

Sea Spurge (*Euphorbia paralias*)

Annual Operational Report 2015/16



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Ministry for Primary Industries Contract for Services 16738 *Sea spurge (Euphorbia paralias) eradication response at Aotea, Waikato*. September 2013

1 Introduction

Sea spurge (*Euphorbia paralias*) is an invasive coastal dune weed that originated from Europe. Sea spurge was probably introduced to Australia in ships' ballast water about 75 years ago. The plant first appeared in Western Australia, and is now found throughout south-eastern Australia, including Tasmania and the islands of Bass Strait. In the past 20 years, it has colonised beaches along the NSW South Coast and is progressively working its way north.

Sea spurge is a dune shrub that forms dense stands in foredune and backdune. It poses a serious threat to New Zealand's dune systems.

Sea spurge has a seed that can float on the ocean currents, and it is thought this is how it arrived in New Zealand. In February 2012, sea spurge was discovered on the north side of Aotea Harbour entrance about 3km down the ocean beach. The actual infestation is in a very remote location on private land. This is the only known site in New Zealand.

Since its discovery, the Ministry for Primary Industries (MPI) as the lead agency set up a working group incorporating the Department of Conservation (DOC) and Waikato Regional Council (WRC). This group has been working collaboratively to manage the surveillance and eradication of this pest.

The working group's management option is to maintain the infected site at zero population density, to prevent further seed production until the seed bank is exhausted. However, since the discovery of sea spurge at Aotea there has been a number of uncharacteristically high sea surge events that have eroded some of the sand from the infested site. As a result of this, approximately 15km either side of the infestation is under active surveillance.



Figure 1: Original sea spurge plant found at Aotea April 2012

This document reports on the fourth year of the sea spurge eradication programme and associated surveillance activities at Aotea Heads, Waikato. Operational activities were undertaken by Waikato Regional Council on behalf of MPI.

