

Kurzfristige Auswirkungen eines Hochwassers auf Amphibien-gemeinschaften in Biberteichen eines Mittelgebirgstales

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Short-term effects of a catastrophic flood on amphibian communities in beaver ponds in a German upland valley

During a study of the relevance of beaver ponds for newts, we investigated a valley with 24 beaver ponds of two beaver colonies, which was affected by a destructive flood shortly after the field work was finished (max. discharge: 13600 l/s, average since 1980: 67 l/s). We seized the opportunity to investigate the effect of the flood event on the amphibians in the waters compared to a non affected artificial pond using funnel traps. The flood catastrophe largely destroyed the beaver ponds leaving strongly altered remnants of the ponds. However all former common amphibian species were still detectable in the waters of the colony in the upper reach of valley. The activity densities of the common species *Lissotriton helveticus* and *Mesotriton alpestris* only weakly decreased or even were stable in the remaining beaver-waters compared to the non affected artificial pond. In addition, we were still able to detect larvae of *Bufo bufo*, *Rana temporaria* and *Alytes obstetricans*. The distribution pattern of the amphibians in the upper beaver colony indicates a drift of roughly several 100 m from the destroyed ponds to the less affected ponds in the lower reach of the colony. Before the flood we found very few amphibians in the waters of the beaver colony in the lower reach of the valley in 1800 m distance from the upper colony, except for large numbers of *B. bufo* larvae. After the flood no amphibians were observed there. Therefore we conclude that a drift of viable individuals was negligible over the distance of 1800 m. Generally the effects of the flood event were unexpected weak, particularly since non of the two colonies was abandoned due to the flood. Therefore the effects are mainly restricted to a reduction of the number of spawning waters in the following season.

Key words: Amphibien, Biberteiche, Hochwasser.

Zusammenfassung

Im Rahmen einer Studie zur Bedeutung von Biberteichen für Molche, wurde auch ein Bach mit 24 Biberteichen in zwei Kolonien untersucht, der nach den Untersuchungen von einer katastrophalen Flut getroffen wurde. Wir nutzten die Gelegenheit, um den Einfluss des Hochwassers auf die Amphibien in den Gewässern im Vergleich zu einem unbeeinflussten Referenzgewässer zu untersuchen. Die Flut zerstörte die Biberteiche weitgehend und hinterließ stark veränderte Restwasserflächen. Dennoch waren in der oberen Kolonie alle zuvor häufigen Amphibienarten noch nachweisbar. Die Aktivitätsdichten der Faden- und Bergmolche haben in den untersuchten Restgewässern im Vergleich zum Referenzgewässer nicht oder nur gering abgenommen. Auch waren nach der Flut noch Larven von Erdkröte, Grasfrosch und Geburtshelfer-