

Beweidung und Ausbaggern – Geeignete Maßnahmen gegen den Verlust von kleinen Amphibienlaichgewässern durch Wasserpestverkrautung und Verlandung?

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Grazing and dredging – Useful conservation measures to prevent loss of small amphibian ponds from pondweed invasion and siltation?

Small breeding ponds of amphibians originating from tank tracks at military training sites suffer from succession after the end of tank cruising. They often silt up within a few years and are subsequently lost for amphibian reproduction. Here we report the results of a three-years project (2018–2020) to evaluate the effects of cattle grazing (Heck cattle, Carpathian buffaloes, Konik horses) and dredging on the persistence of such ponds following a pondweed invasion (*Elodea canadensis*). We chose three conservation treatments with two ponds each: (1) untreated control ponds with wide pondweed cover, (2) dredged and subsequently grazed ponds with pre-treatment cover of pondweed, (3) newly excavated pioneer ponds without submerge or shore vegetation. Pond use by amphibians (sojourn, reproduction) was quantified between April and July 2018 and 2020 during seven surveys, respectively. Total amphibian diversity included nine species, with a maximum of eight in a single pond (*L. vulgaris*, *I. alpestris*, *T. cristatus*, *A. obstetricans*, *B. variegata*, *B. bufo*, *H. arborea*, *P. esculentus*, *R. temporaria*). Pondweed invasion did not negatively affect attractivity of ponds for any amphibian activity. Abundance of crested newts was significantly greater in ponds with pondweed, that of yellow-bellied toads in ponds without submerge vegetation. Tadpoles of midwife toads hibernated successfully in ponds with dense pondweed vegetation. Grazing and dredging had no effect on pondweed cover. In contrast, seasonal drying-up eliminated effectively reinvasion of refilled ponds by pondweed. Desludging of ponds by dredging to a maximum depth of 0.6 m prolonged hydroperiod up to 10 years, independent of the grazing regime. We conclude that small breeding ponds of amphibians exposed to succession will only persist, if regularly dredged, whereas cattle grazing is ineffective to prolong persistence.

Key words: Amphibians, management of breeding ponds, cattle grazing, invasion of pondweed, *Elodea canadensis*, vegetation, dredging.

Zusammenfassung

Amphibienlaichgewässer, die auf militärischen Übungsplätzen häufig in Panzerfahrspuren entstehen, unterliegen nach Nutzungsaufgabe der Sukzession und verlanden schnell. Hier berichten wir von einem dreijährigen Projekt (2018–2020), in dem die Wirksamkeit von Beweidung (Heck-Rinder, Karpatenbüffel, Konik-Pferde) und Ausbaggern zum Erhalt solcher Kleingewässer nach einer Invasion mit Wasserpest (*Elodea canadensis*) evaluiert wurde. Sechs Gewässer wurden ausgewählt: jeweils zwei