

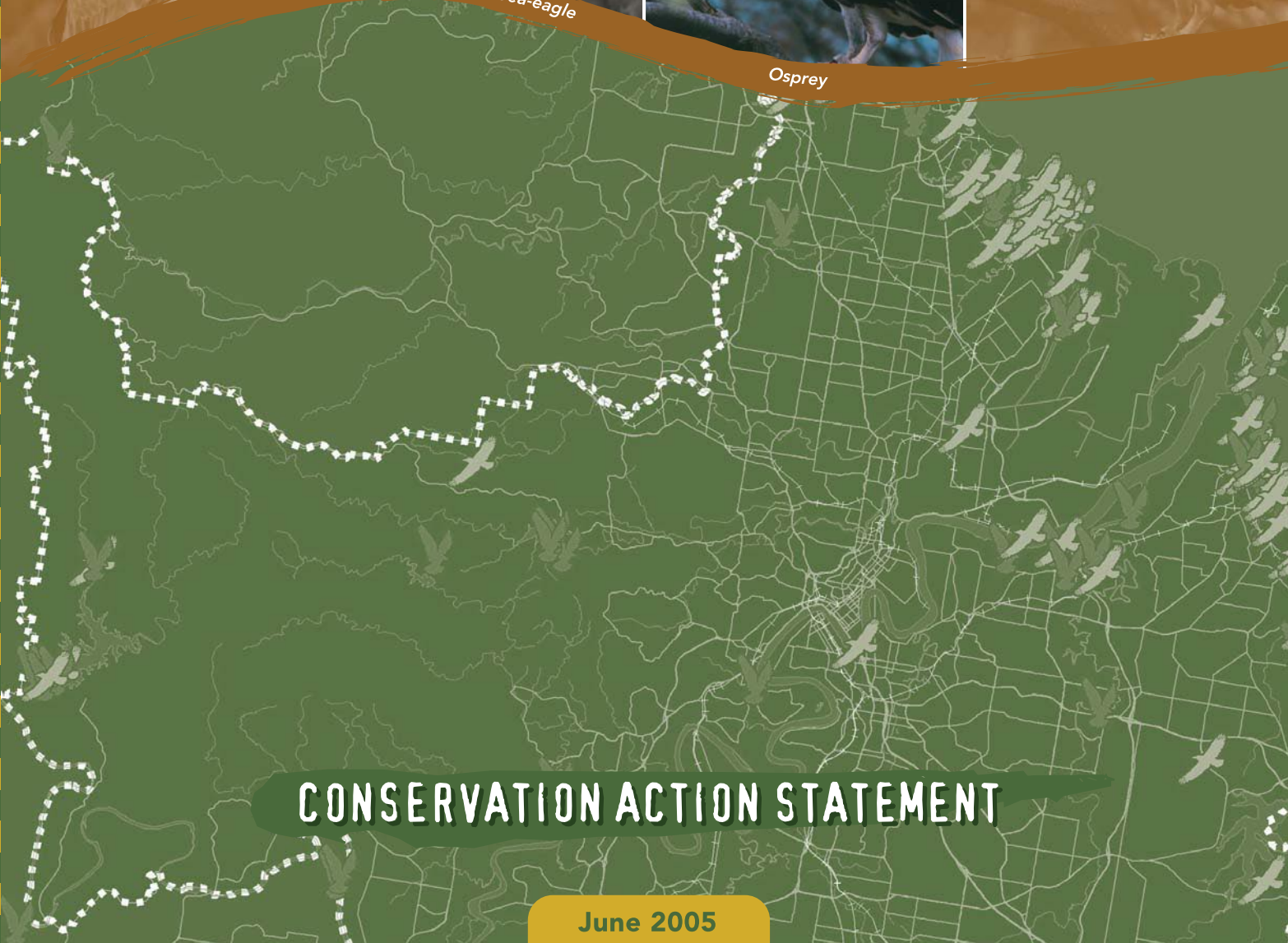
COASTAL RAPTORS



White-bellied Sea-eagle



Osprey



CONSERVATION ACTION STATEMENT

June 2005



Dedicated to a better Brisbane

Contents

1.0	Introduction	2
2.0	Conservation Status	3
3.0	Distribution	4
4.0	Ecology	6
5.0	Threats	8
6.0	Conservation	9
7.0	Research	9
8.0	Management Intent	10
9.0	Further Information	13

Tables

Table 1:	Official Conservation Status of Brisbane City's Coastal Raptors	3
Table 2:	Breeding Seasons	7
Table 3:	Management Actions	11
Table 4:	Habitat Management Guidelines	12

Maps

Map 1:	Records of Coastal Raptors in Brisbane	5
--------	--	---



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 following coastal raptors, which are identified as significant species as per Council's Natural Assets Planning Scheme Policy (Brisbane City Council 2000, *Brisbane City Plan*, vol 2, schedule 4):

- 1 white-bellied sea-eagle (*Haliaeetus leucogaster*)
- 2 osprey (*Pandion haliaetus*).

