COLLARED DELMA

CONSERVATION ACTION STATEMENT

June 2005

BRISBANE CITY

Dedicated to a better Brisbane

COLLARED DELMA

Contents

Tables

Maps

1.0 Introduction

Brisbane is recognised as one of the most biologically diverse capital cities in Australia, supporting some 1500 plant species, 523 vertebrate animal species and innumerable invertebrate species.

Brisbane is also part of one of the fastest growing urban regions in Australia. This growth is placing significant pressure on the ecosystems and wildlife of the city. Population pressures and urban development, resulting in the loss and fragmentation of habitat, continue to be the greatest threats to the protection of biodiversity (Brisbane SOE 2001). Since 1990 the rate of clearing has decreased markedly. However, even with no further loss of habitat, some existing flora populations within the city are at risk of local extinction because the small, isolated, remaining habitat areas cannot support them. Other significant threats include pest animals and plants and inappropriate fire regimes. The challenge is to maintain and restore the city's biodiversity while accommodating urban growth.

Brisbane City Council has responded to this challenge with the Brisbane City Biodiversity Strategy, an important part of Council's *Living in Brisbane 2010* vision for a clean and green city. The strategy outlines a range of initiatives designed to secure the long-term conservation of the city's outstanding biodiversity values using available public, community and industry resources. Conservation Action Statements are among these initiatives.

Conservation Action Statements clearly state Council's management intent for the city's most threatened species, and outline key strategies and actions for their management in Brisbane.

This Conservation Action Statement addresses the collared delma *(Delma torquta)*, which is identified as a significant species within Brisbane as per Council's Natural Assets Planning Scheme Policy (Brisbane City Council 2000, *Brisbane City Plan*, vol 2, schedule 4).

This Conservation Action Statement will be updated every two to five years to reflect new information and progress on conservation actions. For more information about this or any other Conservation Action Statement, visit Council's website at www.brisbane.qld.gov.au or phone Council on 3403 8888.

Aims

This Conservation Action Statement details Council's management intent for long-term protection and conservation of the collared delma within Brisbane by:

- collating **existing information** on the distribution, ecology and management requirements of this species within Brisbane and surrounds
- identifying **key threats** that significantly impact upon this species within Brisbane
- identifying **gaps in existing knowledge** of the habitat and management requirements of this species and research priorities
- detailing **practical and affordable strategies and actions** that support the long-term protection and conservation of this species within Brisbane.

2.0 Conservation Status

The conservation status of a species will influence how it is managed. 'Threatened' species are typically accorded a more stringent management regime than a 'common' species. Various conservation registers identify the status of fauna species at local, state and national levels. The current conservation status of the collared delma is provided in **Table 1**.

Table 1: Official Conservation Status of Brisbane City's Collared Delma

Species	Brisbane City[1]	Queensland[2]	National[3]
Collared Delma	Significant	Vulnerable	Vulnerable

1 Brisbane City Council 2000, *Brisbane City Plan 2000*, Schedule 4 of the Natural Assets Planning Scheme Policy
2 *Queensland Nature Conservation (Wildlife) Regulations 1994* under the *Nature Conservation Act 1992*
3 *Environment Protection Biodiversity Conservation Act 1999*

3.0 Distribution[1]

National/State

- Endemic to south-east Queensland.
- Distribution is based on a handful of specimens. Extends from Brisbane, north to the Blackdown Tablelands National Park near Rockhampton, west to Expedition National Park, and south to Western Creek near Millmerran (Hines et al. 2000; Venz 2002, pers. comm).
- Further surveys are required to determine the full extent of distribution within the Brigalow Belt Bioregion.

Local

The population of collared delma is considered highly fragmented. The majority of records exist in the western suburbs of Brisbane. The most significant population recorded is of 39 specimens over a two-year period from 1993-1995 from Council land at Mt Crosby (Porter 1998b). However, the Queensland Museum has records from Pullenvale, Colleges Crossing and Karana Downs; also from Upper Brookfield and Kenmore but these are not recent. There are also a number of known sites at Pullenvale, on private property in and around Woodcrest Estate, within Moggill State Forest, Anstead Bushland Reserve, Hawkesbury Road, Anstead, Mt Crosby and Pinjarra Hills.

Verified collared delma records for within Brisbane are shown on **Map 1.**

Footnote:
1 Unless otherwise stated, the information in this section is from Peck (2004).

