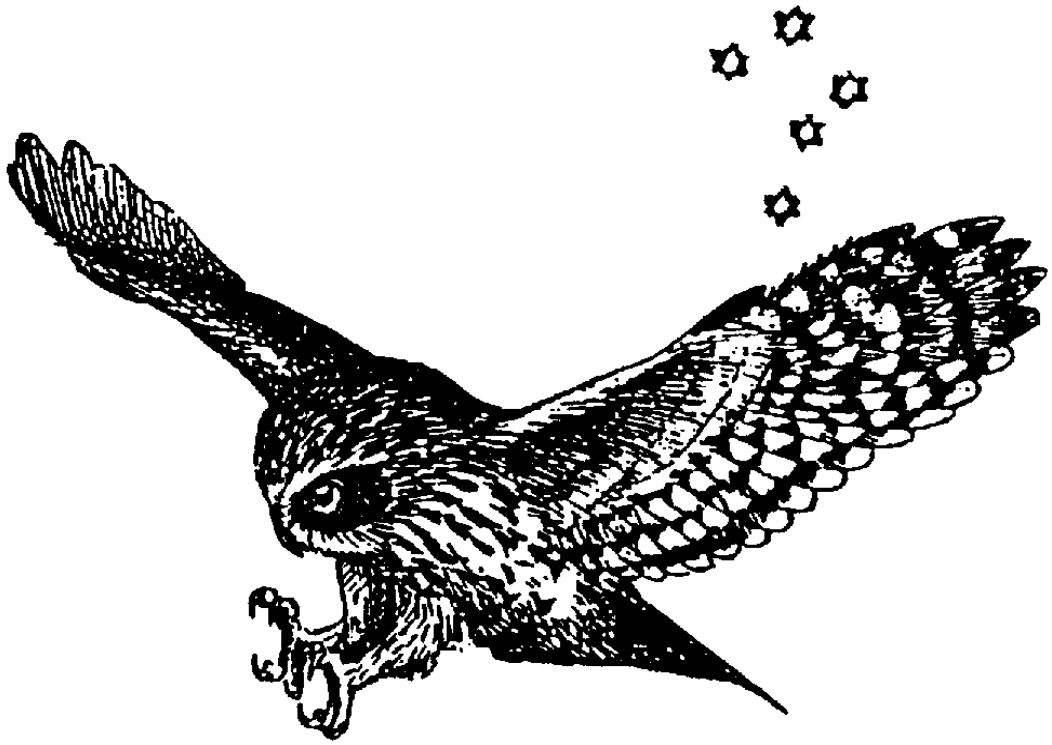
BOOBOOK

JOURNAL OF THE AUSTRALASIAN RAPTOR ASSOCIATION



Volume 28 Number 1 **August 2010**

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Website: www.ausraptor.org.au

The aims of the Association are the study, conservation and management of diurnal and nocturnal raptors of the Australasian Faunal Region.

REQUESTS FOR ASSISTANCE

EagleCAM live at the Discovery Centre

The EagleCAM is busy recording the nesting activities of our resident White-bellied Sea-Eagles. Check out their latest exploits at www.birdsaustralia.com.au/the-organisation/eaglecam.html or come to the Discovery Centre to see them for yourself!

Volunteers needed for the Birds Australia Discovery Centre

The Discovery Centre is open to the public on weekends. We have the live EagleCam set up and recording the activities of the resident Sea Eagles, an interactive display room with the theme of Biodiversity (this being the year of Biodiversity) and a comprehensive ornithological library. We rely on our team of volunteers to talk to the visitors, show them the live EagleCam, help out with odd jobs and to spread the word about Birds Australia. Contact Pixie on 02 9647 1033 or <basna@birdsaustralia.com.au>

All photos of Sea-Eagles in the Sydney region wanted!

White-bellied Sea-Eagle monitoring project at Sydney Olympic Park

As part of the EagleCam study it will be important to manually catalogue as much detail as possible of the eagles' activities away from the nest in and around Sydney Olympic Park and along Parramatta River. This information can only come from casual observation, in taking photos or in making notes of the eagles' activities. If anybody is interested in helping out this year with supplying observations of the eagles away from the nest during this period, then please contact us directly.

All photos of Sea-Eagles in the Sydney area will be extremely useful in the study. We would be delighted to receive any images of Sea-Eagles within the immediate area and farther afield. Photos taken by digital cameras would be preferred, as they have the date/time of image capture recorded within the image file. All images annotated with the location that the photo was taken would be gratefully received. None of the collected images will be published or displayed, as they will only be used in the study database.

Also of importance will be mapping the eagles' home range and territorial boundaries. To this end, it will be useful to obtain photographs of any Sea-Eagles seen in the greater Sydney region (within a 50-km radius of Sydney Olympic Park). The extent and pattern of white streaking in the underside of the flight feathers (particularly on young birds), the presence/absence of white terminal bands on the underwing primary coverts, and wear and damage to the outer flight feathers (later in the season) is a reliable identification feature of individuals. The Homebush eagles are likely to maintain a territory that extends the length of the Parramatta River, but they may range a lot farther than this; at present we do not know. Submitted photographs could then determine the eagles' range and also the ranges of the surrounding Sea-Eagle populations that occasionally come into the territory of the Homebush pair. Any additional information, such as records of nesting and juvenile birds, would also be gratefully received. With thanks,

Jon Irvine (BASNA) <jonirvine@bigpond.com>; ***Geoff Hutchinson*** (BASNA) <ghutcho@yahoo.com>; ***Judy Harrington*** (SOPA/BASNA) <judy.harrington@sopa.nsw.gov.au>

CONTENTS: *BOOBOOK* 28(1) 2010

FROM THE PRESIDENT

Greetings, fellow raptorphiles! There are two important matters to raise. First, the much-promised ARA event for 2010 is being held in September this year. Second, there are several vacant ARA executive positions.

As promised at the Coffs Harbour conference, a raptor conference (of sorts) is being held in 2010. The premier raptor event for 2010 is the Australian Birdfair on 18–19 September at Yanco near Leeton, NSW (which is near Griffith). On the Friday night 17 September there will be a 'meet and greet' drinks and barbeque at Fivebough Swamp (which is much better than it sounds). The full agenda, cost of accommodation and registration details can be obtained from the Birdfair website: <www. australianbirdfair.org.au>. The Birdfair is an annual event, and this year it is being conducted with a raptor theme.

The program is a well-balanced mix of speakers, with expert technical papers and visual presentations of a more general nature, all of them well presented and informative. I am also reliably informed that some will include quite stunning photography. So if you missed out on Coffs Harbour in 2008, or attended and have been hanging out for your raptor conference fix, then this is it! All registration and accommodation inquiries should be directed to Australian Birdfair Coordinator Tracey Valenzisi: ph 02 6953 2215, mobile 0407 262 496, email: <coordinator@australianbirdfair.org.au>

David Whelan is acting in the ARA national Secretary's position and as Victorian Area Representative. The ARA is also in desperate need of a proficient web designer, with the website in need of a major overhaul. It could do with a rebuild from the layout to the structure and content. Many species profiles are still desperately in need of decent identification photos. Clear, crisp diagnostic photos of perched raptors as well as profile shots of each species in flight are required. For example, we still do not have a decent diagnostic shot of a Black Falcon perched, showing the long trouser feathers and the wing-to-tail overlap compared with the Brown Falcons.

I reiterate: it is the contribution of all members that adds value to our association, so please volunteer your skills and time for a vibrant and dynamic ARA. This need for member involvement is particularly true of the ARA and its executive members. Most of the ARA Area Representatives are employed by the various State conservation agencies, meaning they have direct access to the various raptor conservation issues and initiatives that may be happening in their jurisdiction. However, they are also busy people, and working as a public servant places restrictions on the extent of raptor advocacy each can publicly undertake within their own state or territory. Although all of the ARA Executive members conduct their ARA activities and obligations in their spare time, there are still limitations on how publicly vocal each may be, and particularly in election years. So, gaining help and active support from other ARA members is critical to the active role the ARA can play in raptor conservation.

I hope to see as many of you as possible at the Birdfair in September. Raptorially yours!

Victor Hurley

EDITORIAL

My first pleasant task is to announce and welcome a new office bearer for 2010: David Whelan as acting secretary, until the AGM at Yanco in September (see below). And of course our thanks to past secretary and Vic. rep Michelle Manhal and past treasurer Raylene Cooke for their service. Also, please note Nick Mooney's new email address (inside front cover).

The other important event to announce is the ARA conference in conjunction with the Australian Birdfair 2010, whose theme is birds of prey (including owls) and their environment, at Yanco, near Leeton, in the NSW Riverina. The conference and Birdfair should be the ARA activity and social gathering of the year (see p. 28). There will be talks, exhibits and birdwatching tours with a focus on raptors. There will also be an ARA AGM, to elect new office bearers; nominations (of Birds Australia financial members) to the acting secretary before then, please, for secretary, treasurer and Vic. rep. I hope to see you there.

After seven months of trying to amass enough copy, this issue finally struggled to the target 28 pages, thanks largely to a fortuitous series of email exchanges on the subject of attacks by Wedge-tailed Eagles on paragliders, a series of exchanges on Bird Forum on owl DNA taxonomy, and many news items on White-bellied Sea-Eagles 'pirated' from other sources. I was also helped greatly by a large wad of abstracts from overseas journals posted to <raptor-conservation@yahoogroups.com> by Miguel Saggese. Otherwise, as I'm sure you can see, I would still be struggling to fill this issue, as there are very few original items in 'Field notes'.

Anyway, in this issue we have lots of news on Sea-Eagles (especially) and Ospreys, mainly in SA; a discussion of aspects of DNA taxonomy relating to the lumping or splitting of the sooty owls, species limits in the Barn Owl complex, and species limits in the Southern Boobook complex; a comment on the taxonomic status of the Timor Boobook; a discussion on deterring eagle attacks on paragliders; and some field notes on various raptors (disappointingly few, I must say). A book review is 'borrowed' from elsewhere. A common thread in many of the overseas journal citations is contamination of raptors and their eggs by various chemicals, including some new classes of toxins that seem to be duplicating the effects of DDT in past decades. There are some new raptor books out, and the abstracts of the few raptor papers at AOC 2009 are printed herein. A website for keeping up with raptor literature is announced; I would be pleased if someone would volunteer to use it to feed citations of relevant overseas literature to me for *Boobook* (see p. 27). Finally, an item of international news is highly relevant to our Eastern Grass Owl.

I appeal again to members to watch raptors (especially the under-studied ones), note down any significant behavioural or predatory events, and send them to me as 'Field note' items for *Boobook*. (e.g. juveniles acquiring hunting skills, p. 19). See *HANZAB 2* or *4*, or their derivative field guides (*The Birds of Prey of Australia* or *The Owls of Australia*), as well as past issues of *Boobook*, as a guide to what may be worthy of reporting. On present indications, the next *Boobook* will be many months away; as of this issue, I have absolutely nothing left in reserve for next time. I remind Area Reps that they are supposed to be submitting annual reports of raptor-related activities and issues in their state or territory. With the trend in offerings for *Boobook*, I have to wonder about the future viability of *Boobook* and therefore the ARA, as the backbone of the association is its publications, and without them there would be little point in paying for membership. On the flip side, members' contributions are what make the publications, so over to you.

On a more positive note, keep a watch out for the *Corella* special issue on rare raptors, now planned for March 2011. It will feature Red Goshawk, Grey Falcon (three papers) and Black Falcon, and will significantly redress the knowledge deficit on these special endemics. I hope it also encourages people to watch, study and report on these species, especially the Black Falcon which is readily accessible to many birdwatchers and raptor enthusiasts. Nevertheless, looking at trends in the amount of raptor scientific literature being published in Australia these days, I have to wonder about the direction of Australian diurnal raptor research; it appears to be downward in quantity, with very few practising raptor researchers nowadays. What can we do about it?

