
PRIORITY SPECIES GRANTS (ERFIP000263)

COLLARED DELMA PROJECT – PROPERTY SURVEYS
Pullen Pullen Catchment & Kholo Creek Catchment

FINAL

APRIL 2023
2303_04_002_R_Rev0



Document information			
Client:	Pullen Pullen Catchment Group & Kholo Creek Catchment Group		
Title:	Priority Species Grants (ERFIP000263) Collared Delma Project property surveys		
Document number:	2303_04_002_R_Rev0		
Version:	Final rev0		
Date:	26 April 2023		
Distribution:	Pullen Pullen Catchment Group – one PDF Kholo Creek Catchment Group – one PDF		
© Dogwood Ecology			
<p>Copyright in the drawings, information, and data recorded in this document (the information) is the property of Dogwood Ecology, and are subject to copyright pursuant to the <i>Copyright Act 1968</i> (Cth). This document and the information are solely for the use of the authorised recipient and this document may not be used, copied, or reproduced in whole or part for any purpose other than that for which it was supplied by Dogwood Ecology. Dogwood Ecology makes no representation, undertakes no duty, and accepts no responsibility to any third-party who may use or rely upon this document or the information.</p>			
Purpose of this report			
<p>Dogwood Ecology has produced this Collared Delma Project property surveys report (the "report") in its capacity as consultants for and on the request of Pullen Pullen Catchment Group (the "client") for the sole purpose of confirming the presence of Collared Delmas on selected properties as part of the Collared Delma Project under the Priority Species Grants (ERFIP000263) (the "specified purpose"). The information and any recommendations in this report are particular to the specified purpose and are based on facts, matters, and circumstances particular to the subject matter of the report and the specified purpose at the time of production. This report is not to be used, nor is it suitable, for any purpose other than the specified purpose. Dogwood Ecology disclaims all liability for any loss and/or damage whatsoever arising either directly or indirectly because of any application, use, or reliance upon the report for any purpose other than the specified purpose.</p> <p>This report has been produced solely for the benefit of the client. Dogwood Ecology does not accept that a duty of care is owed to any party other than the client. This report is not to be used by any third-party other than as authorised in writing by Dogwood Ecology, and any such use shall continue to be limited to the specified purpose. Dogwood Ecology does not make any warranty, express or implied, or assume any legal liability or responsibility for any third-party's use in whole or in part of the report or application or use of any other information or process disclosed in this report, and to the full extent allowed by law, excludes liability in contract, tort or otherwise, for any loss or damage sustained by any person or body-corporate arising from or in connection with the supply or use of the whole part of the report through any cause whatsoever.</p> <p>Dogwood Ecology has used information collected by Dogwood Ecology, and provided to it by the client and governmental registers, databases, departments, and agencies in the preparation of this report. Dogwood Ecology does not know, nor does it have any reason to suspect, that the information provided to it was false, inaccurate, incomplete, or misleading at the time of its receipt. This report is supplied on the basis that while Dogwood Ecology believes all the information in it is deemed reliable at the time of publication, it does not warrant its accuracy or completeness and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by any person or body-corporate arising from or in connection with the supply or use of the information, in whole or any part of the information in this report through any cause whatsoever.</p>			
Document owner			
<p>Dogwood Ecology ABN: 75157071927 18 Moledina Crescent, Mount Crosby, 4306 Tel: 0429 056 995 Email: mervyn@dogwoodecology.com www.dogwoodecology.com</p>			

Contents

Introduction	1
Context and background	1
Survey methods	3
Results	5
Discussion and recommendations	16
References	17
Tables	
Table 1: Collared Delma survey findings by property	5
Figures	
Figure 1: Burton’s Legless-lizard, a commonly encountered flap-footed lizard species in South-east Queensland	2
Figure 2: Two Collared Delmas from Mount Crosby	2
Figure 3: Locations of the properties surveyed for Collared Delma	4
Figure 4: Collared Delma from property3, Pullenvale	5
Figure 5: A shed skin of a flap-footed lizard found on property 5	15
Appendix A: Reptile species recorded on each property	

