

Lake Linlithgow Reserve Revegetation Project

Hamilton Field Naturalists Club (HFNC)

Background

The HFNC has been actively interested in Lake Linlithgow and its nearby wetlands Lake Kennedy, Bullrush Swamp and Krause Swamp since 1958, when the club was formed. As early as 1960, HFNC recognized that the foremost of the wetlands requiring action on the basaltic plains was that of Lake Linlithgow, Bullrush Swamp, Krauses Swamp & Lake Kennedy. These were once major Eastern Barred Bandicoot, Cape Barren Geese & Brolga habitat areas and are important for a number of migratory and local species of birds. The entire reserve banks, flats and fringes of the lakes had been grazed for 150 years. Rarely have the needs for biodiversity been seriously considered and promoted in past planning of activities associated with usage of lakes – the lakes have been considered basically for recreational water sports (sail and motor boats) and grazing. Duck hunting on Lake Linlithgow was an optional extra in the early days and for several years in the mid-1980s when unscrupulous hunters found a glitch in the amendment of the Wildlife Act 1976 that enabled them to shoot on a Wildlife Sanctuary. Shooting is still permitted on adjacent Wildlife Reserves.

In 1971, the Rev. Baulch, from Peshurst, represented HFNC on the Lake Linlithgow Committee of Management (then part of the Shire of Mount Rouse). In 1975, Rod Bird (President), Lionel Elmore and Max Greiner) were elected. The Committee reviewed the remuneration from the grazing licenses that were current and gave permission for the HFNC to plant trees on part of the eastern bank. The committee lapsed when this part of Mt Rouse Shire was absorbed by Dundas Shire several years later.

Revegetation activities 1975-77

In September of 1975, HFNC planted 180 trees on a 150 m section of the mid north-eastern bank of the lake. Mount Rouse Shire assisted this project by supplying and erecting the fencing on the bank, while HFNC erected fences into the water.

The following species were purchased from Forests Commission Nursery at Wail:

- *E. camaldulensis* (River Red Gum) – 10 planted (a few survive in 2000)
- *E. ovata* (Swamp Gum) – 20 (most survive)
- *E. viminalis* (Manna Gum) – 20 (most survive)
- *Allocasuarina verticillata* (Drooping Sheoak) – 20 (some survive)
- *B. marginata* (Silver Banksia) – 20 (a few survive)
- *A. melanoxylon* (Blackwood) – 20 (a few survive)
- *Leptospermum lanigerum* (Woolly Tea-tree) – 50 planted on the flat at each end of the block, near the highest water mark (some survive but have not established seedlings)
- *Leptospermum obovatum*, *L. scoparium*, *Melaleuca lanceolata*, *M. squarrosa* – total of 20 shrubs, planted near or above high water mark (not strictly local species). Luckily most of these species did not survive – we planted local provenance material thereafter.

Figure 1.

East bank of Jenawarra – preparing to plant trees in Sept. 1975. The view is south, towards Mt. Napier.

HFNC member, John Cayley, is pictured and children are playing at the waterside.

The area was fenced to exclude sheep (note fence that extends into the lake).



In April and August of 1977, another 89 trees, grown from local seed by Peter Francis of Coleraine and Peter Milne (HFNC), were planted. HFNC had just begun a policy of only planting trees and shrub species that were known to occur naturally in the area. That policy was now strengthened, to ensure that the local provenance was perpetuated, by insisting that our plants came from seed collected locally:

- *Banksia marginata* (Silver Banksia) – 13 on the slope
- *Allocasuarina verticillata* (Drooping Sheoak) – 13 on the slope
- *Eucalyptus viminalis* (Manna Gum) – 6 on the top
- *Leptospermum lanigerum* (Woolly Tea-tree) – 42 on the shoreline.



Figure 2.

A view in Feb. 1982 from within the tree block planted by HFNC on the east bank of Jenawarra in 1975.

Silver Banksia & Drooping Sheoak grew well on the slope, as did Swamp Gum & Manna Gum planted on the top of the bank, despite the adverse effects of exposure to wind, the sticky clay soil and early competition from thistles.

Revegetation activities 1989-91

Planting in 1989

In 1989, trees were planted by the Penshurst Primary School in a 350 m adjacent area along the bank to the south. This area had been fenced by Mt Rouse Shire and trees planted in the in two or three rows ripped along the top and similarly on the flat below the high water mark. However, of the trees planted (species and origin unknown) most perished due to poor follow-up weed control. Only 70-80 trees survived, mostly on the foreshore flat. HFNC weeded around the remaining trees in Aug. 1990, to give them a better chance of surviving.

