

## FROM THE PRESIDENT

Welcome to the 22nd volume of *Boobook*, the journal of the ARA. For new members, the name was chosen because boobooks (*Ninox* owls) in one form or another are found across Australasia, and thus a unifying name for the journal.

The return of *Boobook* has been eagerly awaited. (I know because I have received the calls!). We decided not to produce *Boobook* until we could financially support the effort, and we had a volunteer editor with the time to prepare such a publication. I am pleased to say that we have the finances and a capable editor willing to commit to this endeavour. The ARA can now produce *Boobook* on a more regular basis (minimum of 2–3 times per year). Where finances permit, more editions will be produced.

This is a non-refereed journal of articles, news items, field notes and observations involving raptors, mostly but not exclusively from within the Australasian region. We are fortunate in having Stephen Debus as acting editor, and I thank Nick Mooney and Hugo Phillipps for their respective ongoing contributions to this and future editions. As the flagship publication of the ARA, your contributions are essential to the vibrancy of *Boobook* and this in turn is a reflection of the activity of ARA members. Any articles you may have or field observations you think may be of interest (i.e. field behavioural notes) would be most appreciated. Original articles on Australasian raptors are especially welcome. Please forward all material to Stephen Debus.

Not wishing to draw material away from *Boobook*, I encourage members to contribute photographs to the species descriptions being compiled for the ARA Web site. You can visit it at [www.ausraptor.org.au](http://www.ausraptor.org.au). Email any contributions you may have to the webmaster at the site. Also the *Circus* is in effect the news bulletin of the ARA, publicising forthcoming events and some of the more immediate raptor activities.

The ARA plays a key role as the raptor specialist group of Birds Australia. Members of the Executive often field questions on raptor conservation and management from government and private organisations and people. Specialist advice given is most often based on the direct experience of our volunteers. So please use all of the publications referred to above, or simply contact one of the Executive (or your Area Representative) with any questions you may have. If they do not know the answer they will, in the politest way possible, tell you where to go to find it.

I continue to be amazed at what an eclectic mix of conservationists, enthusiasts and rehabilitators constitute the membership of the ARA. The other unifying feature we share is that we are all volunteers. We have no salaried staff, so if you wish to see a more dynamic and innovative ARA then your involvement may be all that is needed. The ARA is all that you and every other member bring to it.

**Victor Hurley**

## EDITORIAL

One cannot step into the editor's shoes without acknowledging the efforts of the previous editors, in this case Lyle Smith and subsequently David Cooper. I note with regret that a proper obituary for Lyle has not appeared, though I doubt that any of us knew him well enough or sufficient about him to do a complete one in the usual sense. All I know about Lyle is that he was an amateur raptor enthusiast and former public servant who, after retrenchment, studied in the humanities at university. He used his literary training in dogged pursuit of a wide 'armchair' interest in raptors, documentation of his field observations, and extensive library research for *Boobook*. He was a volunteer for BOPWatch data entry, he scoured the BOPWatch data sheets and Birding-aus email chat for items for *Boobook*, and he sent in literature items for years before he was editor. I'm sure he had the next issue of *Boobook*, presumably the second for 2000, in preparation when he died, but unfortunately it died with him. I believe his disk with that material on it was among his effects, but regrettably never retrieved for the ARA. Lyle was diabetic, insulin-dependent in later life and so unable to keep going on field trips; he died at about age 44 of complications from his condition. He generously donated a number of quality raptor books, including several of the Poyser monographs, to libraries while he was unemployed or a student.

To his credit, David Cooper stepped into the breach and produced a *Boobook* for December 2001, from scratch without the benefit of Lyle's compiled material. It was, unfortunately, the inordinate delay of a further year in production and despatch to members that led to David's resignation. We thank him and wish him well, and hope that the experience hasn't dimmed his enjoyment of raptors.

The aim from here on is to redress the recent hiatus in the appearance of *Boobook*, and get it back to a frequent and regular publication schedule. The formula that seems to work fairly well is a regular President's column; Area Reps' reports; a 'raptor file' or forum segment for airing current issues or questions in, for example, raptor conservation, rehab, biology or preliminary research results; original general articles on some aspect of the biology or management of wild or captive Australasian raptors; original field notes on Australasian raptors; recent literature, abstracts and book reviews pertinent to Australasian raptors; brief, relevant international news; and announcements or requests. The emphasis should be firmly on Australasian raptors, by regional observers, without a lot of padding with or dominance by extra-regional material. For it to work, the material has to come from YOU, the locals out there seeing or working with our raptors. Of necessity, to get an issue out, the acting editor has by default dominated this issue—a situation that should not continue, as there must be many others with something to say or report.

One suggestion from Nick Mooney is that *Boobook* be electronically based, and that members have the option of receiving *Boobook* electronically. We'll certainly look into it. Meanwhile, it would help if original contributions to *Boobook* were sent electronically, and 'second-hand' material electronically too as computer scans (though beware of copyright).

Finally, there are two issues of concern to the viability of groups like the ARA and their publications. The experience of our sister group in Africa, the Raptor Conservation Group of the Endangered Wildlife Trust, should be a lesson. They had a hiatus in the appearance of their publication, *GABAR* (an acronym for 'Growth and Biology of African Raptors' as well as the name of the Gabar Goshawk) after it temporarily became the *Journal of African Raptor Biology*. *GABAR* was like an up-market *Boobook*, with room for minor field notes from amateurs and articles from rehabbers. When it tried to become a refereed journal in its own right, and cut out the amateur authors, it became very infrequent and ultimately non-viable, disenchanting many of the members (sound familiar?). I believe that *Boobook* should not try to become a scientific journal, and that

original raptor science should go to the established ornithological journals (of which there are too many, some marginally viable or recently defunct, in Australia as it is).

It seems to me bizarre and counterproductive to have two raptor groups and a multitude of local rehab newsletters in a country like Australia, considering our small population size and low per-capita interest in all birds, let alone raptors specifically. The parochialism and separatist outlook of some are unfortunate, when there is room in a truly national and eclectic ARA for those with a rehab focus. Our raptors can't afford not to have a united, national voice on their conservation. The ARA is certainly in favour of legitimate rehab, hand-in-hand with coverage of the real issues and an objective assessment of the real benefits of rehab. The ARA is also not against the non-scientist, though of course conservation and management must be science-based and to be credible we must stick to facts. Australian raptor enthusiasts would have more clout, and could do more for raptors, as one national group under our parent body, the premier ornithological society in Australia. One of the visions of the ARA was, of course, for all raptor enthusiasts in the region to keep each other aware of what we are all doing, so that we could be efficient in our efforts, and to request or offer assistance with projects. Having one national raptor-related publication like *Boobook*, reaching all raptor enthusiasts, would be a great catalyst.

*Stephen Debus*

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### **RESEARCH PROJECT NEEDS ASSISTANCE**

There is currently little information on the genetic makeup of Australian owls. Genetic potential is critical to species survival; knowing how closely related individuals and communities are will improve our understanding of owls' biology. The future needs of the species include maintaining populations throughout their range. We are conducting a non-destructive, non-invasive study on the genetic variability of Australian owls across their range, using samples of feathers or tissue. This information is critically important in building our understanding of these birds, particularly the threatened species. We require as many samples as possible, with known locations, to ensure the success of the study. Sources such as moulted feathers from owl roosts or captive birds, or road kills or other dead specimens, all provide valuable information. If you can provide any such samples, or information on potential sources of samples, please contact Fiona Hogan at Deakin University: mobile 0421 470 250, e-mail [fehogan@deakin.edu.au](mailto:fehogan@deakin.edu.au), or Raylene Cooke also at Deakin: ph. 03 9251 7608, e-mail [raylenee@deakin.edu.au](mailto:raylenee@deakin.edu.au). A sampling kit and protocol can be provided.