4.0 Ecology[2]

Habitat

- Inhabits areas of eucalypt dominated woodland and open forest.
- Appears to prefer vegetation associated with drier open forest with canopy species *Angophora leiocarpa*, *Corymbia citriodora* and ironbarks (Peck 2004, pers. comm.).
- Tends to be found on ridge tops and slopes of a westerly aspect with relatively undisturbed vegetation and rocky outcrops or weathered loose rocks on soil.
- Preferred mid-storey and understorey vegetation is usually fairly open. Typical groundcover is patchy native grasses, kangaroo grass *(Themeda triandra)* and barbed wire grass *(Cymbopogon refractus)*, microhabitat component of leaf litter (typically 30-100 millimetres thick) is essential.
- Largely associated with the presence of exposed rocks that are in contact with the soil. Appears to prefer habitats with fewer large rocks and a large number of small rocks (less than three centimetres in size).
- Within Brisbane, populations have been recorded from two soil-type habitats: stony lithosols with exposed quartzite rock ridges (eg. Mt Crosby, Moggill State Forest); and basalt derived podzolic soils with exposed rocks (eg. Anstead, Pinjarra Hills). No specimens have been found on weathered sandstone soils.
- Not found where weeds, such as dwarf lantana *(Lantana montievidensis)*, cover rocks.

Diet

- The collared delma is insectivorous.
- Captive lizards will eat cockroaches *(Blattellidae)* of several species and small crickets.
- Subterranean termites may be an important food source (Peck 2004, pers. comm.)

