

Project Title: Rehabilitation of native flora in the high biodiversity Knocklofty Reserve

Project No: 38332

Subject: Envirofund Project 2003 on Knocklofty Reserve

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SUMMARY

The Friends of Knocklofty Bushcare Group's 2003 Envirofund grant was used to employ contractors to remove gorse, blackberry and erica from heavily infested areas in the Reserve. A team from Greening Australia cleared three of these areas. These were; 1.4 hectares of heavily gorse infested dry sclerophyl *Eucalyptus obliqua* shrubby forest in a steep gully on the eastern slope of Knocklofty, 0.1 hectare of heavily blackberry infested dry sclerophyl *Eucalyptus amygdalina* heathy forest in a steep gully near the Poets Road entrance to the Reserve, and 0.5 hectare of scattered spanish heath [*Erica lusitanica*] along the power easement near the summit of Knocklofty. In addition, new woody weed seedlings around sites cleared during the NHT project of 2000-2002 were sprayed by the contractor Tasflora.

The decision to select the contractor by tender and the use of a mechanised approach to clear the 1.4 hectare area heavily infested by gorse, enabled all the project objectives to be met with the available funds. The successful tender was for \$22,850. It has been estimated that if the contractor had been employed at an hourly rate using the traditional cut and paste method, \$40,000 would have been required to complete the work.

The Friends of Knocklofty Bushcare Group [FOKL] voluntary contribution worth \$32,338, for flora and fauna rehabilitation on Knocklofty Reserve was almost double that promised in the Envirofund 2003 application. Also the contribution by the Hobart City Council of \$87,499 was over four times that promised. These contributions involved primary weeding, site maintenance, fire management, propagation and planting of 2568 seedlings, and trapping surveys of native fauna in the "Green".

DETAILS

Objectives

In our application for an Envirofund grant, we stated:-

"This project will expand our previous work to protect the habitat of threatened species and to restore the native flora by removing environmental weeds. Knocklofty reserve has colonies of the endangered swift parrot and the threatened eastern barred bandicoot, as well as nine recorded rare and threatened species of flora and nine high priority vegetation communities including grassy *Eucalyptus ovata* forest. Heavy infestations of weeds remain in parts of the reserve and the grant will enable the primary removal of these weeds by contractors. Our volunteers can then keep the cleared areas weed free and provide in-fill planting of native flora".

Planning of Contract Work

On receipt of the grant, FOKL volunteers mapped the areas targeted for weed removal using GPS measurements and marked the perimeter of each area with ribbons. This information was used in conjunction with a tender document, which were given to potential contractors. Seven contractors attended a tour of the various areas and were guided over the target areas by the FOKL Co-ordinator. Three contractors submitted quotes which varied significantly in price. These tenders were assessed on the basis of price, past experience and personnel, standard and warranty, workplan and methodology. Greening Australia won the fixed price contract for removal of the woody weeds from each area. Tasflora was given an hourly rate contract to spray new woody weed seedlings on previously rehabilitated sites.

Outcome of Contract Work

1. Fire management unit K18 [sites 54 and 55]. Removal of gorse.

This area of approximately 1.4 hectares was dry sclerophyll native bush heavily infested with gorse [>50%] on a very steep rocky slope. Part of the site included a gully. Movement around the area was difficult.

Greening Australia estimated that 1200 person hours would be required to cut and paste the area by traditional means. Instead they used a team of three, using a brush cutter to cut the stems of all the remaining gorse followed immediately by poisoning the cut stems using a backpack spray containing 180g/L glyphosphate. For this job they quoted 500 person.hours would be required. 700 hours were required to complete the work. Some follow up spraying is still necessary to poison gorse that was either missed or has regrown from the base. Greening Australia will carry this out as part of the original contract during the autumn of 2004.

The main disadvantage of this method of woody weed removal is collateral damage to neighbouring native plants. Some evidence of this was noticed in a few areas where gorse was growing amongst sags and grasses. The method can not be recommended for areas where woody weed growth is sparse and/or among healthy native understory. However the method works well in areas where native plants are restricted to canopy trees and tall saplings. The other disadvantage of this method was the need to cut the gorse stems about 10 to 15 cm above ground level to avoid damage to the brush cutter blades from rocks and stones.

The main advantage was the ability to clear heavy gorse or other woody weed infestations in a manner which significantly reduced labour costs. The savings not only enabled the entire area to be cleared of woody weeds but also, fund the removal of a major blackberry infestation elsewhere in the Reserve, spray erica along the power line easement near the summit, and spray new woody weed seedlings in previously rehabilitated sites.

