



<http://dx.doi.org/10.11646/zootaxa.3750.2.1>

<http://zoobank.org/urn:lsid:zoobank.org:pub:F01C254C-7CCA-4669-8C30-BF61180BD675>

## Adults and larvae of two *Leucochrysa* (*Leucochrysa*) species (Neuroptera: Chrysopidae): descriptions, biological notes, and relationships

CATHERINE A. TAUBER<sup>1</sup>, FRANCISCO SOSA<sup>2</sup>, GILBERTO S. ALBUQUERQUE<sup>3</sup> & MAURICE J. TAUBER<sup>1</sup>

<sup>1</sup> Department of Entomology, Comstock Hall, Cornell University, Ithaca, NY 14853-2601 and Department of Entomology, University of California, Davis, CA, USA 95616. E-mail: [cat6@cornell.edu](mailto:cat6@cornell.edu)

<sup>2</sup> Museo Entomológico "Dr. José Manuel Osorio" (UCOB), Universidad Centroccidental "Lisandro Alvarado", Venezuela. E-mail: [fransodu73@hotmail.com](mailto:fransodu73@hotmail.com)

<sup>3</sup> Laboratório de Entomologia e Fitopatologia, CCTA, Universidade Estadual do Norte Fluminense, Campos dos Goytacazes, RJ, Brazil 28013-602. E-mail: [gsa@uenf.br](mailto:gsa@uenf.br)

### Abstract

This taxonomic study includes: (i) a redescription of *Leucochrysa* (*Leucochrysa*) *nigrilabris* (Banks) (♂ and ♀), based on the type specimen and new material and (ii) images of the *Leucochrysa* (*L.*) *insularis* (Walker) type, adult color polymorphism, and genital characters (♂ and ♀). For both species, it provides: (iii) descriptions of the larvae, (iv) biological notes, and (v) geographic records. Using the above information, we compare the two species with each other and with other *Leucochrysa* (*Leucochrysa*) species that purportedly are closely related. We conclude: First, the larval features of *L.* (*L.*) *nigrilabris* and *L.* (*L.*) *insularis* coincide with those previously described as characteristic of the genus *Leucochrysa* and its subgenus *Leucochrysa*. Second, based on their genitalia (♂ and ♀), larval morphology, and biology (e.g., deposition of eggs in clusters), the two species are distinct, but very closely related. And, third, *L.* (*L.*) *nigrilabris* and *L.* (*L.*) *insularis* share several characteristics with the *Leucochrysa* (*L.*) “*varia*-like” species; these include similar adult color polymorphisms and aspects of their larval morphology. However, their genitalia (♂ and ♀) differ significantly from those of the described *L.* (*L.*) “*varia*-like” species, and thus we consider the two sets of species to be distinct.

**Key words:** Chrysopinae, *Leucochrysa* (*L.*) *nigrilabris*, *Leucochrysa* (*L.*) *insularis*, *Leucochrysa* (*L.*) *varia*, oviposition, color morphs

### Resumo

O presente estudo taxonômico inclui: (i) redescricao de *Leucochrysa* (*Leucochrysa*) *nigrilabris* (Banks) (♂ e ♀), com base no espécime-tipo e novo material, e (ii) imagens do tipo, polimorfismo de coloração dos adultos e genitália (♂ e ♀) de *Leucochrysa* (*L.*) *insularis* (Walker). Para ambas as espécies, apresentam-se ainda: (iii) descrições das larvas, (iv) informações biológicas e (v) registros geográficos. Tais informações são usadas para comparar as duas espécies entre si e com outras espécies de *Leucochrysa* (*Leucochrysa*) que supostamente são proximamente relacionadas. A partir dessas comparações, conclui-se que (1) as características das larvas de *L.* (*L.*) *nigrilabris* e de *L.* (*L.*) *insularis* coincidem com aquelas previamente descritas como típicas do gênero *Leucochrysa* e de seu subgênero *Leucochrysa*; (2) com base nas características da genitália (♂ e ♀), morfologia larval e biologia (por exemplo, deposição de ovos em cachos), as duas espécies são distintas, mas muito proximamente relacionadas, e (3) *L.* (*L.*) *nigrilabris* e *L.* (*L.*) *insularis* compartilham várias características com *Leucochrysa* (*L.*) *varia* e espécies afins, as quais incluem polimorfismo de coloração no estágio adulto e aspectos da morfologia larval semelhantes. Entretanto, suas genitálias (♂ e ♀) diferem significativamente das de *L.* (*L.*) *varia* e espécies afins descritas, de forma que esses dois conjuntos de espécies são considerados como distintos.

