

# **Seven Mile Beach Landcare**

## **A Community Partnership Making a Difference in Gerroa**

*The fate of biological diversity for the next 10 million years will almost certainly be determined during the next 50–100 years by the activities of a single species.*  
*Paul Erlich and Robert Pringle (2008)*

### ***Introduction***

CSIRO Futures Global Megatrends report “Our Future World” makes for sobering reading. It creates a narrative of the future constructed from six interlinked global megatrends. The decline in biological diversity is listed as one of the key challenges humanity faces over the coming years. While the state of biodiversity is in decline and the pressure is rising so too is the human response. Governments, companies and societies are doing more than ever before to protect valuable habitats and reduce greenhouse gas emissions (Hajkowicz et al, 2012)

### ***Biodiversity decline***

There are indications that the three main components of biodiversity - that is genes, species and ecosystems - are all continuing to show signs of decline. Habitat damage, overexploitation, pollution, invasive alien species and climate change are the five principal pressures that are directly driving biodiversity loss. These pressures are remaining constant or increasing in intensity (Secretariat of the Convention on Biological Diversity, 2010). Given the current context and state of biodiversity actions made in coming decades will determine the fate of biological diversity for coming millennia.

### ***Habitat fragmentation***

Extensive fragmentation and degradation of habitats continues to be a leading cause of biodiversity loss and diminished ecosystem services (Secretariat of the Convention on Biological Diversity, 2010). Eighty percent of the remaining Atlantic Forest fragments are less than 0.5 square kilometres in area and 59 percent of large river systems are moderately or strongly fragmented by dams and reservoirs (Butchart et al., 2010).

### ***Seven Mile Beach Landcare***

Our story is a microcosm of this mega trend of biodiversity decline and habitat fragmentation at Seven Mile Beach and is about the community of Gerroa on the south coast coming together and working with government and the community to do something about these issues in its own backyard. Seven Mile Beach Landcare is committed to restoring the ecological integrity of a bushland reserve at Seven Mile Beach through its Community partnerships with the Gerringong Lions Club and Gerroa Community Association all acting locally to preserve and restore 28.7ha of endangered ecological community at Seven Mile Beach Crown Reserve in the coastal zone.

Kiama Council as Trust manager of this reserve has had difficulty maintaining the reserve in a weed free state. This has resulted over time in the reserve becoming overrun in weeds of National Significance such as *Asparagus Fern* (*Asparagus*

*aethopicus*), Lantana (*Lantana camara*), Bitou Bush (*Chrysanthemoides monilifera*) and Bridal Creeper (*Asparagus asparagoides*). In 2007 the Gerroa Community having concern about the degraded state of this important Crown reserve approached Kiama Council and the Department of Lands to save this iconic bushland for the community and the environment.

The project initially began in 2007 as a partnership with local community groups along with Kiama Municipal Council (as the Trust Manager of the reserve), the Department of Lands and the Southern Rivers Catchment Management Authority (SRCMA) in a project designed to begin the process to preserve and restore the biodiversity and integrity of the vegetative communities (28.7ha) comprising the natural bushland corridor fronting Seven Mile Beach.

Start up funding was secured from the SRCMA, Kiama Council and the Department of Lands in 2007 which was used to hire a professional bush regenerator to undertake field work and site assessment to compile the Seven Mile Beach Bush Regeneration Plan with the aims of preparing a three year bush regeneration plan describing the remnant vegetative communities and their extent, a list of exotic and native plant species on site. Recommendations from the plan were then used to guide initial works and secure further funding for 2008 and onward.

The Seven Mile Beach Landcare Group was formed in 2008 to crystallize community involvement of a number of key community partners including importantly the Gerringong Lions Club, Gerroa Community Association and the Gerroa Environment Protection Society to act as a focal point for project coordination, planning, fund raising and on ground works. Importantly, community involvement in the Landcare movement has been the key that has unlocked success for the project so far with many members of existing community organisations at Gerroa also part of the Seven Mile Beach Landcare.

In 2009 the ongoing funding and management of the project was officially handed over from NSW Crown Lands to Kiama Council as Trust Manager of the Crown reserve. A commitment of yearly funding of \$30,000 was also made by council sourced from revenues garnered from the caravan park, also on the Crown reserve, to fund ongoing works on the natural bushland part of the reserve and to use to leverage additional funding from state and federal partners.

