# Northeast NSW Post Fire Rapid Fauna Surveys

Prepared for

**World Wide Fund for Nature-Australia**


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Template 2.8.1

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## EXECUTIVE SUMMARY

Rapid post-fire surveys were conducted at two locations in northern NSW: Gibraltar Range National Park (5 sites) and Torrington State Conservation Area (2 sites). These surveys were based on 200 m long transects where data was collected on the vegetation present and the extent of fire impact to that vegetation. Camera traps were also placed out at each end and daytime fauna searches completed over the transect for a 60 minute period. Key outcomes from the work were:

- Fires were widespread in and around the sites surveyed and typically burnt away all ground-cover and nearly all of the canopy.
- Fire impacted wet forests as well as rainforest areas (Gibraltar Range National Park), making them a severe fire incident affecting habitats and species that would normally not be affected by fires.
- Only high mobility species were recorded regularly on the transects, particularly kangaroos and wallabies.
- There was an absence of low mobility, ground-dwelling species with only two small ground mammals and five small reptiles recorded. Birds that typically spend most of the time on the ground (e.g. quail-thrush and scrubwrens) were also not detected. Quantifiably, this was considered likely to be a > 90% reduction over what could have been expected to be seen.

The results for the fauna observed are not surprising given the loss of cover and foraging resources. Large mobile species could flee the fire and return rapidly once the environment started to regenerate enough to provide food. Small and relatively immobile species would be more seriously affected as they cannot flee from fire and are dependent on local micro-habitats that were destroyed. The ability of species to recover and recolonise is likely dependent on the extent of populations within the locality that were able to survive the fires that could then recolonise burnt areas once cover has been restored.

If drought and fire becomes a more regular part of the environment under changing climate then smaller and less mobile species are likely to decline and may become extinct over time and larger species may also decline unless they can adapt to the new conditions.

# 1. Introduction

The bushfires that impacted south eastern Australia through 2019/2020 were considered to be worst on record in New South Wales (NSW) with fires affecting at least 5.4 million hectares (7% of the state), including 2.7 million hectares in national parks (37% of the NSW park system). This included large areas with a full crown burn, leaving little cover remaining for resident fauna. Estimates of fauna species being lost were made and concluded that conservatively more than 1 billion birds, mammals and reptiles were lost as a result of the fires (Dickman 2020). The numbers of frogs and fish impacted have not been estimated, nor invertebrates, but they can be expected to have been similarly seriously impacted.

The World Wide Fund for Nature-Australia (WWF) engaged Eco Logical Australia (ELA) to undertake a rapid faunal assessment of areas of the NSW north coast/tablelands region affected by the 2019/2020 bushfires. The aim was to complete surveys to record the presence and abundance of terrestrial vertebrate fauna species within areas of burnt forest and compare that to the fauna that could be expected to have been located in the area prior to the fire based on habitat present and previous records within the locality.

# 2. Methodology

## 2.1 Survey sites

Seven survey sites were located within north-eastern NSW, five being within the Gibraltar Range National Park (Gibraltar Range NP) and two in the Torrington State Conservation Area (Torrington SCA) (Figure 1 and Figure 2). Sites were selected based on their location within areas of forest that had been burnt and their proximity to a road to allow safe access. The location of each site and details of the broad habitats known to be present at the site pre-fire are provided in Table 1 below.

**Table 1. Survey sites used in assessment**

| Site | Date burnt | Date surveyed | Vegetation |
|---|---|---|---|
| GR1 | around 10/11/2019 | 4/3/2020 | Wet Sclerophyll Forest |
| GR2 | around 10/11/2019 | 4/3/2020 | Warm Temperate Rainforest |
| GR3 | around 10/11/2019 | 4/3/2020 | Upland Swamp / Low Open Heath |
| GR4 | around 10/11/2019 | 4/3/2020 | Mallee Dry Sclerophyll Forest |
| GR5 | around 10/11/2019 | 4/3/2020 | Dry Heathy Sclerophyll Forest |
| T1 | 8/11/2019 | 3/2/2020 | Dry Sclerophyll Forest |
| T2 | 8/11/2019 | 3/2/2020 | Bog / Low Open Heath |

A 200 m long transect was established at each site and the transect walked to collect data on features present along the transect. Site data collected included site co-ordinates, transect orientation, broad vegetation type, presence of habitat features including:

- presence of hollow-bearing trees and stags
- relative extent of remaining leaf litter and vegetated ground cover along the transect
- logs / size class
- rocks / size class
- presence and size of any rocky outcrops, caves, fauna burrows
- presence of numbers of any mistletoe, termite mounds, bird nests
- presence and extent of any aquatic habitats.

A photo point was taken at the starting point of each survey site to provide a permanent record of the conditions at the time of the survey to be used in any future comparisons of site recovery. A range of additional photos were also taken to permanently record the available habitat features, the level of fire intensity and fire patterns; and the vegetation regeneration occurring at each survey site.

Fieldwork was undertaken by ELA ecologists Liz Brown and Matt Elsley between 3 – 5th February 2020.

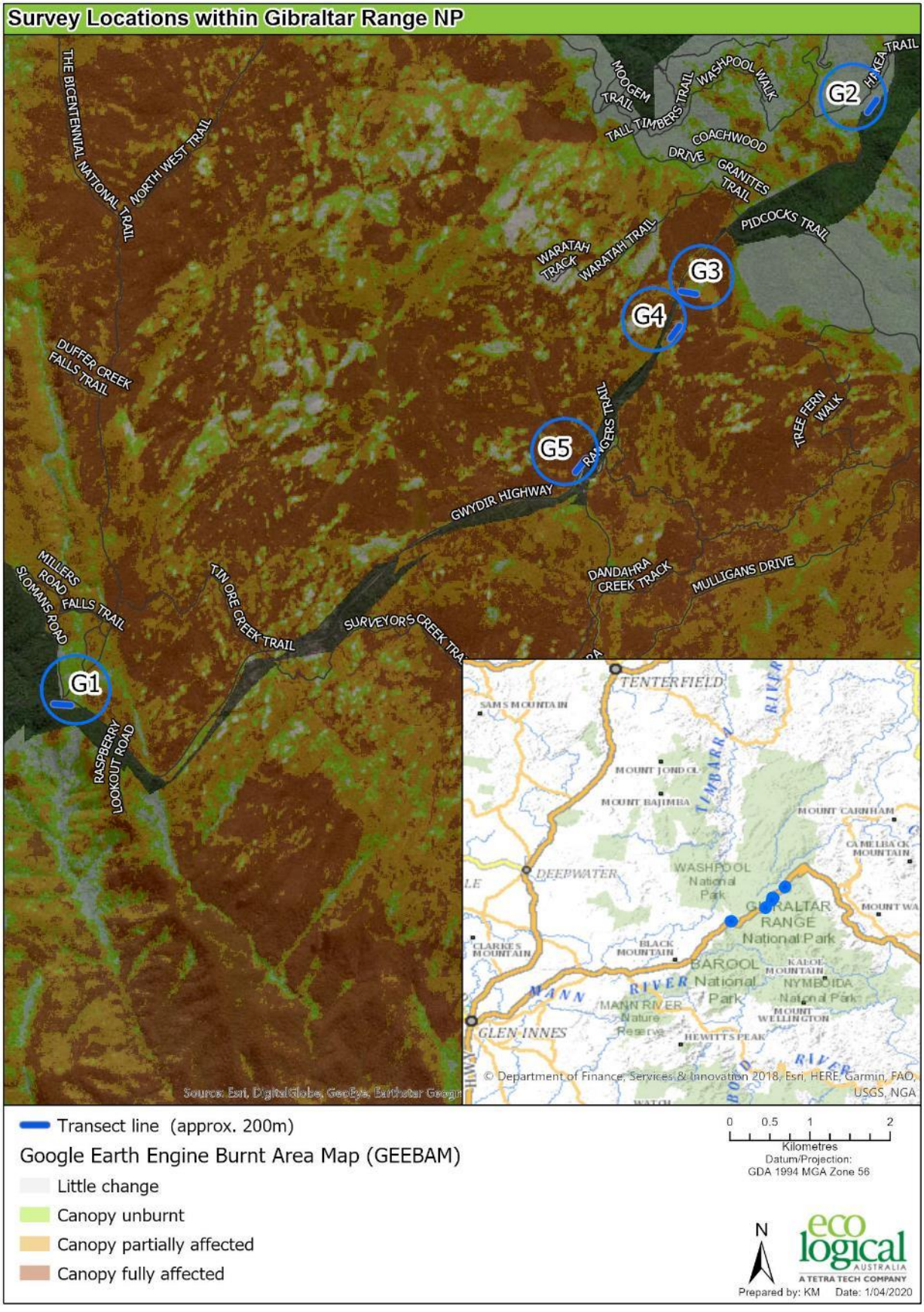


**Figure 1. Location of the Gibraltar Range NP study transects**

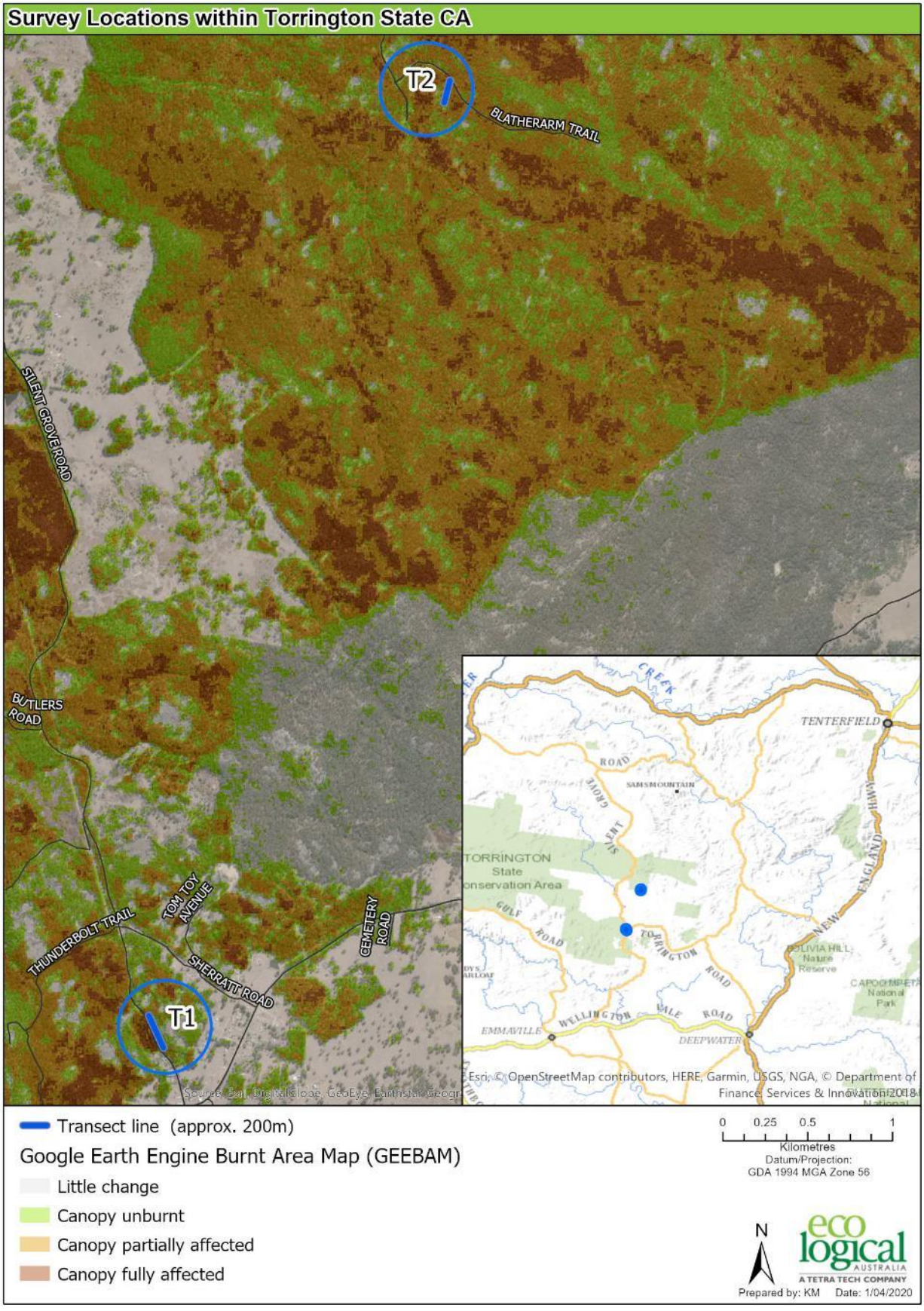


**Figure 2. Location of the Torrington SCA study transects**

## 2.2 Broad extent of fire

Mapping of fire extent in and around each transect was undertaken using the available GEEBAM mapping from the NSW Department of Planning, Industry and Environment (DPIE) (DPIE 2020). This mapping is moderately coarse and may not distinguish well between canopies fully burnt and only partially burnt. However, it was sufficient to allow for a categorisation of the relative extent of the crown area burnt within a 1 km radius of each transect that can provide a comparison of how "burnt" the environment of each transect area was, at least compared to each other. Categories were 0-20%, 21-40%, 41-60%, 61-80% and 81-100% of the canopy impacted by fire. This index was created to provide context of the overall impacts of fire for fauna that might use the transect areas selected for study. The GEEBAM mapping of fire impacts for each transect are provided in Figures 2-8.

## 2.3 Vegetation survey

Each 200 m X 10 m wide transect was surveyed using a random meander survey technique to provide:

- a broad vegetation description for the transect including dominant species / heights / cover per stratum
- a record of species of plants present along the transect
- extent of fire impact to the vegetation – was the ground cover burnt and crown burnt across the entire transect
- evidence of regeneration occurring.

## 2.4 Fauna surveys

Previous fauna records known from the localities the two study areas were downloaded from the NSW DPIE BioNet database. These records were obtained to provide an indication of the types of fauna that were likely to be present within the two areas prior to the fires and indicate the relative richness and density of fauna present in each of the two study areas for comparison with the results obtained during this set of surveys.

Fauna surveys of each transect consisted of two components: an aural/visual diurnal search and camera traps. The aural/visual search was undertaken along the transect during the site visit, recording any fauna seen or heard at the time. Any signs of fauna such as scats, diggings or scratches were also recorded. Each transect was undertaken with two people and took approximately 60 minutes to complete. The camera trap survey consisted of placing a single camera trap at each end of the seven transects with the cameras being mounted on the trunks of trees and faced down to focus on an area 5-10 m away, either on the ground or at a tree trunk (for arboreal species detection). To assist in drawing animals into the field of the camera a PVC tube bait station (baited with the standard honey, peanut butter and oats mix) was fixed in the centre of the focus area (Plate 1). The cameras were left out for 16 (GR) or 17 nights (TSCA).

## 2.5 Drone footage

An aerial drone was deployed at each of the seven survey sites to provide a broad overview of how fire had impacted the immediate area in which the transects were located. The footage was captured using a DJI Mavic 2 Pro with a Hassleblad. L1D – 20C aerial camera, with transect videos undertaken at a height of approximately 60 m and transect photographs at a height of approximately 120 m. Additional areas

of interest were photographed/videoed at various heights. Drone footage also provided baseline imagery for any potential future assessments.


