

# Creek Catchments Program Five Year Site Plan

Site Details	
<b>Group name:</b> Friends of Anstead Bushland (FOAB), within Pullen Pullen Catchments Group (PPCG)	<b>Site Location:</b> Anstead Bushland Reserve
<b>Group Leader name:</b> Gillian Whitehouse (FOAB Coordinator)  [This draft Site Plan is the collaborative work of Gillian Whitehouse, Jim Williams and Karen Roberts, with assistance from other PPCG members.]  <b>Creek Catchment Officer name:</b> Brendan McIntyre	I agree to work towards the action outlined in this plan  <b>Group Leader Signature:</b>   <b>Date:</b> 7/12/21

Period of site plan	
<b>Plan start date:</b> December 2021 (TBC)	<b>Plan review date:</b> December 2026 (TBC) <i>(5 years from start date)</i>

Long-term goals for the site
<p>Friends of Anstead Bushland (FOAB), the recently re-established Anstead bushcare group within Pullen Pullen Catchment Group (PPCG), is highly motivated by the long-term goal of enhancing ecosystems within Anstead Bushland Reserve (ABR, 'the Reserve'). FOAB builds on a new PPCG member's passion for natural bush regeneration, the mobilisation of others around this strategy during the second half of 2021 and the consolidation of plans for the application of such methods in selected areas of the Reserve. These developments coincided with PPCG's replacement of a coordinator for Anstead bushcare activities – prior to this a long vacancy in this role had hindered PPCG's capacity to maintain the achievements of earlier Anstead bushcare groups. FOAB brings together experienced and dedicated bushcare enthusiasts within PPCG, providing continuity with past activities as well as a strong focus on natural bush regeneration. Monthly bushcare mornings over the second half of 2021 have begun natural regeneration activities in approved areas, in the process drawing some new members into PPCG and attracting some new volunteers to bushcare mornings.</p> <p>As noted above, FOAB's primary long-term goal is enhancement of ecosystems within the Reserve. Secondary goals include the education and engagement of the community in bushcare regeneration activities and promotion of the Reserve's ecological diversity and history.</p> <p>In pursuit of these goals, three projects are planned for implementation over the five years of this Site Plan:</p> <ol style="list-style-type: none"> <li>1. Enhancing Anstead Bushland Reserve ecosystems through natural bush regeneration;</li> <li>2. Maintaining and enhancing the condition of previously replanted high visibility areas (Fig Tree Garden and surrounds, Native Lime area and Water Tank area);</li> <li>3. Improving habitat for the vulnerable Collared Delma (<i>Delma torquata</i>) within areas covered by Projects 1 and 2.</li> </ol> <p>During the execution of these projects, every effort will be made to adhere to zero-harm and zero-waste principles. Bushcare activities will be undertaken with minimal disturbance and it is our aim to avoid the use of</p>

single use plastics and the generation of waste at bushcare mornings and public events. In addition, efforts will be made to remove, and appropriately recycle or dispose of, any waste found in the Reserve.

The projects are outlined below, with further elaboration in subsequent sections of the Site Plan. In putting them into practice, we aim to demonstrate our capacity to enhance ecosystems in the specified areas and to gain the interest and trust of the community of ABR users and relevant Brisbane City Council (BCC) authorities. We hope that our achievements will form the basis for future projects to extend the capacity for natural regeneration in more sensitive areas the Reserve. We look forward to developing these in ways that contribute to BCC's goals for enhancing natural areas and biodiversity and complement its yet to be released Anstead Bushland Concept Plan.

### Project 1: Enhancing Anstead Bushland Reserve ecosystems through natural bush regeneration

Project 1 is a staged plan for enhancing ecosystems within the Reserve. It involves the education of participants in natural bush regeneration methods and their application in areas of the Reserve selected in consultation with BCC (Zone 1, Site Map). The specific method being adopted is the Bradley Method of Bush Regeneration<sup>1</sup> (hereafter 'the Bradley Method'), which works by sensitively and respectfully reducing the ongoing threat of weed encroachment and assisting the ability of the bush to regenerate from within. The approach is recognised by the Australian Association of Bush Regenerators<sup>2</sup> as an ecologically effective method of natural bush regeneration.

The first stage of the project involves the education of PPCG members and community volunteers on the philosophy and techniques of the Bradley Method and the preparation of sites for its application. This will be undertaken through introductory information sessions and group activities within nine learning sites, each approximately 16mx16m (256m<sup>2</sup>), located around pegs labelled A to I (Zone 1, Site Map). Participants will gain skills in recognising local weeds and native plants and work to reduce the capacity for weed regeneration in these designated areas. Retarding the coverage and regeneration of weeds will be achieved by removing seeds and flowers from weed plants, severing the vertical stems of invasive weed vines and partially ringbarking weed trees. Such processes are minimally disruptive, retaining canopy cover and leaving the soil undisturbed—thus limiting harm to native species below the canopy and the native seeds that may be in the soil.

The second stage of the project, which will commence in each of the learning sites once the weed retardation process has been completed, involves implementation of the Bradley Method in small 'islands' within the 16mx16m perimeter that contain a sufficient number and diversity of native species to give the process of natural bush regeneration a reasonable chance of success. Detailed documentation of native flora in these 'islands' will be undertaken before careful weeding and very light mulching (to mimic the natural process) is undertaken. They will then be left to allow regeneration to occur naturally, albeit with ongoing oversight and recording of progress. Monitoring will also continue within the broader 16mx16m perimeters of the pegged sites, removing recurring weed seeds and invasive vine regrowth, and – after a suitable number of growing seasons – fully ringbarking weed trees. This gradual but relentless approach is designed to return the advantage to the native flora by weakening the regenerative capacity of weeds over time while initially retaining their protective cover for native regrowth.

