



State of the Environment **Report Card 2018**

How do our sand dunes stack up?

Sand dunes are an important and constantly changing part of our coastline. They are created by a dynamic combination of sand, wind and ocean swells.

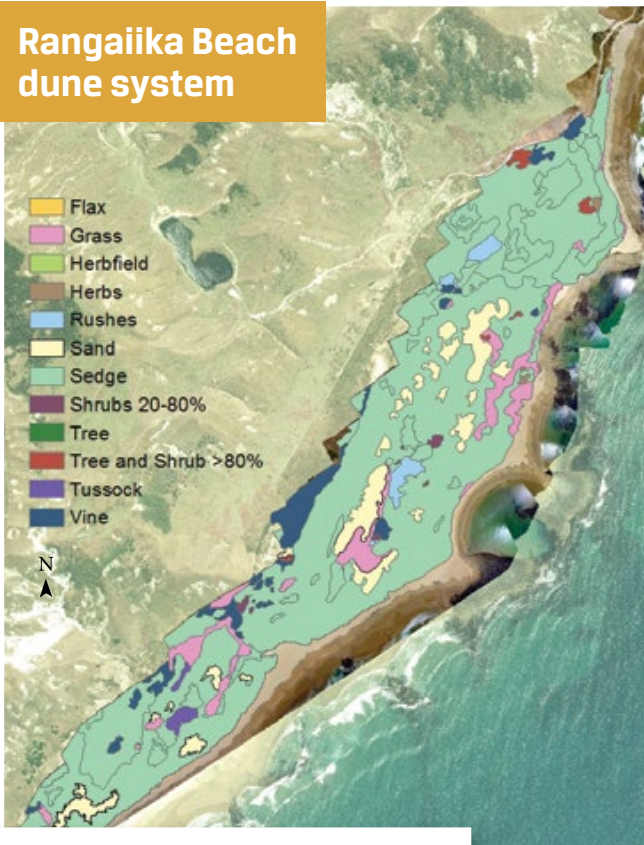
As sand is deposited and sculpted by the sea and wind, then held in place by vegetation, dunes act to protect the coastline from flooding. The vegetation forms habitat and food for a variety of native birds, insects and reptiles.

The condition and extent of Hawke's Bay's sand dunes is currently unknown and uncertain. One of our most pristine sand dune systems is at Rangaiika on the end of Cape Kidnappers. This is considered one of the best-condition sand dune systems on the east coast of New Zealand.

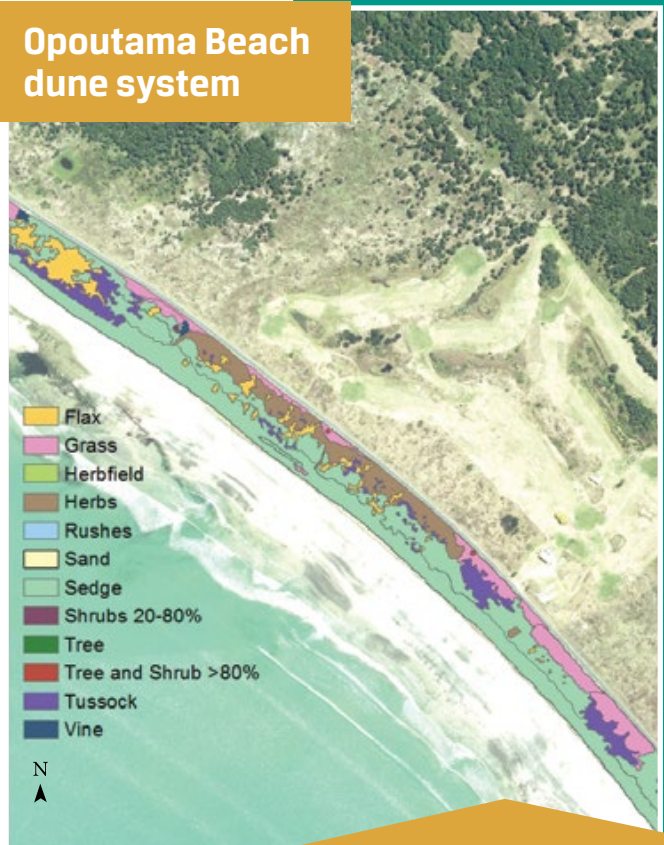
QUICK FACTS

Sand dunes make up **22%** of the Hawke's Bay coastline

Rangaiika Beach dune system



Opoutama Beach dune system



Researching sand dunes

Research by Hawke's Bay Regional Council staff has assessed the condition of two dune systems, at Rangaiika Beach on Cape Kidnappers and Opoutama Beach on the Mahia Peninsula. Staff applied a condition index to the dune systems and mapped them. This tells us how big the dunes are and, through mapping the different vegetation, we can better understand their condition.

Dune mapping

Both dune systems were mapped in December 2017, using a DJI Phantom 4 pro drone, to generate high definition maps. These maps were 'ground truthed' in March 2018 so staff could match species on the map with those on the ground, resulting in digital habitat maps.

Dune condition index



The dune condition index is a way of rapidly examining the ecological integrity of a dune system by describing the state of it and the pressures on it.

This technique scores the dune between 1 and 5 for pressures including predators, invasive plants and vehicle access. It also measures indigenous vegetation dominance and buffering. The scores are totalled (the higher the score the better the condition) and compared against a possible maximum score of 65.

Thumbs up or thumbs down?

Despite the protected location of **Rangaiika** as part of Cape Sanctuary and its recognised status as our best surviving dune system, the condition index highlights the pressure it is under. This pressure comes mainly from large numbers of rabbits. It also suffers from very minimal buffering from surrounding farmland. The dunes at **Opoutama** suffer from a lot of pressures. Understandably the overall state of the dune system is much poorer than Rangaiika.

		Dune system	
		Rangaiika	Opoutama
Pressures	Deer, cattle, pigs, sheep & goats	4	4
	Rabbits, hares & possums	0	2
	Predators	2	2
	Dogs	4	0
	Problem plants	3	0
	People walking on the dunes	5	0
	People driving on the dunes	5	4
	Mining	5	5
State	Indigenous cover dominance	4	3
	Indigenous animal dominance	4	2
	Unnatural vegetation disturbance	5	5
	Buffering - indigenous land cover	0	0
	Buffering - indigenous cover dominance	0	0
TOTAL		41	27
PERCENTAGE		63%	42%

Dune plants

Pīngao, the golden sand sedge, was once common on sand dunes all over New Zealand.

It was highly prized by weavers for its golden colour. Pīngao is only found in New Zealand but has suffered dramatic decline. Partly from the disappearance of actual dune systems, but also due to grazing and trampling from animals, and competition from introduced plant species, such as marram grass.

Tracks in the sand

Sand dunes are a home to many native and threatened species including many types of insects, such as moths and the katipo spider. Native birds, such as the blue penguin and the fernbird - both getting more uncommon due to habitat loss and predation - can also be found in our sand dunes. **Often the only sign of these species, as with the animals that threaten them, are the tracks they leave in the sand.**

Pictured: A penguin footprint and Pīngao



Many of the plants and animals found on sand dunes are very rare and endangered.

Find out more

Hawke's Bay Regional Council monitors our land, water and air.

We use this data to inform our work with communities to improve and protect the environment.

Each year we develop a series of report cards to provide you with a snapshot of how our environment is tracking.

For more details including the full technical reports visit www.hbrc.govt.nz (search: report search)

For up to the minute monitoring results from Hawke's Bay and other parts of the country visit www.lawa.org.nz

