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TASMANIA'S NATIVE RATS

By R. H. Green, Queen Victoria Museum, Launceston

THE MAMMALIAN fauna of Tasmania includes four species of indigenous rats, in addition to the introduced Ship Rat, Norway Rat and European Housemouse. The occurrence of the Water Rat is fairly well known to most people because of its larger size, wide distribution and commercially valuable fur.

The remaining three species are little known animals which are often despised simply because they are rats. Actually they are part of a most interesting and important faunal group. Because of the previous lack of knowledge of the Tasmanian rats, the author commenced a study in 1963 which has resulted in a better understanding of their life and habits.

The Velvet-furred Rat is the most common and is sub-specifically distinct from the Eastern Swamp Rat, its near relative on the Australian mainland. It has a long, soft dark brown fur and a tail which is shorter than the length of its head and body.

In Tasmania it has been found to occur in a wide range of habitat including coastal heath, swamp land, sub-alpine rain-forest and sedgeland. In such densely vegetated situations it forms well defined runways, by chewing away the vegetation and in many places actually forms tunnels beneath the foliage. These runways usually lead from a secluded retreat which may be a burrow in the ground or beneath decaying logs or even a well formed grass nest in the base of a dense clump of sedge.

They are active by day and night, venturing out along their runways to feed on a variety of vegetable foods but will also take the occasional insect if such should present itself. They have not been found to breed during the winter months but are capable of producing several litters of from two to six young between September and March. The young are born naked and blind but develop rapidly and become independent of their mother in about four weeks. They reach maturity at the end of their first winter but only a few ever survive to breed in more than one season, their life expectancy being about eighteen months. This species has not been known to enter human dwellings.

The Long-tailed Rat is an endemic Tasmanian animal and occurs only in the rain-forests and near similar habitat. It is shy and nocturnal and spends the daytime in a burrow or cavity among the litter of the forest floor. Its fur is a soft smoky-grey and its tail, which is longer than its head and body is characteristically white on the under surface. Its food consists of seeds and other vegetable matter but it is also fond of spiders and insects. In its search for food it sometimes enters bush huts in the same manner as Native Cats or Possums and on such occasions its alert and graceful movements are a delight to behold. It is a summer breeder and may produce more than one litter in a season. Litters are restricted to four or less and it has only four nipples which are situated ingroinally. The young are born with short fur and a set of tiny incisors teeth and are able to hold firmly to the nipples. Thus, when danger threatens the mother may escape with her young dragging along behind, retaining their tenacious grip despite the suddenness and swiftness of her actions. They become independent after about four weeks but usually remain as a family group until the following breeding season.

The Broad-toothed Rat appears to be a relic species of a former climatic era. It is comparatively rare and has been listed amongst the Australian animals possibly faced with extinction. It derives its name from its remarkably broad molar teeth, a

characteristic which easily distinguishes it from the otherwise superficially similar Velvet-furred Rat. Sub-fossil remains are common in several Australian cave deposits but today, living animals are known only from very restricted areas of south-eastern Australia and Tasmania.

In Tasmania its main stronghold is the buttongrass areas on the western half of the island. Even here its distribution is greatly restricted, by fire, to the few remaining patches of regrowth sufficiently developed to afford good cover. In such sites it develops runways similar to those of the Velvet-furred Rat and appears to co-exist with that species. Its food is restricted to certain rushy grasses and its apparent inability to adapt to the gradually changing environment appears to be the main reason for its present restriction to a relic habitat. Its sub-alpine range often carries a covering of snow for weeks at a time during the winter months but it continues to live satisfactorily in its runways beneath the snow. Like the Long-tailed Rat, its maximum litter of young is four and its nipple formula and the manner in which it drags its offspring with it when danger threatens is likewise similar.

All three species are totally protected by state law. Their natural habits are scrupulously clean and they rarely, if ever, offend in any way. Were they not burdened with the name "rat", which so often carries with it the reputation developed by the introduced vermin species, their appeal could not fail to charm the animal-lover in the same manner as do the small marsupials.

BOTANICAL WORK ON MT. FIELD

By Kelsey Aves

THE CLUB'S Easter Camp was held this year at Mt. Field, twenty-five members attending. The huts we used are close to Lake Dobson, about 3,000 ft. above sea level and have bunks and mattresses and firewood, but otherwise campers must provide for themselves. In this respect Easter camps of the last four years have differed from those that went before when a professional French chef headed the catering team! However, at the end of a stimulating day, mentally and physically, the combined odours of smoke and savoury dishes in preparation this year built up flagging spirits to perhaps an even higher level than those of previous camps. For this camp was a different one in that it had a specific purpose beside that of casual enjoyment of natural history and scenery.