Introduction

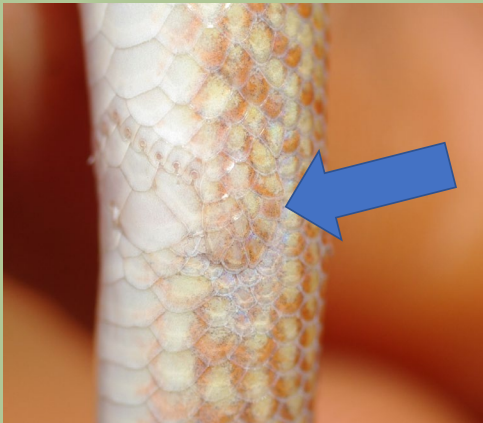
This report presents the findings and observations made during targeted surveys for the Collared Delma (*Delma torquata*) on private properties in the western suburbs of Brisbane. The surveys were completed as part of the 'Collared Delma Project' under the federally funded *Threatened Species Action Plan – Priority Species Grants – ERFIP000263* programme.

Context and background

The flap-footed lizards (within the family Pygopodidae, and closely related to the geckos) are unique to Australia and New Guinea consisting of at least 35 described species (Cogger, 2019). Given their appearance, that is, lacking eyelids and obvious limbs, they could be confused with snakes. However, they do have rear limbs, albeit much reduced to a scaly flap – hence the common name. They also have a broad, fleshy tongue, unlike a snake's narrow one (see Box 1).

Within South-east Queensland, at least five species of flap-footed lizards can be encountered. Probably the most readily seen is Burton's Legless-lizard (*Lialis burtonis*) with its distinctive pointed snout (Figure 1). Others include the Leaden Delma (*Delma plebia*), Black-necked Delma (*D. tincta*), Collared Delma, and Common Scaly-foot (*Pygopus lepidopodus*). All five of these species can be encountered in dry sclerophyll forest with a grassy understorey (Wilson, 2022), habitat scattered throughout the western suburbs of Brisbane.

Box 1: When is it a flap-footed lizard and not a snake?



Unlike snakes, flap-footed lizards have rear limbs, which are reduced to scaly flaps near their vent (left). Their tongues are thick and fleshy, not skinny, although they are slightly forked (right).



Figure 1: Burton's Legless-lizard, a commonly encountered flap-footed lizard species in South-east Queensland

Of the 35 described species of flap-footed lizard, at the national level, at least three are listed as threatened under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) – the Striped Legless Lizard (*D. impar*), the Atherton Delma (*D. mitella*), and the Collared Delma. Two of these, the Atherton Delma and the Collared Delma are listed as threatened (that is, vulnerable) under Queensland's *Nature Conservation Act 1992* (NC Act).

The Collared Delma (Figure 2), listed as vulnerable under the EPBC Act and the NC Act, is a species restricted to Queensland, from south of Rockhampton, west of Mitchell, and to the western suburbs of Brisbane (Atlas of Living Australia, 2023; Hines et al., 2000; Porter, 1998). Brisbane's western suburbs are a known stronghold of the Collared Delma; indeed, it is from here that this species was first described (Porter, 1998).

Within this distributional range, and certainly within the western suburbs, Collared Delmas appear to prefer open forest with a grassy understorey, and scattered rocks (Hines et al., 2000; Porter, 1998). It is this habitat that is under threat from development and invasive weeds. A recognised key threatening process for this species is the spread of the invasive Creeping Lantana (*Lantana montevidensis*) (Department of Climate Change Energy the Environment and Water, 2023), which is not uncommon in the western suburbs.



Figure 2: Two Collared Delmas from Mount Crosby

Survey methods

Surveys were completed between 12 October and 2 November 2022, and 22 February and 28 March 2023 by Mervyn Mason (Dogwood Ecology) and Justin Watson (Gondwana Ecology Group).