Stephen Debus

REPORTS AND NEWS

Sea-Eagles and Ospreys in SA

Birds SA are conducting a threatened-species research project to update what is known of White-bellied Sea-Eagle and Eastern Osprey populations in South Australia. The researcher coordinating the project is Terry Dennis, who has conducted similar surveys for Birds SA in the past and whose published work in 1996 first provided evidence of a substantial decline in the breeding range of Sea-Eagles in SA. So far, that has meant two winter/spring seasons of extensive foot transects and/or boat-based surveys over known habitat, or prospecting previously poorly surveyed coastlines throughout the state and also the upper Murray floodplain.

People have asked:
How do you go about working out how many there are? Answer: with birds that establish territories when breeding, like Sea-Eagles and Ospreys, populations are best estimated from the number of breeding pairs identified during the least intrusive part of a breeding season. That is, either early – during courtship and nest repair, or late – when nestlings are well feathered.
What happens when you find birds but not a nest? Answer: you find an ideal 'perch' overlooking nearby foraging areas and be prepared to spend long periods sitting behind a spotting scope and watching for tell-tale direct prey-carrying flights or territorial behaviours.

Results to date:
The good news is that numbers of both species are marginally up on previous estimates. However, in the case of the White-bellied Sea-Eagle this result reflects the thoroughness of the current survey – not a trend, as more deserted habitat (50 km of coast with only long-abandoned nest structures present) has been identified. Thanks to a trusty telescope, and a number of reliable offshore island observations from project supporters, around 65 Sea-Eagle territories have been identified overall so far. However, only 17 of these were found on the mainland. With the Eastern Osprey though, there is evidence of small population increases on western Eyre (3) and Yorke Peninsula (2). A total of 59 territories has been confirmed so far – up seven on the recently published population estimate. Western Eyre Peninsula has by far the greatest concentration of mainland territories with 24, including three based on specially provided platforms on oyster-farm lease marker posts. One is in Coffin Bay township and has quietly been in constant use since 1988, <200 m from the Esplanade and a row of shops! Interestingly, the oyster farmer says 'every summer cormorants come and use the nest platform and throw all the sticks off … and the Ospreys come back in winter and put them all back again!'

What's new:
A new SCRRA! (Significant Coastal Raptor Refuge Area). With six pairs scattered over just 60 km of coastline, Coffin Bay National Park has emerged as having the densest concentration of Osprey breeding habitat anywhere in SA!

Volunteer involvement:
In addition to the near-continuous on-ground survey days logged since re-commencing the survey work in early September, there have been ~250 hours of volunteer participation over the same period (~435 hrs total to date); ~2400 km of volunteer vehicle use; and ~16 hours of volunteer boat use. Although the mainland fieldwork is largely complete, Terry is still keen to hear about observations from mangrove areas, offshore islands, the upper Murray region, particularly the Chowilla area, and also from the Cooper Creek complex in the north-east of the state. ***Terry Dennis***, Ph 08 8552 7659 or mobile 0409 527 654, email <osprey84@internode.on.net>

Coastal Raptor Project Newsletter #2, November 2009

The Birds SA-sponsored threatened coastal raptor research project is still going, and continues through to September this year. The project brief is to update what is known of White-bellied Sea-Eagle and Eastern Osprey populations in South Australia (excluding offshore island… but see the announcement in 'What's new', below).

What's been happening:
As some project metro-based supporters are already aware, in March–April again this year (right on seasonal cue) juvenile Ospreys have been reported hunting over southern Fleurieu beaches and in the Onkaparinga River estuary. There is now an obvious pattern to these observations, which is most likely explained by the young from last breeding season on Kangaroo Island (~10/yr) being 'shown-the-door' and moving off on the first leg of their journey to independence. It also occurs seasonally on the western side of Gulf St Vincent, with singles seen over most of the year from Marion Bay to Port Vincent. Interestingly, when you put them all together there has been a steady stream of similar sightings reported over the last several decades (see below).
Between breeding season field-trips there has been opportunity to spend several days at the State and SA Museum Libraries, sifting through old SA Ornithological Association and Royal Society journals and newsletters for references to Sea-Eagle and Osprey sightings going back to the late 1800s. It's apparent from some of the records that telling the difference between these species has always been a bit tricky for some people, particularly before binoculars were in everyone's hands!

Survey results:
Things have not changed much since the last newsletter, although there has been another White-bellied Sea-Eagle territory confirmed on a small island off Yorke Peninsula. Found by local rangers, it was thought to be a 'new' find until specific reference to the location was uncovered in an old journal: it had already been discovered in January 1916!
Around 65 Sea-Eagle territories have been identified overall so far, with just 17 of these found on the mainland. And a total of 59 Osprey territories has been confirmed, most on southern Eyre Peninsula. With floodwaters flowing down the Cooper and Warburton this year, will somebody please find me some courting or nest-building Sea-Eagles up that way... please!

What's new:
An exciting development has been an initiative of the Nature Foundation SA Inc. to adopt the White-bellied Sea-Eagle and Eastern Osprey as the focus of their annual threatened-species fund-raising drive. If successful, they will fund an extension of the survey project to re-survey the populations of both species on Kangaroo Island and other offshore islands. With boat and aircraft charter work involved, survey work at these locations is always hugely expensive and was not covered by the Community Coast Care Grant to Birds SA in 2009. Kangaroo Island was last surveyed in 2005, and it is particularly important to continue to monitor the Sea-Eagle population (and habitat) there, as it is recognised as home to ~30% of the State's breeding territories.

Volunteer involvement:
Since November last year there have been ~120 hours of volunteer participation over the same period (~890 hrs total to date); ~820 km of volunteer vehicle use; and another ~6.5 hours of volunteer boat use. Although the mainland fieldwork is largely complete, Terry is still keen to hear about observations from mangrove areas, e.g. St Kilda and Price on Gulf St Vincent, offshore islands, the upper-Murray region, particularly the Chowilla area, and from the Cooper Creek complex in the north-east of the state.
Terry Dennis**,** Ph 08 8552 7659, mobile 0409 527 654, email <osprey84@internode.on.net>

Coastal Raptor Project Newsletter #3, April 2010

That 'Sea-Eagle' nest on power pylon relocated

The much-trumpeted 'White-bellied Sea-Eagle' nest on a power pylon on the Nerang River, Gold Coast (Qld), that was relocated at great expense and effort (see *Boobook* 25: 3) was, as suspected, an Osprey nest. Bill O'Donnell, a student at UNE Armidale who has been studying Sea-Eagles on the Gold Coast for years, confirmed the birds as Ospreys when he investigated. So much for the local 'expert' involvement and opinion reported in the press at the time. Being Ospreys, the birds probably did readily accept relocation of the nest to a platform, and would have been unlikely to attack linesmen, although there is no follow-up information on the birds' acceptance of the move. Bill's undergrad project report on his Sea-Eagles will make a paper in *Australian Field Ornithology* in due course. (Ed.)

Eyre Peninsula: added protection

Efforts to safeguard the near-pristine Eyre Peninsula [coastline] in SA (see *Boobook* 27: 10–11) saw two notable developments in recent months. In a move welcomed by conservation groups, the state government bought 10 parcels of land on the peninsula to help protect rare and endangered wildlife, including the White-bellied Sea-Eagle and Osprey. The new coastal conservation areas between Cape Blanche and Slade Point and sand dunes on the northern side of Searcy Bay will add 1400 ha to the existing parks and reserves between Streaky Bay and Venus Bay… As well as purchasing freehold land, the government announced it will allocate Crown land to augment the existing parks and reserves system. For example, land surrounding Baird Bay will be joined to the Baird Bay Islands Conservation Park to form a Baird Bay Conservation Park. The Department for Environment and Heritage will also open an office in Streaky Bay and appoint a district ranger to oversee the conservation areas.

Ecos 151, Oct.–Nov. 2009: 6 (abridged)

…Sounds like a small win for the environment and coastal raptors, given the situation previously reported in Boobook*. (Ed.)*

Fleurieu Sea-Eagle update

After the first successful breeding in 7 years by the Fleurieu Peninsula (SA) White-bellied Sea-Eagle pair in 2008 (see *Boobook* 27: 36), the pair apparently failed in 2009. However, we cannot be certain until a survey along the coast is carried out… When last checked, there was certainly no sign of incubation happening in the previously used nest… Although there was evidence the pair had been decorating the nest as if in preparation to breed, this did not continue. Courtship behaviour between the pair was observed several times in May, June then very late in the season at the end of August. I noted that they were courting in some of the same locations as they had in previous years… in late August sitting together… and being very vocal for some time… For whatever reason, the birds have not continued with their nest preparations… [It] is possible that they decided to skip a year or… have been disturbed in some way. On the whole, aircraft have been complying with the authorised Fly Neighbourly Agreement (FNA) Protection Area for the Sea-Eagle breeding season, so it is encouraging that there have not been many low-flying aircraft within the Sea-eagle breeding territory this year. However, even just one plane or helicopter flying too low or one walker intruding into the area has the potential to disturb the pair. More work needs to be done to get the word out to all pilots, both here and interstate, about the FNA. Unfortunately, some of the 'low fliers' I have yet to track down this year have been from interstate and were unaware of the Sea-Eagle protection area. Work will continue to ensure that the sanctuary set aside for the Sea-Eagle nesting territory is protected and kept from any interference and disturbance… We will also be distributing more printed information and posters before nest year's breeding season commences. Fingers crossed for 2010!

Elizabeth Steele-Collins, *Birds SA Newsletter* 212, Nov. 2009: 5–6 (abridged)

EagleCam is live again!

The White-bellied Sea-Eagles have returned to their nest at Sydney Olympic Park for the third consecutive year, and can again be seen live on the EagleCam at the Birds Australia Discovery Centre. The eagles are currently renovating the nest in preparation for egg-laying, with frequent visits by the male and female bringing sticks and sprays of leaves. The male is also bringing food items to the nest for the female, and everything looks set for a successful breeding event. This year, the camera position is slightly more elevated than last year, giving a wonderful view into the nest from high in the adjacent trees. As part of the ongoing study, we hope to provide continuous footage of the whole breeding cycle at the nest through until the beginning of November. All the action from the nest can be seen on the EagleCam as it happens, live and unedited, projected onto the wall at the Discovery Centre. Interesting recorded clips of the action so far will also be available to watch on-screen, and the volunteers at the centre will be happy to answer questions and show any of the recent clips. The following is a link to a screen shot, generated from the third of our three cameras which is currently still under system test:

http://www.flickr.com/photos/calidris-photos/4652608266/

The feed from this camera should be operational soon and we will post an update when it is fully online. The Birds Australia Discovery Centre is open at weekends from 10 am until 4 pm, and is situated inside the Newington Armory grounds at Sydney Olympic Park. Access by road is from Jamieson Street, where there is a car park at the armory wharf alongside Parramatta River. The entrance to the armory is through the main gates next to the wharf cranes. The Discovery Centre is situated on the left-hand side of the main pathway into the armory, an approximate 500-m walk from the wharf. Happy eagle watching!

Jon Irvine and ***Geoff Hutchinson***
Birding-Aus 30.05.2010 (per Shirley Cook)

Bunnings White-bellied Sea-Eagles

Townsville's 'Bunnings' White-bellied Sea-Eagles' original nest tree was right in the middle of a planned and approved commercial development (see *Boobook* 23: 40). Influenced by Townsville Region BOC and BA North Qld, as well as good front-page media coverage in the *Townsville Bulletin* in 2002, the developers lopped the complete crown of the tree that contained the nest, and carried it by crane 100 m where they carefully placed it (fully intact) in a massive steel and chain cradle atop a tall wooden pole, on the bank of Louisa Creek, well out of harm's way. Their relocated nest is now beside the rear carpark of the Bunnings warehouse. Since their short move, this resilient pair of Sea-Eagles has continued breeding, and has successfully raised one or two young each year.

Len Ezzy
*Bird Observer*857, Dec. 2008: 26

...I have seen photographs confirming the birds as Sea-Eagles and not Ospreys, courtesy of George Baker (Townsville BOCA). However, latest news is that the eagles have now abandoned the nest (Ed.)

