ISSN 00-18-456-X

HONEYGUIDE

Journal of
Zimbabwean and Regional Ornithology
December 2020, Volume 66, Part 2

Spur-winged Lapwing *Vanellus spinosus*
Photographed at Lake Chivero Bird Sanctuary (see pp. 87-88)
Photo: © Michael Mason

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Zimbabwe's first breeding record of Spur-winged Lapwings *Vanellus spinosus* (see pages 87-88)

Above: two of the chicks moving in to shelter under a parent's plumage – 19th November 2019

Right: The four chicks resting, exposed on the open sandbar – 14th November 2019

Left: an adult mobs an African Fish-eagle perched near the nesting site. Note the discarded fishing nets on the tree stump – 16th November 2019

Photos: © I.C. Riddell

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Honeyguide **66**(2): 50-61, 2020

Relative Abundance of Vultures in Zimbabwe: Historical Changes and the Future

Kit Hustler & Kevin Barry

Introduction

Vultures are considered to be an indicator of carnivore presence in the large protected areas that characterise the African continent, but other than that did not warrant much attention. It was assumed that they would need no special protection measures and that as long as we looked after the large charismatic mammals in these areas, the vultures would look after themselves. That seems to have been the philosophy until very recently. Their decline has been so rapid that in some areas of the continent, there are apparently no vultures in national parks at all (Roxburgh & McDougall 2012).

The reduction of vulture populations is not without human cost and the demise of vulture populations in Asia has resulted in major changes to scavenger community dynamics and created a wide range of human health and socioeconomic impacts in the region (Markandya *et al*. 2008). The urgency of preventing similar ecological catastrophes from occurring in Africa is now widely acknowledged (Pain *et al*. 2003; Ogada *et al*. 2016).

Much attention is now being paid to the conservation of vulture species in Africa (Anon 2018a), augmenting the great work done on the southern African endemic Cape Vulture *Gyps coprotheres* over the last 50 years or more. They are threatened by a variety of factors (e.g. metabolic bone disease, collisions with powerlines, electrocution) and it seems that poisoning, whether directly or indirectly, has had the biggest impact on populations in recent times. Mundy *et al*. (1992) estimated that at least 1 250 vultures of different species were killed at 33 poisoning events in southern Africa over a 12-year period. Ogada (2014) estimates that more than 1,500 vultures were poisoned in southern Africa between 2012 and 2014.

This amounts to close on 3 000 birds knowingly poisoned up to 2014, and is probably a minimum number. For K-selected species like vultures these losses are catastrophic and will result in declines and potential extinctions of some forms. Their mobility creates unique conservation challenges and if they are to be saved from extinction, a continental wide approach is required (Hustler & Howells 1988a). The specially protected status of vultures in Zimbabwe (Parks & Wildlife Act 1975) indicates the value placed on vultures in ecosystems, yet the killing of an individual lion (which did not have the same level of legal protection; http://theconversation.com/outrage-over-cecil-the-lion-slaying-three-years-ago-left-little-in-its-wake-99163) made global news, while the plight of vultures being killed is barely newsworthy.

The recent poisoning of large numbers of vultures (e.g. Groom *et al.* 2013; Mabhikwa *et al.* 2014; McNutt & Bradley 2014) and the effort being made to improve the profile of these birds has been the motivation for this publication. Recent publications on the status of vultures in Africa (Ogada *et al*. 2016, Anon 2018) that have not included Zimbabwe, which had reasonable vulture populations, is another. There seems to be a gap in research effort between East and South Africa for whatever reason. Conservation of vultures in East and South Africa cannot be viewed in isolation particularly as birds pass over Zimbabwe and are likely to be impacted by what is happening here. It is hoped that this perspective will provide a measure against which the undoubted changes in vulture populations in this part of Africa can be monitored and will stimulate interest into a more continent wide, unified and open approach to their conservation.

Methods

This investigation considers the following species: White-backed Vulture *Gyps africanus*, Cape Vulture *G. coprotheres*, Lappet-faced Vulture *Torgos tracheolatus*, White-headed Vulture *Trigonoceps occipitalis*, and Hooded Vulture, *Necrosyrtes monachus*. The Palm-nut Vulture *Gypohierax angolensis* and Egyptian Vulture *Neophron percnopterus* were not considered in our analyses because they are highly localised and occur unpredictably. It follows an earlier historical data (Hustler & Barry 2020).

The 'surveys' conducted by Fin O'Donoghue in 2003-2007, under the guise of collecting egg specimens for DDT research, provide some details of the breeding activity of specific vulture species, mostly in the National Parks and Wildlife Estate (PWLE) but also on private land. The 2007 survey took three days and covered the floor of the Zambezi Valley from Kanyemba to A Camp, then along the Matusadona shoreline, through Omay and Siabuwa Communal Land, Chete Safari Area, Chizarira National Park and then into the northern parts of Hwange National Park. These details are recorded under the relevant sections for each vulture species and the eggs that were collected are mostly housed in the Natural History Museum in Bulawayo (NMZB).

Vulture species, numbers, the Half Degree Square (HDS) in which they were seen, and records published in the Recent Reports/Field Observations section of *Honeyguide* from the area outside of the PWLE in particular, were collated in 5-year increments from 1995 to 2015 inclusive. Data from specific short notes and papers published in *Honeyguide* about vultures were also considered. Poisoning events were also included as the birds killed were the equivalent of specimen records, in spite of none of them being retained as vouchers in the NMZB collection.

The only sustained time series data of vultures in the country comes from Maasdorp (2016) who reported vulture numbers at carcasses provided to them between 1993 and 2015 at the Rifa education camp (HDS 1628 B). These were converted into presence/absence data and the proportions of each species was calculated by dividing the number of sightings of individual species by the total number of records for that time period. This allowed us to compare the temporal data collected by Maasdorp (2016) with the data from this HDS for the atlas period (1987-1992).

Data on the scale of poisoning, threats to vultures, and the state of vulture habitats were collected by KH during a 30-day visit to Zimbabwe in December 2018. Protected areas in the northwest (Deka, Matetsi Safari Areas and Hwange and Zambezi National Parks) were specifically visited to see vultures.

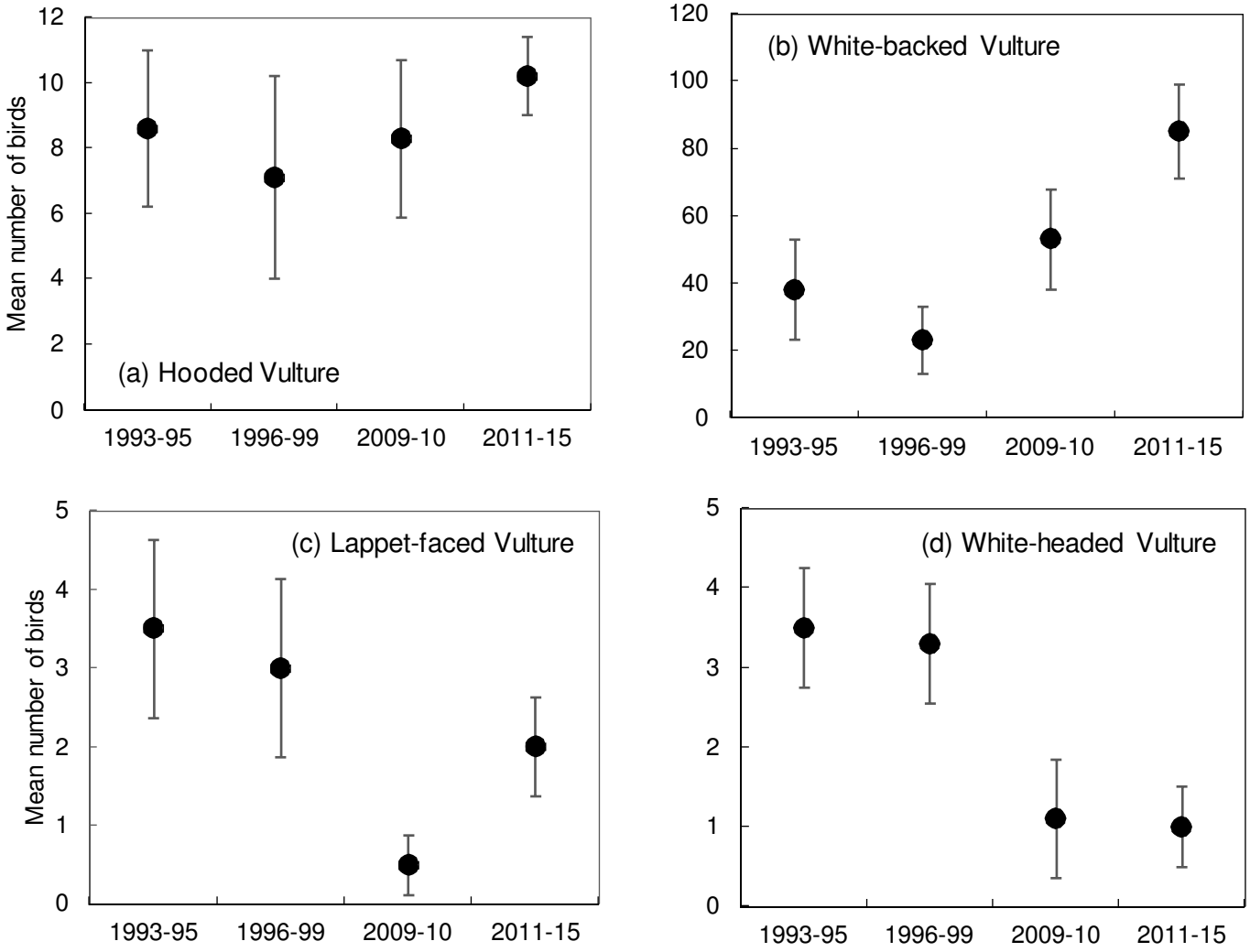

Figure 1. Mean number and 95% confidence interval of sample mean of the number of vulture species recorded at Rifa camp (Maasdorp 2016).

Results

Population trends in the Zambezi Valley – the Rifa study

The number of Hooded Vultures attending carcasses at Rifa were not significantly different between 1993 and 2015 (Figure 1a). All other species have experienced significant changes in abundance over the same time period. Some of these changes are probably natural fluctuations, but others seem to be permanent. White-backed Vulture numbers were recorded in significantly higher numbers in 2011-2015 than before (Figure 1b). The number of Lappet-faced Vulture numbers declined significantly in 2009-2010 (Figure 1c) but then recovered to previous levels. White-headed Vultures declined significantly after 2009 (Figure 1d) and have not apparently recovered, with significantly more of them being recorded between 1993-1999 than afterwards.

The relative frequency of White-backed and Hooded Vulture sightings was similar between 1987-2015, with both species occurring with both species being recorded in 25-37% of records (Table 1). Lappet-faced Vultures were reported in 10-25% of sightings, and were most frequent during the 1993-98 period. White-headed Vultures were relatively frequent from 1987 to 1998, occurring in 25-30% of sighting, but this fell by half, to 14% and 16% in 2009-10 and 2011-15, respectively. It was the only species to have experienced a significant decrease in number over a 20-year period (1628 B, 1993-2015; Figure 1d). This was unexpected given the fact that it is now largely restricted the Parks where it has protected status. Cape Vultures were occasional visitors, being recorded in only 2% of the records in 1996-98 and 2009-10.

Table 1. The relative frequency (%) of vultures recorded in 1628 B HDS between 1987-2015. N = the total number of birds; dashes indicate values of zero. Data for 1987-1992 from Hustler & Barry (2020), other years from Maasdorp (2016).

	White-backed	Lappet-faced	White-headed	Hooded	Cape	N
1987-92	31	13	30	27	-	274
1993-95	25	25	25	25	-	72
1996-98	26	21	26	26	2	47
2009-10	37	10	14	37	2	49
2011-15	32	19	16	32	-	117

Trends outside the Parks and Wild Life Estate

Data on the number of sightings and number of birds per sighting extracted from records in Recent Reports/Field Observations section of *Honeyguide* provide information on the current presence of vultures outside the Parks Estate. The number of White-backed Vultures reported declined by 90% between 1990 to 2015 and the number of records has declined by a similar amount (Figure 2). The average number of Lappet-faced Vultures per record was around 2.0, although an exceptional number (5.0 per record) was reported in 2006-10, although this was based on only on record (Table 2). No White-headed or Cape Vultures have been reported outside the Parks Life Estate since 1996[1] and 2011 respectively. The numbers of Hooded Vultures remained relatively constant until 2005, thereafter declining rapidly with none being reported in 2011-15.

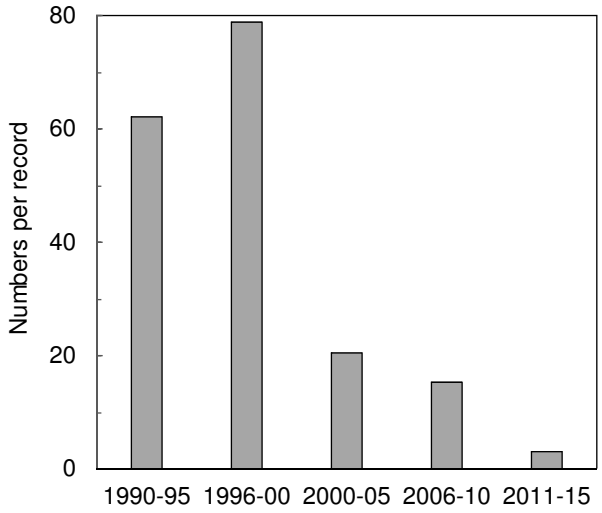

Figure 2. The mean numbers per record of White-backed Vultures outside the Parks, 1990-2015. Data from Recent Reports/Field Observations in *Honeyguide*.

Table 2. The mean number of vulture sightings per record and number of records (in brackets) from outside the Parks Estate. Dashes indicate values of zero. Data from Recent Reports/Field Observations in *Honeyguide*.

	Lappet-faced	White-headed	Hooded	Cape
1990-95	2.75 (4)	1 (2)	5.3 (3)	2.2 (5)
1996-00	2.1 (16)	-	6.25 (4)	0.5(2)
2000-05	2 (1)	-	5 (1)	2 (1)
2006-10	5 (1)	-	2 (1)	3 (1)
2011-15	2 (2)	-	-	-

Species accounts

1. White-backed Vulture

White-backed Vultures were regular at Victoria Falls in December 2018 and could be seen overhead every day. This was probably a function of feeding programs at the Victoria Falls Safari Lodge and the Crocodile farm. The food put out for the birds is insignificant (Figure 3a) and most birds got nothing to eat. The number present suggested that available food in the environment might be unexpectedly low (Figure 3b).

No White-backed Vultures were seen in the Deka Safari Area (2 nights) and only one individual was seen in Hwange National Park during a 5-hour drive through the top section of the park. Before the turn of the century, when KH worked in the park, vultures were much more common in this area. Some birds were present at the breeding colony at Kazungula. The provision of permanent water along this drainage line by new safari camps has meant that elephants *Loxodonta africana* no longer move through it on their way to the river, but remain in the vicinity for an extended period and they have killed a number of the large acacia trees in which these birds once nested.

Figure 3. (a) The small quantity of food being supplied to vultures at Victoria Falls Safari Lodge, December 2018. (b) The number of vultures attempting to find food, taken less than one minute after the previous photograph was taken. Photo (c) Kit Hustler.

The 2007 survey of nests in the Zambezi Valley indicated that that there were large numbers nesting along the watercourses there, but more recent information is lacking. There are some old breeding data in Hartley & Hulme (2005) and some hints of monitoring in the southeast but with a general reluctance to share that information (see below) their breeding status there is uncertain. Some nests are being monitored in the northwest (R. Parry, personal communication) but no breeding data are currently available. There are recent records (2018) from the riparian acacia habitats along the Limpopo and Shashi rivers (2229 A) and their tributaries, and it breeds in suitable habitat in the Bubye Valley Conservancy (Wes Gush, personal communication to KH). There is a new

[1] **Editor's note**: see the note by Mundy *et al.* in this issue.

breeding colony (2018) on Debshan Ranch (2029 B). We estimate that there are presently around 810 breeding pairs in Zimbabwe, of which only 30 are outside the Parks Estate (Table 3). The most important areas were the Zambezi Valley and the northwest with about 75% of the breeding birds.

Table 3. Estimated minimum number of breeding records of vulture species in different regions of Zimbabwe, 2019. Dashes indicate values of zero.

	White-backed	Lappet-faced	White-headed	Hooded	Total
Zambezi Valley	300	1	10	50	361
Sebungwe	30	1	5	5	41
Northwest	300	5	30	30	365
Gonarezhou and conservancies	150	5	-	5	160
Rest	30	5	-	1	36
Total	810	17	45	91	963

2. Lappet-faced Vulture

No Lappet-faced Vultures were observed during the 30-day stay in the northwest of Zimbabwe in December 2018 (KH personal observations). Three visits were made to the vulture restaurant at Victoria Falls Safari Lodge and careful attention was paid to a large group of vultures at a carcass on the Kazungula road for about 40 minutes, but none were seen. There is a seasonal trend in abundance with the least sightings made during the hot-wet season (Hustler & Barry 2020) so the lack of sightings is not unexpected in this context. It was surprising not to see at least one, potentially resident, bird in the Parks Estate over this period and there may have been a population decline in this area. However, these vultures have recently been photographed at carcasses in the Deka Safari Area (D. Adams personal communication), so there are still some birds there. To date, no nests have been found in the northwest (Roger Parry, personal communication) where there is nesting habitat and historical breeding records, but there was no breeding activity at a known nest site in Hwange National Park in 2019 (C. Williamson, personal communication). The most recent breeding record from this area is of an egg collected during the helicopter survey in 2007 and housed in the NMZB.

There is one recent breeding record (2018) from Chizarira (1727 D; N. English, personal communication) but no others from the Sebungwe. There are also some recent records (2018/2019) of pairs nesting outside of National Parks land, to the north of the watershed (S. Nicholle, J Smith, personal communication). These pairs are breeding on land that is currently being used for wildlife hunting and have associated abattoirs where meat scraps are put out for vultures. The number of pairs is unknown, but is estimated to be no more than five.

The current breeding status of LFV in the Zambezi Valley is uncertain and it seems that suitable breeding habitat is very limited (R. Jeffery, personal communication) even though one breeding pair was, unexpectedly, found there in the 2007 helicopter survey. Anthony (1976) found 40 nests in Gonarezhou National Park, but is likely that only five remain in the park (C. Stockil personal communication.).

We found some historical data on the number of breeding pairs in the southwest of the country, where there were about 15 nests in the Tuli Circle and 10 nests on the land to the east of this on Sentinel Ranch (V. Bristow, personal communication). In 2019, only one nest was active on Sentinel Ranch (V. Bristow, personal communication) and birds were seen on one nest at Tuli (D. Kok, personal communication). Eggs were illegally collected from some of these nests every year between 2001 and 2003 (now in the collection at the Natural History Museum, Bulawayo), so there has been some regular breeding in this area within the last 15 years. There are an estimated five pairs breeding in the Bubye Valley Conservancy further east (Wes Gush, personal communication) and there might be more, but only one recent breeding record from this area (K. Leatham personal communication).

It is estimated that there are around 17 breeding pairs in the country, with only one each from the Sebungwe and northwest, and five in each of the other areas (Table 3).

3. White-headed Vulture

Nest site fidelity is strong in this species and nests found in the early 1970s were still occupied in the early 1980s (Hustler & Howells 1988b). Two new pairs were located in the area, which was not covered by the HNP raptor study, during the 2007 survey. Five pairs located by Hustler & Howells (1988) were still active in the same localities in 2007. One site mapped in Hustler & Howells (1988) but not found in the 2007 helicopter survey was still occupied in 2018 (D. Adams personal communication). These breeding areas have been occupied for at least 35 years and probably longer. No active nests were found between HNP and the Zambezi River in 2017 (Roger Parry personal communication) although an adult male was seen at a carcass on the Kazungula road in 2018 (KH pers. obs.) and a pair were present at a bone yard close to but north of Victoria Falls airport in early 2019 (N. English personal communication).

Eleven nests with eggs were found in the Zambezi Valley during the 2007 helicopter survey. They were, on average, 11.45 km apart (range 6.30-14.53 km) and on average 27.06 km (range 7.50-44 km) from the Zambezi River. Two active nests were also found along the south shore of Lake Kariba, in the Omay Communal Land, 46 km apart. Two active nests in the Chete Safari Area were 18.44 km apart and the first nest for Chizarira, that we know of, was recorded. Known historical breeding sites in the Omay were no longer active in spite of the baobab trees that they were in still being there. Two nests found in Chirisa in 1981 (1828 A) were 22 km apart but there are no recent data on their status.

It was known to nest in the southeast lowveld in Gonarezhou and the conservancies (Mundy 1982; Hartley & Hulme 2005), but the status of these breeding pairs is currently unknown and they may have disappeared. Wes Gush (personal communication) does not know of any nests in the Bubye Valley Conservancy and has not seen any birds in the two years he has worked there. It was reported occasionally in this area during the atlas period (Hustler & Barry 2020), but appears to have disappeared in recent times.

In total, 27 active nests were found during the 2007 helicopter survey in the Zambezi Valley (17 nests) and Hwange National Park (10 nests). Some of the historical sites in the south of Hwange National Park were not checked and given the long tenure of breeding pairs in specific areas the actual number of breeding pairs could have been higher. It is estimated that there are around 45 breeding pairs in Zimbabwe, most in the northwest and Zambezi Valley (Table 3).

4. Hooded Vulture

Records of this species are complicated by the fact that inexperienced observers may confuse them with similar-sized brown raptors. It has bred in 1730 C regularly and as recently as 2018 (P. Bronkhorst personal communication). There were no sight records from this locality during the atlas period and none in recent reports published in *Honeyguide*, to date (2018). There is much suitable habitat in the Parks Estate below Kariba and eggs were collected from nests close to the town (NMZB collection) and there are likely to be other breeding pairs there. The situation in the Sebungwe is less clear. There is some suitable nesting habitat and numerous nests were known in the late 1990s just outside, but close to Chizarira National Park. These have gone because the large *Diospyros* trees that they nested in have been cut down (2007 helicopter survey). No Hooded Vultures were seen in Chizarira National Park during fieldwork in 2018, but up to 40 individuals were present at the Binga Crocodile Farm (N. English, personal communication), where they were presumably feeding on the meat scraps. There is some suitable breeding habitat in Chirisa but there are no recent or historical records from there.

In the northwest, there were nests on islands in the Zambezi River above Victoria Falls (R. Jeffery, pers. comm.) and one was located with a bird present in December 2018 (KH). They probably became established as a result of the regular food supply at the local vulture restaurants, where upwards of 10 birds were present in December 2018 (KH). There are few breeding records in the Parks Estate between the Zambezi and Hwange National Park, but there could be nests in the thick riparian woodland along the Matetsi and Deka rivers. Suitable riparian habitats between the Lukosi and Inyantue rivers could hold breeding pairs and it may breed more widely in the *Baikiaea* woodland from where there is one historical record, but no recent data.

They bred in the riparian habitats of the Gonarezhou National Park and associated conservancies (Hartley & Hulme 2005) but the exact numbers are unknown. It is estimated that there are around 90 breeding pairs, with 80 being in the Zambezi Valley and northwest (Table 3).

5. Cape Vulture

Now extinct as a breeding species in Zimbabwe (Simmons & Jenkins 2007), there are few reliable recent sight records both because of identification difficulties and a genuine decrease in the number of birds.

Discussion

How have things changed since the 1995 atlas?

Zimbabwe has extensive protected areas in the Parks and Wildlife Estate, which contain the country's main vulture populations. It was thought that most change has occurred outside these protected areas. In the past, commercial ranchers on the Zimbabwean highveld regularly moved dead cattle or other livestock into the open after cutting them open to allow vultures to access them. This was an acknowledged and acceptable part of the disposal of dead livestock. It was considered to be good practice for disease control and efficient carcass disposal in a short space of time at minimal cost.

Local slaughterhouses like Gilmore's (1730D); Glen Clova (1730A) and O'Neill's (1830D) became 'hotspots' of vulture concentration in an area otherwise devoid of them, because animal wastes were specifically put out for the birds to feed on. A vulture restaurant was set up at Antelope Game Park (1929B) and this also attracted a large number of vultures. These hotspots attracted vultures prior to the land reform policy in the 2000s.

The use of poisons on farms to control problem animals and careless disposal of such animals by large-scale beef farmers would have impacted both vultures and mammalian scavengers. These instances were localised and not widely reported so their impact is unknown, but they may have set the scene for the large-scale poisoning that has followed.

Land reform saw the replacement of commercial farmers by subsistence farmers, for the most part, and led to the destruction of any remaining woodland and populations of edible wildlife that remained. Mammalian carnivores that killed livestock would have been dealt with, sometimes by the use of poison. A failure to enforce regulations and controls on the purchase of, and increased access to, poisons could have made predator control easier and faster. Access to existing stocks of poisons might have been facilitated by the frequently violent evictions of landowners, who were often forced to leave their properties at short notice. They would also have created opportunities for financial gain through the supply of vulture products to a market, which is desperately trying to find a way to get ahead. No doubt low-level harvesting of vultures has always occurred, but the increased demand for products from more desperate purchasers hoping to benefit from the magical properties they supposedly possess could have increased poisoning events.

The most obvious effect of the land redistribution exercise is that the previously available food supply in the form of carcasses has been almost totally eliminated. The closure of private abattoirs has also resulted in the removal of food sources and contributed to a reduction in vulture numbers (Baker 2009).

It is known that vultures are capable of making long-distance movements in a short time, but these were casual observations. Satellite tracking has enabled some of the questions around these movements to be answered more thoroughly. The time spent at different locations has been quantified and the speed at which they fly has been calculated, e.g. for White-backed Vultures, mean speed = 51 km/h; maximum recorded speed = 107 km/h (Phipps *et al*. 2013). These data have shown that all vulture species, except the White-headed Vulture, cover vast distances and that the birds that occur in Zimbabwe potentially originate from every country in the sub-continent and also to the north. The dilemma is to decide which of these vultures are 'ours' in this context. The White-headed Vultures that occur in the Parks Estate are probably 'ours' because they are territorial but there is doubt over all other species.

The decline in the number of White-backed Vultures recorded outside the Parks Estate was corroborated by satellite tracking data. Individual birds were spending some time in the Parks Estate, but then travelled quickly over areas where land use has changed (Phipps *et al*. 2013). Cape and Lappet-faced Vultures also avoid areas where wild ungulates are uncommon (Bamford *et al*. 2007; Hancock 2016). This confirms the findings that there is less vulture activity in farming areas that did not have a cattle or wildlife focus (Murn & Anderson 2008). Such areas have increased in Zimbabwe, with a corresponding decline in vultures. Areas devoted to wildlife do not guarantee the survival of vultures, however, and if over-utilised then food for vultures will be limited and their numbers will decrease.

Where do the apparently increasing numbers of White-backed Vultures in the Zambezi Valley come from? There is currently no evidence that birds tagged in South Africa go

there, but Cape and Lappet-faced Vultures tagged in South Africa have been recorded at Chirundu (Maasdorp 2016) so may only a matter of time before a White-backed Vulture from South Africa is recorded. The possibility also exists that these birds have their origins to the north. One White-backed Vulture satellite tagged in the Selous Game Reserve in Tanzania travelled south to the Kruger National Park, the first indication of one of these birds moving into the subcontinent from East Africa (C. Kendall personal communication). This is the second vulture species known to move south of the Zambezi from East Africa. Rüppell's Vulture *G. rueppelli* has been seen occasionally south of the Zambezi, including Zimbabwe (Mundy 1982, 1998). They are easily distinguishable from any of the local vulture species, in contrast to White-backed Vultures, where East African birds would be indistinguishable from local ones. The number of individuals involved and extent of this movement is unknown.

Mundy (1997) suggested that atlas data indicated that Lappet-faced Vultures were resident and sedentary, but a re-analysis of these data suggest there are seasonal movements of birds into and out of Zimbabwe (Hustler & Barry 2020). This was supported by satellite tracking with one bird (MK2LF), tagged in Botswana, moving into Zimbabwe and spending time in Hwange National Park (Hancock 2016). It then travelled very quickly along the Zambezi escarpment into the Zambezi Valley, where it spent some more time. It returned quickly to Hwange the same way, where it spent some time before returning to Botswana. This movement occurred between June-November 2016, corresponding with the increased number of sightings in the Cool-dry season from the atlas, and was probably of a non-breeding individual. It was recorded mostly outside of protected areas in Botswana, but mostly in protected areas in Zimbabwe.

Another example was of a tagged Lappet-faced Vulture (tag no. A251) spotted by Jean-Michel Blake in the Hwange National Park on 15 August 2018 (Anon. 2018b). The bird was tagged as a nestling in the Klaserie Private Nature Reserve, South Africa on 28 September 2016 and has been seen and reported travelling from southern Kruger National Park north to the Save Valley near Chimanimani in Zimbabwe. The distance between the tagging sight and the sighting in Hwange is 759 km, a mere fraction of the distance covered by this bird since fledging 22 months ago.

Is it possible that Lappet-faced Vultures are loose colonial breeders in the right habitat (Tarboton 2011), and birds wander away from the colonies into a variety of areas, returning to breed? The clumping of nest sites in the Limpopo basin and the movements of birds into areas where they don't breed, suggest this is a possibility. It seems that the Limpopo Valley (from Tuli in the west to Gonarezhou in the east) was these birds' main breeding area in the country. The apparent reduction in breeding pairs from an estimated number of about 70 pairs in the recent past to a possible maximum of 10 now reflects the overall decline of vultures in the country and the speed at which it is taking place. North of the Zambezi Valley, the nearest known large concentration of breeding Lappet-faced Vultures with eight known pairs, but probably more (R. Jeffery pers. comm.) is in Lochinvar National Park (Chombe *et al*. 2013), which is 250 km due west of Mana Pools in the Zambezi Valley. Could birds from here also be going to the Zambezi Valley?

The White-headed Vulture has been classified as 'critically endangered' (Murn *et al*. 2016) and the significant reduction in numbers in the Zambezi Valley, which had the highest proportion of breeding records during the atlas period (Hustler & Barry 2020). They are known to hunt small prey (Steyn 1982; Murn 2014; Irwin & Leonard, 2015). The reduction of sightings of Honey Badger *Mellivora capensis* by Maasdorp (2016) might be an indication that there have been changes in the populations of small mammal prey in the Zambezi Valley, which might have affected these vultures.

The mean inter-nest distances in the Zambezi Valley (11.45 km) are similar to those on the basalt soils of the Hwange (10.96 km) and Kruger National Parks (9.96 km) (Hustler & Howells 1988; Murn & Holloway 2014), suggesting that all three areas are similarly suitable for them. The increase in the number of White-backed Vultures in the Zambezi Valley might be limiting the breeding success and numbers of White-headed Vultures there. The link between the large numbers of White-backed Vultures and low breeding success of White-headed Vultures was identified by Hustler & Howells (1988). Elephant culling probably enabled an anomalously high White-backed Vulture population in the Parks Estate, particularly in the Hwange national Park during the raptor survey between 1972-1984. No culling has occurred in the Zambezi Valley recently, so their increase there cannot be attributed to this. Information on carcasses available from poaching was not available, but this might have contributed to the increase of this vulture in the Zambezi Valley.

Small breeding populations of White-headed Vultures are vulnerable to stochastic events (Murn *et al.* 2016) and the collection of a large number of their eggs in 2007 (a minimum of 17 eggs collected from 22 nests found with eggs), supposedly under a permit issued by the Parks and Wild Life Authority, is one such event. Eleven of these clutches came from the Zambezi Valley, six from Hwange National Park. It might be a coincidence that the population declined after this, but a change in the environment combined with these egg collecting activities, and the corresponding reduction in reproductive output suggest otherwise. Mundy (1982) noted that breeding birds were very sensitive to disturbance and visits to nests at the point of laying (n = 5 Zambezi Valley pairs on the nest, but not yet laid) during the helicopter survey, might also have been sufficient to interrupt breeding in that year.