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 significant coastal raptors within Brisbane by:

- collating **existing information** on the distribution, ecology and management requirements of these species within Brisbane and surrounds
- identifying **key threats** that significantly impact upon these species within Brisbane
- identifying **gaps in existing knowledge** of the habitat and management requirements of these species and research priorities
- detailing **practical and affordable strategies and actions** that support the long-term protection and conservation of these 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 coastal raptors is provided in **Table 1**.

Table 1: Official Conservation Status of Brisbane City’s Coastal Raptors

Species	Brisbane City ¹	Queensland ²	National ³
White-bellied sea-eagle	Significant	Common	Migratory
Osprey	Significant	Common	Migratory

¹ Brisbane City Council 2000, *Brisbane City Plan 2000*, Natural Assets Planning Scheme Policy, vol. 2

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

White-bellied Sea-eagle

- Found along most of coastal Australia and inland along rivers and major dams, reservoirs and wetlands.
- Continuous along northern and eastern coastal margin of Queensland, including the Gulf of Carpentaria, Cape York Peninsula and offshore islands and reefs. Also inland along major rivers, lakes, wetlands, dams and reservoirs.
- Regarded as uncommon but widespread.
- Associated with coastal vegetation types such as dune communities, mangroves, saltmarsh and heathland as well as riparian vegetation.

Osprey

- Found along most of coastal mainland Australia.
- Continuous along northern and eastern coastal margin of Queensland. Occasionally inland in association with major river systems or large dams, reservoirs and lakes.
- Resident – most commonly recorded along coast, Moreton Bay islands, natural lakes and estuarine areas; less common near permanent streams, reservoirs and freshwater wetlands.
- Associated with coastal vegetation types such as dune communities, mangroves, saltmarsh and heathland as well as riparian vegetation.

Local

The limited information available indicates that overall density of breeding pairs of both species has declined. This is largely as a result of habitat loss, fragmentation and disturbance. Suitable coastal and riparian habitat for both species therefore needs to be restored and maintained within Brisbane. Such habitat includes dune communities, mangroves, saltmarsh and heathland as well as riparian vegetation. The general distribution of coastal raptor species within Brisbane has been identified based on verified sightings and species habitat requirements.