## REPORTS AND NEWS

### Raptor seminar 2003

The Birds Australia Southern NSW and ACT Group held a seminar on the status of Australian raptors at Macquarie University in Sydney on 12 April 2003. Invited speakers included Carl Gosper on surveys of owls in western NSW, Natasha Schedvin on her study of Barking Owls, Rod Kavanagh on radio-tracking of Masked Owls, and Paul McDonald on his study of sexual size dimorphism and feeding hierarchies in nestling Brown Falcons. A final discussion and question session, chaired by the Birds Australia President, had the billed theme of 'what people can do for raptors'.

Publications resulting from the aforementioned talks are eagerly anticipated. Meanwhile, the abstract of one paper, an overview of the diurnal raptors of our region, is printed below and the full version may appear in a future ARA conference proceedings. (And aren't we about due for another ARA conference?)

The level of community interest in raptors was amply demonstrated by the capacity-filled (albeit too small) lecture theatre, with the result that the seminar was booked out and people were turned away on the day. Regrettably, the ARA had a very low profile, with no promotion as the Birds Australia special-interest group on raptors either in the flyer or on the day. Also regrettably lacking was direction on what Birds Australia members could do, through supporting the ARA and its projects. I had the impression that the day was organised without reference to or knowledge of the ARA, and that the audience left without a clear idea of what they could do for raptors. The seminar was a valuable lesson on the level of public interest in and concern for raptors, the need for Birds Australia to 'own' and promote its special-interest groups in a forum such as this, and the need for the ARA to promote itself more assertively. And a larger lecture theatre next time!

*Stephen Debus*

### Australian raptors: the big picture

*Abstract.* This paper concerns the distribution, taxonomy, status and major threatening processes of the diurnal raptors of the Australasian region. Within the faunal region there are 70 species of diurnal raptor, of which 25 occur in continental Australia (including the recently recorded Oriental Honey-Buzzard *Pernis ptilorhyncus*) and several others may cross Torres Strait to Cape York as vagrants. The remainder occur in Wallacea (23 species), Melanesia (21 species, some extending to Wallacea), and New Zealand (1 species). The region is especially rich in *Accipiter* species (22 of the world's 47). Several Australian and New Guinean genera appear to constitute an endemic clade, possibly Gondwanan in origin: *Henicopernis*, *Lophoictinia*, *Hamirostra*, *Erythrotriorchis*, *Megatriorchis*, *Harpyopsis*. Recent taxonomic proposals, some based on DNA studies, include: (1) the *Elanus* kites as a separate family (Elanidae) basal to the falcons (Falconidae) and owls (Strigiformes); (2) the Osprey in a family (Pandionidae) separate from the Accipitridae; (3) the Papuan Harrier *Circus spilonotus spilothorax* as a subspecies of the Swamp Harrier *C. approximans*; (4) the Christmas Island Goshawk *Accipiter fasciatus natalis* as a subspecies of the Varied Goshawk *A. hiogaster* (itself split from the Grey Goshawk *A. novaehollandiae*) or even a full species; and (5) the submerging of *Hieraaetus* within *Aquila*. The regionally most threatened raptors include endemic species of tropical forest on islands in Melanesia. Several are Vulnerable: Sanford's Sea-Eagle *Haliaeetus sanfordi* (Solomon Islands); New Britain Buzzard *Henicopernis infuscatus*; New Guinea Eagle *Harpyopsis novaeguineae*; Slaty-backed Goshawk *Accipiter luteoschistaceus* (New Britain); Imitator Sparrowhawk *A. imitator* (Solomon Islands); Christmas Island Goshawk; New Britain Sparrowhawk *A. brachyurus*. One is Data Deficient: Chestnut-shouldered Goshawk *Erythrotriorchis buergersi* (New Guinea). Several are Near Threatened: Lesser Fishing-Eagle *Ichthyophaga humilis* (Wallacea); Doria's Hawk *Megatriorchis doriae* (New Guinea); New Caledonia Sparrowhawk *Accipiter haplochrous*; New Britain Goshawk *A. princeps*; Gurney's Eagle *Aquila gurneyi* (New Guinea, Moluccas); New Zealand Falcon *Falco novaeseelandiae*. For most of these taxa, the major threatening impacts are from deforestation and logging and, for the larger species, also hunting. Within Australia, nationally one subspecies is Endangered (Tasmanian Wedge-tailed Eagle *Aquila audax fleayi*), one species is Vulnerable (Red Goshawk *Erythrotriorchis radiatus*) and one is

Near Threatened (Grey Falcon *Falco hypoleucos*), and several are listed in some states as Endangered or Vulnerable: Osprey *Pandion haliaetus*, Square-tailed Kite *Lophoictinia isura*, Black-breasted Buzzard *Hamirostra melanosternon*, Red Goshawk, White-bellied Sea-Eagle *Haliaeetus leucogaster*, Grey Goshawk, Grey Falcon, Black Falcon *Falco subniger*, Peregrine Falcon *F. peregrinus*. Within Australia, the main threatening impacts are from deforestation or other forms of habitat degradation, direct persecution, and pesticides. The Australian species most in need of basic ecological research are the Black-shouldered Kite, Pacific Baza, Brahminy Kite, White-bellied Sea-Eagle, Red Goshawk, Grey Falcon and Black Falcon. Community conservation action could include involvement by amateur birdwatchers in projects run by the Birds Australia special-interest group on raptors, the Australasian Raptor Association (email: membership@birdsaustralia.com.au). Possibilities include an ongoing atlas targetting rare and uncommon raptors, and an ongoing Bird of Prey Watch scheme.

*Stephen Debus*

### **South Australian Ospreys and White-bellied Sea-Eagles**

In South Australia the White-bellied Sea-Eagle *Haliaeetus leucogaster*, Osprey *Pandion haliaetus* and Peregrine Falcon *Falco peregrinus* are known to use coastal cliffs and offshore islands as breeding sites. During early November 2003 a systematic ground survey of approximately 100 km of coastline, between Kiana Beach (near Lake Hamilton) in the south and Cape Bauer (near Streaky Bay) in the north, was conducted to gather data on the distribution and current breeding status of these species on western Eyre Peninsula. An arbitrary assessment of the vulnerability of nest sites to disturbance was also undertaken.

The survey results include some Sea-Eagle data from nearby offshore islands gathered in July 2003, recent information from local ornithologists, and data from Venus Bay Conservation Park, surveyed by Dave Armstrong (Dept Environment & Heritage). A summary follows.

White-bellied Sea-Eagle: five occupied territories were identified, three of which were on the mainland and the remaining two based on nearby offshore islands. No recently active nests or fledged young from the 2003 breeding season were found.

Osprey: eight occupied territories were identified, five of which were active, with seven pre-fledged young of typically varying ages recorded. One other possible territory was identified, where nest sites were found but there have been no recent sightings.

