

Letter to the Editor

Dear Sir,

I refer to your article on page 14 – *Bird Numbers 2004 (Kelp Gulls as predators of large African Penguin chicks)* ... a very interesting story indeed. May I add another story.

Enclosed is a photo of a Kelp Gull trying to nick a Cape Fur Seal pup. The adult seal must have raised her head to defend her pup so the gull took on a defensive pose for a moment. We could not wait to see the end of the drama, but I think the gull got his meal!

This photo was taken at St Cross – the seal colony north of Henties Bay on the Namibian west coast. Taken in September 2004.

Dennis Mitchell



Escapee cage birds in suburbs of Johannesburg

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About the 650th bird of my (CR) life-list was a Rose-ringed Parakeet *Psittacula krameri*. Even the Mallard *Anas platyrhynchos* has made the official list of birds of southern Africa, and I added that somewhere around 670. I was torn when adding them though. They are alien species after all, and both have gained a foothold in transformed urban habitat in various cities around South Africa, with greater or lesser effects on the indigenous avifauna. Come to think of it, the House Sparrow *Passer domesticus* and Common Myna *Acridotheres tristis* probably featured in the first 100 species of most South Africans' life-lists.

The Mallard is abundant in some areas of the Western Cape and Gauteng, and not just on artificial dams at shopping malls. We have seen this species in the ocean at Kommetjie (Cape Peninsula) and along the Sandspruit in Rivonia, and the concern is not just that it can displace or out-compete indigenous *Anas* species, such as the Yellow-billed Duck *A. undulata* and the African Black Duck *A. sparsa*, but also because, through inbreeding and hybridisation, it can damage the genetic integrity and long term conservation status of these indigenous species. These threats grow with

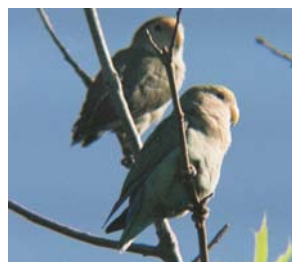
population increases of the exotic species and concerns have been raised (Maclean & Darrol 1986; Tarboton et al. 1987; Cohen 1997).

In contrast, the Rose-ringed Parakeet, although an established breeding resident in Johannesburg and Durban (Sinclair et al. 2002), is not currently as numerous, nor does it pose a threat to the gene-pool of any indigenous species. Threats from this species are currently restricted to nest-site competition with other hole-nesting birds, but elsewhere, such as in the United Kingdom, Mauritius and Seychelles, where it has become established and abundant, it is considered a pest and its proven record as a competent coloniser suggests that it may yet prove to be problematic in South Africa (Brooke 1997).

Two other cage bird escapees are apparently also established as breeding species in Johannesburg. The first of these is the Violet Turaco *Musophaga violacea*, a near-endemic of West Africa (Sinclair & Ryan 2003), which seems to have first been reported in Johannesburg in September 1994, when two adults were seen in Bryanston (Hockey et al. 1996). A year later, three birds, including a juvenile, were present in the same area (Hockey et al. 1996). Sightings of this species have continued with between one and three birds in Bryanston, Oaklands, Houghton, Northcliff and Black-



Rosy-faced Lovebirds perched in a Pin Oak *Quercus palustris* in Riverclub, Johannesburg. Left: the bird in the foreground is an adult, while the second is a juvenile. Right: two immature birds. (Photos: John Boa.)



heath between 1997 and 1999 (Wright 1997; Freer 1998; Silk 1998; Pougnet 1998; Laing 1999). This species is still present in Bryanston, and as many as three birds are regularly seen feeding in one particular Fig Tree *Ficus* sp. Also, a single bird has recently been recorded in Equestria in Pretoria where it had been present for a number of months prior to April 2005 (R. Fieldwick pers comm.).

The second is the Rosy-faced Lovebird *Agapornis roseicollis*, a species that is not alien to South Africa. It is, however, restricted to the drier western parts of the sub-continent, roughly from Kenhardt in the Northern Cape, along its stronghold of the Namibian escarpment, and into southern Angola (Simmons 1997). It is a commonly kept cage bird (Rowan 1983) and escapees in Johannesburg are reported regularly. These are mostly singletons, but sightings of two and more occur and a small flock of at least seven birds is resident in the suburb of Riverclub along the Bramfontein Spruit in northern Johannesburg. Although a nest site was not located, the presence of recently fledged juveniles indicated that this latter group bred successfully during 2003/4 and 2004/5.

Flocks of escapee Rosy-faced Lovebirds have been recorded in as unlikely locales as central Kruger National Park (Newman 1985), and have bred in Nylstroom (McAllister 1993). The successful breeding of a single group in Johannesburg, albeit for two consecutive years, therefore does not necessarily signal a mass invasion and transformation of city birdlife. Brooke et al. (1986) documented failed introductions of several parrot species in South African and indeed, in evaluating several apparently successful introductions in Fish Hoek, Middelburg and Durban, conclude that even permanently established populations of Rosy-faced Lovebirds are unlikely to present problems. It will, however, be interesting to watch both this species and the Violet Turaco and see if they join the Rose-

ringed Parakeet and Mallard as naturalised species in South African suburbs.

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Breeding data for Short-tailed Pipit

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Short-tailed Pipit *Anthus (Caffranthus) brachyurus* is an uncommon, localized Red Data species in South Africa (Barnes 2000). Although distinctive once learnt, the display song is an unobtrusive, almost subliminal noise that can be easily overlooked. It is our opinion that the Short-tailed Pipit was badly under-recorded during SABAP (just 20 records). Underlining this fact, in December 2002, MBC discovered several birds in the coastal grasslands of Mkambati Nature Reserve, which represent the first records for Transkei.

The breeding biology of the Short-tailed Pipit is poorly documented (Keith et al. 1992; Maclean 1993; Tarboton 2001). Few nests have been discovered and, until now, many aspects of the nesting cycle were unrecorded.

Vernon Crookes Nature Reserve (VCNR; 3030BC), on the KwaZulu-Natal south coast, is one of the most reliable localities in South Africa to find Short-tailed Pipit. Previously we reported on a nest found in October 2002



Fig. 1. At one of the nest sites.