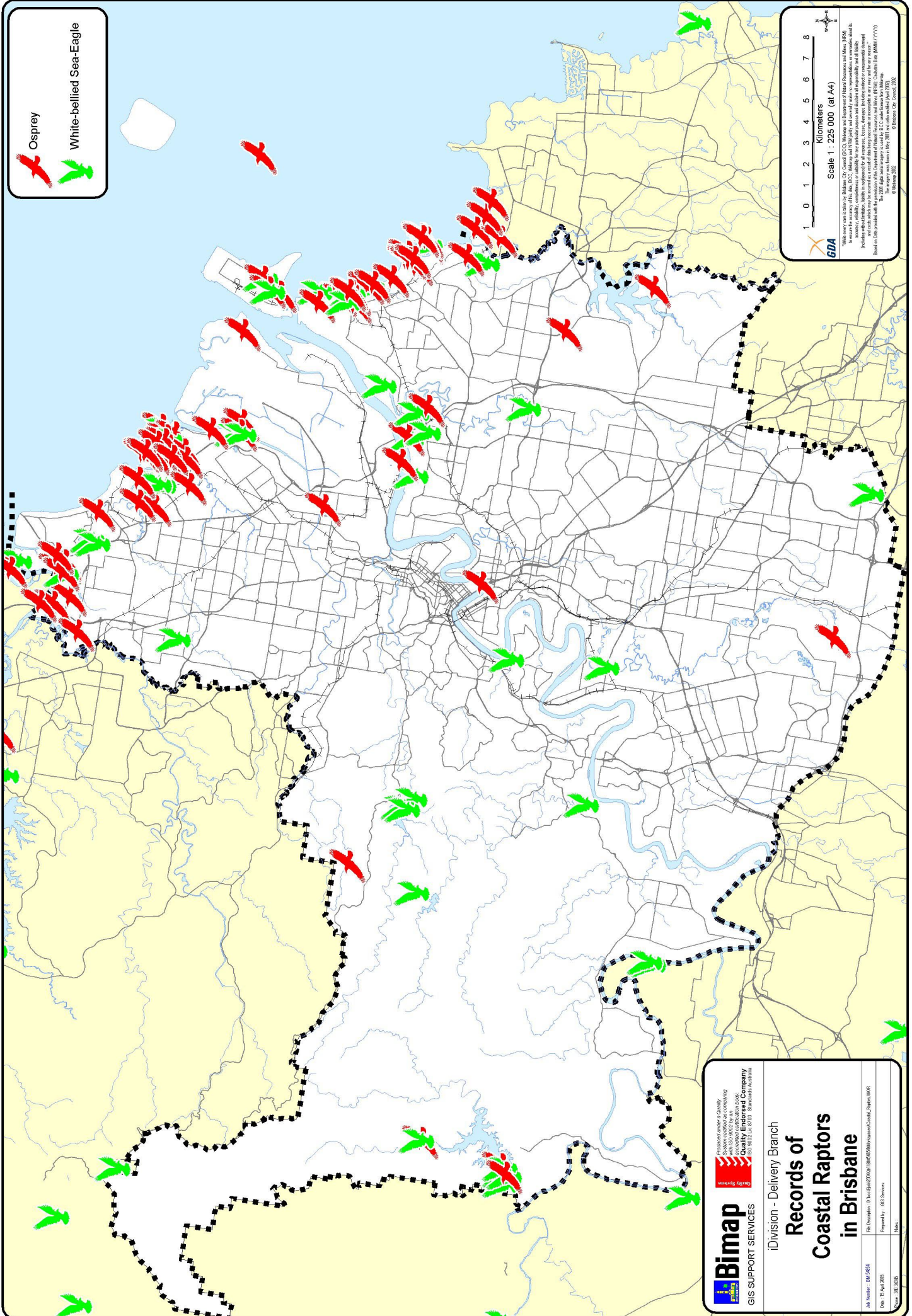
White-bellied Sea-eagle

- Within and around Brisbane, white-bellied sea-eagles are most commonly observed along the foreshores of Moreton Bay, and along major waterways such as the Brisbane River.
- They are recorded as uncommon in Moreton Bay (Queensland Museum 1998).
- Sightings in the Brisbane area occur most frequently along the coast (including Moreton Bay islands), the Brisbane River, and major dams and reservoirs.

Osprey

- The osprey occupies a similar range to the white-bellied sea-eagle, namely coasts, foreshores, large river systems, lakes and impoundments.
- Port of Brisbane Corporation (2002) notes that there are only six to eight breeding pairs of ospreys in the greater Brisbane area.

Verified coastal raptor records for Brisbane are shown on **Map 1**.



Osprey

White-bellied Sea-Eagle

Kilometers

Scale 1 : 225 000 (at A4)

GDA

*While every care is taken by Brisbane City Council (BCC), Brisbane and Department of Island Resources and Marine (DIRM) to ensure the accuracy of this data, BCC, DIRM and IIRMP do not accept any responsibility or warranty (whether in writing or otherwise) for the accuracy, reliability, suitability or appropriateness for all purposes, users, attempts, including public or commercial, of any data or information provided or made available in any form or by any means, including electronic, optical, mechanical, photocopying, recording, or by any information storage and retrieval system. The 2011 Digital Spatial Framework is used by BCC and DIRM for this information. © Brisbane City Council, 2012

Bimap
GIS SUPPORT SERVICES

Recognised for its quality by
Government of Queensland
and ISO 9002:2007 by the
Quality Endorsed Company
ISO 9002 Lic 9733 - Brisbane Australia

iDivision - Delivery Branch

Records of Coastal Raptors in Brisbane

The Location: D:\bimap\GIS\101118165\Brisbane\Coastal_Raptors.mxd
Prepared by: GIS Services
Version: 1.0

Job Number: 101118165
Date: 15 April 2011

4.0 Ecology²

Habitat

White-bellied Sea-eagle

- Primarily associated with marine and freshwater habitats – Moreton Bay islands, coastal areas, mangroves, foreshores, littoral marsh, estuaries, riverine habitats, local dams, reservoirs, freshwater wetlands and their environs.
- Vegetation types used include mangroves, saltmarsh, dune communities and coastal woodlands.
- Largely solitary, but also found in pairs and family groups.

