CHILDREN's PYTHONS and LOOKALIKES

(The *childreni* complex).

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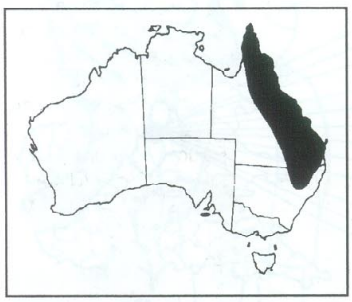
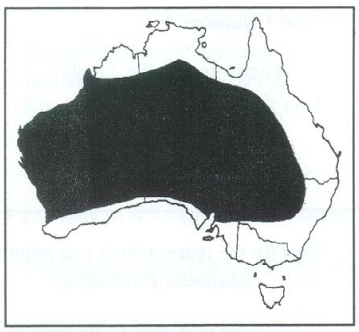
Introduction

In 1985 Laurie Smith of the West Australian Museum published a paper (Smith 1985), dividing what was formerly regarded as a single species, the Children's Python *Bothrochilus childreni* into three geographically exclusive species. Although there is debate as to the validity of this division (see later), I will for the time being treat these snakes as three similar but separate species. These are:-

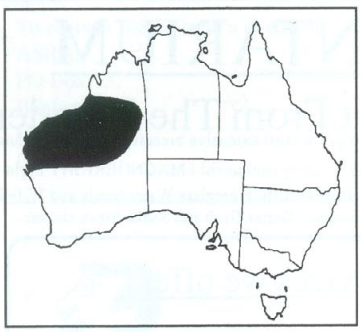
1] Children's Python *Bothrochilus childreni* of tropical Northern Australia west of Cape York, Queensland including some off-shore islands.



2] Spotted Python *Bothrochilus maculosus* of coastal Queensland and nearby areas, including off-shore islands, nearby Highlands and slopes and north-east New South Wales.



3] Stimson's Python *Bothrochilus stimsoni* of most other parts of Australia, including arid areas. Not found in most parts of the far south of Australia, the far south-east and Tasmania. Found on at least some islands of the W.A. coast (Maryan, 1984).



(Ant-hill Pythons *Bothrochilus perthensis* found in the Pilbara and nearby parts of Western Australia, are substantially different from the above snakes and are not the main subject of this paper. See Hoser (1992) for a detailed account and bibliography of the species).

(Also see distribution maps)

Although hybrids of the above three snakes are known to exist in captivity and possibly in the wild, the following keys (BOX) can be used with a high degree of success and certainty to separate the above snakes from all other pythons. Although the keys may appear technical, persons experienced with the relevant snakes will not usually have to use them to identify the snake in question.

Colour

See photos in this article for typical examples with locality information. Also see Hoser (1989) for further photos of these snakes and habitat photos.

Biology in Wild

Snakes of the *childreni*-complex (and the Ant-hill Python) all tend to have similar requirements and preferences in the wild. In the wild these snakes are found in almost all types of habitat where they occur ranging from very arid to very wet, from flat areas to hills. Having said this, there are some types of habitat that are most favoured. Hilly (and especially rocky) areas are preferred over flat and unrocky areas. Essentially these snakes appear to prefer well-drained areas with lots of ground cover. Preferred vegetation is varied, but in arid areas 'Spinifex' *Triodia sp.* is a most favoured ground cover, compared with most other types of plant. It is a highly impenetrable but flammable type of grass that grows outwards in a circle and is common in many arid areas. In its own right, 'Spinifex' provides excellent cover for reptiles, even in the hottest of places. For example I retrieved a resting adult male Ant-hill Python from a small exposed 'Spinifex' clump at 12.10pm (ten past noon), by burning the bush. This was 6km west of Shay Gap (WA) when the air temperature was 34 degrees Celsius and cloud cover was 40 per cent. The 'Spinifex' was surrounded by bare dirt and so there was effectively no risk of starting a grass fire.

