

The only land bird observed on Macaulay was the Kermadec red-crowned parakeet, which was common and absurdly tame.

It was another four days off the wind sailing north eastwards from the Kermadecs to the southernmost outlier of the Tonga Group, 'Ata. This island is one of a chain of high volcanoes which lie roughly on a north-south line down the western side of the Tonga Group. Evidently it has a large breeding population of seabirds, because they were numerous in the surrounding waters. All three local booby species, the red-footed, brown and blue-faced boobies were soaring around the boat as we approached the island.

Herald petrels, wedge-tailed shearwaters, red — and white-tailed tropicbirds, frigatebirds and noddies were all seen near 'Ata. Most of these species probably breed there. 'Ata is uninhabited these days, and since it is more than 100 kilometres from Tongatapu, it is seldom visited by the Tongans.

The following day, 28 May, *Derwent* arrived in Nuku'alofa, the capital of the Kingdom of Tonga. The low lying island of Tongatapu has a dense population — some 60 000 people on a mere 260 square kilometres of land. With so much pressure from humanity most of the land is taken up with plantations and gardens, so little of the original forest cover remains.

Through the chief forest officer in Nuku'alofa, Mike McKee, we arranged a visit to 'Eua, the large, high island that lies about 25 kilometres south east of Tongatapu. The forestry department arranged accommodation for our party at the sawmill at Kolomaile. Since the anchorages at 'Eua are poor, we left *Derwent* in Nuku'alofa with part of the crew aboard, while the remainder took the local daily ferry to 'Eua.

Gary Buelow, a young botanist from Hawaii, who was familiar with 'Eua, joined us on this trip, and showed us the best forest areas and places of botanical interest.

There are still extensive tracts of indigenous forest on 'Eua; especially along the top and eastern side of the high escarpment, which runs the length of the island. Important canopy trees are tavahi, *Rhus taitensis*, Tamanu, *Calophyllum neobudicum* and Ngatata, *Elattostachys falcata*.

Quite large areas of the island have been cleared. However those places not in gardens or being grazed by cattle are being rapidly overrun by the rampant introduced wild guava.

Exotic forestry has been established on 'Eua for some years now, and some of the production of the sawmill at Kolomaile was of exotic species such as *Grevillea robusta*.

'Eua is well known for its big, colourful red-breasted musk parrot, which was apparently introduced to the island from Gau (in Fiji), in pre-European times. Other forest birds were numerous, although the number of species was comparatively few. Unlike the island groups to the west, Tonga has few landbirds. On 'Eua we noted, banded rail, Pacific pigeon, crimson-crowned fruit dove, barn owl, white-rumped swiftlet, white-collared kingfisher, Pacific



*Derwent* with the spectacular 1000 metre volcanic island of Kao in the background.

swallow, Polynesian starling, Polynesian triller and wattled honeyeater.

While the ornithologists were examining 'Eua, the three marine biologists looked at several of the marine reserves which have recently been created near Nuku'alofa. It was clear that in some places the marine life had suffered from overfishing. Some of these reserves such as Pangaimotu and Ha'atafu Beach, are visited by many tourists, so much damage is caused merely by the trampling of hundreds of feet. With proper controls and some form of management these places will hopefully recover in future. These reserves were only gazetted in 1979, so perhaps three years is a little too early to expect to see a spectacular recovery.

On 7 June the expedition left Nuku'alofa and headed northwards to the islands of Tofua and Kao. These two volcanoes are distinctive landmarks. Flat-topped Tofua has an active vent and a remarkable crater lake. Neighbouring Kao rises symmetrically to a spectacular cone over 1000 metres high — the highest land in the Tonga Group.

The following day the *Derwent* team landed on another of the volcanoes — Late. This uninhabited forested island is about the same size as Auckland's Rangitoto, but twice as high. Late's botany was studied recently by Bill Sykes of the DSIR Christchurch. However the island's fauna has received very little study.

We managed to land without too much difficulty onto the basaltic rocks on the northern coastline of Late. Forest birds were common, including the handsome endemic Tonga whistler, which we encountered elsewhere in Tonga only in the Vava'u Group.

Since Late is isolated and uninhabited, and apparently lacks introduced mammals, it would make an ideal nature reserve.

More detailed studies of its flora and fauna are needed.

It was only a short passage the sixty odd kilometres from Late to the Vava'u Group. Vava'u is a remarkable cluster of large and small uplifted coral islands which present a verdant picture from seaward.

In Vava'u we retraced the steps of the two Whitney South Sea Expedition collectors, Rollo Beck and Jose Correia, who visited the group in the mid 1920s. Many of the islands seemed to be little changed from Beck and Correia's descriptions of nearly sixty years ago. However some of the outer islands, eg Maninita, have fewer birds on them today. These places are no doubt visited quite frequently by the locals, who now own solid outboard powered dories rather than the frail wind and man powered outriggers of yesteryear.

In Neiafu, the main port of Vava'u, we were greeted by Bill Ringer of Tutukaka, who joined *Derwent* for this leg of the voyage through north Tonga.

From Vava'u we set out north westwards to the remote uninhabited volcano, Fonualei — another of the places visited by Beck and Correia in the mid 1920s. It seems that Fonualei has received very little attention from ornithologists since then.

Fonualei last erupted in 1952. However there are still plenty of hot spots, especially on the lower slopes of the 300 ha island, and along the jagged crater rim.

Fonualei has huge seabird colonies. Probably some quarter of a million sooty terns breed there. This may be one of the largest colonies of this pelagic species in the South West Pacific. Several hundred great frigate birds soared overhead when we landed on the gravel beach on the north western side of the island. Male frigates were displaying with their bright red gular sacs fully inflated. Red-footed boobies