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ECOLOGY OF TASMANIAN LICHENS

G. C. Bratt

WHEN one is intending visiting some part of this island for the first time it is convenient to know what one will encounter. As few people are familiar with lichens a brief and crude description of the lichen populations of various regions of Tasmania is given below. For convenience seven generalised types of habitat - coastal rocks, dry eucalypt forests, dry grasslands, button grass areas, rain forests, mountain plateaux and mountain peaks - will be described.

Coastal Rocks e.g. Coles Bay - Bicheno area.

On hard coastal rocks providing a stable substrate (sandstone which weathers readily presents a confused picture) there is a very marked and colourful zonation of lichens. Between high and low tide marks and for a foot or so higher there is a black band of individually tiny lichens including Lichina pygmaea (upright stalked), Mastodia antarctica (upright leafy) and a mixture of Verrucaea spp. (spreading and inseparable from the rock). For the next 2 - 5 feet there is a predominantly orange band of orange and yellow crustose (inseparable from the rock) Caloplaca spp.; flattened leafy orange Xanthoria parietina, an upright fairly orange Teloschistes spinosus and in some areas green to orange Polycauliona cribosa. Above the orange band in a predominately white band composed of crustose species including Ochrolechia spp. (usually with tiny pinkish discs) and Catillaria spp. (with small black spots). Above the white band the zonation usually becomes indefinite because of the intrusion of higher plants but many lichen species may usually be located on the rocks and soil. Parmelia spp. (leafy lichens) such as the bluish erumpens and the yellowish caperata, furcata, dichotoma are abundant on the rocks and soil pockets usually show some coverage of a brown leafy lichen Pseudocyphellaria australiensis and various upright lichens such as Cladonia pleurota.

The zonation described above may be seen on almost any coastline throughout the world although the species involved may differ in fact or in the mind of the taxonomist describing them. The species involved in the Tasmanian coastline zonation appear to be slightly influenced by our proximity to Antarctica as the

Mastodia and Polycauliona species mentioned above have their nearest relatives on some of the sub-antarctic islands.

Dry Eucalypt Forests e.g. areas accessible from the Tasman and Arthur Highways. In such forests the dominating trees, the various Eucalyptus species, do not provide particularly good sites for lichen growth, possibly because of the frequency with which the bark is shed. Dead and/or burnt Eucalypts and Acacias do provide good collecting points.

On the old burnt stumps and logs may be found the tiny upright black topped Cladia schizopora, a five-lobed horizontally spreading Anzia wilsonii and the large spreading white-surfaced Hypogymnia lugubris, all of which are endemic to Australia and New Zealand. Smaller lichens on the same substrate are the cosmopolitan species Lecanora atra and L. blanda, the first visible as small white circular discs and the latter with black circular discs.

More recently burnt trees, with plenty of charcoal still present, often support a small upright lichen with brown disc-shaped ends, Thysanothecium hookeri. This species is presently considered to be endemic to Australia but very closely related species have been found in Indonesia and Japan. Living or dead Acacia trunks and branches are often partially covered with a number of yellow-green upright or drooping tubular Usnea species and similar but strap-shaped Ramalina fastigiata, R. pollinaria and R. ecklonii. Closely attached to Acacia bark are yellow patches of Parmelia rutidota and blue grey patches of other Parmelia and Physcia species. Frequently present are easily visible but small orange spots of Lecideia cinnabarina.

On soil and rotten wood a variety of upright Cladonia species such as subsquamosa, verticillata and cornutoradiata are found.

Rock outcrops usually support a growth of the larger leafy lichens such as Pseudocyphellaria australiensis (brown), P. crocata (brown with yellow patches), Parmelia reticulata (blue grey) and P. conspersa (dull yellow).

Such dry Eucalypt forests appear to support the same range of lichen species as similar areas on the southeastern mainland.

Open dry grasslands e.g. country accessible from the Midlands Highway between Melton Mowbray and Powranna. Rock outcrops and forested areas are scarce in this region and in general are inhabited by the same species as described above. Lichens on the soil are relatively scarce but are of considerable interest. Many of the species appear to have curiously restricted ranges but this may be due to inadequate searching.

