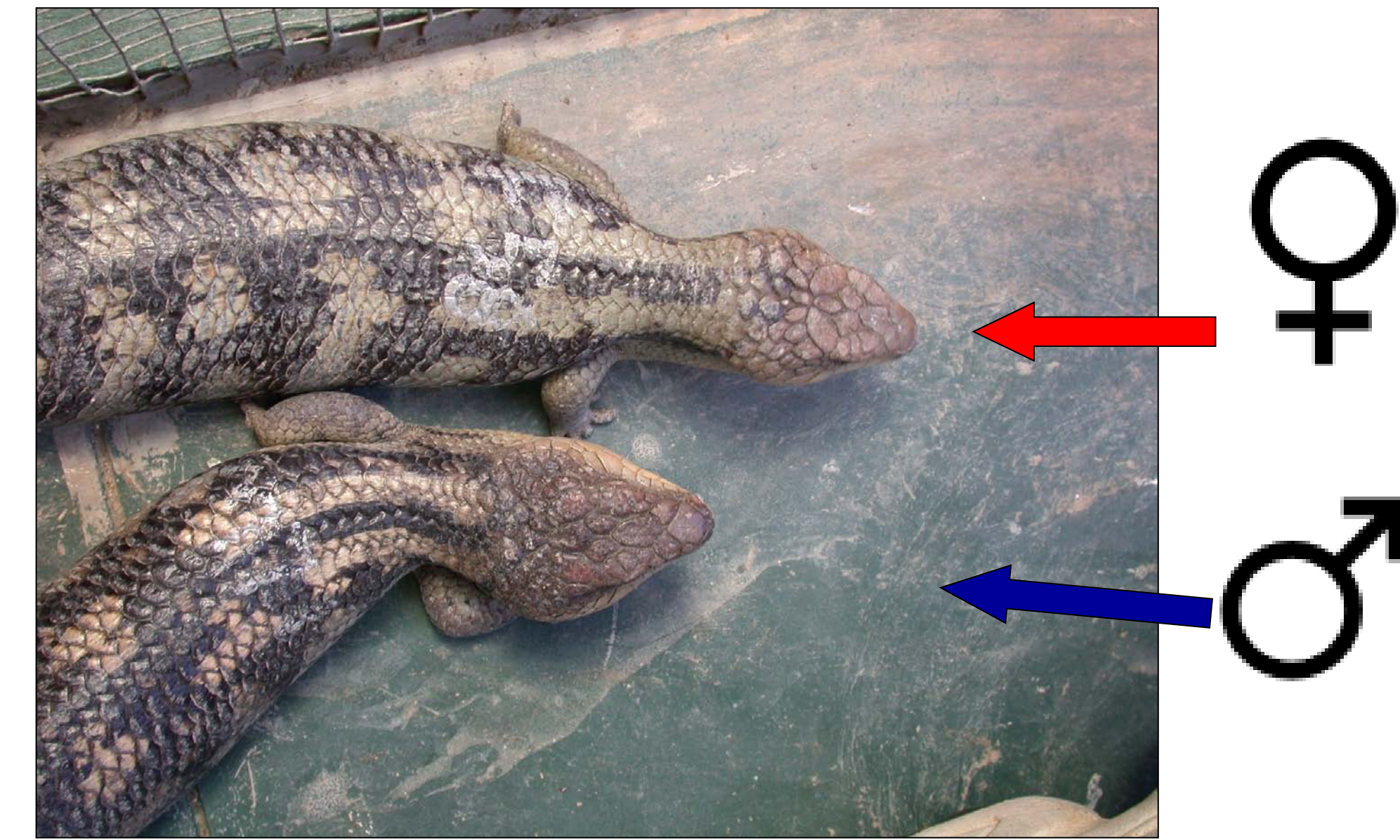


Physiological and morphological sexual dimorphism as indicators of the onset of sexual maturity in a long-lived viviparous skink, *Tiliqua nigrolutea*

