Short Notes

First nest record and nesting behaviour of the Madagascar Red Owl *Tyto soumagnei*

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The genus *Tyto* is a distinct group of 11 species of medium-sized owls generally found in open habitats around the world (Hume 1991; Taylor 1994). However, the tropical members of this genus, mostly island endemics, occur in forested habitats. All are considered rare and little is known about their basic natural habits (Bunn *et al.* 1982).

The Madagascar Red Owl *Tyto soumagnei* is poorly known and was assigned a status 'endangered' (facing a very high risk of extinction in the wild in the near future) in the BirdLife International updated IUCN Red List (Collar *et al.* 1994). It is known to occupy eastern Madagascar rain forests (Burton 1984; Collar & Stuart 1985) above 800 m altitude (Langrand 1990; Halleux & Goodman 1994). In 1993, after a 20-year lapse, this species was rediscovered in Andapa, northeastern Madagascar, when an individual was found in captivity (Halleux & Goodman 1994). This rediscovery expanded the known geographic range of this species, but added little information about its natural history and habits. The aim of this paper is to describe new information on the first known nest and nesting behaviour of this rare species.

On 9 October 1994, a Madagascar Red Owl was captured, radio-tagged and released for study from the capture site at sea-level in an area of primary forest and human-modified habit of Masoala Peninsula, in northeastern Madagascar (Thorstrom *et al.* 1997). This bird was observed from October 1994 through December 1995 using radio telemetry to locate it for visual sightings (Thorstrom *et al.* 1997). This owl hunted in open areas (rice paddies, fields and slash-and-burn cultivation) and forest edges, its diet consisted of native insectivores and rodents, it roosted during the daytime in secondary vegetation and it produced eerie screeches resembling those of the cosmopolitan Barn Owl *Tyto alba* (Thorstrom *et al.* 1997). The measurements of this bird were within the range reported for females (Halleux & Goodman 1994; Thorstrom *et al.* 1997).

This radio-tagged owl disappeared from her preferred day time roost sites on 27 July 1995 (during the rainy season). On 30 August 1995, at the end of the rainy season, a weak signal was detected and tracked to an area 2 km south of the original roosting area. On 8 September, the signal was located in an isolated tree on a swidden agriculture and clove grove slope along an east–west ridge. On 9 September 1995, the radio-tagged owl was observed nesting inside a tree cavity but no eggs or young were observed due to difficulties of seeing inside the cavity (Fig. 1). The nest was located 23.2 m above ground in the cavity of a 29 m *Weinmannia rutenbergii* (Cunoniaceae) with 176 cm diameter at breast height (DBH). On 12 September 1995, with the aid of a flashlight two small white downy nestlings approximately one week of age were observed in the nest. The nest was situated in a natural cavity in a fork of two branches that had decomposed in the interior. There were two openings into the hollow, both well sheltered from the rain and on opposite branches. The main entrance was round, 16 by 19 cm in a vertical branch with a depth of 1.2 m from the opening to the nest floor. The second opening was rectangular (19 x 32 cm) in a horizontal limb and was not used by the owls for access to the nest. Prey remains and pellets that had been pushed from the nest into the hollow could be seen through this opening. This opening smelled strongly of decaying animal matter.

Looking into the cavity from the main opening, no nesting material could be seen on the floor of the cavity so presumably this species, like most other Tyto species, lays its eggs on a bare scrape. The floor of the cavity was covered by prey remains, pellets, white-wash from owl droppings, and decayed wood substrate. During the early nestling period, the adult female brooded the young and only left the cavity to receive food from the adult male. After 28 September 1995, the young appeared capable of thermoregulating, allowing the female to perch outside of the nest to wait for prey deliveries from the male. The male called (7 times out of 7 visits) before he entered the nest area with food. When her young were one month of age the adult female began foraging away from the nest tree and leaving the young unattended (the female was present at the nest for only 4 minutes during a 4-hour observation period on 5 October 1995). The adult female roosted inside the nest cavity until 12 October 1995, approximately 35 days after eggs hatched. Subsequently, she roosted at her preferred day time roosts 2 km away. After 12 October 1995, the female was observed visiting the nest only once during observations totalling 37 hours (4 nights).