2. Fire management unit K20c and K21. [Poets Road track]. Removal of blackberry.

These areas of approximately 0.1 hectare in a gully about 100m from the Poets Road entrance to the Reserve, were heavily infested by blackberry, interspersed with gorse. There were very few understory native plants in these patches. The weed infestation was beyond the scope of volunteers who are not allowed to use brush cutters or spray with herbicides.

Greening Australia contractors slashed the blackberry in the area with a brush cutter and cut and pasted the gorse with glyphosphate. They returned 2 months later when the blackberry had resprouted and sprayed the regrowth with garlon. The gorse was removed from the site but the blackberry left to decompose on site. A visit to the site two months after the work was completed showed that the method had satisfactorily killed most of the weeds, but that follow up spraying in the autumn of 2004 would be necessary to kill blackberry that had been missed during the original spraying.

Photopoint photographs were taken at four sites in these areas before and after the removal of woody weeds by Greening Australia contractors. These are shown in Attachment 1 [entitled "Photopoints Envirofund 2003"].

3. Power easement near the summit of Knocklofty. Removal of Erica.

Erica lusitanica [spanish heath] is scattered amongst the vegetation under the power lines. This is a result of previous vegetation slashing methods carried out by contractors employed by Aurora to control vegetative growth under their power lines. Following changes to the Energy Regulation Act, Aurora is now required to control vegetation consistent with the Knocklofty Reserve Vegetation Management Plan. As a result the HCC and FOKL are working together to remove all woody weeds under the power lines. Spraying of the erica was considered high priority as it had already caused infestations on the lower slopes of Knocklofty.

The erica has been sprayed by Greening Australia contractors using garlon. Follow up spraying will be necessary as some areas were missed. This will be done by GA in the autumn of 2004 under the terms of their contract.

4. Rehabilitated sites on the eastern side of Knocklofty Reserve. Spraying of woody weed regrowth.

Tasflora was contracted to visit areas specified in the tender document and spray all woody weeds with garlon. These areas included specified rehabilitated sites in fire management areas K18, K19, K20b, K15, and K25. All these tasks were completed satisfactorily. Tasflora used a novel method to remove broom seedlings in MS 35 which had been originally cleared of a heavy infestation in 2000, fenced and mulched, and subject to successive native seedling plantings from 2000 to 2003. Introduced grasses were brush cut, exposing the broom seedlings. These were then successfully sprayed with garlon.

All areas subject to woody weed removal were visited on 30th December and the status of these areas is described in Attachment 2 [entitled "Review of Spraying"].

Voluntary Work

1. Weed removal

During 2003, the Friends of Knocklofty Bushcare Group volunteers [FOKL] spent 11 half days removing woody weeds from both previously rehabilitated and new sites on Knocklofty or removing bags and stakes from previously planted sites. The new sites were along the newly upgraded walking track between the "Green" and the Mt. Stuart entrance [MS site 90], and the area of K21 [MS Site 79] between the Lookout and the Poets Road entrance. More weeding is required in these two new areas.

Weed removal was also carried out on numerous occasions in outlying areas away from the rehabilitated sites by groups as part of our "roving weeding" plan or by individuals as their "adopt a patch" plan.

2. Plantings

2844 native seedlings were planted in 2003 over 15 half days between 18th May and the 9th October on 23 sites in Knocklofty Reserve. On two occasions, school children from Landsdowne Cres. Primary School assisted FOKL volunteers. On National Tree Planting Day, community volunteers assisted FOKL members to plant 452 seedlings. FOKL volunteers also helped the HCC bushcrew with a planting at the lower Forest Road entrance. Of the 2844 seedlings planted, 2432 were propagated by the HCC Nursery at Mornington and 412 by FOKL at the APS Propagation Centre in Howden. On most of these sites, plantings were additional to plantings in previous years, as it is the practice to have additional plantings in sites where previous plantings have been damaged by

summer drought or where natural regrowth is minimal or where a greater diversity of native species is required.

Seedling take counts were taken from plantings in 2001 and 2002 while bags and stakes were being removed. The statistics from these counts showed that the survival rate of 2001 planting were between 84 and 95%. This was in sharp contrast to plantings in 2002 where survival rates varied from 5 to 56%. There were two factors which could have contributed to these rates. In 2001-2, spring and summer rain [totaling 453mm] were nearly double the long term average compared to only 78% [213mm] in 2002-3. Also all of the planted sites in 2001 had more top soil and retained moisture for longer than the sites planted in 2002.

Details of the numbers of each species planted in 2003 and the survival of plants from 2001 and 2003 plantings are shown in the attachment entitled "Plantings 2003 and Seedling Take Count 2001 and 2002".