Roadside eagle rescued

Wildlife rescue volunteers tried desperately to save the life of a young Wedge-tailed Eagle near Pykes Creek [Vic.]… It was found on the side of the road… and appeared to have got caught up in a barbed-wire fence where it had done serious muscle damage to a wing. A local expert on birds of prey was brought in to assess the condition of the bird and see what could be done to save one of Australia's largest birds, in fact one of the largest eagles in the world. [*Oh dear, here we go again– why do they repeat this myth? –Ed.*]. Despite the care offered by the shelter and an additional expert in Melbourne being consulted, it was decided that the eagle had too much muscle damage and it was never going to be able to survive in the wild, so the difficult decision was made to euthanise the bird…Wedge-tailed Eagle pairs usually only mate once every two years [*Not true! –Ed.*] but, following the death of this young bird, its parents are more than likely to try again for another baby sooner…

Moorabool News 16.02.2010: 4 (per David Whelan)

...Good that incidents like this get coverage in the media, but journos and their 'raptor expert' informants should get it a bit more right on raptor biology. There are two other Aquila *eagles alone that are larger (heavier) than the Wedge-tail (Golden and Verreaux's), as well as the Martial, Harpy and Philippine Eagles, and the Bald, White-tailed and Steller's Sea-Eagles, many of which are much larger and more powerful. Another two or three are about as large, e.g. Crowned Eagle (with more massive feet), Imperial Eagle. Wedgies of course often breed annually. The main issue relating to this incident is the countless kilometres of wildlife-unfriendly barbed-wire fencing traversing the landscape, often causing extremely cruel maimings and deaths to a variety of species including raptors, owls and endangered birds including the Night Parrot. See Ley & Tynan (2008),* Aust. Field Ornithology *25: 96–98, and references therein, notably Carol Booth's* Barbed Wire Action Plan *(2006). For instance, almost all of the state-listed threatened owl species have occurred as victims of barbed wire. (Ed.)*

RAPTOR FILE

Owl systematics: Sooty Owls – split or lump?

The following exchanges were posted to Bird Forum www.birdforum.net *(here slightly edited).*

Sooty Owls in Australia have in recent years been treated as two species, the Lesser Sooty Owl *Tyto multipunctata* and the Sooty Owl *T. tenebricosa*, which is also found in New Guinea. In the 2002 paper 'Unravelling a biogeographical knot: origin of the "leapfrog" distribution pattern of Australo-Papuan sooty owls (Strigiformes) and logrunners (Passeriformes)', Norman *et al.* (*Proc. Roy. Soc. Lond. B* 269: 2127–2133) concluded on genetic grounds that they should be lumped. The relevant conclusions read as follows: 'Low levels of sequence divergence among sooty owls raise doubts about the current circumscription of the complex into two species. All three taxa were similarly divergent from one another in both the mitochondrial (0.60–0.80%) and nuclear (0.20–0.40%) DNA sequences... Comparison with cytochrome b or ND2 sequences of strigid owls indicates that these estimates are an order of magnitude lower than typically observed among owl species. Examples include: 9.0–12.0% in the *Strix aluco–butleri–woodfordii* complex (Heidrich & Wink 1994); 6.3–8.8% in the *Otus atricapillus* complex (Heidrich *et al.* 1995); and 5.4% in the *Ninox rufa–strenua* complex (Norman *et al.* 1998). Levels observed among sooty owls are comparable with subspecific differentiation within the Boobook Owl *Ninox novaeseelandiae* (1.5–2.3%) (Norman *et al.* 1998) and in birds generally (Avise & Walker 1998). Consequently, the complex is best treated as a single species, *T. tenebricosa*, as was the case prior to the revision of Schodde & Mason (1981).' Yet now a paper by Wink *et al.* cites genetic evidence to support them being two separate species. I have looked at the tables in the Wink paper, but I do not understand from them whether the information published (basically the numbers on the diagram) allow you to compare Wink's results with those in the earlier paper. Can anyone enlighten me as to how each paper can cite genetic material as supporting the opposite conclusions? Is it just that Wink is more of a splitter – does he just set the bar lower as to what degree of difference constitutes a separate species? As he has split the Boobook Owl into four species, he would presumably disagree with using the comparison between them to justify the Sooty Owls not being split.

Murray Lord

The numbers on the trees published by Wink are bootstrap supports – a measure of the solidity of the phylogenetic reconstruction, not a measure of the levels of divergence. Branch lengths are proportional to the genetic distance in Wink's trees, thus you can (to some extent, at least) assess the levels of divergence by looking at them. You should measure the *total horizontal* distance that you have to go along the tree, from a sample to another one (thus, first leftwards, back to their closest common ancestor, then rightwards to the other sample; vertical distances do not count), then compare this to the scale bar below the tree, that represents a 10% divergence – if the phylogenetic reconstruction is solid, this should give you an approximation of the distance between the two samples. This would still not allow more than a rough comparison of the two studies, though, because the genes sequenced differ between them, and different genes do not necessarily evolve at the same pace. The tree that has both Sooty Owls in Wink's paper is based on a bit more than 1000 base pairs of the cytochrome b. Norman *et al.* had 1215 base pairs of mtDNA, but only 300 of which came from the cyt-b; the rest was from two other genes, ND2 and ATP8. I'll try to have a closer look at the data and come back if I can find more. (But Wink's data set is only partly available in GenBank; i.e., only one of his *tenebricosa*, and none of his *multipunctata* are there...). Of course, Wink is a splitter...

At least two of the cyt-b sequences from the recent paper have problems. *Tyto delicatula sumbaensis* (GenBank EU349005): this sequence includes a gap of 48 base pairs, indicating that it was sequenced in two parts. The 245 base pairs that precede the gap are highly divergent from all other *Tyto* sequences; the rest is almost identical to other sequences ascribed to *T. delicatula* ssp. *Tyto furcata furcata* (GenBank EU349005): here, there is no gap to indicate two separately sequenced fragments, but the first 300 bp or so are very close to those of the *sumbaensis* sequence (thus also unlike any other *Tyto*); the remaining part of the sequence is close to other sequences ascribed to *T. furcata* ssp. I tried a BLAST search on the first 250 base pairs of these two sequences, and the closest matches I got (in both cases) were [storm-petrel] *Hydrobates*

pelagicus... These two [owl] taxa both appear quite divergent from their close relatives in Wink's cyt-b tree, but they are only represented by the above two sequences, and this makes this result clearly problematic. When I remove the *Hydrobates*-like parts of the sequences, *sumbaensis* does not appear particularly divergent from other *T. delicatula* ssp. at all; *furcata* remains basal to other *T. furcata* ssp., but its divergence level is strongly reduced. I joined two trees based on the long cyt-b sequences that are in GenBank (almost all of them from the Wink lab), one with the complete sequences, the other with the first part of the *sumbaensis* and *furcata* sequences removed, so one can see the difference.

On another tree, this one based only on the cyt-b fragment sequenced by Norman *et al.*, the fragment corresponds to the first part of the long sequences of the Wink lab, as well as to shorter sequences that they produced for earlier publications (but I think are partly included in the last analysis). (Here, I've left the '*sumbaensis*' and '*furcata*' sequences in place – when these sequences are shortened to match Norman *et al.*'s fragment, only the apparently 'non-*Tyto*' part remains, thus they are unlikely to interfere badly with the rest of the analysis. I've also added a *Hydrobates* sequence to the pot, just to see what happened...). The only *tenebricosa* sequence from the recent paper that is in GenBank (EU349010) appears consistent with the sequences deposited by Norman *et al.* in GenBank in 2002 (AY14803-). Over this 300 base-pair fragment, Wink's sequence differs from each of the Norman *et al.*'s sequences by only one single mutation... A different one in each case. (That said, the distance between *T. capensis* and *T. longimembris*, or even the distance between *T. glaucops* and the core of the *T. furcata* group, is not much larger.)

Laurent Raty

What might cause that result with *Hydrobates* – not cleaning your test tube properly? Out of curiosity are the comparisons you have done something that anyone could do, with information available online, or did you need access to particular computer programs to do it? The conclusions Wink reaches on Boobooks also seem to contradict the conclusions of the following paper: Norman, J.A., Olsen, P., Christidis, L. (1998), 'Molecular genetics confirms taxonomic affinities of the endangered Norfolk Island Boobook Owl *Ninox novaeseelandiae undulata*', *Biological Conservation* 86: 33–36. Just to see if I am understanding Wink's diagrams correctly, is it suggesting (based on the relative horizontal length of the lines) the genetic difference between the two samples of *T. castanops* is comparable in magnitude to that between *T. castanops* and *T. novahollandiae*? The Masked Owls are the third example of where the Koenig book recognises more Australian species than the Australian checklist does. Overall the Australian checklist recognises eight non-vagrant owls (excluding Christmas and Norfolk Islands); Koenig recognises twelve.

Murray Lord

Re test tubes: maybe; hard to be sure. Test tubes could also have been interchanged at some point, or a problem could even have happened later, when partial sequences were combined to get a single long sequence. (This type of thing is much less rare than we would like it to be, and I think it goes undetected quite easily, even through peer-review processes. [I've seen obvious hybrid sequences in data sets from studies published in high-profile journals, such as *Mol. Phylogenet. Evol.*] If you limit yourself to reading the paper presenting the analysis of a dataset including such sequences, it can be perfectly impossible to detect them.)

Re computer programs etc., GenBank is accessible from here: <http://www.ncbi.nlm.nih.gov/sites/entrez?db=nuccore>. I copied the sequences from there into a text file and aligned them by hand. (With many genes, I'd use Clustal for the alignment [freely available from <http://www.clustal.org>], but the cyt-b very rarely has any insertions or deletions, thus aligning it is usually straightforward – you just have to move the sequences to the right or to the left until they match, adding or removing '-'s at the start, then check the end for security.) I did the analyses with TreeFinder <http://www.treefinder.de>, which is freeware. Nucleotide BLAST searches can be performed here: <http://blast.ncbi.nlm.nih.gov/Blast...._LOC=blasthome>. I turned the trees into pdfs with GhostView, that you can get freely at <http://pages.cs.wisc.edu/~ghost/gsview>. (And, incidentally, my PC runs Ubuntu Linux – <http://www.ubuntu.com> – thus even my OS is free. Thus, no, you don't need any particular access – the data and the tools are both out there and accessible to anyone with a computer and an Internet connection.

Re boobooks: where is the contradiction? Based on what they deposited in GenBank, their analyses must have included single sequences of *undulata*, *novaeseelandiae* and *leucopsis*, plus single sequences of *N. rufa* and *N. strenua* that were presumably used to root the tree. From their abstract: 'The resulting data clearly identified *N.n. undulata* as being more closely related to *N.n. novaeseelandiae* than to *N.n. leucopsis* (Tasmania), which it also resembles in outward appearance'. Wink *et al.*'s Figure 4B shows *undulata* and *novaeseelandiae* to be very close to each other, and *leucopsis* farther away – thus exactly the same thing.

Re Wink's diagrams: no, you should always go from branch tip to branch tip, even when talking about taxa. The distance between *castanops* and *novaehollandiae* would be the average distance separating one of the *castanops* samples from one of the *novaehollandiae* samples – probably about twice the distance between the two *castanops* samples.

Laurent Raty

Let me rephrase – the tree they arrived at may have looked the same, but their interpretation of what it indicates about how many species of Boobook there are is totally different. Have a look at the statement by Les Christidis, one of the authors of the 1998 paper, and compare it to the treatment of the same species in the Koenig book.

Murray Lord

Christidis & Boles (2008) repeated a similar statement. And, yes, there is indeed an obvious difference of interpretation. (In defence of Olsen 1999, though, it could be argued that there was no real 'misquotation' in *HBW*, because the exaggeratedly poor referencing system enforced by the editors of this series simply makes this impossible – Olsen's text alludes to 'molecular differences', but there is no way to know whether these were indeed derived from the two Norman *et al.* 1998 papers...). I'm not sure on what, exactly, the split of *N. leucopsis* is based, but I would agree that it has no strong molecular basis, and that the cyt-b and ND2 data in the two Norman *et al.* (1998) papers certainly do not make it necessary.