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KEY TO PYTHONINAE GENERA (EXCLUDING CALABARIA)

1a Labials without pits ..... *Aspidites*
1b Labials with pits..... 2

2a Premaxilla with teeth..... *Chondropython*
2b Premaxilla with teeth..... 3
3a Postorbital bone extends downward to meet the maxillo-ectopterygoid joint..... 4
3b Postorbital bone fails conspicuously to reach th emaxilla and ectopterygoid..... *Bothrochilus*

4a Minimum of more than 47 scale rows on neck..... *Python*
4b Intercostal arteries arise from the dorsal aorta in groups of three in the anterior trunk..... *Morelia*

KEY TO *BOTHROCHILUS*

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1a Single loreal..... 2
1b Two or more loreals..... 3

2a Less than 257 ventrals..... *boa* (Bismark Ringed Python)
2b More than 257 ventrals..... *albertisi* (White-lipped Python)

3a Fewer than 37 mid-body scale rows, 250 or less ventrals..... *perthensis* (Ant-hill Python)
3b 37 or more mid-body scale rows, 250 or more ventrals..... 4

4a No pattern, or of pattern is present it isn't bold and distinct..... *childreni* (Children's Python)
4b Bold pattern..... 5

5a Pattern of distinct blotches or spots, which may join along the dorsal midline..... *maculosus* (Spotted Python)
5b Pattern of bold blotches or bars and a white ventrolateral stripe along the anterior part of the body..... *stimsoni* (Stimson's Python)

Large termite mounds are also preferred habitat of these snakes, particularly when no other cover is available. In the Shay Gap (WA) area, I recovered Stimson's and Ant-hill Pythons from these mounds in a flat area that had recently suffered a bush (grass) fire and therefore had little ground cover (in 1983) and from mounds on a low rocky hill with plenty of 'Spinifex' (in 1981).

Termite mounds are desirable cover due to the relatively constant, warm and humid temperatures maintained inside them by the insects. Small mouse-sized mammals *Antechinus sp.* and lizards burrow into these mounds, leaving large numbers of access holes which can be used by snakes. The snakes in turn enter the mounds for shelter and to feed on the mammals and lizards. In Shay Gap alone, the following snakes were found inside 46 termite mounds in 1981 and 1983; King Brown Snake *Pseudechis australis* (1), Brown Snakes *Pseudonaja sp.* (3), Orange-naped Snake *Furina ornata* (adult pair in one mound), Black-headed Python *Aspidites melanocephalus* (one adult), Ant-hill Python (8) and Stimson's Python (10), plus numerous lizards and small mammals.

Although Desert Death Adders *Acanthophis pyrrhus* appeared to be by far the most common snake in the area based on accounts of local herpetologists Shem Wills (Newman(WA)) and Val Bagshaw (Shay Gap (WA)), and the number of snakes found both in total and on roads at night by myself on two trips to the area, NONE were found inside any mounds inspected. ('Spinifex', preferably in hills, is by far the preferred habitat of that snake). See Hoser (1981) for further details of Pilbara (WA) reptiles.

In Tropical Australia, Children's Pythons are most numerous in hilly, rocky areas which have 'Spinifex' cover on rock outcrops. Such areas include the Kimberley ranges and the Arnhem Land escarpment, where huge numbers occur. In Queensland, Spotted Pythons are most common in hilly rocky habitats and not dense forests, which appear to be dominated by Carpet Pythons *Morelia spilota*. In western New South Wales and adjacent parts of South Australia and Queensland, Stimson's Pythons are usually confined to rocky hills. They appear to be absent from most of the flat rockless country that intervenes, regardless of whether the intervening soil is 'red' or 'black'.

