floodplainfacts

Water python (*Liasis fuscus*)

FS12040

Kingdom:	Animalia (Animals)
Subkingdom:	-
Super-Division:	-
Phylum/Division:	Chordata
Class:	Reptilia (Reptiles)
Sub-class:	
Order:	Squamata? (Snakes and lizards)
Family:	Boidae (Pythons and boas)
Genus & species:	*Liasis fuscus*
Common name:	Water python

Water pythons (*Liasis fuscus*) have been the subject of an internationally renowned long-term study, undertaken by a team of researchers based at Fogg Dam over many years. The study has produced some surprising insights into habitat use and eco-physiology for this large floodplain-dwelling snake.

Water pythons are long-lived animals, with some study individuals known to be more than 7 years old.

Water pythons feed predominantly on dusky plains rats. Consequently, the pythons move over the floodplains, following the rats as they move in response to inundation and resources. Radio tracking has indicated that a python can travel up to 12 km within an annual cycle.

Pythons lay their eggs in September/October, towards the end of the dry season and before rainfall commences. Eggs are laid in the burrows of other species or in crevices at the base of trees. Eggs hatch between November and December.

The number of females reproducing in a given year is correlated with rat abundances in that year. A reproductive female may carry up to half her body weight in clutch mass. For the largest individuals (>180 cm), the energy required to maintain a large body length does not also allow for an investment of energy into reproduction. Similarly, smaller snakes may not have the resources to produce a clutch, as well as maintain their own body function. Consequently, mid-length females are most likely to reproduce in a given year.

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However, clutch characteristics - size and number of offspring, their survival rate etc - are not directly correlated with prey availability. It appears that females wait until they have enough resources (i.e. have a certain body mass) to produce a certain clutch size before reproducing. Rather than smaller snakes producing fewer or smaller eggs, they do not reproduce at all. More abundant rats in a given year impacts upon post re-productive condition of females, rather than clutch characteristics in that year.

Reproduction also depends on general condition and body weight, with only the heavier and most vigorous of the mid-length females reproducing. If she is able to maintain her body condition in the following year, a female can produce clutches in consecutive years.

Most pythons spend the dry season following rats down into the cracks the floodplain soil, although some rest adjacent to water holes. As the rainfall commences, soil cracks close and the plains become inundated, pythons follow rats onto the levee banks and floodplain margins.

As the floodwaters recede, in the early dry season pythons again follow rats back out onto the plains, and then eventually back down into the soil cracks at the plains dry out during the dry season.

References

Madsen T. & Shine R. (1996a). Seasonal migration of predators and prey - a study of pythons and rats in tropical Australia. *Ecology* 77: 149-156.

Madsen T. & Shine R. (1996b). Determinants of reproductive output of female pythons *Liasis fuscus*. *Herpetologia* 52: 146-159.

Madsen T. & Shine R. (1999). Rainfall and rats: Climatically driven dynamics of a tropical rodent population. *Australian Journal of Ecology* 24: 80-89.

Madsen T. & Shine R. (2000). Energy versus risk: cots of reproduction in free-ranging pythons in tropical Australia. *Austral Ecology* 25: 670-675.

Madsen T. & Shine R. (2000). Silver spoons and snake body sizes: prey availability early in life influences long-term growth of free-ranging pythons. *Journal of Animal Ecology* 69: 952-958.

Madsen T. & Shine R. (2002). Short and chubby or long an slim? Food-intake, growth and body condition in free-ranging pythons. *Austral Ecology* 27: 672-680.

Shine R. & Madsen T. (1997). Prey abundance and predator reproduction: rats and pythons on a tropical Australian floodplain. *Ecology* 78: 1078-1086.