Department of Sustainability and Environment

Watson's Creek Habitat Link, Kinglake National Park: revegetation following the 2009 Black Saturday fires

Black Saturday Victoria 2009 – Natural values fire recovery program

Anthony Fitzgerald, Natalie Brida, Tara Sanders

Parks VICTORIA

Victoria We will rebuild

Watson's Creek Habitat Link, Kinglake National Park – revegetation following the 2009 Black Saturday fires

Tony Fitzgerald and Natalie Brida
Parks Victoria
Kinglake National Park
2970 Heidelberg-Kinglake Road,
Kinglake, VIC 3763.

Tara Sanders
Parks Victoria
46 Aitken St, Alexandra, VIC 3714.

This project is No. 11 of the program 'Rebuilding Together' funded by the Victorian and Commonwealth government's Statewide Bushfire Recovery Plan, launched October 2009.

Published by the Victorian Government Department of Sustainability and Environment Melbourne, December 2012.

Authorised by the Victorian Government, 8 Nicholson Street, East Melbourne.

Print managed by Finsbury green.
Printed on recycled paper.

ISBN 978-1-74287-685-6 (print)
ISBN 978-1-74287-686-3 (online)

For more information contact the DSE Customer Service Centre 136 186.

Accessibility: If you would like to receive this publication in an accessible format, such as large print or audio, please telephone 136 186, 1800 122 969 (TTY), or email customer.service@dse.vic.gov.au.

Citation: Fitzgerald, T., Brida, N. and Sanders, T. (2012). *Watson's Creek Habitat Link, Kinglake National Park – revegetation following the 2009 Black Saturday fires:* Black Saturday Victoria 2009 – Natural values fire recovery program. Department of Sustainability and Environment, East Melbourne, Victoria.

Front cover photograph: Landcare volunteers planting tubestock at the Watson's Creek Habitat Link, May 2010 (Tara Sanders).

Contents

List of tables and figures

Acknowledgements

This project was funded by the Victorian and Commonwealth governments' 'Rebuilding Together' – Statewide Bushfire Recovery Plan, announced in October 2009. We gratefully acknowledge the contributions of Cam Beardsell, Doug Frood, Kahn Franke of Wyeena Nursery, Conservation Volunteers Australia, St Andrews CFA, Friends of Warrandyte State Park, Friends of Yarra Valley Parklands, Greenfleet, Neill Roberts, Northern Metropolitan Institute of TAFE and Victorian National Parks Association.

Additional activities were supported by the Australian Government's 'Caring for our Country' bushfire recovery program.

The Judith Eardley Wildlife Fund supported installation of nest boxes.

Felicity Smith and Stephen Smith, DSE, provided assistance with report drafting and editing.

Summary

In 2006, Parks Victoria acquired 330 hectares of previously cleared and grazed land between the Kinglake National Park (KNP) and Warrandyte-Kinglake Nature Conservation Reserve (WKNCR). The purpose of acquiring this land parcel was to link the two parks and improve habitat for native fauna. This was to be achieved by converting 25ha of former farmland into a vegetated corridor that allowed movement of fauna between the two areas.

The Kilmore East-Murrindindi Complex bushfire of February 2009 burnt approximately 98% of KNP. The fire burnt broadscale habitat for small mammals throughout KNP and many individuals were likely to have been killed, including the threatened Brush-tailed Phascogale *Phascogale tapoatafa* and Common Dunnart *Sminthopsis murina*.

As a result, the Watson's Creek Habitat Link had even greater significance for establishing a connection between the severely fire-affected Kinglake National Park and unburnt Warrandyte-Kinglake Nature Conservation Reserve. This area is one of only two sites in Kinglake National Park with connections to unburnt forest. It is thus potentially an important avenue for fauna recruitment to the fire-affected areas of the Park.

The revegetation of the Habitat Link aimed to:

- facilitate the recovery of populations of small mammals, including the threatened Brush-tailed Phascogale, Common Dunnart and other fauna, by establishing improved habitat and allowing movement of animals to KNP from unburnt areas in WKNCR
- Contribute to the recovery of people affected by the 2009 bushfires through involvement in affirmative recovery activities.

Two kilometres of browser exclusion fencing was erected, creating six fenced plots within the Habitat Link site. The fence aimed to protect seedlings from browsers such as rabbits, kangaroos, deer and wallabies. A total of 29,520 seedlings were planted – 18,000 in 2010 and 11,520 in 2011 – with a survival rate of 86% in 2010 and 96% in 2011. Of the 2010 plantings, 8,000 seedlings were planted with protective guards outside the fenced plots.

Through separate projects, strategic, post-fire pest plant and animal control programs were implemented throughout the KNP and surrounding public land. These projects have enabled successful post-fire regeneration of key indigenous flora. Introduced predator control programs have aimed to reduce pressure on recovering native fauna populations. Around the Habitat Link area, pest animals such as the Red Fox *Vulpes vulpes,* European Rabbit *Orictolagus cuniculus* and Sambar Deer *Cervus unicolour* were targeted, as well as weeds including Blackberry *Rubus* spp, Angled Onion *Allium triquetrum,* English Broom *Cytisus scoparius* and Capeweed *Arctotheca calendula*.

This project supported and benefitted from the participation of fire-affected communities. A total of 459 volunteers from a diverse range of community and corporate groups contributed almost 2,000 hours of their time in revegetating the site.

Full evaluation of the success or otherwise of the project in terms of revegetation, and as habitat and a movement corridor for fauna, will occur over the next five years.