In warmer parts of Australia and during summer, most specimens are found crossing roads at night. Contrary to popular misconception, these reptiles do not appear to be basking on the roads. Specimens can be taken from ant-hills at all times of year, although getting into these rock-hard structures always poses difficulties for the reptile collector. In cooler parts of Australia and during cooler months, most specimens are found during daylight hours under ground cover such as rocks and in crevices. Unlike Carpet/Diamond Pythons, which are frequently observed basking during the day in cooler periods, wild pythons of the *childreni*-complex have not to my knowledge been observed doing this.

In the wild these snakes are presumed to feed on all vertebrates small enough to be taken. Preferences probably vary somewhat depending on locality and food

availability. Captive specimens are usually fed mice or small rats.

Captivity

These snakes are very easy to keep and breed in captivity. I have kept and seen kept all snakes of the *childreni*-complex in widely different cages and conditions, usually without incident. The snakes are extremely hardy and in a few words 'hard to kill'. Kend and Kend (1992) accurately suggest 'standard terrestrial husbandry'.

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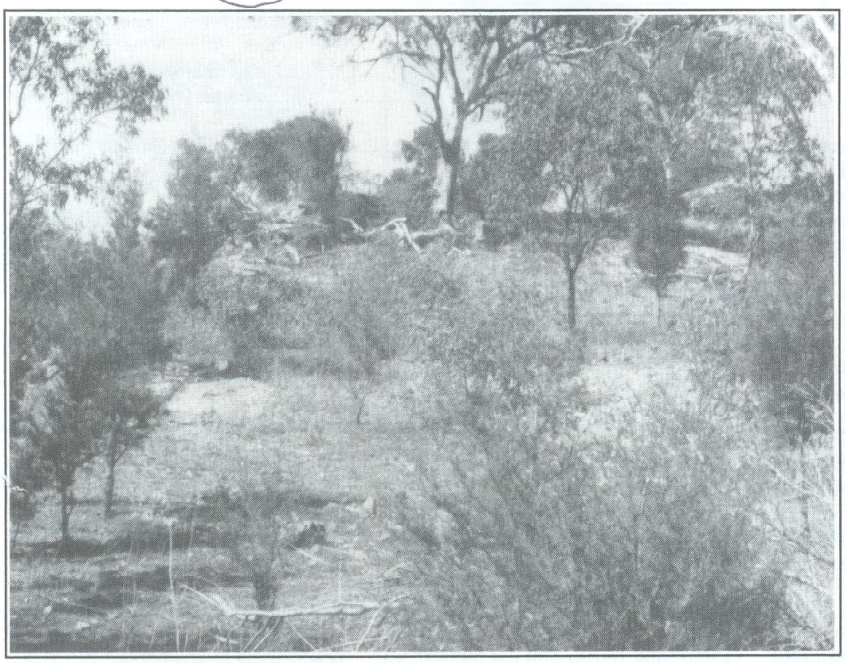

Spotted Python habitat at Boggabri (NSW) Photo by the author

Cage designs usually involve minimal furnishings and/or cover, fairly dry, fresh water in unspillable container and a mechanism for regulating temperature. Although, like all pythons, *childreni*-complex snakes are prone to diseases, parasites and so forth, they are so hardy as to be more resistant to these than most other snakes. They make excellent snakes for the 'beginner', although Stimson's Pythons and sometimes to a lesser extent Children's Pythons, may be of snappy disposition. Spotted Pythons are the most even-tempered of these snakes (Ant-hill Pythons are also even-tempered). Ross and Marzec (1990), detail keeping methods used for keeping and breeding these and other similar species. They noted different methods successfully used to keep, breed and hatch eggs of the *childreni* group.

When I kept a number of these snakes together during the period 1977-84, no cannibalistic tendencies were noted, other than the fact that two snakes may occasionally go for the same food item (mouse or rat). However Maguire (1990) noted a case of accidental cannibalism.

There are a number of published reports on breeding *childreni*-complex snakes, including Barnett (1978,1987), Chiras (1982), Dunn (1979), Heijden (1988), Hoser (1991), Kortlang (1989), Mattison (1988), McLain (1980), Ross (1983), Sheargold, T. (1979) and Williams (1992).

