

**VI. LIFE HISTORY NOTES—SCAPHIOPUS—THE  
SPADEFoot TOAD****A. I. ORTENBURGER****From the Department of Zoology, University of Oklahoma,  
Contribution, No. 40, Second Series**

(Abstract)

The following data was obtained during the summer of 1923 while engaged in field work 13 miles north of Tuscon, Arizona, for the American Museum of Natural History.

The two species of spadefoot toad occurring in this region are *Scaphiopus hammondii* (Baird) and *S. couchii*, (Baird), which were found to differ widely in habits and appearance of eggs.

The two songs were very distinct; in the case of *S. couchii* it is a bleat lasting from 5-6 seconds ordinarily. This can best be described as sounding so much like the bleat of a lamb as to be mistaken for it. The song is given while the male sits upon the mud near the edge of the puddle. (Plate II.)

The song of *S. hammondii* is very different, sounding much like a loud purr of a cat but at the same time having the metallic mechanical sound of grinding gears. It is given by the male, while the animal is in the water, each time he kicks his hind legs. The song lasts but 1-2 seconds.

The actions before amplexus occurring in the case of *S. couchii* are as follows—the male sits on the mud bank a few inches from the water and gives his song repeatedly. During this time the females (usually 4-6 in number) approach and form a semicircle around him resting or sitting in the water and apparently listening. After some minutes the male leaps at one of the number and amplexus occurs. The eggs are laid while the pair rest on the bottom in the water near the bank with their heads above water.

In the case of *S. hammondii* the males gave their song while swimming. They do not come to the bank as does *S. couchii* but rest with legs stretched out in the water. As in other forms there seemed to be no sex recognition until after the pair had clasped. The eggs are laid while the pair float in the water, usually not near the bank.

Eggs of the two forms were obtained and they were found to differ markedly, (Plates III and IV), (a) diameter of egg including gelatinous layers—*S. couchii*, 2.5-3.5 mm.; *S. hammondii*, 1.5-2.0 mm.; (b) thickness of jelly layers—*S. couchii*, usually more than 1 mm., *S. hammondii*, mostly less than 0.5 mm.; (c) method of attaching the individual eggs to others in mass—

*S. couchii*, attached with very short stalk and *S. hammondii* by a slender stalk 5-10 mm. in length. In the former case, *S. couchii* the stalk is usually no longer than diameter of entire egg, in the case of *S. hammondii* it is 3 to 5 times the dimension. In *S. couchii* the eggs were in small masses attached to twigs or other thin objects in the water; the eggs of *S. hammondii* were arranged on similar objects but arranged spirally around them thus differing from *S. couchii* in which no spiral arrangement could be easily made out.

In the series of roadside mud puddles where the observations were made there were well over 1500 individuals by actual calculation. The toads left the ponds during the day and came back after dark. None arrived at the puddles until after it was quite dark. How the first ones find the puddles was not determined, but after a few calls of the first comers numbers could be seen coming directly towards the sound of the calls. There can be little doubt that they were guided by the calling of the others in the water. It was easily seen by their covering of dirt and dry dust that they had but recently come out from where they were buried for the day; this was further corroborated by the fact that on a farm near by large numbers had been turned up by the plow.

#### PLATE II.

Male of *Scaphiopus couchii* (Baird) calling from bank of mud puddle about six inches from water. Photograph taken 1:00 A. M. by flashlight.

#### PLATE III.

Eggs of *Scaphiopus couchii* (Baird) taken about seven hours after laying.

#### PLATE IV.

Eggs of *Scaphiopus hammondii* (Baird) taken about seven hours after laying. Same scale as figure of *S. couchii* eggs.



PLATE II

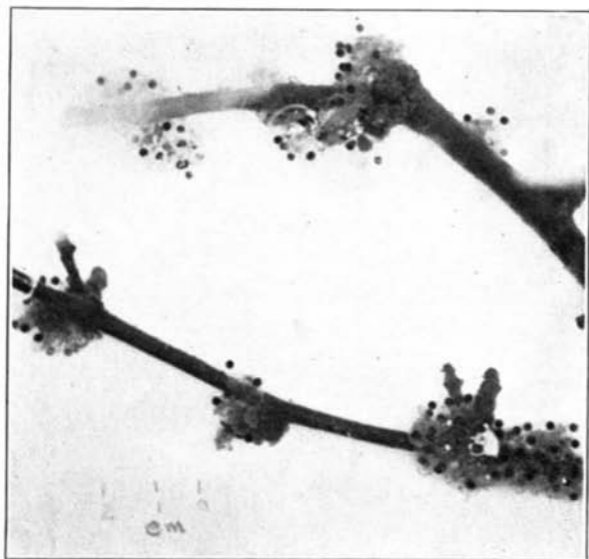


PLATE III

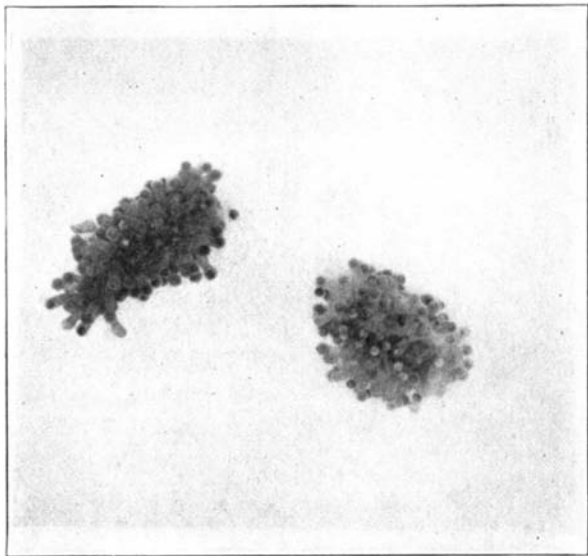


PLATE IV