The thought of a four-metre-long python sharing your swimming hole might seem alarming, but in the Pilbara in summer, it is highly likely! Living in the region's rivers and deep gorges, such as those of Karijini National Park, the threatened Pilbara olive python is a remarkable, though rarely seen, resident. A project to understand its ecology is relying on volunteers and local rangers to radio-track pythons. And it's having surprising results.

Giant pythons of the Pilbara

by David Pearson

The Pilbara olive python (*Liasis olivaceus barroni*) can grow to an enormous size. Individuals as long as four-and-a-half metres have been accurately measured, with unconfirmed reports of pythons up to six-and-a-half metres. A snake this long can be as thick as a man's thigh and weigh more than 15 kilograms. You would think such a snake would be hard to miss! However, the Pilbara olive python (sometimes called the rock python) was not distinguished as a distinct subspecies until 1981, when Laurie Smith, a herpetologist with the Western Australian Museum, described it on the basis of just eight specimens in the museum's collection. These pythons had been sent in over a period of 65 years, so it appeared they were very rare.

Bargumyji loses his venom

Pilbara olive pythons are well known to many Aboriginal people of the Pilbara. They were once an important food item, but also feature in stories about the creation of the landscape. The Yindjibarndi people know the python as 'Bargumyji', and to the Kurrama people, it is 'Palkunyji' or 'Parkunarra'. One of the Yindjibarndi stories about Bargumyji relates to its change from being a 'cheeky' (venomous) snake to being non-venomous, like all other pythons.

The story has been retold by Ned and Jane Cheedy, and published with colourful illustrations by children from the Roebourne Primary School, in *Olive Python Dreaming*. In short, Bargumyji attempted to ambush and eat a praying mantis man at a spring. He jumped up and escaped from the python, throwing spears and boomerangs as it pursued him. Finally, he clambered into a ghost gum and Bargumyji lunged, but missed him, and bit into the tree. Its teeth stuck in the bark and the praying mantis man then cursed Bargumyji to always lack venom, to move slowly and not be able to see in daylight, so that it would be forced to lie at night by waterholes to catch food.

