

ESTIMATION OF LOCAL HEADING PATTERNS OF NOCTURNAL MIGRANTS USING ORIENTATION CAGES

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ABSTRACT

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The main aim of this paper is to compare the results of two data evaluation procedures used for presenting the data from the orientation cage field tests. Both procedures accept multimodality of the data and multimodality of the headings of an individual bird as well as migrating population. The goal is to reach acceptable level of migration patterns presentation in biological sense, taking under consideration a flexibility of the real movements, depending on specific weather and landscape parameters. Such knowledge is absolutely necessary for estimating migration bottle-necks and the long-term studies on influence of the climate changes on migration patterns. The material used for the comparison of the procedures was collected in years 2001-2007 by the team of the Bulgarian Ringing Station Kalimok (44°00'N, 26°26'E) within the frame of the SEEN (SE European Bird Migration Network) activity and kindly shared for evaluation. The data were obtained using the standard SEEN methods, with the standard Busse's cage working procedure of the field tests. The material contains data on four species of nocturnal migrants living in different habitats: the Great Reed Warbler, *Acrocephalus arundinaceus* (ACR.ARU), the Sedge Warbler, *A. schoenobaenus* (ACR.ENO), the Willow Warbler, *Phylloscopus trochilus* (PHY.LUS) and the Whitethroat, *Sylvia communis* (SYL.COM). There are confirmed earlier conclusions that so called „classic” unimodal procedure is not applicable to the orientation cage data resulted from any field procedure. There are available two evaluation procedures that base on the same general assumptions: multimodality of distributions that reflects combination of several unimodal partial distributions, that can be described both using sophisticated Bayesian „*Calculation*” method and much simpler „*Estimation*” procedure. Results of both procedures are enough close to each other that they can be used for describing local and general heading patterns of migration of the nocturnal migratory movements studied using orientation cages.

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