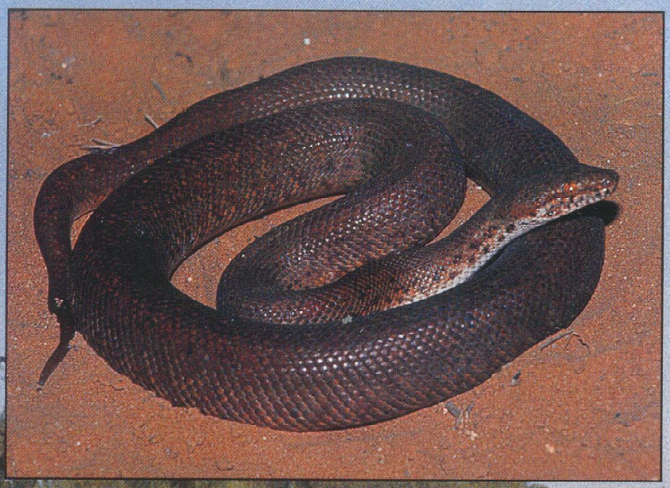
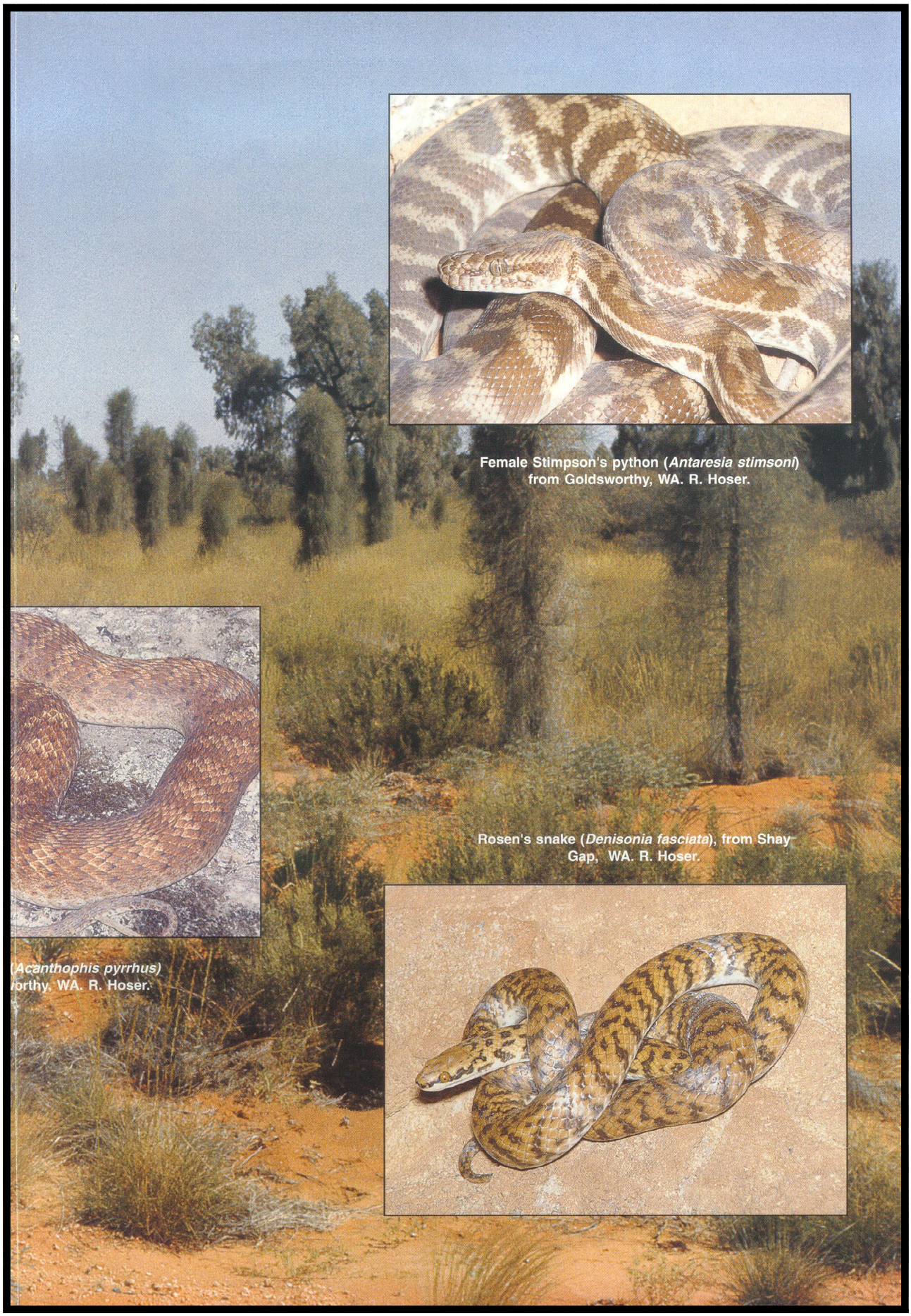


One of the male ant-hill pythons *(Antaresia perthensis)* caught at Shay Gap, WA. R. Hoser.

