



Lake Macquarie
Landcare

Case Study

Coastal Site

Caves Beach Dune Restoration and Demonstration Project



Well-vegetated dunes of Caves Beach

Project Partners:

- Caring For Our Country (Australian Government)
- Caves Beach SLSC Dunecare
- Bahtabah Local Aboriginal Land Council



CARING
FOR
OUR
COUNTRY



Background

The Caves Beach site is located on the eastern edge of the Lake Macquarie City Council Local Government Area (LGA), South of the Lake's entrance at Swansea. Caves Beach is well known for the large caves that occur on the beach.

Aboriginal Heritage

Lake Macquarie is rich in Aboriginal cultural heritage dating back tens of thousands of years, although the oldest dated Aboriginal site (a midden at Swansea) was carbon-dated at almost 8,000 years old. The people who lived around Lake Macquarie and Newcastle were known as the Awabakal which means "*the people of the flat surface*" presumably referring to the Lake and its flat surrounds.

The Aboriginal people of the Caves Beach area used the grass trees that were abundant within the coastal vegetation, for resin in spear-making. There were campsites at Ham's Beach because of the good fishing and availability of a fine-grained quartzite for making stone implements. In later years, after 1900, a number of Aboriginal people lived between Swansea and Caves Beach along the old rail line.

Bahtabah Local Aboriginal Land Council are the Custodians of the area which includes Caves Beach.

Lake Macquarie

Lake Macquarie has mountains, forests, waterfalls, extensive beaches, and a spectacular lake. The lake is a large coastal estuarine lake with an area of approximately 110 square km, and a catchment area of 605 square km. It contains 12 major, and many more minor, estuarine creek zones where freshwater tributaries interface with the saline body of the lake. These areas support a wide range of habitats and uses including nature conservation, recreation, residential and commercial development and rural activities. As a result, the natural environment has suffered a high degree of modification and degradation.



Early aerial photo of Caves Beach (source: www.lakemac.com.au)

European History

Caves Beach was originally known as The Plains, then The Plains Beach, then Caves Beach. In 1960 it was named Mawson but residents objected and in 1965 the name Caves Beach was restored.

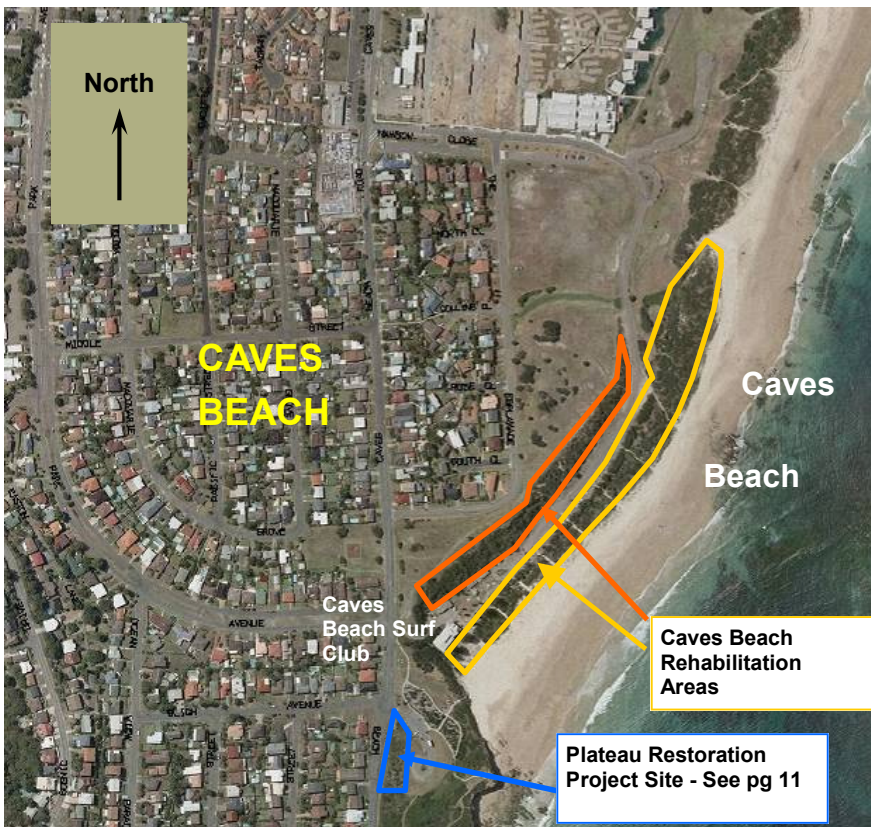
Early surveying for Land Grants occurred in 1864 and early subdivisions in 1935. Mr. Mawson, a Swansea hotel-keeper and businessman, initiated the development of Caves Beach. At one stage he involved a Japanese consortium in a mining venture called Silver Valley Minerals but it failed to develop. The breakwater at Spoon Rocks remains from this venture, constructed to load coal into ships.