**Plate 1. Bait station set up for camera traps on the ground and in a tree**

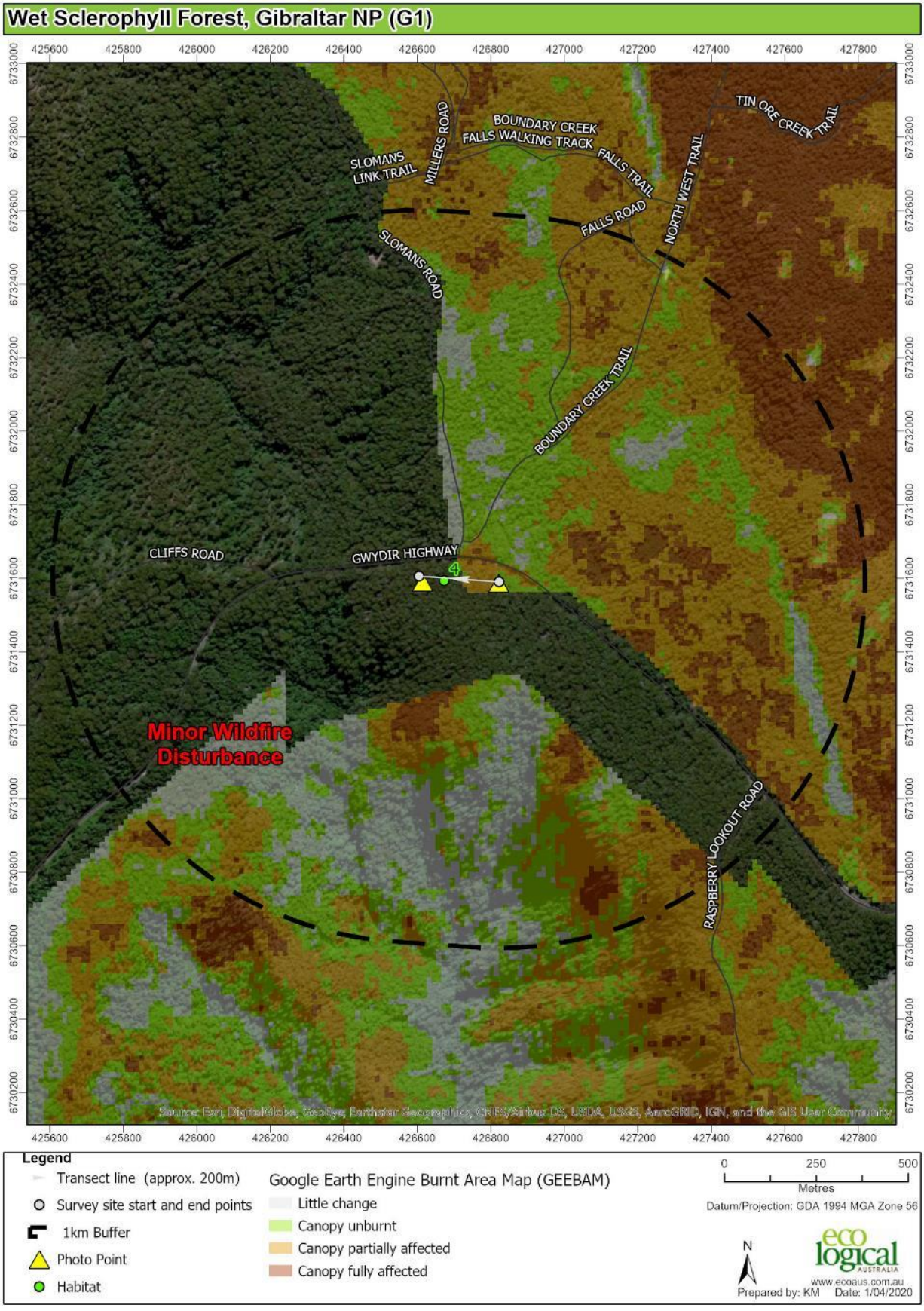


**Figure 3. Fire impacts mapped around Gibraltar Range NP 1**

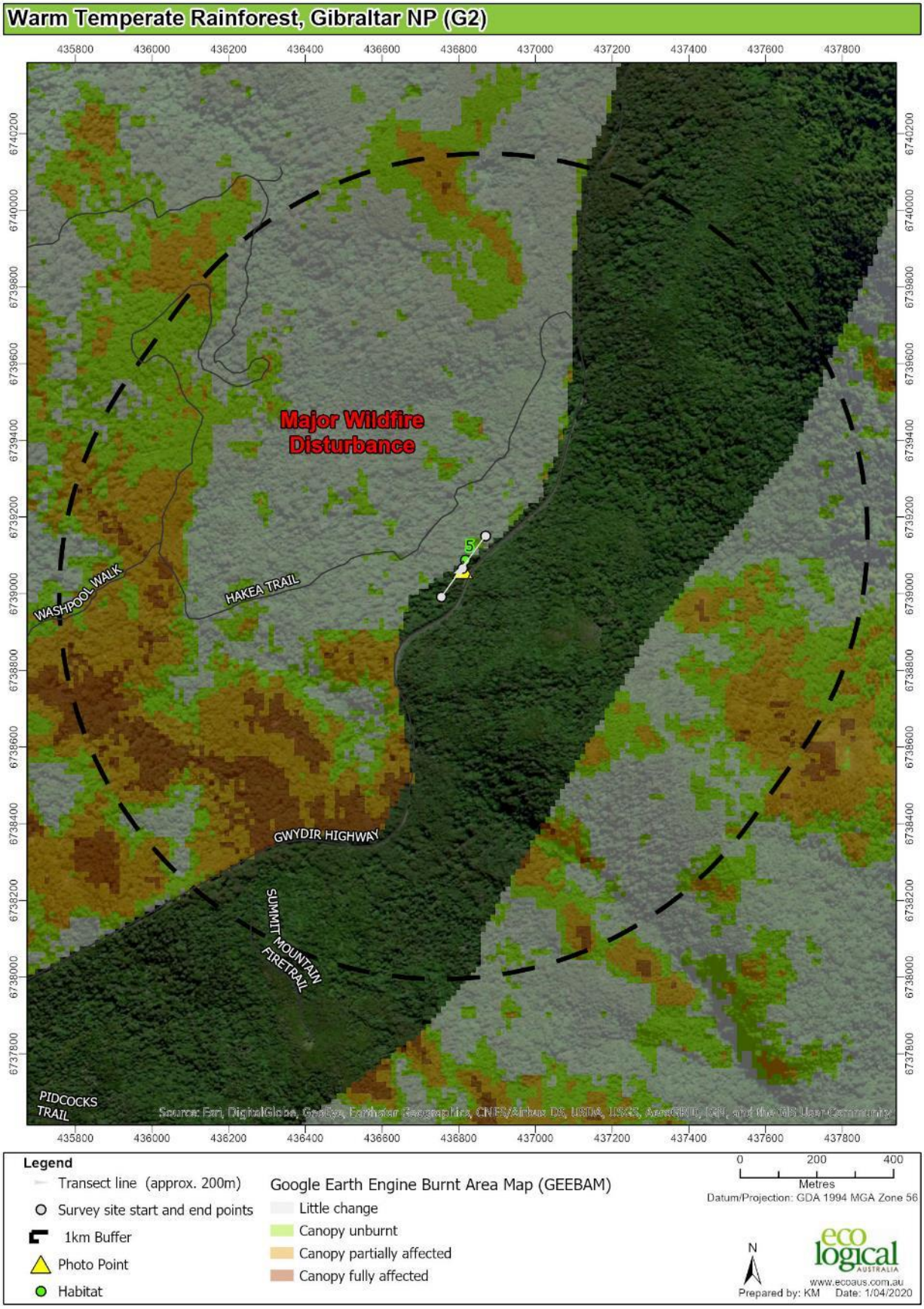


**Figure 4. Fire impacts mapped around Gibraltar Range NP 2**

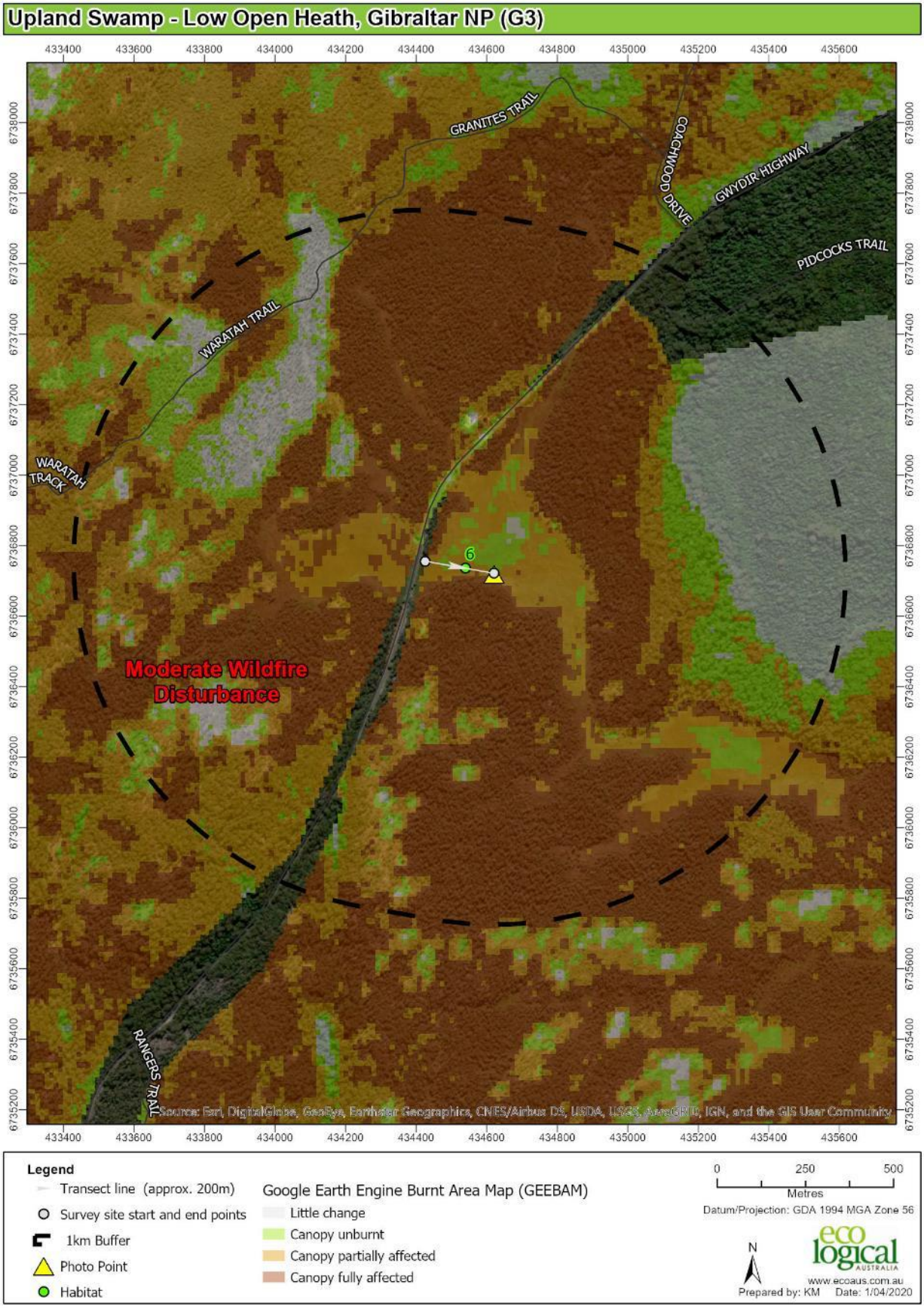


**Figure 5. Fire impacts mapped around Gibraltar Range NP 3**

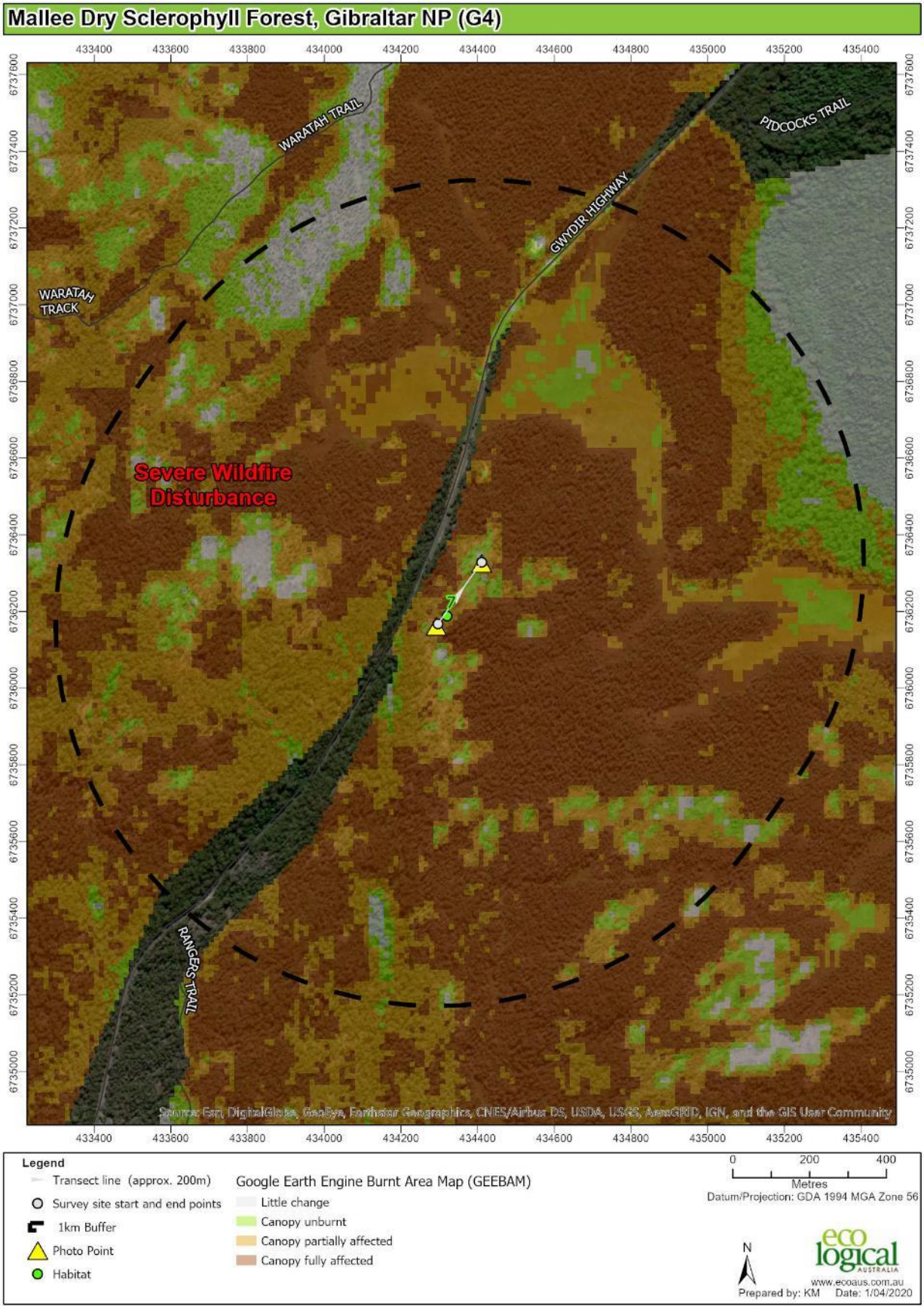


**Figure 6. Fire impacts mapped around Gibraltar Range NP 4**

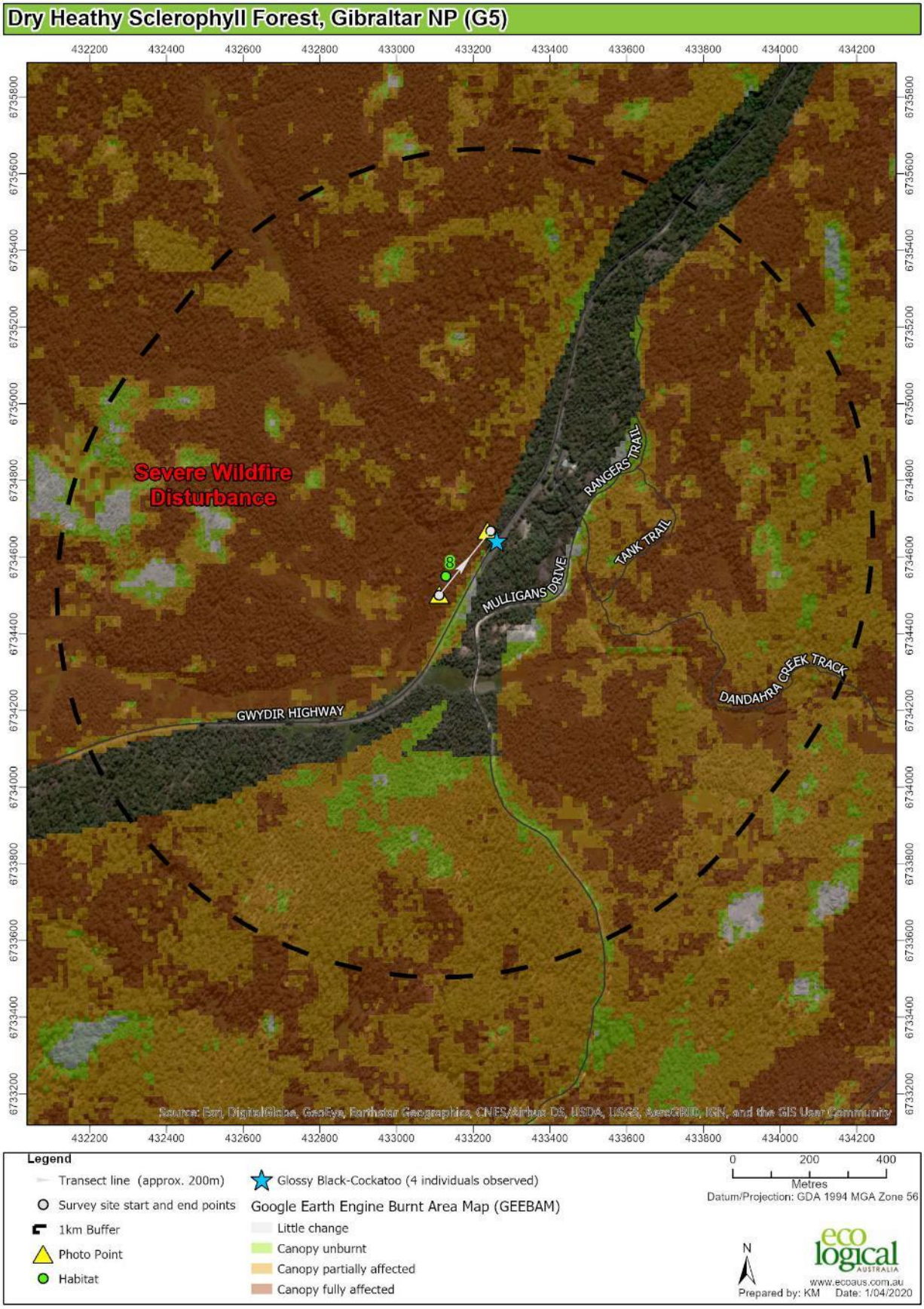


**Figure 7. Fire impacts mapped around Gibraltar Range NP 5**

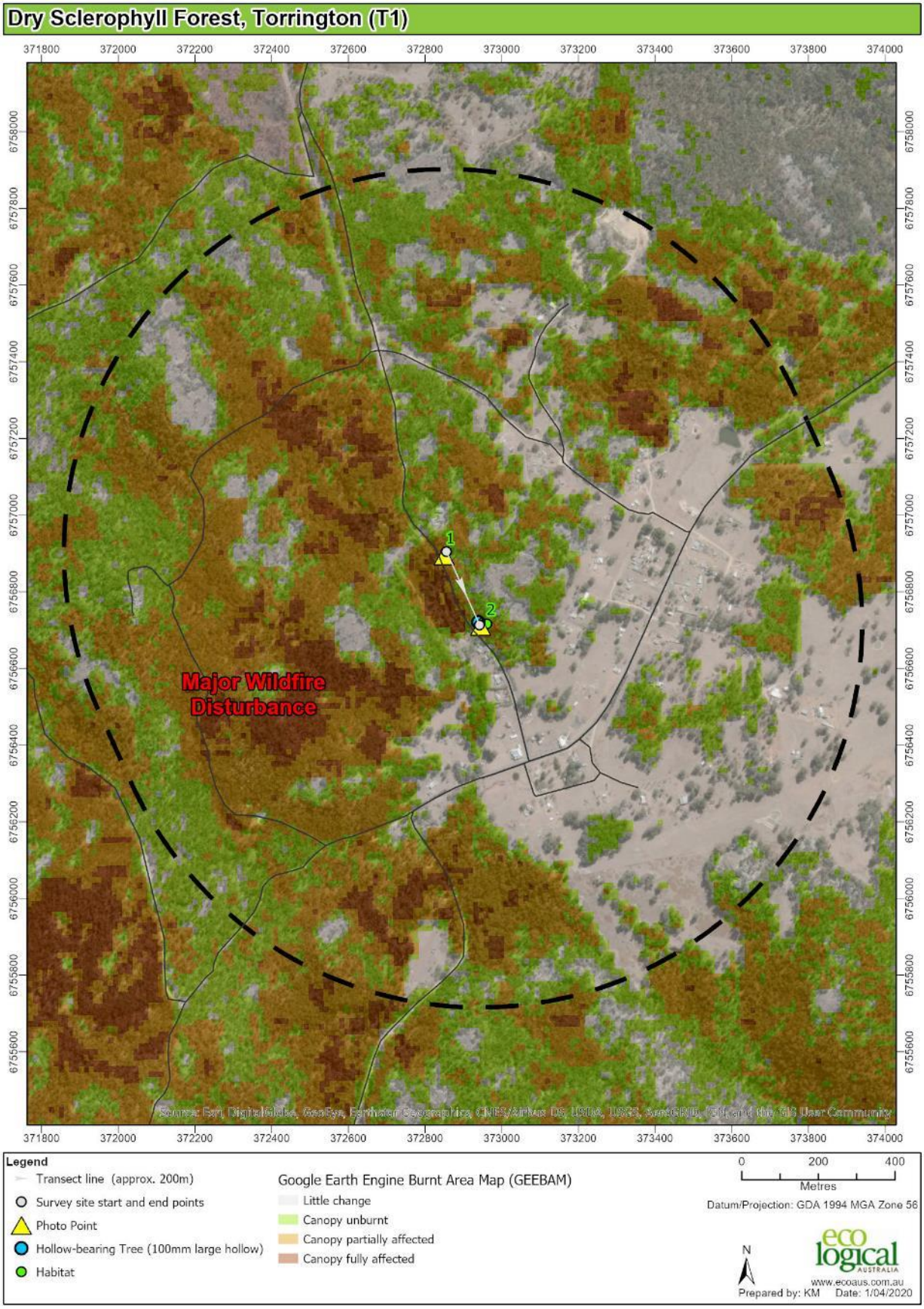


**Figure 8. Fire impacts mapped around Torrington SCA 1**

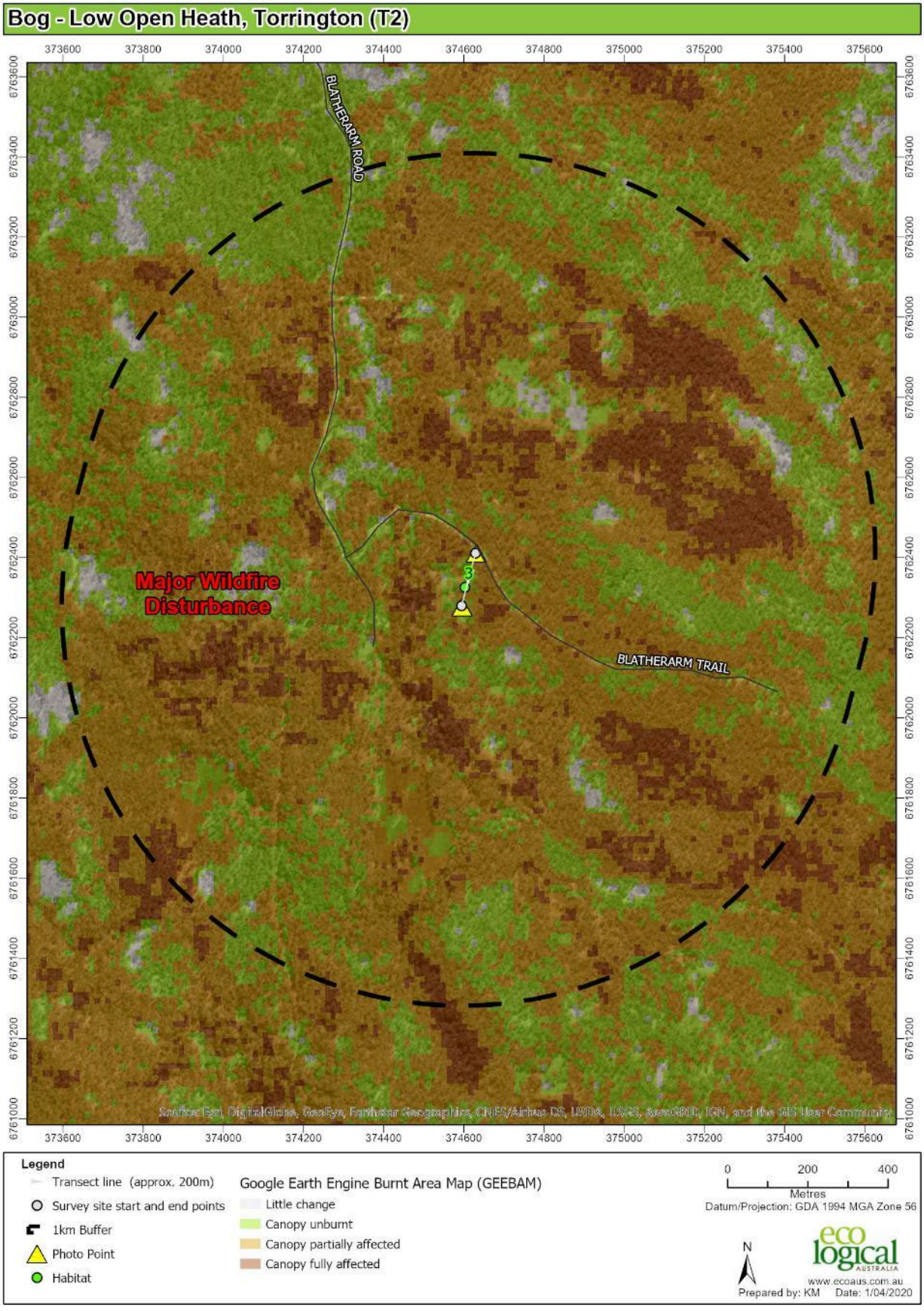


**Figure 9. Fire impacts mapped around Torrington SCA 2**

# 3. Results

The seven selected sites represented a range of broad vegetation types as described in Table 2. Details on the vegetation present and general observed fire impacts for each transect are listed below along with an image from a photo point. Raw data collected on vegetation and habitat features is provided in Appendix A. It was notable that the extent of the canopy burn did not always reflect the impacts to the understorey and ground cover. All sites appeared to have had all of the lower vegetation lost whereas the canopy remained intact in at least a few cases. Thus, species that were able to climb to the tops of trees or use higher tree cavities would, at least in some cases, been less directly affected by fire.

**Table 2. Information on vegetation type and structure collected on each transect**

| Site | Veg. Description | Comment |
|---|---|---|
| GR1 | Tall Open Forest | Dominant eucalyptus *E. campanulata*. Scattered *E. brunnea*. Mid layer absent due to fire, except for tree fern layer regenerating well. Ferns and *Imperata cylindrica* dominates ground regeneration, plus scattered herbs, vines and shrubs regenerating |
| GR2 | Tall Closed Forest | Many trees and shrubs resprouting from base, also many small trees and shrubs killed. Ground regeneration fairly diverse but sparse in cover. Most canopy trees survived, except older hollowed ones which have burnt and fallen. Hot, fast moving fire upslope, ground and rocks fully burnt, mid layer mosaic burn pattern, canopy trees lightly burnt at bases with canopy intact |
| GR3 | Open Heath | Intensely burnt, excellent regeneration of shrubs and sedges and rushes. Some mosaic patches burnt to peat level and still black. Many frogs calling. |
| GR4 | Low Open Forest | Mallee atop rock outcrop. Stringybark mallee dominated by *E. planchoniana* and scattered *E. pyrocarpa*, high level of *Xanthorrhoea glauca* regeneration. |
| GR5 | Low Open Forest | Dry sclerophyll forest, very open, epicormic growth thick on eucalypts. Dominant canopy species are *E. radiata* and *E. ligustrina*. *Banksia marginata* and *Casuarina littoralis* are not resprouting or germinating. *Petrophile canescens* resprouting from base. *Xanthorrhoea glauca* resprouting and germinating from seed. *Hakea laevipes ssp. graniticola* resprouting and germinating. |
| T1 | Tall Open Forest | Large rocky outcrop to NE with caves present. Many younger eucalyptus killed by fire. |
| T2 | Open Heath | High level regeneration overall, some patches burned at a very high intensity down to the peat layer and are not regenerating as well. |

## 3.1 Habitat recorded on transects

### 3.1.1 Gibraltar Range NP 1 – Wet Sclerophyll Forest (Plate 2)

This tall, open forest community was dominated by New England Blackbutt (*Eucalyptus campanulata*) and scattered *E. brunnea* at the canopy level, by Rough Tree-fern (*Cyathea australis*) in the midstorey and by re-colonising Common Bracken (*Pteridium esculentum*) and Blady Grass (*Imperator cylindrica*) at the ground layer along with scattered regenerating herbs, vines and shrubs. The crown was generally removed by the fire as was the mid-layer, except for a regenerating tree fern layer. All ground vegetation had been removed.

**Plate 2. a) Photopoint at start of transect and b) damage to crown**

### 3.1.2 Gibraltar Range NP 2 – Warm Temperate Rainforest (Plate 3)

This tall, closed forest community was dominated by Brushbox (*Lophostemon confertus*) in some areas and by Soft Corkwood (*Ackama paniculosa*) or Coachwood (*Ceratopetalum apetalum*) in others. Lilly Pilly (*Acmena smithii*) was commonly recorded in the mid-layer, and Soft Water Fern (*Blechnum cartilagineum*) was re-colonising the groundlayer. The NSW critically endangered threatened species Scrub Turpentine (*Rhodamnia rubescens*) was also recorded in this community.

