BIODIVERSITY RESTORATION PLAN for the SOUTH MARLBOROUGH COAST

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Introduction

The South Marlborough coast is a remarkable combination of exposed gravel beaches, dramatic limestone stacks, high cliffs, reefs and platforms, expansive dune systems, river mouths and large intricate estuaries. Along with this topographic diversity and a complex geological history come distinctive and special native flora and fauna adapted to the conditions.

Before human arrival the coast would have supported rich arrays of vegetation abounding with endemic birds, reptiles, bats, sea mammals, fish and invertebrates. We can only dream of that vibrancy now, but it gives us a concept of restoration to strive towards step by step. So much has been irretrievably lost, and there are many issues, but enough remains to make meaningful ecological restoration both realistic and exciting.

For this restoration plan, I have used the definitions and coastal geographical areas in MDC's 2014 document "Natural character of the Marlborough coast: defining and mapping the Marlborough coastal environment". This plan applies mostly to the terrestrial part of the coastal environment rather than the marine part, but of course they are entwined. The maps are adapted from the MDC document.

In essence, the terrestrial coast extends from the intertidal zone to the hills behind the beaches, dunes and estuaries. This is where the sea most influences the land and where the land contributes most to the habitats and conditions for marine life.

In the 2014 MDC document, South Marlborough is divided into two coastal marine areas: Cloudy and Clifford Bays (north of Cape Campbell Cape Campbell to Willawa Point (south of the cape).

and seven coastal terrestrial areas:

 Wairau Vernon Awatere Blind Grassmere **Campbell** **Wharanui**

The natural values of significance include rare ecosystems such as intact sand dunes, limestone rocks and some vegetation types. They also include endemic, threatened and note-worthy flora and fauna.

The main restoration issues revolve around land-use, public access and usage, weed control, animal pest control, restoration planting and restoration of special native fauna. Highest generic priorities and specific projects with time-frames are identified for each of the coastal terrestrial areas.

(Wharanui & Cape C only)

Campbell Campbell

Cape Campbell Coastal Terrestrial Area (Map 7) is based around Cape Campbell, taking in the coast from Marfells Beach to south of Long Point. It has a high diversity of landforms, aspects, beach types and ecosystems. It is as important as Wairau for its very early settlement by people.

The defining landform is undulating hill country, etched by small gullies with streams and ponds, some of which dry up in summer. There are precipitous coastal cliffs dissected by deeply incised gullies, fans and terraces, raised gravel beaches, beach ridges and extensive sand dunes with wind-deflated areas and occasional wetlands. Loess soils cover sandstones, siltstones, conglomerate and limestone.

Erosion-prone though it was, occasionally wildly shaken by earthquakes, climatically extremely dry and constantly worked at by wind and water, the land was cloaked in forest when people arrived. Most of that primeval vegetation has long gone, swept away by fires, land clearance for farming, the activities of introduced browsing animals and invasions of weeds. The small remnants are precious and serve as guides for restoration.

There are several nationally threatened or at-risk plants on the Cape Campbell coast, including coastal tree broom (Carmichaelia muritai), a true local endemic and very rare in the wild, pingao (Ficinia spiralis), sand tussock (Poa billardierei), sand coprosma (Coprosma acerosa), sea holly (Eryngium vesiculosum), coastal mat daisy (Raoulia "hookeri coast"), Muehlenbeckia astonii and M. ephedroides. The population of coastal mat daisy is among the strongest in the country. A considerable number of sites around the cape have been fenced off, formally protected and planted in native species to supplement and enhance natural regeneration.

Fur seals are abundant at Cape Campbell and breed there. Elephant seals occasionally visit and a pup was born there recently, a rare event on the NZ mainland. Fiordland crested penguins and hoiho (yelloweyed penguins) arrive at the cape from time to time, but little blue penguins are the only species in residence.

Many coastal birds breed, roost and feed around Cape Campbell, including gulls, terns, shags, herons, oystercatchers, stilts and dotterels. Migratory waders frequently rest or congregate on the coastal platforms and exposed reefs at the cape. Nationally threatened or at-risk birds include wrybill, South Island pied oystercatcher, black-billed gull, red-billed gull, banded dotterel, NZ dotterel, white-fronted tern, black-fronted tern, Caspian tern, pied shag, Fiordland crested penguin, hoiho, NZ scaup, pipit and pied stilt. Geckos and skinks are fairly common, especially amongst driftwood.

