Draft Vegetation Management Plan
Lot 273 DP 755266, 15 Mulloway Road, Chain Valley Bay

Prepared by: ***Travers bushfire & ecology***
Authors: Geoff Coates (B. Sc. (Hons.); B. Zool.)
Approved by: Michael Sheather-Reid (B. Nat. Res. Hons.) – Managing Director
Date: 20th October 2021

Report Contents:

Figure 1 – Subject Site

Vegetation Management Plan

The aims of this VMP include:

- Restoration of PCT 1619 and PCT 1718 vegetation within the conservation corridor to create a fully structured and diverse vegetation community.
- Weed control and maintenance of retained native vegetation as well as replanted areas.
- Installation of permanent protection fencing, followed by feral animal detection and possible eradication by professional trapper/shooter.
- Enhance arboreal connectivity for Squirrel Glider through the construction of glider poles and nest-boxes.
- Enrich corridor habitat for Swift Parrots.
- Management of the restored vegetation, protective fencing and any nest boxes or glider poles for a period of 5 years, with regular inspections by the Project Ecologist and compliance certificates sent to Council on an annual basis following commencement of works.
- Engagement of an ecologist to provide ecological advice and to undertake compliance inspections and certifications

Vegetation within conservation area and associated Fauna assemblage

PCT 1619 - Smooth-barked Apple - Red Bloodwood - Brown Stringybark - Hairpin Banksia heathy open forest of coastal lowlands

This vegetation community describes all non-floodplain vegetation located within the conservation corridor. Within the canopy, *Angophora costata, Corymbia gummifera*, *Eucalyptus capitellata* and *E. haemastoma* are the dominant species, with a sub-canopy of *Allocasuarina littoralis.* The mid-storey is dominated by *Pittosporum undulatum, Banksia spinulosa, Acacia terminalis, Acacia longifolia, Leptospermum trinervium, Lambertia formosa, Glochidion ferdinandi, Hakea laevipes, Hakea bakeriana, Persoonia levis, Banksia oblongifolia* and within moister areas, *Melaleuca sieberi*.

The ground layer is diverse, comprising individuals of *Pultenaea retusa, Epacris pulchella, Gonocarpus teucrioides, Pimelea linifolia, Lomatia silaifolia, Bossiaea obcordata, Platysace linearifolia, Mirbelia rubiifolia, Acacia myrtifolia, Billardiera scandens, Hardenbergia violacea, Xanthorrhoea latifolia, Patersonia sericea, Lomandra obliqua, Dianella caerulea, Pteridium esculentum, Lindsaea linearis, Actinotus minor, Cryptostylis subulata, Pteridium esculentum, Lepidosperma laterale* and *Pratia purpurascens*. Grasses include *Entolasia stricta, Eragrostis brownii, Themeda triandra, Panicum simile, Oplismenus aemulus, Imperata cylindrica* and *Anisopogon avenaceus.*

Photo 1 – Unburnt intact vegetation of PCT 1619 in the central northern portion of the conservation area.

PCT 1718 - Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast

This vegetation community describes the floodplain vegetation in the southern portion of the conservation corridor. The vegetation is upon hummocky grounds with small areas of soaks as well as mounds, thus there is a mixture of species that occur regularly in Swamp Sclerophyll vegetation as well as others that occur more regularly in drier locations but can handle the rare flood event.

The canopy is dominated by *Angophora costata, Eucalyptus capitellata, E. robusta* and *Melaleuca quinquenervia*. Mid-storey species are *Melaleuca sieberi, Melaleuca linariifolia, Acacia longifolia, Pultenaea villosa, Glochidion ferdinandi* and *Dodonaea triquetra*. Dominant ground layer species are *Gahnia spp., Pteridium esculentum, Centella asiatica, Goodenia heterophylla, Goodenia ovata, Villarsia exaltata, Pimelea linifolia, Gonocarpus teucrioides* and *Pultenaea retusa*. Grasses include *Entolasia stricta, Panicum simile* and *Imperata cylindrica*.

Photo 2 – Vegetation of PCT 1718 in the southern area of the conservation area.

Fauna Species Assemblage

The fauna list recorded from survey by Travers bushfire and ecology is highly diverse, with recorded threatened species including Powerful Owl, Square-tailed Kite, Eastern Coastal Free-tailed Bat, Little Bent-winged Bat, Large Bent-winged Bat, Greater Broad-nosed Bat, Grey-headed Flying-fox, Southern Myotis and Wallum Froglet. It is anticipated the management practices outlined in this VMP will serve to establish and enrich foraging and breeding habitat for these species, as well as other threatened species recorded in the locality.

Site Preparation

The following site preparation steps must be undertaken:

- Commence weed control within the whole of the VMP management area prior to planting works and to maintain weed control.
- Install permanent protection fencing with six locked access gates as shown on Schedule 1.
- Monitoring, trapping and removal of feral cats and baiting foxes from within the conservation area on an annual basis to suppress occupation.

Weed Control

Primary (initial) weed control is to be undertaken prior to any site works to remove highly invasive weed propagules and the bulk of exotic shrub and ground layer species. All ground and shrub layer weed control works are to be undertaken by qualified personnel from an experienced bushland regeneration company utilising best practice restoration, revegetation and regeneration methods. The use of low residue and low toxicity herbicides is recommended in accordance with the manufacturer's labels. Only operators with Chemcert or equivalent training must undertake the spraying of weeds.

The operator must evaluate the success of each treatment to determine effectiveness of treatment of each target species. Care must be taken when applying herbicides near water bodies due to the sensitivity of waterways and resident flora and fauna. All herbicides must be applied according to the herbicide usage label and provisions of the Protection of the Environmental Operations Act (NSW). Weeding within the permanently fenced restoration areas is to be undertaken by hand or via spot spraying and without the use of heavy machinery.

Protective Fencing

Permanent protective fencing is to be installed around all works areas encompassed by this VMP. This protective fence is to consist of a minimum of 1.8-metre-high chain link fence. A foot apron of 40mm diameter x 1.4mm gauge x 30 cm wide wire netting will be clipped to the bottom selvage wire, extended out along the ground for 30 cm outside the conservation area and buried. Wire netting of 50mm diameter x 1.4mm gauge x 120 cm height will be clipped to the top section of the fence from a height of 90 cm, with the uppermost 30 cm extending above the top selvage wire. Fencing wire cut to lengths of 90 cm will be vertically woven into the uppermost 60 cm of the netting and bent slightly to form a 30 cm, 45-degree non-rigid overhang into the pen. See Figure 3 for an example of this fence style.

Alternative fencing types can be considered provided the function of the fence to protect the in-situ wildlife habitat and arboreal connectivity through the corridor is maintained. We note the primary function of the fencing is to protect the movement of arboreal mammals in conjunction with culvert crossings under the access roads. This fencing shall contain six (6) locked gates as shown in Schedule 1 and shall remain in place in perpetuity. Permanent fencing is also to include a solid weatherproof permanent barrier fencing 500 mm high and 200 mm depth below ground to prevent frog dispersing onto internal roads. This frog-proof fencing is to be integrated into the protective fencing that surrounds PCT 1718.

Photo 3 – Protective, feral-proof fencing

Feral Animal Removal

Control of foxes and rabbits will be undertaken using best industry practice. An environmental assessment will be undertaken to minimise the risk of non-target kill. The methods to be employed include a mix of baiting, trapping and burrow/den destruction.

Enhancement of Glider Connectivity using Glider Poles

Despite Chain Valley Bay being part of Central Coast Council, geographically it can be considered part of Lake Macquarie. Within the Lake Macquarie LGA, the Squirrel Glider is widely distributed within separate habitat patches and forms part of a larger metapopulation. The review of literature indicates that squirrel glider population viability in smaller habitat patch sizes is highly dependent on maintaining habitat connectivity, and especially the ability of the species to utilise corridors and to cross roads and barriers (Lake Macquarie City Council, 2015). Habitat connectivity is required for regular movement of individual animals for feeding and breeding within a home range, population dispersal, and infrequent and occasional movement of an animal to facilitate the flow of genetic material between populations to prevent in-breeding.

Photo 5 – Squirrel Glider. From Lake Macquarie City Council (2015).

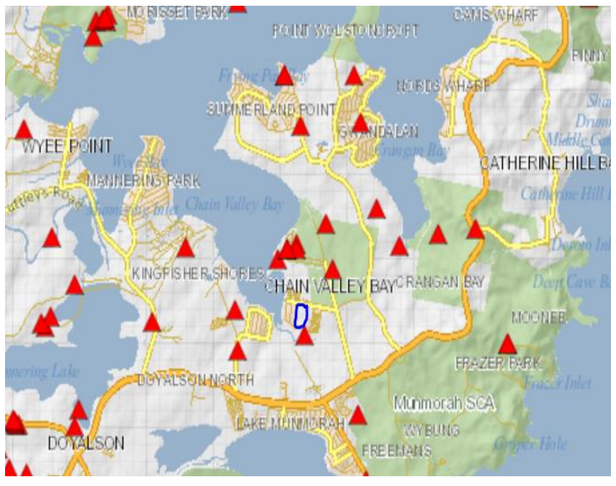


Figure 2 – Local verified Squirrel Glider records. Site location provided in blue. Source BioNet (2021).

Glider poles are to be installed to increase the movement range of arboreal mammals. These poles designed for Squirrel Gliders, are required to enhance the currently poor glider access to the north and south across Mulloway Road near the north-eastern corner of the subject site. Improved access for gliders in both directions across Mulloway Road will consolidate breeding, foraging and movement habitat or corridors within the larger patches of bushland in the wider locality.

It is proposed that at least two (2) glider poles within the footpath sections on each side of Mulloway Road are installed (minimum 4 glider poles in total). These poles would need to be 18-22 metres tall to allow for the distance across the Mulloway Road reserve (which is 22 m wide). These poles would also need to be maintained until planted trees within the road verge strip were tall enough to replace the poles. In addition, the installation of three (3) glider poles are recommended on the southern edge of the proposed road which will connect Teragalin Drive to the residential area. The location of these poles are provided in Schedule 1.

Several design principles must be implemented when installing the glider poles. These have been taken from RMS (2019). The poles are to be constructed of treated pine, and designed to ensure the height of the glider pole and cross beam is relative to the length of the glide required to traverse the road. Consideration must be given to the height of poles, height of crossbars and distance between poles. Glider poles and landing points must be close enough together and high enough that glide trajectory does not intersect traffic or the ground. Detailed design should use trigonometry rules to determine the specific requirements at each site. The glide trajectory must easily clear the traffic (i.e., at least 2 m above truck height) and any roadside fencing, with projected landings above the ground by 1 or 2 metres). Trees beside roads that create a tree-gap of 20 metres (two-lane road) or 43 metres (four-lane road) would need to be at minimum 13 metres and 25 metres in height, respectively, to enable animals to safely glide across the road. The glider pole angle must be 1V:1.84H and glide trajectory must have a clearance of no less than 6.6m above pavement surfaces on the main carriageways. The maximum glide distance must be 30m.

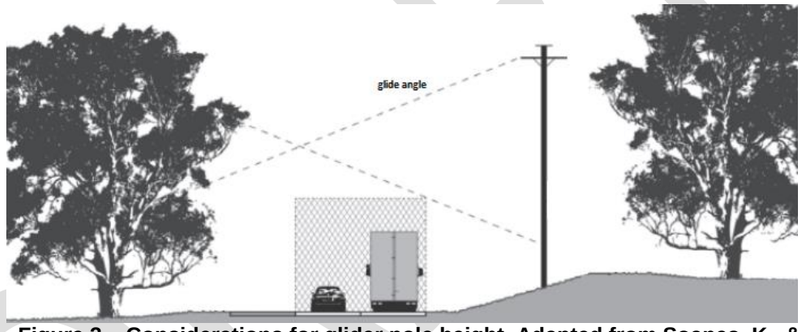


Figure 3 – Considerations for glider pole height. Adapted from Soanes, K., & van der Ree, R. (2015).

Photo 6 – Location of glider pole placement along Mulloway Road.

We note that one of the considerations calls for predator shields and pipes to be installed to discourage avian predators and provide shelter. However, studies and literature reviews have suggested that the evidence for predators exploiting wildlife crossings is scant, largely anecdotal and tends to indicate infrequent opportunism rather than the establishment of patterns of recurring predation (Little, 2002; Soanes. et. al., 2015). Furthermore, the installation of predator shields may not be utilised properly by the target fauna (Goldingay and Taylor, 2017) or disrupt their normal social behaviour (Ball and Goldingay, 2008).

