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NEWSLETTER

Our objectives are to encourage knowledge and enjoyment of native birds, and actively promote the protection and conservation of native birds and their habitat.

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THE SNARES — A NATURAL TRAP

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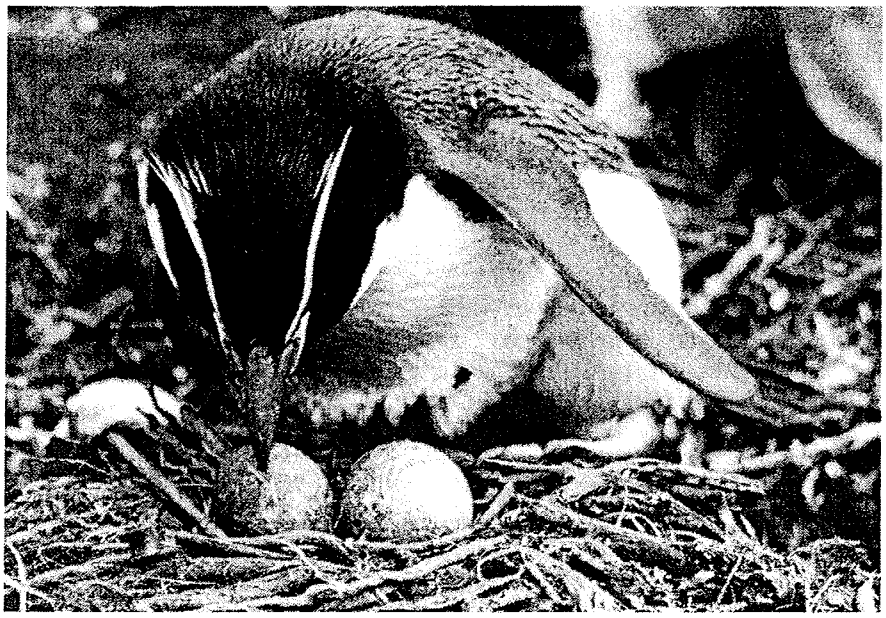
The Snares (commonly referred to as the Snares Islands) are about 220 km SSW of Bluff, the southern end of South Island, New Zealand. The group consists of Main and Broughton Islands, 20 to 30 sea stacks and a string of five rocky islets known as the Western Chain, lying about six km south-west of Main Island. The total surface area is about 340 ha. Their position athwart one of the main sailing routes of the day through the stormy South Pacific, led their discoverer, Captain George Vancouver, to give them their name on Thursday, 24 November 1791. He wrote in his log:

> 'These islands, or rather rocks, for they appeared perfectly steril (sic), I have named on account of their situation, and the sort of weather there is great reason to expect in their vicinity, THE SNARES: as being very likely to draw the unguarded mariner into alarming difficulties...'

This island group is amongst the world's islands least disturbed by man. The frequent vicious storms, mainly from the prevailing westerlies, lash their coasts. Coupled with the group's small size, the distance from the New Zealand mainland and lack of safe anchorage, have left the islands relatively free from visitors. There are no introduced vertebrates. These conditions have set the stage for a unique 'natural trap' of plant and bird life in undisturbed habitats.

The weather is like that of other New Zealand subantarctic islands - wet and windy. Temperatures may range from -0.8 to 19°C but it was seldom warmer than 12°C. The yearly mean temperature is about 10°C. Most days include a dosing of light rain. For instance, in 1972, precipitation (rain, heavy fog, hail, sleet but rarely snow) occurred on 301 of the 366 days, but the total rainfall was only 1180 mm. During this period, there were 65 days with hail and 49 days of westerly gales. One day, an 82 km/h wind, with gusts above 100 km/h, was recorded for a 15-minute period on the exposed Signpost Hill, on the west side of Main Island. The anemometer broke on this day and no more readings could be taken but there were other days of such strong or even stronger winds.



Snares Crested Penguin turning eggs on a stick and mud nest

There are fewer than 25 species of flowering plants and ferns established at The Snares and two of these, an annual grass and chickweed were introduced, probably by early 1800's sealers. The annual grass has spread, primarily where sea lions haul out and work their way up into the forest for extended snoozes. In the early 1800's four escaped prisoners from Norfolk Island were put as castaways on The Snares from a sealing ship. They planted potatoes and 'left nearly an acre and a half in crop' before they were rescued and taken to Sydney.