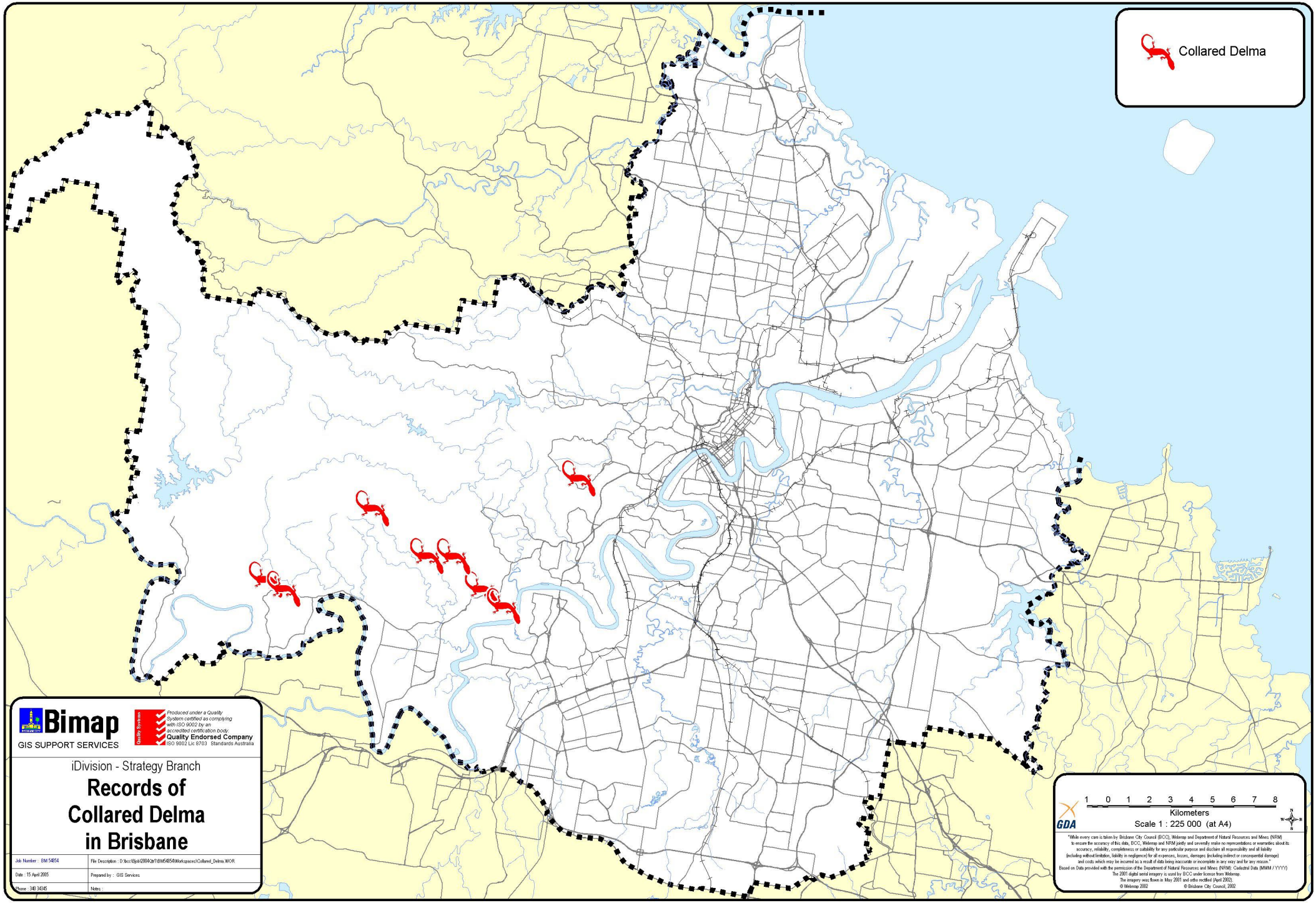
Reproduction

- No data on reproduction or the development and longevity of the species is available.
- Based on the reproductive patterns of other members of the Pygopodidae family of reptiles, it is likely that *Delma torquata* would produce two eggs per clutch, laid in December, with hatching occurring the following February or March.
- Captive studies suggest a life expectancy of at least five years.

Movement Patterns

- Very little is known about the species' home range requirements or movements.
- Surveys carried out over a two-year period at Pinjarra Hills and Pullenvalle recorded the collared delma from small areas (approximately 50 by 50 metres) within rocky outcrops and on rocky slopes. This suggests a relatively small area may be required to support a population.
- Recapture of specimens within a short distance (20 metres) from previous capture locations may indicate a relatively small home range (Porter 1998a). Recapture of specimens one month later under the same rocks may indicate the use of a specific home site by individuals (Porter 1998a).

Footnote:
2 Unless otherwise stated, the information in this section is from Peck (2004).



Bimap
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Records of Collared Delma in Brisbane

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Date : 15 April 2005	Prepared by : GIS Services
Phone : 340 34345	Notes :

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Kilometers
Scale 1 : 225 000 (at A4)

GDA

5.0 Threats[3]

Habitat Modification

- Most commonly found beneath rocks – a substrate commonly removed or altered during most forms of development.
- Known sites within western suburbs of Brisbane have been destroyed as a result of housing development and the removal of surface rocks.

Fire

- The destruction of leaf litter during fire may destroy habitat, result in population loss and limit the recolonisation of burnt areas.

Predation

- The collared delma appears to be heavily predated, as evidenced by the percentage found with regenerative tails. The most likely predators are other cryptic species, such as the white crowned snake, rather than bird species.

Dwarf Lantana *(Lantana montevidensis)*

- Creeping weed species that form thick mats covering surface rocks (eg. dwarf lantana) may threaten the collared delma.
- The Mt Crosby Westbank Water Treatment Plant provides known habitat for the collared delma. But a recent survey found no collared delmas at the site on rocky ridges significantly covered by lantana.

Fire Ants *(Solenopis invicta)*

- *Delma torquata* has been observed under rocks with ants of the genus *Polyrhachus*, but rarely found with the more aggressive ants. Fire ants are known to kill and eat small reptiles. The collared delma would be unlikely to exist in areas infested by fire ants.
- The chemical control of fire ants may affect the collared delma's food supply, particularly small cockroaches.

Footnote:
3 Unless otherwise stated, the information in this section is from Peck (2004).

6.0 Conservation

Several Brisbane City Council biodiversity initiatives are contributing to the protection and management of the collared delma and its habitat across the city. Key initiatives include:

- Bushland Acquisition Program: Through this program more than 1900 hectares of the city's most significant lowland habitats have been purchased and protected to date, including collared delma habitat at Lake Manchester.
- Conservation Partnerships: More than 240 private properties have established conservation partnerships with Council, covering some 750 hectares of principally lowland habitats.
- Conservation Reserve Estate: More than 12,500 hectares of parkland including 7000 hectares of bushland and wetland reserves are managed and protected. This reserve network provides habitat for Brisbane's significant species.
- Natural Assets Local Law: Under the Natural Assets Local Law 42% of the city area is now better protected from pre-emptive clearing including suitable habitats in and across the western suburbs.
- Brisbane City Council City Plan: The City Plan designates a green space system throughout the city to recognise and protect the contribution of open space areas to ecological functions. The City Plan's Biodiversity Code and supporting Ecological Assessment Guidelines provide performance criteria and acceptable solutions to protect significant biodiversity values on, or adjacent to, proposed development. The City Plan also includes statutory schedules of flora and fauna species considered significant in Brisbane, recognising species significant at a city-wide or regional level.