This vegetation experienced a high intensity fire moving quickly upslope. The ground and rocks were fully burnt, while the mid layer shows a mosaic burn pattern, and the canopy trees were only lightly burnt at bases with the canopy remaining intact and largely unburnt.

Post-fire many taller trees and shrubs are re-sprouting from the base, however many smaller trees and shrubs were killed. Ground regeneration from seed is fairly diverse but sparse in cover. Most canopy trees have survived the fire, except for those older, hollow-bearing trees which have burnt and fallen (either during or post fire) due to loss of structural integrity.

**Plate 3. a) Photopoint at start of transect and b) relatively intact crown**

### 3.1.3 Gibraltar Range NP 3 – Upland Swamp / Low Open Heath (Plate 4)

This vegetation community occurs in a low depression in the landscape. This swamp / low open heathland was intensely burnt, but displayed an excellent level of regeneration of shrubs, sedges and rushes. *Leptospermum gregarium* was dominant at the shrublayer, with high levels of regenerating *Baeckea omissa* and *Xanthorrhoea glauca* at the low shrub layer and plentiful Forked Sundew (*Drosera binata*). A mosaic of patches had burned down to the peat layer at a very high intensity and had smouldered over a longer period of time, and as a result are not regenerating as quickly.

Plate 4. a) Photopoint at start of transect and b) burning effect on peat

### 3.1.4 Gibraltar Range NP 4 – Mallee Dry Sclerophyll Forest (Plate 5)

This low, open mallee form of dry sclerophyll forest is located atop a rock outcrop and is dominated by Needlebark Stringybark (*E. planchoniana*) along with scattered Large-fruited Blackbutt (*E. pyrocarpa*). A high level of *Xanthorrhoea glauca* regeneration was recorded, as well as Flaky-barked Tea-tree (*Leptospermum trinervium*).

**Plate 5. a) Photopoint at start of transect and b) burning effect on canopy**

### 3.1.5 Gibraltar Range NP 5 - Dry Heathy Sclerophyll Forest (Plate 6)

This dry sclerophyll open forest has a very open, lower structure, with thick epicormic growth displayed on the eucalypts. The dominant canopy species present were Narrow-leaved Peppermint (*E. radiata*) and Privet-leaved Stringybark (*E. ligustrina*). High levels of *Hakea laevipes* ssp. *graniticola* and *Xanthorrhoea glauca* were regenerating at the midlayer. Silver Banksia and Black She-oak (*Allocasuarina littoralis*) were not re-sprouting or germinating and seemed to have been killed by fire. Conesticks (*Petrophile canescens*) was re-sprouting from the base. *Xanthorrhoea glauca* and *Hakea laevipes* ssp. *graniticola* were re-sprouting and germinating from seed.

Four individuals of the NSW vulnerable threatened species Glossy-black Cockatoo (*Calyptorhynchus lathami*) were also recorded adjacent to this community, feeding on She-oak cones.

**Plate 6. a) Photopoint at start of transect and b) burning effect on canopy**

### 3.1.6 Torrington SCA 1 - Dry Sclerophyll Forest (Plate 7)

Post-fire, this tall, open forest community was dominated by Gum-topped Peppermint (*Eucalyptus andrewsii*) at the canopy level, and by re-colonising Blady Grass (*Imperator cylindrica*) at the ground layer. Many younger eucalyptus have been killed by fire at this location.

A large, rocky outcrop that includes caves is located just outside of the transect immediately to north-east of the survey site. It was burnt, but would probably have provided some shelter points for any local fauna that reached it.

### 3.1.7 Torrington SCA 2 - Bog / Low Open Heath (Plate 8)

Post-fire, this bog / low open heathland community was dominated by regenerating Silver Banksia (*Banksia marginata*), *Leptospermum arachnoides* and *Baeckea omissa* at the shrub layer, along with a mix of sedges, rushes and forbs at the ground layer.

This vegetation community displayed a high level of overall regeneration, however some patches had burned down to the peat layer at a very high intensity and appear to have smouldered over a longer period of time. As a result, they are not regenerating as quickly.

**Plate 7. a) Photopoint at start of transect and b) burning effect on canopy**

**Plate 8. a) Photopoint at start of transect and b) burning effect on the bog**

## 3.2 Extent of fire in the locality

Table 3 provides the measured extent of fire impacts for each of the transects. This consists of two measures, the first being data collected directly for the site on the transect and covered observations of the severity of the fire in regards to extent of burning of trees and impacts to the ground. The second is a broader assessment of the extent of fire in the surrounding area. This included the overall extent of burning of the landscape within 1 km of the transects.