The pegged learning sites do not appear to have previously been weeded or planted. Each has its own suite of plant communities and threats that can be used for educative purposes. The diversity of weed species within them will be of great value in learning to identify weeds and sensitive methods for their removal. The sites also exhibit a variety of the native grasses, herbs and vines, canopy and understory species present within ABR, thus enabling participants to

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<sup>1</sup> Joan Bradley, 1988, *Bringing Back the Bush: the Bradley Method of Bush Regeneration*, Lansdown Press, Crows Nest.

<sup>2</sup> The Australian Association of Bush Regenerators (<https://www.aabr.org.au/>) promotes the study and practice of ecological restoration based on sound ecological principles. It provides information on the Bradley Method at: <https://www.aabr.org.au/learn/what-i-bush-regeneration/general-principles/the-bradley-method/>

learn to identify these species. While these areas may not be ideal for realising success through the Bradley Method, due to the relatively high ratio of weeds to native plants, this does mean that the concepts can be taught in these areas without risking detrimental impacts to the most ecologically sensitive areas of the Reserve if (when) mistakes are made during the learning process.

Project 1 will be greatly assisted by the expertise of PPCG and community member (James Williams, 'Jim')<sup>3</sup> who frequently visits the Reserve and has taken a leadership role in FOAB by developing educational materials and liaising with BCC officers to identify sites within the Reserve for application of the Bradley Method. Jim is an experienced adult educator who is passionate about caring for natural areas in a respectful way. He has already developed written resources and provided guidance for on-ground education and implementation, using the classic design model as a framework (Attachment 1).

The project will be promoted by the use of temporary signage during bushcare mornings and at other working times, designed to stimulate interest among users of the Reserve, encourage new volunteers to the project and expand FOAB membership. This will be complemented by promotion of our efforts on social media and on the PPCG website, advertising bushcare mornings through 4ZZZ's 'Bushcare Roundup' and investigating additional avenues for dissemination of information such as local bulletins and notice boards.

Progress will be documented over the course of the five-year plan, primarily through the initial detailed recording of native flora in the areas selected for Bradley Method assistance, then tracking progress at regular intervals. The recovery rate and extent of weed coverage in the pegged sites will also be monitored and the original condition compared with that after five years. Permission will also be sought to install wildlife cameras to record native fauna and feral species within Zone 1 so that records can be kept and compared over time.

These activities will ensure that the success of the project can be adequately assessed after five years. End goals include demonstration of the effectiveness of the Bradley Method in enhancing the selected areas of the Reserve, upskilling of participants in species recognition and natural bush regeneration methods and effective dissemination of information about the process and its achievements. These outcomes will form the basis for future work in more sensitive areas of the Reserve.

Throughout the project, being respectful of current and past land managers, we also aim to learn more about how Indigenous peoples utilised the land where the Reserve is now located prior to European settlement. If possible, lessons from engagement with Indigenous knowledge holders will be included in the project report.

Project 1 is well suited to community members who wish to learn more about the biodiversity present (and re-emerging) within their local bushland reserves, and who can commit to bushcare events on a frequency of around once a month.

### [Project 2: Maintaining and enhancing the condition of previously replanted high-visibility areas \(Fig Tree Garden and surrounds, Native Lime area and Water Tank area\)](#)

Project 2 seeks to extend and maintain previous planting efforts in high-visibility areas in the interests of maintaining habitat, reducing weed encroachment and enhancing users' experience of the Reserve. PPCG members, with the support of BCC, have invested considerable effort over many years in removing weeds and planting native trees and shrubs in what is now known as the Fig Tree Garden; work has also been undertaken in the Native Lime area, which

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<sup>3</sup> Jim has successfully implemented the Bradley Method within his property at Mount Crosby/Karana Downs and is willing for BCC, and PPCG members, to visit his property to see evidence of the success of the Bradley Method. BCC Land for Wildlife has previously visited.

includes a segment recently augmented by students from QUT's Student Catchment Immersion Program (SCIP) and around the Water Tank. These areas are located within Zone 2 (see Site Map).

FOAB would like to build on these earlier achievements by carrying out, and caring for, supplementary planting of canopy trees and understory shrubs in these designated areas. The species to be used will be decided in consultation with PPCG and BCC Natural Areas team. Consideration could be given to feature planting of threatened flora (listed under the State *Nature Conservation Act 1992*, including Plunkett mallee (*Eucalyptus curtisii*), Lloyd's native olive (*Notelaea lloydii*) alongside other species endemic to the local area that would provide critical habitat for vulnerable fauna species, including koalas, Powerful Owl and Collared Delma (all of which have been sighted occasionally within the Reserve).

Planting techniques applied will be the traditional methods of digging holes, planting seedlings, applying thick layers of mulch and watering on a regular basis. Replanting and the use of these techniques are suitable for such areas, where natural regeneration potential is limited by historical land use practices that have removed any significant seed bank and reduced the regenerative potential of the topsoil.

Additional elements of Project 2 will be sensitive weed removal and monitoring regrowth over time. We aim to use sustainable and non-toxic weed control methods, retarding weed regrowth around new plants through mulching and regular monitoring (but also utilising the short-term protection that 'managed weeds' can provide to emerging natives in modified environments like the ABR). Our approach will avoid the use of broadscale clearing via slashing or poisoning that could facilitate further encroachment of weeds into new areas.

Maintenance of new plants and weeded areas will also be crucial. Experience has shown that survival rates for new plants can be adversely impacted by a range of factors including drought, exposed positions, lack of deep soils and limited established canopy to provide the required shelter for survival. Insufficient water supply can also be a factor, necessitating volunteer working bees and additional volunteer mid-week watering.