Three White-headed Vultures monitored by satellite tags in the Central Kalahari Game Reserve did not move much outside the boundaries of the reserve (Hancock 2016) and are the first indication that adults do not undertake large scale movements and are territorial. The home range of two birds was approximately 25 000 and 17 500 km^2 respectively (calculated from Hancock 2016). These values are comparable in size to the total area of the Parks Estate in north-western Zimbabwe (approx. 20 000 km^2), which provided habitat for up to 30 pairs with a territory size of about 225 km^2 (calculated from data in Hustler & Howells 1988). The variation in these home ranges supports the suggestion made by Hustler & Howells (1990) that the productivity of the soils and the flow of energy through these ecosystems influences the density of breeding birds, and that they are territorial.

Murn *et al*. (2016) estimated that there were 94 breeding pairs in Zimbabwe, but do not indicate whether or not this estimate was based on current data. We know of no recent surveys and believe a more realistic estimate is closer to 50 pairs, mostly in the Parks Estate in the Zambezi Valley and Hwange National Park. The recent mass poisoning of vultures in Botswana, close to the park's border, may have accounted for some of the breeding birds there, but we could find no data on the ages of the White-headed Vultures that were killed. The continental population has reduced by 27-60% over the last 25

years and this appears to be the case in the Zambezi Valley as well, but the current situation in Hwange is unknown.

There have been no published records of this vulture outside the Parks Estate since 1996, although there is a recent (2018) record of a bird at a vulture restaurant north of Bulawayo (Sean Nicholle personal communication). The nearest known population is in Hwange national Park, some 120 km away in a straight line and probably a 3-hour flight away – probably not far for a vulture. This vulture was scarce in the Bubye Valley Conservancy during the atlas period (Hustler & Barry 2020) and they are probably absent from there now, reflecting the continual decline of this species.

There are no data about mortality away from nests sites and White-headed Vultures have not been recovered at recent poisoning events in Zimbabwe (Hartley & Hulme 2005; Groom *et al*. 2013; Mabhikwa *et al*. 2014). They are generally the first species to arrive at a carcass, and to leave it (Mundy 1982) so this might not be true. A head was bought from a gang of poachers who had killed upwards of 200 vultures of four species at a poisoned carcass in Chirisa in 2001 (W. Williamson, personal communication), so some have been poisoned in Zimbabwe in the past. It is possible that there are no records at recent poisoning events because there are no individuals left to be poisoned.

Ringing recoveries of Hooded Vultures suggest little movement, although distances 116 and 75 km have been reported (Paijmans *et al*. 2017) but this is contradicted by satellite tracking data (see data on www.movebank.org for HV). A bird from Botswana (SA2HV) moved between Zimbabwe, Botswana and Zambia, covering a much larger area than was previously known (Hancock 2016). Other satellite tracked birds moved into Zimbabwe from the Kruger National Park, over much larger distances than those obtained from ringing recoveries. These birds unexpectedly avoided Gonarezhou National Park and spent some time at the cattle feedlots associated with the sugar estates north of the national park.

Cape Vultures move into Zimbabwe from South Africa and there are recent records of birds with patagial tags from HNP (Stapelkamp 2015) and Chirundu (Maasdorp 2016). There is also a photograph, taken in September 2018 of a CGV at the vulture restaurant in Victoria Falls (A. Warner, pers. comm.) (1725 D). Jackson (2015) recorded 14 of them at a carcass close to Harare in the late 1960s suggesting a much more widespread distribution in the past. They have probably been declining over a long period in Zimbabwe, possibly since the 1960s. These birds are now irregular non-breeding vagrants, at best, in the country.

The under-resourcing of National Parks operations has had a significant impact on vulture numbers. The Parks Estate in the Sebungwe region has experienced significant change since the 1995 atlas. Part of the Chirisa Safari Area (1728 C, 1828 A) has had its legal status altered by an act of parliament, presumably because of the sheer scale of illegal settlers to the area. The eradication of tsetse fly facilitated this and there is small scale crop planting and the introduction of cattle in some parts. Consequently, poaching and poisoning of carnivores and vultures has increased (D. Adams, W. Williamson, pers. comm.). The situation in the southern part of Chizarira National Park is similar, with permanent settlements and some cropping, particularly in the vicinity of the Busi River (N. English pers. comm.). This activity is taking place some distance from National Parks facilities and staff, who do not have the resources to regularly patrol these areas.

Antelope populations have been significantly reduced, for example, only 12 Impala *Aepyceros melampus* were seen in Chirisa in 2015 (Youlden 2015); in 1980 they occurred in the hundreds in the southern part of Chirisa in the Sengwa Wildlife Research Area (KH personal observations). Most of the large herds of buffalo *Syncerus caffer* that used to exist in Chizarira and Chirisa (KH personal observations) have been wiped out or reduced to very low levels (Youlden, 2015). Apex predators now occur in very low numbers (N. Monks, personal communication). No vultures or any sign of their activity was seen on 473 elephant carcasses that were located during the 2015 survey of Chizarira and Chirisa but some of these were old and rain may have washed this sign away.

The satellite tagged Lappet-faced Vulture MK2LF, which flew right past Chizarira National Park without stopping, supports the suggestion that there might not be many vultures there. This is backed up by observations on the ground (N. English personal communication). The few lions that remain in Chizarira are hunting in the farming areas on the fringes of the park (N. English, E. Mudenda, personal communication) presumably because of the domestic livestock there. This raises the prospect that poisons will be used to control them, which in turn will affect vulture survival in the area. Without an adequate number of apex predators and their prey, and the corresponding number of carcasses in Chizarira and Chirisa, these areas will have little value for vulture conservation. This represents a potential loss of 3 600 km^2 of once suitable habitat.

Carcass location probably involves a minimum number of birds in the sky, watching each other and each searching a particular piece of ground from a different altitude (Mundy *et al*. 1992). This suggests an aerial network, which the birds are tuned into, and involves all vulture species. Species foraging closer to the ground, like the low flying White-headed Vulture, usually arrive at a carcass first (Mundy *et al*. 1992), followed by the other species which all fly higher up. They watch each other and birds going to the ground suggest a carcass and this is initially investigated from high up. Individuals feeding at a given carcass are drawn in from some distance away with an estimated catchment area of up to 4 000 km^2 (Mundy *et al*. 1992).

What happens if the number of birds falls below the minimum required to keep the network operating efficiently? Do carcasses get missed because low level searchers such as White-headed Vultures and Bateleurs *Terathopius ecaudatus* are now absent? This seems to have occurred in the Sebungwe, where there was apparently no shortage of carcasses (Youlden 2015). The lack of obvious vulture activity at them suggests that the aerial network required to find them was no longer functioning. The rapid movement of satellite tagged White-backed Vultures across areas that were previously commercial farmland (Phipps *et al*. 2013) suggests there is no food there, but is that true? Similarly, rapid movement by a satellite tagged Lappet-faced Vulture (Hancock 2016) over Chizarira, where predators and prey are now much reduced suggests that it is.

Food availability is likely to become a major issue for vulture survival (Kendall *et al*. 2014). This obviously applies to areas outside the Parks Estate, but now also to some areas within it. It seems that a gazetted protected area, in Zimbabwe at least, is no guarantee that vultures will survive in the long term because of commercial poaching and, more recently, indiscriminate ration hunting. Monthly ration meat quotas for parks staff vary between 150 and 300 kg per person (various sources, personal communication) and this has resulted in large numbers of game animals being removed from protected areas,

and seemingly in much greater numbers than those killed by poachers.

Anti-poaching patrols are expected to provide their own rations during their time in the field. The daily subsistence allowance is meant to cover their costs, but the amount is totally inadequate at current prices. This results in patrols shooting for the pot, not only to provide fresh meat on patrol, but also to feed their families when they get home. In some cases, so much meat has been dried on patrol, that large bags of it are uplifted, when the patrol is relieved and each staff member takes their bag(s) home. Indiscriminate ration hunting at water points and other remoter parts of the Parks Estate in the northwest of the country, at least, is apparently a regular occurrence, with buffalo and elephant being targeted specifically although, in reality no game animals are excluded. Safari operators who see this activity have been threatened by parks staff with the loss of their operating licenses if these activities are reported or publicised.

When combined with the activities of poachers, this is putting pressure on the whole ecosystem and carnivore and therefore vulture populations in particular. The vulture species that once occurred and bred in the Chizarira and Chirisa have become very rare or totally absent as a result of food shortages. Satellite tagged Hooded and White-backed Vultures now spend more time in the conservancies in the south of the country, where much effort is expended on anti-poaching and game scouts are better paid, than in the nearby Gonarezhou National Park (data on www.movebank.org). Is this also a reflection of the management of the National Park and the amount of ration hunting and poaching occurring in the park?

The management of the Parks Estate seem to be unaware of the plight of vultures across the continent and the importance of the areas under their jurisdiction to their survival. The delays in approving surveys of vulture breeding sites, the issuing of permits to collect vulture eggs from the parks, and the long-term effects of unsustainable ration hunting, indicate an urgent need for advocacy work to educate conservation personnel on the condition of vulture populations in Zimbabwe.

A regular food supply and some habitat protection can have positive effects, as shown by the breeding records of Hooded Vultures in 1730 C (P. Bronkhorst, personal communication) and Lappet-faced Vultures in 1928 C (Sean Nicholle, personal communication). The restoration of habitat and provision of food for vultures, in the form of meat scraps from abattoirs, is all that seems to be required. All species, except the Cape Vulture, have recently been recorded in 1928 C (video footage from Sean Nicholle, personal communication) and one satellite tagged White-backed Vulture spent some time in this vicinity. The importance of feeding vultures is potentially a double-edged sword, necessary for their survival and monitoring but increasing opportunities to poison them.

The estimated number of breeding vulture pairs has decreased since 1995 (Hustler & Barry 2020). The large number of historical records is probably related to the elephant culling operations that took place in the Parks Estate at the time, but reflect the sentiments of Irwin (1981) that the number of White-backed Vultures was declining. The number of their breeding records has reduced, perhaps by at least half. Lappet-faced Vulture breeding records appear to have declined by 85%, largely because the number of breeding pairs in the Limpopo basin has declined from an estimated 70 to 10. Of 10 known nest sites on Sentinel Ranch, only one was active in 2019 (V. Bristow personal communication) and only five breeding pairs remain in Gonarezhou (C. Stockil, personal communication). At one of the few known sites in Hwange National Park there was no apparent breeding activity in 2019 (C. Williamson personal communication). In contrast, the number of White-headed Vulture breeding records has increased, but this probably reflects more accurate data from the Zambezi Valley. The number of birds in this area has declined since then and it is likely that there are fewer breeding pairs in the area now than there were in 2007. The numbers of Hooded Vulture breeding have also declined and habitat destruction is probably partly responsible. The Cape Vulture no longer breeds in the country and has not done so for at least 30 years.

What should be done?

We struggle with the reasoning of some (Tambling & Du Toit 2005; Hayward *et al*. 2007; Phipps *et al*. 2013) that the role of protected areas for vulture conservation remains unclear. These are where most vulture species have been recorded in Zimbabwe (Hustler & Barry 2020). If the Parks Estate, with its suite of large carnivores that provide food, and breeding sites, is not suitable for vulture conservation, then what might suitable habitat look like? Protected areas have the highest numbers of sightings of vulture species and some, like the White-headed and Hooded Vultures are restricted to them (Hustler & Barry 2020). Murn *et al*. (2016) specifically link the survival of the White-headed Vulture to the existence of these protected areas.

We have difficulty accepting the notion that poachers are poisoning carcasses to avoid detection by conservation agencies, certainly in Zimbabwe, and others (M. Brightman, D. Adams, N. English, B. O'Hara, S. Williamson, D. Christiansen – all of whom have experience in wildlife management in Zimbabwe) concur. In our experience, vultures regularly perch in trees, while large carnivores are at a kill and only come to the ground once they have left. They arrive singly and in a quite leisurely fashion in these circumstances, probably because they have seen the carnivores from high up and there is limited or no circling at all. If there are no carnivores at the carcass, the little overhead circling is mostly high up, and birds come to the ground very quickly indeed, with up to one bird every 30 seconds in some cases (Mundy 1982; Mundy *et al*. 1992). Competition for food at carcasses is fierce, so why would vultures circle for an extended period potentially advertising a food source to competitors?

We're intrigued at how often this circling has been quoted in the context of vultures arriving at a carcass, rather than as they leave, when it is much more evident. In our experience, vultures only circle at low levels after feeding when they are leaving the carcass site and searching for a suitable thermal to gain height. Is this misconception due to multiple wildlife documentaries incorrectly stating that vultures circle prior to arriving at a carcass rather than when they leave one?

Poisoning seems to have little, if anything, to do with keeping poaching activities clandestine and out of view from the authorities. National Parks staff do not have the resources to react to vultures going down to a carcass, even if they could detect them. This is particularly relevant in the larger National Parks, like Hwange, where ranger stations are sometimes up to 120 km away from areas where poaching is likely to occur. No poisoned vultures were found around Black Rhino *Diceros bicornis* carcasses in the late 1990s (M. Brightman, N. English pers. comm.) when the rhino poaching in the Parks Estate was at its peak. At this time, poachers were aggressively tracked down and arrested or killed during firefights with National Parks staff. If the poachers were scared of being compromised

by vultures then, surely, they would not have used poison to kill them at this time?

Groom *et al*. (2013) point out that carcasses are being deliberately poisoned for the trade in vulture parts. The poisoning of carcasses like elephants is deliberate in order to harvest and sell vulture parts from the poisoned birds. There is known to be at least one Chinese national, offering US$10.00 each for the head and feet, of any raptor, in the northwest of Zimbabwe (P. Ngwende, personal communication). This amount may seem insignificant, but is a major incentive to kill all birds of prey for short-term financial gain in a desperate and impoverished human population. It is also suspected that some of the poisoning is linked to illegal cross-border trading of vulture parts into South Africa from the southeast of Zimbabwe (C. Stockil, pers. comm.).

Research

Effective conservation relies on robust monitoring (Nichols & Williams 2006). Vultures, with their long life span and expansive habitat requirements, present challenges to this and monitoring should ideally be on a large scale over an extended time period. The long-term monitoring programme of raptors carried out in Hwange National Park between 1972-1984 was terminated due to lack of funding and, at the time, lack of published results, which was unfortunate. It was not considered a research priority and scarce research funds were directed at large mammals, which were considered to be more important from a management perspective. No one knew then, or even contemplated the possibility, that vultures would become critically endangered in a short space of time.

Apart from Maasdorp's (2016) report, vultures in Zimbabwe have not been studied much since the atlas period in the early 1990s. This is regrettable, but reflects the priorities given to the conservation and management of charismatic large herbivores such as rhinoceros and elephant, as well the unstated assumption, that if the conservation areas were looked after, vultures would look after themselves. Consequently, the decline in vulture numbers has been largely unnoticed. For example, the CEO of a trust involved in one such programme was surprised when told how few vulture nests remained in the Parks Estate (KH, personal communication, December 2018). He has since expressed an interest in developing research on vultures.

There seem to be no local programmes specifically aimed at monitoring vultures. The Victoria Falls Conservation Trust and the Zambezi Society have an interest in monitoring them, amongst a number of other initiatives. BirdLife Zimbabwe has promoted the plight of vultures in the country, but does not appear to have any specific programme to monitor their populations.

Safari operators and interested persons were frustrated by the lack of information and any facility to which they could contribute sightings and get some feedback on them (KH personal observations). They did not know of the vulture conservation initiative being promoted by BirdLife Zimbabwe or an agency that is apparently promoting conservation of vultures across the continent with a focus on Zimbabwe; see http://www.fondationsegre.org/saving-africas-vultures/. They had not heard of the Vulture Multispecies Action Plan either (Botha *et al*. 2017) and were unaware that a website that recorded the incidence of poisoning events existed at all; see www.africanwildlifepoisoning.org.

Safari operators are active in the field almost all year round and could market nest monitoring as part of their activities. The use of drones could easily provide verifiable breeding data through photographs, visitors could be involved in this, and it would be a quick and relatively inexpensive way of collecting breeding data. As a trial, a few safari guides were encouraged to provide KH with any information on vulture nests they found during the course of their activities. This has resulted in photographs and accurate locality data on active White-headed and Lappet-faced Vulture nests in remote localities, so this is an avenue for data collection.

Emphasis should be placed on these two vulture species as a matter of urgency. The 2007 survey of Hwange National Park and the Zambezi Valley needs to be repeated, targeting especially their known historical breeding sites in order to determine their status and to monitor them regularly. Known Lappet-faced Vulture nest sites in the south of the country should be visited as a matter of urgency to determine current occupancy, and should be monitored on a regular basis. Landowners and staff employed on the conservancies should be encouraged to become involved. Co-ordination on the ground would be required and regular feedback and sharing of current data, perhaps via specific social media platforms, to all participants would be essential to its success.

Continued satellite monitoring of individual birds should be viewed as a priority as this provides a view of individual movements. We need to know where the adults breeding in Zimbabwe are foraging and where juveniles are dispersing. This would also provide some indication of their vulnerability to poisoning. The movement of Lappet-faced and White-backed Vultures into the Zambezi Valley is an obvious area of interest. These birds are potentially moving over areas where they would be vulnerable to poisoning and this information could be used in targeted advocacy work on the ground. Juveniles and sub-adults of all species appear to move much greater distances than adults do (data on www.movebank.org for various species) and are therefore much more vulnerable to poisoning than adults are. This has long-term implications for recruitment into the breeding population.

Individuals and organisations feeding vultures at restaurants should be encouraged to record data on the numbers and species present. The data collected by Maasdorp (2016) is a good example of the value of doing this. Preliminary analyses of videos provided to KH from a vulture restaurant close to Bulawayo suggests lower numbers of White-backed Vultures, compared to those recorded at the restaurant at Victoria Falls Safari Lodge and posted on YouTube. The public relations value of this operation cannot be underestimated and there were information posters in place, where members of the public could get relevant information on vultures. It is not known if the number of vultures and the species concerned visiting the Lodge was being recorded. The success of otherwise of these posters, in providing recent information on vultures, is also unknown.

Data access

Access to information, frequently held outside the country in which it was collected and collated because of improved access to satellite technology, should be made easier. There is a tension between the rights to data collected after expensive field work in Africa and stored abroad, and the need for people on the continent to have quick and easy access to these data in order to protect and conserve vultures on the ground.

We experienced some of these issues during the course of preparing this report. We frequently had no responses to our requests for information. One reply indicated that they did not 'own' the data but that it was 'owned' by someone else in a different country, and we should send our request to them. We

did and got no reply. Another response indicated that they did not want to share their data at the moment, because it formed part of a thesis, but that they would be happy to share it at a later time when (if?) it was published. That might be too late. However, others were happy to answer our questions and provided unpublished information.

Data sharing and access needs to be a much more consistent and transparent, if there is a genuine intent to conserve vultures on the continent. Researchers should be encouraged to publish their results in open access journals so that they are quickly and freely available to those who need to read them. Do papers published in high impact journals, which generate kudos for the researcher and their institutions and ensure follow-on funding, genuinely assist in vulture conservation on the ground? Possibly not, because for a variety of reasons they are largely inaccessible to those who need to read them. Information that could be important to the survival of vultures might only become available after a species has almost disappeared. Lengthy publication processes and prohibitively expensive subscription costs, limit access to published information by local researchers in vulture range states. This is particularly frustrating as the rationale for doing the research in the first place is often said to be the conservation of vultures.

Satellite tracking has shown just how extensive their movements are and these data could be used to make informed decisions about their conservation of vultures. This could only be achieved if data are quickly and easily accessible. We know of cases where people have seen vultures with patagial tags, but there was no easy way to find information about them, without contacting a researcher or organisation (but who and where?), and frequently outside the country in which the bird was seen.

We obtained much up to date and new information on vultures from people on the ground, via social media. This included numbers at carcasses, photographs of active nest sites and video clips from abattoirs. Some of these sources did not know that satellite tagged vultures had spent some time on their properties. The most common response was that people were unaware that there was a problem with vultures but that they would now make an effort to watch out for them.

Ogada *et al.* (2016) state that localised monitoring efforts can result in partial or biased information and delayed detection of population changes. We struggle with this rationale, as some local monitoring is better than none and do not see how monitoring efforts carried out by international researchers, in a specific area, are any different. If anything, they could be worse because the data they gather are inaccessible to the local people who might need it to actually conserve vultures. They are largely driven by available funding and graduate students who move on after their degree programs are completed. Their results are not necessarily published in full or made available to interested persons in vulture range states. The results of local initiatives could be more easily used in determining any conservation actions that may be required and it would potentially involve locals who live with the birds rather than researchers who see them on a computer screen from another country.

There is a disconnect between the people who see vultures daily and the effects of poisoning first hand, and those that only see vultures as a dot on a computer screen in another country or during field trips to Africa. This will impact negatively on any initiative to conserve vultures in the long term, as communication and co-operation between the two groups of people who could potentially make a contribution to this seems to be very poor, at best. Greater effort is needed to include and inform people on the ground in Africa about new developments in data recording, and to improve access to these. Local inputs should be encouraged and timeous and regular feedback provided to keep local populations involved and feeling valued, as contributors to the effort to conserve vultures. These efforts should be targeted specifically to areas where actions could actually make a difference, rather than general statements about the conservation of vultures in media releases and road shows.

Poisoning

Villagers can, and do, respond effectively to livestock killers within hours because of the availability of any number of poisons (Vanessa Bristow, personal communication). When carnivores kill one of their cattle it is a direct reduction of their individual wealth and their reaction is understandable. The question that needs to be asked here is this; why would they rely on any other method of problem carnivore control under the current circumstances, when this one is so effective? Until a faster and more reliable method of dealing with livestock killers is developed, this will be the most effective method for carnivore control in rural areas. The best carnivore, in this context, is a dead one and collateral damage such as dead vultures at a poisoned carcass can be an unexpected financial windfall, gratefully accepted in the current economic climate.

Lion guardians have been put in place along boundaries between the Parks Estate and farming areas to protect collared lions, which wander out of the protected areas (S. White, E Mudenda, personal communication). The guardians quickly react to lions harassing livestock, locating them using their radio collars and chasing them away. They do advocacy work with communities, encouraging them not to use poisons to kill stock-raiding lions and, by default, vultures. The key element here is having a reliable team that can receive and respond to reports in a short time. Distance and directions are an issue but having someone who shows an interest in the problem almost always has a positive response from villagers. A compensatory mechanism could be set up so that livestock killed by predators are not viewed as permanent losses, but a temporary setback. This will cost money but it will be worthwhile, if it means that no vultures are killed at poisoned carcasses.

Commercial 'harvesting' of vultures falls into a different category. All vulture species are specially protected by legislation in Zimbabwe and the legislated penalties for killing one are more severe than poaching an elephant. In practice, however, police and prosecutors appreciate the value of ivory and investigate and lay charges against any accused, accordingly. They do not appear to have the same appreciation of the scale of the offence for killing one vulture. This is an area where advocacy work could be done to inform police and prosecutors about legislation, and prosecute those suspected of poaching specially protected species that are not large and charismatic, but have a known commercial value.

Ration hunting in the Parks Estate is reaching commercial proportions and annual requests to provide increasing quantities of meat for public celebrations, such as Independence Day, further endanger wildlife populations. The assumption that the Parks Estate is an unlimited source of meat for these activities needs to be addressed. The amount of meat removed from these areas by parks staff as rations also needs to be reduced. Anti-poaching patrols are meant to stop the large-scale illegal killing of animals in protected areas, not contribute to it.

Where to from here?

The approach to vulture conservation can learn something from that currently employed for albatrosses. Both types of birds are long lived, have a slow reproductive output, fly over

large distances to forage at unpredictable food supplies where they suffer large mortality on occasions. Young birds do not return to breeding sites until they are adults and their wide-ranging mobility means that many countries are potentially involved in their conservation. Conservation strategies for albatrosses involve finding out where they feed, reducing the impact of human activities on mortality, and the protection and monitoring of breeding sites. Similar strategies are required for vulture conservation.

Conservation of vultures is a 'people problem' with an additional layer of complexity because vultures live in areas with rapidly increasing and impoverished populations. Currently, there is very little input from local researchers into vulture conservation for many reasons, not least of which in Zimbabwe are the difficulties caused by inflation, unemployment and the day-to-day problems of life. Those that can monitor the movements of vultures across the continent using satellite technology from afar and who can determine whether their study bird is alive or not, have no way of reducing the threat that poisoning poses to the birds they are monitoring at some expense, and that their research is supposedly helping to conserve. If the gap between these two groups cannot be bridged then the chances of success of any sort of conservation strategy are very slim indeed.

Locally managed research effort on the birds and advocacy work outlining the plight of vultures and the impact of poisons and excessive ration hunting are obvious areas that need attention. Greater involvement with, and support for local researchers, is essential since they live amongst the local communities and are familiar with their customs and conditions. They should be driving conservation efforts and making use of expertise from outside the country to accomplish this. There can be any number of international initiatives to conserve vultures but without the involvement of local people, the future of African vultures on the continent is insecure.

Given the proven high mobility of vultures, a continental approach is necessary, rather than the fragmentary approach of each country apparently operating at present. International research initiatives fall into the same fragmentary framework and there seems to be little co-operation and data sharing between them. Co-ordinated cross-border conservation strategies, beyond the protected area network, that involve much more data sharing and co-operation, will be necessary to ensure the future survival of vultures in Africa. This was mentioned 30 years ago (Hustler & Howells 1988a) and it is even more applicable today than it was last century. Clive Stockil (personal communication) considers that vultures are in a race to extinction with rhinos in Africa, but are closer to the end point – who would have thought that was ever likely to happen?

Acknowledgements

Vanessa Bristow, Clive Stockil, Sean Nicholle and Pete Bronkhurst provided current information (2019) about Lappet-faced and Hooded Vultures. Wes Gush gave insights into the current status of vultures in Bubye Valley Conservancy, while Derek Adams, Norman English and Norman Monks provided data and insights into the situation in the Parks Estate in the Sebungwe. Lovemore Themba and Kudzanai Dhliwayo provided records from the Bulawayo Museum collection. Anthony Cizek helped with sourcing recent records from *Honeyguide* that were not available to us. All interpretations in this paper are our own and do not represent any particular viewpoint or agenda.

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Honeyguide **66**(2): 61-66 (2020)

The Ornithological Importance of Aisleby Farm

D.A. Ewbank

Introduction

Aisleby Farm, about 12 km north of the Bulawayo city centre, is a major waterbird site in a semi-arid area where the natural vegetation is *Combretum* and acacia savanna and the main agricultural activity is cattle ranching (Erwee *et al.* 2001). The average rainfall is around 560 mm per annum, mostly during the austral summer (November to March), with great variation from year to year (Sayce 1987). The farm has been managed as a sewage farm since 1955 and much of the effluent flows onto the pastures, fertilizing a thick cover of Kikuyu grass *Pennisetum clandestinum*. Similar pastures in East Africa have a higher soil arthropod fauna than other habitats (Salt 1952), and this will attract bids to such sites. Cattle graze on the pastures and there was an average of 1,980 head present in 1983/84 (Gargett, personal communication), which is high for the low rainfall area of Matabeleland. The farm, which covers 1,274 ha, is owned by the Bulawayo City Council and has a small resident worker population.

The two major habitats on the farm are the Ibis Dam (see Erwee *et al.* 2001) and the grasslands which contain many species that are vagrants elsewhere on the Matabeleland plateau. This area has been surveyed more or less regularly since 1963 with over 360 checklists available to 2010 (Perry and Duprée, personal communication) with counting becoming more frequent over time. These counts have been supplemented by my own observations in the 1980s. There are relatively few observations on waterbirds in the area but they include Cooke *et al.* (1978) and Erwee *et al.* (2001). Egyptian Geese, Grey Crowned Cranes and lapwings at Aisleby have been discussed in Tree (1998a) and Ewbank (2002, 2005, 2012). This paper discusses

the avifauna of the grassland and documents changes since the commencement of the data collection in 1963.

Methods

I made a series of counts on the grasslands only in the 1980s and these formed the basis of this work. The other data cover the whole area, creating problems in separating the counts from the dam and the grassland as some species occur regularly on both. I had no access to the counts made by Tim English (Tree 1998b) although some are cited in Recent Reports. There is variation in the sample sizes because some data have been added from Recent Reports and Field Observations.

Results and Discussion

A total of 37 species (excluding Palaearctic waders) was recorded on the farm in counts made from 1977-91 and from 1998-2010 (Table 1), with only one species, the Pied Avocet, being absent from the earlier counts. The numbers of most species increased, with the most numerous being the Cattle Egret, African Sacred Ibis, Red-billed Teal, Egyptian Goose and Red-knobbed Coot; these five species made up three-quarters (76.5%) of all the birds recorded in the 1998-2010 period. Major decreases were reported in the Little Grebe (-60%), African Darter (-56%), White Stork (-32%), and Grey Crowned Crane (-45%).

There was a degree of seasonal variation in some of the commoner species (Table 2). Species that seemed to be significantly more numerous in the dry season include the Black-headed Heron and Yellow-billed Egret, although both species were generally present in small numbers. The most pronounced dry-season difference was in the African Wattled Lapwing, which was generally absent during the wet season but present in quite considerable numbers in the dry seasons. It presumably moved to Aisleby as its preferred habitat of short, marshy grassland (Irwin 1981) dried out. Species that were significantly more numerous in the wet season included two migrants, the White and Abdim's Storks, and the Glossy Ibis, once thought to be an uncommon vagrant. The latter's numbers are known to have increased in Zimbabwe and Irwin (1981) considered them to be most frequent in the late dry season, although this appears not to have been the case at Aisleby.

The average number of Cattle Egrets increased by about 950% between 1977/1991 and 1999/2010 and there was a pronounced seasonal pattern in their abundance. The birds were most numerous from September to March (Figure 1) which broadly coincided with their breeding season. [**Editor**: This appears to contradict the data in Table 1, but these come from different years, and the standard deviations are very wide, indicating a high degree of variability.]

Table 1. The average number of water and grassland birds (excluding Palaearctic waders) counted on Aisleby Farm in two different time periods.

	1977/91	1998/2010	Highest count
Little Grebe *Tachybaptus ruficollis*	20.0	8.0	425
White-breasted Cormorant *Phalacrocorax lucidus*	18.5	14.4	150
Reed Cormorant *Microcarbo africanus*	6.9	46.0	286
African Darter *Anhinga rufa*	3.2	1.4	63
Grey Heron *Ardea cinerea*	4.3	5.0	16
Black-headed Heron *A. melanocephala*	3.8	10.0	60
Great White Heron *A. alba*	1.2	5.5	391
Yellow-billed Egret *Egretta intermedia*	0.7	4.0	113
Cattle Egret *Bubulcus ibis*	78.0	897.0	8493
Squacco Heron *Ardeola ralloides*	0.6	2.0	53
Hamerkop *Scopus umbretta*	0.5	1.5	3
White Stork *Ciconia ciconia*	19.2	13.0	248
Abdim's Stork *C. adbimii*	13.0	14.0	1070
African Sacred Ibis *Threskiornis aethiopica*	62.0	256.0	1746
Glossy Ibis *Plegadis falcinellis*	6.8	11.0	116
African Spoonbill *Platalea alba*	2.3	2.5	63
White-faced Duck *Dendrocygna viduata*	6.7	65.0	391
Cape Teal *Anas capensis*	3.4	3.4	36
Hottentot Teal *A. hottentota*	1.5	27.0	313
Red-billed Teal *A. erythrorhyncha*	19.0	138.0	698
Cape Shoveler *A. smithii*	0.8	3.0	72
Southern Pochard *Netta erythrophthalma*	4.3	71.0	765
Comb Duck *Sarkidiornis melanota*	34.0	30.0	214
Egyptian Goose *Alopochen aegyptiaca*	83.0	213.0	1896
Spur-winged Goose *Plectropterus gambiensis*	5.5	5.0	435
Maccoa Duck *Oxyura maccoa*	5.0	5.0	132
Grey Crowned Crane *Balearica regulorum*	16.4	9.0	227
Red-knobbed Coot *Fulica cristata*	5.5	184.0	1307
African Jacana *Actophilornis africanus*	0.4	4.0	171
Kittlitz's Plover *Charadrius pecuarius*	0.6	5.0	11
Three-banded Plover *C. tricollaris*	8.0	7.0	57
Blacksmith Lapwing *Vanellus armatus*	26.8	79.0	285
African Wattled Lapwing *V. senegallus*	13.3	18.0	143
Crowned Lapwing *V. coronatus*	3.2	5.0	88
Pied Avocet *Recurvirostra avocetta*	0	20.0	452

Black-winged Stilt *Himantopus himantopus*	1.5	24.0	149
White-winged Tern *Chlidonias leucoptera*	0.8	1.0	70

Table 2. The number of birds (mean ± standard deviation) counted in the Aisleby grasslands in 1984/85. Based on personal records. The symbol * indicates more than 100 birds seen on Ibis Dam.

