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

**A SIGHTING OF THE YELLOW-BELLIED GLIDER
(*Petaurus Australis*) In North-Eastern Queensland**

by J. W. Winter*, R. A. W. Russell**, and E. M. Winter

The yellow-bellied glider (*Petaurus australis*) is the second largest of the Australian gliders and is generally considered to be a species of south-eastern Australia, extending as far north as Rockhampton. In the 1930's, however, several specimens were collected in the Cairns hinterland with published locality records from Herberton (Finlayson 1934) and Mount Spurgeon (Tate 1954). There has been no further record of this most northerly population.

We sighted the glider on 28 December, 1977 on the Herberton Range (17°19'S, 145°23'E, altitude 1000m) 9km south west of Atherton. It was in an area where cuts on the trunks of trees, suspected to have been made by yellow-bellied gliders, were seen (see Wakefield 1970 on this behaviour.) At about 20.00hr on a calm clear night, we heard a three-syllable 'wheck-woo-whrrig' call, the last syllable being the longest; and most like the 'self starter' call of the sugar glider (*Petaurus breviceps*), but deeper in tone. The call was repeated at about five minute intervals, and on the third occasion two individuals, 50 to 100m apart, called, one apparently answering the other.

Soon afterwards a yellow-bellied glider was sighted. It was 6m off the ground in a forest oak (*Casuarina torulosa*), but quickly jumped about 2m on to the trunk of a red stringy bark (*Eucalyptus resinifera*) about 30m tall and with a trunk diameter at breast height of 80-100cm. The glider immediately started to lick the exudate from cuts previously made in the bark, allowing excellent views of the glider for the half hour that we watched it.

The glider spent most of the time licking and chewing at the bark in the region of two cuts 5 to 10cm from each other. First the glider fed from above the cuts in a head down position, the hind legs splayed out to the side and with the feet turned back and upwards, whilst the front legs were pointed diagonally downwards to act as a brace. It then rotated its body to hang below the cut with all four legs pointed diagonally upwards. It moved over the trunk in a slow crawl.

Both cuts appeared to have been made through to the wood and were surrounded by an area of about 50cm in diameter from which the surface bark had been stripped to expose the more rufous underbark. Dark brown streaks below one of the cuts were apparently made by the exudate from the wound. For awhile the glider chewed at the fresh fibrous bark to one side of a cut and about 5min later a dark brown stain was seen at that point. Presumably this was the beginning of a fresh cut. It also moved further away from the cuts for a short period and began to strip off the brown outer bark in an untouched area, mostly by a pulling action with the teeth, but once it appeared to use a chisel-like action of the lower teeth.

While the glider was feeding a second individual called twice from another tree. The feeding individual responded to the first call by pausing and giving a similar call, but gave no apparent response to the second.

Several, but not all, red stringy bark trees in the area had cuts in the bark on the trunk. These trees were liberally covered with cuts only 10-15cm apart, coming to within 1m of the ground and extending upwards to the first major branches. Above this the cuts were not nearly so numerous. On any one tree the cuts ranged from fresh ones oozing fluid to old ones closed over by scar tissue (Fig. 1). Trees bearing scars stand out as much more rufous because the brown surface bark has been flaked off by the activity of the gliders. Cuts were not seen on any other species of tree.

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The observations were made in tall open forest, type 14b, (Tracey and Webb 1975), which fringes the western edge of the rainforest. The main tree species present were red stringy bark, flooded gum (E. grandis), a bloodwood (E. intermedia), turpentine (Syncarpia glomulifera), with an understorey of forest oak and Banksia integrifolia. The stinging tree (Dendrocygnide sp.) was present also. Ground cover consisted of ferns and grasses with wild ginger (Alpinia sp.) present.

The general appearance of the glider was of a smokey brown animal with a black stripe down the back, black stripes on the thighs set off by lighter fur on the hindquarters, black feet, pointed, pale grey naked ears, a pink nose, creamy-white underside, and a long bushy tail with a black end (see appendix for detailed description).

Pointed, virtually naked ears, dull red eye shine, and a dark stripe down its back, easily distinguish the yellow-bellied glider from the similar-sized greater glider (Schoinobates volans) which has rounded, fur-fringed ears, brilliant yellow eye shine and a uniformly coloured back. The yellow-bellied glider's larger size and smokey brown colour distinguish it from the smaller and greyer sugar glider and squirrel glider (Petaurus norfolcensis).