### Resumen

El presente estudio taxonómico incluye: (i) redescrición de *Leucochrysa* (*Leucochrysa*) *nigrilabris* (Banks) (♂ y ♀), con base en el espécimen tipo y nuevo material y (ii) imágenes del tipo, polimorfismo de coloración de adultos y genitália (♂

## References cited

- Adams, P.A. (1977) Taxonomy of United States *Leucochrysa* (Neuroptera: Chrysopidae). *Psyche*, 84, 92–102.  
<http://dx.doi.org/10.1155/1977/56815>
- Adams, P.A. (1987) Studies in Neotropical Chrysopidae (Neuroptera) III. Notes on *Nodita amazonica* Navás and *N. oenops*, n.sp. *Neuroptera International*, 4, 287–294.
- Archer, A.F. (1938) An insect "xenophora". *Nautilus*, 51, 105.
- Banks, N. (1914–1915) New neuropteroid insects, native and exotic. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 66, 608–632.
- Banks, N. (1944) Neuroptera of northern South America. Part III. Chrysopidae. *Boletín de Entomología Venezolana*, 3, 1–34.
- Brooks, S.J. & Barnard, P.C. (1990) The green lacewings of the world: a generic review (Neuroptera: Chrysopidae). *Bulletin of the British Museum of Natural History, Entomology*, 59, 117–286.
- Díaz-Aranda, L.M. & Monserrat, V. (1991) Estadios larvarios de los neuropteros ibericos. (VII). *Mallada picteti* (McLachlan, 1880) (Planipennia: Chrysopidae). *Neuroptera International*, 6, 141–147.
- Dourson, D. & Dourson, J. (2006) *Land snails of the Great Smoky Mountains (Eastern Region)*. Appalachian Highlands Science Learning Center, Purchase Knob, Great Smoky Mountains National Park & ATBI/Discover Life in America Project, 55 pp.
- Duelli, P. (1984) Oviposition. In: Canard, M., Séméria, Y. & New, T.R. (Eds.), *Biology of Chrysopidae*. Dr. W. Junk Publishers, The Hague, pp. 129–133.
- Freitas, S. de (2003) Ocorrência de *Ungla* Navás (Neuroptera, Chrysopidae) no Brasil e descrição de nova espécie. *Revista Brasileira de Entomologia*, 51, 413–415.  
<http://dx.doi.org/10.1590/s0085-56262007000400004>
- Gepp, J. (1988) Zur Ökologischen Differenzierung der präemaginalen Stadien baumbewohnender Chrysopiden im Alpenraum (Planipennia: Chrysopidae). *Sitzungsberichte der Österreichischen Akademie der Wissenschaften, Mathematisch-Naturwissenschaftliche Klasse*, 197, 1–73.
- Jones, D.T. (1929) A snail-collecting aphid-lion larva. A preliminary study of external features. *Marietta College Research Publication (Zoology)*, 1 (1), 1–9.
- Jones, D.T. (1941) Further notes on the snail-collecting aphid-lion larva (Neuroptera: Chrysopidae). *Entomological News, Philadelphia*, 52, 39–44.
- Mantoanelli, E., Albuquerque, G.S., Tauber, C.A. & Tauber, M.J. (2006) *Leucochrysa* (*Leucochrysa*) *varia* (Neuroptera: Chrysopidae): larval descriptions, developmental rates, and adult color variation. *Annals of the Entomological Society of America*, 99, 7–18.  