However, the split as implemented in *HBW* is another story. *HBW* retained *leucopsis* as conspecific with *novaeseelandiae* (as indeed recommended by Norman *et al.*), but split *N. boobook* consisting only of taxa from the mainland of Australia. Even if, in Norman *et al.*'s papers, 'the Tasmanian Boobook Owl samples were included to represent the Australian Boobook', these papers in practice did not include any mainland Australian specimen, thus they are actually completely irrelevant to this version of the split – they can neither support, nor refute it.

In their 1998 paper on the specific status of *N. natalis*, Norman *et al.* argued in favor of a three-way split of the '*N. squamipila* complex' based on the finding that the genetic divergence levels between the three races they had tested were 'comparable to the levels of divergence observed between obviously distinct species such as *N. rufa* and *N. strenua* (5.4%) and were consistently greater than observed among subspecies within the monophyletic *N. novaeseelandiae* complex (1.5% to 2.3% between *novaeseelandiae*, *leucopsis* and *undulata*)'. Their phylogenetic reconstructions also placed *N.s. squamipila* basal to a clade grouping *N.s. natalis*, *N.s. hypogramma*, *N. connivens*, and the *N. novaeseelandiae* complex. The support given to this clade by sequence analysis alone was admittedly low, but all of these taxa also shared a 6 bp insertion in the ND2 gene, which *squamipila* and the other *Ninox* did not have. I've checked a few other published ND2 sequences from GenBank: this insertion is also clearly lacking in other owls, as well as in parrots. Insertions/deletions in the ND2 gene are very rare events, and it seems very unlikely that this particular insertion could have happened twice, or that it could have been exactly reversed in *squamipila* only, thus its presence adds a lot of support to the hypothesis that *squamipila* falls outside this group (in terms of mtDNA, at least). Within this group, ND2 united *novaeseelandiae*, *leucopsis* and *undulata* with some support, but the relationships between them, *connivens*, *natalis* and *hypogramma* were otherwise very poorly resolved. The distance between *natalis* and *hypogramma* (4%) was also the lowest in the '*N. squamipila* complex' – making a split of *natalis* (from *hypogramma*) actually much more poorly supported in molecular terms than that of *squamipila* from these two. (Yet, oddly, many subsequent authors – including König & Weick – accepted the former but not the latter... A consequence of the title of the paper...?). If you now look at the

trees in the recent Wink paper, I would argue that the case of *N. boobook* is quite similar to, and looks at least as good as, that of *N. natalis*. The cytochrome b is the only gene to have been sequenced for both *N. boobook* and *N. novaeseelandiae* as circumscribed in *HBW*. This gene entirely fails to resolve *N. novaeseelandiae sensu lato* as a monophyletic group. The longer available cyt-b sequences suggest the existence of a clade including four lineages – *boobook*, *novaeseelandiae*, *rudolfi* (a bit surprisingly omitted from Wink *et al.*'s Figure 4, while they did have a sequence; *rudolfi* does appear in their Figure 1, that is based on cyt-b+RAG-1), and *connivens* – that are all separated by quite comparable levels of divergence. This admittedly does not *prove* conclusively that *N. novaeseelandiae sensu lato* is not monophyletic, but neither did Norman *et al.* (1998) *prove* conclusively that *natalis* and *hypogramma* are not sister taxa. The uncorrected distance between *boobook* and *novaeseelandiae*, based on these long cytochrome b sequences, is 4.36%. The distance between *N. rufa* and *N. strenua* is only 3.65%...

Laurent Raty

...See also the three-way split of remaining N. squamipila *(ex* natalis*) on voice (*Boobook *26:4). (Ed.)*

Is the Timor Southern Boobook a separate species?

Following the Biological Species Concept (König *et al*. 1999), a full species is a reproductive community that has evolved different patterns of behaviour from members of another reproductive community. The line separating the two species is not always clear; two species can look alike and even live in the same place, but researchers can discriminate owl species by their calls, their territorial songs. An owl's call is said to be similar to a DNA fingerprint. The call is inherited and, unlike the calls of some other birds such as songbirds, it has little geographic variation in dialect, so the call tends to be similar across the owl's range.

Olsen *et al*. (2002) used a simple statistical procedure to analyse calls of the Southern Boobook *Ninox novaeseelandiae*, Sumba Boobook *N. rudolfi*, and newly discovered Little Sumba Hawk-Owl *N. sumbaensis* to strengthen their case that the last is a separate species. If owl vocalisations are of taxonomic value (König *et al*. 1999), analysis of Australasian species should show differences and similarities and indicate conspecifics versus separate species. Below, measurements from Southern Boobooks on Timor (*N. n. fusca*) are compared with Southern Boobooks *N. n. boobook* recorded in Canberra. They both have a two-note call, but with different call properties. The Timor Boobook has a lower dominant frequency and shorter note duration, and a much higher call rate, more like the Barking Owl *N. connivens* (and is, interestingly, also grey-brown like a Barking Owl, not warm brown like a Boobook). Here we suggest, based on call properties, that Southern Boobooks on Timor are a separate species to those on the Australian mainland.

Call properties: dominant frequency, call duration and call rate for two owls, Southern Boobook on Timor and in Canberra taken from audio recordings (after Olsen *et al*. 2002*)*.

Site	Dom. freq. 1 (Hz)	Duration 1st note (ms)	Dom. freq. 2 (Hz)	Duration 2nd note (ms)	Call duration (ms)	Call rate (calls/min)
Timor	555.6	211	526.4	206	536	30.0
Canberra	806.7	295	649.7	250	682	18.0

Published sonagrams of the Timor Boobook (in King & Yong 2001) and Southern Boobook (e.g. in Olsen *et al.* 2002), when compared directly, illustrate these differences. If the Timor Boobook is a separate species, as indeed described by Vieillot in 1817 as *Strix fusca*, it would become *Ninox fusca*.

King, B. & Yong, D. (2001). An unknown scops owl, *Otus* sp., from Sumba, Indonesia. *Bulletin of the British Ornithologists Club* **121:** 91–93.

König, C., Weick, F. & Becking, J.-H. (1999). *Owls. A Guide to the Owls of the World,* Pica Press, Sussex.

Olsen, J., Wink, M., Sauer-Gürth, H. & Trost, S. (2002). A new *Ninox* owl from Sumba, Indonesia. *Emu* **102:** 223–231.

Jerry Olsen, ***Stephen Debus*** and ***Sue Trost***

Eagle attacks on paragliders

The following exchanges were by email (see also article p. 15). Responses welcome. (Ed.)

I'm a paraglider pilot in Canberra. We fly by foot-launching on a ridge with prevailing wind. There aren't too many places that are suitable. One place is at Lake George. We have a small launch area and fly along the ridgeline. Often along the ridge we encounter Wedge-tailed Eagles that come out and play in the lift/thermals with us. In July this year I was attacked by one. It was screeching loudly at my presence and either tried to land on my wing or attacked it. Regardless, it ripped a bit hole in it. It was screeching before the 'attack'. The previous day it had come out and flew beside me without much interest. So I don't know whether it was just inquisitive and touched my wing or seriously attacked it. Anyway, last weekend another couple of pilots were more seriously attacked, causing considerably more damage to their paragliders. Thankfully no-one was injured and they landed safely. From talking with them, it seems as if the eagle wasn't trying to land on their wing but it was a fully blown assault. It seems it is only in a small area where it classifies it as territory, but this is in the middle of where we fly, which reduces considerably our flying options. Most of us are conservationists and don't want to harm the eagle or its purpose. But it is hard to avoid the area, particularly since we aren't sure of what sort of area it regards as its territory. Testing this out is fraught with danger, particularly if we get it wrong! I was wondering if there is anything you are aware of that might dissuade attacks without disrupting the eagle too much? I had heard of flapping silver tape as a deterrent, but couldn't seem to find much evidence of this. It would also be interesting to know what sort of territorial distance it is likely to have so we can try to fit in with this.

Barry Oliver 12.10.2009

I've seen no literature on deterring attacks by eagles on paragliders… About all I can suggest is that the offending eagle is most likely a breeding adult defending a nesting territory (they would have chicks by now), and is responding to paragliders in the territory as intruders and perceived potential predators of the young. Therefore, the prudent course of action would be to avoid a certain radius (maybe 1 km) from the active nest during the breeding season, which for Wedge-tails is quite long (eggs June or July to large young by November). As it's probably only certain individuals that respond so strongly, it might be possible to identify that territory and avoid it, particularly the immediate nest area. A nest closest to your centre of attacks would be the one owned by the aggressive eagle. Nests in neighbouring territories would be about 5–6 km apart in that area.

Stephen Debus 12.10.2009

I'm trying to find a remedy for deterring an eagle that has become extremely territorial and is attacking our paragliders whenever we go anywhere near it. Unfortunately we don't have many places to fly and one is the escarpment at Lake George which we've been flying for 30 years. We often fly with eagles and don't have much of a problem, and actually find it quite exciting with neither being concerned about each other's presence. However, one resident just near where we fly gets mighty angry when we go past. We'd be happy not to go near it, but it's smack in the middle of our main flying path, and between us and the main area where we catch thermals to go cross-country. I flew with it without a problem many times before, but in July it attacked and ripped a big hole in my wing. Two other pilots were flying along the escarpment on the weekend and it really gave them a hard time, one glider was repeatedly attacked and had two metre-long holes ripped in his wing. A pretty scary outcome, for the pilot especially… We most certainly don't want to scare it from its nest etc., just stop it destroying our wings… People have suggested an airhorn, to give a blast when it comes out as we pass by. Unfortunately I'm having trouble finding volunteers, so if you know of anything that might help I'd be grateful of a suggestion.

Barry Oliver 13.10.2009

We also suffer from the occasional strike at some of our sites. In fact one site, Eaglehawk Neck (surprise, surprise!) a pair of eagles is notorious for similar acts towards paragliders and hang-gliders. Here the eagles learnt that if they rip the nose nappy of the hang-glider the pilot would go and land. The first most obvious thing is to keep clear of breeding sites during the breeding season (July to January), no surprise there. There is no better way to stop attacks than by not provoking them above nest sites. Our birds generally start to become aggressive around July; it could be a month earlier for mainland birds though. We found that if an eagle attacks and the pilot leaves the area, the bird considers this as a successful nest defence. The more often this happens, the more likely you will be to reinforce that aggressive encounters will deter gliders.

There are several things that appear to work:

(1) An air horn definitely works. However, you are likely to cause nest desertion if you use this over the nest site. So I have an issue with this technique. Knowingly deterring birds from defending nest sites, which can cause desertion, may be viewed poorly by the public. If we continue to knowingly do this, the general public can push for sites to be closed. Site closure can also result through human safety issues. We must not forget that gone are the days when eagles were heavily persecuted. People actually love seeing eagles as I know you and I do. The second issue with this technique is nest abandonment and relocation to another area even less favourable. This happens more often than you think. They may move closer to a launch and cause a greater issue.

(2) A silver streamer trailing a glider has been used a fair amount at one of our sites where paragliders were often hit. Although it worked, I get the distinct impression that there was a change in the pair. So I think that it was likely that the streamer had little to do with it. I have asked the paragliding guys to try it at Eaglehawk Neck, but no takers yet.

(3) I think it was Nick Mooney who originally came up with the reaction cone idea (or whatever it was called). Basically, the way I understand it: there is a certain height above that nest where eagles will actively defend. This also relates to horizontal distance. Last weekend I inspected an eagle's nest using my powered harness on my hang-glider, and although the pair was not aggressive I kept at a height that was less likely to cause a reaction. I cannot remember what the height was, but I will download my track log from my vario. Each pilot that has been attacked will probably have this information stored on their vario or GPS. I would graph the response of the bird and the heights and also gather information from other pilots. Plot as many flights as you can over this area. You might find that pilots at 2000 ft don't get attacked but those at 800 ft agl consistently do. There will be a correlation associated with height. The only exception may be if an adult comes in high after foraging and is above you. Personally I think the cone idea only works where birds are below the aircraft or sitting in the tree canopy. I have never been attached at height, so there has to be a critical distance which provokes an attack. I would be keen to see what the data from the vario look like. I would probably just compare the result to within a season, as you cannot be sure that a bird has not been replaced and has a different attitude.

