

The Fauna of Fraser Island

While Fraser Island has been inscribed on the World Heritage List for its geomorphological characteristics and its outstanding aesthetic quality, its biodiversity is also recognized but this is more for its flora than its fauna. Although not as immediately obvious as the flora, the fauna on Fraser Island should not be overlooked, especially as undisturbed habitat elsewhere in Australia is dramatically shrinking and more and more species are becoming threatened elsewhere.

Background number 50 — April 2011

The animals of Fraser Island are not readily apparent to the casual observer. The most obvious are birds and dingoes. Because much of the fauna is nocturnal, lies buried in the sand, hidden by the great bulk of biomass, or else it is either well camouflaged, or very timid, or very small, it is a challenge to discover. The most obvious fauna are its birds which have good populations because there is less predation.

Despite the invisibility of most Fraser Island fauna, it isn't necessary to see animals to know they are there. Tens of thousands of anglers regularly search out invisible targets as they seek the pelagic tailor, bream, whiting trevally and flathead. However, there are many other interesting animals in the region's marine areas including dugong, turtles and whales which aren't the targets of anglers.

The Great Sandy Region has a shortage of larger terrestrial animals, but it boasts many some and unusual species. This is due much to its basis of sand. Also, being sub-tropical, Fraser Island is strategically placed in species distribution with many species that reach the southern or northern limits of their range here.

Sand Swimmers: Fraser Island has an impressive array of specialized fauna known as "sand swimmers". This is an array of specialized fauna that moves freely through the sand. Sand swimmers include, lizards, ants, cockroaches, crickets and earthworms. All thrive in the substrate medium of loose sand. Such fauna seems to be generally unaffected by the surface plant communities.

Studies in nearby Cooloola revealed 20 species of earthworms, (including *Digaster keastii* that reaches a length of more than 80 centimetres) and 280 ant species belonging to about fifty-five genera. This is the greatest diversity and number of ant species so far recorded in a given area. A cricket-like creature, popularly known as the "Cooloola Monster", (*Cooloola propator*) is one of the most famous sand swimmers with its scientific family, *Cooloolidae*.

A giant subterranean cockroach (*Geoscapheus primulatus*), approximately 6 to 8 centimetres long and the second largest cockroach yet recorded in the world, is found in the dunes. Other sand swimmers yet to be studied in detail include burrowing bees, snails and some associated with freshwater.



Melomys burtonii collected during fauna survey for George Haddock Track near Lake Coomboo — one of the proposed campsites proposed along the George Haddock Track

Mammals

The dominant plants do not have the nutritive value of most grasses. Therefore they lack many herbivores, particularly large herbivores. Herbivores have limited populations. For example few wallabies or kangaroos will be seen.

Macropods: Except for the swamp wallaby (*Wallabia bicolor*), which is not prolific, there are few macropods. There are a few Eastern grey kangaroos (*Macropus giganteus*), mainly in the Womalah landscape, but they are rare in the sandmass. Most of those observed on western Fraser Island are only casual visitors which swim across Great Sandy Strait.

Diggers: Many of the mammals which have flourished are burrowers and diggers which take advantage of the loose soil. Echidnas, bandicoots and native rodents thrive on roots and the invertebrates which live in the soil. Rodents which take advantage of the niche include the Australian water rat (*Hydromys chrysogaster*), fawn-footed melomys (*Melomys cervinipes*), grassland melomys (*Melomys burtoni*), little native mouse (*Pseudomys delicatulus*), southern bush rat (*Rattus fuscipes*), eastern swamp rat (*Rattus lutreolus*) and the pale field rat (*Rattus tunneyi*). The endangered false water rat (*Xeromys myoides*) almost reaches the southernmost part of its range at Cooloola.

Bats: Bats, particularly fruit bats or flying foxes are amongst the more common mammals but like most they are nocturnal. The most common are grey-headed fruit bats (*Pteropus poliocephalus*). Diminutive Queensland blossom bats (*Synconycteris australis*), smaller than some butterfly species of butterflies, enjoy the nectar of banksia blossoms. A number of sonar bats, among them the lesser long-eared bat (*Nyctophilus geoffroyi*) and light-bellied shear-tailed bat (*Taphozous flaviventris*) live in the hollows of the larger trees.

Arboreal mammals: There are relatively few arboreal mammals such as gliders and possums. Despite an abundance of favourable trees there are no koalas on Fraser Island. Rollo Petrie recorded that they were on Fraser Island but were hunted until it was too late to save them.

Dingos (*Canis familiaris*) of Fraser Island are regarded as the purest population remaining in eastern Australia. There are estimated to be between two and three hundred of them. They are scavengers and congregate near camps. They must not be fed as they then become aggressive and dependent on such handouts.

Feral animal: Feral horses (brumbies) were finally all removed in the early part of the 20th Century. These were descended from domestic horses introduced to Fraser Island in the 1870s. adversely impacted on the vegetation mainly on the foredunes. The island also supported for a time a population of feral cattle. They The dingo population has kept the island free of some exotic mammals such as foxes and hares. Dingoes have also kept the feral cat population to a minimum and help control the black rat population. There are occasional intrusions of feral pigs from the mainland on Fraser Island. However the most destructive of the feral animals on Fraser Island are the ubiquitous cane toads

Birds

Fraser Island has a remarkable diversity of birds with one of the greatest species diversity of birds found in Australia. Over 330 species have been recorded. This is far more species of birds than recorded in the whole of the British Isles.

