

FLORA AND FAUNA ON STEWART ISLAND,
NEW ZEALAND

By GEORGE A. USHER

Stewart Island lies below the southernmost bluff of South Island, from which it is separated by the deceptive Foveaux Strait. In shape it is an irregular isosceles triangle with a base extending north-west and south-east along the Foveaux Strait. Having an area of only 665 square miles it is by far the smallest of the three main islands of New Zealand. It is interesting to note that the forty-seventh parallel of latitude south passes through the middle of Stewart Island; the forty-seventh parallel north cuts Switzerland in half.

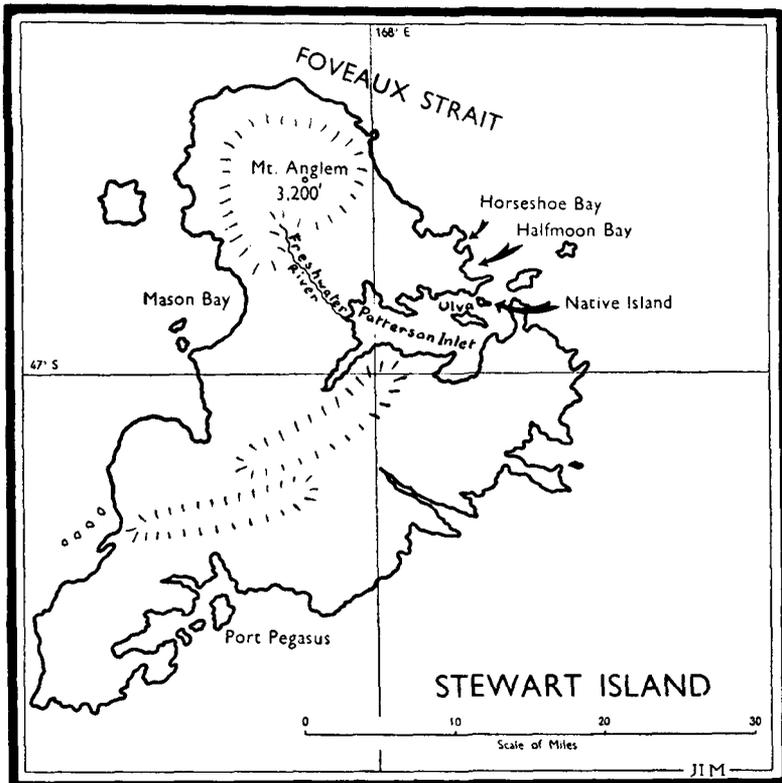
To the tourist Stewart Island is a scenic wonderland where calm bays and superb bush invite him to peaceful idleness. Very few people, including the island's normal inhabitants, penetrate into the hinterland, but the naturalist and botanist hunger to study both the explored and unexplored areas of this unique natural forest.

Though apparently similar to the wetter podocarp forests of South Island's west coast below Greymouth, the plant association is unique. Puheretaiko (*Senecio rotundifolius*), the grass-tree or inaka (*Dracophyllum longifolium*), teteaweke (*Olearia angustifolia*) and daisy-tree (*Olearia colensoi*) are the dominant shrubs in the "mutton-bird scrub" which is characteristic of the coastal areas. Pygmy-pine (*Dacrydium laxifolium*), the world's smallest pine, and mountain pine (*Dacrydium bidwillii*), which are sub-alpine species on the other islands, descend to sea level on Stewart Island; on the other hand, rimu (*Dacrydium cupressinum*), a species of the lowland and montane forests on the mainland, ascends to sub-alpine scrub in parts of the island.

The true forest rises out of the scrub and ascends to a height of about 900 feet, where it gives way to a belt of manuka (*Leptospermum* spp.) in association with mountain pine and moss cushions. In the north and east the predominant trees are rimu, southern rata (*Metrosideros umbellata*), miro (*Podocarpus ferrugineus*), kamahi (*Weinmannia racemosa*), accompanied by thin-barked totara (*Podocarpus hallii*)—a normal podocarp climax association. In the west and to the south of Paterson Inlet this association is found only in sheltered valleys and on dry ground. The yellow pine (*Dacrydium intermedium*), often accompanied by large cushions of liverwort and moss, is

the dominant tree in damp and boggy sites. Here, as in the north, kamahi is the main dicotyledonous tree in association with the delicate pate (*Schefflera digitata*) and karamu (*Coprosma lucida*).

