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Reserve Activity Plan

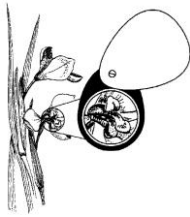
2020-2030

BRINKTOP BUSHLAND RESERVE



ADVICE PREPARED BY NORTH
BARKER ECOSYSTEM SERVICES
FOR CLARENCE CITY COUNCIL

NOVEMBER 2019



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Executive summary

Clarence City Council (CCC) intend for the *Brinktop Bushland Reserve Activity Plan 2020-2030* to fulfil three main objectives:

- Ensure the Reserve is sustainably managed to protect and enhance its natural, cultural and social values;
- Identify priority on-ground management activities to be undertaken within the Reserve by Council, community groups and/or volunteers;
- Encourage community involvement through raising awareness of the Reserve's values and encourage participation in activities to minimise threats to these values.

In order to meet these objectives, a process of extensive community consultation in conjunction with the development of this Reserve Activity Plan have resulted in the following management actions:

- Management action 1: Modify the existing vehicular barrier on old Brinktop Road to allow a narrow path for cyclists
- Management action 2: Develop a coordinated approach with Sorell Council
- Management action 3: Have the Coal River Sustainable Living Group and Clarence Council provide submissions to Sorell Council regarding management of the road reserve in conjunction with Brinktop Reserve
- Management action 4: Develop signage to be installed directing walkers from Richmond Recreation Reserve to Brinktop Reserve
- Management action 5: On-going control (yearly) and monitoring (every five years) of declared and environmental weeds in the reserve
- Management action 6: Continue to regenerate degraded areas in the Reserve with targeted plantings and targeted removal of native shrubs invading grassy areas
- Management action 7: Investigate mechanisms to deter rubbish dumping and hooning, including the potential of installing CCTV
- Management action 8: Maintain open grassy patches using ecological burning and sensitive removal of invading native shrubbery
- Management action 9: Develop a Bushfire Management Plan for the Reserve
- Management action 10: Plant only locally native species and integrate threatened species where practical. Specifically, engage the RTBG to obtain and include the endangered Tasmanian variety of *Hardenbergia violacea* in future plantings within the top car park
- Management action 11: Investigate potential for citizen science and/or school projects to document and monitor the invertebrate species within the Brinktop Reserve
- Management action 12: Retain elements of fauna habitat such as fallen logs and old trees
- Management action 13: On-going (every five years) monitoring of vegetation condition using the Vegetation Condition Assessment method and the establishment and on-going monitoring of photo-points
- Management action 14: Implement citizen science monitoring program for birds within the Reserve and conduct on-going monitoring (biennial) of bird life in reserve
- Management action 15a: Conduct a feasibility study for expanding carparking spaces and signage at the start of David's Way and the bottom of the Brinktop Reserve
- Management action 15b: Develop and implement a Landscape Plan to make the entrance to David's Way more inviting and attractive
- Management action 16: Continue to upkeep trail network through slashing and surface maintenance activities
- Management action 17: Install up to 4 seats along David's Way
- Management action 18: Install interpretive sign designed by the Coal River Sustainable Living Group
- Management action 19: Design and install interpretive signage detailing colonial history of the area and outlining key features in the landscape visible from the reserve

- Management action 20: Design and install a small sign at the site of the old Richmond – Sorell Road
- Management action 21: Liaise with local schools to promote educational and
- Management action 22: Engage and actively support the Coal River Sustainable Living Group regarding management of the reserve

1 Background

The Clarence City Council has developed and begun to implement 25 reserve activity plants (RAPs) for bushland and coastal reserves in the municipality.

The Brinktop Reserve and David's Way (named after the late David Eddington) are a relatively new linkage of walking paths from Richmond town towards the Pontos Hills. It is regularly enjoyed by locals and visitors for its natural values.

This RAP is intended to provide guidance for management of both Brinktop Reserve and David's Way for the period 2020-2030. It is acknowledged that some management actions are potentially restricted due to funding constraints and as such some actions may only be actionable in the event that sufficient funding can be obtained.

2 Objectives

Clarence City Council (CCC) intend for the Brinktop Bushland Reserve Activity Plan (RAP) 2020-2030 to fulfil three main objectives:

- Ensure the Reserve is sustainably managed to protect and enhance its natural, cultural and social values;
- Identify priority on-ground management activities to be undertaken within the Reserve by Council, community groups and/or volunteers;
- Encourage community involvement through raising awareness of the Reserve's values and encourage participation in activities to minimise threats to these values.

To facilitate these objectives, a process of extensive consultation has been undertaken within the local community. The process included the review of existing natural values reports and surveys of the reserve¹, the holding of a community event, interpersonal discussions with stakeholders, community groups and organisations, and an invitation to the local residents to submit feedback and suggestions via mail, web submission(s), and/or in person via contacting the consultant (author) or the Council's project manager². All parties were given the opportunity to comment on a draft version of the report.

To meet the objectives and address the desires of the community, the RAP contains:

- A catalogue of the biological values of the Brinktop Reserve
- Discussion of the degrading processes impacting on the ecological systems in the Reserve
- A series of recommendations for the future management of the Reserve, including monitoring

¹ Mitchell, I. (2017). Brinktop Reserve - Natural Values Report. Unpublished report prepared for the Coal River Sustainable Living Group; North Barker Ecosystem Services (2007). Brinktop Road Vegetation and Fauna Habitat Assessment. Unpublished report prepared for Johnston, McGee and Gandy Pty Ltd.

² Phil Watson, Natural Resource Planning Officer, Clarence City Council

- A community and stakeholder component demonstrating the key themes of feedback that were incorporated into future management recommendations

3 Site Description

The Reserve Activity Plan covers the approximately 1.7 ha Brinktop Reserve and the connecting 2.7 km Brinktop track (David's Way) (Figure 1).

Clarence City Council owns the titles and manages both the Brinktop Bushland Reserve and the David's Way walking track. The land abuts the Local Government Area (LGA) boundary with Sorell Council.

The reserve area is bordered mostly by cleared agricultural private land, with fragments of remnant native vegetation.

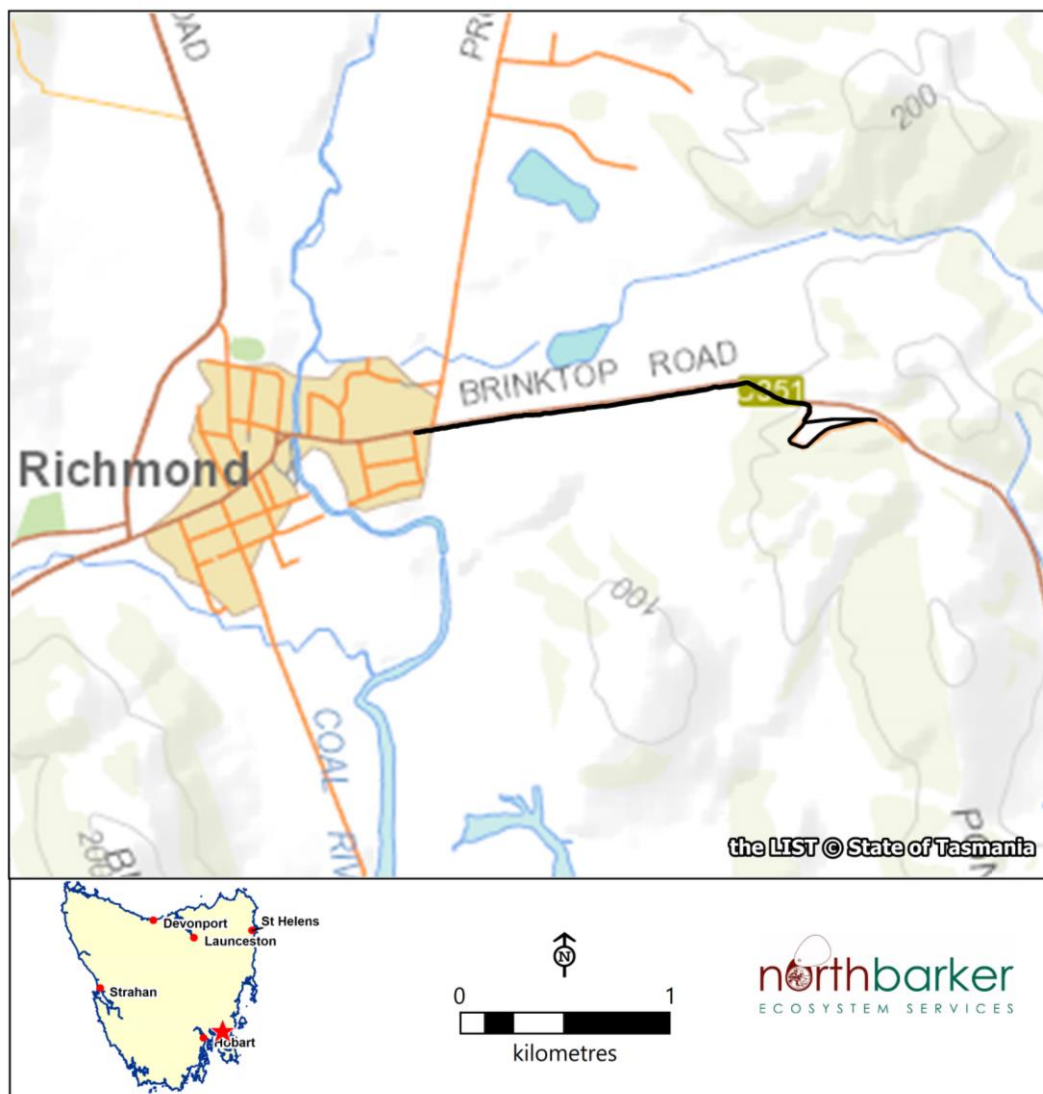


Figure 1: Brinktop Bushland Reserve and the Brinktop Track (David's Way)

4 Site values

4.1 Vegetation

The vegetation within the Brinktop Reserve consists of *Eucalyptus globulus* dry forest and woodland (DGL). David's Way is dominated by a planted mix of *E. viminalis* (white gum), *E. globulus* (blue gum) with one small section of native remnant *Eucalyptus viminalis* grassy forest and woodland (DVG), though this section hosts large infestations of gorse. Planted sections were mapped as regenerating cleared land (FRG).