Desert death adder(- male from Goldswo

The first black-headed python *(Aspidites melanocephalus)* caught in 1981 on the main highway, near Goldsworthy, WA. R. Hoser.



Female Stimpson's python (*Antaresia stimsoni*) from Goldsworthy, WA. R. Hoser.

(*Acanthophis pyrrhus*)
orthy, WA. R. Hoser.

Rosen's snake (*Denisonia fasciata*), from Shay Gap, WA. R. Hoser.

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Adder. It goes without saying that nobody in the pub believed me when I tried to tell them the true identities of the preserved 'snakes'. After all, what would some ignorant kid from Sydney know?

The idea of going to the disused runway to look for Death Adders was abandoned after it was realised that 1/ I couldn't exactly work out where it was or how to get there and 2/ I'd never get a lift there.

On the 25th of January, I was driven along the sandy dirt road from Nullagine through Marble Bar and on to Port Hedland. The drive was during the day and the weather was hot and stormy, although perhaps marginally cooler than previous days. One of the good things about being the only car on a road is that all reptiles seen are live - there are no road kills. By far the most common lizard seen were the Sand Goannas. We saw ten on this one drive. Most of these were in a relatively short stretch of road through flat, sandy country. Also seen were three dragons (2 *Lophognathus* sp. and 1 *Ctenophorus* sp.).

Arriving at Port Hedland, I met up with a biologist who was doing a thesis on Mangroves. These are the trees that grow in estuaries and have roots that stick up from the mud. He was to be my chauffeur to drive me along the main highway north of Port Hedland in search of Death Adders. I had allowed a week to look for these snakes and based on my previous experiences with these snakes (or lack of it), I had been of the view that to find just one or two over the whole week would make the trip a success.

I'd been tipped off as to the best place to drive in search of these snakes. Death Adders are apparently rare to the immediate north of Port Hedland until after crossing a major road bridge over a watercourse, which is about 20 kms north of the town. Not far past there, there is a pair of large hills called 'The Tits' (named after a piece of the female anatomy). It is from that bridge, past The Tits and to beyond the Sandfire Flat Roadhouse (a few hours up the road) where the Death Adders are found. Although the road is a main national highway, the traffic in this part of the country is very light and at night even lighter.

The maximum temperature in Port Hedland that day had been 36° C, which was marginally above the seasonal average. Being right on the coast, Port Hedland's temperatures during the day are modified by a sea breeze, which usually cuts in when the temperature starts to rise. We were to drive along the road north of Port Hedland for about two hours from 7 to 9 PM. The weather conditions were excellent for nocturnal reptiles. There was no wind, no moon in the sky and just 20% cloud-cover. At 7 PM the air temperature was 33° C and it was later to drop to 31° C at 9 PM.

At 7.40 PM, we found our first reptile. It was a large Burton's Legless Lizard (*Lialis burtonis*). These sharp-snouted legless lizards are found crossing roads in most parts of Australia and feed on other lizards. It was in some ways quite a disappointing find. You see, coming from Sydney, these animals are commonly found crossing roads there. I didn't really want to go to the opposite side of the continent to find what I could find in my local area.

Death Adders - My First Encounter

The disappointment was short-lived. Before the car had got out of the lower gears, we'd stopped for yet another red line on the road. This was it, the first Desert Death Adder I was ever to find. The elation experienced at the time is impossible to describe. The snake was an adult male. 20 minutes later, another adult male was found, followed by a large adult female Stimson's Python just six minutes later. Four minutes later, yet another male Desert Death Adder was found crossing the road.

Death Adders (genus *Acanthophis*) are from Australia, New Guinea and adjacent islands. They are unlike any other Australasian snake by being like a viper in appearance but are actually a member of the family Elapidae, which are the front-fanged venomous land snakes. This is the dominant snake family in Australia, accounting for about 90% of local species. Death Adders are stout snakes, averaging about 60 cm (2 feet) in length.

