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# **Purple Copper Butterfly Population Monitoring 2025**

## **Walker Quarries, Wallerawang NSW**

Lithgow City Council LGA  
October 2025



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## Executive summary

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AREA Environmental & Heritage Consultants Pty Ltd (AREA) was engaged by Irwin Environmental Management Pty Ltd, on behalf of Walker Quarries Pty Ltd, to conduct annual monitoring for presence of the Purple Copper Butterfly (*Paralucia spinifera*) in accordance with the Biodiversity Management Plan of Walker Quarries Wallerawang Quarry (the Quarry).



Results of the monitoring which occurred in September 2025 were as follows:

- No Purple Copper Butterflies (PCBs) were recorded in the Quarry monitoring sites.
- One PCB was recorded in the control site at Cheetham Flats Travelling Stock Route (TSR) approximately 13 kilometres south-west of the Quarry.
- Ant activity across the monitoring sites was low with only the occasional individual ant (none on the *Bursaria spinosa* and only one of which was one was on grass near the base of one *B. spinosa* plant) identified during the monitoring. No *Anonychomyrma itinerans* ant species were detected during monitoring.
- Many adult *Bursaria spinosa* plants in the monitoring sites appeared to be in poor health with dead or dying limbs and lichen covered branches. Healthy, flowering plants were sparse. *B. spinosa* seedlings were recorded in all of the Quarry monitoring sites but only recorded abundantly in monitoring site 19.
- A week following the 2025 PCB monitoring, AREA was informed that NSW DCCEEW Conservation Programs, Heritage, and Regulation (CPHR) conducted a survey of a powerline easement which partially traverses the Quarry and recorded a single PCB, northeast and downhill from monitoring site 24.

Monitoring in 2025 occurred in suitable weather conditions and within department guidelines, with consideration given to commencing monitoring once temperatures reached 15 degrees. Despite not detecting any PCB in the Quarry monitoring sites, AREA believes there is currently not enough information available to conclude the local population is extinct. Given the short monitoring time window, short butterfly active period, specific weather requirements and variation of monitoring timing and researchers, there is potential the PCB is present within suitable habitat on and surrounding the Quarry Site but may not have been monitored at a time when they are present **and** detectable.

The detection of PCB by CPHR near monitoring site 24 indicates PCB is still active in the local area, potentially concentrated where healthier populations of the *Bursaria spinosa* are present such as easements where the overstorey is controlled / removed.

## Document Controls

<b>Client</b>	Irwin Environmental management Pty Ltd	
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# 1 Introduction

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AREA Environmental & Heritage Consultants Pty Ltd (AREA) was engaged by Irwin Environmental Management Pty Ltd, on behalf of Walker Quarries Pty Ltd, to conduct the annual monitoring for presence of the Purple Copper Butterfly (*Paralucia spinifera*) for annual reporting undertaken as part of the operations of the Walker Quarries Wallerawang site.

## 1.1 Monitoring requirements

The Wallerawang Quarry Biodiversity Management Plan (BMP) (Irwin Environmental, 2024) outlines the following requirements for the Purple Copper Butterfly (hereafter PCB):

*Remnant vegetation of the Quarry will be monitored annually by a qualified ecologist who will measure/monitor for evidence of Purple Copper Butterfly and the health and distribution of Blackthorn.*

*Five patches of Blackthorn (Figure 1.1) will be monitored in during the active Purple Copper Butterfly period each year (typically September - November) with the following objectives:*

- *Determine if any Purple Copper Butterfly is present on the Quarry.*
- *Determine if the ant species *Anonychomyrma itinerans* is present (this ant has a mutualistic relationship with the butterfly).*
- *Identify the general condition of each site and if any new Blackthorn seedlings have established.*
- *Determine any further recommendations that should be adopted to ensure each of the five sites (or newly identified sites) remain as habitat for the Purple Copper Butterfly.*

*The field survey will be completed by a qualified ecologist, generally in accordance with:*

- *On the day of the field survey, weather conditions will be noted.*
- *At least one of three control sites, being sites where the Purple Copper Butterfly is known to occur, will be inspected to confirm the species as active. These sites are currently:*
  - *Cox's Creek, Wallerawang – this site located around 6.5 km north of the Quarry on the eastern side of the Castlereagh Highway,*
  - *Eusdale Road, Yetholme – located approximately 23 km west of the Quarry, this site is present east and south of Eusdale Road, and/or*
  - *Cheetham Flats Travelling Stock Route (TSR) – located at Hampton Road, Rydal, approximately 13 km south-west of the Quarry.*
- *At each of the monitoring and relevant control sites the following methods will be employed:*
  - *The ecologist will position themselves to survey the site and conduct visual inspections to observe any butterfly activity for at least 10 minutes per site.*
  - *Random plants will be searched for butterfly caterpillars.*
  - *Random plants will be selected and searched for ants.*

