

## Akzeptanz einer Amphibienschutzanlage am Knappensee/Oberlausitz durch Erdkröte (*Bufo bufo*) und Knoblauchkröte (*Pelobates fuscus*)

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### Acceptance of a tunnel and fence system near lake Knappensee/Oberlausitz by the common toad (*Bufo bufo*) and the common spadefoot toad (*Pelobates fuscus*)

In 2000 and 2001 I investigated the efficiency of a system of toad-tunnels which were constructed in 1999 under the B96 between Maukendorf and Neubuchwalde (Oberlausitz, Saxony). This system was installed for common toads (*Bufo bufo*) and common spadefoot toads (*Pelobates fuscus*). These species migrate to the breeding pond »Knappensee«. The tunnel and fence system consisted of an integrated combination of thirteen amphibian tunnels of two types (grated culverts closed under the carriageway and inverted U-gullies) and contains steel drift fences. I studied the migration behaviour of the amphibians in this system in relation to precipitation and to migration direction. The investigation was done during the migration of adults to the breeding pond in spring, their return to summer habitat, and during the dispersal of newly metamorphosed amphibians from the breeding pond. Tunnel use rates in 2000, towards the end of adult migration to the pond, attained 100 % for *B. bufo* but only 40 % for *P. fuscus*. The guides built into the drift fences and designed to direct amphibians towards the tunnels were demonstrably ineffective as the amphibians, particularly *P. fuscus*, went around them. On the return migration *B. bufo* immediately accepted the tunnels and passed through them quickly and without hesitation but *P. fuscus* did not use them at all. Newly metamorphosed *B. bufo* dispersing from the breeding pond passed through the tunnels in swarms on warm, rainy days. They used the tunnel lying closest to, and most directly in line with the point on the shore where they first came to land. Juvenile *P. fuscus*, however, used the tunnels only sporadically. The tunnel use rate increased to about 80 % for *P. fuscus* migrating to the pond for breeding in 2001 after a 50 mm thick layer of sand with a little soil (grain size up to 5 mm) from the vicinity of the Knappensee was spread the grated culvert tunnel floors. The rate for *B. bufo* reached 100 % within a few days. Avoidance of the guides was reduced effectively by adding 50 m of a fence from Maibach (without pitfall traps) diagonally across the approach direction of the amphibians.

**Key words:** Amphibians, toad tunnel system, *Bufo bufo*, *Pelobates fuscus*.

### Zusammenfassung

In den Jahren 2000 und 2001 wurde die Effizienz einer Amphibienschutzanlage untersucht, welche im Jahr 1999 an der B96 zwischen Maukendorf und Neubuchwalde (Oberlausitz, Sachsen) gebaut wurde. Im Bereich der Anlage wandern Erdkröten (*Bufo bufo*) und Knoblauchkröten (*Pelobates fuscus*) zum Laichgewässer Knappensee. In einem zusammenhängenden Abschnitt von 13 Amphibientunneln (Stelztunnel sowie im Fahrbahnbereich verschlossene Klimaschlitztunnel, Stahl-Leiteinrichtungen) wurde das Verhalten der Amphibien unter Berücksichtigung der Tages- und Jahreszeit