#### Project Aims:

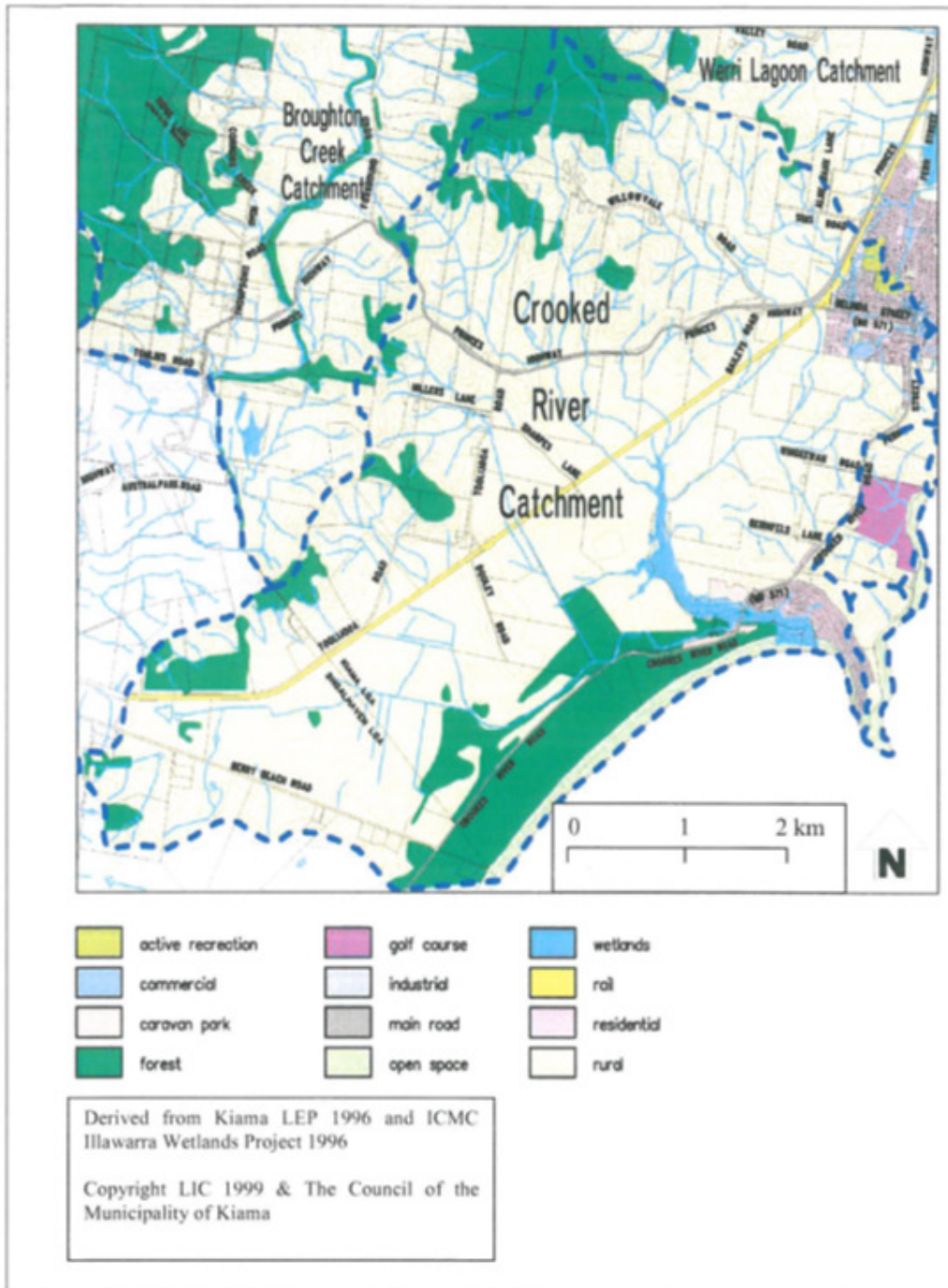
1. To restore the biodiversity and integrity of the EEC's present on Seven Mile Crown Reserve.
2. To improve the value of Seven Mile Beach Reserve as key habitat for flora and fauna species thus improving habitat connectivity within the Crook River watershed to the adjoining Seven Mile Beach National Park.
3. To complement the management of the nearby Seven Mile Beach National Park in relation to noxious weed invasion and habitat destruction.
4. Protection of the assets and ecological function of the estuary's aquatic and riparian habitat along the foreshore.
5. The restoration of degraded foreshore areas.
6. To empower the local community to assist in maintaining the high environmental values of Seven Mile Beach Reserve, nearby wetlands and surrounding waters.

### *Works completed to date*

1. Restoration underway of the biodiversity and integrity of the vegetative communities (28.7ha) particularly the EECs in reserve.
2. Primary weeding Areas 1 & 2 (2.5ha) completed. See Maps 1 & 2.
3. Secondary weeding of Areas 3 – 5 (2.2ha) completed. See Maps 1 & 3.
4. Maintenance weeding of Areas 6 – 8 (24ha) completed. See Map 1.
5. Target Weeding of Weeds of National Significance (WoNS) and other Keystone Invasive weeds.
6. Re-vegetation of 2ha plantation site south of Track 6 with native species nearing completion.
7. Re-vegetation of 1ha foreshore dune site south of Track 1 with native species underway.
8. On-going monthly working bees maintaining planting areas, monitoring and reporting progress against project plan by Seven Mile Beach Landcare and local community to improve the implementation of on ground works and be reactive to any changes in local conditions.

### *Location*

The work areas are located to the south of the Crooked River, Gerroa. It is bordered by Seven Mile Beach and the Crooked River Road. It is Crown land that is under Trust Management by Kiama Council. The length of the site is approximately 1.8km and the width varies from 100m to 400m. The total reserve area is approximately 34ha. The site is a 27.8ha long strip of bushland that is orientated on a north east to south west axis. This area is characterised as a beach to hind dune forest vegetation transition which, with Minnamurra Spit, is one of the best examples of these vegetation communities remaining within the Illawarra.



**Figure 1: Land use in the Crook River Catchment**

The southern boundary of the total area is formed by the beach and ocean. Seven Mile Beach Caravan Park facilities are located along the northern boundary for the most part, and Gerroa township to the north east across Crooked River estuary. The most south-westerly extent of the area abuts an area used as the community garbage dump up until the 1990s. The Caravan Park Facilities have been in operation within the general area since at least the 1940s and areas within the dune system were historically used for black water disposal. One black water disposal site is now the Landcare Group's main work area called the "Plantation" at track 6. The maintenance

of the bushland within this area, prior to Landcare works, has been limited to construction of seven fenced pathways to the beach. This has likely reduced the amount of informal track making which usually contributes to localised damage to bushland adjacent to the Caravan Park areas and weed invasion. Aerial spraying along the dune front was undertaken by the Illawarra Noxious Weeds Authority in the early 1990s to 2000s targeting Bitou Bush (Misdale 2011).