- *Select Blackthorn plants will be gently shaken to trigger a flight response from any butterflies if present.*
- *The age of plants (large plants and seedlings present), health (any new shoots present) and evidence of grazing (chewed leaves) will be recorded.*
- *A net will be used to collect any butterflies observed. Any butterflies collected will be keyed out in accordance with the field guide, Butterflies of Australia (Braby, 2016).*
- *All animals collected will be released at their point of capture.*

*Ecological surveys will be undertaken to coincide with the adult flying season of the Purple Copper Butterfly which is generally between September and November.*

*Maintain a map of Bursaria spinosa and update if additional patches are identified.*

*Implement protective measures on identified patches. Remnant Bursaria spinosa within the Conservation BDMA retained in situ. Update the mapping of Blackthorn.*

## 1.2 Past results

The BMP reports monitoring for the presence of PCB and *Anonychomyrma itinerans* has been undertaken since 2016 and, despite the species being recorded at other locations within the locality, it has not been identified on the site.

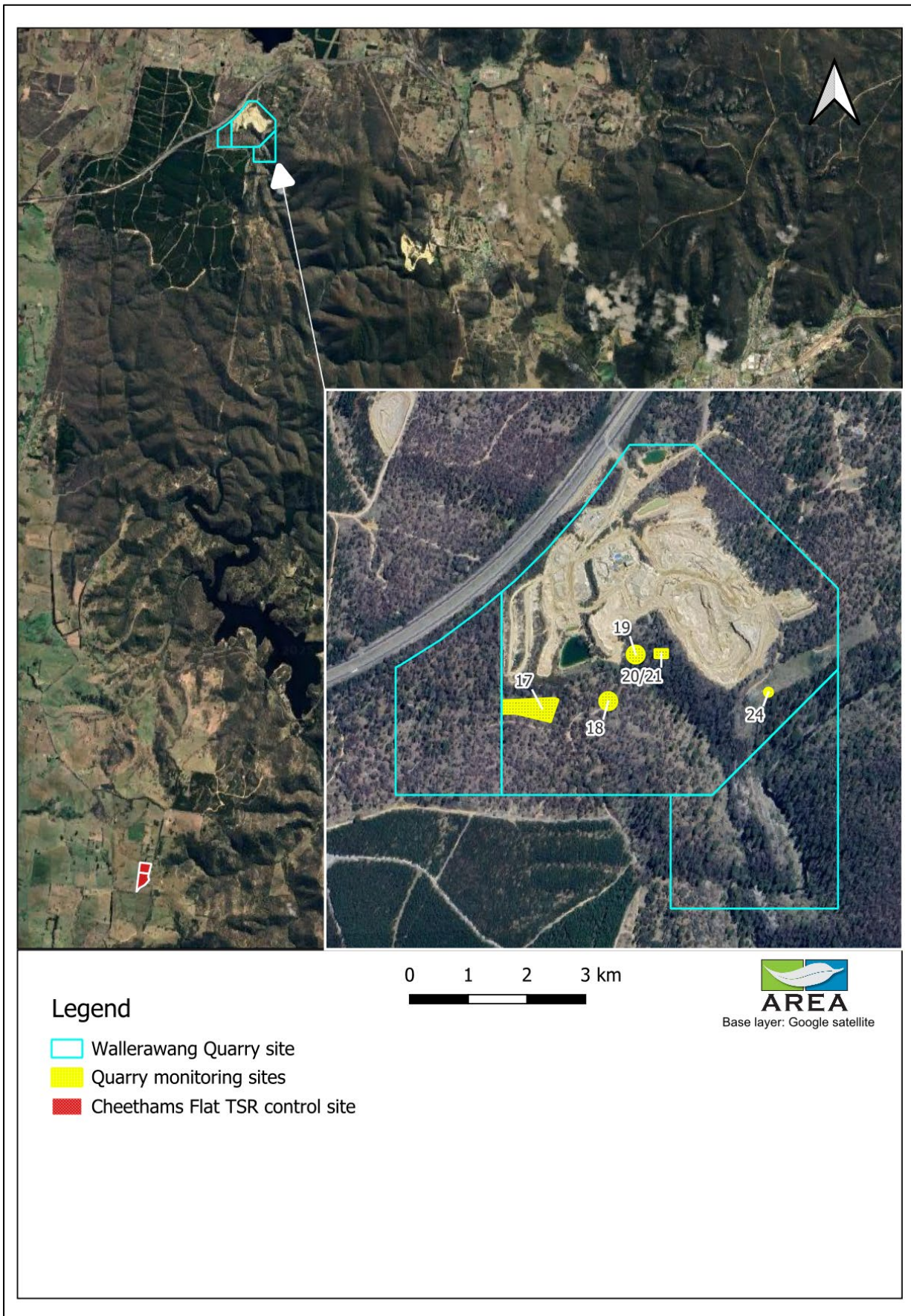
As the PCB has a life-cycle with one generation completed annually, and neither the species nor attendant ant species has been detected by the monitoring between 2016 and 2024, it has previously been concluded by Ecoplanning (2022) that the population(s) which once occurred within the Quarry is likely to be locally extinct or very small and difficult to detect.