(Davies et al. 2003). In October 2004, we found seven further nests in the grasslands of VCNR. We present our observations of these seven nests, including the first descriptions for this species of incubation and fledgling periods, details of hatchlings, and of egg masses and growth of chicks.

Six of the nests were in the iSkonkwaneni grasslands and a single nest in the Mbudlambudla area. Of the seven nests, two were found in an early construction stage, while the remainder were found with eggs (in one case with an incomplete clutch). Eggs and chicks were weighed using a portable, two-place electronic balance, and measured using digital Vernier calipers (Fig. 1).

Habitat, aspect and altitude

During spring and summer, Short-tailed Pipits at VCNR occur only in short, post-burn, regenerating, hilly grassland. The pipits track the rotational burns faithfully from year to year, and we can now forecast reliably where in the reserve they will appear each spring. Aside from Short-tailed Pipit, these post-burn grasslands are species-poor. There are a few breeding Plain-backed Pipits *A. leucophrys*, various canaries, the occasional Fan-tailed Widow *Euplectes axillaris* and Neddicky *Cisticola fulvicapillus*, but not much else.

Five of the iSkonkwaneni nests were located on N–NE-facing slopes, on spurs radiating off a main ridge situated in short, ankle-high grassland awash with flowers and forbs (Fig. 1). The sixth nest was placed in a N–NE-facing shallow valley, not on a spur. All nests were between 300 and 400 m a.s.l.

Abundant fields of the yellow herb *Gnidia kraussiana* surrounded two of the nests. Other common flowers on these slopes included *Gerbera ambigua*, *Hypoxis* spp., *Pentanisia*

prunelloides, *Eulophia ovalis*, *Gladiolus longicollis*, *Aster* sp., *Eriosema cordatum* and *Kohautia amatymbica*. Dominant grasses included *Eragrostis curvula*, *E. capensis*, *Aloteropsis semialata*, *Tristachya leucothrix* and *Panicum* cf. *ecklonii* or *natalense*.

The Mbudlambudla nest was on a steepish, south-facing slope at the end of a spur. The grassland here was even shorter and dominated by *Kohautia amatymbica* fields.

Nest descriptions

All the nests were tidy, fairly deep, well-made cups of dry grass and rootlets. Finer dry grass blades and rootlets constituted the lining. Nests were usually placed next to a flowering forb (e.g., *Gnidia*, *Hypoxis*, *Pentanisia*, *Eriosema* spp.) or grass tuft (Fig. 2). Two nests differed in being placed in small *Indigofera* shrublets (Fig. 3). Four of the nests had a sparse woven bower made of living grass stems (Fig. 4); in the remaining three nests there was no grass to weave a bower. Nest measurements appear in Table 1. It appears, based on two incomplete nests (loosely arranged foundations of dry grass), that nest building is rapid and takes less than five days. Nest construction in the African Pipit *Anthus cinnamomeus* also takes about five days (Wilson 1988).

Nesting density and synchrony

The six iSkonkwaneni nests were within an area of c.6 ha. The closest two active nests were just 55 m apart. These six nests were largely synchronous, although at one nest one female was still incubating while young had fledged from two nearby nests, c.60–120 m away.

Eggs

Short-tailed Pipit eggs appear to be laid in the (early) morning, as in many passerines (e.g. Skutch 1952). This is based on our observations of 10 October when a check on Nest 1 at c.6h00 revealed two eggs (but no incubating bird). We returned later that morning (c.10h30) to find a complete clutch of three eggs (again with no incubating bird). Clutch



Fig. 2. A nest between flowering forbs.



Fig. 3. A nest inside a small *Indigofera* shrub.



Fig. 4. A nest with a sparse woven bower of living grass stems.

Table 1. Dimensions of five Short-tailed Pipit nests (cm).

Measurement	Arithmetic mean	Range	Standard dev.
External width	7.9	6–9	1.3
External length	8.6	7–10	0.2
Internal width	5.4	5–6	1.3
Internal length	5.8	5.5–6	0.4
Cup depth	4.8	4.5–5.5	0.4

size was always three eggs ($n = 8$).

Eggs are ovate, dull white with pale, indistinct brown speckling and blotching at the blunt pole (Fig. 5). There is some variation in the speckling and some eggs may be speckled throughout. Egg measurements are given in Table 2.

On the basis of a sample of nine eggs from five nests, the mass lost during incubation, per egg, was 0.01–0.02 g/day. Thus, the loss in egg mass over the entire incubation period is likely to be in the region of 0.14–0.28 g (8–17% of initial egg mass). Further observations are required.

Incubation period and behaviour

For only one nest could we be certain of an incubation period. The incubation period was 13–14 days (10 October to 23/24 October). This nest was checked on the morning of 22 October and still contained eggs (c.7h30). On 24 October, when examined at c.5h30, three chicks were found. That the plumage of the chicks was completely dry suggested that the chicks had hatched on 23 October, giving a probable incubation period of 13 days. The chicks appear to hatch synchronously, probably within hours of each other.

During incubation, the adults continue

adding nesting material to the nest. This behaviour was observed on several occasions. Although this may have been displacement activity in several instances, on two occasions we observed birds carrying nest material (dry rootlets) to the nest while we sat unobserved in the distance. On flushing these birds from the nest, the rootlets were found resting on top of the eggs (Fig. 6).

We do not know the respective incubation duties of the adults. The incubating bird, especially on well-set eggs (or chicks), flushes reluctantly, only when the observer is c.1 m from the nest. Even when the location of the nest is known, it is difficult to see the incubating adult because of screening forbs and grass tufts. The flushed bird flies only a short distance (<2 m) usually with a 'wobbly' fluttering flight (white outer-tail feathers visible) before dropping into the grass. We did not see any distraction displays in the flushed incubating adults (cf. De Swardt 2002), although sometimes birds with chicks flew less than a metre in a stiff, stylised manner before landing and creeping off slowly into the grass.