The data demonstrates that in all situations there was variability of fire impacts within the landscape and there were always at least some areas left unburnt. The data collected also indicates that the GEEBAM mapping, whilst providing a reasonable measure of crown burn, did not accurately reflect the extent of fire impacts to the understorey and ground cover.

Images for each transect obtained from the drone footage are provided in Appendix B. These images show well the minimal extent of retained canopy resulting from the fires at the very local scale of the transects, with the most notable exception being for the Gibraltar Range NP 2 plot that has some retained unburnt canopy. The rockiness of the area where the Gibraltar Range NP 4 transect was located is clearly evident in the drone image.

## 3.3 Fauna records

Previous records of terrestrial fauna known from the locality of each location are presented in Figure 10 and Figure 11. The records are divided up by fauna class to further indicate the potential for these different groups to be present (a list of the species that these records represent is provided in Appendix B). Figure 10 shows that the five transects in the Gibraltar Range NP are located in an area with a high density and diversity of previous fauna records. Figure 11 shows that the area of Torrington SCA where transects were undertaken has less recorded fauna, although there are still a range of species recorded there.

Table 4 provides a list of the fauna recorded on each of the transects through both the daytime visual survey and on the camera traps set out at the ends of each transect. The surveys of the transects detected a number of animals, showing that some fauna had survived the fires. The species recorded were almost all birds or larger mammals, all of which are able to move more rapidly across the landscape to recolonise areas or be able to move into less fire-prone locations and therefore survive. They are also the types of species that are typically detected through daytime visual surveys. The diurnal surveys recorded only two reptile species (comprising four skinks), despite there being a number of previous records for this vertebrate group in both the Gibraltar Range NP and Torrington SCA. These previous records included a number of individuals of typically obvious species from the genus *Eulamprus* (Water Skinks) and *Lampropholis* (Sun-flecked Skinks) (Appendix B & Appendix C) that are easily observed in forest environments and, in particular, swamps. Such small terrestrial reptiles represent a group that is less mobile and may be more prone to being directly impacted by fire (need for local shelter sites) and also are not likely to recolonise sites as rapidly. They appear to have been badly impacted by the fire. A Swamp Rat (*Rattus lutreolus*) was also detected in one of the swamps surveyed in the Gibraltar Range National Park.

The camera traps provided relatively few records of animals through the time that they were deployed. Large mammals constituted the majority of detections, that included Grey Kangaroos (*Macropus giganteus*), Red-necked Wallabies (*Macropus refrogriseus*) and Swamp Wallabies (*Wallabia bicolor*) (see

Plate 8). A Dark Bar-sided Skink (*Concinnia martini*) was recorded on a tree (Plate 9), even though reptiles do not usually show up on camera traps. One bird, a Pied Currawong (*Strepera graculina*), was also recorded. The most interesting image was unfortunately a very blurred and shadowy image that was some type of ground dwelling mammal. The image as not clear enough to be sure of the species, but was potentially a threatened Spotted-tail Quoll (*Dasyurus maculatus*), or a Rufous Bettong (*Aepyprymnus rufescens*). In either case, it was the only smaller ground dwelling mammal located during the nocturnal surveys when such species are regularly recorded. Together with the Swamp Rat, they were the only two smaller ground mammals recorded.

No foxes or cats were recorded through the surveys, nor was there any evidence of wild dogs. Feral pigs were however recorded on a camera trap emphasising that at least some feral animals have survived the fire and will be preying on and competing with native fauna.

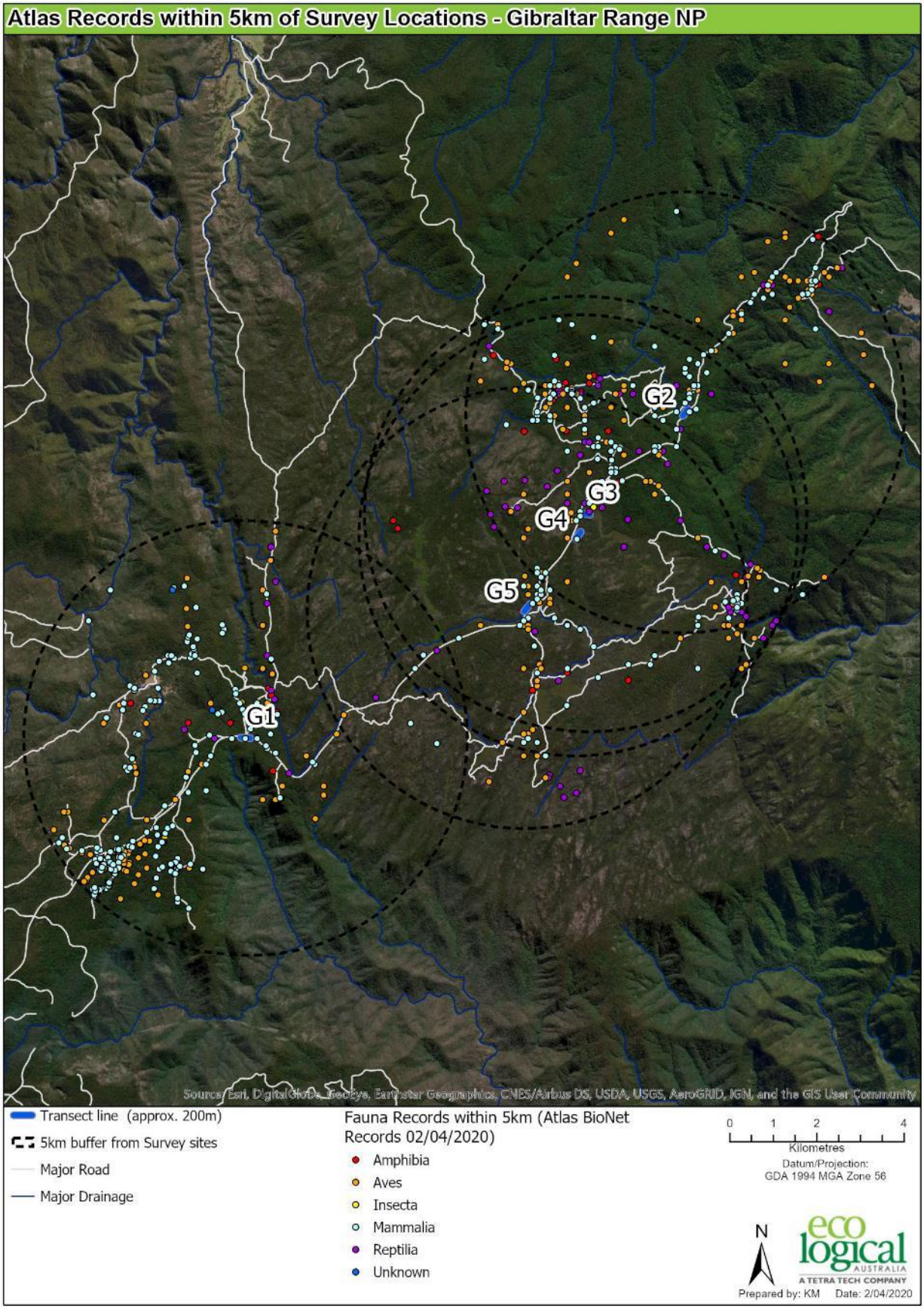


**Figure 10. Extent of fauna records previously recorded around the locality of the Gibraltar Range NP transects**

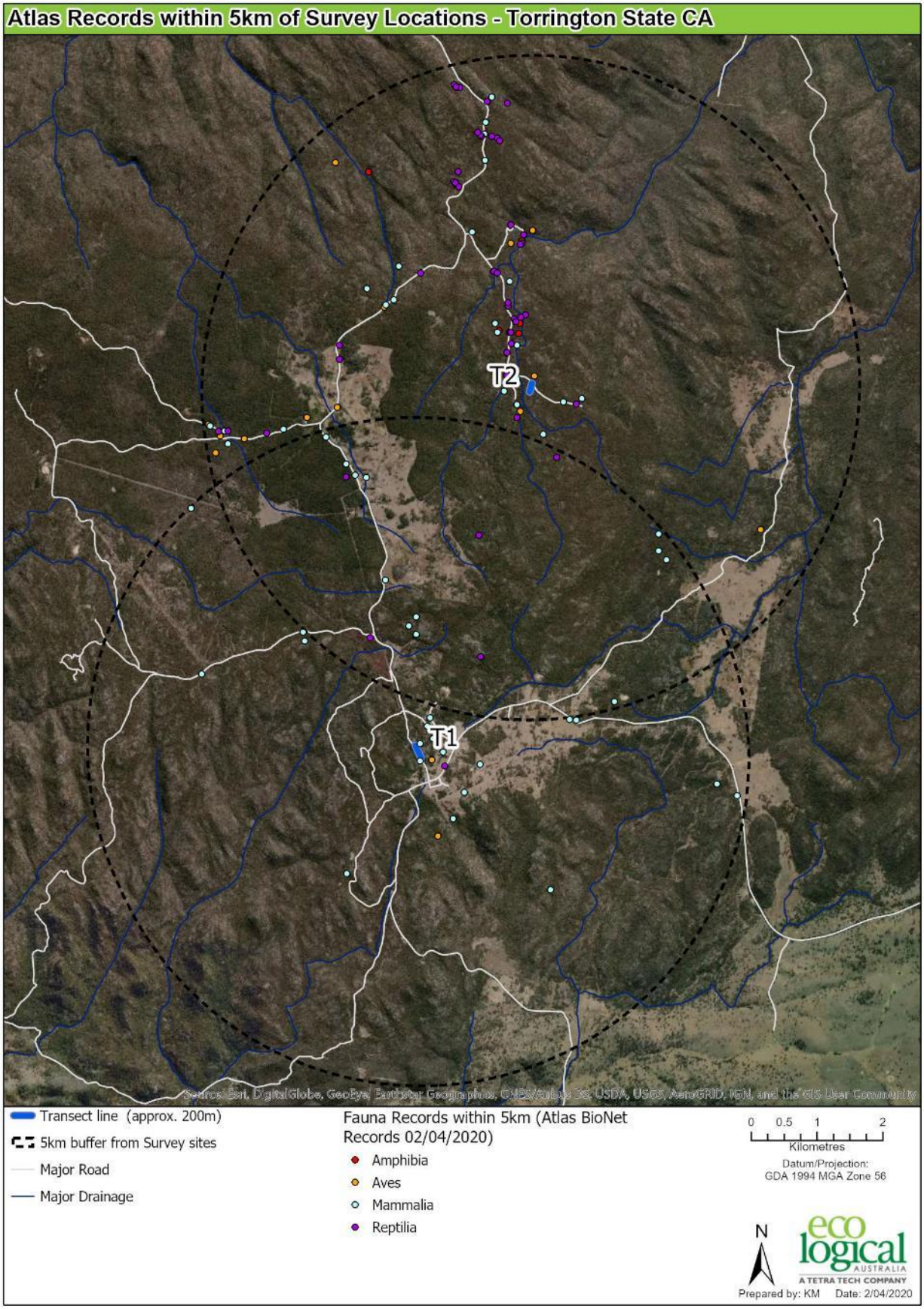


**Figure 11. Extent of fauna records previously recorded around the locality of the Torrington SCA transects**

**Table 3. Relative extent of canopy burn for forests along and surrounding the transects**

| Site | Fire impacts on transect | % burn 1 km radius |
|---|---|---|
| GR1 | Crown burnt and understorey burnt<br>Fire effect moderate, upper part of canopy unburnt, mid layer absent except for tree ferns present, groundlayer fully burnt and good, diverse regeneration occurring | 41-50% |
| GR2 | Start of transect – Crown intact but ground cover burnt<br>End of transect – Crown burnt and understorey burnt<br>High intensity fast burn in a corridor upslope along gully water course: fallen mature trees, burnt rocks, canopy gap, high light level resulting | 21-40% |
| GR3 | No crown present (swamp). Ground cover burnt<br>Moderate fire overall. Ground and mid layer most affected. High intensity and fast fire moving upslope, which protected much of the upper canopy | 81-100% |
| GR4 | Crown burnt and understorey burnt<br>Epicormic regeneration high. *Xanthorrhoea glauca* is regenerating well with many juveniles present, and *Hakea laevipes* re-sprouting from base. Acacias dead. Herbs and grasses regenerating sparsely. High level leaf litter, logs and ash bed | 81-100% |
| GR5 | Crown burnt and understorey burnt<br>Canopy fully burnt away, mid layer and ground fully burnt. Regeneration diverse, with moderate to sparse cover. Ferns, shrubs, small trees, herbs, grasses, *Xanthorrhoea glauca* | 81-100% |
| T1 | Crown burnt and understorey burnt<br>Tree fall after fire, with structural integrity of trees weakened. Rock chipped off by fire intensity | 41-60% |
| T2 | No crown present (swamp). Ground cover burnt<br>Rocks chipped by fire. Moderate burn, canopy tops intact, mid layer gone, ground layer burnt fully and seedlings regenerating post rain | 81-100% |

**Table 4. Fauna recorded at each transect**

| Site | Fauna sighted during transect survey | Fauna recorded on cameras |
|---|---|---|
| GR1 | Murrays Skink x 3, Eastern Yellow Robin (*Eopsaltria australis*) x 3, Rainbow Lorikeet (*Trichoglossus haematodus*) x 8, Yellow Thornbill (*Acanthiza nana*) x 4, Yellow-rumped Thornbill (*A. chrysorrhoa*) x12, Wonga Pigeon (*Leucosarcia melanoleuca*), Australian Raven (*Corvus coronoides*), Lewin's Honeyeater (*Meliphaga lewinii)* | None |
| GR2 | Wonga Pigeon, Rainbow Lorikeet x 5, Striated Thornbill (*A. lineata*) x 4, Golden Whistler (*Pachycephala pectoralis*) x 3, Australian Raven | Brushtail Possum (*Trichosurus vulpecula*) |
| GR3 | Unidentified frog, Swamp Rat (*Rattus lutreolus*), Brown Thornbill (*A. pusilla*) x 4, Straited Thornbill, Golden Whistler, Australian Raven x 4 | Red-necked Wallaby (*Macropus rufrogriseus*) |
| GR4 | Lewin's Honeyeater (*Meliphaga lewinii),* Australasian Figbird (*Sphecotheres vieilloti)*, Grey Fantail (*Rhipidura albiscapa*) x 2, Striated Thornbill, Kookaburra (*Dacelo novaeguineae*), Square-tailed Kite (*Lophoictinia isura)* | Dark Bar-sided Skink |
| GR5 | Glossy Black Cockatoo (*Calyptorhynchis lathami*) x 16, Golden Whistler x 3, Wille Wagtail (*R. leucophrys*), Australian Magpie (*Gymnorhina tibicen*) | None |
| T1 | Copper-tailed Skink (*Ctenotus taeniolatus*), Eastern Yellow Robin x 9, Pied Butcherbird (*Cracticus nigrogularis*), Superb Fairy Wren (*Malurus cyaneus*) x 6, Wedge Tailed Eagle (*Aquila audax*), Rainbow Lorikeet x 3, Brown Thornbill x 12, White Eared Honeyeater (*Nesoptilotis leucotis*), Kookaburra, Crimson Rosella (*Platycercus elegans*) x 2, Australian Magpie, Willie Wagtail, Sulphur Crested Cockatoo (*Cacatua galerita*) x 3 | Ground mammal, Eastern Grey Kangaroos (>3), Wild Pigs (*Sus scrofa*) (4), Swamp Wallaby, Pied Currawong |
| T2 | Eastern Grey Kangaroo x 3**,** Swamp Wallaby**,** Lace Monitor**,** Willie Wagtail x 3**,** Eastern Rosella (*Platycercus eximius*) x 3**,** Golden Whistler x 4**,** Australian Raven x 2, White Throated Treecreeper (*Cormobates leucophaea*), Common Froglets (calling) | Swamp Wallaby |

