

The NORTH QUEENSLAND NATURALIST CAIRNS

Journal of

NORTH QUEENSLAND NATURALISTS CLUB
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Phone 53 1183

Founder President: The late Dr. HUGO FLECKER
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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.

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

SUBSCRIPTIONS: (Due September 30)

City and Suburban Members	-	\$4.00
Country Members	-	\$3.50
Pensioner and Junior Members	-	\$1.00

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CONTENTS

Australian Landsnails - Rainforest Species by Phillip H. Colman	2
Techniques for shipping Live Terrestrial Molluscs by Phillip H. Colman	3
The Origin of Generic Names of Queensland Rainforest Trees Part IV by James A. Baines	5
Estuarine Molluscs by Barbara Collins	6
The North Queensland Naturalists Club - from a Summary by S.E. Stephens	7
Obituary	8

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

2087

AUSTRALIAN LANDSNAILS - RAINFOREST SPECIES

by PHILLIP H. COLMAN*

In the past two years the Australian Museum in Sydney has been involved in a survey of the rainforests of eastern Australia. These extend from Cape York down the coast to just north of Sydney. A 'true' rainforest, in the botanical sense of the term in Australia, is very roughly, one with no eucalypts present (with minor exceptions). My interest in this survey was with terrestrial molluscs. Other disciplines studied by colleagues, mainly from the Australian Museum and the Queensland Museum, were birds, reptiles and amphibians, mammals, insects, spiders, and a few other smaller groups. Botanical, geological and meteorological aspects were taken into account as well. My immediate colleagues were Dr. J.B. Burch, curator of landsnails, and Dr. W.F. Ponder, curator of marine molluscs at the Australian, and later Ian Loch, formerly of Cairns and now technical officer within our department. The survey looked at three groups of rainforest, those of mid-east Queensland, those of north Queensland and those of New South Wales in that order. This article will review results of the landsnail survey. Future articles will discuss problems affecting the study of Australia's landsnails. Each of the three areas covered about 10 sites, and those of north Queensland were from Mt. Molloy, through Thornton Peak and the Bloomfield River area to Mt. Cook, just north of Cooktown.

The results of the whole survey have been spectacular, and show us just how little we know of the molluscan fauna of Australia - at least of our rainforests. About 160 species were collected in all, of which about 36% are new to science! Because of the nature of the survey a strict methodology and time limit was adhered to at each site: 3 man hours of general collecting, plus $\frac{1}{4}$ hour each of arboreal collecting and of specifically searching tree trunks. As well, 3 x 2 litre bags of leaf litter were collected from the forest floor for later sorting back at the lab. Each site covered 3 x 3 hectare blocks, and note was made of the botanical classification of the site. Prolonged study of any area would yield some more species at least, though luckily snails don't move fast and an intelligent knowledge of habitat preferences will probably yield most species in that time. The evidence from the dead shells in the floor litter showed up species not collected otherwise. One area not studied at each site was the forest canopy. (If anyone knows a good way to study the molluscan fauna of a canopy some 100 feet up, please let me know!) This problem will be the subject of a future article.

Of the 160 species collected, many were small and came from the forest floor litter, and the yield in species and specimens shows how important the micro-mollusc fauna is in the breakdown of biodegradable matter, or if you like to put it another way, the recycling of nutrient. From the contents of three medium size plastic bags full of leaf litter from one site we sorted about 50 shells. Micro-molluscs range down to less than 1 mm

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in size, but lack of size does not mean a drab shell. Some small molluscs are exquisitely sculptured and easily out-rival their larger brethren in beauty.

Analysis of results show a certain tendency to vertical distribution limits. Few species were found to range from sea level to the three highest sites we covered, Mt. William (1259 m) in the Eungella Range west of Mackay, Thornton Peak (1260 m) north of Mossman, and New England National Park, northern N.S.W. (1300 m). Annual precipitation also dictated species distribution - and species diversity. The wetter rainforests in general yielded more species, although the wettest of all, New England, in its highest part, yielded by far the lowest count in species of all sites. The drier rainforests varied in species diversity. The driest were dry enough to allow inclusion of normally wet or dry sclerophyll forest species, so numbers of species were fairly high.

No species found appear to be plant eaters. This may come as a surprise to most readers, but as yet no Australian native snails or slugs have been recorded as being pests in this way. Those native species found in gardens were probably eating the already decaying leaves under your lettuce. In fact most of our species feed on the algal and fungal growth on leaves or trunks or rocks, or on rotting wood - and in the latter case ingesting the rotting wood to extract fungal breakdown agents. A few other species, mainly from the family Paryphantidae, are carnivores, preying on other snails and slugs and other soft bodied animals such as worms. A small, cryptic native slug, Prisma, of the family Rathouisiidae, a slug that looks more like a dead twig, about 4 cm long, and characteristically triangular in cross section, is also carnivorous. We recorded this rare slug from two sites. We would be particularly pleased, by the way, to receive specimens (alive preferably) of this slug, which would be found under logs and sticks on the ground, and, as I say, looking like a small twig adhering to the upturned log. It is probably not rare, but so discreet in appearance that it is always overlooked.

