The NORTH QUEENSLAND NATURALIST

CAIRNS

Journal of

NORTH QUEENSLAND NATURALISTS CLUB
Box 991, P.O. CAIRNS, Q. 4870. Australia.
Phone 53 1183

Founder President: The late Dr. HUGO FLECKER
International Library No: AT ISSN 0078 1630

OBJECTS: The furtherance of the study of the various branches of Natural History and the preservation of our heritage of indigenous fauna and flora.

MEETINGS: Second Tuesday of each month at Cairns Education Centre, Cnr. Morehead and Lazarus Sts., Bungalow, 8.00 p.m.

FIELDS DAYS: Sunday before meeting. Notice of place and time given in "Cairns Post".

SUBSCRIPTIONS: (Due September 30th)

City and Suburban Members	-	$5.00
Country Members	-	$4.50
Pensioner and Junior Members	-	$1.50

CLUB OFFICERS:

PRESIDENT	Mr. N.C. Coleman
HON. SECRETARY	Mrs. D. Magarry
HON. TREASURER	Mr. W. Felton
HON. EDITOR	Journal Committee
PATRON	Mr. S.E. Stephens

Vol. 45 No. 178 March, 1981 Price 50¢

CONTENTS

Each author is responsible for the opinions and facts expressed in his or her article.

AUSTRALIA'S MOST DANGEROUS SNAKES

by Jeanette Covacevich.

About 100 species of land-dwelling snakes occur in Australia. The medical significance of these can be assessed on the following four point scale of potential danger:

1. always capable of inflicting a fatal bite;
2. capable of inflicting a fatal bite in special circumstances;
3. capable of causing marked symptoms but not potentially lethal;
4. non-venomous or virtually harmless (but still medically significant species.

Healthy, adult snakes of 10 species can inflict bites that always have the potential to be fatal. Bites by another five species may sometimes, in special circumstances (where a young child and a large snake are involved, for example), also be fatal. These fifteen species must always be regarded as potentially dangerous. Another twelve species are capable of causing marked local symptoms but not of inflicting fatal bites.

The potential danger of any snake depends on venom toxicity, venom yield, fang length, temperament, and frequency of bite. The most dangerous snake would be one which had very toxic venom, produced a lot of it, had long fangs, was easily provoked to bite, and was frequently responsible for bites (which would probably reflect its occurrence close to densely settled areas). The snake with the most toxic venom (the Small-scaled Snake Oxyuranus microlepidotus) is not our most dangerous species because it has relatively small venom yield and small fangs, because it is reluctant to bite and because it occurs in an almost uninhabited area.

To determine which of the fifteen dangerous species are most dangerous, these five relevant factors have been rated on a scale of 1-5 in the following order:

venom toxicity + venom yield + fang length + temperament + frequency of bite = danger score.

The dangerous snakes in Australia are listed below together with data on their distribution, preferred habitat, size and the effects of their venom.

1. TAIPAN (Oxyuranus scutellatus)

3 + 4 + 5 + 5 + 4 = 21.

Distribution: NE Western Australia, near Darwin and Birdum in Northern Territory, across Cape York Peninsula and throughout coastal Queensland south to the Grafton area in NE New South Wales.
Habitat: Open grassland, open forests and drier closed forests.
Maximum length: 3.5 m.
Venom: strongly neurotoxic, strongly coagulant, and haemolytic.

2. MULGA OR KING BROWN SNAKE (Pseudechis australis)

1 + 5 + 4 + 3 + 3 = 16.

Distribution: Virtually throughout the Australian mainland excluding extreme SW W.A, SE S.A., Vic. and coastal N.S.W.
Habitat: All dry habitats.
Maximum length: 1.1 m.
Venom: Neurotoxic, strongly coagulant, haemolytic.

3. DEATH ADDER (Acanthophis antarcticus)

2 + 3 + 4 + 2 + 4 = 15.

Distribution: With its close relative, the Desert Death Adder, virtually throughout mainland Australia exclusing Vic. and E S.A.
Habitat: All habitats except dense, moist closed forests.

Maximum length: 1.1 m.
Venom: Strongly neurotoxic, mildly cytolytic, mildly haemolytic.