However for simplicity's sake I suggest intending breeders of these snakes consult Barnett (1987) for the perfect 'formula' for successfully breeding these snakes and Ross and Marzec (1990) for a more wide-ranging account on keeping and breeding these and other pythons. there are also innumerable 'general' texts on keeping and breeding reptiles available.

Although specimens of these species have been bred without separation of the sexes, doing so probably enhances chances of success, provided the keeper is aware of the correct time to re-introduce snakes. Cooling of snakes (10 weeks approx.) is indicated, (from a normal 27-29 degrees Celsius to 21-23), with mating activity peaking at the end of this period, (Barnett, 1987). For those that separate sexes, palpitation (feeling for enlarged egg follicles) will indicate when re-introductions and matings should be attempted. Over winter (Southern Hemisphere) mating periods for captive snakes correlate with location of resting pairs of adult Spotted Pythons during cooler months in the wild. These include the following: (Dalby (Qld) 1974 and again in 1975), Bill Saunderson (Dalby (Qld) 1974), and John Baker (Bingarra (NSW) 1974), see Hoser (1990) for details.

Combat between males has been noted by a number of authors and although some such as Ross and Marzec (1990), have stated that this combat is 'non-injurious', a few keepers have indicated that males caged together should be monitored in the early stages of co-habitation before a well-established 'hierarchy' is established.

Simon Kortlang (Vic, Australia), has a dominant male Spotted Python sourced from Townsville, Qld, that actually killed another male when held in a 'batchelor' cage and discovered the same dominant male attempting to 'strangle' another snake at about the same time the dead snake was found. For obvious reasons, that snake is now housed alone. Interestingly, the male that was saved from being strangled by the more powerful snake still had a strong sexual urge and mated with the first female it was presented with. Pelvic spurs (moving), are used by fighting males and substantial injuries were noted, in particular in ventral areas among Kortlang's fighting Spotted Pythons. Males kept with males were also recorded as sometimes attempting to copulate with one another for extended periods (in the absence of females). Kortlang has also regularly observed spurs being used by males

when mating with females.

Incubation is usually achieved by most successful breeders removing eggs from the female as soon as they are laid. They are placed in a medium of 50-55 per cent vermiculite to a depth of about 3cm in a container with 50-45 per cent water (by weight) with the container nearly totally sealed (Barnett pers comm and 1987). the eggs are about 80 per cent buried in the vermiculite. 30 degrees Celsius appears to be the optimum temperature for incubation. Some variation from this figure, while not necessarily meaning failure, should be avoided by those hoping for maximum success. With an average incubation temperature of just under 30 degrees, Barnett (1987) recorded incubation times of 46-61 days for Spotted Pythons. Other published accounts for *childreni*-complex snakes (see bibliography) had similar results. (Lower temperatures equalled longer incubation times).

Although hatchlings appear to prefer lizards as food, most keepers attempt to 'trick-feed' them into taking mice at the earliest of opportunities. Various degrees of 'force-feeding' are sometimes employed with difficult specimens, (usually 'assist-feeding') although raising these snakes appears to pose few difficulties. (See Weigel 1988, for information on 'assist-feeding' and Barnett, 1987 for how he weans his young pythons onto mice using 'trick-feeding' methods).

(When switching Desert Death Adders from lizards to mice, I would tie a segment of lizard (head, tail, etc) to a small dead mouse and with long tongs wave it in front of the snake. The snake would then bite onto the food and commence consuming both mouse and lizard segment. After the snake had bitten the food item I was usually able to remove the lizard segment and reuse it while the snake would continue to consume the remaining mouse. Eventually (in theory) the Desert Death Adders would take mice alone without 'inducements').