Culvert underpass for terrestrial connectivity

Culvert underpasses will facilitate terrestrial movement of fauna within the conservation area under the roads linking the proposed development to Mulloway Road and Teragalin Drive. Design for maximum 0.5m high culvert in the proposed southern crossing at Teraglin Drive. On the northern crossing near Mulloway Road, multiple 300 mm concrete pipes laid side by side will provide fauna passage with a slight rise in the road profile. These will need to be designed so that the under-road passage surface is naturally vegetated as much as possible up to the culverts with other available shelter opportunities where the vegetation doesn't grow inside. The under surface should not be solid concrete construction or rubble but rather soil surface. The culverts should each have a minimum combined total width of 4m below each road. These measures will also minimise the potential for culverts to act as a predation point.

Photo 7 – Example of a fauna underpass (maximum size for this site).

Nest Box Specifications and Installation

10 nest boxes will be installed within the conservation corridor lands under the guidance of a fauna ecologist. They are to be installed prior to any vegetation removal as a relocation point for recovered hollow-dependent fauna.

Nest box attachment

Nest boxes are to be appropriately affixed to an existing tree (or, if lack of available trees, a treated-pine timber pole) under the guidance of a fauna ecologist. Different methods of attachment are available. *Travers bushfire & ecology* generally recommends that the boxes should be fixed with robust stainless steel or treated pine coach screws to ensure a very secure attachment. Two vertical timber supports (approximately 30 x 30 mm timber strips 150 mm apart) are to be attached down the rear face of the box so that there are two points of attachment to the pole on a curved surface and the box does not rock in the wind. This will also provide easy attachment points to the trees without having to screw through the inside of the box. These are to be made of treated pine and any screws into this (for hinges etc.) should be treated pine or stainless. Holes at both ends of both supports are to be predrilled for easy attachment to trees. Timber supports should not be placed directly onto the box but with small timber spacers so that an eave is permissible along this side of the roof.

Joints are to be glued and screwed for strength. Glue should be labelled as non-toxic wood glue. All fasteners used are to be weather resistant stainless steel, galvanised or other. Screws into the treated pine supports are to be stainless steel or treated pine screws. All fasteners for attachment are to be supplied (stainless steel or treated pine coach screws). These are to be a suitable gauge depending on the size of bow and suitable length to pass through timber pole. Penetration will depend on the size of the box. Screws for small boxes should extend a minimum of 20mm into the heartwood of hardwood eucalypts and medium boxes ~40mm. All boxes are to be screwed so that a small distance for growth exists between the timber supports and the pole. This can be achieved with a small stainless sleeve over the screw. 5 mm drainage holes are to be drilled in each corner at the base. The exterior of the boxes (including treated pine supports) are to be painted with a primer and then a minimum of two coats of external non-alcohol based acrylic paint. The colour selected should be consistent with the colour of the pole.

Table 1 - Recommended dimensions for nest boxes

SPECIES	INT DIAM	DEPTH/ LENGTH	ENT DIAM	VERT/ HOR	HEIGHT	REF
Bat sp.	70-100 x 150-240 mm	200-250 mm	15-20 mm slit	v	-	BFNC (n.d.)
Bat, Chocolate Wattled	-	-	10 mm slit	v	-	Traino r (1995)
Bat, Gould's Wattled	-	-	10 mm slit	v	-	Traino r (1995)
Bat, Lesser Long-eared	-	-	10 mm slit	v	-	Traino r (1995)
Little Lorikeet	120 mm	600 mm	60 mm	h	5m	
Squirrel Glider	200 mm	650 mm	60 mm	v	6 m	

Augmentation of Pre-existing Hollows

Any hollows required to be removed that have retention value are to be securely placed into a recipient tree in a manner that will not affect the recipient tree and will permit ongoing growth without the hollow being pushed off. The end capping is to be high grade marine ply glued and screwed onto the end of the hollow and coated with two coats of external acrylic paint. The fastening technique is to use external grade hardware and any securing through the cambium is to use stainless steel to prevent reaction from the tree. If the hollows cannot be practically placed in recipient trees, then they will instead be placed as on ground habitat and replaced with appropriately sized nest boxes at a ratio of 1:1.

Photo 8 – Augmented hollow designed for microbats.

Revegetation Specifications

Revegetation planting is to be undertaken preferably in March/April or September/October to avoid mid-summer heat and potential frosts. Revegetation works shall include the planting of native tree, shrub and groundcover species commensurate with PCTs 1619 and 1718. Overall quantities and planting densities are given in Table 2. The conservation corridor is divided into 3 treatment areas:

- Full revegetation in disturbed areas
- Enrichment planting of Swift Parrot/Squirrel Glider foraging species in both *PCT-1718* and *PCT-1619*
- Buffer zones adjacent to *PCT-1718*

Only plant species typically occurring within *PCT-1619* and *PCT-1718* are to be utilised for revegetation purposes, species are provided in Tables 3 and 4. Any variation from these species lists is to be approved by the project ecologist. All plants utilised for restoration are to be sourced from the local area, preferably within the same catchment. A minimum of 25 native species shall be used for each PCT as part of the revegetation works. As a minimum, holes for tree planting are to be twice the depth and twice the width of the pot size of the plant.

Revegetation maintenance

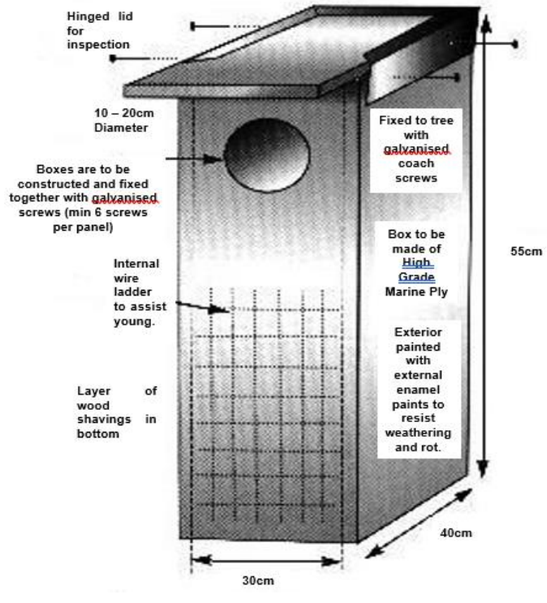
All installed plantings are to be protected with a 2 L cardboard box or corflute guards to protect from frost and grazing animals such as rabbits. Pindone rabbit baiting is to be undertaken 4 weeks prior to revegetation and throughout the entire maintenance period, (subject to Local Government and DPI guidelines). Weed control works and bush regeneration are to be undertaken over a minimum maintenance period of five (5) years post construction. Weed control and restoration works are to be monitored and audited by an appointed Project Ecologist to achieve the restoration performance targets. It is expected that at least 95% of plantings will survive, and any plants that are observed to die or be destroyed will be progressively replaced. If the success rate is less than 95%, contingency planting is to be undertaken to establish the targets required. Revegetation maintenance including weed control, replacement planting and removal of natural ground litter is to be undertaken over a 5-year minimum period. Removal of natural ground litter is particularly important to ensure that the floristic diversity and structure will not be compromised by environmental burns. Watering of all installed plants is to be undertaken a minimum of once a week or as required for the first six to eight weeks post planting in the event of a dry spell. A contingency revegetation component is to be undertaken equivalent to 15% losses of all installed plants.

Nest Box Placement

Nest boxes are to be erected by a qualified arborist under the supervision of the project ecologist or fauna ecologist. The specific locations of nest boxes within the locality are to be determined by the project ecologist. All replacement nest boxes are to be secured to timber poles at a minimum height of four metres above ground level facing the east to northeast direction. Place nest boxes as high as the poles allow, preferably using a cherry picker or tree climber - generally the higher the better for consideration to most species. Nest boxes and re-erected limbs are not to be placed near locations where public access is planned. Place nest boxes away from continual direct mid-day summer sun, with large entry holes away from any prevailing winds when close to open water-bodies, e.g., protect from strong southerly winds close to the ocean and contrastingly cool-hot westerly winds in different seasons. Attach nest boxes securely so that they do not shift or shake in response to strong winds or being knocked by the movements of heavier animals, e.g., possums and goannas. To ensure nest boxes are inaccessible to cats and rats or to also assist target species by exclusion of possums, the base of pole may also require the installation of tree guards or exclusion collars. Nest boxes should ideally be placed in such a way that they are accessible for management but concealed from interference. These artificial structures must be accessible for maintenance purposes with an expected life span of 20 years.

Nest Box Design

Timber is to be of high-grade ply 17+ mm thick (MDF, particle board and low-grade ply are not acceptable). The lid is to be hinged at the rear side of the box that is affixed to the tree to allow internal inspections from the front side. Lids are to be well sloped to the front to allow runoff by rain. Hinges are to be robust (not small) and made of brass, stainless steel or galvanised. Lids are to be larger than the overall cross-sectional size of the box and placed so that a small eave exists on all sides to prevent entry of rain.



Note: Small parrot nest boxes will require a reduced entry hole size of 5 – 10cm in diameter

Figure 4 – Large parrot roosting box

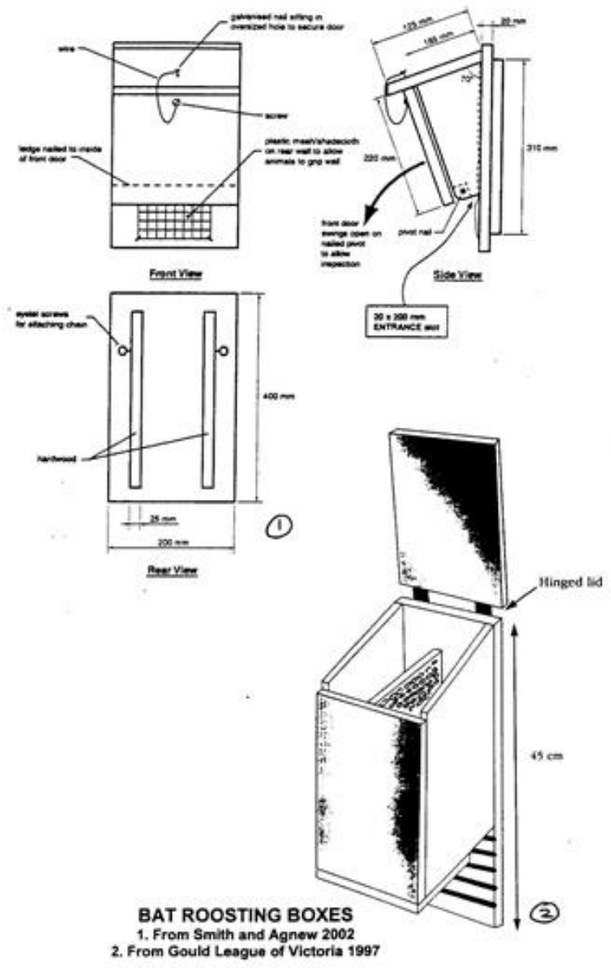


Figure 5 – Microbat nest box detail (Option 1 & 2)

Nest box maintenance

All nest boxes will be inspected annually for a minimum of ten (10) years and any damaged, or in danger of falling, are to be repaired or replaced. Deterring Mynas and Starlings from re-nesting is not easy; these pests are very persistent, and constant vigilance is necessary. This also means that you must have convenient regular access to the nest-box, and that you must be aware of what creatures are using it for what purposes. Nest boxes found to be utilised by threatened or otherwise significant fauna may be prioritised for ongoing management to ensure their longevity and replicate their design/placement characteristics.

The bushland/urban interface is to be densely planted in the outer 10–15 m to provide a visual and light barrier into the corridor to promote ongoing fauna use. Plant trees along the northern edge of the PCT 1718 area to act as a vegetated buffer for Noisy Miner and other aggressive bird edge impacts into this community. Planting of additional winter flowering street trees as well as other Myrtaceous species to reduce indirect impacts on Swift Parrot foraging habitat

Pathogen Control

The Key Threatening Processes (*BC Act, 2016*) to be controlled and monitored are infection of native plants by *Phytophthora cinnamomi*, introduction and establishment of exotic rust fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae (myrtle rust), and infection of frogs by amphibian chytrid causing the disease chytridiomycosis (chytrid fungus). Factors that can reduce the risk of introducing or spreading pathogens include

- scheduling work during dry weather (and not immediately following wet weather) to reduce adhesion of soil to footwear, clothing, equipment and vehicles (when working across multiple field sites) visiting known non-infested sites first, followed by sites with unknown infestation status and lastly sites known to be infested:
- in areas of known affectation, scheduling activities so they do not immediately follow warm, moist conditions (which are favourable for spore production)
- restricting movement of soil and plant material to and from a site

Hygiene measures should be applied at a minimum when working on site. These are presented in Table 5.

