

A case study of
Kilaben Bay Landcare:
KILABEN PARK AND
KILABEN BAY RESERVE

Project Partners:

- Lake Macquarie Landcare Resource Office (Lake Macquarie City Council and Lake Macquarie Landcare Network Inc.)
- Envirofund (Australian Government)
- Hunter Water
- Kilaben Bay Landcare



Part of the timber boardwalk on the Kilaben Bay Walkway, constructed by Kilaben Bay Landcare.



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LAKE MACQUARIE

Lake Macquarie in NSW, has mountains, beaches, and a spectacular lake. The eastern side of the city is bound by the Pacific Ocean and an expanse of beautiful coastline and beaches. On the western side, the Watagan Mountains incorporate 13 forests and several magnificent waterfalls.

The lake itself is a large coastal estuarine lake with an overall length of some 22 kilometres in the north-south direction and 10 kilometres in width, covering an area of approximately 110 square kilometres with a catchment area of 605 square kilometres. The lake contains 12 major, and many more minor, estuarine creek zones where freshwater tributaries interface with the



Kilaben Bay Landcare - Protecting SEPP14 Wetlands

saline body of the lake. These areas support a wide range of habitats and uses including recreation, nature conservation, residential and commercial development and rural activities resulting in a high degree of modification and detrimental effects to the natural environment.

Aboriginal Heritage

The Newcastle – Lake Macquarie region was originally land occupied by the Awabakal indigenous peoples. The Awabakal thrived in a rich environment which provided the basis for a robust economy based on resources from both land and sea. Territorial and linguistic distinctions existed between the Awabakal and their neighbours, although borders are difficult to map. Local rituals, spirits and body-markings, distinctive local dialects, songs and stories have been recorded. The Kilaben Bay area is now under the care of the Koombahtoo Local Aboriginal Land Council.

Landcare in Lake Macquarie

Landcare activities in Lake Macquarie are supported by the Lake Macquarie Landcare Network. The Network includes Lake Macquarie Landcare Incorporated and thousands of dedicated and committed community volunteers, and the Lake Macquarie City Council which provides project support through the Landcare Resource Office (LRO). The LRO and the new Landcare Resource Centre provides resources, expert advice, bush regeneration assistance, and other professional support to assist landcarers to undertake natural resource rehabilitation and maintenance on sites throughout the city.



Aerial view of Kilaben Bay looking across to Rathmines c1961.

Kilaben Bay

Kilaben Bay is a semi-rural suburb on the western side of Lake Macquarie. It is situated on the bay of the same name immediately to the south of Toronto's town centre. Kilaben Bay covers an area of 1.9km² and houses a population of approximately 1275 (Census 2006).

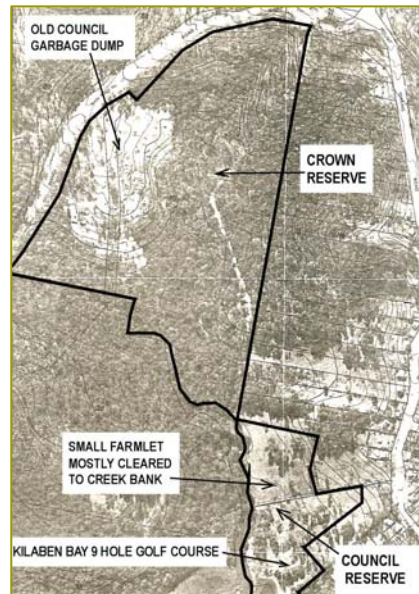


Kilaben Bay Landcare Site History

The Council owned reserve was originally part of a grant to the Reverend Threlkeld's Aboriginal Mission Station. With the small creek forming the western boundary of the Mission. The Mission encompassed the Toronto Main Town area, Kilaben Bay, Carey Bay and Coal Point, that is all of the land east of the creek to the tip of Coal Point.