Osprey

- Primarily associated with marine and estuarine areas and less commonly with freshwater habitats. Habitats include Moreton Bay islands, coastal areas, estuaries and adjacent inland areas, major rivers, creeks, wetlands and their environs, local dams and reservoirs.
- Solitary, but does occur in pairs or family groups.

Diet

White-bellied Sea-eagle

- Opportunistic predator of birds, reptiles, fish, mammals and crustaceans.
- Diet commonly includes spiny and poisonous fish, freshwater turtles, flying foxes, waterfowl, small-to-medium mammals, reptiles (including sea snakes), crustaceans and carrion.

Osprey

- Diet consists mainly of fish, also small terrestrial vertebrates, birds and crustaceans.
- When hunting for fish it can fully submerge up to one metre below the water's surface (Morcombe 2000).

4.0 Ecology² continued...

Reproduction

White-bellied Sea-eagle

- Breeds from May to October (**Table 2**).
- Monogamous and territorial.
- Breeding sites include tall trees, mangroves, cliffs, rocky outcrops, on ground and low bushes, in breeding areas along coasts, rivers and bodies of standing water.
- Most nesting occurs within one kilometre of marine or freshwater habitats.
- Preferred nesting sites are in living or dead trees between nine and 50 metres in height (average 20 metres), adjacent to, or overhanging, water.
- Nests are large stick structures with depression for eggs typically lined with green leaves, grass and seaweed. Long-term additions to the nest can result in a very large structure.
- Clutch size consists of 1-2 eggs, incubated, predominantly by the female, for 35-40 days (Morcombe 2000).

Osprey

- Breeds from April to November but may be opportunistic in some years when conditions are favourable (**Table 2**).
- Monogamous and territorial.
- Breeding areas are found mainly along coasts or in vicinity of water (lakes, reservoirs, rivers).
- Nests high in the canopy of live or dead trees, on cliffs, rocky headlands and various artificial structures. The nest is typically a large flattened saucer-shaped bowl structure constructed of thin dry sticks, lined with leaves.
- Clutch size of 2-3 eggs incubated by female for around 33 days. Chicks are in the nest for 50-60 days (Morcombe 2000).

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

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
White-bellied sea-eagle												
Osprey												

4.0 Ecology² continued...

Movement Patterns

White-bellied Sea-eagle

- Largely sedentary, but there is some evidence of seasonal movements towards coastal northern Australia in summer and extending inland during winter.

Osprey

- Most pairs are resident.
- No evidence of major seasonal or broad movements, except for dispersal of non-breeding birds along the coast or inland, especially along watercourses.

5.0 Threats

Habitat Loss, Fragmentation and Simplification

- Since European settlement, an estimated 67,000 hectares, or two-thirds of the original woody vegetation in Brisbane, has been cleared. This includes approximately 90% of lowland forests and more than 80% of all lowland vegetation (below 100 metres elevation). Habitat fragmentation is also extensive; around 80% of bushland remnants remaining in the city are less than 20 hectares (BCC 2001).
- Smaller remnants of habitat typically present sub-optimal breeding habitat conditions and potentially lead to increased nesting failures, reduced recruitment rates and possible population collapse.
- Nesting site disturbances are due to increased human activity, domestic animals, changes in vegetative cover, and the use of marginal nesting sites.

Fire Regimes

- Smaller habitat patches, especially in urban landscapes are more prone to inappropriate fire regimes, weed invasion and subsequent changes to structural and floristic diversity. These changes create sub-optimal breeding conditions.

Predation and Competition

- Competition and predation by social, adaptable species such as the Torresian crow (*Corvus orru*) (eg. as a result of changes in the habitat structure and subsequent population dynamics due to the expansion of Brisbane Airport.)

Poisoning

- Use of pesticides.
- Accidental and intentional poisoning.

6.0 Conservation

Several Brisbane City Council biodiversity initiatives are contributing to the protection and management of coastal raptors and their 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 in significant raptor habitat areas.
- **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 these significant species at city-wide or regional levels.

7.0 Research

There have been few detailed studies relating to raptors undertaken in south-east Queensland. Contemporary investigations relevant to Brisbane's coastal raptors include:

- a city-wide survey of significant raptor species and their associated habitat assessments undertaken by Queensland Museum and the Australian National University (Czechura and Olsen 2001)
- a baseline survey assessing the abundance and distribution of coastal raptors in Pumicestone Passage and southern Moreton Bay, undertaken by the University of Queensland (Woodall 2004).

8.0 Management Intent

Strategies

Brisbane City Council intends to contribute to the long-term conservation of coastal raptors 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 coastal raptors and their habitats 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 coastal raptors and their habitats
- providing the Brisbane community with appropriate information and opportunities to contribute in a practical way to better understanding and protecting Brisbane's coastal raptors.