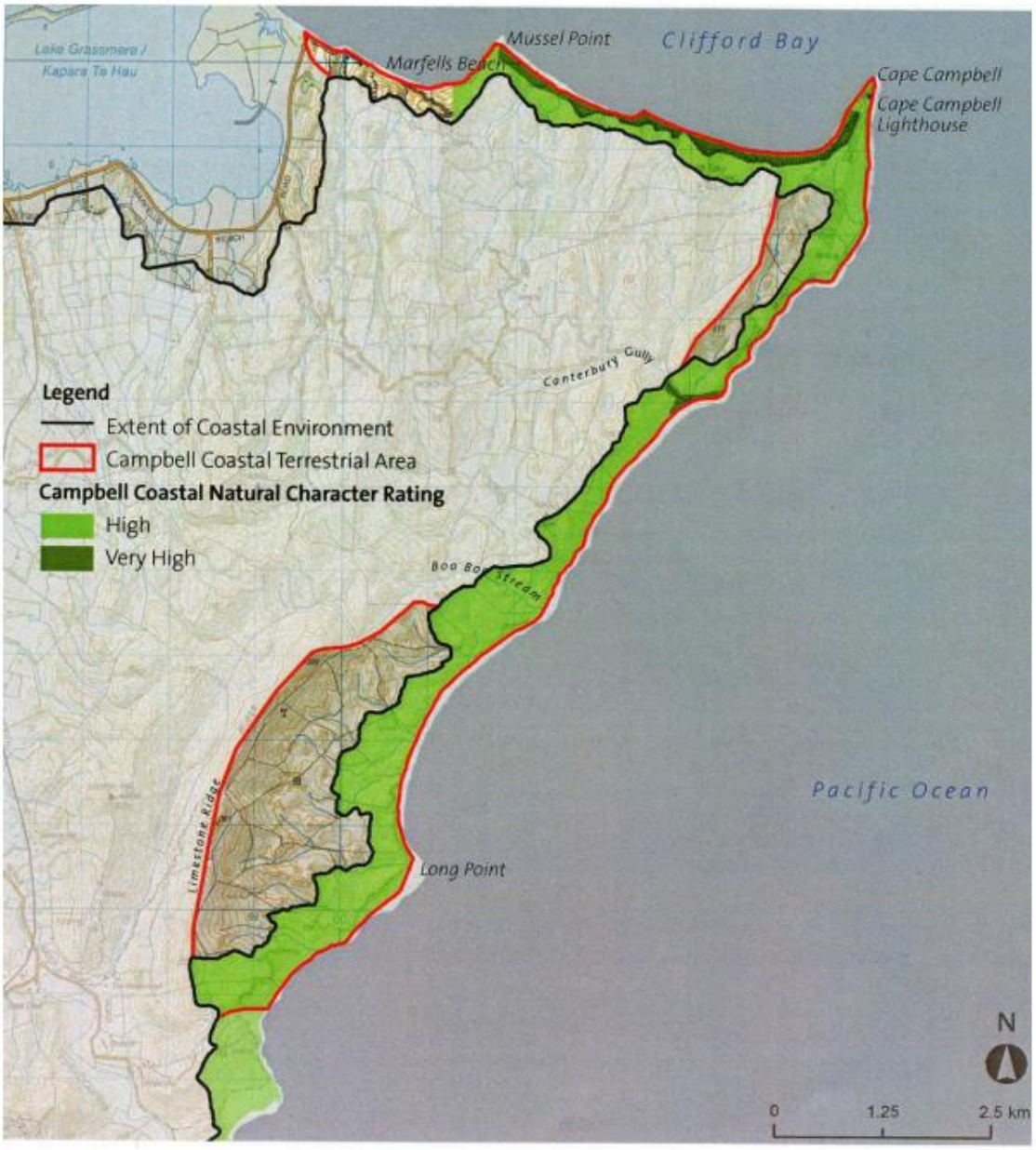
In addition, there are invertebrates endemic to the cape, and a strong population of katipo, apparently absent from most of the South Marlborough coast, has recently been found at Marfells Beach.