Table 5 - Basic hygiene measures

Step	Description
1. Check	Check personnel, clothing, footwear, backpacks and equipment for soil, plant material/propagules and other debris
2. Clean	Remove all soil, plant material and other debris using a hard brush and (if required) clean water If dirty, wash hands with soap and water Remove seeds from clothing, footwear, tools and equipment by hand. Seeds that are difficult to remove can sometimes be scraped off clothing with a sharp implement (e.g., a knife), but use caution. Where possible, have a co-worker double-check that you have removed all seeds
3. Dry	Where practical, ensure hands, clothing, footwear and equipment are dry before proceeding

Project Management, Reporting and Auditing

The following project management tasks are to be undertaken:

1. Engagement of qualified and experienced bushland regeneration contractors to undertake all restoration works.
2. All plant stock is to be certified as local provenance from the supplier, with preference for seeds collected from similar community types.
3. Engagement of a project ecologist to provide ecological advice and to undertake auditing, reporting, monitoring (as per Table 6) and compliance certification.
4. Photo points and monitoring quadrats are to be set up at the beginning of contract work, to be monitored at least annually for 5 years (locations provided in Schedule 2).
5. A compliance statement is to be submitted to Council upon completion of the revegetation works (practical completion) and at the end of each year for 5 years maintenance period assessing compliance with the stipulated restoration performance targets.

Restoration Performance Targets

The following restoration performance targets are to be audited and compliance certificate issued by the project ecologist demonstrating satisfactory completion of the works in the Vegetation Management Plan.

1. Along the southern portion, the protective fence is to extend to 3 m high and covered with shade cloth, netting, mesh or similar to encourage Swift Parrots to approach the food source at a higher altitude, thereby reducing the potential for vehicle collisions.
2. Locked access gates (6 x) are to be installed in the protective fences as shown in Schedule 1 – Vegetation Management Plan.
3. Final weed coverage will not exceed more than 10% coverage at the end of Year 1 and less than 5% at the end of Year 2 and is to be free of invasive environmental weed species listed for the Greater Sydney Region within the NSW *Biodiversity Conservation Act* (2016);
4. A minimum of 1.02 ha of PCT 1619 is to be planted at 50% density and 0.19 ha of PCT 1691 will be restored at 95% native plant cover (Schedule 1).
5. A minimum of 0.45 ha of PCT 1718 will be restored 95% native plant cover (Schedule 1).
6. 0.18 ha within the stormwater detention basin will be restored to a forested wetland commensurate with PCT 1718 (Schedule 4).
7. Enrichment planting of 2.31 ha of PCTs 1619 and 1718 focusing on the canopy and shrub layers and an additional 10 street trees will be undertaken as shown in Schedule 1.
8. A minimum of 25 native locally occurring species commensurate with PCT 1619 or 25 native locally occurring species commensurate with PCT 1718 are to be utilised in the revegetation works within the restoration areas.
9. Native vegetation within the restoration zones is to comply with the minimum final density of 1 tree every 50m^2, 1 sub-canopy tree every 25m^2, 1 shrub per 10m^2, 3 groundcovers per 1m^2 and 1 vine per 15m^2.
10. There is to be no evidence of bare patches or areas of potential soil erosion.
11. A minimum of 95% plant survival is to be achieved and plant cover is to be typical of for PCT 1619 or PCT 1718 vegetation types after 5 years as assessed by the Project Ecologist.
12. Installation of 10 nest boxes are to be inspected and maintained for the whole of the maintenance period of 5 years.
13. Glider poles and Terrestrial underpasses are to be installed at road crossings as shown in Schedule 1.

Table 6 – Outline of Site Inspections

A. Purpose	B. Interval (starting from the Agreement Date)
To determine the percentage of living ground cover present within the conservation area for the purposes of grazing stock in accordance with Restoration Performance Targets	Every 12 months – inspection and sampling of all vegetation strata
To determine the physical condition of fencing and gates and whether they are maintained to a standard that can (a) control human disturbance if required under Part 8 in Section 1 of the Management Plan; (b) control the movement of Feral Pests if required under Part 6.1 of Section 1 of the Management Plan	Every 12 months
To determine extent of any human disturbance within the conservation area	Every 6 months
To determine the physical condition of existing fire trails and access tracks within the conservation area their navigability and evidence of erosion. The Owner must also document any evidence of erosion within other areas of the conservation site. *Note: Parts 8.2 and 8.9 of Section 1 of the Management Plan contain requirements for erosion control*	Every 6 months
To determine the presence of rubbish within the conservation area. *Note: Part 8.3 and 8.6 of Section 1 of the Management Plan contains requirements for storing and disposing of Rubbish on the Biodiversity Stewardship Site*	Every 6 months
To assess the effectiveness of threatened species habitat management actions (including the presence of feral animals)	Every 12 months

Baseline Monitoring plot data is provided in Schedule 5 and existing flora and fauna lists are shown in Schedule 6.

Table 3 - Restoration Species List for PCT 1718

Scientific Name	Common Name
TREES	
Angophora costata	Smooth-barked Apple
Eucalyptus capitellata	Brown Stringybark
Eucalyptus robusta	Swamp Mahogany
Melaleuca quinquenervia	Broad-leaved Paperbark
SUB-CANOPY	
Glochidion ferdinandi	Cheese Tree
Melaleuca sieberi	-
Melaleuca linariifolia	Snow in Summer
SHRUBS	
Acacia longifolia	Sydney Golden Wattle
Pultenaea villosa	-
Dodonaea triquetra	Hop Bush
GROUNDCOVERS	
Pultenaea retusa	-
Pimelea linifolia	Slender Rice Flower
Pteridium esculentum	Bracken
Entolasia stricta	Wiry Panic
Panicum simile	Two Colour Panic
Gahnia clarkei	Tall Saw-sedge
Imperata cylindrica	Blady Grass
Goodenia heterophylla	Variable Leaved Goodenia
VINES	
Billardiera scandens	Apple Dumplings

Table 2 – Planting Quantities per Treatment Area

Treatment Areas	Quantity of Tubestock
Full revegetation in disturbed areas	128 trees 256 sub-canopy trees 640 shrubs 19,200 groundcovers 427 vines
Full revegetation of stormwater detention basin (PCT 1718)	36 trees 72 sub-canopy trees 180 shrubs 5400 groundcovers 120 vines
Enrichment planting of edge areas	462 trees 924 sub-canopy trees 2310 shrubs
50% revegetation zones	102 trees 204 sub-canopy trees 510 shrubs 15,300 groundcovers 340 vines

Table 4 – Restoration Species List for PCT 1619

Scientific Name	Common Name
CANOPY TREES	
Angophora costata	Smooth-barked Apple
Eucalyptus haemastoma	Scribbly Gum
Corymbia gummifera	Red Bloodwood
Eucalyptus capitellata	Brown Stringybark
SUB-CANOPY	
Allocasuarina littoralis	Black She-oak
Glochidion ferdinandi	Cheese Tree
Banksia spinulosa	Hairpin Banksia
Pittosporum undulatum	Sweet Pittosporum
Acacia terminalis	Sunshine Wattle
SHRUBS	
Acacia longifolia	Sydney Golden Wattle
Leptospermum trinervium	Flaky-barked Tea-tree
Hakea bakeriana	-
Lomatia silaifolia	Crinkle Bush
Persoonia levis	Broad-leaved Geebung
GROUNDCOVERS	
Lambertia formosa	Mountain Devil
Epacris pulchella	NSW Coral Heath
Pultenaea retusa	-
Pimelea linifolia	Slender Rice Flower
Dianella caerulea	Flax Lily
Pteridium esculentum	Bracken
Actinotus minor	Lesser Flannel Flower
Entolasia stricta	Wiry Panic
Eragrostis brownii	Brown's Lovegrass
Themeda triandra	Kangaroo Grass
Panicum simile	Two Colour Panic
VINES	
Billardiera scandens	Apple Dumplings
Hardenbergia violacea	False Sarsparilla
Eustrephus latifolius	Wombat Berry
Geitonoplesium cymosum	Scrambling Lily

Program of Works

The program of works is aimed at providing a management framework for enacting works such as undertaking revegetation, maintenance, monitoring and review works required for the conservation corridor. For the purposes of the program of works, the listed tasks are divided into the following stages.

Pre-restoration Works (prior to vegetation removal and construction works) - All corridor preparation activities prior to the commencement of vegetation restoration works on site e.g., demolition works to remove derelict buildings and services and generally excludes any landscaping and planting works.

Restoration Works - Period during which primary restoration works are completed. *Primary Restoration Works,* as defined under this VMP, include the completion of primary and secondary weed control, protective fencing and planting works. Practical completion of the primary restoration phase is determined by the project ecologist at which point all primary restoration actions need to have been completed and the installed plants are well established only requiring periodic maintenance or watering. Should there be a delay in the completion of works, for any reason, then the vegetation restoration works phase may be extended.

Post Restoration Works - Consist of maintenance activities, unless further contingency works are identified by the project ecologist for auditing, fulfilment of the performance targets, or other purposes. Maintenance will be undertaken by a fully qualified bush regeneration crew for a minimum of five (5) years post completion of primary restoration works.

Table 7 - Program of Works

Action	Responsibility
Stage 1 – Pre-restoration works	
• Formation of site management team and establish supervision and consultation processes – minimum Project Ecologist, qualified bushland restoration contractor and site manager	• Site project manager
• Installation of primary exclusion fencing and access gates	• Project manager
• Demolition works to remove redundant structures and services	• Project manager • Suitably qualified bushland restoration contractor
• Commencement of *primary weed control*	• Project ecologist / contract pest control officer
• Commencement of feral animal detection and removal	
• Commencement of seed collection and propagation contracts	• Bushland restoration contractor / project ecologist
• Installation of glider poles and nest-boxes	• Contractor /project ecologist
• Provide certificates of compliance	• Project ecologist
Stage 2 – Restoration works	
• Supervision of any vegetation and management works	• Site project manager in association with the project ecologist
• Monitor erosion control measures (monthly – especially after heavy rain) and replace if required	• Contractor with advice of project manager
• Waste removal and soil amelioration works to control weed infestations and provide suitable restoration soil base.	• suitably qualified bushland restoration contractor • Bushland restoration contractor / project manager
• Complete revegetation works	• Contractor / suitably qualified bushland restoration contractor
• Commencement of secondary weed control and maintenance weed control	
• Maintenance of fencing and signage around protected vegetation	• Contractor
• Continuation of primary restoration and revegetation works Provide certificates of compliance at practical completion	• Contractor / suitably qualified bushland regenerator • Project ecologist
Stage 3 – Post Restoration Works	
• Enrichment planting within revegetation areas if required.	• Qualified bushland restoration contractor with advice of project ecologist
• Continuation of regeneration and weed control maintenance	• Contractor / suitably qualified bushland regenerator
• .Monitoring of retained vegetation at six (6) months, twelve (12) months and annually for five (5) years post construction stage.	• Project ecologist
• Conduct maintenance beyond five (5) years as required	• Site manager with advice of project ecologist
• Provide certificates of compliance at end of each year during the 5-year maintenance period	• Project ecologist

The following typical timeline is provided to indicate the overall timing of restoration works within the conservation area. The installation of gilder poles and culverts are to be undertaken as part of the subdivision works. The commencement of the maintenance period of five (5) years is subject to the completion of primary restoration works as certified by the project ecologist. A certificate of practical completion will be required as evidence of satisfactory completion prior to the commencement of the maintenance period.