Feeding and sloughing data for these snakes are published by a number of authors including Hoser, 1982. Barnett (1987), provides detailed growth data for hatchling Spotted Pythons. Not surprisingly, snakes kept at higher temperatures tend to eat and slough more than their cooler counterparts. Maximum growth in young specimens is achieved by keeping them relatively warm and feeding them as much as possible (although preferably in lots of smaller feedings rather than irregular larger feedings which are more likely to result in digestive problems). Some fast-growing specimens seem to get 'pin-head syndrome' which merely refers to the body appearing to grow at a faster rate than the head, resulting in a head appearing abnormally small for a snake of a given size. Ectoparasites, skin disorders and humidity problems can all lead to an accelerated sloughing rate. It goes without saying that all keepers of these (and any other) snakes should keep detailed keeping, feeding and breeding records, principally as a means to pre-empt and/or identify potential problems.

Recorded clutch sizes for *childreni* complex snakes varies from 2 to 20. (See bibliography for details). Shine 1991 published the following statistics for the snakes of the *childreni* complex, based on his dissections of specimens in field and museum. (Averages).

Children's Python: Hatchling 23cm, Adult Male 69cm, Adult Female 72cm, 7 eggs per clutch.

Spotted Python: Hatchling 24cm, Adult Male 77cm, Adult Female 84cm, 13 eggs per clutch.

Stimson's Python: hatchling 24cm, Adult Male 88cm, Adult Female 85cm, 6 eggs per clutch.

(Ant-hill Python: Hatchling 17cm, Adult Male 45cm, Adult Female 47cm, 5 eggs per clutch.)

Note: Some of the above statistics were based on small sample sizes. There is geographical variation in size and other features in the above snakes not revealed by the above figures. Shine's figures would no doubt have biases to certain locations.

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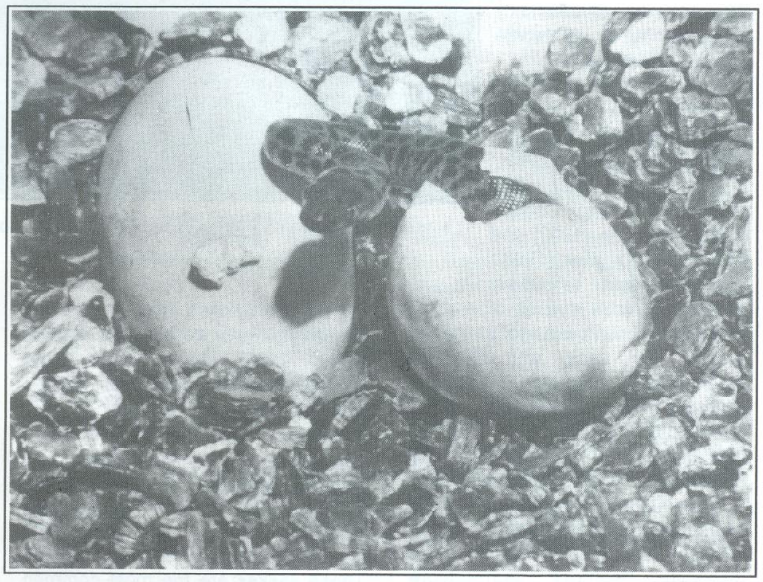
Classification

In the wild state Children's, Stimson's and Spotted Pythons act both as separate species and as the same species. In the north of Western Australia, it appears the Stimson's and Children's Pythons don't hybridize,



Captive hatchling Stimson's Python (specimen courtesy of Simon Kortlang)
Photo by author

even though they are found within a few kilometres from each other (but don't appear to coexist in any single locality). On that basis it would tentatively seem that they are different species.

However in parts of inland Queensland, Smith identified snakes that he was unable to assign to a given 'species' on the basis of their intermediate characteristics and their location of origin being on the convergence of the ranges of all three forms. Likewise specimens from parts of New South Wales appear to be intermediate between Stimson's and Spotted Pythons. (At this stage, no location in the wild is known where Stimson's, Children's or Spotted Pythons coexist).