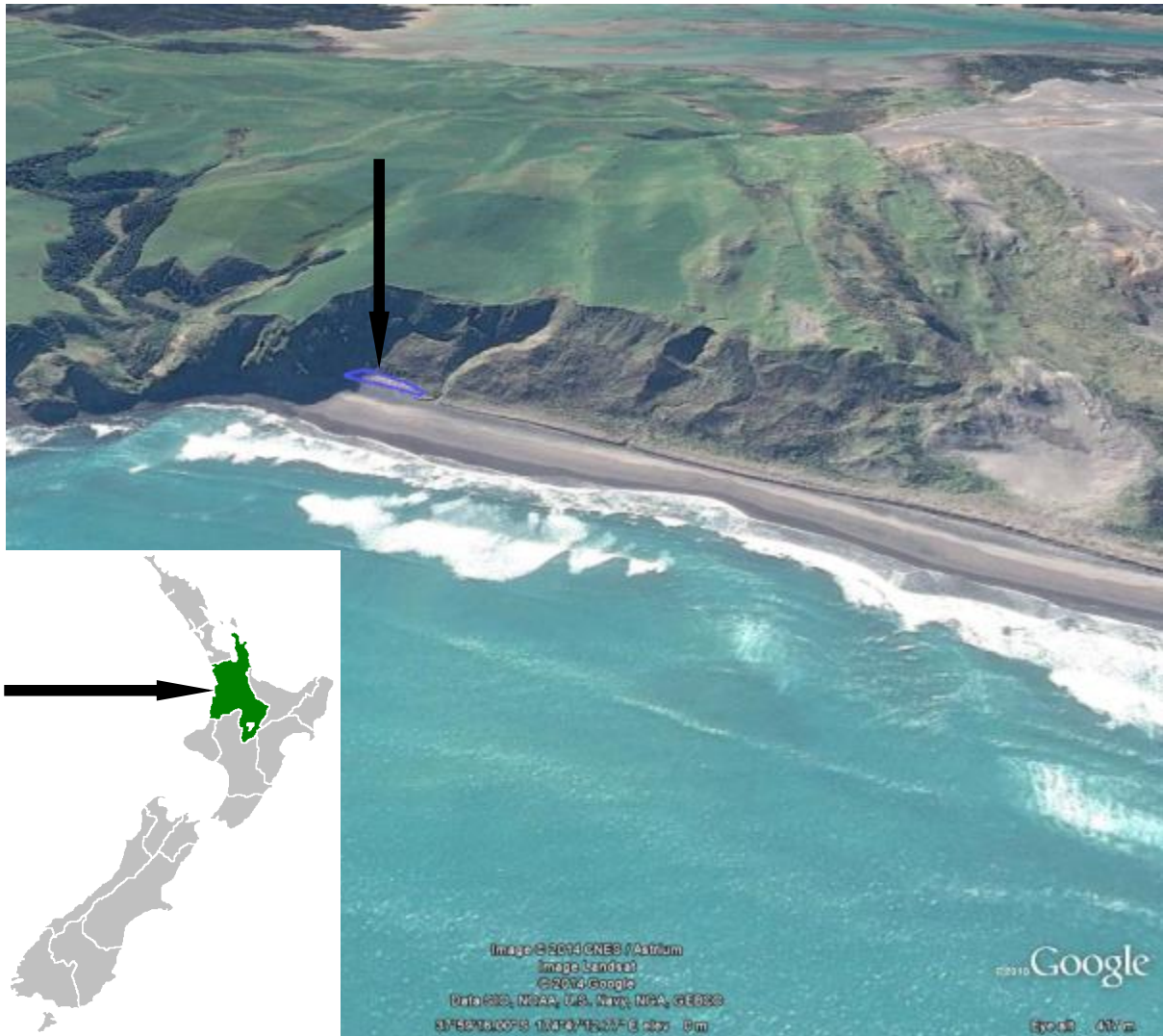


Figure 2: Location of the sea spurge infestation at Aotea Harbour

The original infestation was ~8x10 metres plus an individual outlier. Over the past three years most of the plants were found in the north end of the infestation area, with a few new plants scattered throughout the rest of the site (from the slip north). The area that is intensively searched is approximately 100 metres long and covers an area of approximately 0.1ha.

2 Timing of visits for 2015/16

Site visits and a de-limiting survey was carried out over three periods during the last 12 months. No plants were found this season. Areas were thoroughly searched using up to three Waikato Regional Contractors and staff at a time.

1	23 September 2015	Inspection of original infestation area and Aotea Beach surveillance
2	Thursday 28 January 2016 Thursday 4 February 2016 Friday 12 February 2016 Friday 26 February 2016	Inspection of original infestation area and Aotea Beach delimiting Ruapuke Beach delimiting Aotea to Kawhia delimiting Schnackenberg Bay delimiting
3	Friday 13 May 2016	Inspection of original infestation area