1 Introduction

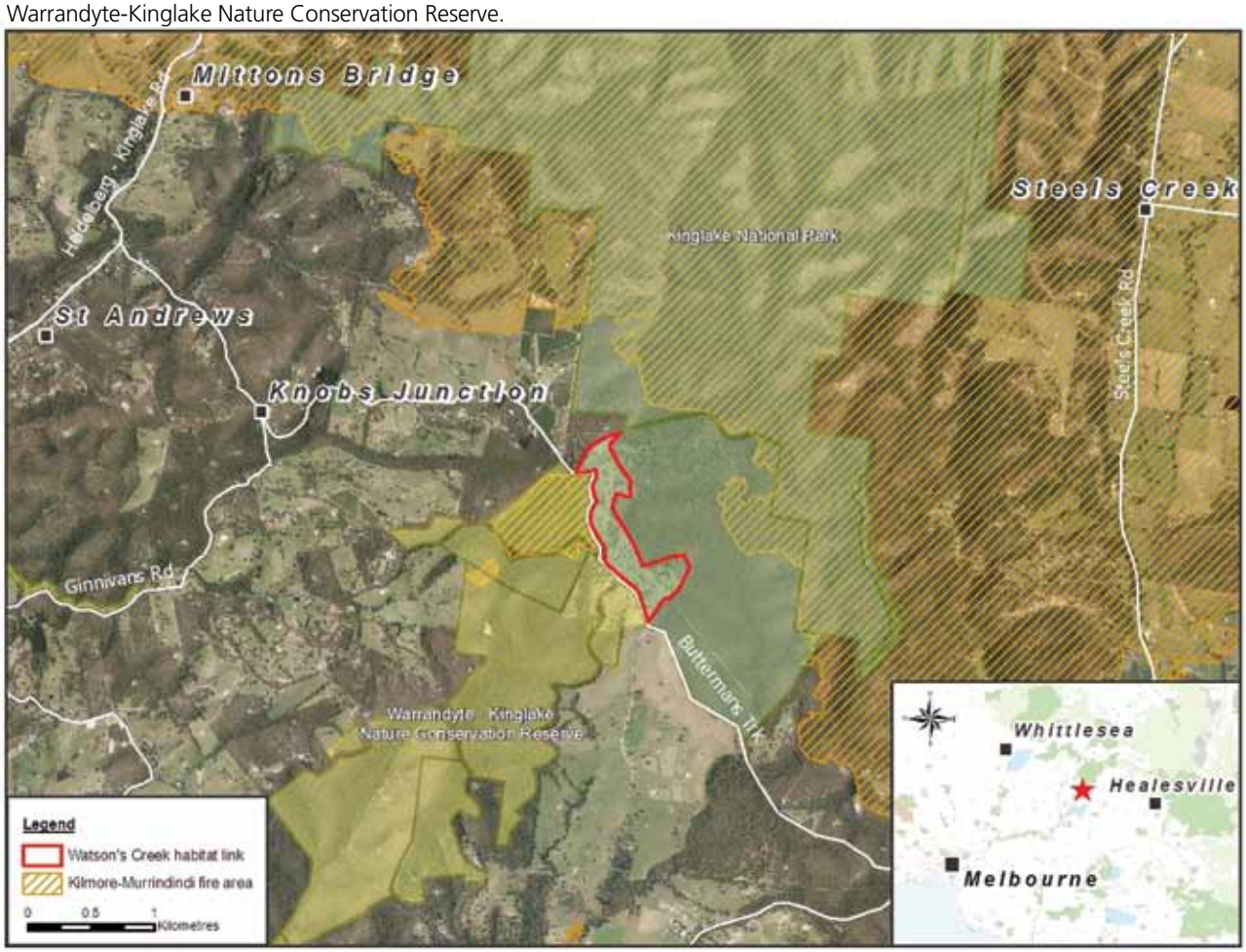
The Watson's Creek Habitat Link (Figure 1) covers approximately 330 ha and is located around 40 km north east of Melbourne. The site was partially cleared in the 1950s for grazing. The land was grazed until 2006, when Parks Victoria acquired it. The allotment is now incorporated into the Everard Block of Kinglake National Park. The cleared land is bisected by a 27 metre cleared easement containing an underground, high pressure, gas pipeline that supplies Melbourne. Gazpipe manages this cleared area.

Prior to the February 2009 bushfires, planning for the Habitat Link aimed to enhance the connection between the Warrandyte and Kinglake parks as a wildlife corridor. Approximately 98% of Kinglake National Park was burnt in February 2009 and this impact on the Park resulted in the Habitat Link having even greater significance for facilitating the survival and recovery of local flora and fauna. Fire came within 300 metres of the proposed Habitat Link site at Watson's Creek, and this area is now one of only two connections between Kinglake National Park and unburnt forest.

The impacts of the 2009 fires are likely to have resulted in a large reduction in small mammal numbers in KNP, due to the intensity, speed and broadscale nature of the fire. Two significant mammal species in the area are the Brush-tailed Phascogale *Phascogale tapoatafa* and Common Dunnart *Sminthopsis murina*. The Habitat Link is within one of 40 priority management areas defined in the Action Statement, prepared under the *Flora and Fauna Guarantee Act 1988* (DSE 2003), for Phascogales.

The Brush-tailed Phascogale *Phascogale topoatafa*, which is classified by DSE as Vulnerable (DSE 2007a) and is listed under the *Flora and Fauna Guarantee Act 1988,* has a fragmented distribution in Victoria (DSE 2007b, Figure 2). The species is primarily arboreal and largely insectivorous, foraging on the trunks and branches of rough-barked trees and fallen logs, but may also feed on eucalypt nectar when ironbarks or box trees are flowering. It nests in hollows of dead or live trees, under flaking bark or in tree stumps. Fragmentation of remnant habitat, loss of tree hollows and inappropriate fire regimes are thought to be contributing factors to their decline, as is predation by foxes (DSE 2003).

Figure 1. Watson's Creek Habitat Link forms a link between unburnt forest in the Kinglake National Park Everard Block and Warrandyte-Kinglake Nature Conservation Reserve.



Since 1999, annual Brush-tailed Phascogale surveys have recorded the species' presence in the Park. However, after the 2009 fires there were no recordings of Brush-tailed Phascogale in the burnt forest during the timespan of this project (DSE 2011). Following the end of the project, in April 2012, Phascogales were recorded in the Everard Block (see Postscript).