Heterodia mulleri, which looks like sheep droppings when dry and like a rather yellowish liverwort when wet, is restricted (almost) to a narrow band on either side of the Midlands Highway between Ross and Cleveland. Parmelia willisii, a pale yellow-green lichen with narrow finger-like lobes which lies loose on the soil, has to date been found in only one paddock on the Lake Tooms Road. Parmelia amphixantha, a very similar species, but which is attached to the soil at the base of the lobes, has a wider distribution which stretches to the grasslands near Tea Tree and near Hamilton. There appear to be chemical differences between some of the collections of Parmelia amphixantha and hence two species may be represented by these collections. The three described above are all endemic to Australia.

Smaller less conspicuous and cosmopolitan species with fairly wide distribution in these regions include Lecidea decipiens, Dermatocarpon hepaticum and Diploschistes scruposus. The first two species are small plaques, pink and brown respectively, while the third species appears a rather larger white crust on soil.

The general impression given by the lichens in this region is that of the drier parts of the Australian mainland particularly South and Western Australia.

Button Grass regions e.g. Huon and Arthur Plains and surrounding foothills. Although lichens are widespread on these plains they are often difficult to see because of the cover of button grass etc. but when the plant cover is thinner (as the result of fires or other effects) the lichens, predominantly of the family Cladoniaceae, may be seen to full advantage. In these areas the ground may be carpeted with Cladia retipora (white coral-like) C. sullivanii (similar but black-green), C. aggregata (green but finer structure than previous two species) and Cladina leptoclada (pale yellow-green tufts). These species are probably all endemic to Australia and New Zealand. In slightly more sheltered areas Cladonia species, mostly cosmopolitan such as macilenta, pleurota, vulcanica (all upright lichens with red tips) and pyxidata, deformis, verticillata (upright species with brown tips) may be found. A green flat leafy species with pink fruits, Thelidea splachnirima, is also frequent. Siphula species such as moorii and decumbens (white-green erect stiff blunt blades) are encountered in small patches on the plains and increase in abundance as one climbs the open hillsides. The latter three species are also endemic to Australia and New Zealand. It is considered likely that only in New Zealand could areas be found supporting a similar lichen population.

Rain Forest e.g. Adamsfield Track and southern side of Sentinel Range. Many of the thickly forested regions of Tasmania are commonly referred to as rain forest but there are considerable differences in both the lichen and higher plant inhabitants. In the thicker darker forests dominated by Horizontal Scrub only a few lichen species may be found but they occur in great abundance. Limbs of the Horizontal Scrub may be completely enveloped in green lettuce-like growths of Sticta filix and Pseudocyphellaria billardierii. Pale green erect fronds of Sphaerophorus melanocarpus growing from the trunks are also common.

In the more open and lighter forests dominated by Nothofagus there is still an abundance of lichens and a much greater variety of species. Besides the species mentioned above the Nothofagus and other trees support a prolific growth of Pseudocyphellaria rubella, hirta, colensoi (all rather large lettuce-like plants with green upper and yellow lower surfaces), flotowiana, faveolata, pseudosticta (similar but with white or black under surfaces). Nephroma cellulorum and australe with the fruit visible as brown patches on the underside of the lobe tips are also common. Sagenidium molle, white mould-like patches, is present on the drier section of Nothofagus trunks. On the ground and the lower portions of the trees common species are Peltigera polydactyla and dolichorrhiza (both species have the fruit on the tips of the upper surface of the lobes).

Similar forests and lichen species may be found in the western parts of New Zealand and South America.

In "rain forests" of drier areas such as the slopes of Ben Lomond and Mt.

Barrow a smaller number of similar species occur less frequently. Similar areas may be found in the Otways in southern Victoria.

Plateaux regions e.g. Cradle Mt. plateau.

These areas, possibly because of similar high rainfall and poor drainage, show some features in common with the button grass areas. Thus they support a prolific growth of Cladia and Siphula species. The Siphula species become more plentiful and varied - complanata, decumbens, foliacea, moorii (all whitish) and fragilis (like pale tea leaves). However, there are also a number of rarer species which indicate a similarity of climatic conditions on our mountain plateaux with those in northern Europe. Such species include Cornicularia aculeata (spiny red-black tufts mostly on soil), Alectoria nigricans (bluish white soft clumps mostly on rock), Cetraria islandica (clumps of brown flattened fronds on soil) and Thamnolia vermicularis (white and resembling vermicelli on soil, rocks and cushion plants).