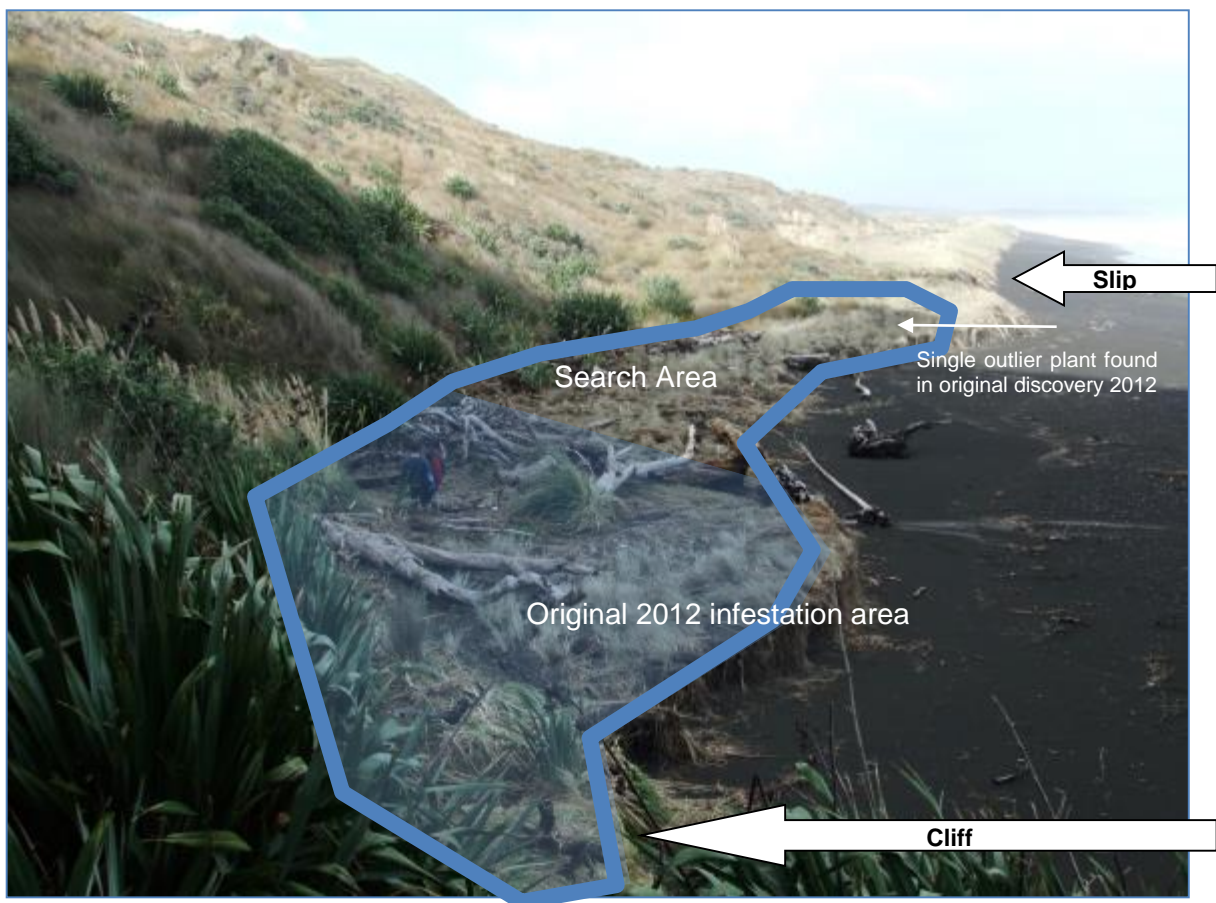


Figure 3: Original 2012 infestation area

2.1 Inspection Wednesday 23 September 2015

The infestation area was thoroughly grid searched up to the rocks at the northern end of the beach. No sea spurge plants were found. Southwards along Aotea Beach to the mouth of the Aotea Harbour was walked and no sea spurge was found.



Figure 4: Original infestation area, September 2015



Figure 5: Aotea Beach survey area September 2015

2.2 Inspection and Delimiting Survey January-February 2016

Four areas were searched on foot as part of the annual delimiting survey. No new infestations were found. The sea spurge signage was not in place at key beach access points and will be re-installed for the 2016-17 season.

Thursday 28 January 2016	Aotea Beach
Thursday 4 February 2016	Ruapuke Beach
Friday 12 February 2016	Aotea to Kawhia
Friday 26 February 2016	Schnackenberg Bay

2.2.1 Aotea Beach Thursday 28 January 2016

Southwards from the infestation site southwards to the Aotea Harbour entrance was surveyed on foot by three Waikato Regional Council personnel. DOC staff were not available to help on this occasion. No sea spurge was found. Notable finds washed up onto the beach were a dead dolphin and a large mooring buoy. Also a yucca plant was found and removed from the beach, actively growing from a tuber fragment.