FOAB notes that numerous nest boxes, targeted to a range of arboreal avifauna and mammals, have historically been erected within the Reserve. We propose that Project 2 could incorporate installation of additional targeted nest boxes (for birds and mammals) with ongoing monitoring, similar to that which has been occurring within the Pullenvale Forest Park (undertaken by Hollow Log Homes).

Community events (such as tree-planting days) would assist in advancing this project. Such events may attract more local involvement than regular bushcare mornings, where the focus is on the tasks of retarding weeds and documenting flora (processes that offer less in the way of visible 'instant reward' achievements and require regular commitment). The development of work-integrated learning projects with local universities would also extend the capacity to make advances in Zone 2, as demonstrated by the recent efforts of a group of students from QUT's Student Catchment Immersion Program (SCIP) in plantings adjacent to the Native Lime area. Discussion of similar options with BCC and the coordinators of tertiary environmental degrees will be undertaken to assess the potential for involving student teams in this regeneration work on a more regular basis.

FOAB recognises the varied demands of community members and that it is critical to capture the interests of younger generations. Project 2 is well suited to engaging families and volunteers who may only be able to attend a few times a year, but still want to contribute to their local bushland environment.

### [Project 3: Improving habitat for the vulnerable Collared Delma \(\*Delma torquata\*\)](#)

Anstead Bushland Reserve is recognised as including prime habitat for the Collared Delma (*Delma torquata*), a small legless lizard that is listed as 'Vulnerable' under the state *Nature Conservation Act 1992* and the national *Environment Protection and Biodiversity Conservation Act 1999* and is currently included among the Australian

government’s 100 Priority Species for threatened species recovery actions.<sup>4</sup> The distribution of the Collared Delma is restricted to very specific areas within the South East Queensland bioregion, with populations observed in ABR over a number of years.<sup>5</sup>

Invasive creeping lantana (*Lantana Montevidensis*), a weed that is widespread in the Reserve, is thought to have significantly reduced habitat for the Collared Delma over recent decades.<sup>6</sup> Project 3 would therefore focus on retarding this weed in Zones 1 and 2 in conjunction with the implementation of Projects 1 and 2. Suitable methods for this project, which needs to be implemented with great care to avoid potential harm to this vulnerable species, include sustainable and non-toxic targeted weed control and supplementary planting in selected areas. Within Zone 1, the approach would be consistent with Bradley Method activities, while suitable areas in Zone 2 could be given added protection after weeding through supplementary native grassland planting. Species identified as suitable for planting include Kangaroo grass (*Themeda triandra*), Barbed-wire grass (*Cymbogogon refractus*) and local varieties of Lomandra (all species that occur within the Reserve naturally). A staged approach would be adopted to minimise disruption to the natural lifecycles of the species.

In pursuing this project, FOAB will be guided by the advice of local specialists who have been monitoring populations and attempting to improve habitat within the Reserve.<sup>7</sup> Following a collaborative application (with the adjoining Kholo Creek Catchment Group [KCCG]) in December 2021 for funding to enhance Collared Delma habitat on PPCG and KCCG members’ private properties<sup>8</sup>, further options for funding will be monitored. Should a suitable opportunity arise, the potential to include areas within ABR and extend Project 3 with complementary surveys and additional regenerative and protective measures will be discussed with BCC.

## Background Information

Site Assessment			
Mapped Regional Ecosystems (including pre-clearing):	Conservation status	Area (in Ha)	Located in Zone/s:
<b>Project 1: Enhancing Anstead Bushland Reserve ecosystems through natural bush regeneration (Zone 1)</b>			
12.12.12	Of Concern	1.8Ha	Pegged sites A, B, C, D, F, G, H, I
The pegged sites A, C, D, F, G, H, I, J in Zone 1 are dominated by a canopy of <i>Eucalyptus tereticornis</i> , <i>Eucalyptus tessellaris</i> (Mountain topped ash), <i>Eucalyptus melanophloia</i> (Silver leaved ironbark), and <i>Eucalyptus siderophloia</i> (Grey ironbark). The western most sites within this zone have been observed to contain numerous <i>Eucalyptus melanophloia</i> , a spectacular ironbark having round to ovate silver green leaves. These trees are representative of the Regional Ecosystem (RE) 12.12.12 (Of Concern), which is known to provide koala habitat (koalas are listed as			

<sup>4</sup> Australian Government, Department of Agriculture, Water and the Environment (2021) *100 Priority Species* (available at: <https://www.awe.gov.au/environment/biodiversity/threatened/publications/100-priority-species>).

<sup>5</sup> Based on on-site discussion with local expert, Stephen Peck and recorded sightings reported in Gondwana Ecology Group (2021) *Anstead Bushland Reserve Biodiversity Report* (available at: <http://www.theca.asn.au/>), pp8-9.

<sup>6</sup> Gondwana Ecology Group (2021), p.29.

<sup>7</sup> For example, Stephen Peck. See Peck, S. (2003). *Conservation status review and management recommendations for the Collared Delma, Delma torquata in Brisbane City*. Internal report to Brisbane City Council.

<sup>8</sup> This funding was applied for under the Australian Government’s Priority Species Grants scheme, which included the Collared Delma on its list of 100 priority species in 2021.

