EGG LAYING IN LEOPARD FROGS[1]

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Noble and Aronson (1942) describe egg-bound females of the leopard frog of Vermont, whose ovulation had been artificially stimulated, as laying small numbers of eggs in one location and then moving to another place to produce others. They interpreted this, probably correctly, as abnormal and cited field observations of Dr. A. H. Wright as probably representing the same phenomenon in nature.

This note is to report that the common leopard frog of Oklahoma sometimes produces small masses of eggs in what appears to be a normal procedure. Of something over 200 egg masses observed at natural breeding sites during the past six years, approximately ten per cent have been small (200 eggs or fewer in each mass). I have observed the production in nature of such small egg masses. In one case, a large female, clasped by a male in the bottom of a clear-water ditch some 1.5 ft. in depth, issued about 200 eggs very quickly. The male then quite suddenly released the female and both animals swam away slowly without manifesting fear or excitement as though the business were normally finished. No other small egg masses were present here at the time and no others were produced during the next forty-eight hours. The eggs in the mass observed being laid later hatched into normal tadpoles at the site where they were produced.

In dissecting ripe females of our Oklahoma frog, I have consistently observed large numbers of eggs in the ovaries and have been puzzled that many females produce small groups of eggs whereas others lay the full complement at one time. I had at first thought it probable that the first complement of a young female might be small. However, the above observations show that at least some large females may produce small masses. Furthermore, dissection of young females just reaching adulthood gave no evidence of materially smaller numbers of eggs in the ovaries except as might be expected by the much smaller sizes of the younger animals.

Another distinct possibility is that not all of the eggs of one female are always ovulated and laid in one mating. So far as I am aware, such behavior is unknown in leopard frogs; but it should be borne in mind that the leopard frog of Oklahoma has no definite breeding season like that of the eastern representatives of its group and also differs slightly in other habits (Bragg 1940, 1941; Bragg and Smith 1942). It may turn out that this lack of a definite breeding season in the Oklahoma frog is positively correlated with the retention of a portion of their eggs by some individuals during spring breeding for later fertilization in periods of rainfall in summer or autumn. My observations are not conclusive for this interpretation but they do indicate it as a distinct possibility.

[1] Contribution from the Zoological Laboratory of the University of Oklahoma.

In any case, the observations add weight to my former conclusions that the leopard frog in Oklahoma differs from that of the East and North called variously *R. pipiens* Sch. and *R. brachycephala* Cope. Whether it should be called *R. sphenocephala* Cope as I have done or *R. pipiens berlandieri* (Baird) (Mittleman and Gier 1942), I cannot certainly say. But its tadpoles correspond closely to the description given by Wright (1929) for those of *R. sphenocephala* from Georgia.

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