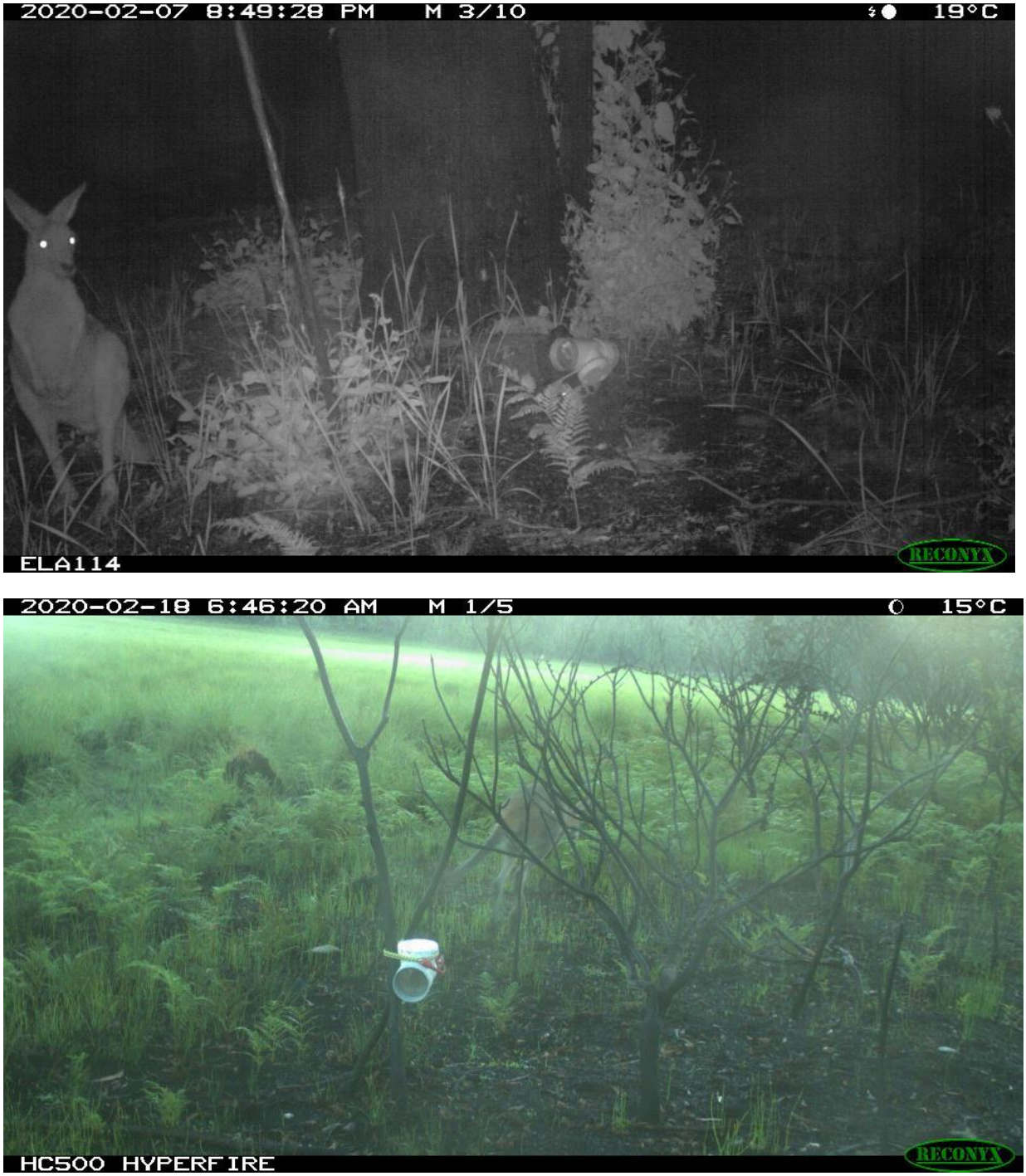


**Plate 9. Macropods recorded by camera traps – a) Grey Kangaroo and b) Red-necked Wallaby**


**Plate 10. Dark Bar-sided Skink recorded on tree**


**Plate 11. Feral pigs recorded at Torrington SCA**

# 4. Discussion

The various photos presented indicate the widespread and significant nature of the fires affecting the region with each of the transects showing significant and widespread fire impacts. All transects had some impacts to the surrounding vegetation that resulted in essentially the loss of ground cover and shrub cover. The impacts on the canopy were much more variable with some areas showing a complete loss of canopy cover as a result of crown fires, but one retained a relatively intact and little affected canopy along part of the transect. The surrounding extent of fire impacts was variable based on the available mapping.

Despite the extensive burning that occurred through both the Gibraltar Range NP and Torrington SCA fauna was still present within each of the areas surveyed. This was mainly made up of more mobile and larger species such as kangaroos and wallabies that could have migrated to the site after the fires had past, either as local individuals who found refuge within areas of unburnt habitat, or as new individuals moving into the area from adjacent unburnt areas. ELA did however record Murray's Skinks and a Dark Bar-sided Skink, which are species that have narrow home range and inhabit wetter forest areas that typically are not impacted by fire. Frogs were also heard calling from within the swamp areas along transects, even though these had been subject to intense fires. These observations all indicate that less mobile species are able to find means to survive fires and is in keeping with studies of fire impacts for these groups (e.g., Lemckert et al. 2012). Eastern Australia is considered to be fire-prone and has a long history of impacts by fire (Groves, 1994) and so it would be expected that individuals have evolved mechanisms to cope with fires. The positive signs of regeneration noted along all transects indicates that the food is becoming available for more generalist species and that foliage cover that will provide shelter is returning.

However, there was a distinct absence of fauna species observed compared to what would have been expected to be present prior to the fire, or could be expected to be in adjacent unburnt areas. Reptiles would be expected to have been seen regularly in more open areas such as bogs, with smaller ground-dwelling skinks and dragons typically being abundant and readily detected in forests in these regions (F. Lemckert, Pers. Obs.). Five skinks were recorded, but this was well below what would be expected. There was minimal evidence obtained for smaller ground mammals being present and no species of birds that are known to spend large amounts of time on the ground were observed (e.g. quails, quail-thrush and scrubwrens). Ultimately, it would be reasonable to say that the number of ground dwelling species that were detected was less than 10% of what might have been present under normal circumstances. Fire was seen to impact areas of wet forests and bogs that typically would not burn due to their higher natural water levels and locations in areas with geographically cooler aspects and slopes. Species in these areas would be less fire tolerant and have fewer strategies to cope with fires. Thus, the indications are that the fires have caused at least a significant short-term decline in local fauna populations and have affected forest areas and their fauna populations not so well adapted to fires.

One positive was the absence of feral predators through the surveys. Significant concerns have been raised that cats and foxes will have a severe impact on the remaining fauna as they lack cover and the predators have to target the few remaining animals to survive. It seems likely that feral predators were as severely affected by the fires as the native fauna and so there may be no added predation pressure from these species. The recording of feral pigs though, is a concern as they can be predators as well,

and do create serious environmental disturbance, especially in swamps and bogs through their wallowing. This may destabilise and damage the remaining areas of less affected swamp.

An additional positive was the detection of Scrub Turpentine regenerating in a burnt site. This species was once very common, but has declined severely in the last 20 years, probably due to the spread of the introduced Myrtle Rust through eastern Australia. It is not clear if Myrtle Rust will also have survived the fires and continue to infect plants immediately after the fires, or how long it will take before it is likely to spread back into the area.

The extent of conclusions that can be drawn from the information collected is very limited for various reasons. The surveys were completed relatively soon after fires and so roads had not been able to be cleared for safe access and it was expected that trees and the ground would still be unstable. Thus, there was necessarily limited access to the forests due to safety concerns over falling trees and areas of unstable bare soil, limiting access only to sites immediately adjacent to main roads and only during daylight hours. Time spent on site was limited to just 60 minutes, allowing for the collection of basic data on vegetation state at each transect location. This also significantly limited the time available to collect data on fauna to a short period in daylight hours and did not allow for nocturnal surveys to be completed. Nocturnal surveys could be expected to turn up additional results to camera traps alone as sounds from nocturnal mammals and birds often provide a more effective means of detecting individuals present and the entire transect will be searched rather than just the end points.

The absence of more detailed pre-fire survey data for the area limits the conclusions that can be drawn from the results as the fauna and flora present prior to the fire can only be estimated from what typically inhabits such forests. The severe drought occurring immediately before and during the fires would probably already have resulted in reduced fauna populations and vegetation growth and the fires will have added that situation.

The long-term recovery of the habitat is evidenced by epicormic regrowth of trees and the germination of seeds, and by the presence of fauna at each site. This is positive and expected for the Australian bush. However, it is not clear how the individuals that were recorded will cope through the short-term and if they will be able to survive in an environment with a very limited supply of food and shelter. The recent rains ultimately provided significant relief from the fires and encouraged regrowth and the development of grasses and shrubs that almost certainly have benefited the fauna that survived that long. The continued drought for more than two months after the fire would presumably have provided difficult conditions for surviving fauna as shade and water would have been severely reduced in availability compared to normal conditions, and shelter from predators would have been equally limited. It is quite possible that many individuals that did survive the fire did not survive until the rains due to a lack of food and water, but the situation could have been much more serious if the rains had not fallen to provide relief from the drought. Whether that level of rainfall and its timing is sufficient to ensure the survival of the animals still remaining is not known. The coverage of vegetation remained well below pre-fire conditions and regeneration was still in its early stages with food and shelter still at much reduced levels compared to normal conditions. Only ongoing monitoring can determine if populations remain stable and, preferably, start to increase.

Considering the future, climate analysis has indicated that drought events will become more extreme in this part of Australia (CSIRO 2018) as climates shift under the influence of human actions. If that is the

case, then fires will also become more extreme and regular, and be more likely to affect all parts of the landscape and leave fewer refuge sites. Ultimately this can be expected to lead to a drawn out decline in the extent and/or quality of available forest habitats and lead to a consequent reduction in species abundance or even local exclusion of some species where habitats are no longer suitable. This would be of particular concern to species that require areas of older, unburnt forest and the structures and plant communities associated with those. Wetter forest types that currently are little fire affected may become much more prone to fire and change in nature, as fire-tolerant species become favoured by the disturbance regimes prevalent under more regular droughts. This would impact on a range of species dependent on such habitats including rainforest dependent species.

# 5. Recommendations

As noted in the discussion, the relatively basic nature of the data collected and the absence of more detailed pre-fire survey data greatly impacts on any conclusions being drawn with confidence in regards to the actual impacts of the fires. This could be at least partly compensated for by completing additional post-fire survey work that uses a greater range of techniques applied for longer time periods. If performed as soon as possible this Autumn the data would further indicate the extent of survival of local fauna through having counts completed prior to longer-term migrations or recruitment having an effect on numbers. Adding additional transects in similarly burnt locations would provide better replication samples and provide better power and more confidence in our conclusions as to what species have coped well with the fires and what species have not and any statements about the declines in populations that have occurred.

Assessing the direct impacts of the recent fires could be greatly assisted by completing surveys in adjacent paired unburnt (control) locations to determine what species and abundances of individuals are present in these areas. This data can be used as a comparison to what would have been expected to be present along the burnt transects if they had not been burnt. Such surveys would indicate if these unburnt sites are able to form refuges for all or most species for long enough to allow the burnt habitats to become suitable for recolonization. If it takes too long, then species might run out of food or be subject to concentrated predation and so, whilst they may survive the initial fires, ultimately die because of the lack of resource or predation pressures. This would represent a further impact of fires and increase the time to recovery as this will be reliant on recolonization from populations in larger areas with sufficient food and shelter to survive. Surveys of different sized remnants could provide information to determine if there is a threshold patch size that allows for long enough survival for species/individuals using them as retreat sites.

Additional understanding of the longer term impacts of fires could be obtained by extending the program into regular, longer term post-fire monitoring to produce a time sequence of repeated surveys. Longer-term monitoring would allow the documentation of changes in habitat and changes in fauna populations as the forest regenerates post-fire and test if the resident fauna survives and if communities continue to re-develop as migration occurs. It would also provide the chance to determine if breeding and recruitment is occurring within local populations (i.e. there is enough food and shelter to allow reproduction) versus population increases through migration from unburnt areas. Finally, combining monitoring observations with local climatic data may provide clearer understandings of links to variations in populations caused by climatic fluctuations and assist in developing models of overall longer term landscape level population changes that would occur with changing climatic conditions.

Predictions can be made as to the factors that influence post-fire recovery that can assist in developing management strategies into the future. For example, it can be predicted that forest areas that contain patches of unburnt or minimally burnt habitat will have a faster recovery of vegetation and a faster return of fauna species and populations compared to areas that have been affected by a severe burn that has left no areas of intact habitat within a reasonable migratory distance.

Finally, establishing a longer-term monitoring program would provide a much better opportunity to understand the true impacts of fires by having good datasets on sites prior to the next time they burn.

The absence of pre-fire data will always limit the conclusions that can be drawn on fire impacts. A properly designed and replicated monitoring program can overcome this problem and allow a science based and objective assessment of the impacts of fire when they occur. This is even more important given the prediction that global climate change will continue under the current management of the world by humans (CSIRO 2018) and result in more severe droughts that will present a new challenge to the long-term survival of Australia's fauna.

# 6. References

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# Appendix A : Habitat information recorded on the transects

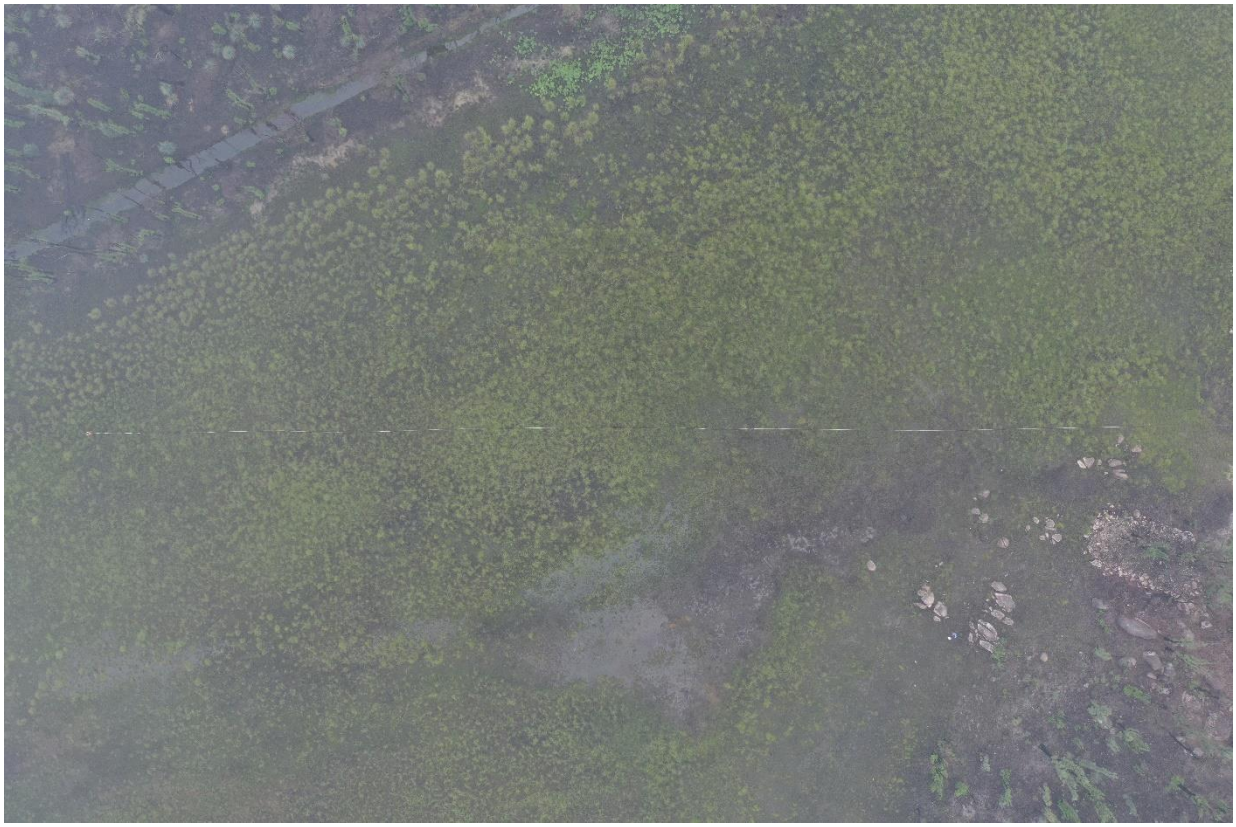
| Site | Struc. Form. | Em. Cover Dens. | Em. Min. Ht. | Em. Max. Ht. | Em. Med. Ht. | Em. Dom. Sp. | SL Cover Dens. | SL Min. Ht. | SL Max. Ht. | SL Med. Ht. | SL Dom. Sp. | GL Cover Dens. | GL Min. Ht. | GL. Max. Ht. | GL. Med. Ht. | GL Dom. Sp. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **T1** | Tall open forest | 10-30% Cover | 8 m | 25 m | 20 m | *Eucalyptus andrewsii* | N/A | - | - | - | - | Very Sparse | 0.1 m | 0.3 m | 0.2 m | *Imperata cylindrica* |
| **T2** | Open heath | Very Sparse | 0.2 m | 0.6 m | 0.4 m | *Banksia marginata* | 30-70% Cover | 0.1 m | 0.3 m | 0.2 m | *Leptospermum arachnoides* | 30-70% Cover | 0.05 m | 0.2 m | 0.1 m | *Baeckea omissa* |
| **G1** | Tall open forest | 30-70% Cover | 15 m | 35 m | 30 m | *Eucalyptus campanulata* | Sparse 10-30% Cover | 0.6 m | 5 m | 3 m | *Cyathea australis* | Sparse 10-30% Cover | 0.1 m | 0.3 m | 0.2 m | *Pteridium esculentum* |
| **G2** | Tall closed forest | >70% cover | 15 m | 25 m | 20 m | *Lophostemon confertus* | Sparse 10-30% Cover | 2 m | 12 m | 10 m | *Acmena smithii* | Very Sparse | 0.05 m | 0.3 m | 0.2 m | *Blechnum cartilagineum* |
| **G3** | Open heath | Very Sparse | 1 m | 3 m | 1.5 m | *Leptospermum gregarium* | Sparse 10-30% Cover | 0.1 m | 0.3 m | 0.2 m | *Baeckea omissa* | Sparse 10-30% Cover | 0.05 m | 0.6 m | 0.4 m | *Xanthorrhoea glauca* |
| **G4** | Low open forest | 10-30% Cover | 6 m | 18 m | 10 m | *Eucalyptus planchoniana* | Sparse 10-30% Cover | 0.2 m | 6 m | 1 m | *Leptospermum trinervium* | Very Sparse | 0.05 m | 0.3 m | 0.2 m | *Xanthorrhoea glauca* |
| **G5** | Low open forest | 10-30% Cover | 10 m | 20 m | 15 m | *Eucalyptus radiata* | Sparse 10-30% Cover | 0.2 m | 0.5 m | 0.3 m | *Hakea laevipes ssp. graniticola* | Very Sparse | 0.2 m | 0.5 m | 0.3 m | *Xanthorrhoea glauca* |

Abbreviations: Struc. = Structural; Form. = Formation; Dens. = Density; Em. = Emergent; Min. = Minimum; Ht. = Height; Max. = Maximum' Med. = Median; Dom. = Dominant; Sp. = Species; SL = Shrub Layer; GL = Ground Layer; Add. = Additional; Veg. = Vegetation; Desc = Description.

