A SEXUAL DIFFERENCE IN DERMAL SECRETION IN SPADEFOOT TOADS

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Musty, dermal secretions, apparently protective in function, have sometimes been noted on live specimens of spadefoot toads. At other times, such secretions have not been evident in the handling of many individuals. At least one investigator has thought of the possibility that the amount and kind of such secretion might have taxonomic significance, inasmuch as in handling many specimens of one species, but not of another, the secretion was evident (private communication).

During the past two years I have handled hundreds of spadefoot toads during field study of their habits and have consistantly noted the following:

(1) Females of *Scaphiopus hurterii* Strecker and of *S. bombifrons* Cope, when handled, typically produce large quantities of such secretion.

(2) Males of the same species produce little if any under the same conditions. Sometimes a small amount has been demonstrated when carefully sought.

(3) Some specimens of *S. couchii* also produce a similar secretion in large quantities whereas others do not. It has never been noted on known males, but the sex of specimens on which it has been found was not recorded.

(4) The secretion has not been observed on any of several hundreds of juveniles that have been handled, including specimens of juveniles of all of these species.

The facts suggest that the spadefoots are sexually different in at least the *amount* of skin secretion produced, the difference being limited to sexually adult specimens. Apparently nothing is known as to whether these secretions in the two sexes also differ in kind.

Such a divergence in the two sexes may be an evolutionary adaption, if such a secretion has a protective function. From the viewpoint of species-survival, females, as "custodians" of the eggs, are of greater biological value than are males. But, since the eggs are heavily yolk laden, females must be exposed to possible danger a larger portion of the time than are males. This is because they must feed more abundantly to supply the yolk of the eggs. Greater average exposure necessitates greater protection, hence the sexual

divergence in the evolutionary development of a protective mechanism in favor of the female.