AT THE MOST northern point of the South Island, curving 25 km into Golden Bay, like the claw of a giant crab, lies Farewell Spit. The spit comprises 9,500 hectares of quartz sand, derived from rocks mined by mountain erosion then joggled and ground at sea on its journey along the barren beaches. Now, after fire and the introduction of grazing animals, many of the native sand plants such as pingao and silver sand grass have been replaced by the introduced marram grass and scattered tauhinu shrubs.

Between the dunes are meandering sand slacks, populated by the star-flowered herbs, *Lilaeopsis*, and several little sedges found nowhere else in Nelson. The vast tidal flats on the south side are greened with fields of eel-grass waving underwater, then collapsing to a squelchy lawn at every low tide. Out here the probing beaks of 50,000 wading birds search in the mud for food. Most numerous in the summer are migrants from the northern hemisphere: up to 25,000 knots, 20,000 godwits, and birds whose names evoke distance and mystery – Siberian tattler, Asiatic wimbrel, Hudsonian godwit and Mongolian dotterel. But not all have come so far to the feast, for many thousands of birds from within New Zealand spend their non-breeding time at Farewell Spit – the oystercatchers, pied stilts, banded dotterels and black swans. In spring most will head for the braided riverbeds but black swans remain to breed, alongside a recently established gannet breeding colony – only the third mainland colony in New Zealand.

PERHAPS IT IS TIME to reflect on the complex reasons that north-west Nelson is such a treasure trove of vegetation and fauna. The whole north-west Nelson land mass is moving north along the Alpine Fault, as it has for millions of years. Only in western Southland, at the other end of the fault, are there similar rocks of comparable antiquity and variety. But whereas most of the high parts of western Southland were capped with ice during the Pleistocene glaciations, much of north-west Nelson remained ice-free.

The lack of a complete ice sheet also meant the survival of both ancient peneplained landscapes and overlying remnants of young, covering rocks. Today's climate plays its part too, and several species common in the northern lowlands reach their southern limits in the mild climate of north-west Nelson. The differences in cloud cover and rainfall from west to east also contribute significantly to the diversity of vegetation and plant species: twice as much rainfall and half the sunshine falls on the western mountains compared with those further east. One consequence is that soils in the west are more heavily leached of plant nutrients. Many western species do not extend right across the region and, conversely, many eastern species do not extend to the far western sector.

WE NOW TURN SOUTH to the endless mountains of the Wangapeka, Arthur and Matiri districts. An aerial view of the mountainous interior reveals the sombre greens of vast forests (mostly beech), the browns of a band of subalpine scrub above the forest and, beyond that, the tawny hues of the tall tussocks and carpet grasses, and a multitude of colours in rock and scree. Only in winter and early spring is there snow on these mountains for any length of time although small patches will survive into summer.

Deep river valleys slice through the forests. Trampers know the larger valleys well: the Wangapeka, Little Wanganui and the Heaphy. The largest river of them all, the Karamea, roars down after rain, past mist-shrouded hills foaming and thundering, thick with silt. Come late summer and the waters tinkle with a mineral glitter over granite boulders, or glide hushed through bottomless pools where speckled stones lie like trout quietly reflecting the sun. Massive eels inhabit these depths too, perhaps chasing a common bully darting for cover. At sundown caddis flies will dance the surface, drawing to the pool a native long-tailed bat or, rarer still, a lesser short-tailed bat.

Aside from a few pockets of podocarps on river terraces, the beech forests reign supreme with only a scattering of rimu, miro and Hall's totara. At lower altitudes red beech and hard beech, together with southern rata on dry sites, are the most important, while silver beech increases greatly on higher slopes. Mountain beech occupies extreme sites at the tree line while silver beech dominates the tree line in the west where it favours more fertile, moderately drained sites. In the Anatoki Range overlooking Golden Bay there are tree lines at 1550 m, as high as any in New Zealand.

Many stretches of tree line in north-west Nelson are abrupt and, where low saddles and cols occur at or near the limit of tree growth, a dense scrub of beech may form a tight stunted mass. In most extreme sites beeches will grow horizontally as well as vertically. Gripping the bare earth and half buried for their length, trunks protrude knee high, the foliage on their knobbly branchlets hedged to reflect the prevailing direction of cold air and wind-blasted sand.

Subalpine scrub grows more upright in such places. Furry-backed leatherwood grows abundantly with *Dracophyllum uniflorum* in areas of high rainfall but fades out half way across to Takaka.

Boulder fields are marked by species of

DEREK SHAW

The Karamea is the biggest river system in north-west Nelson. With its numerous tributaries it is one of New Zealand's premier wilderness rivers. It is popular with trout fishers and white-water enthusiasts.

CRAIG POTTON

The southern penny cress Notothlaspi australe *is an alpine endemic of the wetter mountains of Nelson and Marlborough. Its only relative is the penwiper plant of the eastern South Island screes.*