[http://dx.doi.org/10.1603/0013-8746\(2006\)099\[0007:llvnc1\]2.0.co;2](http://dx.doi.org/10.1603/0013-8746(2006)099[0007:llvnc1]2.0.co;2)
- Mantoanelli, E., Tauber, C.A., Albuquerque, G.S. & Tauber, M.J. (2011) Larvae of four *Leucochrysa* (*Nodita*) species (Neuroptera: Chrysopidae: Leucochrysinini) from Brazil's Atlantic coast. *Annals of the Entomological Society of America*, 104, 1233–1259.  
<http://dx.doi.org/10.1603/an11070>
- Oswald, J.D. (2007) Neuropterida Species of the World. Version 2.0. Available from: <http://lacewing.tamu.edu/species-catalogue/> (accessed 15 April 2013)
- Penny, N.D. (1977) Lista de Megaloptera, Neuroptera e Raphidioptera do México, América Central, ilhas Caraíbas e América do Sul. *Acta Amazonica*, 7 (4) (Suplemento), 1–61.
- Principi, M.M. (1940) Contributi allo studio dei Neurotteri Italiani. I. *Chrysopa septempunctata* Wesm. e *Chrysopa flavifrons* Brauer. *Bollettino dell'Istituto di Entomologia della R. Università degli Studi di Bologna*, 12, 63–144.
- Principi, M.M. (1956) Contributi allo studio dei Neurotteri Italiani. XIII. Studio morfologico, etologico e sistematico di un gruppo omogeneo di specie del Gen. *Chrysopa* Leach (*C. flavifrons* Brauer, *prasina* Burm. e *clathrata* Schn.). *Bollettino dell'Istituto di Entomologia della R. Università degli Studi di Bologna*, 21, 319–410.
- Tauber, C.A. (2004) A systematic review of the genus *Leucochrysa* (Neuroptera: Chrysopidae) in the United States. *Annals of the Entomological Society of America*, 97, 1129–1158.  
[http://dx.doi.org/10.1603/0013-8746\(2004\)097\[1129:asrotg\]2.0.co;2](http://dx.doi.org/10.1603/0013-8746(2004)097[1129:asrotg]2.0.co;2)
- Tauber, C.A., Mantoanelli, E., Albuquerque, G.S., Reguilón, C., González Olazo, E. & Tauber, M.J. (2011) A taxonomically significant polymorphism in *Leucochrysa* (Neuroptera: Chrysopidae): nomenclature, larval and adult descriptions, and biological notes. *Zootaxa*, 3130, 1–29.
- Tauber, C.A., Sosa, F. & Albuquerque, G.S. (2013) Two common and problematic leucochrysinine species -- *Leucochrysa* (*Leucochrysa*) *varia* (Schneider) and *L. (L.) pretiosa* (Banks) (Neuroptera: Chrysopidae): redescriptions and synonymies. *ZooKeys*, 310, 57–101.  
<http://dx.doi.org/10.3897/zookeys.310.5071>
- Tsukaguchi, S. (1978) Descriptions of the larvae of *Chrysopa* Leach (Neuroptera, Chrysopidae) of Japan. *Kontyû*, 46, 99–122.
- Tsukaguchi, S. (1995) *Chrysopidae of Japan (Insecta, Neuroptera)*. S. Tsukaguchi, Aioi-cho 6-14-102. Nishinomiya-shi, Hyogo, 662 Japan, 223 pp.
- Withycombe, C.L. (1922) Notes on the biology of some British Neuroptera (Planipennia). *Transactions of the [Royal] Entomological Society of London*, 70, 501–594.  
<http://dx.doi.org/10.1111/j.1365-2311.1923.tb02844.x>