Mountain Peaks e.g. Mt. Mawson

The mountain peaks of Tasmania show considerable differences in their lichen populations. Some of these differences may be because of climatic and geological features, while other differences may be caused by the effects of fire. Thus the peaks of Mt. Hartz, Wedge and Sedgewick, which show evidence of severe fire damage in the past, support only a very limited lichen population. Peaks which have escaped fire effects in about the last fifty years have a characteristic lichen flora which is probably similar in familial but not generic composition to that on other mountain peaks in similar climatic positions throughout the world. The most obvious species on the highest and most exposed rocks are the flat black Umbilicariaceae, including Agyrophora subglabra (particularly on north-facing vertical rock faces), Umbilicaria cylindrica, and U. hypoborea. Tufts of upright lichens such as Neuropogon acromelanus (yellowish base with purple-black tips), Usnea glomerata (similar but entirely yellow) and Stereocaulon ramulosum (greyish with brown globose tips). Species which give colour to the rocks and which are almost inseparable from it include Rhizocarpon geographicum (yellow green), Lecidea dicksonii (rusty orange with black spots) and Placopsis sp. (rusty to pinkish).

With this brief description in mind, or pocket, one should feel a little more familiar with the lichen inhabitants of Tasmania and perhaps contribute to a more precise and detailed description by forwarding to the author unusual material from out-of-the-way places.

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BROAD-BILLED PRION (Pachyptila vittata) IN TASMANIA

The Handbook of Australian Sea-birds, 1971, gives the Status of this bird as :- "A rather rare bird in our area but beach-washed specimens have been found in Western Australia, Victoria and New South Wales in the winter."

In September 1961 I found a beach-washed specimen at Coles Bay, and it now seems that this is the first direct evidence of the presence of this species in Tasmania.

Although the specimen was completely desiccated it was collected and lodged at the Tasmanian Museum where it has been retained in its collections. The following measurements are recorded - Wing, 203mm.; tail, 92mm.; culmen, 33.5mm.; width of bill, 20.5mm.; tarsus, 34mm.; middle toe and claw, 43mm.

- L. E. Wall

FURTHER KENT'S GROUP BIRD RECORDS

J. S. Whinray

IN the Tasmanian Naturalist No. 24, February 1971, I gave a list of birds seen on the three major Kent's Group islands during November and December 1970. When I typed the list I omitted three species from it. They are :-

Eudyptula minor (Little Penguin) for Deal, Erith and Dover Islands, Puffinus tenuirostris (Short-tailed Shearwater) for Erith Island (to be inserted in that order after Phaps elegans) and Hirundo neoxena (Welcome Swallow) for Deal Island (to be inserted after Chalcites basalis).

Of these species the Welcome Swallow should be added to the short list of native birds seen in the tussock grassland area of Deal Island.

As well, I overlooked the sighting of the White-naped Honeyeater Melithreptus lunatus on Deal Island during the 1908 Australian Ornithologists' Union Expedition (Emu, 8:205-206, 1909). So my record of this species was the third for both Deal Island and Tasmania.

1971 Visit to the major islands.

I returned to Kent's Group in late November 1971 and spent a month there. Only two new birds were seen on Deal Island but both were new records for the Group. One Banded Plover Vanellus tricolor was feeding in open-tussock grassland about 400 yards east of the head of East Cove for a few days in early December. Nearby, in tussock grassland burned in 1968, were a few Skylarks Alauda arvensis. I could not get close enough to obtain a specimen. However, their soaring flight, hovering and singing helped me to distinguish them from the Pipits Anthus australis which were common in the area. I saw the White-naped Honeyeater Melithreptus lunatus again during this visit. The only sighting was of two birds in Lighthouse Valley in late December.

In the 1970 list I recorded Ewing's Thornbill Acanthiza ewingii for the three major islands. However Mr. Ian Abbott, of Monash University Zoology Department, visited Deal Island in early 1971 and later told me that he considered the Deal Island species to be the Brown Thornbill Acanthiza pusilla. After examining the specimen which I obtained on Deal Island in December 1971 I agree with his opinion. As well, I consider that the Brown Thornbill, and not Ewing's Thornbill, is the species present on Erith and Dover Islands.

Erith Island yielded only two new records. A Caspian Tern Hydroprogne caspia flew to the head of West Cove on 12-12-1971 but was not seen again. The species had not been recorded before for the Group. On the same day an Australian Gannet Sula serrator was seen wheeling over the outer part of West Cove.

The only new record for Dover Island was the Starling Sturnus vulgaris. A flock of five birds was seen flying over the rise above the Squashway in the evening of 15-12-1971. Later that evening a single Starling was seen in the same area.