Planting in 1990

In Aug. 1990, HFNC planted another 490 trees at this site. Strips were sprayed along previous years rip-lines with Glyphosate and Simazine, and spots were sprayed on the previously unplanted sloping bank. All trees planted were grown by HFNC from seed collected locally from species that occur naturally in the district. Eucalypts and Blackwood were planted mostly along the first and third row on the top of the bank; Drooping Sheoak and Sweet Bursaria in two rows on the sloping bank (planting spots there were cleared with a mattock) and also along the first and second ripped row at the top of the shoreline nearest the base of the bank. We did not plant any trees in the other rows closer to the water. In September we direct-seeded some trees (including Sheoak) in spots along the slope, but this was not very successful. Cracking, north or west-facing clay slopes are difficult.

The list of trees planted in 1990 was:

- *Acacia melanoxylon* (Blackwood) – 64
- *A. mearnsii* (Black Wattle) – 52
- *A. verticillata* (Prickly Moses) – 6
- *Allocasuarina verticillata* (Drooping Sheoak) – 100
- *Bursaria spinosa* (Sweet Bursaria) – 190 from seed collected near Hamilton
- *Eucalyptus camaldulensis* (River Red Gum) – 24 planted
- *E. ovata* (Swamp Gum) – 26
- *E. viminalis* (Manna Gum) – 24
- *Leptospermum lanigerum* (Woolly Tea-tree) – 4 planted on the flat

Despite the ideal wet conditions at planting, and good weed control, many of the trees HFNC planted in 1990 did not fare much better than those planted by the school. Unfortunately, in late spring of 1990, weed growth in the lake covered part of the fence in the southern end and allowed sheep access to the site. Someone had then pushed the fence down to let the stock out (the frontage to the south was leased for grazing) but had left it in that condition. Consequently, the sheep re-entered the block at will, pulled out some trees and defoliated others, killing perhaps two thirds of the trees we had planted, and many of those remaining from 1989. However, many of the Sweet Bursaria that we had planted on the steeper section of bank survived, as did some eucalypts. The tall thistles that initially colonised the area afforded the trees some protection against the sheep!

Figure 3.

HFNC members in Sep. 1990, planting trees in the “new” block adjacent to & south of the 1975 block of trees.

Rod Bird cleared thistles from spots to be planted on the bank, whilst Keith Cumming and others worked on the shoreline.

The thistles grew profusely for 2-3 years but largely disappeared once grass cover was re-established on the slope.



Planting in 1991

A further 100 trees was planted by HFNC in Sept. 1991.

- *Banksia marginata* – 80 grown from seed collected at Yatchaw
- *E. camaldulensis* – 20 from Hensley Park.

The Shire of Mount Rouse subsequently fenced the plantation along the foreshore, preventing stock from entering the block when the lake dried out in summer. This experience with the sheep on the leased area was an important lesson - where trees are concerned, stock cannot be adequately controlled with fences that project into the lake.

The Sweet Bursaria and eucalypts planted on the high water mark have grown very well, although the longer-term prospects may be uncertain, due to future salinity and waterlogging events.



Figure 4.

HFNC tree block planted in 1990-91, as seen in Dec. 2000.

The trees in the contiguous 1975 block are at the back of the 1990 block.

Note the growth of thistles outside the block, in the grazed area, whereas there were much fewer inside the fenced area.

These plantings have provided good evidence of species and methods that work on this difficult, windy, clay site. The success of the planting confounded some of the locals who suggested that trees would not grow there.

Of interest in these plantings was the initial dominance of thistles prior to planting and their tremendous head-high growth in the early years thereafter. Thistles were suppressed by grass in later years, after stock were excluded, because little bare ground was available for them to re-establish.

Revegetation activities at Lakes Linlithgow & Kennedy, 2001-05

HFNC has assisted ParksVic to revegetate other parts of the surrounds of Lake Linlithgow. John Harris (ParksVic) responded to a letter from HFNC in 1999, and he proposed that funding for planting could be available under ParksVic's Volunteer Group Grants Program, with agreement from the Committee of Management (Southern Grampians Shire). HFNC was granted funding in 2000/01 (\$10,000) and 2003/04 (\$11,000), with ParksVic managing the projects (fencing, purchase of trees, site preparation and planting). HFNC grew selected local provenance trees and planted some areas.