4. EASTERN OR COMMON BROWN SNAKE (Pseudonaja textilis)

4 + 1 + 1 + 4 + 4 = 14.

Distribution: Throughout eastern mainland Australia.
Habitat: All habitats except dense, moist closed forests.
Maximum length: 2.1 m.
Venom: Strongly neurotoxic, strongly coagulant, mildly haemolytic.

5. TIGER SNAKE (Notechis scutatus)

3 + 2 + 2 + 2 + 5 = 14.

Distribution: SE Qld. (S of Gympie and E of the Bunya Mts.), coastal N.S.W., Vic. and E S.A.
Habitat: Closed forests, heathlands, dry and moist open forests and grassy flood-plains.
Maximum length: 1.8 m.
Venom: Strongly neurotoxic, strongly coagulant, haemolytic and cytolytic.

6. SMALL-SCALED OR "FIERCE" SNAKE (Oxyuranus microlepidot)

5 + 2 + 2 + 2 + 1 = 12.

Distribution: SW Qld. and NE S.A.
Habitat: Open plains.
Maximum length: 1.8 m.
Venom: Strongly neurotoxic.

7. WESTERN BROWN SNAKE (Pseudonaja nuchalis)

1 + 3 + 4 + 1 + 1 = 10.

Distribution: Throughout mainland Australia excluding coastal S.A., Vic., E N.S.W. and coastal S Qld.
Habitat: Open forests, grassland and open plains.
Maximum length: 1.8 m.
Venom: Strongly neurotoxic and coagulant, mildly haemolytic and cytolytic.

8. COLLETT'S BLACK SNAKE (Pseudechis colletti)

1 + 3 + 4 + 1 + 1 = 10.

Distribution: Central W Qld.
Habitat: Open black soil plains.
Maximum length: 1.8 m.
Venom: Neurotoxic, haemolytic and anticoagulant.

9. COPPERHEAD (Austrelaps superbus)

2 + 2 + 1 + 2 + 3 = 10.

Distribution: Highlands from NE N.S.W. to SE S.A; Tasmania.
Habitat: Swampy areas.
Maximum length: 1.7 m.
Venom: Strongly neurotoxic, also haemolytic and cytolytic.

10. BASS STRAIT TIGER SNAKE (Notechis ater)

3 + 2 + 2 + 1 + 1 = 9.

Distribution: Islands of Bass Strait, E S.A., extreme SW W.A, Tas.
Habitat: Coastal area, swamps and dry rocky areas.
Maximum length: 1.5 m.
Venom: Strongly neurotoxic and coagulant, haemolytic and cytolytic.

11. RED-BELLIED BLACK SNAKE (Pseudechis porphyriacus)

1 + 2 + 3 + 1 + 2 = 9.

Distribution: Coastal Qld. south of Cooktown, coastal N.S.W., Vic. and E S.A.
Habitat: Closed forest, open forest, open grassland; usually near water.
Maximum length: 2.5 m.
Venom: Strongly haemolytic, coagulant and neurotoxic.

12. SPOTTED BLACK SNAKE (Pseudechis guttatus)

1 + 2 + 3 + 1 + 1 = 8.

Distribution: S Qld. and NE N.S.W. as far S as the Hunter Valley.
Habitat: Open black soil plains, in grassland and open forests.
Maximum length: 1.5 m.
Venom: Coagulant, haemolytic, haemorrhagic, and mildly neurotoxic.

13. ROUGH-SCALED SNAKE (Tropidechis carinatus)

1 + 1 + 2 + 1 + 2 = 7.

Distribution: Coastal N.S.W. N of Barrington Tops, SE Qld. N to Fraser Is., and NE Qld. between Tully and Mossman.
Habitat: Closed forest, wet open forest, and coastal heathlands.
Maximum length: 1 m.
Venom: Mainly neurotoxic.

14. DUGITE (Pseudonaja affinis)

1 + 1 + 1 + 1 + 2 = 6.

Distribution: SW W.A.
Habitat: Open forests.
Maximum length: 1.5 m.
Venom: Neurotoxic, haemolytic and cytolytic.

15. SMALL-EYED SNAKE (Cryptophis nigrescens)

1 + 1 + 2 + 1 + 1 = 6.

