Our study was intended to clarify the mature segment of populations of A. truei and determine the size at which field researchers are able to correctly identify maturity among individuals of either sex. We wanted to determine whether the size at which sex becomes distinguishable externally parallels gonadal maturity; to assess whether females and males reached sexual maturity at the same size; and to describe trends in morphological variation as a function of size for secondary sexual characteristics (SSC) such as "tail" length, forearm width, nipple pads, and distinctively textured patches found on the chest, chin, and digits of the front foot.

**METHODS**

In the course of the Old-Growth Study conducted on the west slope of the Washington Cascades during the late summer/early fall of 1984 and 1985, Asbury and Hall (1991) collected and preserved 876 post-metamorphic Coastal Tailed Frogs. These specimens, now housed in the herpetological collection at the University of Washington Burke Museum, were available for study. We examined 332 individuals from this collection encompassing the full size range of metamorphosed individuals available, and obtained roughly equal numbers of both sexes. We processed frogs in two steps: 1) we first measured and identified the sex of individuals externally; and then 2) confirmed sex via internal examination and obtained gonadal measurements.

**RESULTS**

For internal examination, we made an incision through the skin and muscle layers of the ventral from the midline between the legs laterally to towards each arm. This skin was then gently folded back to expose internal organs. We then measured length and width of right and left gonads on all animals. For females, we also scored whether any egg >2 mm in diameter (i.e., at least moderately yolked) were present.

**CONCLUSIONS**

Assuming confidence in gonadal volume is a satisfactory indicator of reproductive maturity, females mature at a larger size than males. We caution that since our data reflect a composite population result (individuals obtained from several localities), some individuals may reach maturity at sizes larger than these minimum sizes. Nonetheless, data on minimum adult size for both males and females is within the bounds of measurement error to the minimum adult sizes that were reported by Burkholder and Diller (2007) for populations over 500 km to the south. Further, these data indicate that estimating adult sex externally based on male characteristics would overestimate adult female numbers. However, some males above the minimum size show no secondary sexual characteristics, which may reduce this error.

We also believe that the high variance in gonadal volume reflects an asynchronous pattern of bilateral reproduction cycle that prior work has suggested for females of both A. truei (Burkholder and Diller 2007) and A. montaneus (Metter 1964). Our data may suggest the same for males.

**SELECTED LITERATURE**


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