

## Raumnutzung in einer Metapopulation der Gelbbauchunke (*Bombina variegata*) an ihrer nördlichen Verbreitungsgrenze

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### Land use in a metapopulation of the yellow-bellied toad (*Bombina variegata*) at the northern edge of its distribution range

At the northern edge of yellow-bellied toad's (*Bombina variegata*) distribution range abundances are showing a particular strong decline due to habitat destruction. There are only few studies which have investigated the land use of this species over several years, none of them at the northern edge of its distribution range. The studied metapopulation of *B. variegata* is located in the Bückeberge and in the neighbouring Wesergebirge in the district of Schaumburg, Lower-Saxony. Data were collected over eight consecutive years during field trips twice a year. Capture-mark-recapture-analysis (CMR) was used for data interpretation. For most toads high site fidelity was found. Yet, also considerable distances were covered. While males migrated up to 1138 m in seven years, one female covered a maximum distance of 5138 m within three years. The maximum distance covered per year was 732 m for males and 438 m for females. Subadult as well as juvenile toads moved distances of 225 m and 203 m per year, respectively. The median distance covered from one capture to the next was absolutely but not significantly lower for males (46 m) than for females (58 m), but for both sexes higher than for subadults (12 m) and juveniles (7.5 m). Both sexes showed nearly the same median for dispersal ranges (males: 79 m; females: 86 m), whereas subadults (13 m) and juveniles (7.5 m) had much smaller dispersal ranges. The home range per year did not differ significantly between the sexes (males: 2357 m<sup>2</sup>; females: 2303 m<sup>2</sup>) in a subpopulation. There was no indication that juvenile toads are the dispersal unit of this species, which may have methodological reasons. However, females seem to play an important role in the gene flow between subpopulations of a metapopulation as they are able to move over large terrestrial distances. The established home ranges of adults were greater than described in other, shorter lasting studies. This underlines the importance of long-term investigations because short-term studies may lead to underestimated habitat sizes of populations. Hence, the presented results may be helpful for the conservation management of this species to define the minimal habitat size a population needs.

**Key words:** Amphibia, Anura, *Bombina variegata*, covered distance, dispersal range, home range, site fidelity.

### Zusammenfassung

Die Gelbbauchunke (*Bombina variegata*) ist an ihrem Arealrand aufgrund von Lebensraumzerstörung besonders stark vom Rückgang betroffen. Bisher gibt es nur wenige,