The successful implementation of restoration works may affect the release of any required bonds as required. Upon engagement, contractors are expected to meet the following typical schedule of works**.**

Table 8 – Typical Restoration Works Timeline (5 years maintenance)

ID	Task Name	Duration	Primary Restoration Works												Year 1 - Maintenance												Years 2-5 - Maintenance											
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
	STAGE 1 - PRECOMMENCEMENT																																					
1.0	**PROJECT INITIATION**	1 month																																				
1.1	Confirm funding	1 month																																				
1.2	Preparation of contract schedules	1 month																																				
1.3	Submission of fee proposals	1 month																																				
1.4	Contractor approvals, engagement of project ecologist & bushland restoration contractor	1 month																																				
2.0	**SITE PREPARATION AND PROPAGATION**																																					
2.1	Pre-commencemnt vegetation condition assessment & installation of monitoring plots	1 day																																				
2.2	Seed collection	12 months																																				
2.3	Plant propagation (initial & contingency)	8 months																																				
2.5	Install sediment and erosion control measures	2 weeks																																				
2.6	Obtain permit & undertake pest (fox/cat and rabbit) control - Pindone baiting - if required	6 weeks																																				
	STAGE 2 DURING CONSTRUCTION WORKS																																					
3.0	**WEED CONTROL**																																					
3.1	Primary weed control	3-6 months																																				
3.2	Secondary weed control	3-6 months																																				
4.0	**REVEGETATION WORKS**	1-1.5yrs																																				
4.1	Site preparation - sediment and erosion control, removal of waste	1-5 days																																				
4.2	Construction works - regrading and stormwater outlet works	6-12 months																																				
4.3	Revegetation works	6 months																																				
4.4	Regeneration works (if required)	3 months																																				
4.5	Initial watering & maintenance	9 months																																				
4.6	Pest control - rabbit baiting and fox/cat control (if required)	7 months																																				
	STAGE 3 - POST CONSTRUCTION WORKS																																					
5.0	**BUSH REGENERATION & REVEGETATION MAINTENANCE**																																					
5.1	Watering, maintenance, weed control and repairs	2 years																																				
5.2	Ongoing regeneration of existing bushland areas	2 years																																				
5.3	Pest Control - baiting	2 years																																				
6.0	**MANAGEMENT AUDITING AND MONITORING**																																					
6.1	Contractor supervision / monitoring	2 years																																				
6.2	Ongoing supervision/auditing/monitoring	2 years																																				
6.3	Submission of annual reporting	2 years																																				
7.0	**CONTINGENCY & MAINTENANCE WORKS (Subject to Audits)**																																					
7.1	Target noxious weeds	2 weeks																																				
7.2	Replacement planting	1 month																																				
7.3	Watering & maintenance	3-6 months																																				
7.4	Medium term maintenance	6 months																																				
7.5	Submission of compliance certification (to 2 yrs)	As required																																				

CANOPY INVESTIGATION ZONE

MAINTAIN CANOPY CONNECTIVITY

MULLOWAY ROAD

Minimum of 4 glider poles (8 options provided)

Retain dam

Cycleway/Firetrail

REVALLY AVENUE

14m

13m

18m

14.5m

11m

24m

21m

25m

15m

40m

49m

CANOPY INVESTIGATION ZONE

PROPOSED WILDLIFE CORRIDOR & CONSERVATION AREA (7.65ha)

KARIGNAN CREEK

NOTE : Southern lot boundary (adjacent to Karignan Creek) is to be verified by a registered surveyor.

Legend

- Lot boundary (source: CAD - 16.52ha)
- Creek line (source - LPI)
- Creek line (LPI)
- Protective fencing (1607m)
- Existing clearing for sewer line
- Stormwater basin
- Environmental signage (7)
- Gate (8)
- Trees to retain
- Trees to remove
- Critical glider trees for retention
- Glider pole
- Natural habitat connectivity
- Artificial habitat connectivity
- Cross section
- High-density enrichment planting/revegetation (2.31ha)
- Street tree planting (0.1ha)
- Hollow bearing trees
- Potentially suitable for Large Forest Owl
- TEC Buffer
- Baited camera

Restoration Zones

PCT 1619 - Smooth-barked Apple - Red Bloodwood - Brown Stringybark - Hairpin Banksia heathy open forest

- Good condition (2.54ha)
- 50% restoration (1.02ha)
- Full restoration (0.19ha)

PCT 1718 - Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast

- Good condition (3.46ha)
- Full restoration (Forested wetland) (0.45ha)

TRAVERS BUSHFIRE & ECOLOGY
A TBE ENVIRONMENTAL COMPANY

PROJECT & MXD REFERENCE
15 Mulloway Road, Chain Valley Bay
18OD02_VMP001

DATE & ISSUE NUMBER
15/10/2021
Issue 1

SCALE & COORDINATE SYSTEM
1:2,500 @ A3
GDA 1994 MGA Zone 56

0 50 100 m

TITLE

Schedule 1 - Vegetation Management Works

Document Path: N:\GIS STORAGE\N Drive\18OD02_Mulloway_Rd_ChainValleyBay\MXDs\18OD02_VMP001.mxd

Disclaimer: The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

Legend

- Lot boundary (source: CAD - 16.52ha)
- Creek line (source - LPI)
- Creek line (LPI)
- Protective fencing (1607m)
- Location of cameras for monitoring and reporting
- Vegetation Integrity Monitoring Plots
- TEC Buffer (0.48ha)

Restoration Zones

PCT 1619 - Smooth-barked Apple - Red Bloodwood - Brown Stringybark - Hairpin Banksia heathy open forest

- Good condition (2.54ha)
- 50% restoration (1.02ha)
- Full restoration (0.19ha)

PCT 1718 - Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast

- Good condition (3.46ha)
- Full restoration (0.45ha)

TRAVERS BUSHFIRE & ECOLOGY
A TBE ENVIRONMENTAL COMPANY

PROJECT & MXD REFERENCE
15 Mulloway Road, Chain Valley Bay
18OD02_VMP002

DATE & ISSUE NUMBER
14/10/2021
Issue 1

SCALE & COORDINATE SYSTEM
1:2,500 @ A3
GDA 1994 MGA Zone 56

0 50 100 m

TITLE
Schedule 2 - Auditing and Monitoring Works

Disclaimer: The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

Document Path: N:\GIS STORAGE\N Drive\18OD02_Mulloway_Rd_ChainValleyBay\MXDs\18OD02_VMP002.mxd

Legend

- Lot boundary (source: CAD - 16.52ha)
- Contour 1m (source:LiDAR)
- Creek line (source - LPI)
- Creek line (LPI)
- Protective fencing (1607m)

Vegetation Condition

- Good condition (8.37ha)
- Fair Condition (1.02ha)
- Poor Condition (0.83ha)

TRAVERS BUSHFIRE & ECOLOGY
A TBE ENVIRONMENTAL COMPANY

PROJECT & MXD REFERENCE	DATE & ISSUE NUMBER	SCALE & COORDINATE SYSTEM
15 Mulloway Road, Chain Valley Bay 18OD02_VMP003	14/10/2021 Issue 1	1:2,500 @ A3 GDA 1994 MGA Zone 56

0 50 100 m

TITLE

Schedule 3 - Vegetation Condition Assessment

Document Path: N:\GIS STORAGE\N Drive\18OD02_Mulloway_Rd_ChainValleyBay\MXDs\18OD02_VMP003.mxd

Disclaimer: The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

WET BASIN

DRY BASIN

SPILLWAY

11m

24m

21m

25m

15m

40m

25m

49m

Legend

Aerial source: Nearmap

- Lot boundary (source: CAD - 16.52ha)
- Contour 1m (source:LiDAR)
- Creek line (source - LPI)
- Creek line (LPI)
- TEC Buffer
- Protective fencing (1607m)
- Cross section
- Environmental signage (7)
- Gate (8)
- Glider pole
- Hollow bearing trees
- Canopy investigation zone
- Critical glider trees for retention
- Stormwater basin
- Enrichment planting (trees & sub-canopy only) (2.31ha)
- Street tree planting (0.1ha)

Restoration Zones

Zone 1: PCT 1619 - Smooth-barked Apple - Red Bloodwood - Brown Stringybark - Hairpin Banksia heathy open forest

- 1A Good condition (2.54ha)
- 1B 50% restoration (1.02ha)
- 1C Full restoration (0.19ha)

Zone 2: PCT 1718 - Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast

- 2A Good condition (0.27ha)
- 2B Full restoration (0.45ha)
- 2C Forested wetland (0.18ha)

0 10 20 m

Disclaimer: The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

PROJECT & MXD REFERENCE	DATE & ISSUE NUMBER	SCALE & COORDINATE SYSTEM
15 Mulloway Road, Chain Valley Bay 18OD02_VMP001a	15/10/2021 Issue 1 SC	1:700 @A3 GDA 1994 MGA Zone 56

TITLE

Schedule 4 - Vegetation Management Plan (Basin)

Document Path: N:\GIS STORAGE\N Drive\18OD02_Mulloway_Rd_ChainValleyBay\MXDs\18OD02_VMP001a.mxd

TRAVERS BUSHFIRE & ECOLOGY
A TBE ENVIRONMENTAL COMPANY

Schedule 5 – Baseline Monitoring Data

The following plots were taken on site using the Biodiversity Assessment Method (BAM) in 2017. The data from these plots is used to come up with a vegetation integrity score, by which the vegetation is rated based on quality, disturbance and presence of habitat features. It is anticipated that these plots will be used as the baseline data, and that subsequent annual re-assessments in the same location will be used for monitoring of the vegetation on site.

BAM Site – Field Survey Form — Site Sheet no: 1 of

Survey Name	Plot Identifier	Recorders
A17182 Chain Valley Bay	BSAR Q6	LH

Date	Datum	IBRA region	Photo #	Zone ID
18/12/17	56		✓	

Zone	Easting	Northing	Dimensions	m	Orientation of midline from the 0 m point.	Magnetic °

Vegetation Class	Confidence: H M L
Plant Community Type	EEC: × Confidence: H M L

Record easting and northing from the plot marker. If applicable, orient picket so that perforated rib points along direction of midline.
Dimensions (Shape) of 0.04 ha base plot inside 0.1 ha FA plot should be identified, magnetic bearing taken along midline. over 5m tall

BAM Attribute (400 m² plot)		Sum values
Count of Native Richness	Trees	8
	Shrubs	15
	Grasses etc.	5
	Forbs	8
	Ferns	2
	Other	6
Sum of Cover of native vascular plants by growth form group	Trees	59
	Shrubs	22.5
	Grasses etc.	25.5
	Forbs	1.3
	Ferns	0.4
	Other	6.3
High Threat Weed cover		13.7

BAM Attribute (20 x 50 m plot)	Euc*	# Tree Stems Count: Non Euc	Hollows†
dbh: large trees for Euc* & Non Euc, 80 ÷ cm	11	1	
50 – 79 cm	111		
30 – 49 cm	1111		
20 – 29 cm	1111 1111 1	1	1
10 – 19 cm	1111 1111 1111 1	11	3
5 – 9 cm	1	1111 1	n/a
< 5 cm		111	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	Tally space		total 197

Record number of **living** eucalypt* (Euc*) and **living native** non-eucalypt (Non Euc) stems separately

* includes all species of *Eucalyptus*, *Corymbia*, *Angophora*, *Lophostemon* and *Syncarpia*

† Record total number of stems by size class with hollows (including dead stems/trees)

Counts must apply to each size class when the **number of living tree stems** within the size class is ≤ 10. Estimates can be used when the number of living tree stems within a class is > 10. Estimates should draw from the number series: 10, 20, 30…, 100, 200, 300

For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. For **hollows** count only the presence of a stem containing hollows, not the count of hollows in that stem. Only count as 1 stem per tree where tree is multi-stemmed. The hollow-bearing stem may be a dead stem.

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	60	70	50	40	70	5	5	2	10	5	5	5	2	2	2	0	0	0	0	0
Average of the 5 subplots	58					5.4					3.2					0				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots located on alternate sides and 5 m from the plot midline at the locations 5, 15, 25, 35, and 45 m along the midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Within these 1 m x 1 m plots assessors may also record the cover of rock, bare ground and cryptogam soil crusts. Collection of these data is optional - the data do not currently contribute to assessment scores, they hold potential value for future vegetation integrity assessment attributes and benchmarks, and for enhancing PCT description

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	0.3m
Lithology		Soil Surface Texture	sandy-loam	Soil Colour	light grey	Soil Depth	mod-deep
Slope	1-2°	Aspect	north	Site Drainage	good-moderate	Distance to nearest water and type	350m dam

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	0		
Cultivation (inc. pasture)	0		
Soil erosion	0		
Firewood / CWD removal	0		
Grazing (identify native/stock)	0		
Fire damage	0		
Storm damage	2	R	3 uprooted trees
Weediness	1	R	Edge effects
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe — Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

Form version 5 - designed March 2017 — Printed 31 August 2017

Monitoring Plot 1 Baseline Data.

