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Preliminary results indicate localised adaptation in the duration of unken reflex in fire-bellied toads (*Bombina bombina*, Bombinatoridae)

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The unken reflex (UR) is a deimatic behaviour in certain toad species, such as the European fire-bellied toad. These toads are cryptically coloured on their backs; however, when they feel threatened, they arch their backs and raise their limbs, revealing the brightly coloured ventral side of the body. This sudden appearance of bright colour has a startling effect and warns potential predators that the toad is poisonous. As an antipredator behaviour, UR should be under selection and adapt to different types of predators/predation pressure. We examined the occurrence and duration of UR in 106 individuals from three populations of the European fire-bellied toad (*Bombina bombina*). We gently tapped the toads' heads (5 times) and grabbed them with rubber forceps to entice them to perform UR. We noted the occurrence of UR, whether the toads entered UR by tapping or grabbing and the duration of UR. We observed no significant differences in the occurrence of UR between the localities, but there was a significant difference in the duration of UR between localities. In the locality where UR lasted the longest, toads entered UR more often by grabbing than by tapping. UR was longest in the locality in an urban environment where there are far fewer predators (except cats and dogs) than at the other two localities (natural wetlands) where natural predators are abundant (snakes, water birds and small mammals). Our results may indicate potential local adaptations to different predators/predation pressures and deserve further attention. Future studies of UR should also include features such as belly colour, pattern, and contrast, as these features are also likely crucial to the occurrence and duration of deimatic displays in these toads.

Key words: antipredator response, deimatic display, amphibians