At the end of last year the Committee had consulted with Professor Jackson, of the Botany Department of the University of Tasmania, with the idea of the Club's being able to help the University in some type of field work which might be mutually useful. Professor Jackson had made a number of suggestions about work needing to be done by the Botany Department, but for which so far there had been neither time nor personnel. So he himself attended the camp with the object of starting a survey and census of the plants of Mt. Field. Intrinsically very interesting, the region includes the rain-forests of 1,000 — 2,500 ft., and the sub-alpine and alpine moors of 3,000 — 4,000 ft. Also, the recent severe bush fires made it doubly desirable that a census be completed in case of further severe fires.

Weather is a very variable factor in Tasmania, especially in mountain areas, and Easter started cold and wet, with predictions of more, and so Professor Jackson's plan of pegging out quadrats for plant counts was deferred. Instead, preliminary collecting and naming of specimens was begun, and since the flowering season for most plants was over, Friday afternoon was spent along the roadside between the huts and Eagle Tarn, when Professor Jackson explained the vegetative features of the five families into which he said 90% of the plants in this region would fall — Proteaceae, Myrtaceae, Epacridaceae, Rutaceae and Compositae. These features are: Proteaceae have "leathery" leaves, woody follicles (except *Personia* which looks like a drupe), underside of leaves paler, no smell, style strongly curved; Myrtaceae, leaves have oil glands and are aromatic, a woody capsule opening by valves on the top, flowers may or may not have petals; Epacridaceae, leaves mostly reduced with thick cuticles and parallel venation, usually sharply pointed, woody capsules but also with drupes as in *Cyathodes*; Rutaceae, leaves have oil glands and the odour is usually phenolic (boot polish!), fruit of four or five carpels, separate or nearly separate, each containing one or two seeds; Compositae, leaves usually sweetly aromatic.

Explaining these as we moved along, Professor Jackson peppered us with questions on what he had told us, until the facts had really begun to root in our minds. Then, after tea, the specimens were named and labelled and spread on tables and a profitable evening was spent mulling over them, taking notes or sketching them.

Saturday morning was cold with a soaking drizzle, so the previous evening's work was resumed, and then, after an early lunch, we visited the area just below Lake Fenton where we examined the deciduous beech (*Nothofagus gunnii*) and King Billy pine (*Athrotaxus cupressoides*). Then we went down to the thickest part of the rain-forest about the 2,000 ft. level, where *Nothofagus cunninghami*, *Anodopetalum biglandulosum*, *Phyllocladus asplenifolius* and *Anopterus glandulosus* all flourish. These plants, formerly grouped in the Saxifragaceae family, are now separated into the Escalloniaceae and Cunoniaceae. We saw also an Epracid, *Trochocarpa gunnii*, which was common here in the forest.

The necessity for fire in the succession of *Eucalyptus* in rain-forest areas was explained. *Eucalypt* seedlings have no chance of survival under the rain-forest canopy, so that eventually all *Eucalypts* will die out unless there is a big fire at least every 300 years. Failing this there could be no viable seed in the soil.

The yellow-gum species *E. vernicosa*, *E. subcrenulata* and *E. johnstonii*, were discussed and Professor Jackson said he believed that two new sub-species would need to be recorded between the three species to allow for the varying characteristics of these gum trees at intermediate altitudes. *E. parvula* would be inserted between the first two and *E. columnaris* between the second two. *E. vernicosa* is at the highest level and *E. johnstonii* at the lowest.

After tea, again the day's specimens were laid out on the table and labelled, while further note-taking and discussion took place and about 10 o'clock Professor Jackson had to leave for home.

On Sunday morning the weather had improved considerably and the party made for the Tarn Shelf, that fascinating chain of hanging lakes at the head of Lake Seal cirque. We had lunch at Robert Tarn under delightful conditions, and some went further along the Shelf collecting specimens not so far seen, and the same was done on the journey home along the Mawson plateau, where we were pleased to see a few late flowers of *Gentiana saxosa*. Sunday evening was devoted to pencil-and-paper games as a change from collecting and recording.

On Monday morning a party went to Wombat Moor. Here they found all the monocotyledons. On the moor edge a delightful pool was discovered, only 200 yards from the road, and in a setting of gigantic rocks with a foreground of light coloured *Sphagnum* moss and small King Billy pines leading up to a conical tree at the top of the picture — a perfect natural rock-garden that none of the party ever had noticed before. A professional landscape gardener with us was quite enraptured. In the afternoon most of the party went to Lake Seal and Lake Webster in the Broad River valley. The last evening was a traditional sing-song and wound up a camp of exceptional interest and value.

We owe a deep debt of gratitude to Prof. Jackson for his patience and guidance, and it is hoped that we will demonstrate this in a practical way by following up the work.