The Swansea-Caves Beach Surf Life Saving Club was founded in 1929. Swansea High School was built at Caves Beach in 1964 and Caves Beach Public School opened in 1968.

Site Information

The Caves Beach site is located off Caves Beach Road in Caves Beach. It is an area of coastal reserve, zoned in the Lake Macquarie LEP 2004 as 7(4) Environmental (Coastline) with land zoned 6(1) Open Space on the north-western edge of the site. It consists of restructured Coastal Sand Scrub in the dunes and mown parkland around the Clubhouse. An additional area of the site, behind the carpark is an escarpment with similar coastal vegetation (shown in orange on the map).

The dunal system within the Lake Macquarie bioregion has been subjected to extensive disturbance through sand-mining, and dune reconstruction works and planting, post sand-mining activities.



CAVES BEACH SITE MAP

The dominant weed in all Lake Macquarie dunal ecosystems is Bitou, with some infestations of Lantana and Coastal Morning Glory in the hind dunes at some beaches. There are also relatively minor outbreaks of Madeira Vine and Glory Lily at Little Beach (Swansea Heads) and Redhead. There is an ongoing process of controlling these weeds to limit their further spread, and replacing weeds with planted native species as appropriate.

Restoration work commenced at Caves Beach in 1989. A Plan of Management (POM) exists for Caves Beach (Sept. 2001) and Landcare activities are designed to be compatible with this POM.

The dunes are now divided into fenced paddocks with access ways, and have been planted with a combination of dune stabilisers: Spinifex, Coastal Wattle, Coastal Tea-tree, and Coastal Banksia.



March 2011: *Banksia integrifolia* - Coast Banksia near the car park at the top of the dunes.



Left: A section of the foredune that needed to be replanted, where *Acacias* and *Leptospermums* had died and weed species such as Bitou Bush had re-established (March 2011).

Vegetation

The vegetation community that the project is attempting to recreate in Caves Beach dunes is most closely represented by the LHCCREMS classifications Map Unit 50 Coastal Sand Scrub and Map Unit 53 Beach Spinifex.

Generally, the foredune areas are fairly well-vegetated with *Spinifex*, *Carpobrotus* and *Acacia*, while the hind-dunes are generally a mix of native plant species; *Banksia integrifolia*, *Banksia serrata*, *Leptospermum* spp., *Monotoca elliptica*, *Melaleuca nodosa*, *Allocasuarina distyla*. In some cases, the *Acacia sophorae*-*Banksia integrifolia*-*Leptospermum laevigatum* dune thicket has been reconstructed over large areas and Bitou weed control has formed a substantial component of dune maintenance work. In these reconstructed native plant communities, low species diversity is a common issue, though the opportunity now exists for enrichment planting of mosaics of unrepresented local dunal communities to be established as part of Landcare's follow-up of dune maintenance and weed control works.



Above: The foredune is generally well vegetated with *Spinifex*, *Carpobrotus* and *Acacia*

Landcare Groups

Caves Beach Surf Life Saving Club

Stewart Chalmers from the Caves Beach SLSC has coordinated weeding of the dune paddocks and escarpment behind the Beach for many years (yellow and orange areas on map page 4). The group was formed in 2008 and 5-15 people meet on a monthly basis to remove weeds and restore the area. The group is also actively involved in field days and grant projects.



Above: Caves Beach SLSC Dune Care Team Leader Stewart Chalmers

Caves Landcare

The Caves Landcare site occurs on one of the several cliff top, fenced paddocks above the caves at the southern edge of Caves Beach (see blue area on Map 1, page 4). This group instigated the Plateau project (see page 11).

Ocean View Parade Landcare

In 2012, in response to the Community Action Grant restoration project (see next page) and the extra restoration work by Lake Macquarie Landcare (the Plateau Project), the Ocean View Parade Landcare group formed. This group consists of four or more volunteers who are working to maintain the areas surrounding the Plateau Project site (shown in blue on map on page 4) as well as coastal vegetation along the escarpment to the South of this area.

Landcare in Lake Macquarie

Lake Macquarie Landcare is a partnership between Lake Macquarie Landcare Network Incorporated (LMLN inc.), thousands of dedicated and committed community volunteers, and the Lake Macquarie City Council (LMCC) which provides project support through the Landcare Resource Centre (LRC).

If you would like to get involved in Landcare in Lake Macquarie or would like more information please contact the LRC on 4921 0392.