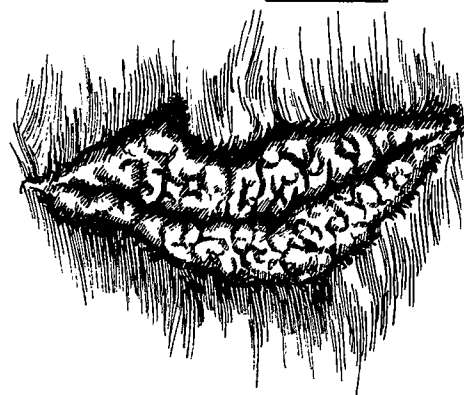
Other vertebrates seen on the night of the observation were the longnosed bandicoot (Perameles nasuta), the common ring-tailed possum (Pseudocheirus peregrinus), the greater glider, and the leaf-tailed gecko (Phyllurus cornutus).

Since this first sighting, several others have been made by the authors in the Herberton district. Readers' observations on the glider or the cuts it makes on tree trunks, with details regarding date, locality, type of forest, and behaviour would be welcomed.

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Figure 1: Feeding cut with scar tissue in the bark of E. resinifera. Drawn by K. Russell.



0 5cm

APPENDIX — Detailed description of glider seen.

General colour was a smokey brown dorsally, darker on face, crown and nape, narrowing to a mid-dorsal stripe extending to the rump, becoming paler each side of the stripe until almost a light cream in the lumbar region; forefeet and arms were black; hind feet black with the black continuing as a stripe along the trailing edge of the limb when spreadeagled; on leading edge of hind limb and apparently running from knee to body was a narrow very distinct black stripe bordered by pale cream, posteriorly on the limb and anteriorly on the gliding membrane; dorsally anterior half of gliding membrane was darker than general body colour, posteriorly a light creamy yellow with an abrupt change between the two halves; underside of gliding membrane was creamy white, contrasting strongly with darker dorsal surface; tail was smokey brown proximally, becoming progressively darker until the distal one third was black; tail was approximately one and one-third as long as the head-body with a broad fluffy base; back of ears was pale whitish grey with distinct black crescent around base, apparently naked, paler inside; face was darker than body with no apparent face pattern except distinct pink tip of nose; under chin was pale creamy white.

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**INTERACTIONS BETWEEN VARIOUS INDIVIDUALS OF A FLUFFY GLIDER
(PETAURUS AUSTRALIS) COLONY ON THE ATHERTON TABLELANDS**

by RUPERT RUSSELL, Herberston. 29.2.79.

The Fluffy Glider or Yellow Bellied Glider (Petaurus australis) occurs in certain areas of heavily timbered open forest country on the Atherton Tablelands. One colony, in which six individuals have been recorded, has been the subject of observations by the author and various companions at various times since the first observation at this colony site on 28.1.78.

The Fluffy Glider seems to be strongly gregarious, at least in the middle months of the year; as they spend a good deal of their time feeding on the kino of a certain Eucalypt (E. resinifera on the Tablelands) they can be watched at fairly readily observable heights. As many as five Fluffy Gliders have been observed feeding or moving about on a single E. resinifera tree, even though other suitable trees were situated nearby.

A commonly observed interaction between two Fluffy Gliders is what I am obliged to call the "Forehead-to-cloaca address". This form of address is conducted by an Initiating animal approaching the rear of a recipient, thrusting its muzzle beneath the recipient's tail and then rubbing its forehead vigorously against the recipient's cloaca. At times the Initiator of this address will place a forepaw against the other's rump, or against the root of its tail. Almost without exception the recipient is fully tolerant of the address, only very occasionally making a rapid evasive action. Quite often the recipient will turn about at the conclusion of the performance, in order to deliver the same form of address to the animal which has just completed the ceremony. A Fluffy Glider may address more than one animal in the course of a night, and at times one animal, while addressing another, is itself addressed by a third.

On three occasions a Fluffy Glider has been observed taking the tail of a nearby conspecific in its forepaws and grooming it with the mouth.

A Fluffy Glider will occasionally pursue another in a non-aggressive manner. On one such instance the fugitive animal was chased out onto a thin branch, from where it turned back and was confronted by the pursuer. Next both animals were seen hanging from the branch by their hind legs, while they wrestled or cuddled in a non-aggressive way for about fifteen seconds.

