected by pitfall traps, 19/VI/2019; Seia: Cabeça (Parque Natural da Serra da Estrela), 1M collected by pitfall traps (hosted at Museu de História Natural e da Ciência, University of Porto), 16 to 28-VI-1999; Belgium: Herne, 1M collected by active search, 06/VI/2003, Raphaël De Cock col.
Pseudolychnuris vittata. COLOMBIA, Cundinamarca, PNN Chingaza, Alto de la Bandera, 4°31′ N 73°45′ W 3660 m, Malaise 8–22 December 2000, E. Niño leg. M1033//Bradley Smith Proj. ‘07 079001//Pseudolychnuris L. SILVEIRA det. 2019. (♂, IAvH-078005).

Incertae sedis

Vesta thoracica. BRAZIL. Rio de Janeiro: Guapimirim, Reserva Ecológica de Guapiaçu, XII/2012 1M, L. Silveira col. (DZRJ).