

# CONSERVATION VALUES OF SAND COUNTRY IN WHITIAU SCIENTIFIC RESERVE AT MOUTH OF WHANGAEHU RIVER

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Throughout New Zealand, dunes are among the most severely modified of ecosystems through the activities of people. Coasts of Wanganui Conservancy are no exception: fires, grazing, pine plantings, urban developments, roading, off-road vehicles, wild animals, rubbish dumping, and spread of weeds are some of the problems for the native plants and animals of the sand country.

There is no unmodified native dune vegetation on the mainland, and even little-modified examples are rare. One of these rare examples comprises 250 ha of dunes on the west bank of the Whangaehu River mouth. The area was formally protected as a Scientific Reserve in 1991 (and later named as Whitiāu Scientific Reserve). Most unusually for dune areas today, Whitiāu Scientific Reserve has an intact sequence of vegetated dunes and damp dune hollows extending a kilometre or more inland from the shore. Each dune or hollow has different combinations of native plants. These result from differences in sand stability, dune slope, dampness or drought and, probably most important, differences in age of the site, the youngest being nearest the shore.

The reserve is not just dunes. The diversity of landforms and plant habitats in the reserve includes the steep-sided right bank of the Whangaehu River and several eroded remnants of sedimentary marine terraces, with mudstone and gravel outcrops.

The number of native plant species known in the reserve is currently 120. These include healthy populations of widespread sand country plants like spinifex, well-known for its spherical, tumbling seed heads, and sand coprosma which forms springy tangled bushes laden with translucent blue fruits in the autumn. The yellow sand sedge, pingao, is a valued plant for Maori weaving and, although a declining species nationally, it is locally common here. There are six species of plants which are considered to be nationally threatened. The rarest is *Sebaea ovata*, a yellow-flowered relation of gentians, which has a "critically endangered" status. It was thought to be possibly extinct in New Zealand until it was found at Whitiāu in 1989.

The other five threatened plants are a species of half-star (a creeping herb), sand pimelea (or sand daphne), sand iris, dwarf mazus (a creeping herb with comparatively large white flowers and related to garden snapdragons), and *Isolepis basilaris* (a tiny tufted sedge). The reserve's populations of sand iris and dwarf mazus are almost certainly the largest in the North Island. In 1997, Peter Heenan of Landcare Research named *Selliera rotundifolia* as a new species of half-star (so-called for its star shaped but one-sided flowers). It grows in dune hollows in the Wanganui-Manawatu regions only, including Whitiāu. Its loss of habitat and rarity mean that it has been rated as nationally endangered.

The fernbird, a rare species in the southern North Island, occurs in tall vegetation on the damp sand flats. Australasian harrier hawks breed here - a nest with three harrier hawk chicks was found in December 1989. Water birds (e.g. royal spoonbill, shoveler duck, shags, terns and gulls) use the river and its margins, and waders such as black-fronted dotterel and spur-winged plover feed in the shallow water of temporary wetlands between the dunes. Black-backed gulls nest in colonies in some places.

Little is known of the smaller native animals, although katipo spiders are quite easily to find. In 1991, caterpillars were found feeding on sand pimelea which turned out to be a moth species (*Ericodesma aerodana*) found only once before in the North Island, and that being more than a century before. A quick daylight survey of butterflies and moths made here in December 1992 found 26 species. Like the moth *Ericodesma*, the larvae (caterpillars) of many of these have very specific food requirements and they are locked into the presence of single species of dune plants. One eats only the New Zealand spinach, another eats three-square sedge, and the copper butterfly caterpillars eat the leaves of pohuehue vines.

To protect these important natural values, the Department began a major weed control programme in 1989, concentrating first on the worst threats, namely pampas grass and boxthorn, which were both widespread at the time. The main initial work was done by a "Restart Programme" team, but annual follow-up control is by staff from Whanganui Field Centre of the Department. Areas of gorse, blackberry, willow and brier rose have also been eliminated. In November of 1995 and 1996, Field Centre staff and volunteers attempted to pull up all plants of "pink ragwort" (*Senecio glastifolius*) in the reserve.

Sources of weeds, especially pampas and boxthorn, need to be investigated on neighbouring lands, and the co-operation of landholders sought to prevent re-invasion of the scientific reserve.

Some recreational users are causing damage to the reserve's dunes and vegetation, through the use of off-road vehicles in particular. River banks get heavily trampled during white-baiting. To limit damage by vehicles, negotiations with vehicle users began late in 1994.

Some of the worst damage in the 1989-97 period resulted from wandering cattle, which trample dunes and sensitive wetlands, browse the native vegetation and spread weeds, especially pasture grasses which have the potential to out-compete small native plants. Rabbits also browse many of the native plants.

## Summary

Sand country of Whitiāu Scientific Reserve at the mouth of Whangāehu River is nationally significant, as a rare example of comparatively natural dune ecosystems. At least six nationally threatened plant species occur here. Pingao is still quite common here, though has declined nationally to the point that many replanting programmes have been set up around New Zealand. Whitiāu Scientific Reserve has a population of the regionally threatened fernbird. The reserve also has many insects and other invertebrates, at least some of which are uncommon or declining nationally.

Management will be needed to protect existing natural features and restore those which have already declined. Members of the public can help by using the reserve sensitively and by assisting in management programmes.