

CHONDRO

The Cape York Herpetological
Society Journal
Vol. 1 No. 2





CHONDRO

JOURNAL OF THE CAPE YORK HERPETOLOGICAL SOCIETY

1993 VOLUME 1 NUMBER 2

COVER PHOTOGRAPH COURTESY OF CHRIS POLLITT & NEIL CHARLES.
JUVENILE GREEN TREE PYTHON *CHONDROPYTHON VIRIDIS*

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FOREWORD

Once again I find myself in the position of having to write the foreword for our journal, and I must admit that it is pleasing to be doing so, as it means that the C.Y.H.S. is still up and running! In fact it would be more accurate to say that the Society is going from strength to strength. As an indication of the current state of the Society we have increased our membership from 28 when we last went to press to the present 46. It is worthy of note that we have among our current membership the Hawkesbury Herp. Society and the Victorian Herp. Society (VHS), and we have entered into a reciprocal arrangement with the VHS to exchange material for our respective journals. Not a bad membership when one considers the short period of time the Society has been operational.

Continuing with the good news I report that one of our members, Garry Werren, recently drew to my attention that the Wet Tropics Management Agency had some funding available for community based education programs that supported the goals of the Wet Tropics World Heritage Area. As Garry pointed out the C.Y.H.S. fitted a number of the listed criteria for funding, and subsequently an application was lodged for monies to finance the purchase of slide projection equipment and the publishing of a further two editions of Chondro (a total of \$2050). As yet we have not received a reply as to the success of our application, however this is to be expected as the lodgement date has only just passed. Many thanks must go to Bill Ellis who prepared our application for us, and I urge everyone to keep their fingers crossed as the benefits from such an injection of funds would be almost immeasurable.

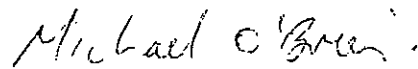
As usual some successful stints have been spent in the field by some members, however I must reiterate, and say that the turn-out has for the most been disappointing. The same few members (I won't refer to them as "dedicated members" as that would imply that they are making sacrifices, and believe me attendances on field trips are far from that!) go along on these trips and so it is only these people who derive the benefits and pleasures associated with them. I again urge you to make the initial effort to attend a trip, you won't regret it.

On the subject of the present journal I draw to your attention a couple of improvements over our first journal. The cover plastic is of a more durable quality and the standard of the print throughout is both more legible and of a more professional nature than in Vol:1 No:1. Most importantly however the number of contributors has increased!! This is especially pleasing as it indicates a greater input from members which is invariably beneficial to the Society as a whole.

I must also thank some people. Sincere thanks must be extended to all our guest speakers; Mike Trenerry, Dave Leyden, and especially to Jeanette Covacevich, Senior Curator at the Queensland Museum, for her continued encouragement, input and support; and Bill Ellis who put aside time in his busy schedule to print the master copy of the journal. Laser Images at Smithfield have assisted us greatly by covering and binding the journal at a great price. Jeff Madden is to be commended for the great T-shirts he put together (the ones that we should all be wearing!), well done Jeff. And last but not least Michael Anthony and Tim Hawkes both deserve everyone's gratitude as were it not for their endless labours we would not have this great edition of Chondro.

In conclusion I cast back to the Foreword in Vol:1 No:1 where you may recall that I made mention of certain members being partial to a beer whilst in pursuit of their herpetological interests. I leave you with the photographic evidence, captured on film during a trip to the Windsor Tablelands!

Read on.....



MICHAEL O'BRIEN
Secretary, CYHS



Society members enjoying a beer and the view from the top of an unnamed mountain at the Windsor Tableland.

Financial Report For period 4.1.93 to 14.11.93

INCOME		EXPENDITURE	
Memberships	\$942.00	Postage	\$95.65
Donations	\$260.00	Meeting Costs	\$75.50
Old Society Funds	\$187.00	T-Shirt Costs	\$440.00
T-Shirt Sales	\$330.00	CAFNEC Membership	\$30.00
Bank Interest	\$3.56	Chondro (Excluding photocopying)	\$822.25
Miscellaneous	\$1.35	Miscellaneous	\$28.00
Total	\$1,723.91	Total	\$1,491.40
	BALANCE		\$232.51

MEETINGS

We have been lucky to have had many interesting and informative talks from some extremely knowledgeable guest speakers over past months, marred only by the lack of a quality slide projector, a situation which has not done justice to the excellent slides provided by our guests. Hopefully, this problem can be solved at our planned fund-raising night to be held at Wayne Lewis' place (4 Saffron Close, Holloways Beach) on 29th January . A raffle will be held to help raise money to purchase a decent projector.

On 27th May Mike Trenerry gave a talk on the frogs occurring in our northern Wet Tropics, including some of the now extinct or rapidly disappearing species, accompanied by some magnificent slides of most of these animals. We have also been fortunate to have Jeanette Covacevich, Curator of Vertebrates at the Queensland Museum, as our guest speaker on two occasions. Her first talk on 29th of July featured the Inland Taipan or Fierce Snake, and the second presentation, on 30th September included a revision of the Leaf Tailed Geckos and a new species of lizard from near Brisbane. The last meeting for 1993 was held on November 25, featuring David Leyden's observations on the captive breeding of pythons at Melbourne Zoo.

MEETINGS ARE HELD ON THE LAST THURSDAY OF

EVERY SECOND MONTH AT

COMINOS HOUSE

GREENSLOPES STREET, CAIRNS

Meetings scheduled for the first half of 1994 are for the following dates:

27th January
31st March
26th May

The following pages contain the summaries of presentations given by guest speakers at our past meetings, with the exception of those given by Jeanette Covacevich as the information contained in her talks is as yet unpublished in the scientific literature. The articles of Jeanette's presentations will be included in the next issue of Chondro.

27.5.93

Frogs of the Wet Tropics Region

Frogs in General

Anurans are "hopping" amphibians that first appeared well over 160 million years ago. They are moisture dependent with most species having permeable skins, aquatic tadpoles and are more prone to desiccation than other vertebrate groups.

Male frogs vocalise after environmental cues including rain, thunder and warm conditions. Calls advertise the presence of the male frogs to females and other males competing for mates. Female frogs are unable to "croak" and respond only to the specific call of their own species' males. So species distinctive are frog calls, that they are used as a taxonomic tool in identifying and classifying frogs.

Fertilisation of eggs is external with males grasping females in an embrace known as amplexus. With a number of notable exceptions an aquatic tadpole stage is followed by a remarkable metamorphosis. The primarily detritivorous and herbivorous tadpoles undergo major digestive system, skin, musculature or other physiological changes to allow for a terrestrial, carnivorous existence.

Australian Frogs

There are four native frog families and one exotic representative of a fifth family in Australia. The families are:

Bufonidae: The introduced Cane Toad is the sole species in Australia. It is native to North and South America. Since 1935 *Bufo marinus* has spread rapidly beyond northeastern Queensland and has gained a reputation as a serious threat to native wildlife.

Ranidae: Dominating the frog faunas of the Northern Hemisphere continents, only one species has made its way to Australia. *Rana daemeli* is a relatively recent arrival from the north and has penetrated only as far as the wet Tropics region.

Microhylidae: Consisting of small rainforest litter frogs which breed on land without an independent tadpole stage, fifteen of the sixteen described species occur on Cape York and in the Wet Tropics. One species occurs in the Northern Territory monsoon pockets.

Hylidae: Composed of the "Gondwanic" tree frogs and their recent derivatives there are over one hundred Australian species. New Guinea and South America also have a large number of species. Some representatives such as in the genus *Cyclorana* are burrowing frogs which bear little resemblance to their tree frog ancestors.

Leptodactylidae: Often referred to as the "Southern Frogs", like the Hylidae this family is basically confined to the Southern Hemisphere, with about ninety species in twenty genera. Leptodactylids have radiated considerably in Australia.

Wet Tropics Region Frogs

With considerable rainfall, altitudinal and vegetation variability there is outstanding species richness due largely to such habitat diversity. About one quarter (53 species) of the total number of Australian species are found in about 1% of Australia's area. Slightly under half of these inhabit or are confined to rainforests, and most rainforest species are endemic to the Wet Tropics. By contrast only one open forest frog species is confined to the region with most being widespread in Australia.

Rainforests offer more stable conditions in terms of moisture availability and temperature fluctuations. More food per area exists and the habitat shows greater variability than open forest conditions in the equivalent area,

allowing more specialisation. Most of the frog species are stream or litter dwellers, breeding on land or in fast flowing creeks with few pond breeders.

Open forest frogs are primarily tree frogs and burrowing frogs which breed in temporary ponds. Their activity is strongly influenced by the summer monsoon. Tadpoles develop very quickly and adults are less prone to desiccation than their rainforest counterparts. Up to twenty species may be found in a small area which is more than double the number of rainforest frog species in a small block (< 10 hectares) of the same area.

Disappearing Frogs

Two apparently distinct phenomena in the tropics/subtropics and in temperate areas are causing serious frog declines and extinctions in various parts of the world.

The tropical wave of decline and extinctions is currently affecting Queensland's rainforest frogs. Having passed through southern and central Queensland between the late 1970's and late 1980's frogs from the Wet Tropics are now besieged. Disappearances of *Taudactylus spp.* and *Rheobatrachus spp.* in streams south of the Wet Tropics suggest that the six or seven local disappearing frog species may become extinct. *Taudactylus rheophilus* and *Litoria nyakalensis* have not been found in the wild in over two years. The remaining species having vanished from the core of their distributions can only be found in the northern fringe of their former ranges and in isolated lowland pockets.

The cause of the phenomenon is unclear but it appears not to be climatic. Being a wave-like, south to north occurrence, a pathogen of some kind has been suggested as the culprit. If this theory is correct, current work may identify the pathogen and its vectors. Only then may the appropriate course of action be known.

Cane toads thrive while frogs croak

WHILE the cane toad population in Queensland is booming, lesser known species of native frogs are leaping into extinction, according to a leading scientist.

Associate Professor of Zoology at Adelaide University and an expert on the croaking amphibians, Mike Tyler, said out of 200 species of frogs in Australia, 32 were now in decline, compared with 20 in 1990.

Prof. Tyler had no explanation for the steady fall, but believed urbanisation and the use of pesticides were affecting the number of frogs in Australia.

He said the puzzling aspect was that species living in national parks

and untouched habitats were also in decline.

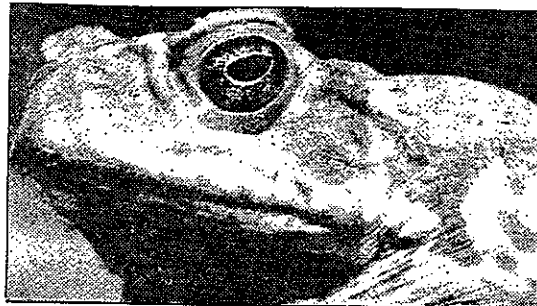
"There is no single reason for it. That is a major concern," Prof. Tyler said.

He said not enough research was being done to determine the cause for the decline and the reasons behind it, because there was insufficient funding from the Federal Government.

"Physicists get a lot of money to look at a black hole that is millions of years away, while biologists have been doing research on a shoestring," he said.

Prof. Tyler said more than half of the known species of frogs in Australia were discovered in the past 30 years, and funding was important to keep on-going research.

Frogs might also have the answer to some of



THE Queensland cane toad ... thriving.

today's medical problems. "It is now known there are a wide range of antibiotic compounds in frog skin, including anti-virus agents," he said.

Prof. Tyler was preparing to travel to the United States where he would address two conferences on the subject.

Meanwhile, in Queensland, home to the largest number of frog

species in the country, cane toads, which could grow to the size of a telephone, were thriving.

"They are doing fantastically," Prof. Tyler said.

He attributed this to their enormous capacity for growth, their ability to travel quickly over large distances, and the fact they did not depend on moist conditions to breed.

The Cairns Post, Saturday, January 9, 1993

25.11.93

The Summary of Attempts to Breed Species of Python

The breeding of many species of python in captivity over the years have appeared to be one of events; not many were repeated in successive breeding seasons, which was my objective.

The opportunities which arose while working with pythons at Melbourne Zoo Reptile House were too good to pass, and have continued at Hartleys Creek Crocodile Farm. My fascination for the Australian python led me to look at them more closely in the hope of duplicating habitat and reproduction. For herpetologists, both private and professional, an abundance of information was available to gain and pass on during these breeding attempts.

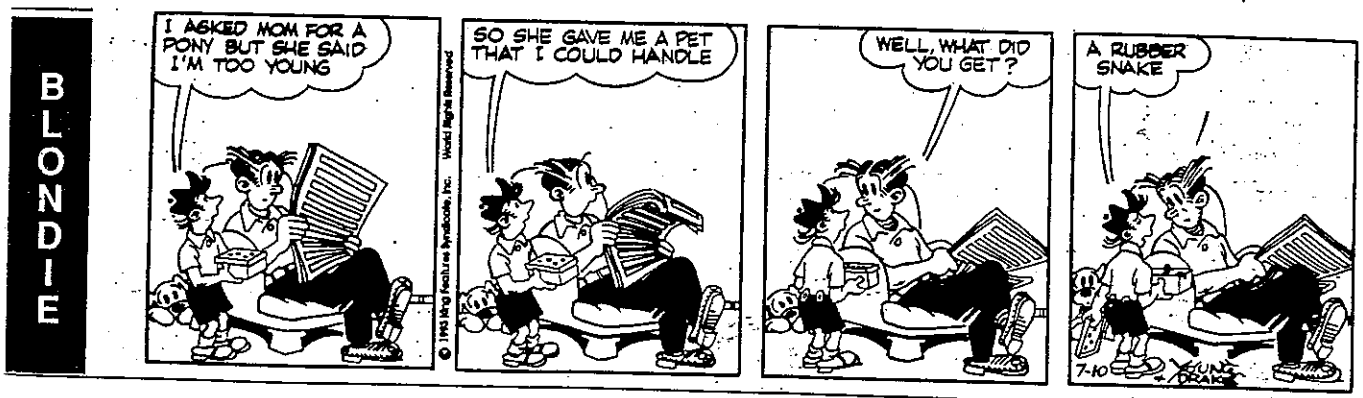
The choice of species displayed at Melbourne Zoo at this time consisted of approximately 11 species, exotic and native. Two species of Australian python which were commonly kept both privately and in institutions were selected :-

- 1/ Carpet Python *Morelia spilota variegata*
- 2/ Amethystine or Scrub Python *Morelia amethystina*

At this time Melbourne Zoo maintained both sexes of these two species; both Scrub pythons *M.amethystina* were in excess of three metres and the male Carpet python *M.s.variegata* was approximately 2.5 metres, the female approximately 2 metres in length. Both species were maintained in prime conditions with the breeding season approaching. Prior to any mating attempts, the males were removed from their display enclosures and placed in off limit enclosures for cooling (temperature fluctuation). Heat was offered during the day as basking spots and turned off at night. Short introductions of males to females were carried out during the next 6-8 weeks, until a lack of interest was shown by the males.

