

RIPARIAN SITE

A case study of
Kenibea Landcare

LITTLE FLAGGY CREEK

**Regenerate Native Riparian Vegetation
Urban Stormwater Management
Manage Nutrient Run-off**

Project Partners:

- Hunter - Central Rivers Catchment Management Authority
- Lake Macquarie Landcare Resource Office (Lake Macquarie City Council and Lake Macquarie Landcare Network Inc.)
- Kenibea Landcare (formerly Garvey Grove Landcare)



Little Flaggy Creek at the Kenibea Landcare site where the creek crosses Ocean View Parade

A Case Study of Little Flaggy Creek

Kenibea Landcare

Project Partners:

- Hunter- Central Rivers Catchment Management Authority
- Lake Macquarie Landcare (Lake Macquarie City Council and Lake Macquarie Landcare Network Inc.)
- Kenibea Landcare (formerly Garvey Grove Landcare)

Site Information

Garvey Grove Reserve is a large community reserve commencing at the junction of Ocean View Parade, Kenibea Avenue and Garvey Grove in the suburb of Kahibah in the Lake Macquarie local government area. The total site covers 9.5 hectares and is bound for the most part by Ocean View Parade and Princes Avenue.

Little Flaggy Creek flows through the southern side of the Garvey Grove Reserve following Princes Avenue from Charlestown. The creek then flows through Kahibah, Adamstown Heights and the Glenrock State Conservation Area before joining Flaggy Creek just upstream of Glenrock Lagoon. The total length of Little Flaggy Creek, including its five side tributaries, is approximately five kilometers.

It is important to minimise the impacts of urbanization on Little Flaggy Creek thereby reducing the environmental impacts to the catchment as a whole, and protecting the sensitive ecological communities present within the Glenrock State Conservation Area.



Track constructed alongside Ocean View Parade, from Garvey Grove and crossing Little Flaggy Creek, to link up to the path that runs behind the houses and alongside the creek.



Syzygium paniculatum Magenta Lillipilly



Tetratheca juncea Black-eyed Susan

Vegetation

Garvey Grove Reserve exhibits zones of a native plant community resembling Coastal Sheltered Apple-Peppermint Forest (MU11). Dominant species are *Eucalyptus piperita*, *Corymbia maculata*, *Syncarpia glomulifera* and *Allocasuarina torulosa*. Within the site there is a transition to a vegetation type similar to Coastal Foothills Spotted Gum – Ironbark Forest (MU15).

There are some good stands of native vegetation near Ocean View Parade in the Garvey Grove Reserve. Some areas of the reserve have undergone extensive revegetation utilizing good species selection, while other areas remain weed dominated.

A new track has been constructed on the high side of the creek line behind Ocean View Parade to the top of the gully near the end of Dickinson Street.



Major weeds present are Small-leaved Privet, Palm Grass, Willow, Lantana, Crofton Weed, Cobblers Pegs. Other environmental weeds are Wandering Jew, Wild Tobacco, Formosan Lily, Purple Top, Curled Dock, Plantain, Summer Grass, Cape Gooseberry, Paddy's Lucerne, Vasey Grass, Pampas Grass, Camphor Laurel, Vetch, and Asparagus Fern.



Lantana - *Lantana camara*



Small-leaved privet - *Ligustrum sinense*

Weeds photos courtesy of:
Attack of the Killer Weeds (1998)
NSW Coastcare



Camphor laurel - *Cinnamomum camphora*



Crofton weed - *Ageratina adenophora*



Wild Tobacco - *Solanum mauritanium*



Cobblers Peg - *Bidens pilosa*

Kenibea Landcare Group

The Kenibea Landcare Group has 15 members and has been working together for 13 years. They meet on the last Sunday of each month and together complete approximately 50 hours of work per month.

Barry Wheatley describes the Kenibea (formerly Garvey Grove) site as the 'lungs of Charlestown' and hopes to see the site enjoyed, protected and nurtured by the members of the neighbourhood, both young and old.

Barry reported in 1996 "my aim for this project is to remove the weed population (gradually) and allow the self sustaining properties of the local native plant community to compete more fairly with the weeds, and to make this area a naturally beautiful place again."

Garvey Grove Reserve certainly is a beautiful place, and while there is much work to be done the Kenibea Landcare Group, with the assistance of bush regenerators and the Landcare Green Team, have successfully rehabilitated



Barry Wheatley talking about his Landcare Group at the Field Trip held on May 31, 2008.

The rehabilitation of the bushland bordering the track linking Garvey Grove to Kenibea Avenue was the first area the landcare group tackled.





Barry Wheatley helps students from two local primary schools plant trees and clean up the area they have adopted, World Environment Day 2003.

many areas within the Kenibea Landcare site.

Barry considers the groups greatest achievements so far have been the official naming of Little Flaggy Creek, involving school groups in native planting, establishing a nature track through the bushland of the Kenibea Landcare site, and enhancing and maintaining the access pathway from Kahibah to Charlestown CBD at the southern corner of the site.

The groups greatest challenge is the removal of weed species which is very time consuming due to the size of the site. Past clearing and use as an orchard and horse paddocks caused considerable degradation to the native vegetation as well as encouraging the spread of many invasive weed species such as Lantana, Privet and Morning Glory.

A Kenibea (Garvey Grove) Landcare Action Plan was completed for 2008 directing planting of native trees and shrubs based on species occurring in creek gullies in Glenrock State Conservation Area. The Action Plan also included more assistance from the Bush Regeneration Team and the Green Team as well as two pedestrian bridges for Little Flaggy Creek.