Nestlings

On 24 October, Nest 2 was checked at

Table 2. Measurements of 21 Short-tailed Pipit eggs.

Measurement	Arithmetic mean	Range	Standard dev.	C.o.V. (%)
Length (mm)	17.43	16.25–19.00	0.78	4.8
Maximum width (mm)	13.43	12.61–14.10	0.39	2.9
Fresh mass (g)	1.66	1.50–1.89	0.10	6

c.5h10 and found to contain three eggs. Returning at c.10h45, we discovered that one chick had hatched. This suggests that Short-tailed Pipit chicks probably hatch during the morning. Again, this is the standard regime for passerines (Skutch 1952), although there can be exceptions (e.g. Broekhuysen 1959; Earlé & Oatley 1983; Boyer 1988).

Chicks are born with eyes closed and neossoptiles present. The maxilla is horn-coloured with a distinct dark terminal spot. The gape flange is dull yellow. The skin on the ventral side is dull pink, and on the dorsal side dark pink to puce. The neossoptiles are smoky grey and present on the supraorbital, occipital, postero-spinal, humeral, ulnar and femoral tracts. There are no neossoptiles on the ventral surface.

The teleoptiles (adult feathers) come into pin from about day 4, when nascent primaries, secondaries, spinal and ventral pterygiae become noticeable. By day 8, the teleoptiles are beginning to burst from their sheaths. Eyes are partly open by day 4 and fully open by day 5. Chicks leave the nest (i.e. fledge) at 10–12 days.

The mean growth rate of four chicks was 1.55 g/day (range 1.42–1.82 g/d). The mean growth in bill length (nares to tip) was 0.53 mm/d (range 0.47–0.6 mm/d) and mean growth in tarsometatarsus length was 1.64 mm/d (range 1.49–1.82 mm/d). Our observations suggest that, at fledging, the chicks' bills are shorter than adult length, but that the tarsi have already reached adult values.

The mouths of chicks (including the tongue) are garish orange-yellow. Davies et al. (2003) accorded faint, streaked, lateral tongue markings to the 'type g' mouth-spot category of Maclean & Vernon (1976), who doubted the validity of their own category. Our observations were that these streaks are not tongue-markings, but rather the dark paraglossale bone of the hyoid apparatus showing up through the flesh of the tongue.

The chicks importuned when they were handled, but were usually noticeably silent – presumably an anti-predator stratagem to

**Fig. 5.** The eggs have indistinct brown speckling.**Fig 6.** The added nesting material on top of the eggs.

avoid attracting attention to the nest. Chicks older than about six days, however, occasionally gave an almost inaudible 'seep' when handled. Young nestlings (less than five days old) seem vulnerable to heat stress and can be seen gaping on hot days. This potential vulnerability to over-heating of both eggs and chicks perhaps explains the rudimentary nest-bowers.

Nesting success

The breeding success of the pipits is summarised as follows:

Number of eggs laid	21
Number of hatchlings	16
% of all eggs laid	76.2%
Number of fledglings	14
% of all eggs laid	66.7%

Overall, with a nesting success of 67%, Short-tailed Pipits appear to be successful breeders, unlike many African passerines where it is usually <35% (calculated from Maclean 1990, Table 9.2). Four of the seven nests had at least one unhatched (infertile) egg. Interestingly, the adult Short-tailed Pipits do not remove these addled eggs from the nest. One nest was found destroyed at the hatchling stage (chicks older than five days when taken). The predator may have been a mongoose.

Discussion

Nest dimensions appear slightly smaller than those reported in the literature (e.g., Maclean 1993), except for cup depth where our values are larger than the (presumed) mean of 3.5 cm given by Maclean (1993). Egg dimensions are similar to those in the standard literature (Keith et al. 1992; Maclean 1993). Although our sample size is small, three eggs was invariably the clutch-size. Reports of two-egg clutches (e.g. Maclean 1993) probably refer to incomplete clutches.

With an average egg mass of 1.66 g, a single egg represents c.10.5 % of the adult female mass (given a mean adult female mass of 15.8 g; Maclean 1993; Voelker 1999; Durban Museum unpublished data). Therefore a clutch of three eggs represents c.32 % of the female's mass. These values (based as they are on small sample sizes) are close to those reported for Long-tailed Wagtail (Piper 1989) and Richard's Pipit in Australia (Norment & Green 2004). The mean growth rate for Short-tailed Pipit chicks (1.5 g/d) is also close to the 1.6 g/d reported for Long-tailed Wagtails (Piper 1989). In the Rock Pipit *A. crenatus*, the growth rate is substantially higher at 2.9 g/d (calculated from Table 1 in De Swardt 2002).

Natal pterylosis in the Short-tailed Pipit appears similar to other (Holarctic) pipit species (Wetherbee 1957), although 'very scanty' neossoptiles have been reported for the ventral tract in Meadow Pipit *A. pratensis*.

Short-tailed Pipits lack tongue-markings, agreeing with the situation observed in Richard's Pipit *A. novaeseelandiae* (Boles & Longmore 1985). Other African pipits have apparently not been investigated for tongue-markings. As mentioned above, we previously interpreted Short-tailed Pipits to have 'type g' mouthspots, as in Maclean & Vernon (1976). These authors did not include pipits in their study but wagtails (which are closely related to pipits) were also found to have 'type g' mouth-spots. This category needs more investigation; it is possible that hyoid bones have confused observers of other species. Indeed, more emphasis is needed on tongue-markings of African songbirds, especially as a taxonomic tool to corroborate or refute new insights into passerine relationships (e.g. Ericson et al. 2003).

We were struck by the high density of the nesting pipits. Tarboton (2001) stated that Short-tailed Pipit nests 'are widely spaced' but this cannot always be the case as our observations show. Norment & Green (2004) found the mean minimum distance between simultaneously active nests in Australian Richard's Pipits to be 78.3 m (range 52–150 m). The close proximity of active nests suggests the possibility of polygyny in the Short-tailed Pipit. Norment & Green (2004) suggested "at least a small proportion" of Richard's Pipit males at their study site were polygynous.