As a result of public donation, confiscation and the acquisition of a large female Black Headed Python *Aspidites melanocephalus* attempts were made over the next two years to establish a breeding group of this species as three of these animals were approximately 1.2 metres in length. A breeding group was established and over the next three years eight clutches were laid.

Observations, information and techniques used during these breeding attempts were covered during the talk and will be the subject of an article to be included in a later edition of Chondro.



FIELD TRIPS

A Report of a Field Trip to the Whitfield Range

Field trips were scheduled for the 29th and 30th of May to investigate the Whitfield Range. Due to lack of participation the first trip did not take place, but four members walked the length of the Red and Blue Arrow tracks on the Sunday morning.

SPECIES OBSERVED

Numerous species of small skink were observed active in grass at the edge of the track on the lower parts of the range:

Carlia rostralis
Carlia storri
Ctenotus spaldingi
Lygisaurus foliorum
Lygisaurus laevis

Also found active in grass at the side of the track, higher up on the range:

Carlia rubrigularis

Two species of reptile were uncovered beneath a pile of sleepers :

Copper Tailed Skink *Ctenotus taeniolatus*
Small Eyed Snake *Rhinoplocephalus nigrescens*

Other species:

Two Lined Skink *Cryptoblepharus virgatus*

Members present on this field trip were Michael Anthony, Tony Jurgenson, Tim Hawkes and Luke Telford.

Cape York Herpetological Society Field Trip to the Mt. Surprise Area Including Undara Lava Tubes

Over the Queens Birthday weekend, on the 13th and 14th of June, four members of the Society undertook field work in the area, in particular to survey the herpetofauna of the Undara Lava Tubes and surrounding area. Two main areas were investigated; a granite outcrop behind the Lava Lodge, and some of the lava tubes themselves, including the roof collapses and associated basalt outcrops. Much of the area is vegetated by dry savannah woodland, but around the lava tubes and basalt flows, thicker vegetation in the form of remnant semi-evergreen vine thicket occurs as a result of the less severe conditions around the moister, more shaded nature of the tube entrances and the superior soils derived from basalt, rather than the coarse-grained granitic soils.

Other areas investigated were Forty Mile Scrub and a granite outcrop near Mt. Surprise.

SPECIES OBSERVED

Lava tube entrances and associated basalt outcrops:

Copper Tailed Skink	<i>Carlia jarnoldae</i> <i>Carlia munda</i> <i>Carlia mundivensis</i> <i>Ctenotus taeniolatus</i>
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Granite outcrop:

Dtella	<i>Gehyra dubia</i> <i>Gehyra nana</i>
Bynoes Gecko	<i>Heteronotia binoei</i>
Coggers Velvet Gecko	<i>Oedura coggeri</i>
Stimson's Python	<i>Liasis stimsoni</i>

Forty Mile Scrub:

Mulga Snake	<i>Psuedechis australis</i>
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Outcrop near Mt. Surprise:

Glaphyromorphus pardalis

On the way up, a 1.5 metre **Mulga** or **King Brown Snake** *Psuedechis australis* was found dead on the road with the tail of another snake protruding from its mouth. Upon dissection, a 1 metre **Common Tree Snake** *Dendrelaphis punctulatus* was discovered inside the King Brown.

ACKNOWLEDGEMENTS: Thanks are due to the staff of the Undara Lava Lodge, Savannah Guides and the Department of Environment and Heritage. C. Y. H. S. members attending this field trip were Michael Anthony, Luke Telford and Wayne Lewis.

A Report on a Reptile Survey of the Carbine Tablelands by the Cape York Herpetological Society.

Like the Mt Windsor Tablelands, the closely associated Mt. Carbine Tablelands to the east and south also consists of an elevated granitic range running in a north-south direction. Many peaks extending along the range rise over 1100m of which the highest peak, Mt. Spurgeon rises to an elevation of 1341m. This complex is separated from the Windsor Tablelands by a shallow river valley and from the Macalister range to the south by the Rifle creek headwaters. Narrow corridors still exist between the Carbine and Macalister units however the threat from land clearing and traffic along the Rex Highway poses as an impending barrier. Eleven species of Wet Tropic rainforest endemic reptiles have been recorded from these highlands which presently ranks this region as having the highest level of diversity of reptiles to any other rainforest complex in the Wet Tropics.

Logging operations within the Carbine Tablelands were quite extensive and only ceased in 1988 since the declaration of World Heritage listing of the Wet Tropics. Evidence of logging activities can be seen along the entire length of the road except for the end where large stands of classic rainforest trees still remain.

Four official field excursions were carried out in the Carbine Tablelands by members of the Cape York Herpetological Society throughout the year of 1993. Many other trips were also conducted by individuals when possible

and in total 14 species of reptile and 5 species of amphibian were collected. Considering the unpredictable weather conditions, a number of scheduled trips were aborted and field work was carried out in alternative localities.

REPTILE SPECIES ENCOUNTERED

Northern Leaf Tailed Gecko	<i>Phyllurus cornutus</i>
Boyd's Forest Dragon	<i>Hypsilurus boydii</i>
Eastern Water Dragon	<i>Physignathus leseurii</i>
Red Throated Skink	<i>Carlia rubrigularis</i>
	<i>Eulamprus tigrinus</i>
	<i>Glaphyromorphus fuscicaudis</i>
	<i>Glaphyromorphus mjobergi</i>
Prickly Forest Skink	<i>Gynpetoscincus queenslandae</i>
	<i>Lampropholis coggeri</i>
	<i>Lampropholis robertsi</i>
	<i>Saproscincus czechurai</i>
Swamp Snake	<i>Hemiaspis signata</i>
Red Bellied Black Snake	<i>Pseudechis porphyriacus</i>
Rough Scaled Snake	<i>Tropidechis carinatus</i>

FROG SPECIES ENCOUNTERED

Ornate Litter Frog	<i>Cophixalus ornatus</i>
Green Eyed Tree Frog	<i>Litoria genimaculata</i>
Northern Barred Frog	<i>Mixophyes schevilli</i>
Fry's Whistling Frog	<i>Sphenophryne fryi</i>
Rain-Whistling Frog	<i>Sphenophryne pluvialis</i>

The Carbine Tablelands receive high visitation from both private and tourist bodies for recreational, educational and scientific purposes. Consequently a wealth of information from fieldwork undertaken within the area has been compiled.

Seasonal variation in climate within this highland region appears to have a dramatic affect on activity cycles and behavioural patterns in certain reptile species observed. The abundance of certain species of similar habits found utilising a common retreat or practising common behaviours at any one time was witnessed for a number species as a result of the prevailing weather conditions.

The most notable fluctuation of numbers in a particular species was that of the Boyd's Rainforest Dragon during the months of December and January, at the onset of the wet season. Many gravid animals and the occasional male were located in roadside vegetation. It was presumed that these marginal areas were chosen for egg laying sites. The remainder of the year we failed to locate any further animals suggesting their movement back into the surrounding

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The most notable fluctuation of numbers in a particular species was that of the Boyd's Rainforest Dragon during the months of December and January, at the onset of the wet season. Many gravid animals and the occasional male were located in roadside vegetation. It was presumed that these marginal areas were chosen for egg laying sites. The remainder of the year we failed to locate any further animals suggesting their movement back into the surrounding

rainforest. Whether this is due to drier mid-year climate, cryptic nature of the animal, change in activity pattern, an inability to find further animals or a combination of any of the above, still remains an unanswered puzzle, when explaining the fewer animals seen within the same areas inspected at later dates.

The frequency of diurnal snakes basking beside and on the forestry road appears to be at its peak after the wet season rains from April onwards depending on weather conditions. The most commonly observed snakes were the Red Bellied Black snake and Swamp snake.

During extended periods of wet weather many rotten logs sodden with moisture were rarely found harbouring reptiles or invertebrates. Reptiles which normally occupy these retreats i.e. Prickly Forest skinks, *Glaphyromorphus fuscicaudis* and *G.mjobergi* are rarely found and it is not until weather conditions become drier, when rotten logs not saturated with water become occupied by fossorial reptiles and invertebrates. Conditions within such a confined environment would appear to be more favourable for habitation during the drier months because of the available food source and heat generated by the decomposing wood. Waterlogged logs were generally cooler inside and the soaked interior made them unsuitable retreats.

The C.Y.H.S. has viewed this region for further investigation for 1994.

ACKNOWLEDGEMENTS: Those members who assisted in field work include Michael Anthony, Tony Jurgenson, Michael O'Brien, Luke Telford, Bill Evirson, Wayne Lewis and Tim Hawkes. These field trips would not have been possible if not for the co-operation willingly offered by John Vescio and Ian Last from the Forestry Department, Atherton.

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Tully Gorge Field Trip

The field trip to Tully Gorge on the 25th July was one of the most successful field trips so far this year. The main objective of this trip was to observe **Amethystine** or **Scrub Pythons** *Morelia amethystina* in relatively large numbers, which thankfully we were able to do. Being a cold time of year, the pythons move down out of the dense rainforest into the sunny, boulder-strewn gorge. These climatic conditions also initiate the breeding season for these pythons and as a result of the congregation of the animals in the gorge, chances of finding a mate are greatly increased.

When we arrived at the gorge it was around mid-morning and the sun had just started to warm up the boulders. Rain from days past made the going extremely slippery. We were no more than five minutes into the hike before the first "Scrubby" was spotted, and for the next fifty metres or so we were virtually tripping over them. The first six animals we found ranged in size from about 2 to 3.5 metres and all were lying between large rocks on the pebbly ground. Not far after these we came upon a specimen around 4 metres in length. We found him in a loose coil on top of a large boulder. On closer inspection we discovered large gashes along its body; some of these gashes were fly blown and pus-filled but the snake seemed none too worried about it

A little further upstream we found another large specimen with similar gashes on its body. From this observation we gathered that both snakes were previously engaged in a territorial battle resulting in these wounds. This

kind of fighting would be a fairly common occurrence in the gorge as they are all so close to each other, whereas in the dense rainforest these two large snake's paths would rarely cross.

On the way back down the gorge the going was a lot easier due to the sun drying out the rocks. The rocks had also begun to really heat up so most of the pythons had gone upon our return. Numerous **Northern Red Throated Skinks** *Carlia rubrigularis* were active amongst boulders beside the river and surrounding rainforest. The only other sign of another snake in the gorge was the slough of a **Red Bellied Black Snake** *Pseudochis porphyriacus*.

After finishing the hike we proceeded to make our way slowly home. A campsite along Tully Gorge road was investigated locating two specimens of *Saproscincus basiliscus* under rotten logs. This leg of the field trip also produced an inquisitive **Common Tree Snake** *Dendrelaphis punctulatus* which had no intention of moving out of the path of our car. Instead it raised itself up and just looked at us. After a sharp swerve we looked back to see him quickly disappearing off the road.

Not long after we came across a young **Taipan** *Oxyuranus scutellatus* lying on the opposite side of the road. This snake was quickly tailed and not long after its head pinned with a stick for closer inspection. It was a fine specimen and after a few photographs it was released. This turned out to be the last reptile found for that day.

Three C.Y.H.S. members attended this trip, Tim Hawkes, Luke Telford and Tony Jurgenson.

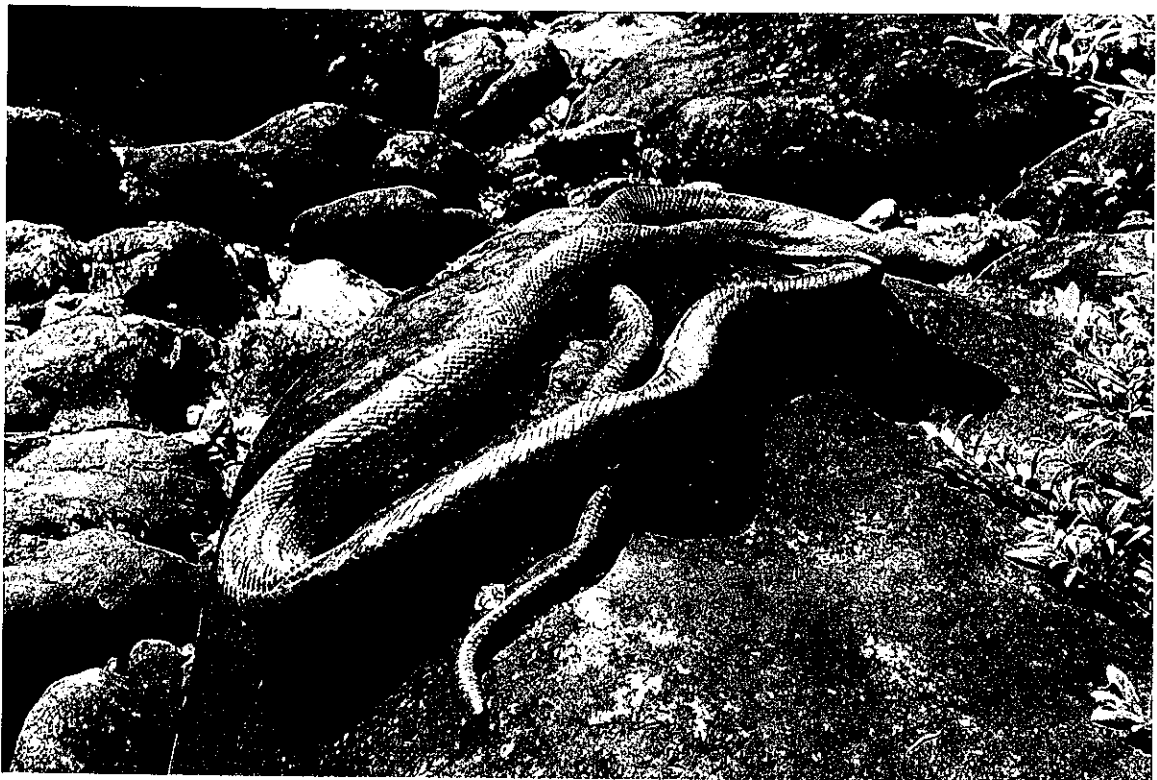


Fig:1. **Scrub Python** *Morelia amethystina* from Tully Gorge exhibiting lacerations typical of those associated with male combat.

