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A LANDING ON THE MEWSTONE

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The Mewstone (43° 44'S, 146° 23'E) is an island which lies in the Southern Ocean 22 km south of Tasmania and is incorporated into the South West National Park. It supports the largest breeding colony of the Shy Albatross, *Diomedea cauta*, (approx. 1,750 pairs) in Australia (Brothers, 1979).

Previous biological information from the island (Lord, 1927; Kurth, 1951) was obtained by observing from boats. The first recorded landing on the Mewstone was made by one of us (N.P.B.) on 31 December 1977 during a visit lasting 3 hours. The main aim of the landing was to study seabirds, but the opportunity was also taken to collect other animals, plants and rocks.

Brothers (1979) describes all the vertebrate animals that breed on the island; the Shy Albatross *D. cauta*, The Fairy Prion, *Pachyptila turtur*, and the skink *Leiolopisma pretiosa*. The fur seal *Arctocephalus pusillus* and a small number of common species of other sea birds also live on the island.

The island is a 6.8 ha ridge of granite of Devonian (?) age rising to a maximum height of 134 m above sea level. It is 450 m long and 150 m wide. Steep rock slopes on the eastern and western faces meet along its length to form a ridge. Beneath the boulders along the ridge are crevices and cavities in the rock in which soil has accumulated.

Six species of vascular plants were found. All of these species have adaptations suiting them to a saline environment and are relatively common in the salt spray zone of rocks, cliffs and offshore islands around the Tasmanian coastline. The shore spleenwort *Asplenium obtusatum*, is a fern which has shiny, thick, coriaceous fronds. *Poa poiformis* is the tussock grass commonly found on dunes, cliffs and along the upper edges of salt marshes. *Senecio leptocarpus* and *Senecio lautus* are fleshy-leaved daisies which have a disjunct distribution in Tasmania - both are to be found high on mountain plateaux as

well as along the coast. *Carpobrotus rossii, Chenopodium glaucum* ssp. *ambiguum* and *Salicornia quinqueflora* have succulent leaves borne on prostrate, spreading stems and are frequently encountered in saline areas of inland and coastal Tasmania.

Seventeen species of terrestrial arthropods were found in a small amount of soil and plant litter taken for examination. Some of these arthropods are probably eaten by the skink which is very abundant. The insects included an un-identified species of earwig, two species of beetles (Carabidae and Staphylinidae), the larvae of a moth (Pyralidae), the pupa of a fly (Stratiomyidae) and the lesser house fly *Fannia canicularis* L. (Muscidae). One female spider (Amaurobiidae) was also collected.

Ten species of mites were found in the soil. Five of these species, which have not been fully identified, are free living cryptostigmatic mites that eat detritus and soil fungi. The remaining 5 species are mesostigmatic mites all belonging to different genera. One, an undescribed species of *Caliphis*, also occurs in Victoria and South Australia and is a free living predator which lives amongst plant debris. Another, also a predator found amongst plant litter, is a new (undescribed) species of *Pilellus*. The 3 other species of mites occur in the nests of birds (*Hypoaspis* sp.) or are phoretic (*Parasitus* sp.) or parasitic (*Leptus* sp.) on other arthropods.

The Mewstone was separated from the mainland of Tasmania by a rising sea level, perhaps, 17,500 years ago (Rawlinson, 1974). Despite its size, barren appearance and isolation, it is home for at least 27 species of plants and animals.

ACKNOWLEDGEMENTS

We are grateful to Messrs G. Buckland, D.G. Peters and T.G. Peters for providing transport to the island.

Our thanks also to Mr. B. Griffin for identifying rock samples, Dr. J. Ireson for identifying the insects, Mrs. E. Turner for identifying the spider and Mr. D.C. Lee for identifying the mites.

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BREEDING BEHAVIOUR OF THE LITTLE GREBE, *Tacybaptus novaehollandiae.*

R.C. Walters

Over a period of 4 months (September/December, 1978) I was able to observe the breeding behaviour of a pair of Little Grebes, on a small farm dam, west of Ulverstone.

Because the dam is situated close to a sealed road, I was able to observe the Grebes' behaviour from my car without disturbing them or any of the other waterfowl present on the dam.

The Grebes' nest was situated in bullrushes approximately 3 metres from water's edge and 30 metres across a paddock from my viewing point.