Snares Crested Penguins landing amongst the bull kelp

These potatoes had disappeared by the late 1870's when a castaway depot was established on Main Island (it is still being used by expeditioners!). The depot was checked occasionally and several naturalists made infrequent visits and planted introduced plants and tree seeds. But these plants died out probably because of competition with native vegetation and the influence of the millions of nesting seabirds. A tree daisy dominates the two larger islands. The leaves of this tree are leathery and fuzz-covered and are up to 20 x 10 cm. The leaves are so strong that they can support Red-billed Gulls, which occasionally perch on them. It would be expected that there would be a lot of leaf litter from these trees but the ground is virtually bare - the Sooty Shearwaters use the leaves to line their underground burrows. A band of tussock grasses extends between the forest and the cliff edges. There is very little ground cover in the forest interior but ferns and herbs occur in wetter areas, especially around abandoned penguin rookeries, streams and where the tree daisies have blown down.

There were huge numbers of fur seals at The Snares but they were nearly eradicated in the early 1800's by sealing gangs. Today, there are about 1500 New Zealand Fur Seals on the island group. Their breeding grounds are on the rocky and boulder beaches of the west coasts of Main and Broughton Islands. Hooker's Sea Lions, mostly non-breeding males, are on the east coast and in the tree daisy forest, and a few pups may be born each year - it is certainly not a breeding ground for this species. Occasionally Elephant Seals and Leopard Seals visit the islands.

The Snares are really best known for their bird life. There are three land birds found here and nowhere else: they are subspecies of birds found elsewhere in the New Zealand region, are quite numerous and have distinctive feeding habits. The Snares Islands Snipe is a very secretive, mostly nocturnal bird. It spends its time probing the peat for earthworms and grubs. The Snares Fernbird feeding range is from the tops of the 10 m tall tree daisies down into petrel burrows. It is common to see fernbirds feeding on flies in an active, very muddy penguin rookery. They are even bold enough to pick flies off the backs of sea lions. The totally black Snares Tomtit specialises in hawking flying insects amongst the trees and also finds food on tree trunks.

It is the seabirds that really dominate these islands. About 15 species of these birds nest in their millions in peat burrows and rock crevices. The Snares has a seabird population about the

same number as that of Britain and Ireland! Broad-billed and Fairy Prions live on the larger islands and Fulmar Prions are found on the Western Chain. The northernmost known colonies of the familiar Cape Pigeon breed at The Snares. Tiny Diving Petrels and Mottled Petrels are found under tussocks along the cliff tops. Skuas and Antarctic Terns nest on exposed headlands and Red-billed Gulls are common along the eastern coasts.

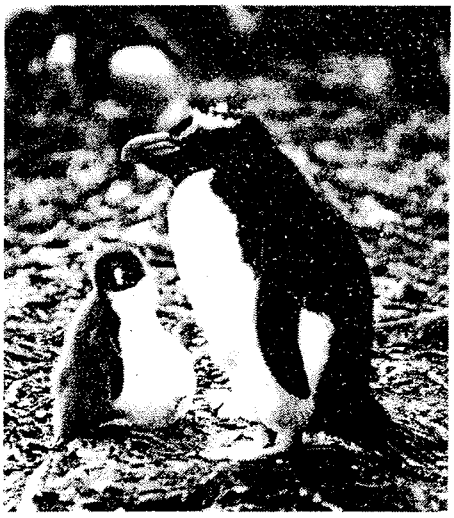
The most numerous seabird is undoubtedly the Sooty Shearwater. There are well in excess of seven million breeding and non-breeding birds at The Snares. It is a truly astounding and inspirational sight to see many thousands of shearwaters landing over the expedition station area in the late afternoon and evening after spending a day feeding at sea. There are so many that there are different landing times for parts of the islands - all the birds would not fit into the airspace at the same time. The sky is virtually black with them and the strange thing is that there are almost no mid-air collisions. It is a bit eerie to see all these birds flying and the only sound that can be heard from them is the rush of air in their wings. An individual will fly around for a few minutes and then dive through the tree daisy canopy and land on the peat, bouncing. It will shake itself and waddle straight to its burrow in the peat. It is then that the quietness disappears. The late evening and pre-dawn hours before leaving the islands are filled with a deafening discord of squalling, squawking shearwaters. Although they usually land within 15 m of their nest burrows, each predawn morning they must walk to some unobstructed high place, usually a cliff top or high rock to take off. If a bird is hesitant in taking off, the pressing hoard behind it bumps it off and it must walk back up the takeoff rock and join the queue again.