Granite Gorge Field Trip Report

On the 1.8.93 four members of the C.Y.H.S. conducted a reptile survey of Granite Gorge approximately 15 kilometres west of Mareeba. The gorge consists of an expanse of granite formations bordering the creek and situated throughout the surrounding woodland. Our main objective was to capture a newly described species of Striped Skink *Ctenotus hypatia*, which at present has only been recorded from this locality (Ingram and Czechura 1990). Despite being unsuccessful at capturing any specimens of *C. hypatia* in total sixteen species of reptile were located from two sites inspected with an additional two species of snake found dead on the road. The second site investigated is approximately 10 km west of Mareeba and is an isolated hill covered with numerous granite boulders and outcrops in woodland. Those members whom assisted with fieldwork include Tim Hawkes, Michael Anthony, Tony Jurgenson and Robert Montgomery.

SPECIES ENCOUNTERED

Granite Gorge

<p>Bynoes Gecko</p> <p>Two Lined Dragon</p> <p>Jewelled Four Fingred Skink</p> <p>Bicarinate Skink</p> <p>Two Lined Skink</p> <p>Litter Skink</p> <p>Fire Tailed Skink</p> <p>Black Headed Python</p> <p>Collared Whip Snake</p>	<p><i>Heteronotia binoei</i> - one individual active on open, flat rock face at 10.30 am. When disturbed, ran into rock crevice.</p> <p><i>Diporiphora australis</i></p> <p><i>Carlia jarnoldae</i></p> <p><i>Carlia mundivensis</i></p> <p><i>Carlia storri</i></p> <p><i>Cryptoblepharus virgatus</i></p> <p><i>Ctenotus sp.</i> - unable to capture, possibly <i>C. spaldingi</i></p> <p><i>Glaphyromorphus cracens</i></p> <p><i>Lygisaurus foliorum</i></p> <p><i>Morethia taeniopleura</i></p> <p><i>Aspidites melanocephalus</i> - adult female basking along base of large granite expanse.</p> <p><i>Demansia torquata</i></p>
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Granite hill

<p>Dtella</p> <p>Bynoes Gecko</p> <p>Cogger's Velvet Gecko</p> <p>Zigzag Gecko</p> <p>Jewelled Four Fingred Skink</p> <p>Barred Skink</p> <p>Litter Skink</p> <p>Freckled Monitor</p>	<p><i>Gehyra dubia</i></p> <p><i>Heteronotia binoei</i></p> <p><i>Oedura coggeri</i></p> <p><i>Oedura rhombifer</i></p> <p><i>Carlia jarnoldae</i></p> <p><i>Eulamprus tenuis</i></p> <p><i>Glaphyromorphus cracens</i></p> <p><i>Lygisaurus foliorum</i></p> <p><i>Varanus tristis</i> - captured from under a granite exfoliation. A freshly consumed <i>O. rhombifer</i> was regurgitated when caught.</p>
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Road Kills

12 kilometres east of Mareeba on the Kennedy Hwy, adult **Common Brown Snake** *Psuedonaja textilis*.

2.2 kilometres east of Freedom County turn off on Kennedy Hwy, **Amethystine Python** *Morelia amethystina*.

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An Herpetological Report of the Mt. Windsor Tablelands by the Cape York Herpetological Society

The Windsor Tablelands is a large expanse of rainforest located to the north and north-west of the Carbine Tablelands. A deeply dissected valley occurring along the upper reaches of the Daintree River to the northeast and the McLeod River to the southwest bisect the two tablelands creating two distinct altitudinal ranges. An example of speciation as a result of this segregation is evident in two species of endemic Microhylid frogs restricted from further migration by the low, dry barrier formed by these watercourses - the Windsor Tableland species *Cophixalus bombiens* and a single Carbine Tableland species *Cophixalus hosmeri*. The topography consists of a granitic massif with a summit plateau approx 300 square kilometres in area with numerous areas exceeding 1100 metres accompanied by many peaks rising higher than 1200m.

Four two day excursions were undertaken during the months of August and September by members of the Cape York Herpetological Society. Two study sites, one in rainforest (abandoned forestry hut on Adeline Creek Rd) and the other situated in Eucalypt woodland with scattered granite outcrops, bordering rainforest were surveyed. In total a combined tally of twenty five reptiles and four frog species were recorded from both sites and habitats. A number of other sites were also examined within the rainforest and the results below constitute a portion of the observations recorded. Distances are taken from the entrance gate to Cuffragmore Station.

SPECIES ENCOUNTERED

Unnamed Creek Site. 48km, Elevation 1,000 m

Chameleon Gecko	<i>Carrhodactylus laevis</i>
Northern Leaf Tail Gecko	<i>Phyllurus cornutus</i>
Red-throated Skink	<i>Carlia rubrigularis</i>
	<i>Glaphyromorphus fuscicaudis</i>
Prickly Forest Skink	<i>Lampropholis coggeri</i>
	<i>Gynpetoscinus queenslandiae</i>
Red Bellied Black Snake	<i>Pseudechis porphyriacus</i> - in total 25 animals were found from neonates to adults, basking beside forestry trails in rainforest.

Eucalypt Woodland Site. 15km, Elevation 900 m

Pelagic Gecko	<i>Nactus pelagicus</i>
	<i>Carlia rostralis</i>
	<i>Carlia jarnoldae</i>
Striped Skink	<i>Ctenotus spaldingi</i>
Copper Tailed Skink	<i>Ctenotus taeniolatus</i>
	<i>Glaphyromorphus cracens</i>
	<i>Lygisaurus laevis</i>
Bar Sided Skink	<i>Eulamprus tenuis</i>
Major Skink	<i>Egernia frerei</i>
Freckled Monitor	<i>Varanus tristis</i>
Blind Snake	<i>Ramphotyphlops polygrammicus</i>
Stimsons Python	<i>Liasis stimsoni</i>
Taipan	<i>Oxyuranus scutellatus</i>

OTHER REPTILES LOCATED IN RAINFOREST

Eastern Water Dragon	<i>Physignathus leseurii</i> (42.1km {Adeline Ck rd})
Spotted Tree Monitor	<i>Varanus scalaris</i> (roadkill, 30.3km)
Northern Tree Snake	<i>Dendrelaphis calligastra</i> (32.2km)
Common Tree Snake	<i>Dendrelaphis punctulatus</i> (slough, 33.6km)
Amethystine Python	<i>Morelia amethystina</i> (slough, 33.6km)

Yellow Faced Whip Snake

Demansia psammophis (slough and three animals, 33.6km, 29km, 33.1km, and 34km respectively)

Swamp Snake

Hemiaspis signata (43km {Adeline Ck road})

OTHER REPTILES LOCATED IN WOODLAND

Eastern Water Dragon

Physignathus leueurii (11km McLeod R.)

Hooded Scaly-foot

Pygopus nigriceps (13.6km)

Major skink

Egernia frerei (26.4km)

FROG SPECIES IDENTIFIED

Orange Thighed Tree Frog

Litoria xanthomera (Unnamed Creek Site)

Green Eyed Tree frog

Litoria genimaculata (Unnamed Creek Site)

Fry's Whistling Frog

Sphenophryne fryi

Windsor Buzzing Frog

Cophixalus bombiens

COMMENTS

The woodland site investigated borders on rainforest and it was for this reason that it was chosen for sampling to ascertain if any migration of typically rainforest dependant reptiles occurs into this neighbouring ecotone habit. All those species located at this site were not located in the rainforest however three specimens of the Yellow Faced Whip Snake, generally a woodland snake, were found alongside the forestry road in rainforest within 2km of the woodland border and a slough found under a granite exfoliation on a bare granite peak, approximately 1km from the woodland boundary, suggests that this species utilises the more open and sunlit areas within the rainforest. The road would undoubtedly provide a migratory corridor into the rainforest and the abundance of Red Throated skinks also utilising this microhabitat would provide the necessary food source to sustain these snakes. The bare granite peak where the Whip snake slough was found is surrounded by rainforest and because of its close proximity to woodland, may represent a small colony which has been isolated over time by the encroaching rainforest, which in some areas expands at an alarming rate. Alternatively this animal may have travelled there per chance until encountering the granite expanse. Two other sloughs from an Amethystine python and a Common Tree snake were also found amongst the numerous granite exfoliations scattered over the sloping northeastern face of this outcrop. It is possible that this site may be utilised during the cooler months of the year for its thermoregulatory advantages and numerous retreats.

Intermediate reptile species i.e. Bar Sided skink, *Lygisaurus laevis* and Pelagic gecko, even though only located at the woodland site, upon further investigation may turn up inhabiting the rainforest fringe since they have been found in rainforest at other locations.

The three Chameleon geckos discovered were all adopting a common posture, positioned on narrow sapling trunks facing downwards within 30-40 centimetres of the ground. This posture has been documented as an ambush stance, awaiting for any passing prey to come within striking range (Trenerry in Nix and Switzer 1991).

Access into the Mt. Windsor State Forest is restricted to the general public and only small groups or individuals carrying out biological work in the area are permitted to enter. Consequently little traffic traverses the roads, and wildlife with little road sense in turn gather along the road's edge to feed or bask. For an area with such a high level of biological importance and limited access it is a shame that animals are being negligently killed on the road. Many of the reptiles located in this survey were found on or beside the road which highlights the need to drive with a watchful eye. An adult Red Belly Black snake, Spotted Tree monitor and a Long Nosed Bandicoot were all found dead on the roads. Such noticeable animals to be hit on the road is inexcusable and those people who use this road should be more conscious of wildlife crossing these roads.

Continued sampling of this ecotone habitat may hopefully give a clearer insight of the habitat requirements which will allow certain species to invade a neighbouring habitat and those limitations which restrict movement between these two radically different environments

ACKNOWLEDGEMENTS: I would like to thank the many people from the C.Y.H.S. whom assisted with field work. They include Tim Hawkes, Michael Anthony, Tony Jurgenson, Phil Lethbridge, Matt McGregor, Michael O'Brien, Luke

Telford, Harriet Davie and Sarah Strawbridge. These field trips would not have been possible if not for the co-operation willingly offered by John Vescio and Ian Last from the Forestry Department, Atherton.

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Fig:1. Chameleon gecko *Carphodactylus laevis* from Windsor Tableland. Adopting typical ambush posture.

Mt. Bartle Frere. The Mist-ery Mountain.

Mt. Bartle Frere is the highest peak in Queensland, rising to an elevation of 1622 metres. It belongs to the Bellenden Ker range which occurs as two granite uplands separated by a shallow valley. Mt. Bellenden Ker is the highest peak in the northern extension of the range with a height of 1561m, while Mt. Bartle Frere is the highest peak in the southern upland region.

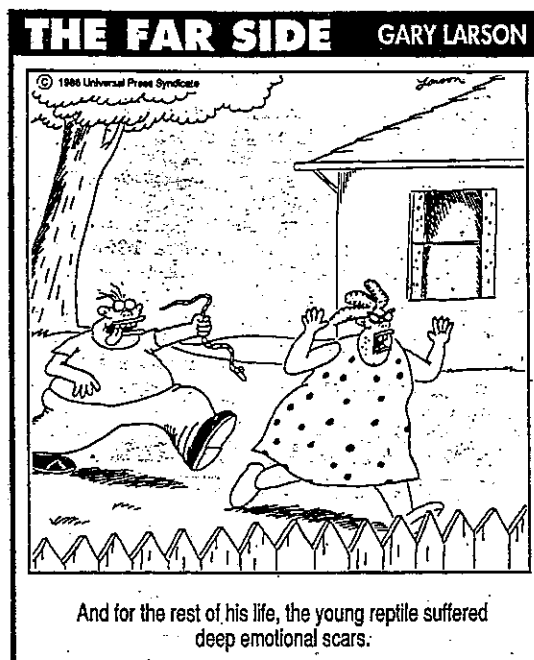
The medieval atmosphere created by the constant influences of wind, rain and cloud have sculptured an environment which only exists on these higher montane peaks. The low forest canopy and stunted nature of the vegetation is reflective of these harsh and incessant weather conditions. Large, open fern fields adorn areas of the summit though the most bizarre feature is the massive boulder fields reminiscent of those which make up the much larger Black Mountain range near Cooktown.

On the 25th and 26th of September 1993, three courageous and dedicated members of the C.Y.H.S., unaware of the hardships ahead of them, attacked the tableland ascent to Mt. Bartle Frere with the vision of collecting the two skink (Bartle Frere Skink *Bartleia jigurru* and *Eulamprus frerei*) and single frog species (Bellenden Ker Frog *Cophixalus neglectus*) endemic to the mist-shrouded peaks of this range.

The return trip is approximately 15 kilometres in length and can be accomplished in a single day though it was decided to camp near the summit on the first night and attempt the steep hike to the peak during the morning of the second day, however weather conditions grew progressively worse and approximately an hour from the summit, before succumbing to hypothermia, camp was set up to try and regain our energy and body temperature. The temperature, rain, cloud and our hopes continued to drop as the weather settled in for a long stay.