	Wet season	Dry season
Black-headed Heron	1.4 ± 1.6	4.2 ± 2.3
Cattle Egret	205.4 ± 172.0	119.9 ± 60.5
Yellow-billed Egret	0	0.5 ± 1.5
White Stork	5.1 ± 15.6	0.2 ± 0.8
Abdim's Stork	9.4 ± 16.5	0
African Sacred Ibis*	142.2 ± 91.3	121.4 ± 181.3
Glossy Ibis	3.2 ± 7.9	0.4 ± 1.3
Egyptian Goose*	49.2 ± 60.3	1.2 ± 2.6
Blacksmith Lapwing	12.5 ± 10.9	20.1 ± 13.9
African Wattled Lapwing	0.0	21.6 ± 34.3
Grey Crowned Crane	14.9 ± 20.6	20.2 ± 35.9

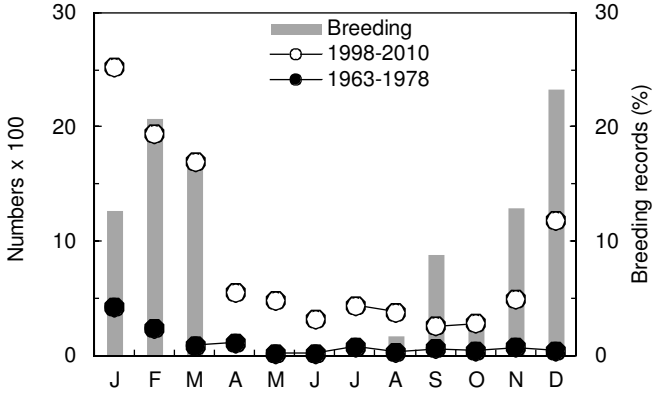

Figure 1. The mean number of Cattle Egrets recorded each month at Aisleby in 1963-78 and 1998-2010 in relation to their breeding season. Breeding data from Irwin (1981).

The highest numbers of Cattle Egrets at Aisleby coincides with their main breeding season. The Ibis Dam at Aisleby was filled in March-April 1978 and the heronry was established with 200 pairs of breeding birds, two-thirds of which were Cattle Egrets (Ewbank 2007). The other species breeding in the colony were Sacred Ibis, Black-headed Herons and Reed Cormorants. A much smaller number of Cattle Egrets bred in the colony during a second wave of breeding activity in September-October.

Like the Cattle Egret, there has been a considerable increase in the numbers of Sacred Ibis, with the average numbers (per month) rising from 18.6 in 1963-78 to 252 in 1998-2010 (Figure 2). These birds were present with peak annual numbers in tens during the early years of the survey and a count >100 birds was not recorded until 1976. This was before the construction of the Ibis Dam and the commencement of short-lived breeding. A count of 400 was recorded in 1986 and such numbers became routine, peaking at 942 in 1998. In 1963-1978 numbers peaked in April, possibly representing a movement of birds from South Africa to Zambia and possibly beyond (Tarboton 1977). However, in 1998-2010 they peaked in July with large numbers also in January to March and this may represent a change in migration patterns, perhaps with a much larger resident population now moving around within Zimbabwe.

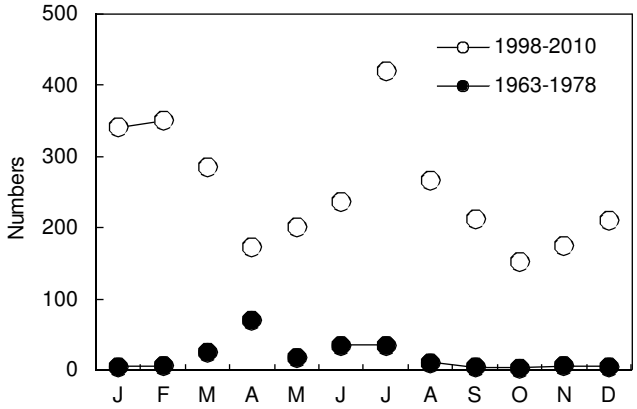

Figure 2. The mean number of Sacred Ibises recorded each month at Aisleby, 1963-78 and 1998-2010.

The Sacred Ibis was amongst the first species to breed on Ibis Dam in February-April 1978, the first breeding record from Zimbabwe (Ewbank 2007). They bred again in a second wave of breeding activity in September-November and in much larger numbers, almost double those reported earlier.

Glossy Ibises were present in low numbers (<10) until 1977 when they peaked at 12 birds. Numbers of over 100 were only reached in two years (1985 and 2001) with a peak between October and March. In Zimbabwe (mainly Mashonaland data) peak numbers (max 400 at the Manyame Lakes) were recorded in July and August with a minor peak in December and January (Tree 1998a). Both species of ibis are increasing in Zimbabwe (Rockingham-Gill, cited in Dodman *et al.* 1997).

The numbers of White and Abdim's Storks reflected their migratory pattern with both species occurring mostly from November to March, with a few early arrivals in October and a few stragglers in April (Figure 3). A few over-wintering birds (almost all White Storks) were recorded between May and September. The largest number of White Storks recorded in 1984-85 was 248 birds (Table 1) and this was during a period when this species was declining in numbers (Luthin 1987). Since then, White Stork numbers have increased and its IUCN conservation status was raised from "Near Threatened" in 1988 to "Least Concern" in 2012 (BirdLife International 2015).

There have been a number of recent reports of large flocks of White Storks in Zimbabwe (Lister, 1998: Maasdorp 2017; Meikle 2017) and although the average number at Aisleby was around 50 per month in February-March, the wide standard deviation suggests that numbers were very variable and that large flocks may have passed through the area from time to time (see Table 1). A similar pattern was reported for Abdim's Stork with over a hundred being recorded in 1980 but not again until 1998 and again in four years between 1998 to 2010 (only two of these years are the same as White Storks). This excludes a huge number (1,090) recorded in 1993 when there was a plague of Army Worms *Spodoptera exempta* (Dodman 1993). A flock of 1 200 birds was recorded in January 2013 although the reasons why such a large number was present were not given (Baker 2013).

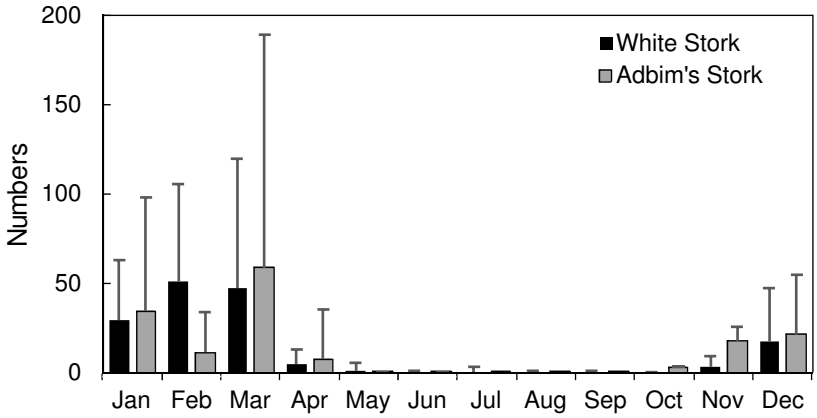

Figure 3. Monthly counts (+ standard deviation) of White and Abdim's Storks at Aisleby.

The numbers of White Storks dropped in February but rose again in March suggesting that birds were on their northward passage. Many of these birds come from Poland where I saw my first bird on 28 March 1999 which implies a quick migration. Abdim's spend January to March on the pastures at Aisleby before departing at the end of the month. The largest flocks recorded in Zimbabwe is *c*.10,000 birds seen on the Zambezi in March; it consisted of approximately equal numbers of White and Abdim's Storks (Lister 1998). An unpublished survey of the latter species reported an estimated 14,000 were present in Zimbabwe in 1984/85 (Rockingham-Gill in Dodman *et al* 1996).

Black-headed Herons and Yellow-billed Egrets were present only in small but highly variable numbers (Figure 4). There was little seasonal variation in the numbers of Black-headed Herons but Yellow-billed Egrets seemed to increase during the dry season and into the rains. There was an exceptionally high count of these egrets in February [**Editor**: the year and numbers were not provided].

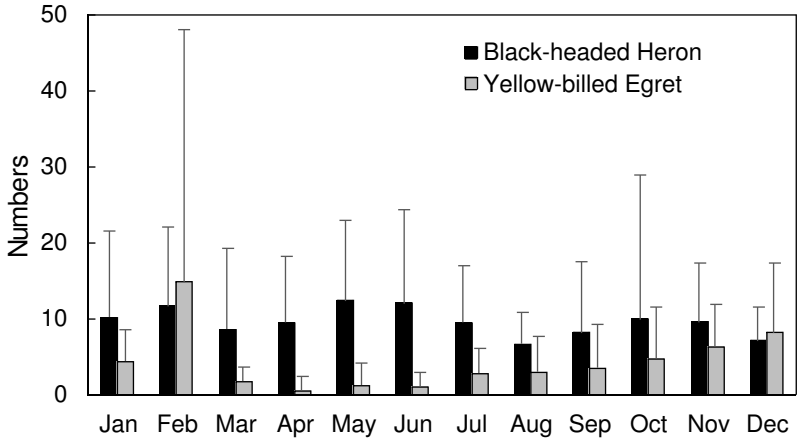

Figure 4. Monthly counts (+ standard deviation) of Black-headed Herons and Yellow-billed Egrets at Aisleby.

Grey Crowned Cranes were generally recorded at Aisleby during the winter months, mostly from June to September (Figure 5a). However, their numbers have risen and fallen over time. They were first recorded in 1970 becoming regular from 1973 when they were recorded on 50-70% of field cards from then until 1983 (Figure 5b). The largest count was 120 in 1986 and they were reported on most field cards up to 2000, sometimes numbering in the hundreds. Their population appears to have collapsed from then and none were recorded on field cards between 2007 and 2013. This decline reflects a change in the status of this species, which was downgraded by IUCN from 'Least Concern' in 2008 to 'Endangered' in 2013 (http://www.iucnredlist.org/details/22692046/0). This decline is attributed to habitat destruction and the illegal removal of birds and eggs for food, traditional uses and the illegal wildlife trade.

There was little seasonal variation in the number of Blacksmith and African Wattled Lapwings (Figure 6). Blacksmith Lapwings were always the most numerous species and were slightly more numerous during the first half of the year although these differences were not significant owing to the wide overlap in the standard deviations. Wattled Lapwing numbers increased slightly from May to July but then declined as the dry season progressed to reach their lowest numbers in November. This is in line with the suggestion of an influx into Zimbabwe from March to August (Hockey et al 2005). It should be noted that my counts in 1984/86 (Table 1) were considerably lower than those in earlier counts or until 2000.

Four juvenile Egyptian Geese were released at Aisleby in 1966 and the next record was in 1968 (Ewbank 2005). Since then this species has greatly increased and the largest number ever recorded at Aisleby (1,896 birds) is also the largest count ever recorded in Zimbabwe. In both time periods they peak in June and July suggesting they moult at Aisleby before dispersing elsewhere to breed.

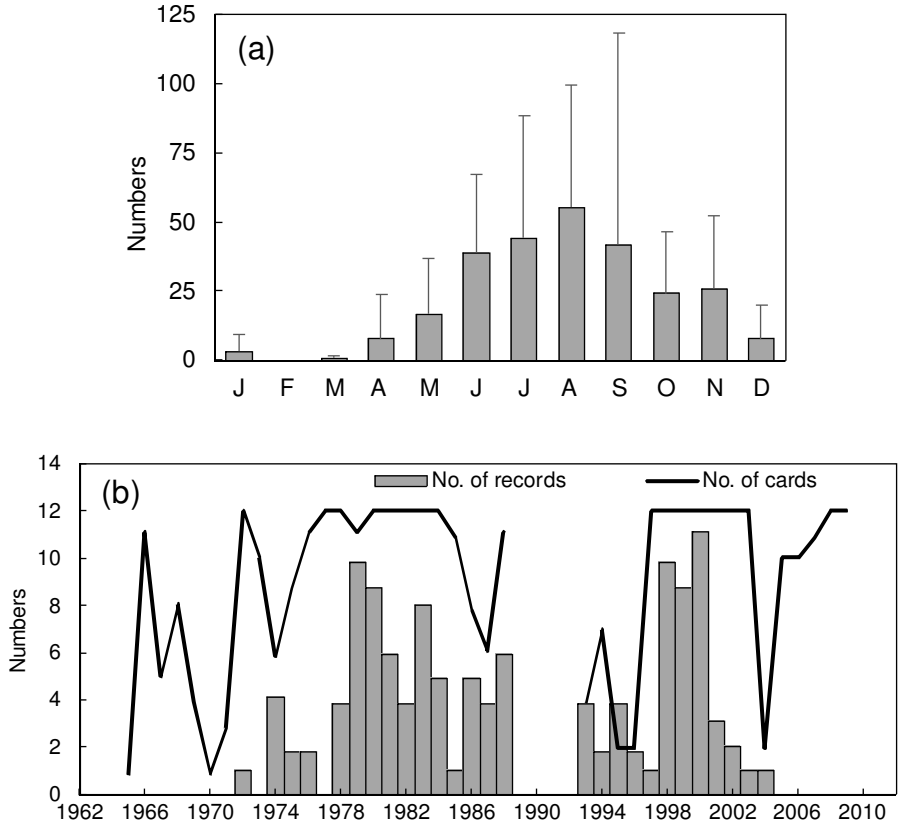

Figure 5. (a) Monthly counts (mean + standard deviation) of Grey Crowned Cranes at Aisleby. (b) The number of monthly field cards from Aisleby, 1964-2013 (line) and the number with Crowned Cranes being reported (bars).

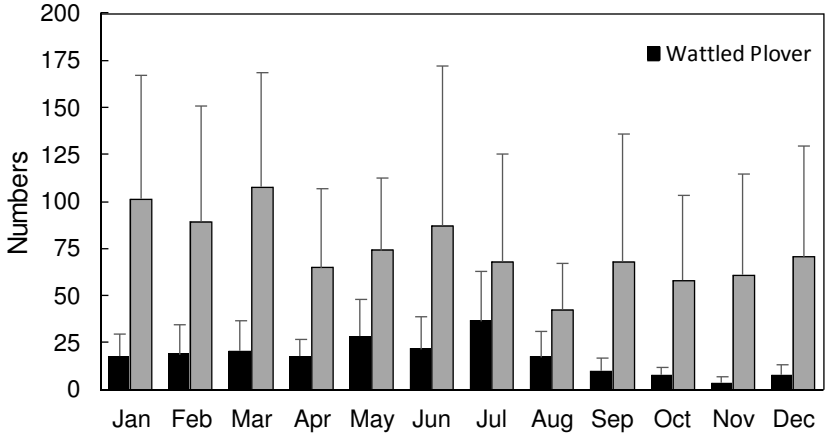

Figure 6. Monthly counts (+ standard deviation) of Wattled and Blacksmith Lapwings at Aisleby.

The mean number of waterbirds present 1998/2010 was 2,051 birds per count with Cattle Egrets making up 43% of the total. The population of the waterbirds considered here has increased fourfold between the two observation periods (See Table 1) with twelve species increasing and one declining (Grey Crowned Crane). However not all species have recent maxima e.g. the value for the White-winged Tern is from 1964.

The numbers of three species (Southern Pochard, Grey Crowned Crane and Pied Avocet) reach the 1% level of the East/South African population making this an important site for these species (Wetlands International 2017). The maximum number of Egyptian Geese (1,896 birds; Table 1) recorded at Aisleby was said by Rockingham-Gill (in Dodman 1994) to be 1% of the Zimbabwe population. My estimate of the population of Egyptian Geese in Zimbabwe was thirty to forty thousand (Ewbank 2005) and the total population in South and East Africa is between 200,000 and 500,000, making my lower figure more likely. But either way, Aisleby is an important site for this species (Wetlands International 2017).

Black-winged Stilt numbers can comprise 1% of the national population (Dodman & Taylor 1996). Stilt numbers peak in June and October/November. Pied Avocet numbers peak in September and October. Breeding records of Black-winged Stilt and Pied Avocet in Zimbabwe have been discussed by Tree (2011) and Brooke (1996). The only breeding record of either species from Aisleby of the stilt was in 1977 (Cooke *et al* 1978).

Three duck species, Cape Teal, Cape Shoveler and Maccoa Duck have populations in Zimbabwe in the hundreds, making Aisleby an important site nationally. Maccoa Ducks were present at Aisleby at the start of the study in 1964 but numbers were small until 1979 when 14 were seen. Peak numbers at

Aisleby are generally between June and October, but recently rather later. There are few breeding records from Zimbabwe, mostly from Aisleby Farm, but also from Hwange National Park, Tsholotsho, and Lobezi Pan. The earliest record of Maccoa Duck in Zimbabwe is from Matabeleland (Priest 1933). There are voucher specimens for some of the Matabeleland records in Priest (1933) in the former Transvaal Museum, including Maccoa Duck (undated) but not for the Black-necked Grebe *Podiceps nigricollis* record (Cassidy personal communication). [**Editor's note**: The Black-necked Grebe record in Priest is part of the "Stevenson hoax" (Irwin 2010).]

There was an influx of Cape Teal from June to October for breeding (Hockey *et al*. 2005) and their numbers peaked in October in both time periods, although the highest number recorded was 91 in July 2007. Breeding has been reported from Aisleby Farm, Chegutu, Imbwa, Eiffel Flats and Manyame Lakes (NRC Records).

Cape Shoveler numbers peak at Aisleby in June with the largest number being 46 in June 2003, and the first Zimbabwean breeding record came from Aisleby. The earliest record of Cape Shoveler in Zimbabwe was a specimen in the former Transvaal Museum from the untraced locality of Lake Kaboto in Matabeleland (Priest 1935). The similarity of this to Kabot's (= Lakeside) Dam suggests an error in labelling. However, the former Transvaal Museum cannot trace the original label (Cassidy, personal communication).

Another question is why have so few of these species been recorded breeding at Aisleby? Cattle Egrets and African Sacred Ibis bred for a few years after the construction of the Ibis Dam but the islands they used have now silted up into sandbars and are now unsafe and no longer used (Ewbank 2007). Sixty-three nest-sites of Egyptian Goose are recorded in Zimbabwe: over 70% are on islands, inside or on top of Hamerkop *Scopus umbretta* nests or on a sandbank covered with *Phragmites* reeds (NRC records). Forty-three Grey Crowned Crane nest-sites are recorded in Zimbabwe: islands/anthills, reedbeds and wet vleis with a few in trees (Ewbank 2002). The lapwings are ground-nesters and nest-sites for these species are either absent or vulnerable to predators at Aisleby.

All these species have increased in Zimbabwe paralleling their status at Aisleby, except for the storks and Grey Crowned Crane whose decline is debated. The White Stork was once considered to be "Endangered" but its IUCN status has now been raised to "Least Concern" as its numbers have increased. Abdim's Stork is thought to be either stable or declining (Hockey *et al*. 2005) but its IUCN status is also "Least Concern". Both species of ibis, Black-headed Herons and Yellow-billed Egrets are vagrants in the Matobo area. The other species are present in the Matobo area but in low numbers at a few dams except for the storks and Cattle Egrets for which large numbers sometimes pass through.

Acknowledgments

Thanks to the late Rud Boulton, Stan Perry and Julia Duprée for access to the data.

Editor's note

This article was being edited when David Ewbank unexpectedly passed away. A number of issues needed explanation or clarification but of course it was not possible to deal with these. I have interpreted them as best I can and hope that these interpretations are close to what he intended to say.

D.A. Ewbank, edited posthumously

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Honeyguide **66**(2): 67-72 (2020)

Waterbird Hunting and Community Conservation on Lake Chilwa at a Time of Recession

John G.M. Wilson

Abstract

Lake Chilwa is a large shallow endorheic lake on the eastern border of Malawi. With no surface outlet, it is very turbid and saline, and dries periodically. The high salinity and shallow depth are responsible for extensive *Typha dominguensis* swamp, 700 km^2 in area, which provides habitat for large numbers of birds, especially rallids, and for the primary productivity of the lake, which supports fish production of up to 26,000 tons valued at US$17m annually. To date 105 waterbird species have been recorded and the total population has been estimated at 700,000 birds. The human population density of the lake basin is extremely high, as is the level of poverty, which results in an estimated 230,000 waterbirds, valued at $170,000, being trapped or shot annually for food. Lake Chilwa has dried ten times in the last century, and it dried again in 2012, with the loss of the fishery for three consecutive years. The need to conserve waterbirds at this unprotected and open access wetland was identified and led to the development of community conservation. The impact of the 2012 recession on the waterbirds was evaluated. In certain areas hunting pressure increased very considerably, and birds which are traditionally not eaten were now killed.

Introduction

Following the recession of Lake Chilwa in 1995, it was discovered that there was very extensive bird hunting on the lake, especially the trapping of rallids in the extensive *Typha* swamp. Further studies revealed that an estimated 230,000 waterbirds were being trapped or shot annually for food by about 640 bird hunters. In order to conserve these birds and gain protection for certain key species, a plan for community management of waterbird hunting was developed. An institutional framework of 18 Bird Hunters Clubs were created with an overarching Bird Hunters Association, with a constitution and legal registration. These clubs, in collaboration with the traditional authorities designated 25 bird sanctuaries around the lake.

Figure 1. A bird-hunter with an African Jacana and a Black Crake. Photo © John Wilson.

A bird hunting management plan with regulations governing hunting was developed by the bird hunters and approved by the traditional and government authorities. This plan was also to form a basis for a wildlife management agreement with the Director of National Parks and Wildlife to empower the bird hunters to enforce the regulations. Most regrettably, the Danish NGO entrusted with strengthening the capacity of the Bird Hunters Association to manage bird hunting, undermined the whole process in order to prolong the benefits they enjoyed from this donor-funded project, extending the project from the planned three years to ten years, with no satisfactory conclusion at the end.

The purpose of this paper is to document the extent of waterbird hunting on this Ramsar listed site (Wilson & van Zegeren 1996), especially following the recession of the lake in 2012. It also describes my attempts to develop community conservation of waterbirds on Lake Chilwa subsequent to the last recession in 1995, and its failure (Wilson 1999).

Study area

Lake Chilwa is part of a large area of wetlands, with Lake Chiuta (360 km^2) and Lake Amaramba (37 km^2) immediately to the north, and the Mpoto Lagoon (57 km^2) to the south. The Shire River, which flows out of Lake Malawi, is only 30 km to the west of Lake Chilwa and is a major flyway for migrant waterbirds. The catchment area of the Lake Chilwa system is 8,349 km^2 of which 5,669 km^2 (68%) is located in Malawi and the remainder in Mozambique. The lake ecosystem consists of several ecological regions and covers 2,310 km^2 (Table 1). When the lake level falls, the extent of open water decreases, while marsh and floodplain grassland increases (Table 1). The lake dried up completely on ten occasions between 1882 and 1995 (Wilson 2014). The human population density in the Lake Chilwa basin is extremely high, as is the level of poverty, which results in an estimated 230,000 waterbirds, valued at $170,000, being trapped or shot annually for food.

Mpoto Lagoon

The Mpoto Lagoon is a shallow lake south of Lake Chilwa, formed by the Sombani River in its course from Mulanje Mountain through Mozambique to the southern end of Lake Chilwa. It is approximately 17 km long and 1.5-2.7 km wide, with an area of 57 km^2, of which 36 km^2 is in Mozambique. It did not dry out during the recession on Lake Chilwa, and thus served as a very important refuge for fish, especially the endemic tilapia *Oreochromis shiranus chilwae* and the minnow *Enteromius paludinosus*. It appears that it also served as an important refuge for waterbirds during the Lake Chilwa recession.

Table 1. The main constituents of the Lake Chilwa ecosystem. The low lake level was the level that the lake fell to during the study period

		Area (km^2)	
		High Lake Level	**Low Lake Level**
Wetland	Open water	1,054 (45.6 %)	648 (28.1%)
	Typha swamp	640 (27.7 %)	699 (30.3 %)
	Marsh	163 (7.1 %)	300 (13.0 %)
	Floodplain grassland	220 (9.5 %)	430 (18.6 %)
	Sub-total	2,077	2,077
Cultivated areas	Wetland rice	114 (4.9 %)	114 (4.9 %)
	Irrigated rice	29 (1.3 %)	29 (1.3 %)
	Dimba	90 (3.9 %)	90 (3.9 %)
	Sub-total	233 (10.1%)	233 (10.1%)
	Total	2,310	2,310

Methods

Information on bird hunting was gained through focus group discussions, key informant interviews and the records of bird hunting compiled by the Bird Hunters Clubs' monitors. The numbers of waterbirds trapped or shot were recorded in the course of sampling them for the Avian Influenza H1N5 virus.

Results

The waterbirds of Lake Chilwa

To date 105 waterbird species have been recorded on Lake Chilwa, of which 32 are Palearctic migrants, 3 are intra-African migrants, and 70 are resident (Dowsett-Lemaire & Dowsett 2006). The lake was designated an Important Bird Area in Africa and associated islands and a priority site for conservation by BirdLife International in 2001 (Dowsett-Lemaire *et al*. 2001). The total population of waterbirds has been estimated at 700,000, and this was the basis for Lake Chilwa's designation as a Ramsar Site in 1996. However, the numbers of certain species of waterbirds fluctuates with the state of the wetland.

Bird hunting on Lake Chilwa

In 2009 a total of 640 bird hunters were registered with the bird hunter's clubs. Of these 461 were men and 179 were women. There were also a number of bird traders, e.g. 5 in Khanda. Various hunting methods were used to hunt different species, with snares being the most widely-used, followed by drop-nets (Table 2).

During the periods when the lake was in recession in 1996, it was estimated that over a million birds were harvested, with a value estimated at US$250,000 (Van Zegeren & Wilson 1997). Waterbirds accounted for US$170,000 and queleas and bishop birds for US$83,000.

Table 2. Bird hunting methods on Lake Chilwa: number of hunters, number of birds taken per hunter per season, total number of birds taken (Mgoola, 2007). Some hunters use more than one kind of method, which explains why the total number of hunters exceeds the number registered with the hunter's clubs.

Method	**Species targeted**	**No. of hunters**	**Off-take Per hunter Per day**	**Off-take per hunter per season**	**Total off-take**
Snares	Gallinules, crakes, moorhens, Little Bittern, African Water Rails	471	5.8	441	207,711
Shooting	Whistling Ducks, Glossy Ibis, Knob-billed Ducks, Spur-winged Geese, Open-billed Storks	30	12.3	703	21,090
Drop net	Queleas, bishop birds, weavers	252	46.5	2,741	690,732
Tangling net	Queleas, bishop birds	83	64.8	2,914	241,862
Elastic band	Queleas, doves, mannikins,	67	12.7	800	53,600
Birdlime	Queleas, bishop birds, mannikins	103	10	930	95,790
Catapult	Queleas, weavers, doves, bulbuls, mannikins	51	5.1	482	24,582
Total		1,057			1,335,367

Considerable numbers of birds are trapped or shot on Lake Chilwa by individual bird hunters. For example, 46 hunters killed 324 birds of five species over a period of five days in February 2006 (Table 3). In another case, five hunters killed 611 whistling-ducks over 6 days in December 2006 (Table 4).

Table 3. Record of waterbird trapping at Khanda 10-15h February, 2006. LG = Lesser Gallinule *Porphyrio alleni*, BC = Black Crake *Amaurornis flavirostra*, CM = Common Moorhen *Gallinula chloropus*, AWR = African Water Rail *Rallus caerulescens*, LB = Little Bittern *Ixobrychus minutus*. These data were collected in the process of sampling waterbirds for Avian Influenza.

Date	No. of trappers	LG	BC	CM	AWR	LB	Total
10 February	5	11	13	6	1	1	32
12 February	7	54	5	-	-	-	59
13 February	8	33	22	16	2	2	77
14 February	13	43	18	-	2	2	69
15 February	13	47	27	-	3	3	86
Total	46	188	85	22	8	8	324
No./man/day		4.1	1.85	0.48	0.17	0.17	7.11

Table 4. Number of Whistling Ducks shot by hunters at Mbalu 14-22 December 2006.

Hunter	14 Dec	17 Dec	18 Dec	19 Dec	21 Dec	22 Dec	Total	Mean
1	41	58	-	45	22	39	205	41
2	30	30	-	20	-	-	80	26.7
3	5	28	9	56	-	14	111	22.5
4	-	16	11	34	20	22	103	21.5
5	18	21	19	11	8	35	112	18.7
Daily total	94	153	39	166	50	110	611	101.8

Table 5. The catch per unit effort (birds /hunter/day) of waterbirds and the decrease (%) in 1996 and 2006 (from Mgoola 2007).

Method	1996	2006	Decrease (%)
Snares	6.5	2.2	- 66
Shooting	14.2	7.7	- 46
Drop net	75.6	53.2	- 30
Tangling net	96.2	63.4	- 34
Elastic band	14.7	6.5	- 56
Birdlime	13.4	5.1	- 62
Catapult	11.8	4.7	- 60

The impact of bird hunting

Over the last 10 years the catch per unit effort, i.e. birds/hunter/day, declined regardless of the method (Table 5). The greatest decrease was recorded in snares (66%) and lowest in drop nets (30%). This suggests that hunting had significantly decreased waterbird populations in the lake (Mgoola 2007). Over the same time period, the average number of snares set per day increased from 22.3 to 43.9 while the average time spent in hunting increased by 30% from 3.05 to 4.01 hours per day.

All of this points to a decline in waterbird numbers due to over-hunting. Furthermore, a number of species of waterbirds which were previously recorded are no longer seen. These include:

Goliath Heron *Ardea goliath*. This species was always to be seen at Lake Chilwa (Belcher 1930) and there are isolated records of single birds up to November 1991, but none since.

Saddle-billed Stork *Ephippiorhynchus senegalensis*. 8-10 pairs and two immatures were seen in 1965. Single birds were seen near Kachulu in May 1971 and January 1972, and these were the last records (Schulten & Harrison 1975).

African Spoonbill *Platalea alba* 200 were seen at Chinguwo in the northern marsh in January, 1992, but there have been no recent sightings.

Grey Crowned Crane *Balearica regulorum*. Lake Chilwa was once noted for its Crowned Cranes (Belcher 1930). There are records of singles or pairs up to 1970, but none since.

The impact of the recession

Changes in the number of bird trappers and trapping effort

At Khanda, on the western shore of Lake Chilwa, the number of bird trappers increased by from 27 to 94 (248%), the average number of snares set increased by 25% from 40 to 50, and trapping increased from 1-2 to 7 days per week. This was because there was no longer any fish due to the drying of the lake. Also, the *Typha* recovered very quickly with the advent of the rains, and this attracted an exceptionally large number of migrant Lesser Gallinules, which formed the bulk of the birds trapped.

In contrast, at Mbalu, also on the western shore but at the mouth of the Likangala River delta, the number of bird trappers dropped from 85 to 15, the average number of traps set reduced by almost 70%, from an average of 44.75 to 14.25, and the average number of days spent trapping was reduced from seven to two or three. The numbers of birds, notably rallids, was considerably reduced, probably because the Likangala River delta is dominated by *Phragmites* reeds that had been burnt and recovered slowly.

At Ntira, on the northern marsh, bird hunting virtually ceased because the lake had receded 30 km from the shore, resulting in the *Typha* dying down totally and being burnt, leaving the area bare. With the rains, the lake only returned to within two hours walk (10 km) of the shore, which was too far to go to trap birds.

At Malunguni on the southern shore, the lake also receded at least 5 km with the loss of the entire fringing *Typha* swamp, 3 km wide, rendering bird trapping impractical. The number of bird trappers reduced from 34 to 20, and the average number of traps set per day reduced from between 30-50, to between 3-12. The average number of birds trapped halved from 6-10 a day to 2-5 per day.

