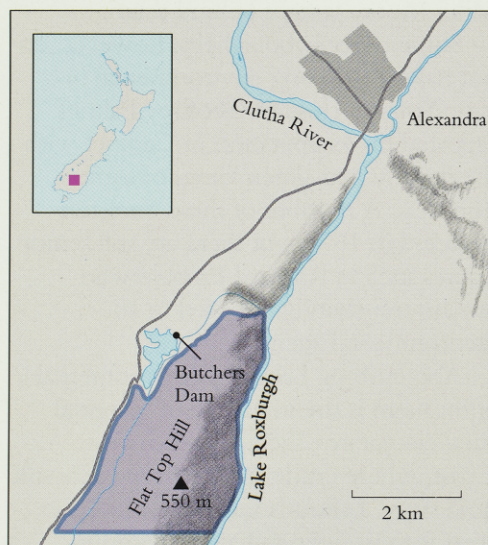


THE MYRIAD FASCINATIONS OF FLAT TOP HILL

The Department of Conservation has acquired the northern end of Flat Top Hill – a representative piece of Central Otago dryland. NEVILLE PEAT reports on the wonderful diversity of the plant and animal life of this new conservation asset.

FLAT TOP HILL is a bulging foothill of the Old Man Range – a “dry, whale-backed hummock of a hill”, as one scientist put it. Eleven kilometres long and 813 hectares, it separates the Fruitlands district south of Alexandra from a canyon cut by the Clutha River, now the dammed upper reaches of Lake Roxburgh.



DoC's new acquisition at Flat Top Hill.

In the wider context of Central Otago's block mountain and range-and-basin landscape, Flat Top Hill is a relatively minor event – a kind of block mountain in miniature.

To the uneducated eye the landscape might appear a parched wasteland, good for nothing, not even sheep these days. But there is more here than meets the eye. Flat Top Hill has carved itself an ecological niche.

Notwithstanding the fact this is about the driest place in New Zealand (rainfall averages less than 350 mm or 13.7 inches a year), scientists have counted 180 native vascular plant species.

In terms of biological diversity – a catch phrase at the Earth Summit at Rio

de Janeiro last year – this place is a gem.

Some of New Zealand's tiniest plants – most of them regional endemics – live here.

On the salt, wind-eroded soils beside Butchers Dam on the western side of the hill, a native forget-me-not, *Myosotis pygmaea* var. *minutiflora*, turns on a miniature flower show for a few weeks in spring.

Two other tiny spring annuals, long in name but short in stature – *Myosurus minimus novae-zelandiae* and *Ceratocephalus pungens* are considered endangered. The type locality for *Ceratocephalus* has been converted to pasture.

All three spring annuals occur together and separately at Flat Top Hill, forming distinctive communities, found nowhere else, with other salt-tolerant species.

From Butchers Dam at 140 metres above sea level, the land rises to 550 metres. It is classic Central Otago. The higher ground is studded with outcrops of decaying schist that tease the imagination with weird angles and shapes. At the foot of the hill, beside Butchers Dam, the

characteristic grey and brown shades of the earth give way to splashes of vivid colour – red, orange, yellow, and dazzling white. The colours are contained in a sequence of ancient soils.

Known as paleosols, these soils were formed 20 to 25 million years ago, apparently in a tropical or sub-tropical climate, and remained buried under sedimentary layers until the gold miners arrived. The soils were exposed by alluvial gold-mining operations that sluiced away the sedimentary material.

From the shores of the dam to the flats at the summit, the area contains a range of habitats, including salty ground, short tussock grassland, shrubland, cushion fields and an occasional seepage or wet zone. There is a pond on top of the hill, seasonally dry.

The salty soils harbour plants found in only a few other places.

Not surprisingly, the diverse habitats are host to a variety of insects and other invertebrates.

The rare flightless Alexandra chafer beetle lives here. So does a broad-nosed



DoC scientist Brian Patrick examining the ancient soils on the shores of Butchers Dam.