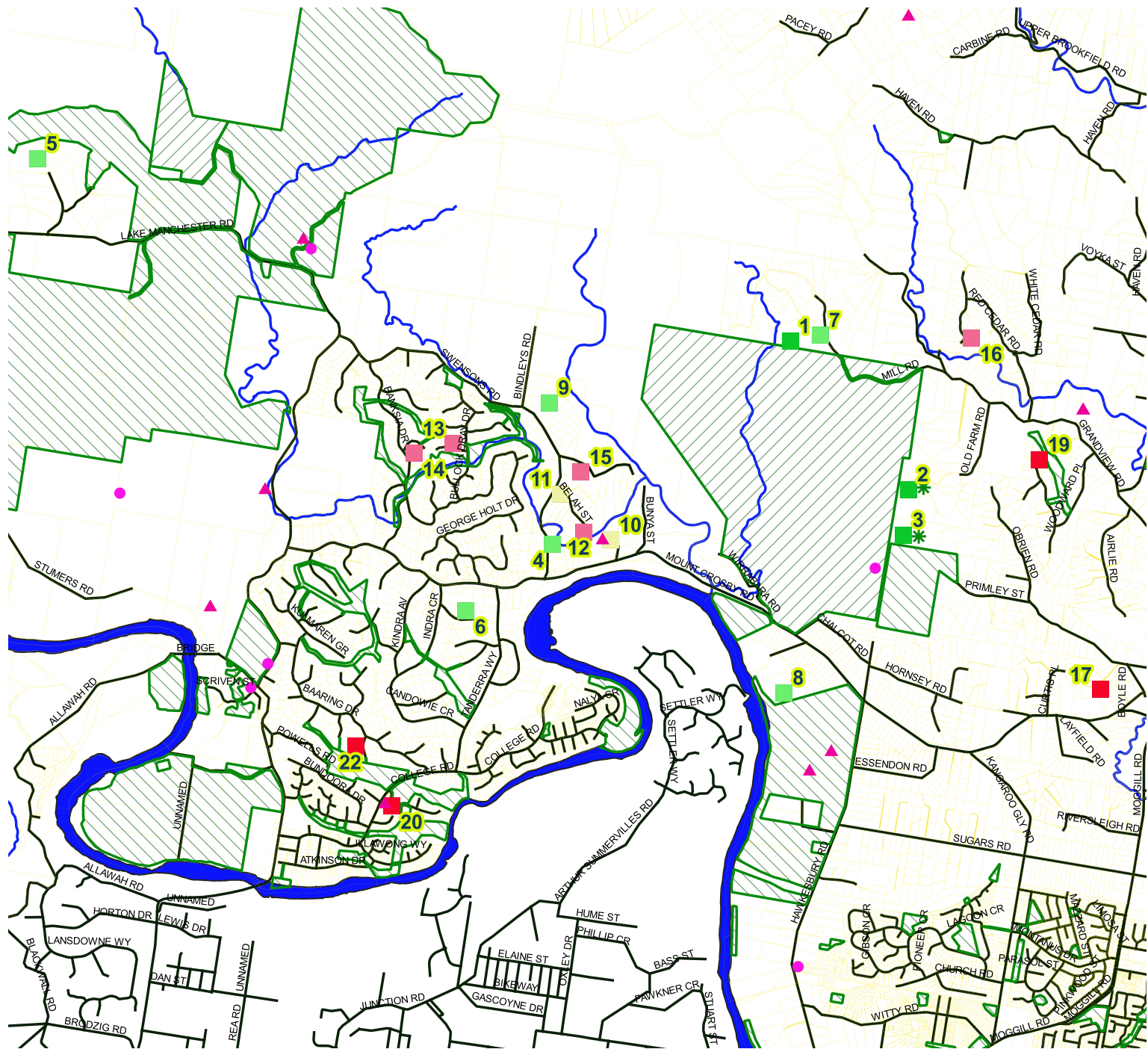
Twenty private properties were identified to be assessed. The process for identifying suitable properties began with an open request to landholders within the Pullen Pullen and Kholo Creek catchments to submit an expression of interest (Eoi) to be involved in the project. Those Eois were screened against a set of criteria by the Collared Delma Project Team (the “team”). As part of that screening, each property was visited by two experienced members of the team who assessed the property based on: known occurrences of Collared Delmas; quality of the habitat; and a probability for Collared Delmas to occur. For a detailed description of that process, see the main project report.

From that screening process, 22 private properties were identified that could harbour populations of Collared Delma. These were ranked from 1 to 5, with 1 being very good habitat, and highly likely that Collared Delmas would occur (that is, probable habitat), to 5, being highly modified or disturbed habitat where Collared Delmas were unlikely to occur (that is, very marginal habitat) (see Figure 3). The initial surveys, completed in October and November 2022, focused on the top 11 properties that had a ranking of 1 to 3 only. However, based on anecdotal records of Collared Delmas occurring in disturbed environments, and to be wholly inclusive of all the properties that were assessed as part of the project, those properties ranked 4 and 5 were included in the February and March 2023 survey rounds. Based on property access, 20 properties were ultimately surveyed of the original 22 (Figure 3).