Peregrine Falcon: three occupied territories identified, one of which was confirmed as active with pre-fledged young.

Within the Cape Blanche/Searcy Bay land subdivision precinct one occupied White-bellied Sea-Eagle territory, three active/occupied Osprey territories, and one active Peregrine Falcon site were located. The three Osprey territories in Searcy Bay represent a greater density of this species than was found elsewhere in this survey, and most likely reflect the prey abundance and all-weather foraging opportunity in the sheltered waters of nearby Bairds Bay.

*Terry Dennis*

*...Reprinted from Birds SA Newsletter 189, March 2004, p. 9, which states that the full report is available from the Birds SA library and has been lodged with DEH in Adelaide and Venus Bay. Publicity by Birds SA has canvassed the likely effects of coastal development on these raptors, and has stressed to Streaky Bay District Council the importance of protecting this stretch of coastline.*

### Trapping of Wedge-tailed Eagles

A timber mill owner has been convicted and fined \$5000 in Ballarat Magistrates Court, after two Wedge-tailed Eagles were discovered in a trap on his sheep property at Raglan, near Beaufort, in western Victoria. Park rangers found the eagles trapped and in distress, along with remains of a raven, on a farm owned by Ian Crick on 6 August 2002. The defendant claimed that he did not know the eagles were in the trap, or how they got there. He denied setting the trap to catch eagles, but saw no problem with a raven entering it. The Magistrate found that the old cage, with a hole in the top, was legitimately used to pen sheep, but Crick had made a negligent mistake in not turning it over. Crick pleaded guilty to aggravated cruelty to the raven, and taking notable wildlife. The magistrate wondered why a raven would bother to enter the cage, but accepted that it did, and that the eagles followed and ate the bird.

**Steve Butcher**

from *The Age* (Melbourne), 19.6.03, per James Fitzsimons

*...A photo with the article shows two juvenile eagles, in what looks to me like a typical 'crow trap' type cage of chicken-mesh on a frame, commonly used to trap ravens in sheep country: hardly of 'sheep pen' construction or size. Any bait would have had time to be eaten and therefore no longer in evidence. (Ed.)*

### Cruelty to eagles

There have been reports in national newspapers of four Wedge-tailed Eagles found chained to logs on a New South Wales property. The eagles had been chained by the leg using hose clamps and wire, and an axe had been used to remove one wing on each of the birds. The eagles had been tethered for as long as several months and kept alive with bowls of water and meat. Outside the diameter of the chains were a total of 48 steel-jawed baited rabbit traps. The tethered birds had been used as decoys to lure other eagles into the traps. Legal action has been taken against the offender.

**Michael Weston**

reprinted (abridged) from *Wingspan* 14(1), 2004: 9

*...And this is supposed to be a civilised society in the 21<sup>st</sup> century. Such barbarism is beyond belief, and one hopes that the legal process paid at least as much attention to the extreme aggravated cruelty as to the taking of protected fauna and the illegal use of banned leghold traps. (Ed.)*

### Further protection for Wedge-tailed Eagles in NSW

NSW Environment Minister Bob Debus has announced, in a press release and in a speech to State Parliament, that the issuing of licences to cull Wedge-tailed Eagles is now banned in NSW. This step is based partly on an inferred 15% decline in eagle numbers over the past two decades. In cases of perceived threat to livestock, graziers are encouraged to contact the Department of Environment, whose officers will assist with site inspections, post-mortems of dead stock, advice on fox and other pest-management strategies and, as a last resort, possible trapping and relocation or licences to 'shoot to scare'.

per **Chris Ward**, NSW Environment Minister's Office

*...There has been adverse reaction. Reportedly, e-mail chat on ABC Rural Online regurgitated the usual old chestnuts about numbers of eagles in lambing paddocks, dead lambs, and blame on the eagles. Still 'guilty until proved innocent', although science largely exonerated the eagle 30 years ago! Fact is taking a while to filter down, and we could lift our game in this regard. Did anyone respond to ABC Rural? (Ed.)*

## RAPTOR FILE

### The state of raptor knowledge and research in Australia

Ten years after publication of the *Handbook of Australian, New Zealand and Antarctic Birds*, vol. 2, it seems appropriate to take stock on the progress of knowledge on our diurnal raptors. *HANZAB*, and the 1989 ARA conference proceedings *Australian Raptor Studies* (published in 1993 though minimally cited by *HANZAB*), are benchmarks for the state of published knowledge in the early 1990s. Since then we have had the 1996 ARA conference proceedings (*Australian Raptor Studies II*, 1997); Proceedings of the V World Conference on Birds of Prey (*Raptors at Risk*, 2000); and many papers and notes in various journals, listed in *Boobook*. Regrettably, about three-quarters of the spoken papers on diurnal raptors at ARA 1996 were not submitted to the proceedings, and most of them have not appeared elsewhere either.

Basically, most of the raptors that were not well known 10 years ago are still the ones that are least known now, namely the Pacific Baza (especially), Black-shouldered Kite, Brahminy Kite and Black Falcon. Such a situation seems bizarre, given that the Black-shouldered Kite is easily observable in heavily settled districts, the Baza and Brahminy Kite are easily observable on the heavily settled subtropical east coast (even from suburban gardens), and the Black Falcon is readily accessible to Adelaide and eastern Wheat Belt birdwatchers. There has been some improvement on knowledge of the Grey Falcon, and there are studies on the Black-shouldered Kite and Grey Falcon languishing unpublished (despite attempts to redress that situation!), with another study on the Kite being written up.

The most notable improvements on formerly poorly known species have been for the Black-breasted Buzzard in the arid zone, and the Square-tailed Kite in northern coastal NSW and south-east Queensland where teams of enthusiastic amateur observers have transformed the latter into one of the better-known species. The second (2003) edition of David Hollands' *Eagles, Hawks and Falcons of Australia* has added a little on the Letter-winged Kite, Brahminy Kite and Red Goshawk, arising from recent photographic stints at nests, and a brief note on the Christmas Island Goshawk.

Research has proceeded well on many of the other species, with postgraduate and other work published or nearing publication on the Osprey, most arid-zone species, accipiters, eagles and most falcons. The Wedge-tailed Eagle (mostly in relation to the rabbit calicivirus) and Peregrine Falcon continue to attract intense research effort, and a PhD is in progress on the White-bellied Sea-Eagle. Nevertheless, there still has not been a comprehensive, quantified behavioural study of the Wedge-tailed Eagle through a full breeding cycle from nest-building to independence of young, of the sort done for several other Australian species.

The greatest need for research is on the poorly known endemic and other species, including falcons regarded as threatened or near-threatened at state or national level: the Black-shouldered Kite, Baza, Brahminy Kite, Grey Falcon and Black Falcon. To this list should be added ecological research on the Red Goshawk in Queensland, publication of recent survey results on this species in Queensland (though keeping sites confidential), and proper publication of the full results of the RAOU Red Goshawk study (which were never published in scientific journals, and included data on other raptors in the Top End). Follow-up population monitoring of the Red Goshawk in the Top End and Kimberley is also desirable.