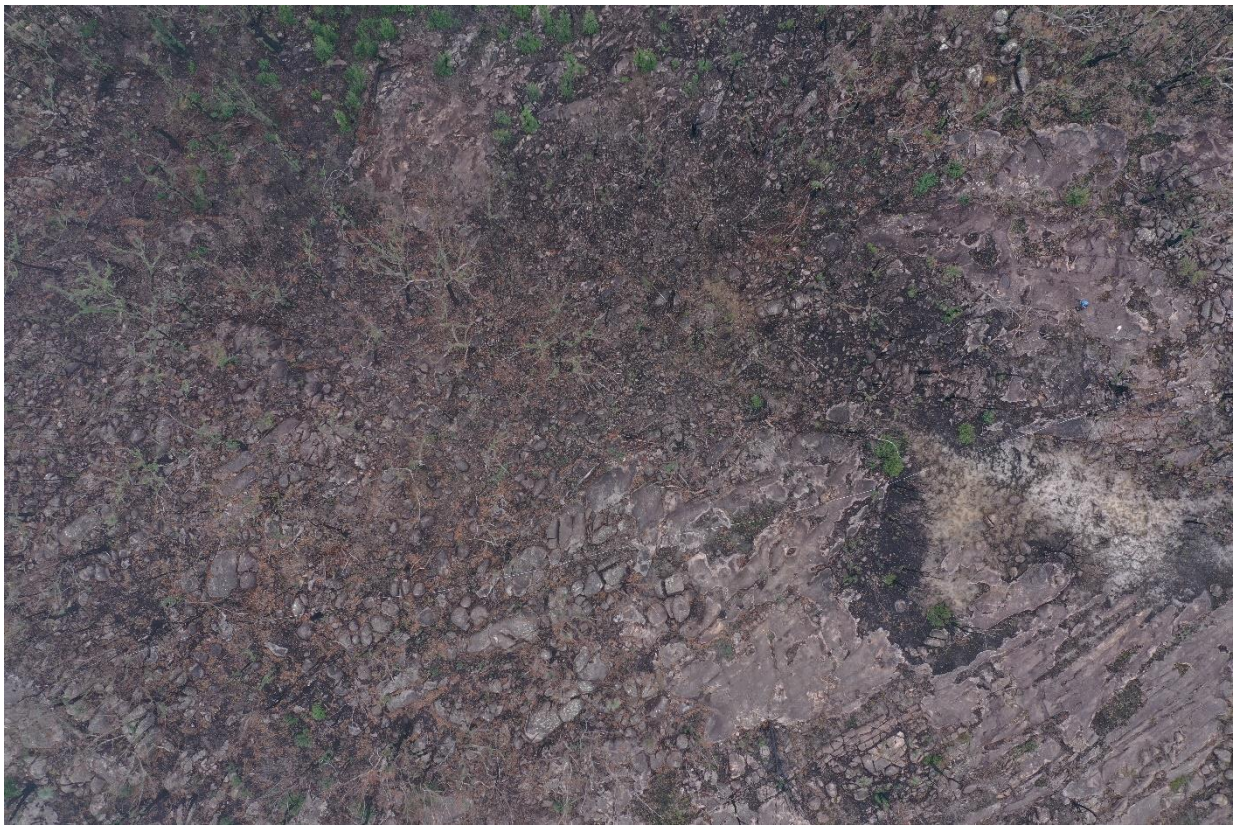
# Appendix B : Drone image for each of the seven transects

a) Gibraltar Range NP 1

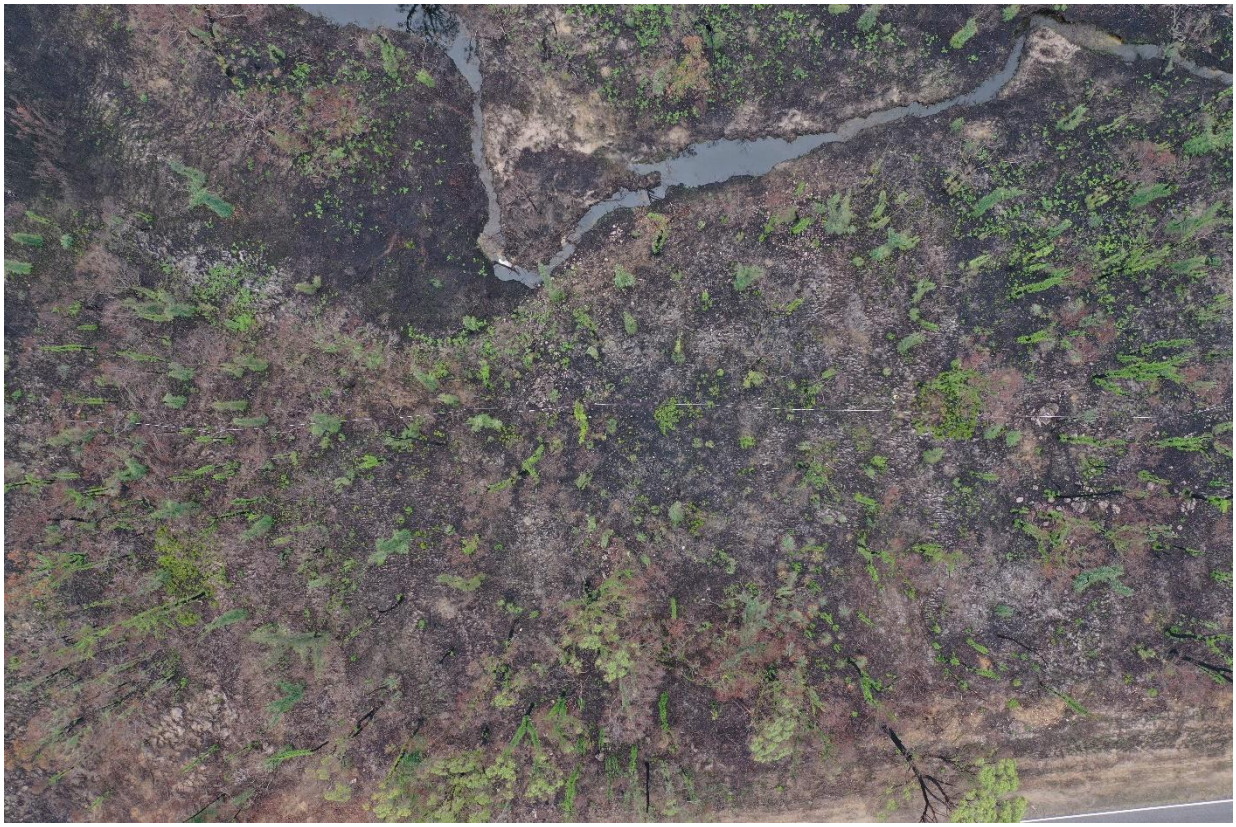
b) Gibraltar Range NP 2



c) Gibraltar Range NP 3



d) Gibraltar Range NP 4



e) Gibraltar Range NP 5

f) Torrington SCA 1

g) Torrington SCA 2

# Appendix C : Species previously recorded from within 5 km of each transect surveyed in the Gibraltar Range National Park

| *Scientific name* | CommonName | G1 | G2 | G3 | G4 | G5 |
|---|---|---|---|---|---|---|
| ***Acanthiza chrysorrhoa*** | Yellow-rumped Thornbill | 0 | 2 | 0 | 0 | 0 |
| ***Acanthiza lineata*** | Striated Thornbill | 0 | 2 | 3 | 4 | 0 |
| ***Acanthiza nana*** | Yellow Thornbill | 0 | 0 | 3 | 4 | 5 |
| ***Acanthiza pusilla*** | Brown Thornbill | 0 | 0 | 3 | 4 | 5 |
| ***Acanthiza reguloides*** | Buff-rumped Thornbill | 0 | 0 | 3 | 4 | 5 |
| ***Acanthophis antarcticus*** | Common Death Adder | 0 | 0 | 0 | 0 | 5 |
| ***Acanthorhynchus tenuirostris*** | Eastern Spinebill | 0 | 0 | 3 | 4 | 5 |
| ***Accipiter cirrocephalus*** | Collared Sparrowhawk | 0 | 0 | 3 | 4 | 5 |
| ***Accipiter fasciatus*** | Brown Goshawk | 0 | 0 | 3 | 4 | 5 |
| ***Accipiter novaehollandiae*** | Grey Goshawk | 0 | 2 | 3 | 4 | 5 |
| ***Acritoscincus platynota*** | Red-throated Skink | 0 | 2 | 3 | 4 | 5 |
| ***Acrobates pygmaeus*** | Feathertail Glider | 0 | 0 | 3 | 4 | 5 |
| ***Aegotheles cristatus*** | Australian Owlet-nightjar | 0 | 2 | 3 | 4 | 0 |
| ***Aepyprymnus rufescens*** | Rufous Bettong | 1 | 0 | 0 | 0 | 0 |
| ***Ailuroedus crassirostris*** | Green Catbird | 0 | 2 | 3 | 4 | 0 |
| ***Alectura lathami*** | Australian Brush-turkey | 1 | 0 | 0 | 0 | 0 |
| ***Alisterus scapularis*** | Australian King-Parrot | 0 | 2 | 3 | 4 | 0 |
| ***Amphibolurus muricatus*** | Jacky Lizard | 1 | 0 | 0 | 0 | 0 |
| ***Anilios nigrescens*** | Blackish Blind Snake | 1 | 0 | 0 | 0 | 0 |
| ***Antechinus stuartii*** | Brown Antechinus | 1 | 0 | 0 | 0 | 0 |

| *Scientific name* | CommonName | G1 | G2 | G3 | G4 | G5 |
|---|---|---|---|---|---|---|
| ***Anthochaera carunculata*** | Red Wattlebird | 0 | 2 | 3 | 4 | 0 |
| ***Anthochaera chrysoptera*** | Little Wattlebird | 0 | 0 | 3 | 4 | 5 |
| ***Anthus novaeseelandiae*** | Australian Pipit | 0 | 0 | 3 | 4 | 5 |
| ***Aquila audax*** | Wedge-tailed Eagle | 0 | 0 | 0 | 4 | 5 |
| ***Ardea pacifica*** | White-necked Heron | 0 | 0 | 3 | 4 | 5 |
| ***Artamus cyanopterus cyanopterus*** | Dusky Woodswallow | 0 | 2 | 3 | 4 | 5 |
| ***Artamus superciliosus*** | White-browed Woodswallow | 0 | 0 | 3 | 4 | 5 |
| ***Assa darlingtoni*** | Pouched Frog | 0 | 2 | 3 | 4 | 0 |
| ***Atrichornis rufescens*** | Rufous Scrub-bird | 1 | 0 | 0 | 0 | 0 |
| ***Austronomus australis*** | White-striped Freetail-bat | 0 | 2 | 3 | 4 | 5 |
| ***Aviceda subcristata*** | Pacific Baza | 1 | 0 | 0 | 0 | 0 |
| ***Bellatorias major*** | Land Mullet | 0 | 2 | 0 | 0 | 0 |
| ***Boiga irregularis*** | Brown Tree Snake | 0 | 2 | 3 | 4 | 0 |
| ***Botaurus poiciloptilus*** | Australasian Bittern | 0 | 2 | 3 | 4 | 5 |
| ***Butorides striatus*** | Striated Heron | 0 | 0 | 3 | 4 | 5 |
| ***Cacatua galerita*** | Sulphur-crested Cockatoo | 0 | 2 | 0 | 0 | 0 |
| ***Cacomantis flabelliformis*** | Fan-tailed Cuckoo | 1 | 0 | 0 | 0 | 0 |
| ***Cacomantis pallidus*** | Pallid Cuckoo | 0 | 2 | 3 | 4 | 5 |
| ***Cacophis krefftii*** | Southern Dwarf Crowned Snake | 0 | 2 | 0 | 0 | 0 |
| ***Cacophis squamulosus*** | Golden-crowned Snake | 0 | 2 | 3 | 4 | 5 |
| ***Caligavis chrysops*** | Yellow-faced Honeyeater | 0 | 2 | 3 | 4 | 0 |
| ***Calyptorhynchus funereus*** | Yellow-tailed Black-Cockatoo | 0 | 0 | 3 | 4 | 5 |
| ***Calyptorhynchus lathami*** | Glossy Black-Cockatoo | 1 | 0 | 0 | 0 | 0 |
| ***Calyptotis scutirostrum*** | Scute-snouted Calyptotis | 0 | 0 | 3 | 4 | 0 |

| *Scientific name* | CommonName | G1 | G2 | G3 | G4 | G5 |
|---|---|---|---|---|---|---|
| ***Canis lupus*** | Dingo, domestic dog | 0 | 2 | 3 | 4 | 0 |
| ***Canis lupus dingo*** | Dingo | 0 | 2 | 3 | 4 | 5 |
| ***Cercartetus nanus*** | Eastern Pygmy-possum | 0 | 2 | 3 | 4 | 5 |
| ***Cervus sp.*** | Unidentified Deer | 1 | 0 | 3 | 4 | 5 |
| ***Ceyx azureus*** | Azure Kingfisher | 0 | 2 | 3 | 4 | 0 |
| ***Chalcites basalis*** | Horsfield's Bronze-Cuckoo | 0 | 0 | 3 | 4 | 5 |
| ***Chalcites lucidus*** | Shining Bronze-Cuckoo | 1 | 0 | 0 | 0 | 0 |
| ***Chalcophaps indica*** | Emerald Dove | 0 | 2 | 0 | 0 | 0 |
| ***Chalinolobus gouldii*** | Gould's Wattled Bat | 0 | 2 | 3 | 4 | 5 |
| ***Chalinolobus morio*** | Chocolate Wattled Bat | 1 | 0 | 0 | 0 | 0 |
| ***Chenonetta jubata*** | Australian Wood Duck | 0 | 0 | 3 | 4 | 5 |
| ***Cincloramphus mathewsi*** | Rufous Songlark | 0 | 0 | 3 | 4 | 5 |
| ***Cinclosoma punctatum*** | Spotted Quail-thrush | 1 | 0 | 0 | 0 | 0 |
| ***Climacteris erythrops*** | Red-browed Treecreeper | 0 | 2 | 3 | 4 | 0 |
| ***Climacteris picumnus victoriae*** | Brown Treecreeper (eastern subspecies) | 1 | 0 | 0 | 0 | 0 |
| ***Colluricincla harmonica*** | Grey Shrike-thrush | 0 | 0 | 3 | 4 | 5 |
| ***Columba leucomela*** | White-headed Pigeon | 0 | 2 | 3 | 4 | 5 |
| ***Coracina novaehollandiae*** | Black-faced Cuckoo-shrike | 1 | 0 | 0 | 0 | 0 |
| ***Coracina papuensis*** | White-bellied Cuckoo-shrike | 0 | 0 | 3 | 4 | 5 |
| ***Coracina tenuirostris*** | Cicadabird | 0 | 2 | 3 | 4 | 5 |
| ***Cormobates leucophaea*** | White-throated Treecreeper | 0 | 0 | 3 | 4 | 5 |
| ***Corvus coronoides*** | Australian Raven | 0 | 0 | 3 | 4 | 5 |
| ***Corvus orru*** | Torresian Crow | 0 | 2 | 0 | 0 | 0 |
| ***Cracticus tibicen*** | Australian Magpie | 0 | 0 | 3 | 4 | 5 |

