NOTES

MELOMYS RUBICOLA, AN ENDANGERED MURID RODENT
ENDEMIC TO THE GREAT BARRIER REEF OF QUEENSLAND

THE BRAMBLE CAY Melomys (Melomys rubicola Thomas, 1924) is a little
known Australian rodent recorded only from Bramble Cay (9°09'S, 143°52'E), a small
vegetated coral cay at the extreme northern end of the Great Barrier Reef (Tate 1954). The
presence of the rats was reported by Sweetman when Europeans, on HMS Bramble,
discovered the island in early April, 1845. The extract from his diary (Vol. 2. Ch. 16 which
is unpublished) referring to Bramble Cay is as follows:

"We found a large key or rather islet to which we gave the name of 'Bramble Cay' but
which is called by the natives of Erub 'Kaedha', and which being a convenient isolated spot and
free from the presence of natives was fixed upon for our Northern base Station. It put me
very much in mind of Raine's Islet being like it composed of a plateau of soft stone with a
high sandy beach thrown up round it and a
fringing coral reef stretching out nearly a mile
to the S.E. but very narrow to the S.W. of the
islet which is also like Raine's Islet covered
with coarse green vegetation and frequented by
innumerable quantities of sea birds, whose eggs
were a rare prize to us. Unlike Raine's Islet
however, Bramble Cay was not based upon a
coral reef, but upon a mass of rock similar to
that of Barnley Island, a large patch
of which 20 or 30 feet high and some 50 or
60 across, appears above the coral reef at the
S.E. end of the islet, while another patch of
the same fringed with coral, dries at low water
about four miles to the S.W. the depth between
the two being 20 to 25 fms, in which anchorage
may be obtained all round. The islet is about
a furlong across and 15 feet above low water
mark, there is no fresh water on it but it
appears to be visited occasionally by the natives
for the purpose of taking fish and turtle: of
the latter they must obtain a plentiful supply
for we found upward of 60 shells arranged in
regular order, head to tail, round the south
end of the islet, for what purposes we could
not imagine but I fancy through some mere
idle whim. On capturing them numbers of
large rats made their escape from beneath
them, and our people, who (being Sunday) had
an afternoon's leave on shore to collect eggs
for their messes, amused themselves with
shooting them with the bows and arrows they
had obtained from the natives of Erub! We
sent parties to watch for turtle two nights but
without success, however we found the Spinach
of Raine's Island abundant here also, and what
with this and the eggs and a few fish from the
reef, made a very tolerable addition to our
'Salt-horse'."

When Bramble Cay was visited in December,
1977 and 1978, the rats principally inhabited
the dense 40 cm high ground cover of grass
Lepturus repens and the herbaceous Boerhavia
repens and Sussavium portulacostatum (Fig. 1). By
spotlight at night they were seen foraging
through the vegetation and out onto the
beach to about the spring high tide level
where they were frequently seen in the vicinity
of logs. When disturbed, they generally
retraced into the vegetation or beneath logs, but
they occasionally retreated down crab
(Ocypode sp.) burrows. There was no indication
that this rat dug burrows for itself. The
total rat population on Bramble Cay was estimated
at a maximum of several hundred
individuals in December, 1978. There was no
indication that this rat preyed on the eggs or
young of any of the numerous sea birds or
turtles that breed on the island.

The cay is on the move. Sweetman recorded
a reef flat surrounding the island. In describing
the geology of Bramble Cay in 1924, Jardine
(1928) illustrated a cay extending over the
northwestern edge of the reef. He measured
the axes of the cay at approximately 20
chains long and 8 chains broad (402 x 161 m).
By 1976 the Cay had moved to lie at the
edge of the reef platform and its sand was
spilling off over the northwestern reef edge
into deep water. In 1958 a temporary scaffold
and roping structure supporting a navigation
light and guyed by four steel wire ropes
to concrete blocks was erected on the
southwestern end of Bramble Cay. At that time
the outer edge of the scaffold foundation
was 61 m inland from the margin of the
phosphatic rock platform. By 1972 the
southwestern end of the island had eroded back
to the scaffold foundations and this caused
the replacement of the above "temporary
light” with the present stainless steel navigation light in 1973. Thus during the 14 years commencing 1958 there was a nett erosion of the southeastern margin of the rock platform of 0.44 m/yr.

Erosion has continued. In October, 1978, a portion of the concrete foundations of the “temporary light” fell onto the beach. There is no nett growth of the island in other directions and sand is being lost irretrievably from the northeastern end where it falls away into deep water. If this trend continues, Bramble Cay will eventually be lost from the reef flat. Thus the type locality of *M. rubicola* may be lost by erosion. In December, 1977 and 1978, the cay measured approximately 750 m in circumference (long axis 340 m, short axis 150 m) at the spring high tide level.

Attempts by the authors in recent years to find this rodent on other islands in eastern Torres Strait and the northern Great Barrier Reef have proved unsuccessful. Thomas, in describing *M. rubicola*, mentions a single specimen of a *Melomys* from Long Island (a large mangrove island in central Torres Strait, 10°02'S, 142°50'E) collected presumably in 1845 which “... appears to be *M. rubicola*, but is not in a condition to be determined with certainty” (Thomas 1924). No rats were seen during a superficial examination of the sand and shingle ramparts on the western side of Long Island in December, 1978. The status of the Long Island *Melomys* is dependent on specimens of this rodent being recollected.

All other *Melomys* specimens collected (Dowar Island, 9°55'S, 144°04'E and Hannibal island, 11°36'S, 142°56'E) were referable to *M. bartoni* (based on skin and skull characters; E. Knox, pers. comm.).

Studies of the blood proteins of *Melomys rubicola* (unpublished observations CHSW, specimen numbers: IMVS MR1 and 2) show that it is most closely allied to *M. capensis* and it is probably an island race of this species. However, pending further biochemical and morphological study of the *M. cervinipes/M. capensis* taxonomic complex, we feel it is premature, and not the place here, to formally suggest synonymy of *M. capensis* and *M. rubicola*. This complex includes a number of isolated forms, either on offshore islands or in pockets of closed-forest along the east coast of Australia. A taxonomic revision would be better based on study of these forms as well as those noted above.

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*Fig. 1*. Bramble Cay, November, 1977. *Melomys rubicola* inhabits the vegetated section.
The Bramble Cay Melomys differs from mainland populations of *M. capensis* in the Iron Range and Mellwraith’s ranges area by two out of thirty proteins (personal observation CHSW). The tail is a little longer and considerably rougher than in mainland *M. capensis*, due to the individual scales standing out from the tail. Although these differences are slight, they are great enough to indicate that the Bramble Cay population is recognisably different from populations on the mainland of Cape York.

The biology of *M. capensis* is poorly known (Watts and Aslin 1981). Most have been caught in the narrow scrubby transition zone between closed forest and grassland rather than inside the forest which is the usual habitat of the related *M. cervinipes* in Queensland. This preference to live in seasonally dry and relatively open habitat may go part way to explaining the presence on Bramble Cay of the closely related *M. rubicola*.

The Bramble Cay Melomys is an ecologically unique and isolated population. It is the only mammal endemic to a coral cay on the Great Barrier Reef. Its very small population size and its occurrence only on a small isolated island which is being lost through natural erosion places its survival in jeopardy.

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REFERENCES