A pair of Fluffy Gliders were observed mating on 28.1.78. They were clinging to the underside of a leaning bloodwood limb about six metres above ground. During the course of mating both animals slipped from the limb and fell about two metres before rolling in the air and alighting on a Casuarina limb which they found to be in their downward route. The pair then crossed to the bloodwood on which they had first been sighted, and went amicably up the trunk.

Very few instances of aggression were observed during 1978, but a persistent chasing of one male, third in rank within the area, by the dominant male of the group has been observed in January and February of 1979. The pursuit of the low ranking male has at times led to this animal's falling from heights of 6 to 8 metres without it being able to glide out of the fall, while at other times both males have fallen together, broken apart in the air, and both glided off to nearby trees. The middle order male is pursued by the dominant animal, and in turn pursues the lowest ranking male. Recognition of these three animals is possible at distances of 3 metres, and their sex has been determined by visual examination of the animals either when caught (two of the males) or when viewed from a suitable angle, while the glider is grooming itself on a tree.

The lowest ranking male usually drives females away from feeding sites on favoured trees, and is consequently not the recipient of any forehead-to-cloaca addresses, but the more senior males rarely do more than nudge a female away from a feeding site. Females tend to resist an attack with screeches or slaps, and are rarely pursued for more than a few metres, though males may be pursued through successive trees.

When a Fluffy Glider is descending a tree on which another is already feeding the newcomer utters a panting sound throughout the descent, possibly as an appeasement call.

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A BRIEF STUDY OF HERMIT CRABS

by MICHAEL TUNG YEP

(Winning entry in a Natural History Essay Competition conducted throughout Cairns district schools by N.Q.N.C.)

The hermit crab is a common and most interesting animal found on many of North Queensland's beaches. The following study has been pieced together from various observations made in the Cairns area.

Probably the hermit crab's means of locomotion is what first attracts the attention of any casual seashore observer. The hermit crabs use the first two legs on each side and often their claws to move along. The rear legs are much less developed and if used at all would possibly be for anchoring the animal to the shell. The crab's movements could be described as "jerky", in that the legs reach out, take a hold, then the animal drags itself and its shell forwards; then begins again. The progress is slow and looks difficult and awkward.

If attacked the crabs retreat into their shells, blocking the entrance with their claws and legs. This makes them almost impossible for most predators to get at.

The crabs do not seem to have many predators. Some wading birds pecked the shells containing hermit crabs when they were exposed at low tide, but with little success. At high tide they were covered in about forty-five centimetres of water. Baited lines thrown out from the beach were readily taken by whiting fish, but the stomach contents of eleven of the fish of different sizes revealed no identifiable traces of hermit crabs.

The only other predators observed were Man and other hermit crabs. Man (the term of course includes women and children) all too often needlessly destroys hermit crabs to obtain the colourful shells they occupy.

On a few occasions hermit crabs displayed cannibalistic behaviour which may have been for the express purpose of obtaining food, or as in one case, for the food and also the shell. This type of behaviour however probably occurred only as a result of necessity rather than common practice. The crabs tended to live in large groups where they were in close proximity to each other.

All of the crabs observed were seen picking up grains of sand and pieces of algae with their claws and placing them in their mouth region. The sand was always discarded. It is possible that the crabs obtained algae from it though there was little or no algae to be seen.

The food which hermit crabs ate included dead fish, shrimps, starfish and algae. In the main the crabs could be described as bottom dwelling scavengers. Hermit crabs appear to be able to sense the presence of food as they readily moved towards pieces of prawn placed in their pools. Both small and large hermit crabs inhabited the pools and were found together almost everywhere. An interesting occurrence was that while pieces of prawn attracted the larger hermit crabs, the greater majority of smaller crabs shied away. This was tried a number of times with similar results. Surprisingly a number of the small crabs kept in a tank did eat pieces of prawn meat and fish flesh.

Weather conditions did not seem to greatly affect the hermit crabs. There seemed to be just as many at low tide on a fine sunny day as there were on an overcast drizzling day. When approached on a fine day all the crabs would start crawling away while a few would retreat into their shells. On the wet days more preferred to stay where they were. Possibly a lower level of salinity due to the rain affected the crabs. It might also have been hard for the crabs to see if the water droplets were continually disrupting the water surface.

The abdomen of the hermit crab is soft while the head and legs are covered in a strong hard exo-skeleton. Since this structure does not grow, it is shed from time to time as the crab grows. Though not observed on the field, two hermit crabs "moulted" in the study tank. The complete outer covering of the crab is discarded, and a new slightly larger one hardens after a short time.

