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DESCRIPTION OF A SIX-YEAR-OLD HYBRID TOAD

BY ALBERT P. BLAIR

Interbreeding has not been reported for the species of toads found in Europe, and it has been shown experimentally (Hertwig, 1936) that the offspring of interspecific matings die early in development. Among the toads of eastern North America, on the other hand, a different situation obtains. Individuals intermediate between *Bufo fowleri* and *B. americanus* have been reported by Miller and Chapin (1910), Deckert (1917), Hubbs (1918), Myers (1927), Pickens (1927), Blair (1941), and numerous other investigators. Harper (1935), Burt (1938), and Blair (1941) have found *Bufo americanus*-*B. terrestris* intermediates; Pickens (1927) and Blair (1941) have reported *B. terrestris*-*B. fowleri* intermediates; Strecker and Williams (1928), Smith (1934), and Blair (1941) have recorded *B. woodhousii*-*B. fowleri* intermediates; Strecker (1915), Bragg (1940), and Blair (1941) have reported *B. americanus*-*B. woodhousii* intermediates; and Blair (1941) has reported *B. fowleri*-*B. valliceps* intermediates. Blair (1941) has made laboratory hybridizations of the following combinations: *americanus*-*fowleri*, *americanus*-*terrestris*, *fowleri*-*terrestris*, *woodhousii*-*americanus*, *fowleri*-*woodhousii*, and *terrestris*-*valliceps*. Offspring of each of these crosses were reared through metamorphosis, and *woodhousii*-*americanus*, *fowleri*-*americanus*, and *woodhousii*-*fowleri* hybrids attained sexual maturity. Male *woodhousii*-*americanus* and *fowleri*-*americanus* were backcrossed to *americanus* and found fertile.

It seems worth while to describe in some detail a male *woodhousii*-*americanus* which attained near maximum growth. This toad was the offspring of a mating between a female *B. woodhousii* from Choteau,

Oklahoma, and a male *B. americanus* from Bloomington, Indiana. Eggs were laid March 25, 1938, after pituitary stimulation. The male hybrid underwent metamorphosis at an age of 69 days and began showing secondary sex characters at 14½ months when its body length (tip of snout to vent) was 51.2 mm. It died February 10, 1944, age 70½ months, of unknown cause.

In dorsal color this toad is more like *americanus* than *woodhousii*, presenting a uniform reddish brown appearance. The parotoid glands are of the same color as the body. The poorly defined middorsal line fades posteriorly. Thumb pads are well developed and heavily pigmented. Pigmentation of the throat is *americanus*-like, with the posterior transverse throat area well defined by heavy pigment in the submaxillary muscle. The entire venter is spotted, a condition sometimes found in *B. americanus* but never in *B. woodhousii*. Toes are strongly webbed as in *B. americanus*. The resemblance is also toward *B. americanus* in the large (2.5-3.0 mm.) dorsal and hind leg warts. A few warts have poorly developed encircling black spots.

In shape the parotoid glands are irregular but more or less oval; their posterior ends diverge widely, as in *B. woodhousii*. The shortest distance between the parotoids is 13 mm. The head is short and broad: width 27 mm. at the level of the tympani, length 13.5 mm. from tip of head to line joining center of tympani. Other measurements (in millimeters), with comparison with male toads from Bloomington and Choteau, are as follows:

| | HYBRID | AVERAGE OF 85 <i>B. americanus</i> FROM BLOOMING- TON, IND. | AVERAGE OF 12 <i>B. woodhousii</i> FROM CHOTEAU, OKLA. |
|-----------------------|--------|--|---|
| Body length | 66 | 56 | 78 |
| Foot length | 41 | 37 | 50 |
| Body/foot | 1.6 | 1.5 | 1.6 |
| Parotoid length | 14 | 12 | 15 |
| Parotoid width | 8 | 6 | 7 |
| Parotoid length/width | 1.75 | 1.9 | 2.2 |