### 1.2.1 2024 results

Broadly, the findings of the 2024 monitoring (Lesryk, 2024) were:

1. No Purple Copper Butterflies (or their larvae) were observed within any of the five monitoring sites.
2. No ants exhibiting the diagnostic feature of *Anonychomyrma itinerans* were present within any of the monitoring sites
3. Species of butterfly, ants and other insects were present on, above or within the vicinity of the five quarry monitoring sites.
4. No PCBs were observed whilst traversing between the five monitoring sites.
5. All of the monitoring sites within the quarry exhibited grazing of the Blackthorn leaves and new growth.
6. No PCBs were observed at the control site.
7. The findings of the Spring 2024 monitoring session are consistent with those of previous monitoring. The Spring 2024 study confirmed both the occurrence of healthy patches of Blackthorn and no records for either the PCB or the ant *Anonychomyrma itinerans* which it has a mutualistic relationship with.

Figure 1-1: Monitoring locations as per the BMP



## 2 Methods

### 2.1 Personnel

Monitoring was undertaken by appropriately qualified and experienced ecologists (Table 2-1). Monitoring was conducted on 18 and 19 September 2025 by AREA ecologists Phillip Cameron, Addy Watson and Genevieve Peel.

**Table 2-1: AREA contributors**

Name	Position	Qualifications	Role in this project
Addy Watson	Manager   Senior Consultant	<ul style="list-style-type: none"> <li>• Grad. Dip. Captive Vertebrate Management, Charles Sturt University</li> <li>• Grad. Cert. Social Impact, University of NSW</li> <li>• B. Env. Sc. University of New England.</li> <li>• NSW Biodiversity Assessment Method Accredited Assessor (BAAS19066)</li> <li>• Diploma Project Management</li> <li>• Apply First Aid. Certificate number: 07328</li> </ul>	<ul style="list-style-type: none"> <li>• Fieldwork</li> <li>• Project management</li> <li>• Data recording</li> <li>• Report edit/ QMS</li> </ul>
Phil Cameron	Managing Director	<ul style="list-style-type: none"> <li>• BSc. Major in Biology. Macquarie University</li> <li>• Ass Dip App Sci. University of Queensland</li> <li>• Dip Landscape Design (in-prep)</li> <li>• Cert III (Captive vertebrate management)</li> <li>• Certified Environmental Practitioner (EIANZ) and practicing member</li> <li>• NSW OEH BioBanking and Bio-certification Assessor: accreditation number 0117</li> <li>• NSW Biodiversity Assessment Method Accredited Assessor (BAAS17082)</li> <li>• AHCPCM201- Recognising grasses</li> <li>• Practicing member of the NSW Ecological Consulting Association</li> </ul>	<ul style="list-style-type: none"> <li>• Fieldwork</li> </ul>
Genevieve Peel	Senior Ecologist	<ul style="list-style-type: none"> <li>• Bachelor of Science, Environmental (Hons) UNSW</li> <li>• Cert III Captive Animal Management</li> <li>• Cert IV Veterinary Nursing</li> <li>• NSW Biodiversity Assessment Method Accredited Assessor (BAAS23015)</li> </ul>	<ul style="list-style-type: none"> <li>• Fieldwork</li> <li>• Report writing</li> </ul>

### 2.2 Monitoring

PCB monitoring occurred at the five quarry monitoring sites (sites 17, 18, 19, 20/21 and 24) and two control sites at the Cheetham Flats Travelling Stock Route (TSR), approximately 13 kilometres south-west of the Quarry on the 18 and 19 September 2025.

Monitoring was undertaken as per the BMP requirements in Section 1.1 in suitable weather conditions and within department guidelines. A top temperature of 18.8°C on the first day and 19.1°C on the second day was recorded at the nearest weather station at Lithgow, approximately eight kilometres south-east of the Quarry site. Nights were cool, and as such search effort was delayed each morning to allow for the temperature to increase to 15 °C. There was only a slight breeze at times and full sun at all times during monitoring.

See data recorded in Appendix A.

### 3 Results

#### 3.1 PCB

No PCB butterflies were recorded at any of the Quarry monitoring sites.