The vegetative communities of the reserve vary from Acacia Dune Systems, Closed Tea-tree Shrubland, Banksia Woodland, Bangalay Sand Forest (EEC), Littoral Rainforest (EEC) and Coastal Vine Thicket (EEC). The total work area is 28.7ha (Primary [2.5ha], Secondary [2.2ha] and Maintenance [24ha]).

Littoral Rainforest and Bangalay Sand Forest are listed as Endangered Ecological Communities (EECs) in the NSW Threatened Species Conservation Act (NSW TSC Act). The Littoral Rainforest and Coastal Vine Thicket are listed as critically endangered in the Federal Environment Protection and Biodiversity Conservation Act (EP&BC Act).



Figure 2 The management zones are numbered 1 to 8 and are divided by the access tracks to the beach. Three areas have been highlighted. The area highlighted yellow where the project was begun. The area highlighted red is the 'Plantation' and the blue highlighted area has previously resisted attempts to undertake revegetation. From: Misdale, M. (2011) Seven Mile Beach Landcare Site Restoration Plan 2011.

## ***Landcare Group***

### *Aims*

The current Seven Mile Beach Landcare group formed in 2008. Financial support from the Southern Rivers CMA, Commonwealth Funding and volunteer labour from the Gerringong Lions Club was critical in launching a group at the site. The group's initial project focus centred on the foredune west of Track 1 (Zone 2) (Figure 2). This area was controlled for Bitou Bush by the Illawarra Noxious Weeds Authority but has not been able to naturally regenerate for many years.

Secondary and maintenance weed control within the regeneration area posed enormous difficulties as the dense weed carpet prevented seedling regeneration and deeply buried Madeira tubers were beyond the ability of a volunteer group's efforts. The group decided to employ an experienced professional bush regenerator to carry out the more technical work leaving it free to focus its efforts on securing funding and coordinating the project with its partners. Importantly, the Landcare coordinators (Grant Merinuk and James Doak) worked to encourage community interest and support by concentrating on "doable" areas of the site which were not naturally regenerating and which were of a scale that would give the community volunteers focus and a sense of ownership.

The Landcare group currently focuses its efforts at the 'Plantation' (Track 6) where they have installed well over 2000 trees, shrubs and groundcovers in multiple plantings over the past three years. The group involves about 10 consistently attending members and another 10 casual members. The group also receives regular visits by the Illawarra Youth Landcare Group and local schools. The group participated in a Southern Rivers CMA funded program in 2009 to employ the Local Jerringa Aboriginal Community for a day of planting and maintenance work on the plantation site at track 6.

The group's success to date has been due to its ability to attract grant funding from a number of sources to employ an experienced professional bush regenerator, develop a bush regeneration plan for restoration of the site and undertake those works in line with the plan. The group coordinators strong involvement with local and state government partners, their ability to form strong community partnership and an ability to focus and educate the local community on the project through community projects, workshops, publicity etc. with assistance from Illawarra Landcare at a scale in keeping with the skills and abilities and importantly interest of the local community has proven to be a winning formula.

### *Works Progress*

The groups focus since 2008, following the engagement of bush regenerators, has been the revegetation of the 'Plantation' area located west of Track 6 in Zone 7 (Figure 1). The 'Plantation' is approximately 2000 m<sup>2</sup> in area and was previously used by the local council as a black water disposal area using trickle irrigation. The irrigation pipe was re-discovered following laborious manual removal of the dense carpet of Asparagus Fern that had developed. The group undertook the removal of the irrigation piping and installed 2 palicon tanks donated by Manildra Groups Shoalhaven Starches

plant at Bomaderry to hold water and provide aftercare in the harsh summer dune conditions.

The group has installed a combination of canopy, understory and groundcovers over the years numbering more than 2000 plants within this area. The species composition includes Eucalyptus, Coast Banksia, Coastal Tea Tree, Coast Wattle, Bangalay, Cheese Tree, Pine Plum, Cabbage Tree Palm and Lilly Pilly. Lomandra, Trailing Guinea Flower, and Swamp Lily have also been planted. Recruitment of many indigenous seedlings is occurring within the 'Plantation' area, especially Coast Banksia, Lomandra, Saloop and Scurvy Weed. Local Swamp Wallabies challenged the group's efforts to revegetate the site by browsing the young establishing plants. To counter this, the group has installed plastic mesh to about 150 cm tall to protect them.

The group's efforts have recently gone into an area located along the foredune west of Track 1 (Zone 2) (Figure 2). This area was controlled for Bitou Bush but has not been able to naturally regenerate for many years. Grazing by rabbits and drought conditions were major problems that forced the group to delay works at the site following the initial revegetation attempts. Recently the landcare group hosts a local secondary school group at the site to undertake tree planting in this area. The group is keen to re-establish a presence in this new area as 'the Plantation' maintenance levels decrease at Track 6.

### *Group Challenges*

The Landcare group's current worksite is difficult as it is located within a hind dune area which has: free draining soils, browsing wallabies, and hot/dry summer conditions. In spite of these challenges the revegetation is establishing well thanks to the cooler and wetter weather that has been experienced in the area over the past few years. It was decided early on by the coordinators that the group maintain their focus and commitment to the maintenance at the plantation, choosing to focus on the one area until it has become established before moving on to other areas in the reserve. This has proven to be a good approach as the group has been able to maintain sufficient membership to allow for the ebb and flow of peoples involvement over time and maintain good participation at the monthly working bees as well as attract new members to the group. The group members undertake different roles – re-staking/bagging revegetation or weed control/maintenance based on health, ability and preference.