HFNC had proposed several schemes to improve the amenity, conservation and management of the lakes surrounds. Firstly to Mount Rouse Shire (Aug. 1990, Apr. 1991, Nov. 1991) who were responsible for the lake prior to council amalgamations. Then to DNRE & ParksVic (Aug. 1990, Oct. 1992, Feb. 1999). Only the tree planting has attracted a positive response, with ParksVic resolving in 2000/01 to work with Southern Grampians Shire, GHCMA, DNRE, HFNC and other organizations to develop a management plan that would see parts of the foreshore fenced from grazing stock and regenerated (Anon 2000).

We regard tree planting as perhaps the least important of the efforts that need to be made to improve the biodiversity value of the lake and its appearance. The grassland and shoreline sedges and other plants were neglected in years past. The critical issues for ParksVic in 2000 were the appraisal of grazing leases and revegetation. Ultimately a decision was taken to end the licences and to slash firebreaks along the boundaries of the reserve.

Some re-alignment of boundary fences were made at Lake Kennedy and Boonawah Ck. and removal of old fencing along North Lake Rd. At the Boonawah Ck, the property owner has, commendably, re-fenced part of the boundary opposite the mouth of the creek, to take the fence back from the saline, boggy fringe. An extension further east, along the northern boundary of Boonawah Ck, would help to control of nutrient pollution of the lake since stock would be excluded from the frontage.

Some Crown land on the Boonawah frontage has, in times past, been absorbed into crop land to the south. That area could have been planted with trees to provide a solid woodlot area for birds, without disturbing the important native grassland that it abuts. The adjacent grassland contains several species of wallaby grass (*Austrodanthonia*), including *Austrodanthonia setacea*, *pilosa*, *caespitosa* and *duttoniana*, and a number of other species. However, PV made an arrangement with the present landholder to exchange that land for an area of saline land to the east, adjacent to the important area of *Gahnia trifida* (Coast Saw-sedge), *Eragrostis infecunda* (Cane-grass) and White Tussock (*Poa labillardiera*).



Figure 5 – White Tussock (*Poa labillardiera*) at Boonawah Ck flats in Sept. 2003.

A stand of *Gahnia trifida* can be seen in the right background, while other sedges occur in the middle ground.

Wurgarri (Mt Sturgeon) is seen to the north.

Excessive tree planting would not be in character with the original status of the lake, as determined from historical accounts, and therefore care must be taken not to disturb that balance. Some local residents expressed concern about tree-planting where there were perhaps relatively few trees in the past. Continuous strips should not be employed.

HFNC recommended the following actions for re-vegetation when the 2001-05 project began:

- * A limited planting of species that grew in the area, from strictly local seed or cuttings;
- * The major species used on the banks should be Drooping Sheoak, Plains Silver Banksia, Sweet Bursaria, Blackwood and Tree Violet; parts of the Boonawah Ck could be planted with Woolly Tea-tree and perhaps Prickly Tea-tree (*Leptospermum continentale*) and Tree Everlasting.
- * Trees and shrubs to be planted in targeted areas, particularly in weed-infested former stock camp sites, where such planting can reduce present and future problems with Horehound and thistle, or adjacent to remnant populations of the same species, but not in areas of good native grassland or saline wetland;
- * Scenic vistas (Mt. Rouse, Mt. Napier and Grampians) should not be obscured – Pine, Cypress and Sugar Gum belts on adjacent farms define current view lines and visual gaps should be left open.

Planting in 2001

ParksVic & GHCMA managed a Living Links project that saw the planting of about 9,000 trees at Lake Kennedy in Aug. 2001 (Anon. 2001). Preparation for this planting required ParksVic to negotiate cancelling of grazing licences, realignment of some boundaries and secure fencing of the frontage. Similar work began later at Lake Linlithgow, particularly in the Boonawah Creek area.

Planting in 2002

ParksVic organized a similar re-fencing, boundary re-alignment and cancellation of grazing licences on the northern half of Lake Linlithgow. ParksVic's team (Conservation Volunteers Australia) had a major planting effort on the NW foreshore, extending from midway on West Lake Rd around to North Lakes Rd to the Aquatic Club entrance. The middle, headland section just east of the sharp bend in North Lake Road was not planted, that being left for the HFNC in 2002. HFNC planted 10 *Bursaria spinosa* and 3 *Banksia marginata* (Yatchaw provenance) in that area in Sept. 2002.