3. Native fauna trapping

During November 2003, the Friends of Knocklofty (FOKL) volunteers led by Dave Obendorf, a wild-life vet, conducted a small mammal survey within a 3 ha area of Knocklofty Reserve (KLR) - a rehabilitated open grassland area known as 'The Green'.

An earlier trapping survey in 2000 (sponsored by FOKL) indicated that native mammals were foraging extensively over this grassland. At that time long-nosed potoroos and southern brown bandicoots were trapped around the forest edges but no barred bandicoots were caught. The trapping programme in 2003 confirms that the revegetation and general rehabilitation of this significantly degraded grassland now supports the endangered eastern barred bandicoot, *Perameles gunnii*.

Thanks in part to grants from the Natural Heritage Trust, since 1996, 'The Green' has been subject to extensive exotic weed removal (Gorse, Boneseed, Broom & Blackberry), with areas of the open grassland progressively revegetated with *Poa labillardierei* (tussock) and other native grasses. Also *Lomandra longifolia* (saggs) as well as with a variety of locally-abundant understorey plants and trees have been planted. In addition a permanent wetland ('the Fog Dam') was established in the centre of the Green.

This area has naturally transformed to an open grassy woodland interspersed with well-established clumps of saggs, tussocks & bracken fern. There is now plenty of natural habitat refuges for these grassland bandicoots. Numerous animal runs, conical diggings and occasional grass 'nests' occur in the mature grassy thickets.

Apart from trapping bandicoots, the programme showed that a very healthy potoroo population uses the same area for foraging.

In 2004, plans are being made to assess a few other sites in the Reserve for the presence of barred bandicoots. An application for a permit has been submitted to the Threatened Species Unit of the Department of Primary Industries, Water, and Environment [DPIWE]. A report entitled "A small Mammal Survey of 'The Green' in Knocklofty Reserve November 2003" prepared by Dave Obendorf and Tony Ault on behalf of Friends of Knocklofty Bushcare Group was submitted to DPIWE in December 2003. A copy is included with this report.

Cat trapping is also possible because feral cats have been seen in the area of The Green and caught near the summit of Knocklofty. Also domestic cats are known hunters of bandicoots. Cats also spread a disease *Toxoplasmosis*, which causes sickness and death in bandicoots.

4. Bird, frog, and water watch

Members of the local community were invited to share these activities with FOKL volunteers during the year. Local experts volunteered their time to talk about frogs and birds and to show visitors how water quality is assessed in some of the Knocklofty ponds. The bird watch by an amateur ornithologist and Principal of our local Landsdowne Crescent Primary School included a walk over the summit of Knocklofty Reserve. The frog watch included viewing some live frogs brought to the site of the Frog Dam for visitors to see. During 2003 the cry of the Spotted March Frog *Lymnodynastes tasmaniensis* was heard in large numbers for the first time at the Frog Dam.

5. Propagation

Propagation of seeds and cuttings after March was limited to individual members in their home propagators, as the Australian Plant Society Howden Propagation Centre was closed during April. However FOKL volunteers have assisted APS members in re-establishing the Propagation Centre at the Kingston Primary School under the direction of Bruce Champion a life member of the APS and a keen member of FOKL. Propagation of seeds and cuttings from Knocklofty Reserve will recommence in 2004, with a monthly session every first Thursday afternoon in the month after the work morning on Knocklofty.

However the opportunity was taken to plant out most seedlings raised in 2002 as indicated above. 127 seedlings remaining from propagation in 2002 and 2003 will be planted during the winter of 2004 on Knocklofty Reserve.

6. Contribution by volunteers

Total contribution by FOKL volunteers and others to improving the flora and fauna on Knocklofty Reserve was 1657 hours. With material contributions included, this amounts to \$32,338, almost twice the \$17225 promised in the grant application. Of this, the Co-ordinators contributed 262 hours, the equivalent of \$6537 on planning, field visits, and administration. 161 hours or \$2935 were spent on the trapping programme, and 253 hours or \$4665 hours on propagation activities.

The Hobart City Council contribution of \$87,499 was over four times the \$20700 promised. This includes \$79,399 for supplied labour, including \$66,427 for field work, and \$8,100 for materials including over \$6000 for native plant seedlings.

Attachments

1. "Photopoints Envirofund 2003"
2. "Review of Spraying"
3. "Plantings 2003 and Seedling Take Count 2001 and 2002"

Other Reports

"A small Mammal Survey of "The Green" in Knocklofty Reserve November 2003"
prepared by Dave Obendorf and Tony Ault on behalf of Friends of Knocklofty
Bushcare Group. Published December 2003

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