The survey approach for each property followed best practice known to be effective at detecting Collared Delmas; that is, lifting suitable habitat-rocks within suitable habitat and looking for animals or sloughs (shed skins) underneath the rocks (Steve Peck, personal communication; Department of Sustainability Environment Water Population and Communities, 2011; Eyre et al., 2018). All rocks were placed back in the same position as they were found.

Time spent searching varied between properties, and depended on the number of rocks within suitable habitat on each property. Searching continued until all suitable habitat-rocks were assessed, or until a Collared Delma was found. Typically, survey effort was between one to four person-hours per property. For those properties where habitat enhancement and weed management was undertaken, the 2023 surveys mostly focused on those areas where habitat enhancement activities occurred. All other reptile species observed during the surveys were also recorded for each property.

All works were completed under Queensland Department of Environment and Science Research Permit WA0036899, and Queensland Department of Agriculture and Fisheries animal ethics approval CA 2021/07/1518.



Legend

Properties surveyed and their habitat assessment ranks

- 1 - Probable habitat
- 2 - Possible habitat
- 3 - Possible habitat
- 4 - Marginal habitat
- 5 - Very marginal habitat

- ✱ Collared Delma populations confirmed
- ▲ ALA Collared Delma records

- State protected areas
- BCC parks and protected areas
- Roads
- Water
- Watercourses
- Property boundaries

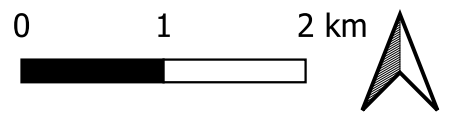


Figure 3. Locations of the properties surveyed for Collared Delma



Results


Collared Delmas were confirmed on two properties: property 2 and 3, both in Pullenvale, (Figure 4). Both properties had a habitat score-ranking of 1 (Table 1). Although no Collared Delmas were confirmed on the remaining properties, suitable habitat does occur on most of those properties, albeit that some of the habitat was in various states of weed infestation and/or physical disturbance (Table 1).



According to the owners of three of the properties where Collared Delmas were not encountered during the current surveys (that is, properties 10 and 11, in Mount Crosby, and property 17, in Pullenvale), this species has been seen on their properties. The most recent sighting was in 2019 on property 11.







Figure 4: Collared Delma from property3, Pullenvale



Table 1: Collared Delma survey findings by property



Property	Notes and observations	Representative site photograph
Property 1, Pullenvale	<p>Habitat ranking: 1 Survey effort: 6 person hours</p> <p><u>Habitat:</u> West facing slopes with mixed forest dominated by Spotted Gum (<i>Corymbia variegata</i>) and Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>). Dense midstorey of mixed wattles, and peas. Groundcover of mixed grasses and forbs. Large boulders and scree slopes, with scattered smaller rocks scattered downslope. No habitat enhancement occurring.</p> <p><u>Observations:</u> Closed canopy with dense midstorey that shades the ground. Scree slopes dominate, with large, embedded rocks. Good diversity of ground-dwelling skinks. Many habitat rocks with ant nests, large centipedes. Small invertebrate populations good.</p> <p>Likely Collared Delma habitat</p>	



Property	Notes and observations	Representative site photograph
<p>Property 2, Pullenvale</p>	<p>Habitat ranking: 1 Survey effort: 3 person hours <u>Collared Delma confirmed</u> <u>Habitat:</u> South and south-west facing slopes with mixed open forest dominated by Spotted Gum (<i>Corymbia variegata</i>) and Grey Gums (<i>Eucalyptus major</i>). Very open midstorey of mixed wattles and peas. Dense groundcover of mixed grasses and forbs. Scattered smaller rocks throughout area. No habitat enhancement occurring. <u>Observations:</u> Open canopy with very sparse midstorey. Good diversity of ground-dwelling skinks and blindsnakes. Small invertebrate populations good. Confirmed Collared Delma habitat</p>	
<p>Propert 3, Pullenvale</p>	<p>Habitat ranking: 1 Survey effort: 3 person hours <u>Collared Delma confirmed</u> <u>Habitat:</u> West facing slopes with mixed open forest dominated by Spotted Gum (<i>Corymbia variegata</i>) and Grey Gums (<i>Eucalyptus propinqua</i>). Very open midstorey of mixed wattles and peas. Dense groundcover of mixed grasses and forbs. Scattered smaller rocks throughout area. No habitat enhancement occurring. <u>Observations:</u> Open canopy with very sparse midstorey. Good diversity of ground-dwelling skinks and blindsnakes. Small invertebrate populations good. Confirmed Collared Delma habitat</p>	