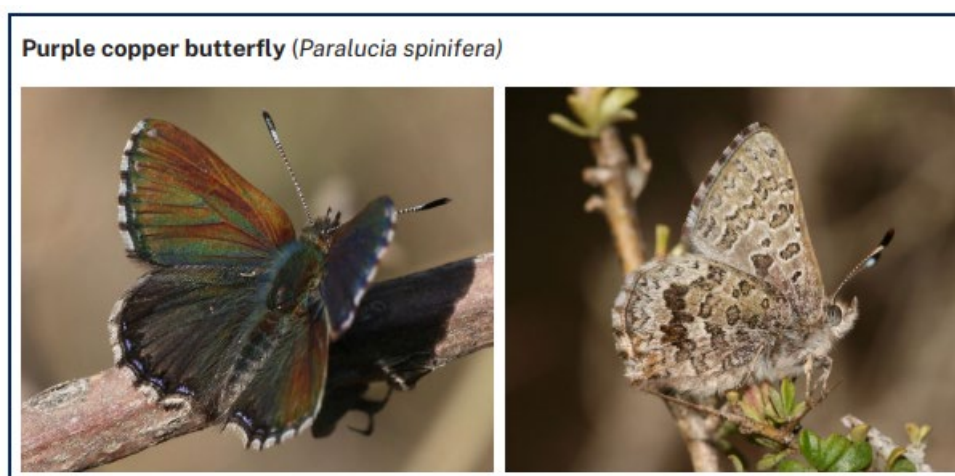
One PCB was recorded in the control site at Cheetham Flats Travelling Stock Route (TSR) approximately 13 kilometres south-west of the Quarry following a return to the site on 19 September 2025 (Plate 3-1). The individual was not sunning its wings, so the purple-copper colouring was not visible, but it was identifiable by the underside of its wing, see reference photos from the NSW Government ‘Counting Coppers’ fact sheet (NSW DCCEEW, 2025) in Figure 3-1 below.

Other butterfly species were recorded during monitoring (Appendix B), but these were not recorded in high numbers; only occasional individuals.

**Plate 3-1: PCB recorded at Cheetham Flats control site**



**Figure 3-1: NSW Government identification pictures of PCB**



### 3.2 *Anonychomyrma itinerans*

Ant activity across the monitoring sites was low with only the occasional individual ant noted on vegetation close to the *B. spinosa*. No *Anonychomyrma itinerans* ant species were detected during monitoring.

### 3.3 *Bursaria spinosa*

Past monitoring reports have mostly reported *B. spinosa* plants in the monitoring sites have been in good health. This differs to the results of this 2025 monitoring where many adult plants, particularly in sites 17, 18 and 19 appeared to be in poor health with dead or dying limbs and lichen covered branches. Healthy, flowering plants were sparse. Examples of unhealthy plants on the Quarry site are shown in Figure 3-2 below.

The cause for this decline, and whether it is a part of the natural life cycle of the plant, is unclear. There were no obvious disease processes occurring and no obvious dust or other Quarry related impacts which may be impacting plant health. Growing conditions appeared to be good, with other shrubs such as *Acacia* species and *Melicytus dentatus* (Tree Violet) growing and flowering strongly. See Section 5.4 for further discussion.

**Figure 3-2: Example of unhealthy *B. spinosa* plants**



Monitoring site 24 which is in the open maintained electricity transmission line easement appeared to have the healthiest *B. spinosa* individuals. This aligns with information in the NSW Threatened Species Scientific Committee Conservation Assessment of the purple copper butterfly (NSW DCCEEW, 2024) which states:

*Many sites are associated with high levels of disturbance which help maintain the open vegetation structure and abundance of Bursaria spinosa in the understorey and includes cattle grazing, roadsides, mining, or frequent fire. Sites are generally situated in areas in which B. spinosa receives high levels of solar radiation for much of the day.'*

Seedlings were recorded in all of the quarry monitoring sites but only recorded abundantly in monitoring site 19.