A recent handbook (Johnstone & Storr 1998) deserves special comment, because it is essentially supplementary to *HANZAB*. It contains a little new information on most Australian raptors. The material derives largely from the Western Australian Museum database, and hitherto unpublished information from Western Australian observers. In particular, it contains a brief summary of data from the unpublished Grey Falcon study referred to above, and previously unpublished data from six Red Goshawk nests observed in the Northern Territory by T. Van Der Zwan. A comprehensive prey list adds a range of species (including various reptiles and mammals) not previously recorded in the Red Goshawk's diet, but the stated incubation period of 34 days is doubtful in light of the RAOU study that established about 40 days. As Van Der Zwan's data were not published in the scientific literature, it is not clear how incubation was estimated (for example, eggs could have been present for days before the female settled into complete daytime incubation). Some qualms about the uncritical use of unpublished data notwithstanding, this volume needs to be taken into account when assessing the state of current knowledge.

The *WA Handbook* is of interest also for its taxonomic treatment of some raptors. The Buzzard and Square-tailed Kite are placed together in the same genus (*Hamirostra*), a possibly justified move given their similarity. The Red Goshawk is not flagged as another member of the 'old endemics', although any slight resemblance to *Accipiter* is superficial. Inclusion of the Little Eagle in *Aquila* was prophetic (see elsewhere in this issue). Statements on the relationships of several other accipitrids were reasonable in 1998, but require review in the light of recent knowledge. Old dogma on the relationships of some Australian falcons was, by 1998, already superseded by the concept of Australasian and Gondwanan hobbies, which include the Brown Falcon and its close relative, the New Zealand Falcon.

Johnstone, R.E. & Storr, G.M. (1998). *Handbook of Western Australian Birds*, vol. 1. Western Australian Museum, Perth.

*Stephen Debus*

### Relationships of the *Elanus* kites

A paper by Michael Wink (2000) provided DNA evidence that the white-tailed or black-shouldered kites, genus *Elanus*, are genetically between the falcons and the owls. Wink's DNA family tree places the *Elanus* kites basal to the branching that gave rise to the owls and falcons. The latter split is also basal to the branch that leads to the hawks and eagles. Wink proposed that the *Elanus* kites are a unique group deserving of their own family, Elanidae. To take this information to its logical conclusion, if the hawks (Accipitridae) and falcons (Falconidae) deserve their own orders (Accipitriformes and Falconiformes), a move that is receiving increasing support, then the *Elanus* kites must too, which would be order Elaniformes.

Armed with this information, observers could look for behavioural and morphological evidence. It seems that the elanid kites are unique among the hawks in plumage patterns and voice, and perhaps in their eggs. Birdwatchers sometimes ask why these kites are not classified as falcons, on account of their long pointed wings and hovering, and the stock answer (based on the conventional wisdom) has been 'because of their internal anatomy'. Their skeleton is reportedly more accipitrid than falconid, and evidence on their eggs is thus far equivocal. Outwardly their eggs resemble those of falcons, being more heavily pigmented than those of hawks, but I have seen no definitive statement on whether elanid eggs have the green shell lining of hawks or the buff lining of falcons (as viewed against the light through a hole in the shell). Some elanid calls are reminiscent of those of *Tyto* owls (the screech) or falcons (the chatter and frog-like maternal croak). There are also subtle similarities between *Ninox* owls and falcons, in morphology and behaviour (e.g. head-bobbing, feather barring, bill and cere).

The distribution of elanid kites suggests a Gondwanan origin for the group. *Elanus* is primarily Southern Hemisphere (*leucurus* in the Americas, *caeruleus* in Africa and the Indian plate, the old endemic *scriptus* in Australia, *axillaris* in Australia). Genus *Chelictinia*—basically an *Elanus* with a long, forked tail—is African, and genus *Gampsonyx* is South American: the latter a small, falconet-like elanid with rusty, juvenile-like plumage. Black underwing markings are a specific character and perhaps social signal in elanids: present to varying degrees in the different *Elanus* species, and in *Chelictinia*. However, the black underwing spot is absent in *caeruleus*, which is sympatric with (and perhaps originated alongside?) *Chelictinia*. Furthermore, the apparently ancient Australian species, *scriptus*, is nocturnal (like owls). Which raises a question: did *axillaris* originate in Australia too, and give rise to *caeruleus* which lost its black underwing spot when it contacted *Chelictinia*, or did *caeruleus* recently invade Australia, and in speciating as *axillaris* (re)gain its black underwing spot.? Some *caeruleus* in Wallacea show traces of a dusky underwing marking. Feedback, and pertinent observations on the above, welcome.

Wink, M. (2000). Advances in DNA studies of diurnal and nocturnal raptors. In Chancellor, R.D. & Meyburg, B.-U. (Eds), *Raptors at Risk*, 831-844. WWGBP, Berlin and Hancock House, Surrey (Canada).

*Stephen Debus*

## ARTICLES

### Raising and hacking a Swamp Harrier chick

Now, the average person on buying their first home will perhaps renovate the bathroom, tile the kitchen, maybe put down new carpets. Not I, however! After convincing my husband that he really didn't need the space in the largest of our outdoor sheds simply to keep his tools in, I set out to build my own raptor aviary.

Keeping it simple, I removed all nails and protruding objects, replaced the north-facing door with vertical slats and did the same with the two windows that faced out over some light bush. One of the windows doubled as a release hatch, with a feeding platform underneath it in the hope that any bird at hack would gain its bearings from this vantage point and return for food should it need to.

Over the first few months it housed two Peregrines both of which, unfortunately, were non-releasable, and a Magpie which soon made it back into the wild. In December, I got a call: would I like to look after a Swamp Harrier chick? All efforts had been made to place it back in a nest but one could not be found. I, of course, jumped at the opportunity but was disconcerted to hear that they imprint easily and are often unable to be released. I asked a colleague to collect the 'little one' for me and sent her off with a small, cosily-lined box to put him in. She phoned to say that she had the chick but that it definitely wouldn't fit in the box! When I picked up the pet pack and brought it home, I was amazed at the 'monster' within—standing up on his long yellow legs, hissing at me and rocking back in a defensive pose. It was then obvious that he wouldn't need to be as dependent on me as I had thought. I was going to give it my best shot to get him back to the wild.

Gathering some authentic Swampy nesting material, I fashioned a nest on a small ledge in the aviary and sat him in it with some chopped-up mouse. He had no problem feeding and I quickly learned that he could deal with whole prey by himself, at this stage readily consuming up to 10 mice per day.

I decided to limit my contact as soon as possible, so quashed my urges to check on him and limited my interference to a morning food delivery and an evening peek through the slats, to see that he was okay and eating well. As soon as he could perch, I limited this contact even more by poking his food through the slats and onto the platform, trying my best not to let him see me and therefore associate me with food.

It didn't take long before he was flying around the enclosure, his beautiful new feathers came in and he looked 'good to go'. I waited until I had a couple of days off work as I wanted to watch what he did. One sunny morning in January, with a nice juicy rat in his talons, he took off into the wild. His first choice of perch was a rather flimsy one—a wattle sapling—and so having dropped his rat, he went down to the ground to eat it. Hiding in amongst the foliage David Attenborough style, I took both video and camera shots and witnessed some fascinating behaviour. After a few hours he started picking up stones and sticks, jumping up into the air, dropping them and catching them again as if practising for live prey.