TECHNIQUES FOR SHIPPING LIVE TERRESTRIAL MOLLUSCS

The classification of Australian landsnails is based, at the moment, on studies of the shell alone. In recent years more and more attention has been directed towards the study of the animal that makes the shell, and many errors of yesteryear are coming to light. Malacologists at the various Australian museums are always very grateful for live specimens of landsnails. Much of their day is spent in the office, and although field work is essential for their work, no one person can hope to cover the many places he needs to look at, for distributional data, habitat preferences, etc. The following notes are given after some years of testing of techniques used in the shipment of live specimens. The amateur naturalist can help profoundly in the study of our landsnails, as he can in all other aspects of nature, and his help is always appreciated.

Live snails or slugs are always preferred to dead ones, as live animal characteristics can be noted, and if necessary photographed, before the specimens are preserved for further anatomical study.

Posting live terrestrial molluscs: Pack in dry leaf litter or tightly wrapped in dry newspaper. It is better to wrap each specimen individually. Keep locality data separate, perhaps in a plastic bag, as land-snails tend to eat labels in preference to all else! If the environment of the parcel is dry the snails aestivate (become dormant). If moist they tend to become active and in so doing produce slime which can eventually suffocate them in the confined space. Slugs should be allowed slight moisture to stop them dehydrating, perhaps slightly damp leaf litter or the pulp from the centre of a rotten log.

Posting live aquatic molluscs: Layer them, in a watertight container, in sheets of moist toilet or hand towel paper or some such absorbent paper. Newspaper will do. It is best they be airfreighted or airmailed as they won't survive as well as landsnails.

Always remember to keep locality data separate from live specimens. Data is important. Exact site, altitude if available, date, habitat information, etc. is perhaps more important with terrestrial molluscs than with marine. Most marine species have a planktonic larval stage allowing distribution over a wide area. Land molluscs don't, so regional variations are common due to lack of gene mix. A good label would read:-

7.5 km N. of Rockhampton, Qld., on left side of Bruce Highway, in dry, open eucalypt forest, under log, 17 Oct. 1976. Coll: P.H. Colman.

-or

Rudd Creek, Upper Herbert River, Qld. In permanent waterhole 16 miles upstream from Gunnawarra Homestead, under waterlily leaves. 17 Oct. 1976. Coll: P.H. Colman.

Editor's note: In a covering letter, Mr. Colman emphasized the importance to professional naturalists of the amateur naturalist in all fields, not only malacology. "The intelligent and observant amateur is of just as much importance to the professional as that professional's vast library and vast reference collections. We in the shell department would be sadly poorer off but for the many dedicated amateurs who happily do for us what we, in our offices, cannot do, no matter how good our library or collection."

Note: STCN = Standard Trade Common Name
 PCN = Preferred Common Name (likely to become the standard name).

Brachychiton. Gk brachys, short; chiton, an undergarment or tunic; alluding to the loose outer covering of the seed or the overlapping scales. B. Rupestre, Old Bottle Tree, B. acerifolium, Flame Tree, and B. discolor, Scrub Bottle Tree or White Kurrajong, are northern relatives of Kurrajong of N.S.W., V., Q., B. populneus. Fam. Sterculiaceae.

Brackenridgea. Named by A. Gray after W.D. Brackenridge (1810-1893), born at Ayr (Scotland). but went to America to become assistant botanist on the Wilkes Antarctic expedition, 1838-42. On his return, he was a horticulturist in New York until 1854, then lived at Baltimore, Maryland. He published a monograph on ferns. The Q. Species, B. australiana, is endemic and is called Brown Ochna, being in fam. Ochnaceae.

Brassaia. Named by Endlicher, perhaps after William Brass, a collector in South Africa for Banks. B. actinophylla, Umbrella Tree, is now in Schefflera.

Breynia. Named by J.B. and G. Forster after German botanist, J. Breyn. The N.Q. species, B. stipitata, has no common name. Fam. Euphorbiaceae.

Bridelia. Named by Willdenow after French botanist, Prof. Bridel, an early worker on mosses and on diastases and metabolism of plants. B. exaltata is known as Grey Birch or STCN Scrub Ironbark. Fam. Euphorbiaceae.