With a renewed outlook the following morning a valiant struggle to conquer the mountain was attempted and was successful. Despite the adverse conditions, field work was not hampered, with two species of Microhylid frogs located under rotten logs and granite exfoliations (*Sphenophryne robusta* and *Cophixalus ornatus* found at between 1300-1400 metres). The activity cycles for both reptiles and amphibians within such an elevated site would obviously be very sporadic because of the radical fluctuations in temperature and rainfall. These conditions are quite unlike any other highland areas of Australia which is evident in the uniquely adapted endemics which survive in these seemingly uninhabitable areas.

Those members names that will go down in history into the C.Y.H.S. archives as attending include the blind leader Tim Hawkes and his followers who stuck by him in the face of adversity, Geoff McClure and Luke Telford.



COMING FIELD TRIPS

The following field trips are planned for the first half of 1994:

Lambs Head, above Davies Creek Falls - **Sunday 16th January**

Herberton area in search of *Delma mitella* - **Sunday 23rd January**

Granite Gorge in search of *Ctenotus hypatia* - **Sunday 13th February**

Tully Falls and Mt.Surprise - Weekend of **5/6th February**

Chillagoe area - Weekend of **5/6th March**

Yarrabah Road nightspotting - **Saturday 26th March**

Further field work is planned for the **Carbine Tableland** (Mt.Lewis) during the month of April, 1994. Day trips are scheduled for each Sunday of this month (**9th, 16th, 23rd and 30th of April**) except the first Sunday which is part of the Easter break. People wishing to attend these field trips should meet at WildWorld at 7.30 am on these days.

Three more field trips to continue our survey of the **Windsor Tableland** are scheduled for May and June, 1994. The dates for these trips are:

Labour Day Weekend 1st, 2nd May

Queens Birthday Weekend 11th, 12th, 13th June

Weekend of 25th, 26th June

In the event of wet weather, field trips will still go ahead, to alternative destinations.

Further details of field trips will become available at meetings or by contacting Tim Hawkes at (070) 553669 or (070) 577756 A/H.

ARTICLES

A Case of Envenomation by a Yellow Faced Whip Snake *Demansia psammophis*

Tim Hawkes, CI- Wildworld, Cook Hwy, Palm Cove, Qld. 4879

On the 19.9.93 while on a snake call at Trinity beach to catch a marauding whip snake, a bite was incurred on the ring finger of the left hand at approximately 1.50pm. A bandage was not applied as it was not viewed as a potential risk. After the bite an instant stinging sensation occurred followed by localised swelling; by 3.30pm the swelling had continued to progress into the hand and remaining fingers. By 6.00pm the whole arm had become swollen, with a slight indication of inflammation noticeable on the inner side of the elbow. During the gradual movement of the swelling there was an obvious border between the affected and unaffected areas evident by the gross difference in size. Later that night stomach cramps had developed though there was no sign of nausea.

The following morning revealed that the swelling had not reduced in size. Movement in the arm and hand was extremely restricted to the point of being unable to bend the fingers. The back of the hand, elbow and armpit were painful to the touch. Throughout the 20.9.93 loss of appetite and drowsiness became evident, symptoms which even the offer of a roast meal could not cure.

Systemic symptoms had subsided by the 21.9.93 though the swelling was still obvious. This did not recede until later that day when mobility in the hand became less restricted. Another 24 hrs saw the swelling disappear completely except for a small area around the elbow and the bite site. For a couple of days the bite site and arm became intermittently itchy and small pimple-like inflammations developed around the puncture wounds.

Localised swelling has previously been experienced from a bite from the same species by myself on an earlier occasion and also by a private herpetologist (Michael Anthony pers. comm.). A similar experience with more prolonged symptoms from a Collared Whip Snake *Demansia torquata* saw swelling around the bitten finger and arm last for 11 days (Steve Haniford pers. comm.) and a bite from a Black Whip Snake *Demansia atra* also saw the immediate swelling of the bitten finger and arm last for 3 days (Michael O'Brien pers. comm.). In all the above mentioned cases extreme pain around the bite site, joints and associated limb were experienced.

A number of bites have been documented from the Yellow Faced Whip Snake all of which resulted in some degree of pain and swelling. In three different cases where it appears that first aid was not applied symptoms varying from diarrhoea, dyspnoea, urticarial response, facial paralysis to necrosis of the puncture wounds have been reported. Most of these symptoms however appeared to be of an allergic reaction (Sutherland 1983). Yellow faced whip snakes have been reported to be responsible for many bites occurring in suburban areas though frequency and symptoms are not listed (Pearn, Covacevich 1988).

In Harold Coggers "Reptiles and Amphibians of Australia", he notes that large individuals of this species are likely to be dangerous to humans and considering the above symptoms documented and the uncomfortable and long lasting effects of the venom experienced from this bite, a similar incident to a small child or allergic sufferer should be treated with the pressure and immobilization first aid method to slow any untoward symptoms. An unconfirmed fatality from one of the larger members of the genus, *D. atra* from the Bundaberg area was only recently news in September though no other details are yet available. This case alone signifies the venomous potential of this larger member of the genus.

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Biting Off More Than You Can Chew

Drew Melville, Hartley's Creek Crocodile Farm, Qld.

Here at Hartley's Creek Crocodile Farm we have a moat which borders the entrance. Inhabiting this moat are populations of Krefft's tortoises *Emydura kreffti* and Saw Shelled tortoises *Elseya latisternum*.

About four months past I was asked by the office staff to come and rescue one of these tortoises. When I arrived at the moat I found an adult Krefft's tortoise (carapace length approximately 20 cm) firmly wrapped in the coils of a Childrens python *Liasis maculosus* approximately 1 metre in length. They were locked together under 2-3 cm of water; this situation appeared not to deter the snake. I picked the two specimens up and found that the python had siezed the front of the tortoises head and was apparently attempting to constrict it's shell. The tortoise had merely tucked his head away as tightly as possible. Carefully prising the snakes jaws from the tortoises head I untwined the snake from the tortoises shell; it's eyes were wide open, seeming more shocked than frightened. Neither animal had suffered any damage, so I released both.

I am not sure whether the python had regarded the tortoise as a food item or siezed him in defence when the tortoise may have nipped it. Either way he had bitten off more than he could ever swallow.

A Field Trip To Leo Creek in the McIllwraith Ranges

Michael Anthony, P.O. Box 523, Manunda, Qld. 4870

In October, 1991 a field trip was undertaken by Lyall Naylor and myself to the McIllwraith Ranges, east of Coen, Cape York Peninsula, in the hope of locating specimens of the Emerald Monitor *Varanustertiae* and the Green Tree Python *Chondropython viridis*. The McIllwraith Range is the southernmost block of rainforest habitat of northern Cape York, seperated from the northeast "wet tropics", which extend from north of Townsville to the Cooktown area, by a large area of dry habitat unsuitable for rainforest species. As a result, the rainforest adapted species colonising the Australian continent from the north are prevented from reaching the northeast rainforest block and there are differences between the two faunas.

The Green Tree Python *Chondropython viridis* is known to be an inhabitant of lowlands, slopes and ranges with vegetation of monsoon forest, rainforest and associated bamboo and vine thickets (Ehman 1992), in eastern Cape York Peninsula, normally sheltering in tree hollows, epiphytic ferns etc. during the day (Cogger 1992). Numerous specimens have been reported from Iron Range to the north, but I know of no records from the McIllwraith. In "An Atlas of Queensland's Frogs, Reptiles, Birds and Mammals" (1991) the single Queensland Museum record is from Iron Range. However, the vegetation types in the area we investigated are certainly suitable for *C.viridis*; the question is does it occur this far south, being an immigrant from Papua New Guinea ?

Certainly the Emerald Monitor *Varanus teriae*, another species believed to be a coloniser from the north, occurs in the McIllwraith Ranges. In fact there are three known specimens from this area (Czechura 1980) from vine forest and open forest near vine forest, at altitudes ranging from about 100 to about 520 metres. Two of the specimens were found above ground level, one at three to four metres climbing through the crown of secondary storey vegetation and another in the outer surface of the tree canopy at about fifteen metres above ground level. The third specimen, from open forest, was sighted on the ground and collected from a standing eucalypt. All specimens were predominantly black, rather than the green colouration of New Guinea specimens of *V.prasinus*. Cogger (1992) describes the habit of *V.teriae* as "from monsoon, rain and palm forests to lagoons and mangroves". Ehman (1992) notes that it inhabits forest "usually with extensive vines and midstorey canopy". "An Atlas of Queensland's Frogs, Reptiles, Birds and Mammals" also shows a record of one animal from Iron Range.

Four days were spent in the area, most of the time walking around looking to the treetops hoping to catch sight of our quarry. No examples of either were encountered, in fact very few species of reptile were located, possibly due to the hot, dry conditions experienced at this time of year. The trip was notable for the difficulty and time taken in negotiating the Leo Creek road.

Although we had rough directions to a previously investigated area in the northern part of the McIlwraith Ranges, after asking around at Coen we eventually spoke to a local gentleman who apparently had a great deal of knowledge and experience of the region. He suggested to us, after we informed him of our desire to observe wildlife, that we drive into the McIlwraith to the old Leo Creek mine where, we were assured, there was good rainforest with many Cuscus, gliders and large "Johnstone River" Pythons to be seen. The description of the road was that it was "a bit rough at first" but then became "pretty good". So, this sounded like the place to go and we set off for what I imagined to be a leisurely few hours drive along a bush track. How wrong can you be! The track was a bit rough at first, and became progressively worse, the hills steeper and steeper, the creek crossings increasingly difficult to negotiate. To make things worse, the surface of the track contained deep washouts, in other places there were large anthills, rocks and trees in the middle of it or buttress roots growing across it, all this on very steep grades requiring four wheel drive, low range, first gear. We finally arrived at our destination in failing light six hours later, covering a grand total of 39 kilometres!

SPECIES OBSERVED

With the lack of success looking for reptiles living predominantly up in trees, attention was diverted to the forest floor and to Leo Creek itself.

The most common reptile in the area was the **Four Fingered Skink** *Carlia longipes*, numerous examples of which were seen active amongst leaf litter at the edge of the track. This skink is also common in the Cairns/Cooktown region, in a variety of habitats; its range covers Cape York and neighbouring coastal regions with an apparently outlying population in northwestern Northern Territory (Cogger 1992).

Two specimens of *Emoia longicauda* were sighted basking on low branches beside the track in the early morning and late afternoon. This lizard is a mostly arboreal inhabitant of rainforest in northern Cape York Peninsula, with representatives of its genus widespread in the southwest Pacific (Greer 1989) including New Guinea, and southeast Asia (Loveridge 1946).

Numerous **Mangrove Monitors** *Varanus indicus* were observed along the rocky, palm-lined Leo Ck., individuals usually sighted near the larger rocky waterholes. All animals proved extremely elusive and unable to be approached even within range of a telephoto lens - as soon as the animal catches sight of you it escapes amongst the rocks or into the water. Only one blurred photograph resulted from the morning's attempts at photographing these wary monitors. *V.indicus*, usually associated with coastal habitats, extends along rainforest streams well away from the coast and into higher altitude here at McIlwraith and probably other areas in northeastern Cape York Peninsula, in the absence of species such as the Eastern Water Dragon *Physignathus lesuerii* whose range extends only as far north as the Cooktown area, and the Mertens Water Monitor *Varanus mertensi* which occurs along watercourses draining west of the dividing range. *V.indicus* ranges through coastal regions of tropical northern Australia and also occurs in New Guinea, parts of southeast Asia and nearby Pacific Islands.

On the return journey we stopped at a flowing creek, winding through dry open forest. The thick vegetation along the creek included numerous palms, large Paperbarks *Melaleuca* and *Ficus sp.*, more akin to rainforest than the surrounding dry forest habitat. Species encountered in this area included a **Common Tree Snake** *Dendrelaphis punctulatus* found active in the late afternoon, *Carlia munda* active amongst leaf litter and a *Gehyra sp.* active on the trunk of a large *Melaleuca* in the evening.

Reptiles encountered in the surrounding dry forest included numerous **Northern Velvet Geckos** *Oedura castelnaui* under the exfoliated bark of trees and **Two Lined Dragons** *Diporiphora sp.* were commonly encountered active on the ground and in low vegetation. A **Friilled Lizard** *Chlamydosaurus kingii* was also sighted along the track in hilly country vegetated by dry open forest.

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An Unusual Feeding Account Of An Amethystine Python *Morelia amethystina*

Phil Lethbridge, Conservation Officer, Department of Environment and Heritage, Cairns

During the past year I have been lucky enough to be employed on the Cape York Peninsula Land Use Strategy (CYPLUS) terrestrial fauna survey program. This work has enabled me to witness much of Cape York's wildlife. During a recent survey of the interfluvial rainforest patches of Northern Cape York I witnessed a most unusual feeding display by the Amethystine Python *Morelia amethystina*.

The rainforest patch in question was located on Bramwell Holding approximately 30 kilometres north of Moreton Telegraph Station and was approximately 30 hectares in size. The distribution of these patches on Cape York appears to be confined to caps of well drained laterite. Whilst monitoring mist nets an associate observed a slough of considerable length on the forest floor and recognised this to be of a Scrub or Amethystine Python. The slough was new as it wasn't noted when the net was installed the previous day. That night, whilst spotlighting I kept an eye out for the snake on our site but was unable to locate it. Further searching revealed the python at full length on a fallen tree 100 metres from the site. The snake sought shelter in the trunk of the fallen tree and I continued my work, promising to return when finished. An hour or so later my colleagues found the python on the ground at the base of the tree constricting what turned out to be an Echidna *Tachyglossus aculeatus*

The quills of the Echidna were clearly visible between the coils of the python which appeared to have the Echidna's beak in it's mouth. After a further half hour of observing the ensuing struggle we returned to our campsite located several kilometres away, assuming that the python actually consumed the Echidna later that night. One can only assume that the python experienced a minimum of difficulty ingesting it's prey despite the abundance of sharp quills. The animal was not disturbed so an accurate measurement wasn't taken but I believe the length to be between 4 and 5 metres. Efforts were made to locate the python the next morning but it couldn't be found. Neither was a photograph taken - the things you see when you don't have a camera!