BAM Site – Field Survey Form — Site Sheet no: 1 of

Survey Name	Plot Identifier	Recorders
A17182 Chain Valley Bay	BCAR Q6	LH

Date	Datum	IBRA region	Photo #	Zone ID
18/12/17	56			

Zone	Easting	Northing	Dimensions	m	Orientation of midline from the 0 m point.	Magnetic °

Vegetation Class	Confidence: H M L
Plant Community Type	EEC: × Confidence: H M L

Record easting and northing from the plot marker. If applicable, orient picket so that perforated rib points along direction of midline.
Dimensions (Shape) of 0.04 ha base plot inside 0.1 ha FA plot should be identified, magnetic bearing taken along midline. over 5m tall

BAM Attribute (400 m² plot)		Sum values
Count of Native Richness	Trees	6
	Shrubs	10
	Grasses etc.	50
	Forbs	5
	Ferns	2
	Other	76
Sum of Cover of native vascular plants by growth form group	Trees	39
	Shrubs	22.4
	Grasses etc.	13.5
	Forbs	0.6
	Ferns	2.1
	Other	5.1
High Threat Weed cover		10.5

BAM Attribute (20 x 50 m plot)	Euc*	# Tree Stems Count: Non Euc	Hollows†
dbh: large trees for Euc* & Non Euc, 80 ÷ cm	11 (2)		
50 – 79 cm	1 (6)		
30 – 49 cm	11 (11)		
20 – 29 cm	11 (7)	11 (3)	
10 – 19 cm	11 (7)	111 (13)	3
5 – 9 cm	1 (1)	11 (9)	n/a
< 5 cm	1 (1)	1 (1)	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	Tally space		total 56

Record number of **living** eucalypt* (Euc*) and **living native** non-eucalypt (Non Euc) stems separately

* includes all species of *Eucalyptus*, *Corymbia*, *Angophora*, *Lophostemon* and *Syncarpia*

† Record total number of stems by size class with hollows (including dead stems/trees)

Counts must apply to each size class when the **number of living tree stems** within the size class is ≤ 10. Estimates can be used when the number of living tree stems within a class is > 10. Estimates should draw from the number series: 10, 20, 30…, 100, 200, 300

For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. For **hollows** count only the presence of a stem containing hollows, not the count of hollows in that stem. Only count as 1 stem per tree where tree is multi-stemmed. The hollow-bearing stem may be a dead stem.

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	100	80	80	40	80	0	2	2	10	0	2	2	2	2	2	0	0	0	0	0
Average of the 5 subplots	76					4.8					2					0				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots located on alternate sides and 5 m from the plot midline at the locations 5, 15, 25, 35, and 45 m along the midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Within these 1 m x 1 m plots assessors may also record the cover of rock, bare ground and cryptogam soil crusts. Collection of these data is optional - the data do not currently contribute to assessment scores, they hold potential value for future vegetation integrity assessment attributes and benchmarks, and for enhancing PCT description

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	uniform
Lithology		Soil Surface Texture	sandy-loam	Soil Colour	light grey	Soil Depth	mod-deep
Slope	1°	Aspect	north	Site Drainage	good	Distance to nearest water and type	350m dam

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	1	0	Reduced shrub layer
Cultivation (inc. pasture)	0		
Soil erosion	0		
Firewood / CWD removal	0		
Grazing (identify native/stock)	0		
Fire damage	0		
Storm damage	1	R	2 trees fallen
Weediness	1	R	Edge effects
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe — Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

Form version 5 - designed March 2017 — Printed 31 August 2017

Monitoring Plot 2 Baseline Data.

BAM Site – Field Survey Form — Site Sheet no: 1 of

Survey Name	Plot Identifier	Recorders
A17182 Chain Valley Bay	BSAR Q4	LH

Date	Datum	IBRA region	Photo #	Zone ID
12/12/17	56		✓	

Zone	Easting	Northing	Dimensions	m	Orientation of midline from the 0 m point.	Magnetic °

Vegetation Class	Confidence: H M L
Plant Community Type	EEC: × Confidence: H M L

Record easting and northing from the plot marker. If applicable, orient picket so that perforated rib points along direction of midline.
Dimensions (Shape) of 0.04 ha base plot inside 0.1 ha FA plot should be identified, magnetic bearing taken along midline. over 5m tall

BAM Attribute (400 m² plot)		Sum values
Count of Native Richness	Trees	5
	Shrubs	6
	Grasses etc.	8
	Forbs	3
	Ferns	1
	Other	4
Sum of Cover of native vascular plants by growth form group	Trees	45.3
	Shrubs	5.3
	Grasses etc.	68.4
	Forbs	0.5
	Ferns	3
	Other	1
High Threat Weed cover		1.5

BAM Attribute (20 x 50 m plot)	Euc*	# Tree Stems Count: Non Euc	Hollows†
dbh: large trees for Euc* & Non Euc, 80 ÷ cm	111 (3)		
50 – 79 cm	1111 (5)		
30 – 49 cm	1111 11 (12)		
20 – 29 cm	1111 11 (7)	1111 (6)	
10 – 19 cm	1111 11 (7)	1111 1111 1111 1111 (24)	11 (2)
5 – 9 cm	111 (3)	1111 1111 (10)	n/a
< 5 cm		1111 1 (6)	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	Tally space		total 34

Record number of **living** eucalypt* (Euc*) and **living native** non-eucalypt (Non Euc) stems separately

* includes all species of *Eucalyptus*, *Corymbia*, *Angophora*, *Lophostemon* and *Syncarpia*

† Record total number of stems by size class with hollows (including dead stems/trees)

Counts must apply to each size class when the **number of living tree stems** within the size class is ≤ 10. Estimates can be used when the number of living tree stems within a class is > 10. Estimates should draw from the number series: 10, 20, 30…, 100, 200, 300

For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. For **hollows** count only the presence of a stem containing hollows, not the count of hollows in that stem. Only count as 1 stem per tree where tree is multi-stemmed. The hollow-bearing stem may be a dead stem.

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	60	80	50	70	50	10	2	10	5	5	1	1	1	5	1	0	0	0	0	0
Average of the 5 subplots	62					6.4					1.5					0				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots located on alternate sides and 5 m from the plot midline at the locations 5, 15, 25, 35, and 45 m along the midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Within these 1 m x 1 m plots assessors may also record the cover of rock, bare ground and cryptogam soil crusts. Collection of these data is optional - the data do not currently contribute to assessment scores, they hold potential value for future vegetation integrity assessment attributes and benchmarks, and for enhancing PCT description

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	flat-mod-deep
Lithology		Soil Surface Texture	loam-sand	Soil Colour	red brown	Soil Depth	
Slope	1-2°	Aspect	west	Site Drainage	mod-good	Distance to nearest water and type	50m dam

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	0		
Cultivation (inc. pasture)	0		
Soil erosion	0		
Firewood / CWD removal	0		
Grazing (identify native/stock)	0		
Fire damage	1	NR	Burnt trunks
Storm damage	1	R	Moderate limb loss
Weediness	1	R	edge effects
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe — Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

Form version 5 - designed March 2017 — Printed 31 August 2017

Monitoring Plot 3 Baseline Data.

TRAVERS BUSHFIRE & ECOLOGY
A TSE ENVIRONMENTAL COMPANY

BAM Site – Field Survey Form

Site Sheet no: 1 of

Survey Name	Plot Identifier	Recorders
A17182 Chain Valley Bay	BCAR Q1	LH

Date	Datum	IBRA region	Photo #	Zone ID
11/12/17				

Zone	Easting	Northing	Dimensions	Orientation of midline from the 0 m point.
56			m	Magnetic °

Vegetation Class — Confidence: H M L

Plant Community Type — EEC: SSFCF — Confidence: H M L

Record easting and northing from the plot marker. If applicable, orient picket so that perforated rib points along direction of midline.
Dimensions (Shape) of 0.04 ha base plot inside 0.1 ha FA plot should be identified, magnetic bearing taken along midline. 5m or taller

BAM Attribute (400 m² plot)		Sum values
Count of Native Richness	Trees	7
	Shrubs	4
	Grasses etc.	10
	Forbs	7
	Ferns	2
	Other	5
Sum of Cover of native vascular plants by growth form group	Trees	43.2
	Shrubs	25.2
	Grasses etc.	32.9
	Forbs	1.5
	Ferns	0.3
	Other	1.3
High Threat Weed cover		0.7

BAM Attribute (20 x 50 m plot)		Euc*	Non Euc	Hollows†
dbh			# Tree Stems Count	
large trees for Euc* & Non Euc	80 + cm	Euc* (1)	Non Euc	Hollows
	50 – 79 cm	(3)		
	30 – 49 cm	(6) (1)	(1)	
	20 – 29 cm	(11)	(10)	(1)
	10 – 19 cm	(8)	(13)	(1)
	5 – 9 cm	(3)	(2)	n/a
	< 5 cm	(3)		n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)		Tally space		total 44

Record number of **living** eucalypt* (Euc*) and **living native** non-eucalypt (Non Euc) stems separately

* Includes all species of *Eucalyptus, Corymbia, Angophora, Lophostemon* and *Syncarpia*

† Record total number of stems by size class with hollows (including dead stems/trees)

Counts must apply to each size class when the **number of living tree stems** within the size class is ≤ 10. Estimates can be used when the number of living tree stems within a class is > 10. Estimates should draw from the number series: 10, 20, 30..., 100, 200, 300

For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. For **hollows** count only the presence of a stem containing hollows, not the count of hollows in that stem. Only count as 1 stem per tree where tree is multi-stemmed. The hollow-bearing stem may be a dead stem.

BAM Attribute (1 x 1 m plots)	Litter cover (%)	Bare ground cover (%)	Cryptogam cover (%)	Rock cover (%)
Subplot score (% in each)	15 40 20 20 30	5 5 20 10 10	3 3 1 1 1	0 0 0 0 0
Average of the 5 subplots	25	10	1	0

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots located on alternate sides and 5 m from the plot midline at the locations 5, 15, 25, 35, and 45 m along the midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Within these 1 m x 1 m plots assessors may also record the cover of rock, bare ground and cryptogam soil crusts. Collection of these data is optional - the data do not currently contribute to assessment scores, they hold potential value for future vegetation integrity assessment attributes and benchmarks, and for enhancing PCT description

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	Nil
Lithology		Soil Surface Texture	Clay-loam-sand	Soil Colour	Pale brown	Soil Depth	deep
Slope	1°	Aspect	South	Site Drainage	Poor-moderate	Distance to nearest water and type	Karingan Ck 150m

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	0		
Cultivation (inc. pasture)	0		
Soil erosion	0		
Firewood / CWD removal	0		
Grazing (identify native/stock)	0		
Fire damage	1	NR	some trunks burnt
Storm damage	1	R	minor large limb losses
Weediness	1	R	edge effects
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe — Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

Form version 5 - designed March 2017 — Printed 31 August 2017

Monitoring Plot 4 Baseline Data.

BAM Site – Field Survey Form

Site Sheet no: 1 of

Survey Name	Plot Identifier	Recorders
A17182 Chain Valley Bay	BSAR Q3	LH

Date	Datum	IBRA region	Photo #	Zone ID
11/12/17			✓	

Zone	Easting	Northing	Dimensions	Orientation of midline from the 0 m point.
56			m	Magnetic °

Vegetation Class — Confidence: H M L

Plant Community Type — EEC: SSFCF — Confidence: H M L

Record easting and northing from the plot marker. If applicable, orient picket so that perforated rib points along direction of midline.
Dimensions (Shape) of 0.04 ha base plot inside 0.1 ha FA plot should be identified, magnetic bearing taken along midline.