The Council Reserve was created from the sub-division residue of a small farmlet and the original Kilaben Bay nine hole golf course. The farmed area, had been mostly all ploughed, and the turned sods are still evident today on the flat areas. Tee areas on the old golf course are still visible and lost golf balls can still be found. (See the old aerial photos taken prior to sub-division.) The area is zoned Environmental and forms part of the SEPP14 protection zone for the Kilaben Bay Wetlands.

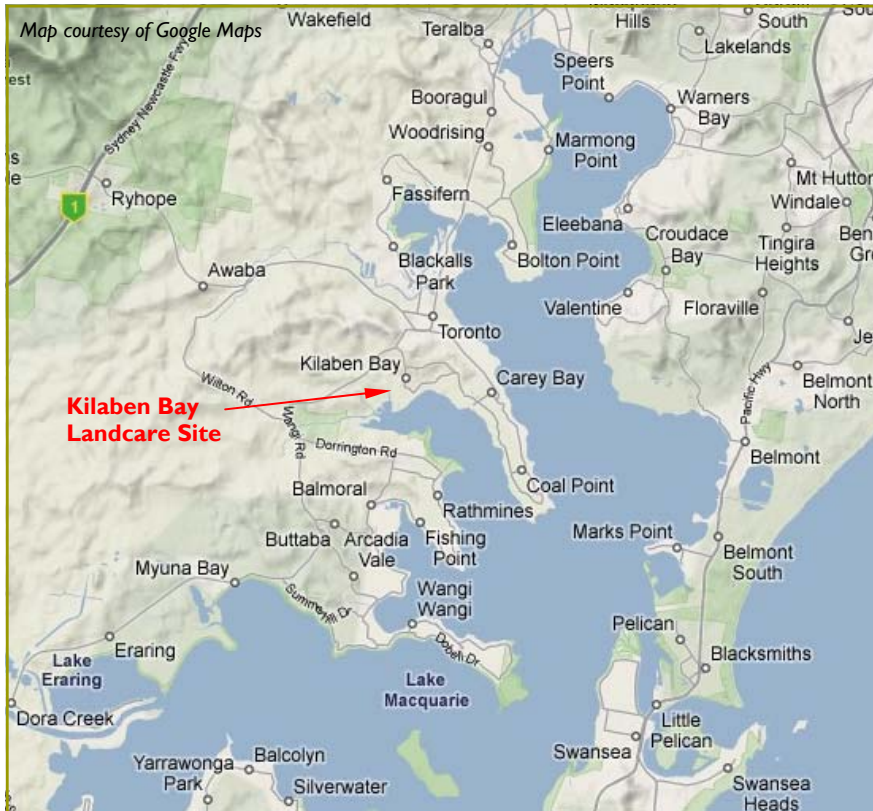
OLD AERIAL PHOTO OF LANDCARE SITE (ABOUT 40 YEARS AGO)



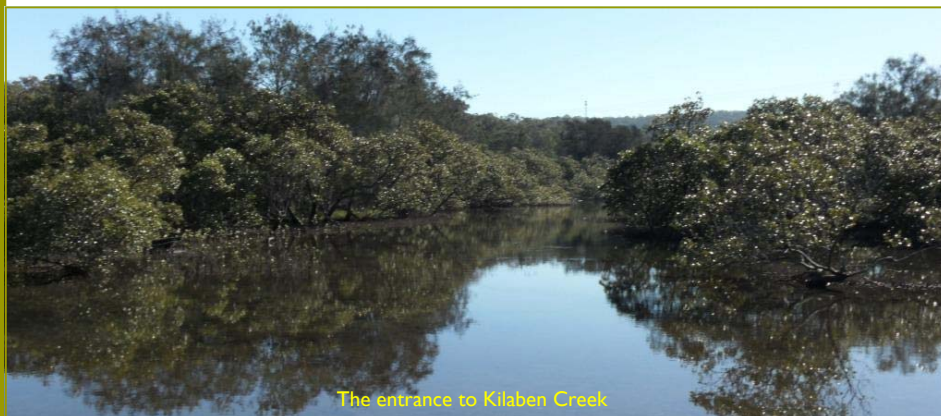
EARLY LAND GRANTS MAP

Early Land Grants Map showing Crown Reserve at Kilaben Bay and adjoining Aboriginal Mission Grant





KILABEN BAY LOCALITY MAP



The entrance to Kilaben Creek

The Crown Land area was reserved for water, probably for travelling stock uses in early days. It retains largely undisturbed natural bushland except for about four hectares of disused Council Garbage Dump area. (See original Grant Map page 4)
The area is zoned Environmental and Public space.