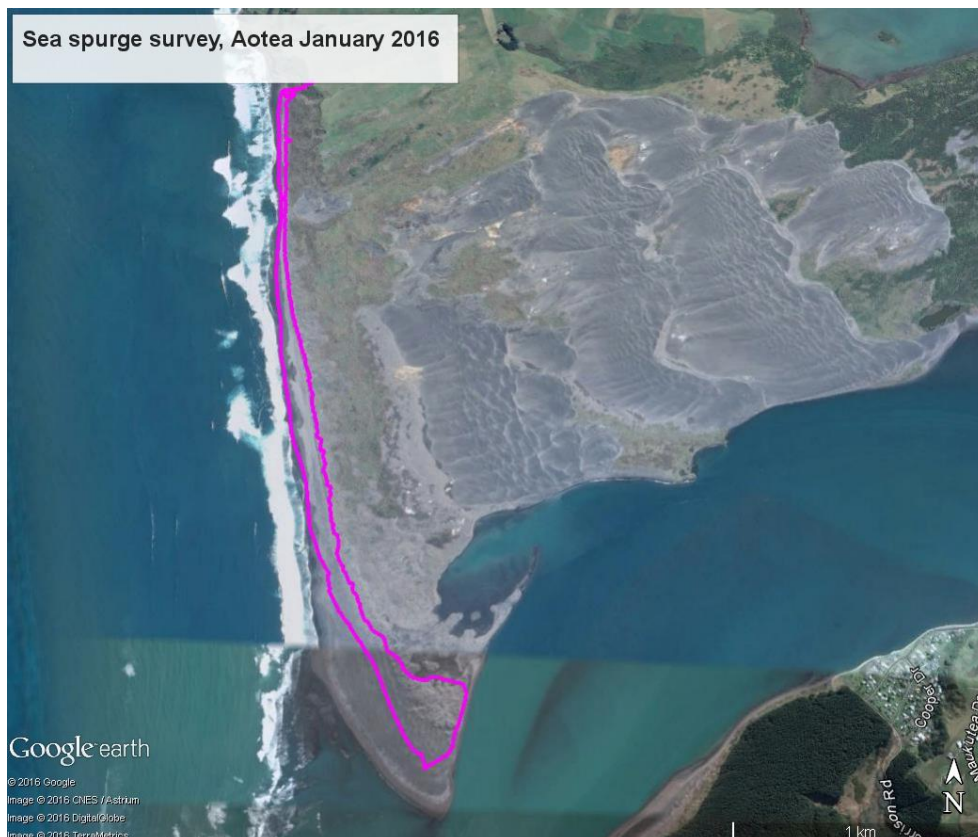


Figure 6: Tracklog, Aotea Beach sea spurge surveillance 28 January 2016

2.2.2 Ruapuke Beach Thursday 4 February 2016

The beach survey was simultaneously started by walking from the south and north carparks. Staff met in the middle of the beach and exited via the south carpark. No sea spurge was found. Notable finds included large populations of marram grass and more alligator weed at an already known site.