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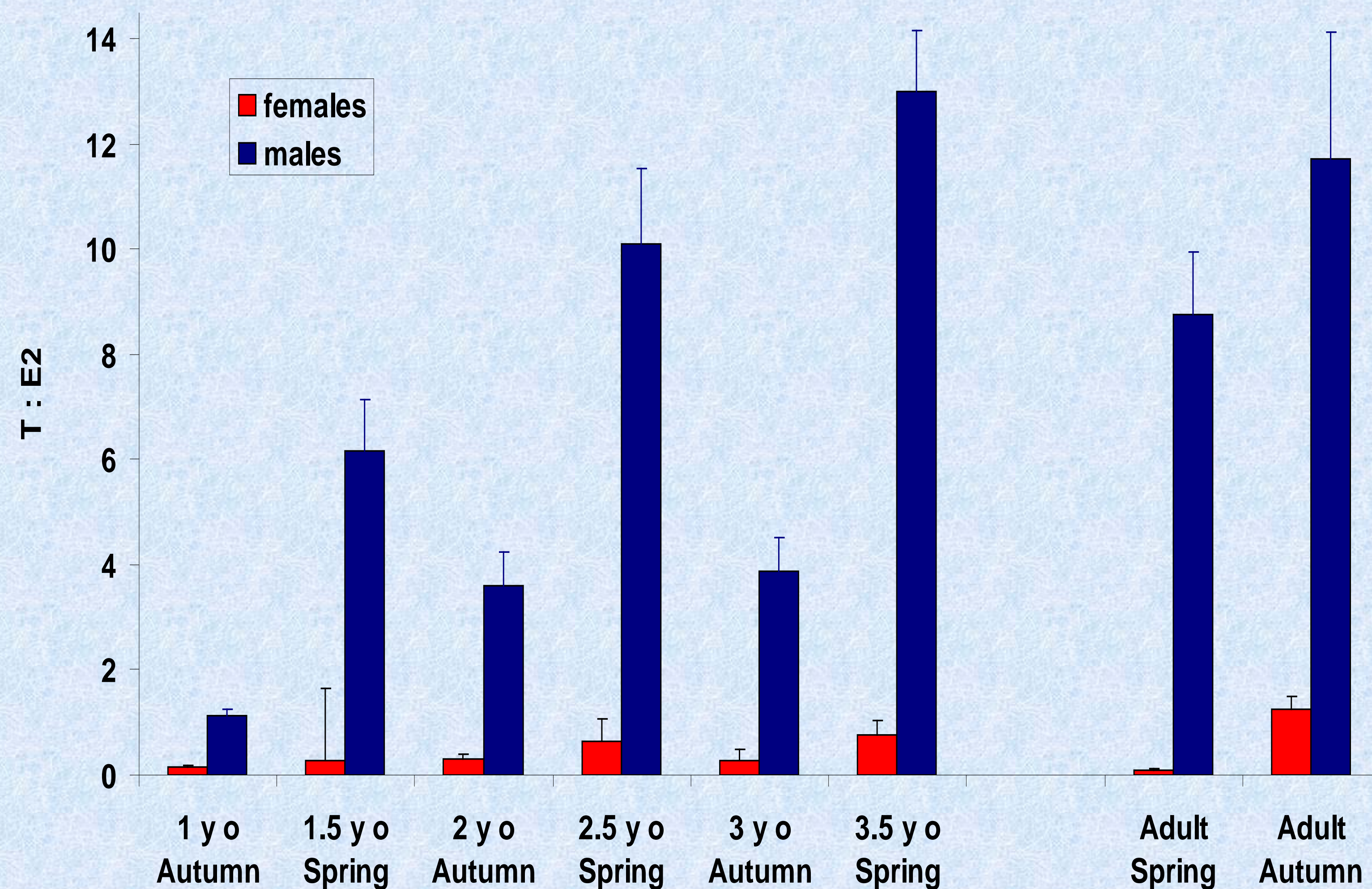
The blotched blue-tongued lizard, *Tiliqua nigrolutea* is a long-lived viviparous reptile. Males reproduce annually and females breed every 2-3 years.

Adults are sexually dimorphic: females are longer (≥ 26 cm SVL) and heavier, while males (≥ 24 cm SVL) have relatively broader heads.



Physiological dimorphism

We compared the ratio of plasma testosterone to estradiol between adults and juveniles age 1 to 3.5 yr to provide endocrinological evidence of age at maturity.



Basal circulating testosterone (T) and T : estradiol (E2) in **males** first resembled Spring adult proportions at 2.5 years of age (Spring).

This relationship did not continue into Autumn when juvenile males were 3 yr. Adult males initiate spermatogenesis in Autumn each year.

Female T : E2 at 3.5 yr (Spring) still does not resemble that of adult females.

Adults females are thought to make decisions about Spring breeding efforts at least 6 mo earlier, in the previous Autumn.

However!