| *Scientific name* | CommonName | G1 | G2 | G3 | G4 | G5 |
|---|---|---|---|---|---|---|
| ***Cracticus torquatus*** | Grey Butcherbird | 0 | 0 | 3 | 4 | 5 |
| ***Crinia signifera*** | Common Eastern Froglet | 0 | 2 | 3 | 4 | 5 |
| ***Cryptophis nigrescens*** | Eastern Small-eyed Snake | 0 | 0 | 3 | 4 | 5 |
| ***Cyclodomorphus gerrardii*** | Pink-tongued Lizard | 0 | 2 | 0 | 0 | 0 |
| ***Dacelo novaeguineae*** | Laughing Kookaburra | 0 | 0 | 3 | 4 | 5 |
| ***Daphoenositta chrysoptera*** | Varied Sittella | 0 | 0 | 3 | 4 | 5 |
| ***Dasyurus maculatus*** | Spotted-tailed Quoll | 1 | 0 | 0 | 0 | 0 |
| ***Dicaeum hirundinaceum*** | Mistletoebird | 0 | 0 | 3 | 4 | 5 |
| ***Dicrurus bracteatus*** | Spangled Drongo | 1 | 0 | 0 | 0 | 0 |
| ***Diporiphora nobbi*** | Nobbi Dragon | 1 | 0 | 0 | 0 | 0 |
| ***Egernia cunninghami*** | Cunningham's Skink | 0 | 0 | 0 | 0 | 5 |
| ***Egernia mcpheei*** | Eastern Crevice Skink | 0 | 2 | 3 | 4 | 5 |
| ***Egernia saxatilis*** | Black Rock Skink | 1 | 0 | 0 | 0 | 0 |
| ***Egernia striolata*** | Tree Skink | 0 | 2 | 3 | 4 | 5 |
| ***Egretta novaehollandiae*** | White-faced Heron | 0 | 0 | 3 | 4 | 5 |
| ***Elanus axillaris*** | Black-shouldered Kite | 0 | 0 | 3 | 4 | 5 |
| ***Entomyzon cyanotis*** | Blue-faced Honeyeater | 0 | 2 | 3 | 4 | 0 |
| ***Eolophus roseicapillus*** | Galah | 0 | 0 | 3 | 4 | 5 |
| ***Eopsaltria australis*** | Eastern Yellow Robin | 0 | 2 | 3 | 4 | 0 |
| ***Erythrotriorchis radiatus*** | Red Goshawk | 0 | 2 | 3 | 4 | 0 |
| ***Eudynamys orientalis*** | Eastern Koel | 0 | 0 | 3 | 4 | 5 |
| ***Eulabeornis castaneoventris*** | Chestnut Rail | 0 | 0 | 3 | 4 | 5 |
| ***Eulamprus kosciuskoi*** | Alpine Water Skink | 0 | 2 | 3 | 4 | 5 |
| ***Eulamprus martini*** | Dark Bar-sided Skink | 0 | 2 | 3 | 4 | 5 |

| *Scientific name* | CommonName | G1 | G2 | G3 | G4 | G5 |
|---|---|---|---|---|---|---|
| ***Eulamprus murrayi*** | Murray's Skink | 0 | 2 | 3 | 4 | 0 |
| ***Eulamprus quoyii*** | Eastern Water-skink | 0 | 2 | 3 | 4 | 5 |
| ***Eulamprus tenuis*** | Barred-sided Skink | 0 | 2 | 3 | 4 | 5 |
| ***Eurostopodus mystacalis*** | White-throated Nightjar | 0 | 2 | 0 | 0 | 0 |
| ***Eurystomus orientalis*** | Dollarbird | 0 | 0 | 0 | 0 | 5 |
| ***Falco berigora*** | Brown Falcon | 0 | 2 | 3 | 4 | 5 |
| ***Falco cenchroides*** | Nankeen Kestrel | 0 | 0 | 3 | 4 | 5 |
| ***Falco peregrinus*** | Peregrine Falcon | 0 | 0 | 0 | 0 | 5 |
| ***Falcunculus frontatus*** | Eastern Shrike-tit | 0 | 0 | 3 | 4 | 5 |
| ***Felis catus*** | Cat | 0 | 2 | 3 | 4 | 5 |
| ***Geopelia striata*** | Peaceful Dove | 1 | 0 | 0 | 0 | 0 |
| ***Gerygone mouki*** | Brown Gerygone | 0 | 2 | 3 | 4 | 0 |
| ***Gerygone olivacea*** | White-throated Gerygone | 0 | 2 | 3 | 4 | 5 |
| ***Glossopsitta concinna*** | Musk Lorikeet | 0 | 0 | 0 | 4 | 5 |
| ***Glossopsitta pusilla*** | Little Lorikeet | 1 | 0 | 0 | 0 | 0 |
| ***Hemiaspis signata*** | Black-bellied Swamp Snake | 1 | 0 | 0 | 0 | 0 |
| ***Hieraaetus morphnoides*** | Little Eagle | 0 | 0 | 3 | 4 | 5 |
| ***Hirundapus caudacutus*** | White-throated Needletail | 0 | 0 | 3 | 4 | 5 |
| ***Hirundo neoxena*** | Welcome Swallow | 0 | 0 | 3 | 4 | 5 |
| ***Hoplocephalus stephensii*** | Stephens' Banded Snake | 0 | 2 | 3 | 4 | 5 |
| ***Hylacola pyrrhopygia*** | Chestnut-rumped Heathwren | 0 | 2 | 3 | 4 | 5 |
| ***Intellagama lesueurii*** | Eastern Water Dragon | 0 | 2 | 3 | 4 | 5 |
| ***Lalage leucomela*** | Varied Triller | 0 | 0 | 3 | 4 | 5 |
| ***Lalage sueurii*** | White-winged Triller | 0 | 0 | 3 | 4 | 5 |

| *Scientific name* | CommonName | G1 | G2 | G3 | G4 | G5 |
|---|---|---|---|---|---|---|
| ***Lampropholis delicata*** | Dark-flecked Garden Sunskink | 0 | 2 | 3 | 4 | 0 |
| ***Lampropholis guichenoti*** | Pale-flecked Garden Sunskink | 1 | 0 | 0 | 0 | 0 |
| ***Lechriodus fletcheri*** | Fletcher's Frog | 0 | 2 | 3 | 4 | 0 |
| ***Leucosarcia melanoleuca*** | Wonga Pigeon | 1 | 0 | 0 | 0 | 0 |
| ***Lewinia pectoralis*** | Lewin's Rail | 0 | 0 | 0 | 0 | 5 |
| ***Lialis burtonis*** | Burton's Snake-lizard | 0 | 2 | 3 | 4 | 5 |
| ***Lichmera indistincta*** | Brown Honeyeater | 0 | 2 | 0 | 0 | 0 |
| ***Limnodynastes dumerilii*** | Eastern Banjo Frog | 0 | 2 | 3 | 4 | 5 |
| ***Liopholis whitii*** | White's Skink | 0 | 2 | 3 | 4 | 5 |
| ***Litoria chloris*** | Red-eyed Tree Frog | 0 | 2 | 3 | 4 | 5 |
| ***Litoria lesueuri*** | Lesueur's Frog | 0 | 2 | 3 | 4 | 0 |
| ***Litoria pearsoniana*** | Pearson's Green Tree Frog | 0 | 0 | 3 | 4 | 5 |
| ***Litoria peronii*** | Peron's Tree Frog | 0 | 2 | 3 | 4 | 5 |
| ***Litoria phyllochroa*** | Leaf-green Tree Frog | 0 | 2 | 3 | 4 | 5 |
| ***Litoria subglandulosa*** | Glandular Frog | 0 | 2 | 3 | 4 | 0 |
| ***Litoria verreauxii*** | Verreaux's Frog | 0 | 0 | 3 | 4 | 5 |
| ***Lophoictinia isura*** | Square-tailed Kite | 0 | 2 | 3 | 4 | 5 |
| ***Lopholaimus antarcticus*** | Topknot Pigeon | 0 | 2 | 0 | 0 | 0 |
| ***Macropus parma*** | Parma Wallaby | 1 | 0 | 0 | 0 | 0 |
| ***Macropus rufogriseus*** | Red-necked Wallaby | 0 | 2 | 3 | 4 | 5 |
| ***Macropus sp.*** | kangaroo / wallaby | 0 | 2 | 3 | 4 | 5 |
| ***Macropygia amboinensis*** | Brown Cuckoo-Dove | 0 | 2 | 3 | 4 | 5 |
| ***Malurus cyaneus*** | Superb Fairy-wren | 1 | 0 | 0 | 0 | 0 |
| ***Malurus lamberti*** | Variegated Fairy-wren | 1 | 0 | 0 | 0 | 0 |

| *Scientific name* | CommonName | G1 | G2 | G3 | G4 | G5 |
|---|---|---|---|---|---|---|
| ***Malurus melanocephalus*** | Red-backed Fairy-wren | 0 | 0 | 3 | 4 | 5 |
| ***Manorina melanophrys*** | Bell Miner | 0 | 2 | 0 | 0 | 0 |
| ***Meliphaga lewinii*** | Lewin's Honeyeater | 1 | 0 | 0 | 0 | 0 |
| ***Melithreptus lunatus*** | White-naped Honeyeater | 0 | 0 | 3 | 4 | 5 |
| ***Melomys cervinipes*** | Fawn-footed Melomys | 1 | 0 | 0 | 0 | 0 |
| ***Melomys sp.*** | Unidentified Melomys | 1 | 0 | 0 | 0 | 0 |
| ***Menura novaehollandiae*** | Superb Lyrebird | 1 | 0 | 0 | 0 | 0 |
| ***Merops ornatus*** | Rainbow Bee-eater | 0 | 0 | 3 | 4 | 5 |
| ***Microeca fascinans*** | Jacky Winter | 0 | 0 | 3 | 4 | 5 |
| ***Miniopterus orianae oceanensis*** | Large Bent-winged Bat | 0 | 2 | 3 | 4 | 5 |
| ***Mixophyes balbus*** | Stuttering Frog | 1 | 0 | 0 | 0 | 0 |
| ***Mixophyes fasciolatus*** | Great Barred Frog | 1 | 0 | 0 | 0 | 0 |
| ***Monarcha melanopsis*** | Black-faced Monarch | 1 | 0 | 0 | 0 | 0 |
| ***Morelia spilota*** | Carpet & Diamond Pythons | 0 | 2 | 3 | 4 | 0 |
| ***Morelia spilota mcdowelli*** | Eastern Carpet Python | 0 | 2 | 3 | 4 | 5 |
| ***Myiagra cyanoleuca*** | Satin Flycatcher | 0 | 2 | 3 | 4 | 0 |
| ***Myiagra rubecula*** | Leaden Flycatcher | 0 | 0 | 3 | 4 | 5 |
| ***Myzomela sanguinolenta*** | Scarlet Honeyeater | 1 | 0 | 0 | 0 | 0 |
| ***Neochmia temporalis*** | Red-browed Finch | 1 | 0 | 0 | 0 | 0 |
| ***Neophema pulchella*** | Turquoise Parrot | 0 | 2 | 3 | 4 | 5 |
| ***Nesoptilotis leucotis*** | White-eared Honeyeater | 0 | 2 | 3 | 4 | 0 |
| ***Ninox novaeseelandiae*** | Southern Boobook | 1 | 0 | 0 | 0 | 0 |
| ***Ninox strenua*** | Powerful Owl | 0 | 2 | 3 | 4 | 5 |
| ***Notechis scutatus*** | Tiger Snake | 0 | 2 | 3 | 4 | 5 |

| *Scientific name* | CommonName | G1 | G2 | G3 | G4 | G5 |
|---|---|---|---|---|---|---|
| ***Nycticorax caledonicus*** | Nankeen Night Heron | 0 | 0 | 3 | 4 | 5 |
| ***Nyctophilus geoffroyi*** | Lesser Long-eared Bat | 1 | 0 | 0 | 0 | 0 |
| ***Nyctophilus sp.*** | long-eared bat | 1 | 0 | 0 | 0 | 0 |
| ***Oriolus sagittatus*** | Olive-backed Oriole | 0 | 2 | 0 | 0 | 0 |
| ***Ornithorhynchus anatinus*** | Platypus | 0 | 2 | 3 | 4 | 5 |
| ***Orthonyx temminckii*** | Logrunner | 0 | 2 | 3 | 4 | 0 |
| ***Oryctolagus cuniculus*** | Rabbit | 0 | 0 | 3 | 4 | 5 |
| ***Pachycephala pectoralis*** | Golden Whistler | 0 | 2 | 3 | 4 | 0 |
| ***Pachycephala rufiventris*** | Rufous Whistler | 1 | 0 | 0 | 0 | 0 |
| ***Pardalotus punctatus*** | Spotted Pardalote | 0 | 0 | 3 | 4 | 5 |
| ***Perameles nasuta*** | Long-nosed Bandicoot | 1 | 0 | 0 | 0 | 0 |
| ***Petalura gigantea*** | Giant Dragonfly | 0 | 2 | 3 | 4 | 5 |
| ***Petauroides volans*** | Greater Glider | 0 | 2 | 3 | 4 | 5 |
| ***Petaurus australis*** | Yellow-bellied Glider | 1 | 0 | 0 | 0 | 0 |
| ***Petaurus breviceps*** | Sugar Glider | 0 | 0 | 0 | 0 | 5 |
| ***Petaurus sp.*** | Glider | 1 | 0 | 0 | 0 | 0 |
| ***Petrochelidon nigricans*** | Tree Martin | 0 | 0 | 3 | 4 | 5 |
| ***Petrogale penicillata*** | Brush-tailed Rock-wallaby | 1 | 0 | 0 | 0 | 0 |
| ***Petroica boodang*** | Scarlet Robin | 1 | 0 | 0 | 0 | 0 |
| ***Petroica phoenicea*** | Flame Robin | 0 | 0 | 3 | 4 | 5 |
| ***Petroica rosea*** | Rose Robin | 1 | 0 | 0 | 0 | 0 |
| ***Phaps chalcoptera*** | Common Bronzewing | 0 | 2 | 3 | 4 | 5 |
| ***Phaps elegans*** | Brush Bronzewing | 0 | 2 | 3 | 4 | 5 |
| ***Phascolarctos cinereus*** | Koala | 0 | 2 | 3 | 4 | 5 |

| *Scientific name* | CommonName | G1 | G2 | G3 | G4 | G5 |
|---|---|---|---|---|---|---|
| ***Philemon citreogularis*** | Little Friarbird | 0 | 2 | 0 | 0 | 0 |
| ***Philemon corniculatus*** | Noisy Friarbird | 1 | 0 | 0 | 0 | 0 |
| ***Philoria kundagungan*** | Mountain Frog | 0 | 0 | 3 | 4 | 5 |
| ***Philoria pughi*** | | 0 | 2 | 3 | 4 | 5 |
| ***Phoniscus papuensis*** | Golden-tipped Bat | 1 | 0 | 0 | 0 | 0 |
| ***Phylidonyris niger*** | White-cheeked Honeyeater | 0 | 2 | 3 | 4 | 0 |
| ***Phylidonyris novaehollandiae*** | New Holland Honeyeater | 0 | 0 | 3 | 4 | 5 |
| ***Pitta versicolor*** | Noisy Pitta | 0 | 2 | 3 | 4 | 0 |
| ***Platycercus elegans*** | Crimson Rosella | 1 | 0 | 0 | 0 | 5 |
| ***Platycercus eximius*** | Eastern Rosella | 0 | 2 | 0 | 0 | 0 |
| ***Podargus strigoides*** | Tawny Frogmouth | 1 | 0 | 0 | 0 | 0 |
| ***Potorous tridactylus*** | Long-nosed Potoroo | 0 | 2 | 3 | 4 | 5 |
| ***Pseudechis guttatus*** | Spotted Black Snake | 0 | 2 | 3 | 4 | 5 |
| ***Pseudechis porphyriacus*** | Red-bellied Black Snake | 0 | 2 | 3 | 4 | 0 |
| ***Pseudocheirus peregrinus*** | Common Ringtail Possum | 1 | 0 | 0 | 0 | 5 |
| ***Pseudomys novaehollandiae*** | New Holland Mouse | 0 | 0 | 3 | 4 | 5 |
| ***Pseudomys oralis*** | Hastings River Mouse | 1 | 0 | 0 | 0 | 0 |
| ***Pseudonaja textilis*** | Eastern Brown Snake | 1 | 0 | 3 | 4 | 5 |
| ***Pseudophryne coriacea*** | Red-backed Toadlet | 1 | 0 | 0 | 0 | 0 |
| ***Psophodes olivaceus*** | Eastern Whipbird | 0 | 2 | 3 | 4 | 0 |
| ***Pteropus poliocephalus*** | Grey-headed Flying-fox | 0 | 2 | 3 | 4 | 5 |
| ***Ptilinopus magnificus*** | Wompoo Fruit-Dove | 0 | 2 | 3 | 4 | 0 |
| ***Ptilinopus regina*** | Rose-crowned Fruit-Dove | 0 | 2 | 0 | 0 | 0 |
| ***Ptilonorhynchus violaceus*** | Satin Bowerbird | 0 | 2 | 3 | 4 | 5 |