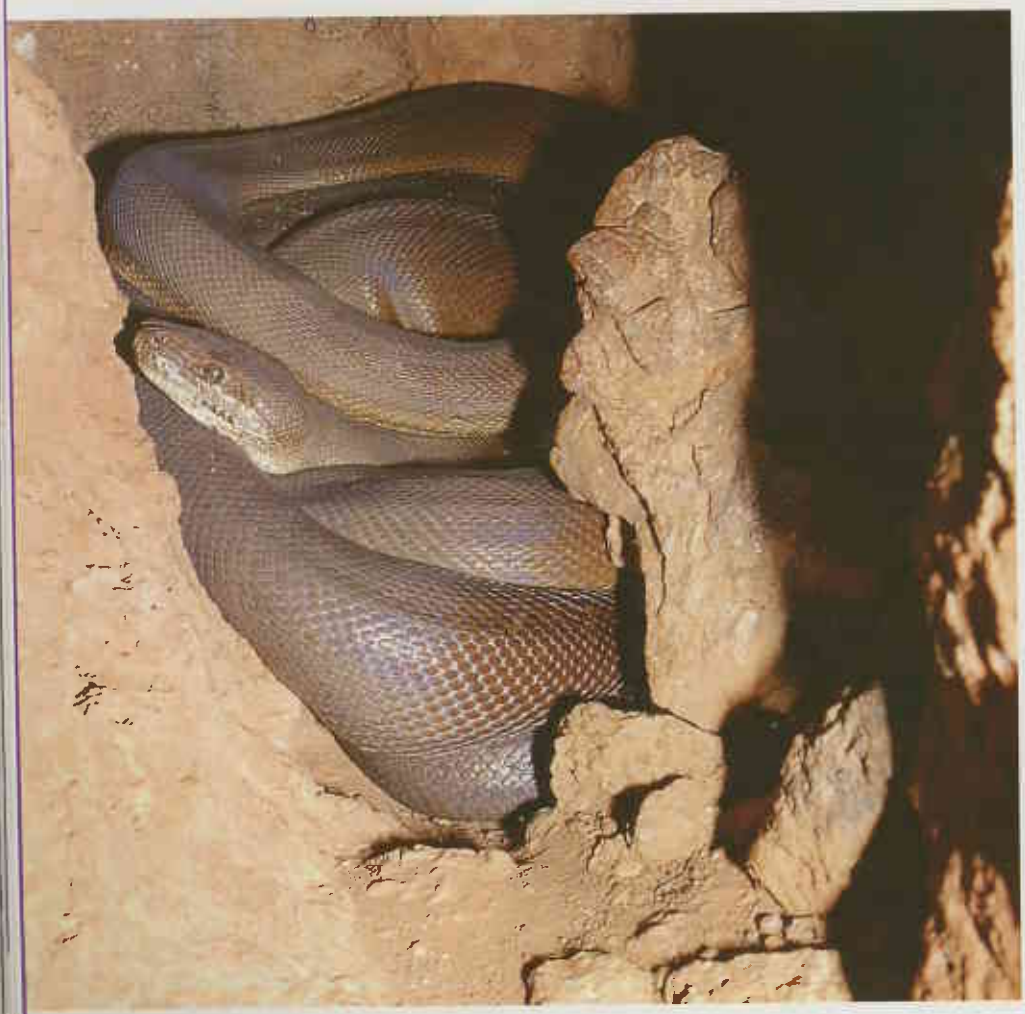
A perfect monster

The earliest record of a Pilbara olive python appears to be a report by explorer Ernest Giles in May 1876. In the upper reaches of the Ashburton River, one of his companions:

> "shot a very large snake; it was nearly nine feet long, was a foot round the girth and weighed nearly fifty pounds. It was a perfect monster for Australia. If we had been without food what a godsend it would have been".

F Lawson Whitlock, an early bird collector with a penchant for remote exploration, visited the Hamersley Range in 1922 during a five-month field trip. One morning, he approached a spring where he had been observing bowerbirds and saw what appeared to be the submerged wheel of a vehicle in the water. Closer inspection showed it was:

> "a large rock python [olive python], curled up in the water ... with its head concealed in the rushes".



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Pilbara olive python.
Photo – Marie Lochman

Above Volunteer Philip Brace examines an olive python on the Burrup Peninsula.
Photo – Michael Tutt

Left Pilbara olive pythons at Millstream often retreat to caves during the cooler months and take advantage of the warmth of the rocks to maintain high body temperatures.
Photo – David Pearson/CALM

Above The area around the George River is typical olive python habitat.

Right Thomas Cusack's grave sits on the hill above the ruins of Tambrey Station.
Photos – David Pearson/CALM

Being keen to observe birds rather than pythons:

> "[I] put a bullet through the python, and hauled it out by its tail. It measured eleven feet. Specimens have been obtained up to eighteen feet, so this was a small one".

More recent encounters

When I first ventured to the Pilbara in 1995 in search of olive pythons, I decided to contact the handful of people that had collected museum specimens. 'O. Cusack of Tambrey Station' had sent two in, so I dropped in to speak to a presumably old Mr Cusack (the specimens were donated prior to 1962), or perhaps relatives that might still run the station. Imagine my surprise to find the station a ruin with Mr Cusack buried on the hill behind—he died in a tragic gun accident in 1936.

Thankfully, Tricia Sprigg from the Department of Conservation and Land Management nursery in Narrogin helped with some detective work at the Battye Library and found out that the collector was in fact Mrs Olive Cusack. She married Thomas Cusack and went to live at the remote Tambrey Station in the 1920s. In a 1977 interview, she recounted that a huge olive python entered the homestead one night apparently attracted by a young puppy. Unfortunately for the python, it was despatched with a shovel and axe.

> "[I] sent the corpse (over 16 feet) in formalin to the Museum who thanked me very much and would be delighted if I would send its mate!"

Thankfully, other encounters between people and olive pythons do not result in the python's death. The Corker family of Red Hill Station share their house with a number of large olive pythons. Both people and pythons carry on their respective activities while intently observing each other. Occasionally, the Corkers observe some remarkable sights, such as a python feeding on a spinifex pigeon.

Unfortunately, considerable numbers of olive pythons are killed on Pilbara roads each year. They are slow moving and their first response to the sound

Left An olive python stretches its flexible jaw to consume a spinifex pigeon. Body coils are used to break bones and soften the prey to aid swallowing.