Summary

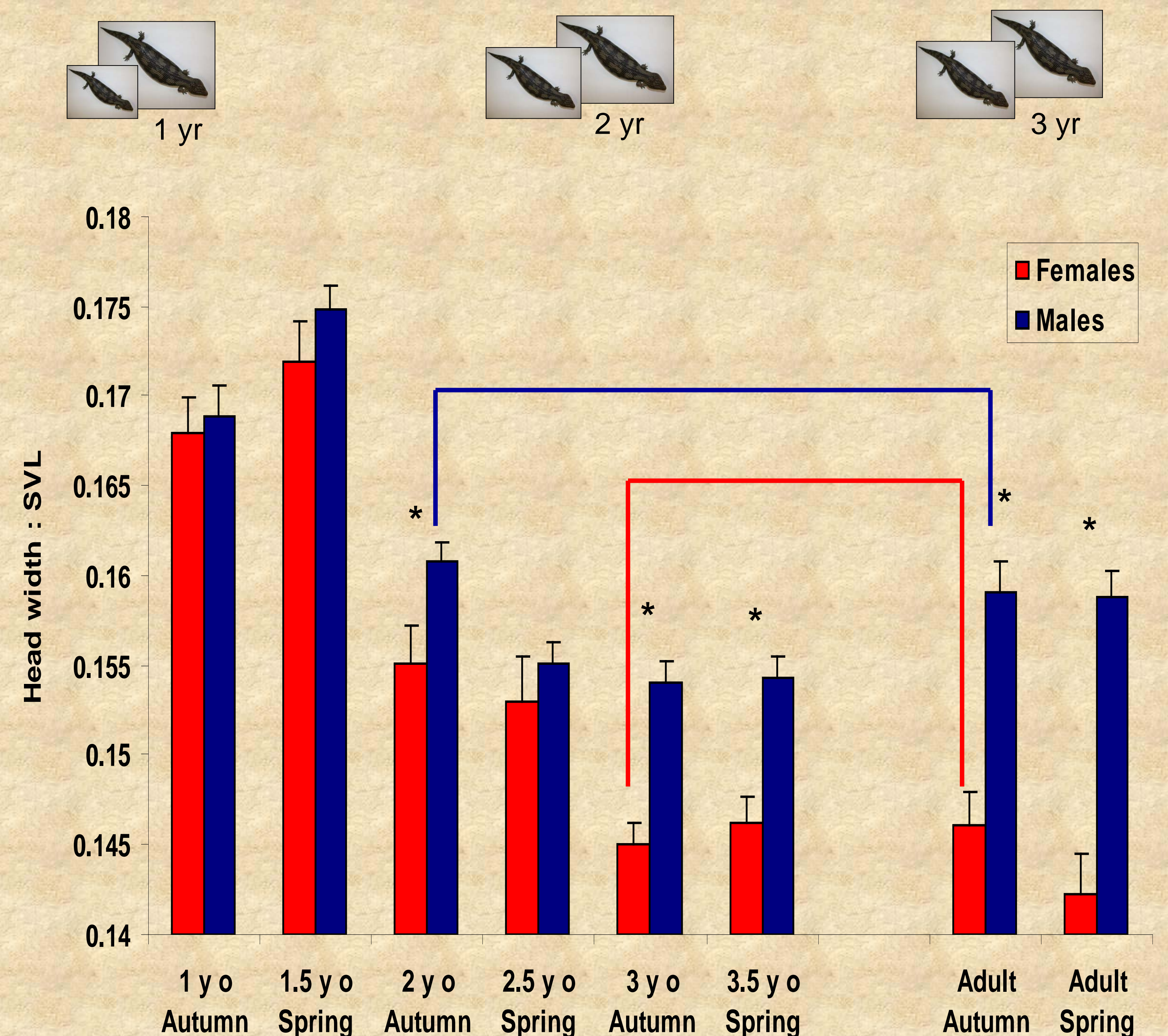
There is sexual dimorphism in the timing of morphological and physiological maturity in this long-lived, viviparous reptile.

Juvenile females (as adult females do) “plan” at least 6 mo in advance of a reproductive effort: This coincides with a significant morphological difference with juvenile males in relative head width.

There is potential for discrepancy when judging maturity using exclusively morphological or physiological criteria.

Morphological dimorphism

We examined changes in relative head width between adults and juveniles to contrast the timing of physiological and morphological sexual maturity.



Juvenile **males** reach adult size in relative head width by 2 yr (Autumn) and minimum adult body length by 2.5 yr (Spring). Juvenile males produced a hemipenis exudate *without* sperm at 2.5 yr.

Juvenile **females** first attain adult proportions at 3 yr (Autumn). Juvenile females first become vitellogenic in Spring, at 3.5 yr of age.

* = sig.diff