North East Island

North East Island lies about a mile and a half off the north-east part of Deal Island

and is one of the minor Kent's Group islands. It is a granite ridge about half a mile long and long and rises above 300 feet in two places. Its area is about seventy acres.

I visited it in late November 1971 and, by accident, set up my camp in a spot where Little Penguins Eudyptula minor, Fairy Prions Pachyptila turtur and Diving Petrels Pelecanoides urinatrix were nesting. The Little Penguins were tending young of various sizes, the Fairy Prions were sitting on eggs with fairly well developed embryos and the Diving Petrel young ranged from tiny birds to some as large as the adults. Most of the island is a Short-tailed Shearwater Puffinus tenuirostris rookery with the three species mentioned above nesting mainly in the coastal areas.

Pacific Gulls Larus pacificus and Sooty Oystercatchers Haematopus unicolor were nesting also. One pair of Cape Barren Geese Cereopsis novae-hollandiae was present on the island during my visit and a Blackbird Turdus merula was seen occasionally. It was the only introduced species seen or heard on the island. A bird of prey was seen from time to time and it was probably a Nankeen Kestrel Falco cenchroides. A few Silver Gulls Larus novae-hollandiae and a pair of Ravens Corvus sp. were present too. Only one cormorant was seen during the three days spent on the island. It was a Black Cormorant Phalacrocorax carbo.

Most of the species I saw had been recorded by earlier visitors (Le Souef, 1891; Mattingley, 1938). However, they did not record the Blackbird, Black Cormorant or the Nankeen Kestrel.

References

- Le Souef, D. 1891. Victorian Naturalist, Vol. 7, pp. 129-130.
 Mattingley, A.H.E. 1938. Emu, Vol. 38, page 9.

BIRDS OF LAKE PEDDER AND THE SENTINEL RANGE SOUTH-WEST TASMANIA

D. G. Thomas and L. E. Wall

INTRODUCTION

THE Gordon River Power Development project of the Hydro-Electric Commission of Tasmania will create two vast lakes, Gordon and Pedder, which will be Australia's largest water storage, 12.8 million acre-feet. Dams will be built on the Gordon, Serpentine and Huon (Scotts Peak) Rivers and the area to be flooded includes the existing Lake Pedder, once the centre of a national park. Little appears to have been published on the birds of the area. Indeed, little has been published on the birds of Tasmania's South-West apart from a paper by Green and Mollison (1961) dealing with Port Davey and the southern coast. Yet the South-West comprises one quarter of the State and is made up largely of cold-adapted vegetation that was more widely distributed during glaciations (Ridpath & Moreau 1966).

In this paper we seek to provide a basis, incomplete as it is, for further study of the birds of one of the world's few remaining truly wilderness areas. It is based on visits to Lake Pedder on 24 February 1968 (Thomas only) and 28 February, - 1 March 1970. We have been fortunate to have been supplied with the observations made by personnel of the Tasmanian Museum, Hobart, and Queen Victoria Museum, Launceston, who took part in a general survey of the Lake Pedder area.

6-24 February 1967 : Messrs. A. P. Andrews and A. J. Dartnall (Tas. Mus.) and John Swift (Q. V. Mus.).

26 September - 4 October 1967 : Messrs. A. P. Andrews and A. J. Dartnall (T. M.)

27 November - 4 December 1967 : Messrs. A. P. Andrews and J. George (T. M.)

23 February - 1 March 1968 : Messrs. D. Alexander and A. P. Andrews (T. M.)

To all these we express our gratitude for permitting us to include their observations.

Tasmania's South-West has always been difficult of access and has only rarely been visited by ornithologists, which explains the lack of observations. Prior to the construction of the Gordon Road access to Lake Pedder was by light aircraft when enough beach was uncovered for landing or by a difficult walk of about 20 miles along the Port Davey track from Maydena. Access is now by a not-too-difficult seven-mile track cut by the Hobart Walking Club from the Gordon River road. The track leaves the road north of the Sentinel Range which has to be crossed. The area included in this paper extends from the road to Lake Pedder and the Scotts Peak dam site and includes the Sentinel Range, Swampy Creek, Lake Maria, Mount Helder and Mount Solitary.