Vegetation Condition Assessments

A Vegetation Condition Assessment (VCA) was conducted for both native vegetation communities. The DGL scored 69, while the DVG scored 52. A maximum of 100 points is possible for each assessment, where 100 would indicate a site in excellent condition in an ideal landscape context. Lower scores suggest poorer site condition and/or landscape context. This means that the DGL is considered to be in good condition, whereas the DVG would be closer to a moderate condition. It is worth noting that the difference in scores between vegetation communities is almost entirely due to the infestations of gorse. As such an improvement to this score would be rapidly achievable following successful weed treatment.

The utility of the VCA method is that a score can be compared to past assessments to determine improvement or decline in site condition and/or landscape context and identify which site characteristics have changed. Site managers can then target efforts to improve site attributes. Detailed condition assessments and further explanation of the VCA method can be found in Appendix F.

***Eucalyptus globulus* dry forest and woodland (DGL)**

This community occupies most of the Brinktop Reserve (Figure 3). It consists of scattered short trees of blue gum *Eucalyptus globulus* over a sub-canopy of black wattle (*Acacia mearnsii*) and she-oak (*Allocasuarina verticillata*). Prickly box (*Bursaria spinosa*) forms the tall shrub layer while the ground cover is dominated by graminoid species with sagg (*Lomandra longifolia*) being the most frequent. Grasses are also common with kangaroo grass (*Themeda triandra*) dominating.



Plate 1. DGL at Brinktop Reserve

***Eucalyptus viminalis* grassy forest and woodland (DVG)**

This community occurs as a small strip in the eastern end of David's Way (Figure 4). It consists of scattered short trees of *Eucalyptus viminalis* over a sub-canopy of black wattle (*Acacia mearnsii*) and she-oak (*Allocasuarina verticillata*). The shrub layer is dominated largely by infestations of gorse (*Ulex europaeus*), with prickly box (*Bursaria spinosa*) and black wattle (*Acacia mearnsii*) less common. Ground cover where present is dominated by grass species with kangaroo grass *Themeda triandra* and spear grasses *Austrostipa* spp. being the most frequent.



Plate 2. DVG with a gorse understorey at the eastern end of David's Way

Regenerating cleared land (FRG)

This community occurs along the majority of David's Way. It is comprised primarily of planted *Eucalyptus viminalis* and *E. globulus*, with some *Acacia dealbata* and *Bursaria spinosa*. The understorey is lacking a shrub layer and the ground layer is dominated by a mix of agricultural non-native grasses with some small patches of *Themeda triandra*.

4.2 Flora of conservation significance

The threatened species *Vittadinia muelleri* (narrowleaf new-holland-daisy – rare) was common in many parts of the reserve. A total of approximately 77 plants were observed during the current survey (Appendix G).



Plate 3. Narrowleaf new-holland-daisy and the bluish bulbine-lily within the Brinktop Reserve

4.3 Fauna

The site may provide some grazing habitat for a range of mammals and birds. No evidence of use by threatened fauna was observed during field surveys. No hollows presenting suitable habitat for vertebrate fauna were noted in any trees.

A complete bird list resulting was targeted surveys in line with BirdLife Australia bird survey protocols can be found in Appendix D.

4.4 Cultural heritage

The Clarence region broadly, including the Brinktop area, is located in Mumirimina territory, one of the ten bands that comprise the 'Oyster Bay' tribe³. The valley itself was likely used for the hunting of kangaroo, wallaby, and possum.

There is always the potential for Aboriginal heritage artefacts to occur given the rich history of Aboriginal occupation of the area. It is an offence to “destroy,

³ Ryan, L. (1996). The Aboriginal Tasmanians; Tasmanian Aboriginal Centre (2012). Mumirimina people of the Lower Jordan River Valley.

damage, disfigure, conceal, uncover, expose, excavate or otherwise interfere with a relic” unless a permit has been granted⁴. It is therefore important to ensure that no Aboriginal artefacts or other cultural material are exposed or disturbed without a permit during Reserve management activities. If an Aboriginal artefact is inadvertently uncovered, an Unanticipated Discovery Plan should be implemented immediately (Appendix E) and the items reported to Aboriginal Heritage Tasmania for advice.

4.5 Recreational values

The Brinktop Reserve is currently regularly used for recreation by both nearby residents and visitors. It is a popular walking destination for many Richmond and Coal River Valley locals.

Visitors can enjoy a scenic walk around the Brinktop circuit track, along which there are a series of plant identification signs describing local native plants in the reserve. Additionally, the reserve allows for quiet contemplation on the seating provided whilst allowing an expansive view of the Coal River Valley.

The old Brinktop Road leading into the reserve is valued as an alternative gently-sloped cycling route to the much steeper section of the new Brinktop Road. Currently, a car barrier and rocks restrict cycling access back onto the new Brinktop Road (Plate 4). This could be modified to allow cyclists the option of rejoining Brinktop Road whilst still functioning as a vehicular barrier.

Management action 1: Modify the existing vehicular barrier on old Brinktop Road to allow a narrow path for cyclists



Plate 4. The old Brinktop Road currently blocked by a car barrier. Image © Google Earth 2019

⁴ Tasmanian Aboriginal Relics Act 1975

5 Landscape setting and connectivity

Connectivity of bushland is important for the movement of fauna for foraging and breeding, as well as allowing gene flow for both flora and fauna.

The Brinktop Bushland Reserve assists biodiversity linkage between the Pontos Hills through to Brinktop and north through to Watts Sugarloaf and beyond. It also adds connectivity from the Coal River to other remnant bushland areas.

Connectivity of walking tracks is desirable as it will promote use of the reserve by walkers in nearby areas. David's Way connects the Brinktop Reserve with Richmond Reserve. Signage should be developed directing walkers between these two tracks to increase walking track linkage

Nearby bushland remnants and roadsides are maintained by the Sorell Council (Figure 2). Appropriate management (revegetation, weed management, etc.) of these adjoining areas is vital to extending the size and functionality of bushland remnants in the area. As such, a coordinated approach between the Sorell and Clarence Councils will be an important part of the on-going preservation of these areas. Other areas of remnant bush in the region border Local Government Area jurisdiction boundaries and as such a similar approach may be necessary in managing these areas (Figure 2).

The Sorell Council is currently developing an Open Space Strategy to understand how the community uses parks, walkways and recreation areas. Despite the roadside strip between Brinktop and the new road not being an open space, the opportunity to incorporate this strip of land in managed management of the Brinktop Reserve should be investigated.

Management action 2: Develop a coordinated approach with Sorell Council towards caring for remnant bushland close to the Reserve

Management action 3: Have the Coal River Sustainable Living Group and Clarence Council provide submissions to Sorell Council regarding management of the road reserve in conjunction with Brinktop Reserve

Management action 4: Develop signage to be installed directing walkers from Richmond Recreation Reserve to Brinktop Reserve

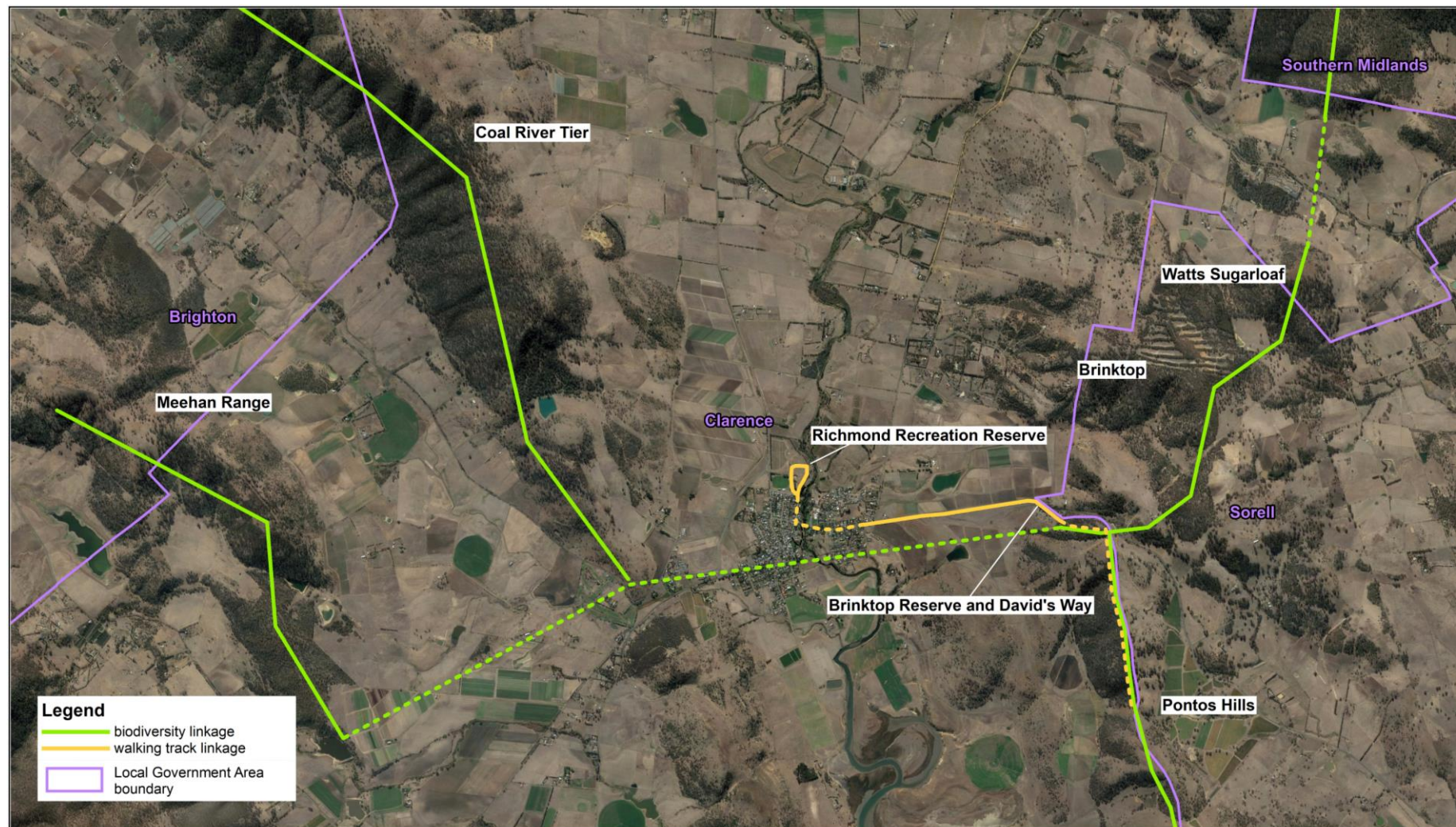


Figure 2. Biodiversity and walking track linkages from Brinktop Reserve and David's Way and surrounds



