

## **Wasserstandsdynamik in der mittleren Oberrheinaue beeinflusst das Fortpflanzungsverhalten des Laubfrosches (*Hyla a. arborea*)**

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### **Water level dynamics of the middle Upper Rhine floodplain influence the reproduction behaviour of the European tree Frog (*Hyla a. arborea*)**

The investigated area is situated right south of Karlsruhe (Germany). Due to the correction of the Upper Rhine (1817–1880) and more recent changes between 1928 and 1977 floodplains were lost on a large scale. Spreading of floodwaters into the river basin was considerably restricted by the construction of a continuous dam. Today the former floodplain (area now situated behind the dam) is only connected to the rise and fall of the Rhine water level by the oscillating ground water. The results of this study prove that the tree frog is capable to compensate for extreme changes of the water level as it occurs today (quick and high rising waters and quick drainage). The species migrates frequently between the former and recent floodplains and shows a very flexible and opportunistic reproductive behaviour depending on the succession of high water levels. At the beginning of their activity in March 2001 there was a flood which led to the species' rapid leaving the recent floodplain. Temporary hydraulic ponds developed in the open areas of the former floodplain (especially on extensively used grasslands and fields) as a consequence of high water levels extending over a longer period of time. These ponds played an important role as mating area and potential breeding habitat. The recent floodplain was used only sparsely even after the high waters had receded. In accordance with the drying up of the temporary hydraulic ponds in May calling groups fell quiet even at permanently filled waterholes. The number of single callers, however, increased in the summer habitats which were situated in the recent floodplain. Breeding behaviour was only continued in the former floodplain after new occurrence of high water extending over a longer period of time and hence temporary hydraulic ponds filled up again in June. The reason why these ponds, which are temporarily filled with water, dry up too quickly is the levelling of the floodplains' relief for agricultural usage. This was the most limiting factor for the reproductive success of the species.

**Key words:** Upper Rhine, river regulation, recent floodplain, former floodplain, *Hyla a. arborea*, water level dynamics, temporary hydraulic ponds.

### **Zusammenfassung**

Im Untersuchungsgebiet unmittelbar südlich Karlsruhe gingen durch Oberrheinkorrektur (1817–1880) und modernen Oberrheinausbau (1928–1977) bedingt weiträumig Aueflächen verloren. Die Ausbreitung des Wassers in der Überflutungsau wurde