The revegetation of the Plantation area is proceeding well. It is estimated with good climatic conditions that a low (3 – 4 m) canopy should be established within 2 – 3 years consisting of Long Leave Acacia, Bangalay and Banksia. Further supplementation of the planted species have been undertaken to introduce a fast growing nurse canopy of Long Leaved Acacia, Celery Wood and other fast growing species for slower secondary Littoral Rainforest species to establish.

The group's maintenance requirements are decreasing within the 'Plantation' area due to continuing establishment of the revegetation and consistent control of Asparagus Fern and other weeds. Further project areas may be attempted within 1 to 3 years as 'the Plantation' will require minimal maintenance due to canopy establishment and

reductions in opportunities for bird drop weeds to establish, as contract works reduce the distance to nearest mature weed and weed seed banks are reduced. The group possesses an excellent ability to successfully undertake revegetation, this skill set has been hard earned both at this site and similar conditions at Baileys Island which was a revegetation project undertaken at a another nearby location west of the highway by some of the current group members. The Landcare group will continue to work to support by working in the areas immediately adjacent to the revegetation areas to improve outcomes in the areas of Landcare/contractor overlap and provide Landcarers with areas where their outcomes are achievable and enthusiasm maintained.

A high level of continued funding for bush regenerators following the completion of primary control of Asparagus and Madeira Vine patches is essential if the project is to succeed. Intensive secondary works are required over the following 2 - 3 years to control recruitment by the soil seed bank before the weeds of concern can produce viable seed and the site can enter a maintenance phase. This level of commitment initially is essential to ensure the projects timetable is minimised and long-term maintenance costs reduced quickly.

### ***Bush Regeneration***

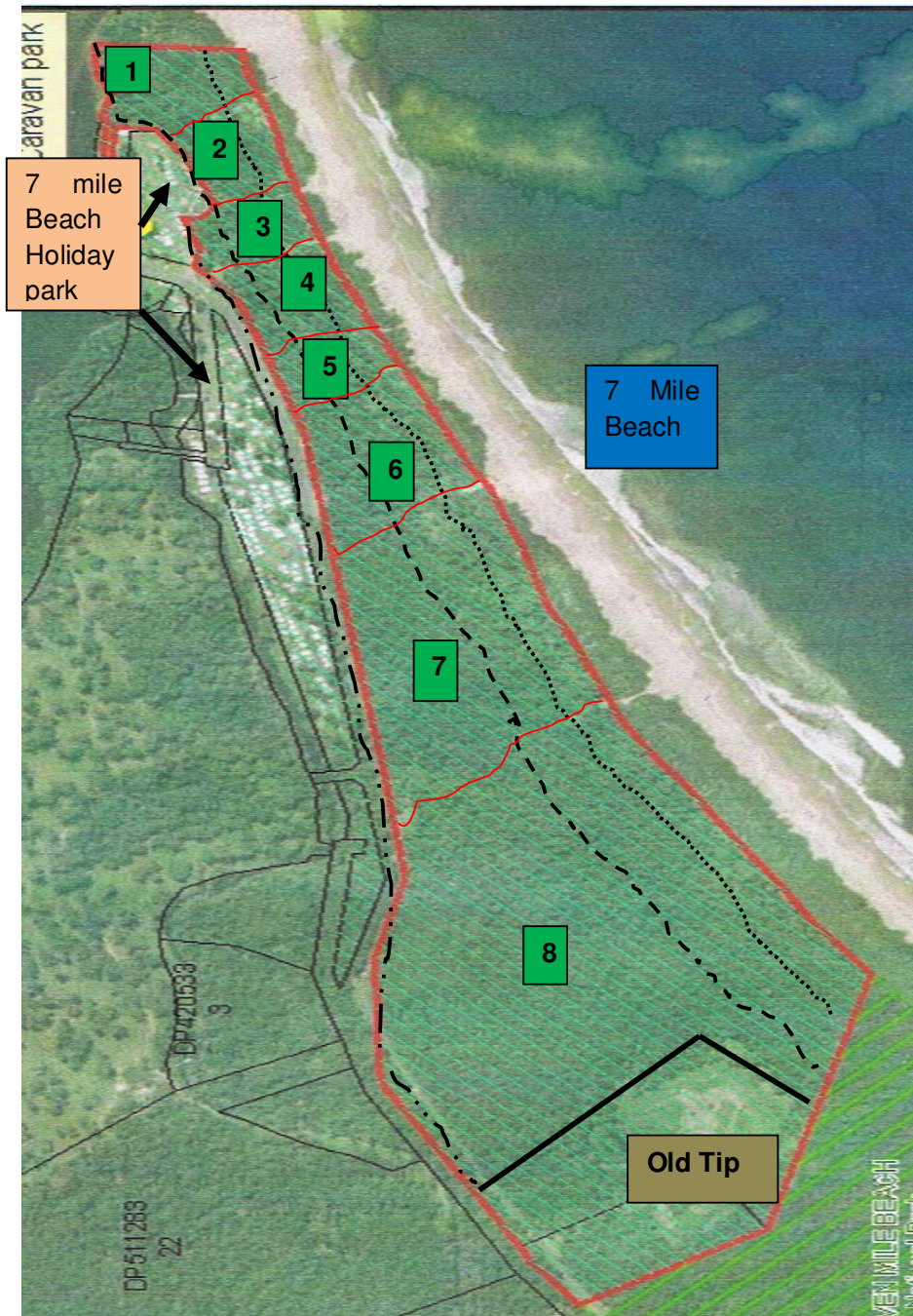
The following information is taken from Proust Bushland Services June 2012 Final Report on the Seven Mile Beach Restoration project to highlight works completed to date.

