Proposed designation of a neotype for *Issus longipennis* Spinola, 1839, the type species of *Thionia* Stål, 1859 (Hemiptera: Auchenorrhyncha: Fulgoroidea: Issidae)

Обозначение неотипа для *Issus longipennis* Spinola, 1839 – типового вида *Thionia* Stål, 1859 (Hemiptera: Auchenorrhyncha: Fulgoroidea: Issidae)

V.M. Gnezdilov* & D.A. Dmitriev

В.М. Гнездилов & Д.А. Дмитриев

V.M. Gnezdilov, Zoological Institute, Russian Academy of Sciences, 1 Universitetskaya Emb., St Petersburg 199034, Russia. E-mail: vmgnezdilov@mail.ru, vgnezdilov@zin.ru

D.A. Dmitriev, Illinois Natural History Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign, 1816 South Oak St., Champaign IL 61820, USA. E-mail: arboridia@gmail.com

Following the ICZN (1999) Articles 75.1–75.3, a neotype of *Issus longipennis* Spinola, 1839 is designated. This leads to the synonymy of *Issus longipennis* Spinola, 1839 and *Issus cinctifrons* Stål, 1854, **syn. nov.** and stabilization of the generic concept of *Thionia* Stål, 1859, one of the largest genera in the family Issidae which currently includes 62 species.

Обозначен неотип *Issus longipennis* Spinola, 1839 в соответствии со статьям 75.1–75.3 Международного кодекса зоологической номенклатуры (ICZN, 1999). Результатом этого обозначения является синонимия *Issus longipennis* Spinola, 1839 и *Issus cinctifrons* Stål, 1854, **syn. nov.**, а также стабилизация родовой концепции *Thionia* Stål, 1859 – одного из крупнейших родов семейства Issidae, насчитывающего в своем составе 62 вида.

Key words: nomenclature, systematics, Fulgoroidea, Issidae, *Thionia*, *Thionia longipennis*, *Thionia cinctifrons*

Ключевые слова: Номенклатура, систематика, Fulgoroidea, Issidae, *Thionia*, *Thionia longipennis*, *Thionia cinctifrons*

INTRODUCTION

The species *Issus longipennis* Spinola, 1839 (p. 348) was established based on a single female specimen "de la collection de M. Serville" without type locality information ("Patrie inconnue"). It was described conditionally as "*Issus longipennis*, N. sp.?", but according to the International Code of Zoological Nomenclature (ICZN, 1999) Art. 11.5.1: a name proposed conditionally for a taxon before 1961 is not to be excluded on that account alone. Consideration of the original description of *Issus longipennis* Spinola, 1839 suggests that this species could potentially be placed into the genus *Colpoptera* Burmeister, 1835 or *Neocolpoptera* Dozier, 1931. Spinola (1839) indicated that the species is characterized by the very long and narrow forewings which are much longer than the body and surpassing the abdomen apex as much as the length of the abdomen itself: "Ailes supérieures, d'une longueur démesurée, plus longues que le corps; la portion qui dépasse l'abdomen en arrière étant aussi longue que l'abdomen même, étroites proportionnellement à leur longueur." Within Issidae *sensu stricto* following Gnezdilov (2013), there is no other species in *Thionia* with similar long forewings; however, this arrangement is common in the Colpopterinae Gnezdilov, 2003 (e.g. Dozier,

* *Corresponding author*

1931, figs 17, 18) of the family Nogodinidae Melichar *sensu* Gnezdilov (2017). Spinola also specified that the posterior margin of the coryphe (vertex) of *I. longipennis* Spinola is deeply concave ("Vertex...bord postérieur fortement échancré"), which is another feature of Colpopterinae.

The genus *Thionia* was established by Stål (1859: p. 321) for two previously described species: *Issus longipennis* Spinola, 1839 (p. 348) and *Issus cinctifrons* Stål, 1854 (p. 247), with a statement that some other species should be transferred to this genus as well. The type of the genus was not designated in this publication. Stål (1859, p. 322) also mentioned that the new genus is similar to *Colpoptera*.