The next morning he had gone, but I put out food on the release hatch and on various fence posts around my property. Two days later he returned, taking all of the food except that on his original feeding platform. We saw him most mornings and evenings for the following week, and it was fantastic watching him improve his flying and perfecting his hunting skills, although our 5-month-old puppy looked rather concerned when the harrier took off with his favourite stuffed toy and repeatedly dropped and 'killed' it. I continued to feed him—sometimes a lot, sometimes a little—and hoped that he was spending his time away productively. After two weeks he spent another two days away, and at the time of writing is currently off on his third stint of two days or more away from 'home'. So, like an anxious parent, I am constantly looking out for him—hoping to see him quartering over the fields—just so I know he is okay, but I know that I have done my best and now Nature must take its course.

(Since writing this, my neighbour has seen him catching the mice and rats that ran out from the grass as he ploughed his field.)

*Angela Gillone*  
(Tasmania)

### **Raising a Pacific Baza**

In December 2001 in the Sydney (NSW) suburb of St Ives, which borders Ku-ring-gai National Park, a fledgling Pacific Baza *Aviceda subcristata* was found on the ground, unable to fly. The emergency wildlife service (WIRES) suggested keeping the bird in a manner that would enable its parents to find and feed it, as young Bazas are difficult to hand-feed. A perch was placed in an old chicken shed, and the Baza was placed thereon and offered meat and moths, but would not eat. It was very placid, and remained so throughout its 'captivity'.

Next morning there was much calling by the young Baza. After several hours there were answering calls from the parents, which were eventually seen near the cage. At first, the adults came to the top of the cage and fed the juvenile with large grasshoppers and other insects through the holes in the wire netting, providing two feeds a day. Later, the wire roof was rolled back, leaving a hole about 1.5 × 0.8 m above the perch. When the adult female came for feeding, she became increasingly adept at flying through the gap in the mesh, being able to land directly on the perch, then fly directly up and out. The adult male managed to manoeuvre through the gap, fly around inside the cage (which measured 1.5 m wide × 5 m long × 1.5 m high), feed the perched fledgling on the wing without stopping, and fly out again. An amazing feat for a bird with such a large wingspan in such a confined space.

The young Baza often dropped down to the floor of the cage and was then placed back on its perch. Eventually it was able to climb out on top of the cage, and then flew down to the ground or to very low branches outside, gradually moving further from the cage. It spent considerable time on the ground, flapping its wings and calling with plaintive cries. The parents now fed it outside the cage during their daily visits. It could not fly upwards. On one occasion it was found asleep outside the back of the house. At night the juvenile, which was now almost as big as its parents, was put back into a fully enclosed section inside the cage, to protect it from cats or foxes.

After two weeks or so, the juvenile was too far from the cage to be recaptured. Luckily, it was fully fledged and seemed to be able to fly a little better. After a further week or so, the calling stopped as the Baza family had moved on.

A year later (December 2002), the characteristic Baza calls were heard again as two adults returned. This time the nest was sighted, high up in the fork of a eucalypt, two houses away. The female sat in the nest for long periods. Soon, the adults were seen returning frequently to the nest and feeding an unseen recipient. Then a large fluffy chick was visible. This time there were no premature unsuccessful flights, but instead much flapping of wings, followed by short supervised flights. Then, as before, the calling stopped and the family had moved on.

***Cynthia and Lindsay Mallen***

reprinted (abridged) from *Bird Observer* 824, 2002: 6

*...A photo with the original article shows that the young Baza, when first found, was well-feathered but, with short wings and tail, still several days off fledging age. There is obvious scope for more systematic observation of Bazas nesting in suburban backyards of coastal towns and cities from Sydney northwards. (Ed.)*

## FIELD NOTES

*I hope readers will excuse the many old and second-hand items here, while we catch up following the long lapse in Boobook and the lack of original contributions. Obviously, either the Queenslanders are seeing more raptors than the rest of us or they are more conscientious in writing, and in knowing what is interesting or significant enough to report, compared with the slim raptorial pickings in the other regional newsletters. Many reprinted items have been trimmed to keep just the raptorial facts. Please, send in original contributions for this segment of Boobook. (Ed.)*

### Red Goshawk sighting in NSW

On 6 December 1999 I saw a Red Goshawk *Erythrothorichis radiatus* about 10 km west of Mt Warning in the far north-east corner of NSW. I had great views of it for at least 5 minutes and am sure it wasn't another species. I had previously seen a Red Goshawk in Queensland, in 1995.

*Anthony Mitchell*

*...To the best of my knowledge this is the most recent Red Goshawk record for NSW, so it looks like the species is now almost absent from the state (Ed.)*

### Wedge-tailed Eagle grappling with Little Eagle

Full details are not available, but on 2 September 1999 a resident of Uralla, near Armidale (NSW), photographed a struggle between a Wedge-tailed Eagle *Aquila audax* and a Little Eagle *Hieraaetus morphnoides* on the ground in a paddock. An adult Wedge-tailed Eagle was 'mantling' over and clutching a live adult female Little Eagle, and the latter was rearing back, facing the larger eagle with her crest and hackles raised. Upon the observer's approach, the Wedge-tail disengaged and flew off. The Little Eagle remained standing on the ground and regained her composure; close-up photos revealed slightly bloody, small puncture marks on her chest and right thigh, tarsus and toes. She also had a small scratch on her cere and a nick in front of her right eye which seemed unharmed. Other injuries were not apparent in the photos, but she was unable or unwilling to fly and was left to shelter in a nearby belt of trees. Her fate is unknown. There was no evidence that the conflict was initially over a prey item of either eagle.

*Stephen Debus*

*...Further details were passed on to Lyle Smith at the time, but have been lost (Ed.)*

### Grey Goshawks nesting

On 27 October 2000 I was alerted by the sound of breaking sticks in the *Terminalia* tree in our garden in Cairns (north Qld), to a pair of Grey Goshawks *Accipiter novaehollandiae* building a nest in the big quandong tree below the house. Most of the activity of stick collecting appeared to take place in the morning up until about 0930 h and again later in the afternoon. The female seemed to be the principal 'architect'. Nest building continued until 2 November, when the female appeared to be spending more time standing on the nest and calling frequently.

3–8 November: twigs were still being added, with copulations occurring each day amid a duet of calls from both birds, usually in the early morning.

9 November: the female appeared to be sitting, invisible except for her tail tip, in the deep and high nest.

10–29 November: the female continued to incubate, despite heavy rain overnight on occasions. Much calling in the morning from the nest and replies from the male in a nearby tree.

30 November: much noise from mobbing birds at 0615 h when the female appeared clutching a Common Myna *Acridotheres tristis* in her talons.

2 December: the female usually left the nest early, called, defecated and preened. Incubating for about 3 weeks.

10 December: the male brought a kill to the female in the *Terminalia*, where she ate hungrily. When she finished, she cleaned her bill vigorously on the branch several times, perched and called intermittently for 5 minutes, then returned to the nest as the male left.

14 December: the female fed small chicks that were not visible.

17 December: egg shell on the ground under the *Terminalia*.

Through December: the female continued to sit despite much loud noise from roadworks nearby.

24 December: two white fluffy heads visible in the nest.

1 January: two large chicks visible. The larger chick had dark grey showing on its wings, and appeared more active.

9 January: both chicks growing rapidly and the older one often stood on the outside of the nest.

14 January: the older juvenile now making short flights from branch to branch in the nest tree. Soft calls heard.

18 January: juveniles feeding themselves on kills brought by their parents.

20 January: the older juvenile flew to a *Poinciana* tree 50 m away. Kills were always taken to the nest where the juveniles returned to feed.