The Action Statement includes recommendations to expand habitat and link fragmented patches by protecting and enhancing existing habitat corridors, and establishing new corridors. Based on these recommendations, the Habitat Link was designed to improve available habitat and facilitate the safe movement of the Brush-tailed Phascogale and other fauna existing in the area.

The Common Dunnart *Sminthopsis murina*, while never formally surveyed in the Park, had been observed prior to the Black Saturday fires (Cam Beardsell, pers. ob.). Post-fire searches conducted in the same areas as these sightings yielded no observations.

1.1 Objectives

The revegetation of the Habitat Link aimed to:

- facilitate the recovery of populations of small mammals, including the threatened Brush-tailed Phascogale, Common Dunnart and other fauna, by establishing improved habitat and allowing movement of animals to Kinglake National Park from unburnt areas in Warrandyte-Kinglake Nature Conservation Reserve
- Contribute to the recovery of people affected by the 2009 bushfires through involvement in affirmative recovery activities.

The project sought to convert 25 hectares of cleared farmland to native habitat, with an indigenous vegetation composition that resembled the original Ecological Vegetation Class (EVC) of the site, in two stages (Figure 3). This was primarily Grassy Dry Forest EVC with some areas of Herb-rich Foothill Forest EVC. An increase in habitat was to be achieved through revegetation in conjunction with the creation of refuge areas using strategic placement of habitat logs.

Management of the site using weed, browser and predator control measures was done to support the establishment of native plant tubestock and the survival of fauna using the area.

Figure 2. Brush-tailed Phascogale *Phascogale topoatafa* distribution within Victoria (DSE 2007b).

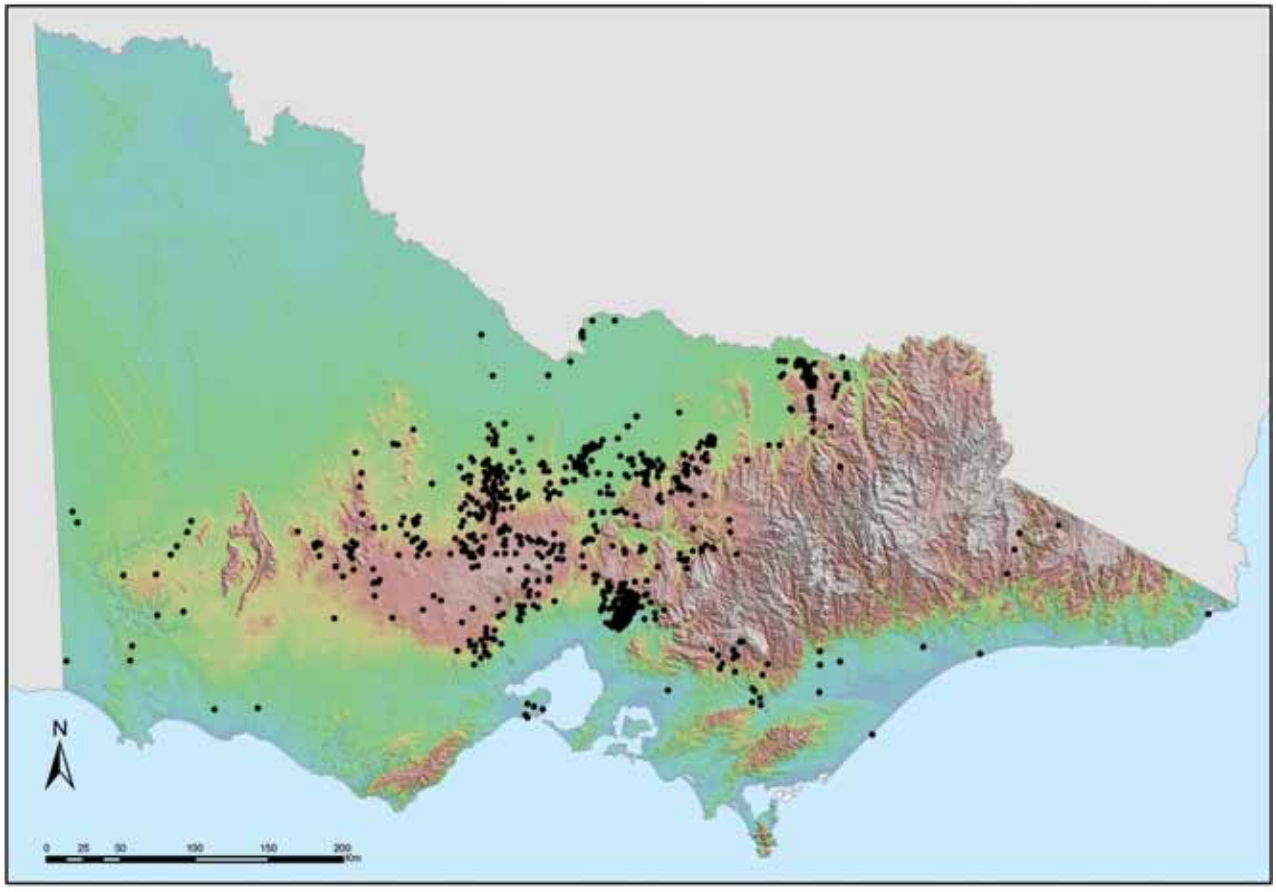
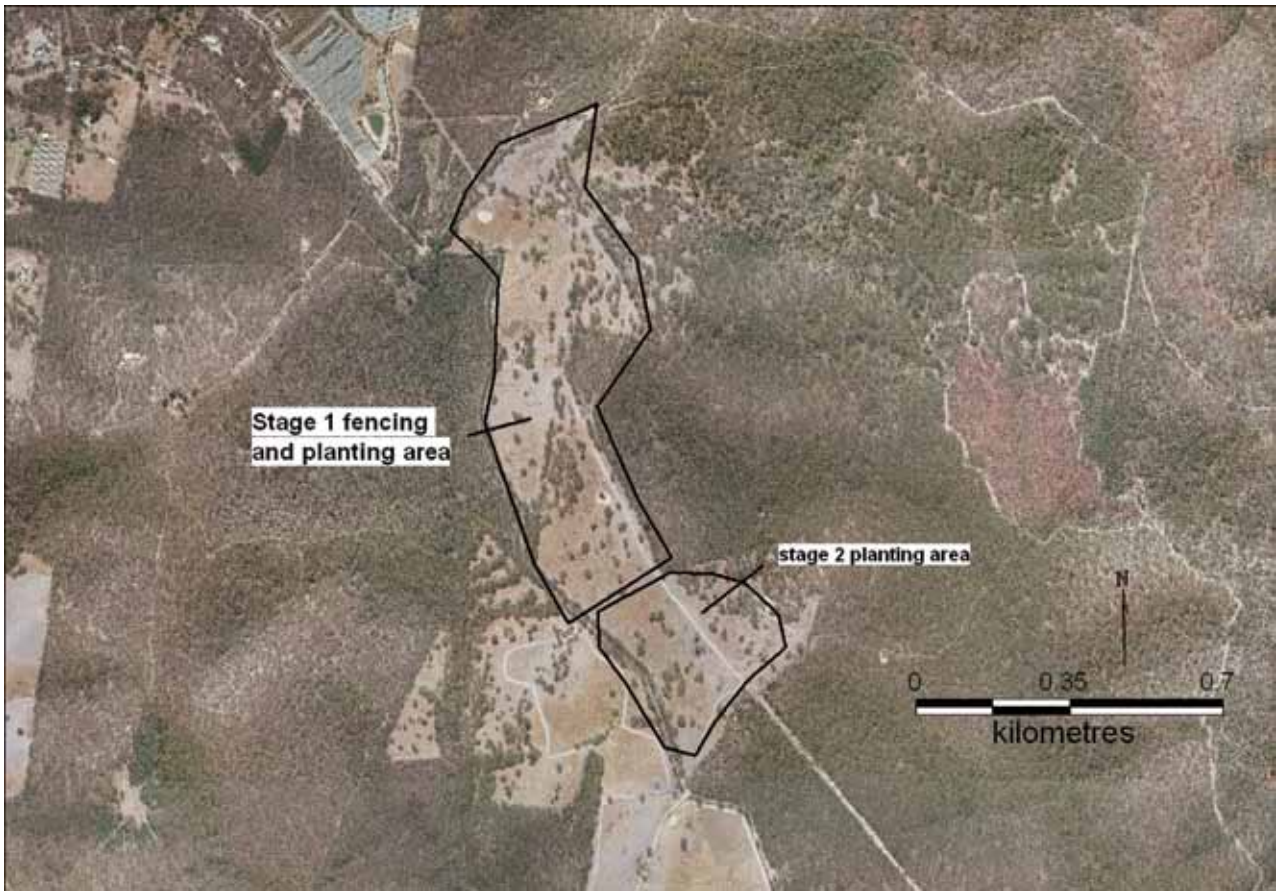