Figure 3. Vegetation, weeds, and threatened flora at Brinktop Reserve

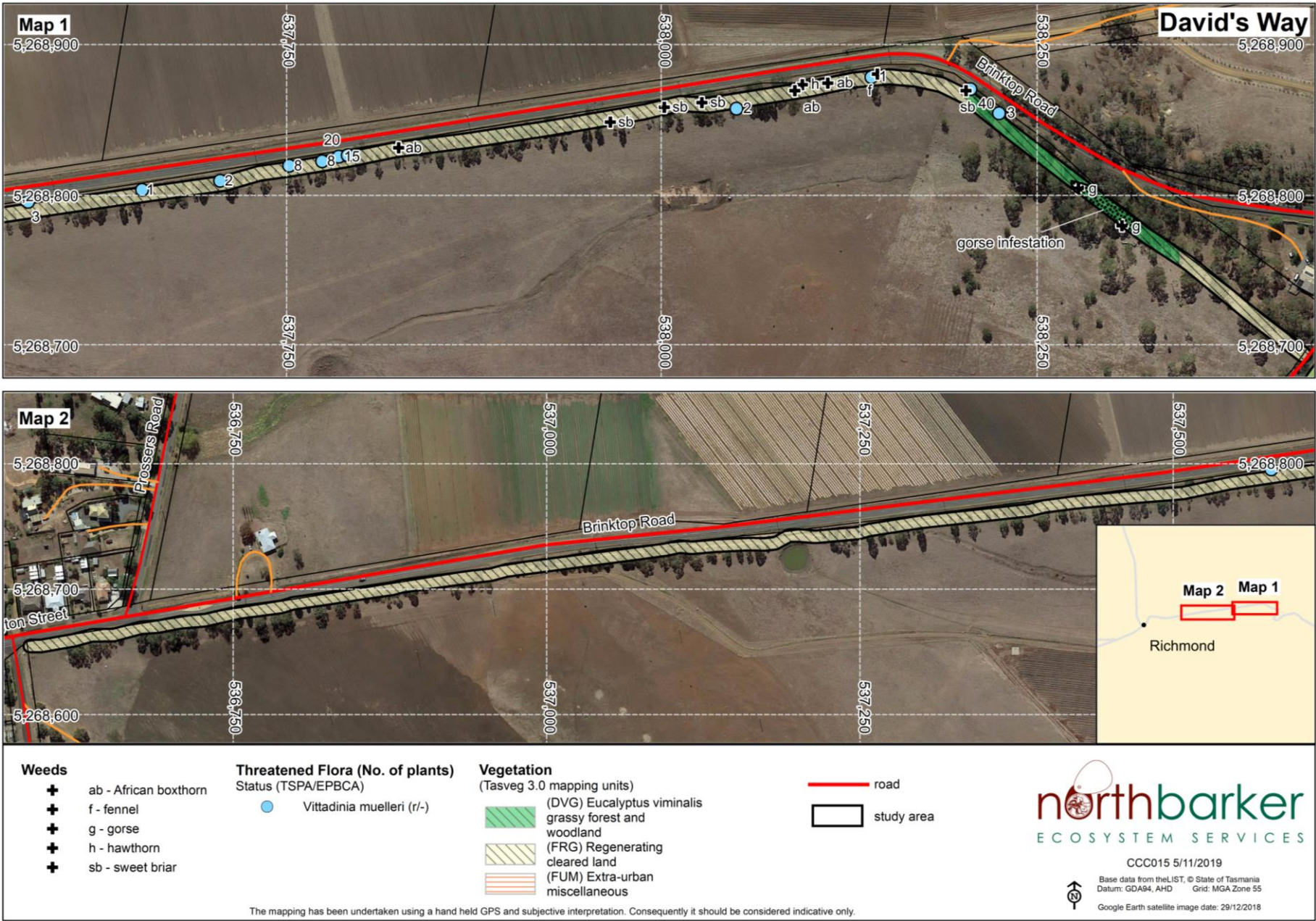


Figure 4. Vegetation, weeds, and threatened flora along David's Way

6 Stakeholder consultation

Many members of the Richmond community and beyond display a strong connection to the Brinktop Reserve. Dedicated volunteers have spent countless hours working towards restoring degraded areas of the reserve, promoting its maintenance, and encouraging educational use of the site – including producing interpretive signage to educate the public about the biological life in the Reserve.

The major themes from community consultation were broadly consistent with such a connection, and there was a strong response rate in relation to environmental factors, and the on-going maintenance and care of the Reserve similarly to how it currently is being undertaken.

The online feedback form that was open for public comment from August to October received 160-page visits however no completed forms. This possibly reiterates the theme that interested community members are largely comfortable with the current management of the reserve, or possibly reflects a lack of familiarity with the reserve among many community members. A detailed table of themes reflected across community consultation and management actions where relevant can be found in Appendix A.

A Brinktop Reserve and David's Way report card was also developed as a part of the consultation process to seek community feedback on eight key management actions (Appendix C).

7 Weed management

There has been significant effort applied in the controlling of declared weeds both in the Reserve and in the adjacent roadside. Weed control in the largest patch of gorse (*Ulex europaeus*) is currently being undertaken by Sorell Council. Communication between Clarence and Sorell Councils would be beneficial to ensure that follow-up weed control occurs. Control of invasive weeds is crucial to maintaining the condition of the vegetation in the reserve.

Four 'declared' weeds (listed under the *Weed Management Act* 1999) were recorded in the study area (Figure 3, Figure 4). These include:

- African boxthorn (*Lycium ferocissimum*) – one large individual just outside the northern boundary of the reserve with seedlings moderately common along the eastern section of David's Way
- Boneseed (*Chrysanthemoides monilifera*) – restricted to a few seedlings in the east of Brinktop Reserve
- Fennel (*Foeniculum vulgare*) – only recorded as two seedlings along David's Way
- Gorse (*Ulex europaeus*) – occurs as a large infestation in the DVG in the easternmost section of David's Way

The environmental weeds sweet briar (*Rosa rubiginosa*) and hawthorn (*Crataegus momgyna*) were also recorded. Sweet briar is very common along the roadside boundary of David's Way.

All weeds with the exception of sweet briar and gorse are in numbers that can largely eradicated through primary control. In some instances, plants nearby the reserve are likely proving to be a significant source of propagules (

Plate 6). As such weed treatment ought to also target nearby mature infestations.

Many of the declared weeds on the site, particularly the large infestations of gorse and mature African boxthorn plants, will require on-going treatments in order to be fully eradicated. This work should be conducted annually, preferably in the spring and summer (however treatment of the large patch of gorse in the DVG is considered most urgent). The annual sweep of weeds should be followed by an updated weed survey after five and ten years from the date of this RAP in order to track progress of weed management.

Management action 5: On-going control (yearly) and monitoring (every five years) of declared and environmental weeds in the reserve



Plate 5. Boneseed seedlings within the Brinktop Reserve



Plate 6. A mature individual of African boxthorn on the outside edge of the reserve that will be a continuing source of propagules if not addressed



Plate 7. Fennel seedlings along David's Way. These are currently immature and highly eradicable

8 Regeneration and revegetation

The vegetation in the Brinktop Reserve is in moderate condition and supports both threatened flora and threatened fauna habitat values. As a result, on-going maintenance of the Reserve to ensure condition either stays the same or improves is crucial to successful management of the reserve into the future.

Rubbish dumping

The Reserve has long suffered from incidences of rubbish dumping ranging from small amounts of garden waste to entire vehicles, tires, and batteries. As a result, there has been extensive ongoing attempts to regenerate areas of the reserve by removing such waste to promote growth and recruitment in lower-condition sections of the reserve.

The dumping of waste threatens to severely undermine regeneration and weed control work and as such it is recommended that options for CCTV or mock-CCTV surveillance are explored. Additionally, community education around suspicious activity and signage outlining the negative impacts and potential fines for dumping may have a positive impact on reducing this impact.

Management action 6: Continue to regenerate degraded areas in the Reserve with targeted plantings and targeted removal of native shrubs invading grassy areas

Management action 7: Investigate mechanisms to deter rubbish dumping and hooning, including the potential of installing CCTV

8.1 Regeneration activities

Ecological burning will promote the health of the native bushland and maintenance of a grassy understorey in the Brinktop Reserve. Additionally, the targeted removal of invading native shrubs will be beneficial to achieving this goal. The fire regimes used in the reserve should be determined through the production of a Bushfire Management Plan (BMP).

Management action 8: Maintain open grassy patches using ecological burning and sensitive removal of invading native shrubbery

Management action 9: Develop a Bushfire Management Plan for the Reserve

9 Conservation significant flora

One flora species listed as rare or threatened under the Tasmanian Threatened Species Protection Act 1995 (TSPA) is present within the Brinktop Reserve.

Vittadinia muelleri occurs in dry native grasslands and grassy woodlands particularly in open areas with lighter grass cover and patches of bare ground such as rock plates. It freely colonises disturbed sites such as roadside cuttings. It is widely dispersed through the Midlands and South East.