There are three recognised species in Australia, all of which are similar in appearance and habits. These are the Southern species/form (*Acanthophis antarcticus*) found mainly in the southern third of the continent, the east coast and nearby parts of New South Wales, inland Queensland and into the Northern Territory in the vicinity of the Barkly Tableland. The Desert Death Adder (*A. pyrrhus*) lives in arid parts of Australia, particularly in the western two thirds of the continent. The Northern Death Adder (*A. praelongus*) lives in the tropical north of Australia. Specimens from New Guinea are usually also attributed to this species, although the status of Death Adders in New Guinea and other islands to Australia's north is far from certain.

At least three regional forms of the Northern Death Adder are recognised in Australia, which may ultimately be subdivided into different subspecies, depending on whether or not there is clinal variation. Likewise for three or more recognised variants of the Common Death Adder. Furthermore there is a relatively recently discovered Death Adder from parts of the Pilbara region that has been variously called a Desert or Northern Death Adder, which is characterised by a reddish base colour and some specimens have distinctive black markings. I have not personally inspected one of these snakes.

Death Adders are usually ambush predators, lying in wait for their food and then striking rapidly when it approaches within range. They attract prey items by caudal luring. That is wriggling their tail rapidly in imitation of an insect. When a native mouse, bird or lizard attempts to eat the tail by approaching it, the Death Adder makes a lightning quick strike and bites its prey.

The venom is highly neurotoxic (affects the central nervous system and voluntary muscles), and is not only fatal to prey items, but also to humans. Prior to the development of anti-venom, it is said that over 50% of Death Adder bites were fatal. When they bite they tend to hang onto their prey, even when it violently thrashes around. The head and skull is obviously constructed in such a way as to enable the snake's brain to withstand the potential pounding that results sometimes from hanging onto prey or predator.

Females are the larger sex and male combat in the 'typical' snake manner is not known. It is believed to be unlikely due to the fact that it has never been observed among the large numbers of Death Adders now in captivity. These snakes are live-bearing, producing up to about 40 young, although the usual number is far less. Larger snakes usually, though not always, produce more young. In the wild, young snakes take two to three years to become sexually mature, depending on sex and conditions experienced by the individual snakes. Reproduction may be annual or every two years. In the wild, the frequency of reproduction may be determined by genetic factors as well as the condition of the snake. However in captive specimens where there usually is no shortage of food, some snakes reproduce every year while others only do so every two. This appears to be genetically determined and is an area warranting further scientific research.

Death Adders are highly vulnerable to human-induced habitat-disturbances and grazing by stock. Where either is substantial, these snakes die out. They will not usually return to such a disturbed area once eliminated, even if the cause of disturbance is removed and the habitat appears to return to the pristine state.

Within Australia, most of the countryside has been largely denuded of native vegetation, trees and so on, and grazed with some form of stock such as cattle, sheep, feral goats and so on. These areas now tend to lack Death Adders, even though they were probably present in most of these places before European settlement 200 years ago. The vulnerability of Death Adders to habitat-alteration makes them a species in long-term decline. In many wide areas of Australia where Death Adders were formerly common, they are now absent. This is particularly true for parts of inland Queensland known as the Brigalow and most of inland New South Wales, where the only records of Death Adders are very old.

Having said that, there are still reasonable-sized tracts of virgin country - bush, scrub, heaths, spinifex grasslands and so on, most of which still support healthy populations of Death Adders. In these areas Death Adders tend to be fairly common, although they are often hard to find.

Due to their sedentary nature, it is effectively impossible to find these snakes during the day. They do not appear to shelter under ground-cover such as rocks, logs, sheets of tin and so on. This is unlike most other Australian reptiles. Death Adders appear to prefer leaf litter in most areas, and in areas where this is absent, they shelter under tussocks of Spinifex (*Triodia*) grass. Either way, these snakes are hard to find in these circumstances. Attempts by collectors to find Death Adders by raking leaves, or similar methods have tended to be unsuccessful.

This usually means that the only viable way Death Adders can be found is by driving through suitable habitat at night and grabbing the snakes as they cross the road. See my article published in *The Reptilian Magazine* 3(4) and 3(5), (Hoser, 1995) for further details about Death Adders.

The Other Reptiles of the Pilbara

Besides those I have already mentioned, we also found 2 Hooded Scalyfoots (*Pygopus nigriceps*), 3 *Delma plebia* (?), both of which are types of legless lizard common across a wide part of Australia, but usually only seen crossing roads at night. We saw a single Fat-tailed gecko (*Diplodactylus conspicillatus*) and a road-killed Curl Snake (*Suta suta*) both of which are also common throughout arid parts of Australia. Just outside Port Hedland on the way back, we found a juvenile Stimson's python which had just eaten. This was indicated by the huge bulge in the snake's mid-body. Non-reptilian sightings included four large burrowing frogs (*Cyclorana* sp.) a Kangaroo (*Macropus* sp.) and four marsupial mice.