Bahtabah Partnership

Lake Macquarie Landcare is committed to working with Bahtabah Local Aboriginal Land Council (BLALC) to ensure that Landcare activities respect cultural heritage values and protect remaining Aboriginal sites wherever possible. The Landcare program embraces the concepts of community participation in natural resource management and community stewardship of our environment. The Wallarah peninsula, of which Caves Beach is a part, is rich in Aboriginal heritage, and Lake Macquarie Landcare has forged a strong relationship with Bahtabah LALC in working on coastal sites. Bahtabah LALC has a professional bush regeneration team, which works on several nearby Projects, in partnership with Council and Landcare, namely, the Crabs Beach Midden Stabilisation Project and the Nikkinba (Swansea Headland) Rainforest Restoration Project. Bahtabah LALC provides cultural heritage information and artifact displays at many of our Field Days in the South East sector of the City

Community Action Grant Project 2011-12

In 2011 Lake Macquarie City Council (on behalf of Caves Beach SLSC Landcare) received a Community Action Grant through the Australian Government's Caring for Our Country program. The project had the following aims:

- Protect and enhance the natural environment at Caves Beach by undertaking bush regeneration work; targeting Weeds of National Significance (Bitou Bush) and increasing biodiversity by planting native species.
- Raising community awareness through field days, signage and educational materials



Above (March 2011) Landcare Bush regenerators removing Bitou Bush from the Fore-dune area as part of the CAG project.

During 2011 a professional bush regeneration team worked with volunteers to weed the dune paddocks away from the clubhouse and towards Hams Beach.

Maintenance weeding and planting continued in 2012.

Community Planting Day July 2012

With the helping hands of 20 local Landcarers and neighbouring community volunteers, 1500 native species were planted throughout the hilly sand dunes along Caves Beach coastline during a community planting day in July 2012. The day coincided with NAIDOC Week and a Welcome to Country was spoken by Noel Date from Bahtabah Local Aboriginal Land Council and a special Aboriginal poem was recited by Maree Edwards from the LRC.



Above: A splatter gun was used to target Bitou Bush in areas where there were dense weed infestations on the escarpment.



Above: Margo Smith from Lake Macquarie City Council helping out with the community planting day

Species such as *Banksia integrifolia*, *Acacia sophorae*, *Leptospermum laevigatum*, *Cupaniopsis anacardioides*, *Myoporum boninense*, *Isolepis nodosa*, *Dianella caerulea* and *Lomandra longifolia* were planted throughout the existing *Carpobrotus glaucescens*, *Spinifex sericeus* and other native species that spread along the dunes. The removal of the Bitou bush (Weed of National Significance), and the planting of native plants will provide stabilisation to the dunes and create a habitat full of rich biodiversity for native flora and fauna.



March 2011: Looking South across Caves Beach dunes, showing a large area of Bitou Bush to be cleared and replaced with native species.



July 2012 (during community tree planting day): Looking South across Caves Beach with native vegetation in area previously covered by Bitou Bush.

Coastal Plateau Restoration Project 2011-2012

Through funding from the Lake Macquarie Landcare Network, additional bush regeneration work was able to be undertaken on the coastal plateau on the Caves Landcare site above the beach (shown in blue on Map, Page 4) as well as the escarpment behind the clubhouse (shown in orange on Map, Page 4).

The vegetation community at the coastal plateau site is a remnant of LHCCREMS Map Unit 48 Coastal Clay Heath with shrubs dwarfed by wind-shear. Remnant shrubs include *Allocasuarina distyla* Black Sheoak, *Westringia fruticosa* Coastal Rosemary, *Acacia myrtifolia* Myrtle Wattle, *Pultanaea villosa* Bush Pea, and *Melaleuca nodosa* Ball Honeymyrtle. Groundcovers include *Lomandra longifolia* Mat Rush, *Isolepis nodosa* Nodding Club Rush and *Themeda australis* Kangaroo Grass. The vegetation community resembles a degraded remnant of the Endangered Ecological Community- Themeda Grassland on seacliffs and coastal headlands, and contains the Threatened Species *Pultanaea maritima* Coastal Headland Pea.



The aim of this complementary project is to increase the diversity of species by planting bird-attracting shrubs and groundcovers consistent with the original plant community.

**Above:
Regeneration
works occurring
on the Coastal
Plateau site.**

**Right:
Threatened
Species
*Pultanaea
maritima***



References and Further Information

Beach Plants of South Eastern Australia - *Roger Carolin & Peter Clarke Sainty & Associates 1991*

Coastal Dune Management: A Manual of Coastal Dune Management and Restoration Techniques - *Prepared by Rod Kidd NSW DLWC October 2001*

Coastal Plant Regeneration - *M Fielder & R Glover NSW DIPNNR 2003*

[Lake Macquarie Coastal Planting Guide \(LMCC\)](#), - www.lakemac.com.au

Lake Macquarie: Past and Present - History of Suburbs available at www.lakemac.infohunt.nsw.gov.au/library/lhist/suburb/suburb.htm

Native Plant Species at risk from Bitou Bush Invasion - A Field Guide for New South Wales - *Mark A Hamilton, Marion A Winkler & Paul O Downey DECC 2008*

[Restoring Natural Areas in Australia](#) (Robin Buchanan)

Plants - Australian National Botanic Garden - www.anbg.com.au

Weeds Australia - www.weeds.org.au

The Lake Macquarie Landcare website www.lakemacquarielandcare.org provides links to newsletters, environmental programs, grants, Landcare, weeds and trees.

If you wish to know more about this and other projects in Lake Macquarie please contact the Landcare Resource Centre.

Landcare Resource Centre

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