Figure 3. Stage 1 and 2 areas of the Habitat Link.



2 Project planning

2.1 Community consultation

As part of project development, it was important to not only inform the community but also to seek local opinions and so gauge support for the project. Local residents and the local Country Fire Authority (CFA) brigade were invited to meet on site to discuss a range of issues relating to the proposal (Figure 4). Since the Black Saturday fires narrowly missed this site, a discussion was held regarding continued access to water points for future fire fighting efforts and ongoing fuel reduction measures.

Community involvement became a key aspect of this project, with many volunteers and community groups expressing interest in becoming involved with the on-ground preparation and revegetation works.

2.2 Revegetation planning

The North–Eastern Regions of Council (NEROC) Report (Beardsell 1997) was used as a guide for revegetation species selection, planting distribution and seed collection. Doug Frood, a local botanist, also gave valuable insight into plant species dynamics, especially with respect to native grasses and the patches of existing, remnant, native pasture. This information was incorporated into the revegetation plan, including project milestones (Appendix 1) and the revegetation plant species list compiled by Parks Victoria (Appendix 2).

2.3 Seed collection and propagation

Eucalypt seed was collected according to provenance guidelines at nearby sites in 2009 by Conservation Volunteers Australia, Green Corps, Californian Conservation Corps and other community groups. Grass and understorey seed was collected by local collector Kahn Franke of Wyeena Nursery. Seedlings were raised by volunteers and Parks Victoria staff at nurseries based at Warrandyte State Park and Westerfolds Yarra Valley Park. Seedlings were ready for planting in autumn/winter 2010 (Stage 1). Stage 2 plantings, in Spring 2011, were raised and planted by a contractor.

Figure 4. Community consultation meeting held on site, prior to commencing the revegetation program, December 2009 (Tony Fitzgerald).

2.4 Focus on revegetation of gullies

After consideration of expert ecologist consultant advice (K. Cherry, pers comm.), it was proposed to construct a series of browsing animal-proof fences around the three major gullies draining the site. Within these enclosures, high numbers of densely planted, unguarded, understorey seedlings were to be established. This approach aimed to provide the following benefits:

1. Consolidate and complement the existing remnant eucalypts along the gully lines
2. Provide benefits to water quality by reducing erosion, siltation and nitrification
3. As gullies are considered to be important pathways for the movement of small mammals, increase suitable habitat for movement of species.

It was proposed to plant a range of eucalypt species between the gullies, surrounded by a plastic mesh guard and a cardboard weed mat. Eucalypt species were to be planted in accordance with the species' preferred growing conditions on the ridges (mid slope or lower slope) within the Watson's Creek catchment.

2.5 Volunteer partnership

The involvement of corporate environmental organisations, such as Greenfleet, was considered essential to undertaking the scale of work required for the Habitat Link project. This type of partnership complemented the resources required to assist with the organisation of volunteer planting days, and engaging tree planting contractors and nurseries for raising seedlings, especially in Stage 2 of the project.