BAM Attribute (400 m² plot)		Sum values
Count of Native Richness	Trees	4
	Shrubs	7
	Grasses etc.	7
	Forbs	4
	Ferns	1
	Other	1
Sum of Cover of native vascular plants by growth form group	Trees	35
	Shrubs	15.9
	Grasses etc.	48.7
	Forbs	3.7
	Ferns	2
	Other	0.1
High Threat Weed cover		12.4

BAM Attribute (20 x 50 m plot)		Euc*	Non Euc	Hollows†
dbh			# Tree Stems Count	
large trees for Euc* & Non Euc	80 + cm	Euc*	Non Euc	Hollows
	50 – 79 cm			
	30 – 49 cm	(6)	(2)	
	20 – 29 cm	(15)	(4)	
	10 – 19 cm	(8)	(14)	
	5 – 9 cm	(4)	(12)	n/a
	< 5 cm	(3)	(4)	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)		Tally space		total 33

Record number of **living** eucalypt* (Euc*) and **living native** non-eucalypt (Non Euc) stems separately

* Includes all species of *Eucalyptus, Corymbia, Angophora, Lophostemon* and *Syncarpia*

† Record total number of stems by size class with hollows (including dead stems/trees)

Counts must apply to each size class when the **number of living tree stems** within the size class is ≤ 10. Estimates can be used when the number of living tree stems within a class is > 10. Estimates should draw from the number series: 10, 20, 30..., 100, 200, 300

For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. For **hollows** count only the presence of a stem containing hollows, not the count of hollows in that stem. Only count as 1 stem per tree where tree is multi-stemmed. The hollow-bearing stem may be a dead stem.

BAM Attribute (1 x 1 m plots)	Litter cover (%)	Bare ground cover (%)	Cryptogam cover (%)	Rock cover (%)
Subplot score (% in each)	15 25 10 20 15	10 10 30 30 10	2 2 2 2 2	0 0 0 0 0
Average of the 5 subplots	17	18	2	0

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots located on alternate sides and 5 m from the plot midline at the locations 5, 15, 25, 35, and 45 m along the midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Within these 1 m x 1 m plots assessors may also record the cover of rock, bare ground and cryptogam soil crusts. Collection of these data is optional - the data do not currently contribute to assessment scores, they hold potential value for future vegetation integrity assessment attributes and benchmarks, and for enhancing PCT description

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	Hummocky
Lithology		Soil Surface Texture	clay-loam	Soil Colour	Pale brown	Soil Depth	deep
Slope	1°	Aspect	South	Site Drainage	poor	Distance to nearest water and type	Karingan Ck 100m

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	0		
Cultivation (inc. pasture)	0		
Soil erosion	0		
Firewood / CWD removal	0		
Grazing (identify native/stock)	0		
Fire damage	1	NR	trunks burnt
Storm damage	1	R	minor limb losses
Weediness	1	R	~12% ind coverage in ground layer
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe — Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

Form version 5 - designed March 2017 — Printed 31 August 2017

Monitoring Plot 5 Baseline Data.

BAM Site – Field Survey Form

Site Sheet no: 1 of

Survey Name	Plot Identifier	Recorders
A17182 Chain Valley Bay	BSAR Q2	LH

Date	Datum	IBRA region	Photo #	Zone ID
11/12/17			✓	

Zone	Easting	Northing	Dimensions	Orientation of midline from the 0 m point.
56			m	Magnetic °

Vegetation Class — Confidence: H M L

Plant Community Type — EEC: SSFCF — Confidence: H M L

Record easting and northing from the plot marker. If applicable, orient picket so that perforated rib points along direction of midline.
Dimensions (Shape) of 0.04 ha base plot inside 0.1 ha FA plot should be identified, magnetic bearing taken along midline. over 5m tall

BAM Attribute (400 m² plot)		Sum values
Count of Native Richness	Trees	3
	Shrubs	9
	Grasses etc.	10
	Forbs	6
	Ferns	2
	Other	1
Sum of Cover of native vascular plants by growth form group	Trees	13.3
	Shrubs	29.4
	Grasses etc.	69.5
	Forbs	2.1
	Ferns	0.5
	Other	0.1
High Threat Weed cover		0

BAM Attribute (20 x 50 m plot)		Euc*	Non Euc	Hollows†
dbh			# Tree Stems Count	
large trees for Euc* & Non Euc	80 + cm	Euc*	Non Euc	Hollows
	50 – 79 cm	(4)	(3)	
	30 – 49 cm	(6)	(13)	
	20 – 29 cm	(4)	(8)	
	10 – 19 cm	(9)	(15)	(3)
	5 – 9 cm	(6)	(5)	n/a
	< 5 cm	(4)	(2)	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)		Tally space		total 40

Record number of **living** eucalypt* (Euc*) and **living native** non-eucalypt (Non Euc) stems separately

* Includes all species of *Eucalyptus, Corymbia, Angophora, Lophostemon* and *Syncarpia*

† Record total number of stems by size class with hollows (including dead stems/trees)

Counts must apply to each size class when the **number of living tree stems** within the size class is ≤ 10. Estimates can be used when the number of living tree stems within a class is > 10. Estimates should draw from the number series: 10, 20, 30..., 100, 200, 300

For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. For **hollows** count only the presence of a stem containing hollows, not the count of hollows in that stem. Only count as 1 stem per tree where tree is multi-stemmed. The hollow-bearing stem may be a dead stem.

BAM Attribute (1 x 1 m plots)	Litter cover (%)	Bare ground cover (%)	Cryptogam cover (%)	Rock cover (%)
Subplot score (% in each)	25 30 30 10 30	15 15 35 35 15	2 2 2 2 2	0 0 0 0 0
Average of the 5 subplots	25	23	2	0

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots located on alternate sides and 5 m from the plot midline at the locations 5, 15, 25, 35, and 45 m along the midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Within these 1 m x 1 m plots assessors may also record the cover of rock, bare ground and cryptogam soil crusts. Collection of these data is optional - the data do not currently contribute to assessment scores, they hold potential value for future vegetation integrity assessment attributes and benchmarks, and for enhancing PCT description

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	Hummocky
Lithology		Soil Surface Texture	clay-loam	Soil Colour	Pale brown	Soil Depth	deep
Slope	1°	Aspect	South	Site Drainage	Poor	Distance to nearest water and type	Karingan Ck 75m

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	0		
Cultivation (inc. pasture)	0		
Soil erosion	1	R	sediment
Firewood / CWD removal	0		
Grazing (identify native/stock)	0		
Fire damage	1		burnt trunks
Storm damage	1		recent limb losses
Weediness	0		
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe — Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

Form version 5 - designed March 2017 — Printed 31 August 2017

Monitoring Plot 6 Baseline Data.

BAM Site – Field Survey Form

Site Sheet no: 1 of

Survey Name	Plot Identifier	Recorders
Date: 11/12/17 — Chain Valley Bay	BSAR Q1	LH

Zone	Datum	IBRA region	Photo #	Zone ID
56			✓	

Easting	Northing	Dimensions	Orientation of midline from the 0 m point.
		m	Magnetic °

		Confidence: H M L
Vegetation Class		
Plant Community Type	EEC: SSFCF	Confidence: (H) M L

Record easting and northing from the plot marker. If applicable, orient picket so that perforated rib points along direction of midline.
Dimensions (Shape) of 0.04 ha base plot inside 0.1 ha FA plot should be identified, magnetic bearing taken along midline.

BAM Attribute (400 m² plot)		Sum values
Count of Native Richness	Trees	4
	Shrubs	7
	Grasses etc.	6
	Forbs	4
	Ferns	3
	Other	3
Sum of Cover of native vascular plants by growth form group	Trees	21.2
	Shrubs	38.6
	Grasses etc.	74.8
	Forbs	2.4
	Ferns	0.4
	Other	0.3
High Threat Weed cover		0.1

over 5m tall only

BAM Attribute (20 x 50 m plot)		# Tree Stems Count		
dbh	Euc*	Non Euc	Hollows†	
large trees for Euc* & Non Euc — 80 + cm	Euc*	Non Euc	Hollows†	
50 – 79 cm	1 (1)			
30 – 49 cm	11 (11)	15 (15)		
20 – 29 cm	9 (9)	32 (32)		
10 – 19 cm	8 (8)	30 (30)	2 (2)	
5 – 9 cm	22 (22)	17 (17)	n/a	
< 5 cm	3 (3)	8 (8)	n/a	
Length of logs (m) (≥10 cm diameter, >50 cm in length)				total 57

Record number of **living** eucalypt* (Euc*) and **living native** non-eucalypt (Non Euc) stems separately

* includes all species of *Eucalyptus*, *Corymbia*, *Angophora*, *Lophostemon* and *Syncarpia*

† Record total number of stems by size class with hollows (including dead stems/trees)

Counts must apply to each size class when the **number of living tree stems** within the size class is ≤ 10. Estimates can be used when the number of living tree stems within a class is > 10. Estimates should draw from the number series: 10, 20, 30…, 100, 200, 300

For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. For **hollows** count only the presence of a stem containing hollows, not the count of hollows in that stem. Only count as 1 stem per tree where tree is multi-stemmed. The hollow-bearing stem may be a dead stem.

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	15	30	15	15	30	5	40	20	20	15	2	2	2	5	2	0	0	0	0	0
Average of the 5 subplots	21					20					2.6					0				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots located on alternate sides and 5 m from the plot midline at the locations 5, 15, 25, 35, and 45 m along the midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Within these 1 m x 1 m plots assessors may also record the cover of rock, bare ground and cryptogam soil crusts. Collection of these data is optional - the data do not currently contribute to assessment scores, they hold potential value for future vegetation integrity assessment attributes and benchmarks, and for enhancing PCT description

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	hummocky
Lithology		Soil Surface Texture	clay-loam	Soil Colour	pale brown	Soil Depth	deep
Slope	1°	Aspect	South	Site Drainage	poor	Distance to nearest water and type	Karingamba Ck 40m

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	0		
Cultivation (inc. pasture)	0		
Soil erosion	1		sediment
Firewood / CWD removal	0		
Grazing (identify native/stock)	0		
Fire damage	1	NR	burnt trunks
Storm damage	1	R	2 large limbs snapped
Weediness	0		
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe — Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

Form version 5 - designed March 2017 — Printed 31 August 2017

Monitoring Plot 7 Baseline Data.

Schedule 6 – Flora and Fauna Lists

The following lists were collated from site surveys undertaken for the Biodiversity Certification Assessment Report (Travers bushfire and ecology, 2021).