Melichar (1906: p. 271) redescribed *Thionia longipennis* (Spinola, 1839) based on a few specimens from Brazil, but without study of the type specimen. Melichar's interpretation of the species definitely follows Stål's concept of *Thionia* as is currently accepted and accordingly treated this species as being close to *Issus cinctifrons* Stål. In the same publication, another *Colpoptera* species, originally described as *Issus longulus* Lethierry, 1890 from Venezuela, was erroneously placed by Melichar (1906) in the genus *Thionia* (see Gnezdilov, 2012).

Schmidt (1910: p. 189) designated the type species of *Thionia*. He selected *Issus longipennis* Spinola, 1839, presumably, on the basis that this is the oldest species of the genus and was listed by C. Stål as the first species (hence has page priority) when he described the genus. Thus, this designation was formal. Schmidt had not studied the type material, and he did not provide any additional comments on the genus itself or its type species. Schmidt (1910) definitely followed Stål's concept of the genus, because all the species described by him in the same publication and later illustrated by Stroiński and Szwedo (2008) are now classified as *Thionia*.

At the present time, *Thionia* is comprised of 62 valid species, all from the New World (Gnezdilov, 2013, 2018; Dmitriev, 2018); many species were added to the genus by Fowler (1905), Melichar (1906), and Schmidt (1910). The genus is one of the largest in the family Issidae and in desperate need for a revisionary evaluation, which has not been attempted in modern times (since Melichar, 1906). Absence of the type specimen of the type species or any related material unambiguously identified as *Issus longipennis* Spinola, 1839 complicates this task. We searched the type specimen at the Museo Regionale di Scienze Naturali, Torino, Italy, where it was supposed to be deposited by analogy with other Spinola's materials; however, this species is not listed in the Catalogue of the Spinola's material at the Museo Regionale di Scienze Naturali (Casale, 1981) and not found in other European collections. The original description of *Thionia longipennis* (Spinola, 1839) as well as the redescription by Melichar (1906) are not sufficiently detailed to unambiguously separate the type species from all other species of the genus. No illustrations of the species are available for study.

Since *Issus longipennis* Spinola, 1839 is the type species of the genus *Thionia* Stål, 1859 (which is the type genus of Thioniinae), if it were found to not conform to current genus concepts for *Thionia*, it could cause considerable nomenclatural instability. It might be found to conform to a different genus-level concept within Issidae, or may even conform to *Colpoptera* within the Nogodinidae, leading us to conclude that the stability of the genus and allied taxa are in danger. Given ambiguities in the original description of the type species, and the lack of type material, strict application of ICZN (1999) rules might lead to the synonymy of *Thionia* with *Colpoptera* (or *Neocolpoptera*) and require a replacement generic name for species presently classified as *Thionia*. Taking into account the poor definition of *Issus longipennis* Spinola, 1839, the absence of the type material and the lack of any other material supporting the concept of *Issus longipennis* Spinola, we submitted an application to the International Commission on Zoologi-

cal Nomenclature proposing to set aside the existing type of *Thionia* and designate *Issus cinctifrons* Stål, 1854 as the type species of the genus. We selected this species because it was the only other species originally included into the genus by Stål (1859). Although, Melichar (1906) provisionally treated *Issus cinctifrons* Stål, 1854 as a subjective synonym of *Issus rubrocostatus* Spinola, 1839 (synonymy marked with a question mark). The first author studied the type specimen of *I. cinctifrons* Stål, 1854, which is deposited in the collection of the Naturhistoriska Riksmuseet, Stockholm, Sweden (NHRS), and compared it with the original description of *I. rubrocostatus* Spinola, 1839 (Spinola, 1839, p. 357). This study confirmed the validity of *Thionia cinctifrons* (Stål, 1854) (Gnezdilov, 2018). The description of this species conforms to the generic description of *Thionia* provided by Stål (1859). The type specimen of this species is readily available for study, and is a male, which provides very important characteristics for the genus and species diagnosis, and further revisionary work. The type locality of *Issus cinctifrons* Stål, 1854 is "Brasilia".