It was over the following week that I began to realise just how common Death Adders and other reptiles were around Port Hedland. The next day, we drove from Port Hedland along the main highway south to Whim Creek and then on to Kurratha. The distance took some four hours, from 10 AM to 2 PM. Whim Creek is nothing more than a pub. Although the habitat north of Port Hedland is fairly intact, that to the south is not. Much appears to be burnt and overgrazed by livestock. In spite of that, we saw a large amount of road-killed and live reptiles, mainly in the first 50 kms south of Port Hedland.

What we saw was as follows:- 18 Sand Goannas, 12 road killed, 6 live; six of the road kills were sexed and all were males; 4 Dragons (*Lophognathus* sp.), all live; three road-killed Death Adders, two adults, one juvenile, both adults were female and one had been gravid; two road-killed Western Brown Snakes (*Pseudonaja nuchalis*) and a road-killed Stimson's Python. While I was particularly upset to find a road-killed Gravid Death Adder, the fact remains that in this part of the country, hundreds, if not thousands are killed each year on Pilbara roads.

The return trip that afternoon saw more lizards, the majority of Sand Goannas being road-killed, while all the agamids somehow managed to avoid the same fate. A single adult Perentie (*Varanus giganteus*) was seen sitting (alive) at the side of the Road. This is a relatively rarely seen species and Australia's largest lizard.

That night, we drove up and down the main highway to the north of Whim Creek and found a large number of reptiles, including an adult male Ant-hill Python (*Antaresia perthensis*), which was run over accidentally by my driver, but no Death Adders. In hindsight, I was a bit slow on the uptake too. When I picked up the still writhing snake, I wrote it off as merely a red-coloured Children's Python (*Liasis childreni*), as they were known at the time. While the snake was obviously different from that shown to me by Shem Wills some days earlier and the ones caught just the night before, I'd failed to realise that I was in fact looking at a new species. It was only some days later when talking to another Pilbara herpetologist, Val Bagshaw of Shay Gap, that I became aware that the run over snake was in fact an Ant-hill Python and not a Children's (= Stimson's).

The following night we returned to the road north of Port Hedland focusing on the area around and just north of The Tits. We found a large number of reptiles including seven Death Adders, all male, two more Stimson's Pythons, along with a collection of smaller reptiles such as geckos, legless lizards and a single Whip Snake (*Demansia* sp.) which was road-killed and may have been killed during daylight hours.

The following night the same road yielded five more adult Death Adders, including the first female, the other four being males. Although the female was large and healthy, she was clearly not in reproductive mode and it could have been safely assumed she had not produced young that year. Also found was a 1.2-metre King Brown Snake

Top: An adult female Burton's legless lizard (*Lialis burtonis*) found crossing the road near Port Hedland, Western Australia.
R. Hoser.

Centre: One of the most common frogs around Port Hedland, the Northern Holy Cross frog (*Notaden nicholls*). This specimen is from the Barkly Tableland, Northern territory.
Bottom: A Pilbara bearded dragon (*Pogona mitchelli*). This specimen was taken from inside a termite mound at Shay Gap, Western Australia.
R. Hoser.

(*Pseudechis australis*); a single adult female Centralian Blue tongued Lizard (*Tiliqua multifasciata*) along with the 'usual' collection of legless lizards, geckos and frogs. Nocturnal activity by Blue tongued Lizards in hot weather is common. Over the years I have found a large number of Centralian Blue tongued Lizards active at night and once on a particularly hot day I saw an Eastern Blue tongued Lizard (*Tiliqua scincoides*) walking across Mona Vale Road at St. Ives, in suburban Sydney well after dark. On every night, the weather conditions had been similar, temperatures much the same, with a variation of no more than 2-3 degrees, and the roads driven from about 7 PM to 9 PM.

Further drives produced yet more of the same and in similar numbers, along with other species such as Black-headed Python (*Aspidites melanocephalus*), Moon Snakes (*Furina ornata*), Spotted Snake (*Denisonia punctata*), Blind Snake (*Typhlina* sp.), Western Brown Snake (*Pseudonaja nuchalis*), Whip Snake (*Demansia psammophis*(?),Knob-tailed Gecko (*Nephrurus levis pilbaraensis*), Bearded Dragon (*Pogona* sp.), Spiny-tailed Gecko (*Diplodactylus cilliaris*), Spinifex Gecko (*Diplodactylus taeniata*) and various small skinks. Most nights were of similar conditions to those described above.