Distribution: E Qld. S of Cairns, E N.S.W. and Vic.
Habitat: Closed forest, wet and dry sclerophyll forests.
Maximum length: 1.2 m.
Venom: Poorly known; currently being studied at the University of Queensland and at the Commonwealth Serum Laboratories, Melbourne.

-oOo-

SNAKE BITE AND FIRST AID

by Jeanette Covacevich.

Much of the research in Australia on snake venoms and their effects is conducted at the Commonwealth Serum Laboratories, Parkville, Victoria 3052. Set out below is an extract from the latest CSL publication "First Aid for Snakebite in Australia" prepared by Dr. S.K. Sutherland and available from the Commonwealth Serum Laboratories.

1. At least 95% of bites occur on the limbs. Perhaps 75% involve the lower limb.
2. Sometimes no venom is injected, even if fangs have made holes in the skin.
3. The venom is injected quite deeply. It was shown many years ago that very little venom is removed by incision or excision.
4. Recent research has shown that firm pressure applied over the bitten area significantly delays the movement of venom. When pressure is combined with immobilizing the limb very little venom reaches the blood stream.

Therefore rational first aid is:

1. Immediately apply a broad firm bandage around the limb to cover the bitten area. It should be as tight as one would bind a strained ankle. As much of the limb should be bound up as possible. Crepe bandages are ideal but any flexible material can be used, e.g. tear up clothing or old towels into strips.

2. The limb must be kept as still as possible. Bind some type of splint to the limb - e.g. piece of timber, spade, any rigid object.

3. Bring transport to the victim whenever possible.

4. Leave the bandages and splint on until medical care is reached.

Do not cut or excise the bitten area.

Arterial tourniquets are no longer recommended for snake bite.

Don't wash the bitten area. The snake involved may be identified by the detection of venom on the skin.

If the snake can be <u>safely</u> killed bring it into hospital with the victim.

-oOo-

NOTES ON NEST BUILDING AND BROODING BY TORRES STRAIT PIGEONS *Ducula spilorrhoa* (*Myristicivora spilorrhoa*)

by N.C. Coleman *

In early November 1978 a pair of Torres Strait pigeons were seen building a nest on a branch of a large eucalyptus tree on McKinnon's Creek near Edmonton. They were using sticks, twigs and leaves as nesting material and the completed nest was very substantial for a pigeon. Being in the open, the structure could easily be seen but the ragged outline due to the uneven lengths of sticks and twigs had a slight camouflaging effect. One of the birds seemed to do most of the building while the other gathered the material and presented it to the builder, often bowing its head and giving a low call as it did so.

By the end of November brooding had commenced and the birds were checked during the morning, midday and late afternoon, as other activities allowed. The birds relieved each other at brooding and this was done after the sitting bird had called several times. The calls were made by the pigeon bending the neck down and pressing backwards, and pressing the beak against the breast resulting in a sustained, long drawn out, soft but penetrating 'oooom'. Often the returning bird would bring a twig or leaf back to the nest and present it to its mate, bowing its head a few times. This material was tucked into the side of the nest by the brooding bird which then moved off to a branch nearby and commenced preening while the other settled down on the nest. These change--overs seemed to take place three or four times a day and continued until feeding of the single chick commenced in early January.

A cyclone was blowing off the coast during the following period with very heavy rain at Edmonton. Both birds were seen to feed the chick and both sat throughtheir stints during this period with head down facing into the wind and heavy driving rain from the south-east. A few small branches near the nest broke off but, though the pigeons came safely through January, their chick was found below the nest one morning in early February, fully fledged but dead with no sign of injury, and no pigeons in or near the tree.

On the 9th October 1979 another pair of Torres Strait pigeons were seen nest building in a tall slender gum tree about eleven metres above the ground. This was during a prolonged dry period with strong north-east to north winds. Mating was noted twice during the period of nest building and the birds were brooding before November. They relieved each other on the nest with occasional presentations of nest material, always accompanied by a bowing of the head.

