

A case study of

South Creek

Warners Bay Landcare

Bunya Park & Jones Avenue

Treat Weeds

Regenerate Native Riparian Vegetation

Project Partners:

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



South Creek viewed from the Bunya Park side looking across to the Jones Avenue site.



A Case Study of South Creek Warners Bay Landcare Bunya Park & Jones Avenue Sites

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Warners Bay

The Warners Bay catchment has an area of 11.2 square kilometres and a variety of land uses. The built urban environment takes up 70% of the catchment, 3% is rural land with some equestrian properties, and 27% is forested land around the hillsides. Runoff from these areas flows into small ephemeral streams, then to the larger watercourses North Creek, South Creek and Warners Creek, and eventually into Lake Macquarie. South Creek has a catchment area of 458 hectares, and drains into the northern end of Lake Macquarie.



Estuaries contain very important land and water ecosystems requiring healthy riparian zones to ensure quality habitat

South Creek

South Creek represents two sites – Bunya Park and the Jones Avenue site. Both sites incorporate an area of approximately 7 hectares containing important riparian zones on both sides of South creek. Within South Creek, there are Endangered Ecological Communities of Swamp Oak Floodplain Forest and Swamp Schlerophyll Forest on Coastal Floodplain with rainforest elements supporting a variety of threatened species. Warners Bay Landcare focuses on the riparian zone of South Creek where it enters Lake Macquarie.

JONES AVENUE SITE

This site is partly an easement for Hunter Water, and has a track used by HW vehicles, and members of the public on foot and by cycle. The vegetated riparian zone between the track and South Creek is narrow and damaged by clearance, the laying of a HW sewer main and the building of a BMX track. The vegetated section of the riparian zone has been widened and repaired by successive plantings, plus weeding and ground re-shaping

October 2002: Laying of jute mat and ecologs in channel of South Creek (by Green Corps team), upstream of Jones Avenue, at Jones Avenue site, prior to planting



July 2004: National Tree Day planting at Jones Avenue site.



Left: Hunter Water laying new sewer main at Jones Site in 2006, on the National Tree Day site of 2004



Right: Jones Site in February 2007, after Hunter Water had laid the new sewer main. Residents tend to use the reserve as their own property. The yellow building is a motel.

Hunter Water Corporation

During 2005 and 2006 Hunter Water replaced a sewer main causing damage to previous National Tree Day plantings on the Jones site. Landcare Coordinator, John Hughson, negotiated with Hunter Water to provide funding and assistance to repair the damaged area. Hunter Water commissioned a Restoration Plan for the site through Nikki Brown from Trees in Newcastle and provided \$20,000 for the project. This positive partnership impacted on the future planning of environmental works for Hunter Water, improved the relationship between Hunter Water and Landcare, and improved the natural resource management skills of the Hunter Water staff.



Green Team and Warners Bay volunteers mulching and planting in the Jones site riparian zone upstream of Jones Avenue in April 2008, after Hunter Water had laid the new sewer main. Funding for the repair of the site was provided by Hunter Water after negotiations with John Hughson, Landcare Co-ordinator.

BMX and Motorbike Tracks

In 2008 this same area became the 'playground' for BMX and motorbike riders, causing considerable damage to the site. Members of the Warners Bay Landcare Group met with the riders and discussed the impact of their actions, explained the importance of the riparian zone, and encouraged the riders not to ride in the area. The riders have been obliging so far and the Warners Bay Landcare Group continue to rehabilitate this area.