Although most of our nests were on sunny, northern slopes, this was due to our spending most of our time searching on these slopes. Aspect probably does not influence nest-site selection at VCNR, although it should be noted that Little & Bainbridge (1992) did mention a preference for high-radiation, eastern slopes in the Drakensberg.

Lastly, the Ezemvelo KZN Wildlife policy of rotational burning in the reserve appears

important for the conservation of the Short-tailed Pipit. Without this winter burning, it is possible that the Short-tailed Pipit would disappear as a breeding species from the reserve. The impact of the additional factor of grazing is unclear at this stage, although the nest slopes were grazed by herds of zebra and blue wildebeest.

Acknowledgements

Alistair McInnes, Richard Boon, David Allan and especially Hamish Campbell made these observations possible. Warden Zeph Dindekazi granted permission for our work.

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Breeding bustards in the Uniondale district, Little Karoo

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The natural habitat in the Uniondale district consists mainly of plains and rolling hills. To the north of the Kouga Mountain range, the vegetation is a transitional mixture of Succulent Karoo, fynbos and renosterveld (Cleaver & Harrison 2003). In this area, sheep, angora goats, ostriches, cattle and horses are farmed. There is some natural grazing, but this is supplemented with oats and lucerne.

Since coming to live in this area in 2000, we have observed both Denham's Bustard *Neotis denhami* and Ludwig's Bustard *N. ludwigii*. On occasion, both species have been seen in the same field, with Blue Cranes *Anthropoides paradiseus* nearby. At the beginning of September 2004, from Oudepost farm house on the northern foothills of the Kouga Mountains, we observed two breeding sites.

The first breeding site was situated in fairly open renosterveld on a ridge with low krantzies facing north, overlooking the valley of a Kammanassie River tributary, north-east of Uniondale. The site is approximately 3 km to the west of Oudepost farm house. With the aid of binoculars we could see a male bustard, with puffed-out white breast, strutting or standing at attention in the morning sun. At that distance we could not see his wing markings clearly, or the colour of his throat or head, but we heard a "bromming" sound coming from that direction in the quiet of the early morning, so it was presumably a Ludwig's Bustard.

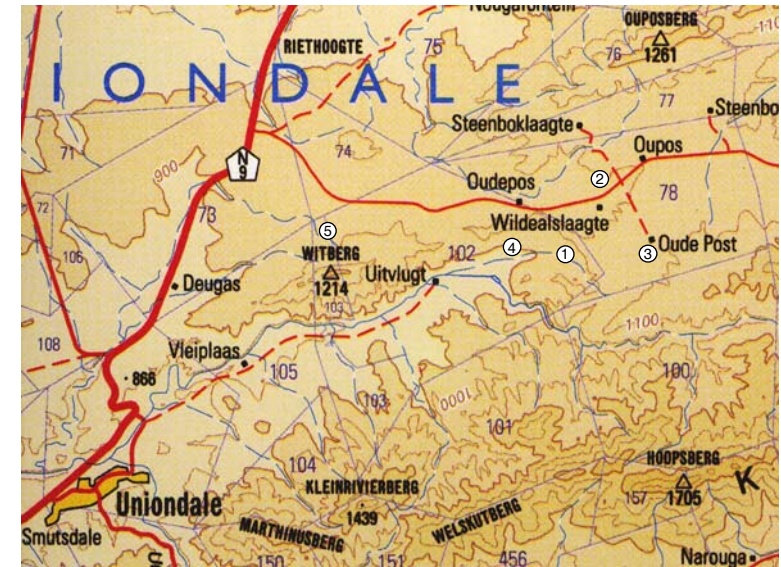
The second breeding site was a renosterveld "island", 40 × 300 m in extent, in the middle of an oat field. This site is approximately 2 km to the north of the Oudepost farm house, across the Hartebees River district road (CAR route WU02). For a few days in early October 2004, we saw three male bustards displaying: one at each end of the "island" and the third on the northern bound-

ary of the "island". Positive identification was not possible because the birds stood among the renosterveld bushes, so one could not see their markings.

We were reluctant to walk across to these sites, being afraid that we might disturb the birds. In the middle of October, we walked into the oat field from the eastern boundary. A bustard flew off from the oats to the south of the island. As we got to within approximately 250 m of the "island", a male bustard gave a "brom", and we retreated.

A week later we reconnoitred from the western side, using the fence with its renosterveld and fynbos as cover, but once again, from approximately 250 m, we could see only one displaying male bustard, facing us and concealing himself among the bushes of the "island". From this site, looking southwestward, we could see a displaying bustard at the first breeding site, and once again we heard his "bromming" call.

We decided to drive westward along the district road to get a closer look at the first breeding site. As per usual, the male bird had concealed himself by this time. Our luck was in, however, as approximately 2 km further on, in a small valley 200 m south of the district road, we saw what we at first thought was a Black Korhaan, but quickly realised from its size that we were looking at a juvenile Denham's Bustard. This was confirmed a minute later by seeing an adult somewhat further away. We could make a definite identification of this adult from the black and white markings on the wings, pale grey throat and dark crown. The juvenile's colouring still appeared quite mottled, but there were plenty of black and white marks on the wings. We watched for 10 minutes as they walked southward up the valley, feeding as they walked. The head of this valley is approximately 0.5 km from the first breeding site, so there must be more



Section of 1:250 000 Uniondale district map.

1. First breeding site; 2. Second breeding site; 3. Oude Post farm house; 4. Juvenile Stanley's Bustards were seen over the ridge from the first breeding site; 5. A juvenile and two adult Denham's Bustards were seen in a reaped oat field near Witberg Δ 1214.

breeding sites along the ridge.