Property	Notes and observations	Representative site photograph
<p>Property 4, Mt Crosby</p>	<p>Habitat ranking: 2 Survey effort: 4 person hours <u>Habitat:</u> East facing slopes with mixed closed forest dominated by Spotted Gum (<i>Corymbia variegata</i>) and Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>). Stand of Hoop Pine (<i>Araucaria cunninghamii</i>). Dense to open midstorey of wattles and other native shrubs. Dense groundcover of Creeping Lantana (<i>Lantana montevidensis</i>), mixed grasses and forbs. Scattered smaller rocks throughout area under lantana and on north-facing slope. Habitat enhancement occurring. <u>Observations:</u> Closed canopy. Very dense weed cover. Good patches of Kangaroo Grass (<i>Themeda triandra</i>) and Blady Grass (<i>Imperata cylindrica</i>). Good diversity of ground-dwelling skinks and blindsnakes. Small invertebrate populations good. Likely Collared Delma habitat</p>	
<p>Property 5, Kholo</p>	<p>Habitat ranking: 2 Survey effort: 4 person hours <u>Habitat:</u> East facing slopes with mixed closed forest dominated by Spotted Gum (<i>Corymbia variegata</i>) and Gum-topped Box (<i>Eucalyptus molucanna</i>). Very sparse and open midstorey of wattles. Poor groundcover of mixed grasses and forbs. Scattered smaller rocks throughout area. Habitat enhancement occurring. <u>Observations:</u> Closed canopy with very sparse midstorey. Good diversity of ground-dwelling skinks and blindsnakes. Small invertebrate populations good. Likely Collared Delma habitat</p>	



Property	Notes and observations	Representative site photograph
<p>Property 6, Karana Downs</p>	<p>Habitat ranking: 2 Survey effort: 4 person hours <u>Habitat:</u> West facing slopes with mixed closed forest dominated by Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>) and Spotted Gum (<i>Corymbia variegata</i>). Sparse and open midstorey of wattles, Canthium, juvenile eucalypts. Dense groundcover of Creeping Lantana (<i>Lantana montevidensis</i>), mixed grasses and forbs. Scattered smaller rocks throughout area under lantana. Habitat enhancement occurring. <u>Observations:</u> Closed canopy with very sparse midstorey. Very dense weed cover. Good patches of Kangaroo Grass (<i>Themeda triandra</i>) and Blady Grass (<i>Imperata cylindrica</i>). Good diversity of ground-dwelling skinks and blindsnakes. Small invertebrate populations good. Likely Collared Delma habitat</p>	
<p>Property 7, Pullenvale</p>	<p>Habitat ranking: 2 Survey effort: 4 person hours <u>Habitat:</u> East facing slopes with mixed closed forest dominated by Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>) and Spotted Gum (<i>Corymbia variegata</i>). Sparse midstorey of wattles, juvenile eucalypts and other trees. Dense groundcover of mixed grasses and forbs. Scattered smaller rocks throughout area under lantana. Habitat enhancement occurring. <u>Observations:</u> Closed canopy with very sparse midstorey. Very dense weed cover in patches. Rocks very hot in the morning. Small invertebrate populations good. Likely Collared Delma habitat</p>	