Results of a Reptile Survey on Haycock and Double Islands

Tim Hawkes and Michael O'Brien, C/-Wildworld, Cook Hwy, Palm Cove, 4879

Both Haycock and Double Island were originally part of the mainland though due to rising sea levels at the end of the last ice age their connection to the mainland became severed, consequently isolating the many land based terrestrial reptiles.

Double Island is a large, elongated island rising to peaks on the eastern and western ends that are joined in the middle by a low saddle. In total the Island covers an area of 70 hectares and rises to a height of 70 metres. Haycock Island on the other hand is only a fraction of the size of Double Island covering an approximate area of 0.5 ha and rising to a steep peak at a height of 36 m.

Vegetation on Double Island is largely Eucalypt woodland with a thick grassy ground cover which shows no sign of any recent fire activity. Haycock Island maintains a stunted, wind swept vegetation type consisting primarily of *Ficus* sp. and tussock grass species. The main geological feature on both islands consists of a type of shale, providing many sites for retreat.

On the 14.10.93 a day was spent surveying the herpetofauna on both islands and in total 2 species on Haycock and 8 species on Double Island were recorded. The two species on Haycock i.e. *Cryptoblepharus littoralis* and *Lepidodactylus lugubris* were also located on Double Island. The rocky foreshore surrounding Haycock Island supports a substantial population of the **Littoral Skink** *Cryptoblepharus littoralis*. Washed up debris, and litter from vegetation on the island accumulated along the high-tide mark was the most favoured site for this skink on both Islands. From the high tide mark to the island's peak, many available retreats including rock crevices, hollow limbs and cavities under rocks were occupied by the **Mourning Gecko** *Lepidodactylus lugubris*. Two individuals of this parthenogenetic (populations are entirely female and reproduction occurs without fertilisation by males) species were gravid carrying two eggs each. Many of these geckos also had portions, and sometimes their whole tail, regenerated, either suggesting the presence of a predator or a high level of social confrontation amongst individuals within this dense population. The presence of any moderately sized terrestrial predator was discounted after discovering many nests of the Torresian Pigeon *Ducula spilorrhoa* positioned in low branches and often on the ground, with many still containing hatchlings and eggs. The population densities would suggest that the island is a safe haven for these species and the introduction of any predatory animal would have a catastrophic affect on those animals that are restricted to the island and those which use it for nesting purposes.

Double Island, being a lot larger in area and closer to the mainland, harbours a more diverse array of reptile life of which many still possibly remain unrecorded. The most notable difference from Haycock Island is that Double Island is inhabited, with a small private resort located on the western end of the island. Unlike Haycock Island where visitation would be minimal, Double Island experiences regular contact with the mainland, consequently increasing the chances of the introduction of an animal which could prove detrimental to the equilibrium that exists within such a fragile and restricted environment.

The most obvious reptile, often heard rather than seen, was the **Major Skink** *Egernia frerei* which occurred in large numbers, inhabiting the foreshore outcrops to the thick grassy ground cover within the Eucalypt woodland prevalent on the island. Numbers were so dense that it would appear that small territories were established, bordered on all sides by neighbouring territories. Their secretive and alert disposition accompanied by the thick ground cover made it extremely difficult to closely observe this species. Narrow tunnels under the thick litter were used as passageways through the undergrowth and channels under fallen timber were also used as pathways. This skink was the largest and most common reptile located on the island, a fact which may explain the few species of *Carlia* observed (small, litter dwelling skinks found commonly on the mainland). Only two individuals of *Carlia storri* were found and *C.rostralis* and *C.longipes* were not located. These two larger species would appear to be unable to survive within the dense population of Major skinks which appear to dominate the forest floor. On the southern face towards the eastern end of the island, slate scree slopes from past slides of a steep rock face, have provided a catacomb of tunnels amongst the layers of slate, ideal refugia for the Major skink, **Pelagic Gecko** *Nactus pelagicus* and **Bar Lipped Skink** *Glaphyromorphus nigricaudis*. Along a section of coral beach, backing onto a small mangrove community, the Littoral Skink *Cryptoblepharus littoralis* and the closely related *Cryptoblepharus virgatus* were both observed foraging together amongst the washed up debris situated along the high tide mark. *C.virgatus* were also found on the trunks of trees along

the foreshore. Other reptile species located include the *Dtella Gehyra dubia* which was found under a sheet of bark on an upright dead tree and the Mourning Gecko *Lepidoactylus lugubris* found on the resort's water tank.

Conversation with the resort's manager revealed that two species of snake have been encountered around the grounds of the resort within the last couple of years. They are the Carpet Python *Morelia spilota variegata* and the Slatey-Grey Snake *Stegonotus cucullatus*.

The origin of these island species, considering their terrestrial nature, possibly represents an element of this ecosystem that has survived since the island's initial isolation, with little if any outside interference from the mainland i.e. a main factor that signifies the island's pristine state is the apparent absence of the Cane Toad *Bufo marinus* except for an individual that was seen approximately three years ago, presumed to have been transported in landscaping material. Since that incident no further animals have been seen. It has been suggested that the Mourning gecko, an unconfirmed introduction to Australia (Cogger 1993), could represent an introduced species to both islands. Further inspections may also reveal another introduced species on the island which like the Cane Toad also occurs commonly on the mainland i.e. the Asian House Gecko *Hemidactylus frenatus*. These species and maybe some of the native reptiles could have been easily transported to the island either via personal luggage or in equipment and cargo transported to the island during the resort's construction. Introduction via natural means could also offer a possible passageway eg. rafts of vegetation washed up on the beach carrying either a pair of one species, a parthenogenetic individual or a gravid individual could colonise if conditions were right, or alternatively for some of the larger snake species a distance of only 1500 metres from the mainland would be easily within the realms of possibility to swim.

The observations expressed in this report do not present a complete checklist of the species that occur on Double and Haycock Islands and the assumptions made from these observations are purely the opinion of the authors. Only further investigations of the herpetofauna will provide a more comprehensive checklist and understanding of the inter-relationships between species in this relatively undisturbed and isolated sanctuary.

ACKNOWLEDGEMENTS

I would like to extend my thanks to the manager of Double Island resort, Mark Netherwood for his assistance and also for allowing us to investigate the island's herpetofauna. Thanks also to David McGregor for the loan of his boat and John Husband for his company and supplies of beer.

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Home for snakes

WINNIPEG, Manitoba: The Canadian prairie city Winnipeg has opened a home for stray snakes to head off escalating surfeit of serpents in city sewers.

one five metres long — and a boa constrictor.

He said the city's sewer system was warm and damp with a plentiful supply of rats, providing an ideal environment for reptiles.

Chief animal control officer Lawrence Anonychuk said yesterday in recent weeks the city had seized several snakes, including two Burmese pythons —

“What would happen if a snake came up through the drain into your home? There'd be sheer panic in the city,” he said.

The Cairns Post, Wednesday, September 15, 1993.

A Report of Incubation in the Spotted Tree Monitor *Varanus scalaris*

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The Spotted Tree Monitor *Varanus scalaris* is a common inhabitant of the Cairns region, occurring in a variety of habitats from woodland to rainforest where it is often heard scurrying through the forest floor in search for food. It is distinguished from the much larger Lace Monitor *Varanus varius* by its smaller total length (0.6m) and by a series of white to yellow ocelli on the dorsal surfaces. The Lace Monitor grows to a total length of 2 metres and is usually banded across the body, intermixed with a series of white to yellow blotches.

Incubation periods in a number of varanid species vary from 77 days for *Varanus brevicauda* to 250 days for *Varanus salvator* (Green, King 1993) with a correlation towards smaller species having shorter incubation times. In *Varanus scalaris* a report of incubation taking 139 days at temperatures of 29-31 degrees has been documented (Ehman 1992).

On the 18.2.93 a resident of Cairns collected a Spotted Tree Monitor from around the Gordonvale area with the intent of keeping it. Unbeknown to him the animal was gravid and laid three eggs the following day in a cardboard box. When donated to me the following day the eggs were in a dehydrated state and had been rolled and roughly handled so the prospect of them hatching appeared remote. They were immediately set up in a clear plastic tupperware container in a mixture of damp vermiculite and left on top of the fridge above the element for warmth. Temperatures varied from 28 to 32 degrees with an average of around 30 degrees.

Early into incubation a single egg died. Fertility was hard to ascertain due to the decomposed state of the egg.

On the 6.5.93 after a total of 107 days of incubation one of the eggs hatched overnight. The remaining egg hatched the following day. Both lizards emerged perfectly developed except for a virtually indiscernable kink in the base of the tail in one neonate which may have resulted from too high a temperature during incubation.

A plastic container measuring 55cm x 40cm x 15cm was set up with a substrate of sand, leaf litter and bark for cover to accommodate both hatchlings. A shade cloth lid was made to enable the lizards to bask in natural sunlight when placed outside. Small crickets were readily accepted at first though after a short period of time one of the occupants appeared intimidated by the better adapted animal. This lizard was separated and continued to slowly deteriorate until it died on the 3.7.93. The remaining animal has continued to thrive on a diet of crickets and cockroaches, on occasion dusted with D.C.P. powder, and relishes the opportunity to bask in the sun when offered.

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"Loose" Notes on the Ring Tailed Gecko *Cyrtodactylus louisianensis*

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BEHAVIOUR

The species does not seem to display agonistic behaviour towards each other, regardless of sex or age. However it is aggressive towards other species of geckos, particularly smaller individuals. I observed the species (on several occasions) chasing smaller *Gehyra sp.* away from a ceiling light where it was feeding on moths. I introduced two

subadult *Oedura coggeri* into an enclosure occupied by three large Ring Tailed Geckos and found them both mutilated (dead) the next morning.

They are ferocious predators, responding to movement rather than scent. My captive specimens are accustomed to taking live pink mice from the palm of my hand, however, the slightest movement of my little finger will result in decisive attack. Not realising the mistake, the gecko often struggles with the finger in the crocodile roll-like fashion. though I never witnessed this behaviour in a natural situation, one can speculate that it is an adaptation used to overpower large prey.

Captive specimens often spend all day resting on the back side of the cage, fully exposed to UV light (30cm away from the tube). Leaf Tailed Geckos *Phyllurus cornutum* tend to do the same and only recently I discovered that this behaviour occurs in the wild as well. Quite often I see Leaf Tails in the middle of the day (but not in direct sunlight) resting on Besser block buildings here at Paluma.

Though spraying the cage interior is not necessary in the tropics, it may be sound practice in temperate or generally dry regions. It is common knowledge that these and most other species of geckos satisfy their water requirements by obtaining moisture from food. It is also true that some species (in captivity) actually drink water from a container at times.

REPRODUCTIVE BIOLOGY

I have never observed the species mating (probably as I usually sleep at night). Gravid females usually carry two eggs, which are quite visible ventrally. Despite being primarily arboreal species, the female selects suitable sites on the ground where she digs a hole and later deposits eggs. I have always found the eggs in substrate, never above ground, even when suitable material (moss, elk horn etc.) is provided. The incubation period is incredibly variable and does not seem to be temperature related (this is the subject of my recent studies). The hard shelled eggs do not require much moisture and will hatch even when left in dry sand. I noticed at Charles Tanner's residence (Cooktown) that eggs have been deposited in semi-opened cupboard drawers without any medium at all and these eggs successfully hatched.

Some of the captive born juveniles suffered "rubber jaws" and spinal deformities, presumably due to calcium deficiency. Even if the juveniles are offered a wide variety of arthropods, it is desirable to dust the food items with calcium powder.

Notes on Habitat, Including A Range Extension for *Lygisaurus rococo*

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Steve Haniford, C/-Undara Lava Lodge, Undara, via Mt. Surprise, Qld. 4871.

Of the nine recognised species of *Lygisaurus*, one species alone is unique in its habit as being saxicoline. *L.rococo* is well equipped with long limbs, and digits with small black lamellae on the undersurfaces, for gripping the rocky substrate. All these features are evidence of a rock dwelling habit.

Lygisaurus rococo was described in 1988 from specimens collected around the Chillagoe region from patches of semi-evergreen vine thicket secluded amongst limestone outcrops (Ingram, Covacevich 1988). This ancient vegetation type with its close association to rock outcrops protecting it from fire, is scattered throughout the drier western slopes of the Atherton Tablelands and shares similarities to other remnant floras found also in Madagascar and Africa. This vegetation type is thought to be evidence of a flora once widespread over the ancient landmass of Gondwana.

Lygisaurus rococo is reported to be restricted to the limestone towers of the Chillagoe area however during two brief surveys, one of a roof collapse to a lava tube section at Undara on the 12.10.93 and a granite gorge north of Almaden on the 29.10.93, a number of small, brown rock dwelling skinks were commonly observed active amongst the basalt scree slopes at Undara and granite boulders in a dry creek bed at Convict Creek. Individuals from both localities

were captured and identified as *Lygisaurus rococo*. Those animals from Undara extend the range for this species 120 kilometres south of its presently recorded locality at Chillagoe.

The vegetation surrounding the lava tube entrance consists of a thick growth of semi-evergreen vine thicket dominated by species of *Brachyiton* such as the Bottle tree and Northern kurrajong, as well as species including Fig trees *Ficus*, *Bauhenia*, Twirly Wirly tree and Burdekin Plum. Numerous other pockets of vine forest exist in a meandering chain across the McBride province (a recent lava flow area approximately 190,000 years old) signifying many other lava tube roof collapses and basalt outcrops possibly suitable for other populations of this species. Surrounding these islands of semi evergreen vine thicket is typical savannah woodland. This acts as a barrier to migration of many species isolating them within the thicket patches. The total area of vine thicket within the roof collapse sampled is approximately 180 metres long by 30 metres wide and is one of the largest patches of thicket in the area.