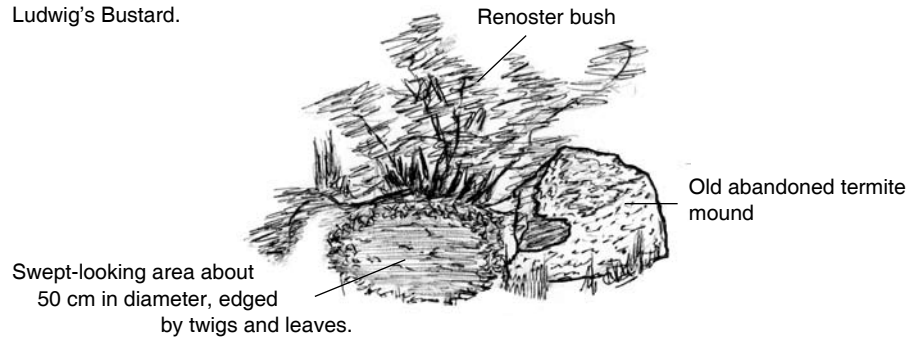
This sighting put us on our mettle to identify the bustards at the first and second breeding sites. The first morning we saw two bustards south of the second breeding site in the oat field. I decided to try using my 200 mm Meade astronomical telescope. So, with a 25 mm lens, I got a closer look and could see that the birds at this breeding site were definitely Ludwig's Bustards: there were no black or white markings on their wings and they had a definite dark brown throat. You can imagine my delight when, into my field of vision, flew two juvenile birds, skimming over the oats, no doubt trying out their wings. They landed and ran up to what I presumed to be their mother, just as domestic chickens do, and started pecking at the ground and chasing insects. Their colouring was still quite mottled brown, without any clear markings. I saw them on two further occasions in the oat field.

At the end of October 2004, we searched through the renosterveld "island" of the second breeding site. We found what appeared to be two possible nest sites, one at each end of the island. One was very indistinct, but the second, under a bush near a termite mound, looked as if an area approximately 0.5 m wide had been swept, its edges lined with renosterbos *Elytopappus rhinoserotus* "needles" (Fig. 1). I saw no broken egg shells and the only feathers we found were at scattered localities around the "island".

During November, we saw up to eight Ludwig's Bustards at one time around the area, walking and feeding in and flying over the oat fields and the grazing veld to the south of the district road. On one occasion, we could see that two of the birds were not quite as big as the adults.

In early December, in another reaped oat field northwest of Witberg (trig. beacon 1214), 5 km along the district road from the

Fig. 1. Sketch of nesting site of Ludwig's Bustard.



breeding sites, we saw a pair of Denham's Bustards and a juvenile, almost adult, walking and feeding 100 m south of the Hartbees River district road.

Acknowledgements

I thank Peter Chadwick, Kammanassie Conservation Manager, and James Harrison, Projects Manager, ADU, for encouraging me to write this article.

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Editor's note: The observations in this article are important for at least two reasons. Firstly, it is a matter of some debate whether there is a significant overlap in the distribution ranges of Denham's and Ludwig's bustards. Kerry's observations show conclusively that even their breeding ranges overlap, at least in the Uniondale district of the Little Karoo. Secondly, the details of the breeding sites indicate very persuasively that, although these birds use cultivated fields for foraging, fragments of natural vegetation are vitally important as breeding sites. It is apparent that even small fragments which may have little value in terms of botanical conservation, may in fact be indispensable as breeding sites for these large terrestrial birds. Farmers need to be made aware of this so that they can preserve these fragments for the sake of the birds.

African Black Coucal nests in KwaZulu-Natal

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There is only a single nest record of African Black Coucal *Centropus grillii* from KwaZulu-Natal (KZN). Harold Bell-Marley found a nest with three eggs in long grass at Umhlatuzi, at the upper end of Richards' Bay in late October 1920 (T. Cassidy *in litt.*). Although there is doubt about the identity of some of Bell-Marley's nest records (e.g. Chittenden 1995), his Black Coucal record is correct (based on measurements and appearance of the eggs). Since then, no nests of Black Coucal have been found in KZN, although indications of breeding (e.g. birds carrying nest material, adults copulating, fledglings) have been observed at various localities (e.g. Groutville vlei [pers. obs],

Phinda Private Game Reserve [Butchart & Foster 1999; Glasson 2002] and St Lucia [Robson & Horner 1996]).

The breeding biology of coucals is unusual in that sex-roles are reversed in the family. Males are largely responsible for nest construction, incubation and feeding of nestlings (Andersson 1995). Role reversal in coucals is taken to the extreme by the African Black Coucal, which is a facultatively polyandrous species (polyandry being the mating system whereby a single female is mated to several males). Polyandry is a rare mating system in birds, recorded in only c.1% of species. It is most common in certain wader groups, for example, jacanas, some sandpipers, and



Fig. 1. Nest 1; note long, thick grass and also young guava saplings in background.



Fig. 2. Nest 2; nest hidden in dense grass.

phalaropes. The evolution of polyandry has attracted theoretical interest from behavioural ecologists (e.g. Oring 1986, Ligon 1999).

Polyandry was first detected in African Black Coucals by Carl Vernon (1971). He observed African Black Coucals breeding in moist grasslands outside Harare, Zimbabwe, in 1970 and noticed a single female associated with three different males. From the behaviour of this quartet, Vernon concluded that it represented a polyandrous relationship. His incisive observations were later amply confirmed in a thorough study in southwestern Tanzania by Goymann et al. (2004a, b). These authors confirmed that the African Black Coucal was a sex-role reversed, strongly sexually dimorphic, simultaneously polyandrous bird – indeed the only polyandrous species known to have altricial young. Goymann et al. (2004a) confirmed that the male was almost exclusively responsible for nest building, incubation and feeding of young.

In January 2005, we located three Black Coucals (one female, two males) in the northern section of La Mercy Airfield. The coucals appeared to represent a polyandrous trio and we were able to find the two nests belong-

ing to the males. Both nests had eggs when discovered. We visited the nests on several occasions to observe the adults, obtain egg and chick measurements, etc. After hatching, Hugh Chittenden and Derek Coley of Eshowe were able to erect hides near the nests and observe the feeding of the young.