Unfortunately, our ICZN application was not accepted, and an alternative solution was proposed by the Commission: the designation of the neotype of *Issus longipennis* Spinola, 1839 which should bring the stability of the generic concept of *Thionia* Stål, 1859 as well. We are following this advice, and according to the ICZN (1999) articles 75.1–75.3 proposing to designate the holotype of *Thionia cinctifrons* (Stål, 1854) as the neotype of *Issus longipennis* Spinola, 1839.

NOMENCLATURAL CHANGES

Family **Issidae** Spinola, 1839

Subfamily **Thioniinae** Melichar, 1906

Tribe **Thioniini** Melichar, 1906

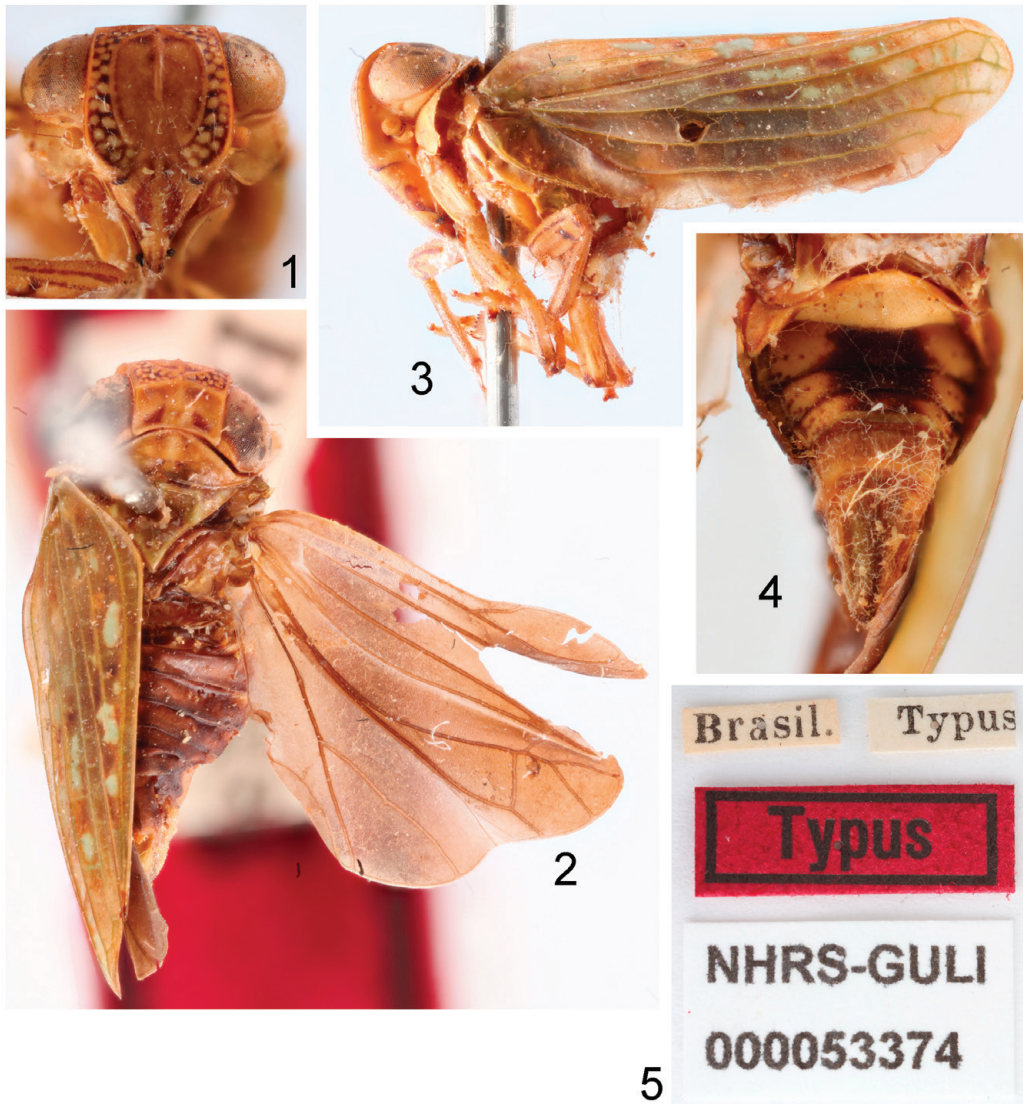
Thionia longipennis (Spinola, 1839) (Figs 1–5)

Issus longipennis Spinola, 1839: 348.
Issus cinctifrons Stål, 1854: 247, **syn. nov.**
Thionia cinctifrons: Stål, 1859: 322.
Thionia longipennis: Stål, 1859: 322.