'Vulnerable' under State and Federal Environment Laws). Individual specimens that guided site selection include *Ficus sp.*, *Maclura cochinchinensis* (Cockspur thorn, important habitat for small birds), *Mallotus philippinensis* (Red kamala), *Anogphora subvelutina* (Broad leaved apple), *Alectryon tomentosus* (Hairy alectryon), *Trema tomentosa* (Poison peach), *Grewia latifolia* (Dysentery plant), *Sida hackettiana* (Spiked sida), and a number of native grasses and vines that are known to support numerous butterfly species and, when co-located with basalt rock outcrops, provide potential habitat for the Collared Delma.

In preliminary work within our pegged sites we have already observed four native species emerging that have not been recorded previously in the Reserve: *Swainsona queenslandica* (Darling pea); *Tricoryn elatior* (Common rush lily), *Asperula geminifolia* (a thin-stemmed herb with small white flowers) and a tufted grass, *Sorghum nitidum* (Brown sorghum). Photographs of three of these, taken near peg A, are included below.

Swainsona queenslandica



Tricoryn elatior



Sorghum nitidum (seed head)



12.12.5

Least Concern

0.2 Ha (est)

Pegged site E (and sub-dominant components within F, G, H, I, J - ridgetop and westerly aspect)

Although physically located within areas mapped by the state government as 12.12.12, the pegged sites A, C, D, and F are dominated by *Corymbia citriodora subsp. variegata*, (Spotted gum), *Eucalyptus crebra* (Narrow leaved ironbark) and *Eucalyptus Moluccana* (Gum topped box) – canopy trees which are generally representative of Least Concern RE 12.12.5. As with sites A, C, and D these canopy trees are known food trees for koalas. Several individual specimens of interest have been observed, including *Myrsine variabilis* (Muttonwood), *Psydrax (Canthium) odoratum* (Sweet Suzie), *Aristolochia meridionalis subsp. Meridionalis* (Clearwing swallowtail butterfly vine), *Sida hackettiana* (Spiked sida), and a number of native grasses. As noted above, this understory supports a wide range of butterfly and bird species.

The areas within and around the pegged sites also have a number of igneous rock outcroppings and large old tree hollows, which may be utilised as habitat hollows by gliders, microbats and birds (including owls, such as the Powerful Owl, which is listed as 'Vulnerable' under the State *Nature Conservation Act 1992*). The Powerful Owl has been recorded within the Reserve over a number of years, with calls most recently being observed during 2021 (confirming that the Reserve continues to be utilised as a regular foraging range for individuals).

12.12.13

Locally significant hoop pine vine forest

Pegged site E

<b>Project 2: Maintaining and enhancing the condition of previously replanted high visibility areas (Zone 2)</b>			
12.12.12	Of Concern	Parcels within 4Ha area	Fig Tree Garden and surrounds, Native Lime area, Water Tank area
<p>Refer to RE description detailed in Project 1 above. Earlier plantings have been observed to be providing valuable habitat (including, for example, an active double barred finch nest and butterfly larvae food species). The canopy and understorey have been supplemented on numerous occasions. However, owing to historical land use (which includes quarrying and grazing), the longevity of these individual plants has been observed to be at risk from significant weed invasion (including from grasses and vines such as asparagus vine and glycine).</p> <p>These areas are in highly visible locations, adjacent to the access track to the Quarry Lookout, and are worthy of increased maintenance effort despite their lesser potential for natural regeneration. The main goals are to reduce weed threat and increasing the number and diversity of suitable native plants within these locations.</p>			
<b>Project 3: Improving habitat for the vulnerable Collared Delma (<i>Delma torquata</i>) (Zones 1 and 2)</b>			
<p>Refer to Zones 1 and 2 above. These Zones also include some grassland with volcanic rocky outcrops, recognised as prime habitat for the Collared Delma.</p>			
<p><i><b>Note:</b> Although every attempt has been made to ensure the accuracy of species identification listed in these Project summaries, species identification is not guaranteed. We are, however, certain that there is sufficient diversity and learning opportunity to ensure the success of the listed projects.</i></p>			

Other site values
<p><b>ABR contains essential habitat</b> for vulnerable fauna species including koalas, the Collared Delma, Powerful Owl and multiple species of migratory birds and butterflies (little of which is currently known, but we are adding to the knowledge pool via butterfly surveys conducted as part of Brisbane’s Big Butterfly Count (<a href="https://brisbanesbigbutterflycount.org.au/">https://brisbanesbigbutterflycount.org.au/</a>). Small birds regularly seen in the Reserve include red backed fairy wrens and double barred finches, while larger birds include owls (for example, the Southern Boobook and occasionally the Powerful Owl, both of which have been observed by PPCG members as recently as 2021). Multiple other bird species can be observed and the Reserve is well-known as a rewarding site for bird watchers. In addition, ABR is known as a site for the Eastern Chestnut Mouse (<i>Pseudomys gracilicaudatus</i>), listed as least concern under the state <i>Nature Conservation Act 1992</i>, but considered a locally significant species in BCC’s biodiversity areas overlay code.</p>
<p><b>Other significant habitat features</b> include numerous mature trees with large hollows (one of which has been observed by FOAB members to be currently hosting a sulphur crested cockatoo family) and many rocky outcrops (that provide habitat for the Collared Delma).</p> <p>Bush regeneration in the Reserve will complement the Birdlife Australia <a href="#">Powerful Owl project</a><sup>9</sup> which is aimed at minimising threats to this significant, but threatened, species. Given this diversity, the projects outlined above</p>

<sup>9</sup> Birdlife Australia, Powerful Owl Project <https://birdlife.org.au/projects/urban-birds/powerful-owl-project-pow>

could be supplemented by the installation of additional habitat boxes for gliders and birds (e.g. parrots) to increase the numbers of colonies in their own right and also to assist with increasing food supply for top predators (such as owls, including the Powerful Owl).

