

2005 South East Queensland Raptor Futures Forum

South East Queensland Raptors: their status and future in a rapidly growing region

Saturday 26 November 2005
Griffith University Eco Centre, Brisbane

Forum Report



**Australasian
Raptor
Association**



Dedicated to a better Brisbane

Overview

On Saturday 26th November, 2005 over 40 delegates came together to hear leading researchers, naturalists and practitioners in raptor conservation provide a contemporary insight into the ecology of our 'local' raptors, their conservation status, and opportunities to better understand and conserve these very important parts of our natural heritage.

Delegates were provided with the very latest appraisals of the state of our diurnal and nocturnal birds of prey as well as updates on important research, and opportunities to make practical and effective contributions to raptor conservation.

The Forum was designed to garner stakeholders' views on the priority conservation actions for raptors in South East Queensland (SEQ) and generate partnerships to address these actions.

Priority actions in the areas of 'Education & Awareness', 'Conservation & Management' and 'Research & Information' were clearly identified. Priority actions included nest management protocols, local and regional planning instruments, and mapping Important Bird Areas.

The Forum was an initiative of the **Australasian Raptor Association** (ARA) and was the first of its kind in SEQ. It was made possible through the generous financial and in-kind support of the **Brisbane City Council**. The contributions of the presenters must also be acknowledged, especially those who travelled from interstate. Without their participation, the Forum would not have been possible nor delivered such clear outcomes.

Why a Forum on Raptors?

SEQ is one of the fastest growing urban areas in Australia, attracting on average 55, 000 new residents each year over the past two decades. It is also a significant area for raptors with all 24 diurnal birds of prey species having been recorded in the region.

The urban growth being experienced in SEQ is placing significant pressure on the region's biodiversity. Being at the top of the food chain, raptors are particularly at risk from continuing habitat loss, fragmentation and other threats characteristic of urban growth. Importantly, raptors can be difficult to study and impacts upon populations may not be readily observable in the short term.

How are our raptors fairing? What future do they have? What opportunities are there to better understand and protect this important part of our SEQ wildlife? Answers to these questions were the focus of this inaugural forum.

A Day of Presentations

Some of Australia's leading experts on Australian raptors provided a comprehensive and entertaining account of the state of our raptors (see Attachment One). Presenters included: Dr Rod Kavanagh (Barking owls), Greg Czechura (SEQ raptors) and Victor Hurley (Peregrine falcons). A summary of presentations is provided below.

Presentations were broken up in the usual manner by light lunch and refreshment breaks. These provided great opportunities for participants to start new collaborations or re-ignite old ones. Such was the case with this Forum with several partnership projects being re-ignited over sandwiches and juice.

State of Play

Raptors: a national perspective

Stephen Debus
Division of Zoology, University of New England

Queensland is home to all 24 diurnal raptor species and all nine owl species of mainland Australia. Olsen (1998), Garnett & Crowley (2000) and Newton *et al.* (2002) are the benchmarks for the conservation status and priorities for raptors and owls.

Nationally, four diurnal raptors are threatened (*EPBC Act*) or near-threatened:

Red Goshawk: Vulnerable; Endangered in Qld and NSW.

Wedge-tailed Eagle: Tasmanian subspecies *Aquila audax fleayi* Endangered.

Grey Falcon: Near-threatened; Endangered in Vic, Vulnerable in NSW and SA.

Letter-winged Kite: proposed as Near-threatened.

Some other diurnal raptors are Least Concern nationally, but threatened in some states:

Osprey: Vulnerable in NSW, SA.

Square-tailed Kite: Vulnerable in NSW, Vic, SA.

Black-breasted Buzzard: Vulnerable in NSW, SA.

White-bellied Sea-Eagle: Vulnerable in Vic, Tas, SA.

Grey Goshawk: Vulnerable in Vic, Tas., SA.

Peregrine Falcon: Vulnerable in SA.

Black Falcon: proposed as Vulnerable in Vic.