Many examples of this species were observed actively scaling the basalt rock piles and foraging amongst the thick leaf litter accumulated amongst the rocks and floor. Conflicts and chases were also witnessed between individuals as well as tail waving displays.

Convict Creek Gorge is approximately 30km east of the limestone outliers near Chillagoe and consists of a steeply sided granite gorge. The specimens of *L.rococo* at this locality were only observed along a 200m stretch of the creek passing through the gorge where numerous black algae-stained, rounded granite boulders were piled in the dry creek bed. Stands of stunted paperbarks in and lining the creek offered shade within this narrow section of the creek where most animals were located. Washed up debris collected around tree trunks and leaf litter accumulated between boulders were favourite foraging areas for this species.

Unlike the Undara site where plenty of shade was available from the partly closed canopy, skinks in this area remained active for most of the day, though due to the extreme day time temperatures at Convict creek and more open nature of the surrounding vegetation, activity levels were restricted to short periods of time during the early morning and late afternoon when the rocky surfaces were of a moderate temperature and tolerable to the touch.

The two cases referred to in this report highlight that not only limestone outcrops are favoured by this species but also basalt and granite in situations where suitable. Additionally no evidence of vine thicket was present at Convict Creek suggesting that this vegetation type may not be a necessary factor governing the distribution of *L.rococo*.

A more thorough inspection of some of the other larger islands of vine thicket at Undara as well as those situated between Undara and Chillagoe has been proposed to determine if any further unrecorded populations of this species exist. Forty Mile Scrub National Park, approximately 20 kms east of the Undara turnoff on the Gulf Developmental road, consists of a large area of vine thicket growing on low basalt outcrops, similar to that at Undara and the fact that specimens of *Lygisaurus rococo* have not yet been found in this locality suggests that the outcrops of basalt in this area are not extensive enough to satisfy the saxicoline requirements for this species.

ACKNOWLEDGEMENTS.

I would like to thank Michael Anthony for assisting in the field and transport, and to Chris Burns for directions into the Convict Creek site. Also we would like to thank the staff of the Undara Lava Lodge, especially Senior Guide Vai Speedie for proof reading the article.

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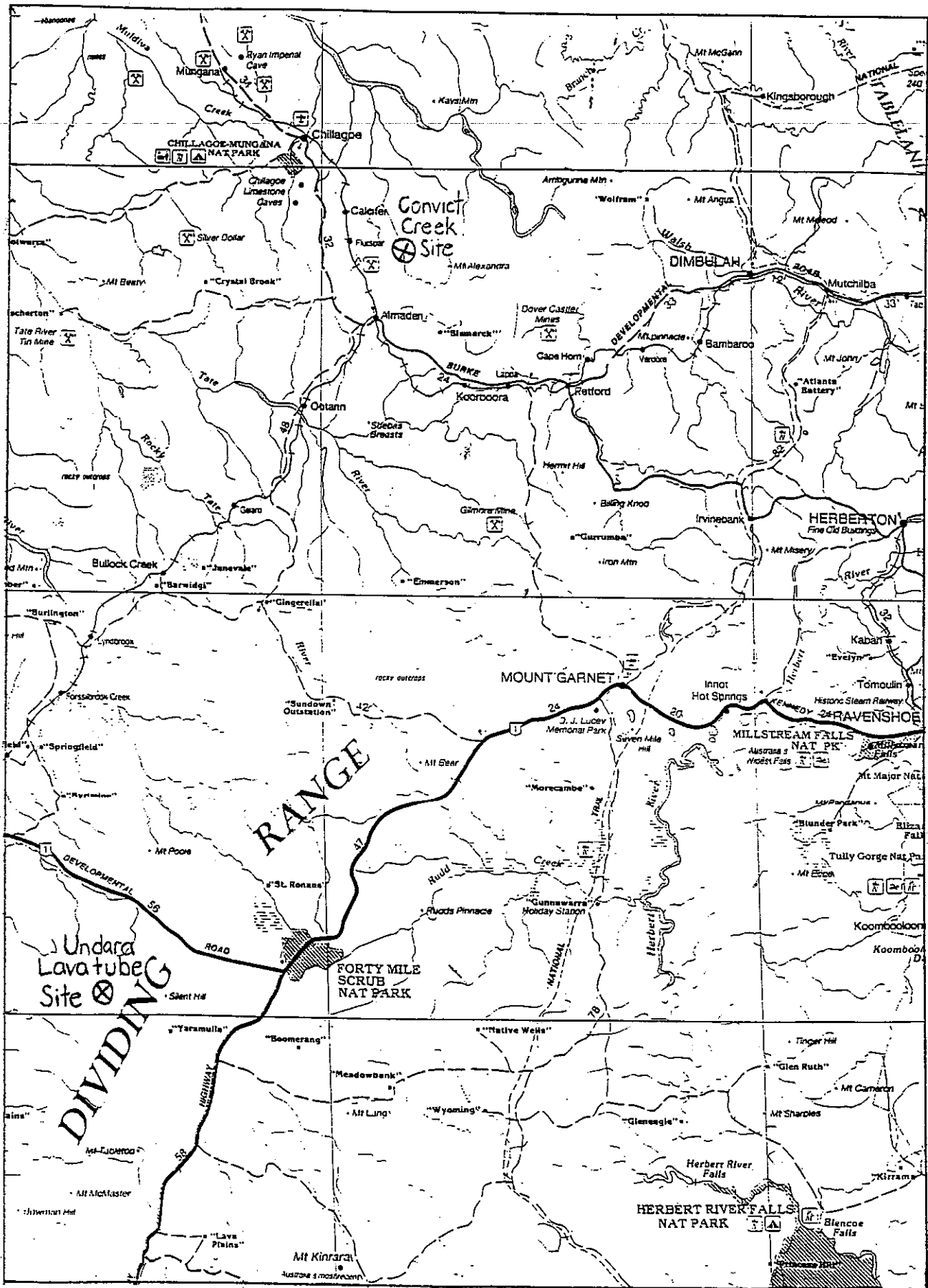


Fig: 1. Location Map of the Survey Sites.

A Caesarian Operation On A Captive Northern Death Adder *Acanthophis praelongus*

Michael O'Brien, c/ WildWorld, Cook Hwy, Palm Cove 4879.
Tim Hawkes, c/ WildWorld, Cook Hwy, Palm Cove 4879.

For a number of years WildWorld has achieved remarkable success with the captive reproduction of the Northern Death Adder *Acanthophis praelongus*. On occasion no less than three females have given birth in the one season. Interestingly, the male responsible for the fertilization of all the females over the years can only be described as a poor captive, often refusing food for periods of time and never appearing to be a robust, healthy animal. This would appear to be a deviation from the norm, as the two larger members of this genus (*A. praelongus* & *A. antarcticus*) generally thrive in captivity. While some authors have indicated that certain members of the genus *Acanthophis* reproduce bi-annually (Shine, 1980), others suggest that in captivity at least one member, *A. antarcticus*, will readily reproduce in successive years (Mirtschin, 1985). Our experiences at WildWorld support the findings of Mirtschin, with a number of females reproducing three and four years in succession. This variation in reproductive rates between captive and wild animals is a result of regular feeding regimes which allow captive specimens to accumulate sufficient fat reserves necessary for ovulation in a short period of time (Ross & Marzec, 1990).

While few problems have been experienced with these frequent reproductions, a problem that required intensive veterinary treatment occurred in March 1993 involving our largest female, a long term captive of some 7-8 years.

The female measures approx. 70cm and weighs around 400gm. She has produced offspring successfully for the last four years. On 19.3.93 she gave birth to 10 live neonates and 5 stillborn neonates. The stillborn neonates indicated a possible problem as it was out of character, and it appeared as though the female had retained some products of conception, this being evident by the still swollen nature of the snake's posterior region.

By the end of March there was considerable concern for the snake as she had not passed any more offspring and she had refused food, an unusual behaviour for a snake that has just given birth. On the 31.3.93 an X-ray confirmed the fears of dystocia (the inability to lay eggs or deliver young), with possibly as many as five young being still in the female. At this point in time it was decided to administer Oxytocin in an attempt to induce uterine contractions. At 3:30pm and again at 6:00pm 0.05mL, which is slightly less than the dose rate of 0.02mL/100gm indicated by Frye (1991), was given subcutaneously. At 1:15pm the following day she passed two dead neonates. At this point a further dose of Oxytocin in conjunction with 0.1mL of Calcium Gluconate was given. The Calcium augments the effect of Pitressin (Ross & Marzec 1990) [NOTE: Pitressin and Oxytocin are effectively the same (Gilbert, Pers. comm.)]. At 5:00pm the dosages were repeated.

On 3.4.93 she passed a further one dead neonate.

On the 7.4.93 it was decided to operate to remove the remaining products of conception as indicated by the earlier X-ray. Anesthesia was achieved initially using 5% Isoflurane and the snake was then intubated and maintained at 2% Isoflurane IPPV (Intermittent Positive Pressure Ventilation) 1 breath/20 seconds. A lateral incision was made between the lower two dorsal scale rows 10cm anterior to the cloacal opening. A total of four dead babies and three infertile ova were removed. It appeared as though one of the infertile masses was responsible for blocking the oviduct. The left oviduct was partially decomposed and it was therefore removed. Ross and Marzec (1990) report that "decomposition of embryos" often causes "infection, uterine rupture, and peritonitis". The incision was closed using dissolving sutures. 5mL Hartmans solution was administered intraperitoneally and 10mL subcutaneously. 0.5mL Lincospectin and 0.1mL Multi-B were also given at this point. Prognosis was "guarded".

Two further doses of 0.08mL Lincospectin were given at 48 hour intervals and over the four days following the operation a total of 38mL of Hartmans was also administered subcutaneously in order to reduce the risk of shock due to fluid loss during the operation.

After the operation the snake was housed in an off-display enclosure where she commenced feeding after only ten days. At the time of writing some seven months have elapsed and the snake continues to thrive, showing no ill effects from the dystocia and subsequent operation.

In retrospect, and after viewing the available literature, it would seem beneficial to conduct an operation to rectify dystocia much sooner than in the case outlined above. Ross and Marzec (1990) indicate surgery if drug induced uterine contractions have not eliminated retained products within twelve hours.

As for the continued reproductive success of the female it is difficult to assess and only time will tell. As only one oviduct appeared to have been affected by the decomposition it remains quite possible that the other will function normally. Frye (1991) indicates continued breeding potential in reptiles after the removal of one oviduct.

ACKNOWLEDGEMENTS

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Notes on the Northern Crowned Snake *Cacophis churchilli*

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INTRODUCTION

The statistics detailed in this paper serve to provide additional information on this poorly described species and does not attempt to give a description of this snake.

The taxonomic status of the Northern Crowned Snake has had a long and checkered history. It has been unofficially referred to as a full-species i.e. *Aspidomorphus flavicollis* by Bill Hosmer, which at that time approximately 40 years ago was the appropriate genera for that species. Shortly there after it became recognised as a sub-species of the closely related White Crowned Snake and reassigned, i.e. *Cacophis harriettae flavicollis* (McDowell 1967). The original name assigned by Hosmer was only a manuscript name and thus made it non-valid for use. This species was also recognised and illustrated in Worrell's "Reptiles of Australia" as *Glyphodon* sp. It was not until 1985 when Wells and Wellington in their controversial paper on the reclassification of the Reptiles and Amphibians of Australia, that it gained full specific recognition and was described as *Cacophis churchilli* (named after Greg Churchill who collected the holotype in 1968 from Black mountain road near Kuranda). The type description given by Wells and Wellington is very poor and does not give any taxonomic details or comparison to its congeners.

The Northern Crowned Snake is a diminutive nocturnal snake which is the only snake endemic to the Wet Tropics of far north Queensland. It occurs on the Atherton Tablelands to Bluewater Range and Mt Spec (Wilson &

Knowles 1988). It is often located in rainforest, though from personal observations it has also been found in coastal paperbark communities and in dry and wet sclerophyll forests.

Like other members of the genus its diet principally constitutes small scincid species (Shine 1980). An individual snake kept in captivity was recorded consuming skinks of the genera *Carlia* and *Lygisaurus* left in the cage overnight (anon. pers. comm.). In the wild, skinks belonging to the genera *Saproscincus* and microhylid frogs from the genera *Cophixalus* and *Spelophyrne* may also constitute a portion of this species diet.

Its defensive manner is similar to that of other *Cacophis* species, when disturbed will readily thrash around wildly and assume a vertical posture with the head angled downwards, displaying the distinct yellow to orange collar on the nape.

METHODS

Since being employed at Wildworld a total of eight *C.churchilli* have been brought in from gardens around the Cairns region both dead and alive for the purpose of identification. Examination of scalation, lengths and colouration were annotated. Total lengths from a further five animals collected by a private herpetologist from around the Babinda area have also been included in this analysis thus providing an average of total lengths from thirteen animals.

Those animals brought in alive had their ventral surfaces photocopied to ease with ventral and subcaudal scale counts and to also minimise unnecessary stress from handling.

Sexes were determined by applying pressure to the base of the tail and everting the hemipenes.

Additional information from other references has been consulted and included in the table to provide a cross reference of characters between *C.churchilli* and other *Cacophis* species.

CONCLUSIONS

The small sample size of *C.churchilli* examined in this study does not provide a complete diagnosis of morphometrics for this species, however from the limited data available trends appear to be consistent with other members of the genus, for example the average snout-vent lengths from the two female specimens seem to conform with Shine's (Shine 1980) ecological review of the genus *Cacophis* in sexual size dimorphism resulting in the females attaining greater S.V. and total lengths. In support of this diagnosis the ventrals also outnumber those in the males.

Alternatively a uniformity in the males attaining longer tail lengths can also be seen by the greater tail lengths and sub-caudal scale counts. The base of the tails in every male snake inspected were noticeably swollen thus making visual sexing easy.

Analysis of the variables examined in this study from eight specimens of *C.churchilli* rate this species as being intermediate between *C.kreffti* and *C.harriettae*.

