



Lake Macquarie
Landcare

Case Study

Rainforest Site

Black Ned's Bay Littoral Rainforest Restoration Project



Remnant rainforest tree *Glochidion ferdinandi* Cheese Tree

Project Partners:

- Caring For Our Country (Australian Government)
- Bahtabah Local Aboriginal Land Council
- Swansea Heads Landcare Groups and Sustainable Neighbourhood Group



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Background

The Black Ned's Bay Littoral Rainforest Restoration Project Site is located in Swansea Heads NSW. Swansea Heads is a locality on the Swansea peninsula between Lake Macquarie and the Pacific Ocean in New South Wales. It is part of the City of Lake Macquarie Local Government Area (LGA). Just inside the lake entrance, on the southern side of the channel, is Black Ned's Bay.

History and Heritage

Black Ned's Bay was named after a member of the Awabakal tribe who lived in the area "Black Ned" who lived their with his wife Margaret and children during the late 1800s. The Aboriginal population was reduced at this time from pre-European settlement times when the Awabakal Aborigines were known to live sustainably in the area due to the availability of resources including seafood. In the 1970s a midden of an old campsite was uncovered while clearing for houses in Swansea and it was carbon-dated as 7,800 years old. Bahtabah Local Aboriginal Land Council are the Custodians of the area where the site is.

**Right: Swansea Channel 9 August 1961
looking south-west across Black Neds
Bay (LMCC Historic Photos)**

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.





Site Information

The Black Ned's Bay Littoral Rainforest Restoration Site is located between the houses off Northcote Avenue and the reserve. The area is zoned in Lake Macquarie City Council (LMCC)'s 2004 Local Environmental Plan as 7(1) Primary Conservation and 7(2) Secondary Conservation.

Vegetation

The larger Salts Bay/ Black Ned's Bay Reserve is a significant remnant of a mosaic of wetland and littoral rainforest vegetation communities. Part of the larger site is already gazetted as SEPP 14 wetland and another part of the site has the potential to be SEPP 26 littoral rainforest.

The project site is an ecotone between the freshwater wetland and the drier coastal sand forest that would have occupied the area now occupied by houses. Because of this, the project site contains a mixture of coastal sand forest species and littoral rainforest species.

Typical of the native species on site are:

Trees

Acacia implexa- Hickory Wattle
Acmena smithii- Creek Lillipilly
Acronychia oblongifolia- Common Acronychia
Alphitonia excelsa- Red Ash
Banksia integrifolia- Coast Banksia
Banksia serrata- Old Man Banksia
Cupaniopsis anacardioides- Tuckeroo
Duboisia myoporoides- Corkwood
Dysoxylum fraserianum- Rosewood
(Regionally Significant Species)
Elaeocarpus obovatus- Hard Quandong (Regionally Significant Species)
Ficus fraseri- Frasers Fig, Sandpaper Fig (Regionally Significant Species)
Glochidion ferdinandi- Cheese Tree
Leptospermum laevigatum- Coastal Tea Tree
Livistona australis- Cabbage Tree Palm (Regionally Significant Species)
Monotoca elliptica- Tree Broom Heath
Planchonella australis- Black Apple
Rapanea variabilis- Muttonwood
Rhodomyrtus psidioides- Native Guava (Regionally Significant Species)
Syzygium paniculatum- Magenta Lillipilly (Threatened Species)

Shrubs

Acacia sophorae- Coastal Wattle
Breynia oblongifolia- Coffee Bush
Pittosporum revolutum- Rough-fruited Pittosporum
Pomaderris ferruginea- Rusty Pomaderris
Westringea fruticosa- Coastal Rosemary



Hard Quandong – *Elaeocarpus obovatus* is a Regionally Significant Species as it is occurring at its Southern-most limit

Vines/Creepers

Cassytha glabella- Devil's Twine
Cayratia clematidea- Slender Grape
Hibbertia scandens- Snake Vine
Kennedia rubicunda- Dusky Coral Pea
Maclura cochinchinensis- Cockspur Thorn (Regionally Significant Species)
Sarcopetalum harveyanum- Pearl Vine
Smilax australis- Smilax
Stephania japonica- Snake Vine

Ferns/Groundcovers

Commelina cyanea- Scurvy Weed
Crinum pedunculatum- Beach Lily
Dianella caerulea- Blue Flax Lily
Dianella congesta- Coastal Flax Lily
Gahnia clarkii- Saw Sedge
Imperata cylindrica- Blady Grass
Isolepis nodosa- Nodding Club Rush
Lomandra longifolia- Coastal Mat Rush
Opercularia sp. - Stink Weed
Oplismenis sp. - Basket Grass
Viola hederacea- Native Violet

Before the bush regeneration works began, this ecotonal edge was also significantly weed infested with Lantana and Bitou. The focus for the works was the removal of the threatening weed species through a variety of techniques including manual removal, cut and paint, and splatter gun spray.

The LMCC Hazard Reduction team, who cleared a fire access zone along the rear of the houses, leaving native species in the ecotonal forest zone, assisted the Project.



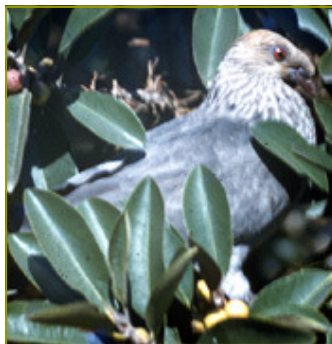
Bush regeneration team member, BJ Feltham, using the splatter gun to control Lantana on the site.