Whenever a change over was observed the relieved bird spent some time preening before flying off. When the chick was hatched late in November the sitting adult often moved to the side of the nest before midday and moved back to the chick at about 3 p.m. Presumably this was to allow the young bird to cool off as the north-east winds at this time were strong and hot. This chick was successfully reared to maturity and flew around with the parents for a few days before they all joined with other pigeons along the creek.

At the two nesting sites observed there was no display flight, the upward zoom followed by a downward swoop by the returning birds, as can readily be seen over the mangroves off the Esplanade at North Cairns.

* Barr St., Edmonton, Q. 4869.

-oOo-

EXCERPTS FROM THE N.Q.N.C. LIBRARY

DR. HUGO FLECKER

by (Mrs.) Dora Stokes, Hon. Librarian.

My first excerpt is most appropriately about the Founder President of the N.Q. 'Nats' Club, the late Dr. Hugo Flecker M.B., Ch.M., F.R.C.S.(Edin.) BAR. FFR. Dr. FRGSA. An historical pot pourri from the "Lodge of Tranquillity", No.436, A.F. and A. Masons of Victoria, Golden Jubilee 1928-1978 edition, states that:-

Hugo Flecker was foundation treasurer of Lodge No. 436.

He was born in Victoria in 1884, studied in Adelaide and Sydney where he obtained his degree in Anatomy with honours in 1908. He was elected a Fellow of the Royal College of Surgeons after studies in London and Edinburgh. He practised for a period in Canada.

Enlisted in Australia in the Light Horse Regiment in 1914, going to France. In 1915 he was posted (with rank of Major) to the Base Hospital, Heliopolis, where he cared for the casualties of the Gallipoli campaign. Invalided home in 1917, with the rank of Major, he became world famous through his work in Melbourne on Radiology. Joined the Lodge in 1910. Left for North Queensland in 1932. Practised in Mareeba and Cairns as a specialist radiologist.

He did research work in many fields, i.e., injuries caused by plants and animals in N.Q. He named a mildly toxic jelly fish "Irukanji" after the original tribe of aborigines of Cairns. A deadly jelly fish, Chironex fleckeri, was named after him in recognition of his work.

Very soon after his arrival in Cairns he assisted in the foundation of the North Queensland Naturalists Club in 1932. He started a Herbarium of Tropical Plants now preserved at Atherton in the care of the Forestry Department. The Herbarium is one of Australia's most valuable collections and some of the plants have become extinct.

After Dr. Flecker died in 1957 his modest brass plate with an impressive tally of degrees engraved in manuscript letters was preserved with the herbarium. A street in Cairns is named after him. The Flecker Botanical Gardens has his name also in recognition of his services.

(The Librarian would welcome any interesting information about Dr. Flecker that readers may have so that it may be added to the N.Q.N. Club library.)

-oOo-

Our Librarian appeals for any back numbers of this Journal that can be spared for her records.

-oOo-

BIRDING BY TRAIN

An Account of Two Journeys to Brisbane by Train : Oct/Nov 1979 and Sept. 1980

by Marion Cassels.

Who says it is boring, travelling on a train for two days? If you are a naturalist it is anything but boring. Slightly frustrating when you can't ask the train to "go back a bit" but boring? No!

There are so many different trees and plants to see. Some that we saw were Grevillea pteridifolia in full bloom here in the north, interspersed with some G. parallela also flowering well. High up in one of the trees I had a quick glimpse of an orchid in flower and on a dead limb what looked like an anthouse plant. Further south we went through forests thick with palms of several different species, lianas and many different trees. There were a lot of Grevilleas flowering down south - they looked to me like creamy Grevillea with a few red ones here and there. Large yellow candles of Banksia made a pleasing picture. There were plenty of grass trees in flower with the spears sometimes straight and sometimes twisted into peculiar shapes.

Quite often wallabies were seen grazing in the fields, sometimes singly and other times in family parties. A nice big 'roo sat beside the track quite unconcerned. But my joy was in the birds. Over the two trips I must have notched up about 75 different species.

Perky little red backed wrens perched on the fence wires and some double bar finches tried to race the train. In the rice fields, which were flooded, were egrets, yellow billed spoonbills, white ibis and various cormorants. On the swamps between Townsville and Giru were hundreds of water birds but, unfortunately, too far away to identify many of them. One could see magpie geese, swans, ibis, spoonbills and ducks galore. From Townsville to about 50 miles the other side of Home Hill were hundreds - and I mean hundreds - of brolgas feeding in the dry paddocks. I have never seen so many as on this September journey.

