

Appendix A

Ecological Values on the East Coast, South Marlborough

Rare ecosystems:

Grassmere Sandspit

Underrepresented and uncommon sandspit ecosystem hosting an array of native plant species, including spinifex, pingao, knobby clubrush, *Raoulia australis*, *Melicytus waipapa*, *Pimelia prostrata*, *Coprosma* species and prostrate matagouri.

This ecosystem hosts large populations of Katipo spiders, a species which has rapidly declined around much of the New Zealand coastline and the pingao population here is one of few natural remnants of the species on the Marlborough coast.

Vehicle damage here is difficult to miss, with the formation of numerous illegal vehicle tracks causing destruction of the dune communities. The department regularly conducts weed control in this area to control gorse, broom, ice-plant and other weeds, and vehicles aid in the spread of these weeds by creating disturbed areas for weeds to colonise and transporting weed seeds on vehicle.

Earlier this year options to fence off this area were reviewed. However, it was deemed too difficult to fence with the ability of 4WD vehicles to gain access from the beach.

Coastal Dune Ecosystems

These ecosystems are found in barren gravelly areas, primarily uplifted historic beach surfaces, and windswept dunes. These are dominated by *Raoulia australis* and *Pimelia prostrata*, and in places scattered with *Coprosma acerosa*, prostrate matagouri, *Muehlenbechia ephedroides* and other low shrubs.

Raoulia australis is the host plant for the critically endangered flightless moth Kiwaia 'Cloudy Bay' which is now only known from this stretch of coast.

Pimelia prostrata is the host for Pimelia looper (Nationally endangered, Endemic to coastal Marlborough) and Pimelia leafroller *Ericodesma aerodana* (at risk, declining)

These species are very vulnerable to vehicle damage. During recent moth surveys, vehicle damage was observed in all remaining fragments of this ecosystem, except where these were on private land and fenced off from the beach.

Limestone outcrops:

Numerous limestone deposits occur along this stretch of coast. Where this coastal limestone occurs, it forms unique plant communities, with a very high degree of local endemism. These limestone bluffs, talus slopes and alluvial fans host a huge number of endangered plant species, many of which are found nowhere else.

Examples include:

Senecio huawai – (Nationally endangered) endemic to limestone and calcareous mudstone between White Bluffs and Cape Campbell

Senecio aff *glaucophyllus* “Cape Campbell”- (At risk, Declining). Endemic to coastal limestone between Marfells Beach and the Waima River mouth

Wahlenbergia albomarginata subsp *flexilis* (at risk-naturally uncommon)- endemic to coastal limestone between Flaxbourne and Kaikoura

Brachyscome lucens (Nationally critical)– endemic weld cone and Ward Beach

Dichelachne lautumia (Nationally endangered) – only known from four sites- Needles point, Woodside creek and two limestone outcrops in the clarence

Anthosachne sacandros (At risk- naturally uncommon). Known from the Marlborough coast, lower Clarence valley and Omihi

Craspedia “marfells” (data deficient), endemic to the coast from Nina brook near Seddon, to just south of Cape Campbell. On limestone cliffs, scree slopes and fans, particularly in sheltered gullies.

Pimelia declivis (Nationally critical)- found on eastern South Island limestone from Marlborough to Otago. A population near Mirza stream is one of few remaining populations known in Marlborough.

These limestone outcrops are less threatened by vehicles than the dune and foreshore ecosystems, however the threat to these from weed introduction is significant. These areas currently have few weed species, and many notable weeds such as gorse and scotch broom are absent from much of this coast. Vehicles are major vectors for weed dispersal and likely to introduce novel weeds to these ecosystems if not regulated.

The heightened fire risk from combustion engines and increased public usage, particularly over summer also has potential to be catastrophic.

Coastal shrublands

Several remnants of coastal shrubland occur along this stretch of coast, which are uncommon in South Marlborough.

Carmicaelia muritai is found throughout coastal shrublands at Seaview, and a nationally significant population of *Muehlenbechia astonii* occurs in shrublands on private land south of Cape Campbell.

As for the limestone ecosystems above, these areas currently have few weed species, and many notable weeds such as gorse and scotch broom are absent. Vehicles are major vectors for weed dispersal and likely to introduce novel weeds to these ecosystems if not regulated. The heightened fire risk from combustion engines and increased public usage, particularly over summer also has potential to be catastrophic.

Reptiles

Marlborough mini geckos and waiharakeke grass skinks are common along this coast.

Birds

The east coast supports many significant shorebird and seabird communities. Several of them breed in the area and are present year-round while others breed in elsewhere (such as braided rivers), but spend the non-breeding season (typically approximately January – July) at the coast. While it is especially important to minimise or prevent disturbance to birds during the breeding season, protecting their foraging habitat and minimising disturbance during the non-breeding season is also important as this is when birds are increasing their

body weight and improving body condition to survive the winter and prepare for the following breeding season. The following is a list of all species present along the east coast with relevant information about each:

Banded dotterels (Conservation Status: Threatened - Nationally Vulnerable) breed above the high tide and up into the sand dunes along the entire stretch of this coastline. High density breeding area on the stretch of coast parallel to the Cape Campbell airstrip. They forage down below the hightide mark, and often congregate around rocky, tidal platforms such as those at Long Point.

Black-fronted dotterels (Conservation Status: At Risk – Naturally Uncommon) are not very common along this stretch of coast but have been found at Awatere, Flaxbourne and Waima river mouths and probably breed at these locations. Probably remain at these sites through the winter non-breeding season and possibly additional birds join them that have bred further up the rivers. Foraging mainly around areas with a source of freshwater.