Nationally, all owl species are Least Concern, but several taxa are threatened nationally and in some states:

Powerful Owl: Vulnerable in Qld, NSW, Vic (i.e. all range states).

Rufous Owl: Vulnerable in Qld.

Barking Owl: southern subspecies *Ninox connivens connivens* Near-threatened; Endangered in Vic., Vulnerable in NSW, SA [Vulnerable or Endangered in sw WA?].

Sooty Owl: Vulnerable in NSW, Vic.

Masked Owl: island subspecies *Tyto novaehollandiae melvillensis* (Tiwi Is) and *T.n. castanops* (Tas) Endangered; tropical *T.n. kimberli* Vulnerable; southern *T.n. novaehollandiae* Near-threatened; Endangered in Vic, Vulnerable in NSW, SA [Vulnerable or Endangered in sw WA?].

Grass Owl: Vulnerable in NSW, SA.

Of the high priorities for action identified by Olsen (1998), the following remain to be addressed:

Letter-winged Kite: targetted research in Qld and NT [+ publication of Qld research].

Black-breasted Buzzard: targetted research in all range states.

Red Goshawk: targetted research in NSW and Qld; recovery plans in tropical states.

Black Falcon: targetted research in SA [+ NSW, Vic].

Grey Falcon: targetted research in all range states [+ publication of WA research].

Powerful Owl: targetted research in Qld.

Rufous Owl: targetted research in Qld.

Barking Owl: targetted research in Qld and SA [+sw WA].

Sooty Owl: targetted research in Qld.

Masked Owl: targetted research in Qld and western NSW [+ targeted research sw WA]

Grass Owl: targetted research in all range states.

References

- Garnett, S.T. & Crowley, G.M. 2000. *The Action Plan for Australian Birds 2000*. Environment Australia, Canberra.
- Newton, I., Kavanagh, R., Olsen, J. & Taylor, I. (Eds). 2002. *Ecology and Conservation of Owls*. CSIRO, Melbourne.
- Olsen, P. 1998. Australia's raptors: Diurnal birds of prey and owls. Birds Australia Conservation Statement **2**, supplement to *Wingspan* **8**(3).

South East Queensland Raptors: an overview

Greg Czechura
Queensland Museum

The status of diurnal raptors in South east Queensland (SEQ) was briefly reviewed in terms of their relative abundance, seasonal occurrence and conservation status. Historical declines in several species can be identified on the basis of museum specimens and historical reports (notably Red, Grey and Brown Goshawks). It is possible to trace broad patterns of decline for some of these species (eg east to west retreat across Brisbane). These changes directly relate to the changing landscape of SEQ.

Detailed studies of raptors in urban and rapidly urbanising parts of SEQ are lacking. Anecdotal records and casual observations suggest that there are several lines of potential research interest all of which have wildlife management implications. Notable examples include: the relationship between Black-shouldered Kite and Nankeen Kestrel numbers; the apparently recent occupation of outer suburbs and margins of towns by Square-tailed Kites; increased numbers of Peregrine Falcons in urban areas; the impact of large Torresian Crow populations on small raptors; and the status of the White-bellied Sea-Eagle in coastal areas.

Filling the Gaps

The value of installing nest boxes for Peregrine Falcons in an altered landscape

Victor Hurley
Victorian Peregrine Project

During the 1970s and early 1980s Peregrine Falcons in Victoria were laying thinned shelled eggs at many nest sites. These coincided with the use of DDT at the time. Egg shell thinning reduced hatch rates across the State during these years to an average of 58.3%. A new study begun in 1991 investigating breeding success in Peregrines found the egg hatch rate has now increased to 83.4% on average for the years 1991 to 2004 inclusive. At 14 nest sites across Victoria nest boxes were installed in response to particularly low egg hatch rates. Most of these sites were in active quarries. The average egg hatch rate at these sites prior to the installation of nest boxes was 21.7%. Since installation of nest boxes, hatch rates have increased to an average of 79.7% at these sites. We conclude that in more recent years low egg hatch rates are due more to poor drainage and exposure at these sites than impaired reproduction from chemical contaminants.