Mpoto Lagoon, in contrast, did not dry, and it appeared that many waterbirds took refuge there from Lake Chilwa.

According to the local bird hunters there were considerable increases in the numbers of Reed Cormorants *Microcarbo africanus*, Spur-winged Geese *Plectropterus gambensis*, Knob-billed Ducks *Sarkidiornis melanotos*, Openbill Storks *Anastomus lamelligerus*, Great White Egrets *Ardea alba* and Common Moorhens *Gallinula chloropus*. Consequently, there was a large influx of bird hunters from Mozambique, increasing the number of trappers from 15 to 62.

Hunting of birds which traditionally are not eaten

A number of waterbird species are traditionally not eaten. These include the white egrets (Cattle Egret *Bubulcus ibis*, Little Egret *Egretta garzetta*, and Great White Egret), the Grey and Black-headed Herons *Ardea cinerea* and *A. melanocephala*, Reed Cormorants and Openbill Storks. However, with the recession all these species were now recorded as being hunted at a number of locations around Lake Chilwa and on Mpoto Lagoon (Table 6).

Table 6. Hunting of birds that are traditionally not eaten

Species	Location on Lake Chilwa	Name of beach	Number killed	Date
Reed Cormorant	W shore	Bimbi	38	2012
Great White Egret	N marsh	Masinde	13	Nov 2012
	S shore	Malunguni	19	Nov-Dec. 2012
				Jan 2013
Grey Heron	NW marsh	Mposa	1	15 Jan 2012
			1	1 Feb 2012
			1	13 Mar 2012
	W shore	Namasalima	9	Nov2012
		Matandani	1	14 Jul 2012
		Mbalu	2	3 Oct 2010
Black-headed Heron	N marsh	Ntira	1	10 Jul 2010
			5	18 Jul 2010
		Khanda	10	22 May 2012
			6	14 Oct 2012
		Mbalu	1	8 Oct 2010
Purple Heron *Ardea purpurea*		Mposa	2	1 Apr 2012
Black Egret *Egretta ardesiaca*	W shore	Makawa	10	Oct 2012
			51	9 Dec 2012
			27	5 Jan 2013
			23	6 Jan 2013
Cattle Egret	NW marsh	Mposa	6	Dec 2012
	W shore	Namasalima	25	Nov 2012
		Matandani	11	18 Jul 2012
		Khanda	7	Nov 2012
		Kathebwe	194	Mar-Nov 2012
	S shore	Malunguni	18	Nov-Dec 2012
				Jan 2013
	Mpoto Lagoon		7	Jan 2012
Squacco Heron *Ardeola ralloides*		Mposa	4	1 Apr 2012
Openbill Stork	N marsh	Masinde	83	2010
	NW marsh	Mpheta	32	Sept 2011 Mar 2012
				May 2012
		Lundu	15	Dec 2012
				Jan 2013
	W shore	Bimbi	44	2012
		Mbalu	697	2012

The southern shore of Lake Chilwa, which includes Malunguni, and Mpoto Lagoon, and Mbalu on the western shore, is mainly inhabited by people of the Lomwe tribe, whose traditions do not exclude eating white egrets, Black Egrets, Reed Cormorants, (Pink-backed *Pelecanus rufescens* and White Pelicans *P. onocrotalus*), and even Grey-headed Gulls *Chroiocephalus cirrocephalus* and terns. The people around the northern and north-western shore are mainly of the Yao tribe and do not eat any of these birds. However, it was always believed that Grey and Black-headed Herons were never eaten, but recent hunting records and focus group discussions have revealed that they are now hunted and sold on the northern marsh (Ntira) and the western shore (Khanda), and their numbers have greatly declined.

Hunting of protected species

White Storks *Ciconia ciconia* are listed as protected species under the Wildlife Act but with the recession it has been reported that relatively large numbers have been killed. They make attractive prey being large, tame and occurring in flocks. Other notable species, which have been listed for protection, were also hunted (Table 7).

Table 7. Hunting of protected and other notable species around Lake Chilwa

Species	Location	Name of beach	Numbers killed	Date
White Stork	Western shore	Khanda	82	Nov 2012
		Kathebwe	6	7 Feb 2010
			9	9 Feb 2010
			30	30 Mar 2010
			4	5 Jan 2011
			2	20 Jan 2011
			3	25 Jan2011
			28	15 Mar 2011
			6	4 Apr 2011
	Southern shore	Malunguni	10	4 Nov. 2012
			3	12 Jan. 2013
	Mpoto Lagoon		1	22 Dec 2012
	Mpoto Lagoon	Nthambala	2	29 Dec 2011
			4	15 Nov 2012
			7	16 Nov 2012
Black Stork *Ciconia nigra*	Mpoto Lagoon		3	Jul 2012
Greater Flamingo *Phoenicopterus roseus*	Western shore	Khanda	12	1 Nov2012
			4	3 Nov 2012
			1	4 Nov 2012
	Southern shore	Malunguni	4	3 Nov 2012
			1	4 Nov2012
			4	1 Dec 2012
			1	2 Jan 2013
			3	5 Jan 2013
			1	12 Jan 2013
African Spoonbill	Mpoto Lagoon		1	12 Dec. 2012
			2	21 Dec. 2012
Pygmy Goose *Nettapus auritus*			5	Oct. 2012
White Pelican	Western shore	Khanda	7	1 Nov. 2012
			9	2 Nov. 2012
			1	3 Nov. 2012

Changes in waterbird populations during and after the recession

The very shallow water of the lake, particularly in the early stage of recovery, attracts great numbers of waterbirds. For example, in 1996 a single flock of 3,500-5,000 Fulvous Whistling Ducks *Dendrocygna bicolor* was recorded at Mchenga, on the western shore of Lake Chilwa, and this was in just one small area of this 2,200 km^2 lake. A similar very large flock of Fulvous Whistling Ducks was again reported at Mchenga in June, 2013 (Mr Mukona, bird shooter, pers.com.) Very large numbers (> 1,000) of the Palearctic migrant White-winged Black Terns *Chlidonias leucoptera*, were observed at Mchenga in December 2012 when the lake was very low. By March 2013, they had all disappeared.

During recessions on Lake Chilwa, Greater Flamingos breed in large numbers (*c*. 2,000) on the mud island Njanga in the northeast part of the lake. Grey-headed Gulls also breed in large numbers on mud islands and in September 1994, just prior to the 1995 recession, a breeding colony of about 1,500 of them was recorded near Naphali, on the south-western shore. In December 2012, over 40 juveniles were observed at Kachulu, and this indicated that these birds had recently been bred on the lake.

Community conservation of waterbirds

Community-based natural resource management ("CBNRM") is the management of natural resources based on a detailed plan developed and agreed to by all concerned stakeholders. The approach is community-based in that communities managing the resources have the legal rights, the local institution, and the economic incentives to take substantial responsibility for sustained use of these resources. Under the natural resource management plan, communities become primary implementers, assisted and monitored by technical services (USAID 2004).

Lake Chilwa was listed as a Ramsar site on the basis of its waterfowl in 1996 and Malawi became a Ramsar Contracting Country on 14 March, 1997. On 27 October 2009 Lake Chilwa was declared a UNESCO Biosphere Reserve. A study of bird hunting in 1996, the year after it last dried, revealed the extent of bird hunting on Lake Chilwa, especially the impact on the waterbirds and community management of the waterbirds was recommended.

In November 2000 community management of waterbirds was initiated around Lake Chilwa by briefing the traditional authorities and requesting them to call meetings at which the community were sensitised and mobilised to create 18 Bird Hunters clubs, which then formed a Bird Hunters Association. The Association developed a constitution and elected an Association Committee on 30 April, 2001 (Wilson 2001). In January, 2004 a project to strengthen the capacity of the Bird Hunters Association was initiated under the Danish Hunters Association, and funded by Danida. The Association was registered with the Registrar-General to gain formal legal status on 6 May, 2005.

The bird hunters were then assisted to develop a Bird Management Plan on 23 July, 2005, which included regulations to control bird hunting, especially the designation and

wardening of bird sanctuaries, in line with Malawi's obligations under the Ramsar Convention. This Management Plan was endorsed by all the major stakeholders, including the traditional and government authorities around Lake Chilwa on 12 August, 2005. A total of 25 bird sanctuaries were designated, mapped and declared, covering a total area of 7,606.8 ha on 23 September, 2005. The largest sanctuary was 1,525 ha in size and the smallest 1.8 ha (mean = 304.27 ha).

The project management of the Danish Hunters Association then shelved this management plan and management agreement, which would have empowered the Bird Hunters Association to conserve the waterbirds, on the spurious grounds that further discussion was needed with the communities around Lake Chilwa. Under this pretext, the project, which was supposed to end and be transferred to another wetland after 3 years in 2006, was extended on Lake Chilwa for a further 5 years, up to December, 2011. This was purely so that the Danish technical staff could continue to enjoy extremely generous salaries and benefits in the capital city, Lilongwe, over 300 km away from Lake Chilwa and its birds and bird hunters. Even after all this time, a revised management plan was never finalised, and no wildlife management agreement was concluded between the Director of National Parks and the Bird Hunters Association.

Discussion

With the drying of Lake Chilwa in 2012 resulting in the loss of the fishery, which takes three years to recover, the people living on the shores of Lake Chilwa were forced to depend on alternative natural resources to sustain their livelihoods. Thus, there is greatly increased pressure on the waterbirds, both for home consumption and for income. Protected species of birds, and birds which are traditionally not eaten were now hunted. In addition, the drying of the lake resulted in the drying and burning of the *Typha* swamp, an area of 700 km^2, thus greatly contracting this refuge for the waterbirds, making it much easier to trap or shoot them. The waterbird sanctuaries also dried out and were burnt. Consequently, much greater numbers of waterbirds were harvested.

Immediately to the north and south of Lake Chilwa there are large waterbodies with extensive marshes and reedbeds, which did not dry up. These include Lake Chiuta and Lake Amaramba to the north, and Mpoto Lagoon to the south. Many waterbirds took refuge in these areas. However, on Mpoto Lagoon this led to a very large increase in the number of bird trappers. It is all the more regrettable, therefore, that the power to conserve and manage the waterbirds of Lake Chilwa by the Lake Chilwa Mwai wa Mbalame Association through a wildlife management agreement with the Director of National Parks and Wildlife, was denied by the Danish Hunters Association for their selfish personal interests.

Acknowledgements

I am indebted to the traditional authorities and the bird hunters around Lake Chilwa for their collaboration in this study.

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Honeyguide **66**(2): 73-74 (2020)

Notes on the White-winged Apalis in Malawi

John G.M. Wilson

The White-winged Apalis *Apalis chariessa* is an East African species whose distribution ranges from the Lower Tana River in coastal Kenya, to the eastern arc mountains of Tanzania, and the mountains of southern Malawi east of the Rift and adjacent Mozambique. It occurs in the canopy of mid-altitude montane evergreen forest between 500 m and 1 550 m. This beautiful little bird is now classified as 'Near Threatened' by BirdLife International (2018). In Malawi, the total population is estimated to be no more than 100 pairs, and with accelerated deforestation, even in protected areas, it is seriously threatened. However, 10 pairs have been located at the foot of Zomba Plateau, one of which was resident in my garden, and was regularly heard and seen by myself and visitors.

Only two nests have ever been found in Malawi. On 11 October 1944 a nest was found at 1 370 m on Ndirande Mountain, near Blantyre, on the edge of riparian evergreen forest about 15 m above the ground. On 10 January, 1945 another nest was found on Mpingwe Mountain, also near Blantyre, at 1 525 m on the edge of a clearing, 7.6m above the ground. The foundation of both these nests was the pendant fibre-lichen *Usnea barbata* ('Old Man's beard'). Both of these forests have since been completely destroyed.

In 1998, Roland Bischoff visited my garden and spent many hours attempting to photograph this apalis, which had never been photographed before. Unfortunately, he was unsuccessful, mainly because these birds very rarely descend below the canopy at a height of 20 m or more. Furthermore, they are extremely small, being only 15 cm in length, over half of which is represented by the tail.

However, in November 2000, at 05h30, a female White-winged Apalis was seen by Francoise Dowsett-Lemaire in the canopy of a very large Mexican Pine *Pinus patula* with nesting material in her beak. She and her mate attempted to build a nest using the long drooping pine needles of this non-native tree as a foundation for their nest, but it was hopeless. The nesting material just dropped off and this futile effort was repeated in the same tree a number of times over the next three years.

Usnea barbata is not found below 1 370 m on Zomba Mountain. Since it was reported 60 years earlier as the material used to construct the only two nests ever found, it was thought that providing it this might enable these poor birds to finally build a nest. Accordingly, some long strands of *Usnea* were collected from Zomba Plateau, at over 1 500 m and on 2 March 2004 I draped it over a low-hanging branch of the same pine tree, about 4 m above the ground. Within half an hour the apalis pair was inspecting this 'artificial' *Usnea*, and nest building commenced on the following morning, and continued over the next 10 days.

On 23 March no activity was observed, and the area around the nest was quiet. It was later concluded that the female was incubating the eggs laid on or just before that date. On 9 April 2004, 17 days later, the male was seen bringing food in the form of a large green caterpillar to the nest. Male and female continued to feed the chicks and remove faecal sacs for a further 17 days, when no further activity was seen at the nest. Two days later the apalis pair was seen with two juveniles, which closely resembled the female in appearance, but were more sombre, and had shorter tails. This incubation period of 17 days and the nestling period of 17-18 days is similar to that of the Bar-throated Apalis *Apalis thoracica*.

On 26 August 2004 the pair was again active at the old nest. This nest fell down, but was reattached to the branch with green string, and the birds resumed their nesting activity. On 8 September the nest was inadvertently disturbed and the female flew out while obviously incubating, but she returned 20 minutes later. This second brood resulted in three juveniles.

On 8 February 2005 fresh *Usnea* was placed on the same branch of the pine tree, a nest was built, and on 17 March incubation started. In April the chicks were being fed, and by the end of that month they were fledged. On 12 July two juveniles were seen with the parents.

In August 2005, more *Usnea* was again suspended from the same branch of the pine tree and another nest was made. The female incubated the eggs, but soon after the chicks had hatched, the female disappeared, leaving the male alone, and he abandoned the nest. When the nest was taken down, three very small nestlings were found dead inside. It was assumed that the female was taken by a predator.

Also, in August 2005, *Usnea* was draped over the branch of another, much smaller pine tree near a strip of riverine forest about 400 m from the original site, which was within the home range of another apalis pair. In February 2006 nest building by this second pair was in progress. Sadly, the branch on which the nest was suspended broke and fell down before breeding took place. Nevertheless, this confirmed that suspending *Usnea* will result in nesting.

In September 2006, eight years after his first effort, Roland proposed to come to Malawi to make another attempt to obtain photographs of these beautiful, rare and elusive birds. By deploying *Usnea*, albeit collected from a higher altitude and artificially placed in a non-native tree, it became possible to bring these birds down to about 4 m above the ground, making them much more accessible for photography while nest building and feeding the chicks.

Thus, on 9 September, 2006, in anticipation of Roland's visit to Zomba, *Usnea* was collected from Zomba Plateau and draped over the same low branch of the huge old pine in my garden. Within an hour, the male apalis with a new female commenced nest building.

When Roland arrived in Zomba on 18 September, just over one week later, the birds were still busy constructing the nest. Most nest building activity took place in the early morning by both the male and the female within an average 20-30-minute sequence. One could always hear their calls signalling their approach to the nest and after leaving it. Nesting activity ebbed after 09h00, and seemed to stop completely after 13h00, only to be taken up again about two to one hours before sunset. Pictures were taken in the early morning or late evening when the light conditions were optimum. After observing the birds coming to the nest with lining material for a couple of days, on 25 September the female entered the nest and obviously started laying and incubating. She was fed by the male on a regular basis, mainly with caterpillars, the male always signalling his approach.

While incubating, the female left the nest about every 30-60 minutes, for an average of ten minutes. On 12 October, both male and female were seen coming to the nest frequently with

caterpillars and spiders, obviously feeding the chicks. This was 17 days after laying. On 17 October there was total silence and all feeding activity had ceased.

The birds remained active in the area calling each other, but not at the nest, and it was obvious that some tragic incident had occurred. A Vine Snake *Thelotornis* sp. had been seen in the vicinity of the tree for some time, and it may have been the cause. In due course, the nest was destroyed by Red-backed Mannikins *Lonchura bicolor* and Yellow-breasted Apalises *A. flavida* that were gathering material for their nests. The male White-winged Apalis was seen trying to chase them away, with vigorous beak snapping.

On 24 February 2007 *Usnea* was again draped over the same low-hanging branch in the pine tree, and the apalis pair immediately took to nesting again. The date of laying was not recorded, but feeding by both parents indicated that the chicks hatched on 22 March. On 9 April activity at the nest ceased and it was assumed that the chicks had fledged. This Apalis was subsequently seen with a single juvenile.

As stated above, 10 pairs of White-winged Apalis have been located at the foot of Zomba Plateau. Since this programme of assisted nesting started, the range of this species has been extended, with two additional pairs occupying new areas. Provided no further deforestation occurs, and if the supply of *Usnea* can be maintained, this augurs well for the survival of this highly endangered species.

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White-winged Apalises photographed in John Wilson's garden, Zomba, Malawi: female (left) and male (right).
Photo © Dave Montreuil

Honeyguide **66**(2): 74-77, 2020

Distribution and Status of the Black-necked Grebe in Zimbabwe

D.A. Ewbank

There is a notice on the wall of BirdLife International in Cambridge to the effect that if we waited until we knew everything, we would never write anything. So, this is an attempt to summarize all the records of the Black-necked Grebe *Podiceps nigricollis* in Zimbabwe. There may well be further records in notebooks in Zimbabwe: I urge the owners of such notebooks to publish their records of this rare bird in Zimbabwe. The identification criteria are red eyes and upturned bill and in breeding plumage, this grebe has yellow/gold ear tufts. The last review of this bird in Zimbabwe (Irwin 1981) listed three records, the same number as for Great Crested Grebe *P. cristatus*. However, records of this species have mushroomed since then, whereas there have been no further records of the Great Crested Grebe. Irwin (2010) pointed out that the one Matabeleland record of this species in Priest (1933) was incorrect, being part of the Stevenson hoax, in which R.H.R. Stevenson sent deliberately false reports to Priest.

Distribution

The nominate race (*P. n. nigricollis*) breeds from Spain to Kazakhstan with an isolated population in Eastern China and Japan, with another subspecies (*P. n. californicus*) in North

America. All these populations move south in winter, for instance my most recent sighting in Yalta Harbour on the northern shores of the Black Sea on 30 March 2011 could have come from Egypt but was more likely of birds from Turkey, where nearly 200,000 birds have been recorded on one lake (Fjeldså 2004).

The nominate race also extends into East Africa, with a small population in the highlands from Ethiopia to Northern Tanzania, with fewer than 10 known breeding sites (Lewis & Pomeroy 1989; Ash & Atkins 2009). The African Waterbird Census reports small numbers in June and over 1,000 in some years in Kenya in December and such numbers have also been recorded at one site each in Ethiopia and Tanzania (Ash & Atkins 2009). They are also rarely reported in West Africa as far south as Cameroon (Williams 1991). A third race (*P. n. gurneyi*) occurs in southern Africa, mainly in the Cape and Free State Provinces of South Africa, and in Namibia. Most of them winter along the western coast of southern Africa, but they tend to be nomadic and have been reported from Botswana, and occasionally in Zimbabwe.

Records from Zimbabwe

A total of 48 records are available for Zimbabwe: 27 from Aisleby, seven from Hwange NP on five different pans and three from Imbwa Sewage Ponds in Harare (Table 1). A notable record from Mhenza Pan, Chirundu, in 2014 was the first from the Zambezi Valley. Some 13 records have been accepted by the BirdLife Zimbabwe Rarities Committee or the observers have informed me of the identification criteria they used. For 13 of these records, the plumage is recorded. Three were in breeding plumage in February, March and September from Aisleby, Hwange N.P. and Kadoma. Non-breeding birds were recorded in January, March, April, May (3), June, July and December. Probably most of the other records were of non-breeding birds as the golden ear tufts are very distinctive.

The earliest records are from Aisleby Farm in 1970 and 1971. Records are available for 16 years between 1970 and 2009. Three or more records in a year were reported in 1995, 1996, 1997, 2000, 2001 and 2004 with a maximum of five in 1996. The largest number of birds recorded was 15 at David Whitehead Ponds, Kadoma in Feb 1990. The greatest number of records (50%) comes from Aisleby Farm, Bulawayo, as a result of the regular bird counts made over many years. In some cases, these counts may be of the same birds but the differing numbers suggest a degree of movement by the birds. As an example of this, in 2001 one bird was recorded there on 1 January, 2 on 1 March and 3 on 17 July; the first bird may have been present the whole time but may have been joined by others as time went on.

There was no obvious seasonal pattern in the number of birds recorded in any month (Table 2). The average number of birds per count was generally low, and the high value in February was the result of an exceptional 15 birds at the David Whitehead ponds in February 1990. Other high counts include eight at Mandavu Dam in 1984, and six and eight at Aisleby in 2003 and 2004.

Table 1. Records of the Black-necked Grebe in Zimbabwe, 1970-2019. The symbols nb and bp = non-breeding plumage and breeding plumage, respectively. (Note: Some records were added to the original text by Ian Riddell and Brian Marshall.)

Site	Date	Numbers		Source
Aisleby	10 May 1970	1	nb	Harwin 1972
Aisleby	11 July 1971	1	nb	Wilson 1972
Aisleby	15-29 Sep 1978	Several	bp	Cooke *et al.* 1978
Mandavu Dam, Hwange NP.	13 Mar 1984	8	bp	Hustler 1985
Nswatugi Dam, Matobo NP.	6 Oct 1985	1		Irwin 1986
David Whitehead Ponds, Kadoma	11 Feb 1990	15	bp	Williams 1990
Courtleigh Ranch 1928 B3	22 July 1990	1		Hustler & Irwin 1995
Antelope Mine 2128 A2	23 Sept 1990	1		Hustler & Irwin 1995
Masuma Pan, Hwange NP.	19 May 1993	1	nb	Tree 1993
Masuma Pan, Hwange NP.	17-18 Apr 1994	1	nb	Tree 1995a
Imbwa Sewage Ponds, S. Harare	29 Apr 1995	1		Tree 1995b
Imbwa Sewage Ponds, S. Harare	16 May 1995	4	+	Tree 1995b, Couto 1995
Imbwa Sewage Ponds, S. Harare	10 Jun 1995	2		Tree 1996a
Lake Chivero	10 Oct 1995	4		Tree 1996b
Imbwa Sewage Ponds, S. Harare	17 Oct 1995	2		Tree 1996b
Aisleby	24 Feb 1996	3	nb	Tree 1996c
Aisleby	21 July 1996	4		Tree 1997a, Smith 1997
Ume Mouth, Lake Kariba	24-26 Aug 1996	1		Tree 1997b
Tshabalala/Bulawayo	Oct 1996	?		Williams 1996
Aisleby	17 Dec 1996	2		Tree 1997c
Aisleby	24 May 1997	1		Tree 1997d
Aisleby	20 July 1997	2		Tree 1998
Aisleby	11 Nov 1998	2		Irwin 1999
Aisleby	Feb 1999	2		J. Duprée
Aisleby	Mar 1999	2		J. Duprée
Aisleby	Apr 1999	13		J. Duprée
Aisleby	May 1999	6		J. Duprée
Aisleby	1 May 2000	1		Smith 2000
Aisleby	July 2000	4		J. Duprée

Site	Date	Numbers		Source
Aisleby	Aug 2000	5		J. Duprée
Aisleby	Sep2000	2		J. Duprée
Aisleby	Jan 2001	1		J. Duprée
Aisleby	Mar 2001	2		J. Duprée
Aisleby	15 July 2001	3		Smith 2001
Aisleby	Dec 2001	5		J. Duprée
Aisleby	Sep 2003	5		J. Duprée
Aisleby	24 Oct 2003	2		Baker 2004
Aisleby	20 Dec 2003	6		Baker 2005
Aisleby	21 Feb 2004	8		Baker 2005
Cowdray Park, Bulawayo	12 July 2009	1		Baker 2010
Guvalala Pan, Hwange NP.	4 Oct 2009	1	nb	Baker 2010
Aisleby	11 May 2013	1		Baker 2013
Masuma dam, Hwange NP.	25 Nov 2013	2		Baker 2014
Mhenza Pan, Chirundu	15 Mar 2014	2	nb	Maasdorp and Cotton 2019
Salt Pans, Hwange NP	Jan 2016	2	nb	Baker 2016
Makwa Pan, Hwange NP	5 July 2016	1		Waterbird counts

Table 2. The monthly distribution of the Zimbabwean records of the Black-necked Grebe. Numbers marked with the symbol '+' include the September record from Aisleby of 'several' birds, and October record from Tshabalala where the number was not recorded.

	Records	Total birds	Average
January	2	3	1.5
February	4	28	7
March	4	14	3.5
April	3	15	5
May	7	15	2.1
June	1	2	2
July	8	17	2.1
August	2	6	3.0
September	4	8+	2.0+
October	6	10+	1.7+
November	2	4	2.0
December	3	13	4.3

Discussion

Black-necked Grebes were reported in northern Botswana in the 1980s and bred in the Makgadikgadi system in wet years (Tyler 2001, 2012). As they did not expand northward in the former Transvaal, Botswana is likely to be the source area for Zimbabwe and both countries reported birds in 2009 after a gap of some years. The mean number of birds seen in influx years (1995/97 and 2000/01) and in other years in Namibia and South Africa reported by the African Waterbird Census (e.g. Dodman & Diagana 2003) is very variable but does not seem to differ between influx years and non-influx years. Hence, it appears that there is a redistribution of birds rather than larger numbers, which accounts for these records. There is more suitable habitat in Zimbabwe in high rainfall years.

In North America, these birds spend long portions of the year on saline lakes where they moult (Fjeldså 2004). There is evidence that some birds have spent several months or more at Aisleby and also at Imbwa Sewage Ponds in 1996 and it is surprising that there are not more records from there and from David Whitehead Ponds near Kadoma.

What of the prospects for breeding in Zimbabwe? Firstly, the report of one bird observably larger than the other, which was thought by the observer to be evidence of breeding, is likely to be a male and a female (Smith 2001; Fjeldså 2004). Breeding sites in Botswana were pans both large and small usually recently filled after a long dry spell and a few were at sewage ponds with concrete sides and bottoms (Tyler 2001). Aisleby has been well observed for many years and it seems unlikely that breeding would not have been observed if it had taken place. The pans of Hwange N.P. seem a more likely area for breeding.

Acknowledgements

Thanks to Neil Baker, Tamar Cassidy, Tim Dodman, Julia Duprée, Penny Feather, Ian Riddell and Stephanie Tyler for the information that they provided.

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D.A. Ewbank, *Edited posthumously*

Honeyguide **66**(2): 77-79, 2020

Observations on Williams's Lark, a Kenyan endemic

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We spent between 4-6 January 2019 at the Sarova Shaba Game Lodge north of Isiolo, Kenya, in order to see some of the dry country mammals and birds of this part of the world. We also hoped to find and observe the little known, Williams's Lark *Mirafra williamsi*, which has been recorded in the vicinity.

We found photographs of the lark online, studied illustrations in local field guides, and tracked down some of the observation hotspots on eBird (www:ebird.org), the online birding facility operated out of Cornell University. Details were sketchy, but we identified some 'hotspots' from eBird where previous sightings had been made. We also recognised that white outer tail feathers and rufous/orange primaries and upper parts were field characters that would help in confirming our identification of this lark, should we encounter one. We were also made aware that there are two colour morphs, a dark brown and red/brown form.

Our first outing was in the late afternoon of the 4th and we concentrated our efforts in the vicinity and on both sides of the airstrip close to the lodge, a spot identified on eBird as where some previous sightings had been made. The substrate consisted of varying amounts of scoria and other volcanic rock, with little or no grass cover and *Acacia* and *Commiphora* scrub. We found one lark, but it did not fit the criteria identified as crucial for Williams's Lark, and it disappeared before we could positively identify it.

Figure 1. A Pink-breasted Lark *Calendulauda poecilosterna* in Shaba reserve

The following day we left the lodge at about 07h00 and proceeded to the Buffalo Springs Game Reserve. A couple of lark species were located, including the Rufous-naped *M. africana* and Pink-breasted *Calendulauda poecilosterna* Larks. Our attention was attracted by a lark doing aerial display flights, which appeared to have white outer tail feathers but it lacked the rufous/orange upper parts. On examination of our photographs of the displaying and perched birds, we believed that these were Singing Bush Larks *M. cantillans*. If we had been in southern Africa, where most of us have done extensive bird watching, this individual would have reminded us of the Fawn-coloured Lark *M. africanoides*, which as far as we know does not do any aerial display flights.

Its flight consisted of the bird flying at about 20 m altitude on rapidly beating rounded wings for an extended period, while not covering much distance, during which time the individual was singing constantly. On ending the display, it dived down, landing on the top of a nearby tree, where it continued to sing. There was a slight breeze blowing and we could not confirm that the song that we heard was identical to that on the 'eGuide to the birds of east Africa' iPhone app, but it seemed to be comparable.

That afternoon, we tried another area of scoria-covered ground with sparse grass covering and a smattering of *Acacia* and *Commiphora* trees and shrubs about 0.5 km from the main gate to Sarova Shaba Game Lodge, on the road to Joy's camp. We located many larks and Golden Pipits *Tmetothylacus tenellus* in this habitat. Each was carefully examined and, if possible, photographed, but we were not convinced that any of them were Williams's Lark; all appeared to be Pink-billed Larks with subtle plumage variations (Figure 1).

On the morning of 6th January, we got up early and travelled quite quickly on the road to Joy's camp, to an area to the east of the lodge (00°39'N, 37°52'E) arriving there at about 09h00. We thought this area might be close to one of the habitats that we had seen online, although the grass was much more luxurious than illustrated in that image. The vegetation appeared to be a broad expanse of grassland and small forbs and scattered but stunted *Acacia tortilis* trees and small bushes (Figure 2). The grass was long (*c*. 25 cm tall) and dense, with no spaces in-between stems and so thick that the substrate was not visible at all. It became clear when walking on it, that the area was covered in volcanic rocks and scoria, which were completely hidden by the grass, creating a very uneven and occasionally sharp substrate underfoot. There was no sign, initially, of any larks.

Figure 2. The habitat where William's Larks were seen to display

A couple of Montagu's Harriers *Circus pygargus* and at least five Kori Bustards *Ardeotis kori* were present, and one of the bustards flushed an orange-brown coloured lark with very obvious white outer tail feathers, at about 09h20, that flew for a short distance before landing in the long grass. We thought this might be Williams's Lark on the basis of its general rufous colouration and very obvious white outer tail feathers.

Soon afterwards, and a short distance up the road, our attention was drawn to two larks sitting on a small bush about 30 m away. A song similar to that on the iPhone app. for Williams's Lark appeared to be coming from their direction. Before we contemplated any playback calls, we had to wait for two elephant bulls to walk past us. They were walking on the road towards us, moving around our Land Rover and into the grass very carefully, before returning to the road as quickly as possible behind us. We filmed the elephants on an iPhone as they walked past and discovered later that a part of a Williams's Lark call was inadvertently recorded on this clip. Since our attention was focussed on the close proximity of the elephants, we did not see the lark that we recorded.

Once the elephants were a safe distance away, we played the call from the app, at about 09h25. There was an immediate response, and a lark appeared out of the grass in the vicinity of one of the small thorn trees where we had seen them initially. It flew straight towards our vehicle, while repeating the song we had just played and landed out of sight in the long grass about 5 m away. The speed of the response was unexpected as previous song playback to larks had not resulted in such a vigorous response. We were completely surprised and consequently took no photographs of the bird. We composed ourselves and played the call again. The same bird immediately flew out of the grass and towards the vehicle and flew around it in close proximity, landing about 10 m away in the thick grass and out of sight. A series of photographs of this bird was taken and it was a rufous brown colour overall, with very obvious white outer tail feathers (Figure 3).