By one month of age (30 days after suspected hatch) the young developed a noticeable facial disc, flight feathers were just emerging and they hissed and clacked their beaks when agitated. The male called from a perch 20–30 m from the nest prior to entering the cavity with prey. He never stayed long inside the nest. He delivered the food and instantly departed (averaging 6 sec) on all 5 occasions. By mid-November 1995 the young began leaving the nest and positioned themselves on branches near the nest entrance waiting for food from the male. Both of the observed prey deliveries during the late nestling period were by the adult male. On 17 November 1995, both young were absent from the nest and one fledgling was located 50 m south of the nest tree. Fledging occurred at 10 weeks of age and by this time the plumage of the

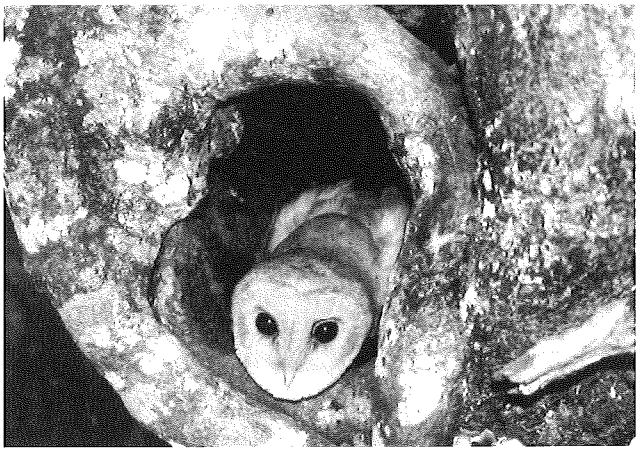

Fig. 1. *Adult female Madagascar Red Owl* Tyto soumagnei *at nest entrance.*

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Review

Berthold, Peter. 1996. **Control of Bird Migration**. London: Chapman & Hall. 355 pp.

Peter Berthold has been a leading researcher in the field of bird migration for more than a quarter of a century. This book forms the third of a trilogy by Berthold, the others being *Orientation in Birds* (1991, Basel: Birkäuser) and *Bird Migration: A General Survey* (1993, Oxford: Oxford University Press). Neither of these earlier volumes has been reviewed by *Ostrich*. Together, the three volumes aim to present a comprehensive review of avian migration.

The book has five main chapters. The first chapter introduces the study of 'control mechanisms', and contains a list of seven crucial research questions in this area. An eighth could be added: 'How precise do the control mechanisms need to be?'

The second chapter, on ecophysiology, constitutes about 75% of the text and deals with a diverse array of topics in 22 sections. The currency of the review may be judged from the fact that the overwhelming majority of citations are to recent papers; for example, in section 2.7, Metabolic adaptations, 77 of 105 references were dated 1990 or later. These sections, averaging about 10 pages each, are well-written: each provides compact explanations and relevant examples, and points to fuller reviews of the topic.

Chapter 3 deals briefly with the current understanding of orientation mechanisms. Chapter 4 reviews the occurrence of rapid changes in migratory behaviour, the most remarkable of which is increase in the number of Blackcaps *Sylvia atricapilla* migrating from central Europe to new wintering areas in Britain and Ireland. Berthold played a leading role in discovering and explaining the microevolutionary processes involved. He predicts that global warming will induce similar changes in the migration patterns for large numbers of species and that long-distance migrants are likely to be the slowest to adapt and find new niches. The final chapter of the book reviews the review, highlighting areas where further investigations are needed; the refrain of the chapter is 'there is little information on . . .'

The 40-page reference list provides a fairly comprehensive selection of the most significant papers in a field with an enormous volume of literature, with a focus on recent research and on reviews.

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young was similar to that of the adults. On 18 November 1995, both young returned to the nest cavity and roosted inside. On 20 November 1995, one young was captured from the nest cavity, weighed, measured, banded and fitted with an 8 g backpack-mounted transmitter (Holohill Systems Ltd., Ontario, Canada). This young, believed to be a female on the basis of its size, weighed 358 g, 35 g more than the weight of the adult female when captured (Table 1). Observations were made on 22 nights (totalling 132 h of observations) during the post-fledgling period from 18h00 to 24h00 between 18 November 1995 to 26 March 1996. We observed the adult male seven times, adult female once and a bird of unknown sex 12 times (owing to malfunction of the transmitter on the adult female during December 1995 we could not determine the sex of the visiting adult) calling and perching with the young and occasionally delivering prey to the fledglings (2 times). During the post-fledgling period the young constantly solicited food during the night, especially when one of the adults called or visited them. The fledglings ranged and roosted within 100–200 m from the nest tree during the post-fledgling period (November 1995 to February 1996). On 13 March 1996, the radio-tagged young female began roosting and making longer excursion flights in the night up to 600 m from the nest tree. Our last radio contact with the young female was on 26 March 1996. We believe she dispersed from her natal area, four months after fledging.