In Victoria alone, quarries and other urban/industrial nesting locations account for 10% of the known Peregrine nesting sites. The co-operation between volunteers with this project and the various quarry managers has been vital to the success of this study. We have adopted and industry has accepted a tolerant "living with wildlife" attitude in these situations. This has been further demonstrated by a willingness to plan work activities around the breeding season so as to not detrimentally impact on the Peregrines. This positive attitude shared equally by both management and on ground staff. With increasing urbanisation being planned for Australia's larger cities such collaborations will be essential for the long term success of urban breeding Peregrine Falcons.

Raptors in the Brisbane Valley: a 25-year study

Peter F. Woodall

School of Veterinary Science, University of Queensland

Annual bird counts were conducted each year in the Brisbane Valley in early October from 1981 to 2005. The surveys followed a consistent route of 176km, with 14 regular stops and all species observed were counted by a regular team of experienced observers. The survey was largely located within the Esk Shire, where the human population has increased by 73% from 1981 to 2001.

Sixteen diurnal raptors were recorded during the survey (in order of decreasing frequency): Nankeen Kestrel; Whistling Kite; Black-shouldered Kite; Wedge-tailed Eagle; Brown Falcon; White-bellied Sea-Eagle; Pacific Baza; Australian Hobby; Grey Goshawk; Brown Goshawk; Swamp Harrier; Black Falcon; Osprey; Collared Sparrowhawk; Brahminy Kite; Peregrine Falcon.

No species showed statistically significant increases or decreases over this period but in some species the counts were quite variable and these have been examined in relation to the annual rainfall recorded at Gatton. Nankeen Kestrel and Whistling Kites both showed significant positive correlations with rainfall while Black-shouldered Kites and White-bellied Sea-Eagles showed significant negative correlations with rainfall. These differences can probably be explained by factors such as different foods and feeding techniques and movement from other areas.

These surveys have provided important baselines for population monitoring, particularly for the common species and will continue in the future.

Habitat selection by the Barking Owl *Ninox connivens* in the Pilliga forests of north-western NSW

Rod Kavanagh

Forest Science Centre, Department of Primary Industries, NSW

In June 2004, nine Barking Owls from eight territories were trapped, released and radio-tracked for one year in the Pilliga forests of north-western NSW. The study identified important aspects of the ecology of this vulnerable species, enabling the development of guidelines for conserving Barking Owls in timber producing forests.

The research showed that Barking Owl pairs in the Pilliga forests live year round in non-overlapping home-ranges of approximately 2000 ha. The owls used most of the forest vegetation types available in their home-ranges, but preferred particular subsets of tree species associations for hunting, nesting and roosting activities. A feature of the owls in the Pilliga is their diet of native prey species, including sugar gliders, bats, birds and insects, compared to some other locations where European rabbits form the main component. Perhaps for this reason, forest edges were not an important element of habitat for Barking Owls in the Pilliga as they appear to be at some other locations.

The Pilliga forests have a long history of selective logging, yet there appeared to be no evidence of owls avoiding logged areas within their home-ranges. Most pairs of owls attempted to breed during the study but only half were successful, each producing two or three young. Nest predation by goannas appeared to be a significant cause of nest failure for the other pairs.

Management guidelines arising from this study are being incorporated into the negotiated outcomes of the recent Brigalow and Nandewar regions land-use decision.

Raptors and GIS modelling: a pilot study on the Sunshine Coast.

Jennifer Carter
Sunshine Coast University

Keystone predators such as raptors can be key indicators for conservation planning for a suite of other species, as well as being key components of biodiversity in their own right. Coastal development pressures on the Sunshine Coast are contributing to the loss of natural vegetation, and reducing or fragmenting the habitats of many raptors. This project is a pilot study that has developed a GIS (Geographic Information System), incorporating raptor sightings from the Birds Australia Bird Atlas records, with a range of other digital data such as topographic information and land use parcels.