Centre left Once it has swallowed the pigeon, intense muscle contractions are used to move it down into the stomach for digestion, which may take seven to 10 days for a large prey item.
Photos – Leanne Corker

Bottom left Volunteer Annie Burns taking notes after radio-tracking a python to its rocky hideout with Mt Nameless, near Tom Price, in the background.
Photo – David Pearson/CALM

and vibration of an approaching car is to freeze. While most road deaths are accidental, some drivers deliberately run over snakes. There are also reports of visitors to Karijini gorges killing olive pythons, supposedly mistaken for brown snakes (which look and behave very differently and should be left alone anyway, as all snakes are protected wildlife).

Radio-tracking

Due to its apparent rarity, the Pilbara olive python has been listed as threatened. My interest in this python was stimulated by a postal survey, primarily organised to collect sightings of woma and carpet pythons. The number of olive pythons reported by residents of Pilbara towns was a surprise. I contacted one of these people, Sherry Sutherland, who often saw olive pythons on her way to work at the Robe River iron ore mine. I tentatively asked if she would be interested in assisting with a radio-tracking study of the python and she jumped at the opportunity.

Radio-tracking is an extremely useful way to learn about the habits of secretive species such as snakes. It took a few months for Sherry to catch the first olive python in January 1996, courtesy of a sharp-eyed grader driver near Robe River. This three-metre-long male was surgically implanted with a transmitter and led Sherry on a merry chase up and down steep gorges and through hills of prickly spinifex.

She subsequently tracked six pythons over a four-year period and opened our eyes to their amazing ecology.

Transmitters were also implanted in Pilbara olive pythons at Millstream, Tom Price and on the Burrup Peninsula near Dampier. The Millstream pythons were monitored by park rangers, while Annie and Chris Burns, along with many friends, kept close watch on a number of pythons living around the Tom Price sewerage ponds and nearby hills. On the Burrup Peninsula, members of the Nickol Bay Naturalists' Club are currently following several pythons, partly funded by a Threatened Species Network grant. Since pythons need to be located regularly throughout the year, the voluntary effort of all these people has made this project possible at a reasonable cost and has provided fabulous data on the python.

Each site tells us something different about the ecology of the pythons. At Millstream, the pythons live along the mighty Fortescue River, a raging brown torrent during cyclones, but a series of large, quiet, paperbark and river gum-lined billabongs for most of the year. The pythons at Pannawonica wandered widely, visiting permanent pools along the usually dry bed of the Robe River and nearby Pot Pot Creek. They sheltered in overburden heaps and railway embankments near the iron ore mine, as well as climbing up to caves in flat-topped hills. At Tom Price, pythons took advantage of artificial sources of water, living around sewerage ponds and a recreational lake, but periodically undertook long excursions into neighbouring rocky hills.

How important is permanent water?

Before these studies, it was believed that Pilbara olive pythons only inhabited areas near permanent water, such as riverine woodland, large rock holes and swamps. Results suggested that permanent water was important for olive pythons, not for drinking, but for attracting suitably-sized prey to sites where they could be ambushed. During radio-tracking, pythons were observed in ambush positions at night along trails used by rock-wallabies, near fruit bat colonies and even submerged in rock holes. When waiting to ambush prey, olive pythons typically have their body partly coiled, often with the tail anchored to a shrub. The neck is held in a tight S-shape with the head elevated, allowing the python to focus its

Right Typical olive python habitat on the Burrup Peninsula.
Photo – David Pearson/CALM

Below Olive pythons hunt prey by using their tongues to collect scent particles and infra-red pits on the lip scales to detect body heat.
Photo – Greg Harold

Left Mr 'T', a one-eyed male olive python, courting a seemingly reluctant female at Millstream.
Photo – Jamie Birnie

Below Children in Tom Price holding an olive python to demonstrate its size. In general, snakes should be left alone and if removal from buildings is necessary, it should be done by experienced adults.
Photo – Chris and Annie Burns

considerable armoury of detection devices towards oncoming prey. The large eyes have a vertical iris like a cat, giving good night vision. The tongue flicks in and out, catching scent particles in the air and transferring them to the Jacobson's organ in the roof of the mouth, which in turn sends information to the brain. Vibrations can be detected along the body, and a number of thermal pits along the base of the jaw and front lips enable pythons to 'see' in the infrared spectrum, which includes radiated heat from animals, allowing the python to hunt in total darkness if necessary.