This is the first nesting record of the Madagascar Red Owl. The owls nested roughly at the end of the rainy season (July) and fledged young during the dry season (November), a breeding pattern similar to most of the avian community of the Masoala area (Langrand 1990; Thorstrom & Watson 1997). The clutch size was not determined due to our inability to observe the interior of the nest. We suspect that two eggs were laid resulting in two nestlings that fledged successfully. The long nestling and post-nestling dependency period may be the reason the red owls started nesting earlier than the general avian community (September to January). The nestling period of the Madagascar Red Owls was similar to that reported for other members of *Tyto* but the post-fledgling period was longer (Bunn *et al.* 1982; Burton 1984; Taylor 1994). The nest site was located in a natural tree cavity of an isolated tree approximately 500 m from the edge of the main forest block. This may be a predator avoidance strategy, to provide easier access to the nest site, or simply be a 'historic' nest in the forest that the owls did not abandon despite the swidden agriculture activity. A nest site located in the primary forest might be difficult to access due to the bird's flying morphology (long wings and short tail) that is not well adapted to manoeuvring through dense forest stands.

Table 1. Weight, measurements (mm) and colorations of an adult and a fledgling female Madagascar Red Owl. Measurements following [1]Biggs et al. 1979, [2]Olendorff 1972, [3]Palmer 1962.

Weight, measurements and coloration	Adult female	Fledgling female
Weight (g)	323	358
Wing length (mm)[1] (unflattened)	209	224
Bill length (mm)[2]	17.4	18.0
Bill depth (mm)[2]	10.0	10.5
Skull length (mm)[1]	–	80.0
Tarsus length (mm)[1]	56.6	58.8
Tail length (mm)[1] (centre)	100	103
Iris colour[3]	Sooty black	Blackish-brown
Bill colour[3]	pale grey	pale grey
Cere colour[3]	flesh/cinamon	flesh/cinnamon
Face colour	cinnamon	cinnamon
Toes colour[3]	smoke grey	smoke grey
Tarsus colour[3]	pearl grey	pearl grey
Claw colour[3]	light grey	light grey

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First record of Basra Reed Warbler *Acrocephalus griseldis* in Botswana

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The Basra Reed Warbler *Acrocephalus griseldis*, formerly regarded as a race of the Great Reed Warbler *A. arundinaceus* (e.g. Pearson & Backhurst 1988), is a rare non-breeding Palearctic migrant at the very edge of its range in southern Africa (Maclean 1993). It has been collected only from the lower Zambezi valley in Mozambique and, in 1984, from Empangeni in Zululand, with sight records 80–90 km north of Beira (Maclean 1993). A further sight record in Natal in January 1988 was noted by Hockey (1995) who also reported on a bird seen and subsequently caught in the Kruger National Park in February 1993. This note describes the first record of this species in Botswana, on 28 January 1997.

On the evening of 27 January 1997 we set up mist nets in and at the edge of *Typha* swamp by sewage lagoons at Phakalane (24°34'S 25°58'E), 15 km north of Gaborone, to catch *Acrocephalus* warblers. During the course of the ringing session which continued until dusk on the first day and throughout the following day from 0600 to 1900 hrs, we caught 44 African Reed Warblers *A. baeticatus* and 5 Cape Reed Warblers *A. gracilirostris* as well as a range of Palearctic migrants. The latter comprised 78 Sedge Warblers *A. schoenobaenus*, 20 Great Reed Warblers, 15 European Reed Warblers *A. scirpaceus*, confirming that this species is regular also in southeastern Botswana (cf. Herremans 1992), and one Basra Reed Warbler.

The Basra Reed Warbler was extracted from a mistnet at 0630 on 28 February by LT who immediately realised that he was handling a species not previously recorded from the site. SJT and JMSL examined the bird, noting that it resembled a Basra Reed Warbler with which they had former experience in Kenya, both at Lake Naivasha (Tyler *et al.* 1991) and at Ngulia Lodge, Tsavo National Park. Before the warbler was released, a detailed description was taken of its plumage, bill, legs and wing formula; this was cross-checked in the field with descriptions in Svensson (1992).

