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Three new species of *Protearomyia* McAlpine, 1962 (Diptera: Lonchaeidae) with a key to males of the Palearctic species

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Abstract

Three new species of Palearctic *Protearomyia* McAlpine, 1962 are described, *P. iberica* **sp. nov.**, *P. rameli* **sp. nov.** and *P. withersi* **sp. nov.** These are compared with the three previously described species, a key is provided to the males of all the Palearctic species.

Key words: Diptera, *Lonchaeidae*, *Protearomyia*, new species, key, Palearctic

Introduction

The genus *Protearomyia* was erected by McAlpine (1962) and belongs within the tribe *Earomyiini* of the subfamily *Lonchaeinae*. It is considered to be the sister group of the remainder of the tribe. The genus is distinguished within the family Lonchaeidae by the absence of poststigmatal setae, bare lunule, non-metallic body colour and scutellum entirely bare apart from four marginal setae. McAlpine (1983) reviewed the genus listing a world fauna of seven species. These occur in the Neotropical and Nearctic regions with two species, *P. nigra* (Meigen, 1826) and *P. greciana* McAlpine, 1962 in the Palearctic. Since that time one further species, *P. hermonensis* MacGowan & Freidberg, 2008, has been described from Israel.

In his key to world species McAlpine (1983) distinguished between adult *P. nigra* and *P. greciana* mainly by the degree of pruinosity on the thorax and abdomen, slight differences in the colour of fringe on the calypteres, and the length and shape of tergite 5 of the male abdomen, he also illustrated the male genitalia of both species. When MacGowan & Freidberg (2008) described *P. hermonensis* they distinguished it from *P. greciana* by the shape and length of the male 5th tergite and by the structure of the male genitalia. In this current study it became evident that, as all Palearctic *Protearomyia* species are externally very similar, the only satisfactory way to determine species identity is by examination of the male genitalia. There are no satisfactory characters with which to distinguish females at present.

Features within the male genitalia identified as being important in distinguishing Palearctic *Protearomyia* species are: the shape of the hypoproct, particularly at the apex, and the size and shape of the ventral lobe of the epandrium. The hypoproct is a feature apparently confined within the *Lonchaeidae* to the genus *Protearomyia* and was first noted by McAlpine (1983) in his re-description of *P. obscura* (Walker, 1837) and description of *P. greciana*. In some species it takes the form of a long, curving, chitinised rod, in others it is a more circular, domed feature. Its shape and structure at its apex where it fuses with the cerci provides valuable specific differences. The ventral lobe of the epandrium is a square or rectangular relatively thin, transparent extension of the epandrium usually bearing a characteristic group of long setae posteroventrally. Its presence or absence and overall shape is also a valuable diagnostic feature.

Detailed examination and dissection of male *Protearomyia* material from a number of localities across the western Palearctic has led to the discovery of three new species within the genus. Previously *Protearomyia* specimens from areas other than southern Europe were all considered to be *P. nigra*, these specimens now require to be re-examined to determine the true distribution of the newly identified cryptic species.

Holotype material is deposited in the National Museums of Scotland (NMS). Paratypes also in NMS, and

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extending over posterior surface. Phallus narrow and sinuous. (Figs. 22–26) . . . . . ***greciana*** McAlpine.

3. Ventral lobe of epandrium higher than wide, hypoproct with two square ended apical projections and obvious lateral processes, phallic guide without anterior projections (Figs. 18–21) . . . . . ***nigra*** (Meigen)
- Ventral lobe of epandrium square or wider than high, apex of hypoproct not as above phallic guide with a pair of anterior projections (Figs. 13 & 17) (*withersi* group) 4
4. Apex of hypoproct broad, with serrated apical margins and small lateral processes, phallus with non-sclerotized apical section extending almost at right angles to the basal plate. (Figs. 1–6) . . . . . ***iberica*** **sp. nov.**
- Apex of hypoproct and phallus not as above 5
5. Hypoproct apically with two narrow, parallel processes, phallus U-shaped with an elongated apex at right angles to the basal plate. Outer margin of surstylus with only slight projections. (Figs. 7–12) . . . . . ***rameli*** **sp. nov.**
- Hypoproct apically with two obviously diverging claw–like processes, phallus small, with apical portion emerging directly from and extending at right angles to the basal plate. Outer margin of surstyli obviously serrated along entire length. (Figs. 13–17) . . . . . ***withersi*** **sp. nov.**

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