This species is widespread though in relatively low numbers across the Brinktop Reserve and David's Way (Figure 3, Figure 4). This suggests current management is favourable for this species in its current numbers. As such no specific recommendations are required for this species. General recommendations relating to protection and maintenance of the DGL community (section 5.1) will ensure the presence of suitable habitat remains available to the species, and recommendations specifically for maintaining/increasing grassy areas will be beneficial to this species.

In addition to maintaining habitat suitability for the existing threatened flora within the Reserve, general recommendations for regeneration and restoration of parts of the Reserve can have positive conservation outcomes by providing suitable habitat for other threatened flora such as the cutleaf daisy (*Brachyscome rigidula*), lemon beautyheads (*Calocephalus citreus*), milky beautyheads (*Calocephalus lacteus*). Despite suitable habitat occurring in the reserve for some of these species, none have been recorded, thus there is also an opportunity to bolster natural populations of these plants within the natural range of the species through targeted plantings.

Initial consultation with the Royal Tasmanian Botanic Gardens and DPIPW⁵ reveals an interest in engaging with Clarence Council to organise supply of *H. violacea* seedlings and seeds for planting at Brinktop Reserve.

The extant population of *Hardenbergia violacea* in Tasmania has a linear range of 0.8 km, extent of occurrence 0.15 km², and area of occupancy of less than 1 ha⁶. There are currently no known populations of *H. violacea* on public land and as such this management action presents an exciting opportunity to further engage local residents, community groups, and anyone further with an interest in Tasmanian flora and potentially boost visitation to the reserve.

Other species listed above would be available from local Tasmanian native plant nurseries.

Threatened species recorded nearby to the reserve but not within Brinktop Reserve specifically would benefit from the maintenance or expansion of open grassy areas (Management action 8).

Management action 10: Plant only locally native species and integrate threatened species where practical. Specifically, engage the RTBG to obtain and include the endangered Tasmanian variety of *Hardenbergia violacea* in future plantings within the top car park

10 Fauna habitat management

The vegetation within the reserve can provide valuable habitat for a range of invertebrate fauna. Due to its positioning among vast regions of cleared land, the value of this habitat is magnified. This remnant may provide an important site for hill-topping for butterfly species⁷. Maintenance of habitat for such species will be maintained through management action 7 (Section 8).

Citizen science or school projects may be suited to documenting and monitoring the invertebrate species occupying the reserve.

Management action 11: Investigate potential for citizen science and/or school projects to document and monitor the invertebrate species within the Brinktop Reserve

It is possible to engage citizen scientists to confirm the presence of the eastern barred bandicoot, quolls, and other fauna on site and help contribute to an understanding of its distribution and abundance. Educational signs could be placed around areas of potential habitat, encouraging observers to report to the Council or the Natural Values Atlas. If people could photograph animals without disturbing them, they could submit observations to a database like iNaturalist for verification (which would then see it added to the Natural Values Atlas).

Elements of fauna habitat such as fallen logs and old trees are important for many species and ought to be retained.

⁵ Natalie Tapson (RTBG) and Wendy Potts (DPIPWE) (pers. comm.)

⁶ Threatened Species Section (2019)

⁷ NSW Government Scientific Committee 2001

Management action 12: Retain elements of fauna habitat such as fallen logs and old trees

11 Vegetation and fauna monitoring

The most effective and efficient way of monitoring the condition of vegetation is through structured and routine Vegetation Condition Assessments (VCAs). As a part of this plan, a baseline VCA has been completed for each native vegetation type within the Reserve, and the on-going completion of such assessments are important for future monitoring of the Reserve.

Additionally, several photo-points have been established in order to enable visual monitoring of change in natural values over the course of this Reserve Activity Plan (Appendix B).

Management action 13: On-going (every five years) monitoring of vegetation condition using the Vegetation Condition Assessment method and the establishment and on-going monitoring of photo-points

There is little historical bird survey data for the Reserve and surrounding areas. The Natural Values Atlas reports observations of threatened fauna within 5 km to largely include coastal species, however the Tasmanian wedge-tailed eagle, white-bellied sea eagle, swift parrot, and Tasmanian masked owl all likely use the Reserve or surrounding area to some degree. There is some foraging habitat for the swift parrot (*Eucalyptus globulus* and *E. ovata*), and the remaining species would almost certainly traverse the site or even utilise it for hunting to varying degrees.

A bird survey in line with BirdLife Australia survey protocols was conducted in the reserve, and a full list of bird species surveyed can be found in Appendix D.

Management action 14: Implement citizen science monitoring program for birds within the Reserve and conduct on-going monitoring (biennial) of bird life in reserve

12 Reserve entrances

The two main vehicular entrances to the reserve are to the east and west of the reserve boundary. The higher carpark to the east has a landscaped garden and the majority of car parking space. The lower entrance to the reserve has space for fewer cars, and community consultation revealed an interest from local community at the addition of extra car parking space here, though support for this was not universal.

Car parking ought to be available at the beginning of David's Way to facilitate use of this track. An assessment study of the best location for parking should be conducted, and signage installed directing walkers to the track.

David's Way entrance landscaping

Clarence City Council's Landscape Architect recommended that the entrance to David's Way could be improved to be in line with nearby park entrances such as the Richmond Park Estate 100 m away. The entrance design could dovetail on existing fencing and have similar entrance themes to those at Richmond Park such as split log post and rail fencing, as well as sandstone block walling. Additionally, native plantings should be conducted in line with management action 10. A Landscape Plan should be developed and implemented to achieve these outcomes.

Management action 15a: Conduct a feasibility study for expanding carparking spaces and signage at the start of David's Way and the bottom of the Brinktop Reserve

Management action 15b: Develop and implement a Landscape Plan to make the entrance to David's Way more inviting and attractive

13 Tracks

The current walking tracks through Brinktop Reserve are in very good condition and well maintained. There was interest from community consultation in reducing the degree of slashing that occurs on tracksides to both encourage members of the public to stick to formed trails and to allow visitors to enjoy the vegetation without leaving the track. This slashing appears to have been beneficial to the threatened *Vittadinia muelleri* (and is known to be beneficial at other sites⁸) and was conducted for bushfire hazard management purposes (thus is inflexible in terms of reduction). As such, unless a future scenario eventuates where off-track walking becomes a more significant issue in the reserve, the current slashing regime should continue.

There are currently no plans within Clarence Council to add additional tracks to the Reserve. The existing circuit is maintained under the CCC track maintenance program. There is the potential for an extension of the walking track to the Pontos Hills as a part of possible future subdivisions⁹. This would extend the walking track connectivity to the remnant bush in this region.

All tracks are currently utilised by visitors to the reserve and as such it is not recommended that any tracks be closed over the course of this reserve plan.

Management action 16: Continue to upkeep trail network through slashing and surface maintenance activities

⁸ <https://www.threatenedspecieslink.tas.gov.au/Pages/Vittadinia-muelleri.aspx>

⁹ Mary McParland, Recreational Planner – Trails & Cycleways with the CCC (pers. comm.)

14 Seats and interpretive signage

14.1 Seating

There is a keen interest revealed through community consultation in the installation of up to four new seats along David's Way. An indicative plan with potential locations for these seats is included in Figure 5, including a dual seat location. Single seats should follow a similar design to existing new seating within the Brinktop Reserve (Plate 7). A concept plan for a dual bench area can be found in Appendix H.

Management action 17: Install up to 4 seats along David's Way

14.2 Signage

Signage for many common and threatened plant species have been constructed by the Coal River Sustainable Living Group (CRSLG) and has been requested by some members of the community during the initial consultation phase. The CRVSG have also produced a large interpretive sign with information on the aboriginal history and natural values of the Reserve (Plate 8). Community consultation also revealed an interest in signage educating Reserve visitors of the geology and geography of the area. If possible, this information could be incorporated into the current design. Alternatively, an additional sign could be developed detailing the colonial history of the area, as well as pointing out key features seen in the landscape from the Brinktop Reserve. More research should be conducted into the old road and its significance and any detail added to this new signage.

There was widespread interest and support during the community walk and talk for a small sign to be erected signifying the location of the old road that once connected Richmond to Sorell.

Management action 18: Install interpretive sign designed by the Coal River Sustainable Living Group

Management action 19: Design and install interpretive signage detailing colonial history of the area and outlining key features in the landscape visible from the reserve

Management action 20: Design and install a small sign at the site of the old Richmond – Sorell Road

Brinktop Bushland Reserve



Tasmanian Aboriginal People

The Coal River Valley is part of the country of the Oyster Bay people of Tasmania, which comprised ten bands. The Moomalremener band lived in the Pitt Water and Risdon areas, enjoying a diet of native plant foods, shellfish from estuarine areas, and emus, possums and kangaroos from their hunting grounds of open forest and plains.

The band moved with the seasons, taking advantage of available food and spending winters on the coast where they sourced shellfish, coastal birds and native plant food. With the warmer weather they would move inland to hunt larger game, following well-defined routes.

The Moomalremener band shaped the landscape over many thousands of years using traditional practices such as firing the land for hunting and gathering purposes.



Tasmanian pademelon (Thylagale billiardieri) is the sole endemic species of pademelon found in Tasmania.
Photo: Michael Dwyer



Vegetation

The vegetation in the Coal River Valley has changed from the days of the Moomalremener people. European settlement and agricultural practices have caused the loss of native vegetation, particularly along the valley floor.

Brinktop Reserve contains remnant native vegetation best described as 'blue gum (*Eucalyptus globulus*) dry grassy woodland'. The large old trees and a mix of tree ages are good evidence of this bushland's natural replenishment with numerous seedlings of tree and large shrub species.

The rare, threatened species narrowleaf new-holland daisy (*Vittadinia muelleri*) occurs within the reserve. The flowers are small and mauve in colour with a yellow centre, flowering from November to May. A number of plant species in the reserve are Tasmanian endemic, meaning that they only occur in Tasmania.

Plants you may see along the loop track:

blue gum, black gum, black peppermint, white gum, prickly box, black wattle, blackwood, silver wattle, drooping sheoak, necklace sheoak, broadleaf hopbush, native cherry, kangaroo grass, silver tussock, spear grass, native cranberry, pussy tails, heathy daisy bush and new-holland daisy.