Smith's revision of *childreni*-complex snakes has also come under criticism due to overlaps of scale features of each 'species', further adding fuel to the argument that all three snakes are merely different forms of the same species (subspecies). In his revision, Smith split Stimson's Pythons into two subspecies, but that division was based on overlapping characteristics, since found in some circumstances to place individuals from a single population into different subspecies. Therefore that division isn't accepted by most reptile people in Australia.

With the possible exceptions of Mirtschin (1992), and Gow (1989), most recent Australian authors, including Cogger (1992), Ehmann (1992) and Wilson and Knowles (1988), have at least tentatively accepted Smith's division of the *childreni*-complex into the three species as dealt with in this paper/article. Ant-hill Pythons, although in some old texts erroneously referred to as a subspecies of Children's (or Stimson's) Pythons (Worrell 1970, Cogger 1986), are clearly not so. The snakes are totally different in average size and appearance, including key diagnostic features. Furthermore they co-exist with Stimson's Python where it occurs and there is no evidence of cross-breeding.

My opinion is that *childreni*-complex snakes are a 'borderline case' in terms of whether or not they fit the man-made category of 'species'. The division into three 'species' by myself here is only tentative and pending wider acceptance among reptile people in Australia and elsewhere.

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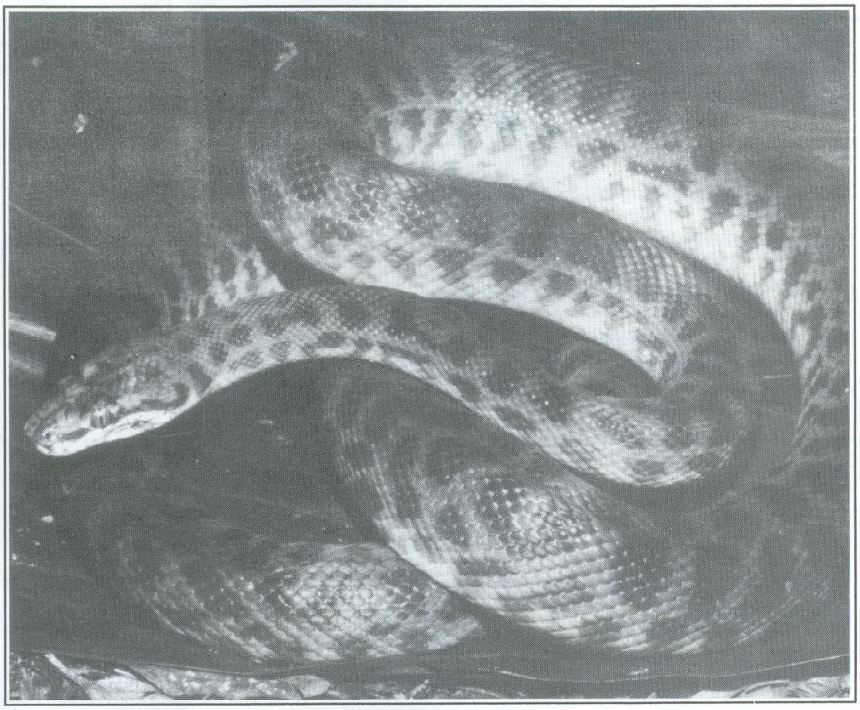
Captive Hybridization

Clearly Pythons of the *childreni*-complex have been cross-bred in captivity. To what extent is not clearly known. For example a snake held at Los Angeles Zoo (USA) had the pattern of a Spotted Python, but scale characteristics of a Children's Python, (Kend 1992). Kend didn't state whether the snake had been derived from a captive hybridization or wild-caught. Most *childreni*-complex snakes in the United States and Europe appear to be Spotted Pythons. this makes sense as most *childreni*-complex snakes in captivity in Australia are also Spotted Pythons. These snakes are the most common near the heavily-populated eastern seaboard (Sydney, Brisbane).