HABITAT

The climate is cool and wet, with up to 90 inches of rain a year, which has had a propound effect on the vegetation which is typical of the whole South-West. As is usual in Tasmania, various habitats exist as a mosaic depending on soil, aspect, drainage, altitude, and the past history of burning. The following habitats, classification according to Ridpath and Moreau (1966), are common and representative :

Permanent Water. Lakes, permanent streams and their immediate surrounds, including permanent marshes.

Temporary water. Many streams flood, particularly during winter, forming large expanses of water in the valleys. Such waters are not important for birds, probably because of a shortage of food.

Temperate rain forest. A dense forest dominated by Antarctic Beech Nothofagus cunninghami. Other common trees are Leatherwood Eucryphia lucida Sassafras Atherosperma moschata, Blackwood Acacia melanoxylon, Native Laurel Anopterus glandulosus, and Celery-top Pine Phyllocladus aspleniifolius. In places the dreaded Horizontal Scrub Anodopetalum biglandulosum occurs. The floor is usually clear apart from mosses. This formation is peculiar to Tasmania.

Sub-alpine forest. Dominated by Snow Gum Eucalyptus coccifera of various heights up to 40 feet, depending on soil and aspect, with a rich shrub layer.

Wet-tussock and hummock sedgeland and moors. The most extensive community which is usually called "Button Grass Plains." This is an unfortunate name because there are structural differences, ranging from practically pure expanses of Button Grass Mesomelaena sphaerocephala on wet acid soils in valley bottoms to a more varied and open structure, similar to low-altitude heath, with Banksia, Hakea and Leptospermum spp. as co-dominants in the better drained areas. The sandhills along the southern shore of Lake Pedder are similar to coastal heath and are dominated by Banksia marginata.

High moors. The mountain tops are largely rocky with a grassland community dominated by Snow Grass Poa caespitosa.

ANNOTATED LIST OF BIRDS

Grebe Sp. Podiceps sp. Grebes were recorded on Lake Pedder by Museum personnel. The species was not determined but was probably the Hoary-headed Grebe P. poliocephalus.

Black Cormorant Phalacrocorax carbo. One seen flying up Maria Creek on 28 February 1970 and again the following day when it joined three others on a rock in Lake Pedder. Recorded by Museum personnel.

Little Pied Cormorant P. melanoleucos. Nine sharing the rock with the previous species. Recorded by Museum personnel.

Silver Gull Larus novaehollandiae. Recorded by Museum personnel, February 1967.

Pied Oystercatcher Haematopus ostralegus. The occurrence of this species at Lake Pedder is implied in Sharland (1958) but no details are given.

Spurwinged Plover Vanellus miles novaehollandiae. Recorded by Museum personnel in February 1967 but not seen by us.

Banded Dotterel Charadrius bicinctus. A party of four was present on the shore of Lake Pedder on 1 March 1970. They were resting as if tired after long migratory flight.

White-faced Heron Notophoxyx novaehollandiae. Five were present in a marshy area near the Serpentine River, Lake Pedder. Also recorded by Museum personnel.

Wedge-tailed Eagle Aquila audax. Recorded by Museum personnel at Scotts Peak in February 1967.

Brown Hawk Falco berigora. Recorded by Museum personnel at Scotts Peak.

Yellow-tailed Black Cockatoo Calyptorhynchus funereus. Single birds seen and heard in temperate rain forest and sub-alpine forest. Also recorded by Museum personnel. We found evidence that they had been feeding on Banksia seeds at the edge of the Lake Pedder beach.

Green Rosella Platycercus caledonicus. Surprisingly uncommon. Recorded from temperate rain forest and sub-alpine forest. Also recorded by Museum personnel.

Ground Parrott Pezoporus wallicus. Heard calling at dusk in hummock sedge-land at Lake Pedder (one or two birds) and near the Gordon Road (at least two birds).

Alexander secured a specimen at Lake Pedder. Probably it is sparsely distributed throughout the more open heath-like Button Grass areas but may not occur in pure mature Button Grass.

Fan-tailed Cuckoo Cacomantis pyrrhophanus. Heard calling temperate rain forest. Uncommon.

Australian Tree Martin Hylochelidon nigricans. Single birds seen on two occasions. May be more common earlier in the summer.

Grey Fantail Rhipidura fuliginosa. Heard calling in temperate rain forest. Uncommon.

Pink Robin Petroica rodinogaster. Sparsely distributed in temperate rain forest.

Dusky Robin P. vittata. A pair seen in scattered Banksias on the edge of the Lake Pedder beach. Also recorded by Alexander.

(Continued next issue)