Most of these are described in the signage along the track. Depending on the season, some may be dormant so difficult to spot in the pictured form.



Habitat

This bushland provides valuable habitat for smaller mammals and invertebrate species. Tracks and native animal runways indicate the area is used by wildlife, such as the Tasmanian pademelon, endemic to Tasmania and now extinct in mainland Australia. It shelters in dense vegetation during daylight, coming out to feed at night.

The reserve is a valuable part of the remnant vegetation wildlife corridor along the ridgeline of the Pontos Hills on the eastern side of the Coal River Valley.

Mature blue and black gums provide valuable potential foraging habitat for the critically endangered swift parrot. Swift parrots migrate each year from mainland Australia to Tasmania where they breed, nesting only in tree hollows found in old eucalypts. The decline of swift parrots has been rapid due to the loss of critical habitat.



Swift parrot (*Archamyza bicolor*) feeding on blue gum flowers.
Photo: Keith Martin-Smith

Sources of information:
Richmond Bridge Conservation Management Plan 10 December 2007
Department of Primary Industries, Parks, Water and Environment

Sign provided by the Coal River Valley Sustainable Living Group with support from GSPW and funded by the Richmond Village Market



Plate 8. Interpretive sign designed and produced by the Coal River Sustainable Living Group



Plate 9. A newly installed seat within the Brinktop Reserve

15 Community participation and awareness

The Brinktop Reserve provides an excellent small remnant bushland patch that can be utilised and enjoyed by local schools for its educational and recreational value. The use of the reserve for this purpose should be actively encouraged.

Management action 21: Liaise with local schools to promote educational and citizen science activities in the Reserve

The CRSLG have been at the forefront of the on-going management and care of the reserve. Countless volunteer hours have gone in to the development of plant identification signage, interpretative signage, weeding, threatened flora monitoring, and other valuable work within the reserve. This group should continue to be supported in their work at Brinktop.

Management action 22: Engage and actively support the Coal River Sustainable Living Group regarding management of the reserve

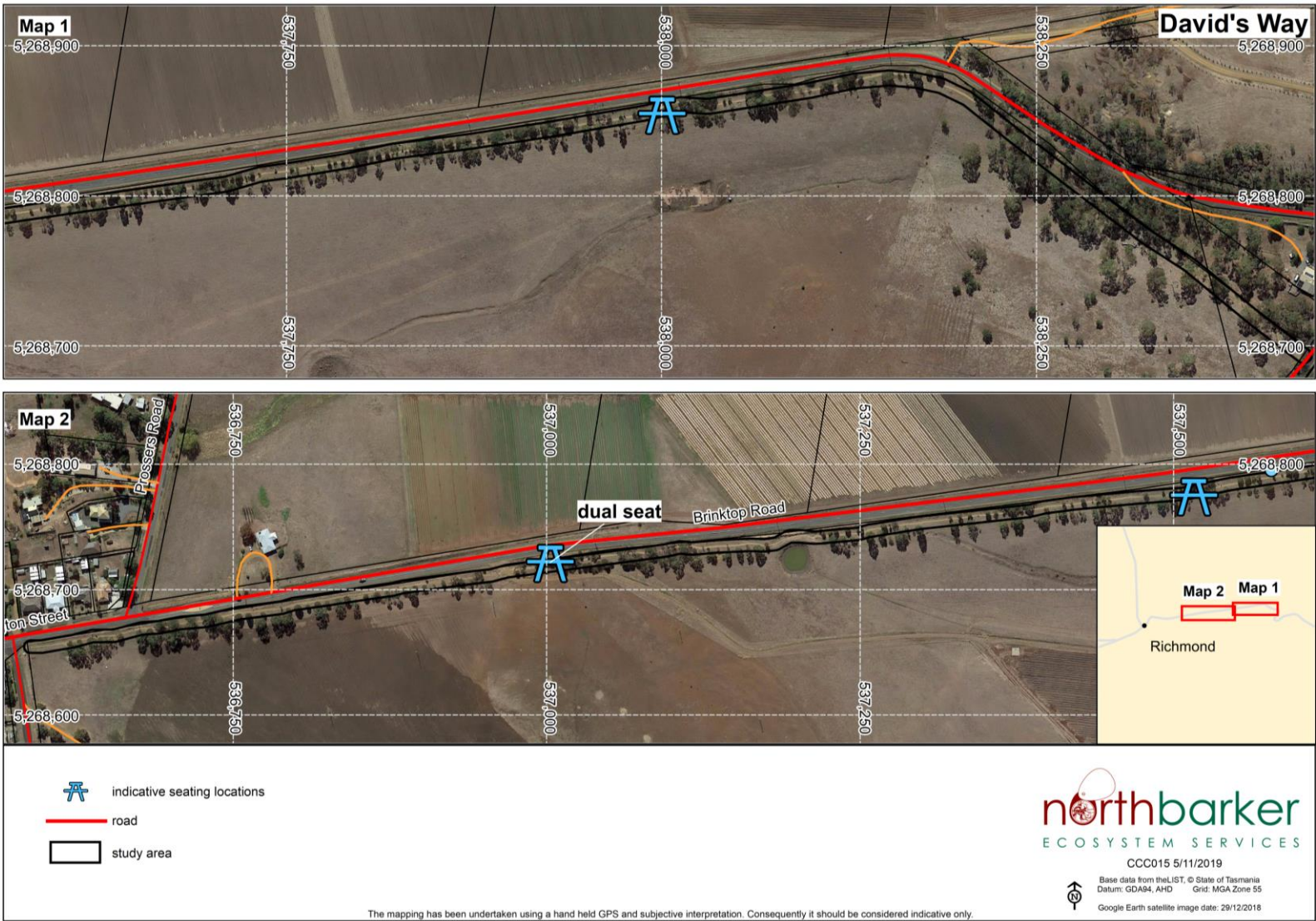


Figure 5. Potential locations for new seating along David's Way

16 Implementation plan

Management action	Priority 1 – immediate (6-12 months) 2 – medium term (1-3 years) 3 – long term (5 years)	Responsibility
Environmental		
Management action 2: Develop a coordinated approach with Sorell Council	1	Council
Management action 3: Have the Coal River Sustainable Living Group and Clarence Council provide submissions to Sorell Council regarding management of the road reserve in conjunction with Brinktop Reserve	1	Council/CRSLG
Management action 5: On-going control (yearly) and monitoring (every five years) of declared and environmental weeds in the reserve	2,3	Council/contractors
Management action 6: Continue to regenerate degraded areas in the Reserve with targeted plantings and targeted removal of native shrubs invading grassy areas	1,2,3	Council/contractors
Management action 8: Maintain open grassy patches using ecological burning and sensitive removal of invading native shrubbery	1,2,3	Council/contractors/RTBG/DPIPWE
Management action 9: Develop a Bushfire Management Plan for the Reserve	1	Council/contractors
Management action 10: Plant only locally native species and integrate threatened species where practical. Specifically, engage the RTBG to obtain and include the endangered Tasmanian variety of <i>Hardenbergia violacea</i> in future plantings within the top car park	1,2,3	Council/contractors
Management action 12: Retain elements of fauna habitat such as fallen logs and old trees	1,2,3	Council/contractors

Management action 13: On-going (every five years) monitoring of vegetation condition using the Vegetation Condition Assessment method and the establishment and on-going monitoring of photo-points	3	Council/contractors
Management action 14: Implement citizen science monitoring program for birds within the Reserve and conduct on-going monitoring (biennial) of bird life in reserve	2,3	Council/contractors
Recreation		
Management action 1: Modify the existing vehicular barrier on old Brinktop Road to allow a narrow path cyclists	1,2	Council/contractors
Management action 15a: Conduct a feasibility study for expanding carparking spaces and signage at the start of David's Way and the bottom of the Brinktop Reserve	1	Council/contractors
Management action 15b: Develop and implement a Landscape Plan to make the entrance to David's Way more inviting and attractive	1	Council/contractors
Management action 16: Continue to upkeep trail network through slashing and surface maintenance activities	1,2,3	Council/contractors
Management action 17: Install up to 4 seats along David's Way	1	Council/contractors
Education and community		
Management action 4: Develop signage to be installed directing walkers from Richmond Recreation Reserve to Brinktop Reserve	1	Council/contractors
Management action 7: Investigate mechanisms to deter rubbish dumping and hooning, including the potential of installing CCTV	1,2	Council/contractors
Management action 11: Investigate potential for citizen science and/or school projects to document and monitor the invertebrate species within the Brinktop Reserve	1,2	Council/contractors
Management action 18: Install interpretive sign designed by the Coal River Sustainable Living Group (CRSLG)	1	Council/contractors/CRSLG

DRAFT Reserve Activity Plan 2020-30

Brinktop Bushland Reserve

Management action 19: Design and install interpretive signage detailing colonial history of the area and outlining key features in the landscape visible from the reserve	1,2	Council/contractors/CRSLG
Management action 20: Design and install a small sign at the site of the old Richmond – Sorell Road	1,2	Council/contractors
Management action 21: Liaise with local schools to promote educational and	1,2,3	Council/CRSLG
Management action 22: Engage and actively support the Coal River Sustainable Living Group regarding management of the reserve	1,2,3	Council

17 Future priorities

In order to ensure the effectiveness of this Reserve Activity Plan and to monitor progress a review and update of the management actions and implementation plan should be conducted after five years. A complete review should be undertaken at the end of the duration of the plan and future needs of the reserve assessed at this time.

Appendix A – Summary of community consultation

Recreation	Comment
Desires more walking tracks/maintenance of current track	No change to recommendations required. No additional tracks explicitly recommended, maintenance included in management action 15.
Desires that the reserve continue to be maintained similarly to how it currently is	Most significant change to current management would include ecological burning.
Opposes potential use of reserve as a landscaped social area (park, gardens, BBQs, picnic facilities, playground, toilets, outdoor gym equipment, etc.)	No change to recommendations required – there has been no management action for further landscaping or social infrastructure.
Desires extra seating along David's Way	Extra seating and preliminary locations outlined in Section 14 and management recommendation 16.
Desires a walking track that follows northern edge of the Reserve up to the top of Brinktop Road	No recommendation relating to development of new tracks based on management action 15.
Environmental	Comment
Supportive of regenerative ecological burning	No change to recommendations required. Ecological burning recommended in management action 7.
Values area for general biodiversity	No change to action required.