Nest Building: It took the Grebes approximately one week to build their nest. The nest, a floating, shallow bowl-shaped platform, was attached to bullrush stems by pieces of weed.

While one of the Grebes stayed at the nest arranging material, the other would dive and swim underwater, surface, dive, collect some bottom weed, swim back in an indirect way, dive 3 - 4 metres in front of the nest and appear alongside the nest platform. The bird would then deposit the weed, whereupon it would dive to repeat the whole procedure.

After 3 - 5 minutes of this gathering and arranging of material both birds would go their separate ways to feed. This pattern was repeated many times.

Both birds took turns at gathering weed or arranging material on the nest, and at the same time were always on the alert for intruders and other dangers.

Incubation: The incubation time for the Little Grebe is approximately 21 days. Both birds take turns in incubating the eggs. While one bird is incubating, the other spends its time feeding and defending the nest.

I was able to count 3 light blue eggs in the nest, on an occasion when the incubating bird was forced to leave in a hurry, in order to fend off an intruding Native Hen.

Normally, the Little Grebe covers the eggs with a flap of weed, before leaving the nest. On warm days both birds could be seen feeding near the nest while the eggs remained warm under the flap of weed.

Methods of Defence: The Little Grebe has an interesting way of attacking intruding waterfowl. When a bird, such as a duck, happens to swim too close to the nest, the feeding Grebe will dive and attack the unsuspecting intruder from underwater, 2 or 3 times before surfacing. Birds attacked in this way are left completely bewildered by the experience.

Grebes will also attack intruders by running very fast across the water, flapping their short rounded wings and calling loudly. These two methods of attack seem very effective in defending the nest.

The Young Grebes: It was not until after I discovered the Grebes had built a new nest on the other side of the dam that I observed the three dark grey downy chicks being fed by one of the parent Grebes. Apparently the Grebes had moved the newly hatched chicks to the new nest.

The feeding Grebe would swim into the dam, collect some bottom weed, return directly to the nest and feed both the other parent and the chicks.

After taking the weed the chicks would wriggle under the parent and await the next feed, in 2 - 3 minutes time.

At this stage the chicks could swim but spent most of their time on the nest with one of the parent Grebes. Both parent birds took turns at incubating and feeding the chicks.

At approximately 3 weeks of age the young Grebes were quarter grown and had lost most of their down. The 3 young were now feeding on bottom weed, begged from the 2 parent Grebes.

While the parent birds were below collecting weed, the young birds would put their striped heads under-water and appeared to be watching the activities of their parents. The young Grebes may have been learning to feed from the bottom.

At 6 weeks of age the young Grebes were still being fed by one of the parent birds but were now capable of diving and feeding themselves.

The other parent Grebe was now incubating a new clutch of eggs. I could not see how many eggs were in the nest.

At 8 weeks of age the young Grebes were completely independent of their parents. One of the parent Grebes acted very aggressively towards the 3 fully grown young by running at them, flapping its wings and calling loudly.

Two weeks later the parent Grebes were carrying weed to a new nest site. The second nest was now abandoned and the eggs nowhere to be seen.

The 3 young Grebes were still together and well away from their parents.

On my last visit to the dam, 9 days later, the third nest was abandoned and only one adult Grebe was seen on the water.

Conclusions: I am not sure why the Grebes abandoned their first nest, but I am certain the 3 eggs were hatched before their second nest was completed. This suggests the chicks must have been capable of swimming from a very early age.

The Grebes probably abandoned the second and third nests after the farmer started pumping operations close to the nest sites.

The Little Grebe defends its nesting site very vigorously and appears to care very much for its young for at least 9 weeks after the young hatch.

Editor's Note:

Similar nesting behaviour was recorded in 1930 by Edwin Ashby - see *The Emu*, **32**, pp 250.

FIRST RECORDS OF THE ONE SPOT PULLER *(Chromis hypsilepis)* AND THE SPOTTED STINGAREE *(Urolophus gigas)* FROM TASMANIAN WATERS WITH AN ANNOTATED LIST OF FISHES RECORDED FROM KENT ISLANDS, BASS STRAIT.

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INTRODUCTION

The Kent Islands are situated in north-eastern Bass Strait, 26 Kilometres south of the northern limit of Tasmanian waters.