Property	Notes and observations	Representative site photograph
<p>Property 8, Anstead</p>	<p>Habitat ranking: 2 Survey effort: 4 person hours <u>Habitat:</u> South-west facing slopes with mixed open forest dominated by Red Gums (<i>Eucalyptus terreticornis</i>), Pink Bloodwood (<i>Corymbia intermedia</i>) and Spotted Gum (<i>Corymbia variegata</i>). Sparse midstorey of wattles and juvenile eucalypts. Dense groundcover of mixed grasses and weeds. Very scattered smaller rocks throughout area. Habitat enhancement occurring. <u>Observations:</u> Closed canopy with very sparse midstorey. Very few suitable habitat rocks. Very dense weed cover. Small invertebrate populations good. Habitat similar to known Collared Delma habitat in Anstead Bushland Reserve. Likely Collared Delma habitat</p>	
<p>Property 9, Mt Crosby</p>	<p>Habitat ranking: 2 Survey effort: 4 person hours <u>Habitat:</u> South-west facing slope with mixed open forest dominated by Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>), Hickory Wattle (<i>Acacia disparrima</i>), and Red Ash (<i>Alphitonia excelsa</i>). Sparse midstorey of wattles and juvenile eucalypts. Dense groundcover of mixed grasses, forbs, and weeds. Large boulders, and rock platforms. Habitat enhancement occurring. <u>Observations:</u> Very few suitable habitat rocks. Very dense weed cover. High densities of Forest Scorpions (<i>Liocheles waigiensis</i>) and Scolopendrid centipedes (both potential predators of Collared Delmas). Likely Collared Delma habitat</p>	

Property	Notes and observations	Representative site photograph
<p>Property 10, Mt Crosby</p>	<p>Habitat ranking: 3 Survey effort: 4 person hours <u>Habitat:</u> West facing slope with mixed regrowth dominated by Spotted Gum (<i>Corymbia variegata</i>), Hickory Wattle (<i>Acacia disparrima</i>), and Dogwood (<i>Jacksonia scopraria</i>). Very sparse midstorey. Very sparse groundcover of mixed grasses, forbs. Leaf litter. Habitat enhancement occurring. <u>Observations:</u> No suitable habitat rocks. Small invertebrate populations good. Collared Delma records from 2008, 2010, and 2014. Likely Collared Delma habitat</p>	
<p>Property 11, Mt Crosby</p>	<p>Habitat ranking: 3 Survey effort: 4 person hours <u>Habitat:</u> South-west facing slope with mixed open forest dominated by Spotted Gum (<i>Corymbia variegata</i>) and Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>). Sparse midstorey. Good groundcover of mixed native grasses, forbs. Leaf litter. Scattered habitat rocks. Habitat enhancement occurring. <u>Observations:</u> Suitable habitat rocks. Leaf litter. Good population of ground-dwelling skinks. Small invertebrate populations good. Collared Delma seen in 2019. Likely Collared Delma habitat</p>	

Property	Notes and observations	Representative site photograph
<p>Property 12, Mt Crosby</p>	<p>Habitat ranking: 4 Survey effort: 1 person hour <u>Habitat:</u> South facing slope with mixed open forest dominated by Spotted Gum (<i>Corymbia variegata</i>) and Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>). Occasional Gum-topped Box (<i>E. mollucana</i>). Open to mid-dense midstorey of wattles. Dense groundcover of Creeping Lanatana (<i>Lantana montevidensis</i>), mixed grasses and forbs. Many rocks exposed on the surface. No habitat enhancement occurring. <u>Observations:</u> Open canopy with open midstorey. Good diversity of ground-dwelling skinks. Small invertebrate populations good. Likely Collared Delma habitat</p>	
<p>Property 13, Mt Crosby</p>	<p>Habitat ranking: 4 Survey effort: 1 person hour <u>Habitat:</u> North facing slope with mixed closed regrowth forest dominated by Spotted Gum (<i>Corymbia variegata</i>) and Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>). Occasional Grey Gum (<i>E. major</i>). Very open midstorey. Dense groundcover of Creeping Lanatana (<i>Lantana montevidensis</i>), mixed grasses and forbs. No rocks exposed on the surface. No habitat enhancement occurring. <u>Observations:</u> Closed canopy with open midstorey. Good diversity of ground-dwelling skinks. Small invertebrate populations good. Likely Collared Delma habitat</p>	