Skeletal remains of birds found in the dunes, particularly the collection made at Marfells Beach and considered one of the richest in the country (Worthy 1998), have revealed the wealth of wildlife on the Cape Campbell coast prior to human arrival. The fossil

and archaeological avifauna included moa, adzebills, giant eagles, sea ducks, grebes, petrels, giant penguins and numerous other species, most of which are now extinct. Bones of tuatara and sea lions have also been found in the dunes.

The entire cape was significantly uplifted by the November 2016 Waiau-Kaikoura earthquake sequence, severely altering the beaches and coastal platforms. Vehicle access was suddenly much easier, which has become a serious problem due to disturbance of the native fauna and flora and physical damage to the beach habitats.

Map 7: Campbell Coastal Terrestrial Area



Highest priorities for biodiversity restoration

- Formal protection of remaining unprotected areas of natural habitat if possible.
- Respect for the human heritage and archaeological sites.
- Conservation management of remaining native vegetation and fauna habitats, especially breeding, resting and feeding sites. This includes exclusion of domestic stock, minimising vehicle access and impacts, minimising disturbance to native fauna, especially seals and birds, monitoring the condition of the native sand-binding plants, weed control and animal pest control.
- Restoration planting to re-create examples of the former coastal forests, shrublands, wetland vegetation and dune vegetation.
- Habitat enhancement and localised intensive predator control for the benefit of native birds and other fauna (such as geckos and coastal invertebrates).
- Nurturing of threatened and regionally significant flora and fauna.

Specific projects and time-frames 1. Urgent, next 1-2 years:

 Action to limit vehicle access via the beaches, and to prevent vehicle and visitor damage to gravel beaches, coastal platforms, native vegetation, rare flora, native fauna and particular fauna habitat (e.g. the strand zone with driftwood habitat for lizards and invertebrates) and archaeological sites.
 Action to limit visitor disturbance of seal haulouts, bird feeding, resting, roosting and nesting sites and the intertidal zone.
 Further survey of katipo habitat beyond Marfells Beach.
 Monitoring of the Marfells Beach katipo and coastal tree broom sites; protective management if required.
 Establishment of a routine monitoring system for native fauna and flora, especially good typical habitats, characteristic species and threatened species (both flora and fauna).
 Fauna and flora surveys, in regenerating coastal vegetation, incised gullies and any other likelylooking and little-known places.

2. Next 2-5 years (and beyond):
 Restoration planting in key sites, to enhance important habitats, to re-create primeval patterns, to provide seed sources for natural regeneration, to safeguard threatened species and to serve as models for ecological restoration. Primeval patterns could include hill-country forest dominated by totara and broadleaved trees, native forest coming down to the shore and merging with the specialist shore vegetation, wetland vegetation of old (with zones of rushes, raupo, tussock sedges, harakeke, takutai, cabbage trees and kahikatea) and restored dune and gravel beach vegetation.
 Predator control in key sites, such as penguin, dotterel, oystercatcher, tern and gull nesting areas, migrant wader feeding and resting places, where native lizards and invertebrates are relatively numerous, or anywhere burrowing seabird activity is found.
 Monitoring of key sites and/or indicator species; follow-up management as required

Wharanui

Wharanui Coastal Terrestrial Area (Map 8) is a long coastal strip, facing SE, from north of Chancet Rocks to Willawa Point in the south. It features long gravel beaches, gravel beach ridges and terraces, extensive sand dune complexes, and erosion-prone hillslopes and former sea-cliffs with colluvial footslope fans of mass erosion material. Several rivers and substantial streams - including the Flaxbourne and Waima rivers, Mirza Creek, Woodside Creek and Tirohanga Stream - flow into the sea and at their mouths are alluvial terraces, floodplains and wetlands. The dune field south of the Waima River mouth is regarded as the best example in Marlborough. The northern hills are of limestone and calcareous sandstones, and the coast here features the spectacular platforms, stacks and reefs of Chancet Rocks and Needles Point and large hill-slope outcrops shattered by tectonic activity. The climate is arid and windy, and most of the primeval vegetation has long gone. The dunes are mostly immobilised by marram grass, but there are still some active dunes, especially north of the Waima.