#### *Works completed November 2011 – June 2012)*

1. Primary weeding Areas 1 & 2 (2.5ha). See Maps 1 & 2.
2. Secondary weeding of Areas 3 – 5 (2.2ha). See Maps 1 & 3.
3. Maintenance weeding of Areas 6 – 8 (24ha). See Map 1.
4. Target Weeding of Weeds of National Significance (WoNS) and other Keystone Invasive weeds.



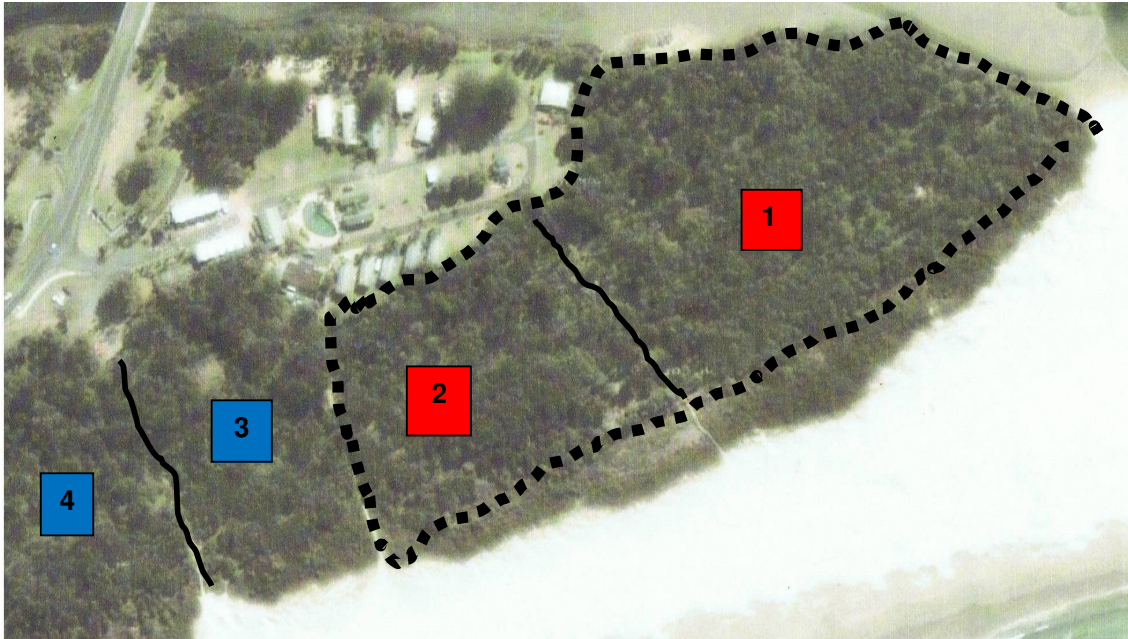
**Map 1 Work Areas Map**



- ..... Western boundary Of Leptospermum Shrubland.
- - - Western Boundary of Banksia Woodland.
- . - Western Boundary of Littoral Rainforest/Coastal Vine Thicket/Bangalay Sand Forest.
- Tracks (Area boundaries).

From: PROUST, J 2012, *Final Report: 7 Mile Beach Restoration Project*, Proust Bushland Services.

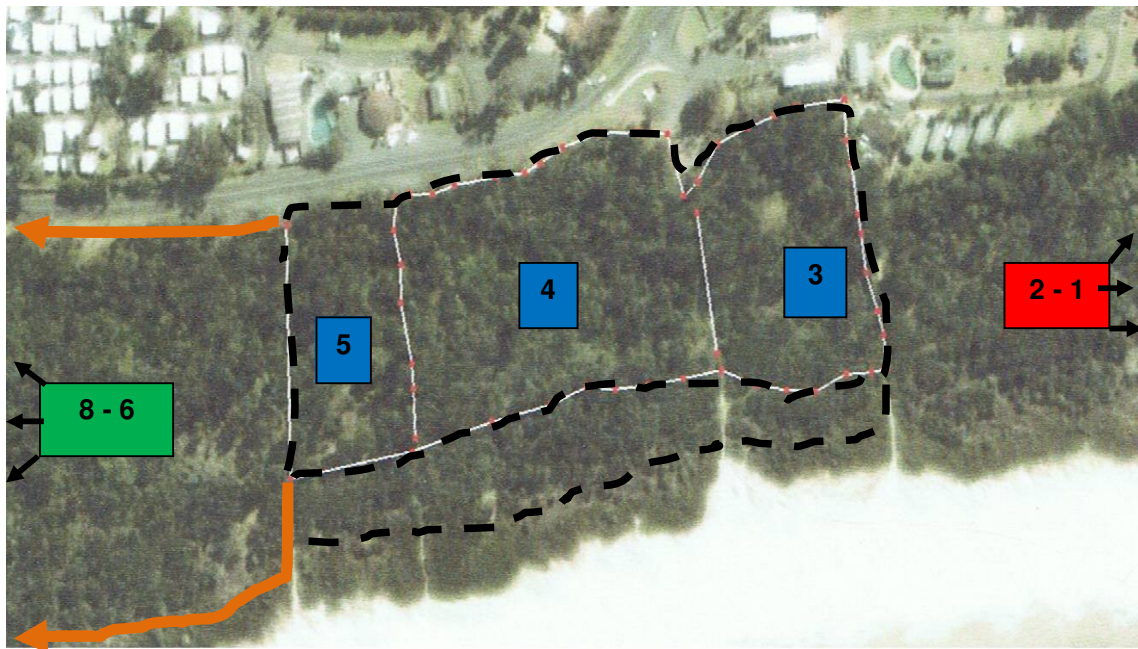
**Map 2 Primary Weeding Areas Map**



■■■■■ Primary Weeding Area (2.5ha)

From: PROUST, J 2012, *Final Report: 7 Mile Beach Restoration Project*, Proust Bushland Services.