Planting in 2003

ParksVic continued planting in the NE section of the lake around to Boonawah Ck.

HFNC planted and guarded 600 trees and shrubs on the North Lake Rd section on 13 Sept. These plants were grown by HFNC from seeds they collected locally. The species were:

- *Banksia marginata* (Silver Banksia) – Yatchaw source – 150
- *Bursaria spinosa* (Sweet Bursaria) – Linlithgow source – 370
- *Hymenanthera dentata* (Tree Violet) – Linlithgow source – 20
- *Lavatera pleibia* (Australian Hollyhock) – Linlithgow source – 60

Phalaris and other introduced weeds were spot-sprayed on this area and along the road. The planted area had been grazed by sheep and cattle for many decades and so most of the native species had vanished. The flora was dominated by pasture and weed species that flourished in the absence of further grazing. The only prospect for this area is dense planting, or subsequent regeneration, of trees.



Figure 6.

Members of HFNC on a wet day in Sep. 2003, just finished planting trees in the headland area adjacent to North Lake Rd.

Those pictured are Roger Thompson, Ken Grimes, Lyn Munro, David Munro, Glenys Cayley, Janeen Samuel & Diane Luhrs.

Planting in 2004

ParksVic resolved grazing license issues on the southern half of the lake. Planting continued on the eastern shore from Boonawah creek to The Point, and west from The Point to the midway point on West Lake Rd. Conservation Volunteers Australia worked with ParksVic staff on this project. Major funding was provided through the 'Revive Our Wetlands' initiative, a 3-year project funded by BHP Billiton. As in previous years, the trees and shrubs came from seed from local sources.

HFNC continued to spot-spray Phalaris clumps on the planted areas (175 L of spray was applied), and planted and guarded 210 trees, focusing on the North Lake Rd site (Sheoaks) and West Lake Rd: (Banksia)

- *Allocasuarina verticillata* (Drooping Sheoak) – seed from sites west of Linlithgow – 160
- *Banksia marginata* (Silver Banksia) – Yatchaw source – 50



Figure 7.

The area of tree planting adjacent to North Lake Rd in Sept. 2004.

Some members of HFNC shown here are Yvonne Ingeme, Reto Zollinger, Janeen Samuel (in background), Diane Luhrs & Ken Grimes.

Planting in 2005

The 'Revive Our Wetlands' project continued, with Conservation Volunteers Australia providing assistance to ParksVic. As in 2004, the volunteers were mainly young people from overseas. Areas targeted this year were Boonawah Ck frontage near the lake and foreshore areas along the SE bank.

HFNC continued to spot-spray Phalaris clumps on the planted areas (95 L of spray was applied). Also, clumps of Tall Wheatgrass were sprayed at Boonawah Ck near the lake. HFNC planted and guarded 130 trees, focusing on the North Lake Rd site (Sheoaks) and West Lake Rd: (Banksia & Sheoak):

- *Allocasuarina verticillata* (Drooping Sheoak) – seed from sites west of Linlithgow – 25 trees on West Lake area and 80 trees on the North lakes area
- *Banksia marginata* (Silver Banksia) – Yatchaw source – 25 trees on the West Lake Rd area.



Figure 8.

The area of tree-planting adjacent to West Lake Rd in Sep. 2004, when there was some water in the lake.

Ken Grimes, Janeen Samuel, Reto Zollinger & Yvonne Ingeme were part of the HFNC team who planted more trees here in Sep. 2005.

These works have substantially completed the tree planting project for Jenawarra and Lake Kennedy and could not have been achieved without the persistence and enthusiasm of the late John Harris from Parks Vic, and the massive injection of funds and volunteer labour he organized to accomplish the task. Control of Spiny Rush, Phalaris & Tall Wheatgrass remains an issue for HFNC, PV and Shire of Southern Grampians.



Some examples of the work of John Harris (PV)

Trees planted west of Boonawah creek in 2003 (Photo Nov 2011)



Trees planted on the west side of Lale Linlithgow in 2004 (photo Nov 2011)



Trees planted at Lake Kennedy in 2001 (Photo in Nov 2011)