Melbourne snake-breeder, Simon Kortlang has in his collection hybrids resulting from a male Children's Python from Darwin (NT) mating with female Stimson's and Spotted Pythons, (with all parents being sourced from the wild). Kortlang also has reliable breeding records of crosses between wild-caught Stimson's and Spotted Pythons.

On 29th December 1992, Peter Comber (Melbourne, Australia), obtained 8 fertile eggs from a female Spotted Python that had mated with one of Kortlang's male Children's x Spotted Python hybrids. At the time of writing the eggs had not hatched, but no problems were anticipated. Although it has yet to be tested for all the *childreni*-complex, it is currently assumed by myself that 'hybrid' offspring are fertile. ('Intergrades' between forms of Carpet/Diamond Python are clearly fertile and all regarded as being of the same species by most herpetologists). Testing fertility of 'hybrid' offspring of *childreni*-complex snakes could be useful in finally deciding the validity of these snakes.



Children's x Stimson's Python (specimen courtesy of Simon Kortlang)

Photo by author

Trade in These Snakes

Although Ant-hill Pythons are rare in captivity in all parts of the world including Australia, *childreni*-complex snakes are common in most parts of the world, largely due to captive-breeding. Many breeders do not appear to differentiate between the three 'species' and prices between them don't appear to vary much, if at all.

Prices for hatchlings (from price lists) though varying seem to average about $120 (USA), £80 (UK) and $120 (AUS).

(Breeding Ant-hill Pythons, though generally unobtainable, have been quoted at between $2,000 and $10,000 each or as pairs in the United States).

A good indication of how many of these snakes are in captivity can be gauged from dealers' price lists and perusal of an annual publication put out by Frank Slavens, (see Slavens 1990 in bibliography).

Snakes and other fauna are smuggled through the post from Australia and by corrupt fauna and/or airline officials by various means. It is impossible to ascertain how many specimens leave Australia illegally on an annual basis, but anecdotal evidence points to a sizeable illicit trade. Those caught smuggling these animals from Australia often pay a high penalty. (Refer to 'The Reptilian' Volume 1 Number 1 page 29 for details of prosecutions).

(Simon Kortland and Brian Barnett, (Vic, Australia) provided constructive criticism to the draft manuscript).

Literature Cited

Barnett, B.F. (1979), 'Captive breeding and a novel egg incubation technique of the Children's Python (*Liasis childreni*)', Herpetofauna 11 (2), pp. 15-18.

Barnett, B.F. (1987), 'The Eastern Children's Python in captivity', Thylacinus (AAZK), 12 (1), pp. 10-19.

Chira, S. (1982), 'Captive reproduction of the Children's Python, *Liasis childreni*', Herpetological Review, 13 (10, pp. 14-15.

Cogger, H.G. (1986), 'Reptiles and Amphibians of Australia', (Fourth Edition), A.H. and A.W. Reed, Sydney, Australia. 688 pp.

Cogger, H.G. (1986), 'Reptiles and Amphibians of Australia', (Fifth Edition), Reed Books Pty. Ltd, Sydney, Australia. 752 pp.

Dunn, R.W. (1979), 'Breeding Children's Pythons *Liasis childreni*, at Melbourne Zoo,', International Zoo Year-book, 19, pp 89-90.

Ehmann, H. (1992), 'Encyclopedia of Australian Animals - Reptiles', Angus and Robertson, Sydney, Australia. 495 pp. (Series editor Ronald Strahan).

Gow, G.F. (1989), 'Graeme Gow's Complete Guide to Australian Snakes', Angus and Robertson, Sydney, Australia. 171 pp.

Heijden, B.V.D. (1988), 'Breeding behaviour of *Liasis childreni*', Litteratura Serpentium, (English Edition), 8 (2), pp. 58-61.

Hoser, R.T. (1981), 'Reptiles of the Pilbara region (Western Australia)', Journal of the Northern Ohio Association of Herpetologists (NOAH), 7 (1), pp. 12-32.