3 Methods

3.1 Stage 1 – 2010

3.1.1 Seed collection and propagation

In 2009, seedlings were raised from seed collected locally by a local nursery (Wyeena Nursery), visiting Californian trainees and conservation volunteers. Eighteen thousand seedlings were propagated for planting in autumn/winter 2010. Volunteers from Friends of Yarra Valley Parklands and Friends of Warrandyte State Park propagated 8,000 eucalypt seedlings, while Greenfleet contracted a local nursery, Prestige Plants at Whittlesea, to propagate 10,000 understorey species. A further 11,520 seedlings were raised by F & M Smolders Revegetation, under a Greenfleet contract, in time for planting in 2011.

3.1.2 Site preparation

Twelve hectares were prepared for revegetation by mechanically ripping the ground along contours to a depth of approximately 300mm. This was primarily undertaken to allow moisture penetration in the highly compacted soil.

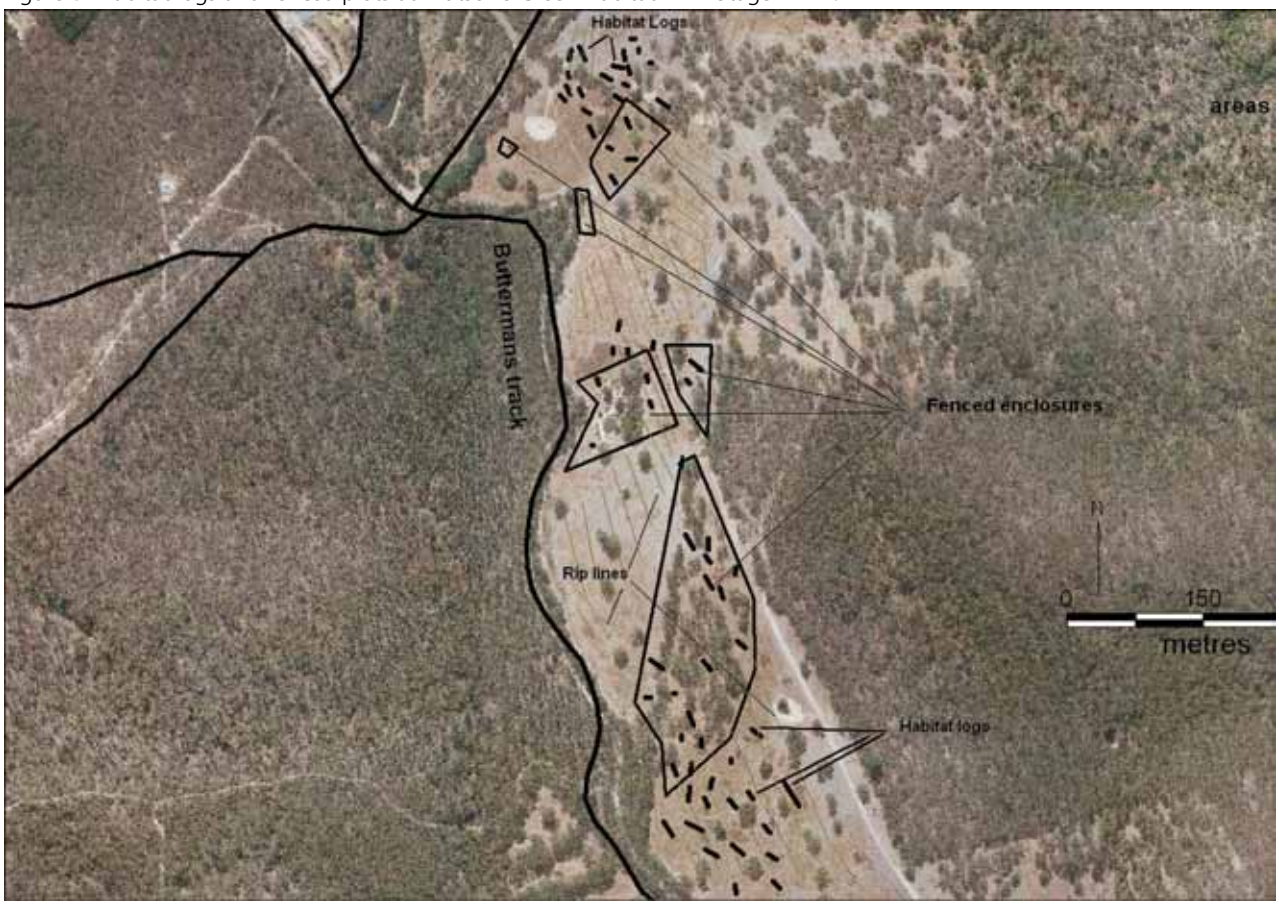
The area was sprayed with herbicide (RoundUp™) prior to planting, to completely remove competing weed species.

Three kilometres of browser exclusion fencing was erected, creating six fenced plots totalling 16.2 hectares. The fences were designed to exclude the main browsers — deer and rabbits — from the revegetation sites (Figure 6b).

Murrindindi Shire supplied hardwood logs, sourced from fire-affected roadsides and private land clearing of burnt and unsafe trees. These logs were installed as a habitat source, and were placed throughout the Habitat Link area to enhance the project's effectiveness as a fauna link (Figure 5) by providing ground-level shelter for fauna movement between the unburnt forest of Warrandyte Nature Conservation Reserve and the burnt Kinglake National Park (Figure 1).

Eight hectares were ripped and sprayed with herbicide in preparation for the Stage 2 plantings to be undertaken in the south-eastern section of the site (Figure 3).

Figure 5. Habitat logs and fenced plots at Watson's Creek Habitat Link. Stage 2 – 2011.