Figure 3. A closer view of the habitat where we encountered William's Lark, shown in flight in the centre of the photograph. Note the conspicuous white outer tail feathers.

During the course of this flight, the lark repeated the call that we had played to it. It gained height to about 10 m and then dived to the ground until about a metre from the grass, where it fluttered for a few seconds before landing some 20 m away, in the long grass. The tape was not played again.

After a few minutes it took off close to where it had landed, gained height to about 20 m and fluttered along for about 20 m on rapidly beating and rounded wings before diving towards the ground, again stopping about 1 m above the ground and fluttered there for a couple of seconds before landing in the dense grass again. This type of flight was repeated at least four times. On three occasions after this, two birds took off from the grass. One flew a short distance and landed, while the other did a 'display' flight as described, before landing in the vicinity of the first bird.

KH walked into the grass in an attempt to get a photograph of a bird on the ground, which was extremely uneven and difficult to walk on. It consisted of pieces of scoria and other volcanic rocks of varying sizes, mostly larger than 10 cm in diameter at a variety of angles. Obscuring these was a thick mat of grass and forbs, which made for very slow going when trying to see the birds on the ground. When the larks went to ground, they were immediately out of sight. The thickness of the vegetation also meant that the larks could be travelling 'rodent-like' through the grass, if they were moving through it at all. A number of photographs were obtained of the bird in the air as it flushed, usually a short distance from where it had landed.

It appeared a pair of birds was involved in our observations. One of them flew directly to a new locality when disturbed, the other gained height, fluttered in the same direction for a short time and no higher than about 10 m before diving directly to the point where the other bird had landed. Before landing it fluttered overhead for a couple of seconds, presumably looking for a place to land, before landing in the long grass and out of sight. We were in the area for about 30 minutes and left at about 10h00.

What did we learn from this? The larks responded very quickly to playbacks of the song on the iPhone app. This could be an important tool if there is ever an attempt to determine the numbers and distribution of this species. Online sources gave the impression that they occurred in barren, stony habitats, which is why we first searched these habitats around the airstrip. There appeared to be few seeds in these areas, in contrast to the locality where we found them, with its lush grass and abundance of seeds and cover. Our observations were obviously made at a different time of year, based on the vegetation cover available, and this should be taken into account if any census of the population is undertaken.

What about the other larks we saw? The habitat where we saw them was unlike any of the other localities identified as Williams's Lark hotspots on ebird.org. We spent some time looking at them all and are fairly certain that we never saw any Williams's Larks at these other sites. It appeared to be the only lark species present in the habitat where we found it.

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Honeyguide **66**(2): 80-81 (2020)

Fish Eagle Specimens at the Museum

P.J. Mundy

The Natural History Museum at Bulawayo has a collection of bird skins, the largest in Africa and in the southern hemisphere, and the 24th largest in the world (Mearns & Mearns 1998). For another project (which hasn't yet come to fruition), I wanted to examine the specimens of African Fish Eagle *Haliaeetus vocifer* in the museum.

There are 25 specimens in the collection, the first collected in February 1932 and the last in March 1983. This last was collected at Maleme dam in the Matobo National Park, having been 'electrocuted on [the] powerline'. Eleven were collected in Southern Rhodesia/Zimbabwe, nine in Northern Rhodesia (now Zambia), two in Botswana, and one each in Mozambique, South West Africa (now Namibia) and South Africa. Ten were labelled as males, and twelve as females; three were not sexed. An adult male (the label included a drawing of two testes, length 15.5 mm) in Botswana in April, weighed 3.63 kg ("8 lbs" on the label), while a yearling male in Rhodesia (now Zimbabwe), also in April, weighed only 2.18 kg ("4 lb 13oz." on the label). The weight of the adult male is very heavy for its sex, probably even too heavy (Simmons 2005).

Twelve birds are adult according to their plumage, while four more are sub-adults, i.e. a plumage state just before full adult plumage, with some fine streaking on head, nape and chest (my ageing, not labelled as such). Nine are in juvenile/immature plumage. Between the seven adult females and five (labelled as) adult males, no sex dimorphism in plumage could be determined, and certainly not in terms of the shape of the white bib on the chest (see Prout-Jones & Milstein 1980) and the photograph of a presumed pair in Knobel (2012).

There are usually 'funnies' among labels on a group of birds such as these 25 (Rasmussen & Prŷs-Jones 2003) and the commonest is probably to get the sex wrong. Just because the Fish Eagle is a large bird it is not necessarily easier to sex. Yes, males have two testes and females have one ovary, and of course they are of different textures, but in the non-breeding season these gonads may 'shrink into dormancy' (Proctor & Lynch 1993), and indeed the testes may be 'impossible to find', believe it or not. Testes and the ovary (left side in most species) lie against the large lobed kidneys. A testis length of 15½ mm, collected in April, is surely of breeding length (specimen no. 74104). Two other first-year males, collected in November and April, were also depicted on their labels as having two (small) testes, which is a surprise considering their age; I suspect that none could be seen. But the biggest surprise was a first-year female, collected in October, which was stated on the label to have two ovaries (no. 7318). Apparently, it is well known that some female birds of prey sometimes develop two ovaries (Proctor & Lynch 1993).

Also, it is a pity that among this sample there are only two labelled weights, both, oddly, from birds collected in 1971. It is a 'modern' method to weigh collected birds, so it is a shame that not even the 1983 adult female was weighed since weight is an important variable in biology. Simmons (2005) lists seven weights and 35 from Munir Virani's study in Kenya, while Ferguson-Lees & Christie (2001) list only five. Astonishingly, there is not a single Fish Eagle among the 2353 weights presented by Biggs *et al.* (1979).

Size is another important variable in its several different measurements. Occasionally measurements are put onto a label, otherwise I measured (flattened) wing, tail, bill length (from cere diagonally to bill tip), tarsus, and middle toe (Table 1). There was no difference between the adults and sub-adults, so I have therefore lumped them. But because in Fish Eagles, as in most raptors, females are larger than males, one has to keep the sexes separate. Among nine females, the sex was not stated on one (no. 2158) but the bird had a long wing (563 mm) so I assumed it to be a female; these had an average wing length of 570.6 mm (± 9.75). One sub-adult (no. 88456) had a wing of only 540 mm; labelled as a female, I assumed it to be a male.

Table 1. Sizes of adult and sub-adult Fish Eagles (mm) in the Natural History Museum, Bulawayo.

		Adults and sub-adults			First-years and immatures		
Measurement	**Sex**	**n**	**Mean ± s.d.**	**Range**	**n**	**Mean ± s.d.**	**Range**
Wing length	♀	11	571.2 ± 9.23	553-584	4	562.5 ± 21.4	531-576
	♂	5	538.4 ± 8.79	525-546	5	514.0 ± 33.50	470-548
Tail length	♀	11	230.6 ± 10.98	212-247	4	248.8 ± 9.43	240-262
	♂	5	216.6 ± 16.83	198-241	5	229.6 ± 10.19	221-245
Bill length	♀	9	43.8 ± 1.70	40.6-45.8	3	40.7 ± 1.01	40.1-41.9
	♂	4	39.5 ± 1.32	38.5-41.4	5	39.1 ± 1.31	38.0-40.8
Tarsus length	♀	11	94.3 ± 5.30	85.1-101.9	4	94.3 ± 5.06	90-100
	♂	5	87.3 ± 4.18	81.9-91.5	5	86.0 ± 6.04	78-93
m/toe length	♀	11	76.7 ± 6.87	68-88	4	66.5 ± 3.11	63-70
	♂	5	67.3 ± 3.87	63-73	5	67.2 ± 3.70	61-71

There were five labelled as males; a 6th had no sex stated, but as its wing length was short (546 mm) I assumed it to be a male. Two (nos. 50265 and 51884) had long wing lengths, being 568 mm and 580 mm respectively, and I called them females, assuming them to have been mis-sexed. Putting them with the females increased their average wing length to 571.2 mm (s.d. 9.23). These four males and an assumed male had an average wing of 538.4 mm (s.d. 8.79). This is about a 6% difference.

The series of measurements given by Simmons (2005) is much more useful than those given by Ferguson-Lees & Christie (2001). Both provide separate sizes for male and female, as they should, but the former also presents sample size, range and average, whereas the latter gives only the range.

It is clear that Simmons has got his measurements from the Durban, Transvaal and Cape Town museums, but their origin is unknown with the other source. Neither states that adults (only?) have been measured, but this is the "default state" for Simmons (Hockey *et al.* 2005). My measurements quite closely duplicate those of Simmons (2005), except for the bill length. Apart from having his sexes the wrong way around for the 'culmen', his measurements are much longer than mine (averages = 49.0 for males and 52.5 mm for females). Presumably he has included the cere in his culmen measurement; this is wrong, the culmen is the hard, horny bill (Proctor & Lynch 1993). Over time I think that museum specimens suffer a certain amount of shrinkage (Mundy 1982), noticeable in large birds. Both Simmons (2005) and I have used only museum specimens, so as yet we do not exactly know how the measurements compare with live birds (but the Kenya sample could be compared).

Three adult females were labelled for body length: 755, 730 and 704 mm (av. 729.7 mm), and one sub-adult male was 645 mm. The differences between female and male are large, and their wing lengths are significantly different (Student's *t*-test; $p < 0.001$), and the same would apply to the other measurements. The middle toe and bill lengths are not significantly different ($p > 0.05$) in immature females and males (overall average = 66.9 and 39.7 mm respectively), but the other lengths are statistically different between the sexes.

There were nine birds in the first-year/immature group, three labelled as female and one with no sex stated on the label; its wing length was 573 mm, and it was therefore assumed to be female, and five were labelled as males. As expected, the wing lengths are a little shorter than the adult group, but those of females were markedly longer than in males. Also as expected, the younger tail lengths were longer than in the older age class (Amadon 1980), again longer in females than males. In the remaining three measures, i.e. bill, tarsus and middle toe lengths, both older and younger age classes were about the same, excepting that the adult/sub-adult females (n = 9-11) had much longer bill and middle toes than the younger females (n = 3-4). The small sample size of the latter obviously leaves something to be desired.

Something that I noticed, but did not measure, was that the tarsus of females was not only longer than that of males, but also thicker.

Most birds were collected where expected, i.e. at or near to water. Three however were collected in and around the then Salisbury (now Harare), in 1951, 1955 and 1966. One sub-adult was even collected at "Raylton" which is the area of the main railway station – perhaps the nearby Mukuvisi River supported enough fish back then. A first-year was collected at Saffron Walden farm, west of Salisbury but just east of Lake McIlwaine (now Chivero), in 1971.

One label for an adult female (no. 2065) noted that she was incubating a clutch of two eggs at the time, being 19 July 1949 in the Luangwa Valley. The eggs were measured at 67 x 53 and 66 x 52 mm; the embryos were "fully formed", thus being laid in early June. The egg-laying date and egg sizes fit with current knowledge (Dowsett *et al.* 2008, Simmons 2005). Thirty-eight days later, on 26 August 1949, the same collector (W.E. Poles) took an adult male to the northwest. On the labels he noted that the female had a 'golden yellow' eye whereas the male had a 'pale yellow' eye. This potential sex difference is not noticed by two recent authorities, who prefer 'pale yellow-brown to hazel' (Ferguson-Lees & Christie 2001) and 'pale brown to hazel' (Simmons 2005) for both sexes. Note that hazel is a pale/light brown colour, nothing yellow about it. (I always thought it had some green, as in humans' eyes). The different eye colours in a captive pair were thought not to be sex related (Prout-Jones & Milstein 1980). Steyn (1982) considers eye colour to be 'hazel, and rather pale in some'. Eye colours were labelled in four other adults in the Bulawayo specimens: 'brown' in a male, and variously yellow, dark yellow and red brown in females. Two close-up eyes are dark brown and paler brown (Knobel 2012: 15 and 16). The confusion is still on, and must have something to do with, people's different perceptions of colour.

I am grateful to the Curator of Ornithology, Ms Kudzanai Dhliwayo, for facilitating my examination of these skins.

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SHORT COMMUNICATIONS

Cattle Egrets Scavenging with Marabou Storks and Pied Crows

On 21 June 2020 I was cycling down a dirt track through open ground west of Seke Road where it passes the Harare International Airport and noticed a large gathering of Pied Crows *Corvus albus*, and just behind them in taller grass, a group of Marabou Storks *Leptoptilos crumenifer*. The storks were an exciting sighting so I went to investigate. They were in an area of bare, open ground on the far side of which poles with cross-members had been erected. These were obviously for the slaughtering of cattle or goats and a number of skins, hair side down, were lying about the area. Up to 100 Pied Crows were industriously working the area, either pecking over the bare ground for bits of meat and offal or tugging off meat still attached to the hides and scraps of hair. The Marabous were in the grass and old maize stalks immediately behind and I counted about 42 of them. They occasionally found scraps to eat and the closer ones were seen to throw back small chunks of meat; no doubt they would have been in the fray but for the group of women (the butchers?) on the left of the scene.

There were also about six Cattle Egrets *Bubulcus ibis* amongst the crows and after a while I noticed that they too were scavenging. The bloody tips to their beaks was a clue I had overlooked but this was rectified when I saw a few pecking in offal and later I noticed others eating bits of meat. They didn't tear any meat off the hides.

Neither Hockey *et al*. (2005) nor Brown *et al*. (1982) mention scavenging by Cattle Egrets. Herons very rarely eat carrion, although the White-faced Heron *Egretta novaehollandiae* has been observed feeding off cattle carcasses in Australia, and Black-headed Heron *Ardea melanocephala* pellets in Kenya have contained duck and flamingo bones and fur from large mammals (Del Hoyo *et al*. 1992). However, like all herons, Cattle Egrets are carnivorous and are common at rubbish dumps, though we may not pay attention to what they are eating there. Pomeroy (1975) stated that they feed on insects associated with the dumps in Uganda and are not true scavengers, but Annorbah & Holbech (2012) record them feeding on fish fragments, pieces of meat and offal in Ghana.

I have seen them at abattoirs and crocodile farms around the country but again haven't given them much thought. Now I try to recall, without too much success, how often I have seen them around predator kills in the National Parks, but in such situations they would not be able to compete with the large scavenging birds and mammals, though perhaps they might look for scavenging opportunities once such scenes have quietened down and the Land Rovers have left. I have found one photograph (*c*.1980s-90s) of a lion kill at Ruckomechi Camp, Mana Pools National Park, where no vultures had arrived but there was the odd Cattle Egret lurking on the periphery. Probably just coincidence but we should start paying attention to what Cattle Egrets do at such events.

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The community of scavengers feeding on scraps of meat off the Seke Road, near the Harare airport. It includes Marabou Storks, Pied Crows and Cattle Egrets.

Greater Flamingos and the Powerline at Chirundu

At twilight on 2 January 2020, Garth Widdows and others videoed a group of approximately 40 Greater Flamingos *Phoenicopterus roseus* flying down the Zambezi River at Chirundu. Apparently, this was only one of a number of flocks seen at Chirundu that day by various observers. An 88 kV powerline crosses the river about 500 m downstream of the bridges and the flock flew through the cables, dropping to avoid collision, but one unlucky flamingo struck a cable and fell into the water. Fortunately, GW had a boat and they were able to rescue the bird, which had broken a wing. The Greater Flamingo is specially protected in Zimbabwe and requires somewhat specialised care so I advised GW to take it to Kuimba Shiri, where Gary Stafford had arranged the necessary permit. The bird is currently doing well with other rescued flamingos but due to shattering of the bone it will never be able to fly again and will have to remain in captivity.

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Editor's note: Powerlines are a major source of mortality in birds, and have been linked to declining numbers of large terrestrial species, such as cranes, bustards, flamingos, waterfowl, shorebirds, gamebirds and falcons (Jenkins *et al*. 2010. *Bird Conservation International* **20**: 263-278). Vultures and eagles are highly susceptible to collisions with powerlines and electrocution is a major cause of mortality in Cape *Gyps coprotheres* and White-backed Vultures *G. africanus* in South Africa (Lehman *et al*. 2007. *Biological Conservation* **126**: 159-174). In Spain, the Spanish Imperial Eagle *Aquila adalberti* loses 30% of juveniles to collisions and electrocution on powerlines each year (Perez-Garcia *et al*. 2011. *Bird Conservation International* **21**: 296-302).

Vultures Feeding on a Live Cow

In the mid-morning of 28 January 1991, CRE saw vultures descending to the ground in paddock 47 of Debshan Ranch's Headquarters section. On approaching the site, he found a mature cow lying down in a state of immobility; she had given birth to a calf which was close by. The hindquarters of the cow were paralysed and it was unable to rise or even move – he wondered if therefore the calf had been stillborn. Be that as it may, the calf was about half-eaten; the vultures were rather bold and barely retreated from the carcass. They had also been feeding around the cow's anus and vulva, which were of course very bloody. The cow was altogether unable to defend herself.

After CRE left the scene, the vultures immediately swarmed onto the calf. He returned soon afterwards, and shot the cow in the head to put her out of her misery. By now the calf was eaten, only skin and bones being left. He determined that there was no evidence of any canids at the site, and was quite sure that the vultures themselves had done all the damage. He recorded Cape Griffons *Gyps coprotheres*, White-backed *G. africanus* and Lappet-faced *Torgos tracheliotos* Vultures at the scene, unfortunately without counting them, and a few Marabou Storks *Leptoptilos crumenifer*. This is the full complement of large avian scavengers that PM has been observing at the ranch for decades.

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White-headed Vultures on the Highveld

Over the past few years, we have been surveying the nesting of White-backed Vultures *Pseudogyps africanus* on the Oppenheimer property of Debshan Ranch, south of Shangani. The year 2019 was no different, and we toured the ranch on 16-19 September. In the late afternoon of the 18th, we spied a large nest in a tall *Albizia amara* tree, at an estimated height of 15 m (Figure 1) at an altitude of 1298 m. It had no attendant White-backed Vulture so we approached, presuming it to be empty. We parked the car on the road at 100 m from the nest and, as is our wont, first examined the nest with binoculars. Imagine our surprise – and delight – when a head popped up briefly to look back at us. It was a White-headed Vulture *Trigonoceps occipitalis*; in due course the bird flew off, showing itself to be an adult female vulture (Figure 1). It soared high away, and we left the spot as soon as we could. PM has been visiting the ranch since 1973, without ever previously having seen this species there, let alone seen it nesting on Debshan – this was an exciting first.

In maps and atlases published in past years, the highveld, i.e. land > 1200 m above sea level, mostly being the granite shield forming the 'spine' of the country, is usually shown as devoid of White-headed Vultures, e.g. Mundy (1982), Piper (2005), Chittenden (2013). Hustler & Barry (2020) show a few highveld records but in very recent years the species has been increasingly seen on the highveld, as follows:

1. One seen at Aisleby, 30 May 2004 (altitude *c*. 1270 m), Julia Duprée and Penny Feather (Baker, 2005).
2. An adult flew over the Umguza dam at Aisleby, about 2006, *c*. 1269 m (pers. obs.).
3. Two seen at Aisleby, 16 April 2006, Sandy McAdam (Baker 2007).
4. Two seen at Tsholotsho (QDS 1927D4), 4 March 2007, Julia Duprée (Baker 2008). Although at an altitude of *c*. 1100 m this location is not strictly on the highveld, and the birds may have been part of the Hwange National Park population.
5. A male and female were seen at Cawston Ranch, about 20 km north of Nyamandhlovu, 25 May 2007, P. Mundy (Baker 2009).

6. Two adults seen at Cawston Ranch, 26 April 2008, Julia Duprée (Baker 2009).
7. Adult male and female perched in trees on Roseburn Ranch, about 2km southwest of Khami Dam, Bulawayo, *c*. 1320 m, in December 2012 (pers. obs.).
8. Three dead (poisoned) birds, including an adult male and female, at Fort Rixon, west of Debshan, in August 2014, *c*. 1350 m (Mabhikwa *et al*. 2014).
9. Two adult females on Cawston Ranch, 18 January 2015, P. Mundy (Baker 2015).
10. One seen at Cawston Ranch north of Bulawayo, October 2016, *c*. 1170 m, Sean Nicolle, in (Demey 2017).
11. Adult male photographed on Cawston Ranch, March 2017, March 2017 (*c*. 1309 m), Colin Edwards.
12. Adult female and juvenile seen separately with other vultures at carcasses on Cawston Ranch, March 2017 (*c*. 1170 m), Sean Nicolle.
13. Juvenile photographed with other vultures on Debshan Ranch, Shangani, November 2018 (*c*.1300 m), Ranga Huruba.
14. Juvenile seen with other vultures at the vulture restaurant on Antelope Park game ranch, west of Gweru, July 2019 (*c*. 1400 m), (pers. obs.).
15. Adult female flying low near to Shangani village, September 2019, *c*. 1400 m (pers. obs.).
16. Immature male photographed, with many other vultures, at the vulture restaurant on Jabulani Ranch, Shangani area, about 60 km southwest of Gweru, January 2020 (*c*. 1460 m), Luke Terblanche.
17. Adult bird photographed with many other vultures at the vulture restaurant on Jabulani ranch, May 2020, *c*. 1460 m, Luke Terblanche.

The cause(s) of this range expansion are as yet unknown. New food sources on the highveld, and disturbance from land-use changes, including probably the Land Reform Programme, come to mind as potential causes. While it is pleasing to see the species on the highveld, its impact there will be as yet minimal. Observers are urged to report records of this endangered species to determine the extent to which it may be expanding its range on the highveld.

Acknowledgements

With thanks to Colin Edwards, Ranga Huruba, Sean Nicolle and Luke Terblanche for sharing their sightings with us.

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Figure 1. The White-headed Vulture nest (left) and the adult female in flight (right). Photo © Merlyn Nkomo.

Predation by a Yellow-billed Kite

On our way back from the WEZ annual game count in Hwange National Park, 15 October 2019, we diverted as usual at the Masuma pan. The time was about 09h30. Impala, kudu, some elephant, and a couple of warthogs were at the pan's edges. There were also many doves at the pan, flighting this way and that; most were Cape Turtle Doves *Streptopelia capicola*, with lesser numbers of Laughing *Spilopelia senegalensis* and Emerald-spotted Wood-doves *Turtur chalcospilos*. Two Yellow-billed Kites *Milvus aegyptiacus* were also present at the pan.

Suddenly one of the kites flew at a small group of doves on the ground right in front and below us as we were viewing from the hide. It must have hit a turtle dove, because this bird careered (tumbled) forwards as the few others flew off. Immediately the kite lunged at the dove a second time and grabbed it with both feet, on the ground. Straightway and 'ferociously' it started to pluck the dove, throwing the feathers off all around itself. Soon, after a couple of minutes, the dove was bald, having presumably died in the process. The kite now began to eat it, by pulling pieces off the carcass. The feast lasted perhaps twenty minutes, during which time a second kite had twice flown over the first, without causing the first to mantle over its prey.

Eventually the feeding kite grasped a piece of the carcass in its left foot and flew to the edge of the pan where the inlet water was coursing, and stood in the running stream. The second kite joined it at one metre distance, but there was no interaction between them. I was perhaps surprised by the apparent small size of the raptor's crop after such a meal. In due course the kite swallowed the morsel and flew off, leaving behind a pile of dove feathers (and wings?) as the tell-tale sign of the predation event. It was altogether a deft and agile – and successful – attempt on what I assumed was an adult dove, which themselves leave the ground 'explosively'. The kite had not been confused by such escape behaviour.

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Young Black Eagles

In a recent letter to the Raptor Research Foundation (USA), Gjershaug *et al.* (2019, *Journal Raptor Research* **53**: 431-435) suggest interesting hypotheses for the function of juvenile/immature plumages in *Aquila* eagles compared to adult plumages. These involved aggression, submission, and camouflage. They proposed that in most *Aquila* eagles the juvenile plumage had probably evolved primarily to allay territorial aggression from the adults.

This reminded me of observations that I made at Black Eagle *Aquila verreauxii* nest no. 111, years ago when I was paying particular attention to this nest (Goodwin & Mundy, 2000, *Honeyguide* **46**: 151-153). We all know that the juvenile plumage of Black Eagles is very different from the black and white of the adults' plumage, being a mixture of rufous, black and blonde colours, in a sort of 'coffee-and-cream' mix (see plates 12 and 31 in Gargett, 1990, *The Black Eagle – a study*). Gargett herself calls this a "rich russet plumage" (*ibid.* p. 7).

Regretfully, I can remember neither the month nor the year of observation, though I think maybe it was March. The juvenile took off from the nest and flew 'lazily' around. Soon two adults (presumably its parents) hove into view and flew at the juvenile, forcing it lower down and it quickly perched in a tree. The adults perched in a nearby tree. No sounds had been made. The juvenile flew off again and was immediately attacked by the adults, and again it perched in a tree. In total this procedure was followed three times – the adults were trying to chase this juvenile out of their territory. But all was peaceful every time it perched. Thoughts of parent-offspring conflict came to mind. Gargett (*ibid.* p. 149, 152-153) records some of these aggressive encounters from the parents towards their juvenile.

Once chased out of the territory, where does a juvenile go? It must be looking for a place with dassies but no adult eagles, a difficult search. Following up on these juveniles will be the next major step in the study of Matobo Black Eagles. We tried it years ago with radio transmitters strapped to the juveniles' backs, but with little success (Goodwin, 2000, *Raptors at risk*, pp. 395-401).

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Editor's note: The article by Hustler (1995. *Honeyguide* **41**: 222-228) is of interest in this context. He argued that the fate of the Black Eagle population in the Matobo National Park depended very much on that of juvenile birds that were being forced out of their parent's territories. They presumably become wanderers, looking for food in areas that might not have sufficient prey to support them; these include the communal lands that surround the park. If these juveniles fail to survive, the population in the National Park could gradually decline as the adults died off and were not replaced. This may explain why a number of well-known nest sites in the park have been abandoned.

Black Eagles Scavenging on a Dead Zebra

In mid-afternoon on 21 March 2013, two adult Black Eagles *Aquila verreauxii* were seen eating from a dead adult plains zebra *Equus quagga* which had been snared. The site was on the Longueville Farm owned by the Nicolle family, on the north side of Gwanda town, at approx. 20°55'S, 28°58'E (QDS 2028D4). SN was able to photograph the eagles at work (Figure 1). The two eagles were presumably partners, and a pair does nest on the ranch in the hills along the old Fort Usher road, just a few kilometres away from the zebra incident. More to the point is that the Black Eagles were scavenging on the dead zebra, which as far as is known was the first such instance recorded in this country and therefore worth putting into print.

The Black Eagle has been intensively studied in the Matobo Hills since 1964, and continues to this day as the Black Eagle Breeding Survey (Hubbard & Brebner 2016). In fact, however, only one definite, and possibly two, instances of Black Eagles scavenging have been recorded in the Matobo Hills (Gargett 1990, p. 64). In contrast, there are several if not many sightings of Black Eagle scavenging in South Africa, and this eagle is said to readily feed on carrion (Boshoff *et al*. 1991). PM has seen it for himself in that country and it is one of the conspicuous behavioural differences between Black Eagles in Zimbabwe and in South Africa. Here in Zimbabwe they are not "opportunistic scavengers" as suggested by Baker (2016).

Our short note documents this rare occurrence of scavenging, and also corrects the statements in Baker (2016) and Demey (2016).

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Figure 1. The pair of Black Eagles on the zebra carcass. Photo © S. Nicolle

A Blue Crane in the Lupane District

In late April 1982, the Regional Forest Security Officer, Doug Brown, and I were driving back down the main Falls Road from Ngamo Forest to our HQ at Forest Hill near Kenmaur at about 16h30. When crossing the Samavundhla Vlei, 181.5 km from Bulawayo, we noticed an unusually large crane-like bird standing about 120 m south of the road in front of a large remnant patch of *Phragmites* reeds amidst the short over-grazed grass of the vlei.

I promptly stopped to see what it was, and we observed it for about 15 minutes with our pair of 12 x 50 binoculars. We referred to 'Roberts' (1978, *Birds of southern Africa*, 4th edition) and confirmed that it matched the Blue Crane, *Grus paradisea*. Both of us were familiar with Crowned *Balearica regulorum* and Wattled Cranes *Grus carunculatus* and were confident that the bird we saw was neither of these two species. At the time, we did not realise that this crane was well out of its normal range until we read the comment by Irwin (1981. *Birds of Zimbabwe*) that an earlier sighting in the Lupane area could not be discounted.

I recall discussing that sighting with Michael Irwin some years ago, before he moved to Harare. I think he said that it occurred in 1966 and the sighting was made on the Samavundhla Vlei, there being no other similar open area along the main road.

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Editor's note: Blue Cranes have occasionally been reported from Zimbabwe, with the earliest being in Priest (1934. *Birds of Southern Rhodesia*, Volume 2, p. 37-39). He reported seeing them in October 1927 in an area of sprouting maize on a farm in the Mvurwi area. He attempted to collect one, even though they were on the Protected List, but failed to do so. He later reported seeing two of them at Rocky Spruit (about 30 km east of Beatrice) and made an unconfirmed sighting at a pan near Marondera. These reports were not rejected by Smithers *et al*. (1957. *Checklist of the birds of Southern Rhodesia*) but as they only accepted species that had been collected, the Blue Crane was not formally included in the national list. The same was done in Irwin (1981. *Birds of Zimbabwe*) although he acknowledged that these reports could not be discounted.

Later, Irwin (1982. *Honeyguide* **32**: 156) discussed the sighting near Lupane in the 1960s, which although never written up was thought to be beyond doubt. This was followed by a note from de la Harpe (1989. *Honeyguide* **35**: 19) who reported seeing one, in the company of two Wattled Cranes, in 1984 on the Borrowdale vlei, Harare. He also noted that his wife recalled seeing them in the same area, without appreciating the importance of these observations.

The Blue Crane was considered to be 'extinct' in Zimbabwe (Riddell, 2007. *Honeyguide* **53**: 41-52) but the possibility of vagrants reaching the country cannot be discounted. However, this species has decreased dramatically in South Africa and the chances of birds making their way into Zimbabwe must now be very low.

Spur-winged Lapwings Breeding at Lake Chivero

On a BirdLife Zimbabwe outing to the Lake Chivero Bird Sanctuary on 10 November 2019, Ronnie Chirimuta and other members of the Youth Club discovered two Spur-winged Lapwings *Vanellus spinosus* where the Marimba stream enters the lake. This was the sixth Zimbabwean record of this species, which is common in East and West Africa, the Nile valley and the Middle East.

Subsequent visitors reported the presence of chicks and by the 14th it was confirmed that four recently hatched chicks were being tended by the pair, and a third adult was present (*see inside front cover*). By the 16th they were aggressively defending their territory against Black-winged Stilts *Himantopus himantopus*, African Jacanas *Actophilornis africanus* and other waterbirds, and also an African Fish-eagle *Haliaeetus vocifer* that perched on an emerged, tall, dead tree about 100m away in the bay, the top of which was draped with a discarded fishing net. There was also some chasing of the third adult when it appeared, although some of these interactions were not overly aggressive.

The lake level was very low at this time and the breeding habitat was an open muddy sand spit on the east bank of the Marimba stream, bordered by lower lying wet clays, no doubt affected by the effluent carried down from Harare. Higher ground was vegetated by grasses and water plants and the parents often flew into this area to feed; they also fed in the mud and sand and also by probing in the shallows along the bank of the Marimba.

Incubation partially begins with the first egg and is 22-24 days (Urban *et al*.), but this was given as 28 days in Israel with eggs laid at about two-day intervals (Yogev *et al*.). Assuming hatching occurred on about 11 November and with an incubation of 25 days, the eggs would have been laid around 17 October. The Chivero chicks seemed much the same size so the interval may have been shorter. In Israel the average hatching time between the first and last egg (C/4) was 1.90 ± 0.99 days (n=100) (Yogev *et al*.). When not feeding or wandering about, the Chivero chicks usually hid in clumps of Water Hyacinth *Eichhornia crassipes* and were well hidden. In the open (e.g.14 November) they would shelter under the wings of a parent and were tended by either.

