



## Type species of genera in Aphididae (Hemiptera Sternorrhyncha) with two new generic synonymies

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The aphidologist community attending the Seventh International Symposium on Aphids in Fremantle (Western Australia, 2005) entrusted to us the preparation of a *Part of the List of Available Names in Zoology* devoted to the aphid genus-group taxa names, and this to be presented at the subsequent aphid symposium. During the course of our work (Nieto Nafría *et al.* 2009), we checked each genus to make sure its type species designation conformed to the *International Code of Zoological Nomenclature* (International Commission on Zoological Nomenclature 1999)—henceforth *The Code* and *The Commission*—, and that these designations were correctly represented in the literature, especially the two most recent taxonomic catalogues (Eastop & Hille Ris Lambers 1976; Remaudière & Remaudière 1997).

Previous authors have used most of the procedures of type fixation enumerated in *The Code*, *The Commission* itself has used its Plenary Powers to fix six type species, and 11 genus-group names remain without types (Table 1).

In the recent aphid taxonomic catalogues (Eastop & Hille Ris Lambers *op. cit.*; Remaudière & Remaudière *op. cit.*), we found three errors caused by mistakes propagated in the literature and two errors caused by incorrect application of Article 11 of *The Code*. We have also found that in the case of 11 names, the criteria of Article 70.3 of *The Code* were not met, and regardless, earlier editions of *The Code* did not allow type designations of that kind (see the last paragraph of the example in Article 70.3).

This article corrects the five errors and conforms the 11 aphid type species designations to the nomenclatural standards of *The Code*.

### Errors propagated in the Literature

The correct type species of *Dichaitophorus* Shinji, 1927 is *Chaitophorus saliniger* (Shinji, 1924), by monotypy (Shinji 1927: 48), although Eastop and Hille Ris Lambers (1976: 173) wrote that *Chaitophoraphis acerifloris* Shinji, 1923 was the type species. Consequently, *Dichaitophorus* Shinji is not a subjective synonym of *Yamatocallis* Matsumura, 1917 (which includes *Yamatocallis hirayamae* Matsumura, the senior synonym of *Chaitophoraphis acerifloris*) but a junior subjective synonym of *Chaitophorus* Koch, 1854, **syn. nov.** (which includes *C. saliniger* (Shinji) as a valid species).

The correct type species of *Hydaphias* Börner, 1930 is *Aphis bicolor* Koch, 1855, by original designation (Börner 1930: 136). This species is a junior homonym of *Aphis bicolor* Haldeman, 1844 and was replaced by *Hydaphias hofmanni* Börner (Börner 1950). Eastop and Hille Ris Lambers (1976: 220) wrote that *Hydaphias hofmanni* and *Aphis bicolor* Koch were different species, impossible since one is a replacement name for the other, and that the valid name of

the type species of this genus was *Hydaphias helvetica* Hille Ris Lambers. The current taxonomic understanding of *Hydaphias* Börner does not change with this correction.

The correct type species of *Neorhizobius* Del Guercio, 1917 is *Neorhizobius stramineus* Del Guercio, 1917 by subsequent designation (Börner & Schilder 1930: 189), although Eastop and Hille Ris Lambers (1976: 315) wrote that *Neorhizobius ulmiphilus* Del Guercio, 1917 was the type species. Consequently, *Neorhizobius* Del Guercio (a junior homonym of *Neorhizobius* Crotch, 1874, a beetle) is not an objective synonym of *Mimeuria* Börner, 1952 (which includes *Neorhizobius ulmiphilus* as the type species), but a junior subjective synonym of *Aploneura* Passerini, 1863, **syn. nov.** (which includes *Aploneura lentisci* (Passerini, 1856), the senior synonym of *Neorhizobius stramineus*).

**TABLE 1.** Summary of the methods used to establish type species for the 1,226 available genus-group names in Aphididae.

<b>Type species established by authors by ...</b>	<b>1,198</b>	
... original designation (Article 68.2)	1,011	
... original designation and application of Articles 11.10 and 67.13	1	[A]
... original designation and tautonymy (Article 68.4)	2	[B]
... monotypy (Article 68.3)	122	
... subsequent designation (Article 69.1)	60	
... subsequent monotypy (Article 69.3)	2	[C]
<b>Type species established by the International Commission on Zoological Nomenclature under the Plenary Powers (Article 81)</b>	<b>6</b>	<b>[D]</b>
<b>Type species here fixed under Article ...</b>	<b>11</b>	
... 70.3.1, by original designation	1	[E]
... 70.3.2, by original designation	1	[F]
... 70.3.2, by monotypy	6	[G]
... 70.3.2, by subsequent designation	3	[H]
<b>Genera remaining without type species (Articles 11.8, 12 and 13.3)</b>	<b>11</b>	<b>[I]</b>

NOTES: [A] *Synthripaphis* Quednau, 1954. [B] *Castanocallis* Zhang (G.x.) & Zhong, 1981; *Piceaphis* Zhang (G.x.), Chen, Zhong & Li, 1999. [C] *Tetraneura* Hartig, 1841; *Maculodryaphis* Gaumont, 1923. [D] *Aphis* Linnaeus, 1758; *Chaitophorus* Koch, 1854; *Cinara* Curtis, 1835; *Euceraphis* Walker, 1870; *Lachnus* Burmeister, 1835; *Metopeuron* Mordvilko, 1914. [E] *Masonaphis* Hille Ris Lambers, 1939. [F] *Chaetophorella* Börner, 1940. [G] *Arctaphis* Walker, 1870; *Aulacorthum* Mordvilko, 1914; *Belochilum* Börner, 1931; *Ceruraphis* Börner, 1926; *Neomacrosiphum* van der Goot, 1915; *Tycheoides* Schouteden, 1906. [H] *Asiphum* Koch, 1856; *Lachniella* Del Guercio, 1909; *Schizoneura* Hartig, 1839. [I] *Aorison* Mordvilko, 1914; *Chaitocallipterus*, Theobald, 1927; *Euaulax* Mordvilko, 1914; *Halmodaphis* Mordvilko, 1914; *Jaxartaphis* Mordvilko, 1914; *Neomegoura* Shinji, 1930; *Orobion* Mordvilko, 1914; *Pteriaphis* Gaumont, 1923; *Trichonaphis* Shinji, 1930; *Tuberculaphis* Theobald, 1918; *Turanaphis* Mordvilko, 1914.