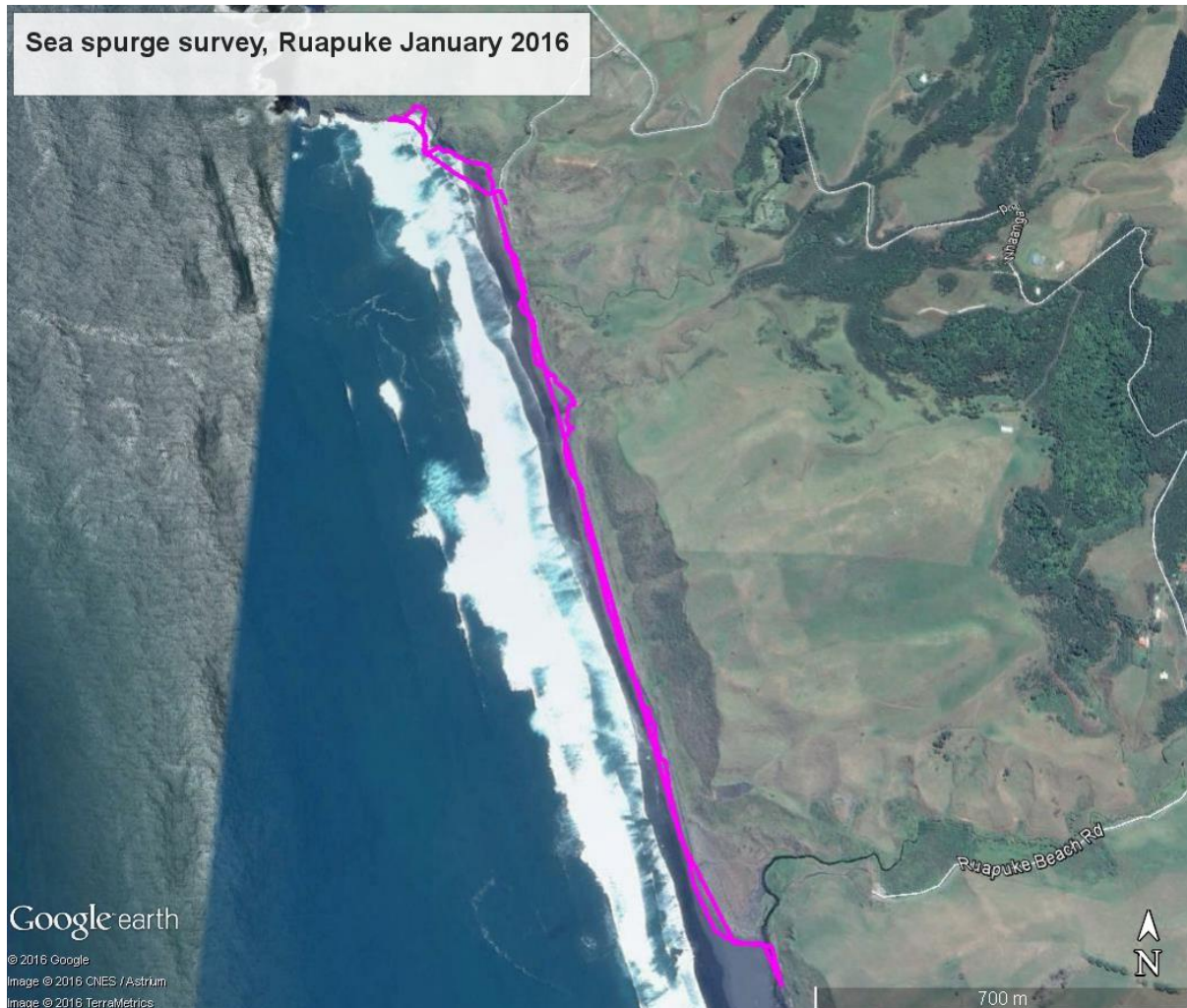


Figure 7: Tracklog sea spurge de-limiting Ruapuke Beach 4 February 2016

2.2.3 Aotea to Kawhia Friday 12 February 2016

One person started at Kawhia boat ramp and walked west to the harbour entrance and then north to the Ocean Beach carpark. Another person walked northwards from the Ocean beach carpark and the third person walked from Aotea township west to the harbour entrance and then south to Ocean Beach carpark.