Property	Notes and observations	Representative site photograph
<p>Property 14, Mt Crosby</p>	<p>Habitat ranking: 4 Survey effort: 1 person hour <u>Habitat:</u> North-east facing slopes with mixed closed forest dominated by Spotted Gum (<i>Corymbia variegata</i>) and Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>). Occasional Grey Gum (<i>E. major</i>). Very dense midstorey of wattles and Lantana (<i>Lantana camara</i>). Dense groundcover of Creeping Lanatana (<i>Lantana montevidensis</i>), mixed grasses and forbs. No rocks exposed on the surface. No habitat enhancement occurring. <u>Observations:</u> Closed canopy with open midstorey. Good diversity of ground-dwelling skinks. Small invertebrate populations good. Marginal Collared Delma habitat</p>	
<p>Property 15, Mt Crosby</p>	<p>Habitat ranking: 4 Survey effort: 1 person hour <u>Habitat:</u> North facing slope with mixed open forest dominated by Spotted Gum (<i>Corymbia variegata</i>) and Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>), with Soap Ash (<i>Alphitonia excelsa</i>). Very sparse to no midstorey. Very dense groundcover of Creeping Lanatana (<i>Lantana montevidensis</i>), mixed grasses, forbs. Leaf litter. Most of the understory is regularly slashed and maintained. No habitat enhancement occurring. <u>Observations:</u> No suitable habitat rocks. Small invertebrate populations good. High concentrations of ants. Marginal Collared Delma habitat</p>	

Property	Notes and observations	Representative site photograph
<p>Property 16, Pullenvale</p>	<p>Habitat ranking: 4 Survey effort: 1 person hour <u>Habitat:</u> South-east facing slopes with mixed closed forest dominated by Spotted Gum (<i>Corymbia variegata</i>) and Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>). Occasional Grey Gum (<i>E. major</i>). Very dense midstorey of wattles, young eucalupts, and Lantana (<i>Lantana camara</i>). Very sparse groundcover of mixed grasses and forbs. No rocks throughout area. No habitat enhancement occurring. <u>Observations:</u> Closed canopy with very dense midstorey. Good diversity of ground-dwelling skinks. Small invertebrate populations good. Marginal Collared Delma habitat</p>	
<p>Property 17, Pullenvale</p>	<p>Habitat ranking: 5 Survey effort: 1 person hour <u>Habitat:</u> Manicured and cultivated garden. Plantings of native trees along boundary of property. Some native groundcovers and shrubs planted to improve native habitat by property owner. No habitat enhancement occurring. <u>Observations:</u> Very limited suitable habitat. Small invertebrate populations good. High concentrations of ants. Historical record of Collared Delma on the property from 2008 in leaf litter of exotic Cadaghi Tree (<i>Corymbia torrelliana</i>). Marginal Collared Delma habitat</p>	

Property	Notes and observations	Representative site photograph
<p>Property 19, Pullenvale</p>	<p>Habitat ranking: 5 Survey effort: 1 person hour <u>Habitat:</u> North facing bank of Pullen Pullen Creek. Mixed riverine vegetation with Hoop Pines (<i>Araucaria cunninghamii</i>) and Watergum (<i>Tristaniopsis laurina</i>). Very sparse midstorey with scattered plantings. Very dense groundcover of mixed non-native grasses, forbs. Little to no leaf litter. Large areas manicured and maintained. No habitat enhancement occurring. <u>Observations:</u> No suitable habitat rocks. Small invertebrate populations good. High concentrations of ants. Marginal Collared Delma habitat</p>	
<p>Property 20, Karana Downs</p>	<p>Habitat ranking: 5 Survey effort: 1 person hour <u>Habitat:</u> Manicured and cultivated garden. Plantings of non-native ornamental and fruit trees and vegetables. No habitat enhancement occurring. <u>Observations:</u> Very limited suitable habitat. Small invertebrate populations good. High concentrations of ants. Historical record of Collared Delma on neighbouring property (Figure 3). Very marginal Collared Delma habitat</p>	


Property	Notes and observations	Representative site photograph
Property 22, Karana Downs	<p>Habitat ranking: 5 Survey effort: 1 person hour</p> <p><u>Habitat:</u> West facing slope with mixed regrowth dominated by Spotted Gum (<i>Corymbia variegata</i>), Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>), Grey Gum (<i>E. major</i>), Hickory Wattle (<i>Acacia disparrima</i>), and Soap Ash (<i>Alphitonia excelsa</i>). Very sparse midstorey. Very dense groundcover of Creeping Lanatana (<i>Lantana montevidensis</i>), mixed grasses, forbs. Leaf litter. Large areas manicured and maintained.</p> <p>No habitat enhancement occurring.</p> <p><u>Observations:</u> No suitable habitat rocks. Small invertebrate populations good. High concentrations of ants.</p> <p>Marginal Collared Delma habitat</p>	



Figure 5: A shed skin of a flap-footed lizard found on property 5

Most properties had a good diversity of small reptiles and invertebrates. Twenty-five reptile species were recorded across all the properties (Appendix A). These species are typical of the area, and all, except the Collared Delma, are listed as “least concern” under the NC Act.