If a *response height* can be established, you could make sure that pilots don't attempt going on glide to the 'house thermal' site (where you get attacked) unless he/she can be sure that they can reach the area with sufficient altitude to be above the critical *response height*. I think that this is your best approach. You might find that you rarely end up with an attack if the correct height can be estimated. If you don't know exactly where the nest is, you may be able to estimate to ±500 m based on aggression.

Jason Wiersma 13.10.2009

I would say that your options are fairly limited. I would give the silver streamer a go. Failing that, I would consider the last option and use an air horn as a deterrent only under an attack and not for any other reasons. I guess it is under such circumstances that you really see the individual personalities in raptors come out. At one of our sea-breeze ridge-soaring sites, Winton, I was recently attacked by a male. This individual has only ever attacked once or twice in 4 years that I have been flying the site. On this particular day I was on the east end of the ridge and the male, who was ridge-soaring with us, for no apparent reason just turned and came in at me with talons outstretched. Amazingly, at the last moment the female came in from behind and hit the male and diverted him. He tried another attack within a couple of minutes and the female did the

same thing. After this they both landed on a large branch on one of their roost sites on the ridge, where they sat and preened. Winton is a couple of kilometres from a nest site. From my understanding, the pair uses Winton for ridge-lift when hunting. This is a focal point for the pair and this ridge (like one other site) is a common place where eagles and pilots fly often together. We have another such place where we believe a ridge is used simply as a place for the pair to get lift (height) to hunt. At both these sites it would be rare that any such attack would occur. As to what the female really meant by stopping the male, who knows? It is easy to be anthropocentric and think that she thought that it was best to keep peace.

Aside: the only time I have been attacked at Winton is just after a visit from a neighbouring pair. The resident pair was on the east end of the ridge when I saw another pair advance from the west. The male (of our pair) started to pot-hook (undulate and display), with 400–500 ft pot-hooks. Both males did this before a close chase followed by a small encounter on the west end of the ridge, where the intruder and his female left 10 minutes later. I was airborne and almost 2000 ft above them watching all this unfold, but much to my distress almost immediately after the rival pair left the male turned on me and ripped a whole in my right wing. Such attacks are usually diversionary, with males being frustrated, taking out their aggression on the most immediate object. This activity might also help to reinforce the pair bond by showing off the male's aerial agility. But that's just my summation and maybe it's a very human-centred opinion. As for the pair at Eaglehawk, air horns were used as a deterrent but their use was stopped after locals threatened the flying fraternity, owing to the issue of noise disturbance. Long-term, the horns did not stop birds from attacking gliders unless a horn was used at each attack. So horn use did not train eagles not to attack. This pair attacks almost every time we fly, as soon as you get airborne and head in the direction of the nest.

Jason Wiersma 14.10.2009

There are many occasions when unusual disturbance has resulted in unusual behaviour between individuals of a raptor pair. The difference between 'affection' or bonding and aggression is a fine line – just see how food can change a peaceful pair into mantling, robbing, even fighting etc. On many occasions I have seen a scuffle between Peregrines while defending a nest against people, something that very rarely if ever happens when they are defending against animals (which they usually easily drive off). I have also been climbing to a Brown Falcon nest, and the female overhead complaining sailed off to whack a raven a kilometre away. Such records (of apparently inappropriate aggression given the circumstances) are more likely something to do with frustration and a redirection of stress in a situation the birds cannot control, be it us visiting a nest despite the birds' best efforts at defence, or a hang-glider going through a territory despite the birds' best efforts at display and intimidation. In my opinion, this is a much more likely explanation than an apparent attempt by the female to keep the peace (by seeming to stop the male attacking the hang-glider) or suchlike.

Nick Mooney 14.10.2009

As to the question, posed by Jerry Olsen, of whether White-bellied Sea-Eagles ever attack hang-gliders or paragliders:

I've flown with quite a few Sea-Eagles at Newcastle and Rainbow Beach and never had any interest from them – but maybe that was because I may not have been within their cone or it wasn't their breeding season. I've never heard of anyone else being attacked by them either. Again, this doesn't mean they don't attack – maybe the flying season on the coast isn't in the breeding season or near nests.

Barry Oliver 17.10.2009

I purchased a small airhorn as a last resort. I headed off in my paraglider very apprehensive about going anywhere near where the eagle whacked my glider in July. Anyway, another pilot pushed on along the ridge. I followed. Then I heard her screeching and before I could do a thing she was right beside me. I whipped out my airhorn and pressed the button...PHZZZZZZZ...the thing malfunctioned and nearly froze my finger off, as the gas was very cold and sprayed out everywhere! For the next few seconds the eagle just looked at me. For the few nanoseconds the horn did work, she didn't do a thing. I think in the air, the sound waves

travel 360 degrees, making it sound quiet, whereas on the ground it reflects upwards... Just a thought, as it most certainly didn't sound loud as it does when on the ground. Anyway, the eagle regained her composure then ripped into my wing before I could get out of her way...and then ripped into the other pilot's wing for good measure... We both limped away...Needless to say her territory is still well protected. And my wing now looks like a patchwork quilt! My next solution is an old one: beware and avoid. I think the only signal I can use is her screeching. If I hear her screeching then I can assume I need to backtrack quickly.

As an aside, I ended up flying about 20 km and came across about five pairs of eagles, seems as if their territories are about 4–5 km apart. Anyway, as I landed I saw one well up in the sky circling. About 30 m away I also saw a small bird land in the grass, it was black but I don't think it was a crow. I saw the eagle smack into the bird in the grass, grab it and with a few flaps of its wing it was away again with the bird in its talons. It disappeared behind some trees. It must have come out of the sky at warp speed, as it was at least a few hundred metres up when I first saw it.

Barry Oliver 12.11.2009

Eagle update: I was out near Harden (NSW) on the weekend. A hang-glider pilot launched and caught a thermal to 8500' and from there until about 9500' he was attacked twice by a large Wedge-tailed Eagle. I watched the eagle circling directly behind and above the glider, the eagle maintaining exactly the same circle as the hang-glider for possible three or four circles before diving in. I only knew that it hit the wing from the cries from the pilot. It attacked twice before losing interest and headed off elsewhere. I only saw the event as the eagle began shadowing the glider, so I don't know whether the glider climbed up to the eagle or whether the eagle came from elsewhere. I watched as it dived and also when it peeled off and the glider continued thermalling. The pilot reported he was above 8500 feet, so there is at least some evidence that birds well outside their cone of danger still attack. The glider didn't suffer any damage, so the attacks couldn't have been too serious.

There were a few other encounters along the flight where eagles came in and were obviously unhappy about the intrusion of the glider, but no further contact occurred. I don't know whether these were within cone distance, but I think not given the pilots' recollection of the heights when the encounters occurred.

Barry Oliver 16.11.2009

Grey Goshawk, not Grey Falcon

Regarding the 'Field note' by B. Roubin (2005, 'Grey Falcon age characters', *Boobook* 23(2): 45, from the Birding-Aus archive): I have no doubt that the species concerned is Grey Goshawk. If it were a juvenile Grey Falcon, and only juveniles lack the yellow orbital ring (on 10 September it would have to be a newly fledged Grey Falcon), the author would have mentioned the heavy black streaking of the flanks, much unlike any Grey Goshawk plumage. Juvenile Grey Falcons acquire the yellow of the orbital skin before completing one year of age. This incident is another fine example of the great number of wrong identifications with which the literature is swamped.

Jonny Schoenjahn

...I would add that the location, on Fraser Island (Qld), is also suspect for Grey Falcon (and should have raised doubts), but would be expected for Grey Goshawk. I thank Jonny for responding, and I'm suitably chastened for not challenging the record more critically at the time. I now suspect that most coastal or near-coastal reports of 'Grey Falcons' in humid eastern and south-eastern Australia are really Grey Goshawks. If the above re-identification has not already been communicated to Birding-Aus, would someone care to do so? See also Aust. Field Ornithology *27, 2010: 49–58. (Ed.)*

ARTICLE

An attack of the Wedgies!

I have flown many times with eagles, hawks and other birds of prey of various types with my paraglider. However, flying with Wedge-tailed Eagles is particularly inspiring, although coastal soaring with [White-bellied] Sea-Eagles is also up there. Wedge-tailed Eagles are majestic and they are fast. Sometimes they are intimidating… I remember once catching a thermal with a Wedge-tailed Eagle at Tumut [NSW]. We both thermalled about 180° apart and in a 25-m circle, from launch to about 4500 ft [then] it headed off on a long glide.

The most time I've spent flying with Wedge-tailed Eagles has been at Lake George near Canberra. A regular paragliding flight is to go up and down the ridge on the western side of the lake. In the right conditions one can fly about 40 km along the ridge from Collector to near Bungendore. On one trip I encountered six 'wedgies' along the way. Generally, they hang around for only a few minutes before heading off on their own missions. However, on one trip I spent a while thermalling and ridge-soaring in a bowl with a pair of eagles 'porpoising' around me. They gained perhaps 100 ft of height above me, folded their wings and dived down past me, pulling out a hundred feet or so below, only to repeat the process using their speed and momentum on the way down, and the abundant lift to rise back up…

Generally, the eagles I come across are mute and non-confrontational. However, on occasion they come alongside and screech. One was a black dot in the sky, wings folded and making a beeline straight for me, like a missile. With talons outstretched, at the last moment it spun sideways, looked into my eyes and screeched. It seemed perplexed; maybe surprised that I didn't react aggressively… After the initial assault, it seemed just curious.

Some have come alongside and screeched loudly. Those who have experience the noise will know that it raises the hair on the back of one's neck. Trying to get out of their way is like opening the throttle on a moped… Jamming on the speed bar increases speed from 25 km/h to 30 km/h at best… One eagle parked itself alongside me at a few hundred feet above the ridge and screamed, so persistently that I was forced to land… More recently (mid July), I was flying along the Lake George ridge when a pair of eagles came out. I knew their territory well… In most cases only on pair seems interested in my presence… One followed me for a while [then] seemed to lose interest… The day after I was again flying the same ridge at the same spot… As I approached the area where the presumed pair lived, I heard the screeching… gave my normal 'Hello!' a few times and continued flying. I couldn't see back along the ridge because of the sun, so I didn't see the eagles… It was only perhaps a minute later that I felt the hit. I heard the tear and felt the whack on my glider. My wings shuddered and started to shake on one side… I saw the sun shining through… [and] the top flapping by its shadow… I radioed my plight… and headed to land.

The eagle only attacked once… The glider was flying erratically on the side where the hole was… I was about 500 ft above the highway and 5 km from my car from where I had launched… I ended up landing in the dry lake bed… The main hole in my wing was L-shaped and about 30 by 10 cm, with numerous other small tears in the top surface… Nothing a few sheets of A4 sticky-back repair cloth couldn't fix [in] about an hour of repairs. Thankfully, the tear wasn't across a cell or along the stitching…

Barry Oliver
Soaring Australia Sept. 2009: 6–7 (edited and abridged)

…This was the incident that sparked the foregoing series of exchanges in 'Raptor file', above. If anyone has any further ideas about deterring such attacks, particularly methods that work without having any adverse effects on the eagles or their nest-site fidelity or breeding success, please send them to Boobook. *(Ed.)*

FIELD NOTES

Osprey chick entangled in fishing gear

Two Eastern Osprey nestlings *Pandion cristatus* were banded at the Goldsworthy Centre Lead Buoy Beacon, Port Hedland (WA), on 20 September 1986. One of these nestlings was entangled in a considerable amount of fishing line, which prevented it from standing. I consider this bird would have perished had the fishing line not been removed. No injury was evident that would handicap this bird in the future. Both nestlings appeared to be in a healthy condition. The adult bird seen in the area returned to the nest immediately we left it. I thank Scott Richardson for his help and Mt Newman Mining Company for the use of a vehicle and boat. Thanks also to the Port Hedland Port Authority for allowing us to climb their beacon.