Right: Jones Site BMX and motorbike track in riparian zone of South Creek, August 2008

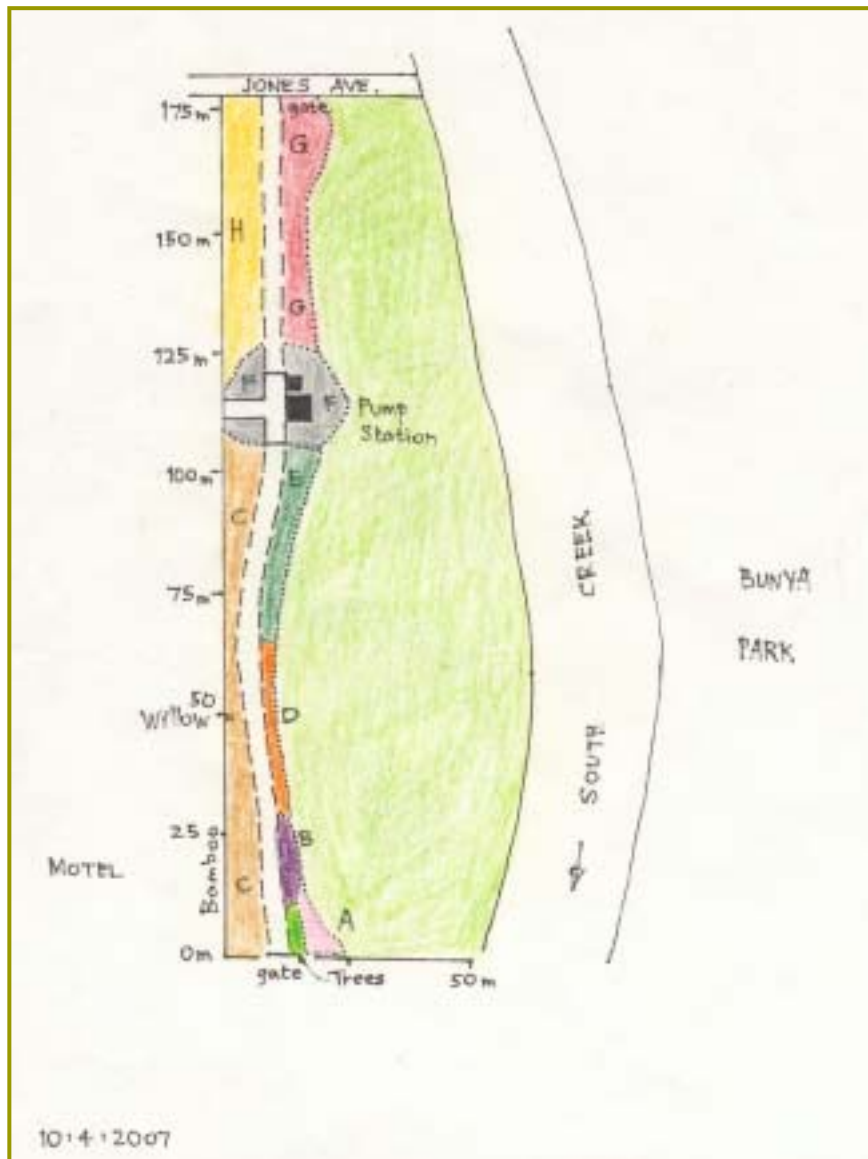


Left: Repair of BMX track, October 2008, Jones site

Planting Zones

The Warners Bay Landcare Group have developed a planning tool to assist in the coordination of rehabilitation and management plans for the Jones site. The criteria for the planting zones are:

- current and adjacent vegetation
- topography
- hydrology
- soils
- existing adjacent land use (motel, Hunter Water, residences and reserve)
- size of working unit for mulching and planting



WARNERS BAY LANDCARE JONES AVENUE SITE PLANTING ZONES

BUNYA PARK SITE

Bunya Park is a Lake Macquarie City Council park on the bank of South Creek, Warners Bay. It is part of a wildlife corridor and provides refuge for rainforest species found at nearby Green Point. The riparian zone consists of *Casuarina glauca* Swamp Oak Forest with rainforest components, and is regularly maintained by Warners Bay Landcare.