Pilbara olive pythons have been seen feeding on a wide variety of birds (pigeons, ducks and corellas) and mammals (rock-wallabies, small euros and fruit bats). Smaller ones probably also feed on reptiles and frogs. Occasionally, they make poor decisions over what constitutes a good meal. One family were delighted to find an olive python with a large bulge in its stomach near their camp at Dales Gorge in Karijini National Park. They speculated that the python had eaten a wallaby, until the next day it regurgitated their canvas tent bag! Another olive python at Karijini attempted to eat a raincoat. In these instances, animal scents (such as mice) on the items may have attracted the pythons, which eventually realised they were not food and regurgitated them.

Serpentine sex

Breeding takes place during the cooler months of June to August. Males leave their normal haunts and travel long distances (up to three kilometres) in search of females. In other species of python, females leave scent trails to attract males, and the scent may also waft around on the wind. Certainly, when a male approaches a female the tongue flicks wildly, suggesting this sense is very important to these cryptic snakes for locating each other. Observing mating is not easy (I have spent a few days on a fold-up chair with binoculars hoping to view some action!). They usually retire to a cave and remain together for up to three weeks, during which time they probably mate on numerous occasions. The male then returns to his home range, leaving the female to give birth around October. We have only observed two nest sites, both under very large slabs of rock well away from water. Unfortunately, we still don't know anything about egg incubation or the number of young.

Eggs hatch in January and the skinny, bulbous-headed young disperse widely in search of food and safe refuges. Some find their way into the gardens of Tom Price and the cages of local bird keepers. Their fondness for small birds such as canaries and budgerigars sometimes gets them into trouble, but many are rescued by people such as Chris and Annie Burns and released away from the dangers of town.

Changing attitudes

Beyond the interesting information about the ecology of the Pilbara olive python, the project has some other real

conservation benefits. Within their communities, volunteers associated with the project have been instrumental in changing attitudes towards pythons and, indeed, other snakes. Rather than snakes being bludgeoned to death when they enter town or being run over on roads, the enthusiasm of these people has resulted in many pythons being saved from grisly deaths. For instance, now if an olive python is found on the rail tracks or roadway to the Pannawonica Mine, Sherry is contacted to come and move the snake. Likewise at Tom Price, Chris and Annie Burns and Colin Rowe have removed hundreds of snakes from houses around town and released them unharmed back into the bush.

The regular Friday night excursion by the Nickol Bay Naturalists' Club to radio-track olive pythons on the Burrup Peninsula is almost legendary. Many residents of Dampier and Karratha, as well as visiting friends, relatives, tourists, university students and even entire classes of schoolchildren have trudged into the darkness on one of these trips in the hope of seeing a gentle giant amongst the Burrup rock-piles. Sue Mitchell, a teacher at Dampier Primary, was so taken by these remarkable snakes that she developed an olive python project for her class, which included art, poetry, a dedicated website (www.dampier.wa.edu.au/yr4/olivepythons.html) and a competition for schoolchildren to name the pythons being radio-tracked on the Burrup.

The future

In 1995, when the project started, the conservation outlook for Pilbara olive pythons appeared bleak, with few known localities and only a handful of individuals ever recorded. This study has indicated that they are widely distributed across the Pilbara, with many sizeable populations. As much of their potential habitat is remote, and there are few immediate threats, the overall population of Pilbara olive pythons is in robust shape. However, some isolated populations, such as those on the Burrup Peninsula, are potentially vulnerable to changes in habitat or prey resources. On the southern Burrup, foxes have removed important prey items (such as rock-wallabies) and increasing industrial development will remove habitat, disturb prey populations and result in more python road kills. The challenge for managers is to minimise the impact on olive pythons so that future generations still have a chance to see a Pilbara olive python should they wander out among the Burrup rock-piles armed with a torch and curiosity.

Top 'Chester' the olive python finds refuge in flood debris besides the Fortescue River. *Photo – David Pearson/CALM*

Above A painting by a Year 6 Dampier Primary School student, Emma Kitching, of a Pilbara olive python.

David Pearson is a principal research scientist at CALM's Wildlife Research Centre in Woodvale. He can be contacted on (08) 9405 5100 or by email (davidp@calm.wa.gov.au).

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To find out more about olive pythons visit www.starwon.com.au/~mlt/pythons.html or see the book *Olive Python Dreaming*, available for $13.95 from Child Education Services, 96 Royal Street, East Perth, WA 6004, phone (08) 9225 6516.

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