### **Habitat retention: maintaining existing wildlife habitat while restoring the sites**

While most explicit in Project 1 (which applies the Bradley Method), all projects listed here are based on staged and minimally disruptive approaches. Our long-term goals are the preservation and extension of habitat through rehabilitation of ecosystems that were previously present within the Reserve. The ongoing existence of seed stock within the soil in the Reserve and areas adjoining it is crucial for our efforts and our projects are designed protect this resource as much as possible. Our strategies for all projects involve small, carefully monitored and maintained, steps that limit the potential for harm to existing wildlife habitat and maximise the capacity for regeneration.

In particular, Project 1 is guided by the three principles that underpin the Bradley Method:

1. Work outward from 'good bush' areas towards areas of weed;
2. Make minimal disturbance to the environment;
3. Do not over clear.

Clear guidelines have been developed for this project: they will be communicated and implemented in line with these principles, with education on the recognition of weed and native flora species embedded in the process as outlined earlier. Initial work within the group involves documenting in spreadsheets the naturally occurring grass, herb, vine, understorey, midstory and canopy species so that baseline data can be obtained and compared with the prevalence and diversity of species after years of implementing the Bradley method.

While Project 2 allows for techniques that are not appropriate for Project 1 (such as hand pulling weeds, new plantings and heavier mulching), these activities will be undertaken carefully and in planned stages to minimise disruption. Careful monitoring will also be undertaken to ensure that any disruption caused does not lead to increased weed incursion.

### **Threatening processes**

The most significant threat to the success of our projects is the re-incursion of weeds into the project sites. This needs constant monitoring, for example with ongoing removal of regenerating weeds and weed seeds. There is also some risk to new plantings from feral deer, which have been observed in the Reserve both during the day and at night.

### **Workplace Health and Safety**

Potential physical hazards include terrain that may have partially concealed logs and rocks, slippery surfaces after rain; also potential encounters with snakes, spiders or ticks. Volunteers will mainly work in shaded areas, but sun exposure and heat are also potential hazards in the summer months.

At the commencement of all bushcare mornings volunteers are required to observe the current Covid-19 requirements and sign a volunteer participation sheet. They are provided with information on natural hazards in the Reserve before initialling the volunteer sheet. Participants are also informed prior to the event to bring plenty of water and sun-smart clothing.

A first aid kit is brought to all bushcare mornings and events.

### Contaminated Land

Are there restrictions on bushcare activities on this site due to contamination issues?

No known restrictions.

Site Map: Zones 1 and 2 with sites for regeneration and maintenance activities



Notes: The two polygons with thick boundaries represent the areas allocated to FOAB for bush regeneration activities by BCC; Zone 1 (the purple shaded area within the northern polygon) contains the pegged sites for Project 1, labelled A to I; Zone 2 (the green shaded area including the southern polygon and extending into the northern polygon) captures the high-visibility areas where several walking trails converge and contains the sites for Project 2, i.e. the Fig Tree Garden and surrounds, Native Lime area, Water Tank area.

## Zone and action planning

Zone 1	Pegged sites A to I (Project 1)
<b>Zone 1 Objective/s</b>	<p>The objectives for Zone 1 are those outlined for Project 1. The first is to impart knowledge on how to implement sensitive methods of bush regeneration and upskill participants in recognising local weeds and native plants.</p> <p>A second objective is to apply this knowledge in group work in the pegged practice sites labelled A to I. Activities will include removing flowers and seeds from weeds, cutting vertical stems of invasive vines, partially ringbarking weed trees and recording the prevalence and diversity of native flora (and some fauna) present in these areas. This will be followed by application of the Bradley Method in smaller selected areas (within the pegged practice sites) where adequate numbers and types of native species can be identified. The objectives here are both educative (in the practice of the Bradley Method) and practical (there is potential to support regenerative processes in these small areas through careful weeding and light mulching, with observation over an extended period to record progress).</p>
<b>Resilience score &amp; site rehabilitation approach</b>	Resilience score, 2.5 <sup>10</sup> ; Rehabilitation approach, Bradley Method.
<b>Habitat Retention &amp; Enhancement</b>	Habitat will be protected through application of the Bradley Method principles: work outward from 'good bush' areas towards areas of weed; make minimal disturbance to the environment; do not over clear. These principles will maximise habitat protection including for the Collared Delma which is the focus of Project 3.
<b>Key Threatening Processes</b>	<p>Key threatening processes are the regrowth of weeds and new seed production in the A to I pegged sites. Priority will be given to maintaining a weed seed free environment and severing the stems of regenerating invasive weed vines while the areas within the pegged sites that have been fully weeded and lightly mulched in line with the Bradley Method are left untouched to allow for natural regeneration.</p> <p>ABR is subject to prescribed fire regimes and hazard reduction burns. FOAB recognises this practice as an essential management tool for human safety and ecosystem renewal and will comply with and accommodate BCC's activities when required.</p>

<sup>10</sup> Resilience scores given here and for Zone 2 below are based on the Australian Society For Growing Australian Plants (SGAP) scale (see <http://anpsa.org.au/APOL4/dec96-5.html>).