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 by recognised raptor 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 3: Management Actions

Management Aspect	Action	Timing	Lead Agent and Key Stakeholders
Habitat Protection	Conserve and protect important coastal raptor 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	Undertake pilot project in the north-east wetlands to monitor and refine nest site and habitat management guidelines.	Commence 2006	BCC; Queensland Museum; Birds Australia
Information Management	Establish a nest site register for monitoring coastal raptor population trends and habitat preferences.	Establish 2005	BCC
	Develop a cost-effective method for monitoring the distribution and abundance of coastal raptors.	Commence 2006	BCC; Birds Australia; SEQ Fire and Biodiversity Consortium (FABC); Queensland Parks and Wildlife Service
	Investigate options for monitoring the impact of fuel reduction burns on raptor nesting habits.	Commence 2006	BCC; Birds Australia; Universities
Community Involvement	Support one raptor ID workshop/field day each year.	Commence 2005	BCC; Queensland Museum
	Trial community-based monitoring.	2006	BCC; Community conservation groups

8.0 Management Intent continued...

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 coastal raptors and/or their habitat. These guidelines are preliminary and will be refined as more information about these species and their habitat requirements becomes available.

Table 4: Habitat Management Guidelines

Issue	Guideline	Explanatory Notes
Nest Site Disturbance	An active nest is protected by a 300-metre radius nest site buffer where possible.	Nest site buffers are an established management tool designed to protect breeding birds and nest trees 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.
	Undertake pre-start surveys of known nest site buffers before work starts.	Before any works commence within a known or potential nest site buffer, regardless of season, an inspection of the buffer and nest tree should be undertaken by a suitably qualified and/or experienced professional. This will establish whether the nest tree is still active and whether any specific work design or scheduling considerations are needed to avoid or mitigate significant impacts.
	Works within a nest site buffer are to occur outside the breeding season.	Many coastal raptor species are highly sensitive to any disturbance within several hundred metres of an active nest site during the breeding season (see Table 2). 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.
Fire Management	Adopt controlled burn regimes that minimise threat to raptor nest sites and breeding birds where possible.	Fires place an active nest and breeding birds at risk. The presence of a fire and associated smoke and noise may cause adult birds to abandon eggs, chicks or a potential nest site. Depending on fuel loads, weather and other factors, fire may destroy a nest tree completely or render the tree and surrounding vegetation 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.
	Reduce fuel loads around active nest trees prior to planned burns.	To minimise the chance of a nest tree being damaged or destroyed by fire, fuel should be reduced around the tree before a planned fire. This may involve simply raking fuel away from around the tree up to a distance equivalent to the canopy drip line.

9.0 Further Information

Agencies

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

Bibliography

Brisbane City Council 2000, *Brisbane City Plan 2000*, BCC, Brisbane

Brisbane City Council 2001, *Brisbane State of the Environment Report 2001*, BCC, Brisbane

Czechura G 2000, *Review of raptor habitat conservation significance of Fitzgibbon*, Unpublished, Report to Environment and Parks Branch, Urban Management Division, Brisbane City Council

Czechura G and Olsen P 2001, *An investigation of the presence, distribution and habitat conservation requirements for selected diurnal raptor species in the Brisbane area. Stage 1: Species accounts and site assessments*, Queensland Museum, Brisbane

Morcombe M 2000, *Field guide to Australian birds*, Steve Parish Publishing Pty Ltd, Queensland

Olsen P 1998, *Birds Australia Conservation Statement No. 2 Australia's Raptors: Diurnal Birds of Prey and Owls*, Supplement to *Wingspan*, vol. 8, no. 3, September 1998

Port of Brisbane Corporation 2002, *Portrait Newsletter Jan/Mar 2002*, viewed 5/2/03, www.portbris.com.au/asp/media/publications/portrait/2002/2002-jan-mar.pdf

Queensland Museum 1995, *Wildlife of Greater Brisbane*, Queensland Museum, Queensland

Queensland Museum 1998, *Wild Guide to Moreton Bay*, Queensland Museum, Queensland

Woodall P 2004, unpublished investigation assessing the abundance and distribution of coastal raptors in Pumicestone Passage and Southern Moreton Bay, University of Queensland

Photography Acknowledgement

- ① White-bellied Sea-eagle, *Haliaeetus leucogaster*, www.birdphotos.com.au
- ② Osprey, *Pandion haliaetus*, Environmental Protection Agency