

GRASS OWL



CONSERVATION ACTION STATEMENT

June 2005



Dedicated to a better Brisbane

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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 grass owl (*Tyto capensis*), 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.

1.0 Introduction continued...

Aims

This Conservation Action Statement details Council's management intent for long-term protection and conservation of the grass owl 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 'common' species. Various conservation registers identify the status of fauna species at local, state and national levels. The current conservation status of the grass owl is provided in **Table 1**.

Table 1: Official Conservation Status of Brisbane City's Grass Owl

Species	Brisbane City ¹	Queensland ²	National ³
Grass Owl	Significant	Common	Not listed

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 Distribution¹

National/State

- Far inland of eastern Australia: near Lake Eyre Basin (south-west Queensland, eastern NT, north-east SA).
- Eastern Australia: coastal heathland and rank grassland from Port Douglas through to Kempsey in north-east NSW and west to Narrabri (Pizzey and Knight 1997).

Local

- The grass owl has been recorded at a number of locations across Brisbane, particularly through the North East Wetlands site; an area covering Tinchi Tamba Wetlands, Deagon Wetlands, Brighton Wetlands, Boondall Wetlands and Kedron Brook Wetlands. Historically, there are records of the grass owl in the vicinity of the present-day Roma Street train station and at Enoggera.

Verified grass owl records for Brisbane are shown on **Map 1**.

4.0 Ecology

Habitat

- Preferred coastal habitats include wet and dry heath, grassy paddocks, swamps and sedgeland (EES 1991).
- May use introduced vegetation if it provides the required structural characteristics.
- Forages, roosts or breeds in introduced grasslands or weedy vegetation on heavily disturbed areas such as fallow paddocks and abandoned grazing land (Maciejewski 1996; Schodde and Mason 1980; Squire 1987; Thomas 1996, 1997; Young and De Lai 1997).
- In coastal northern NSW, the grass owl's habitat is characterised by 90-100% projective foliage cover; 60-200 centimetres high vegetation; a uniform stratum height; and seasonal inundation (Maciejewski 1996).

Diet

- A specialist hunter of small mammals, especially rodents (EES 1991).
- Prey includes several native species of *Rattus*, the house mouse (*Mus musculus*) and grassland melomys (*Melomys burtoni*).
- In the Herbert River sugarcane growing district in North Queensland, research suggests a near total diet of the canefield rat (*Rattus sordidus*) and grassland melomys (*Melomys burtoni*) (Hollands 1991; Young 1996 pers. comm.).
- In northern NSW, mammalian prey includes the common planigale (*Planigale maculata*), the swamp rat (*Rattus lutreolus*), and the introduced house mouse (*Mus musculus*) and black rat (*Rattus rattus*) (Maciejewski 1996).
- Hunts exclusively on the wing using low quartering flight followed by a headfirst plunge into the grass, with legs extended and wings held high (Estbergs et al. 1978).
- Has acute hearing. Long legs allow hunting birds on the wing to reach prey on the ground through dense ground cover.
- Observed plunging into 1.5-metre high sugarcane to emerge with a rodent kill (Hollands 1991; Young 1996 pers. comm.).