An amazing occurrence was observed in that one of the captive crabs possessed only three legs having lost one possibly in a fight. After it had moulted, it had regrown a new leg!

The soft abdomen of a hermit crab needs to be protected if the organism is to survive. For this reason, hermit crabs are constantly searching for shells in which to make their new homes. After locating an empty shell the crab withdraws its abdomen and inserts it into the new shell. If it is satisfactory, it discards its old shell and moves off.

The hermit crabs studied all lived on sandy and slightly muddy beaches usually in wide and open areas, exposed at low tide and covered by water at high tide. Possibly this enables them to obtain food at low tide after it has been stranded by the receding waters. The high tides would constantly wash in organic debris, also shells which the crabs use. Thus the habitat provides food, shelter, and a suitable climate, which make up for awkwardness of movement and inability to make a speedy escape from danger.

Not only is the hermit crab a hardy animal, well adapted to its environment, it is the sea's own comic.

EURYCLES AMBOINENSIS — THE SO-CALLED CARDWELL LILY.

by KEITH KENNEDY, Townsville.

Of late years it has become fashionable to cultivate Australian plants as well as exotics. This is all to the good, for they impart an Australian atmosphere whereas previously most gardens were imitations of those in Europe.

Mostly grown are shrubs of the Proteaceae, Leguminosae and Myrtaceae families. Of those suitable for the bush-house or indoors very few have been cultivated, perhaps because there are not many.

One suitable for the bush-house is the so-called Cardwell Lily, which is not a lily but belongs to the family Amaryllidaceae, and it grows not only in the Cardwell district but in other parts of North Queensland. The writer has seen it growing on Magnetic Island where, of course, it is strictly protected. The specific name amboinensis tells that it also grows on the island of Amboyna in the East Indies, from which the first specimens were apparently collected and named. Bailey in "Comprehensive Catalogue of Queensland Plants," 1909, p. 543, mentions that the name given it by the Cardwell aborigines was BITOMAN, and gives the initials of his informant as R. B. H. Under the law of priority, if applied to vernacular names, this is more suitable than Cardwell Lily.

It is a bulbous herb which dies down and perennates during the short tropical winter. When the rains come, the leaves emerge and then a scape rises to a height of about 50 cm. terminated by an umbel bearing white flowers which are shortly tubular, lobed and 4 to 5 cm. long. At first the umbel is enclosed in a membranous spathe which, however, quickly disintegrates. Flowering month in Townsville last year was December because of early rains.

The bulb is tunicated which means that the leaf scales which enclose the short underground stem cover each other as in the case of an onion, so it is easy to identify. The leaves, which are radical arising from the crown of the bulb, are a pleasing green and an ornament to a bush-house, for they have a petiole longer than the blade, giving an unusual "shovel" appearance. The blade is broadly cordate. The surface is slightly undulated.

There are few seeds in the succulent fruit, often only one, although botanically it is still a berry, which falls off while still green. The writer planted two green berries on 26 Dec. 1978, and one germinated on 30 Jan. 1979. Propagation can also be from the increase of bulbs. In the tropics they can be planted in a rockery, but do better in pots about 25 cm. across. For temperate climates they need a hot-house with a temperature similar to that which suits dendrobiums or similar orchids.

There is a sub-tropical species, E. cunninghamii, named after the botanist-explorer Alan Cunningham, collected from the Brisbane River district and as far north as Rockhampton. This species has leaves that are not cordate but ovate. It should be more adaptable for growing in the cooler parts of Australia.

References: Bailey, "Queensland Flora", 1902, pp 1612-3.

Bailey, "Comprehensive Catalogue of Queensland Plants", 1909.

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Note on Toad Predators from an old friend in the Gilbert River area:

Crows pick up a toad by a leg, fly high and drop it; the body splits open and the edible sections of the body are then eaten. We know how intelligent crows are... Toads' vitals must be good to eat?

Frank Moody, J. P., Cairns.

THE ORIGIN OF GENERIC NAMES OF QUEENSLAND RAINFOREST TREES — PART X

by JAMES A. BAINES

Note: STCN = Standard Trade Common Name
PCN = Preferred Common Name

Drypetes. Gk *drypetes*, ready to fall from the tree, ever-ripe (dry, tree). *D. australasica*, Grey-Boxwood, is also known as Yellow Tulp or Yellow Tulpwood, the grey bark when cut becoming yellow resembling that of Tulpwood, *Harpullia pendula*. Another species is called Iodoform Tree, probably because of its odour. (Iodoform is a compound of iodine with a smell of saffron, used medicinally). Fam. Euphorbiaceae.