Flora observations for the subject site

Family	Scientific name	Common name
Trees		
Mimosaceae	*Acacia baileyana*	Cootamundra Wattle
Casuarinaceae	*Allocasuarina littoralis*	Black She-oak
Myrtaceae	*Angophora costata*	Smooth-barked Apple
Araucariaceae	*Araucaria heterophylla**	Norfolk Island Pine
Arecaceae	*Archontophoenix cunninghamiana*	Bangalow Palm
Casuarinaceae	*Casuarina glauca*	Swamp Oak
Lauraceae	*Cinnamomum camphora**	Camphor Laurel
Myrtaceae	*Corymbia gummifera*	Red Bloodwood
Eleocarpaceae	*Elaeocarpus reticulatus*	Blueberry Ash
Myrtaceae	*Eucalyptus capitellata*	Brown Stringybark
Myrtaceae	*Eucalyptus eugenioides*	Thin-leaved Stringybark
Myrtaceae	*Eucalyptus haemastoma*	Scribbly Gum
Myrtaceae	*Eucalyptus robusta*	Swamp Mahogany
Santalaceae	*Exocarpos cupressiformis*	Native Cherry
Oleaceae	*Fraxinus angustifolia**	Claret Ash
Fabaceae	*Gleditsia triacanthos**	Honey Locust
Phyllanthaceae	*Glochidion ferdinandi*	Cheese Tree
Proteaceae	*Grevillea robusta*	Silky Oak
Lythraceae	*Lagerstroemia indica**	Crepe Myrtle
Arecaceae	*Livistona australis*	Cabbage Tree Palm
Proteaceae	*Macadamia integrifolia*	Macadamia Nut
Myrtaceae	*Melaleuca decora*	-
Myrtaceae	*Melaleuca linariifolia*	Snow in Summer
Myrtaceae	*Melaleuca quinquenervia*	Broad-leaved Paperbark
Meliaceae	*Melia azedarach* var. *australasica*	White Cedar
Myrsinaceae	*Myrsine variabilis*	Muttonwood
Pittosporaceae	*Pittosporum undulatum*	Sweet Pittosporum
Salicaceae	*Populus alba**	White Poplar
Rosaceae	*Prunus sp.**	Stone-fruit Tree
Shrubs		
Mimosaceae	*Acacia falcata*	Sickle Wattle
Mimosaceae	*Acacia implexa*	Hickory
Mimosaceae	*Acacia longifolia* var. *longifolia*	Sydney Golden Wattle
Mimosaceae	*Acacia myrtifolia*	Red Stem Wattle
Mimosaceae	*Acacia suaveolens*	Sweet Scented Wattle
Mimosaceae	*Acacia terminalis*	Sunshine Wattle
Proteaceae	*Banksia marginata*	Silver Banksia
Proteaceae	*Banksia oblongifolia*	-
Proteaceae	*Banksia spinulosa* var. *spinulosa*	Hairpin Banksia
Fabaceae	*Bossiaea heterophylla*	Variable Bossiaea
Fabaceae	*Bossiaea obcordata*	Spiny Bossiaea
Euphorbiaceae	*Breynia oblongifolia*	Coffee Bush
Caricaceae	*Carica papaya*	Papaya
Solanaceae	*Cestrum parqui**	Chilean Cestrum
Shrubs (continued)		
Asteraceae	*Chrysanthemoides monilifera* subsp. *rotundata**	Bitou Bush
Lauraceae	*Cinnamomum camphora*	Camphor Laurel
Polygalaceae	*Comesperma ericinum*	Matchheads
Malaceae	*Cotoneaster glaucophyllus**	Grey-leaved Cotoneaster
Sapindaceae	*Dodonaea triquetra*	Hop Bush
Epacridaceae	*Epacris pulchella*	NSW Coral Heath
Fabaceae	*Gompholobium latifolium*	Broad-leaf Wedge-pea
Proteaceae	*Grevillea sericea*	Pink Spider Flower
Proteaceae	*Hakea bakerana*	-
Proteaceae	*Hakea laevipes* subsp. *laevipes*	-
Proteaceae	*Hakea salicifolia*	Willow Hakea
Proteaceae	*Hakea sericea*	Needlebush
Malvaceae	*Hibiscus sp.* (cultivar)*	Hibiscus
Euphorbiaceae	*Homalanthus populifolius*	Bleeding Heart
Myrtaceae	*Kunzea ambigua*	Tick Bush
Proteaceae	*Lambertia formosa*	Mountain Devil
Verbenaceae	*Lantana camara**	Lantana
Myrtaceae	*Leptospermum juniperinum*	Prickly Tea-tree
Myrtaceae	*Leptospermum polygalifolium* subsp. *polygalifolium*	Tantoon
Myrtaceae	*Leptospermum trinervium*	Flaky-barked Tea-tree
Proteaceae	*Lomatia silaifolia*	Crinkle Bush
Myrtaceae	*Melaleuca ericifolia*	Swamp Paperbark
Myrtaceae	*Melaleuca sieberi*	-
Myrtaceae	*Melaleuca thymifolia*	Thyme Honey Myrtle
Araceae	*Monstera deliciosa**	Fruit-salad Plant
Berberidaceae	*Nandina domestica**	Sacred Bamboo
Apocynaceae	*Nerium oleander**	Oleander Bush
Oleaceae	*Notelaea longifolia*	Mock Olive
Ochnaceae	*Ochna serrulata**	Mickey Mouse Plant
Rubiaceae	*Opercularia diphylla*	-
Proteaceae	*Persoonia lanceolata*	Lance-leaved Geebung
Proteaceae	*Persoonia levis*	Broad-leaved Geebung
Proteaceae	*Persoonia linearis*	Narrow-leaved Geebung
Euphorbiaceae	*Phyllanthus hirtellus*	Thyme Spurge
Phytolaccaceae	*Phytolacca octandra**	Inkweed
Apiaceae	*Platysace linearifolia*	Narrow-leafed Platysace
Apocynaceae	*Plumeria obtusa**	Frangipani
Fabaceae	*Podolobium ilicifolium*	Prickly Shaggy Pea
Araliaceae	*Polyscias sambucifolia*	Elderberry Panax
Rhamnaceae	*Pomaderris* sp.	-
Fabaceae	*Pultenaea daphnoides*	Large-leaf Bush Pea
Fabaceae	*Pultenaea retusa*	-
Fabaceae	*Pultenaea rosmarinifolia*	-
Fabaceae	*Pultenaea villosa*	-
Rosaceae	*Rhaphiolepis indica**	Indian Hawthorn
Rosaceae	*Rubus anglocandicans**	Blackberry
Fabaceae	*Senna pendula* var. *glabrata**	-
Solanaceae	*Solanum mauritianum**	Wild Tobacco
Bignoniaceae	*Tecoma capensis**	Cape Honeysuckle
Groundcovers		
Asteraceae	*Actinotus minor*	Lesser Flannel Flower
Liliaceae	*Agapanthus praecox**	Agapanthus
Asteraceae	*Ageratina adenophora**	Crofton Weed
Asteraceae	*Ageratum houstonianum**	Blue Billy Goat Weed
Poaceae	*Andropogon virginicus**	Whisky Grass
Poaceae	*Anisopogon avenaceus*	Oat Speargrass
Poaceae	*Aristida vagans*	Three-awn Speargrass
Orchidaceae	*Arthrochilus prolixus*	Elbow Orchid
Asparagaceae	*Asparagus aethiopicus**	Asparagus Fern
Poaceae	*Avena fatua**	Wild Oats
Poaceae	*Axonopus fissifolius**	Narrow-leafed Carpet Grass
Restionaceae	*Baloskion gracile*	-
Cyperaceae	*Baumea juncea*	-
Asteraceae	*Bidens pilosa**	Cobbler's Pegs
Blechnaceae	*Blechnum camfieldii*	-
Colchicaceae	*Burchardia umbellata*	Milkmaids
Cyperaceae	*Carex appressa*	Tall Sedge
Apocynaceae	*Catharanthus roseus*	Madagascar Periwinkle
Apiaceae	*Centella asiatica*	Indian Pennywort
Poaceae	*Chloris gayana**	Rhodes Grass
Sinopteridaceae	*Cheilanthes sieberi*	Rock Fern
Asteraceae	*Cirsium vulgare**	Spear Thistle
Commelinaceae	*Commelina cyanea*	Native Wandering Jew
Asteraceae	*Conyza bonariensis**	Flaxleaf Fleabane
Asteraceae	*Conyza sumatrensis**	Fleabane
Orchidaceae	*Cryptostylis erecta*	Bonnet Orchid
Orchidaceae	*Cryptostylis subulata*	Large Tongue Orchid
Cucurbitaceae	*Cucurbita maxima**	Pumpkin
Cyperaceae	*Cyathochaeta diandra*	-
Poaceae	*Cynodon dactylon*	Common Couch
Cyperaceae	*Cyperus brevifolius**	Mullumbimby Couch
Cyperaceae	*Cyperus eragrostis**	Umbrella Sedge
Goodeniaceae	*Dampiera stricta*	Blue Dampiera
Phormiaceae	*Dianella caerulea* var. *caerulea*	Flax Lily
Convolvulaceae	*Dichondra repens*	Kidney Weed
Poaceae	*Dichelachne micrantha*	Short-hair Plume Grass

Groundcovers (continued)		
Poaceae	*Echinopogon caespitosus* var. *caespitosus*	Tufted Hedgehog Grass
Poaceae	*Echinopogon ovatus*	Forest Hedgehog Grass
Poaceae	*Ehrharta erecta**	Panic Veldtgrass
Restionaceae	*Empodisma minus*	-
Poaceae	*Entolasia marginata*	Bordered Panic
Poaceae	*Entolasia stricta*	Wiry Panic
Asteraceae	*Epaltes australis*	-
Poaceae	*Eragrostis brownii*	Brown's Lovegrass
Asteraceae	*Erechtites valerianifolia**	Brazilian Fireweed
Asteraceae	*Euchiton sphaericus*	-
Euphorbiaceae	*Euphorbia peplus**	Spurge
Cyperaceae	*Ficinia nodosa*	-
Cyperaceae	*Fimbristylis dichotoma*	Common Fringe-rush
Cyperaceae	*Gahnia aspera*	Saw Sedge
Cyperaceae	*Gahnia clarkei*	Tall Saw-sedge
Cyperaceae	*Gahnia sieberiana*	Red-fruit Saw-sedge
Asteraceae	*Gamochaeta spicata**	Cudweed
Geraniaceae	*Geranium homeanum*	Northern Cranesbill
Haloragaceae	*Gonocarpus tetragynus*	Poverty Raspwort
Haloragaceae	*Gonocarpus teucroides*	Raspwort
Goodeniaceae	*Goodenia hederacea* subsp. *hederacea*	Ivy-leaved Goodenia
Goodeniaceae	*Goodenia heterophylla* subsp. *heterophylla*	Variable Leaved Goodenia
Goodeniaceae	*Goodenia ovata*	-
Haemodoraceae	*Haemodorum planifolium*	Bloodroot
Zingiberaceae	*Hedychium gardnerianum**	Ginger Lily
Dilleniaceae	*Hibbertia aspera*	Rough Guinea Flower
Dilleniaceae	*Hibbertia linearis*	-
Araliaceae	*Hydrocotyle bonariensis**	Kurnell Curse / Pennywort
Araliaceae	*Hydrocotyle sibthorpioides*	Pennywort
Araliaceae	*Hydrocotyle tripartita*	Pennywort
Asteraceae	*Hypochaeris radicata**	Flatweed
Dennstaedtiaceae	*Hypolepis muelleri*	Harsh Ground Fern
Poaceae	*Imperata cylindrica* var. *major*	Blady Grass
Juncaceae	*Juncus acutus**	-
Juncaceae	*Juncus kraussii*	Sea Rush
Juncaceae	*Juncus planifolius*	Broad Rush
Juncaceae	*Juncus prismatocarpus*	Branching Rush
Juncaceae	*Juncus usitatus*	Common Rush
Asteraceae	*Lagenifera stipitata*	-
Cyperaceae	*Lepidosperma laterale*	Variable Sword-sedge
Restionaceae	*Leptocarpus tenax*	Slender Twine-rush
Lindsaeaceae	*Lindsaea linearis*	Screw Fern
Lobeliaceae	*Lobelia anceps*	-
Lomandraceae	*Lomandra cylindrica*	Needle Mat-rush
Lomandraceae	*Lomandra filiformis*	Wattle Mat-rush
Lomandraceae	*Lomandra longifolia*	Spiky-headed Mat-rush
Lomandraceae	*Lomandra glauca*	-
Lomandraceae	*Lomandra obliqua*	Twisted Mat-rush

Groundcovers (continued)		
Poaceae	*Echinopogon caespitosus* var. *caespitosus*	Tufted Hedgehog Grass
Myrsinaceae	*Lysimachia arvensis**	Scarlet Pimpernel
Poaceae	*Microlaena stipoides* var. *stipoides*	Weeping Grass
Malvaceae	*Modiola caroliniana**	Red-flowered Mallow
Davalliaceae	*Nephrolepis cordifolia**	Fish-bone Fern
Poaceae	*Oplismenus aemulus*	Basket Grass
Poaceae	*Oplismenus imbecillis*	-
Oxalidaceae	*Oxalis perennans*	-
Poaceae	*Panicum simile*	Two Colour Panic
Poaceae	*Paspalidium distans*	-
Poaceae	*Paspalum dilatatum**	Paspalum
Poaceae	*Paspalum urvillei**	Vasey Grass
Iridaceae	*Patersonia glabrata*	Leafy Purple-flag
Iridaceae	*Patersonia sericea*	Wild Iris
Sinopteridaceae	*Pellaea falcata*	Sickle Fern
Poaceae	*Pennisetum clandestinum**	Kikuyu
Polygonaceae	*Persicaria strigosa*	-
Poaceae	*Phalaris aquatica**	Phalaris
Euphorbiaceae	*Phyllanthus tenellus**	-
Thymelaeaceae	*Pimelea linifolia* subsp. *linifolia*	Slender Rice Flower
Plantaginaceae	*Plantago lanceolata**	Ribwort
Lobeliaceae	*Pratia purpurascens*	Whiteroot
Acanthaceae	*Pseuderanthemum variabile*	Pastel Flower
Dennstaedtiaceae	*Pteridium esculentum*	Bracken
Rubiaceae	*Richardia brasiliensis**	Mexican Clover
Cyperaceae	*Schoenus brevifolius*	Bog-rush
Cyperaceae	*Schoenus melanostachys*	Black Bog Rush
Selaginallaceae	*Selaginella uliginosa*	Swamp Selaginella
Asteraceae	*Senecio madagascariensis**	Fireweed
Poaceae	*Setaria parviflora**	-
Malvaceae	*Sida rhombifolia**	Paddy's Lucerne
Solanaceae	*Solanum nigrum**	Black Nightshade
Poaceae	*Sporobolus africanus**	Parramatta Grass
Asteraceae	*Taraxacum officinale**	Dandelion
Orchidaceae	*Thelymitra ixioides* var. *ixioides*	Spotted Sun Orchid
Poaceae	*Themeda triandra*	Kangaroo Grass
Anthericaceae	*Tricoryne elatior*	Yellow Autumn-lily
Fabaceae	*Trifolium repens**	White Clover
Verbenaceae	*Verbena bonariensis**	Purpletop
Verbenaceae	*Verbena litoralis**	-
Asteraceae	*Vernonia cinerea* var. *cinerea*	-
Menyanthaceae	*Villarsia exaltata*	Yellow Marsh Flower
Apocynaceae	*Vinca major**	Blue Periwinkle