From 1,500 feet and up to about 2,000 feet the manuka scrub gives way to the daisy tree which is increasingly accompanied by prostrate forms of the plants found at lower levels. Above 2,000 feet the vegetation is very similar to that found on the high mountains of the mainland.



There appears to be no naturally grown *Podocarpus totara* or *Nothofagus* species anywhere on the island, though only 15 miles separate Stewart Island from the mainland where both are common—the few that have been planted are doing extremely well. This is a remarkable botanical fact when one remembers that thin-barked totara, which is sometimes considered to be but a variety of *P. totara*, grows in profusion

throughout the island. If there are any southern beech they would probably be on the north-western slope of Mount Anglem which has not yet been fully explored.

A few kauri (*Agathis australis*) have been planted and they appear to find the mild climate and moderate rainfall conducive to growth: the rainfall in the Halfmoon Bay area, where the kauri have been planted, is 60 inches, spread over 250 days of the year. However, as is natural in such rugged country, the rainfall varies considerably from one part of the island to another.

Fortunately no milling has been permitted on Stewart Island for several years. Consequently the regeneration on former clear-felled areas of rimu, the main timber tree of New Zealand, provides plenty of scope for study—such regeneration is extremely rare. However, I did notice that once rimu reached a height of between 15 and 25 feet the foliage began to turn brown; this browning could, of course, be caused by several factors but some observers consider that it is natural to rimu of that height and age—between twenty and seventy years.

Epiphytes are abundant, particularly in the wetter areas. Many trees appear to have scores of plants growing on them; orchids, particularly *Earina*, lycopodiums, mosses, lichens, and ferns—on a single tree I have noted five different genera of the filmy ferns and the felt-like ovate frond of the climbing fern (*Pyrrosia serpens*). I have seen even shrubs, particularly *Nothopanax* species, perched on a tree at 20 feet or more above ground.

Tough lianas swinging in the air give the final tropical touch to the forest. The thick fibrous *Metrosideros scandens* hangs from the canopy like a thick, brown rope, and often twines itself round one of the forest trees; generally the host tree is its close relative southern rata. The bush-lawyers, *Rubus cissoides* and *R. squarrosus* claw their way to the second tier canopy ready to rip the skin and clothing of the unwary—I have often had my beret lifted off by a bush-lawyer. The most remarkable of all the lianas is supplejack, *Rhipogonum scandens*, belonging, curiously enough to the lily family, though it is now considered to be a member of smilacaceae. Its tough black cane-like stems, which rarely exceed half an inch in diameter, either shoot straight up to the topmost canopy or heap themselves into a dense tangle of elastic toughness, calling for skill in using a bush-knife or slasher, and agility in dodging the cut stems as they fly back. It is only in these tangled heaps that one is able to see the dark green cordate leaf and red berries.

Orchids of many different genera and species grow in abundance both in the bush and the more open sites. I have never seen a place so rich in orchids before—it is an orchid hunter's paradise. At least nine different species of orchids are in bloom over the Christmas period, from the common *Corybas* to the more uncommon *Prasophyllum*.

The forest of Stewart Island shares with the other New Zealand forests the uniqueness of being brought into being and reaching complete maturity in the absence of any grazing or browsing mammal. Great changes have taken place since man introduced destructive animals to the island especially before the Government introduced the extensive reservations of 1907.

The main enemies of the birds are brown rats and feral cats. The rats are descended from those left on shore by whaling and sealing vessels during the eighteenth and nineteenth centuries. Feral cats, domestic cats gone wild, are often seen in the Halfmoon Bay area. These cats are the cause of much controversy: some say they do more harm than good by killing the insectivorous and seed distributing birds; others maintain they do more good than harm by keeping the brown rats under control. The short-eared phalanger, *Trichosurus caninus*, occasionally varies its diet of leaves—especially those of southern rata—with the flesh of a bird. Incidentally, throughout New Zealand, as in its native New South Wales, this arboreal phalanger is called opossum. This is, of course, a misnomer. The phalanger is readily distinguished from the allied opossum family by the tail being thickly covered with bushy hair up to its very tip; only a narrow line on the lower surface extending about a third of the length is naked.