### 3.3.1 Other populations

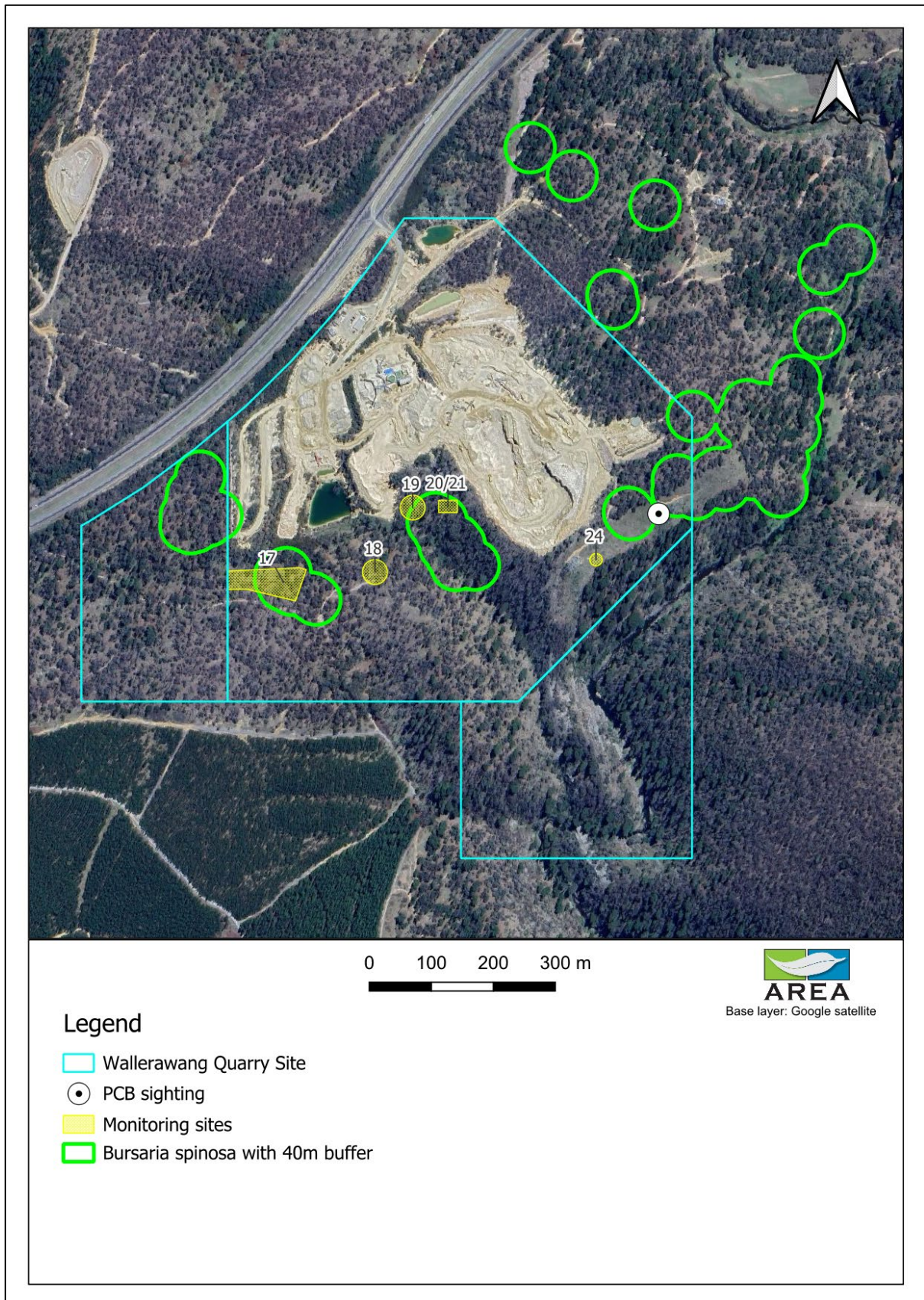
During other surveys in the location, AREA has identified other areas of *B. spinosa*, in and around the Quarry site which could potentially support PCB. These areas are mapped with a 40-metre buffer in Figure 4-1.

## 4 Other information

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A week following the 2025 PCB monitoring, AREA was informed that personnel representing NSW DCCEEW Conservation Programs, Heritage, and Regulation (CPHR) conducted monitoring within the powerline easement which traverses a portion of the Quarry site. A single PCB was recorded within the powerline easement, northeast and downhill from monitoring site 24 (Figure 4-1).

Figure 4-1: *B. spinosa* other locations



## 5 Discussion and Recommendations

### 5.1 Past results

It has previously been concluded by Ecoplanning (2022) that the population(s) which once occurred within the Quarry, *is likely to be locally extinct or very small and difficult to detect.*

A summary of the past monitoring results is shown in Table 5-1 below.

**Table 5-1: Past PCB monitoring results**

Year	Who	When	Any PCB seen?	<i>Anonychomyrma itinerans</i> ants seen?	Health of <i>B. spinosa</i>
2016	Lesryk	27 September	No*	No	Not specifically reported
2017	Lesryk	3 October	Yes, in the Cox's river control site	Yes, in the Cox's river control site	Not specifically reported
2018	Ecoplanning	23 October	Yes, in the Cheetham Flat control site	No	Healthy
2019	Ecoplanning	18 & 30 October	Yes, in the Cheetham Flat control site	No	Healthy
2020	Ecoplanning	29/30 October	No <sup>#</sup>	No	Healthy
2021	No report available	-	-	-	-
2022	Ecoplanning	10 October	No <sup>^</sup>	No	Healthy
2023	Ecoplanning	30 October	No <sup>**</sup>	No	Healthy
2024	Lesryk	24 September	No	Yes, at the Cheetham flat control site	Relatively healthy
2025	AREA	18/19 September	Yes, in the Cheetham Flat control site	No	Some unhealthy plants noted, particularly in Sites 17, 18 and 19.

