

# Populationstrends von Amphibien in Sachsen in den letzten 30 Jahren, basierend auf der Analyse von Amphibienzaundaten

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## Population trends of amphibians in Saxony over the past 30 years, based on the analysis of amphibian fence data

The long-term monitoring of population trends is essential for the conservation of native amphibian species, many of which are threatened by habitat loss, climate change, and other anthropogenic influences. Amphibian protection fences, originally designed to prevent road mortality, provide a valuable but methodologically contested data source for analyzing such trends. In this study, data from 34 long-term monitoring sites in Saxony were analyzed to critically evaluate the suitability of amphibian protection fences for deriving population trends. The results demonstrate that amphibian fences can provide robust and reliable insights into population changes for species whose distribution areas are well covered by the monitored fence locations. At the same time, methodological limitations become apparent: species with specific behaviors that make them poorly detectable by amphibian fences, such as the European tree frog (*Hyla arborea*) or the natterjack toad (*Epidalea calamita*), yield population trends that are only partially interpretable. This highlights the need to expand the spatial coverage of the data to enable reliable conclusions for rare or difficult-to-detect species. The findings underpin the potential of amphibian protection fences as a monitoring tool, particularly for common species and large-scale trends. However, their limited suitability for certain species and the dependence on regional conditions demonstrate that they may be a valuable addition to information derived from standardized monitoring programs, but cannot replace these. Combining this data with additional sources, such as climate data or land-use indicators, could significantly enhance the interpretation and identification of the drivers behind large-scale population changes. This study demonstrates that amphibian protection fences can be an important tool for amphibian research when their results are critically interpreted in light of methodological limitations and potential uncertainties.

**Key words:** Amphibian protection fence, population trends, monitoring, methodological criticism, spatial representation.

### Zusammenfassung

Die langfristige Erfassung von Populationstrends ist essentiell für den Schutz einheimischer Amphibienarten, von denen viele durch Lebensraumverlust, Klimawandel und andere anthropogene Einflüsse gefährdet sind. Amphibienschutzzäune, ursprünglich zur Vermeidung von Verkehrsverlusten eingesetzt, liefern eine wertvolle, jedoch methodisch nicht unumstrittene Datenbasis für die Analyse solcher Trends. In dieser Studie wurden Daten von 34 Langzeitmonitoring-Standorten in Sachsen aus-