Zone 2	Fig Tree Garden and surrounds, Native Lime area, Water Tank area and previous plantings adjacent to the trails within this area
<b>Zone 2 Objective/s</b>	The objectives for Zone 2 (aligning with Project 2) are to replace lost plants and remove weeds from previously planted and weeded areas and to extend viable habitat in these high-visibility areas – simultaneously enhancing users’ experiences of natural bushland within the Reserve. Zone 2 includes areas where bush regeneration and the protection of habitat can be readily promoted to the public, thus advancing the Site Plan’s long-term objectives of education and engagement of the community and promotion of the Reserve’s ecological diversity and history.
<b>Resilience score &amp; site rehabilitation approach</b>	Resilience score, 3.5 to 4 for Zone 2 areas that have not been previously planted (scoring not applicable to planted areas such as the Fig Tree Garden); Rehabilitation approach focuses on improving areas next to natural regeneration areas, by expanding the coverage of endemic plants and canopy cover and reducing weeds that create threats of weed invasion into natural regeneration areas. There is also a focus on improving aesthetics in high visibility areas.
<b>Habitat Retention &amp; Enhancement</b>	These areas range from high public use areas (such as the Fig Tree Garden) where significant plantings of suitable species have previously been undertaken and are largely self-sufficient (apart from the loss of some plants and the ongoing reappearance of some weeds), to surrounding areas alongside tracks where previous weeding and plantings have not been effectively maintained. Habitat retention and enhancement will be achieved by working on these surrounding areas in carefully staged steps, gradually adding carefully selected endemic species and weeding and mulching only small areas around them until they are well-established and new plantings can be safely undertaken. This approach will maximise the potential for habitat retention and enhancement, including for the Collared Delma which is the focus of Project 3.
<b>Key Threatening Processes</b>	<p>Threatening processes in these areas include the loss of plants due to factors such as prolonged heat, lack of water, poor topsoil quality and the continual re-invasion of weeds. Priority actions will be careful maintenance: watering new plants regularly during the establishment period (and using opportunities such as La Niña seasons with higher forecast rainfall) and monitoring weed regrowth, with no further weed removal until planted areas are well-established. Tree guards may be necessary in some cases given the prevalence of feral deer in the Reserve.</p> <p>As noted above, ABR is subject to prescribed fire regimes and hazard reduction burns. FOAB recognises this practice as an essential management tool for human safety and ecosystem renewal and will comply with and accommodate BCC’s activities when required</p>

Habitat Creation	
Habitat feature	Reason needed & location
Nest boxes	Nest boxes for a range of birds currently reliant upon tree hollows would be beneficial to the Reserve, especially given the role that fruit eating birds play in spreading seed of native plants. Rosella nest boxes would be a valuable addition, as would cockatoo and night-jar boxes. To support some of the top bird predators, glider nest boxes would be beneficial (as have been successfully installed along Pullenvale Forest Park Creek). These would be particularly beneficial in Zone 1 (where there are already some adjacent boxes), but could be installed in other areas as well.
Butterfly host plants	While we anticipate that the projects undertaken within Zone 1 will facilitate an increase in number of naturally occurring butterfly host plants (grasses, vines in the short term and tree regrowth in the longer term), removal of creeping lantana and supplementary planting of suitable locally endemic butterfly host plants in Zone 2, consistent with the Collared Delma recovery plans outlined in Project 3, would also be advantageous.

## Work Plan and Maintenance

### Work Plan and Maintenance Schedule for the Friends of Anstead Bushland

*Activities listed in the Work Plan below will be conducted during regular bushcare sessions. See the events calendar on Pullen Pullen Catchments Group website (<https://www.pullenpullencatchments.org.au/>) for details of all sessions and planned events for the current year.*

#### Year One: December 2021 – November 2022

Season	Location / Zone	Tasks	Notes (including planning)
Summer	Zone 1 (practice sites around pegs A, B, C, D)	<p>1. Retard weed growth by removing weed seeds, cutting vertical stems of invasive weed vines and partially ringbarking weed trees.</p> <p>2. On completion of (1) within a site, commence application of Bradley Method in selected 'islands' that contain a suitable number and diversity of native species, recording these on spreadsheets, then sensitively removing weeds and lightly mulching these areas.</p> <p>(1) and (2) comprise the basic tasks for Project 1. By removing creeping lantana along with other weeds in</p>	<p>Importance of this phase as an educative process on the Bradley Method and recognition of local weeds and native plant species.</p> <p>Bradley principles to be applied:</p> <ul style="list-style-type: none"> <li>work outward from 'good bush' areas towards areas of weed;</li> <li>make minimal disturbance to the environment;</li> <li>do not over clear.</li> </ul>

		the 'islands', Step 2 will also contribute to Project 3.	
	<p><i>Zone 1 activities listed above will not involve any planting and will create minimal disruption to ecosystems, hence they can be worked on year-round. The activities and notes listed here for Summer, Year One, thus apply also to all seasons for Year One. The focus on practice sites A to D for Year One is based on rates of progress to date, however the number of sites will be contingent on how many volunteers attend bushcare mornings on a regular basis, hence there may be some variation in practice.</i></p>		
	Zone 2	Develop planting plans (location and species) for Project 2. Photograph sites for 'before and after' records. Identify any potential Delma torquata habitat sites, ensure they will be undisturbed in planting days and develop a plan for selective weeding and supplementary planting based on expert advice.	Planning ahead for a tree planting day open to the public to align with National Tree Planting Day in July (decide on areas, plants, circulate 'save the date' messages, promotion as a 'zero-waste' event).
	ABR	Butterfly survey to be held in February in association with Brisbane's Big Butterfly Count.	The second survey to be conducted in ABR (first in November 2021). Planning ahead for April and September surveys.
Autumn	Zone 1 (practice sites around pegs A, B, C, D)	As for Summer, Year One  In addition, once weed growth has been retarded around the selected pegged sites through the measures described, regular maintenance will be required to remove any recurring weed seeds and sever regenerating stems of weed vines.	Planning for a wildlife camera in Zone 1, in consultation with BCC. Plans to include a rotation schedule between the pegged sites.
	Zone 2	Preparation of areas for Tree Planting Day (Fig Tree Garden and surrounds). Tasks include acquiring plants, pre-digging holes, having mulch ready and ensuring a sufficient supply of gloves and trowels.	
	ABR	Butterfly survey to be held in April in association with Brisbane's Big Butterfly Count.	The third survey to be conducted in ABR. Planning ahead for September survey, and surveys in subsequent years.
Winter	Zone 1 (practice sites around pegs A, B, C, D)	As for Summer and Autumn, Year One.  Where possible, extend the number of 'islands' within the A-D pegged sites where the Bradley Method is applied.  If agreed on, install wildlife camera for rotation in line with plans.	