Three key analyses are currently being conducted. A range of spatial processing techniques has determined the average distance between each raptor species and a range of geographic features such as water bodies, remnant vegetation, urban areas, roads and powerlines, and a habitat model for each species will be generated. This model can be tested against sightings in other locations or at other times. Key areas of concern have been analysed with respect to the current protection afforded by various policies in the region such as those protecting regional ecosystems. Lastly, a case study using planning scheme precincts of one local government shire has been overlaid with raptor records to show how raptor sightings are currently distributed within the shire. The habitat model can be used to help identify and conserve certain patches, particular in areas approved for further development.

This projects integrates, GIS, planning, and avian ecology for conservation planning of these iconic species in future years. Future research needs to expand the GIS with constant monitoring of raptor sightings and updated land use planning information. This would enable a time series of data to be followed, predictions made and links with South East Queensland regional planning, policies and nature conservation strategies established. Eventually habitat patch sizes, distances and degree of fragmentation could be modelled using landscape ecology approaches, which will help to show raptor tolerance to urbanisation and produce recommendations for a useful design reserve.

Actions and Opportunities

“Back on Track” - A framework for prioritising species conservation and recovery in Queensland

Tim Holmes
Threatened Species and Ecosystems Unit, Queensland Environmental Protection Agency

The Environmental Protection Agency, as the lead agency for species conservation in Queensland, is taking responsibility for determining a strategic state-wide process for prioritising species most in need of protection and conservation action.

"Back on Track" is a process for prioritising species of both plants and animals from marine and terrestrial environments. It is designed to prioritise all species, regardless of their current classification, to better reflect the level of management required to conserve and recover species. The "Back on Track" framework enables greater capacity by government, natural resource management bodies and communities to make decisions about where to focus on-ground action to deal with threatened species and communities.

The prioritisation methodology incorporates scientific assessment of species against three sets of criteria: Probability of Extinction; Consequences of Extinction; and Potential for Successful Recovery. Senior decision-makers also weight these criteria.

Brisbane City: Conservation Action Statements

Kristy Buchanan

Natural Environment and Sustainability Branch, Brisbane City Council

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. The recent release of Brisbane City Council's *Conservation Action Statements* (CAS) details council's long-term management intent for the city's most significant fauna and flora species as well as outlining key strategies and actions for their management in Brisbane.

Brisbane's raptor species are a major focus in the first series of the CAS's including four statements covering eleven diurnal and nocturnal species:

- Wedge-tailed eagle (*Aquila audax*)
- Red goshawk (*Erythrotriorchis radiatus*)
- Brown goshawk (*Accipiter fasciatus*)
- Grey goshawk (*Accipiter novaehollandiae*)
- White-bellied sea-eagle (*Haliaeetus leucogaster*)
- Osprey (*Pandion haliaetus*)
- Barking owl (*Ninox connivens*)
- Powerful owl (*Ninox strenua*)
- Masked owl (*Tyto novaehollandiae*)
- Sooty owl (*Tyto tenebricosa*)
- Grass owl (*Tyto capensis*)

Council is currently focussed on delivering the key actions identified within the raptor statements, including filling information gaps and effectively managing the threats. To support the long-term protection and conservation of these species, Council is seeking collaborative partnerships with universities, other government agencies, conservation associations and research centres to assist in delivering priority research needs.

Setting some priorities

In the final session, delegates were asked to reflect on what they had heard during the day and rank the identified actions under suggested themes. The full results of this ranking are detailed in Attachment Two. For each theme, some clear priorities were identified and these in particular will be the subject of further action planning on the part of the ARA and its partners. These top priorities are detailed in Table One below. Whilst not ranking highly, other actions will be progressed at a later time as resources permit.