Approximately one half of Bunya Park has a mown understorey with remnant canopy trees. There are two historic Bunya Pines which presumably give the park its name. There are also mulched planting zones, children's playground equipment, and public utilities. A formalised pathway crosses the park on the western edge and joins the pathway crossing the Warners Bay Foreshore. A number of informal tracks run through the remnant forest and along the bank of South Creek.

The Bunya Park site provided many of the specimens for the photographs used in Ann Loughran's book "Native Plant or Weed? Pick the difference, Volume 1 & 2". Ann has used the Bunya Park site for training in weed identification for TIN bush regenerators and school students.



Bunya Park, November 2004
Runoff swale, looking away
from South Creek towards
Cherry Road.
Mowed by LMCC



National Tree Day 2005 at
runoff swale, Bunya Park,
viewed towards South Creek
– holes drilled by auger in
preparation for planting.

Bunya Park Project

The aims of the Bunya Park Project by Warners Bay Landcare are twofold:

- To establish an understorey/mid-storey of native plant species within the riparian zone capable of dealing with the changed conditions brought about by suburban development (i.e. changed hydrology and nutrient loading, absence of fire, competition from exotic plant species)
- To provide an off-site “refugia” for rainforest plant species from the SEPP26 Littoral Rainforest at Green Point Foreshore Reserve. This could provide a seed source in the event of some catastrophe such as fire in the Green Point Reserve.

These aims are entirely complementary, as the rainforest species recruited from Green Point for planting would occupy the niche left by the removal of the weed species and grow as a mesic understorey to the existing forest remnant.

The rainforest species planted at Bunya Park are:

Acmena smithii Lillipilly

Acronychia oblongifolia Common Acronychia

Citriobatus pauciflorus Orange Thorn

Diospyros australis Ebony Myrtle

Diploglottius australis Native Tamarind

Cassine australis Red Olive Berry

Dysoxylum fraserianum Rosewood

Elaeocarpus obovatus Hard Quandong, Ash

Eupomatia laurina Bolwarra

Guoia semiglauca Guoia

Neolitsea dealbata White Bollygum

Omalanthus nutans Bleeding Heart

Pararchidendron pruinosum Snowwood

Planchonella australis Black Apple

Rhodamnia rubescens Scrub Turpentine

Synoum glandulosum Scentless Rosewood

Syzygium paniculatum Magenta Lillipilly

Wilkea hugeliana Veiny Wilkea



Magenta Lilly Pilly *Syzygium paniculatum* a threatened species has been planted at the Bunya Park site.
(Image courtesy of ANBG)

NATIONAL TREE DAY

National Tree Day (NTD) is an initiative of Planet Ark that aims to encourage a regular native planting event annually, in response to continued clearing of native vegetation across the country. Warners Bay Landcare have participated in NTD for seven years to date and have found it to be a very positive experience, assisting the group in their aims of increasing awareness of environmental issues and encouraging public participation in natural resource management.

Warners Bay Landcare prepared the Jones Avenue site for NTD events from 2002 to 2004. In 2002, 60 volunteers participated and 1400 plants were planted. In 2003 and 2004 volunteer numbers declined, however 750 plants were planted each year.

In 2005, the Landcare group moved their NTD events to Bunya Park where volunteer numbers steadily increased each year and the number of native plants established grew. In 2008, 2118 plants were planted at Bunya Park for this event.

April 10th 2006

National Tree Day site, nine months after planting of runoff swale at Bunya Park.



February 2008

Runoff swale, Bunya Park

WARNERS BAY LANDCARE GROUP

Warners Bay Landcare Mission Statement

'To help the community to better manage catchments in Warners Bay; to protect native vegetation along creeks and foreshores; to increase community understanding of environmental impacts; to facilitate rehabilitation of degraded areas; to initiate new projects and hands-on work.'

