



7th International Symposium on the Syrphidae

20th – 26th June 2013 Novosibirsk, Russia

PROGRAMME AND ABSTRACTS



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Predicting *Cheilosia* Meigen, 1822 (Diptera: Syrphidae) species distribution and abundance on the Balkan Peninsula

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The responses of species to climate change from a relatively large family such as syrphids (about 6000 described species) remain mostly unexplored and poorly understood. The previous studies on hoverflies (Biesmeijer et al., 2006; Schweiger et al., 2007; Potts et al., 2010,) dealt only with current community compositions, species distributions and projected shifts, but not with projections of future distribution and abundance.

The genus *Cheilosia* Meigen, 1822 is one of the most widely distributed and species rich genera in the family of hoverflies. It comprises around 300 Palearctic, more than 120 Nearctic, and at least 50 Oriental species, and a couple of species which extend into the northern Neotropics (Ståhls & Nyblom, 2000.) The most comprehensive study on genus *Cheilosia* on the Balkan Peninsula was done by Vujic (1996).

In this study we used generalized linear models (GLMs) to analyze the relationship of climatic and soil variables and the occurrence and abundance of 44 *Cheilosia* species across the Balkan Peninsula. On the basis of future climate change scenarios, we further projected their potential future ranges and abundances.

According to IPCC SRES A2 and B2 scenarios, in 2080 most of the species will shift their range to the north, almost disappearing from the Balkan

Peninsula and finding suitable habitats on Alps and Carpathians. Models showed that they will suffer from climate change by reducing range size and decreasing in abundance, except *C. aerea* (Dufour, 1848) and *C. proxima* (Zetterstedt, 1843). On the other hand, changes in abundance cannot be used to make inferences about actual changes in the distribution: even species that increase in abundance can suffer from decreased distributions (*C. carbonaria* Egger, 1860, *C. cumanica* Szilady, 1938, *C. flavipes* (Panzer, 1798), *C. pagana* (Meigen, 1822), *C. soror* (Zetterstedt, 1843) and *C. vulpina* (Meigen, 1822)). It is important to consider both, range and abundance to assess future risks of climate change.



Notes



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