Kilaben Bay Landcare

Kilaben Bay Landcare was formed in 2003 and has 10 members. The group started work at Kilaben Park and then expanded their activities to include sitework around Kilaben Creek after acquiring a Federal Government Envirofund Grant in 2004, and another in 2006. They have also been successful in securing grants from the Hunter Central Rivers Catchment Management Authority (HRCMA), Hunter Water (HW), and assistance from Lake Macquarie City Council (LMCC), Department of Lands, and local businesses.



2005: 9th Bridge under construction.

Utilising this grant the group, in just 18 months, built and installed a boardwalk to reduce visitor impacts, removed weeds, and planted 2,000 native plants and trees over a one-kilometre stretch of the Kilaben Creek bank.

Jeff Hunter, State Member for Lake Macquarie in 2006 commented, "The evidence of the dedication and hard work by Landcare

members can be seen along the banks of a one kilometre stretch of Kilaben Creek. They have built a beautiful elevated boardwalk that is strategically placed over gullies and uneven ground and winds along the creek, protecting the valuable vegetation underneath."

Graham Whitelaw explained in the Lake Macquarie Landcare newsletter "We have had to be resourceful and organise working bees to coincide with national awareness themes such as Water Week, Wetlands Day and Clean-Up Australia Day to get this vital work done. We got a helping hand



February 22 2006: John Hughson with volunteers, John Fitz-Gerald, Graham Whitelaw and Ken Macpherson, inspecting the walkway, prior to the official opening. (Daily Telegraph photo 23/02/2006)



KILABEN BAY LANDCARE KILABEN BAY RESERVE SITE

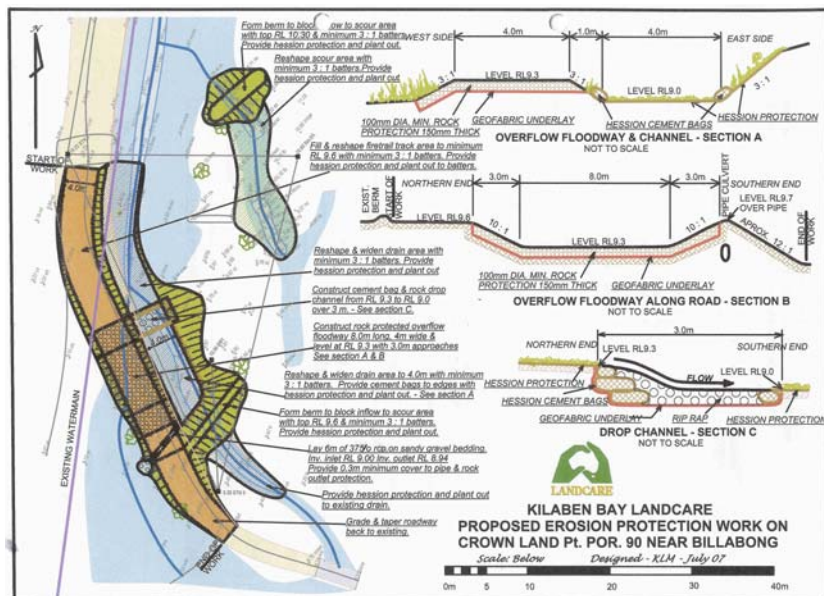


11 July 2008: Overseas Catholic Pilgrims planting at the small Kilaben Bay Park

from the community through Landcare Resource Office volunteers, Earthcare Earthshare, Landcare in schools and other local groups”.