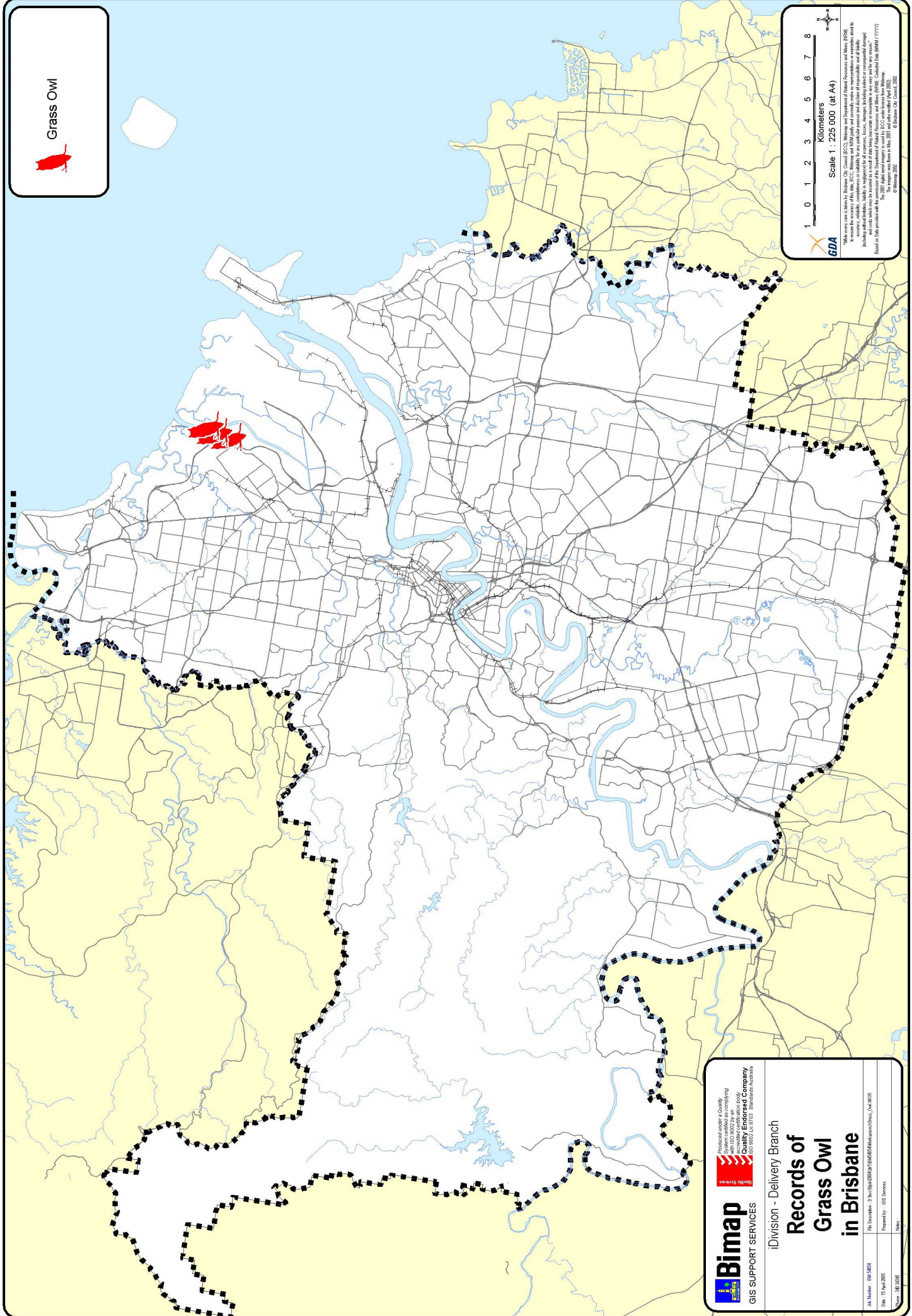
Grass Owl



Scale 1 : 225 000 (at A4)



Work done in collaboration with Queensland Department of Transport and Main Roads (DTMR) to ensure the accuracy of the data. DTMR, MetNet and RTM staff, and external users do not accept any responsibility or warranty for the accuracy of the data. The data is provided as a service to the user and is not intended for use in any way that may cause injury, damage or loss of property. The user assumes all liability for any use of the data. The 2011 spatial data integrity is based on DTMR and MetNet data. The data is provided as a service to the user and is not intended for use in any way that may cause injury, damage or loss of property. The user assumes all liability for any use of the data. The 2011 spatial data integrity is based on DTMR and MetNet data.



Bimap
GIS SUPPORT SERVICES

idDivision - Delivery Branch

Records of
Grass Owl
in Brisbane

Produced under a Quality Management System
ISO 9002:2004
Quality Endorsed Company
ISO 9002:2004
800 BROADWAY, SUITE 1000, ST. LOUIS, MISSOURI 63103, USA

Job Number: BMS024	File Description: D:\bms\024\BMS024\RecordsOfGrassOwl.mxd
Date: 15 April 2005	Prepared by: GIS Services
Drawn: 18/11/05	Map:

4.0 Ecology continued...

Reproduction continued...

