Monograph

Revision of the species of Jaliscoa Bouček within a review of the identity, relationships and membership of Jaliscoa, Catolaccus Thomson, Eurydinoteloides Girault, Lyrcus Walker and Trimeromicrus Gahan (Hymenoptera: Pteromalidae)

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Abstract

The limits of Lyrcus Walker (1842), Catolaccus Thomson (1878), Eurydinoteloides Girault (1913a), Trimeromicrurus Gahan (1914), and Jaliscoa Bouček (1993) are re-evaluated and redefined to better reflect observed distribution of morphological features. Nine of 13 New World species of Catolaccus are transferred to other genera and photographs of the primary type specimens are given to assist future recognition. New features are provided to assist identification of the remaining four Nearctic species of Catolaccus and these are compared to European species, with the observation that C. kansensis (Girault 1917c) could be a junior synonym of C. crassiceps (Masi 1911). Trimeromicrurus is removed from synonymy under Lyrcus for the single species T. maculatus Gahan (1914) rev. comb. Newly synonymized under Lyrcus is the Australasian genus Neocylus Bouček (1988) n. syn. Ten species are newly transferred to Lyrcus—L. nigraeneus (Girault 1915) n. comb. (from Neocylus), L. helice (Walker 1843) n. comb. and L. cyaneus (Girault 1891) n. comb. (from Catolaccus), and L. albiclavus (Girault 1917c) n. comb., L. capitis (Burks 1955) n. comb., L. chalcis (Burks 1955) n. comb., L. coeliodis (Ashmead 1896) n. comb., L. deuterus (Crawford 1911) n. comb., L. nigraeneus (Ashmead 1894a) n. comb., and L. roseacolis (Burks 1955) n. comb. (from Zatropis Crawford 1908). Catolaccus pallipes Ashmead (1894b) is newly transferred to Pteromalus Swederus (1795) as Pteromalus pallipes (Ashmead) n. comb. and Catolaccus fragariae Rohwer (1934) to Lariophagus Crawford (1909) as Lariophagus fragariae (Rohwer) n. comb. Nine species are newly transferred to Eurydinoteloides—E. tepicensis (Ashmead 1895) n. comb. (from Catolaccus), E. dymnus (Walker 1847) n. comb., E. helmeas (Walker 1847) n. comb., E. incerta (Ashmead 1893) n. comb., E. orontas (Walker 1847) n. comb., E. perlubia (Girault 1916) n. comb., E. platensis (De Santis in De Santis et al. 1979) n. comb. and E. timae (Walker 1847) n. comb. (from Lyrcus), and E. eudubia (Özdikmen 2011) n. comb. (from Spiniterus Thomson 1878). Four species are newly transferred to Jaliscoa—J. grandis (Burks 1954) n. comb. and J. hunteri (Crawford 1908) n. comb. (from Catolaccus), and J. townsendi (Crawford 1912) n. comb. and J. vulgaris (Ashmead 1894b) n. comb. (from Pteromalus). The species of Jaliscoa are revised to include J. nudipennis Bouček 1993, J. bouceki n. sp., J. hunteri and J. vulgaris. Re-established in synonymy under J. hunteri is J. townsendi n. comb. One new species of Pteromalus, P. grisselli n. sp., is described as an egg predator in the egg sacs of Dictyna coloradensi Chamberlin (Araneae: Dictynidae) and compared to
**Catolaccus** species and other pteromalids that are predators of spider eggs. Lectotypes are designated for **Pteromalus hel-ice** Walker (1843), **Catolaccus pallipes** Ashmead (1894b) and **Catolaccus vulgaris** Ashmead (1894b). Diagnoses are given to differentiate **Catolaccus**, **Eurydinoteloides**, **Jalisoca**, **Lyrcus** and **Trimeromicrus** from each other, and more extensive descriptions given to help differentiate these genera from other Pteromalinae. Morphological features are illustrated through macrophotography and scanning electron photomicrography.

**Key words:** Chalcidoidea, morphology, hosts, distribution

**Introduction**

Walker (1842) established **Lyrcus** (Hymenoptera: Chalcidoidea: Pteromalidae: Pteromalinae) for a species discovered by Charles Darwin near Valparaiso, Chile, during the second voyage of the Beagle, likely sometime between 24 July and 13 August 1834 (Darwin 1839). Since then, 16 species from the Nearctic region and 5 species from the Neotropical region have been assigned to **Lyrcus** (Noyes 2012). Several of these species were described originally in three other genera, **Zatropis** Crawford (1908), **Olauspa** Cameron (1913), and **Trimeromicrus** Gahan (1914). **Zatropis** was partly characterized by the body having “scattered, appressed, scale-like white hairs” (Crawford 1908: 159), whereas **Olauspa** was partly characterized by being “sparsely covered with distinct thickish white hairs” (Cameron 1913: 129), and **Trimeromicrus** was partly characterized by a unique mesonotal colour pattern but with unmodified setae similar to **Lyrcus**. **Lyrcus** was subsequently considered the senior synonym of **Trimeromicrus** by Heydon and Bouček (1992) and of **Olauspa** and **Zatropis** by Bouček (1993). Under this concept, **Lyrcus** has been considered to be restricted to the New World (Noyes 2012).

Prior to the synonymy of **Zatropis** under **Lyrcus**, Heydon and Bouček (1992: 480) stated that **Zatropis** “is one of the most species-rich genera of Nearctic Pteromalidae” but “despite its species sharing a similar gestalt, there are few autapomorphic characters defining **Zatropis** as a whole”. They listed the three most distinctive characteristics of **Zatropis** as 1) a distinct ventral row of admarginal setae on the fore wing, 2) often distinct flattened white setae on the head and mesosoma, and 3) a relatively short propodeum.

Because of this, they keyed **Lyrcus** three times (couplets 263, 287, 303) in order to differentiate species with two or three anelli, with or without a distinct malar depression, and with or without a distinct costula.

**Eurydinoteloides** was described by Girault (1913a) for a species from Paraguay that, similar to **Zatropis**, was characterized in part by the flagellum having three anelli and “short white hairs which are scattered and reclining” on the body, plus mandibles with four teeth and the median carina of the propodeum being “crossed at proximal third by a cross-carina joining the lateral ones” (Girault 1913a: 55). Bouček and Heydon (1997) included **Eurydinoteloides** in their key to Nearctic genera within a group of genera delineated in part by three anelli and a distinct costula, and distinguished it from **Lyrcus** primarily by the presence of a distinct malar depression (couplet 286). Bouček (1988) had previously synonymized **Aeronea** (Cameron 1913) and **Protolaccus** (Burks 1954) under **Eurydinoteloides**. Burks (1954) described **Protolaccus** within a revision of five genera that he included in the **Catolaccus** group of genera, all of which were characterized in part by a malar depression. This group also included **Heterolaccus** Masi sensu Burks (1954) for five New World species. Masi (1937) established **Heterolaccus** for a species from Mauritania with two anelli and Bouček (1961) subsequently transferred its type species to **Pteromalus** (1795), treating **Heterolaccus** as a subgenus of **Pteromalus**. As a result of the actions of Bouček (1961), De Santis (1979) and Burks (1979), Noyes (2012) included two of the five species that Burks (1954) classified in **Heterolaccus** in **Catolaccus** Thompson (1878), whereas the other three species, which had originally been described in **Catolaccus**, he included in **Pteromalus**. Burks (1954) provided a history of **Catolaccus** and recognized four species from North America north of Mexico. Noyes (2012) listed another five species from...