Catalogue of American Amphibians and Reptiles.

HOFFMAN, RICHARD L. 1983. *Pseudacris brimleyi.*

Pseudacris brimleyi Brandt and Walker
Brimley's chorus frog

Pseudacris brimleyi Brandt and Walker, 1933:5. Type-locality, "near Washington [Beaufort County], North Carolina." Male holotype, Mus. Zool. Univ. Mich. 74361, collected by George Ross and B. B. Brandt, 29 March 1933 (not examined by author).

• CONTENT. No subspecies have been recognized.

• DEFINITION AND DIAGNOSIS. A medium-sized member of the genus, length of males to 30, of females to nearly 35 mm; body slender; legs long, heel of rear leg reaching forward to level of eye; tarsal pads scarcely expanded; coloration typically pentalineate, head without subtriangular dark spot between eyes, dorsal ground color light brownish, middorsal and paramedian dark lines variable in intensity but always lighter than the prominent, sharply-defined, dorsolateral piceous line extending from eye to groin; upper lip with light line extending to tympanum, the latter smaller than eye diameter; dorsal sides of legs with dark spots of variable size typically extended longitudinally rather than transversely; tibia with narrow dark line on outer edge; venter white with yellowish tinge, anteriorly with numerous small dark spots.

Mature tadpoles (Fig. 1) attaining length of 30 mm; tail musculature sharply bicolored, the dark dorsal half narrower than in related species, and light ventral half immaculate or nearly so; ventral surface of head and thorax prominently spotted and mottled with black. Length of newly transformed froglets around 10 mm.

Eggs laid in loose clumps, with total complement near 300; vitelline diameter 1.3 to 1.7 mm; envelope 6.7 to 8.6 mm.

Pseudacris brimleyi is characterized superficially by the color pattern: dorsolateral stripes nearly black and sharply defined, chest heavily spotted, and spots on legs longitudinal rather than transverse. It further differs from *P. triseriata* and *P. nigrita* in lacking the lateral humeral epicondyle (this trait shared with *P. brachyphona*); the mating call (Fig. 2) is similar to that of *brachyphona* in its brevity (250–300 milliseconds in duration) but the individual pulses tend to increase slightly in frequency during each call.

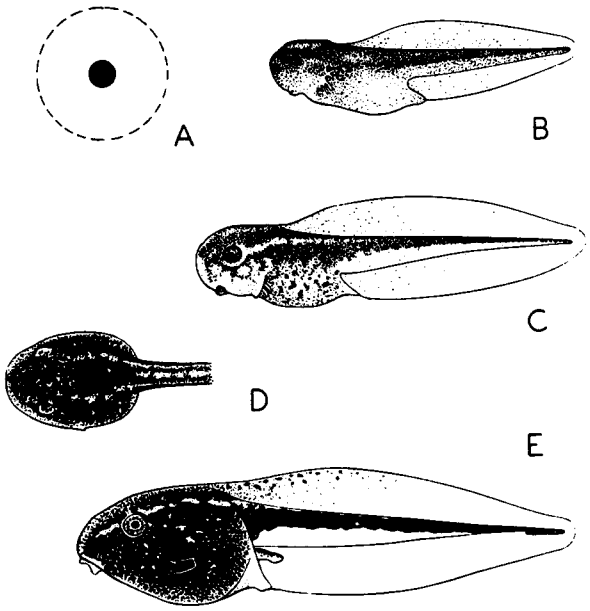


FIGURE 1. Early stages of *Pseudacris brimleyi*: A, egg; B, stage 20 hatchling; C, stage 22 larva; D, mature larva, dorsal view; E, mature larva, lateral view. From Gosner and Black (1958), courtesy of K. L. Gosner.

• DESCRIPTIONS. General descriptions of adults are given by Brandt and Walker (1933), Wright and Wright (1949); Chamberlin (1939), and Conant (1975); immature stages are described by Gosner and Black (1958).