The island group, consisting of five main islands (fig. 1a), is part of a ridge of Devonian granite (Jennings, 1974) extending from Victoria into north-eastern Tasmania. The shores are mainly high rocky cliffs plummetting into depths of up to 30 metres. A deep channel separating the largest island from two smaller ones, provides access to a few small semi-exposed beaches.

The islands, as for most other areas of Bass Strait, are exposed to strong winds, rough seas and strong currents with large tidal ranges.

This interesting combination of a deep sub-tidal zone with a large tidal flushing, plus the geographic position, initiated the following pioneer survey of the fishes of these islands.

The first biological expedition to the islands was conducted by a group of naturalists in 1891. Apart from a recent collecting trip by invertebrate zoologists from the National Museum of Victoria, surveys of marine fauna are non existent.

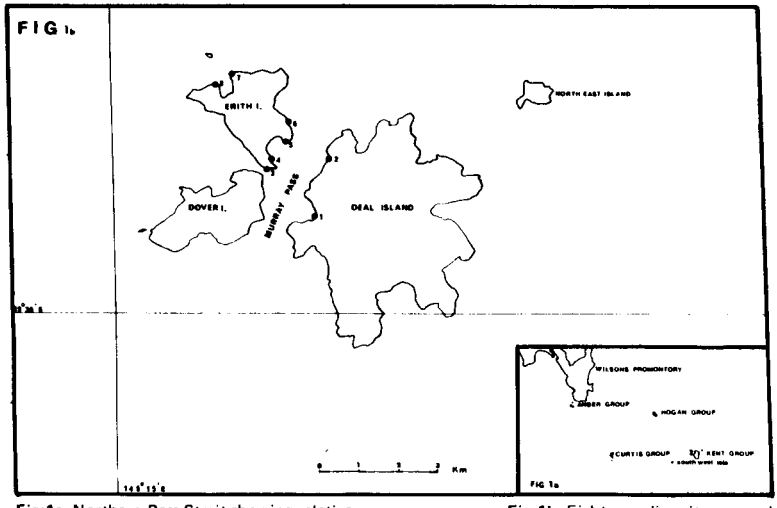

Fig:1a Northern Bass Strait showing relative position of the Kent Islands.

Fig:1b Eight sampling sites around the main Kent Islands.

METHODS

The expedition was launched from Killiecrankie, Flinders Island and transport to and around the islands involved the voluntary use of a sharkcat owned by Mr. J. Mason, a local abalone diver. The survey took place in early March 1979.

Fish species were recorded through observation (0), seining (S), spearing (Sp), underwater photography (P) or hand capture (H). Species of doubtful identity were preserved in formalin.

Eight sites (fig. 1b) around the three main islands, were sampled using at least one of the above methods. Habitats and the appropriate methods used at each site are summarised below:

1. East Cove, Deal Island; deep profile, semi-exposed beach, sea grass bed *(Posidonia)* at depths exceeding 5 m M.H.W.S. (Mean High Water Spring); 2.3.79, S; 3.3.79, 0, Sp, H; 4.3.79, 0.
2. Murray Pass, Deal Island; semi-exposed reef only receiving heavy wave action from northerly swells; 3.3.79, 0, Sp, P.
3. Murray Pass, Erith Island; semi-sheltered reef, deep and exposed to strong currents, but not exposed to direct swells; 2.3.79, 0, Sp, P.
4. Erith Beach, Erith Island; semi-exposed beach somewhat exposed to north-easterly swells but protected from prevailing westerlies. Sparsely weeded rocks dropping quickly onto sand; 2.3.79, 0, Sp, P.
5. Murray Pass, Erith Island; deep semi-exposed, heavily weeded reef, subjected to strong currents; 3.3.79, 0, Sp.
6. Murray Pass, Erith Island; deep, exposed, weedy reef; 2.3.79, 0, Sp.
7. Wallibi Cove, Erith Island; deep, exposed, weedy reef; 4.3.79, 0, Sp, P.
8. Wallibi Cove, Erith Island; exposed weedy reef, bottom dispersed with large granite rocks; 4.3.79, 0, Sp. P.

Species recorded are listed by family and short notes on each are given.

SPECIES ACCOUNTS

MYLIOBATIDAE: Eagle Rays.

Myliobatis australis Macleay 1881.