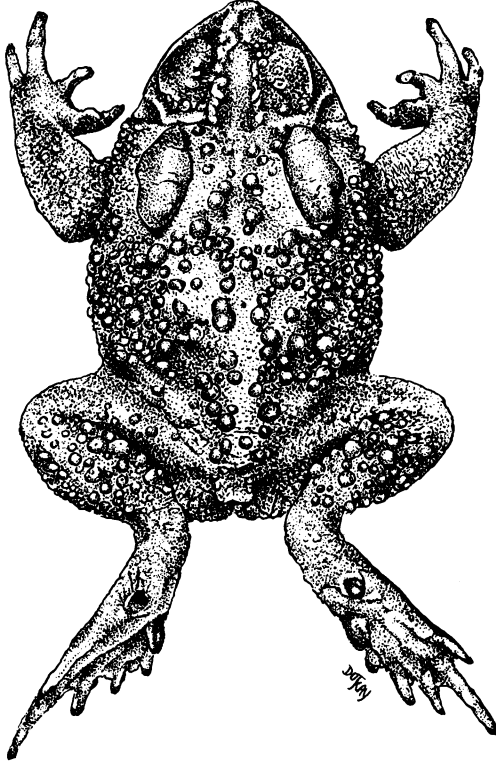


Fig. 1. Six-year-old male *woodhousii-americanus* hybrid. $\times 1$.

The general impression is that the animal is intermediate (fig. 1). The large warts, spotted venter, and brown coloration resemble *B. americanus*, but the broad head and widely separated, diverging parotoid glands are strongly reminiscent of *B. woodhousii*.

The testes are rather small: right 8.8, left 9.8 mm. in length. The ovocytes of Bidder's gland are large and well pigmented. The right Bidder's gland, which is flattened, is roughly 7 mm. long and 6

mm. wide; the left gland, which is more or less cylindrical, is about 6 mm. long and 3 mm. in diameter. Vestigial oviducts are prominent.

This animal gave the male chirp and warning vibration when grasped dorsally and was on several occasions found clasping other toads of the same container. It was never heard to call, although exposed at least once to the calls of male toads of one of the parental species (*B. americanus*)

BIBLIOGRAPHY

- BLAIR, A. P.
1941. Variation, isolation mechanisms, and hybridization in certain toads. *Genetics*, vol. 26, pp. 398-417.
- BRAGG, A. N.
1940. Observations on the ecology and natural history of Anura. II. Habits, habitat, and breeding of *Bufo woodhousii woodhousii* (Girard) in Oklahoma. *Amer. Midland Nat.*, vol. 24, no. 2, pp. 306-321.
- BURT, C. E.
1938. The frogs and toads of the southeastern United States. *Trans. Kansas Acad. Sci.*, vol. 41, pp. 331-365.
- DECKERT, R.
1917. Do the Fowler's toad and the American toad interbreed? *Science*, vol. 45, pp. 113-114.
- HARPER, F.
1935. Records of amphibians in the southeastern states. *Amer. Midland Nat.*, vol. 16, no. 3, pp. 275-310.
- HUBBS, C. L.
1918. *Bufo fowleri* in Michigan, Indiana and Illinois. *Copeia*, pp. 40-43.
- MILLER, W. DEW., AND J. CHAPIN
1910. The toads of the northeastern United States. *Science*, new ser., vol. 32, pp. 315-317.
- MYERS, G. S.
1927. The differential characters of *Bufo americanus* and *Bufo fowleri*. *Copeia*, pp. 50-53.
- PICKENS, A. L.
1927. Amphibians of upper South Carolina. *Copeia*, pp. 106-110.
- SMITH, H. M.
1934. The amphibians of Kansas. *Amer. Midland Nat.*, vol. 15, no. 4, pp. 377-528.
- STRECKER, J. K.
1915. Reptiles and amphibians of Texas. *Baylor Univ. Bull.*, vol. 18, no. 4, pp. 1-82.
- STRECKER, J. K., AND W. J. WILLIAMS
1928. Field notes on the herpetology of Bowie County, Texas. *Contrib. Baylor Univ. Mus.*, vol. 17, pp. 1-19.