24 January: the young moved around neighboring trees during the day, but returned to the nest in the late evening.

31 January: juveniles usually absent from the nest during the day and heard calling in neighbouring trees, but the parents always brought kills to the nest where the young fed.

4 February: adults still brought kills to the nest.

9 February: the younger juvenile was on the nest with food. Calls seemed to be getting further from the garden.

13 February: the juveniles attempted to catch prey.

Prey brought to the nest included Rainbow Lorikeets *Trichoglossus haematodus*, Magpie-lark *Grallina cyanoleuca*, Common Mynas and what was apparently a Lace Monitor *Varanus varius*.

**Dawn Magarry**

reprinted from *Birds Qld Newsl.* 32(3), 2001: 7

...A nice example of what can be achieved with systematic observing and note-taking. Further, one can estimate the time taken to build the nest (12+ days), the incubation period (33±1 days), the nestling period (33±1 days), and the post-fledging dependence period (at least a month). (Ed.)

### **Grass Owls in north Queensland**

In late October 2000 I visited Lakefield National Park on Cape York Peninsula (Qld). On Nifold Plain, a barren floodplain with early growth following the onset of rains, at dusk we observed a gathering of about 20 Grass Owls *Tyto capensis*. The owls were flying low in a leisurely manner, crossing the vehicle track or quartering often with low circling glides. At times they dropped to the ground, apparently after prey, or descended to stand on small areas of elevated ground, on mounds, or on completely flat terrain.

**Mark Jagusch**

reprinted (abridged) from *Birds Qld Newsl.* 32(2), 2001: 14

### Grey Falcon sighting in south-east Queensland

On 28 March 2002 we observed two Grey Falcons *Falco hypoleucos* in flight over agricultural land 10 km north of Warwick (Qld). They were in view sufficiently long for diagnostic features to be observed clearly.

**Jason Richard & Anita Petzler**

per 'Sightings', *Birds Qld Newsl.* 33(5), 2002: 14, and additional information supplied

### Prey of Rufous Owl

On 21 August 2002 at Emerald Creek Falls, north-east Queensland, a roosting Rufous Owl *Ninox rufa* held the rear half of a Giant White-tailed Rat *Uromys caudimaculatus*.

**R. Lamb & M. Dam**

per 'Sightings', *Birds Qld Newsl.* 33(10), 2002: 15

...*This is a new prey record for the owl (Ed.)*

### Barking Owl dies after eating Cane Toad

On 6–7 November 2001 two Barking Owls *Ninox connivens* were heard at Lake Julius near Mt Isa in north-west Queensland. The caretaker advised that two owls had been roosting at the cabins until one died while eating a Cane Toad *Bufo marinus*.

**B. Forsyth**

per 'Sightings', *Birds Qld Newsl.* 33(2), 2002: 15

...*One wonders how often this scenario is repeated as Cane Toads spread across the Barking Owl's stronghold in the tropical north (Ed.)*

### Powerful Owls at Venman National Park

2001 was not a good year for Powerful Owls *Ninox strenua* at Venman National Park near Brisbane, south-east Queensland. The remains of one chick were found under their well-used nest tree on 6 August and the nest was abandoned. Later in the year part of the hollow branch in which they nested broke off and a 1.5 m section fell to the ground. In 2002 the owls did not use the remaining hollow. However, Chris and Col Fitzell reported owl droppings on a walking track and then sighted the two adult owls nearby. They were near a tree with a large, promising hollow and on a subsequent evening two fluffy chicks' heads emerged from the hollow.

The owlets fledged on 21 and 23 July, about a month earlier than in previous years. These two bring the total to nine owlets fledged at Venman in the past six years. Prey seen being consumed over a three-week period included six young Koalas *Phascolarctos cinereus*, one Common Ringtail Possum *Pseudocheirus peregrinus* and one fruit-bat *Pteropus*. A second pair of Powerful Owls in the area also produced two owlets in 2002. They bred in Burbank and fledged their owlets in mid-August.

**Bob Hambling**

reprinted from *Birds Qld Newsl.* 33(9), 2002: 7

## BOOK REVIEW

*The Spanish Imperial Eagle* by Miguel Ferrer. Lynx Edicions, Barcelona, 2001. Pp 224; 36 tables, 58 figures, b/w photographs, sketches. 32 euros + p&p.

This book is the third scientific monograph on a large *Aquila* eagle in the last decade or so. That by Gargett (1990) was a detailed observational and analytical study conducted by an amateur, though with a very professional approach, on the Black Eagle *Aquila verreauxii* in Africa. That by Watson (1997), on the Golden Eagle *A. chrysaetos* mainly in Scotland though with a global perspective on the species and genus, was the sort of high-quality professional treatise, written by a scientist, that we have come to expect from Poyser's raptor monographs. Thus, we now have monographs on the three large *Aquila* of the Northern Hemisphere and Africa that collectively demonstrate what research could, and should, be done on our Wedge-tailed Eagle. The Tasmanian *A. audax fleayi* is in some ways, including its endangered population of similarly about 100 pairs, the equivalent of the Spanish Imperial Eagle, and faces similar threats.

Most of the 11 chapters in the Ferrer monograph appear to be a collection of the author's papers in scientific journals, rejigged for a more general readership. After a brief introductory chapter that sets the scene, the main chapters cover aspects of the eagle's biology that were studied for the author's doctorate or in his professional capacity as an eagle biologist. Each chapter conveniently finishes with a 'Conclusions' section synthesising and summarising the main points.

Chapter 2, on taxonomy, biometrics and physiology, canvasses the specific rank of the Spanish form *Aquila [heliaca] adalberti*; describes a novel sexing criterion that can be used on museum specimens as well as on live birds (forearm length, i.e. radius-ulna); and describes the evaluation of body condition from measurement of biochemical parameters in blood samples. For example, plasma urea levels reflect an eagle's nutritional state, or phosphorus levels reflect skeletal ossification and thus age.

Chapter 3 describes the eagle's historical and current distribution and status in Spain, and the factors affecting its decline and current habitat selection. Chapter 4 describes its diet, hunting behaviour and food requirements.

Chapter 5 describes aspects of the eagle's breeding biology up to the point of fledging, from nesting habitat and nest-site selection through details of breeding parameters, to the effects of disease and pollutants, correlates of chick condition, aspects of nest defence, and density-dependent population regulation. A major finding is that chicks are readily infected by *Staphylococcus aureus* from human handling, a risk averted if researchers wear single-use latex gloves each time they handle an eaglet. The chapter also includes a discussion of the reasons for the high proportion of breeding pairs having an immature member.

Chapter 6 is a fascinating and insightful description of the post-fledging dependence period, with a novel approach to recognising stages of progression to independence and their relationship to the young eagle's nutritional state. Much new information derives from the author's radio-tracking study of young eagles, and assessment of their body condition as known-age nestlings. Ferrer interprets parent-offspring interactions in a new light that makes perfect sense, with respect to how parent eagles judge the readiness of their young for independence and what determines cessation of parental food-provision.