	Zone 2	Tree Planting Day event to coincide with National Tree Day (Sunday 31 July 2022)	
Spring	Zone 1 (practice sites around pegs A, B, C, D)	As for Summer, Autumn and Winter, Year One. Aim to complete these sites (except for ongoing maintenance) by Summer 2022.	Planning ahead to map options for additional nesting boxes in Zone 1, in consultation with BCC.
	Zone 2	Maintenance work, watering and removing any weed encroachment around new additions from the Tree Planting Day.	Planning ahead: investigate the possibility of engaging tertiary-level environmental studies students in planting and weeding projects over next four years.
	ABR	Butterfly survey to be held in September in association with Brisbane's Big Butterfly Count.	The fourth survey to be conducted in ABR. Planning ahead for surveys in subsequent years.
YEAR OVERVIEW Consolidate observations and achievements in a summary document for reporting to PPCG and BCC; review plans for upcoming years based on progress to date, adjusting which Zone 1 peg sites to work on in following years if necessary.			

#### Year Two: December 2022 – November 2023

Season	Location / Zone	Tasks	Notes (including planning)
Summer	Zone 1 (practice sites around pegs E, F, G, H, I)	Tasks will be the same as those for sites A to D in Year One.  In addition, continue maintenance work in the A to D sites.  Installation of additional nesting boxes as agreed on.	
	<i>As for Year One, Zone 1 activities will be consistent across all seasons. The capacity to complete work on practice sites E to I during Year Two is contingent on the number of volunteers who attend bushcare mornings as well as whether A to D sites were completed in Year One. This issue will have been reviewed at the end of Spring 2022 with adjustments made as necessary.</i>		
	Zone 2	Maintenance work, watering as necessary over the summer months and removing weed encroachment from around plantings from the Tree Planting Day.	Plan activities for tertiary student groups if this process has been agreed on.
Autumn	Zone 1 (practice sites around pegs E, F, G, H, I)	Tasks will be the same as those for sites A to D in Year One.  In addition, continue maintenance work in the A to D sites.	
	Zone 2	Extend regeneration activities to the Native Lime area (possibly with assistance of tertiary student groups at a student planting day agreed with course coordinators and BCC).  Ongoing maintenance of earlier work. Commence plan for staged	

		removal of creeping lantana from areas identified as potential <i>Delma torquata</i> habitat.	
	All ABR		Preparation work for Birds in the Reserve event in spring, booking experts, early 'save the date' notification and promotion.
Winter	Zone 1 (practice sites around pegs E, F, G, H, I)	Tasks will be the same as those for sites A to D in Year One.  In addition, continue maintenance work in the A to D sites.	
	Zone 2	Maintenance work: watering new plants as necessary and removing weed encroachment from around all plantings to date; staged removal of creeping lantana from potential <i>Delma torquata</i> habitat areas.	
Spring	Zone 1 (practice sites around pegs E, F, G, H, I)	Tasks will be the same as those for sites A to D in Year One.  In addition, continue maintenance work in the A to D sites.	
	Zone 2	Maintenance work, as listed for Winter.	
	All ABR	Birds in the Reserve event, presentation from an expert who would also lead a 'bird walk', planned for Saturday 2 September, 2023.	
YEAR OVERVIEW Consolidate observations and achievements in a summary document for reporting to PPCG and BCC; review plans for upcoming years based on progress to date, adding new pegs within Zone 1 if progress to date permits this.			

#### Year Three: December 2023 – November 2024

Season	Location / Zone	Tasks	Notes (including planning)
Summer	Zone 1 (practice sites A to I, plus any additional sites)	Ongoing maintenance within pegged sites A to I, removing new weed seed and cutting new weed vine stems, plus fully ringbarking weed trees that were partially ringbarked in Year One.  Continue observing and recording progress in areas where the Bradley Method has been applied.  The same tasks as those undertaken for sites A to D in Year One for any new sites added.	
	Zone 2	Maintenance work, as listed for Winter Year Two.	Planning ahead for a tree planting day open to the public in July (decide on areas, plants, circulate 'save the

			date' messages, promotion as a 'zero-waste' event). Plan activities for tertiary student groups if this process has been agreed on.
Autumn	Zone 1 (practice sites A to I, plus any additional sites)	As for Summer, Year Three.	
	Zone 2	Maintenance work, as listed for Winter Year Two.  Student planting day in Zone 2 (if agreed with course coordinators and BCC).  Preparation of areas for Tree Planting Day (Water Tank area). Tasks include acquiring plants, pre-digging holes, having mulch ready and ensuring a sufficient supply of gloves and trowels.	
Winter	Zone 1 (practice sites A to I, plus any additional sites)	As for Summer, Year Three.	
	Zone 2	Maintenance work, as listed for Winter Year Two.	
		Tree Planting Day (Sunday 28 July 2024)	
Spring	Zone 1 (practice sites A to I, plus any additional sites)	As for Summer, Year Three.	
	Zone 2	Maintenance work, as listed for Winter Year Two.	
YEAR OVERVIEW Consolidate observations and achievements in a summary document for reporting to PPCG and BCC; review plans for upcoming years based on progress to date, adding new pegs within Zone 1 if progress to date permits this.			

