

Time activity budgets for tadpoles of the American toad (*Bufo americanus*)

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Abstract

In northern temperature climates, American toads (*Bufo americanus*) are early spring breeders, laying their eggs in ephemeral ponds. Optimizing behavioral activities, such as foraging, for maximal growth of toad tadpoles would be expected for this species to reach metamorphosis prior to pond desiccation. Prior behavioral studies on toad tadpoles have focused on responses to predators and food resources under laboratory conditions; but little is known of diel activity patterns under natural conditions. We conducted focal samples on *B. americanus* tadpoles inhabiting ephemeral ponds in Northern Minnesota in May and June of 2001. Time activity budgets were created for tadpoles throughout all periods of the day. Nine activities were identified which were evaluated within the context of microhabitat use and solar exposure. Feeding behavior was examined through observations of duration, frequency, and food substrate. Data from these observations were used to estimate mean time spent per activity. Non-moving behaviors made up 65.6% of the tadpole's activities. Feeding comprised 18.4% and moving 7.6% of their daily period. A combination of other activities such as air gulping, predator escape, schooling, social interaction, and squiggle behavior comprised the remaining 8.4%. The majority of activity bouts, 88%, were less than 65 seconds, and 92% of the distances moved by tadpoles were less than 40 cm. Comparisons were made between activity time and period of the day to determine if temporal activity patterns existed. These analyses suggest daily trends in certain behavioral activities though not in others.