\*The 2016 monitoring report stated that 'during the entire survey, the temperature did not appear to increase beyond the 12 degree mark'.

<sup>#</sup>The 2020 monitoring report stated 'The combination of an early active period for the species and prolonged wet, cloudy and cool conditions in early October restricted opportunities to undertake the PCB surveys'

<sup>^</sup>The 2022 monitoring report stated 'Survey timing for PCB, 10 October 2022, was identified as being towards the end of the typical active period for PCB. Prolonged wet, cloudy and cool conditions in September restricted opportunities to undertake the earlier during the season. Targeted surveys did not coincide with the optimal time for detection of the species.'

<sup>\*\*</sup>The 2023 monitoring report stated 'targeted surveys did not coincide with the optimal time for detection of the species'.

### 5.2 PCB

The BioNet Threatened Biodiversity Data Collection (TBDC) information for PCB states that 'individual adults only live for approximately two weeks and seasonal changes may influence the timing of the flying season. Larvae are detectable at night in December when they are in the later stages of development and escorted by many attendant ants'.

Monitoring in 2025 occurred in suitable weather conditions and within department guidelines, with consideration given to commencing monitoring once temperatures reached 15 °C. No PCB were detected at the Quarry monitoring sites. Despite this result, AREA believes there is not enough information available to conclude the local population is extinct.

Given the short monitoring time window, specific weather requirements and variation of monitoring timing and researchers, there is potential the PCB is present within suitable habitat on and surrounding the quarry site but may not have been monitored at a time when they are present **and** detectable. Ten minutes at each site once a year could easily miss the PCB presence window.

The identification of an individual PCB by CPHR near monitoring site 24 provides evidence that a population remains, potentially concentrated within the powerline easement where canopy tree species are removed and *B. spinosa* plants appears to be in better (healthier) condition.

### 5.3 *Anonychomyrma itinerans*

The absence of *Anonychomyrma itinerans* presence in monitoring cannot be said to suggest that PCB remain absent from the monitoring sites within the Quarry, especially when the TBDC states the ants are mostly active at night, in December, which is not when the monitoring has been undertaken.

### 5.4 *Bursaria spinosa*

The potential declining health of adult *B. spinosa* plants noted during the 2025 monitoring is concerning. The cause for this decline, and whether it is a part of the natural life cycle of the plant, is unclear. There were no obvious disease processes occurring and no obvious dust or other Quarry related impacts which may be impacting plant health.

The NSW Threatened Species Scientific Committee Conservation Assessment of the purple copper butterfly (NSW DCCEEW, 2024) lists adverse fire regimes as a threat to the PCB stating the following:

*The exclusion of fire from Paralucia spinifera habitat is considered a threat to the species in the absence of other disturbances that promote the regeneration of Bursaria. There is evidence that Paralucia spinifera is fire-adapted and responds positively to fire events although there is a lack of knowledge of how fire season influences the outcomes. The Lithgow Valley supports the highest concentration of sites within the range of the species, many of which have a history of repeated fire events. Both low and high intensity fires have been shown to be beneficial to P. spinifera: a very low intensity fire at Yetholme produced a significant increase in abundance, as did a high intensity fire at another site in Lithgow. Unpublished SOS monitoring data from 2020–2022 indicates that many of the Lithgow sites which burnt during the 2019–2020 fires still support P. spinifera, often in numbers greater than in previous years. Bursaria becomes senescent at sites in which fire has long been absent but may resprout from subterranean regenerative organs when burnt. Sporadic disturbance from fire may therefore promote a continuity of host foliage for the larvae.*

The Quarry site is not mapped on the NPWS Fire History - Wildfires and Prescribed Burns dataset as not having burnt at all in recent history.

Weed invasion and competition with *Bursaria* is listed another threat. The 2024 Biodiversity Monitoring Report (Ecoplanning, 2025) for the quarry noted the following:

*Exotic species richness remained relatively stable across most plots compared to previous years, however, substantial increases in exotic species cover were noted, largely due to the spread of *Anthoxanthum odoratum*\* (Sweet Vernal Grass). Given that exotic species cover now exceeds native cover in multiple plots, targeted weed control measures are recommended to prevent further encroachment and competition with native species.*

## 5.5 Recommendations

Following monitoring, AREA makes the following recommendations:

- Review and update the management measures nominated for PCB conservation in the BMP. It is recommended the review considers the results of monitoring conducted since 2016 and recommendations made by the reporting ecologists.
- The health of *B. Spinosa* plants onsite should be monitored closely and, if declining, consultation with relevant departments should be undertaken to investigate the health decline. Consider controlled cool burning of the population or alternative regenerative strategy.
- Consider staging monitoring across the potential detection period to increase the likelihood of detection.