Native Fauna on the Project Site

The vegetation on the Project site attracts a variety of native fauna. Nectar feeders like the local honeyeaters and parrots can be observed on the site most of the year, and Brush-tailed Possums and Ring-tailed Possums are permanent residents.

Additionally, there are a number of species, who visit the site on a seasonal basis coinciding with the fruiting of various rainforest species like the Frasers Fig, the Cabbage Tree Palm, and Common Acronychia.

These species include the rainforest pigeons, White-headed Fruit Pigeon and Topknot Pigeon, and bat species like the Grey-headed Flying Fox. Additional seasonal visitors include the Regent Bowerbird, the Spangled Drongo, the Koel, and the Channel-billed Cuckoo. Yellow-tailed Black Cockatoos occasionally visit the Banksias and Red Ashes on site.



Topknot Pigeon in native fig

Community Action Grant Project 2011-2012

In 2011 Lake Macquarie Landcare received a Community Action Grant through the Australian Government's Caring for Our Country program. The project aimed to

- Restore and enhance the Littoral Rainforest remnant and protect the habitat of rare and endangered flora and fauna associated with the ecosystem
- Minimise future environmental damage including weed encroachments through use of a buffer zone.
- Raise awareness and improve capacity of the local community to protect, restore and enhance the environment
- Provide increased protection for properties from bushfire – risk rated “medium” in the lake Macquarie Bushfire Management Plan 2010 (Asset ID 159 Swansea Caves Beach eastern interface)
- Protect the adjacent vegetation communities and species protected by NSW legislation: SEPP 14 wetland (Swamp Oak floodplain forest and Saltmarsh), Swamp sclerophyll forest on coastal floodplain, and Littoral Rainforest.
- Protect the Threatened Species *Syzygium paniculatum* and the locally significant species *Ficus fraseri* and *Elaeocarpus obovatus*
- Allow access as required to maintain Hunter Water assets
- Control noxious and environmental weeds

The Action Plan for the site involved the following steps:

1. Remove weeds, ground fuel, and rubbish from 6 metre fuel management zone
2. Plant fire-retardant screening plants in fuel management zone
3. Maintain treated areas in the fuel management zone
4. Remove weeds from bush regeneration zone, starting at Lambton Parade end.
5. Maintain treated areas in bush regeneration zone, in a mosaic pattern creating relatively small areas that can be maintained and



Fire retardant plants (such as *Breyenia oblongifolia* Coffee Bush, above) were chosen for plantings to replace weeds such as Lantana and Bitou, providing habitat for scrub-dwellers such as wrens and whip birds. These can be planted in the fuel management zone to provide a shield against radiant heat and ember attack in case of a bushfire.

regenerated before moving in to new areas.

6. Plant fire-retardant species in treated areas of the bush regeneration zone that fail to naturally regenerate
7. Remove weeds from rainforest and wetland edge when resources become available or opportunities arise.

In 2011 and 2012 splatter guns were used to control dense Lantana thickets, with hand weeding used around native plants. As most of the vegetation was weeds, its removal resulted in a cleared zone behind residential properties that could be maintained as an asset protection zone.



Above: Landcare Green Team and Bush Regenerators clearing a build-up of Lantana and Bitou (Feb 2011)



Fire-retardant native trees (*Glochidion ferdinandi*) were retained in the fuel management zone, with ground fuel removed in a mosaic pattern, leaving native groundcovers and rushes (*Lomandra longifolia* and *Dianella caerulea*) in “islands” around the base of trees.



Above: Cutting access tracks into dense lantana (Jan 2012)



Above: After Lantana thickets have been destroyed on site (Jul 2012)

Community planting day July 2012

20 Landcare volunteers, community members and school students participated in The Black Ned's Bay National Tree Day event on Friday 27th July. Swansea High Teacher Adam Young said four of his geography students were quick to volunteer for the opportunity which will enhance the class work they are doing on Coastal Management and Biodiversity. Five students from Lakeside School enjoyed learning how to plant trees and working with Lake Macquarie Landcare's Bush Regeneration team.



Above: Volunteers at the Community Planting Day in July 2012.

Right: Jacob, Lakeside School's 'EcoWarrior' planted his first tree ever at the Black Neds Bay Community Planting Day - Well done Jacob! Photo by Sharyn Carr



Right: Planting underway to revegetate the area previously covered in Lantana.



Landcare Groups

Swansea Heads (the suburb in which the project site is located) is quite active in Landcare activities, and has an interested Sustainable Neighbourhoods Group. A few of the nearby Landcare groups, such as Frenchman's Beach Landcare, Illawong Park Landcare, and Chalky Beach Landcare, had members volunteer on the project site, even though they have their own project sites to maintain.

The local Landcare group is the Black Ned's Bay Rejuvenation Committee, but one of the objectives of the Project was to try to engage local residents in looking after the reserve at the rear of their properties. To some extent, this has been successful as several residents have undertaken to do this, but they do not wish to do this in a formal way as part of a Landcare group. The main reason cited for doing this is their lack of free time to be engaged in a community activity.

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.

References and Further Information

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

Foreshore Stabilisation and Rehabilitation Guidelines (LMCC) --
www.lakemac.com.au

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 or Weed Pick the Difference Volumes 1 and 2 (Ann Loughran)

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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