The young fledge at 7-8 weeks (Urban *et al*.) so it was a tragedy that a local flood occurred on about the 8th or 9th December from a heavy storm in the catchment near Harare when the young were in their 5th week. This was particularly infuriating as there had been practically no rain in the intervening period or afterwards. The Marimba stream and the area around the mouth was extensively flooded and on a visit on 10 December only the two adults could be found. Water had largely drained from the flatter area about 200m upstream of the site, though this now wet and muddy vegetated area was full of waterbirds. The lapwings were separated by up to 100m and one was still intent on chasing other birds, but unfortunately Zimbabwe's first known breeding event had failed.

D. Kew attempted to find the birds on 1 January 2020, but the failed breeding and the prolific plant growth that subsequently occurred, totally covering the area by the time of our waterbird count of 12 January, had made the site unsuitable. Had the chicks survived they would still have to have found a more open locality.

It is believed that they deserted the site shortly after the flooding and a bird was recorded at Imire Game Park near Hwedza on 27 December. It is possible that this was one of the wandering Chivero birds.

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Further Records of Birds Associating with Crocodiles

Herodotus described birds (said to be Egyptian Plovers *Pluvianus aegyptius*) cleaning the teeth of Nile Crocodiles *Crocodylus niloticus* but this has not been observed by modern naturalists (del Hoyo & Elliott 1996). However, there are reports of White-crowned *Vanellus albiceps* and Spur-winged Lapwings *Vanellus spinosus,* Water Thick-knees *Burhinus vermiculatus*, Yellow-billed Storks *Mycteria ibis,* Glossy Ibises *Plegadis falcinellus* and African Spoonbills *Platalea alba* following crocodiles and taking insects disturbed by them. Other reports include Common Sandpipers *Tringa hypoleucos* taking ectoparasites off crocodiles (Attwell 1966; Pooley 1967). This note reports two further records of this behaviour.

On 16 September 1974 at Orpen Dam, Kruger National Park a Black Crake *Limnocorax flavirostris* followed a crocodile across stony shallows, and on 5 November 2015 at Ndumo Game Reserve a Great Egret *Ardea alba* was observed pecking insects off the crocodile's back. In these two associations the birds follow the crocodiles searching for disturbed invertebrates and taking ectoparasites from their bodies. Records of birds following reptiles are few but the Pale Chanting Goshawk *Melierax canorus* has been observed to follow cobras and monitor lizards (Hockey *et al*. 2005).

Thanks to Dr Ian MacDonald for access to these records.

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Editor's note: Associating with crocodiles is not without risk, even for a bird. Dinets *et al*. (2013, *Ethology, Ecology and Evolution* **27**: 74-78) described instances where mugger crocodiles (*C. palustris*) in India and alligators (*Alligator misissipiensis*) in Florida waited near egret colonies with sticks balanced on their noses, and seized the birds when they tried to collect the sticks for their nests.

Sightings of Bradfield's Hornbill in Hwange National Park

We think Bradfield's Hornbill *Lophoceros bradfieldi* (whose name has been changed from *Tockus bradfieldi*) should be monitored because it is of conservation concern (Hustler 1986; Childes & Mundy 1998), but actually nobody seems to be doing so. BirdLife International classifies it as LC (least concern) but probably it should be thought of as DD (data deficient). BirdLife International also believes that the population trend appears to be decreasing, but is that so in our region? Hustler (1993) stated that its range had contracted by 40%, through deforestation of the teak *Baikiaea plurijuga* woodlands to the east and south of its present range. Currently it lives in Zimbabwe in the northwest corner, mainly on Kalahari sands, and is in fact endemic to this part of south-central Africa. While of course it needs holes in trees for nesting, it flies over the open grasslands of Hwange National Park (HNP), especially around the pumped pans.

Some years ago, TT was involved in a bird study in the HNP in which 34 sites were being monitored. He made sightings of Bradfield's many times, though on a fairly casual basis (Table 1). These are presented as a first step in righting the omission of interest in this species, in view of the recent international interest in it (L. Kemp, pers. comm.).

These sightings indicate that the Bradfield's Hornbill was recorded at 16 of the 34 sites. With the increasing pressure of African Elephants *Loxodonta africana* not only around pans, but also in the dominant vegetation types in Zimbabwean protected areas, nobody really knows the dynamics or trend of this species. Thirty years ago, in July 1991, the Borellos saw a 'flock of 55-60' just south of Pandamatenga, a few kilometres to the west of HNP (Borello & Borello 1994). Also, PJM was excited to see 14 once at the Kennedy 2 pan in game count time (September/October), probably about eight years ago. But even earlier, and amazingly, 76 Bradfield's were captured and ringed at Main Camp over about a month in 1979 (Irwin 1982).

Although elephant damage appears to be less in the teak woodlands of HNP (which could host numerous nests of this

hornbill), Bradfield's use of other habitat types (e.g. for feeding) makes them vulnerable to processes occurring in such areas. More efforts are definitely needed to provide statistics of the species in this and other protected areas of Zimbabwe.

Table 1. Some sightings of Bradfield's Hornbill in Hwange National Park, 2008-2010.

Coordinates	Nearest pan	Date	Time	Numbers	Activity
18°44'S, 26°56'E	Dom	18 Sep 2008	17:07	6	Perched
18°44'S, 26°52'E	Ngwenya	18 Sep 2008	06:05	4	Flying
18°43'S, 26°57'E	Sedina	22 Sep 2008	08:30	2	Flying
18°46'S, 26°53'E	Nyamandhlovu	23 Sep 2008	17:16	7	Flying
18°52'S, 26°39'E	White Hills	23 Sep 2008	08:32	8	Flying
18°46'S, 26°53'E	Nyamandhlovu	24 Sep 2008	07:39	5	Calling > 100m
18°46'S, 26°53'E	Nyamandhlovu	24 Sep 2008	08:23	1	Calling < 100m
18°44'S, 26°52'E	Ngwenya	29 Sep 2008	06:45	2	Calling < 100m
18°44'S, 26°52'E	Ngwenya	19 May 2009	09:00	5	Calling > 100m
18°50'S, 26°44'E	Guvalala	26 May 2009	08:11	8	Flying
18°50'S, 26°44'E	Guvalala	26 May 2009	09:00	3	Calling > 100m
18°52'S, 26°39'E	White hills	30 May 2009	08:35	7	Flying
18°44'S, 26°56'E	Balla Balla	24 May 2010	07:39	9	Flying
18°44'S, 26°56'E	Balla Balla	24 May 2010	08:45	4	Calling > 100m
18°43'S, 26°57'E	Sedina	25 May 2010	08:00	6	Calling > 100m
18°50'S, 26°44'E	Guvalala	26 May 2010	08:05	3	Calling > 100m
18°50'S, 26°44'E	Guvalala	26 May 2010	08:50	4	Calling > 100m
18°52'S, 26°39'E	White Hills	26 May 2010	06:20	4	Calling > 100m
18°44'S, 26°57'E	Main Camp	27 May 2010	17:12	3	Calling < 100m
18°50'S, 26°44'E	Guvalala	27 May 2010	06:40	5	Calling < 100m
18°52'S, 26°39'E	White Hills	27 May 2010	07:48	8	Perched
18°52'S, 26°39'E	White Hills	29 May 2010	16:20	6	Calling > 100m
18°50'S, 26°44'E	Guvalala	31 May 2010	16:30	3	Calling > 100m
18°43'S, 26°57'E	Sedina	1 Jun 2010	17:16	7	Flying
18°44'S, 26°52'E	Ngwenya	3 Jun 2010	08:20	6	Calling > 100m

Note: The observation type only reflects the case for the first bird seen or heard during a monitoring session.

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Orange-winged Pytilia Nesting in mid-Winter at Victoria Falls

On 15 July 2020 at about 07h40 we were at view point No. 5 in the Victoria Falls National Park opposite Devil's Cataract. About 10 m to the left (west) of us was a small tree that stood on the lip of the gorge and on the edge of the rain forest (Figure 1). While watching the falls we noticed a small red-faced bird fly into the tree and disappear within the foliage. It emerged shortly afterwards and perched on an exposed branch for long enough for us to identify it as a male Orange-winged Pytilia *Pytilia afra*. It made several similar sorties, flying back and forth from within the rain forest, sometimes resting for a few seconds in the sunlight on the small tree. It could be seen moving within the foliage and we were able to see part of a nest towards the tree's outer edge on the northern side. The nest seemed to be entirely composed of dry grass. On one of its trips the male did in fact carry a small stem of dry grass into the tree. We remained there for ten minutes or so, and at one point we noticed movement within the nest and suspected the female was sitting. The nest was partially hidden within the foliage and it was not possible to obtain a complete view of it.

CB returned the following morning and watched the area for several minutes from about 07h25. The male was very active for the first five minutes or so, making about six rapid trips from the forest to the nest during that time. As on the previous day it sometimes perched on the outer branches of the small tree for a few seconds before diving back into the forest.

CB remained there for several minutes, and returned again about half an hour later, but the bird was not seen again.

On both days only the male was seen, apart from the suspected female in the nest. The male moved swiftly between forest and nest, and not once were we able to detect if it carried any food item. We suspect however, the female was sitting either on eggs or chicks.

In May 2020 the Zambezi River peaked at its highest level for ten years. The volume of water coming over the Falls in mid-July was still considerable with spray covering a wide area of the Park. While this nest site was not at the heart of the rain forest, it was well within the area on which spray fell consistently.

Both Irwin (1981) p. 405 and Harrison *et al*. 1997. *The atlas of southern African birds*, p. 1060 give this Pytilia's breeding season as February to April. This mid-winter record is therefore highly unusual not least because of the prevailing wet conditions in which the nest was sited.

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Figure 1. The location of the pytilia's nest (indicated by the arrow) in a small tree on the edge of the Victoria Falls Gorge at Devil's Cataract (left) and a photo of the bird (right). Photos © Colin Baker.

Records of Black and Yellow-billed Kites: December 2019 to March 2020

C.T. Baker

Records of **Black** *Milvus migrans* and **Yellow-billed** *Milvus aegyptius* **Kites** submitted for inclusion in Field Observations and sightings drawn from elsewhere are shown separately here.

The largest concentrations were found in Hwange NP with two January sightings of a hundred or more. The only record of possible breeding was of one bird carrying twigs at Victoria Falls in December. In the Main Camp area of Hwange NP (GC) and at Victoria Falls (CB) the vast majority had left by mid-February with a decrease in numbers at Victoria Falls being noticeable from as early as the second week of January. These early departures were no doubt a result of an early cessation of the rains in March with below average rainfall recorded in most areas.

The only Yellow-billed Kite record included in the January 2020 Waterbird Census was of seven at Scott's Pan, southeast Hwange NP (1927 A2) (IWC).

The sightings shown below are of single birds except where noted otherwise.

Black Kite *Milvus migrans*

22 January, Shumba Pan, Hwange NP (1826 C4) RR

Yellow-billed Kite *Milvus aegyptius*

1 December, 3 at Melfort, Harare-Marondera road (1731 C4) IL
4 December, Victoria Falls-Kazungula road: CB
22.5 km and two at 28 km (1725 D3)
37.5 km and 60 km (1725 C4)
14 December, near Christon Bank, Harare-Mazowe road (1731 C1) IL
16 December, six in two hours on the Zambezi upstream of Victoria Falls (1725 D4), including one carrying twigs CB JB
19 December, 5 km along Victoria Falls-Kazungula road (1725 D3) CB
20 December, Imbabala Lodge, Kazungula (1725 C4) CB JB
20 December, 17 at Hwange Safari Lodge (1826 C4) DS
21 December, 22 at Khulu Camp, Ivory Lodge (1827 C1) DS
21 December, Hwange NP: DS
at least 50 at Nyamandhlovu Pan (1826 D4)
nine at Caterpillar Pan (1826 D4)
four at Makwa Pan (1827 C3)
22 December, 29 at The Hide (1827 C3) DS
23 December, 32 at Guvalala Pan (1826 D3) DS
28 December, 2 at the Gache Gache, L. Kariba (1628 D2) JW
12 January, 2 at Lake Chivero Bird Sanctuary (1730 D4) IR
15 January, Victoria Falls-Kazungula road: CB
17 km (1725 D3)
44 km, 47 km, 53 km, 57 km and 66 km (1725 C4)
22 January, 100 at Shumba Pan (1826 C4) (with the Black Kite shown above) RR
24 January, 100 feeding on harvester termites at Nyamandhlovu Pan (1826 D4) CBr
7 March, six flying together near the Victoria Falls Park entrance (1725 D4) CB
10 March, Kariba-Harare road: CN
two 5 km after Makuti (1629 A4)
five together at a road kill 20 km after Makuti (1629 A4), none thereafter.
11 March, Gwanda (2028 D4) NB
13 March, about 20 over Bumi Hills (1628 C4) heading north TT
18 March, 18 km along the Victoria Falls-Kazungula road (1725 D3) CB
21 March, one, possibly a juvenile, at Matetsi River Lodge (1725 C4) JV
22 March, 5 km before Makuti from Kariba (1629 A3) JW

Observers

CB – Colin Baker, JB – Julia Baker, NB – Nolan Barber, CBr – Charles Brightman, GC – Gary Cantle, IL – Innes Louw, CN – Carl Nicholson, RR – Rob Rees, IR – Ian Riddell, DS – Debbie Swales, TT – Tatenda Taingarufu, JV – James Varden, JW – Johnny Whitfield.
IWC – International Waterbird Census.

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Field Observations: December 2019 to May 2020

C.T. Baker

Zimbabwe went into lockdown in March 2020 when the number of reported Covid-19 cases began to increase. Consequently, the number of birding records diminished from then and through to the end of the period and beyond.

Once again rainfall this season was well below average and tailed off in March. Conversely, excellent rains to the north of us resulted in the Zambezi reaching its highest level at Victoria Falls for ten years. During April the river was nearly a metre higher than at the same time in 2019 and, downstream, Lake Kariba received significant inflows as a result. In May the lake's level was estimated to have risen by three or four metres with a further increase of a metre or so to come (SE). The lake was very low before the Zambezi's flow increased and was not expected to reach capacity. Large volumes of water were being lost to evaporation and consumption by the Kariba power station.

Another catastrophic poisoning, this time accidentally, of **White-backed Vultures** *Gyps africanus* occurred at Featherstone on 13 January. Altogether, 70 birds were affected, 53 of them fatally. Thanks to the sterling efforts of several individuals the surviving birds were rescued, cared for and treated; 15 recovered sufficiently to be released back into the wild.

Some October and November 2019 Hwange NP records submitted by PD were received too late for inclusion in the last Field Observations and so are included here.

Where mention is made in the text to the Atlas it refers to Harrison *et al*. 1997. *The atlas of southern African birds* and not to the current SABAP2 exercise. Records submitted by Ian Riddell from input to SABAP2 are identified with the observers' initials. Reports have also been obtained from BLZ's Special Species site on WhatsApp.

In order to give more prominence to reports of birds on the Zimbabwe Rarities List, it has been suggested such records be shown under a separate heading. While isolating them from the main text – under the title Rarities – these records still remain subject to later assessment.

The symbol † denotes a Quarter Degree Square in which the relevant species was not recorded in the Atlas nor subsequently in Recent Reports and Field Observations.

Rarities

Significant news from the Honde Valley concerns a pair of **Palm-nut Vultures** *Gypohierax angolensis* found in the Pungwe Forest (1832 B4) for the first time during May. This pair appears to be completely separate from the resident Aberfoyle Estate birds (MS); this is not considered a rarity in this area but rarity forms are required for birds recorded elsewhere.

A female sub-adult **Red-necked Falcon** *Falco ruficollis* was photographed with two separate *Euplectes* spp. prey items on and around palm trees at Marlborough Ponds (1730 D2†) on 2 February (JoF). This is the second Harare record, the first occurring in June 1991 on Hatcliffe Estate (Hustler, 1992. *Honeyguide* **38**: 115). One at Katiyo (1833 A3†) on 14 February and 30 May (MS) appears to be the first eastern districts record. Irwin (1981) recorded them in Mozambique 'not far from the borders of Zimbabwe.' Another wanderer was seen at Umguza (1928 D3†) on 3 April (JV), a locality far removed from its known range.

A young **Red-necked Buzzard** *Buteo auguralis* reported by a number of observers from the last few days of December to about 18 January on Chamabonda vlei, Victoria Falls, becomes Zimbabwe's first record of this bird. Its range is largely confined within Africa to the northern tropics from the Atlantic across to Ethiopia and Uganda, then extending southwards along the Gulf of Guinea coast only as far as northern Angola. This youngster's wanderings therefore brought it far southeast of its known range.

Reports of **Spur-winged Lapwings** *Vanellus spinosus* at Lake Chivero in November and December and at Imire Game Park (1831 B3) on 27 December and 1 February are shown elsewhere in this issue. A **Black-tailed Godwit** *Limosa limosa* photographed at Mandavu Dam, Hwange NP (1826 C2), on 9 May (J-MB) was the first Zimbabwe record since October 2005. This species was last reported from Hwange NP in November 1990 from the same dam.

A **Red-rumped Swallow** *Cecropis daurica* on Stapleford Estate, near Mutare (1832 D2†) from 30 January to about 5 March was reported by several observers. It was often seen associating with a pair of **Greater Striped Swallows** *Cecropis cucullata*. Irwin (1981, p. 237) contains sight records of single birds near Harare in March 1963 and February 1966, and another individual was recorded in Hwange NP (1826 C4) in March 1992 (Hustler, 1995. *Honeyguide* **41**: 104). A **Mascarene Martin** *Phedina borbonica* was seen in flight near Leopard Rock (1932 B2†) on 30 May (GD).

Departures

River Warbler *Locustella fluviatilis* 5 April, Harare (TW); **Eurasian Reed Warbler** *Acrocephalus scirpaceus* 7 April, Harare (DA).

Waterbirds and allied species

Around 20 to 30 **Great White Pelicans** *Pelecanus onocrotalus* are regularly found at the Kariba Bream Farm (1628 D2) despite steps taken to protect the fish (CN). Five were at Muchaniwa Pan, Gonarezhou (2132 A4), on 5 January (TM), 39 flew over the Kazungula road just outside Victoria Falls town (1725 D4) on 20 April (CBr) and two were at Camp Hwange pan (1826 C4) on 14 May. The only **Pink-backed Pelican** *P. rufescens* reported was an individual at Nehimba Pan, Hwange NP (1826 C4), on 16 April (J-MB). **African Darters** *Anhinga rufa* were scarce during the January Waterbird Census with five on Mazvikadei Dam, Banket (1730 A2), being the largest count (IWC).

About 70 **Grey Herons** *Ardea cinerea* at the Marimba River mouth, Lake Chivero (1730 D4), on 12 January (IR) was a substantial increase from the 14 seen there two months previously. A **Goliath Heron** *A. goliath* was an unusual visitor to the Mukuvisi Woodlands, Harare (1731 C3), on 1 February (MBe). **Purple Herons** *A. purpurea* are not usually reported in large numbers so counts of 25 at Mazvikadei and nine at Clifton Farm dam, Chegutu (1830 A2), in January are of interest (IWC).

46 **Little Egrets** *Egretta garzetta* at the Lake Chivero Bird Sanctuary (1730 D4) was the largest concentration noted during the January Waterbird Census, as were 75 **Black Herons** *E. ardesiaca* and 49 **Squacco Herons** *Ardeola ralloides* at Mazvikadei. On Sango Ranch in the Bikita area,

32 **Yellow-billed Egrets** *E. intermedia* were at Chinga Pan (2032 A2) and 49 at Suni Pan (2032 A4) in January (IWC).

Two **Little Bitterns** *Ixobrychus minutus* were at Borrowdale Brooke, Harare (1731 C1), on 5 April, followed by one on the 8th (DMacD). Single **Dwarf Bitterns** *I. sturmii* found in Harare were at Ballantyne Park (1731 C3) on 10 December (AD) and Monavale vlei (1731 C3) on 1 January (RC), on which date another was at Bubye Valley Conservancy (2130 C1) (JV).

A flock of *c*. 25 **White Storks** *Ciconia ciconia* flew over Kent Estate, near Selous (1830 B1), on 26 January (IL) and 200 or more eating crickets on Chirundu Estates (1628 B2) on 22 March (LM) were probably re-fuelling on their way north. Just outside Bulawayo, stragglers were on different parts of the Umguza Irrigation Scheme, in QDS 1928 D3 on 22 May and 2028 B1 on the 25th (JV). A **Black Stork** *C. nigra* was in the Chinamora Communal Lands (1731 C2) on 5 January (IR) and 12 were on a small isolated pool on the Gulugi River, Gonarezhou (2131 B2), on 3 May (EvdW); two on Gombola Farm, Macheke (1831 B4†), on 30 May (JP) were slightly east of their known range.

Abdim's Storks *C. abdimii* are seldom reported from Victoria Falls (1725 D4) but *c*. 35 circled over the Zambezi near the National Parks cottages on 16 December (CB). The only large mid-season flock comprised 'many hundreds' on fields at Umguza on 29 December, with between 700 and 1000 seen there during January (JV). Departure this year was earlier than normal, no doubt a result of insufficient rainfall. Most, if not all, had left the Main Camp, Hwange NP (1826 D2) area by the end of February (GC), just one was on Kent Estate on 12 March (J-MB) and only a few were still at Borrowdale Brooke on the 28th (DMacD). 200-300 in a tight flock flew north over Bumi Hills, Lake Kariba (1628 C4), on 27 March (SCh) and in the same area 'thousands' circled over Starvation Island on 29 March then headed north (SE). A later bird flew over Umguza on 3 April (JV).

12 **Woolly-necked Storks** *C. episcopus* were at Camp Hwange with 23 nearby at Shumba Pan (1826 C4) in January (IWC). Ten **African Openbills** *Anastomus lamelligerus* flew over Mandara, Harare (1731 C3), on 20 February (JBa) and a flock of 100 or more drifted north over Victoria Falls town in the late afternoon of 22 February (CB). 67 **Marabou Storks** *Leptoptilos crumenifer* were at Kent Estate on 26 January (IL) and over 300 also enjoyed the crickets on Chirundu Estates on 22 March (LM). In January, 29 **Yellow-billed Storks** *Mycteria ibis* were counted at Mandavu Dam, Hwange NP (1826 C2) (IWC).

225 **African Sacred Ibis** *Threskiornis aethiopicus* and 19 **Glossy Ibis** *Plegadis falcinellus* were at Crowborough Ponds, Harare South (1730 D4), in January (IWC). 21 **Glossies** were at the Chivero Bird Sanctuary on 7 December (IR) and 48 were counted at Mazvikadei during the January Census (IWC). About five **Hadeda Ibis** *Bostrychia hagedash* at Odzi (1832 C4†) in mid-May (MB) represent a slight expansion of range from the south.

A high count of 26 **African Spoonbills** *Platalea alba* was made at Mandavu Dam in January (IWC) and a **Greater Flamingo** *Phoenicopterus roseus* was at Shumba Pan (1826 C4†) on 4 and 15 February (J-MB). Although infrequent visitors to Hwange NP they continue to occupy new areas. A flock of **Lesser Flamingos** *Phoeniconaias minor* flying downstream on the Runde at Chipinda Pools, Gonarezhou (2131 B4), mid-morning on 16 December (EvdW), was probably the same group of around 30 that arrived at Mteri Dam, Chiredzi (2131 B3), on the same day in windy and overcast guti conditions. This flock, comprised mainly of adults, had gone by the following day (GD).

Four **Fulvous Ducks** *Dendrocygna bicolor* at Mandalay Dam, Kadoma (1829 B4), in January was the only Waterbird Census record (IWC) but two males and a female were at Shumba Pan on 15 February (J-MB). A high total of 157 **White-backed Ducks** *Thalassornis leuconotus* was recorded at Clifton Farm dam, Chegutu, in January (IWC). A **Yellow-billed Duck** *Anas undulata* has appeared sporadically on dams in north Harare since April 2018. It was seen again at Ballantyne Park on 11 and 22 January (IL, RMacD) and nearby at Blair Dam (1731 C3) on the 19th (AD).

During the January Waterbird Census **Cape Teal** *A. capensis* were recorded only at Whitehead Ponds, Chegutu (1830 A1), Kadoma Textiles Dye Ponds (1829 B4) and Mandavu Dam with two at each site (IWC). Eight were at the Lake Chivero Sanctuary on 7 December (IR IL) and one was at Borehole 3 on Chamabonda vlei, Victoria Falls NP (1725 D3) on 6 May (CBr). This duck is being found more frequently in Hwange NP where seven and six were at Guvalala Pan (1826 D3) on 23 December (DS) and 24 January (CBr) respectively and one was at the new locality of Kennedy No 1 Pan (1827 C3†) in March (*The Babbler*). In the same Park in December, seven **Hottentot Teal** *A. hottentota* were at Dopi Pan (1827 C3) on the 21st and a large flock of 40 at Shumba Pan on the 23rd (DS). One was at Timot's Pan, Chamabonda vlei (1725 D3), on 15 February (CB).

Cape Shovelers *A. smithii* seldom venture into Hwange NP but two were at Shumba Pan on 15 February (J-MB). About 40 **Southern Pochard** *Netta erythrophthalma* were on Gletwyn Dam, Mandara (1731 C3), on 14 January (AD). Large gatherings of **African Pygmy Geese** *Nettapus auritus* comprised about 50 on Mtsheleli Dam, Matopos NP (2028 D1), on 2 December (J-MB) and 110 at Clifton Farm in January (IWC). Just two were at Camp Hwange during March compared to several pairs last year when rainfall, over this Concession at least, was much better. Similarly, only ten **Spur-winged Geese** *Plectropterus gambensis* were there in March compared to 200 or more in 2019 (J-MB).

Raptors

Very little has been reported for several years on the status of **Cape Vultures** *Gyps coprotheres* at Wabai Hill, Debshan Ranch, Shangani (2029 B1), where it was known to roost, and occasionally to breed. Vulture feeding still takes place elsewhere on this ranch and the Cape is seen intermittently (DS). July 2013 is believed to be the last time any roosted on the hill. Human disturbance, as a result of resettlement taking place on that part of the ranch, has now rendered this erstwhile stronghold untenable. When present, this cliff-dweller has resorted to roosting in trees alongside other vulturine species (NC). For a good many years Wabai Hill was the only confirmed and regularly used roost site for this vulture in the country. Until proved otherwise it seems probable this vulture has not established an alternative base here. BirdLife International classifies this endemic vulture as 'Endangered' and deems it to be extinct over the northwest and southeast areas of Zimbabwe. Any records are therefore of great importance.

About 145 **White-backed** and seven **Lappet-faced Vultures** *Torgos tracheliotus* bathed and rested at a waterhole on Bubye Valley Conservancy (2130 A3) on 31 December (JV). About 100 **White-backed** were on Kent Estate on 23 April (LvdM). A pair of **White-headed Vultures** *Trigonoceps occipitalis* with full crops flew low over Phole Phole Farm,

Umguza (1928 D3), on 26 April. This was the second such sighting in a week so they were possibly breeding (JV). If so, this is outside the June-August period in Irwin (1981, p. 61).

Single **African Cuckoo Hawks** *Aviceda cuculoides* were in Highlands, Harare (1731 C3), on 17 February (IR), circling over Kuimba Shiri, Lake Chivero (1730 D4), on 22 February (TC) and over the Gwebi River, north of Harare (1730 C2), on 10 May (LG). Three were in the Save Valley Conservancy in early May, one of which was seen again on the 11th (BC). A **Bat Hawk** *Macheiramphus alcinus* pair at Lomagundi College, Chinhoyi (1730 A3†), in the late afternoon on 27 April (JMk) were a little to the east of their known range.

Reports of **European Honey Buzzards** *Pernis apivorus* in the last five years or so have increased considerably. In the Makonde area, the bird seen at Mazvikadei in November was still there on 7 December (BM), and singles were also at Lomagundi College (1730 A3) on 2 December and Nyamuswa Ranch about 20 km southwest of Lion's Den (1729 B4) on 21 January (JMk). In and around Harare there were individuals at Lake Chivero on 21 December (AD), Kent Estate (1830 B1†) on 12 March (J-MB, AD) and over Newlands (1731 C3) on 4 April (IR). At Victoria Falls single birds were near Elephant Hills Safari Lodge on 18 January (CB) and in the town centre on 11 February (CBr) and 15 March (J-MB). One was just outside Mutare (1832 D3) on 11 February (TW).

A **Verreaux's Eagle** *Aquila verreauxii* flew along the second gorge below Victoria Falls on 4 January (JBk) and two seen at the 230 km along the Harare-Mutare road (1832 C4†) on 25 May (DS) had wandered west from the Mozambique border area.

An immature **Ayres's Hawk Eagle** *Hieraaetus ayresii* hunted pigeons at Kuimba Shiri on 21 April (GS). A **Long-crested Eagle** *Lophaetus occipitalis* on Elephant Hills Golf Course (1725 D4†) on 2 December (CBr) was highly unusual and could have wandered into the Victoria Falls area from any direction.

Martial Eagles *Polemaetus bellicosus* in less usual areas included individuals in Harare over Gletwyn Dam on 14 January (AD) and at Umwinsidale (1731 C1) on 26 April (MH); over Seldomseen, Vumba (1932 B2), on 18 April (KW) and in the Bulawayo suburbs (2028 B1) on 22 May (SWi). One was re-building a nest that had fallen down on Kent Estate on 22 March (LvdM) ahead of the April to June prime breeding period, and an immature attempted to catch a monitor lizard at Marondera North (1831 B1†) on 5 April (DW).

A **Brown Snake Eagle** *Circaetus cinereus* was in Chinamora CL (1731 C2) on 5 January (IR). Only three single **Western Banded Snake Eagles** *C. cinerascens* were reported: in Zambezi NP 15 km above the Falls on 27 March (CBr), at Kariba Bream Farm (1628 D2) on 2 April (CN) and at Masoka Camp (1630 A1) on 13 May (TD).

Adult male **Bateleurs** *Terathopius ecaudatus* on the Kazungula-Victoria Falls road on 18 March were 8 km from Kazungula (1725 C4) and 20 km from the Falls (1725 D3) (CB). One swooped towards a hovering **Black-chested Snake Eagle** *C. pectoralis* at Charara, Lake Kariba (1628 D2), on 21 March (JW) and a juvenile was at Senuko, Save Valley Conservancy (2031 D2), on 9 May (CS). A female flew over Cawston Wildlife Ranch HQ (1928 C2) on 27 May (JV) and three juveniles were at Mana West airstrip on 30 May (NH).

Two separate **Ovambo Sparrowhawks** *Accipiter ovampensis* were seen in the Lake Chivero area on 12 January (IR). Irwin (1981, p. 80) gives the **Black Sparrowhawk** *A. melanoleucus* breeding period as July to December, so two records, both on 24 May, are of significance. A female was active around a nest site in Odzi (1832 C4†) where freshly plucked feathers were under the nest from the previous day's kill (MB) and a male was at a nest at the Mukuvisi Woodlands (KW).

An **African Goshawk** *A. tachiro* was present in a Newlands garden on 26 January and 3 February but became more frequent in April and May when seen five times in each month (IR). **Dark Chanting Goshawks** *Melierax metabates* were on Kent Estate on 23 March (LvdM) and at Senuko on 9 May (CS).

Well worth highlighting is a wholly unprecedented gathering of at least 15 **African Marsh Harriers** *Circus ranivorus*, together with small numbers of the other three **harrier** species, on Komani Farm, north of Harare (1730 D2), on the afternoon of 23 February (PZ). Five **African Marsh Harriers** were still there five days later along with the other three species (TW). The 1980s drought years took a heavy toll on this harrier and the vast majority of records since then have been of single birds only. Other **African Marsh** records consist of a juvenile on Marlborough vlei, Harare (1730 D2), on 1 January and an adult and an immature there on the 11th. On Monavale vlei singles were seen on 1 January (a juvenile) (RC) and 15 March (KD), and one was at Greengrove Dam, Harare (1731 C3), on 19 February (JBa).

A **Western Marsh Harrier** *C. aeruginosus* was recorded during the WEZ Hwange NP Game Count on 13-14 October in the Main Camp area (PDe). Other individuals were at Monavale vlei on 7 January (IR), Greengrove Dam on 6 February (AD) and Komani Farm on 12 March (J-MB). A female **Pallid Harrier** *C. macrourus* was in the Lion's Den area on 16 January (JMk) and one in Hwange NP between 20 and 23 March (*The Babbler*) was surprisingly late in such a dry year.