Single specimen, disc width approximately 1.2 m, observed off East Cove Beach.

UROLOPHIDAE: Stingarees.

Urolophus gigas Scott 1954.

Single specimen photographed at East Cove. This species, not previously recorded from Tasmanian waters, has since been collected at Marshall Bay, Flinders Island and Little Musselroe Beach, north-eastern Tasmania.

DUSSUMIERIIDAE: Sprats.

Spratelloides robustus Ogilby 1897.

Large schools observed on every dive.

ALABIDAE: One-gilled Eels.

Alabes rufus (Macleay) 1881.

Species very common beneath intertidal rocks in East Cove.

ANGUILLIDAE: Freshwater Eels.

Anguilla australis Richardson 1841.

Included from description given by lighthouse keepers of specimens collected in Garden Cove Creek.

LEPTOCEPHALIDAE: Conger Eels.

Leptocephalus wilsoni (Bloch and Schneider) 1801.

Several specimens to 10 kg observed in channel.

MORIDAE: Cods.

Physiculus barbatus (Gunther) 1863.

Common around reefs.

PLEURONECTIDAE: Right-hand Flounders.

Ammotretis liturata (Richardson) 1843.

Two small adult specimens seined off East Cove Beach.

SPHYRAENIDAE: Sea Pikes.

Australuzza novaehollandiae (Günther) 1860.

This species is moderately common around seagrass beds in Bass Strait. Its record here however is restricted to a single observation.

MUGILIDAE: Mullets.

Aldrichetta forsteri (Cuvier and Valenciennes) 1836.

Large specimens (600 g) seined off East Cove Beach.

ATHERINIDAE: Hardyheads.

Atherinasoma presbyteroides (Richardson) 1843.

The above name is believed by Ivantsoff (pers. comm.) to be a senior synonym of *Taeniomembras tamarensis* (Johnson) and will be treated by that worker in due course. The species appears to be common around the beaches examined.

CENTROLOPHIDAE: Trevallas.

Seriolella noel (Whitley) 1958 ?

This species is found in association with the jellyfish *Pelagia noctiluca* which occurred in large aggregations off East Cove Beach. The species has also recently been collected but not officially recorded, from plankton tows in Bass Strait.

PATAECIDAE: Prow Fishes.

Aetapcus maculatus (Günther) 1861.

Single specimen observed at Site 2.

CARANGIDAE: Trevallys

Caranx georgianus (Cuvier and Valenciennes) 1833.

Small schools of small juveniles (L.C.F. (Length to Caudal Fork) less than 5 cm) were observed at different localities in channel.

MULLIDAE: Red Mullets.

Upeneichthys porosus (Cuvier and Valenciennes) 1829.

Abundant at transitory areas between reef and sand.

ENOPLOSIDAE: Oldwife.

Enoplosus armatus (White) 1790.

This species is commonly found in pairs at more exposed areas, being much more abundant than on the Tasmanian mainland.

DINOLESTIDAE: Long-finned Pike.

Dinolestes lewini (Griffith) 1834.

Widespread around reefs.

KYPHOSIDAE: Drummers.

Kyphosus sydneyanus (Günther) 1886.

This species, which was only recently recorded from Tasmania (Scott, 1975) is reasonably common and specimens were observed at most localities. The species obtains a total length of about 80 cm in N.S.W. but all specimens observed and collected here were less than 25 cm.

PEMPHERIDAE: Bullseyes.

Liopempheris multiradiatus (Klunzinger) 1879.

A cave species commonly found at most reef localities.

GERRIDAE: Silverbellies.

Parequula melbournensis (Castelnau) 1872.

Common at Erith Beach around transition of reef and sand.

PLESIOPIDAE: Prettyfins.

Trachinops caudimaculatus (McCoy) 1890.

Observed at all reef localities.

GIRELLIDAE: Banded Drummers.

Melambaphes zebra (Richardson) 1846.

Most abundant of the drummers. Larger individuals up to 2.5 kg solitary, while younger fish school.

Girella elevata (Macleay) 1881.

Several schools of fish (averaging about 0.5 kg) observed in caves in the intertidal zones of sites 2, 7, 8.

Girella tricuspidata (Quoy and Gaimard) 1824.

Two small specimens observed with a school of *G. elevata*.

APLODACTYLIDAE: Rock Cales.