Brombya. Named by Baron von Mueller after John Edward Bromby, D.D., first headmaster of Melbourne C. of E. Grammar School, South Yarra (not far from where Mueller himself lived). B. platynema is listed by Hyland, but Willis' "Dictionary of Flowering Plants and Ferns" and Burbidge's "Dictionary of Australian Plant Genera" agree in placing it in Melicope. Fam. Rutaceae.

Bubbia. Named by Van Tieghem (a French botanist of Dutch ancestry), presumably after a person named Bubb, which is an English surname. N.Q. has two species, both endemic, including B. semecarpoides, STCN Winter Beech, Australian Pepper Tree or Winterwood. Fam. Winteraceae.

Buchanania. Named by Sprengel after Dr. Francis Buchanan, M.D., F.L.S., F.R.S. (1762-1829). Born and died in Perthshire, Scotland. He became a surgeon for the East India Company in 1794, and was superintendent of the botanical garden at Calcutta, 1814-15. He sent many of his drawings of plants of India, Burma and Nepal to Kew Gardens, England. The N.Q. species B. arborescens is STCN Buchanania, Satinwood or Lightwood. Fam. Anacardiaceae.

Buckinghamia. Named by von Mueller after Richard Grenville, 3rd Duke of Buckingham and Chandos, who was Secretary for the Colonies, 1866-68; he had been M.P. for Buckingham, 1846-57; he was governor of Madras, 1875-80. The title became extinct on his death in 1889. B. celsissima is a monotypic endemic species, fam. Proteaceae.

Bursaria. Lat bursa, a pouch or purse (cf. Capsella bursa-pastoris, Shepherd's Purse). B. tenuifolia is the N.Q. species listed by Hyland. The common southern species is B. spinosa, STCN Sweet Bursaria or Blackthorn. Fam. Pittosporaceae.

Bursera. Named by Baron von Jacquin after Joachim Burser, a 17th century German botanist. It gives its name to family Burseraceae, included in which is the genus Canarium. B. australasica is now C. australasicum, Mango Bark, Carrot-wood, or STCN Brown Cudgerie.

Cadellia. After Francis Cadell (1822-79), a pioneer of River Murray navigation. In 1867 he explored a part of the Gulf of Carpentaria.

This small tree is now Guilfoylia monostylis, monotypic in fam. Simaroubaceae.

Callicoma. Gk kalos, beautiful (kallos, a beauty); kome, hair; alluding to the pretty, fluff-like, globular heads of flowers. C. serratifolia, now generally known as Callicoma, was the original 'wattle' of the early wattle-and-daub huts in the Sydney area. This common name is now universally used for species of Acacia (fam. Mimosaceae). Callicoma is in Cunoniaceae.

Callistemon. Gk kallos, beauty; stemon, a stamen; because the 'bottlebrush' flowers are formed by masses of coloured stamens. C. viminalis, STCN Drooping Bottlebrush or Creek Bottlebrush, occurs in N.Q. rainforests. Fam. Myrtaceae.

Callitris. Gk kallos, beauty; thrix, trichos, hair (although J.M. Black in "Flora of South Australia" derives the second element, -tris, from tres, tria, because the leaves are in whorls of three). Most species are in the dry inland, but C. macleayana, STCN Brush Cypress Pine or Stringybark Cypress, grows in the N.Q. rainforests. Fam. Cupressaceae.

ESTURINE MOLLUSCS

by BARBARA COLLINS

The mangrove and mudflat area would seem no place to collect shells, but it is surprising what material comes from them. Mangroves are not the easiest to shell amongst and one often has to combat sandflies, mosquitoes and lots of mud. The Cairns Inlet and Barron delta are rich in this fauna, but good results can be obtained from Cooya Beach across the Inlet from Port Douglas with a minimum of effort. The muddy sand here is quite firm and the mangroves on the southern end of the beach are easily accessible.

The largest of the mud dwelling molluscs belong to the family Potamididae and comprise four species, Telescopium telescopium, Terebralia palustris and sulcata and Pyrazus ebeninus. These are usually abundant in the mud amongst the mangroves. Cerithidea obtusa is a smaller lighter shell and is found high and dry on the tree stems above the mud.

Small varieties of Cerithidae live in adjacent muddy-weed areas, together with the bivalves Trisidos yongei (Twisted Arc shell) and species of Anadara (Cockle). Placuna placenta (Window Pane shell) lives a sedentary life on the mud flats, usually lying quite obviously on the surface. Isognomon ehippium (Mauve Pearl Oyster) lives in clusters attached by their byssus to the roots of the mangrove trees. Most of these shells are edible and comprise the bulk of debris in coastal Aboriginal middens.