3.1.3 Planting and direct seeding

A total of 18,000 seedlings were planted in winter 2010. Greenfleet planted 10,000 understorey seedlings within the browser exclusion plots. Volunteers planted 8,000 eucalypt seedlings outside the fenced plots (see figure 6e). The eucalypt seedlings were protected from browsers and weed growth with cardboard weed mats ('pizza tray') in conjunction with hardwood stakes and plastic mesh guards (See photo 6f). A further 11,520 seedlings were planted in 2011.

One hectare of the Habitat Link was direct-seeded by hand with the native grasses *Microleana stipoides*, *Danthonia* spp. and *Joycea* spp., as a trial for future revegetation efforts, to complement existing patches of remnant native grass species.

Volunteers were trained in, and demonstrated, the recommended revegetation techniques at community planting days. They were involved in the planning, preparation and implementation of the project.

3.4 Additional activities

To combat damage by herbivores on native flora, and predators on native fauna species, fox and rabbit control programs, funded by Caring for Our Country, were undertaken by Parks Victoria.

Ecological Consulting Services were contracted to install 70 nest boxes suitable for small arboreal species within and adjoining the Habitat Link area. The cost was supported by the Judith Eardley Wildlife Fund.

Extensive weed control for Blackberry *Rubus* spp., Angled Onion *Allium triquetrum*, English Broom *Cytisus scoparius* and Capeweed *Arctotheca calendula* was undertaken through the Parks Victoria and Caring for Our Country funded fire recovery weed control programs.

Deer were culled during Stage 1. During Stage 2, deer culling and browser proof fencing was discontinued, and a browser deterrent, 'Sen-Tree' ,was applied to the foliage of seedlings prior to planting.

3.5 Monitoring of seedling survival rates

Post-planting survivorship surveys were structured into the project plan. This task was contracted to Greenfleet to be undertaken 3–4 months after the staged plantings in both 2010 and 2011. Survey results and survival estimates were recorded on Parks Victoria and DSE databases. Grass growth and direct seedling establishment was also monitored later by Greenfleet.

3.6 Stage 2 – 2011

3.6.1 Site preparation and planting

The second year of the project saw another eight hectares revegetated. The ground was ripped in 2011 in preparation for the spring planting of approximately 20,000 seedlings. Species selected for planting included eucalypts and acacias (Appendix 2) and these had browser repellent applied to the seedling foliage prior to planting. Volunteers contributed 50 hours of work to this stage of the project, and the planting was undertaken by a Greenfleet-engaged contractor.

4 Project outcomes

4.1 Revegetation and community participation

4.1.1 Stages 1 and 2: 2010–2011

Some 29,520 native tubestock seedlings were planted in two stages at the Watson's Creek Habitat Link site between May 2010 and September 2011. The first year totalled 18,000 seedlings planted and second year 11,520 seedlings.

A total area of 20 ha was revegetated.

Volunteers from a range of community and corporate groups contributed 1,798 hours to these activities (Appendix 3). The cost estimate for a contractor to have undertaken the volunteer work was $40,000. Therefore, this voluntary community assistance provided not only social but significant financial benefits to the project.

Figure 6. Stage 1 progress. 6a. Mechanical ripping of site; 6b. Browser-proof fenced plot; 6c. Habitat logs within fenced plot; 6d. Delivery of indigenous seedlings; 6e.Victorian National Parks Association (VNPA) planting day, May 2010; 6f. Guarded seedlings on upper slope of the Habitat Link, May 2010. (All Tony Fitzgerald).

6a

6b.

6c.

6d.

6e.

6 f.

4.2 Monitoring

Greenfleet undertook a post-planting survivorship survey in 2010 for Stage 1, approximately three months after planting, and recorded an 85% seedling survival rate. High summer rainfall was very beneficial to the early success of this project, and can be attributed to the survivorship rate of Stage 1.

Another survey in November 2011 was undertaken to assess both the 2010 and 2011 plantings. This reported a 96% survival rate for the Stage 2 area. The few plant deaths that occurred were caused by inundation from above average rainfall in late 2010–2011. Messmates (*Eucalyptus obliqua*), Prickly Ti-Tree (*Leptospermum continentale*) and Blackwood (*Acacia melanoxylon*) have benefitted most from these wet conditions, with a number of trees adding 50cm of growth since planting (Greenfleet 2011). Survival rates will be monitored annually by Greenfleet for the next five years.

Small mammal surveys are being undertaken in collaboration with Northern Melbourne Institute of TAFE (NMIT) through a partnership to monitor the Habitat Link.

Figures 7 and 8. Vigorous seedling growth at Watson's Creek Habitat Link, spring 2011 (Thomas Chambers).

Figure 7

Figure 8

5 Discussion

The development of the Watson's Creek Habitat Link established the foundations for a habitat corridor to assist the longer term recovery of native fauna after the fires. This will allow movement of fauna from areas of unburnt forest into the regenerating habitat in Kinglake National Park. Consequently, the success of this Habitat Link will need to be measured over a number of years as the revegetation matures and becomes established habitat for wildlife.

Ongoing management of the Habitat Link area will be required to allow establishment of revegetated flora. In consultation with the local Country Fire Authority (CFA), slashing will be maintained along the adjoining Butterman's Track for fuel reduction purposes and to ensure access to water points is maintained.

Prior to revegetation, tunnel erosion was evident in the area around the gas pipeline easement. This area was fenced and revegetated with the hope of stabilising the erosion. Ongoing monitoring of this area for erosion will be required, and future stabilisation measures may need to be undertaken.

In the aftermath of the Black Saturday bushfires, a great deal of public interest and attention was generated towards the recovery of natural habitat. While it is evident that the native vegetation is recovering after the fires, it is more difficult to assess the recovery of the native fauna, particularly in areas that were burnt severely.