Supportive of/desires planting of vegetation in the top carpark, specifically local native species.	Local native species prescribed for future plantings in management action 6.
Opposes current trackside slashing regime, requesting no slashing alongside the track both in the Reserve and David's Way in order to enable visitors to view small plants without straying from the formed tracks	Management action 15 is counter to this. Slashed tracksides are usually determined for bushfire hazard management purposes and if conducted at the right time of year can be beneficial to threatened species found in the reserve.
Desires continued slashing nearby tracks to increase visibility of snakes and thus decrease likelihood of dangerous encounters	Slashing nearby to tracks will continue to occur under management action 15.
Desires on-going removal and control of weeds	Management actions 2, 4, and 5 cover on-going control of weeds and prevention of spread of propagules into the reserve from nearby bushland remnants.
Desires retention of old and dead trees as fauna habitat	Management action 11 recommends retention of old and dead trees.
Desires transfer of bordering land (currently managed by Sorell Council) to management by Clarence Council to incorporate it into reserve and avoid the land being sold for purposes other than a reserve	Management action 2 promotes a coordinated approach to land management between councils however land acquisition is considered outside the scope of the current plan.
Education and community	Comment
Desires additional car parking space at the bottom of Brinktop Reserve	Management action 14 recommends investigation into potential expansion of the bottom carpark at Brinktop Reserve.

Opposes the development of additional parking at lower end of Brinktop Reserve	Feasibility study ought to include potential negatives of carparking space increase (management action 14).
Desires signage in the Reserve depicting location of old road linking Richmond and Sorell	Management action 19 recommends the installation of a sign at the old road location.
Desires utilisation of some form of surveillance to deter 'hooning' and dumping of rubbish	An investigation into the best actions for such practices is included in management action 6

Appendix B – Photo-points with location map

Photo-point 1 - 90°



Photo-point 2



Photo-point 3 - 110°



Photo-point 4 – 260°



Photo-point 5 - 340°



Photo-point 6 – 320°



Table B. Photo-point locations (GDA94, 55G)

	Easting	Northing
Photopoint 1	538402	5268604
Photopoint 2	537705	5268807
Photopoint 3	538258	5268828
Photopoint 4	538473	5268605
Photopoint 5	538495	5268640
Photopoint 6	538452	5268621

Appendix C – Brinktop Reserve Report Card

Appendix D – Bird species list

Birds recorded at Brinktop Reserve on 10th October 2019
Masked lapwing
Sulphur-crested cockatoo
Noisy miner
Common starling
Swamp harrier
Green rosella
Superb fairy wren
Australian magpie
Forest raven
House sparrow
Grey butcherbird
Common blackbird
Welcome swallow
Silvereye
Little wattlebird
Grey fantail
Galah

Appendix E – Unanticipated discovery plan

Unanticipated Discovery Plan

For proponents and consultants dealing with Aboriginal Heritage in Tasmania

This paper provides a Plan that should be followed when dealing with unanticipated discoveries of Aboriginal Cultural Heritage such as sites and objects. The plan provides guidance to project personnel so that they may meet their obligations with respect to Aboriginal heritage in accordance with the *Aboriginal Relics Act 1975* and the *Coroners Act 1995*.

The Unanticipated Discovery Plan is in two sections. The first section primarily explains mitigation strategies that should be employed when any Aboriginal Cultural Heritage sites or items are discovered excluding skeletal remains (burials), while the second process deals specifically with skeletal remains (burials).

Discovery of Cultural Heritage Items

- Step 1: Any person who believes they have uncovered Aboriginal Cultural Heritage material should notify all employees or contractors that are working in the immediate area that all earth disturbance works must cease immediately.
- Step 2: A temporary 'no-go' or buffer zone of at least 10m x 10m should be implemented to protect the suspected Aboriginal Cultural Heritage site or relics. No unauthorised entry or works will be allowed within this 'no-go' zone until the suspected Aboriginal Cultural Heritage relics have been assessed by a recognised Aboriginal Heritage Officer or Archaeologist.
- Step 3: Aboriginal Heritage Tasmania (AHT) in Hobart (ph 6233 6613) needs to be notified and consulted as soon as possible and informed of the discovery. AHT will then provide further advice in accordance with the *Aboriginal Relics Act 1975*.

Discovery of Skeletal Material

- Step 1: Call the Police immediately. Under no circumstances should the suspected skeletal remains be touched or disturbed. The area must now be considered a crime scene. It is a criminal offence to interfere with a crime scene.
- Step 2: Any person who believes they have uncovered skeletal material should notify all employees or contractors that are working in the immediate area that all earth disturbance works must cease immediately.
- Step 3: A temporary 'no-go' or buffer zone of at least 50m x 50m should be implemented to protect the suspected skeletal remains. No unauthorised entry or works will be allowed within this no-go' zone until the suspected skeletal remains have been assessed by the Police and or Coroner.
- Step 4: Should the skeletal remains be determined to be of Aboriginal origin, the Coroner will contact the Tasmanian Aboriginal Land and Sea Council (TALSC) to arrange for repatriation of the remains, as per the *Coroners Act 1995*.

Unanticipated Discovery Plan

**Guide to the most common sites of Aboriginal Significance****Stone Artefact Scatters**

Stone artefacts are the tangible evidence found in regard to past Aboriginal lifeways. Stone artefacts indicate areas that were used by Aboriginal People, either for camping, hunting or other activities such as the manufacture of stone tools. Archaeologists can also determine the duration a site may have been occupied, the amount of times that the site may have been occupied, and the number of people that the area may have supported at any given time.

Some stone artefacts are the result of Aboriginal People fracturing or 'flaking' fine-grained rocks to produce sharp cutting or scraping implements. These were then used, for example, for cutting up animals and then scraping the hides. Volcanic rocks such as basalt were flaked and then ground down to form axes for a number of chopping and cutting tasks. The results of such activities can be seen in the archaeological record (i.e. scatters) in the form of modified stones such as cores, retouched flakes, hammerstones and flaked pieces. From these scatters, by understanding site density and frequency patterns, inferences can be made in relation to past Aboriginal lifeways.

Shell Middens

Shell middens by definition are prehistoric refuse pits. They are the leftover waste of resources exploited which formed the basis of Aboriginal diet. Midden sites can range in size from large mounds to small scatters of shell. Middens usually also contain as well as shell, the remains of animals exploited for food as well as artefacts of stone, bone and shell. These sites are usually found near waterways and coastal areas.

Rockshelters

Rockshelters can either be shelters which contain archaeological deposits from living floors or art rock shelters, and may occur in any area of rocky terrain. Sediments on the floor of the rockshelter can contain preserved stratified deposits of archaeological material. Art types found in rockshelters can vary greatly. It can be in the form of painting, stencils of body parts, tools and equipment, or engravings. Style variations in painting can cover animal or human figurines, supernatural beings, and geometric patterns. Engravings can have similar variations as they can depict tools, humans, human parts, animals and birds and their tracks, geometric patterns and supernatural beings. Pecking is also a form of engraving.

Quarries or Stone Procurement Sites

Quarry sites occur where outliers of suitable tool-making stone appear. A quarry can be generally recognised by evidence of human manipulation and extraction of suitable material and the debris left by the processing of the suitable material. Some quarries can cover vast areas with extremely high amounts of lithic discard. Ochre or pigment was also quarried.

Burials

Burials can occur anywhere, though they are generally found close to areas where there was a high population concentration. Burials can occur where there are soft sediments such as sand hills, they can be found in caves and rockshelters and sometimes they can be associated with hollow trees.

Appendix F – Vegetation Condition Monitoring results

The VCA method

The TASVEG VCA method employs a set of vegetation characteristics for which change or variation between sites is taken to indicate differences in vegetation condition. The characteristics are stratified into site level characteristics and landscape context. Site characteristics are considered to be more relevant to land managers and include: large tree density, log density, canopy health, life form diversity, regeneration activity and the presence of weeds. The landscape component is determined by historical land use and location.

The present assessment was conducted in accordance with the Vegetation Condition Manual (the Manual - freely available at www.dpipwe.tas.gov.au)¹⁰. Rules and guidelines outlined in the Manual were used to determine the number of VCAs (zones) required. The rules were also used to assess site-level and landscape scores for each zone. At each zone, field-based observations were used to populate site characteristic matrices that reflect the range of classes specific to each characteristic. The range classes were used to determine a point score for each site characteristic against a benchmark.