Duboisia. Named by Robert Brown in 1810 after Louis Dubois, who wrote in 1804 on fruit trees, or Frederic Dubois, who wrote a history of medicinal plants (460 pp., 1848). Duboisia has for a long time been well known for powerful drugs obtained from the three species, including pituri from the inland *D. hopwoodii*. In Q. rainforests *D. myoporoides*, STCN Duboisia, a corkwood, produces hyoscyne, and a Q. endemic, *D. leichhardtii*, produces a predominance of hyoscyamine. Fam. Solanaceae.

Dysoxylum. Gk *dys-*, inseparable prefix denoting bad, difficulty, trouble; *xylon*, wood; Francis gives *dysosmos*, evil-smelling, alluding to the disagreeable odour of some species. Sometimes spelt Dysoxylon, but Blume in naming the genus used a latinized form. N.Q. has *D. schiffneri*, Yellow Mahogany, *D. peltigrewianum*, STCN Spur Mahogany or Spurwood, *D. oppositifolium*, Pink Mahogany, *D. muelleri*, STCN Miva Mahogany, Red Bean or Onionwood, and *D. rufum*, STCN Rusty Mahogany; while *D. fraserianum*, STCN Rose Mahogany or Rosewood, reaches Q. only in far s.e. Meliaceae.

Ehretia. Named by Linnaeus after his friend Georg Dionysius Ehret (1710-1770), German botanical illustrator in England, who illustrated his 'Hortus Cliffortianus'. *E. acuminata*, STCN Silky Ash or Koda, and *E. membranifolia*, Peach Bush, are N.Q. species. Fam. Boraginaceae.

Elaeocarpus. Gk *elala*, olive; *karpos*, fruit; from the appearance of the fruit. *E. reticulatus*, STCN Ash Quandong, Blueberry Ash or Blue Oliveberry, ranges from Fraser Is. to e. Vic.; *E. holopteralus*, Black Oliveberry, is confined to sub-tropical scrubs of N.S.W. and e. Vic.; and Q. has a number of species known as different kinds of quandong, e.g. *E. grandis*, STCN Silver Quandong or Blue Quandong. This large genus of 200 mainly tropical species, gives its name to fam. Elaeocarpaceae, which includes *Sloanea* and *Aristotelia*, 350 spp. in all.

Elaeodendron. Gk *elala*, olive; *dendron*, tree; because of resemblance to the olive trees of commerce, *Olea europaea*. Francis lists two N.Q. species. *E. australe* is PCN Blush Boxwood. Fam. Celastraceae.

Elatostachys. Gk *elaton* (attic form of *elachys*), small, mean; *stachys* ear of grain, spike. Francis has no common name for the two Q. species he lists, but *E. xylocarpa* is STCN White Tamarind. Fam. Sapindaceae.

Embothrium. Gk *en-* (*em-*), prefix meaning in; *bothrion*, a little pit (dim. of *bothros*, hole or trench); referring to the pitted anthers. *E. wickhamii*, STCN Satin Oak or Red Silky Oak, listed by Bailey, is now *Oreocallis*, as is C. T. White's *E. pinnatum*, STCN Dorrigo Oak or Q. Waratah Tree (now *O. pinnata*). Fam. Proteaceae.

Emmenosperma. Gk *emmeno*, I remain in, cleave to (*em-*, in; *meno*, stay); *sperma*, seed; alluding to the way the seeds often remain on the axis of the fruit after the fruit valves have fallen away. *E. alphonoides* (= like *Alphontonia*, q.v.) is STCN Bonewood, Yellow Ash or Pink Ooline. Fam. Rhamnaceae.

Endlandra. Gk *endon*, within; *aner*, andros, a man; alluding to the inner series of stamens (the male organs) being the fertile ones. *E. discolor* is STCN Rose Walnut or Domatia Tree. — from the 'domatia' (hollow glands) on the under surface of the leaves (see Willis' article under Domatia in 'The Aust. Encyclopaedia'). There are at least a dozen other Q. species including Q. Greenheart and Q. Walnut. Fam. Lauraceae.