Monitoring of flora and fauna should continue in this area, and the success of the Habitat Link will be measured by the presence of native fauna using the area either as permanent habitat, or as a corridor for movement. The revegetation will be monitored annually for five years. Annual surveys for Brush-tailed Phascogales in the Habitat Link and adjacent areas should continue, and habitation of the installed nest boxes should also be monitored. Monitoring of rabbit and deer browsing impacts should also continue. Information gained from fauna monitoring should be provided to the Parks Victoria's Environmental Information System and DSE's Victorian Biodiversity Atlas.

Natural regeneration of eucalypts has been observed in areas where ripping alone was undertaken. In these areas, management priorities should focus on reducing competition from exotic weeds, such as Capeweed. Self-thinning of eucalypts will occur and future understorey planting may be beneficial to enhance habitat components.

One hectare of direct seeding of eucalypt and native grasses was sown around a grassy knoll at the northern end of the Habitat Link, with approximately 1000 surviving germinants. This area will continue to be monitored for grass survival, growth and interaction with adjoining exotic pasture species and grazing impact.

It is intended that wildlife will continue to be protected from predators through ongoing fox and cat control programs within the National Park. Browsing animal control, through maintenance of existing fencing and a long netting rabbit control program, is planned to continue. Deer culling, undertaken as part of a predator control program (Caring for our Country funded) during the timing of Stage 1 works, was likely to have contributed, along with the favourable seasonal rains, to the early success of the plantings. However, that program was postponed in the short term due to a review of permit procedures by Parks Victoria. For this reason, a browser deterrent was applied to foliage of seedlings just prior to planting. Greenfleet has had success with this browser deterrent at other revegetation sites. Its effectiveness as a foliar-applied deterrent was monitored in November 2011 after completing Stage 2 planting. Greenfleet reported that the deterrent appears to be effective. Monitoring of the deer impact on seedling health should be investigated, until the seedlings are approximately five years of age.

5.1 Recommendations

Recommendation 1: That Parks Victoria monitors seedling growth and survival rates for five years.

Ensuring the success of the Watson's Creek Habitat Link will depend on the ability of land management agencies to undertake ongoing monitoring and pest plant and animal control measures. The development of the site has been a result of contractors, volunteers and expert advice providing assistance to Parks Victoria staff. Recent, positive, post-planting survey results indicate that the project has benefitted from comprehensive planning and consultation with both experts and community. Success of the revegetation will require ongoing monitoring of seedling growth and survival rates to inform management practices. It is recommended that survival rates and early growth of Stage 1 and Stage 2 plantings be monitored for five years.

Recommendation 2: That Parks Victoria monitors the impacts of browsing animals, particularly deer and rabbit, before and following the removal of the exclusion fence.

Parks Victoria recognises the importance of monitoring the numbers of browsers (principally deer and rabbit), and maintaining their numbers at present, low levels. A consequence of successfully controlling these species is the opportunity to investigate the removal of browser exclusion fences after five years, if there has been no further disturbance to the area.

Recommendation 3: The exclusion fence and tree guards are removed after approximately five years and weed control is maintained.

The browsing animal exclusion fence should be removed following an assessment of the resilience of revegetated areas to withstand reintroduction of browsing. It may be prudent to remove the exclusion fencing in a staged manner, monitoring the impact, before full removal across

the revegetated areas. It will be necessary to remove tree guards when required, so that tree growth is not restricted. Exotic weed growth has the potential to out-compete the direct-seeded rehabilitation area of native grasses. When required, it is recommended to undertake careful weed control in this area.

Recommendation 4: That Parks Victoria familiarise the CFA with access to watering points annually, maintain slashing along Butterman's Track and monitor the gas pipe easement for erosion.

To maintain the inter-agency relationships with local CFA fire brigades, it is recommended that Parks Victoria familiarise them annually with water access points.

Continuing the annual slashing program along Butterman's Track and Marshalls Road will also contribute to supportive relationships with the local community regarding management of fire hazards, and enable access to these water access points. Monitoring the tunnel erosion stabilisation works along the gas pipe easement will inform Parks Victoria staff of the need for further stabilisation works.

Recommendation 5: That Parks Victoria establishes relationships with interested and capable institutions and volunteers to facilitate ongoing monitoring of fauna.

There are opportunities to develop collaborative relationships with organisations such as NMIT for continuing mammal and pest animal surveys. This work would also support and complement the maintenance of fauna and flora photo points and/or the establishment of a sample of monitoring plots. There is also potential to include local community groups, such as Landcare, in the annual surveys of the recently installed nest boxes and potentially for the Brush-tailed Phascogale. Distributing updates on the site development, when appropriate, would be beneficial in maintaining engagement with volunteers.

Recommendation 6: That Parks Victoria continues to engage local residents in the Habitat Link with the aim of encouraging complementary activities on adjoining land holdings.

As a result of positive public interest and involvement in the development of the site, and the potential benefits for enhancing habitat values on this particular site, there are also opportunities to increase the dimensions of the Habitat Link on adjoining public and private land. This would require ongoing consultation and communicating the results of monitoring to the adjacent landholders and land managers. The success of the Habitat Link is inextricably linked to undertaking ongoing monitoring of the revegetation, fauna movement and level of community interest.

6 Postscript

In April 2012, five Brush-tailed Phascogales (2 female, 3 males) were recorded in the burnt section of the Everard Block of Kinglake National Park during the annual Brush-tailed Phascogale survey. One Brush-tailed Possum has been observed using a nest box installed in the Habitat Link. A full survey of all the nest boxes has not been conducted yet.

Figure 9. Brush-tailed Phascogale recorded in the Everard Block, Kinglake National Park, April 2012 (DSE).

References

Beardsell, C. (1997) *Sites of Faunal and Habitat Significance in the North East Melbourne, A report prepared for the North – East Region of Councils* (NEROC). Dunmoochin Biological Surveys, Melbourne.

DSE (2003) *Action Statement No. 49. Brush-tailed Phascogale, Phascogale tapoatafa*. Department of Sustainability and Environment, Victoria.

DSE (2007a) *Advisory list of threatened vertebrate fauna in Victoria* – 2007. Department of Sustainability and Environment, East Melbourne.

