

BUSSE'S FLAT ORIENTATION CAGE VS. EMLÉN'S FUNNEL – COMPATIBILITY, DIFFERENCES AND CONCLUSIONS

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ABSTRACT

Busse P. 2017. Busse's flat orientation cage vs. Emlén's funnel – compatibility, differences and conclusions. Ring 39: 3-21.

This paper focuses on field practice using different types of orientation cages. The two orientation cage designs most commonly used in field work, i.e. Emlén's funnel and Busse's flat orientation cage, are described in detail and compared for compatibility of results, simplicity of use and time effectiveness. Apart from cage designs and field procedures (60-min nocturnal tests in Emlén's funnel vs. 10-min diurnal tests according to Busse's procedure), the standard data evaluation procedures are compared and discussed. The data used in the discussion were collected for four species of nocturnal migrants (the Reed Warbler, the Sedge Warbler, the Willow Warbler and the Whitethroat) at the Kalimok Bird Station (Bulgaria): altogether 141 individuals were tested in Emlén's funnel in 2001 and 788 in Busse's cage in 2001-2007.

The following conclusions were drawn: (1) Busse's flat cage design and its standard procedures yield results fully compatible with those obtained using Emlén's funnel and the associated procedures; this means full compatibility in terms of the directionality of tested birds in the diurnal and nocturnal tests; (2) the procedures compared have distinct differences in terms of constraints on the methods:

- Emlén's cage is extremely stressful for the bird and should be avoided as much as possible in practice due to animal welfare concerns;
- Emlén's standard procedure of testing the bird for 60 minutes is completely useless, as this is inefficient in terms of quality of results and causes more stress to the bird than is necessary;
- Busse's 10-minute standard makes it possible to collect a vast amount of data (12 birds per hour and person) in real field work, even performed in wilderness areas;

(3) At the stage of evaluation of raw data it is essential to use evaluation tools which take into account the fact that raw data items show a high percentage of multimodal distributions, and therefore tools assuming unimodal distribution are unsuitable.

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Keywords: orientation cages, directionality, nocturnal migrants, field tests, circular data, bird migration