### Map 3 Secondary Weeding Areas Map



- Secondary weeding area (2.2ha)
- Maintenance weeding area (24ha)

From: PROUST, J 2012, *Final Report: 7 Mile Beach Restoration Project*, Proust Bushland Services.

### Methodology

A variety of treatments (see Table 1) were used depending on the type of weed and its density, its location and slope and proximity to native plant and waterways. A variety of herbicides were also used depending on the type of weed and its density, its location and slope, proximity to native plant and waterways and to minimise the chance of the weeds building up resistance

The works (weed control) program carried out by PBS from November 2011 to June 2012 was in planned stages. In Areas 1-2, all woody weeds (i.e. Lantana [*Lantana camara*] & Cestrum [*Cestrum parqui*]) were treated first. Lantana was cut/painted and the material 'rafted' to prevent reshooting. Cestrum had a combination of treatments (due to its poor response to just cut/paint) using stem inject and scrape and paint. The main other woody weeds were Norfolk Island Hibiscus (*Lagunaria patersonii*) and Senna (*Senna pendula*) which were cut/painted. Several larger Norfolk Island Hibiscus were stem injected.

The next stage of work in Areas 1-2 (the primary weeding areas) was to do site preparation (minimise the off target damage of native species) for the spraying of the dense Asparagus Fern (*Asparagus aethopicus*). The Asparagus Fern covered >90% of the ground layer. The spraying program was carried out through most of the summer

and into the autumn months. Also during this stage all Keystone weeds (i.e. Madeira Vine (*Anredera cordifolia*) and turkey rhubarb (*Acetosa sagittata*) were treated (see Table 1). There were several new infestations of Madeira vine recorded in Areas 1 & 2 and these will require further intensive treatments.

**Table 1 Weed Treatment Table**

<i>Botanical Name</i> Common Name	Treatment/Disposal	Comments
<i>Acetosa sagittata</i> Turkey Rhubarb	Spray with glyphosate in spring/summer.	Monitor & prevent from further spread
<i>Anredera cordifolia</i> Madeira Vine	Hand remove and bag all materials. Scrape/paint. Spot spray to minimise the infestation.	Constantly monitor and suppress. Several locations in reserve being contained and suppressed, constantly.
<i>Araujia sericifera</i> Moth Vine	Hand dig. Bag fruit	Monitor. Successional wind dispersed weed.
<i>Aristolochia elegans</i> Dutchmans Pipe	Hand dig. Scrape/ paint larger plants. Bag fruit	Monitor. Successional wind dispersed weed.
<i>Asparagus asparagoides</i> Bridal Creeper <b>WoNS</b>	Spot spray. Introduce rust during growth season.	Prevent from fruiting and growing over natives.
<i>A. aethopicus</i> Asparagus Fern	Spray dense areas. Hand dig crowns in selected areas. Bag crowns.	A variety of control should be carried out and monitored on this dominant weed
<i>Cestrum parqui</i> Cestrum <b>N</b>	Cut & paint leave material on site	Spreading into dune community and canopy gaps.
<i>Botanical Name</i> Common Name	Treatment/Disposal	Comments
<i>Chrysanthemoides monilifera</i> Bitou Bush <b>WoNS</b>	Cut/paint. 'Raft' material. Spot spray dense patches.	Occasional scattered seedlings.
<i>Delairea odorata</i> Cape Ivy	Hand remove from natives, spot spray	Monitor to prevent further spread
<i>Ehrharta</i> spp. Panic Grass	Spot Spray.	Monitor as spreads rapidly, seeds after 2 months.
<i>Lagunaria patersonii</i> Norfolk Is. Hibiscus	Stem inject, Cut/paint.	Occasional scattered tree.
<i>Lantana camara</i> Lantana <b>WoNS N</b>	Cut & paint ones smothering native.	Start with canopy gaps.

<i>Phytolacca octandra</i> Inkweed	Hand dig, spot spray.	Scattered throughout, successional weed.
<i>Senecio angulatus</i> Climbing Groundsel	Hand dig, spot spray.	N/W corner of Area 8.
<i>Senna pendula</i> <i>Senna</i>	Cut/paint, leave material on site	Scattered, more in the northern areas.
<i>Solanum mauritianum</i> Tobacco Bush	Cut/paint, leave material on site	Scattered throughout, successional weed.
<i>Tradescantia fluminensis</i> Trad	Spot spray along infestation edge.	Target weed to minimise further spread.
<i>Annuals such as Fleabane, Cobblers Peg, Thistles Stinking Roger, etc.</i>	Hand dig amongst natives. Spot spray	In disturbed areas and edges of the native vegetation.

**N:** Noxious Weed

**WoNS:** Weed of National Significance

From: PROUST, J 2012, *Final Report: 7 Mile Beach Restoration Project*, Proust Bushland Services.