## 6 References

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- Irwin Environmental. (2024). *Wallerawang Quarry Biodiversity Management Plan*. Retrieved from [https://walkerquarries.com.au/wp-content/uploads/2025/04/J002\\_BMP\\_V5.0\\_October-2024\\_cpr.pdf](https://walkerquarries.com.au/wp-content/uploads/2025/04/J002_BMP_V5.0_October-2024_cpr.pdf)
- NSW DCCEEW. (2024, August ). *Conservation Assessment of the purple copper butterfly *Paralucia spinifera**. Retrieved from <https://www.environment.nsw.gov.au/sites/default/files/2025-03/conservation-assessment-report-paralucia-spinifera.pdf>
- NSW DCCEEW. (2025, August). *Counting coppers: join the search for the purple copper butterfly*. Retrieved from <https://www.environment.nsw.gov.au/sites/default/files/2025-09/counting-coppers-search-purple-copper-butterfly-250320.pdf>

## Appendix A: Data recorded

### Quarry Site

Site: 17	
<b>Researchers</b>	Addy Watson and Genevieve Peel
<b>Location</b>	E 227705 N6296313; Elevation ≈ 922m ASL
<b>Date and Time</b>	18/09/2025 2.05-2.30pm
<b>Weather</b>	Warm, sunny and fine, no cloud
<b>Site aspect</b>	North facing slope, ≈10°
<b>Size of stand</b>	100m x 30m
<b>Butterflies observed</b>	No Purple Copper Butterflies recorded Other butterfly species: Painted lady, Meadow Argus, Blotched blue
Blackthorn	
<b>Number of plant present</b>	50-100
<b>Shrub height range</b>	0.1 – 4m
<b>Mature plants present Y/N</b>	Yes
<b>Any new growth Y/N</b>	Yes but rare
<b>Seedlings present Y/N</b>	Yes, rarely
<b>Evidence of grazing Y/N</b>	Yes, occasional
<b>Ants present?</b>	No
<b>Insects present?</b>	Termite mounds, European bee, small moth, blowfly
<b>Weeds</b>	Exotic pine
<b>Action required, other comments</b>	Quite a few dead plants in 1m-1.5m range

Site: 18	
<b>Researchers</b>	Addy Watson and Genevieve Peel
<b>Location</b>	E227860 N6296344; Elevation ≈917 ASL
<b>Date and Time</b>	18/09/2025, 1.40pm-2.05pm
<b>Weather</b>	Fine, sunny, no cloud, slight breeze
<b>Site aspect</b>	North facing slope, ≈5°
<b>Size of stand</b>	20m x 20m
<b>Butterflies observed</b>	No Purple Copper Butterflies recorded Other butterfly species: Blotched blue
Blackthorn	
<b>Number of plant present</b>	50-100
<b>Shrub height range</b>	0.1-2m
<b>Mature plants present Y/N</b>	Yes
<b>Any new growth Y/N</b>	Yes
<b>Seedlings present Y/N</b>	No – mostly poor leaf cover
<b>Evidence of grazing Y/N</b>	No

<b>Ants present?</b>	Yes – large golden ants, not <i>Anonychomyrma itinerans</i>
<b>Insects present?</b>	Yes – moths and grass dart
<b>Weeds</b>	Low
<b>Action required, other comments</b>	Most of the Bursaria in the site was woody and bare. There is the occasional dead adult plant.

Site: 19	
<b>Researchers</b>	Addy Watson
<b>Location</b>	E227949 N6296467; Elevation ≈915 ASL
<b>Date and Time</b>	18/9/2025, 11.54 – 12.16pm
<b>Weather</b>	Warm, fine and sunny, no clouds, very slight breeze.
<b>Site aspect</b>	East facing slope, ≈30°
<b>Size of stand</b>	20m x 20m
<b>Butterflies observed</b>	Meadow Argus butterfly observed nearby
<b>Blackthorn</b>	
<b>Number of plant present</b>	≈50 individuals
<b>Shrub height range</b>	0.1-3.5m
<b>Mature plants present Y/N</b>	Y
<b>Any new growth Y/N</b>	Y abundant
<b>Seedlings present Y/N</b>	Y
<b>Evidence of grazing Y/N</b>	N – Wallaroo present though
<b>Ants present?</b>	1 x ant on grass on base of Bursaria, could not be identified
<b>Insects present?</b>	Yes – native bee, blowfly, European bee
<b>Weeds</b>	Blackberry present
<b>Action required, other comments</b>	Some plant branches somewhat bare