The colour of the upperparts was an olivaceous grey, the rump being especially olive. The underparts were whitish with buffer flanks and a darker smudgy edge to the breast. The long bill, slender by comparison with the bill of *A. arundinaceus*, had a greyish brown upper mandible and pinkish lower mandible. Leg colour was blue-grey with paler soles to the feet. The bird had fresh primaries and outer three secondaries. The three innermost secondaries were old, suggesting arrested moult. The bird's wing length (maximum chord) was 85 mm and weight was 18.9 g . Bill length to the skull was 21.5 mm, with a depth of 4 mm and width of 5 mm (measured at the nares). The longest feather was the third primary which showed emargination; the second and fourth primary were 2 mm shorter than the third. The notch on the second primary fell at the ninth primary and measured 12.5 mm to the feather tip. The small first primary was 5 mm shorter than the longest primary covert. Olivetree Warbler *Hippolais olivetorum*, although similar in size, was quickly discounted because of shape, plumage colouration and wing formula. We were familiar in any case with this species, having caught it in drier habitats elsewhere in Botswana and in Kenya. From its head shape and wing formula our bird was undoubtedly an *Acrocephalus* warbler. At 18.9 g it weighed considerably less than any Great Reed Warbler that we had caught at Phakalane and its wing length of 85 mm was shorter than the wing of any Great Reed Warbler (Table 1). Conversely it weighed more and had a much longer wing than European Reed Warblers caught there (Table 1).

It became clear from studying Svensson (1992) and later looking at Williamson (1963) and Pearson & Backhurst (1988), that, from its wing formula, our bird could only be either the far eastern race *orientalis* of *A. arundinaceus* or a Basra Reed Warbler. We discounted *orientalis* because its colouration resembles the nominate race and therefore did not fit with that of our bird which matched well with available descriptions of *A. griseldis*. We thought it also extremely unlikely that *orientalis* would occur in southern Africa as this race breeds from north Mongolia east to China and Japan, and spends the non-breeding season in southeast Asia. Basra Reed Warblers however, occur not uncommonly in eastern Africa, with significant numbers passing south through the ringing station at Ngulia Lodge in Tsavo National Park in November and December; for example 196 were caught there in the 1993 autumn season (Backhurst & Pearson 1994). The few records from elsewhere in southern Africa in January and February make the occurrence of a Basra Reed Warbler in suitable habitat in Botswana therefore not entirely unexpected. Our record has been submitted to the Botswana Bird Club's Records subcommittee.

We thank the Office of the President of Botswana for the granting of a research permit to SJT to carry out work on wetland passerines. We thank too Gaborone City Council and both Mr S. Pathmanathan, the City Engineer and Mr. Sahar, the Chief (Sewage) Engineer, for permission to ring birds at Phakalane sewage lagoons. We are grateful to Dr Terry Oatley, Dr Marc Herremans and Mrs Dale Hanmer for constructive comments on a first draft of this note.

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Table 1. Measurements (mm) and weights (g) of a Basra Reed Warbler Acrocephalus griseldis *caught at Phakalane, Botswana, by comparison with those of Great Reed Warblers* A. arundinaceus *and European Reed Warblers* A. scirpaceus *caught at this site and those of all three species caught in Kenya by Pearson & Backhurst (1988). NB. Weights are provided for all birds caught at Phakalane, whereas Pearson & Backhurst weighed only lean birds.*

	Basra Reed Warbler			Great Reed Warbler			European Reed Warbler		
	n	range	mean	n	range	mean	n	range	mean
Wing (Phakalane)	1	85	na	50	88–103	98.1	44	64–71	67.6
Wing (Kenya)	100	78–88	83.8	100	89–103	96.4	100	64–75	68.7
Weight (Phakalane)	1	18.9	na	55	26.9–34.0	30.7	45	10.2– 13.6	11.5
Weight (Kenya)	100	13.4–18.8	15.7	44	21.2–33–5	27.5	100	9.0–11.9	10.4

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The incubation period of Stanley's Bustard *Neotis denhami stanleyi*