Groundcovers (continued)		
Poaceae	*Echinopogon caespitosus* var. *caespitosus*	Tufted Hedgehog Grass
Violaceae	*Viola hederacea*	Ivy-leaved Violet
Iridaceae	*Watsonia meriana**	Wild Watsonia
Xanthorrhoaceae	*Xanthorrhoea latifolia* subsp. *latifolia*	-
Apiaceae	*Xanthosia pilosa*	Woolly Xanthosia
Vines		
Pittosporaceae	*Billardiera scandens* var. *scandens*	Apple Dumplings
Lauraceae	*Cassytha glabella* forma *glabella*	Slender Devil's Twine
Ranunculaceae	*Clematis aristata*	Old Man's Beard
Fabaceae	*Desmodium rhytidophyllum*	-
Luzuriagaceae	*Eustrephus latifolius*	Wombat Berry
Luzuriagaceae	*Geitonoplesium cymosum*	Scrambling Lily
Fabaceae	*Glycine clandestina*	Twining Glycine
Fabaceae	*Hardenbergia violacea*	False Sarsparilla
Dilleniaceae	*Hibbertia scandens*	Climbing Guinea-flower
Oleaceae	*Jasminum polyanthum**	Jasmine
Fabaceae	*Kennedia rubicunda*	Dusky Coral Pea
Caprifoliaceae	*Lonicera japonica**	Japanese Honeysuckle
Bignoniaceae	*Macfadyena unguis-cati**	Cat's Claw Creeper
Bignoniaceae	*Pandorea pandorana*	Wonga Vine
Apocynaceae	*Parsonsia straminea*	Common Silkpod
Passifloraceae	*Passiflora edulis**	Common Passionfruit
Smilacaceae	*Smilax glyciphylla*	Sarsaparilla
Menispermiaceae	*Stephania japonica* var. *discolor*	Snake Vine
Fabaceae	*Wisteria sinensis**	Wisteria
Epiphytes		
Orchidaceae	*Cymbidium suave*	Native Cymbidium

*** denotes exotic species**

TRAVERS BUSHFIRE & ECOLOGY
A TSE ENVIRONMENTAL COMPANY

Lot 273 DP 755266
15 Mulloway Road,
Chain Valley Bay

20th October 2021
Ref: 18OD02VR

Schedule 6 – Flora and Fauna Lists

Fauna observations for the study area

Common name	Scientific name	Method observed			
Birds		**March 2016**	**Nov 2017-Jan 2018**	**June – Aug 2018**	**Sept 2020**
Australian Magpie	*Cracticus tibicen*	O W	O W		
Australian Owlet-nightjar	*Aegotheles cristatus*	W	W		
Australian Raven	*Corvus coronoides*	W	O W	O W	
Australian Wood Duck	*Chenonetta jubata*	O W	O W	W	
Azure Kingfisher	*Alcedo azurea*		W		
Bar-shouldered Dove	*Geopelia humeralis*		O W Q	W	
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*		O W		
Brown Thornbill	*Acanthiza pusilla*	O W	W	W	
Brush Cuckoo	*Cacomantis variolosus*		W		
Channel-billed Cuckoo	*Scythrops novaehollandiae*		O W		
Chestnut Teal	*Anas castanea*		O		
Cicadabird	*Coracina tenuirostris*		W		
Common Koel	*Eudynamys scolopacea*		W		
Common Myna *	*Acridotheres tristis*	O W	O W Q		
Crested Pigeon	*Ocyphaps lophotes*	O			
Dollarbird	*Eurystomus orientalis*		O W		
Eastern Rosella	*Platycercus eximius*	O W	O W	O W	
Eastern Spinebill	*Acanthorhynchus tenuirostris*	O W	O W	W	
Eastern Yellow Robin	*Eopsaltria australis*	O W	O W	W	
Eurasian Coot	*Fulica atra*	O W			
Fan-tailed Cuckoo	*Cacomantis flabelliformis*		W	W	
Galah	*Cacatua roseicapilla*	O W	O W	O W	
Golden Whistler	*Pachycephala pectoralis*	O		W	
Goose (domestic) *	*Anser* sp.		O W		
Grey Butcherbird	*Cracticus torquatus*	O W	O W	O W	
Grey Fantail	*Rhipidura albiscapa*	O	O W	O W	
Laughing Kookaburra	*Dacelo novaeguineae*	O W	O W Q	O W	
Leaden Flycatcher	*Myiagra rubecula*		W[PR]		
Lewin's Honeyeater	*Meliphaga lewinii*	O	W	W	
Little Corella	*Cacatua sanguinea*	OW	W	OW	
Little Pied Cormorant	*Phalacrocorax melanoleucos*	O			
Little Wattlebird	*Anthochaera chrysoptera*		OW		
Magpie-lark	*Grallina cyanoleuca*	OW	OW	W	
Masked Lapwing	*Vanellus miles*	W	W		
Musk Lorikeet	*Glossopsitta concinna*		W	W	
Noisy Friarbird	*Philemon corniculatus*		W		
Noisy Miner	*Manorina melanocephala*	OW	OW	OW	
Olive-backed Oriole	*Oriolus sagittatus*		W		
Pacific Black Duck	*Anas superciliosa*	O W	O		
Pheasant Coucal	*Centropus phasianinus*		W[PR]	OW	
Pied Currawong	*Strepera graculina*	W	OW	OW	
Powerful Owl [TS]	*Ninox strenua*			W	
Rainbow Lorikeet	*Trichoglossus haematodus*	OW	OW	OW	
Rufous Whistler	*Pachycephala rufiventris*		W		
Sacred Kingfisher	*Todiramphus sanctus*		OW		
Satin Bowerbird	*Ptilonorhynchus violaceus*	OW	OW	W	
Scaly-breasted Lorikeet	*Trichoglossus chlorolepidotus*	OW	OW		

Birds (continued)		**March 2016**	**Nov 2017-Jan 2018**	**June – Aug 2018**	**Sept 2020**
Australian Magpie	*Cracticus tibicen*	O W	O W		
Australian Owlet-nightjar	*Aegotheles cristatus*	W	W		
Scarlet Honeyeater	*Myzomela sanguinolenta*		W		
Southern Boobook	*Ninox novaeseelandiae*		H[PR]	O	
Spotted Turtle-Dove *	*Streptopelia chinensis*	OW	OW		
Square-tailed Kite [TS]	*Lophoictinia isura*			O	
Striated Heron	*Butorides striatus*	O			
Striated Pardalote	*Pardalotus striatus*		W		
Sulphur Crested Cockatoo	*Cacatua galerita*	OW	OW	OW	
Superb Fairy-wren	*Malurus cyaneus*		OW		
Variegated Fairy-wren	*Malurus lamberti*	OW			
Welcome Swallow	*Hirundo neoxena*	O	O		
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	W			
White-breasted Woodswallow	*Artamus leucorynchus*	O[PO]			
White-browed Scrubwren	*Sericornis frontalis*	OW	OW	W	
White-throated Needletail	*Hirundapus caudacutus*		O		
White-throated Treecreeper	*Cormobates leucophaea*		W	W	
White-winged Chough	*Corcorax melanorhhamphos*	O			
Willie Wagtail	*Rhipidura leucophrys*	OW	OW		
Yellow-faced Honeyeater	*Caligavis chrysops*	W	W	W	
Yellow-tailed Black-Cockatoo	*Calyptorhynchus funereus*	W	W	W	
Mammals		**March 2016**	**Nov 2017-Jan 2018**	**June – Aug 2018**	**Sept 2020**
Black Rat *	*Rattus rattus*		ETQ		O
Brown Antechinus	*Antechinus stuartii*		T		
Bush Rat	*Rattus fuscipes*			T	
Cat *	*Felis catus*	O	O		
Common Brushtail Possum	*Trichosurus vulpecula*	O	OTQ		
Common Ringtail Possum	*Pseudocheirus peregrinus*	OE	OTQ		
Domesticated Dog *	*Canis lupus familiaris*	W	OW		
Eastern Coastal Free-tailed Bat [TS]	*Micronomus norfolkensis*	U	U		
Large Bent-winged Bat [TS]	*Miniopterus orianae oceanensis*	U			
Eastern Broad-nosed Bat	*Scotorepens orion*		U[PR]		
Eastern Forest Bat	*Vespadelus pumilus*		T		
Eastern Freetail-bat	*Mormopterus ridei*		U		
European Red Fox *	*Vulpes vulpes*		PQ		
Gould's Wattled Bat	*Chalinolobus gouldii*	U	U		
Greater Broad-nosed Bat [TS]	*Scoteanax rueppellii*		U[PR]		
Grey-headed Flying-fox [TS]	*Pteropus poliocephalus*		O		
Southern Myotis[TS]	*Myotis macropus*	OU	U		
Little Bent-winged Bat [TS]	*Miniopterus australis*	U	U		

Mammals (continued)		**March 2016**	**Nov 2017-Jan 2018**	**June – Aug 2018**	**Sept 2020**
Little Forest Bat	*Vespadelus vulturnus*	U[PO]	U		
Northern Brown Bandicoot	*Isoodon macrourus*		Q		
Short-beaked Echidna	*Tachyglossus aculeatus*		Q		
Southern Forest Bat	*Vespadelus regulus*		TU		
Squirrel Glider [TS]	*Petaurus norfolcensis*	W[PO]			
Sugar Glider	*Petaurus breviceps*	F[PR]		T	OW
Swamp Rat	*Rattus lutreolus*		T		
Swamp Wallaby	*Wallabia bicolor*	P	OPQ		
Reptiles		**March 2016**	**Nov 2017-Jan 2018**	**June – Aug 2018**	**Sept 2020**
Delicate Skink	*Lampropholis delicata*	O	O		
Lace Monitor	*Varanus varius*		P		
Red-bellied Black Snake	*Pseudechis porphyriacus*		O		
Amphibians		**March 2016**	**Nov 2017-Jan 2018**	**June – Aug 2018**	**Sept 2020**
Broad-palmed Frog	*Litoria latopalmata*		W		
Brown Brood Frog	*Pseudophryne bibronii*	W[PO]			
Common Eastern Froglet	*Crinia signifera*	W	W	W	OW
Dusky Toadlet	*Uperoleia fusca*	W			
Dwarf Tree Frog	*Litoria fallax*		W		
Eastern Banjo Frog	*Lymnodynastes dumerilii*				W
Peron's Tree Frog	*Litoria peronii*		W		W
Striped Marsh Frog	*Limnodynastes peronii*	W	W		OW
Wallum Froglet [TS]	*Crinia tinnula*	W			OW

Note: * indicates introduced species
[TS] indicates threatened species
All species listed are identified to a high level of certainty unless otherwise noted as:
[PR] indicates species identified to a 'probable' level of certainty – more likely than not
[PO] indicates species identified to a 'possible' level of certainty – recorded to a moderate to high level of uncertainty usually applied to a threatened species of note.

E - Nest/roost
F - Tracks/scratchings
FB - Burrow
G - Crushed cones
H - Hair/feathers/skin
K - Dead
O - Observed
OW - Obs & heard call
P - Scat
Q - Camera
T - Trapped/netted
U - Anabat/ultrasound
W - Heard call
X - In scat
Y - Bone/teeth/shell
Z - In raptor/owl pellet

TRAVERS BUSHFIRE & ECOLOGY
A TBE ENVIRONMENTAL COMPANY

Lot 273 DP 755266
15 Mulloway Road,
Chain Valley Bay

20th October 2021
Ref: 18OD02VR

Schedule 6 – Flora and Fauna Lists