The maximum length quoted by Wells and Wellington would no doubt represent an extreme size for this species and in no way gives a true interpretation of the average lengths.

The colour and pattern in *C.churchilli* also appear synonymous with other species of *Cacophis*. All four species are generally brown to black in colour dorsally, with distinctly patterned collars varying in width and colour according to the species. Only in the Golden Crowned Snake *Cacophis squamulosus* does the collar not join across the nape. The ventral surfaces are also attractively coloured and patterned though in *C.churchilli* the ventral surfaces are darkly coloured and the collar is very narrow being approximately two scale rows in width.

V= ventrals S.C.= subcaudals S.V.L.= snout to vent length T.L.= tail length T= total length S/D= single or divided

SEX	V	S.C.(S/D)	S.V.L. (mm)	T.L. (mm)	T (mm)	Anal(S/D)
Animals from this study						
Female	168	28(D)	255	31	286	(D)
Female	167	24(D)	352	37	389	(D)
Average			303	34		
Male	161	35(D)	257	40	297	(D)
Male	164	39(D)	279	45	324	(D)
Male	161	35(D)	260	39	299	(D)
Male	166	38(D)	260	39	299	(D)
Male	162	37(D)	269	42	311	(D)
Average			263	41		
Babinda animals						
					290	
					220	
					145	
					210	
					315	
Average					284	
Shine (1980)						
C.kreffti(A.v.)						
Male			235		287	
Female			264		333	
C.harriettae						
Male			286		346	
Female			357		488	
C.squamulosus						
					482 (Male)	
					715 (Female)	
Male						
Female						
Male	(N.S.W.)		389			
Female			489			
Male	(QLD.)		393			
Female			524			
Worrell (1963)						
Millaa Millaa	163	32(D)			450(16")	
Wells & Wellington (1985)						
					600 (MAX.)	
Ehmann (1992)						
					450	
Cogger (1992)						
C.kreffti	(140-160)	(25-40)(D)			250	(D)
C.harriettae	(170-200)	(25-45)(D)			450	(D)
C.squamulosus	(165-185)	(30-50)(D)			750	(D)
C.churchilli						
(This study)	(161-168)	(24-34)(D)	(255-352)	(31-45)	389	(D)

ACKNOWLEDGEMENTS

I would like to thank Brian James for supplying the total length of the additional five animals collected from the Babinda area.

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Metazoan Parasites in Reptiles

Michael Cermak, School of Biological Sciences, James Cook University, Townsville, Qld.

Like most vertebrates, reptiles play an important part in parasitism, either as paratenic or definite hosts, depending on the reptiles position in the food chain. Reptiles have co-evolved with their parasites and in the wild populations their relationship is usually harmonious, though this balance can sometimes be shifted, leading to the death of the host. Even more so, the balance is likely to be upset in captive reptiles due to post-capture shock, stress induced by handling or various other situations, often resulting in the breakdown of the animal's natural resistance.

To look for trends in reptilian parasitism, it is essential to consider : 1/ the specie's feeding habits, 2/ geographical distribution of both the host and the parasite and 3/ whether we are dealing with a wild reptile or one in captivity. We can not limit our considerations to wild animals only, because first of all the captive stock offers unique opportunity to observe and study the host-parasite processes in such a way that would be difficult, if not impossible to do in the natural environment. Most records available on wild reptiles have been compiled from post-mortem examinations and the current wildlife protection policies are not making research any easier, as one is not allowed to collect and examine road kills.

Ectoparasites

Some parasite organisms are only found in captive reptiles. For example the Snake Mite *Ophionyssus natricis* appears to be restricted only to reptile collections. This Acarin is not native to Australia, it was probably imported with early consignments of exotic reptiles, but it now occurs in all larger collections throughout the country and became a nightmare to herpetologists. This parasite is host specific to snakes, though it has been recorded on some lizards with overlapping, rather than nodular or conical scales (Weigel 1988). These blood sucking mites can cause anemia and death to snakes if left uncontrolled. There appears to be some degree of controversy whether *O.natricis* is a potential vector to infectious diseases or not. Frye (1981) reports that the species can transmit *Aeromonas hydrophila*, the agent of haemorrhagic septicaemia in snakes and also that Leucocytozoon sporozoites have been seen in the salivary glands of mites after they had fed on infected snakes. This statement is criticised by Ross (1984) as being based on a single study by Camin in 1948 carried out under "specific captive conditions". According to Ross' study, *O.natricis* does not spread bacterial diseases. Most other herpetologists are undecided on this issue, but most agree that mites can cause

skin lesions through which bacterial diseases can be introduced. There is no record of *O.natrix* occurring in the wild. It is quite amazing, as in many instances that I know of, heavily infested snakes have been released, particularly in the early days - this was preferable to clinical treatment. Experimentally, I placed three mite infested Death Adders *Acanthopis praelongus* into an outdoor pit with natural soil substrate, where they found shelter under a piece of bark which was also occupied by small ants. The ants immediately swarmed the snakes and in two days they were clean of any mites. Perhaps this sort of biological control is common in the natural environment.

Another well recognised ectoparasite of reptiles are ticks. Many of the ticks are heteroxenous and parasitise reptiles only in the adult stage; the larvae and nymphs can live on birds and/or mammals (Frye 1981). Some reptiles soak themselves in water when infested, but the result of such activity is doubtful. It probably provides relief to irritation rather than getting rid of the ticks. In 1984 I was collecting Tiger Snakes on Chappel Island (Cermak 1984) in Bass Strait and each single snake was literally covered with ticks (up to thirty ticks). I would have thought that such an infestation would cause anemia for sure, but if the rate of tick feeding is dependent on ambient temperature (Frye 1981) then this could be the controlling factor in such a cold climate as Bass Strait. The fact that ticks in general are vectors to diseases is well established (Roberts and Schmidt 1989) (Hoogstraal 1985), but specific information on tick-reptile relationship is scarce. Case study by De Carvalho et.al. (1983) describes an association between two parasites - ticks and Dipteran larva. *Tupinambis* lizard infested by 47 ticks (neck region and right ear) developed early stages of necrosis and 3 fly larvae were found in the jaw musculature. In conclusion the authors suggest that the primary infestation was by the ticks, causing ulceration of the ear. The flies probably laid eggs in the ulcerated ear, the larvae moving into the jaw musculature and ultimately causing the death of the lizard.

Other ectoparasites like leeches and parasitic crustaceans are rarely found on terrestrial reptiles. However, aquatic Chelonians, Crocodylians and some semi-aquatic lizards have been reported as hosts to those parasites. Marine leeches of the genus *Ozobranchus* are common ectoparasites on Green and Loggerhead turtles. The leeches particularly invade turtles with fibropapillomas (fibrous epithelial growths) as these highly vascularised tumours provide ideal sites for leeches to attach (Dailey and Balazs 1987).

Endoparasites

To name every endoparasitic organism known in reptiles would comprise long boring lists which can be found in most parasitology text books. Instead, I will attempt to present a few interesting cases of parasitism in relation to the reptile's ecology and feeding habits. Keeping in mind the host-specificity in reptilian parasites it is reasonable to expect different parasitic organisms in hosts inhabiting different ecological niches. Depending on the reptile's position in the food chain, it can be utilised by the parasite as an intermediate or definitive host. Some herbivorous lizards, for example, may escape parasite exploitation altogether. However, since most reptiles are carnivorous (and in many cases top predators) it is interesting to examine parasite involvement in predatory- prey interactions.

Large pythons feed predominantly on mammals and are top predators (Cogger 1986). Carpet, Amethystine, Black Headed and Woma pythons (*M.spilota*, *L.amethystinus*, *A.melanocephalus*, *A.ramsayi*) serve as final host to the ascaridoid nematodes *Ophidascaris robertsi* and *O.moreliae*. These worms utilise marsupials as intermediate hosts, namely Bandicoots and possums are found to be naturally infected, probably by eating smaller animals which feed on snake faeces containing eggs (Sprent 1984). These nematodes, when ingested by pythons, migrate into the body cavity where they undergo the third and fourth moult, then they move into the stomach where their anteriors are deeply buried in the mucosa. Ascaroids in general can cause ulceration to the stomach and tumours (Simbotwe 1983). Such a condition is usually manifested by aggressive behaviour which is otherwise atypical of these pythons. *Ophidioscarus pyrrhus* similar in appearance to the python nematodes, specialise in Elapid snakes. These are passed in lizards (most Elapids are reptivorous) where they have been found encapsulated in the subcutaneous tissues. Crocodylians seem to harbour more genera of Ascarid nematodes than any other groups of reptiles, indicating that the host-parasite relationship is relatively ancient. *Terranoyacrocodili* is common in Australian crocodiles (Sprent 1984). There appears to be no record of Ascaroid nematodes that would use Australian lizards as final hosts.

Not always, however, do things work out well for the parasite. For example, errors in larval selections often lead into "dead ends". That is, some hosts may be physiologically appropriate for the development of a parasite, but do not present the ecological circumstances to make the parasite available to the next host. Salamanders in southeastern United States were subject to an interesting study on parasite ecology; the mountain streams are inhabited by three species of salamanders, two of which are terrestrial after metamorphosis and the third one remains aquatic. Trematode cercariae (larvae) utilise all three species as an intermediate host, while only the terrestrial metamorphs make it possible for the parasite to reach its final host - carnivore mammal. The cercariae that penetrated the aquatic species find the "dead

end" (Filio and Byron 1990). A similar situation occurs in the case of Sparganum cestode. It is often passed in frogs (intermediate host). If the snake happens to be the top predator, the parasite's development ceases in the form of plerocercoid. Subcutaneous accumulation of Sparganum cysts can be used as an indicator of the snakes dietary preferences. Snakes that are mammal-prey specialists like the Taipans *Oxyuranus scutellatus*, *O. microlepidota* are usually free of these Cestodes, but they do occur in snakes that feed on other reptiles (even non frog-eaters).

Trematodes

Habitat preferences of Australian reptiles is often reflected by presence of particular parasites co-inhabiting the same environment in some stages of their life-cycle. One such example is Trematodes and swamp-inhabiting snakes. On many occasions I noted Tiger snakes *Notechis scutatus* and Copperheads *Austrelaps superba* being infested with lung flukes. Reflecting a typical digenian trematode life-cycle, the cercariae penetrate aquatic snails which are preyed upon by frogs or they may penetrate frogs directly. In this type of habitat, frogs are the main food source for snakes. These Trematodes are absent in reptiles inhabiting arid environments or areas in which snails do not occur (Frye 1981). There are problems associated with treatment of captive reptiles infested with the flukes, as killing the flukes can result in more serious problem when they lodge in the respiratory tracts. To mention Chappel Island Tiger snakes again - prior to declaring the island a fauna reserve, the island was extensively used as sheep grazing grounds. Since there is no permanent water on the island at all (Schwaner & Sarre 1988) the environment does not support the existence of snails or frogs, hence the Tiger snakes are free of flukes. Tiger snakes living on the larger islands in the Furneaux group, nearby Tasmania and most of the southern parts of the mainland are known to be Trematode hosts. In general, the susceptibility of reptiles to Trematode infestation depends on 1/ the feeding habits of the reptile and 2/ the degree to which the reptile is adapted to aquatic environments. There appears to be marked correlation between the relative amount of time spent in association with aquatic habitats and the infestation of digenian flukes hosted by frogs (Brooks 1984). Because the obligate intermediate hosts for digenians are aquatic organisms, those reptiles and amphibians preying on such, are exposed more often to digenian parasites than those preferring less aquatic prey.

Pentastomids

Pentastomids are endoparasites which (with very few exceptions) mature in reptiles (Roberts and Schmidt 1989) often causing anorexia, lethargy and blood-tinged mucus in the pharynx and trachea. There is some controversy as to the Pentastomid intermediate hosts. Frye (1984) states categorically that mammals are used as intermediate hosts and suggests that the only practical preventative measure to avoid introduction of Pentastomids to captive reptiles is to avoid feeding wild-caught rodents to the captives. This is contrary to Robertson and Schmidt (1989) who claim that "the intermediate hosts are various fishes, amphibians, reptiles, insects or rarely, mammals". I tend to agree with the latter, considering the evidence of Pentastomids in Green Tree snakes *Dendrelaphis punctulatus*, who never feed on mammals. Their diet consists primarily of frogs and occasionally lizards and possibly small birds. This species is not a popular choice in zoos and other reptile displays for they refuse to feed on mice, rats or any other mammals. Autoinfestation is not uncommon in reptiles, when faecal passing of eggs is so delayed that intra-intestinal hatching occurs (Deakins 1978). The initial infestation, however, depends on predator-prey relationship.

Cestodes

Apart from the already mentioned *Spirometra*, most reptile-invading Cestodes do not offer very interesting parasite-host ecological interactions to mention. Though tapeworms are amongst the most common reptilian endoparasites, they present little problem to their hosts both in the wild and in captivity. Most of the Cestode groups can be found in the small intestine (in adult form) where they deprive their host of nutrients. The Cestodes can cause ulceration of the gut wall and if in large enough numbers, can cause malnutrition or even intestinal blockage. Under normal circumstances, assuming the reptile is in good state of health and feeds well, the balance is maintained at equilibrium level. When chemotherapy is applied to eradicate Cestodes, often spectacular quantities of tape worms are defecated or regurgitated.

Summary

It is disappointing that scientific literature offers so little information on reptilian parasitism from an ecological viewpoint. Parasitologists usually describe a particular parasitic organism and its mode of life only from the parasites point of view and its relation to reptilian hosts is only mentioned in passing, while herpetologists are often too

general in their description of the "undesirable" parasites, paying more attention to the host. However, some ecological and behavioural trends can be identified from the sporadic information presented above.

1/ Geographical distribution of both the parasite and the host is of obvious importance in order to establish the relationship or to avoid the parasite. It is evident that reptiles inhabiting arid regions are successfully avoiding parasites requiring aquatic intermediate hosts, like for example the digenian Trematodes. Some parasitic organisms are confined to specific climatic regions, hence some species of reptiles living in temperate zones will not acquire parasites like the Pentastomids as their conspecific relatives in tropics would.