On Lake Kariba, single **Ospreys** *Pandion haliaetus* were at Musango (1628 C4) on 22 December (SE) and Sanyati West (1628 D1) on 22 March (PD), while one at the Gache Gache River (1628 D2) on 25 December was followed by at least four on the 28th (JW). In the northwest, individuals were upstream of Victoria Falls (1725 D4) on 22 December (CB), 14 January (CBr) and 1 February (CB), and on the Matetsi River Lodge Concession in the 1725 C4 and 1725 D3 squares between 18-21 March (JV). Elsewhere singles were at Mazvikadei on 25 December (AMacD), Lake Chivero on 12 January (IR), Rakodzi Farm dam, Marondera (1831 B1), a new site, in January (IWC) and Thetford Estate, Glen Forest (1731 C1), on 23 February (ME). End of season birds were at Musango in the first half of April up to the 14th (SE), at Kuimba Shiri on 21 April (GS) and at Mazvikadei on 12 April and 1 May (BM) where known to over-winter.

A **Peregrine Falcon** *Falco peregrinus* was at Chinamora Communal Lands on 4 January (IR). A **Taita Falcon** *F. fasciinucha* chased swifts at the Chenanga Range, Doma Safari Area (1630 A3†), on the evening of 24 January (LG). This is south of this falcon's range on the Chewore escarpment.

Hundreds of **Amur Falcons** *F. amurensis* were hunting at dusk on 4 January over Chamabonda vlei (MA). A **Greater Kestrel** *F. rupicoloides* was an unusual Borrowdale Brooke sighting on 1 April (DMacD) and a **Lesser Kestrel** *F. naumanni* was at the Chivero Bird Sanctuary (1730 D4) on 12 January (IR). Marginally out of their respective ranges on Odzi Farm (1832 C4†) was a **Rock Kestrel** *F. rupicolus* on 25 April and a **Dickinson's Kestrel** *F. dickinsoni* on 17 May (MB). Another **Dickinson's** was near the entrance to Art Farm, Harare (1731 C1†), on 25 April (LG).

Gamebirds, Rails and Cranes

Swainson's Spurfowl *Pternistis swainsonii* continue to be reported from within Harare and were heard daily on the Lewisam vlei in April (TA) and at Avondale (ME), both 1731 C3. Two **Kurrichane Buttonquail** *Turnix sylvaticus* were flushed from an open area east of Wingate Golf Club (1731 C1) on 8 May (IR). Two **Wattled Cranes** *Grus carunculatus* were on Ngamo Plains, Hwange NP (1927 A2), on 14 December (SN) and one at Art Farm on 18 December was with a **Grey Crowned Crane** *Balearica regulorum* (KW).

Single **Corn Crakes** *Crex crex* were on Monavale vlei on 21 December (TW) and 8 March (IR). At least five **African Crakes** *Crecopsis egregia* were at Greengrove Dam on 26 December (DD), three were together at a track puddle south of Tsowa Island, Zambezi NP (1725 D3), on 27 December (CB) and three were heard on Monavale vlei on 19 January (IR). The highlight of the Waterbird Census was two **Spotted Crakes** *Porzana porzana* at Whitehead Ponds (1830 A1†) on 20 January (IWC), the first ever record from there. Single **Baillon's Crakes** *P. pusilla* were at the Mukuvisi Woodlands pond on 4 December (LS) and in the Lion's Den area on 16 January (JMk).

Burst water pipes on Monavale vlei have encouraged **Red-chested Flufftails** *Sarothrura rufa* to colonise the area. About five were calling on 14 December and others were noted there on 8 March (IR). The occasional **Buff-spotted Flufftail** *S. elegans* will wander from the eastern highlands during the summer and one was found in *Lantana* thickets in *Acacia* woodland along a dry watercourse in the Umzari area, Chinhoyi, on 14 December (JMk). **Streaky-breasted Flufftails** *S. boehmi* were only reported from Monavale vlei where low numbers were noted between 30 December and 13 February (JM, IR). It was generally too dry a season for season for crakes and flufftails to linger for too long.

A **Purple Swamphen** *Porphyrio madagascariensis* in the Biri Dam, Chinhoyi (1730 A3†) area on 1 December (JMk) had moved in from an adjoining square. 14 were at Clifton Farm dam in January (IWC) and five adults and 2 juveniles were at Marlborough Ponds on 6 May (RC). Two **Allen's Gallinule** *P. alleni* were at Mandalay Dam, Kadoma, in January (IWC). One proved to be another new bird for the Biri Dam (1730 A3†) area on 4 December (JMk) as was a **Lesser Moorhen** *Gallinula angulata* in January. Two of these **Moorhens** at Clifton Farm dam in January (IWC) was the only other record from a less usual area.

An **African Finfoot** *Podica senegalensis* pair was on Wamba Dam, Aberfoyle (1832 B4), on 9 December, where they have occasionally been recorded, and on the same Tea Estates one was seen on the Pungwe River from the road bridge on 7 April (MS).

On 22 December at Makwa Siding, Hwange NP (1827 C3), an unidentified bird of prey unsuccessfully swooped down on a female **Kori Bustard** *Ardeotis kori* and her two downy chicks. She puffed out her neck, uttered a growling sound and shielded her young from the attacker (DS). A pair of **Black-bellied Bustards** *Lissotis melanogaster* between the Halfway House rail crossing and Headlands (1832 A3†) on 16 December (MB) were in an area where probably overlooked previously.

Waders, Gulls and Terns

A high count of 687 **African Jacanas** *Actophilornis africanus* was made at Mazvikadei Dam in January (IWC). A male and a female **Greater Painted-snipe** *Rostratula benghalensis* were on a swamp below the Victoria Falls Water Works (1725 D4) between 2 December and 4 January (CBr, CB), four were at Biri Dam on 4 December (JMk) and two near Green Pool, Mana Pools NP (1529 C4), on the 15th (CM). Around Harare, individuals were at Greengrove Dam on 26 December (DD) and Crowborough Ponds on 8 February (IR).

The only **Common Ringed Plover** *Charadrius hiaticula* reported was at Lake Chivero on 21 December (AD). The **Green Sandpiper** *Tringa ochropus* reported in November at the Victoria Falls Devil's Cataract was last seen there on 1 December (CB). 26 **Little Stints** *Calidris minuta* were counted at Whitehead Ponds in January. In the same month, four **African Snipe** *Gallinago nigripennis* were on Kent Estate (IWC) and three were noted there on 12 March (J-MB).

110 **Pied Avocets** *Recurvirostra avosetta* were at Lake Chivero on 7 December (IL); ten at Pasi Dam and one at Mandavu Dam were the only records from the January Waterbird Census. As many as 174 **Black-winged Stilts** *Himantopus himantopus* were also at Mandavu Dam in January were (IWC). A **Water Thick-knee** *Burhinus vermiculatus* at Borrowdale Brooke on 22 April was unusual there (DMacD).

Single **Bronze-winged Coursers** *Rhinoptilus chalcopterus* found in unexpected areas were on Cawston Ranch (1928 C2†) on 9 April, SN's first record from there, and in open thorn scrub at Umguza (1928 D3†) on 12 April. Although this was AR's first record on the farm in 32 years' residence, a surprising number of at least six were together there on 20 May (JV). At least 2000 or more **Collared Pratincoles** *Glareola pratincola* swarmed over the lake shore at Musango at sunset on 1 May and were still there on the 17th, with hundreds still remaining by the 25th (SE).

A **Caspian Tern** *Hydroprogne caspia* was at the Kariba Bream Farm (1628 D2) on 12 February (CN) and two photographed at Chundu Island, 25 km upstream from Victoria Falls (1725 D3†), on 26 February (MBr, PN) could well be the first record for this stretch of the Zambezi since 1989 (Pollard,1989. *Honeyguide* **37**: 124). About 300 **White-winged Terns** *Chlidonias leucopterus* were on Lake Chivero on 12 January (*The Babbler*) and some were still at Musango on 9 May, a late departure date (SE). Finally, 13 **African Skimmers** *Rynchops flavirostris* were at their usual haunt of Mandavu Dam in January (IWC) and five were in Charara Bay, Lake Kariba, on 21 March (JW).

Other non-Passerines

Somewhat unusual were three **Tambourine Dove** *Turtur tympanistria* records from within Harare. A male was in a Chisipite garden (1731 C3) on 22 December (DD), individuals were in a thicket below Cleveland Dam wall (1731 C3) on 8 March (IL) and at Borrowdale Brooke on 22 May (DMacD). 12 **African Green Pigeons** *Treron calvus* were at Mandara, Harare, at dusk on 19 February and some were also around on 20 March (JBa).

On the Zambezi, six **Grey-headed Parrots** *Poicephalus fuscicollis* were at Msuna (1826 B2) on 3 February (CBr) and two were near the Big Tree, Victoria Falls, on 27 March (CB). Up to six adults were seen on most mornings during April and May at Senuko (CS). An influx of **Meyer's Parrots** *P. meyeri* into the Highlands-Newlands area occurred in April and May. They were noted in a Newlands garden at least seven times in April and eight times in May and were frequently heard in the wider area of those two suburbs during that time (IR). Similar increases in numbers were not reported from elsewhere in the city.

A pair of **Purple-crested Turacos** *Tauraco porphyreolophus* made an unusual appearance at Hippo Pools (1731 B2) on 8 January (TN). A pair was present there about

ten years ago and stayed for a few months before disappearing (IJ). Two young **Great Spotted Cuckoos** *Clamator glandarius* were fed by four or five **Common Mynas** *Acridotheres tristis* at Chiredzi on 29 March (NN). A **Thick-billed Cuckoo** *Pachycoccyx audeberti* was in Zambezi NP on 14 December (CBr) and two were at the Msaize River, Save Valley Conservancy, on 1 February (BC). In April singles were at Lomagundi College, Chinhoyi (1730 A3†), on the 11th (JMk) and in Hillside, Harare, on the 30th (IJ).

A **White-browed Coucal** *Centropus superciliosus* on Phole Phole Farm, Umguza (1928 D3†) on 14 January (AR) was very far south of the Zambezi River population. An adult and a juvenile in the Lion's Den area on 16 January (JMk) were also in a new area, and while the exact QDS cannot be determined, they also represent a southerly extension of range, although they have occurred at Mazvikadei ponds for a number of years.

An **African Wood Owl** *Strix woodfordii* was noted in a Newlands garden four times between 18-24 January and on 16 March and 18 May. Nearby on the Newlands vlei, two **Marsh Owls** *Asio capensis* were seen on 18 May, the first recorded there since July 2018) (IR). Around Harare an **African Scops Owl** *Otus senegalensis* was heard in Umwinsidale on the night of 4 April (CdC) and an **African Barred Owlet** *Glaucidium capense* was in the National Botanic Gardens (1731 C3) on 15 January (DD). The latter record follows the reports in the previous period of unexpected sightings within Harare, perhaps indicating the **Barred** is establishing itself around the capital. The only **Pel's Fishing Owl** *Scotopelia peli* reported was on the Matetsi River Lodge Concession (1725 D3) between 18-21 March (JV).

A **Freckled Nightjar** *Caprimulgus tristigma* that called in the full moon as it flew over Philadelphia, Borrowdale (1731 C1), on 8 April (KvL) had most likely wandered from Domboshawa.

A large flock of **Common Swifts** *Apus apus* passed through Crowborough in rainy weather on 8 February and **African Black Swifts** *A. barbatus* in Chinamora Communal Lands (1731 C2) on 4 January were no doubt from Ngomakurira (IR). A pair of **White-rumped Swifts** *A. caffer* flew to and from an old swallow nest on an overhang on an earth dam wall at Senuko on 9 May. It was assumed they were feeding young, thus representing an April laying date. As this was at the very end of this species' breeding period, this could be their second or even third brood of the season. Eight **Mottled Swifts** *Tachymarptis aequatorialis* hawked insects over Senuko Dam (2031 D2) during April (CS). Two **Mottled Spinetails** *Telacanthura ussheri* were at Marineland, Kariba (1628 D2), on 27 February (CN).

A **Narina Trogon** *Apaloderma narina* was in a Mandara garden on 13 and 14 December (JBa). There have been a few Harare records of wandering birds, most of which have occurred in November and December. Two on 2 December and a juvenile on 20 February were at Lomagundi College (1730 A3) and one nearby on Nyamuswa Ranch (1729 B4†), on 21 January (JMk) may indicate further consolidation in the Lomagundi area. One south of there at Bryden School, Chegutu (1830 A1†), on 16 May (JW) represents further movement of this population. A **Giant Kingfisher** *Megaceryle maxima* that passed through Newlands on 10 January may have been visiting garden ponds (IR).

Four **Olive Bee-eaters** *Merops superciliosus* at Msuna (1826 B2†) on 3 February (CBr) were further downstream on the Zambezi than recorded previously. **Blue-cheeked Bee-eaters** *M. persicus* moving north were at Camp Hwange (J-MB) and Matetsi River Lodge (1725 C4) (JV) between 18 and 21 March, and at Victoria Falls on 6 April (CBr).

Post-breeding dispersal of **Southern Carmine Bee-eaters** *M. nubicoides* over the highveld was noted with one over Chisipite on 1 December (TW) and two at Monavale vlei on 7 January (IR), while 'dozens' feeding on harvester termites at Nyamandhlovu Pan, Hwange NP (1826 D4), on 24 January (CBr) were taking the south-westerly route across Matabeleland. **White-fronted Bee-eaters** *M. bullockoides* found near Chikurubi Quarry (1731 C3†) on 24 May (IR) were new to the north-eastern side of Harare.

Lilac-breasted Rollers *Coracias caudatus* are sporadic in Newlands and one was on the vlei on 10 March (IR), while also unusual were two **Racquet-tailed Rollers** *C. spatulatus* in Victoria Falls suburbs on 23 April (CBr). **Broad-billed Rollers** *Eurystomus glaucurus* remaining here much later than normal were at Hatfield, Harare (1731 C3) on 3 May (PT), Iganyana Tented Camp next to Hwange Safari Lodge (TAn) on the 9th and in Gonarezhou NP on the 16th (EvdW).

A **Trumpeter Hornbill** *Bycanistes bucinator* at Christon Bank (1731 C1) on 12 and 14 January and 2 April (CR) may have been the same bird recorded on nearby Thetford Estate in December 2018. **Silvery-cheeked Hornbills** *B. brevis* have a tendency to form large feeding flocks during the winter and about 35 were at the Pungwe River, Honde Valley, on 17 May (MS). Two **Southern Ground Hornbills** *Bucorvus leadbeateri* are seen regularly along the Umguza River near the Tollgate (1928 D3), only 20 km from Bulawayo City Centre (JV). Few **Brown-backed** *Prodotiscus regulus* and **Green-backed Honeybirds** *P. zambesiae* were reported, and only from Harare (IR, DMacD).

Passerines

An **African Broadbill** *Smithornis capensis* in the woodland behind Leopard Rock Hotel, Vumba (1932 B2†), on 27 December (PM) had possibly moved south from the Penhalonga area. About four at Nyamuswa Ranch (1729 B4†), on 21 January (JMk) are of interest as they were found in the adjoining 1730 A3 square for the first time just four months previously. Was it too dry a season for **African Pittas** *Pitta angolensis*? The only record was of five in Masoka Camp on 3 December (JWd).

A nice flock of seven **Sabota Larks** *Calendulauda sabota* was at Robins Camp, Hwange NP (1825 D2), on 20 May (BN). Northbound **Dusky Larks** *Pinarocorys nigricans* were noted much earlier than normal. Between one and three at a time were at Camp Hwange (1826 C4) from 19 January to 27 February, then two on 20 March (J-MB), and three followed by one later were in Zambezi NP on 15 March (CB, JB). One was in an open area adjacent to Epworth, Harare (1731 C3) on 12 April (IR), a more usual departure date. A **Red-capped Lark** *Calandrella cinerea* at Bumi Hills (1628 C4†) on 6 April (SCh) is a very scarce Lake Kariba record.

Only about 2000 **Barn Swallows** *Hirundo rustica* were at the How Mine, Bulawayo (2028 B4) roost on 2 March (J-MB), many having already departed perhaps. None were to be found in some areas after mid-March (see Departures below). The only **Pearl-breasted Swallow** *H. dimidiata* noted was on L'Amour Farm, Mutare 1832 D3, on 28 April (GD).

Eastern Nicators *Nicator gularis* were in the Chilo Sand Forest (2132 A2†) on 7 December where now seen regularly (TM), having established there since the Atlas years. Two **Groundscraper Thrushes** *Psophocichla litsitsirupa* fed a fledgling on 14 December at the Mukuvisi Woodlands. A

Familiar Chat *Oenanthe familiaris* made a surprising visit to Eastlea, Harare, on 30 April (IR).

A pair of **White-throated Robin-chats** *Cossypha humeralis* was at Lomagundi College (1730 A3†) on 15 April (JMk). This bird was almost certainly overlooked in that square during the Atlas years. **Swynnerton's Robins** *Swynnertonia swynnertoni* at Leopard Rock on 27 December (PM) are worth mentioning because of their restricted range and their vulnerability to loss of montane evergreen forest.

A vocal **Thrush Nightingale** *Luscinia luscinia* was heard at Main Camp, Hwange NP, on the mornings of 21 and 22 November (PD). Two were in the Lion's Den area on 16 January and others were approximately 3 km to the northwest along the Angwa River (1729 B2†) on 7 February. This migrant is an annual visitor to the area between December and March (JMk) so was possibly overlooked there in the Atlas period.

A **Common Whitethroat** *Sylvia communis* at Mutare on 6 April (GD) was probably moving north. A **Southern Hyliota** *Hyliota australis* in a *Brachystegia glaucesens* at Senuko (2031 D2†) during May (CS) becomes the most southerly Zimbabwe record. The species was not recorded in the 20°S 31°E full degree square in the Atlas. The only **Broad-tailed Warbler** *Schoenicola brevirostris* record in this poor rainy season was one at Haka Park, Harare (1731 C3), on 2 January (AD). A one-legged **Willow Warbler** *Phylloscopus trochilus* at Umguza (1928 D4) on the late date of 19 May (JV) may have been too weak to migrate.

Over the past ten years or so Christon Bank Botanic Reserve (1731 C1) has become an important area for **Collared Flycatchers** *Ficedula albicollis*. According to IR, however, it is now seriously damaged and degraded by artisanal gold miners. Despite that, these birds were noted there on 14 December (IR, IL), 31 December (TW) and 8 March (IR). Elsewhere, singles were reported from Gosho Park, Marondera (1831 B1), on 1 December (AD) and ten km west of Sanyatwe on the Rusape-Juliasdale road (1832 B3) on 27 February (LW). A **Grey Tit-flycatcher** *Myioparus plumbeus* was at Aberfoyle in late December (MHo) and another at Umguza on 5 April was JV's first record from there. On 1 January, two **Black-throated Wattle-eyes** *Platysteira peltata* were at the Mukuvisi Woodlands (RC) where seen occasionally.

Recorded under Departures below are the last dates on which **African Paradise Flycatchers** *Terpsiphone viridis* may be deemed to have left various areas. Migration this year was a particularly protracted process with the odd one or two drifting through long after the main population had left – a surprising occurrence given the early cessation of the rains. The true picture is further clouded by some individuals remaining all year in certain low-lying areas, as well as the movement into the extreme southeast from South Africa of the sub-species *granti* that winters there. A Gonarezhou sighting on 19 May (EvdW) may have been one such individual. Stragglers that missed the main exodus were seen on 21 May at Musango (SE), 22 May at Mandara (DD) and 25 May at Hatfield, Harare (PT). Late sightings from areas where this species is known to over-winter, were a male and female at Masoka on 21 May (TD), at Senuko on 26 May (CS) and in the Dande Safari Area on 29 May (GT).

Few **Yellow Wagtails** *Motacilla flava* were reported with from one to six at Crowborough from 7 December to 11 January (IL, IR) and one at Mandara on 22 February (JBa). A solitary **Tree Pipit** *Anthus trivialis* was at Christon Bank on 14 December (IL) and a **Wood Pipit** *A. nyassae* in the Arcturus area (1731 C4†) in March (AD) represents localised movement.

As the level of Lake Kariba rose, the many **Yellow-throated** *Macronyx croceus* and **Rosy-throated Longclaws** *M. ameliae* that occupied the grassy margins at Musango had all disappeared by May, despite suitable habitat still being available above the waterline (SE).

Northbound **Lesser Grey Shrikes** *Lanius minor* were at Haka Park (AD) and Monavale (JM) on 29 March, while at Umguza from one to seven were noted on four days between 31 March and 13 April (AR, JV). A couple of **Retz's Helmet-shrikes** *Prionops retzii* were with a party of **White-crested Helmet-shrikes** *P. plumatus* at Christon Bank on 14 December (IR), six were at Umguza on 24 April (AR) and others were southeast of Igava Farm, Marondera area (1831 D1), on the same day (SC).

Included in Departures below, but worth highlighting here, is a huge flock of 140 **Violet-backed Starlings** *Cinnyricinclus leucogaster* on Katiyo Estate on the Mozambique border on 10 May (GD). Six or more at Borrowdale Brooke on 29 May (DMacD) were either late in departing or over-wintering. Following the November 2019 **Red-billed Oxpecker** *Buphagus erythrorynchus* sighting at Imire Game Park (1831 B3) they were recorded again on 27 December (NB).

A pair of **Gurney's Sugarbirds** *Promerops gurneyi* was at Seldomseen on 23 May (BMb) where proteas are cultivated. There was an influx of **Copper Sunbirds** *Cinnyris cupreus* onto Newlands vlei on 30 April when at least seven were noted at one time (IR). An infrequent **House Sparrow** *Passer domesticus* record from northern Harare was of a pair at Borrowdale Brooke on 26 May (DMacD) and two **Northern Grey-headed Sparrows** *P. griseus* were on Zambezi Drive, Victoria Falls (1725 D4), on 2 February (CB).

Thick-billed Weavers *Amblyospiza albifrons* bred again at Kariba Bream Farm this year. Some dispersed thereafter but juveniles and adults were around in April (CN). It seems they are well established there now. **Lesser Masked Weavers** *Ploceus intermedius* were breeding at the Chivero Bird Sanctuary on 12 January (IR) and a **Red-headed Weaver** *Anaplectes rubriceps* became a new species in IR's Newlands garden on 31 January.

Around Victoria Falls a **Cuckoo Finch** *Anomalospiza imberbis* was on a small wetland area near the Lookout Café from 5 February to 7 March, and one was on Chamabonda vlei on 15 March (CB). About 30 were at Kent Estate (1830 B1†) on 12 March (J-MB, AD). Two **Black-winged Bishops** *Euplectes hordeaceus* on L'Amour Farm, Mutare 1832 D3, on 28 April (GD) were on the southern edge of the Nyanga population's range.

Orange-winged Pytilias *Pytilia afra* at Masoka Camp (1630 A1†) on 3 December (JWd) and Chamabonda vlei (1725 D3†) on 14 February (CBr) represent slight extensions of range in both areas. Elsewhere, pairs were at Lomagundi College on 10 April and 1 May (JMk) and Kuimba Shiri on 14 May (TC). The WEZ Hwange Game Count on 13-14 October recorded **Red-headed Finches** *Amadina erythrocephala* at Deka Pan in the Robins Camp area (PD). This is north of this bird's known range although there is a 1995 record from Little Toms Pan in the same area of Hwange NP.

About eight **Magpie Mannikins** *Lonchura fringilloides* fed at a bird table in a Mutare garden on 15 February and have taken up residence there. This is the observer's first record for the garden in 36 years (RK) although large numbers have been reported previously from the grounds of the nearby Valley Lodge Hotel.

A male **Purple Indigobird** *Vidua purpurascens* at Kavinga in the first week of December was in three-quarters breeding

plumage (GD) and a male **Village Indigobird** *V. chalybeata* at Victoria Falls had retained almost complete plumage by 8 December (CB). A **Twinspot Indigobird** *V. codringtoni* near Wamba Dam, Aberfoyle, on 13 February (MS) follows a January 2019 record from the neighbouring Eastern Highlands Tea Estates.

Arrivals

Steppe Eagle *Aquila nipalensis* 13-14 October Main Camp area (PD); **Amur Falcon** 7 December Zambezi NP (1725 D3) (JBk), 14 December Chegutu (JW); **Swallow-tailed Bee-eater** *Merops hirundineus* 10 April Senuko (CS), 15 April Newlands (IR), 17 April Mazvikadei (BM), 21 April Umguza (JV), 23 April Mandara (DD), 24 April southeast of Igava Farm (1831 D1) (SC); **European Roller** *Coracias garrulus* 13-14 October Hwange NP (PD); **Purple-banded Sunbird** *Cinnyris bifasciatus* 4 May Borrowdale (IR).

Departures

Wahlberg's Eagle *Hieraaetus wahlbergi* 28 March Umguza (1928 D3) (JV); **Eurasian Hobby** *Falco subbuteo* 12 March Kent Estate (1830 B1) (J-MB); **Amur Falcon** 8 April Monavale vlei (JM); **African Crake** 7 April Kariba Bream Farm (CN), 30 April Umguza (2028 A2) (JV), 6 May Marlborough vlei (RC); **Wood Sandpiper** *Tringa glareola* 18 April Umguza (JV), 25 April Victoria Falls (CB, JB); **Common Greenshank** *T. nebularia* 17 May Mazvikadei (BM) and Musango (SE); **Little Stint** 25 April Victoria Falls (CB, JB); **Common Cuckoo** *Cuculus canorus* 11 March Save Valley (BC); **African Cuckoo** *C gularis* 5 April Harare (TW), 28 April Senuko (CS); **Black Cuckoo** *C. clamosus* 27 March Victoria Falls (an immature) (CB); **Great Spotted Cuckoo** 1 April Harare (GH), 23 April Kariba Bream Farm (CN), 3 May Umguza (1928 D3) (JV); **Levaillant's Cuckoo** *Clamator levaillantii* 28 April Victoria Falls (CB), 29 April Umguza (2028 A2) (JV), 1 May Senuko (CS), 6 May Odzi (MB), 7 May Kariba (BB) and Chikurubi vlei (JBa), 10 May Katiyo (a pair) (GD); **Jacobin Cuckoo** *C. jacobinus* 29 April Umguza (JV), 18 May Aberfoyle (GD), 24 May Kuimba Shiri (dark form) (TC); **African Emerald Cuckoo** *Chrysococcyx cupreus* 8 March Victoria Falls Rain Forest (JB, CB); **Klaas's Cuckoo** *C. klaas* 29 April Chinhoyi (JMk), 17 May Umguza (JV); **Diderick Cuckoo** *C. caprius* 9 April Harare (LS), 29 April Umguza (2028 A2) (a juvenile) (JV); **Black Coucal** *Centropus grillii* 12 March Kent Estate (1830 B1) (J-MB), 8 April Monavale (JM); **Pennant-winged Nightjar** *Macrodipteryx vexillarius* 20-23 March Hwange NP (*The Babbler*); **Woodland Kingfisher** *Halcyon senegalensis* 1 April Senuko (CS), 13 April Umguza (JV), 19 April Mandara (DD); **Grey-headed Kingfisher** *H. leucocephala* 27 April Ngenile Farm Umguza (1928 D3) (JV); **European Bee-eater** *Merops apiaster* 5 April Umguza (JV), 8 April Musango (SE) and Senuko (CS), 10 April Save Valley Conservancy (NN), 11 April Victoria Falls (JB) and Bulawayo (HL), 13 April Hatfield (PT); **European Roller** 12 March Kent Estate (J-MB), 19 March Borrowdale vlei (TW), 20-23 March Hwange NP (*The Babbler*).

Barn Swallow 13 April Greendale (IL), 14 April Senuko (CS), 18 April Umguza (JV); **White-throated Swallow** *Hirundo albigularis* 18 April Umguza (JV); **House Martin** *Delichon urbicum* 12 March Kent Estate (1830 B1) (J-MB), 14 March Victoria Falls (CB), 22 March Matetsi River Lodge (1725 C3), 14 April Umguza; **Banded Martin** *Riparia cincta* 19 May Umguza (JV); **Eurasian Golden Oriole** *Oriolus oriolus* 22 April Mutare (JC), 24 April Save Valley Conservancy (NN) and southeast of Igava Farm (1831 D1) (SC), 7 May Kariba (BB), 9 May Musango (SE), 10 May Katiyo, 18 May Aberfoyle (GD) and Mandara (JBa); **African Reed Warbler** *Acrocephalus baeticatus* 4 April Harare (IR); **Marsh Warbler** *A. palustris* 12 March Kent Estate (1830 B1) (J-MB), 6 April Mutare (GD), 13 April Chisipite (AD); **Willow Warbler** 6 April Harare (IL), Mutare (GD) and Vumba (PM), 18 April Umguza (JV), 9 May Musango (SE); **Spotted Flycatcher** *Muscicapa striata* 15 March Zambezi NP (CB), 29 March Lilfordia School (AS), 15 April Senuko (CS); **African Paradise Flycatcher** 5 April Bulawayo (PD), 6 April Save Valley Conservancy (NN), 13 April Odzi (MB), 25 April Vumba (PM), Mutare (RK) and Musango (SE), 30 April Kanga Pan (CM), 6 May Victoria Falls (ARb) and Kariba (BB), 13 May Mazvikadei (BM), 17 May Hatfield (PT), 19 May Umguza (1928 D4) (JV); **Red-backed Shrike** *Lanius collurio* 22 March Kent Estate (LvdM), 27 March Victoria Falls (CB), 1 April Senuko (CS), 5 April Umguza (JV), 7 April Odzi (MB), 10 April Harare (IR); **Violet-backed Starling** 1 May Bulawayo (HL), 3 May Newlands (IR), 10 May Katiyo (GD), 18 May Aberfoyle (GD); **Purple-banded Sunbird** 15 December Harare (*The Babbler*), 14 February Victoria Falls (CB).

Observers

DA – Derek Adams; TAn – Terry Anders; TA – Tessa Arkwright; MA – Matt Austen; CB – Colin Baker; JBk – Jonathan Baker; JB – Julia Baker; JBa – James Ball; NB – Nolan Barber; MBe – Miriam Bell; J-MB – Jean-Michel Blake; BB – Barbs Bourne; MB – Mark Brewer; CBr – Charles Brightman; MBr – Mana Brightman; CdC – Chris du Cane; GC – Gary Cantle; RC – Ronnie Chirimuta; SCh – Steve Chinhoi; NC – Ngoni Chiweshe; SC – Stan Chizipi; JC – Jane Clegg; BC – Bryce Clemence; TC – Tracey Couto; DD – D Dalziel; AD – Asher Dare; PDe – Paula Dell; TD – Tichaona Dick; PD – Peta Ditchburn; KD – Ken Dixon; GD – Gary Douglas; SE – Steve Edwards; ME – Murray Evans; JoF – Jonathan Francis; LG – Luke Gilmour; MH – Mark Hadingham; GH – Gerald Harrison; NH – Nkululeko Hlongwane; MHo – Matt Hosack; IJ – Iain Jarvis; RK – Dr Ralph Kitkat; KvL – Karl van Laeren; HL – Helen Lewis; IL – Innes Louw; JMk – Jim Mackie; AMacD – Ali MacDonald; DMacD – Doug MacDonald; RMacD – Roger MacDonald; PM – Peter Magosvongwe; LvdM – Leon van der Merwe; CM – Cliffy Mhandu; BM – Bev Morgan; BMb – Buluwesi Murambiwa; JM – Jimmy Muropa; TM – Thomas Mutombeni; LM – Lionel Muzengi; NN – Neil Nativel; BN – Bhekizulu Ncube; TN – Tadious Ndadzira; PN – Paul Ngorima; CN – Carl Nicholson; SN – Sean Nicolle; JP – Julia Pierini; AR – Ali Randell; CR – Colin Riddell; IR – Ian Riddell; ARb – Allen Roberts; MS – Morgan Saineti; AS – Atherton Squire; GS – Gary Stafford; CS – Clive Stockil; LS – Lowden Stoole; DS – Debbie Swales; PT – Pete Taylor; GT – Gilly Thornycroft; JV – James Varden; EvdW – Elsabe van der Westhuizen; JW – Johnny Whitfield; SWi – Spike Williamson; LW – Luke Wilson; JWd – Jan Wood; TW – Tony Wood; KW – Ken Worsley; DW – Dave Worswick; PZ – Piet Zwanniken. *The Babbler* – Newsletter of BirdLife Zimbabwe; IWC – International Waterbird Census.

