

## Supplementary Material S1. 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 PENSEA RIO Pt.5 22°27'18.7" S 43°01'32" W 1630m, VIII/2013, 17M, 2F R. Monteiro col. (MZSP); idem PENSEA 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. PENSEA RIO Pt.1 22°26'01.4", S 44°36'49.3" W 1070m, 10M, 15F, X/2014, R. Monteiro col. (DZRJ); PENSEA 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)

*Unauna angaporan*. PARATYPES. Brazil. Rio de Janeiro, Itagua í Parque Estadual Cunhambebe, 22° 50' 53.4" S 43° 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. 23° 10' 30.4" S 44° 11' 11.3" W, IX.2008, 2 females, Projeto Coleoptera [J. Mermudes] col. (MNRJ).

*Ybytyramoan praeclarum*. PARATYPE. Brazil. Rio de Janeiro, Teres ópolis, P.N. Serra dos Órg ãos, Pedra do Sino, Abrigo 4, 23.IX.2011, 1 male, N.C., C.L., J.C., Manuella Folly col. (DZRJ).

*Ybytyramoan diasi*. PARATYPE. Brazil. Rio de Janeiro. Teres ópolis, P.N. Serra dos Órg ãos, Pedra do Sino, Abrigo 4, 23/IX/ 2011, NC, CL, JC, Manuella Folly col. (DZRJ).

*Ybytyramoan monteirorum*. PARATYPE. Brazil. Teres ópolis, P.N. Serra dos Órg ãos, 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, Rapha ěl 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. Ni ño leg. M1033//Bradley Smith Proj. '07 079001//*Pseudolychnuris* L. SILVEIRA det. 2019. (♂, IAvH-078005).

*Pyractonema compressicornis*. CHILE: Maule Prov., Paso Garcia, 300 m, ca. 23km NW Cauquenes, 29-30 Nov. 1981. D.R. Davis, 1M (USNM)

*Pyractonema haemorrhoea*. CHILE: Region IX Nahuelbuta NP, S 37.809 °, W 73.016 °, 3680', 6-9.i.2000, D.W. Webb, D.K. Yeates col., 2M (WCCA)

*Pyropyga minuta*. UNITED STATES OF AMERICA. NC: Sylva, 09.IX.2020, L. Silveira col. N 35°22'25.35", W 83°15'33.52", 2M (WCCA)

*Pyropyga nigricans*. UNITED STATES OF AMERICA. Green Valley, Pima Co., Arizona // Dr. Lenczy, 6.1969, 1M (USNM)

### **Incertae sedis**

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