Chapter 7 is a similarly insightful description and novel interpretation of the post-natal dispersal period, based on hard data deriving from the author's radio-tracking study of young eagles. The author recognises several stages of the process, from local dispersal and first departure from the natal population, to exploration and temporary settlement areas in a cumulatively large range, with brief return visits to the natal population. He also examines aspects of dispersal in relation to the birds' nutritional state; temporary settlement areas in relation to food supply; and habitat selection during the dispersal period and its conservation implications. This chapter necessitates a revision of the traditional view of the dispersal phase in eagles that are sedentary as breeding adults.

Chapter 8 examines the causes of mortality of Spanish eagles, and the sex-related bias in the main cause of death, which is electrocution on power poles. Chapter 9, on population dynamics, describes and compares

the accuracy of methods for estimating parameters such as mortality, life expectancy and longevity, from the proportion of age-classes in the population, and from other sources such as banding returns, observed mortality, and observed mate replacements within pairs. It discusses population stability in relation to age of breeders, factors influencing the persistence of small populations, and density-dependent age of first reproduction.

Chapter 10 discusses population genetics with respect to the eagle, and gene flow between subpopulations. Pending further DNA work, it could not answer the question of whether *adalberti* is genetically just a subsample of *heliaca*, and thus throw further light on the controversy over specific rank.

Chapter 11 is the inevitable chapter on conservation of this endangered taxon: a critical evaluation of management techniques in light of the author's research. For instance, it compares the efficacy of traditional techniques to increase breeding productivity, such as brood manipulation, with reduction of mortality through mitigation of electrocutions (the latter far more effective for increasing the population). It also makes recommendations, based on the author's work, on the importance of dispersal areas, colonisation of new areas, and genetic exchange between populations.

The book finishes with a very comprehensive bibliography, except that Seibold *et al.* (1996) is omitted; reference to that study would have strengthened the taxonomic discussion in Chapter 2. There is no index, although the contents pages are sufficiently explicit. Throughout, the tables and figures support the case being made, and the photographs and sketches enhance and enliven the text (though the photo on p. 24 is of an eagle 'mantling', not in flight!). Unfortunately the odd format of the bibliography, with the first line of each entry indented and subsequent line(s) at the margin, makes it difficult to use. The reverse, as in standard bibliographic format, should apply.

A major criticism of the book, apart from the persistent failure to italicise scientific names throughout, and the frequent confusion of 'juvenile' (= first plumage) with 'immature', is that almost every page is littered with several to many typographical, spelling or grammatical errors. Granted, English is not the author's mother tongue, but the book is not up to the usual Lynx standard in this regard, and would have benefited greatly from a thorough proof-reader whose first language is English.

The major strength of this book is that it takes a refreshingly new approach to the biology of large *Aquila* eagles, incorporating innovative techniques and providing many insights into hitherto little-studied aspects. It provides some novel interpretations of aspects of eagle biology, and necessitates critical review of old dogma. Importantly, it provides a way forward in the recovery of the Spanish Imperial Eagle, and therefore lessons for the management of similar taxa in other countries.

This book is essential reading for those involved in the study, conservation and management of large eagles, and for those simply wanting to better understand these birds. Although lacking the polish of the Poyser monographs, it more than makes up by the author's insightful discussions on behavioural ecology. Most of the principles would apply to other large *Aquila*, and indeed probably to most large raptors. Ferrer's work is highly relevant to the Wedge-tailed Eagle, especially the Tasmanian subspecies, and deserves attention from Australian raptor biologists. It can be ordered from Lynx at their Web site: [www.hbw.com](http://www.hbw.com).

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Seibold, I., Helbig, A.J., Meyburg, B.-U., Negro, J.J. & Wink, M. (1996). Genetic differentiation and molecular phylogeny of European *Aquila* eagles according to cytochrome b nucleotide sequences. In Meyburg, B.-U. & Chancellor, R.D. (Eds), *Eagle Studies*, pp 1–15. World Working Group on Birds of Prey & Owls, Berlin.

Watson, D. (1997). *The Golden Eagle*. Poyser, London.

*Stephen Debus*

## RECENT LITERATURE

### Journals

#### *Animal Behaviour* 61 2001

Spatial consequences of relatedness and age in Buzzards (S. Walls & R. Kenward), 1069–1078.

#### *Animal Behaviour* 62 2001

Territorial signalling: a new hypothesis to explain frequent copulation in raptorial birds (J. Negro & J. Grande), 803–809.

#### *Auk* 118 2001

Effects of supplemental food on parental-care strategies and juvenile survival of Northern Goshawks (S. Dewey & P. Kennedy), 352–365.

Avifauna of a lowland forest site on Isabel, Solomon Islands (A. Kratter *et al.*), 472–483.

Nest defense as parental care in the Northern Hobby (*Falco subbuteo*) (F. Sergio & G. Bogliani), 1047–1052.

#### *Aust. Bird Watcher* 19 2001

Aspects of breeding of the Osprey *Pandion haliaetus* on the mid-north coast of New South Wales (T. Bischoff), 88–93.

Surveys of the Grass Owl *Tyto capensis* in coastal New South Wales (S. Debus *et al.*), 94–102.

Winter home range of an adult female Southern Boobook *Ninox novaeseelandiae* in suburban Canberra (J. Olsen & S. Taylor), 109–114.

Easterly records of the Grey Falcon in New South Wales (W. Martin & M. Royal), 132–134.

#### *Behaviour* 138 2001

Temporal stability in the individual features in the calls of Eagle Owls (*Bubo bubo*) (T. Lengagne), 1407–1419.

#### *Biological Conservation* 99 2001

Bird collisions with power lines—an experiment with ptarmigan (*Lagopus* spp.) (K. Bevanger & H. Brøseth), 341–346.

#### *Bird Study* 48 2001

Nestbox provisioning in a rural population of Eurasian Kestrels: breeding performance, nest predation and parasitism (J. Fargallo *et al.*), 236–244.

#### *Bulletin British Ornithological Club* 121 2001

Reproductive condition, moult, and body mass of birds from Isabel, Solomon Islands (A. Kratter *et al.*), 128–144.

#### *Canadian J. Zoology* 79 2001

Response of American Kestrels and Gray-tailed Voles to vegetation height and supplemental perches (L. Sheffield *et al.*), 380–385.

**Condor 103** 2001

Assessing raptor diet: comparing pellets, prey remains, and observational data at Hen Harrier nests (S. Redpath *et al.*), 184–188.

Nonrandom mating and productivity of adult and subadult Cooper's Hawks (C. Boal), 381–385.

Influence of military activities on raptor abundance and behavior (L. Schueck *et al.*), 606–615.

Thermal ecology and ecological energetics of California Spotted Owls (W. Weathers *et al.*), 678–690.

**Corella 25** 2001

Surveys of the Barking Owl and Masked Owl on the North-west Slopes of New South Wales (S. Debus), 5–11.

A variation on the 'noosed fish' method and its suitability for trapping the White-bellied Sea-Eagle *Haliaeetus leucogaster* (J. Wiersma *et al.*), 97–99.

**Emu 101** 2001

Parental investment in male and female offspring by the Peregrine Falcon (M. Boulet *et al.*), 95–103.

*Accipiter imitator* on Isabel Island, Solomon Islands (M. LeCroy *et al.*), 151–155.

The montane avifauna of West New Britain with special reference to the Nakanai Mountains (K.D. Bishop & D. Jones), 205–220.

Daytime incubation temperatures in nests of the Nankeen Kestrel, *Falco cenchroides* (P. Olsen & B. Baker), 255–258.