Telescopium telescopium



Operculum



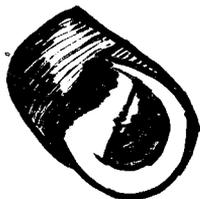
Trisidos yongei

The roots of the mangrove trees are usually profusely dotted with Nerita planospira and lineata, the stems and leaves with Littorina scabra. The latter is a very variable shell and can be heavy or light, ribbed or smooth, banded or speckled, and the colour ranges from white through yellow, red, brown, to black.

Cooya Beach is also the home of Murex permaestus, a black shell with slightly frilled varices. The interior ranges from cream to purple. This mollusc feeds on the Toredos worm that invades decaying logs. I was very upset to see a large section of the mangroves cleared and heaped up, but returning some months later, I found huge numbers of the murex amongst the then rotting timber. They were apparently breeding and in one cluster I counted 14 shells. Sexual dimorphism is present, the male shell being much smaller than the female. These exposed shells were also eroded and smothered in oyster shells and as such useless for collection. Most mangrove dwelling species have eroded spires and Nassarius olivaceus is no exception.

In the drier reaches of the mangrove swamps live the Ear shells, so called because they resemble a human ear. There are many of these, but the most commonly encountered is Cassidula angulifera. Ellobium auris-judae is another and is found under logs amongst the Cottonwoods which border the scrub.

None of these shells will be found elsewhere and are endemic to our mangrove swamps and river estuaries.



Nerita lineata



Littorina scabra



Cassidula angulifera

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THE NORTH QUEENSLAND NATURALISTS CLUB

Condensed from a Summary by Mr. S. E. STEPHENS, July, 1976.

Formed in Cairns in 1932 at a public meeting initiated by Dr. Hugo Flecker

Presidents: Dr. Flecker, 1932-45 and 1949-50; S.E. Stephens, 1945-48; J.M. Gray, 1949; A.A. Read, 1950-63; V.M. Reilly, 1964; A.J. Cassels, 1965-73 and 1975-76; W. Huddy, 1974.

Secretaries: J. Wyer, 1932-58; E.S. Fielder, 1959-60; A. Dockrill, S. Dean, C. Luppi, 1961-63; Mrs. M. Cassels, 1963-76.

Patrons: Dr. Flecker, 1951 until his death in 1957; Mr. J. Wyer, until he retired and left the district; and since 1973, Mr. S.E. Stephens.

During 1933 the Club provided honorary guides to the reef at Green Island at weekends.

An annual Wild Nature show was staged during the early years, but was discontinued at the beginning of the second World War. In 1967 a display of Dangerous Plants attracted much interest at the Cairns Show. In 1969 a comprehensive display was exhibited for seven weeks in the Tourist Bureau.

Dr. Flecker collected botanical material throughout the North to establish the N.Q. Herbarium - named in his honour the Flecker Herbarium. This was housed for many years at the Edge Hill Botanic Gardens. The Club was fortunate in having Dr. L.J. Brass take charge of the Herbarium after his retirement in 1966. Subsequently it was handed over to the Forestry Department at Atherton so it could be more fully utilised by botanists and receive specialist care.

Field Days have been a popular aspect of Club activities over more than thirty years, and continue to be held each month.

Publications: "The N.Q. Naturalist" has been published at least two or three times a year ever since the inception of the Club. During the earlier years this journal was under the sole direction and editorship of Dr. Flecker. Then it was placed under the direction of a committee.

Specialist publications issued include: Checklist of N.Q. Orchids, original 1945, revised 1966; Checklist of N.Q. Ferns, 1946; Edible Plants of N.Q., 1948; List of Marketable Fish in the Cairns Area, 1945; List of Birds occurring in N.Q., 1949; List of Australian Dryopidae. A special issue of the journal in 1965 covered Chironex fleckeri and Chiropsalmus quadrigatus (Box Jellyfish).

An extensive library of books and periodicals has been built up and an exchange service is maintained with kindred clubs and scientific organisations.

The exchanges have led to many requests for assistance from research workers throughout Australia and overseas. One extensive project was the research into blindness caused from eating the fruit of the Finger Cherry, Rhodomyrtus macrocarpa. The Club arranged for the planting of an orchard plot from which fruit was supplied over a lengthy period to the Defence Standards Laboratories. A report on this research, "Finger Cherry Poisoning - Fruit or Fungus?", appeared in the journal in 1969. A wide range of other study material has been collected over the years in response to other requests.

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Note from Publication Committee: Henceforward, each Volume of "The N.Q. Naturalist" will comprise six Numbers.

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OBITUARY

The death occurred early this year of Sergeant Harry Ziegenfusz of Edmonton. This large and gentle policeman was an active member of our Club for many years until ill health forced his retirement. Sincere sympathy goes to his wife and family.

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