Native vegetation occurs on the gravel beach ridges and terraces, in places on the dunes and on hillslopes. Prominent are shrublands of takutai, tauhinu, matagouri, wiggy (Muehlenbeckia complexa), bracken and porcupine shrub “Waipapa”, expanses dominated by whararikі, damp slopes with manuka and toetoe and beach flats with mat daisies and mat daphne. Marlborough rock daisy is abundant on the limestone. There are also small pockets of kanuka, ngaio and cabbage trees and some impressive cabbage tree treelands. Several nationally threatened or at-risk plants occur on the Wharanui coast, mostly reduced to tiny remnants. They include pingao (Ficinia spiralis), sand tussock (Poa billardierei), coastal mat daisy (Raoulia “hookeri coast”), Muehlenbeckia astonii and M. ephedroides. A suite of notable plants (including local endemics and nationally threatened taxa) is associated with the limestone and there are localised coastal complexes of shrubby Pimelea entities, some of which appear to be extremely rare.

Fur seals are abundant at both Needles Point and Chancet Rocks and breed there. Many coastal birds use the shore, including penguins, gulls, terns, shags, herons, oystercatchers, stilts, migratory waders and nationally threatened or at-risk species. Geckos, skinks and native invertebrates are fairly common, especially amongst driftwood. Skeletal remains of extinct birds and sea lions have been found in the dunes.

The entire coast was significantly uplifted by the November 2016 Waiau-Kaikoura earthquake sequence, greatly altering the beaches and coastal platforms. Vehicle access was suddenly much easier, especially to Chancet Rocks and Needles Point, presenting a serious problem due to disturbance of the native fauna and flora and physical damage to the beach habitats. MDC quickly closed Ward Beach north of the Flaxbourne River mouth, successfully nipping the problem in the bud, but no such

protection has been given yet to Needles Point, where the damage and disturbance are severe.

Map 8: Wharanui Coastal Terrestrial Area

Highest priorities for biodiversity restoration

 Formal protection of remaining unprotected areas of natural habitat if possible.

 Respect for the human heritage and archaeological sites.

 Conservation management of remaining native vegetation and fauna habitats, especially breeding, resting and feeding sites. This includes exclusion of domestic stock, minimising vehicle access and impacts, minimising disturbance to native fauna, especially seals and birds, monitoring the condition of the native sand-binding plants, weed control and animal pest control. Needles Point is top priority for minimising vehicle access and other disturbance.

 Restoration planting to re-create examples of the former coastal forests, shrublands, wetland vegetation and dune vegetation.

 Habitat enhancement and localised intensive predator control for the benefit of native birds and other fauna (such as geckos and coastal invertebrates).

 Nurturing of threatened and regionally significant flora and fauna.

Specific projects and time-frames

1. Urgent, next 1-3 years:

 Action to limit vehicle access to Needles Point via the beaches, and to prevent vehicle and visitor damage to gravel beaches, coastal platforms, the dune systems, native vegetation, rare flora, native fauna and particular fauna habitat (e.g. the strand zone with driftwood habitat for lizards and invertebrates) and archaeological sites.

 Action to limit visitor disturbance of seal haulouts, bird feeding, resting, roosting and nesting sites and the intertidal zone south of the Flaxbourne River mouth.

 Survey of potential katipo habitat.

 Fauna and flora surveys, in regenerating coastal vegetation, coastal scarps, incised gullies and any other likely-looking and little-known places.

2. Next 3-5 years (and beyond):

 Restoration planting in key sites, to enhance important habitats, to re-create primeval patterns, to provide seed sources for natural regeneration, to safeguard threatened species and to serve as models for ecological restoration. This coastal area offers great potential for large-scale conversion of dense marram grass on dunes back to native vegetation of sand-binders, shore milkweed, sand tussock, mat daisies, native daphnes and sand coprosma, with pockets of ngaio, karaka and cabbage trees in dune hollows.

 Predator control in key sites, such as penguin, dotterel, oystercatcher, tern and gull nesting areas, migrant wader feeding and resting places, where native lizards and invertebrates are relatively numerous, or anywhere burrowing seabird activity is found.

 Monitoring of key sites and/or indicator species; follow-up management as required.