Spatial and temporal variation in migrant raptors on Java, Indonesia (V. Nijman), 259–263.

The structure of raptor assemblages in riparian environments in the south-west of the Northern Territory, Australia (T. Aumann), 293–304.

Breeding biology of raptors in the south-west of the Northern Territory, Australia (T. Aumann), 304–315.

Breeding activity, nest site selection and nest spacing of Wedge-tailed Eagles, *Aquila audax*, in western New South Wales (A. Sharp *et al.*), 323–328.

**Forktail 17** 2001

Cinnabar Hawk-Owl *Ninox ios* at Lore Lindu National park, Central Sulawesi, Indonesia in December 1998 (I. Mauro), 118–119.

**Ibis 143** 2001

Autumn migration of raptors on Java, Indonesia: composition, direction and behaviour (V. Nijman), 99–106.

Estimation and limitation of numbers of floaters in a Eurasian Sparrowhawk population (I. Newton & P. Rothery), 442–449.

**J. Animal Ecology 70** 2001

Habitat heterogeneity affects population growth in Goshawk *Accipiter gentilis* (O. Krüger & J. Lindström), 173–181.

**J. Field Ornithology 72** 2001

Setting harness sizes and other marking techniques for a falcon with strong sexual dimorphism (R. Kenward *et al.*), 244–257.

**J. Wildlife Management 65** 2001

Flush responses of Mexican Spotted Owls to recreationists (E. Swarthout & R. Steidl), 312–317.

**Oikos 93** 2001

Lifetime reproduction in Common Buzzard, *Buteo buteo*: from individual variation to population demography (O. Krüger & J. Lindström), 260–273.

**S. Aust. Ornithologist 33** 2001

First confirmed breeding record of Grey Goshawk in South Australia (R. Green), 135–136.

Notes on the diet of the Barn Owl *Tyto alba* from Mulyungarie Station (R. Palmer), 137–138.

**Sunbird 31** 2001

Dietary habits of the Barn Owl (*Tyto alba*) from Diamantina Lakes National Park (R. Palmer), 73–79.

**Wildlife Research 28** 2001

Review of the effects of organophosphorus and carbamate insecticides on vertebrates. Are there implications for locust management in Australia? (P. Story & M. Cox), 179–193.

Habitat use, temporal activity patterns and foraging behaviour of raptors in the south-west of the Northern Territory, Australia (T. Aumann), 365–378.

An intraspecific and interspecific comparison of raptor diets in the south-west of the Northern Territory, Australia (T. Aumann), 379–393.

**Wildlife Society Bulletin 29** 2001

A capture technique for wintering and migrating Steppe Eagles in southeastern Saudi Arabia (S. Ostrowski *et al.*), 265–268.

Electric-utility structures associated with raptor electrocutions in rural areas (R. Harness & K. Wilson), 612–623.

Relationship between nesting Bald Eagles and selective logging in south-central Oregon (E. Arnett *et al.*), 795–803.

Raptor electrocutions on power lines: current issues and outlook (R. Lehman), 804–813.

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Morphology, plumage, and habitat of the newly described Cinnabar Hawk-Owl from North Sulawesi (R. Lee & J. Riley), 17–22.

**Wingspan 11(3)** Sept. 2001

Bird identification: Grey Falcons and other ‘grey’ raptors (S. Debus & P. Olsen), 12–17.

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## Conference abstracts

*From the Australian Ornithological Conference, Charles Sturt University, Bathurst, Dec. 2001:*

### **Habitat selection by the Square-tailed Kite *Lophoictinia isura* on the mid-north coast of New South Wales**

*Rodney P. Kavanagh, Brett Cann, Bronwyn Ellis and Justin Williams*

The Square-tailed Kite is listed as 'vulnerable' by the NSW *Threatened Species Conservation Act 1995* because it occurs at low population density throughout its range and its habitat requirements are poorly understood. Twenty-four nest sites for at least 11 pairs were located during the past seven years on the mid-north coast of NSW. All nests occurred in regrowth stands of coastal Blackbutt *Eucalyptus pilularis* forest, with most nests in older-age regrowth (approximately 70–100 years). All nests were in Blackbutt trees ranging from 28–59 m (median 43.5 m) in height and 47–120 cm (median 78.7 cm) diameter at breast height. Nests were made of sticks and usually located in a multiple fork either on a main horizontal branch or within the tree crown at heights ranging from 19–36 m (median 28.0 m). The nesting period for the Kites extended from mid-October to late December. A maximum of one young was fledged per nesting attempt, with several instances recorded of nest failure. One pair fledged one young in each of five years and failed in each of two other years. Analysis of the forest structure, vegetation type and disturbance history occurring within a 2 km radius of one representative nest tree used by each pair showed that, in comparison with randomly located sites, Square-tailed Kites select landscapes (home ranges) that contained a high proportion of young and older-aged regrowth Blackbutt forest.

### **Nestling politics in a sexually dimorphic raptor, the Brown Falcon *Falco berigora*: First in best fed?**

*Paul G. McDonald, Penny D. Olsen and Andrew Cockburn*

In sexually dimorphic species the larger sex potentially 'costs' more to raise than the smaller sex, leading to parental-investment theory predicting skewed offspring sex ratios. Despite this prediction, few sex ratios of dimorphic bird species exhibit consistent deviances from unity, implying that the relative costs of raising each sex are not accurately indicated by size alone. The cost of raising free-living Brown Falcon chicks was assessed by monitoring the number of mouthfuls consumed over 48 hours Early (0–14), Midway (14–27) and Late (28+ days old) in the nestling cycle. Chicks that received the first mouthful or were closest to the parent delivering prey received the most food. A significant sex and hatch order interaction also existed,

such that third-hatched females (larger sex) received less food than their male counterparts (smaller sex). There was also a trend for third-hatched chicks, regardless of sex, to receive less food than their older siblings in all but Late observations. These results indicate that there was no difference in cost between the sexes, as first- and second-hatched birds of both sexes received equal food and had the same chance of fledging. Sex-ratio theory therefore predicts a 50:50 nestling sex ratio for the population, which was observed. Sex-biased provisioning amongst third-hatched chicks may reflect each sex's probability of fledging, as all third-hatched females perished, yet male fledging rate was independent of hatch order. This bias may reflect sexual differences in nestling-period lengths, or parental trade-offs between chick quality and quantity.

### **Breeding diet of the Wedge-tailed Eagle *Aquila audax* in south-west Queensland**

*Brett Parker, Ian D. Hume and Walter Boles*

...The study undertaken obtained information on the breeding diet and nesting habits of the Wedge-tailed Eagle in south-west Queensland, an area of low rabbit density. Egested pellets and prey remains were collected from around and within nests located on four pastoral stations and in Idalia National Park. Sites were chosen to investigate the role of different land uses and land systems. Twenty-eight species were found in pellets and prey remains. Kangaroos constituted the principal prey item. Rabbit played a limited role in the diet, and rabbit abundance did not influence breeding success. The proportion of the diet constituted by lamb fluctuated over time, depending on site and stock management practices on surrounding properties. However, there was no difference in the proportion of lamb in the eagles' diet, despite differences in lamb abundance among properties. The study indicated that Wedge-tailed Eagles display preferences for different prey species within their home ranges, which are unlikely to be exclusively related to prey abundance. Lamb may be a preferred prey item. However, individual eagles are, potentially, selective feeders.

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