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Observations on Territoriality and Aggressive Behavior in the Western Spadefoot Toad,
Scaphiopus hammondi

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OBSERVATIONS ON TERRITORIALITY AND AGGRESSIVE BEHAVIOR IN THE WESTERN SPADEFOOT TOAD, *SCAPHIOPUS HAMMONDII*.—Duellman (1966, *Herpetologica*, 22:217–221) reported on aggressive behavior in dendrobatid frogs and suggested that aggressive behavior in frogs is a highly developed territorial behavior occurring in species having specialized breeding habits. On 7 June 1967 I had an opportunity to observe the spacing of calling males and aggressive behavior in the western spadefoot toad, *Scaphiopus hammondi*, while collecting in a flooded pecan grove in Las Cruces, Dona Ana Co., N.M. Soon after entering the grove where a large number of *S. hammondi* were calling, it was apparent that the distribution of calling males was not random. The rows of pecan trees formed a natural grid which simplified observations on the distribution of calling males. Three or four males called in an area of approximately 440 square feet circumscribed by pecan trees in the corners. The toads were separated from each other by at least 10 feet.

Aggressive behavior between males was observed on two occasions under similar conditions. When the light and movement disturbed calling males, they submerged and swam underwater. This was a typical response. On two occasions a disturbed toad surfaced near a calling male. The calling male continued to call and slowly approached the intruder. Suddenly the calling male partially leaped from the water and struck the intruding male on the back with his forelimbs, forcing the intruder beneath the surface. As he leaped, the calling male emitted a loud guttural squawk which was unlike the mating call. When the intruder surfaced, he swam away from the aggressive male. This sequence was observed twice during the evening.

Although the interaction between males in this report cannot be classified as aggressive behavior in terms of that described by Duellman (1966, 22:217–221), the even spacing and aggressive behavior of calling *S. hammondi* suggest a degree of territoriality similar to or stronger than that in *Rana clamitans* as described by Martof (1953, *Ecology*, 34:165–174). It is possible that territoriality and aggressive behavior are more common in anurans than has been reported. Presumably the breeding call of anurans reduces interaction of males except under conditions similar to those reported above.—WALTER G. WHITFORD, *Department of Biology, New Mexico State University, Las Cruces, 88001.*