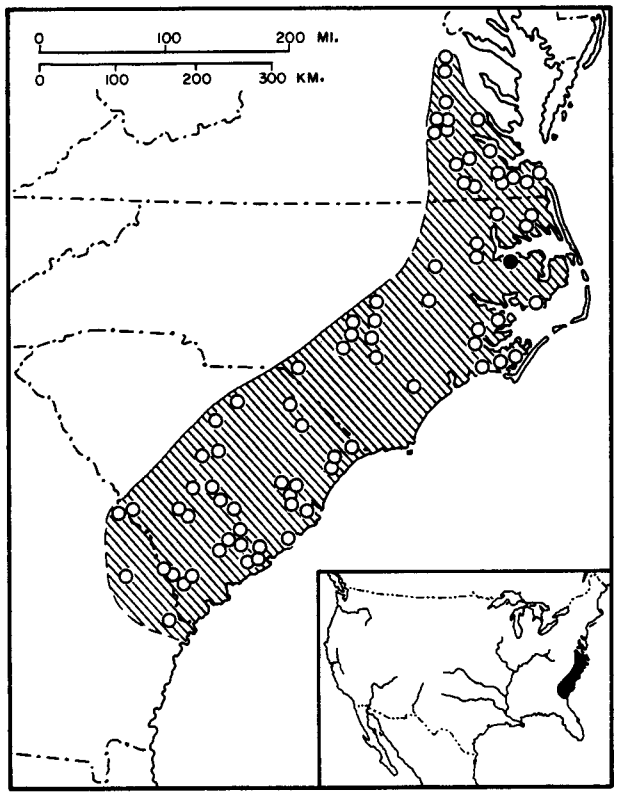
• ILLUSTRATIONS. Black and white photographs of adults have been published by Wright and Wright (1949); colored illustrations of adults by Conant (1975) and by Martof et al. (1980); drawings of the egg and several larval stages by Gosner and Black (1958); adult hybrids between *brimleyi* and *nigrita* and *brimleyi* and *ornata* are illustrated by Mecham (1965). Chantell (1968) figures skeletal elements.

• DISTRIBUTION. The Atlantic Coastal Plain, from the vicinity of Bowling Green, Caroline Co., Virginia, south to extreme eastern Georgia (Bryan and Jenkins Counties). Inland localities encroach upon but do not transgress the Fall Line; the northernmost known stations in Virginia coincide with the Fall Line and there are no records for the northern Virginia coastal plain despite considerable search. The southern limits for the species in Georgia probably remain to be ascertained.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. Relationships and general comparisons with other species are discussed by Brandt and Walker (1933) and by Wright and Wright (1949). The results of experimental cross-breedings are reported by Mecham (1965) who obtained successful (postmetamorphic maturation of) hybrids between *brimleyi* and *nigrita, feriarum, brachyphona,* and *ornata.* Various skeletal elements are described and compared with those of related species by Chantell (1968). Maxillary teeth of adults are discussed by Goin (1958), and Gosner (1959) described the fine structure of larval teeth, postulating that the reduced number of 2–6 denticulations per tooth is a derived rather than primitive condition.

Shaded maps of the species' range may be found in Wright and Wright (1949), Conant (1975), and Martof et al. (1980). Distributional records have been published by Werler and McCallion



MAP. Solid circle marks the type-locality, open circles indicate other records.