“With a rejuvenated Kilaben Bay in the group's backyard, eco-tours and study groups/workshops are being conducted on the site, targeting the nearby St Joseph's School and community groups. Local school students have already joined the work party, helping out with greenhouse propagation and tree-planting days. Information signs have been erected to promote the values of community stewardship of our environment. The signage will raise community awareness of the impact of urban development of Kilaben Bay.”

Kilaben Bay Landcare Group also worked with Lake Macquarie City Council and the Hunter Central Rivers Catchment Management Authority to complete an erosion control detention basin to filter sediment and reduce the velocity of water flow into Kilaben Creek.





8 June 2008: Main scour area.



August 2009: Stilling Basin before planting out

November 2010: Stilling Basin with established planting



Two biodiversity studies completed by Umwelt Environmental Consultants identified rare and endangered flora and fauna on the Kilaben Bay Landcare site, as well as five separate vegetation communities and over 100 birds. The Kilaben Bay Landcare site covers approximately 60 acres of land owned by Lake Macquarie City Council or Crown Lands.

Funds from the CMA and Hunter Water enabled the Kilaben Bay Landcare Group to commence a new project in 2009 that attempted to isolate an adjacent weed infested garbage dump from the natural bushland in the Kilaben Bay Landcare site.



Clearing a pathway for access through massive Lantana

Kilaben Bay Garbage Dump Site



Landcare Bush Regenerators with Alan Wollett (in background) clearing the lower interface

They commenced by clearing an access track along the edge of the garbage dump to contain weeds within the dump and undertook weed eradication on the natural bushland. The Landcare Group's strategy was to allow the existing lantana to shade out other weeds up to the edge of the track, and to retain the Lantana while it provided shelter for a few shy Kangaroos, Swamp Wallabies and Possums.



Lower area at the interface after clearing Lantana and Crofton Weed



Tetratheca thymifolia - Thyme
Pink-bells

The group then worked with the Lake Macquarie Landcare Bush Regeneration Team to weed along the edge. While weeding along the edge of the dump, Barry Smithson, from our group, discovered another form of *Tetratheca*, on the site - *Tetratheca thymifolia*, similar to *Tetratheca juncea* but with a completely different leaf form.

The Kilaben Bay Landcare Group was started by Graham Whitelaw in 2003 to restore remnant bushland in Kilaben Bay. Graham worked tirelessly to obtain grant funds and support to enable the Landcare work on the Kilaben Bay site. Graham also contributed to both the Lake Macquarie Landcare Network where he was Treasurer for several years and the Hunter Region Landcare Network where he held a long term committee position. Graham passed away in 2010 after a long battle with ill health.

John Fitz-Gerald, another tireless worker for Landcare also passed away in January 2010. John focused on the educational aspects and served as Secretary and Deputy Chairperson for the Network Committee. Both Graham and John are sadly missed by their fellow landcarers.

This tradition of landcare commitment to the site is carried on by Ken Macpherson, who now leads the group, and designs and implements the onground strategies.



Graham Whitelaw with his Local Legend Award at the 2008 Landcare Mini Muster



Eucalyptus robusta - Swamp Mahogany, this specimen is near the Kilaben track



Eucalyptus piperita - Sydney Peppermint, note the tree hollow which provides habitat for native fauna.

Kilaben Bay Landcare Site Information

The Kilaben Bay Landcare site incorporates both council and crown land within its 60 acre boundary. The site encompasses Kilaben Park, Kilaben Creek Reserve, and Kilaben Bay Nature Walk.

- **Kilaben Park:** Is a foreshore reserve with a jetty and swimming enclosure, hall, parking area and public toilets. The original *Casuarina glauca* Swamp Oak and *Eucalyptus tereticornis* Forest Redgum communities have been reduced to park-like conditions with some large canopy trees and exotic plantings.