DSE (2007b) *Victorian Fauna Database*, Viridans Biological Databases.

DSE (2011) *Actions for Biodiversity Conservation (ABC) database*. Department of Sustainability and Environment, Victoria.

Greenfleet (2011) Watson's Creek Habitat Link seedling survey results. Unpublished report to Parks Victoria.

Parks Victoria (2010) *Kinglake National Park Masterplan (Draft)*.

Appendix 1: Project milestones

Milestone	Target	Milestone Date
Collection of local seed	Full range of over/understorey species	Dec 2009 and Dec 2010
Raising of seedlings at local nursery	17,000 seedlings ready for Autumn/ Winter planting	June 2010
Complete planting	10,000 seedlings	June 2011
Post planting survey	85% success rate, replacement planting where required	Nov 2010 and Nov 2011
Small mammal survey	Presence/absence	Apr 2011
Enter data onto EIS and include in project report		June 2011
Complete and submit final project report to program coordinator		June 2011

Appendix 2: Revegetation species lists

Stage 1 revegetation species list and supplier

Tree and shrub species	Planned	Planted	Nursery
Acacia dealbata	300	300	Prestige Plants
Acacia leprosa	500	500	Prestige Plants
Acacia melanoxylon	500	500	Prestige Plants
Acacia verticillata	1000	1000	Prestige Plants
Acaena novea-zelandiae	400	400	Prestige Plants
Carex appressa	1000	1000	Prestige Plants
Clematis microphylla	100	100	Prestige Plants
Coprosma quadrifida	300	300	Prestige Plants
Eucalyptus fulgens	500	500	Friends Group
Eucalyptus macroryncha	800	800	Friends Group
Eucalyptus melliodora	1500	1500	Friends Group
Eucalyptus obliqua	500	500	Friends Group
Eucalpytus polyanthemos	1000	1000	Friends Group
Eucalyptus radiata	500	500	Friends Group
Eucalyptus tricarpa	500	500	Friends Group
Goodenia ovata	300	300	Prestige Plants
Leptospermum continentale	500	500	Prestige Plants
Lomandra filiformis	500	0	Prestige Plants
Lomandra longifolia	1500	2000	Prestige Plants
Melicytus dentata	1500	1500	Friends Group
Microlaena sp.	200	200	Friends Group
Olearia argophylla	100	100	Prestige Plants
Olearia stellata	500	500	Prestige Plants
Poa ensiformis	1000	1000	Prestige Plants
Poa labillardieri	500	500	Prestige Plants
Pomaderris aspera	500	500	Prestige Plants
Prostanthera lasianthos	500	500	Prestige Plants
Total	**17000**	**17000**	

Stage 2 revegetation species list and supplier

Tree and Shrub species	Planned	Planted	Nursery	Planting area
Acacia mearnsii	0	720	Frank Smolders	Everywhere
Acacia dealbata	720	0	Frank Smolders	Mid/lower sections
Acacia leprosa	600	600	Frank Smolders	Lower sections
Acacia melanoxylon	800	800	Frank Smolders	Mid/lower sections
Acacia verticillata	800	800	Frank Smolders	Higher areas
Cassinia arculeata	600	600	Frank Smolders	Everywhere
Eucalyptus fulgens	240	0	Frank Smolders	Mid sections
Eucalyptus macroryncha	1200	600	Frank Smolders	Higher areas
Eucalyptus melliodora	800	800	Frank Smolders	Lower sections
Eucalyptus obliqua	1480	2000	Frank Smolders	Lower sections
Eucalpytus polyanthemos	1600	2000	Frank Smolders	Higher/Mid areas
Eucalyptus radiata	520	680	Frank Smolders	Middle areas
Goodenia ovata	120	120	Frank Smolders	Mid/lower sections
Leptospermum continentale	480	640	Frank Smolders	Lower sections
Melicytus dentata	480	480	Frank Smolders	Mid/lower sections
Olearia argophylla	80	80	Frank Smolders	Lower sections
Pomaderris aspera	240	80	Frank Smolders	Lower sections
Prostanthera lasianthos	240	0	Frank Smolders	Lower sections
2010 Fill In				
Eucalyptus obliqua	200	200	Frank Smolders	Middle/lower Slopes
Eucalyptus polyanthemos	160	160	Frank Smolders	Middle/lower Slopes
Eucalyptus radiata	160	160	Frank Smolders	Middle/lower Slopes
Total	**11520**	**11520**		

Appendix 3: Volunteer groups

Volunteer groups involved with preparation and revegetation works (to end of Stage 1).

Volunteer Group	Dates assisted with works
Aitkin College	18/6/2010
ANZ Corporate Group	30/8/2010
Boorandara Bush Walking Club	22/5/2010 18/8/2010
Christmas Hills LandCare Group	6/6/2010
Conservation Volunteers	4/6/2010
Deakin Uni Enviro Group	8/5/2010 9/5/2010
Eltham College	14/5/2010 21/5/2010
Ferntree Gully LandCare Group	30/5/2010
Friends of Kinglake National Park	1/5/2010 5/6/2010
Friends of Mt Piper	30/5/2010
Friends of Warrandyte	2/8/2010
GreenFleet Partner Day	26/8/2010 27/8/2010 20/10/2010 21/10/2010
Individuals	9/5/2010 22/5/2010 23/5/2010 30/5/2010 6/6/2010 19/6/2010 1/8/2010 30/8/2010
Ivanhoe Grammar School	10/6/2010
Jewish National Federation	6/5/2010
Melbourne University Students	29/5/2010 5/6/2010
Middle Yarra LandCare Group	19/8/2010
NMIT CLM Students	12/7/2010
PV Staff Planting Day	5/5/2010 26/5/2010
Schools National Tree Day – Local Schools	30/7/2010
St Andrews LandCare Group	16/5/2010
Victorian National Parks Association	15/5/2010

www.dse.vic.gov.au