Dactylosargus arctidens (Richardson) 1839.

Very abundant in shallow sub-tidal and inter-tidal zones. Average size very large compared with specimens from other Tasmanian localities; obtaining 5 kg.

LATRIDAE: Trumpeters.

Latridopsis forsteri (Castelnau) 1872.

An abundant species with specimens up to 2.5 kg collected.

CHEILODACTYLIDAE: Morwongs.

Goniistius vizonarius (Saville-Kent) 1887.

A major reef species common throughout Bass Strait, this species is very abundant at all sites. Maximum weight 1.5 kg.

Cheilodactylus spectibilis (Hutton) 1872.

This species is very common. Maximum weight 4 kg.

ARRIPIDAE: Australian Salmon.

Arripis trutta (Bloch and Schneider) 1801.

Juveniles seined off East Cove Beach.

HISTIOPTERIDAE: Boarfishes.

Pentaceropsus recurvirostus (Richardson) 1845.

Two large adults observed at Site 6.

SCORPIDAE: Sweeps.

Scorpis aequipinnis (Richardson) 1848.

A very abundant species particularly in areas of turbulence on reefs. This fish attains a larger size (1.5 kg) than on Flinders Island or the Tasmanian mainland.

Scorpis lineolatus (Kner) 1865.

Less abundant and smaller (0.5 kg) than above, usually found in a similar habitat.

Atypichthys strigatus (Günther) 1860.

Large aggregation of juveniles (less than 3 cm L.C.F.) under Deal Island jetty (Site 1).

ANTHIIDAE: Sea Perches.

Caesioperca lepidoptera (Bloch and Schneider) 1801.

Caesioperca rasor (Richardson) 1839.

These two species are most abundant of the large reef species. They are sympatric at most localities.

LEPTOSCOPIDAE: Sandfishes.

Crapatalus sp. nov.

This species which is recorded from a single specimen, occurs on selected beaches around Tasmania. It will be described by the author in due course.

BLENNIDAE: Blennies.

Pictiblennius tasmanianus (Richardson) 1849.

Several individual specimens observed in intertidal zone.

TRIPTERYGIIDAE: Threefins.

Gillias macleayana (Lucas) 1891.

A few small individuals (less than 6 cm) observed in caves. Difficult to make positive identification without specimens for microscopic examination.

LABRIDAE: Wrasses.

Pseudolabrus fusicola (Richardson) 1840.

Most common wrasse, more abundant close to shore and reaches 1.5 kg.

Pseudolabrus tetricus (Richardson) 1840.

The largest wrasse, this common species attains a maximum weight of about 2.5 kg.

Pictilabrus laticlavius (Richardson) 1839.

Several individuals observed at each sampling site.

Pseudolabrus psittaculus (Richardson) 1840.

Common in Murray Pass.

Unidentified species.

A single specimen (approximately 8 cm total length) of a species not recorded from Tasmania, observed at Site 4 but escaped collection.

ODACIDAE: Rock Whitings.

Olisthops cyanomelas (Richardson) 1850.

Species very abundant and average size larger than on Tasmanian mainland (approximately 1 kg and obtaining 2 kg).

Neoodax balteatus (Cuvier and Valenciennes) 1839.

A small species more common at the sheltered localities and around seagrasses.

SCARIDAE: Parrotfishes.

Heteroscarus acroptilus (Richardson) 1846.

Specimens of both sexes photographed.

POMACENTRIDAE: Damsel Fishes.

Parma microlepis (Günther) 1862.

Species very abundant in some areas of Murray Pass particularly Site 4.

Chromis hypsilepis (Günther) 1867.

An underwater photograph of a specimen from Site 4 constitutes the first record of this species from Tasmanian waters.

DIODONTIDAE: Porcupine Fishes.

Atopomycterus nichthemerus (Cuvier) 1818.

Specimens observed at all diving sites.

OSTRACIONTIDAE: Boxfishes.

Aracana aurita (Shaw) 1798.

Single specimen observed around sand and rocks at East Cove.

MONACANTHIDAE: Leatherjackets.

Eubalichthys gunnii (Günther) 1870.

This species is the rarest reef leatherjacket in Tasmanian mainland waters, however at all exposed localities it was clearly the most common.

Penicipelta vittiger (Castelnau) 1873.

