

Sperm Storage in an Eastern Blue-tongued Skink, *Tiliqua scincoides* (Hunter, 1790)

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Reproduction in Australian snakes and lizards has been relatively little studied. Sperm storage is known and has been previously documented in some Australian species. Examples of incidents possibly indicative of sperm storage in snakes are documented by Magnusson (1979) for an Arafura file snake, *Achrochordus arafuræ*, and Hoser (1995) for death adders, *Acanthophis antarcticus*.

For the *A. arafuræ* the sperm storage or fertilized egg retention was for 7 years. Furthermore a case at Brookfield Zoo, Chicago, in the United States indicated a possibility of parthenogenesis in specimens of this species (Anonymous, 1989). (Shine et al. 1995 suggest the above results may be from long term "mummification" of embryos rather than sperm storage or parthenogenesis).

For the *A. antarcticus* the sperm storage indicated appeared to be over-winter only. Withers and O'Shea (1993) are of the view that sperm storage of two to three months is common in snakes. This view has been corroborated by Shine's studies on many species, which are largely summarized in his book (Shine, 1991).

Ehmann (1992) indicates over-winter sperm storage for a number of smaller skinks, including *Leiopisma rawlinsoni*, in which he specifically states that over-winter sperm storage occurs. Over-winter sperm storage in a population of *Hemiergis peronii* was documented by Smyth and Smith (1968), although Hutchinson (1993) notes a degree of variability between different species within this genus, indicating that not all females routinely store sperm over winter. Most Australian lizards (or snakes) have not been properly studied as to their ability to maintain viable sperm over long periods of time.

Around Christmastime 1985, Neil Simpson caught a gravid female *T. scincoides* at Milperra, NSW (33°57'S, 150°58'E). He housed the lizard in the nearby suburb of Bankstown, where 23 live young were produced. The adult was retained in a cage by itself and produced a second litter (12 young) the following summer. At no stage did the adult lizard have contact with others of its own species except for the young produced in 1986. This latter contact took place immediately after birth only. Thus, there was no possibility of the female mating with young as in the case documented by Riches (1988). Simpson was unable to recall if the female had passed unfertilized ova or similar material, although he noted that there were no stillborn young (or none observed) on either occasion.

To the best of our knowledge no other evidence for sperm storage has been documented in *T. scincoides*. The case documented above may not represent typical behavior for this species. However, assuming this phenomenon has gone unreported in this relatively large and common species over the last 200-odd years, then it may be a similar story for other common Australian reptiles. It is critically important for those who maintain reptiles in captivity to keep accurate contact and reproduction records so that cases of possible sperm storage are more readily diagnosed and hopefully reported. This note has been published in the U.S. first as there appears to be more breeding of bluetongues (*Tiliqua*) in that country than in Australia, so further observations involving potential sperm storage are more likely to be observed in the U.S.

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References

- Anonymous. 1989. File snakes born. A.A.Z.P.A. Newsletter, March.
- Ehmann, H. 1992. Encyclopedia of Australian animals: Reptiles. Sydney, Australia: Angus and Robertson.
- Hoser, R. T. 1995. Australia's death adders genus *Acanthophis*. Reptilian Magazine 3(4):7-21 and 3(5):27-34.
- Hutchinson, M. N. 1993. Family Scincidae. Pp. 261-279. In: C. J. Glasby, G. J. B. Ross, and P. L. Beesley, editors, Fauna of Australia. Vol. 2A, Amphibia and Reptilia. Canberra, ACT, Australia: Australian Government Publishing Service.
- Magnusson, W. E. 1979. Production of an embryo by an *Achrochordus javanicus* isolated for seven years. Copeia 1979:744-745.
- Riches, B. 1988. Unplanned breeding of blue-tongued skinks. Herpetile 13(2):52-54.
- Shine, R. 1991. Australian snakes: A natural history. Sydney, NSW, Australia: Reed Books.
- Shine, R., P. Harlow, J. S. Keogh and Boeadi. 1995. Biology and commercial utilization of achrochordid snakes, with special reference to Karung (*Achrochordus javanicus*). J. Herpetology 29(3):352-360.
- Smyth, M., and Smith, M. J. 1968. Obligatory sperm storage in the skink *Hemiergis peronii*. Science 161:575-576.
- Withers, P. C., and J. E. O'Shea. 1993. Morphology and physiology of the Squamata. Pp. 172-196. In: C. J. Glasby, G. J. B. Ross and P. L. Beesley, editors, Fauna of Australia. Vol. 2A, Amphibia and Reptilia. Canberra, ACT, Australia: Australian Government Publishing Service.