Other weed control (bush regeneration) works carried out were:

- The continued maintenance weeding of Areas 6-8.
- The main weed in Area 8 was Lantana (cut/paint). There was some scattered Asparagus Fern seedlings (hand dug) and Panic Grass [(Ehrharta spp.) spot sprayed.
- The main weeds in Area 7 were Asparagus Fern, Lantana and Trad [(Tradescantia fluminensis) spot sprayed]. The immediate area around the southern car-park (Coral tree patch) has dense Madeira Vine which has been removed from the canopy and not allowed to expand its range.
- The main weeds in Area 6 were Asparagus Fern, Lantana, Panic Grass, Trad and a variety of annuals. These weeds were treated as in the other work areas.

## Results

In June 2008 9ha (30% of site) was rated as medium to dense weed infested.

In June 2011 2.5ha (8% of site) was rated as medium to dense weed infested.

In June 2012 <0.5ha (<1% of site) was rated as medium to dense weed infested.

In June 2008 20ha (64% of site) was rated as sparse to medium weed infested.

In June 2011 26ha (86% of site) was rated as sparse to medium weed infested.

In June 2012 28ha (93% of site) was rated as sparse to medium weed infested.

The number of native species recorded germinating increases as you move south. The lowest amount recorded was in Areas 1-2 (12 spp.) through to the highest numbers in Areas 6-8 (>50 spp.). There were 22 weed species treated in the different areas. The results for the most part have been extremely positive:

- Weed densities have decreased in Areas 1-2 from >90% to <30%. The weeds were in the ground layer (Asparagus Fern) and in the understory (Lantana and Cestrum).
- Weed densities have decreased in Areas 3-5 from >90% to <10%. The weeds were in the ground layer (Asparagus Fern) and successional weeds.
- Weed densities have decreased in the majority of Areas 6-8 from 20% to <5%. The main weeds were along edges and in canopy gaps. There are still areas of concern along the southern border with the old tip and the area near the southern car-park.
- Weed densities and area have increased along the dune-woodland interface in Areas 6-8.
- The removal of the Lantana has allowed for more light and wind to penetrate the inner sections of the reserve. It will allow for regeneration slowly in the medium term but in the short term it has opened up the western edge especially to successional weed invasion. This will be a high demand area for continued secondary weeding.

**Photo 1      Area 1 (November 2011)**



Looking east (Track 1) with dense Asparagus Fern at pre-primary weeding stage.

From: PROUST, J 2012, *Final Report: 7 Mile Beach Restoration Project*, Proust Bushland Services.

Photo 2 Area 1 (June 2012)



Looking east at Asparagus Fern at secondary weeding stage.

From: PROUST, J 2012, *Final Report: 7 Mile Beach Restoration Project*, Proust Bushland Services.

Photo 3 Area 2 (November 2011)