| *Scientific name* | CommonName | G1 | G2 | G3 | G4 | G5 |
|---|---|---|---|---|---|---|
| ***Ptiloris paradiseus*** | Paradise Riflebird | 0 | 0 | 3 | 4 | 5 |
| ***Ptilotula fuscus*** | Fuscous Honeyeater | 1 | 0 | 0 | 0 | 0 |
| ***Pygopus lepidopodus*** | Common Scaly-foot | 0 | 0 | 3 | 4 | 5 |
| ***Rattus fuscipes*** | Bush Rat | 1 | 0 | 0 | 0 | 0 |
| ***Rattus lutreolus*** | Swamp Rat | 0 | 2 | 3 | 4 | 5 |
| ***Rattus rattus*** | Black Rat | 0 | 0 | 3 | 4 | 5 |
| ***Rattus sp.*** | rat | 0 | 2 | 3 | 4 | 0 |
| ***Rhinolophus megaphyllus*** | Eastern Horseshoe-bat | 1 | 0 | 0 | 0 | 0 |
| ***Rhipidura albiscapa*** | Grey Fantail | 0 | 2 | 3 | 4 | 0 |
| ***Rhipidura leucophrys*** | Willie Wagtail | 0 | 0 | 3 | 4 | 5 |
| ***Rhipidura rufifrons*** | Rufous Fantail | 0 | 2 | 3 | 4 | 0 |
| ***Saiphos equalis*** | Three-toed Skink | 0 | 0 | 3 | 4 | 5 |
| ***Saltuarius swaini*** | Southern Leaf-tailed Gecko | 0 | 2 | 3 | 4 | 5 |
| ***Saproscincus challengeri*** | Orange-tailed Shadeskink | 0 | 2 | 3 | 4 | 0 |
| ***Saproscincus challengeri*** | Orange-tailed Shadeskink | 0 | 0 | 3 | 4 | 0 |
| ***Saproscincus rosei*** | Orange-tailed Shadeskink | 0 | 2 | 3 | 4 | 0 |
| ***Saproscincus sp.*** | Unidentified Saproscincus | 0 | 2 | 3 | 4 | 0 |
| ***Scoteanax rueppellii*** | Greater Broad-nosed Bat | 0 | 2 | 3 | 4 | 5 |
| ***Scythrops novaehollandiae*** | Channel-billed Cuckoo | 1 | 0 | 0 | 0 | 0 |
| ***Sericornis citreogularis*** | Yellow-throated Scrubwren | 0 | 0 | 3 | 4 | 5 |
| ***Sericornis frontalis*** | White-browed Scrubwren | 1 | 0 | 0 | 0 | 0 |
| ***Sericornis magnirostra*** | Large-billed Scrubwren | 0 | 2 | 3 | 4 | 0 |
| ***Sericulus chrysocephalus*** | Regent Bowerbird | 0 | 0 | 3 | 4 | 5 |
| ***Sminthopsis murina*** | Common Dunnart | 1 | 0 | 0 | 0 | 0 |

| *Scientific name* | CommonName | G1 | G2 | G3 | G4 | G5 |
|---|---|---|---|---|---|---|
| ***Sphecotheres vieilloti*** | Australasian Figbird | 0 | 2 | 0 | 0 | 0 |
| ***Stagonopleura guttata*** | Diamond Firetail | 0 | 0 | 3 | 4 | 5 |
| ***Stipiturus malachurus*** | Southern Emu-wren | 0 | 0 | 3 | 4 | 5 |
| ***Strepera graculina*** | Pied Currawong | 1 | 0 | 0 | 0 | 0 |
| ***Tachybaptus novaehollandiae*** | Australasian Grebe | 0 | 0 | 3 | 4 | 5 |
| ***Tachyglossus aculeatus*** | Short-beaked Echidna | 1 | 0 | 0 | 0 | 0 |
| ***Taeniopygia bichenovii*** | Double-barred Finch | 0 | 0 | 3 | 4 | 5 |
| ***Taeniopygia guttata*** | Zebra Finch | 0 | 0 | 3 | 4 | 5 |
| ***Threskiornis spinicollis*** | Straw-necked Ibis | 0 | 0 | 3 | 4 | 5 |
| ***Thylogale stigmatica*** | Red-legged Pademelon | 0 | 2 | 3 | 4 | 5 |
| ***Thylogale thetis*** | Red-necked Pademelon | 1 | 0 | 0 | 0 | 0 |
| ***Todiramphus pyrrhopygius*** | Red-backed Kingfisher | 0 | 0 | 3 | 4 | 5 |
| ***Todiramphus sanctus*** | Sacred Kingfisher | 0 | 0 | 0 | 4 | 5 |
| ***Tregellasia capito*** | Pale-yellow Robin | 0 | 2 | 3 | 4 | 0 |
| ***Trichoglossus chlorolepidotus*** | Scaly-breasted Lorikeet | 0 | 0 | 3 | 4 | 5 |
| ***Trichoglossus haematodus*** | Rainbow Lorikeet | 0 | 2 | 3 | 4 | 5 |
| ***Trichosurus caninus*** | Short-eared Possum | 0 | 2 | 3 | 4 | 0 |
| ***Trichosurus sp.*** | brushtail possum | 0 | 2 | 3 | 4 | 0 |
| ***Trichosurus vulpecula*** | Common Brushtail Possum | 0 | 2 | 3 | 4 | 5 |
| ***Turnix varius*** | Painted Button-quail | 0 | 0 | 3 | 4 | 5 |
| ***Tyto javanica*** | Eastern Barn Owl | 0 | 2 | 3 | 4 | 5 |
| ***Tyto novaehollandiae*** | Masked Owl | 0 | 2 | 0 | 0 | 0 |
| ***Tyto tenebricosa*** | Sooty Owl | 1 | 0 | 0 | 0 | 0 |
| ***Uperoleia fusca*** | Dusky Toadlet | 1 | 0 | 0 | 0 | 0 |

| *Scientific name* | CommonName | G1 | G2 | G3 | G4 | G5 |
|---|---|---|---|---|---|---|
| ***Vanellus miles*** | Masked Lapwing | 0 | 0 | 3 | 4 | 5 |
| ***Varanus varius*** | Lace Monitor | 0 | 2 | 3 | 4 | 5 |
| ***Vermicella annulata*** | Bandy-bandy | 0 | 2 | 0 | 0 | 0 |
| ***Vespadelus darlingtoni*** | Large Forest Bat | 0 | 2 | 3 | 4 | 0 |
| ***Vespadelus pumilus*** | Eastern Forest Bat | 1 | 0 | 0 | 0 | 0 |
| ***Vespadelus regulus*** | Southern Forest Bat | 0 | 2 | 3 | 0 | 0 |
| ***Vespadelus sp.*** | Unidentified Eptesicus | 1 | 0 | 0 | 0 | 0 |
| ***Vulpes vulpes*** | Fox | 0 | 0 | 3 | 0 | 0 |
| ***Wallabia bicolor*** | Swamp Wallaby | 1 | 0 | 0 | 0 | 0 |
| ***Zoothera lunulata*** | Bassian Thrush | 0 | 2 | 3 | 4 | 0 |
| ***Zoothera sp.*** | unidentified ground thrush | 0 | 0 | 3 | 4 | 5 |
| ***Zosterops lateralis*** | Silvereye | 0 | 0 | 3 | 4 | 5 |

# Appendix D : Species previously recorded within 5 km of the transects surveyed in the Torrington SCA

| Scientific name | Common name |
|---|---|
| ***Acanthiza chrysorrhoa*** | Yellow-rumped Thornbill |
| ***Acanthiza lineata*** | Striated Thornbill |
| ***Acanthophis antarcticus*** | Common Death Adder |
| ***Acanthorhynchus tenuirostris*** | Eastern Spinebill |
| ***Acritoscincus platynota*** | Red-throated Skink |
| ***Acrobates pygmaeus*** | Feathertail Glider |
| ***Aegotheles cristatus*** | Australian Owlet-nightjar |
| ***Alisterus scapularis*** | Australian King-Parrot |
| ***Amalosia lesueurii*** | Lesueur's Velvet Gecko |
| ***Amphibolurus muricatus*** | Jacky Lizard |
| ***Anilios nigrescens*** | Blackish Blind Snake |
| ***Antechinus flavipes*** | Yellow-footed Antechinus |
| ***Anthochaera carunculata*** | Red Wattlebird |
| ***Anthochaera phrygia*** | Regent Honeyeater |
| ***Artamus cyanopterus cyanopterus*** | Dusky Woodswallow |
| ***Caligavis chrysops*** | Yellow-faced Honeyeater |
| ***Calyptorhynchus lathami*** | Glossy Black-Cockatoo |
| ***Canis lupus*** | Dingo, domestic dog |
| ***Capra hircus*** | Goat |
| ***Cervus sp.*** | Unidentified Deer |
| ***Chalinolobus morio*** | Chocolate Wattled Bat |
| ***Chelodina longicollis*** | Eastern Snake-necked Turtle |
| ***Cinclosoma punctatum*** | Spotted Quail-thrush |
| ***Climacteris erythrops*** | Red-browed Treecreeper |
| ***Colluricincla harmonica*** | Grey Shrike-thrush |
| ***Coracina novaehollandiae*** | Black-faced Cuckoo-shrike |
| ***Coracina tenuirostris*** | Cicadabird |
| ***Corcorax melanorhamphos*** | White-winged Chough |
| ***Cormobates leucophaea*** | White-throated Treecreeper |
| ***Corvus orru*** | Torresian Crow |
| ***Cracticus tibicen*** | Australian Magpie |
| ***Cracticus torquatus*** | Grey Butcherbird |
| ***Crinia parinsignifera*** | Eastern Sign-bearing Froglet |
| ***Crinia signifera*** | Common Eastern Froglet |
| ***Cryptoblepharus pulcher*** | Elegant Snake-eyed Skink |
| ***Cryptoblepharus virgatus*** | Cream-striped Shinning-skink |
| ***Cryptophis nigrescens*** | Eastern Small-eyed Snake |
| ***Ctenotus robustus*** | Robust Ctenotus |
| ***Ctenotus taeniolatus*** | Copper-tailed Skink |
| ***Dacelo novaeguineae*** | Laughing Kookaburra |
| ***Dasyurus maculatus*** | Spotted-tailed Quoll |
| ***Dasyurus sp.*** | Quoll |

| Scientific name | Common name |
|---|---|
| ***Demansia psammophis*** | Yellow-faced Whip Snake |
| ***Diporiphora nobbi*** | Nobbi Dragon |
| ***Egernia saxatilis intermedia*** | |
| ***Egernia striolata*** | Tree Skink |
| ***Eopsaltria australis*** | Eastern Yellow Robin |
| ***Eudynamys orientalis*** | Eastern Koel |
| ***Eulamprus quoyii*** | Eastern Water-skink |
| ***Eulamprus tenuis*** | Barred-sided Skink |
| ***Eurystomus orientalis*** | Dollarbird |
| ***Falsistrellus tasmaniensis*** | Eastern False Pipistrelle |
| ***Felis catus*** | Cat |
| ***Gerygone olivacea*** | White-throated Gerygone |
| ***Glossopsitta concinna*** | Musk Lorikeet |
| ***Glossopsitta pusilla*** | Little Lorikeet |
| ***Grallina cyanoleuca*** | Magpie-lark |
| ***Heteronotia binoei*** | Bynoe's Gecko |
| ***Hieraaetus morphnoides*** | Little Eagle |
| ***Intellagama lesueurii*** | Eastern Water Dragon |
| ***Lampropholis delicata*** | Dark-flecked Garden Sunskink |
| ***Lampropholis guichenoti*** | Pale-flecked Garden Sunskink |
| ***Lerista timida*** | Timid Slider |
| ***Lialis burtonis*** | Burton's Snake-lizard |
| ***Limnodynastes dumerilii*** | Eastern Banjo Frog |
| ***Limnodynastes tasmaniensis*** | Spotted Grass Frog |
| ***Liopholis whitii*** | White's Skink |
| ***Litoria dentata*** | Bleating Tree Frog |
| ***Litoria fallax*** | Eastern Dwarf Tree Frog |
| ***Litoria latopalmata*** | Broad-palmed Frog |
| ***Litoria verreauxii*** | Verreaux's Frog |
| ***Lophoictinia isura*** | Square-tailed Kite |
| ***Lygisaurus foliorum*** | Tree-base Litter-skink |
| ***Macropus giganteus*** | Eastern Grey Kangaroo |
| ***Macropus robustus*** | Common Wallaroo |
| ***Macropus rufogriseus*** | Red-necked Wallaby |
| ***Malurus lamberti*** | Variegated Fairy-wren |
| ***Melithreptus brevirostris*** | Brown-headed Honeyeater |
| ***Melithreptus lunatus*** | White-naped Honeyeater |
| ***Menura novaehollandiae*** | Superb Lyrebird |
| ***Morelia spilota mcdowelli*** | Eastern Carpet Python |
| ***Morelia spilota metcalfei*** | Murray/Darling Carpet Python |
| ***Morethia boulengeri*** | South-eastern Morethia Skink |
| ***Neophema pulchella*** | Turquoise Parrot |
| ***Nesoptilotis leucotis*** | White-eared Honeyeater |
| ***Ninox novaeseelandiae*** | Southern Boobook |
| ***Ninox strenua*** | Powerful Owl |
| ***Nycticorax caledonicus*** | Nankeen Night Heron |
| ***Nyctophilus geoffroyi*** | Lesser Long-eared Bat |

| Scientific name | Common name |
|---|---|
| ***Oedura tryoni*** | Southern Spotted Velvet Gecko |
| ***Oriolus sagittatus*** | Olive-backed Oriole |
| ***Pachycephala rufiventris*** | Rufous Whistler |
| ***Pardalotus striatus*** | Striated Pardalote |
| ***Petauroides volans*** | Greater Glider |
| ***Petaurus breviceps*** | Sugar Glider |
| ***Petaurus sp.*** | Glider |
| ***Phaps chalcoptera*** | Common Bronzewing |
| ***Philemon corniculatus*** | Noisy Friarbird |
| ***Phylidonyris novaehollandiae*** | New Holland Honeyeater |
| ***Platycercus elegans*** | Crimson Rosella |
| ***Platycercus eximius*** | Eastern Rosella |
| ***Platyplectrum ornatum*** | Ornate Burrowing Frog |
| ***Podargus strigoides*** | Tawny Frogmouth |
| ***Ptilotula penicillatus*** | White-plumed Honeyeater |
| ***Rattus fuscipes*** | Bush Rat |
| ***Rattus rattus*** | Black Rat |
| ***Rattus sp.*** | rat |
| ***Rhipidura albiscapa*** | Grey Fantail |
| ***Rhipidura leucophrys*** | Willie Wagtail |
| ***Saiphos equalis*** | Three-toed Skink |
| ***Scoteanax rueppellii*** | Greater Broad-nosed Bat |
| ***Scythrops novaehollandiae*** | Channel-billed Cuckoo |
| ***Sericornis frontalis*** | White-browed Scrubwren |
| ***Smicrornis brevirostris*** | Weebill |
| ***Strepera graculina*** | Pied Currawong |
| ***Strepera sp.*** | |
| ***Sus scrofa*** | Pig |
| ***Tachyglossus aculeatus*** | Short-beaked Echidna |
| ***Todiramphus sanctus*** | Sacred Kingfisher |
| ***Trichoglossus haematodus*** | Rainbow Lorikeet |
| ***Trichosurus sp.*** | brushtail possum |
| ***Trichosurus vulpecula*** | Common Brushtail Possum |
| ***Uvidicolus sphyrurus*** | Border Thick-tailed Gecko |
| ***Vespadelus darlingtoni*** | Large Forest Bat |
| ***Vespadelus regulus*** | Southern Forest Bat |
| ***Vulpes vulpes*** | Fox |
| ***Wallabia bicolor*** | Swamp Wallaby |

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