Some authors state that fly larvae present little threat to reptiles as parasites. I have seen Shingleback and Blue Tongued skinks (*Trachydosaurus rugosus*, *Tiliqua nigrolutea*) near Canberra, with their jaws infected by blowfly larvae (*Calliphoridae*), yet there is no evidence of such incidence in the tropics. This suggests that perhaps only the viviparous fly species are capable of causing this problem, therefore the geographical distribution of the parasite is the limiting factor in this case.

2/ Exploitation of dietary requirements of reptiles by parasites sheds light on the host specificity phenomenon. In the case of digenian Trematodes and swamp-dwelling snakes, the parasite cercariae take advantage of the relative abundance of snails and frogs which they select as intermediate hosts. Reinchenbach-Klinke and Elkan (1965) listed a number of digenian metacercariae which occur incysted in various organs, including the brain of frogs and may adversely affect their health, making them easier prey for the definitive host. From the reptiles point of view (though most of these snakes feed readily on rodents as well), the frogs are abundant and easy prey, hence there is an interest to exploit this food resource. We can observe similar interaction in the Nematodes that select mammals as intermediate hosts to reach their final host - snakes. The type of mammal preferred by the snake is directed by its suitable size (Taipans prefer rat, Bandicoot sized mammals, large pythons select wallabies etc.). This "menu" is exploited by parasitic organisms pursuing completion of their life-cycle.

3/ As mentioned in the introduction, wild and captive reptiles offer separate aspects of assessment in reptilian parasitism. Information on abundance and adverse effects of parasites in captive reptiles may not necessarily be synonymous with that in wild species. The stress factor induced by interference or just the captive environment itself, plays an important role in host parasite relationships. This condition can upset the host's natural resistance resulting in dramatic response to parasites in a relatively short time. Subsequent post-mortem examination may then reveal amplified conditions which would not normally occur under natural conditions. However, captive reptiles provide ideal opportunity to study parasite-host interactions and parasitic diseases.

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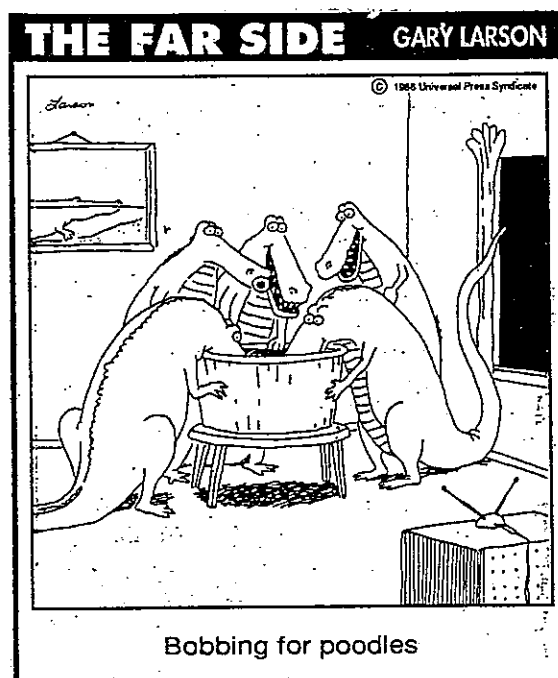
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NOTES TO CONTRIBUTORS

Contributions to Chondro Volume 2, Number 1 (our next edition) are welcome. These may be submitted to Tim Hawkes or Michael O'Brien at WildWorld, Cook Hwy, Palm Cove, Qld. 4879 or to Michael Anthony, P.O. Box 523, Manunda, Qld. 4870 or at meetings.

Articles on any aspect of Herpetology, particularly those concerning North Queensland reptiles would be appreciated.

Neatly written or typed copies are acceptable or on I.B.M. compatible 3 1/2 " or 5 1/4" inch floppy disks.



In the still of the night you can hear them croaking in the creeks. Frogs have long featured in the lives of children — in fairytales, on television and, naturally, when they're wading knee-deep in mud to catch tadpoles.

But do we really take much notice of the humble frog? And why should we? Frogs are as important an indicator of environmental danger as the canary was to the miner. Starting life as spawn in water, progressing to tadpoles before finally reaching dry land, frogs are sensitive to all manner of changes.

The tragedy is that frogs are disappearing from their usual habitats, even becoming threatened or endangered species.

Chris Banks, curator of invertebrates, reptiles and education animals at the Royal Melbourne Zoo, says: "At all stages of development they're vulnerable to things such as pesticides, either sprayed on the ground or that get into the waterways."

Around 45 of the 220 Australian species of frog are suffering some form of decline, particularly the rainforest and tropical species.

Around Australia are programs to monitor frog populations. The Victorian Department of Conservation and Natural Resources runs a program called Frogwatch.

"It doesn't really try to pinpoint exactly what is causing the decline in frogs," says Chris.

"It's trying to get a handle on exactly what the decline is and where it's occurring and with which species."

To improve facilities for research, Cadbury Schweppes, creator of Freddo Frog, is adding a frog house to the zoo's reptile house. It will be a display and research area purely for frogs, providing much-needed facilities for outside researchers. The high profile of frogs in the lives of children will no doubt assist in the preservation of species.

"People don't think of them as something horrible, bitey or yucky," Chris says. "So already you've got that receptive pool of people out there. Every kid at some point in their life has mucked around with tadpoles or frogs, and you've got Kermit. So we don't have a barrier to overcome in the same way as you do with most reptiles."

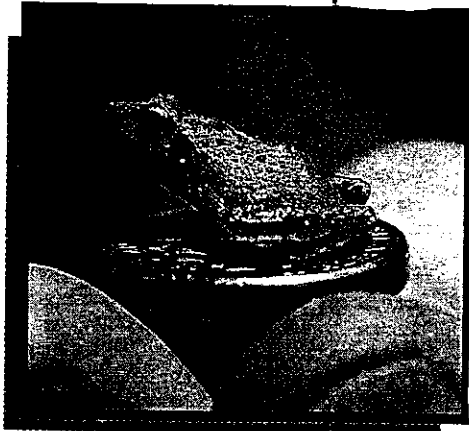
The Melbourne Zoo has about 10 species of frogs on display, including the romer's tree frog (above), which has been brought to Australia from Hong Kong to preserve the species while its natural habitat undergoes transformation from swampland to an international airport.

NEW IDEA 3/4/93

GREEN SPEAK



EMMA BOLING



Venom to benefit patients

MEDICAL researchers found patients given a drug derived from snake venom after suffering a heart attack were 27 per cent more likely to survive than those given a placebo, an article published yesterday said.

The researchers, whose findings were published in the British medical journal Lancet, said: "Patients with clinical evidence of heart failure after a heart attack who were treated with ramipril in addition to their usual medication were 27 per cent less likely to die."

Patients on ramipril were also less likely to have serious complications such as a stroke or another heart attack.

"It's an extremely dramatic finding," Dr Alistair Hall, a cardiologist involved in carrying out the study, said.

"The design of the study is as stringent as we could get."

Co-marketed by Germany's Hoechst AG and AB Astra of Sweden, ramipril belongs to a class of heart-disease drugs known as ACE (angiotensin converting enzyme) inhibitors which dilate blood vessels, allowing easy blood flow.

CAIRNS POST 2/10/93

■ A SNAKE collector has been suffocated in his home by his 90kg pet python. William Bassett, 47, appeared to have struggled with the 5m-long snake, stabbing it several times with a knife, police said. Bassett's body was found this week after he failed to show up for work. It took three people to force the python, named Ebanezer, into a Jefferson Parish Animal Shelter truck.

CAIRNS POST 19/5/93

Snake man dies to save his pets

A MAN killed by a king brown snake had been trying to save his pets, his sister said yesterday.

Cathy Lepik, of Burpengary, said Robin Trims, 38, died after he was bitten twice by the 2m snake during a family gathering at his Logan Village home.

She said they were watching the Australian Rules grand final on television on Saturday when Mr Trims saw his four cats and a dog fighting with the snake in a garden bed 10m from the house.

"He was trying to protect his cats and his dog, Rebel — he just lived for his dog, he just loved it," Mrs Lepik said.

"The snake had reared up and it struck Robin on the foot.

"He tried to pick it up by the tail but it bit him on the hand and would not let go.

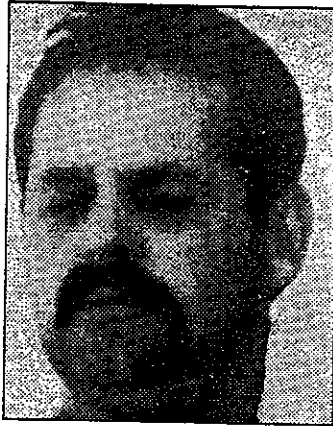
"He tried to fling it off but it would not let go and kept pumping venom into his hand."

Mrs Lepik said doctors at the Princess Alexandra Hospital gave Mr Trims 14 antivenene injections but "he had too much poison in him".

"They couldn't stabilise him, his kidneys and his liver shut down then his heart gave way," she said.

He died on Sunday morning. "We're in shock. We can't believe it — we didn't think any-

Courier Mail 18/10/92



ROBIN Trims . . . bitten twice by a king brown.

body died from snake bites in this day and age."

Mrs Lepik said the 16 family members had not seen Robin for 12 months and had gathered to celebrate his mother's 68th birthday.

She said she wanted to warn people not to take snakes for granted.

Queensland Museum assistant curator of reptiles, Mr Patrick Couper, said snakes were becoming more active as the weather turned warmer.

Mr Couper said snakes should be left alone. Most bites resulted from people tampering with them.

Man bites head off 'rattler'

ELKTON, Virginia: Jarrette Arlo Dean bit the head off a rattlesnake.

Why? It bit him first.

Dean survived. But the snake wasn't so lucky.

Dean, 43, returned home after several days in intensive care in hospital for treatment of five rattlesnake bites, including several to his tongue and lip.

Those occurred while he was biting off the snake's head, described as more than 1m long.

"The doctors say he's a walking miracle," Tina Dean said of her father.

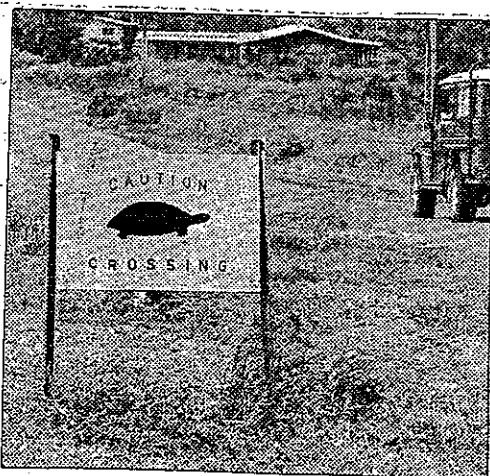
"The swelling has gone down. He's doing pretty well but is only able to eat only soft foods and liquid."

She said her father was riding his bicycle in the Fox Mountain area northeast of Elkton when he spotted the rattlesnake and tried to catch it.

He was bitten again on his right hand as he rode to a neighbour's home with the snake.

He later decided to bite off the snake's head "because it bit him first".

CAIRNS POST 31/7/93



Speedsters beware! This sign on the Alva Beach road at Ayr, north Queensland, warns that local fauna might be on the rampage

SUNDAY MAIL 14/2/93

Canberra vows to veto crocodile hunts

THE Federal Government yesterday vowed to block moves by the Northern Territory government to allow tourists to go on crocodile safari hunts.

Federal Tourism Minister Alan Griffiths said the only tourists who would be allowed to shoot crocodiles would be those who used cameras, not armed trophy hunters.

He said the government would oppose the removal of the salt-water crocodile from the international endangered species list — a necessary move if it is to be hunted.

"The Commonwealth will oppose any such change, thereby effectively vetoing the NT Government's proposal," Mr Griffiths said.

"If there are sound environmental and scientific reasons for culling to take place, the Commonwealth would have no objection, providing that it took place under controlled and humane conditions."

"But hunting crocs for pleasure is a separate issue and has the potential to cause tremendous damage to Australia's image abroad."

The safari plan was announced this week by the NT government as part of a wide-ranging strategy to boost the crocodile industry.

The strategy also included expanding overseas markets for crocodile skins and expanding local markets for crocodile meat.

The shooting of wild crocodiles was outlawed in 1971, when the saltwater crocodile was declared a highly endangered species and the freshwater crocodile was also declared to be endangered, but to a lesser extent.

Under the NT government plan crocodile safaris and trophy hunting would be introduced as an elite sport at the upper end of the tourist market.

Primary Industry and Fisheries minister Mike Reed (who is also conservation minister) last week said it was proposed that only 10 to 20 crocodiles a year would be available for safari hunting.

Mr Reed's plan has already come under fire from environment groups, who say there is no place in the late 20th century for the shooting of an endangered species by

"people wearing funny hats".

The reintroduction of crocodile shooting would require a change to the status of the saltwater crocodile under the Convention for International Trade in Endangered Species (CITES).

The saltwater crocodile (crocodylus porosus) was originally placed on the endangered list because there were serious fears the species faced extinction.

However, since that time, its numbers have grown from an estimated 5000 to more than 50,000.

Victorians fined over live fauna

TWO Victorian men found in Weipa with a collection of live snakes, lizards and frogs were this week fined more than \$1500 each.

Matthew Leonard Hingley, 25, and Richard Henry Vanveen, 26, pleaded guilty in Weipa Magistrates Court on Tuesday to taking and keeping protected fauna.

The charges related to a range of live native animals found in their vehicle on June 25.

The haul included one scrub python, eight children's pythons, one brown snake, three green snakes, one file snake, one little file snake, one death adder, one rough-scaled snake, six green frogs, two mangrove monitors, one Burton's legless lizard and one slatey grey snake.

Magistrate Trevor Pollock fined the men \$1000 each for taking the fauna and ordered them to pay \$1000 each in royalties. They were fined \$500 each for keeping the fauna.

Hingley was fined a further \$240 on a drugs charge.

CAIRNS POST 22/12/93