At one period the train stopped (again) and a crimson finch flew and perched just outside our window. Redbacked, sacred and forest kingfishers perched on the telephone wires and both types of kookaburras were seen on fence posts and dead trees. At one station a sunbird, male, flew out of a mango tree.

In the southern areas flocks of European starlings were often seen flashing over and southern figbirds were feeding on trees near one of the stations. Black kites, brown falcons, kestrels, brahminy kites and whistling kites were seen flying around and a couple of wedgetailed eagles landed in a field.

Near a paddock of cane a couple of stone curlews were seen squatting down and a pheasant coucal flew heavily and flopped into the cane. As we passed over some of the rivers and swamps we saw pelicans, coot, grebes, black duck, white-eyed ducks, swamp hens and silver gulls. Cattle egrets in their breeding plumage were frequently seen near Brisbane. A pale headed rosella clung to a post near the line while rainbow and scaly breasted lorikeets flew screeching through the trees. Black faced and white breasted wood swallows hawked for insects.

Other birds seen were willie wagtails, fairy martins, crested pigeons, magpie larks, spurwing and masked plovers, magpies, pied butcherbirds, rainbow birds, welcome swallows, sparrows, wood duck, white necked and white faced herons, black faced and little cuckoo shrikes, dollar bird, turtle and feral dove, cisticolas, peaceful doves and all the egrets.

All these birds appeared before me for a brief span as the train lumbered on making my trip one of great pleasure and one that never palled.

-oOo-

BUTTERFLY AND MOTH BREEDING IN YOUR OWN GARDEN

by Dr. Roger Guard.

We arrived in Cairns in 1977 and set out to provide suitable food plants in our garden to encourage common local species of butterflies and moths to breed. The plants we have tried so far and their corresponding butterflies or moths are:-

Citrus	- for Papilio fuscus capaneus (Capaneus butterfly), P. anactus (Dingy swallowtail), P. aegeus (Orchard butterfly) and P. ambrax (Ambrax butterfly).
Aristolochia indica	- for Ornithoptera priamus euphorion (Cairns Birdwing), Cressida cressida cressida (Big Greasy) and Pachliopta polydorus (Red-bodied swallowtail).
Euodia	- for Papilio ulysses (Ulysses butterfly).
Custard apple and Mitrephora	- for Graphium eurypylus (Pale Green Triangle), Graphium agememnon (Green Spot Triangle). Potentially one could also hope for Graphium macfarlanei and G. aristeus but that is being optimistic as both are rare in Cairns.
Mistletoe	- for Delias mysis (Union Jack) and D. argenthona (Northern Jezabel). Delias nigrina (Common Jezabel) and Ogyris species have not yet been seen in our garden. A bonus here is the delightful Mistletoe Bird.
Nerium (Oleander)	- for Euploea eichhorni (Eichhorn's crow) and E. core corinna (Common crow).
Orchids	- for Hypolycaena danis (Black and white tit).
Cassia (several N.Q. spp. and Poinciana	- for Polyura pyrrhus sempronius (Tailed emperor).
Rough leaved fig	- for Philiris innotatus (Common moonbeam).
Plumbago	- for Syntarucus phinius (Zebra Blue).
Omalanthus	- for Coscinocera hercules (Australian Atlas Moth)
Coconuts	- for Cephrenes (Palmdarts).

This list of suitable plant species could be extended greatly by any enthusiast, especially one with a good knowledge of native plants, e.g. Adenia populifolia for Cruisers and Lacewings and ant house plants for Apollo Jewels. It is also worthwhile establishing flowering plants suitable for attracting butterflies. Our choice of these includes Pentas, Buddlea and Lantana. Most of these plants are available at nurseries. Mistletoe needs no human effort to spread in our garden. Omalanthus (Bleeding Heart tree) is common in our bush. Aristolochia indica and A. delantha are not common in the bush and are not stocked by nurseries. However, plants are obtained either from other Birdwing breeders or from the bush. Many of these plants have the added bonus of being fruit producers (citrus), flowering trees (Euodia and Cassia) or good shade trees (Poinciana). Unfortunately, larvae and flowers do not always co-exist happily as one will be reminded by any serious orchid grower in Cairns. Hypolycaena is remarkable in its ability to seek out and nip in the bud any unguarded orchid in the city.