- Nesting season is March-June (Hollands 1991 and Lavery 1986 cited in EES 1991) but will breed at any time in response to rodent irruptions (**Table 2**).
- May become temporarily locally common in response to a population boom of canefield rat (*Rattus sordidus*) (Hollands 1991 cited in EES1991); immature grass owl individuals often die at the end of a boom of prey (EES 1991).
- Most large population fluctuations occur in inland areas; Queensland's coastal populations are usually stable and consist of largely sedentary individuals (Blakers et al. 1984 cited in EES 1991).
- Lays 3-8 eggs.
- In grassy habitats, the owl constructs a flimsy nest of grass stalks, which is enveloped by the surrounding standing grass. At least three tunnels lead to the nest from nearby landing areas, which are characterised by flattened grass (EES 1991).
- Typically nests are located in dense grass tussocks or sedge and usually well away from trees (Hollands 1991 cited in EES).
- Generally found in breeding pairs or roosting individuals several hundred metres apart, but within loose communities (Blakers et al. 1984).

Table 2: Breeding Seasons (green shading indicates primary breeding months)

Species	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Grass Owl												

Movement Patterns

- Small numbers at scattered inland refuge areas seem to be the norm (NSW Parks and Wildlife Service 1998); but 40-50 breeding pairs have previously been recorded across a 40-hectare area in north Queensland (Schodde and Mason 1980).
- Young disperse in response to declining prey numbers.

5.0 Threats²

Habitat Loss and/or Modification

- Loss of habitat to development threatens the limited amount of potential grass owl habitat within the North East Wetlands of Brisbane. A survey of the area has been unable to identify particularly significant locales suggesting that populations may be at low densities.
- Grass mowing has the potential to remove habitat and adversely affect breeding success; where grass mowing needs to be undertaken, a similar management regime to fire management should be adopted.

High Noise Levels

- High background noise (such as along the Gateway Motorway) may mask the sound of prey and limit hunting success.
- High levels of background noise may also interfere with the social interaction of grass owl individuals.

Fire Regimes

- Wildfires can burn out large areas of habitat during single fire events. Grass owls are known to return to favoured habitat areas after disturbance (eg. fire, cultivation) but they require alternative areas for the interim period. Fire management will be especially important in any favoured breeding areas identified.
- Inappropriate fire regimes are also a threat.

Fire Ants

- Introduced fire ants in grass owl habitat could prove highly detrimental to this ground-nesting owl's survival.

Human-related Effects

- Weed control operations in wetlands using all-terrain motorbikes may disturb nests or individuals. Disturbance during the breeding season is highly undesirable.
- Road-kill mortality of grass owls could be significant should breeding colonies be close to busy roads.

Predation

- Potential predators include foxes (*Vulpes vulpes*), feral and domestic cats (*Felis catus*) and feral pigs (*Sus scrofa*).

6.0 Conservation

Several Brisbane City Council biodiversity initiatives are contributing to the protection and management of the grass owl 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.
- **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.
- **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

Limited research on the grass owl has occurred within Brisbane to date. Two previous studies of note include the *Vertebrate Status Review* of Brisbane, undertaken by Low in 1993, and the *North East Wetlands Grass Owl Survey* undertaken by Ecotone Environmental Services for Brisbane City Council in 2001 (EES 2001a).

8.0 Management Intent

Strategies

Brisbane City Council intends to contribute to the long-term conservation of the grass owl 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 the development, planning and management activities
- encouraging land management practices that avoid, or minimise, direct and indirect impacts on grass owls 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 grass owls 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 grass owls.