NATURALISTS CONCERNED WITH FIRE LOSSES

SOUTHERN TASMANIA is still licking its wounds suffered in the great bushfires of February 7 last. Some 70 human lives were lost and millions of dollars worth of property marred or destroyed. There also was a tragic toll in animal life. The Curator of Wildlife, Mr. J. H. Hemsley, said that about a thousand birds of 61 species were found washed up on beaches near Hobart after the fires, evidently having been overcome by smoke and heat. A great number also perished in the flames on Mt. Wellington and elsewhere, and wide areas of bushland and other habitats were wiped out. Possums, bandicoots, wallaby and smaller marsupials were burnt by the hundred.

Offers of help for fire-stricken people came from many countries and money and relief goods poured in from all Australian States. Characteristic of the concern among naturalists generally as to the fate of our wildlife was a letter offering help from the executive of the Richmond Hill Naturalists' Club in Ontario, Canada. "Is there anything a small club like ours could do to assist?" wrote Mrs. Ottelyn Addison on behalf of that Club. "We are not a money-raising club and we work on a small margin but there may still be something tangible that could help."

Our Club expresses its warm appreciation of this kind thought from fellow naturalists so far on the other side of the world, whose sympathy alone was sufficient to comfort many of us in this birdless, treeless, blackened part of the earth.

Many Australian naturalists also were deeply concerned about the fate of our fauna in these tragic fires and sent their sympathy, as well as contributing to relief funds raised among all sections of the community. From Canada also came an expression of grief from another of our Club's exchange journals, "The Orchid", bulletin of the Peterborough Naturalists' Club, Ontario. Its mailing officer, Elsie Green, asking for details of fauna losses, said her club was appalled by the news of the great fires. It was nice to know that fellow naturalists were thus thinking of us in this time of trial.

BIRDS OF CAPE PORTLAND

By L. E. Wall and D. G. Thomas

CAPE PORTLAND is the most northerly point of the north-east coast of Tasmania, about 18 miles north of the old tin-mining town of Gladstone. It was settled in 1846 by John Foster, and pastoral pursuits are still carried on there by Messrs. E. & M. Mills.

Much of the land is now cultivated and sown with exotic pastures, but there is still some in the immediate vicinity of the Cape under native grasses, and extensive areas to the east, towards Musselroe Bay, remain coastal heathland. The shore-line is mainly of beaches of coarse granite sand intersected by small headlands of granite or basalt. Off-shore are a number of rocky reefs, and about a mile out is Foster Island, which is a breeding ground for Pelicans, White-faced Storm Petrels, Mutton-birds, Silver Gulls and a few other species in small numbers. Behind the beaches are dunes of small to medium height, covered in some places by Boobyalla (*Myoporum*), Coast Heath (*Leucopogon parviflorus*), Honeysuckle (*Banksia marginata*) and other shrubs, and in other places by the introduced Marram Grass. Between the dunes and the grasslands there are extensive swamps, marshes and salt-pans which frequently shelter large numbers of waterfowl and waders. Just east of the cape is a fairly extensive reef which is linked to the mainland at low tide — there is a rise and fall of about 15 ft. here — and the tidal flats at this point are of fine sand and mud with a slight covering of Sea-grass (*Zostera*).

In the past two summers several visits have been made to the area for observations on large numbers of migratory waders which congregate there. A casual look at the area, particularly at a high tide, can leave a poor impression of it as a wader resort, and it has been difficult to determine where all the birds retire when the tidal flats are covered. However, it has been found that a salt-pan just behind the cape and another very extensive one about midway between the homestead at present in use and the one near the cape and long disused (both being very old stone structures) may each hold five hundred of the smaller waders and often very many more. It appears that many of the larger birds retire to the exposed reefs at high tide while some at least go further to the east and return from that direction as the tide recedes. One brief visit to Little Musselroe Bay, about three miles eastward, showed only three Eastern Curlews present and no other waders. Musselroe Bay, a further ten miles away, supports a population of waders, but difficulty of access has prevented close observation.

The number of species present at Cape Portland is as varied as in any other part of the State although the area of mudflats is very restricted, and in many species the numbers exceed those found elsewhere. Although several species have been recorded for the first time in the State by southern observers in recent years most of these have been found at Cape Portland also, and two species seen in the north-east have not yet been found in the south.

The following is a list of waders, both migrant and resident, seen at Cape Portland, with the greatest number of each shown in brackets :- Greenshank (7), Turnstone (50), Golden Plover (40), Great Knot (1), Knot (20), Grey-tailed Tattler (6), Mongolian Dotterel (4), Double-banded Dotterel (100), Curlew Sandpiper (100), Sharp-tailed Sandpiper (200), Red-necked Stint (1500), Spur-winged Plover (100), Banded Plover (30), Red-capped Dotterel (6), Pied Oystercatcher (4), Sooty Oystercatcher (20). In addition, a flock of forty birds, presumed to be Ruffs, was seen on 6th March 1966, but because of the unusual nature of the record it is noted as provisional only.

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