7.0 Research

Knowledge of the specific ecology, reproduction and habitat requirements of the collared delma is limited. A detailed study of the species, '*Observations on a large population of the vulnerable pygopodid*, Delma torquata' was compiled based on surveys in 1993-1995 within the Mt Crosby Westbank Water Treatment Plant (Porter 1998a and 1998b). Other research includes the '*Conservation Status Review and Management Recommendations for the Collared Delma*, Delma torquata *in Brisbane City*' (Peck 2004). Current research is limited to one captive study on the habitat utilization and biology of the collared delma by Peck (unpublished) conducted between 2000 and 2005.

8.0 Management Intent

Strategies

Brisbane City Council intends to contribute to the long-term conservation of the collared delma in the city by:

- adopting and encouraging innovative voluntary and statutory mechanisms that protect important habitats and movement corridors
- ensuring appropriate ecological assessment, reporting and survey procedures are adopted in development, planning and management activities
- encouraging land management practices that avoid, or minimise, direct and indirect impacts on collared delmas and their habitat on both public and private lands
- ensuring the timely availability of accurate, adequate and contemporary information for policy, planning and management decisions
- facilitating research that targets priority information gaps and contributes positively to the conservation of Brisbane's collared delmas and their habitat
- providing the Brisbane community with appropriate information and opportunities to contribute in a practical way to better understanding and protecting Brisbane's collared delma population.

8.0 Management Intent continued...

Actions

Table 2 describes priority conservation actions that Brisbane City Council will pursue with its partners to address the stated strategies. These priority actions have been drawn from studies undertaken for Council by recognised experts and consultation with a range of stakeholders. Actions will be undertaken as funds become available through Council's budgetary process. It should be recognised that Council must consider the timing of these actions against other priorities across the whole of the city.

Table 2: Management Actions

Management Aspect	Action	Timing	Lead Agent and Key Stakeholders
Habitat Protection	Conserve and protect important collared delma habitat on privately owned land within Brisbane, through Council acquisition of significant habitat (Bushland Acquisition Program) and through conservation partnerships (Voluntary Conservation Agreements and Land for Wildlife).	Ongoing	Brisbane City Council (BCC)
Habitat Management	Establish a monitoring program to identify locations and movement corridors of the collared delma, and to refine existing habitat management techniques eg. fire and weed management.	Establish 2006	BCC; Universities
	Prepare collared delma habitat management guidelines for land owners.	2005	BCC
	Develop management plans for known collared delma sites on Council lands to address fire, weed control and maintenance of habitat structure (micro and macro).	Establish 2006	BCC
	Determine the effects of weeds such as dwarf lantana *(Lantana montevidensis)* on collared delma habitat and populations.	Commence 2006	BCC
Information Management	Establish a long-term monitoring program of Brisbane's collared delma population.	Establish 2005	BCC; Universities
	Investigate potential impact of fire ants upon the Brisbane collared delma population.	Commence 2005	BCC; Department of Primary Industry; Universities
Community Involvement	Undertake one ID and management workshop/field day each year.	Commence 2005	BCC; Queensland Museum

8.0 Management Intent continued...

Guidelines

The habitat protection and management guidelines detailed in **Table 3** are provided to better assist land owners, land managers, the development industry and the broader community in planning and undertaking land use activities that may otherwise disturb the collared delma and/or its habitat. These guidelines are preliminary and will be refined as more information about this species and its habitat requirements become available.

Table 3: Habitat Management Guidelines

Issue	Guideline	Explanatory Notes
Habitat Disturbance	Minimise the removal of weathered rocks and surface rocks for landscaping.	Collared delmas generally inhabit rocky surfaces located on steep dry slopes with rocky outcrops.
	Avoid development on steep dry slopes within areas that provide a link between known collared delma sites.	
	Avoid removing leaf litter and over burning native bushlands in areas of known populations.	Collared delmas are known to inhabit and prefer habitat with leaf litter.
Weed Impacts	Remove and control weeds within known collared delma habitat.	Dwarf lantana *(Lantana montevidensis)* forms thick mats over rocky surfaces. Although further research is required, no collared delmas have been found in habitat with infestations of dwarf lantana. Groundcover weeds also compete aggressively with native vegetation.

9.0 Further Information

Agencies

- Brisbane City Council (www.brisbane.qld.gov.au)
- Department of Environment and Heritage (www.deh.qld.gov.au)
- Environmental Protection Agency/Queensland Parks and Wildlife Service (www.epa.qld.gov.au)
- Queensland Museum (www.qmuseum.qld.gov.au)

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Collared Delma, *Delma torquata,* Steve Wilson