Andrew Sutton

Grey Goshawk associating with white cockatoos

The small town of Tolga is 5 km north of Atherton (north Qld), on the edge of the Tolga Scrub, 26 ha of rainforest remnant within cleared farmland with narrow, fragmented belts of sclerophyll forest and woodland. Since February 2009 I have had five sightings of an apparently adult grey-morph Grey Goshawk *Accipiter novaehollandiae*: flushed from the rainforest canopy; perched with Sulphur-crested Cockatoos *Cacatua galerita* atop an emergent dead tree deep in the forest; taking short flights between branches of leafless deciduous trees, working its way up towards the Australasian Figbirds *Sphecotheres vieilloti* perched at the top in late afternoon; and flying in fast and low towards the Figbirds on another late afternoon. In August 2009, late on a sunny morning, I heard a flock of 15–20 Sulphur-crested Cockatoos approaching the forest, ~2 m above the tree canopy. There was a grey-morph Grey Goshawk with them, conspicuously grey among the white birds. Its wings were also a different shape from those of the cockatoos. The Goshawk was close up under one of the cockatoos, behind the lead birds and a little behind the head of the cockatoo above, so that the hawk had a clear view of the approaching tree canopy, yet any prey would see the cockatoos first, and the hawk would tend to disappear among the cockatoos. As they were about to cross the edge of the forest, the Goshawk commenced a shallow dive towards the canopy, leaving the flock. This appeared to be another case of predacious mimicry by the Grey Goshawk, this time by a grey (not white) morph in company with white cockatoos. The incident begs the questions of whether this behaviour by the Goshawk is instinctive or learned, and whether it evolved before the white morph of the Goshawk did.

Jim Ross

Little Eagle takes rabbit

At Moorabool (Vic.) on a clear morning in late March 2004, an area of hills and river valleys, a Little Eagle was patrolling a ploughed crop. It came to rest in a field, where it caught a young Rabbit *Oryctolagus cuniculus*. Upon approach, the eagle flew away, only to return eventually to take its prey. The eagle's rufous colour, dark streaks and dark face were almost like those of a Black-breasted Buzzard *Hamirostra melanosternon*. Further sighting suggest that this distinctive eagle is resident in the Ceres–Barrabool area, much of which is being developed with little apparent thought for species such as this, and whose habitat will need to be conserved.

Bev Holt

…A photo of the eagle reveals it to be a juvenile dark morph, probably female by size, and its prey a half-grown rabbit. The date is consistent with juvenile Little Eagles becoming independent and developing hunting skills at that time of year (e.g. Debus & Ley 2009, Aust. Field Ornithology *26: 76–99). There was another case recently, doing the 'twitcher' circuit, of a dark-morph Little Eagle in southern Victoria thought to be possibly a Black-breasted Buzzard, notwithstanding a photo (albeit 'soft') of the bird on rabbit prey and showing typical Little Eagle characters. (Ed.)*

Piracy by Black Falcon and Sea-Eagle

On the morning of 17 November 2009 I was fishing on a lake [*in Qld? –Ed.*] and heard a whistle like a falling bomb. There was an explosion of feathers as a bird tumbled from the sky. Two actually: one a dead duck (a pygmy-goose *Nettapus* sp.), the other a Peregrine Falcon *Falco peregrinus*. Still flying was a Black Falcon *Falco subniger*, screeching as if annoyed at something. In the same few moments a White-bellied Sea-Eagle *Haliaeetus leucogaster* arrived and made off with the duck. Rowing itself along with a butterfly stroke, the waterlogged Peregrine took some catching. It was exhausted, and perched quietly in the boat for an hour or so while we went back casting. Feathers dry, it made a few laboured flaps off the gunwale and was airborne again. Near as I could reconstruct, the Peregrine had taken the duck in mid air and was struggling to carry it. The Black Falcon was obviously watching and decided to pirate the Peregrine. It's a bigger, more powerful bird just as fast in level flight. The collision knocked the Peregrine into the water; it was probably losing height and there wasn't enough sky for the Black Falcon to make a loop, as they do, and grab the prize while it was still falling. The Black Falcon hassled the eagle flying off with the duck, then perched on a branch.

Rod Harrison

Juvenile Sea-Eagle behaviour

On 12 December 2009 Ian Donaldson and I saw two juvenile White-bellied Sea-Eagles *Haliaeetus leucogaster* at Quipolly Dam, between Werris Creek and Quirindi (northern inland NSW). The two juveniles were on the railing of the walkway out to the intake structure when we arrived about 0745 h, with two adults also there. They all flew off over the dam. When we stopped at a parking area beside the lake, we saw them on the opposite shore towards a house, where a small creek enters the lake near a rocky ridge. One juvenile was drinking on the shore, then the second one flew in and landed about 50 m away. An adult was also observed in a favourite tree farther around. One juvenile left unobserved and the other became more active. It seemed to have something in its talons, and could be seen to tear parts off the unknown carcass. It was also observed leaping on the carcass as if trying to kill it again and again.

Geoffrey Mitchell

…An interesting sequel to the study of this pair in 2007 (Debus 2008, Aust. Field Ornithology *25: 165–193), both in terms of the successful brood of two, and of the practice 'killing' behaviour that was not documented for the little-studied post-fledging period of this and other pairs in 2007–08. The juveniles in the above episode would have been fledged about a month. (Ed.)*

Grey Goshawk takes Dusky Moorhen from water

On 17 October 2009, as I was passing a farm dam in a mountain cleft in south-east Queensland, at about 400 m asl, a bird screaming made me stop the car. I saw what can only have been a grey-morph Grey Goshawk *Accipiter novaehollandiae* take an immature Dusky Moorhen *Gallinula tenebrosa* from off the water. The immature Moorhen had been in waterweed, and a nearby adult screamed and called incessantly during and after the capture, searching in and out of the waterweed for the youngster. As the larger grey bird came down to take the immature, it fumbled (perhaps startled to find water rather than ground beneath the green plants), dragging its wingtips up from the surface, then dropped again to take the Moorhen successfully. The Goshawk lifted out of the dam cleft and bore its prey heavily away, to disappear in the lower branches of a hillside tree.

Judith Lukin
Birding-Aus 21.10.2009 (per Shirley Cook)

Boobook calls

Recently (January 2010) I woke at night seemingly to a frog croaking loudly outside my window in Chatswood (suburban Sydney, NSW). It was so unusual in dry January weather on a ridge, that I listened to it for a while. It was then joined by a Southern Boobook *Ninox novaeseelandiae* giving the typical *boo book* call. Then the frog call was replaced by the typical *boo book* call, so that there were two Boobooks calling. I went outside and listened as the frog call changed to *boo book* and then back to just the frog-like *book* without the preceding rising *boo*, rapidly repeated at the same frequency as a frog might. The swap between calls happened several times. Although I wasn't able to see them, it became obvious that I was hearing two Boobooks calling. I go to sleep most nights with a Boobook calling outside my window from August to February, but have only heard this call on one previous occasion. The above calling event apparently involved one (or both?) of last year's successful breeding pair of Boobooks at Chatswood.

Chris Charles

…Sounds like the croaking por *call given alternately with* boo book *by one of the owls, while the other called* boo book. *Although both owls were calling at the same time, their social status was undetermined, and we can't call it duetting because it was not antiphonal or alternate phrase-for-phrase in the strict ornithological sense. E.g., see* Boobook *23: 34–38. (Ed.)*

Masked Owl takes flying-fox

On the night of 31 January 2010 at Weston, Kurri Kurri in the Hunter Valley (NSW), a loud squealing noise in the neighbour's yard revealed a flying-fox *Pteropus* sp. in distress. Upon investigation, a Masked Owl *Tyto novaehollandiae* was found perched within a Hoop Pine *Araucaria cunninghamii*, holding the flying-fox. Consulting *HANZAB*, it says that only microbats (less than 1% of the Masked Owl's diet) have been recorded as prey. I watched on as the owl dismembered the flying-fox.

Steve Roderick
Birdline NSW via Birding-Aus 01.02.2010 (per Greg Clancy)

…A large item for a Masked Owl, flying-foxes are usually taken by Powerful and Rufous Owls. (Ed.)

Sooty Owl takes Boyd's Forest Dragon

On the night of night 24 February 2010, while mammal spotting in north-east Queensland, we heard *Tyto* owls making a racket. I thought they were Lesser Sooty Owls *T. tenebricosa multipunctata*, but as they were hissing calls I was not sure. When approaching the source of the noise, I heard a soft call from behind us and turned to find a Lesser Sooty Owl holding a Boyd's Forest Dragon *Hypsilurus boydii*. The noisy bird approached, and although I first thought it was a juvenile I now think it may have been a female and what we witnessed was mate-feeding. She put on a great display, screaming and hissing with her wings spread. The exchange of the dragon occurred in a dense tree so we did not witness that. She flew across the road with her trophy and continued to scream until I demonstrated the 'falling bomb' call for my guests. As we were watching a Lumholtz's Tree-Kangaroo at the time the owls interrupted, we stayed around and the hissing restarted after about 3–5 minutes. Neither owl was visible, though the noisy one was no more than 15 metres away.

Alan Gillanders
Birding-Aus 25.02.2010 (per Shirley Cook)

Brown Goshawk over Manly Dam (Sydney)

On 2 March 2010 at 1535 h my attention was brought to the presence of a raptor by the warning calls of various other birds. I soon located a single female Brown Goshawk *Accipiter fasciatus* circling, with periodic quick wingbeats, over Manly Dam (suburban Sydney, NSW) at about 60 m. The Goshawk was soon mobbed by a pair of Masked Lapwings *Vanellus miles*. While being mobbed, the Goshawk started to gain height and soon the Lapwings stopped their mobbing response and retreated. The circling Goshawk continued to gain height, and soon disappeared over the hill to the south of the dam.

Tom Rambaut

Raptor trilogy

On 7 May 2010 whilst driving east along the Western Freeway at Bacchus Marsh (Vic.), I observed an adult female Wedge-tailed Eagle *Aquila audax* soaring, indeed more-or-less 'hanging' in the air near the top of an escarpment at Broadlands Estate. The escarpment delineates the eastern edge of the Bacchus Marsh valley and I have often observed a number of Wedge-tailed Eagles soaring there. There was a strong westerly wind blowing at the time, and in a brief period of observation I saw a light-morph Brown Falcon *Falco berigora* dive at the Wedge-tail before it 'suspended' itself in the strong wind ~5 m ahead of the Wedge-tail. Finally, just before I had to return my vision to the task of driving my vehicle, I saw what appeared to be an Australian Hobby *Falco longipennis* dive at the Brown Falcon. I can't be certain of the ID of the last raptor, but it was without doubt a small to medium-sized falcon.

David Whelan

Australian Hobby at Lake Claremont

Over the past two years a pair of Australia Hobbies *Falco longipennis* has nested in the vicinity of Lake Claremont (WA), which forms part of their feeding territory. Towards the end of March 2010 an adult Hobby was observed hawking dragonflies over the lake. From a high perch on the dead branch of a tree at the lake's edge, it dropped rapidly, gaining speed, twisting and turning like a large swallow as it pursued its prey. Upon capturing it, the Hobby then returned to its perch to eat. On some flights, a juvenile accompanied it, almost mirroring the adult's actions but not capturing anything. Such behaviour appears to be similar to that described in *HANZAB 2*, where 'fledglings develop skills, appearing to learn by experience and by imitating adults'. Later, I observed the juvenile attempt the pursuit of a dragonfly on its own, taking at least twice as long [as the adult] to capture its prey.

Peter Sandilands
WA Bird Notes 134, June 2010: 15

Peregrines over Middle Harbour (Sydney)

On 23 February 2010, at about 1630 h, I observed a Peregrine Falcon *Falco peregrinus* soaring above suburban housing near the Spit Bridge in Middle Harbour (Sydney, NSW). The Peregrine was using a strong south-easterly headwind, periodically stooping at feral Rock Doves *Columba livia*, streaking across the sky then returning to hang in the sky, head to wind. The Falcon then streaked across the harbour to stoop at something. A second Peregrine appeared in the same place where I saw the first (still just visible in the distance). It was also using the strong headwind and soon streaked across the sky, in teardrop fashion, in pursuit of two Rock Doves flying below. They evaded the Falcon by splitting up at the last moment and diving to find refuge under the bridge.

Tom Rambaut

BOOK REVIEW

The Owls of Australia: A Field Guide to Australian Night Birds **by Stephen Debus**. Envirobook, Sydney, 2009. Softcover, 106 pp., colour photographs, colour illustrations. RRP $22.