¹⁰ Michaels (2006)

TASVEG

FOREST VEGETATION

(including woodlands, rainforests and non-eucalypt forests)

Vegetation Condition Assessment Form V1.0

DATE: 21/10/19	LOCATION: BRINKTOP RESERVE	MAP: WP473
SITE NAME: BRINKTOP	GRID REFERENCE (centre of zone): E 538415 N 5268594	
ZONE no./name:	ASSESSOR: JOE ATKINSON	
TASVEG VC CODE: DGL	GPS DATUM (circle one): WGS84 / GDA94 / AGD66	
SIZE of zone (ha): 1		
COMMENTS:		

Site Condition Score

Large Trees Observed large trees 44 #/ha
 Benchmark DBH 30 Benchmark 10 #/ha Score 4

Category & Description	% Canopy Health*		
	>70%	30-70%	<30%
None present	0	0	0
>0 to 20% of the benchmark number of large trees/ha	3	2	1
>20% to 40% of the benchmark number of large trees/ha	4	3	2
>40% to 70% of the benchmark number of large trees/ha	6	5	4
>70% to 100% of the benchmark number of large trees/ha	8	7	6
> the benchmark number of large trees/ha	10	9	8

Large trees are defined by diameter at breast height (dbh) – see benchmark
 *estimate proportion of an expected healthy canopy cover that is present (ie. not missing due to tree death or decline)

Tree Canopy Cover

Benchmark 15% Observed cover 10% Score 5

Category & Description	% Canopy Health*		
	>70%	30-70%	<30%
<10% of benchmark cover	0	0	0
<50% or >150% of benchmark cover	3	2	1
>50% or <150% of benchmark cover	5	4	3

Tree canopy cover is defined as those canopy tree species reaching ≥80% of mature height – see benchmark description
 *estimate proportion of an expected healthy canopy cover that is present (ie. not missing due to tree death or decline)

Lack of Weeds

Observed weed cover 13%
 Observed high threat weeds 13% Score 13

Category & Description	"high" threat weeds*		
	None	≤ 50%	>50%
> 75% cover of weeds	0	0	0
25-75% cover of weeds	4	2	0
10-25% cover of weeds	7	6	4
5-10% cover of weeds	11	9	7
<5% cover of weeds**	15	13	11

*Proportion of weed cover due to "high threat" weeds.
 "High threat" weed species are defined as introduced species (including non-indigenous "natives") that achieve >5% cover in the zone or those weed species listed as high threat weeds in Tasmania.
 A list of high threat weeds in Tasmania is provided in the TASVEG Vegetation Condition Assessment manual.
 **If total weed cover is negligible (<1%) and high threat weed species are present then score "13".
 The Assessor should determine the threat posed by any weed in the zone listed or not.

Understorey Life Forms

Benchmark No. Life forms 38
 Phytophthora cinnamomi symptoms (tick if observed) 50

LF code	# spp observed/ benchmark # spp	% cover observed/ benchmark % cover	Present (tick)	Modified (tick)
IT	1 / 1	5 / 5	✓	
T	4 / 3	10 / 5	✓	
S	7 / 6	10 / 15	✓	
Total	1			
PS	3 / 3	5 / 5	✓	
H	13 / 12	5 / 5	✓	
G	6 / 6	50 / 50	✓	
LSR	2 / 3	10 / 15	✓	
MSR	2 / 1	10 / 5	✓	
GF	0 / 1	0 / 5	✓	
TF	0 / 1	0 / 5	✓	
SCE	0 / 1	0 / 5	✓	
ML	1 / 1	1 / 5	✓	
SC	1 / 1	1 / 5	✓	
Total				

Present Life forms with benchmark cover of <10% are considered 'present' if any specimens are observed.
 Life forms with benchmark cover of >10% are considered 'present' if the life form occupies at least 10% of benchmark cover.

Modified (apply only where life form is 'present') Life forms with benchmark cover of <10% are considered substantially modified if the life form has either:
 - <50% of benchmark species diversity; or
 - no reproductively mature specimens are observed.
 Life forms with benchmark cover of >10% are considered substantially modified if the life form has either:
 - <50% of benchmark cover; or
 - <50% of benchmark species diversity.

Understorey Summary

Benchmark Life forms present 25% Score 25

Category and Description	
All strata and life forms effectively absent	0
Up to 50% of life forms present	5
≥50% to 90% of life forms present	10
≥90% of life forms present	15
of those present, ≥50% substantially modified	15
of those present, <50% substantially modified	20
of those present, none substantially modified	25

Vegetation Condition Assessment Form V1.0

FOREST
VEGETATION

Species Recruitment

Woody species recorded in habitat zone (5 and taller)	Adequate recruitment (%)
Canopy trees (combined species)	✓
<i>Acacia melanoxylon</i>	✓
<i>Acacia germinifolia</i>	✓
<i>Acacia melanasi</i>	✓
<i>Alphacarpus montiflorus</i>	✓
<i>Allocasuarina magnifica</i>	✓
<i>Acacia dealbata</i>	✓
<i>Dodonaea viscosa</i>	✓
<i>Banksia spinosa</i>	✓
<i>Allocasuarina verticillata</i>	✓
Total recruiting species	6/10

Treat multiple canopy species as a single species.
Adequate recruitment of canopy species requires at least 2 cohorts to be present (seedlings <2m and saplings >2m tall) and where canopy cover is less than benchmark, sufficient recruitment to attain benchmark cover over time.
Adequate recruitment of other woody species requires observed immature individuals to be at least 10% of number of mature individuals for each species.

Organic Litter

Benchmark 40% Observed litter 50% Score 5

Category & Description	Dominated by native organic litter	Dominated by non-native organic litter
<10% of benchmark cover	0	0
<50% of benchmark cover	3	2
≥50% of benchmark cover	5	4

Litter is defined as dead organic material detached from the parent plant, including plant debris, fallen leaves and twigs <10cm.

Landscape Context Score

Patch Size Patch size 2.1ha Score 2

Category & Description	Score
< 2 ha	1
Between 2 and 5 ha	2
Between 5 and 10 ha	4
Between 10 and 20 ha	6
≥20 ha, but 'significantly disturbed'	8
≥20 ha, but not 'significantly disturbed'	10

The patch is the area of native vegetation continuous with the assessment area (zone), regardless of EVC, condition or land tenure. Includes adjoining wetlands.
*significantly disturbed' if activities such as grazing, timber harvesting, roadna, fuel reduction burning or *Mytilostichus* infestation have occurred. Effectively most patches within fragmented landscapes are significantly disturbed.

FINAL HABITAT SCORE

Component	'Site Condition Score'					'Landscape Context Score'			TOTAL
	Large Trees	Tree Canopy Cover	Lack of Weeds	Understorey Summary	Recruitment	Organic Litter	Logs	Patch Size	
Score									/100

Recruitment

Score 6

Category & Description			High diversity*	Low diversity*
No evidence of a recruitment 'cohort' [†]	within community not driven by episodic events		0	0
	within community driven by episodic events [†]	clear evidence of appropriate episodic event	0	0
		no clear evidence of appropriate episodic event	5	5
Evidence of at least one recruitment 'cohort' in at least one life form	Proportion of native woody species present that have adequate recruitment	<30%	3	1
		30 – 70%	6	3
		≥70%	10	5

*'cohort' refers to a group of woody plants established in a single episode (can include suppressed canopy species individuals)
#refer to benchmark for clarification

*High diversity defined as ≥50% of benchmark woody species diversity.

Logs

Benchmark log length 30m Observed length 10 Score 3

Category & Description	Large logs present*	Large logs absent*
<10% of benchmark length	0	0
<50% of benchmark length	3	2
≥50% of benchmark length	5	4

Large logs defined as those with diameter ≥0.5 of benchmark large tree DBH.

* present if large log length is ≥25% of benchmark log length.

absent if large log length is <25% of benchmark log length.

Neighbourhood

Score 2

Radius from site	% Native vegetation*	Weighting	
100 m	80	0.03	2.4
1 km	40	0.04	1.6
5 km	20	0.03	0.6
subtract 2 if the neighbourhood is 'significantly disturbed'			-2
Add Values and 'round-off'			2

*to nearest 20%

Multiply % native vegetation X weighting for each radius from the zone (eg. 40% x 0.03 = 1.2); then add values to obtain final Neighbourhood Value

Distance to Core Area

Score 4

Distance	Core Area not significantly disturbed*	Core Area significantly disturbed*
> 5 km	0	0
1 to 5 km	2	1
< 1 km	4	3
contiguous	5	6

A 'core area' is native vegetation > 50 ha regardless of type, condition or tenure. Includes natural wetlands and lakes, estuaries and rivers.

*'significantly disturbed' see definition under patch size.

TASVEG

FOREST VEGETATION

(including woodlands, rainforests and non-eucalypt forests)

Vegetation Condition Assessment Form V1.0

DATE: 21/10/19	LOCATION: Richmond, Brinktop Road	MAP:
SITE NAME: David's Way		GRID REFERENCE (centre of zone): E 538239 N 526 8846
ZONE no./name:		
TASVEG VC CODE: DVG	ASSESSOR: Joe Atkinson	GPS DATUM (circle one): WGS84 / GDA94 / AGD66
SIZE of zone (ha): 2 ha		
COMMENTS:		

Site Condition Score

Large Trees Observed large trees 15 #/ha
 Benchmark DBH 60... Benchmark 12... #/ha **Score** 10

Category & Description	% Canopy Health*		
	>70%	30-70%	<30%
None present	0	0	0
>0 to 20% of the benchmark number of large trees/ha	3	2	1
>20% to 40% of the benchmark number of large trees/ha	4	3	2
>40% to 70% of the benchmark number of large trees/ha	6	5	4
>70% to 100% of the benchmark number of large trees/ha	8	7	6
> the benchmark number of large trees/ha	10	9	8

Large trees are defined by diameter at breast height (dbh) – see benchmark
 *estimate proportion of an expected healthy canopy cover that is present (ie. not missing due to tree death or decline)

Tree Canopy Cover

Benchmark 15...% Observed cover 30...% **Score** 3

Category & Description	% Canopy Health*		
	>70%	30-70%	<30%
<10% of benchmark cover	0	0	0
<50% or >150% of benchmark cover	3	2	1
>50% or <150% of benchmark cover	5	4	3

Tree canopy cover is defined as those canopy tree species reaching ≥80% of mature height – see benchmark description
 *estimate proportion of an expected healthy canopy cover that is present (ie. not missing due to tree death or decline)

Lack of Weeds

Observed weed cover ...%
 Observed high threat weeds ...% **Score** 0

Category & Description	'high' threat weeds*		
	None	≤ 50%	>50%
> 75% cover of weeds	0	0	0
25-75% cover of weeds	4	2	0
10-25% cover of weeds	7	6	4
5-10% cover of weeds	11	9	7
<5% cover of weeds**	15	13	11

*Proportion of weed cover due to 'high threat' weeds.
 'High threat' weed species are defined as introduced species (including non-indigenous 'natives') that achieve >5% cover in the zone or those weed species listed as high threat weeds in Tasmania.
 A list of high threat weeds in Tasmania is provided in the TASVEG Vegetation Condition Assessment manual.
 **If total weed cover is negligible (<1%) and high threat weed species are present then score '15'.
 The Assessor should determine the threat posed by any weed in the zone listed or not.