Warners Bay Landcare was formed in 2000 and works on several sites in the Warners Bay Catchment – Albert Street, Bunya Park, Feighan Oval, Jones Ave., North Creek, South Creek, Lakelands, The Esplanade, and Cherry Road. The group meet monthly on a formal basis, and two to three times per month on site to undertake on-ground activities that rotate through their various project sites.

Warners Bay Landcare list their greatest achievement as the National Tree Day plantings. Their greatest challenge was repairing water damage at the Jones Creek site after the June 2007 storms. Warners Bay Landcare volunteers focus on careful planning, education and on-ground activities. A key objective of the group is the education of the general public in environmental matters through the development of resources aimed to assist those interested in natural resource management.

The group have dedicated themselves to the restoration and protection of South Creek since 2000 addressing issues such as weed encroachment, vegetation loss and water quality. The Project Officers for South Creek are Louise Ormerod, Suzanne Pritchard and Rachel Honnef. The Warners Bay Landcare Volunteers on the South Creek site are: Kate Andrews, Joanne Barton, Sharryn Brown, Beryl Bowerman, Graham Dunlop, Jonathan Fletcher, Carl Fulton, Suzanne Hudson, Chelsea Johns, Jack & Joyce Jones, Ann & Rob Loughran, Elmo Lourensz, Ken McGregor, Dani & Graham Prichard, Doreen Roper, James & Shirley Ross-Gowan, Annette Ryan, Phil Taylor, and Craig Whitford.

Lake Macquarie Landcare Green Teams and Leaders, Green Corps Teams and Leaders, National Tree Day volunteers, Clean-Up Australia Day volunteers, and Warners Bay Scouts have also assisted with the works on the South Creek sites.

ENDANGERED ECOLOGICAL COMMUNITIES

Two endangered ecological communities (EEC) are present on the South Creek sites. An EEC is listed as facing a very high risk of extinction in NSW under the *Threatened Species Conservation Act 1995*. The EEC's at South Creek are *Swamp Oak Floodplain Forest* and *Swamp Sclerophyll Forest on Coastal Floodplains*.

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 Schlerophyll 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. The plant communities at Bunya Park support the Threatened Species *Syzygium paniculatum* Magenta Lilly Pilly and *Tyto novaehollandiae* Masked Owl.



Masked Owl *Tyto novaehollandiae* feeds mainly on mammals and nests in tree hollows or caves. (Image courtesy of Australia Museum)

Bunya Park contains remnants of rainforest and provides an important 'refugia' for rainforest species from nearby Green Point Foreshore Reserve. Warners Bay Landcare have been removing weeds from the rainforest area and monitoring the growth of this plant community, while changes to council mowing regimes have aided natural regeneration of the rare rainforest community.

NATURAL RESOURCE MANAGEMENT ISSUES

The natural resource management issues on the South Creek sites are defined as:

- Urban encroachment
- Land degradation
- Connectivity
- Vegetation Loss
- Water Quality
- Absence of fire
- Altered hydrology
- Weed incursion
- Foreshore stabilisation
- Riparian erosion

Mulching and planting on National Tree Day, July 2008, upstream end of Bunya Park and upslope of the 2007 site.



PARTNERSHIPS

Warners Bay Landcare gained support and funding to manage the natural resources at South Creek through partnerships with the following organisations:

- Lake Macquarie Landcare (LML),
- Landcare Resource Office (LRO),
- Hunter Central Rivers Catchment Management Authority (CMA) through the Central Coast Grant Scheme,
- Australian Government through the Natural Heritage Trust (NHT),
- Office of the Lake Macquarie and Catchment Coordinator (OLMCC),
- Lake Macquarie City Council (LMCC),
- Hunter Water Corporation (HWC),
- Trees in Newcastle (TIN),
- The Buddhist Group,
- West Wallsend Uniting Church,
- Edgeworth Girl Guides,
- Warners Bay Scouts,
- Department of Training & Further Education (TAFE).