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The incubation periods of most southern African bustards and korhaans are poorly known. In the wild that of the Kori Bustard *Ardeotis kori* is 23–25 days (Allan pers. comm.), a figure considerably at variance with the published figure of 4.5 weeks (Urban *et al.* 1986 The birds of Africa). The only other published figures are those of the Blue *Eupodotis caerulescens* (24–28 days) and Redcrested *Eupodotis ruficrista* (about 22 days) Korhaans (Maclean 1993 Roberts' birds of southern Africa). The same source quotes incubation periods for captive Blackbellied Korhaan *Eupodotis melanogaster* (23 days) and Black Korhaan *Eupodotis afra* (about 21 days), but describes that of Stanley's Bustard *Neotis denhami stanleyi* as 'unrecorded '. Urban *et al.* (1986) add nothing extra for the latter species even if all African data are included. The following observations are therefore of interest.

A Stanley's Bustard nest was discovered in the Impendle Nature Reserve (29°41'18"S, 29°51'23"E) in KwaZulu-Natal, South Africa. It consisted of a patch of bare soil 30 cm in diameter, surrounded by grass tufts and small rocks. None of these had been moved from their original position by the nesting bird. The nest was located on the shoulder of a small drainage line in hilly grassland, only 15 m away from a wattle infestation. On 2/11/95 at 0900 one egg was present, and on 3/11/95 at 0900 two eggs. If we accept Steyn's (1997 Nesting birds of southern Africa) statement that most birds lay their eggs in the early morning, then this second egg must have been freshly laid. It may also be relevant that Blue Crane *Anthropoides paradiseus* (also Gruiformes) eggs are always (sample of 12) laid and hatched between 0500 and 0900 (van Ee 1966 Ostrich 37: 23–29). The nest was next visited at 1000 on 24/11/95 when the eggs had not yet pipped, but the chicks could be heard calling inside. Possibly they hatched later that day, but more likely on the following morning, and most probably on the morning after that: similar-sized eagle eggs take two days from pipping to hatching (Herholdt pers. comm.). Early on 27/11/95 only dry eggshells remained. The absolute latest that hatching could have occurred was thus on 26/11/95. One near-perfect half eggshell indicated that at least one of the eggs had hatched normally, the other eggshell was broken into smaller pieces.

If the eggs hatched synchronously we must assume that incubation began only when the second egg was laid, giving a likely incubation period of 23 days. However, there is the possibility that only one egg hatched. If it was the second egg, then we arrive at the same figure of 23 days for incubation. If instead it was the first egg, *and* incubation began when it was laid, then we must add 1–2 days: this is the interval between the laying of the first and second eggs in the Great Bustard *Otis tarda* (Urban *et al.* 1986), so it is not unreasonable to suppose the same for Stanley's Bustard. This means that the first egg might have been laid on 1/11/95, but not earlier. It is not unlikely that incubation *did* begin with the laying of the first egg because this is the case with the Houbara Bustard *Chlamydotis undulata* (Cramp 1980 Handbook of the birds of Europe, the Middle East and North Africa), the only bustard where this sort of detail is known. So although incubation *could* have spanned the period 3/11–25/11 (22 days), the best estimate of the incubation period of Stanley's Bustard is 23–25 days.

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Short Reviews

Arias De Reyna, L. (ed.). 1993. **Proceedings of the XXIII International Ethological Conference**. Etologia 3 (Special volume): Madrid.

The 23rd Ethological Conference was held in Torremolinos in September 1993. This special issue of *Etologia* contains the plenary presentations from the meeting, covering a broad range of subjects. Of the 21 papers, 9 are primarily about birds, and several others are relevant to ornithology. There are few novel contributions, but a few interesting ideas are advanced.

Cole, D.T. 1995. **Setswana – animals and plants**. The Botswana Society: Gaberone.

This dictionary of Setswana names for mammals, birds, reptiles, insects and plants is more than a translating tool; it provides many interesting insights into natural history and folk lore. Setswana is the native tongue to some five million people in Botswana and adjacent South Africa. Des Cole, a former head of department of Bantu language studies at Wits University, grew up in southern Botswana and learned the language as a child. This work represents the results of two years of intensive study, and attempts to record what the author considers the most endangered part of the language: man's relationship with the natural world.

Dowsett, R.J. & Dowsett-Lemaire, F. (eds). 1997. **Flore et faune du Parc National d'Odzala, Congo. [Flora and fauna of the Odzala National Park, Congo].** Tauraco Research Report 6. Tauraco Press: Liege, Belgium.