8.0 Management Intent continued...

Actions

Table 3 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 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 3: Management Actions

Management Aspect	Action	Timing	Lead Agent and Key stakeholders
Habitat Protection	Conserve and protect important grass owl 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 for refining existing habitat management techniques (fire and weed management).	Establish 2005	BCC; Birds Queensland; Universities
Information Management	Establish a long-term monitoring program of Brisbane's grass owl population.	Establish 2006	BCC; Universities; Birds Queensland
	Investigate potential impact of fire ants upon the Brisbane grass owl population.	Commence 2005	BCC
	Investigate impact of introduced predators upon the Brisbane grass owl population.	Commence 2006	BCC; Birds Queensland; Universities
Community Involvement	Undertake one ID workshop/field day each year.	Commence 2005	BCC; Queensland Museum

Guidelines

The habitat protection and management guidelines detailed in **Table 4** 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 grass owl and/or its habitat. These guidelines are preliminary and will be refined as more information about this species and its habitat requirements become available.

8.0 Management Intent continued...

Guidelines continued...

Table 4: Habitat Management Guidelines

Issue	Guideline	Explanatory Notes
Nest Site/Habitat Disturbance	From March to June an active nest is protected by a 200-metre radius nest site buffer. This applies to the following operations: a) mowing b) clearing c) use of all terrain bikes for weed control.	Nest site buffers are an established management tool designed to protect breeding birds and nest sites from unnecessary disturbance, especially during the breeding season. A nest site buffer should be maintained in, or restored to, its natural (pre-clearing) state. Where predation by introduced predators is considered a significant threat, additional exclusion measures may need to be adopted. Nest site buffers should be clearly identified on any relevant management or operational plans. This nest site buffer size is preliminary and applies the precautionary principle until research confirms the minimum buffer size applicable.
	Pre-start surveys of known or potential habitat undertaken prior to work commencing.	Prior to any works commencing, regardless of season, a suitably qualified and/or experienced professional should undertake an inspection of known or likely habitat for the grass owl. This will establish whether grass owls are still active and whether any specific work design or scheduling considerations are needed to avoid or mitigate significant impacts.
	Works are to occur outside the breeding season. (Nesting occurs from March-June but the grass owl will breed at any time in response to rodent irruptions.)	Grass owls may be highly sensitive to any disturbance within several hundred metres of an active nest site during the breeding season. Maintenance of existing infrastructure or new works should be scheduled so as to avoid the breeding season. Where this is not possible, works should be timed to occur after nestlings have fledged.
	Grass mowing should be avoided where possible in known or potential habitat.	Grass owls are highly sensitive to high noise levels and other types of disturbance. Grass mowing should be avoided; however, if this is not possible, no more than a quarter of any identified or suspected habitat should be mown at any one time with a specific exclusion on known nest sites.
Fire Management	Controlled burning for fire management is not to occur through identified habitat during the breeding season (March-June) where possible. Measures to reduce occurrence of uncontrolled fires must also be practiced	Planned or unplanned fires place an active nest and/or breeding birds at risk. The presence of fire and associated smoke and noise may cause adult birds to abandon eggs or chicks, or abandon a potential nest site. Depending on fuel loads, weather and other factors, fire may destroy a nest site completely or render the site and surrounding habitat unsuitable (eg. removal of protective foliage). Following fire, eggs or nestlings may be at greater risk of predation from opportunistic species (eg. crows) attracted to the area by the fire event.
	No more than one quarter of any habitat is to be burned at any one time to effect a mosaic burn	In the instance of hazard reduction burns, to minimise the chance of a nest site being damaged or destroyed by fire, particular patches should be chosen prior to any planned fire occurring. The patches chosen should be less than one hectare and/or amount to no more than one quarter of any known habitat area.

9.0 Further Information

Agencies

- Australian Raptor Association (www.ausraptor.org.au)
- Birds Australia (www.birdsaustralia.com.au)
- Birds Queensland (www.birdsqueensland.org.au)
- Brisbane City Council (www.brisbane.qld.gov.au)
- Department of Environment and Heritage (www.deh.gov.au)
- Environmental Protection Agency/Queensland Parks and Wildlife Service (www.epa.qld.gov.au)
- Handbook of Australian, New Zealand and Antarctic Birds (www.birdsaustralia.com.au/hanzab)
- Queensland Museum (www.qmuseum.qld.gov.au)

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9.0 Further Information continued...

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