Hoser, R.T. (1989), 'Australian reptiles and Frogs', Pierson and Co. Sydney, Australia. 238 pp.

Hoser, R.T. (1990), 'Pairing behaviour in Australian Snakes', Herptile, 15 (3), pp. 84-93.

Hoser, R.T. (1991), 'Further notes on hybrid Australian Pythons', herptile, 16 (3), pp. 110-115.

Hoser, R.T. (1992), 'Search for the Ant-hill Python *Bothrochilus perthensis* (Stull, 1932)', Litteratura Serpentium (English Edition), 12 (1), pp. 13-19.

Kend, B. and Kend, S. (1992), 'Care and Husbandry of Some Australian, New Guinean, and Indonesian Pythons', reptile and Amphibian Magazine, Mar/Apr 1992, (Runs 10 pp.)

Kend, B. (1992), 'The Small Pythons of Australia', Paper presented at the International Herpetological Symposium (IHS) June 25-28, 1992. (To be published in annual publication of the IHS).

Kortlang, S. (1989), 'Oviposition in *Liasis stimsoni orientalis*', Australasian Herp News, 3, p. 3.

Maguire, M. (1990), 'Accidental cannibalism of Children's Pythons *(Liasis maculosus)*', Herpetofauna, 20 (1), p. 33.

Maryan, B. (1984), 'the occurrence of the Children's Python (*Liasis childreni*) on Dirk Hartog Island, W.A.', Herpetofauna, 15 (2), p. 48.

Mattison, C. (1980), 'Keeping and Breeding Snakes', Blandford Press, London, UK. 184 pp.

McLain, J.M. (1980), 'Reproduction in Captive Children's Pythons, *Liasis childreni*', Proceedings on the fourth annual Symposium on Captive Propagation and Husbandry, pp. 79-82.

Mirtschin, P. and Davis, R. (1992), 'Snakes of Australia', Dangerous and harmless, Hill of content, Melbourne, Australia. 216 pp.

Ross, R.A. (1973), 'Successful mating and hatching of Children's Python, *Liasis childreni*', HISS-NJ, 1 (6), pp. 181-182.

Ross, R.A. and Marzec, G. (1990), 'The Reproductive Husbandry of Pythons and Boas', Institute for herpetological Research, Stanford, California, USA. 270 pp.

Sheargold, T. (1979), 'Notes on the reproduction of Children's Pythons (*Liasis childreni* Gray, 1842)', Herpetofauna, 13, pp. 2-4.

Shine, R. (1991), 'Australian Snakes', A Natural History, Reed Books Pty. Ltd, Sydney, Australia, 223 pp.

Slavens, F.L. (1990), 'Inventory of Live Reptiles and Amphibians in Captivity', Self-published, Seattle, USA. (Annual Publication).

Smith, L.A. (1985), 'A revision of the *Liasis childreni* species group (Serpentes: Boidae)', Records of the Western Australia Museum, 12, pp. 257-276.

Weigel, J. (1988), 'Care of Australian Reptiles in Captivity', Reptile Keepers' Association, Gosford, Australia, 143 pp.

Williams, D.J. (1992), '"Natural" incubation by a Children's Python, *Liasis maculosus* (Peters, 1873) (Serpentes: Boidae), under public display conditions.', Sydney Basin Naturalist, 1, pp. 97-99.

Wilson, S.K. and Knowles, D.G. (1988), 'Australia's Reptiles.' A photographic Reference to the Terrestrial Reptiles of Australia, Collins Publishers, Sydney, Australia. 477 pp.

Worrell, E. (1970), 'Reptiles of Australia', Angus and Robertson, Sydney, Australia. 169 pp.

Stimson's Python from Barrow Creek (NT) - Photo by the author.

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Spotted Python from Boggabri (NSW) - Photo by the author.

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Children's Python from Lake Argyle (WA) - photo by author.
Stimson's Python female that produced hybrid offspring - specimen courtesy Simon Kortlang.

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