Breeding locality

La Mercy Airfield (2931CA), on the northern outskirts of Durban, is the site for the long-awaited new Durban International Airport. The airfield is a c.400-ha block of ploughed up sugarcane field that has regenerated as secondary grassland. Although badly infested with alien plants (e.g. guavas, lantana, syringas, pepper-trees, *Verbena bonariensis*, *Chromolaena odorata*), and secondary in nature, the grasslands at the airfield represent a rare habitat in the Durban area. The grasslands at La Mercy have attracted a community of uncommon species. For example, we have recorded the following species over the past three summers: Eurasian Marsh Harrier, Corncrake, Small Buttonquail, Black-rumped Buttonquail, Harlequin Quail, African Grass Owl, Marsh Owl, Pale-crowned Cisticola, Broad-tailed Warbler and Cuckoo Finch.

African Black Coucal was first discovered at La Mercy by Geoff Nichols in January 2002. Subsequently, the coucals have been seen in small numbers (<5 birds) each summer. The coucals favour the areas of the airfield where the grass is thick and c.60 cm tall. The dominant grass species in the area inhabited by the coucals was *Sporobolus pyramidalis* while the forbs *Nidorella undulata* and *Chamaecrista plumosa* were also common.

Evidence for polyandry

We are confident only three birds were present in this particular part of the airfield. Visibility was good and the coucals easy to observe at dawn when they perched conspicuously to sun themselves, vocalise and interact with each other. The one individual was larger than the other two and was the only member of the trio to give the territorial *po-pop* call. This



Fig. 3. Close-up of Nest 1 showing pure white eggs and guava leaves as nest lining.

bird was evidently a female (Vernon 1971, Goymann et al. 2004a). The other two birds did not give the territorial call, were smaller in size and appeared subordinate, suggesting that they were males. Our data are largely circumstantial, but we are satisfied that this is the correct interpretation. Despite covering much of the remainder of the airfield on foot and by vehicle, no other Black Coucals were observed at La Mercy.

One male had a barred tail and secondaries suggesting that this bird was either not fully adult or had retained some feathers from non-breeding plumage (Vernon 1971). The other male had a pure black tail and unbarred secondaries, i.e., was fully adult. The moult regime in coucals seems complex and different species have been recorded breeding in non-breeding or juvenile-like plumage (e.g. Lawson 1962, Frith 1975).

Nests

The nests were found on 21 and 23 January 2005, in thick, knee-height grass. Both were excellently concealed woven balls, with side entrance holes, placed under thick overhanging grass (Figs 1–3). The first nest was sited next to a purple-flowering *Desmodium* sp. (Fabaceae). The grassland around this nest was infested with small guava saplings. The second nest was in a block of thick grass c.200 m from Nest 1. Measurements appear in



Fig. 4. Black Coucal chick, c.7–10 days old; note wispy trichoptiles.

Table 1. Both nests had a cup lining of guava leaves. Throughout the incubation stage, the males could be seen gathering fresh guava leaves and returning to the nest with them.

Eggs and incubation

The eggs were noticeably roundish (spherical), pure white and smooth. In Nest 1, the full clutch was three eggs, and two eggs in Nest 2. Measurements of the eggs appear in Table 2. The second egg from Nest 2 was weighed on 3 February with a mass of 8.55 g. We did not erect a hide during incubation and our observations on incubation duties are limited. However, on all occasions that birds were flushed or seen returning to nests while they had eggs, it proved to be the male bird. The female was never seen in close proximity to the nests during incubation.

Nestlings

Nest 1: By 28 January, all the eggs in Nest 1 had hatched and the eyes of the chicks were already open (dark grey in colour). Judging from Steyn (1972), these nestlings were about five days old. The nestlings were all of similar size and were typical of coucals, with thick, leathery, black skin covered in pure white trichoptiles (Fig. 4). Trichoptiles are long, unbranched, hair-like feathers characteristic of young coucals (Van Tyne & Berger 1959).

Table 1. Details of Black Coucal nests at La Mercy Airfield, Durban (measurements in cm).

	Nest 1	Nest 2
Nest width	11.5	12.5
Nest height	16.5	19.5
Height above ground	14	8
Entrance hole width	8.5	10.5
Cup width	8	9.5
Nest hole orientation	W	NE

The trichoptiles were restricted to the upper parts of the nestlings, covering the head, neck, back and femoral areas of the legs. At this stage, the primaries, secondaries and wing-coverts were coming into pin. The gape flange was pale yellow and the maxilla greyish-horn. A small egg-tooth was visible at this stage.

When we imitated the “kok” call of the adult coucals, the response from the nestlings was immediate and they importuned avidly by craning their necks upwards and gaping. The tongue was deep pink and had a distinct, black, sub-terminal marking in the rough shape of a ‘W’.

On 3 February, we weighed the chicks (about 10 days old). The chicks weighed 62.3 g, 66.5 g and 58.5 g respectively (mean = 62.4 g). While being weighed, the nestlings voided a foul, dark, viscous excrement.

Nest 2: On 28 January, the eggs in Nest 2 had still not hatched. On 3 February, one egg had hatched; this chick’s eyes were still closed (<5 days old) and had a mass of 11.76 g. By 6 February, the second egg had hatched. After this we made no further observations at the nests.

Discussion

Our observations agree largely with published information on the species (e.g. Vernon 1971, Goymann et al. 2004a). The birds formed a polyandrous trio with one dominant, territorial female, and two males which alone incubated and fed the young.

Our egg measurements agree closely with the mean of 30.3 × 24.2 mm reported

Table 2. Measurements of Black Coucal eggs from La Mercy Airfield (measurements in mm).

	Length	Width
Nest 1 (egg 1)	29	25
Nest 1 (egg 2)	29.5	25
Nest 1 (egg 3)	28.5	24.5
Nest 2 (egg 1)	29.3	24.6
Nest 2 (egg 2)	28.6	25.2
Arithmetic mean	29.0	24.9

in Roberts’ 6. In Tanzania, Goymann et al. (2004a) reported clutch sizes varying from 1–7 eggs. Our clutches were towards the lower end of this spectrum. Hatching in our nests seemed rather synchronous (no great disparity in chick sizes). However, several other authors (e.g. Vernon 1971, Steyn 1972, Frith 1975) observed pronounced differences in coucal chick size related to staggered laying and hatching. Most authors also reported snake-like hissing from coucal nestlings that has been interpreted as an anti-predator behaviour (e.g. van Someren 1956, Vernon 1971, Frith 1975). Surprisingly, although we inspected the nests and handled the nestlings on several occasions, this hissing was never heard. Perhaps a reason for this was that we imitated the adults’ kok call before removing and while inspecting the youngsters. Although we agree with Vernon (1971) and Goymann et al. (2004a) that this is an alarm or warning call, the response from the babies suggests it may also have other functions.