Some adults observed in the deeper water. Juveniles common over seagrass in East Cove.

Meuschenia freycineti (Quoy and Gaimard) 1824.

Adult specimens observed and photographed in caves in 8 - 15 m.

Meuschenia australis (Donovan) 1824.

Single specimen observed at Site 6.

A single specimen of the one spot puller *(Chromis hypsilepis)* was observed and photographed in the vicinity of a large population of whitears *(Parma microlepis)*. A single specimen of the spotted stingaree *(Urolophus gigas)* was photographed on sand in East Cove and along with the above sighting represent the most southern records for these species. McCulloch (1929) listed the distribution of *C. hypsilepis* as New South Wales while the spotted stingaree has been recorded from South Australia (Scott, Glover and Southcott, 1974), Victoria (Anon.,1973) and Western Australia (Walker, 1979).

Three additional records are of particular interest. A single specimen of a new species of sandfish *(Crapatalus sp.)* was collected. Although undescribed this species is widely distributed throughout south eastern Australia and a detailed account will be

presented at a later date. An elusive unidentified wrasse was observed by the author but unfortunately not collected. The record of the trevalla, *Seriolella noel*, would also constitute a new record for Tasmania. However the taxonomy of this group of fishes is highly confused so at this stage this identification is only tentative.

DISCUSSION

A literature search reveals a paucity of information on fish species compositions of inshore marine habitats of northern Tasmania and Victoria. However limited evidence from some works (Scott, Glover and Southcott 1974; Anonymous, 1973; Scott, 1934 - 1979) plus observations and unpublished notes made by the author, indicates a basic similarity between faunas. The same indicator species for each habitat appear in both areas, the only real difference being a greater relative influx (in terms of species numbers and abundances) of New South Wales dominants in Northern Bass Strait waters. This situation is beautifully demonstrated at the Kent Group, by three groups of fish; the damselfishes, drummers and sweeps.

The family Pomacentridae or damselfishes is principally a warm water group with only three species recorded from the cool temperate waters of Tasmania. The white ear *(Parma microlepis)* is a very abundant reef species in southern New South Wales. Small isolated populations of juveniles are found along the north and eastern coasts of Tasmania but large adults are extremely rare. The scalyfin *(Actinochromis victoriae)* is a common reef species and the dominant pomacentrid in the coastal waters of northern Tasmania and the Bass Strait Islands. The only known exception being Murray Pass where large adult whitears are extremely abundant and scaly fin have not been recorded. A further similarity in habitat type with New South Wales is suggested when the occurrences in the Kent's of two other warm temperate species, the one spot puller and the urchin *(Centrostephanus rodgersi)*, are considered.

The Australian drummers, Girrelidae and Kyphosidae, attain their greatest diversity in New South Wales waters. Apart from the zebra fish *(Melambaphes zebra)*, these species are relatively much less abundant in mainland Tasmanian waters. Observations made in the Kent Group indicate that their numerical importance is somewhere intermediate between the situations at the above areas.

A similar case exists for the three sweep species with the mado *(Atypichthys strigatus)* being the major indicator from warm temperate waters although the *Scorpis* species are both more abundant in New South Wales waters.

Although sharp zoogeographic boundaries are non-existent in the sea (Dakin, 1952), records presented here and other similar unpublished data, support the use of three intertidal faunal provinces (Bennet and Pope, 1953) for reef fish distributions in southern Australia. These provinces the warm temperate Flindersian (south and south western Australian coasts) and Peronian (New South Wales and eastern Victorian coasts) and the cool temperate Maugean (Victorian and Tasmanian coasts) overlap in Bass Strait.

Dakin suggested, for invertebrates at least, that exposed rocky reef faunas provided better indicators of provincial status than less stable sheltered bay or estuarine faunas. Such observations are also generally true for fish distributions, as the latter habitats are more variable physically and at certain times of the year

provide suitable habitats for migrants and juveniles from other provinces.

The fish fauna of this exposed island group is basically Peronian and possibly constitutes the southern most stronghold for this province.

Clearly the area is of considerable zoogeographic importance and it is intended that a more intense collecting expedition will be conducted to this area within the near future.

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Further thanks must go to lighthouse keepers, Messrs S. Grey and T. Peera for their co-operation during the survey and to Mr. S. Murray-Smith for volunteering historical information about the Kent Group.

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