CMA MANAGEMENT TARGETS

The Hunter-Central Rivers Catchment Action Plan (CAP) is a guide to protecting and improving our region's natural resources based on specific Management Targets. LML & LMCC are working with the CMA to achieve the environmental and educational outcomes of the CAP in the Lake Macquarie region.

Warners Bay Landcare Group work towards addressing the following Management Targets on the South Creek sites:

- MT 02 - Regenerate Native Vegetation
- MT 03 - Treat Weeds
- MT 18 - Regenerate Native Riparian Vegetation
- MT 30 - Enhance Foreshore Vegetation

Management Target 02 - Regenerate Native Vegetation

Biodiversity (the variety of life) is highly influenced by the area and condition of native vegetation. Regenerating the diversity of vegetation is the 'backbone' of maintaining and improving all biodiversity on land - plants, animals, fungi, bacteria etc. The condition of native vegetation relies on the presence of trees,

understorey and groundcover plants present as mature native vegetation communities. Warners Bay Landcare establishes a mixed species planting of rainforest and swamp forest plants at the South Creek sites.

Management Target 03 – Treat Weeds

Weeds invade native vegetation, especially if land is disturbed, and often have vigorous growth and no natural predators, so quickly become the dominant species. Weeds affect the stability of the land and reduce the biodiversity of plants and animals in the ecosystem. Treating weeds reduces the number and effect of weeds and minimizes their natural resource impact, improving the health of the ecosystem.

Weed species being removed from the South Creek sites are: *Lantana camara* Lantana, *Lonicera japonica* Japanese Honeysuckle, *Ligustrum sinense* Small-leafed Privet, *Ipomoea cairica* Morning Glory and *Ochna serrulata* Mickey Mouse Plant.

Management Target 18 - Regenerate Native Riparian Vegetation

Riparian land is any land that adjoins or directly influences a body of water. Riparian zones are important because of the diversity of ecological processes that occur within their boundaries. The riparian zone affects the quality of the adjoining aquatic ecosystem and assists in soil conservation, increased biodiversity, and improved water quality within that system. Regeneration of native stream bank vegetation increases the stability of the stream bank and prevents soil erosion

Management Target 30 – Enhance Foreshore Vegetation

Riparian land is any land that adjoins or directly influences a body of water. Riparian zones are important because of the diversity of ecological processes that occur within their boundaries. The riparian zone affects the quality of the adjoining aquatic ecosystem and assists in soil conservation, increased biodiversity, and improved water quality within that system. Regeneration of native stream bank vegetation increases the stability of the stream bank and prevents soil erosion.

Hunter Central Rivers Catchment Management Authority

The Hunter Central Rivers Catchment Management Authority provides support to this and other projects through the Catchment Officer, Regional Facilitator and Community Support Program supporting Catchment Action Plan Management Targets. If you would like to know more about the Hunter Central Rivers Catchment Management Authority please phone: **4324 3844**

or go to: **www.hcr.cma.nsw.gov.au**



July 2007: Part of National Tree Day site, upstream end of Bunya Park, immediately after mulching and planting, looking towards South Creek

February 2008: Part of National Tree Day 2007 site, upstream end of Bunya Park, looking towards South Creek



July 2008: National Tree Day site, upstream end of Bunya Park. Supplementary planting by Green Corps team.

August 2007: Footbridge constructed by volunteers from the Lake Macquarie Landcare Resource Office.



Resources

Publications such as the Lake Macquarie Coastal Planting Guide (LMCC), Attack of the Killer Weeds (Coastcare), Foreshore Stabilisation and Rehabilitation Guidelines (LMCC) and Native Plant of Weed, Pick the Difference, Volumes 1 and 2 (Ann Loughran) 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. Also Lake Macquarie City Council's website www.lakemac.com.au can provide links to newsletters, environmental programs, grants, Landcare, weeds and trees.

Images courtesy of Ann & Rob Loughran of Warners Bay Landcare & Denis Hilder



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