The monophyly of the *Centropus* coucals seems not to be in doubt, and the black sub-terminal tongue marking and wiry trichoptiles appear to be confirmatory synapomorphies for the genus.

Based on our casual observations, we cannot offer much commentary on why polyandry evolved in the African Black Coucal. Goymann et al. (2004a) concluded that “high nest predation pressure and small territory size due to high food abundance may have been important factors in the evolution of sex-role reversal and polyandry in this species”.

However, these factors do not seem valid at La Mercy. Indeed, Goymann et al.’s supposition is just one of many ad hoc ‘explanations’ for the evolution of polyandrous mating system (see Andersson 1995, Slotow 1996, Ligon 1999 for others). Murray (2001) underscored the theoretical bankruptcy of such inductive, usually correlatory, approaches to answering life history questions. Probably far more fruitful is to consider Murray’s (1984) approach, which is deductive in nature and principally explains the evolution of polyandry as an interplay of an unbalanced sex ratio, the life-span of the birds, age to breeding maturity and breeding success.

Despite being secondary grassland, La Mercy is home to a rich assemblage of grassland-associated species. Hopefully, when airport construction eventually gets underway, a few hectares will be set aside as a birding reserve within the airport grounds. La Mercy also illustrates that old sugarcane lands can regenerate as productive avian habitats, even when not managed specifically for that purpose.

Acknowledgements

We thank Geoff Nichols for first alerting us to Black Coucals at La Mercy, David Allan and Alistair McInnes (Durban Museum) for use of an electronic balance, Hamish Campbell and Richard Boon for help observing the coucals, Hugh Chittenden and Derek Coley for keeping us informed of their observations at the nests, the Natal Herbarium for identifying the grass species and Tamar Cassidy (Northern Flagship Institution) for supplying information relating to the Bell-Marley clutch.

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Bigamy in Cape Sparrows

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Cape Sparrows *Passer melanurus* are endemic to southern Africa, extending up the Angolan coast. They are usually monogamous, with the pair remaining together all year, and possibly for life (Fry & Keith 2004). In the latest review of the species, Fry and Keith (2004) listed three cases of bigamy. This note records a new instance of bigamy with details, and lists some earlier references that have been overlooked.

A Cape Sparrow nest was noticed on Robben Island on 1 November 2004. The nest was in an alien pine tree in the garden of the Marine and Coastal Management house in the village. It was about 2 m above the ground. The nest was checked and found to have seven eggs. They appeared to have been laid by two females because the eggs differed in colour. It was assumed to be a case of conspecific brood parasitism with two females laying in one nest. The eggs were photographed and measured (Fig. 1; Table 1). The eggs were light blue with brown blotches. Three eggs were about 90% covered with brown (nearly hiding all the ground colour), three about 60%, and one about 40%. The sequence of laying is unknown. The mean clutch size is 3.5, so clutches of 7–8 indicate two females laying in one nest. The measured

egg sizes fall within the known range (Fry & Keith 2004).

Mistnetting near the nest resulted in capture of a male and two females. Female 1 was given a metal ring. Female 2 was given an orange colour ring in addition to the metal ring to distinguish her from the first female. Both females had clear brood patches, but it was not yet clear which female was incubating the clutch of seven eggs.

Observations from inside the house revealed that both females and the male were taking turns to incubate. Incubation times were recorded for >30 minutes on 2 November to measure incubation duties. At 16h48, Female 1 flew into the nest and incubated for 6 mins, followed by the male for 8 mins. The nest was then unattended for 2 mins; then Female 1 incubated for 7 mins, followed by Female 2 for 9 mins. Then Female 1 flew into the nest and the observation period ended.

Deeks (1961) recorded a nest with eight eggs near Malmesbury. When the eggs hatched, the male and two females fed the chicks. Lor (1962) recorded a male and two females building a nest in Stellenbosch, and later all three adults fed five chicks. The three birds raised a second brood. Underhill (1967)

recorded a male and two females lining a nest in Mowbray. Eight eggs were laid and seven chicks hatched, which were fed by all three adults. McFarlane (1997) recorded a male and two females feeding chicks in successive seasons for several years in his garden. The brood size, however, was four, i.e., normal for one female, but three broods were raised every season.

These records of bigamy are all from the Western Cape. It would be interesting to look out for cases of non-monogamous behaviour in Cape Sparrows elsewhere in the distribution range. Polygyny is known in many weaverbird species, but there each female has her own nest. Earlé (1986) mentioned the

possibility of intra-specific parasitism in Cape Sparrows, noting cases where one additional egg was found in six of 16 nests in Bloemfontein. It seems that females dumped an extra egg in other pairs' nests in these cases.

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Table 1. Egg measurements of two Cape Sparrow clutches in one nest (mm).

Brown markings covering % of egg		
c.90%	c.60%	c.40%
19.5 × 14.8	20.3 × 15.2	19.0 × 13.7
20.4 × 15.3	19.6 × 13.8	
20.1 × 15.1	19.1 × 13.9	



Fig. 1. Cape Sparrow eggs from one nest.

Brimstone (Bully) Canaries *Crithagra sulphuratus* in the Zastron district, south-eastern Free State

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Colahan & Du Plessis (1990) argued that the status and distribution of the Brimstone Canary *Crithagra sulphuratus* was doubtful in the Free State province (cf. Earlé & Grobler 1987; Farkas 1988). Confusion with Yellow Canaries *Serinus flaviventris* was regarded as one of the main reasons for identification problems. Colahan & du Plessis (1992) later discussed the status of the Brimstone Canary based on observations obtained in the Zastron district in southeastern Free State. Although specimen evidence was obtained for the species' occurrence (in the 1992 article), as well as observations made by Colahan (*in litt.*), no definite conclusions were reached to clarify the status of this species in the Free State, and it was speculated that it was only a winter visitor (Colahan 1992). Subsequently, the species was again recorded in the Zastron district, but its status remained uncertain (Nuttall 1993, 2000).