The shed skins (sloughs) of larger flap-footed lizards were encountered (Figure 5) indicating that these species are also likely to occur in the area. No Collared Delma sloughs were encountered.

Discussion and recommendations

Twenty privately owned properties across the western suburbs of Brisbane were surveyed for the presence of Collared Delmas. Although Collared Delmas were only confirmed on two properties during the surveys (that is, properties 2 and 3, in Pullenvale), there is a good likelihood that these lizards could occur on most of the other properties within suitable habitat. The detection probability of this species is quite low, and discussions with landholders identified that Collared Delmas have been recorded on three of the properties where they were not detected during the current surveys. Therefore, it cannot be stated for certain that Collared Delmas do not occur on the other properties. Based on this, the following recommendations are made:

1. On-going communication with property owners should occur in the near to mid future to maintain the engagement of those stakeholders regarding the conservation and management of Collared Delma habitat on their properties. This will also go some way in building a wider community awareness and support-base for the long-term awareness and conservation of this species.
2. If not already occurring on those properties where weed management and habitat enhancement is occurring, habitat-rocks should be placed within suitable habitat as part of the weeding and habitat enhancement process. Based on our observations, and those of Steve Peck, habitat rocks are those of 10 cm to 30 cm average diameter, with a flat base. These should be placed directly on the ground and not imbedded.
3. Similarly, within areas around in-place rocks that have been cleared of weeds, habitat-rocks and mulch should be placed to assist animals, not just Collared Delmas, inhabiting and moving through those areas. The weed populations in these sites were noted to be very dense, with their removal resulting in bare ground being exposed around the rocks. This situation could result in animals experiencing a higher risk of exposure to predators.
4. All the properties where habitat-rocks are placed, and habitat enhanced, should be resurveyed after a minimum of one year following placement of rocks and weed treatment. Although these properties were surveyed in the beginning of 2023, given the disturbance, it may be too soon for Collared Delmas and other species to have recolonised the improved areas. It is recognised that such surveys are beyond the timelines and budget of the current project; however, such surveys could be used as part of a long-term conservation strategy for Collared Delmas in the western suburbs. This approach will also support the current federal, state, and local government management objectives for this species.

References

- Atlas of Living Australia. (2023). *Delma torquata Kluge, 1974*.
<https://Bie.Ala.Org.Au/Species/Https://Biodiversity.Org.Au/Afd/Taxa/92ec5b2c-1f8f-4d29-B088-77bacaeeb99f>.
- Cogger, H. (2019). Reptiles and Amphibians of Australia. In *Reptiles and Amphibians of Australia*.
<https://doi.org/10.1071/9780643109773>
- Department of Climate Change Energy the Environment and Water. (2023). *Approved Conservation Advice for Delma torquata (Collared Delma)*.
- Department of Sustainability Environment Water Population and Communities. (2011). *Survey guidelines for Australia's threatened reptiles Guidelines for detecting reptiles listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999*.
- Eyre, T. J., Ferguson, D. J., Hourigan, C. L., Smith, G. C., Mathieson, M. T., Kelly, A. L., Venz, M. F., Hogan, L. D., & Rowland, J. (2018). *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland*.
- Hines, B. M., Hannah, D., Venz, M., & Eyre, T. (2000). New distribution and habitat data for the vulnerable pygopod, *Delma torquata* (Kluge, 1974). *Memoirs of the Queensland Museum*, 45(2).
<https://www.biodiversitylibrary.org/bibliography/61449>
- Porter, R. (1998). Observations on a large population of the vulnerable pygopod, *Delma torquata*. *Memoirs of the Queensland Museum*, 42(2).
- Wilson, S. K. (2022). *A Field Guide to the Reptiles of Queensland* (Third). Reed New Holland.

Appendix A: Reptile species recorded on each property



www.dogwoodecology.com