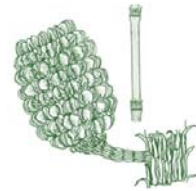


Kilaben Park, the groups first project was started in 2003

- **Kilaben Bay Bushland Reserve:** Includes Kilaben Creek Reserve and Kilaben Bay Nature Walk. The Bushland Reserve includes the five native vegetation classifications listed in the Umwelt Consultancy Report as well as the natural watercourse Kilaben Creek and a wetland environment.



Mangrove Estuarine and Saltmarsh area at the entrance to the creek



Casuarina glauca – Swamp Oak in flower

Kilaben Creek Reserve Native Vegetation Communities

The Lower Hunter & Central Coast Regional Environment Management Strategy (LHCCREMS) mapping profiles identify several vegetation communities around the complex of creeks that form the catchment of Kilaben Bay similar to the following:

- **MU47 Mangrove Estuarine Complex & 47a Saltmarsh** where the complex of creeks enter the Bay
- **MU40 Swamp Oak-Rushland Forest** as a fringing band of vegetation around the Lake shore, and behind the mangroves at the mouths of the creeks
- **MU38 Redgum Roughbarked Apple Swamp Forest** containing Forest Redgum *Eucalyptus tereticornis*, Roughbarked Apple *Angophora floribunda*, and Red Mahogany *Eucalyptus resinifera* subsp. *resinifera* on the alluvial flats around



Plantnet



Angophora floribunda - Roughbarked Apple



Kilaben Bay Landcare - Protecting endangered Eco Communities (Swamp Mahogany).



Eucalyptus tereticornis - Forest Redgum

the mouth of the northernmost creek

- **MU37 Swamp Mahogany - Paperbark Swamp Forest** containing Swamp Mahogany *Eucalyptus robusta* and Prickly-leafed Paperbark *Melaleuca styphelioides*, rather than *Melaleuca quinquenervia* Broad-leafed Paperbark that is normally associated with this vegetation profile
- **MU30 Coastal Plains Smoothbarked Apple Woodland** containing Smoothbarked Apple *Angophora costata*, Red Bloodwood *Corymbia gummifera*, and Scribbly Gum *Eucalyptus haemastoma* on the rise heading up to Waring Hill



Melaleuca styphelioides - Prickly-leafed Paperbark



Coastal Plains Smoothbarked Apple Woodland on the upper areas of the Crown Land Reserve

Alternatively, a document by Stephen A. J. Bell produced for the National Parks and Wildlife Service entitled Lake Macquarie SRA, Pulbah Island NR, and Tingira Heights NR: Vegetation Survey identifies plant communities that are more locally accurate.

Extrapolating Bell's categorisations, we would find vegetation communities similar to Estuarine Saltmarsh, Estuarine Mangrove Open Scrub, Estuarine Swamp Oak Forest and Coastal Alluvial Swamp Forest Complex in the lower sections of the catchment.

Endangered Ecological Communities

Whatever plant classification we use, the Kilaben Bay Reserve would contain the following Endangered Ecological Communities and so are:

- **Saltmarsh**
- **Swamp Oak Floodplain Forest**
- **Swamp Sclerophyll Forest** on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions

Saltmarsh

Saltmarsh communities were once common along the shores of Lake Macquarie. It is estimated that between 60% and 80% of Lake Macquarie's saltmarsh areas have been wiped out by development since the 1800s. Coastal Saltmarsh lives between high and low tide. It is mostly a treeless plant community, distinguished by a low mosaic of succulent herbs and salt tolerant grasses and sedges. It is found in the tidal flats of estuaries and on edges of intermittently opened coastal lagoons, both saline and brackish. Coastal Saltmarsh communities are characterised by specially adapted vegetation, interspersed with unvegetated patches or saltpans. Intermittent flooding of these communities occurs in response to tidal activity. The environments are highly saline – saltier than the sea. Saltmarsh areas are valued for the ecological or



Estuarine Mangrove, Saltmarsh and Swamp Oak Forest at Kilaben Bay Reserve.