Understorey Life Forms

Benchmark No. Life forms ...
 Phytophthora cinnamomi symptoms (tick if observed)

LF code	# spp observed/ benchmark # spp.	% cover observed/ benchmark % cover	Present (tick)	Modified (tick)
IT	1/1	10/15	✓	
T	3/3	10/15	✓	
S	5/6	43/28	✓	
Total	10/10			
PS	2/3	10/15	✓	
H	10/17	5/15	✓	
G	6/6	30/50	✓	
LSR	1/3	10/15	✓	
MSR	0/1	0/15		
GF	0/1	0/15		
TF	0/1	0/15		
SCE	0/1	0/15		
ML	0/1	0/15		
SC	0/1	0/15		
Total	20/28			

Life forms with benchmark cover of <10% are considered 'present' if any specimens are observed.
 Life forms with benchmark cover of >10% are considered 'present' if the life form occupies at least 10% of benchmark cover.

Modified (apply only where life form is 'present')
 Life forms with benchmark cover of <10% are considered substantially modified if the life form has either:
 - <50% of benchmark species diversity; or
 - no reproductively mature specimens are observed
 Life forms with benchmark cover of >10% are considered substantially modified if the life form has either:
 - <50% of benchmark cover; or
 - <50% of benchmark species diversity

Understorey Summary

Benchmark Life forms present...% **Score** 15

Category and Description	Score
All strata and life forms effectively absent	0
Up to 50% of life forms present	5
≥50% to 90% of life forms present	10
≥90% of life forms present	15
of those present, ≥50% substantially modified	10
of those present, <50% substantially modified	15
of those present, ≥50% substantially modified	15
of those present, <50% substantially modified	20
of those present, none substantially modified	25

Vegetation Condition Assessment Form V1.0

FOREST
VEGETATION

Species Recruitment

Woody species recorded in habitat zone (5 and taller)	Adequate recruitment (✓)
Canopy trees (combined species)	✓
<i>Acacia dealbata</i>	✓
<i>Acacia mangium</i>	✓
<i>Banksia integrifolia</i>	✓
<i>Allocasuarina verticillata</i>	✓
Total recruiting species	5/5

Treat multiple canopy species as a single species.
Adequate recruitment of canopy species requires at least 2 cohorts to be present (seedlings <2m and saplings >2m tall) and where canopy cover is less than benchmark, sufficient recruitment to attain benchmark cover over time.
Adequate recruitment of other woody species requires observed immature individuals to be at least 10% of number of mature individuals for each species.

Organic Litter

Benchmark 20% Observed litter 30% Score 5

Category & Description	Dominated by native organic litter	Dominated by non-native organic litter
<10% of benchmark cover	0	0
<50% of benchmark cover	3	2
≥50% of benchmark cover	5	4

Litter is defined as dead organic material detached from the parent plant, including plant debris, fallen leaves and twigs <10cm.

Landscape Context Score

Patch Size

Patch size

Score

2

Category & Description	
< 2 ha	1
Between 2 and 5 ha	2
Between 5 and 10 ha	4
Between 10 and 20 ha	6
>20 ha, but 'significantly disturbed'	8
>20 ha, but not 'significantly disturbed'	10

The patch is the area of native vegetation contiguous with the assessment area (zone), regardless of EVC, condition or land tenure. Includes adjoining wetlands.
*significantly disturbed if activities such as grazing, timber harvesting, roading, fuel reduction burning or Phytophthora infestation have occurred. Effectively most patches within fragmented landscapes are significantly disturbed.

FINAL HABITAT SCORE

Component	'Site Condition Score'						'Landscape Context Score'			TOTAL
	Large Trees	Tree Canopy Cover	Lack of Weeds	Understorey Summary	Recruitment	Organic Litter	Logs	Patch Size	Neighbourhood	
Score										/100

Recruitment

Score

10

Category & Description			High diversity*	Low diversity*
No evidence of a recruitment 'cohort'	within community not driven by episodic events		0	0
	within community driven by episodic events ²	clear evidence of appropriate episodic event	0	0
		no clear evidence of appropriate episodic event	5	5
Evidence of at least one recruitment 'cohort' in at least one life form	Proportion of native woody species present that have adequate recruitment ²	<30%	3	1
		30 - 70%	6	3
		≥70%	10	5

*'cohort' refers to a group of woody plants established in a single episode (can include suppressed canopy species individuals)

²refer to benchmark for clarification

*high diversity defined as ≥50% of benchmark woody species diversity.

Logs

Benchmark log length 30m Observed length 10 Score 3

Category & Description	Large logs present*	Large logs absent ²
<10% of benchmark length	0	0
<50% of benchmark length	3	2
≥50% of benchmark length	5	4

Large logs defined as those with diameter ≥0.5 of benchmark large tree DBH.

* present if large log length is ≥25% of benchmark log length.

² absent if large log length is <25% of benchmark log length.

Neighbourhood

Score

2

Radius from site	% Native vegetation*	Weighting	
100 m	60	0.03	1.8
1 km	40	0.04	1.6
5 km	20	0.03	0.6
subtract 2 if the neighbourhood is 'significantly disturbed'			-2
Add Values and 'round-off'			2

*to nearest 20%

Multiply % native vegetation X weighting for each radius from the zone (eg.) 40% x 0.03 = 1.2; then add values to obtain final Neighbourhood Value

Distance to Core Area

Score

4

Distance	Core Area not significantly disturbed*	Core Area significantly disturbed*
> 5 km	0	0
1 to 5 km	2	1
< 1 km	4	3
contiguous	5	4

A 'core area' is native vegetation > 50 ha regardless of type, condition or tenure. Includes natural wetlands and lakes, estuaries and rivers.

*significantly disturbed see definition under patch size.

Appendix G – Plant species lists for native vegetation communities

Site: 1 DGL - Eucalyptus globulus dry forest and woodland

Grid Reference:	538486E, 5269636N
Accuracy:	GPS (within 10 metres)
Recorder:	Joe Atkinson
Date of Survey:	22 Oct 2019
Trees:	<i>Acacia melanoxylon</i> , <i>Eucalyptus amygdalina</i> , <i>Eucalyptus globulus</i> subsp. <i>globulus</i> , <i>Eucalyptus ovata</i> var. <i>ovata</i>
Tall Shrubs:	<i>Acacia dealbata</i> subsp. <i>dealbata</i> , <i>Acacia mearnsii</i> , <i>Allocasuarina monilifera</i> , <i>Allocasuarina verticillata</i> , <i>Bursaria spinosa</i> subsp. <i>spinosa</i> , <i>Dodonaea viscosa</i> subsp. <i>spatulata</i> , <i>Exocarpos cupressiformis</i>
Shrubs:	<i>Acacia genistifolia</i> , <i>Bossiaea prostrata</i> , <i>Olearia ericoides</i>
Low Shrubs:	<i>Astroloma humifusum</i> , <i>Lissanthe strigosa</i> subsp. <i>subulata</i> , <i>Pultenaea pedunculata</i>
Herbs:	<i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i> , <i>Dianella brevicaulis</i> , <i>Dianella revoluta</i> , <i>Dichondra repens</i> , <i>Geranium potentilloides</i> var. <i>potentilloides</i> , <i>Leptorhynchos squamatus</i> , <i>Myosotis australis</i> , <i>Oxalis perennans</i> , <i>Ptilotus spathulatus</i> , <i>Senecio quadridentatus</i> , <i>Senecio</i> sp., <i>Viola hederacea</i> , <i>Vittadinia</i>
Graminoids:	<i>Lepidosperma laterale</i> , <i>Lomandra longifolia</i>
Grasses:	<i>Anthosachne scabra</i> , <i>Austrostipa</i> sp., <i>Poa sieberiana</i> , <i>Poa</i> sp., <i>Rytidosperma</i> sp., <i>Themeda triandra</i>
Weeds:	<i>Aira caryophyllea</i> , <i>Briza maxima</i> , <i>Briza minor</i> , <i>Centaureum erythraea</i> , <i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> , <i>Dactylis glomerata</i> , <i>Hirschfeldia incana</i> , <i>Lycium ferocissimum</i> , <i>Lysimachia arvensis</i> , <i>Plantago lanceolata</i> , <i>Rosa rubiginosa</i> , <i>Sanguisorba minor</i> , <i>Solanum nigrum</i>

Site: 2 Eucalyptus viminalis grassy woodland

Grid Reference:	E, N
Accuracy:	GPS (within 10 metres)
Recorder:	Joe Atkinson
Date of Survey:	21 Nov 2019
Trees:	<i>Eucalyptus globulus</i> subsp. <i>globulus</i> , <i>Eucalyptus ovata</i> var. <i>ovata</i> , <i>Eucalyptus viminalis</i> subsp. <i>viminalis</i>
Tall Shrubs:	<i>Acacia dealbata</i> subsp. <i>dealbata</i> , <i>Acacia mearnsii</i> , <i>Allocasuarina verticillata</i> , <i>Bursaria spinosa</i> subsp. <i>spinosa</i> , <i>Dodonaea viscosa</i> subsp. <i>spatulata</i>
Low Shrubs:	<i>Astroloma humifusum</i>
Herbs:	<i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i> , <i>Vittadinia muelleri</i>
Graminoids:	<i>Lomandra longifolia</i>
Grasses:	<i>Austrostipa</i> sp., <i>Poa rodwayi</i> , <i>Poa</i> sp., <i>Rytidosperma setaceum</i> , <i>Themeda triandra</i>
Weeds:	<i>Cirsium vulgare</i> , <i>Cynosurus echinatus</i> , <i>Dactylis glomerata</i> , <i>Hirschfeldia incana</i> , <i>Hypochaeris radicata</i> , <i>Plantago coronopus</i> , <i>Plantago lanceolata</i> , <i>Rosa rubiginosa</i> , <i>Sanguisorba minor</i> , <i>Solanum nigrum</i> , <i>Ulex europaeus</i>

Appendix H – Concept Seating Plan (not to scale)