Red-billed gulls (Conservation Status: At Risk – Declining) breed on rock stacks at multiple spots along this coastline including Cape Campbell, The Needles and Chancet rocks. Also breed at the river mouths. Feeding inshore around tidal pools, and offshore but typically remaining within several kilometers of the coast.

Black-billed gulls (Conservation Status: Threatened – Nationally Critical) overwinter at the coast especially around river mouths such as the Awatere, Flaxbourne and the Waima river. Have historically bred at the Waima river mouth also. Similar feeding behaviour to red-billed gulls during their non-breeding season but remaining more inshore and quite often feeding within the intertidal zone.

Caspian Terns (Conservation Status: Threatened – Nationally Vulnerable) are mostly solitary breeders or in very small groups usually associated with other tern or gull species. Nest in sandy areas with locations varying from year-to-year. Probably nesting on various sections of the east coast where the habitat is suitable. Feeding mostly at-sea catching fish and other surface prey items by plunge diving.

Black-fronted terns (Conservation Status: Threatened – Nationally Endangered) breed on braided rivers of the South Island but migrate out to the coast for the non-breeding season (January – August) where they feed inshore and spend long periods of time roosting in colonies on beaches, river mouths, wetlands and estuaries. Often large flocks roosting around Cape Campbell and Long Point. During the non-breeding season, they feed mostly over coastal

waters but often in poor weather conditions will feed over pasture foraging for insects.

White-fronted terns (Conservation Status: At Risk - Declining) present year-round foraging along this stretch of coast. Small numbers breed at Chancet rocks amongst the red-billed gulls. Also sometimes breed at the various river mouths. Feeding at-sea

South Island Pied Oystercatchers (Conservation Status: At Risk – Declining) breed mostly on braided rivers of the South Island but migrate to the coast to overwinter. Can form large flocks often mixed with variable oystercatchers. Forage mainly in the intertidal zone especially around rocky tidal pools catching fish and bivalve molluscs. Sometimes they forage on pasture for invertebrates.

Variable Oystercatchers (Conservation Status: At Risk – Recovering) are present on the coast year-round. They breed on the sand above the high tide mark, often next to driftwood. Usually found in pairs but can form larger groups during the non-breeding season. Present and breeding along the whole stretch of east coast at regular intervals. They have the same foraging behaviour as South Island Pied Oystercatcher, feeding below the high tide mark for fish and molluscs and on open pasture.

Wrybill (Conservation Status: Threatened – Nationally Vulnerable) breed on large braided rivers of the South Island. They then migrate out to the coast and up to the North Island during the non-breeding season. They are usually found at river mouths or lagoons during the non-breeding season. Large numbers often found at Lake Grassmere during the non-breeding season but have also been found at the Waima River mouth. In the non-breeding season Wrybill feed on a range of small marine and littoral invertebrates plus occasional small fish.

Reef Herons (Conservation Status: Threatened – Nationally Endangered) are found along rocky shorelines and have been detected at Cape Campbell in the past. Likely present along this stretch of coast from time to time but the New Zealand population is estimated to only be 300 – 500 individuals. They are solitary birds but pair up for the breeding season. It is unknown if they have bred in South Marlborough.

Additional shorebird species that roost, forage and breed along the East coast that are currently classed as “Not Threatened” include **white-faced herons** and **pied stilts**. The nearby Lake Grassmere is a significant overwintering spot for many arctic migratory shorebird species (such as **Godwit spp.** and **Sandpiper spp.**) of which some may also be found on other parts of the east coast especially near the river mouths. All of these species are foraging in the

intertidal zone with white-face herons and pied stilts also foraging in pastoral land.

Little Penguins The area is important habitat for little penguins. They are often present and breeding in burrows and hollows close to the coast around the Cape Campbell area. The species can be easily disturbed by traffic on the beach, they are especially prone to disturbance at night when coming to land and occupy their burrows (July – March) when they can be injured or killed by vehicles driving over burrows.

Other seabirds using this stretch of coast include **pied shags, little shags, black shags, little black shags** and **spotted shags**. All of these species typically breed up high in trees, rocky outcrops or cliffs but can be prone to nearby disturbance below. They are also often seen roosting on the beaches, drying their wings after foraging trips and can be prone to disturbance then. Foraging for shags varies between species but mostly at sea

New Zealand Pipits (Conservation Status: At Risk – Declining) are also relatively common along this stretch of coastline and likely breed up in the sand dunes. They have a variety of foraging behaviours depending on what habitat they are in. In coastal habitats they often forage in the intertidal zone for invertebrates or for kelp flies around seaweed beds at low tide.

Marine Mammals

New Zealand fur seals (*Arctocephalus forsteri*) use this stretch of coastline to haul out and rest between foraging trips and in some areas to form colonies for pupping and mating. DOC is currently undergoing surveys of the coastline to establish how the fur seal population and distribution has changed since before the earthquakes in November 2016. Preliminary evidence indicates that distribution has changed and that there are new, small colonies that are establishing in some areas.

Southern elephant seals (*Mirounga leonina*, Threatened -Nationally Critical) and leopard seals (*Hydrurga leptonyx*, At Risk -Naturally Uncommon) occasionally haul out along this stretch of coast, and on two occasions elephant seals have been known to give birth to pups near Cape Campbell. Elephant seals also have used the area to go through their annual ‘catastrophic moult’, during which they are especially vulnerable as they can’t go to sea or feed for 3 weeks.

New Zealand sea lions (*Phocarctos hookeri*, Threatened -Nationally Vulnerable) have also been documented in the area on a few rare occasions, and much of this coastline is ideal habitat for this once common, endemic species that is now classified as Threatened -Nationally Vulnerable.