With each species we try to obtain a photographic record of each stage of development including emerging sequences. We also keep a record of all pupation times and other data.

Ulysses were our first success when, in 1979, we managed to assist 33 through to adulthood. Ulysses need man's intervention to breed successfully in a domestic garden. Without it the parasitism rate is 100% at the pupal stage.

Presumably parasitism is less severe in the jungle since the species appears to be surviving very well. The main pupal parasite of Ulysses in our garden is the large brown household blowfly. In 1978 we lost all of our Ulysses from this cause but in 1979 we brought most of them inside at the pre-pupal stage and kept them in a polystyrene box covered with fine netting. We attach the date of pupation tag to the branch used for pupation. Any pupa not found within the 24 hour period of prepupation is lost to the flies. There is also a smaller fly of unknown species which attacks Ulysses as well as the Papilios on citrus. This fly follows the last instar around and either attacks the pre-pupa (e.g. Ulysses) or the final instar (e.g. Papilios). Contrary to expectations, I have not seen any predation of pupae by wasps. In 1980 we did not have as much success with Ulysses as in 1979 mainly because our tree was so large, despite pruning, that finding the pre-pupae in time was not so easy. Others have had little success with Ulysses because their trees have green tree ant nests in them which appears to be fatal for the small larvae. Smaller ant species and spiders will suck the juice out of eggs.

Some of the feeding activities of Ulysses are very interesting to watch. The larvae are exclusively night time feeders except for the last few days before pupation when they will sometimes feed in broad daylight. This practice is dangerous as they are very palatable to birds. Normally, however, during the day they stay in carefully webbed hides made on the upper surface of a leaf. The webbing makes the sides of the leaf come together to give protection. Some larvae will make two or three daytime hides during their life. Some hides are shared by two caterpillars. As dusk falls each day, it is interesting to watch several larvae at different sites on the tree go out to feed at almost exactly the same minute.

When the time comes for pupation they are kind to their keepers by always pupating on their food plant but often at a site far distant on the tree from their hide. (We have seen one exception to this rule in about 60-70 pupations. This larva left the tree and pupated on a fence 6 feet away.) The pupation is sometimes on the undersurface of a major branch but is generally under the central leaf of the three terminal leaves on each twig. The pupa is cleverly disguised to look like a small subsidiary leaf. The pupation time varies with the month of the year being about 17 days in Jan-Feb, 21 days in May-June and up to 24 days at the end of winter. We have not seen any overwintering of pupa i.e. diapause, so I presume that in Cairns continuous breeding cycles are present all year round. The adult or imago emerges in the early morning varying from first light to about 10 a.m. Wing expansion takes about 10 minutes and then wing drying takes about 4 hours. Unfortunately you can never photograph their bright blue colour because they keep their wings tightly closed during this time. It is quite a thrill to watch the first flight of such a beautiful creature and to know that it is a product of your own tree.

1980 for us was the year of the Birdwing because we reared and released 40 adults. Birdwings, in contrast to Ulysses, are quite hardy and seem to have very few predators, at least in our garden. They feed in broad daylight and have no camouflage. Birds ignore them presumably because they know that Aristolochia is poisonous. The caterpillar rests by night generally on the back of a leaf. The pupae may be left out in the garden (which happened accidentally in two cases) and will come to no harm. Their numbers seem to be directly proportional to the quantity of their food plant. In 1978 our vine was accidentally mown so our yield was nil. In 1979 the vine had grown well and we reared 9 to adulthood. In 1980 our vine was approximately 5 times as large as in 1979 and 53 were reared to final instar. This contrasts with Ulysses where parasitism rather than food plant is the limiting factor. The Birdwing caterpillar completely strips its vine of all leaves and it will also eat through stems and seed pod cases. At one stage we had 83 caterpillars on the vines. Because the species needs so little human help to survive we think that if many people planted the vine in Cairns there would be a considerable increase in suburban