The Snares Crested Penguin breeds nowhere else in the world. The 40,000 strong live in more than 130 rookeries - 10 to 500 or more birds each - scattered throughout the eastern forest and on peat and rock in open areas. There are only 11 or so favoured landing sites on the east side of the two largest islands and some penguins have to walk a kilometre or more to their rookeries. One could watch penguins landing for hours at a time (one has). A pod of penguins tend to land in the afternoon after a feeding session at sea of a few days. They land at the same time, seemingly at the same spot. There is a lot of squabbling and preening. Finally one penguin strides off purposely on a track to their rookery and the rest follow. Sometimes the squabbling and preening takes a bit of time and the pod gets washed back out to sea, to begin the landing again. One of us did get washed out to sea, watching penguins getting washed out to sea. But our landing was not as graceful as that of penguins, for sure!

The rookeries are continually noisy and active from late August until the young have departed in early February. The parent birds have a fattening up period at sea followed by 20-30 days moulting with their partners at the nest site. The non-breeders moult in the forest and they are sometimes found in the tree daisies. When they sleep, they sometimes sit back on their 'heels' and strong gusts of wind may come along and knock them out of their perch. The penguin then just climbs back up the inclined tree, using its bill and feet to pull itself up and the flippers to help keep its balance. The islands are devoid of penguins from late April until August when breeding starts again.

The Buller's Mollymawk (or Albatross to some) tend to keep the same mate for life, although a few 'divorces' have been recorded at the study colonies. They also tend to nest in the same small area year after year. These gregarious birds nest on cliff edges, amongst the tussocks on the hillsides and sometimes even in the tree daisy forest. Their very distinctive cup-shaped nests are built of peat and grass, trampled down by their large webbed feet, then shaped on

A Snares Crested Penguin. Where else would one see a penguin sleeping in a tree?



A very fat Snares Crested Penguin chick with dad

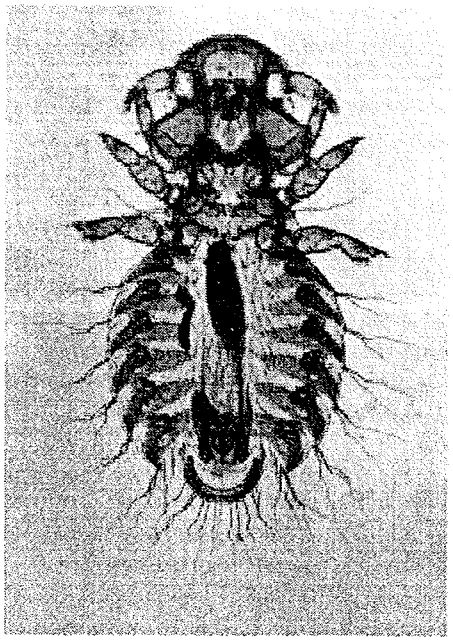
A 23 day old Buller's Mollymawk chick left alone for the first time while both parents are hunting for its food

the sides with the bill and cemented into a solid nest with a combination of mud and faeces. One large egg, weighing up to 270g, is laid in January or early February and incubated by both birds in turn for about 70 days. The adults leave before the fledglings and the young are gone about two to three weeks later. They fly off the cliff tops for their first flight at night or in the pre-dawn period. No fledgling was seen to take flight for the first time in daylight in 1972. Were they terrified of heights? One wonders. The timing is surprising because the thermal air currents are not as great at night as during the day.