Year Four: December 2024 – November 2025

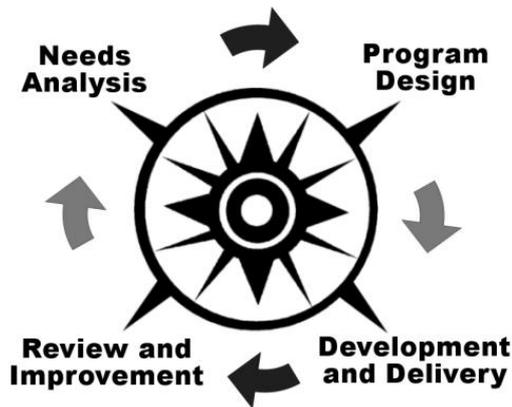
Season	Location / Zone	Tasks	Notes (including planning)
Summer	Zone 1 (practice sites A to I, plus any additional sites)	Ongoing maintenance within pegged sites A to I (removing new weed seed and cutting new weed vine stems, plus fully ringbarking weed trees that were partially ringbarked in Year Two).  Continue observing and recording progress in areas where the Bradley Method has been applied.  The same tasks as those undertaken for sites A to D in Year One for any new sites added.	
	Zone 2	Maintenance work, as listed for Winter Year Two, with particular attention to watering over the summer months and removing weed encroachment from around new plants from the Tree Planting Day.	Plan activities for tertiary student groups if this process has been agreed on.
Autumn	Zone 1 (practice sites A to I, plus any additional sites)	As for Summer, Year Four	
	Zone 2	Maintenance work, as listed for Winter Year Two.  Possible extension of sites within Zone 2 with the assistance of tertiary student groups.	
Winter	Zone 1 (practice sites A to I, plus any additional sites)	As for Summer, Year Four	
	Zone 2	Maintenance work, as listed for Winter Year Two.	
Spring	Zone 1 (practice sites A to I, plus any additional sites)	As for Summer, Year Four	
	Zone 2	Maintenance work, as listed for Winter Year Two.	
	All ABR	Butterflies or birds in the Reserve event, presentation from an expert who would also lead a walk, planned for Saturday 2 September, 2025.	
YEAR OVERVIEW Review of progress to date, amend projects as necessary in line with achievements to date and any contingencies that have arisen.			

Year Five: December 2025 – November 2026

Season	Location / Zone	Tasks	Notes (including planning)
Summer	Zone 1 (all pegged sites)	Ongoing observation and maintenance of the pegged sites and	Report to draw on recorded observations and wildlife camera

		the mapped areas where the Bradley Method was applied.  Commence report on application of the Bradley method in ABR.	images since Year One, snapshots from this record to be compiled into a presentation for Celebration Day.
	Zone 2	Ongoing maintenance. Commence report on activities and results since commencement of the Site Plan.	Reports to draw on recorded images of sites since Year One.  Plan activities for tertiary student groups if this process has been agreed on.
	All		Plan ahead for Celebration Day in Spring, event organisation, engagement of speakers, promotion of the event (including as a 'zero-waste' event).
Autumn	Zone 1 (all pegged sites)	Ongoing observation and maintenance of these sites.	
	Zone 2	Possible extension of sites within Zone 2 with the assistance of tertiary student groups.	
Winter	Zone 1 (all pegged sites)	Ongoing observation and maintenance of these sites.  Finalise report on application of the Bradley method in ABR since commencement of the Site Plan.	
	Zone 2	Ongoing observation and maintenance of Zone 2 areas.  Finalise report on activities in this Zone since commencement of the Site Plan.	
	All (reporting)	Compile reports on all projects into a final (illustrated) report for the Site Plan.  Upload report to PPCG website.	Design and print flyers for distribution on the Celebration Day, with highlights from the projects and a QR code to link to the online report.
Spring	Zones 1, 2	Ongoing observation and maintenance, commencing planning for maintenance after this Site Plan ends.	
	All ABR	ABR Celebration day  Event to celebrate ABR and promote the results of the projects conducted under this 5-year Site Plan, especially application and impact of the Bradley Method. Activities TBC. Planned for Saturday 5 September 2026.	
PLANNING AHEAD – Review achievements and barriers encountered over the five years, develop the next steps for the enhancement of ecosystems in the Reserve.			

## ATTACHMENT 1 – STRATEGY FRAMEWORK FOR DELIVERING A BRADLEY METHOD APPROACH



### Needs Analysis

Identify the needs of all stakeholders, including:

- The Bush
- BCC
- PPCG
- PPCG Participants at Anstead Bush Reserve
- traditional owners

### Program design

Allows for

- Combination of group based and individual sequenced learning activities.
- A range of theory and practical learning events. This may include optional further learning activities in participants own time.
- Continual and ongoing feedback to participants

### Development and delivery

Developed on an ongoing basis to achieve the outcomes across the diversity of participants, addressing:

- Three 'Bradley Principles'<sup>11</sup>:
  1. Work outward from “good bush” areas towards areas of weed
  2. Make minimal disturbance to the environment
  3. Do not over clear
- Plan of Work
- Rules for working in the bush
- Knowing Plants
- Equipment
- Preference against poisons
- The gentle art of weeding

### Review and Improvement

- Both formative and summative evaluation as a closed loop model

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<sup>11</sup> Joan Bradley, 1988, *Bringing Back the Bush: the Bradley Method of Bush Regeneration*, Lansdown Press, Crows Nest.