Undertaking research on owls is filled with many challenges, the most obvious being working on cryptic species in the dark. Trying to identify species can be very difficult, especially if your observations are based on the silhouette of a non-vocal owl roosting high in the canopy where its size is difficult to estimate through foliage. If you are lucky this silent flier will do a fly-by over your head, or better still, call to a mate, giving you the chance to identify it. In many situations, however, the owl will not be so obliging and will remain silent in its roost, leaving you to wonder: was it a Masked Owl or maybe a Sooty Owl or possibly a Barn Owl?

[This book] will certainly help with these owl identification problems. This field guide provides a concise summary of Australia's different owl species, focussing primarily on the identification and basic biology of individual species. The guide begins with a generic chapter on owls and then provides separate chapters for the two owl families and within these chapters sections on the Australian owls that fall within each family. This field guide also contains a chapter on the identification of frogmouths, which is helpful as frogmouths are often misidentified as owls.

The opening chapter… provides a very useful overview of owls, including information about their taxonomy and the characteristics of the two owl families..., the Tytonidae (barn owls) and the Strigidae (hawk owls). This chapter also provides an overview of food and hunting, distribution, threats and conservation and finishes with nomenclature and species limits. Chapter 2 provides an overview of owls in the fossil record. Chapters 3 and 4 provide relevant information about each owl species found in Australia. Chapter 3 represents the hawk owls (genus *Ninox*). There are separate sections for each of the five *Ninox* owls… (Powerful Owl, Rufous Owl, Barking Owl, Southern Boobook and Christmas Island Hawk-Owl) under the headings *Description and voice*, *Distribution*, *Food and hunting*, *Behaviour*, *Breeding*, and *Threats and conservation*. The same format is used for the barn owls (genus *Tyto*) in Chapter 4, which includes all five species of *Tyto*… (Sooty Owl, Lesser Sooty Owl, Masked Owl, Eastern Barn Owl and Eastern Grass Owl).

The information provided for each species is concise and well written. The format makes this field guide easy to use and the explanations of the differences between similar species will definitely make correct owl identifications more likely. Coloured plates of each species are also included in the guide. The plates depict both adults and juveniles with a combination of roosting and flying birds, further highlighting differences between species.

Information about frogmouths (genus *Podargus*) is found in Chapter 5. This chapter contains an overview of frogmouth characteristics and highlights the differences between owls and frogmouths. The Tawny Frogmouth, Papuan Frogmouth and Marbled Frogmouth are all described with information about the distribution and habitat of each species. The inclusion of this chapter will help dispel the misbelief that frogmouths are owls.

This field guide concludes with a chapter about threats and conservation and the future. Debus highlights the pressures faced by Australian owls such as habitat destruction, pesticides and pollution and persecution. He also discusses research and management, reserves, habitat restoration and enhancement, pest management, education, rehabilitation and the future. This chapter is a neat summary of human interactions with these species. It reinforces the ecological and social importance of Australian owls and suggests areas where future research and conservation should be focused.

Overall, [this book] is a must-have… for any owl enthusiast. This guide is concise (106 pp.) and easy to use, with all the Australian owls included and the differences between these species are highlighted. The guide is well referenced and also contains a short glossary of key terms. I have no hesitation in recommending this guide as essential for anyone venturing out at night to study owls.

Raylene Cooke, reprinted from *Emu* 110, 2010: 186

RECENT LITERATURE

Journals

***Ambio* 37** 2008

Monitoring of raptors and their contamination levels in Norway (J.O. Gjershaug *et al.*), 420–424.

***Archives of Environmental Contamination and Toxicology* 58** 2010

Anticoagulant rodenticides in three owl species from western Canada, 1988–2003 (C. Albert *et al.*), 451–459.

***Ardea* 97** 2009 Themed issue

Owls – ambassadors for the protection of Nature in their changing landscapes (Proceedings of the fourth World Owl Conference 31 October – 4 November 2007, Groningen, The Netherlands). Thirty-seven papers include:

Molecular phylogeny of owls (Strigiformes) inferred from DNA sequences of the mitochondrial cytochrome *b* and the nuclear *RAG-1* gene (M. Wink *et al.*), 581–591.

Limitations of owl reproduction in the wild: is there a role for food quality besides quantity? (A. van den Burg), 609–614.

How owls select their prey: a study of Barn Owls *Tyto alba* and their small mammal prey (I. Taylor), 635–644.

***Auk* 127** 2010

Determinants of territorial recruitment in Bonelli's Eagle (*Aquila fasciata*) populations (A. Hernández-Matías *et al.*), 173–184.

The role of the Eurasian Sparrowhawk (*Accipiter nisus*) in the decline of the House Sparrow (*Passer domesticus*) in Britain (C. Bell *et al.*), 411–420.

***Australian Field Ornithology* 26** 2009

Supplementary notes on the breeding behaviour of Wedge-tailed Eagles *Aquila audax* (S. Cherriman *et al.*), 142–147.

Observations on the biology of the Red Goshawk *Erythrotriorchis radiatus* in Queensland (G. Czechura *et al.*), 148–156.

***Australian Field Ornithology* 27** 2010

Possible range extension of wintering Pied Harriers *Circus melanoleucos* into the Southern Hemisphere (M. Iqbal & Giyanto), 33–34.

Nankeen Kestrel takes Spotted Dove (J. Pacher), 35–36.

Predation of a Mardo *Antechinus flavipes leucogaster* by a Southern Boobook, and mobbing of Boobooks by other birds (G. Fulton), 38–41.

Field identification of the Grey Falcon *Falco hypoleucos* (J. Schoenjahn), 49–58.

Diet of Powerful Owls *Ninox strenua* in inner city Melbourne parks, Victoria (J. Fitzsimons & A.B. Rose), 76–80.

***Biological J. Linnean Society* 95** 2008

Evolution of prey holding behaviour and large male body size in *Ninox* owls (Strigidae) (C. Pavey), 284–292.

***Biological Conservation* 143** 2010

Underestimated and severe: small mammal decline from the forests of south-eastern Australia since European settlement, as revealed by a top-order predator (R. Bilney *et al.*), 52–59. [Sooty Owl subfossil and contemporary diet.]
The precautionary principle and wind-farm planning in Andalucía (G. Janss *et al.*), 1827–1828.
The precautionary principle and wind-farm planning: data scarcity does not imply absence of effects (M. Carrete *et al.*), 1829–1830.

***Biology Letters* 6** 2010

Toxicity of non-steroidal anti-inflammatory drugs to *Gyps* vultures: a new threat from ketoprofen (V. Naidoo *et al.*), 339–341. [Relevant to other scavenging raptors?]

***Bird Conservation International* 19** 2009

Is the Papuan Harrier *Circus spilonotus spilothorax* a globally threatened species? Ecology, climate change threats and first population estimates from Papua New Guinea (R. Simmons & L. Legra), 379–391.

***Bird Observer* 862** Oct. 2009

A special area in Townsville (I. Boyd), 17. [Rufous Owl.]
Powerful Owl attacks (P. Thomson), 23.

***Bird Study* 56** 2009

Habitat does not influence breeding performance in a long-term Barn Owl *Tyto alba* study (W. Meek *et al.*), 369–380.

***Birding Asia* 9** 2008

The Eastern Grass Owl *Tyto* (*capensis*) *longimembris* in Sabah, Malaysia (Borneo) (N. Hamid *et al.*), 88–89.

***Birding Asia* 12** 2009

The birds of Wetar, Banda Sea: one of Indonesia's forgotten islands (C. Trainor *et al.*), 78–93. [Raptors and owls, notably Bonelli's Eagle.]

***Bulletin Environmental Contamination & Toxicology* 83** 2009

Mercury contamination in Idaho Bald Eagles, *Haliaeetus leuccephalus* (M. Bechard *et al.*), 698–702.

***Canberra Bird Notes* 34** 2009

Apparent cooperative hunting by Brown Goshawks (J. Layton), 134–135. [This note was repeated in *Bird Observer* 863, Dec. 2009: 28. The incident seems more likely referable to the Peregrine Falcon, in respect of both the starling avoidance behaviour and the raptor attack behaviour.]
Whistling Kites feeding on larvae from a paper wasp nest (J. Layton), 135–136.

***Comparative Biochemistry & Physiology C: Toxicology & Pharmacology* 150** 2009

Magnetic fields produced by power lines do not affect growth, serum melatonin, leukocytes and fledging success in wild Kestrels (G. Dell'Omo *et al.*), 372–376. [Kestrels nesting on high-voltage pylons.]

***Corella* 34** 2010

Calling behaviour of the Southern Boobook *Ninox novaeseelandiae* in relation to distance from their nest trees (J. Olsen *et al.*), 11–13.
Nest-site characteristics of the Wedge-tailed Eagle *Aquila audax* in southern Victoria (A. Foster & R. Wallis), 36–44.
Breeding diet of the Wedge-tailed Eagle *Aquila audax* in southern Victoria (A. Foster & R. Wallis), 45–48.

***Ecotoxicology* 18** 2009

Polybrominated diphenyl ether flame retardants in eggs may reduce reproductive success of Ospreys in Oregon and Washington, USA (C. Henny *et al.*), 802–813.

***Ecotoxicology & Environmental Safety* 73** 2010

Relationships between organohalogen contaminants and blood plasma clinical-chemical parameters in chicks of three raptor species from northern Norway (C. Sonne *et al.*), 7–17.

***Emu* 110** 2010

Insights into the breeding behaviour and dispersal of the Powerful Owl (*Ninox strenua*) through the collection of shed feathers (F. Hogan & R. Cooke), 178–184.

***Environmental Research* 109** 2009

Assessing the risk of lead exposure for the conservation of the endangered Pyrenean Bearded Vulture (*Gypaetus barbatus*) population (M. Hernández & A. Margalida), 837–842.

***Environmental Science & Technology* 43** 2009

Time-trends and congener profiles of PBDEs and PCBs in California Peregrine Falcons (*Falco peregrinus*) (J. Park *et al.*), 8744–8751.
Environmentally relevant concentrations of DE-71 and HBCD alter eggshell thickness and reproductive success of American Kestrels (K. Fernie *et al.*), 2124–2130.

***Ibis* 152** 2010

Home-ranges and patterns of spatial use in territorial Bonelli's Eagles *Aquila fasciata* (R. Bosch *et al.*), 105–117.

***J. Animal Ecology* 78** 2009

Predator-prey relationships in a changing environment: the case of the Sparrowhawk and its avian prey community in a rural area (A. Millon *et al.*), 1086–1095.

***J. Animal Ecology* 79** 2010

Pulsed resources affect the timing of first breeding and lifetime reproductive success of Tawny Owls (A. Millon *et al.*), 426–435.

***J. Avian Medicine & Surgery* 22** 2008

Successful rehabilitation of a severely injured Peregrine Falcon (E. Stauber *et al.*), 346–350.

***J. Ornithology* 151** 2010

Behavioural and body mass changes before laying in the Barn Owl: cues for clutch size determination? (J. Durant *et al.*), 11–17.

***J. Raptor Research* 42** 2008

Dietary shifts based upon prey availability in Peregrine Falcons and Australian Hobbies breeding near Canberra, Australia (J. Olsen *et al.*), 125–137.

***J. Raptor Research* 43** 2009

Human-related threats to urban raptors (S. Hager), 210–226.

***J. Raptor Research* 44** 2010

Diets of Wedge-tailed Eagles (*Aquila audax*) and Little Eagles (*Hieraaetus morphnoides*) breeding near Canberra, Australia (J. Olsen *et al.*), 50–61.

***Molecular Ecology* 18** 2009

Long-term survival despite low genetic diversity in the critically endangered Madagascar Fish-Eagle (J. Johnson *et al.*), 54–63.

***Oikos* 119** 2010

Interactive effects of senescence and natural disturbance on the annual survival probabilities of Snail Kites (B. Reichert *et al.*), 972–979.

***Ornis Fennica* 87** 2010

Geo-environmental influences on breeding parameters of the Eurasian Kestrel (*Falco tinnunculus*) in the western Palaearctic (J. Carrillo & E. González-Dávila) [early online].