Rare birds: The rare and uncommon species include the Turquoise Parrot (*Neophema pulchella*), Glossy Black Cockatoo (*Calyptorhynchus lathami*), Brush Bronze Pigeon (*Phaps elegans*), Powerful Owl (*Ninox strenua*), Grass Owl (*Tyto longimbris*), Plumed Frogmouth (*Podargus ocellatus plumiferus*), Red Goshawk, (*Acciper radiatus*) and Peregrine Falcon (*Falco peregrinus*). The Ground Parrot (*Pezoporus wallicus*), listed as endangered in other parts of its Australia habitat thrives on Fraser Island at the northern limit of its range.

The region has an astonishing array of 18 raptors including Peregrine Falcons, Ospreys, and White-breasted sea eagles. Neither scrub turkeys nor emus currently cross Great Sandy Strait to reach Fraser Island from the mainland.

Waders: The mudflats of Great Sandy Strait are used by both migratory waders and a number of shorebirds. Mudflats associated with seagrass appear to attract the greatest density of waders and are one of Australia's three most important stopovers for migratory-trans-equatorial wading birds. An estimated 36,000 waders use Great Sandy Strait throughout the summer. There are 20 high tide roosts in Great Sandy Strait with major sites holding over 1500 wading birds.

Approximately one third of the waders are Bar-Tailed Godwits (*Limosa lapponica*). Another third are Grey-Tailed Tattlers (*Tringa brevipes*). Great Sandy Strait contains 14.3% of the known Australian population of the Eastern Curlews (*Numenius madagascariensis*). There are substantial numbers of Whimbrels (*N phaeopus*), Mongolian Plovers (*Charadrius mongolus*), and Red Necked Stints (*Calidris rufficollis*). Cormorants, Egrets, Herons, Ibises, Spoonbills and Jabirus also occur here.

Countless thousands of birds use this flyway on their annual trans-equatorial migrations between wetlands south of Fraser Island and Siberia. Great Sandy Strait and Tin Can Inlet estuarine area is recognized as one of the three most important stop-overs for migratory trans-equatorial wading birds in Australia. Australia is obliged to take appropriate measures to protect and enhance the environment of these wading birds, and to protect wetlands of international significance.

Frogs

Amongst the twenty-three amphibians recorded from Fraser Island are the so called "acid frogs" that depend upon the availability of acid water to facilitate the development of their larvae. The high acidity excludes the nine species of non-acid from competing with them in this specialized environment. Acid frogs include the wallum rocket frog (*Litoria freycineti*), Cooloola tree frog (*L. cooloolensis*), white striped tree frog (*L. olongburensis*) and wallum froglet (*Ranidella tinnula*).

Cane toads (*Bufo marinus*) are now quite common pests found throughout Fraser Island although they find it difficult to breed in the acidic waters. They are responsible for decimating the reptile population and the extirpation (regional extinction) of quolls and possibly other unknown mammals from Fraser Island.

Reptiles

More than sixty species of terrestrial reptiles and many more turtles, sea snakes and the estuarine crocodile have been recorded from Fraser Island. One of the few reportings of the four-fingered skink comes from Cooloola. The three-toed reduced limb skink (*Anolopus cf. aphioscincus*) was recently discovered. It is believed to be endemic to the rainforests. The tiger snake (*Notechis scutatis*) reaches its northern limit in the region. Although there are also other venomous species of snakes, including taipans, death adders and brown snakes, they are rarely seen unless they are sought. Despite the large list of formidable reptiles, very few are encountered except for the fat lazy monitors (goannas) which scavenge around most of the more popular picnic and camping spots.

Freshwater fauna

The freshwater lakes and streams contain some interesting fish. The lakes appear to be free of the cannibalistic introduced mosquito fish (*Gambusia affinis*). The isolation of the lakes, both from the ocean and from each other, has enabled each lake to develop its own distinctive fauna including small rainbow fish (*Rhadinocentrus ornatus* and *Hypseleotris klunzingeri*). Some freshwater streams of Fraser Island, provide significant habitats for Australian bass (*Macquarie novemaculeata*), a species whose distribution and abundance have been dramatically reduced elsewhere since European settlement.

Invertebrates

There are many invertebrates amongst the sand swimmers including ants and cockroaches but they have not been as well studied or documented on Fraser Island as they have been on nearby Cooloola. The lakes of Fraser Island are better studied for invertebrates. These studies have yielded a sub-family *Aphroteminae* that had previously only been known from South Africa and the tip of South America. The most primitive Chironomid (Diptera) larva yet known in the world occurs in great abundance in the fine sands from Lake Boomanjin on Fraser Island. Another distinctive and related midge species occurs only in Lake Wabby (*Paralauterborniella*). The absence or rarity of groups which are usually common in freshwater lakes (planarians, ostracods, planktonic cladocera, amphipods and molluscs) also distinguishes the dune lakes as unusual and a distinct class.

Away from the freshwater, so far there are twenty species of termites have been found, two of which appear to be new to science, and fifty-eight species of Collembola (springtails), five of which have apparently never been recorded before. Invertebrates are the Cinderellas of the animal kingdom and many new and fascinating invertebrate species are probably yet to be discovered on Fraser Island.

Marine fauna

The marine fauna in the waters surrounding Fraser Island ranges from whales to whiting and from dugong to shrimps. The waters support several species of marine turtles and mammals, including dolphins. Each early Spring thousands of humpback whales enter Hervey Bay on their manual migration south. Hervey Bay and the Great Sandy Strait is the habitat for more than 2000 dugong (*Dugong dugong*). Thousands of sea turtles have been recorded in Hervey Bay including the endangered loggerhead sea turtle (*Caretta caretta*). Many turtles nest near Sandy Cape.