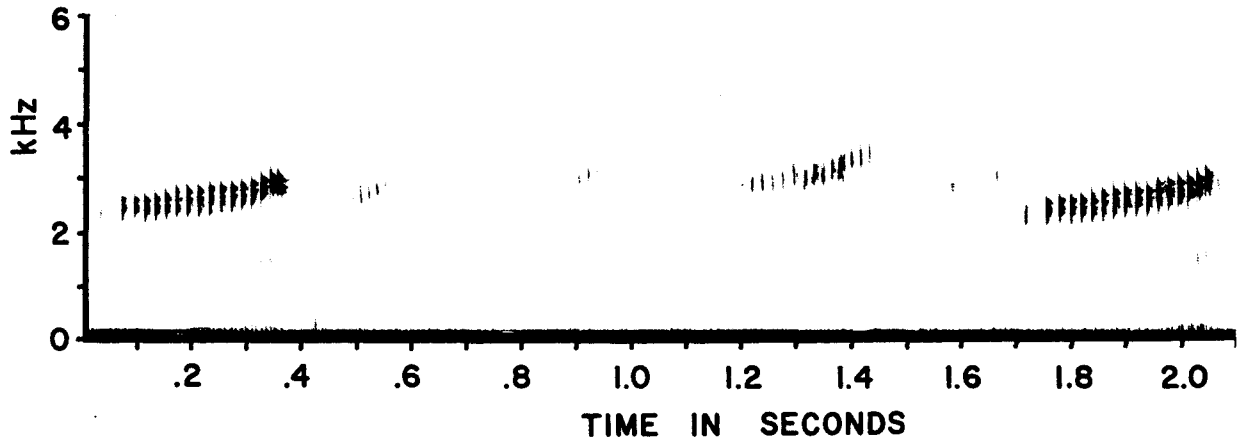


FIGURE 2. Audiospectrogram of call of *Pseudacris brimleyi*: Chesapeake, Virginia, 23 February 1980, water 10°, air 11.5°C, no specimen, recorded by Chris Pague (300 Hz filter).

(1951), Richmond (1952), and Gosner and Black (1958) for Virginia; Brandt (1936a), Brimley (1940), Gosner and Black (1958), and Brothers (1965) for North Carolina; Chamberlin (1939) for South Carolina; and Brandt and Walker (1933) for Georgia.

Habitat preferences are summarized by Brandt (1936a) and Gosner and Black (1958); information on breeding sites is given in the same two references, also by Werler and McCallion (1951) and Richmond (1952); the mating season is defined by Brandt (1936a) as extending from mid-February to mid-April in North Carolina. Eggs and tadpoles in several stages are described by Gosner and Black (1958); tadpoles are keyed by Altig (1970).

Response of adult specimens to light intensity is reported as monotonically photopositive by Jaeger and Hailman (1973). Association with *Hyla crucifer* and *Rana utricularia* in breeding sites is noted by Gosner and Black (1958) for North Carolina (confirmed by personal observations in Virginia), and with *Pseudacris triseriata feriarum* by Richmond (1952) for Virginia. Gosner and Rossman (1959) briefly mention the relationship of amplexus to ovulation in *brimleyi*.

Predation on *brimleyi* by *Thamnophis sauritus* is recorded in North Carolina by Brown (1979). Parasites were studied by Brandt (1936b) who found ten species of "protozoans" (mostly opalinids), two species of trematodes, seven species of nematodes, and one species of acanthocephalan in *P. brimleyi* at Washington, North Carolina.

• ETYMOLOGY. This species was named in honor of Clement Samuel Brimley (1863–1946), an outstanding North Carolina naturalist.

COMMENT

Existing locality records appear to represent the actual present range with substantial accuracy except at the southernmost limits. Remarkably few *brimleyi* have been collected in Georgia and it is possible that the Savannah River has constituted an important geographic constraint to the species. Brandt (1953), who knew this species as well as anyone, failed to discover it during several seasons of field work in Bleckeley County, Georgia, which suggests that *brimleyi* either does not occur in central Georgia or exists only in small isolated colonies.

Most writers have agreed in placing *brimleyi* in the "*nigrita* Group" of *Pseudacris*, and within it, closest to *P. brachyphona*. Chantell (1968) recorded the absence of the lateral humeral epicondyle from both species, and Mecham (1965) showed hybrids of *brachyphona* and *brimleyi* to be highly viable, most eggs being readily fertilized and post-transformational specimens achieving maturity. Several authors (e.g. Brandt, 1936a) have remarked on the great similarity of the call of the two species, a view confirmed by personal field experience with both in Virginia and quantified visually by the audiospectrograms given here and in Hoffman (1980) for *brachyphona*. These suggestions of a rather close relationship provide impetus for continued search for specimens in the present hiatus between their ranges in central Georgia.

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RICHARD L. HOFFMAN, RADFORD UNIVERSITY, RADFORD, Virginia 24142.

Primary editor for this account, Richard G. Zweifel.

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