Swamp Oak Floodplain Forest on the edge of the creek & surrounding Juncus Marsh, located south of the pipeline crossing on the council reserve.



environmental services they perform and the products they provide, such as support of estuarine productivity, and habitat for numerous organisms of both terrestrial and marine origin.

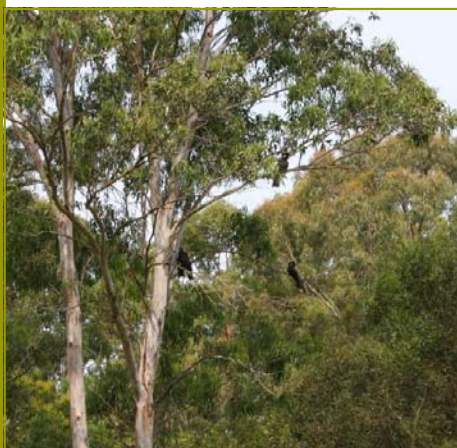
Swamp Oak Floodplain Forest

Swamp Oak Floodplain Forest is found in close proximity to rivers and estuaries and is generally found on soils with a saline influence. Species composition varies markedly from site to site depending on the moisture content present.

Swamp Sclerophyll Forest

Swamp Sclerophyll Forest generally has several layers of vegetation, including trees, shrubs, groundcovers, and wetland plants such as reeds and sedges. The community supports many important bird species, both native and migratory, including raptors (birds of prey), and shore birds and waders.

Common Biodiversity



The site is well represented with native bird, plant, animal, amphibian and reptile life.

Birds: Over sixty bird species were counted in a site study and together over one hundred species have been reported within a one kilometre radius.

Black Cockatoos sitting in a tall Forest Redgum *Eucalyptus tereticornis*.



Gymea Lily - *Doryanthes excelsa* found in the mid level gully of the Crown Land Reserve.



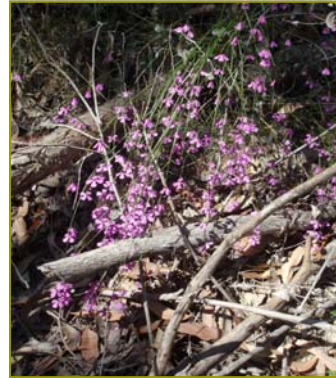
Warrigal Cabbage - *Tetragonia tetragonioides*; Moist salty estuarine habitat along the creek foreshore.

Plants: There are over 130 flora species located within the site with 24 being of regional significance. Black-eyed Susan *Tetralochea juncea* and Gymea Lily *Doryanthes excelsa* are significant examples. Warrigal Cabbage *Tetragonia tetragonioides* is a native food source found near the creeks entry into the lake.

Animals: Mammals observed include Sugar Gliders, Brush Tail and Ring Tail Possums, Grey Headed Flying Foxes, Grey Kangaroos and Swamp Wallabies.

Amphibians: These include at least three frog species in the marshlands and the Eastern Long Neck Turtle, often seen in the creek.

Reptiles: Common reptiles seen include Red-bellied Black, Eastern Brown and Yellow-faced Whip Snakes, and Diamond Python. Lizards include the Lace Monitor, Eastern Bearded and Eastern Water Dragons, along with small Skinks, and the Eastern Blue-tongued Lizard.



Threatened flora *Tetralochea juncea* located opposite Mac's Track on Crown Land (Sept. 2009)



Eastern Bearded Dragon *Pogona barbata*
Common all over Council & Crown Reserves.



Red Bellied Black Snake *Pseudechis porphyriacus*
Common in the reserves.



June 2006: Weeding tall Paspalum at erosion control site

Introduced Biodiversity

Feral Animals: Foxes, cats, rabbits and hares, These are present, however only in small numbers.