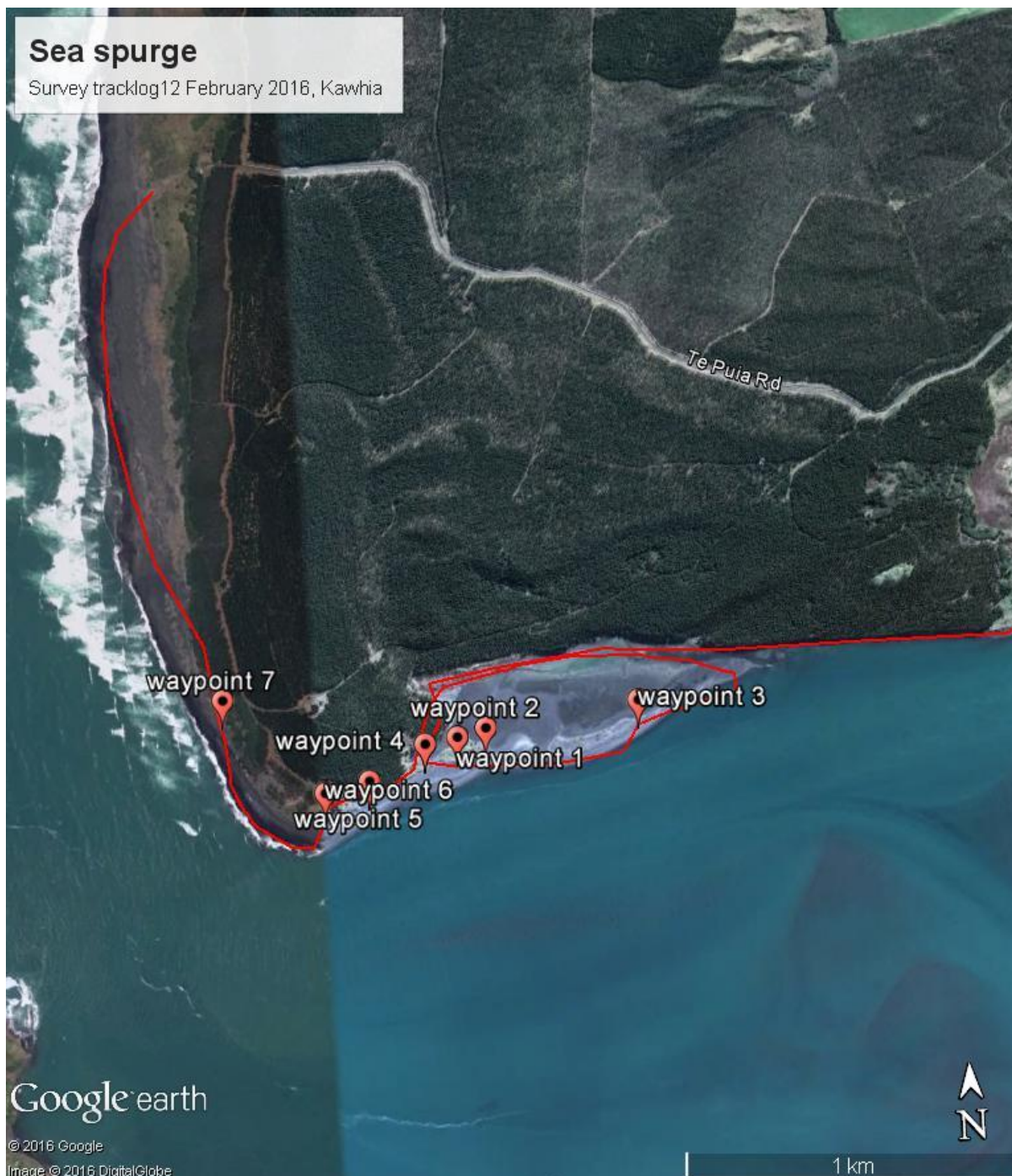


Figure 8: Sea spurge visit 12 February 2016, Kawhia boat ramp to Ocean Beach (waypoints indicated marram grass)

2.2.4 Schnackenberg Bay Friday 26 February 2016

Schnackenberg Bay is a very scenic bay only accessible at low tide or through private farmland. The bay is at the southern end of Ruapuke beach and modelling has shown this is an area where ocean currents could deposit sea spurge seeds. Three Waikato Regional Council staff scrambled down the hill from the private land adjoining and thoroughly searched the bay. No sea spurge plants were found.



Figure 9: Schnackenberg Bay sea spurge surveillance 26 February 2016



Figure 10: Schnackenberg Bay

2.3 Inspection 13 May 2016

Frances MacKinnon inspected the original site and out to about 50m. The site was clean, no evidence of sea spurge plants was found.



Figure 11: Aotea beach inspection 13 May 2016



Figure 12 Tracklog Aotea Beach, sea spurge inspection 13 May 2016

3 Enquiries and complaints

A landowner from Port Waikato contacted Council with a possible sighting of sea spurge. The plant was identified as common broomrape *Orobanche minor*.

It is pleasing that this enquiry was received as it is evidence of heightened awareness of sea spurge.



Figure 13: Broomrape at Port Waikato

4 Risks, issues and recommendations

4.1 Risks and issues

- Finding plants can be difficult due to –
 - Debris – there is a large amount of debris on the site. This debris makes finding new small seedlings difficult. The risk is missing plants that could mature before detection.
 - Vegetation can make finding sea spurge plants difficult as sea spurge can ‘creep’ under these plants and possibly be unseen until the next visit. However, not finding plants has not been a problem so far.
- Swell surges and wind can bring more sand onto the site. This sand deposition can trigger dormancy in sea spurge seed. The risk is an increase in the life of the eradication programme and an increased chance of dormant seed leaving the site through erosion.

4.2 Recommendations

- Continue to promote awareness in surrounding regions. Put up advisory signs in the surveillance area next summer.
- Continue current inspection and delimiting surveys.
- Continue to monitor the large pampas bushes and smaller grasses and treat as required with glyphosate herbicide to reduce available habitat for sea spurge.

4.3 Acknowledgments

A risk to the success of this eradication is access to the site. The support from David Peacock and sons for allowing access across their farm to manage the site is very much appreciated. Without this support, the ability to manage this site and carry out the eradication and de-limiting surveys would be very difficult.