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Travels to the Far East and then Further East

Clive Slater

In *Honeyguide* 65: 134-136 (2019) Peter Mundy and I described the journeys in search of three southern African birds named in honour of the 19th-century English ornithologist, John Henry Gurney (1819-1890). His ornithological achievements included the nearly 30 birds he named, and the 11 birds named in his honour. Of the latter, seven are still recognised today and between us we have attempted to see them all in their natural habitats. In addition to the three southern African birds we searched for in 2016 (Gurney's Sugarbird, Orange Ground Thrush and Black-necked Grebe), I travelled to south-east Asia then further east in 2017 in search of the other four species, namely, the Giant Scops Owl, Gurney's Eagle, Gurney's Cuckoo Falcon (Pacific Baza) and Gurney's Pitta.

Giant Scops Owl – Mindanao, Philippines. Photo © Pete Simpson

I first went to the Philippines to see the Giant Scops Owl on the island of Mindanao. This is a large, irregularly shaped island with mountain ranges and various forest types such as lowland evergreen rain forest with up to 137 species including endemic and range-restricted ones. The Zamboanga area of south-west Mindanao was visited by the British explorer and collector, Alfred Hart Everett (1848-1898), in the late 1870s to collect birds for the Marquess of Tweeddale. Tweeddale described a new species of owl as *Pseudoptynx gurneyi,* (now *Otus gurneyi*), in honour of John Henry Gurney, who later referred to it as the Lesser Philippine Eagle Owl (now the Giant Scops owl). This was the bird I had come to see.

My excitement at the prospect of seeing this owl was tempered by the fact that martial law had been declared across the whole island in 2017 after an ISIS insurgency. Accompanied by Pete Simpson, an English ex-pat who knew the island well, I travelled to a place called 'Eden Resort' north of the city of Davao. This resort had accommodation in a partly-forested, secondary growth area of undulating landscape, and it was here that we made our attempt to locate the Giant Scops Owl which Pete knew to be resident.

Before dawn the next morning we played a recording of this owl's loud, harsh, single-syllable 'bark' and soon one responded until we heard it nearby. Using a torch, we spotted it sitting obliquely to us showing its light-brown back and side before moving to a nearby branch and then it was gone. We returned to this same spot on other occasions and although we heard an owl calling, we never saw one again. It had been a brief but exhilarating sighting of this large (by Scops owl standards), elusive owl about which very little is known; unfortunately, its conservation status is 'Vulnerable'. However, we did see other owls in other parts of Mindanao such as two Mindanao Hawk Owls ('Near Threatened') sitting side by side in woodland and an Eastern Grass Owl silently quartering a disused airfield at dusk. Owls heard but not seen were the Chocolate Boobook ('Near Threatened') and the Mindanao Lowland Scops Owl (Everett's Owl). Those who have been 'owling' in woodland at night will appreciate the value of recordings to locate these otherwise hard to find birds. I noticed that on more than one occasion, more than one owl species responded from the same site, especially the Giant Scops Owl and Everett's Owl, raising the question, how they co-exist in the same habitat? So little is known of these owls it may be a long time before we have answers.

I was keen to see as many raptors as possible knowing that Gurney may well have had some of these in his collection. In different habitats, sometimes involving mountain hikes or mountain drives, we had sightings of a Chinese Sparrowhawk, Philippine Serpent Eagle and the diminutive, black and white Philippine Falconet - a group of three or four very small falcons – at a high, old woodpecker hole in a tall tree. A South Philippine (Pinsker's) Hawk Eagle – 'Endangered' – called pre-dawn then perched on a dead tree in the early morning sun, a marvellous sight showing its prominent crest to full effect. I hoped, of course, to see the magnificent Philippine Eagle in the wild, and we staked out an area where it had bred previously but we were out of luck. The next best thing was a visit to a Philippine Eagle Captive Breeding Centre where a long-term breeding and release programme is in place. Even when in an aviary, this bird has a huge, imposing presence and its previous English name of Monkey-eating Eagle seems very apt. It is now 'Critically Endangered' and one fears its slow reproduction rate will be outpaced by the disappearance of suitable habitat.

During my five days on Mindanao I logged 138 species either seen or heard including eight species of doves, six species of flowerpeckers, five sunbirds, three pittas and two hornbills. A small, nondescript hard to find bird in an area alongside a rocky, woodland stream proved to be the range-restricted and especially secretive Cryptic Flycatcher. On much higher ground, 1,100 m in fact, we saw the Whiskered Flowerpecker, a rare, small, two-tone bird, dark above with a purplish underside, and first described as recently as 1966. At this same location, a distant view of a Cinnamon Ibon was

obtained. Much easier to see were two Mindanao Hornbills, a dark-breasted female and a white-breasted male, and a single large, strikingly coloured Southern Rufous Hornbill with a multi-coloured bill, dark brown breast and white tail. A single Dark-eared Brown Dove called strongly for a long time and we eventually saw it very briefly – this is a rare bird which Pete had located after an absence of records for ten years, and he was very pleased to see it for the first time for months. I got the impression all doves were very wary perhaps due to shooting and we did see one character with a home-made rifle.

At the same time as watching the Grass Owl above on the disused airfield at dusk, two Philippine Nightjars appeared on the runway apparently displaying to each other by calling and repeatedly flying vertically about a foot off the ground and landing (courtship display?). Their white throats stood out even in fading light and for some reason the runway was preferred to the surrounding grassland. I had never seen a Pitta before until I got a great sighting of an Azure-breasted or Steere's Pitta ('Vulnerable') in woodland when two birds seemed to be calling noisily but only one was seen. This is a stunningly coloured little bird with a black cap, green back, the wonderful azure breast and red vent. A visit to a freshwater lake revealed several waterbirds including three Black Bitterns, a medium-sized, very black bittern, one with a fish; about 50 Philippine Ducks ('Vulnerable') with bronze heads and green wing flash; and about 150 Wandering Whistling Ducks a widespread duck distributed from Borneo to eastern Australia – incidentally, one of only three species of birds with the common name of 'Wandering.'

One brief foray to the coast gave good sights of two Chinese Egrets ('Vulnerable'), according to Pete a good bird to see, and nine Whiskered Terns on bamboo fish-pens. Lastly, a very special bird, a pair of Lina's Sunbirds were seen on a mountain top, the male showing its dark head and back contrasting a bright yellow breast with orange patches. This bird was first described as a separate species in 1997 (even more recently than the Whiskered Flowerpecker), and it was fittingly named in honour of Lina N. Florendo Rabor, who accompanied her husband, the pre-eminent Philippine ornithologist Dioscoro S. Rabor, on more than 40 scientific expeditions over nearly 40 years.

Sadly, many of the special birds in Mindanao are threatened by the ubiquitous factors causing habitat degradation and destruction and it was all too common to hear the drone of a chain saw and see a motorbike with a seemingly impossible load of timber logs (or people). However, there are some green shoots and one in particular I was pleased to visit was a reserve that Pete Simpson had had a hand in establishing the 'Cleanergy Park' near Davao City.

My next stops were the Indonesian islands of Ternate and Halmahera, which I reached after a very long and roundabout journey. The first bird I saw at the airport was a Eurasian Tree Sparrow, which in much of Asia behaves like a House Sparrow. Alfred Russel Wallace established a base in Ternate in 1858, while collecting specimens, mostly beetles, butterflies and birds, across the Malay Archipelago. It was here that he wrote his now famous 'Ternate Essay' outlining his thoughts on evolution by natural section which he posted to Charles Darwin sparking him into publication of a joint paper with Wallace, and soon after his *Origin of Species*. Wallace visited an island south of Ternate, now called Bacan, where he collected a new eagle that George Robert Gray named *Aquila gurneyi* (1861) in honour of John Henry Gurney in recognition of his contribution to the study of birds of prey. From Ternate, I travelled to Halmahera where Gurney's Eagle is known to be resident.

My search for this eagle began next day with help from the two experienced resident guides, by visiting a range of sites and habitats from lowland coastal areas to highland sites, but we had no luck. After two days we had not seen an eagle but by now we were joined by a Norwegian birds of prey expert, Jan Ove Gjershaug, who was the first, and last (at this time), to conduct a study of Gurney's Eagle in 1996. This time we headed to a highland area where, at a height of 1,000 m we finally spotted a bird soaring above the horizon but at a great distance. My first sighting, frustratingly distant and brief, but its soaring pattern and straight wings were characteristic of Gurney's Eagle. Over the next couple of days more distant sightings confirmed this and our last sighting was a fleeting glimpse of an eagle flashing by our lookout site. All in all, a hard bird to get close to. In the 150 years since Wallace collected the first specimen, little is known of its biology and nobody has reported finding a Gurney's Eagle nest!

Gurney's Eagle - Halmahera, Moluccas, Indonesia. Photo © James Eaton

While searching for Gurney's Eagle we saw other raptors and owls including several sightings of Osprey, on one occasion carrying a fish, many views of Brahminy Kites, and the Moluccan ('Near Threatened') and Variable Goshawks; the first specimens of both species were collected by Wallace and named by Gray in 1861. Another raptor was a Rufous-necked Sparrowhawk ('Near Threatened'), another Wallace/Gray species, an adult first seen perched in a tree, then in flight. Although some way off, I could see yellow legs and a red breast but I was not convinced it had a red collar. I attempted to photograph a distant Spotted Kestrel perched on a tall, bamboo-like spike, and another pair, one of which caught and ate an insect rather in the manner of a flycatcher; my impression was of very dark brown kestrels. A single Oriental Hobby on a telecommunication pylon sported a distinct red breast and vent.

A Moluccan Scops Owl, a small, grey owl (possibly a grey-brown morph) with short ears was called-in and responded with single, frog-like croaks, and seen at dusk with the help of a torch and seemed not at all disturbed by the light. In contrast, a Halmahera Boobook did respond with a double-cough sound but could not be induced to show itself. This is a medium-sized owl with deep rufous-brown upperparts but without ear-tufts. I am struck by the number of raptor and owl species collected by Wallace and his assistants - how did they do it?

A stand-out bird to see on Halmahera is the extraordinary Standardwing Bird of Paradise (or Wallace's Standardwing – 'Near Threatened'). Wallace was the first westerner to collect a specimen and witness its communal display and his excitement is evident from his description of the event. A short drive from the resort and a 15-minute muddy, jungle scramble leads to a Standardwing lek where birds display every morning at dawn. Everything about this bird is extraordinary, from its appearance, its courtship display and its calls. Males have been described as having a washed-out, brown plumage set against the striking emerald green breast-plate and its long, protruding whitish standard-like feathers. The courtship display is a complex mix of behaviours, perhaps the most prominent being when the males flutter their bodies with the standard feathers whipping in all directions. All this is accompanied by a cacophony of calls, sometimes very loud. I watched this performance on two early morning visits of 2-3 hours and found it captivating, but it raises so many questions. As an observer it is so hard to tell how many birds are present and, of course, what sex and age are they? Research on other Birds of Paradise species has revealed that the male performance is directed at the position of the watching female(s), but to the casual observer like myself, you can't even tell where the females are! There is a second species to see on Halmahera, but it is not brightly coloured and does not display in a communal lek. This is the Halmahera Paradise-crow a black, medium-sized bird which looks very much like a crow, and some have suggested it may be near to an ancestral lineage leading to the later evolution of the more typical Birds of Paradise.

On the coast I saw a group of five wheeling Lesser Frigatebirds, while in a nearby mangrove area one bird call immediately stood out with a burst of ten loud piping sounds then a gap. This was either a Brush Cuckoo or Moluccan Cuckoo ('Near Threatened'); the grey head and paler breast suggested a subspecies of the former but I couldn't be sure even after comparing a recording of the call I made at the time with other recordings. At dawn one morning we heard a Moluccan Owlet-nightjar call, a three-syllable fading call, before it flew across and perched nearby. It is also known as the Long-whiskered Owlet-nightjar but there was not enough light to see its whiskers or distinguish if I was looking at the rufous or brown morph. A motionless Blue and White Kingfisher was spotted in dense undergrowth – it is quite a small kingfisher with a dark head, turquoise back and white underside. Also, in very dense undergrowth was my first sight of a megapode, the Dusky Scrubfowl, as it scuttled away from sight very quickly. I just had time to make out a dark (almost black), medium-sized, dumpy bird but we did not see an example of its extraordinary nest mound.

I had noticed roadside single power-lines sometimes had lumps on them and I was told they were 'Willy Wagtail' nests – a nickname for the Pied Wagtail I knew from childhood. I took a closer look and sure enough, they were cup-shaped nests and a bird was sitting on one, exposed in the full sun and gaping in the heat – I couldn't imagine a wagtail nesting like this? I later discovered it was a 'Willie Wagtail' a species found across the region and common throughout Australia. It is actually a fantail that spends most of its time on the ground and superficially resembles a Pied Wagtail with contrasting black upperparts and white underparts. How common is this choice of nest site across its range and how successful is it? I counted 58 species in 5 days on Halmahera, including two of its six endemics – the Halmahera Cuckooshrike and the Sombre Kingfisher ('Vulnerable'). I only saw the Cuckooshrike at distance and barely noted its black head, grey upperparts and mostly white underparts. I had better views of the kingfisher and noted its relatively larger size than other kingfishers I had seen.

The issues of deforestation, the drone of chain-saws, and degraded areas on Halmahera were similar to Mindanao. At the mountain site where we searched for Gurney's Eagle, we could see the environmental effects of a nickel mine as well as an area of forest dying because of drought.

Gurney's Cuckoo Falcon – Guadalcanal, Solomon Islands

The next stage of my travels was especially complicated and included, amongst others, a five-hour stop in Port Moresby, Papua New Guinea. It seemed perverse to be passing through PNG without seeing a single bird, so I consoled myself with a bird-of-paradise beer! Fortunately, all the connections worked and I eventually arrived in Honiara on the island of Guadalcanal. Just over a month later the Mount Agung volcano in Bali erupted leaving thousands of holidaymakers stranded (phew!).

Guadalcanal was the nearest place to an island called Uki, where the first Pacific Baza in the Solomon Islands had been collected in the late 1870s. Edward Pierson Ramsay, then Curator of the Australian Museum, Sydney, named it *Baza gurneyi* in honour of John Henry Gurney, but it is now considered a subspecies of the Pacific Baza and once had the common name of Gurney's Cuckoo Falcon.

Guadalcanal has diverse habitats with lowland and hill forest, cultivated areas, mangroves and wetlands but the montane forest highlands in the centre are very inaccessible. Inland from Honiara rises Mount Austen with undulating low forested foothills very much degraded with patches cleared for habitation and planting of crops such as coconut, plantain and cassava. I understood this mixed habitat was favoured by resident Pacific Baza and they were known to perch conspicuously in small trees watching for prey below. I had been put in touch with a local guide, who lived in the foothills and I was to get there each day at dawn by taxi from my hotel in Honiara.

We met up the first morning to start searching for the Baza. We scoured the same areas around the slopes of Mt. Austen for three days without success and I had all but given up with an hour to go to the time we had decided to finish. Then we both saw a raptor several hundred metres away flying fast at tree-top height, pursued by two small birds, which raised our hopes. It appeared again briefly flying across a thicket, then seemed to disappear into it. I got the impression of grey/blue upper and paler below but no other detail and no chance to get binoculars on it. Several minutes later it flew out and I took several photographs, showing the bird in silhouette only. These images were enough to see a falcon-like shape with pointed wings and certainly not the rounded, splayed wings of a Baza. The only falcons recorded in the Solomon Islands are the Peregrine and Oriental Hobby, we probably saw the latter.

I only saw two other raptors during my time on Guadalcanal, the ubiquitous Brahminy Kite and a Pied Goshawk. I had now seen Brahminy Kites on all three of the

islands I had visited but although they looked the same to me, they were in fact three different subspecies. These birds were common in the three islands I visited and readily identified as a medium-large raptor with a distinctive white head and rich chestnut plumage. When walking across an open area in the foothills we spotted a soaring Pied Goshawk, a medium-sized polymorphic hawk showing largely white and pale grey below. The bird seemed to make jerky, almost little jumps, in the air, perhaps catching insects? There was one large raptor I had hoped to see but was disappointed to miss – the Solomons or Sanford's Sea Eagle ('Vulnerable'), first described by the German ornithologist Ernst Mayr in 1935.

I saw a total of 36 species during my three days on Guadalcanal, a relatively low number because I stayed in the same location, but I did see one of the ten Guadalcanal endemics, the large Buff-headed Coucal. Perched high in a tree it showed its two-tone buffy-cream head, shoulders and breast contrasting with black upper wings and tail. A small, motionless Ultramarine Kingfisher lived up to its name with its dark blue head and upper wings contrasting with a white neck and breast. I saw five species of parrots, but the stocky, brightly coloured Yellow-bibbed Lory stood out with a black-cap, bright red bill, cheeks, and breast, a yellow bib and green wings, perched at the top of a tree among blooms. Two large, Red-knobbed Imperial Pigeons ('Near Threatened') showed in a tree top with enlarged red ceres, grey heads and chests, rufous bellies, and metallic green upperparts.

I had a fleeting glimpse of another endemic species, when two medium-sized, dark brown, Guadalcanal or Woodford's Rails ('Near Threatened') scuttled across our trail from a grassy thicket (too fast for a photograph). This flightless rail was named in honour of Charles Morris Woodford (1852-1927), a British naturalist and government administrator who once kept a Gurney's Cuckoo Falcon in captivity. One Guadalcanal endemic that I most decidedly did not see was the Guadalcanal Moustached Kingfisher ('Endangered'). There were two reasons I did not expect to see this bird – it was so rare a male had never been seen before 2015, and it was thought to occur in a remote mountainous area requiring a multi-day trek with guides, porters and the permission of land-owners. It became internationally famous in 2015 when a team from the American Museum of Natural History, New York, eventually caught a male specimen, took its photograph, then euthanased it for the museum collection. The international press turned on the researchers with disgust and condemnation and even scientists were split, but most supported the action.

In retrospect, I underestimated the amount of time I needed on Guadalcanal to find Gurney's Cuckoo Falcon, thinking it would be the easiest of my three target Gurney raptor species, and I did not have alternative search strategies. Needless to say, shortly after I left the island, I had a report the bird was seen again in the Mount Austen area. Guadalcanal had the same raft of environmental issues that I had seen elsewhere on this trip but there were differences such as huge numbers of African land snails crushed on woodland tracks by passing vehicles, and a lack of motorbikes and hooting traffic.

Singapore

Singapore is a surprising city state of contrasts, a twenty first century modern metropolis of never- ending development on the one hand, but on the other hand a few pockets of old habitats still exist. Alfred Russel Wallace might recognise nothing if he came back today, apart perhaps from the small hill area of primary rain forest known as Bukit Timah Nature Reserve. Although now an ecological island surrounded by high-rise development, there are still charismatic Greater Racket-tailed Drongos to see, and nearby there is a Wallace Education Centre named in his memory.

In Singapore, I was able to visit Lee Kong Chian Natural History Museum to inspect specimens. This bespoke museum was established in 2015 with a philanthropic contribution from the Lee Foundation, and is a successor of the Raffles Museum, first mooted by the famous Sir Stamford Raffles, the founder of Singapore. It is an excellent museum with innovative displays and well worth a visit, but it is out of the way on the university campus and I encountered taxi drivers who did not know where it was. The museum has a collection of more than 31,000 bird specimens from across the region, but I was interested in the specimens of Gurney's Pitta (*Hydrornis gurneyi*) they held.

Unfortunately, because of permit restrictions at this time. I could not visit the area in Myanmar where the only known viable population of this bird remains, but I could at least inspect specimens when in Singapore. This enigmatic species was named in John Henry Gurney's honour in 1875 by his friend, fellow ornithologist and colonial administrator, Allan Octavian Hume. This small bird is a delightful kaleidoscope of colour but amazingly elusive having disappeared from view in the twentieth century at one time for 50 years. This bird seems to connect with conservationists and on rediscovery in Myanmar, huge conservation efforts have attempted to protect its remaining habitat, but it has been recently described as 'on the brink of extinction.' Ten specimens were produced for me to examine in a laboratory buzzing with researchers, which was a pleasure to witness. Most of these specimens were collected regionally in the early 1900s, and were in excellent condition still retaining their vivid colours.

The last word of this account must go to the extraordinary pioneering travels and collecting of Alfred Russel Wallace in the Malay Archipelago from 1854 to 1862. During this period, he collected about 8,000 birds which eventually found their way to museums and private collectors around the world (including John Henry Gurney). Surprisingly, only one of these specimens is held at the Lee Kong Chian Museum – an Asian Brown Flycatcher probably collected in Malacca in 1862 by an English mining engineer, Frederick F. Geach, who collected specimens to help Wallace. This specimen is displayed in a novel, pull-out drawer with a card explaining the specimen's history, but when you consider the diversity of exotic bird specimens Wallace collected, it seems remarkable that only this one, nondescript example should remain here.

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BOOK REVIEW

The Falcon Thief
A True Tale of Adventure, Treachery and the Hunt for the Perfect Bird

Joshua Hammer
2020. Simon and Schuster, New York. ISBN 9781501191886

This book lives up to its title, reading rather like a fictional thriller but with a serious message. It introduces the reader to three obsessions – egg collecting, falconry and the illegal trade in wildlife. All three converge on the activities of two men, Jeffrey Lendrum, the principal character of the book, and his nemesis Andy McWilliam, a senior investigator in Britain's National Wildlife Crime Unit. Lendrum, of course, is notorious in the Zimbabwe ornithological community for his criminal activities and his part in damaging the Black Eagle Survey. This book fills out the story, with new insights into his character and activities.

It all began with egg collecting. Once a respectable activity, eggs were collected from bird's nests on a truly staggering scale during the 19th and early 20th centuries. For example, the Rev F.C.R. Jourdain (an ill-tempered man nicknamed "*Pastor Pugnax*") had 17,500 clutches, the biggest collection in Europe. Egg-collecting was popular in southern Africa, too, and many founder members of the Rhodesian Ornithological Society (now BirdLife Zimbabwe) were ardent collectors. It is now banned in most countries but illegal collecting remains a serious problem. Some of Andy McWilliam's experiences with illegal egg collectors are recounted in this book and the subterfuge and tenacity displayed by these people is astonishing. McWilliam noted that many of them were loners and social misfits who relished the hunt and the potential hazards of reaching birds' nests, sometimes located on dangerous cliffs or closely guarded properties. In his opinion egg collecting is an addiction for many of them, comparable to alcoholism or drug abuse.

It was Jeffery Lendrum's father, Adrian, who introduced him to egg collecting and encouraged him in this activity. It quickly developed into a compulsion and Lendrum became an expert nest-finder, tree- and rock-climber who developed his own techniques for reaching otherwise inaccessible nests. The story of how the Lendrums became seemingly enthusiastic members of the ornithological society is well known in Zimbabwe, and described in detail in this book. Their most despicable action was to infiltrate the Black Eagle Survey in the Matobo National Park and use it to cover their illegal egg-collecting activities. The events leading up the discovery of their activities, and their arrest and subsequent conviction are covered in detail in the book. Shortly after the trial in Bulawayo, British police raided a farmhouse near Birmingham and found eggs and chicks of Martial, Crowned and Black Eagles from Zimbabwe, almost certainly obtained from Adrian Lendrum. Unfortunately, the Zimbabwean authorities could not get sufficient evidence to charge him, but he would have been arrested had he travelled to the UK.

Lendrum later claimed that corrupt National Parks officials paid him to collect the eggs of eagles, falcons and other protected species, which they then smuggled to overseas destinations. There may some truth in this because when it became obvious in the late 1970s that Rhodesia was losing the war, many individuals were scrambling to secure their futures by building up funds in offshore accounts. One Parks officer was jailed for his involvement with an ivory-poaching group of military men (who escaped conviction on 'security' grounds). The name of another well-known Parks Warden, known to be a keen egg-collector, also came to be mentioned in this respect but no evidence could be obtained.

The second obsession, falconry, is an ancient form of hunting that spread from central Asia into the Middle East and Europe, where it became a sport and status symbol. I knew that it was immensely popular in Arabia and that wealthy Arabs had decimated falcon populations across the Middle East and central Asia. They have also driven some prey species, notably MacQueen's Bustard (also known as the Eastern Houbara), almost to extinction. But I was not aware of the extraordinary falcon breeding programmes founded by the rulers of the United Arab Emirates, and made possible by almost unlimited access to money. While I found the domestication of falcons and the sport of falcon racing, necessitated by the destruction of their natural prey, rather distasteful it is surely better than taking birds from the wild.

Nevertheless, there is still a demand for wild birds amongst wealthy Arabs, who mistakenly believe that wild birds are stronger and more agile hunters than domesticated ones. There is also a particular desire for exotic species, notably the white gyrfalcons, for which oil-rich sheikhs might perhaps pay as much as $50,000. Lendrum was introduced to this environment by another Bulawayo boy, his school friend Howard Waller, an ardent falconer who became one of the most successful falcon breeders in the United Arab Emirates.

A somewhat enigmatic character, Waller admitted that Lendrum suggested the two of them should collaborate in smuggling the eggs of wild falcons but insists that he dismissed the idea as idle chatter. On the other hand, Paul Mullin, his former partner in business (and crime) maintained that Waller funded their search for falcons in Canada. Jeffery Lendrum's younger brother also named Howard Waller and Arab royals as his clients. Whatever the case, there seems little doubt that Lendrum made the contacts and found the clients he needed to support his egg-smuggling venture during his stay in the Emirates.

The wildlife trade is estimated to be worth at least USD200 billion and it may rank as the third largest illegal business activity, after drugs and arms. Jeffrey Lendrum may have been a relatively small player in the larger scheme of things, but he targeted threatened species and must have had a significant impact on their numbers. Both Lendrum and Mullin justified their actions by arguing that the mortality of falcon eggs and chicks was high and so they were 'rescuing' them, and their actions were (a rather perverse) form of conservation. While it is true that most bird species experience high chick and egg mortality, taking eggs is an additional, not a substitutional, level of mortality. In any case, none of their 'rescued' birds would be returned to the wild so collecting falcon eggs does nothing to maintain wild populations. I would like to have seen this point stressed more forcefully in this book.

This book then discusses Lendrum's brushes with the law in some detail. These began in 1983 when he and his father were arrested in Bulawayo, fined $2,500 each, given a four-month suspended sentence and lost their vehicle, incubator and egg collection. The next was in Canada in 2002, when Lendrum and Mullin were caught with seven gyrfalcon eggs and fined $7,250 each; it could have been as much as one million dollars if the authorities could have proved conclusively that they intended to smuggle the eggs out of the country. They also found a record of the pair's expenses from a previous Canadian trip – it included $30,000 for helicopter rental and thousands of dollars for air tickets, leaving no doubt that they were well-funded wildlife smugglers.

Lendrum attracted international notoriety when he was caught at Birmingham (UK) airport in 2010 after a suspicious cleaner wondered why a passenger, bound for Dubai, had spent an inordinate length of time in the bathroom of the first and business class lounge. In view of his strange behaviour, he was arrested by the Counter Terrorism Unit, but after being found with Peregrine Falcon eggs on his person, he was handed over to Andy McWilliam. There is an interesting account of his interrogation of Jeffrey Lendrum, who frankly admitted his guilt and later revealed the locations of nests in Wales from which he had taken the eggs. He was sentenced to 30 months imprisonment, and assets worth at least £20,000 were forfeited. His sentence was later reduced on appeal to 18 months on the grounds that it was 'manifestly excessive' (many of us would take the opposite view!).

The next episode was his arrest in Brazil in 2015 after he was found with four Peregrine Falcon eggs in his possession. These eggs were of the distinctive Patagonian race *cassini*, which has an almost white breast and would command a high price in the Gulf states. They had been taken from the Pali Ake National Park in the extreme south of Chile; the Chilean authorities were aware of his activities and they tipped-off the Brazilians, who caught him in São Paulo on his way to Dubai. His passport was confiscated and he was released on bail, and he seemed to have fallen apart on this occasion. He engaged a lawyer who told him of the grim conditions in the prison to which he would be sent if convicted. Consequently, he jumped bail, crossing the open border to Argentina and getting a new Irish passport in Buenos Aires, having told the embassy that his had been lost. From there he flew home to Johannesburg.

It was after this episode that Lendrum claimed to be a reformed character. He got a job with his brother, who published a hunting magazine, but this ended when readers found out about his past and protested about his employment with the magazine. It was at this time that he plaintively claimed, on his brother's magazine website, that '*what I did was stupid and believe me I have paid for it…I was judged by a judge and paid the price …is there no place in your thoughts to give a criminal a chance after doing his time*?' Indeed, he told the author that he would not be collecting eggs again; he was on the run from Brazil, was banned from Dubai, wasn't welcome in Canada or the United States, and was under scrutiny in the UK. Besides, he was ageing, with prostate cancer and a car crash leaving him in pain and sapping his energy.

Fine words, but in 2018 he was arrested at Heathrow Airport, London, with 17 eggs of African birds of prey; Black Sparrowhawk, Fish Eagle, Cape Vulture and African Hawk Eagle, plus two Fish Eagle chicks that had hatched in transit. Experts in the UK suggested these eggs and chicks would have a street value of £80,000 to £100,000. In January 2019, Lendrum was sentenced to 37 months imprisonment. Presumably, he is still there and one has to hope that upon his release he will be deported to Brazil to face trail for both egg-smuggling and jumping bail.

This was very readable book and the author has done an excellent job in describing both the adventures of Jeffrey Lendrum in his search for the eggs of falcons and other raptors, and the murky world of the wild life trade. There were a few biological errors – there is no Black Ibis and Lapwings don't eat fish, for example, and there is no such thing as a Black Vervet Monkey. Mackinder's Eagle Owl is not just a lizard- and bug-eater, but is a powerful predator that feeds mostly on small mammals (hyraxes, rock hares, spring hares, hedgehogs, genets, and so on), and a wide range of birds up to the size of guineafowl (including a Lanner Falcon), as well as some reptiles and insects.

But in the end, what are we to make of Jeffrey Lendrum? The author admits that he felt sorry for him in some ways, finding him charming, energetic, intelligent and resourceful. He quotes Peter Mundy's comment (2010. *Honeyguide* **56**: 93-94) that, given his passionate interest in birds of prey, Lendrum could have made a name for himself in conservation circles. The author felt that he was conflicted between his love of animals and the desire to possess them, and driven by a need to break the rules. He also wished to be seen as a globe-trotting daredevil, hence his assertion that he had been a member of the Rhodesian SAS.

This was obviously an important component of Lendrum's persona and he sent me a very aggrieved e-mail after I challenged this assertion in an editorial (2010. *Honeyguide* **56**: 87-90). Regrettably, the British press salivated over the notion that he had been in the SAS, which must have enabled him to see himself as something more than a mere thief. Perhaps he will be flattered that the *New York Times*, in its review of this book, described him the 'Pablo Escobar of the falcon egg trade' so putting him in the same class as a true criminal mastermind.

After reading this book, I felt that author had been rather too sympathetic to Jeffery Lendrum. Everything written about him suggests that he was a hardened, dedicated and probably quite successful criminal. The accounts of how he was caught in Canada, UK, and Brazil suggest a somewhat incompetent bungler who made elementary mistakes that led to his downfall. But he was only caught four times in a career extending over nearly 40 years, and in all the discussions with Andy McWilliam and the author he never revealed what other activities he may have been involved with. He apparently visited Patagonia six times 'as a tourist' (yeah, right) and admitted to travelling to Sri Lanka and Myanmar in search of Peregrine Falcons. All this must have cost a pretty penny and his clients would not have continued to support him if he had been unable to deliver the goods.

He has never revealed anything about these clients, claiming that his life would be in danger if he did so. Perhaps, but I believe he protects their identity because he hopes to continue working for them. After all, he comes across as a loser, having failed in business and marriage. He betrayed his partner, Paul Mullin, by stealing his girlfriend (that relationship also failed), he has lost most of his friends and his reputation, and is without any job prospects. What else can he do? This man will remain a threat to birds of prey until he becomes physically incapable of reaching their nests.

Brian Marshall

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