

Populationsökologische Langzeitstudien an Gelbbauchunken (*Bombina v. variegata*) im nordwestlichen Thüringen

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Long-term studies on population ecology in yellow-bellied toads (*Bombina v. variegata*) in northwestern Thuringia

Results of a field study in 1996–1997 on a yellow-bellied toad population which was examined between 1987 and 1991 by previous researchers are presented. In total, 228 males, 289 females and 55 subadults and juveniles were caught and identified individually using photographs of their belly patterns. On the average, each male was captured 3.5 times, each female 2.8 times and each subadult/juvenile 1.8 times. 80 % of the males and 70 % of the females were recaptured at least once in 1996 and 1997. Based on the recapture rate in 1997, the population size was estimated using the Petersen-Index. For the whole population, we calculated a total of 668 ± 23 individuals and estimated a decline of 50 % between 1990 and 1996. The sex ratio was little biased towards females. 195 specimens first identified between 1988 and 1991 were recaptured in 1996 and/or 1997. These adults had an age of at least six to twelve years. Their percentage among the reproducing specimens was about the same size as their percentage within the population. The mean annual survival rate was 0.77 and no remarkable differences between males and females were found. Consequently, both sexes have approximately equal survival probabilities. In 1996, the population consisted of 37 % adults of a minimum age of six to eleven years, 58 % adults of a minimum age of two years and 5 % subadults. Both, body length and body mass and the age of the individuals were positively correlated. Aquatic and terrestrial habitats are only briefly described. After five till nine years, 177 individuals were recaptured within a distance of 100 m, 33 individuals were repeatedly recaptured in the same pond where they were found in former times. Males were slightly more philopatric than females within a season and over years. Between 1989 and 1997, two males and eight females repeatedly interchanged between only two ponds. The average migration distance (median) was 60 m in males and 50 m in females. Only few individuals migrated more than 500 m. In different ponds, males and females were unequally dispersed. In the spawning ponds, frequently the males outnumbered the females. Furthermore, we recorded temporary spawning ponds with a balanced sex ratio as well as a majority of females. After extensive rainfalls, in 1996 and 1997 two distinct spawning periods were detected in temporary breeding habitats. In durable ponds clutches were also found outside these periods. Males stayed significantly longer in permanent ponds than females but did not in temporary waters. Relatively few adults could be found in amplexus. The mate choice was not observed to be size-selective. One male and three females were registered in amplexus a second time during one season. In two cases female toads spawned repeatedly in different ponds within a season. Structure and development of the population as well as the habitat use and the life history of individuals are briefly discussed.

Key words: Amphibia, Anura, Bombinatoridae, *Bombina v. variegata*, long-term study, population structure, habitat use, site fidelity, migration, phenology, northwestern Thuringia.