Red deer, Virginia deer, and wild cattle represent the introduced destructive grazing and browsing animals. Three red deer were liberated in the centre of the island during 1901, and eighteen Virginia deer at Port Pegasus in the south-east during 1905. The red deer are now widely distributed throughout the island, whilst the Virginia deer have confined themselves to south of Paterson's Inlet. The deer are kept under control by Mr. Roy Traill, the honorary ranger, and three to five permanently employed deer cullers. They are doing good work in extremely difficult and generally unexplored country. The work of these people has also helped to prevent the phalangers from becoming the menace they form in Westland, South Island. The wild cattle are too few to be of much consequence.

Luckily the island escaped the plague of rabbits which

swept through the mainland. Apparently the rabbits and goats, which were once to be found on Native Island at the entrance of Paterson's Inlet, are now extirpated. There are no live snakes anywhere in New Zealand, and in Stewart Island there are no dead ones.

Legislation and alertness of responsible citizens has done much to check the depredations of the supposed "sportsman" who loves to display his marksmanship by the thoughtless shooting of birds offering easy targets. Consequently, there are many species still to be seen in abundance which are becoming increasingly rare on the mainland. These are the fern-bird, *Bowdleria punctata*, the bell-bird or mocker, *Anthornis melanura*, which vies in beauty of song with the lovely tui or parson-bird, *Prothemadura novaeseelandiae*, and the cheeky South Island robin, *Miro australis*, which rivals the kaka, *Nestor meridionalis*, for inquisitiveness. The colourful birds are the kingfisher, *Halcyon sancta vagans*, yellow-fronted parrakeet, *Cyanorhampus auriceps*, red-headed parrakeet, *Cyanorhampus novaezeelandiae*, orange-wattled crow, *Callaeas cinerea*, and the blue heron, *Demigretta sacra*.

The Stewart Island spotted kiwi, *Apteryx australis lawryi*, a race of the south island kiwi, is peculiar to Stewart Island. It is restricted to the area south of Paterson Inlet and Mason Bay, but there it is still numerous. It is about the size of a farmyard fowl, is nocturnal and gregarious in habit and is noted for its very large creamy-white eggs. They are as big as goose eggs, and out of all proportion to the size of the body.

The New Zealand pigeon, *Hemiphaga novaeseelandiae*, flies freely even in the inhabited area of the island; for this the human population of 400 should be complimented as the pigeon is an esculent of admitted delicacy. The cosmopolitan sparrow appears to be the only exotic bird on the island.

The mutton-bird or sooty-shearwater, *Puffinus griseus*, is the only game-bird on the island and certain Maori and half-castes hold the exclusive killing rights.

There are but two representatives of the warm-blooded furred animals native to New Zealand and both of these are bats. The bat which is so common in Stewart Island is peculiar to New Zealand and represents a distinct and aberrant group. It is the short-tailed bat, *Mystacops tuberculatus*. This curious weak-winged, fawn-coloured creature hunts for its insect food not only in the air but also on the branches and leaves of the trees among which it is able to creep with ease. The New Zealand bat is rarely seen on the mainland.

The sole policeman told me that there are nearly 300 cattle and 2,000 sheep on the island belonging to farmers and small-holders. Yet the land does not appear to be suitable for agriculture. The soil on this mass of granite tends to have poor drainage, and is generally boggy which seems to suit the supplejack that grows in abundance. Tin and gold may be found in sparse quantities in a few localities—mainly in the south-east.

The main industries of the island are fishing and mutton-birding, both of which are seasonal but lucrative. A few of the islanders carry on spasmodic sales of the beautiful shells of the pawa (*Haliotis iris*)—a shell fish peculiar to New Zealand waters: the inner surface of these shells is iridescent with many hues of green and peacock-blue. During the holiday seasons the influx of tourists, often amounting to 2,000, gives further seasonal employment—the island's three hotels are always booked up well in advance.

There are quite a few exotic trees growing on the island. The most notable of these are: the fine avenue of yellow and white flowered eucalyptus on the foreshore of Leask's Bay, near Halfmoon Bay; and a massive Monterey pine (*Pinus radiata*), growing near the shore of Sydney Cove on Ulva island which lies at the mouth of Paterson Inlet, this pine has roots that can be seen 26 feet away from the bole.

There is much to learn from this unusual island. If any reader is able to visit Stewart Island he will find it useful to get in touch with Mr. Roy Traill and the deer cullers; for these people will supply all sorts of information, including the location of their cut tracks which permit of deep exploration.