During the day, other species of interest were also caught. Perhaps the species of greatest interest to me were the Ant-hill Pythons (*Antaresia perthensis*), Richardson's Skinks (*Eremiascincus richardsoni*), Spiny-tailed Monitors (*Varanus acanthurus*) and Depressed Spiny-tailed Skink (*Egernia depressa*), all of which were found inside termite mounds in the Shay Gap/ Goldsworthy areas, to the north of Port Hedland. The species listed here are, however, common to most of the Pilbara, itself a vast region.

Other reptiles were found during the day by more orthodox methods of searching, such as turning over rocks, peeling bark off trees and simply observing the habitat. This included species already named above, as well as a single Ringed Brown Snake (*Pseudonaja modesta).* Having said this, perhaps I should note that we concentrated our efforts on collecting reptiles on roads at night. The two reasons for this were because of its relatively high level of productivity and because this was the only way to successfully look for the species I had targeted, namely the Desert Death Adders. During the day, it was usually too hot for most species to be active, so searching during these hours had a relatively low level of success.

Perhaps the saddest part of the trip was when we got a lift in a Ward's Express truck from Port Hedland, back to Perth. Driving south from Kurratha, the main highway winds through some rocky, spinifex-covered hills that constitute prime reptile habitat. The weather was hot and the time was dusk and just after it as we covered this territory. The truck wasn't going to stop for anything. We lost count of the number of 'red lines' that we saw crossing the road. I have never been along that particular road since.

Species found, weather conditions at the time and other useful information was all recorded as it happened. The notes obtained were later used to plan future trips to the same region and other parts of north and north-west Australia. A later trip to the Pilbara and other parts of northern Australia in 1983, (this one being driven instead of hitch-hiked) yielded far greater numbers of reptiles and further species. Part of the reason for this was the fact that by taking accurate notes, we were able to ascertain the habits of many species and more accurately target our activities towards finding these and other species. The roads named in this article, while yielding numbers of reptiles, are apparently inferior to others in other parts of the Pilbara region, which tend to yield even more reptiles (on average).

Having said this, perhaps I should relate an experience of a colleague of mine. He went to the Pilbara in search of Desert Death Adders and pythons in 1991. The time of year was mid January and after two days and two nights of searching for reptiles north of Port Hedland he 'phoned me in Melbourne to ask for my advice.

'What was the weather like?', I asked, the reply was 'hot' and the temperatures quoted all seemed OK. My friend then told me the exact roads he'd driven and that too seemed OK. I then looked out of my window and noticed the thing that had killed off most of his night herping prospects. There was a huge, bright moon in the sky. It illuminated the night to such a degree it almost looked like day. I pointed this out to my friend and he confirmed the same there - you see the moon's cycles are roughly the same at all parts of the world at a given time.

My friend's trip was an abject failure. A follow-up trip by him, timed to coincide with nights when the moon was absent (best time is usually in the fortnight after the full moon) ensured far greater success. Another point that struck me as surprising was the number of frogs in the Pilbara. Although most of the region is arid and rain is relatively rare for much of the year, there are still huge numbers of frogs in the area. When it does rain, frogs seem to come from everywhere and appear in huge numbers.

It was suggested to me that by publishing such an article, I'd be assisting various people in collecting reptiles from roads and elsewhere in the Pilbara. That may be true, but more likely, those who were inclined to so would go there anyway. Furthermore I believe little if any harm would occur from collecting the common and widespread species named in this article. Besides, how many Desert Death Adders, Stimson's Pythons and so on could be collected before people got thoroughly sick of them. Even now for many reptiles, it is cheaper and easier to buy captive-bred animals rather than go into the bush to catch them. Furthermore there would be hundreds, if not thousands more snakes killed on Pilbara roads than would ever be collected.

Likewise for other parts of Australia. In our own cases, most reptiles were merely observed in the wild state, little more. Some were collected, inspected and then released, while a few were photographed. A very small number were retained. The logistics of doing much else would probably be prohibitive.

In 1981, I was involved in collecting in the Port Hedland/ Goldsworthy/ Shay Gap areas for 14 days. In that period, there were some nights not driven for reptiles and on at least one night, heavy rain made it too cool for most reptiles, but brought out frogs in large numbers instead. In 1983, 5 days were spent in the same area, between February 3rd and 8th, inclusive. The total listing of species found on both trips (in that area only) is reproduced in the table accompanying this article. Some of the species denoted by question marks may not be properly identified.

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