Site: 20/21	
<b>Researchers</b>	Addy Watson
<b>Location</b>	E228015 N6296395; Elevation ≈910 ASL
<b>Date and Time</b>	18/09/2025; 12.20-12.41pm
<b>Weather</b>	Warm, fine, no cloud, slight breeze
<b>Site aspect</b>	South facing slope, ≈30°
<b>Size of stand</b>	30m x 20m
<b>Butterflies observed</b>	Meadow Argus butterfly observed nearby
<b>Blackthorn</b>	
<b>Number of plant present</b>	>100
<b>Shrub height range</b>	0.1-2m
<b>Mature plants present Y/N</b>	Yes

<b>Any new growth Y/N</b>	Yes
<b>Seedlings present Y/N</b>	No but plants well-leaved and green
<b>Evidence of grazing Y/N</b>	Yes – Wallaroos present and grasses grazed
<b>Ants present?</b>	1 x small black ant crawled on observer
<b>Insects present?</b>	Yes - blowflies
<b>Weeds</b>	Exotic pine
<b>Action required, other comments</b>	n/a

Site: 24	
<b>Researchers</b>	Addy Watson, Phillip Cameron, Genevieve Peel
<b>Location</b>	E228230 N6296375; Elevation ≈ 955m ASL
<b>Date and Time</b>	18/09/2025 2.05-2.30pm
<b>Weather</b>	Fine and sunny, warming fast after cold night, very slight breeze
<b>Site aspect</b>	North-east facing slope, ≈20°
<b>Size of stand</b>	20m x 10m
<b>Butterflies observed</b>	One small white in site and Painted lady seen adjacent to site
Blackthorn	
<b>Number of plant present</b>	10-50
<b>Shrub height range</b>	0.3-2.5m
<b>Mature plants present Y/N</b>	Yes
<b>Any new growth Y/N</b>	Yes
<b>Seedlings present Y/N</b>	No
<b>Evidence of grazing Y/N</b>	No
<b>Ants present?</b>	1 x small black ant, not on Bursaria
<b>Insects present?</b>	Yes = small fly and grasshopper
<b>Weeds</b>	No
<b>Action required, other comments</b>	Generally in good health, well leaved but Bursaria plants are sparse within the site

### Control Sites – Cheetham Flats TSR

Control 1 – Cheetham Flats TSR (GB74-N)	
<b>Researchers</b>	Addy Watson, Phillip Cameron, Genevieve Peel
<b>Location</b>	E226173 N6283576; Elevation ≈1050m ASL
<b>Date and Time</b>	18/09/2025 08.50-09.15am
<b>Weather</b>	Fine and sunny, cool morning warming rapidly, no wind
<b>Site aspect</b>	Flat
<b>Size of stand</b>	20m x 20m
<b>Butterflies observed</b>	None

Blackthorn	
Number of plant present	Many
Shrub height range	0.5-3.5m
Mature plants present Y/N	Yes
Any new growth Y/N	Yes – but few, 45cm smallest
Seedlings present Y/N	Yes
Evidence of grazing Y/N	Yes
Ants present?	None seen
Insects present?	Native bees, moth, spitfire caterpillars, orange butterfly
Weeds	Blackberry and spear thistle
Action required, other comments	Some dead timber and branchlets on older plants. Flowering acacias present

Control 2 - Cheetham Flats TSR (GB109-N)	
Researchers	Addy Watson, Phillip Cameron, Genevieve Peel
Location	E226142 N6283626; Elevation ≈1050m ASL
Date and Time	18/09/2025 09.20-09.40am
Weather	Fine, warm sunny, low breeze
Site aspect	Flat
Size of stand	20x20m
Butterflies observed	Meadow argus, Blotched Blue
Blackthorn	
Number of plant present	Many
Shrub height range	1-8m
Mature plants present Y/N	Y
Any new growth Y/N	Y
Seedlings present Y/N	Y
Evidence of grazing Y/N	Y
Ants present?	N
Insects present?	Native bees,
Weeds	Blackberry, spear thistle, fishbone fern, London rocket, stinging nettle, Amaranth.
Action required, other comments	Some dead timber in older plants. Grass cover mostly exotic including soft Brome

## Appendix B: Other butterflies recorded

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### Blotched Blue *Erina Acasta*



**Australian Painted Lady *Vanessa kershawi***



**Meadow Argus *Junonia villida***



**Australian Admiral *Vanessa itea***



**Caper White *Belenois java***



**White Cabbage Butterfly *Pieris rapae* (Introduced)**