Garvey Grove access track May 2008



Kenibea Landcare Site Map

MANAGEMENT TARGETS

I. Manage Nutrient Run-off

Nutrient runoff into waterways impacts on water quality and clarity and algal growth which can result in odour generation, oxygen depletion and nutrient recycling within the aquatic system. An excess of available nutrients within a system encourages the growth of invasive weed species along creek banks. Excess phosphorus and nitrogen results in an over abundance of aquatic plants in waterways, while high turbidity and/or salinity reduces aquatic plant growth.

Potential nutrient sources within the Little Flaggy Creek system include:

- Grass clippings, garden refuse and other organic matter;
- Eroded sediment;
- Sewer overflows or leaks;
- Animal droppings;
- Fertilisers
- Detergents
- Oils and Greases from roads and other non-porous surfaces



Track alongside of the creek has been cleared of weeds and replanted with natives that are well established and thriving.

Small-leaved privet *Ligustrum sinense*, growing in the moist damp areas along the banks of the creek.



2. Urban Stormwater Management

Urbanisation within the Little Flaggy Creek catchment and the resultant stormwater run-off is significantly impacting on the natural environment. Stormwater pollutants include bacteria and pathogens, nutrients, sediment and suspended solids, heavy metals, oils and grease, and litter. Sources of stormwater pollutants in this area may include:

- clearing of native vegetation in the catchment;
- runoff from roads and driveways;
- earthworks and filling;
- wet weather discharges from the sewerage system;
- application of fertilizers, pesticides and herbicides;
- runoff from industrial and commercial premises;
- construction activities;
- council operations;
- washing a car near a stormwater drain;
- allowing pet droppings to enter stormwater drains.

These pollutants impact on the ecological, social, economic, managerial and cultural values of the Little Flaggy Creek system. They result in elevated nutrient loads, increased sedimentation loads, loss of habitat and biodiversity, increasing weeds, erosion of the stream bed and/or banks, and reduced water quality.

Stormwater management infrastructure utilized by the Lake Macquarie City Council at the top of the Little Flaggy Creek catchment includes a gross pollutant trap and a constructed wetland. These devices filter stormwater entering the creek at this point and assist in improving the quality of the water further downstream.

June 2003 view of the track freshly marked out with logs and mulch. The area alongside the creek, cleared of Privet and Lantana and replanted.



At the Kenibea Landcare site, Little Flaggy Creek is affected by urban stormwater runoff from the immediate environment. The dominance of weeds along the creek bank provides evidence of nutrient addition to the system. Native rehabilitation work has been undertaken in this area and continual growth of these plants will assist in filtering nutrients and pollution entering the creek.

3. Regenerate Native Riparian Vegetation

The riparian zone is the interface between a flowing body of water and the adjacent land. A healthy riparian zone maintains water quality, helps stabilise banks, provides habitat for fauna, and protects the biodiversity of the aquatic system.

In an urban area the riparian zone typically creates a buffer between the banks of the waterway and any existing development. Native riparian vegetation reduces the erosion capacity of stormwater and filters pollutants and nutrients from urban runoff. The effectiveness of this buffer is enhanced as the native riparian vegetation is improved.

Several management issues in relation to native riparian vegetation have been identified along sections of Little Flaggy Creek. These include:

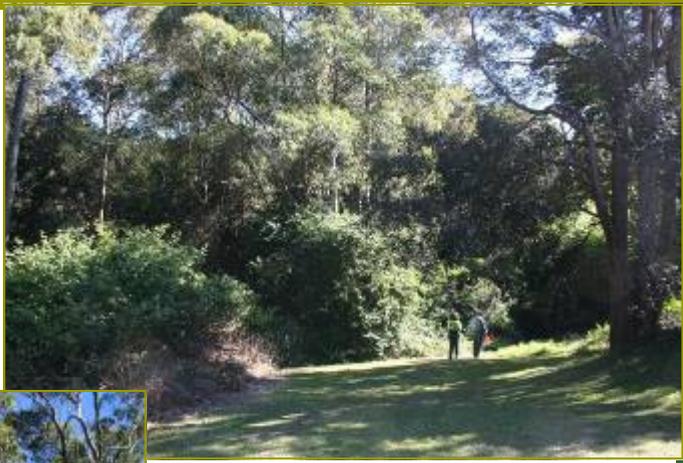
- the encroachment of development on the creek, including infill, retaining wall construction, planting of inappropriate species;
- the dumping of grass clippings, garden refuse, building and domestic waste, contributing to weed infestation and altering creek hydrology;
- the dominance of weed species in many areas, and the ease of seed conveyance via stormwater, wind and birds.

Kenibea Landcare Group has significantly improved the native riparian vegetation on the Garvey Grove site by revegetating previously cleared or weed infested sections of the riparian zone along Little Flaggy Creek.



A thicket of Lantana being cleared in preparation for new planting..

A good stand of native vegetation at the rear Ocean View Parade.



Little Flaggy Creek where it crosses Ocean View Parade

The section first cleared and replanted, along the access track from Garvey Grove to Kenibea Ave.



The rehabilitation of the bushland bordering the track from Dickenson St to Little Flaggy Creek, areas of Lantana have been removed.

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), *Native Plant or Weed Pick the Difference Volumes 1 and 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:

Denis Hilder of Landcare Resource Centre 2008

Barry Wheatley of Kenibea Landcare 2003

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



**LAKE MACQUARIE
RIPARIAN SITE**

Produced at the
Landcare Resource Office
under the
Community Support Program,
May 2008
Revised December 2008
Revised A5 Format March 2010

LAKE MACQUARIE CITY COUNCIL

Landcare Resource Centre

Toronto Road, Teralba, NSW 2884

Postal Address: PO Box 3031

TERALBA NSW 2284

Phone: (02) 4921 0392

Email: lro@lakemac.nsw.gov.au

www.lakemacquarielandcare.org