Type material. Male, holotype of *I. cinctifrons* Stål, 1854 and neotype of *I. longipennis* Spinola, 1839 (here designated): "Brasil." [white, printed] // "Typus" [white, printed] // "Typus" [red, printed] // "NHRS-GULI/000053374" [white, printed] (NHRS).

Supplementary description (Figs 1–4). Metope wide, almost square; its lateral margins weakly convex; upper margin straight; median carina running from its upper margin to its middle; sublateral carinae running from its upper margin to metopoclypeal suture, slightly turned to its median line above clypeus (Fig. 1). Median and sublateral carinae joined at one point on upper margin of metope. Metopoclypeal suture strongly convex. Post- and anteclypeus with smooth median carina. Metope and coryphe joined at obtuse angle (in lateral view) (Fig. 3). Coryphe transverse, twice as wide as long along midline, without median carina; anterior margin slightly convex; posterior margin slightly concave (Fig. 2). Pronotum as long as coryphe at midline, without carinae; anterior margin widely convex, posterior margin almost straight, with a weak median concavity. Fore wings long and narrow, rounded apically, far surpassing the apex of abdomen, possibly without hypocostal plate (not well visible on photos) (Figs 2, 3). Basal cell narrowly oval. Fore wing vein sequence: *R* 3, first furcation near to basal cell, and second branch furcated apically; *M* 2, furcation before wing middle; *CuA* 1. Clavus long (5/6 of wing length), open. Hind wings well developed, 3-lobed. Remigial and remigio-vannal lobes are almost equal in width; anal lobe slightly wider. Basal cell large. Hind wing vein sequence: *R* 2, furcation after wing middle; *M* ?1 (wing piece missed); *CuA* ?2 (wing piece missed); *cua-cup* 2; *CuP* 1; *cup-pcu* 1; *Pcu* 2, furcation situated apically, i.e. after fusion with $A_{1.1}$ which located at middle of *Pcu*; *pcu-a*$_1$ 1; A_1 2; A_2 2, furcation at middle of A_2 (Fig. 2).

Colouration (Figs 1–4). General coloration yellowish light brown. Metope dark brown between lateral margins and sub-



Figs 1–5. *Thionia longipennis* (Spinola), neotype: 1, frontal view; 2, dorsal view; 3, lateral view; 4, abdomen, ventral view; 5, labels.

lateral carinae, with two rows of yellow dots (traces of larval sensory pits). Metopoclypeal suture dark brown laterally. Fore wings with longitudinal veins greenish yellow. Hind wings light brown, with light brown or brown veins. Abdominal tergites dark brown. Abdominal sternites yellowish light brown, with dark brown middle parts. Genital segments yellowish light brown except for anal tube having dark brown base.

ACKNOWLEDGEMENTS

We thankful to Dr. Gunvi Lindberg (Stockholm, Sweden, NHRS) for the photos of the type specimen of *Issus cinctifrons* Stål, 1854, Dr. Valeria Trivellone (Zurich, Switzerland) for an effort to locate the type specimen of *Issus longipennis* Spinola, 1839 in the Museo Regionale di Scienze Naturali, Torino, Italy, and Dr. Charles R. Bartlett (Delaware, USA) for his valuable comments on the manuscript. The study of the

first author is performed in framework of the state research project No. AAAA-A17-117030310210-3 (Russian Federation) and supported by the Russian Foundation for Basic Research (grant No. 18-04-00065). The second author is supported by the National Science Foundation, USA (NSF 16-39601 and NSF 14-58285).

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Received 4 April 2018 / Accepted 30 April 2018