An action plan

The Forum's key objectives of identifying priority actions and partnerships opportunities have been achieved. The high level of participation and enthusiasm on the day is testimony to the wide interest in SEQ's raptors and recognition of the need for a regional, collaborative approach to biodiversity conservation.

To progress the priority actions, the ARA will now prepare a *SEQ Raptor Action Plan* as soon as possible to assist us and our partners plan and carry out the actions in a timely and thorough way.

Table One: Highest scoring actions

| Theme | Score |
|---|--------------|
| Education & Awareness | |
| Important Bird Areas | 11 |
| High School / University curricula | 10 |
| Identification workshops | 10 |
| Field surveys / excursions | 8 |
| Conservation & Management | |
| Habitat restoration | 18 |
| Nest Management protocols | 14 |
| Primary producer awareness | 14 |
| Local and regional planning instruments | 18 |
| Research & Information | |
| Nest site management & buffers | 20 |
| Action Plan for Australian Birds - priority actions | 11 |
| Brisbane City Council - priority actions | 6 |
| SEQ wetlands investigations | 5 |

Attachment One

AGENDA

| Time | Action | Details |
|----------------------|------------------------------|---|
| 9:00-9:10 | Welcome | <i>Stacey McLean / Victor Hurley</i> |
| 9:10 – 9:40 | Presenter 1: Stephen Debus | <i>A national perspective</i> |
| 9:40 – 10:10 | Presenter 2: Greg Czechura | <i>South-east Queensland raptors: an overview</i> |
| 10:10 – 10:30 | Morning Tea | |
| 10:30 – 11:00 | Presenter 3: Victor Hurley | <i>Raptors nesting in urban environments: Peregrines as a case study</i> |
| 11:00-11:30 | Presenter 4: Peter Woodall | <i>Raptors in the Brisbane Valley: a 25 year story</i> |
| 11:30-12:00 | Presenter 5: Rod Kavanagh | <i>Barking Owls in the Pilliga</i> |
| 12:00-12:30 | LUNCH | |
| 12:30-1:00 | Presenter 6: Jennifer Carter | <i>Raptors and GIS modelling: a pilot study on the Sunshine Coast.</i> |
| 1:00-1:30 | Presenter 7: Tim Holmes | <i>'Back on Track' – a framework for prioritising species conservation and recovery in Queensland</i> |
| 1:30-2:00 | Presenter 8: Kristy Buchanan | <i>Brisbane City Conservation Action Statements</i> |
| 2:00-2:15 | Afternoon Tea | |
| 2:15 – 2:45 | Presenter 9: Stacey McLean | <i>A Future for Raptors in South-east Queensland</i> |
| 2:45 | CLOSE | |

Attachment Two**Complete rankings for identified actions**

| Theme | Score |
|---|--------------|
| Education & Awareness | |
| Media | 12 |
| Important Bird Areas | 11 |
| High School / University curricula | 10 |
| Identification workshops | 10 |
| Field surveys / excursions | 8 |
| Forums/workshops | 6 |
| 'Baza Watch' | 4 |
| 'BoP Watch' | 2 |
| 'Frodo Cam' | 1 |
| Conservation & Management | |
| Habitat restoration | 18 |
| Local and regional planning instruments | 18 |
| Nest Management protocols | 14 |
| Primary producer awareness | 14 |
| Local government lists | 1 |
| guidelines | 1 |
| SEQ 'State of our raptor' reporting | - |
| Regional raptor list / schedule | - |
| Research & Information | |
| Nest site management & buffers | 20 |
| Action Plan for Australian Birds - priority actions | 11 |
| Brisbane City Council - priority actions | 6 |
| SEQ wetlands investigations | 5 |
| Coastal raptor nesting success | 4 |
| Darling Downs/Lockyer Valley black falcons | 3 |
| Artificial roost/nest investigations | 2 |
| Brown goshawks in decline | 2 |
| Stratified regional survey & monitoring programme | 2 |
| Grey goshawks common? | 1 |
| Letter-wing kite - what's happening? | 1 |