Yes, The Snares are very well known for their bird life. But consider another element of their life - lice. These insects spend their life on birds and mammals. As such, they enjoy a comfortable home, living in a very cosy, stable environment with plenty of food around them. However, that easy living makes them entirely dependant on their host, to the extent that - like ship's rats - they are doomed when the host dies, unless they can find another host of the same kind close by, close enough to walk onto it without falling into oblivion. Living in isolation on animals of the same kind means that lice have evolved together with animals through many thousands of years in a process called 'co-evolution'. Now, each host species or group of very closely related hosts carries its unique kind of lice, allowing louse specialists to identify the host without ever seeing it - just from the lice!

Lice are only one group of parasites amongst the many which live with birds. So, next time you see a bird flying over your head or swimming next to you in beach waters, think that it is not just 'a' bird, but a collective transport system carrying many permanent and temporary hitchhikers like lice, mites, ticks, roundworms, tapeworms, protozoans (one cell animals), and fungi - truly a flying zoo!

A rich bird fauna carries an even richer louse fauna, and The Snares are no exception. Many hours of painstaking collecting effort, often resulting in bleeding hands from cuts made by sharp bills and claws and crawling into small caves laden with fiercely biting fleas, have produced 55 louse species, mainly from birds and marine mammals which breed on the islands. There is still a good number of visiting bird species to be sampled for lice. Comparatively, for the area of The Snares, there are more species of lice than of other insect groups



Species similar to this penguin louse are found on the Snares Crested Penguin

like beetles, which are otherwise dominant in larger land masses. Lice and other organisms that are associated with The Snares bird fauna are either unknown or poorly understood and this allows many years of fruitful research in the natural trap of The Snares.

Donald (Woody) Horning retired a few years ago as Director of the Macleay Museum of Natural History at the University of Sydney. He has been on four expeditions to The Snares including a 13 month stint on the 1971-1973 University of Canterbury Castaway Expedition. He has had extensive research experience at subantarctic islands and Antarctica. Any questions or thoughts about The Snares will be welcomed at:

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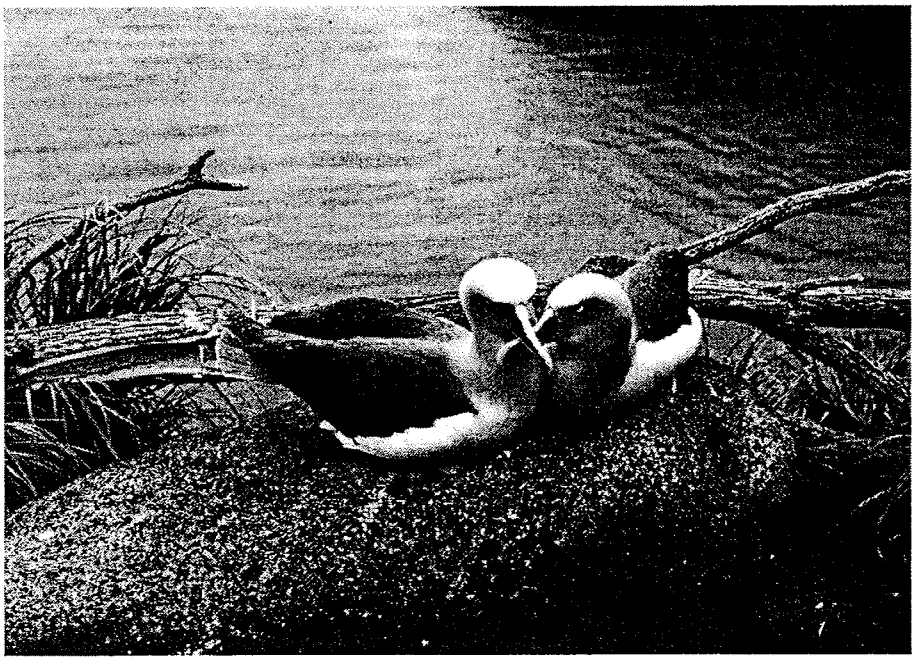
Ricardo Palma has been with the Museum of New Zealand Te Papa Tongarewa for 23 years and is Curator of Insects. He is internationally recognised as one of the most outstanding louse specialists in the world. He has had island experience also, especially with an extended expedition to the Galapagos Islands.

All photographs by the authors



A Buller's Mollymawk pair billing and cooing during mateship at Mollymook Bay.