

## **Amphibienschutz an Straßen – Notwendigkeit, Zwischenbilanz und Minimalstandards für Akzeptanzkontrollen zur Optimierung technischer Schutzanlagen**

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### **Amphibian protection along roads – Necessity, interim results and minimum standards for the monitoring of acceptance to optimise technical protection structures**

Permanent roadside protection structures for amphibians, i.e. routing or barrier measures installed on both sides and in most cases combined with crossing facilities (tunnels), aim to secure the existence of amphibian populations long-term. Numerous studies have shown that these structures can only meet this goal in combination with other amphibian protection measures. However, it is yet unchallenged that even amphibian protection structures on their own, due to the reduction of the dissecting effect of roads and the resulting avoidance of severe losses through road kill -which can pose a real threat to the survival of populations-, are able to contribute to the long-term protection of the concerned populations. While amphibian protection structures have been built for approx. 30 years, there is hardly any research in particular regarding the medium- to long-term success of such stationary structures. The implications are manifold: Even inconspicuous errors in planning and implementation are frequently not recognised and thus not eliminated – with often fatal results for the amphibian populations. Empirical evidence concerning the acceptance of stationary protection structures is currently only available for the common toad (*Bufo bufo*). It is largely unknown to which extent other Germany- and/or Europe-wide threatened species benefit from these. By means of a workshop, the authors attempted to establish minimum standards for the monitoring of acceptance, which define economically calculable and ecologically comparable specifications. The state agency for road construction is now able to schedule arising costs in good time. Taking into account these specifications it should be possible to eliminate functional shortcomings promptly.

**Key words:** Amphibians, roadside protection structures, acceptance, evaluation, monitoring, barrier fence.