The Odzala National Park is a little-known reserve in Congo, near the border with Gabon. Although promulgated in 1935, the park languished until 1992 when it became the recipient of European Union support. It encompasses areas of forest and savanna which support the last resident lion population in west-central Africa. Bob Dowsett was appointed project leader from November 1993 to April 1995, and this 135-page report details preliminary findings on the flora and fauna of the park. Despite the French title, the majority of the text is in English, and there are English summaries to the four chapters in French (all of which deal with non-avian topics). However, there are no English summaries for the chapters in English. Not surprisingly, birds are the best known group in the park, and François Dowsett-Lemaire provides some new information on movements, seasonality, breeding behaviour and vocalisations, as well as a comprehensive checklist. Other chapters describe the mammals, butterflies and vegetation, as well as a section on the suggested management of the reserve. In addition, there are chapters on the birds of Nouabale-Ndoki National Park (northern Congo, adjacent to the Central African Republic) and Lefini Reserve (south-central Congo, north of Brazzaville). These areas were less well-researched by the authors, but many new records were made. This publication is a useful addition to the poorly documented avifauna of Congo.

Forsman, E.D., Destefano, S., Raphael, M.G. & Gutierrez, R.J. (eds). 1996. **Demography of the Northern Spotted Owl**. Studies in Avian Biology 17, Cooper Ornithological Society. Allen Press: Kansas.

The Northern Spotted Owl *Strix occidentalis caurina* is renowned for the legal battles it has sparked between timber concerns, government agencies and NGOs. As a result it has one of the best studied and most-frequently modelled populations of any bird. This proceedings of a workshop, held in Fort Collins, Colorado, in December 1993, comprises 14 chapters by 37 authors – testament to the large research investment in this subspecies.

The bulk of the book (9 chapters) detail the demography of the owl in nine different forest areas, but two final chapters draw together the findings and provide an overview of demographic modelling. This is not a light read, but provides sobering evidence of the inadequacies of population models despite arguably the best available set of detailed demographic parameters for any bird species.

Gorman, G. 1996. **The birds of Hungary**. Christopher Helm: London.

Hungary, with a list of 363 bird species and regionally important breeding populations of several species, is an important country for birds, at least in the European context. Gerard Gorman highlights this importance in a book which is designed to meet the needs of both bird-watchers and ornithologists. After brief accounts of the geography and conservation importance, the bulk of the text is made up by the species accounts. The habitat, range and timing of occurrence are described for each species. Rare and vagrant species are treated separately at the end of the book. The text is complemented with numerous line sketches of birds, and like all Helm productions the book is well laid out and the hard-cover copy is sturdily bound. My main complaint was that the text is not referenced, which compromises its value to ornithology, although there is a brief bibliography at the end of the book.

Hey, D. 1995. **A nature conservationist looks back**. Cape Nature Conservation: Cape Town.

Douglas Hey, as first Director of the Cape Department of Nature Conservation, became almost synonymous with conservation within the former Cape Province during the 1960s and 1970s. This eminently readable book relates interesting and amusing anecdotes from his early childhood, through the early days of conservation, to the present day. I found the historical aspects especially stimulating for their insights into the rapid evolution of conservation concepts. However, younger readers may find some of Dr Hey's views rather dated, especially as regards the promotion of alien species.

Muller, Y. 1996. **Bibliographie d'Ornithologie Française 1966–1980**. Service du Patrimoine Naturel & Sociiti d'Itudes Ornithologiques de France: Paris.

This comprehensive bibliography to the birds of France for the period 1966–1980 lists all references to birds and cross references them to species and geographic location (by province). There are also maps summarising the reported breeding and non-breeding ranges of all species. This appears to be a comprehensive and exhaustive review, but it is unfortunate that it does not extend up to 1990.

Ohlendorf, R.R., Amadon, D. & Frank, S. 1995. **Books on hawks and owls: an annotated bibliography**. Proceedings of the Western Foundation of Vertebrate Zoology 6 (2): Camarillo, California.

This listing of books on vultures, raptors and owls was completed after the senior author's death. The comments on each of the books actually examined by the authors range from informative to offbeat. Books are listed alphabetically by author, and there is no attempt to cross reference them by subject matter or species.