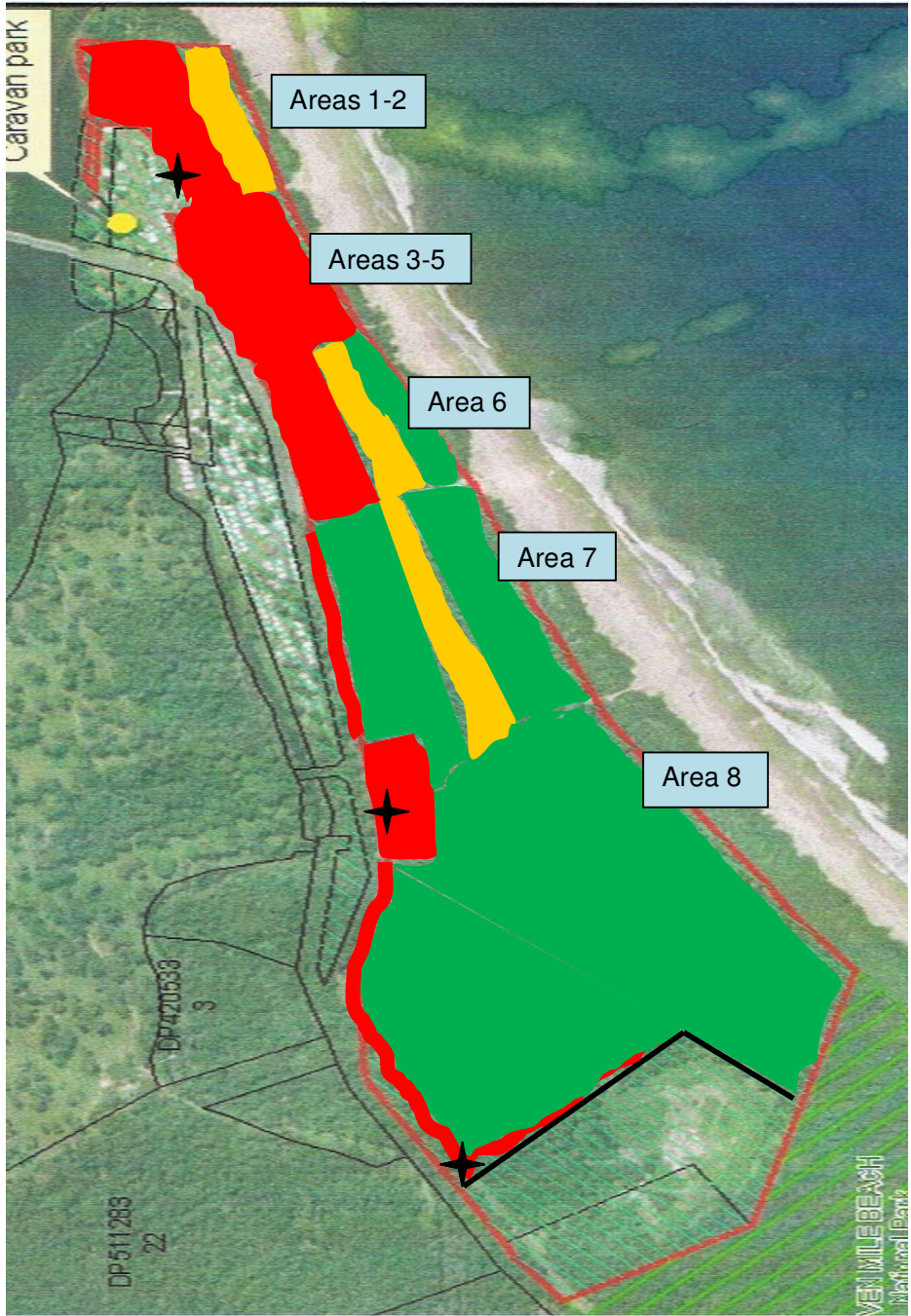


Madeira Vine 'stem' growing out of dense Asparagus Fern

From: PROUST, J 2012, *Final Report: 7 Mile Beach Restoration Project*, Proust Bushland Services.



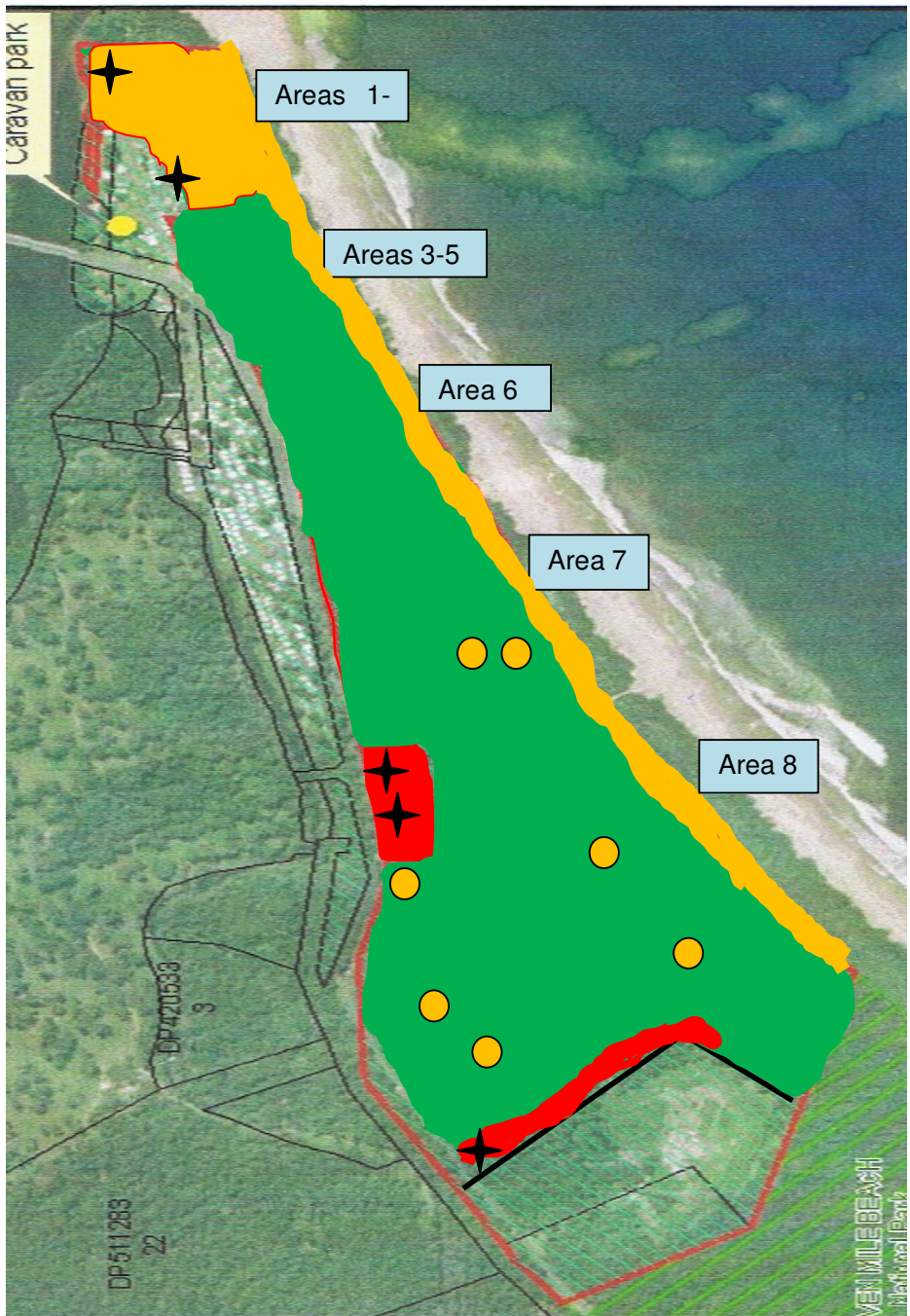
Map 4 Weed Density Map (May 2008)



■ Dense    ■ Medium    ■ Sparse

From: PROUST, J 2012, *Final Report: 7 Mile Beach Restoration Project*, Proust Bushland Services.

Map 5 Weed Density Map (June 2012)



- Dense      ● Medium      ■ Sparse
- ★ Madeira Vine sites

Both ★ and ● areas are weed minimization zones (Canopy gaps).

From: PROUST, J 2012, *Final Report: 7 Mile Beach Restoration Project*, Proust Bushland Services.

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