

# Nachhaltiger Artenschutz bei Gelbbauchunke (*Bombina variegata*) und Kreuzkröte (*Epidalea calamita*) in der Kulturlandschaft – ein Plädoyer für die stärkere Berücksichtigung der Metapopulationsökologie

## Vorschlag für ein ökologisches Rahmenkonzept als Handlungsleitfaden im Naturschutz

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### Sustainable conservation of *Bombina variegata* and *Epidalea calamita* in cultivated landscapes – A plea to apply metapopulation ecology

#### Proposal of an ecological frame concept as a guideline for conservation

The pioneer species yellow-bellied toad and natterjack toad are listed as „Critically Endangered“ in the German Red list because in the last three decades they have suffered dramatic declines due to habitat loss. Despite consideration in the German nature conservation laws and several conservation projects the negative trend persists. The inefficiency seems to be the result of three major causes: (1) most conservation projects focus on the persistence of a single local population without considering their regional context in terms of geographical isolation from other local populations; (2) a commonly accepted, scientifically based strategy for improve large scale connectivity local populations is not in sight; (3) the interregional exchange of knowledge among stakeholders in species conservation is too limited. Consequently, I propose an ecological framework for the realisation of conservation projects with clearly defined standards that includes a 3-step guideline to reverse the trend to decline in the two species. First step is the identification of the background (connected or isolated focus population, colonised or empty focus habitat patch). In a second step, depending on the kind of background identified, I propose conservation measures aiming to (re)establish local metapopulation networks or regional population belts. In a third step I define possible endpoints of conservation actions, which determine the success and duration of a project. Finally, two case studies demonstrate the applicability of the proposed concept in practice.

**Key words:** Species conservation, pioneer species, *Bombina variegata*, *Epidalea calamita*, population ecology.

### Zusammenfassung

Die beiden Pionierarten Gelbbauchunke und Kreuzkröte sind in Deutschland in der aktuellen Roten Liste als „stark gefährdet“ eingestuft, weil sie in den letzten drei Jahrzehnten dramatische Habitatverluste erlitten haben. Trotz Berücksichtigung im Bundesnaturschutzgesetz und zahlreichen Artenschutzprojekten ist der negative Trend ungebrochen. Dafür erscheinen mir drei Ursachen wesentlich: (1) die meisten