***PLoS One* 4** 2009

Predatory functional morphology in raptors: interdigital variation in talon size is related to prey restraint and immobilisation techniques (D. Fowler *et al.*), 1–9.

***Science of the Total Environment* 407** 2009

Ingestion of lead from ammunition and lead concentrations in White-tailed Eagles (*Haliaeetus albicilla*) (B. Helander *et al.*), 5555–5563.

***Toxicology Letters* 196** 2010 Supplement

Organochlorine pesticide levels in Eagle Owl (*Bubo bubo*) eggs: temporal trends and sublethal effects (P. Gómez-Ramírez *et al.*), S129.

***West. Aust. Bird Notes* 132** Dec. 2009

Eastern Ospreys along the Swan River (M. Singor), 16–18.

***Wilson J. Ornithology* 121** 2009

Nest box temperature and hatching success of American Kestrels varies with nest box orientation (M. Butler *et al.*), 778–782.

***Wilson J. Ornithology* 122** 2010

Dietary trends of Barn Owls in an agricultural ecosystem in northern Utah (C. Marti), 60–67.

***Wingspan* 19**(4) 2009

Large owl territories and conservation planning (D. Milledge), 28–29.
Searching for Sea-Eagles (K. & J. Hodge), 34–37.
Food for thought (S. Cherriman), 40–43. [Wedge-tailed Eagle].

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Taxonomy and distribution of the Pygmy Eagle *Aquila* (*Hieraaetus*) *weiskei* (Accipitriformes: Accipitridae) (J.O. Gjershaug *et al.*), 24–38. [New Guinea Little Eagle as a full species].

Books

Hardey, J., Crick, H., Wernham, H., Riley, H., Etheridge, B. & Thompson, D. (2009). *Raptors: A Field Guide for Surveys and Monitoring*, 2nd edn. The Stationery Office, Edinburgh (UK). [British raptors.]

Malan, G. (Ed.) (2010). *Raptor Survey and Monitoring: A Field Guide for African Birds of Prey*. Endangered Wildlife Trust, Parkview (South Africa). [Likely to be highly relevant to Australia.]

Tingay, R. & Katzner, T. (Eds) (2010). *The Eagle Watchers*. Cornell University Press, Ithaca (USA). [Includes White-bellied Sea-Eagle, New Guinea Harpy Eagle, Wedge-tailed Eagle.]

Etherington, J. (2009). *The Wind Farm Scam*. Stacey International, UK.

AOC 2009 Conference abstracts

EagleCam: volunteer and visitor voyeurism at the Birds Australia Discovery Centre

Judy Harrington, Jon Irvine and Aimee Freimanis

EagleCam is a live-to-air camera designed to record and monitor behaviour of nesting White-bellied Sea Eagles *Haliaeetus leucogaster* at Sydney Olympic Park. The camera is on display inside the Birds Australia Discovery Centre so visitors and volunteer staff can view the birds and record their observations of behaviour for later analysis. Live and recorded footage of behaviour observed includes nest-building, bonding, breeding, feeding, incubation and fledging of chicks. New information about the behaviour of the current pair of eagles involved observations of both birds returning to the nest with a live Grey-headed Flying Fox *Pteropus poliocephalus*, which they killed and ate over a period of several hours. Apart from the opportunity to minimise disturbance of breeding birds through conducting observations with a static camera, having visual access inside a nest of such a large and charismatic bird has thrilled visitors and volunteers alike. The vast majority of visitors surveyed (98%) said they 'found their visit very interesting and had learnt something new'.

Barking Owl population limited by prey distribution, quality and abundance in the Pilliga Forests of Northern NSW

Matthew Stanton and Rod Kavanagh

The Barking Owl *Ninox connivens* population in the Pilliga forests of northern New South Wales is the largest known in Southern Australia. Breeding pairs in this population occupy large home-ranges (~2000 ha) across ~200,000 ha of the >500,000 ha forest area. It seems unlikely that the owls require 2000 ha to find nest hollows or sufficient roosts, nor that these resources are completely restricted through the areas of the Pilliga unoccupied by Barking Owls. It is more likely that this spatial limitation

relates to prey availability. To test this hypothesis, prey Barking Owls that are consuming was compared with the available prey as determined by bird counts, spotlight surveys, small mammal trapping, bat surveys and two methods of insect collection. Pilliga Barking Owls preyed predominantly on over 40 species of birds, Sugar Gliders, insectivorous bats and insects, with few prey items being taken on the ground. Prey items from all prey groups were available from all areas of the Pilliga sampled. Available bird prey biomass was strongly correlated with Barking Owl distribution. Mammal prey biomass was less strongly correlated. Invertebrate prey biomass showed some correlation, but requires further study. Spatial availability of prey biomass offers a good explanation for Barking Owl distribution in the Pilliga forests. Critical food resources, particularly available bird biomass, may limit the population density and distribution in what appears to be marginal rather than prime habitat. More productive land in the region that has been cleared for agriculture possibly supported higher densities of Barking Owls.

Abundance of the Tasmanian Masked Owl in call playback surveys

Michael Todd, Sarah Munks, Mark Hindell, Alastair Richardson, Phil Bell, Rod Kavanagh, Iain Taylor and David Bowman

Despite many forest owl surveys over the last couple of decades, the low rate of detection of the Australian Masked Owl *Tyto novaehollandiae* has been problematic in assessing its status and ecology. The Tasmanian Masked Owl *T. n. castanops* is sometimes regarded as being at a higher density than the mainland subspecies, yet few detailed surveys for it have been carried out. To assess the abundance of *T. n. castanops* across Tasmania and to examine its habitat preferences a series of stratified, randomly selected sites were surveyed using the call playback procedure between 2008 and 2009. *T. n. castanops* was detected on 67 occasions in 908 surveys at the randomly selected sites. They were more likely to be detected in dry eucalypt forest (especially *Eucalyptus obliqua* dominated) at low altitude (<450 metres). 14.9% of surveys in dry lowland forest were successful, compared to 3.6% of surveys successful in dry highland forest. Wet lowland forest (7.4% success) also yielded more Masked Owls than wet highland forest (2.9%). Of the 56 *T. n. castanops* that were observed, the majority were dark morph (32), the minority were white morph (10) and the rest intermediate in colour (14). White-morph owls were always small and were probably all male. The importance of lowland dry eucalypt forest to *T. n. castanops* is clear. This finding has conservation implications, as most of these forests are not reserved and are currently subject to forestry management, which has the potential to impact upon the Tasmanian Masked Owl.

DVD

Natasha Schedvin has produced a DVD on her PhD study of Barking Owls, 'The story of Betty and Todd Barker, a pair of Barking Owls'. The story is told through the eyes of Betty, the Barking Owl, with intermittent narration by Natasha, describing her observations of the owls over many months. The story covers 80 properties in Victoria, where Barking Owls are endangered. The owls were fitted with radio-tracking devices on their backs, which revealed that the average size of the home range is 1400 ha. Barking Owls are very territorial, having very distinct home-range boundaries, and do not tolerate intruders. It is a humorous and very informative DVD.

Birds SA Newsletter 213, February 2010: 11

…And we look forward to news of the PhD thesis and publication of the papers arising. (Ed.)

Raptor online bibliographic services

Online services for finding international papers on raptors are:

The Peregrine Fund Research Library searchable catalogue www.peregrinefund.org
The Global Raptor Information Network Website www.globalraptors.org
University of New Mexico library http://elibrary.unm.edu/sora/

J. Raptor Research free online

Back issues (1967–2005) of the Raptor Research Foundation's quarterly scientific journal (*Journal of Raptor Research*) are now available free online through SORA (Searchable Ornithological Research Archive) at the following link:

http://elibrary.unm.edu/sora/index/php

Raptor science literature: new website

A new website for keeping up to date with raptor literature is:

http://tech.groups.yahoo.com/group/RaptorScienceLiterature/

You can join the group from the website to be on the mailing list for new abstracts as they are collected. You can share abstracts and citations with the group in any language and any species of diurnal raptor in the world. You can also join by sending an email to:

RaptorScienceLiterature-subscribe@yahoogroups.com

with a blank subject and then a text message as follows: subscribe RaptorScienceLiterature <your name> and then reply to the confirmation message. It will be possible to access the content of the list messages without being a member, as the website will be open access.

When you join this and other Yahoo groups you can set it up to NOT receive constant mails every time somebody posts, by choosing the Digest option at step #3 of the sign-up process. This will result in one big email per day containing all the posts since the last digest. You can also select Web Only, which is the least intrusive and quickest way to scan new posts. You will have to bookmark the site, and then any time you want to see what's going on, go to the website and see who's posted. No email will come to you. If you're already subscribed, go to the home page here at:

http://tech.groups.yahoo.com.group/raptor-conservation/

and click on Edit Membership, then go to step 3 as described above to choose Web Only or Digest.

Stan Moore, ***Helen Snyder***, <raptor-conservation@yahoogroups.com> 23.02.2010

…A great idea, the credit for which goes to Alan Sieradzki. And if more computer-savvy, Web-savvy ARA members would like to either sign up or just visit the website for this service, and email me relevant abstracts or citations on Australasian species or general raptor ecology for listing in Boobook*, that would be great and much appreciated. I have the Australian literature pretty much covered, but it's getting increasingly difficult and time-consuming for me to collate relevant citations from the overseas journals. (Ed.)*

INTERNATIONAL NEWS

Studies on Grass Owls

The Anglo Coal African Grass Owl Project was initiated in 2008, and subsequent research into the habitat and diet selection of these birds has provided clues to the management of existing habitat and rehabilitation of grasslands affected by destructive activities such as surface coal mining. It is, however, difficult to implement such actions without knowing the adequate size of suitable habitat to be set aside for the conservation of these owls. The need for further research has therefore prompted the initiation of a new Masters project on the spatial ecology of the African Grass Owl [*Tyto capensis*] on Gauteng grasslands. The new project will implement radiotelemetry in order to determine the spatial ecology of adult Grass Owls as well as the dispersal patterns of juveniles after fledging…

Another exciting development is the news of a PhD study by Akalak Kunsorn on the Eastern Grass Owl *Tyto longimembris* in the Chiang Mai region of Thailand. The African and Eastern Grass Owls are very similar in their appearance and behaviour and were only recently split into two separate species. [*Well, actually they've had a chequered history of being split, lumped then split again. –Ed.*] Akalak plans to conduct similar research on the Eastern Grass Owl, and it would certainly be interesting to compare the results of the two projects.

The new [African] study will hopefully provide a better understanding of the movements, home range and habitat use of wild African Grass Owls. The potential application of this information for the future conservation of the species is great, as it will aid managers, environmental impact assessment consultants and policy-makers in delimiting areas of adequate size for Grass Owls.

Matt Pretorius
The Eagle's Eye, April 2010: 14
(newsletter of the Endangered Wildlife Trust's Birds of Prey Program, South Africa)

…Also relevant to Australia, and highlights the need for similar work here on the Eastern Grass Owl. (Ed.)

FORTHCOMING EVENT

2010 ARA conference and Australian Birdfair

Dates: 17–19 September 2010.
Theme: Australian birds of prey and their environment.
Venue: Yanco Agricultural Institute, Leeton–Narrandera road, Yanco (8 km south of Leeton). Shady, fully equipped facilities including air-conditioned conference and seminar rooms, catering and accommodation.
Exhibitors: An invitation is extended to potential exhibitors wanting to be part of the Australian Birdfair.
Birdwatching tours by TEMP.
Information: Contact Australian Birdfair Coordinator Tracey Valenzisi
Ph 02 6953 2215, mobile 0407 262 496
Email: <coordinator@australianbirdfair.org.au>, web <www. australianbirdfair.org.au>
See the Birdfair website for further information about attending, presenting, exhibiting etc.

At the conference several expert and entertaining speakers will deliver presentations on various aspects of the ecology of owls and diurnal raptors. If you would like to present a talk at the conference, please submit an abstract of your talk to Victor Hurley as soon as possible. After the completion of the conference, there will be a tour focusing on raptors that occur in the local area.