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Revision of the species of the *Merodon nanus* group (Diptera: Syrphidae) including three new species

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Abstract

The *nanus* group of the genus *Merodon* Meigen (Diptera, Syrphidae) is revised, yielding an illustrated key, a discussion of taxonomic characters and morphological diagnosis for the five species of this group. Three new cryptic species are described, *Merodon kopensis* Vujić et Hayat **sp. n.**, *M. neonanus* Vujić et Taylor **sp. n.** and *M. rasicus* Vujić et Radenković **sp. n.** New diagnostic characters are given for *M. nanus* Sack and *M. telmateia* Hurkmans. In addition, environmental profiles for each investigated species have been defined and compared, and maps of distribution and richness created. Niche dissimilarity was found for each species. Eastern Anatolia and the southern Aegean region of Turkey are reported as the most species rich regions for the *nanus* group.

Key words: *Merodon kopensis* **sp. n.**, *Merodon neonanus* **sp. n.**, *Merodon rasicus* **sp. n.**, environmental niches, principal component analysis (PCA)

Introduction

The genus *Merodon* Meigen (Diptera: Syrphidae: Merodontini) became the largest genus of European hoverflies based on taxa described here, and presently comprises 120 species, three more than the second largest genus *Cheilosia* Meigen (Speight 2014). Turkey contains the highest number of listed *Merodon* species (63 species), and the highest endemicity for this taxon in the Mediterranean Basin (Vujić *et al*. 2011; Hayat & Vujić 2014).

This genus includes diverse bumblebee and bee mimicking Diptera with great species diversity in the Mediterranean region. Larval development takes place in the bulbs or rhizomes of Liliaceae and Amaryllidaceae (Hurkmans 1993; Ricarte *et al.* 2008). Adults of the genus *Merodon* feed on pollen and nectar and visit the flowers of a wide range of plant species (Marcos-García *et al*. 2007), including those of bulbous plants. It is known that adults of both *Merodon nanus* Sack and *M. telmateia* Hurkmans prefer flowers of *Ornithogalum* and *Euphorbia*, and that *M. nanus* also visits the flowers of *Trifolium*, *Malus*, and various Asteraceae and Apiaceae (Hurkmans & Hayat 1997; Vujić *et al.* 2011; Speight 2014). Larval stages of these taxa are still undescribed (Speight 2014).

Over the last few years, many publications covering the integrative taxonomy, diversity and distribution of some groups of the genus have been published (Marcos-García *et al*. 2007, Marcos-García *et al*. 2011; Radenković *et al*. 2011; Stahls *et al*. 2009; Vujić *et al*. 2012, Vujić *et al*. 2013).

The present study focuses on one small group of species related to *M. nanus*, mainly distributed in the Anatolian Peninsula. Sack (1928–32) described *Lampetia nana* (Sack 1931) as a species with a short and wide

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