### Incorrect Application of Article 11 of *The Code*

The correct type species of *Holcaphis* Hille Ris Lambers, 1939 is *Aphis holci* Hardy, 1850, not *Holcaphis holci* Hille Ris Lambers, 1939. This error (Eastop & Hille Ris Lambers 1976: 176 & 215) occurred because *Aphis holci* Hardy, 1850 was originally described in synonymy with *A. stellariae* Hardy, 1850 and therefore considered unavailable. However, *Aphis holci* was made available and retook its original authorship and date when Theobald (1927: 313–315) reused it for a different and valid species (*The Code*, Article 11.6).

The correct type species of *Synthripaphis* Quednau, 1954 is *Synthripaphis cyperi* Quednau, 1954, not *Thripsaphis cyperi* Börner, 1952. This error (Remaudière & Remaudière, 1997: 259) occurred because Börner (1952) did not describe a new species but simply made a misidentification, and Quednau (1954) deliberately designated as type *Aphis cyperi* Walker *sensu* Börner, 1952, taking on the species authorship and date (*The Code*, Articles 11.10 and 67.13).

### Type Species Fixed Applying Article 70.3 of *The Code*

If a type species fixation is based on a misidentification, the first reviser may choose as type the previously cited species

(Article 70.3.1) or the actual species originally examined (Article 70.3.2). We here fix the type species for 11 genus-group names per Article 70.3 of *The Code*. In each case we have aimed to maintain the historical taxonomic understanding of each name as presented in the cited works.

*Arctaphis* Walker, 1870 — Type species (under Article 70.3.2): *Aphis populeti* Panzer, 1801, by monotypy, misidentified as *Aphis populi* Linnaeus, 1758 [now in *Pachypappa*], per Eastop and Hille Ris Lambers (1976: 93 & 141)

*Asiphum* Koch, 1856 — Type species (under Article 70.3.2): *Aphis tremulae* Linnaeus, 1761, by subsequent designation (Gerstaecker, 1859), misidentified as *Aphis populi* Linnaeus, 1758, misattributed to Fabricius by Koch [now in *Pachypappa*], per Börner and Schilder (1930: 183).

*Aulacorthum* Mordvilko, 1914 — Type species (under Article 70.3.2): *Aphis solani* Kaltenbach, 1843, by monotypy, misidentified as *Aphis pelargonii* Kaltenbach, 1843 [now in *Acyrtosiphon*], per Hille Ris Lambers (1947: 307).

*Belochilum* Börner, 1931 — Type species (under Article 70.3.2): *Siphonophora inulae* Ferrari, 1872, by monotypy, misidentified as *Phorodon inulae* Passerini, 1860 [now in *Capitophorus*], per Hille Ris Lambers (1939: 4).

*Ceruraphis* Börner, 1926 — Type species (under Article 70.3.2): *Aphis viburnicola* Börner, 1916 [junior synonym of *Aphis eriophori* Walker, 1848], by monotypy, misidentified as *Aphis viburnicola* Gillette, 1909 [now also in *Ceruraphis*], per Börner (1952: 96).

*Chaetophorella* Börner, 1940 — Type species (under Article 70.3.2): *Chaitophorus lyropictus* Kessler, 1886, by original designation, misidentified as *Aphis aceris* Linnaeus, 1761 [now in *Periphyllus*], per Eastop and Hille Ris Lambers (1976: 134).

*Lachniella* Del Guercio, 1909 — Type species (under Article 70.3.2): *Aphis costata* Zetterstedt, 1828, by subsequent designation (Wilson, 1911), misidentified as *Lachnus fasciatus* Burmeister, 1835 [now in *Cinara*], per Börner and Schilder (1930: 187).

*Masonaphis* Hille Ris Lambers, 1939 — Type species (under Article 70.3.1): *Macrosiphum rhododendri* Wilson, 1918, by original designation, misidentification of specimens of *Amphorophora azaleae* Mason, 1925 [now in *Illinoia*], per MacGillivray (1958: 9 & 13).

*Neomacrosiphum* van der Goot, 1915 — Type species (under Article 70.3.2): *Aphis solani* Kaltenbach, 1843, by monotypy, misidentified as *Aphis pelargonii* Kaltenbach, 1843 [now in *Acyrtosiphon*], per Hille Ris Lambers (1947: 307).

*Schizoneura* Hartig, 1839 — Type species (under Article 70.3.2) *Chermes ulmi* Linnaeus, 1758, by subsequent designation (Passerini, 1860), misidentified as *Aphis ulmi* Linnaeus, 1758 [now in *Tetraneura*], per Börner (1952: 185).

*Tycheoides* Schouteden, 1906 — Type species (under Article 70.3.2): *Tetraneura lentisci* Passerini, 1856, by monotypy, misidentified as *Tychea eragrostidis* Passerini, 1860 [now in *Geoica*], per Eastop and Hille Ris Lambers (1976: 92 & 445).

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