Weeds: Numerous weeds are present including Lantana, Crofton Weed, Blue Billy Goat Weed, Blackberry, Kikuyu, Asparagus Fern, Buffalo Grass and Morning Glory, and many more species of environmental weeds. Some of the tall seeding grass weeds such as Coolati and Tall Paspalum pose a real threat to the survival of native grasses and ground covers particularly along the edges of roads and tracks. It is sad to see our roadsides in Lake Macquarie's bushland losing its native character.

The aim of our Landcare Group is to reduce this persistent weed problem, by hand weeding and spray removal, preferably before seeding, allowing for local native species regeneration and replanting.



Ageratum houstonianum - Blue Billy Goat Weed



May 2010: Tackling Lantana east of Wybalina Track



Ageratina adenophora - Crofton Weed

Along the Kilaben Track

By Ken Macpherson

*A grant was given to blaze a path along the Kilaben
Creek.*

*This track was forged by willing hands, With sweat and
toil for many a week.*

*To build a bridge and tame the bog, Was the purpose
of our plan!*

And so began the project, Enthusiastic to a man!

We bored and pierced 600 deep and set the posts in 'crete!'

To the local kids it was a joke – Their removal of a pier or two - set us back another week,

The chainsaw roared – we leveled the posts, And cut the joints to suit.

Bearers were laid - so true and plumb, Our 'foundations' had taken root!

Decks pre-cut were loaded up; to haul along the track.

Atop the load sat 'Dan the Man' his hat gripped in his hand.

Old 'Greenfield' fired – like a trusty 'hack,' The load was on the move!

When at the site – 'Dan' yelled 'No Way!' For on the edge of the path a 'Lomandra' grew!

That 'Lomandra!' 'B..... Lomandra!' Dan said 'IT had to stay!

So now all finished – the bridge it has a bend! A rustic curve – as some might say.

It arches up and over – then veers east, The walkers now have a dry way!

But from the top they can view the swamp. Where the 'black snake' sun's itself!

And that 'Lomandra!' 'B..... Lomandra!' still "IT" grows today!

For near about one hundred years a majestic red gum stood proud

From the leafy top birds could see the ridge, Possums could also be found!

But then there came a powerful storm, The rain soaked ground was weak.

And now it lays a fallen shroud Across our 'Kilaben'

bridge!

*+++++ B!**@! +++++*

With Apologies to Banjo

Ken is a member of Kilaben Bay Landcare

References

Hansard Parliament Papers – 9 March 2006

www.parliament.nsw.gov.au





A section of Kilaben Bay Boardwalk depicted in the poem
"It arches up and over – then veers east"



The upper reaches of the tidal section of Kilaben Creek.



November 2006:
A party of Landcarers walking down the Kilaben Track from Wangi Road at the top of the hill, on a Landcare Field Trip.

Resources

Publications such as the *Lake Macquarie Coastal Planting Guide* (LMCC), *Attack of the Killer Weeds* (Coastcare), *Weeds of the Hunter and Central Coast* (Weeds Committee Information Booklet), *Foreshore Stabilisation and Rehabilitation Guidelines* (LMCC) and *Native Plant of Weed, Pick the Difference, Volumes 1 & 2* (Ann Loughran) and *Restoring Natural Areas in Australia* (Robin Buchanan) are some of the documents used by volunteers throughout Lake Macquarie in protecting our natural areas.

In addition, the Community Support Information Pack produced by Lake Macquarie City Council and the Hunter Central Rivers Catchment Management Authority is available in limited hardcopy and CD format covering a wide range of resources used in natural resource management in Lake Macquarie.

Contacts

If you wish to know more about this and other projects in Lake Macquarie, please contact the Landcare Resource Office on: **4921 0392**

LML's website **www.lakemacquarielandcare.org** can provide links to newsletters, environmental programs, grants, Landcare, weeds and trees.

Images courtesy of:

Lake Macquarie Landcare & Denis Hilder of Landcare Resource Centre

Ken Macpherson of Kilaben Bay Landcare

Images of native plants - Plantnet: www.plantnet.rbgsyd.nsw.gov.au

Weeds: Attack of the Killer Weeds - Land & Water Conservation Pub. 1998



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