During a visit to the farms Bloemhoek and Minnehaha (30°14'S, 27°14'E; these sites are approximately 3 km apart) in the Zastron district, the following observations of Brimstone Canaries were obtained on 30–31 March and

1 April 2005. The vegetation is characterized by forest-type vegetation in ravines and mainly trees, such as *Celtis africana*, *Rhamnus prinoides*, *Leucosidea sericea*, *Diospyros lycoides* and others, on hillsides.

On 30 March 2005, a few "large" yellow canaries were observed in open *Diospyros lycoides* woodland on the hillsides on the higher ridge of Minnehaha Farm. The birds were followed, and as they had been recorded on a previous visit, an effort was made to collect a specimen. One male was collected. Later during the day, possibly the same group was again observed in the same area. On 1 April 2005, a lone bird was observed sitting on top of a large bush at the edge of thick scrub on Bloemhoek Farm. The bird then flew away and was joined by a few other canaries. A male was collected.

Table 1 lists all the collection and observation localities of Brimstone Canaries in the Zastron area for the past 15 years. Earlé & Grobler (1987) showed several scattered localities of Brimstone Canaries in the Free State which are considered to be erroneous (Du Plessis & Colahan 1990).

Table 1. Localities in the Zastron area where Brimstone Canaries *Crithagra sulphuratus* have been observed and collected.

Locality	Date	No. of individuals	Obs	Reference
Kranskop, Zastron	27 June 1991	1	BDC	Colahan & du Plessis (1992)
Aasvoëlberg, Zastron	27 June 1991	9	BDC	Colahan & du Plessis (1992)
Rusplaas, Zastron	30 Aug 1991	2	DdS	Colahan & du Plessis (1992)
Rusplaas, Zastron	11 Nov 1992	± 2	DdS	Nuttall (1993); unpubl. data
Bloemhoek, Zastron	12 Sep 2000	2	DdS	Nuttall (2000); unpubl. data
Minnehaha, Zastron	14 Sep 2000	4	DdS	Nuttall (2000); unpubl. data
Minnehaha, Zastron	30 Mar 2005	6	DdS	this report; unpubl. data
Bloemhoek, Zastron	1 Apr 2005	3	DdS	this report; unpubl. data

Table 2. Measurements of collected Brimstone Canaries *Crithagra sulphuratus* compared with those in Maclean (1993) and compared with Yellow Canary *Serinus flaviventris* (unsexed mean only).

Nnbv	Date	Locality	Sex	Culmen	Tarsus	Wing	Tail	Mass
03893	30/08/91	Rusplaas	M	13.9	19.3	79.0	64	24.0
06277	30/03/05	Minnehaha	M	12.5	17.8	83.0	64.0	21.5
06294	01/04/05	Bloemhoek	M	13.2	17.9	85.0	66.0	27.5
<i>C. sulphuratus</i>		Maclean (1993)		12.2	17.3	77.6	59.1	25.8
<i>S. flaviventris</i>		Maclean (1993)	M	14.0	18.4	74.6	51.8	17.4

The body measurements of collected Brimstone Canaries were compared with those in Maclean (1993) and also with male Yellow Canaries (Table 2). The bird atlas showed the distribution range of Brimstone Canary only in Zastron district and further along the KwaZulu-Natal and Lesotho border, as far as Sterkfontein Nature Reserve in the north-eastern Free State, and in the Eastern Cape further away from high-lying areas near the Lesotho border (Tree 1997).

The isolated population in the Zastron area is attributed to dense forest-type vegetation and *Leucosidea* woodland, typical of the isolated mountains in the area. At the Bloemhoek and Minnehaha localities, Southern Boubous *Laniarius ferrugineus* (which were previously recorded only in forest ravines in the Clarens/Golden Gate area; pers. obs) were recorded for the first time, although their distribution is known to reach the south-eastern Free State (Parker 1997). During August 2004, Sweet Waxbills *Estrilda melanotis*, were recorded for the first time further south of Zastron, at the farm Dassiekrans (30°09'S, 27°01'E) in the Rouxville district, in dense bush in a hilly area along the Orange (Gariiep) River on the Lesotho border (unpubl. data).

Based on the information obtained on Brimstone Canaries in the Free State during the past 15 years, it can be concluded that this

species is a localized resident in the Zastron area of the southeastern Free State. Birders should look out for this species in areas east of Zastron and Rouxville, towards Aliwal North.

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Short-clawed Lark: the western population revisited

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The Short-clawed Lark *Certhilauda chuana* is a southern African endemic species that occurs in two isolated populations: a large western and a smaller eastern population. The western population has a widespread distribution in the arid savannah regions of south-eastern Botswana, Northwest, Northern Cape and north-western Free State provinces of South Africa (Herremans 1997). This population occupies a maximum area of c.54 000 km² (Barnes 2000). The eastern population is largely restricted to the Pietersburg Plateau and has a maximum range of c.10 650 km² (Barnes 2000). The species is variously listed as “Indeterminate” (Brooke 1984), “Rare” (Siegfried et al. 1976), “Near-threatened” (Collar et al. 1994; Barnes 2000) and “Least Concern” (BirdLife 2004) in Red Data publications. Its listing as a Red Data species is primarily due to its relatively small global range (Barnes 2000). The stronghold of the species is the rural areas of south-eastern Botswana where Herremans (1993) suggested that >10 000 pairs exist.

As part of an ongoing research project on



Fig. 1. The preferred habitat of the Short-clawed Lark: Botsalano Nature Reserve.

the biology, ecology and conservation of the Short-clawed Lark, funded by the University of Limpopo, we surveyed the distribution range of the western population in South Africa. During the bird atlas (SABAP) period, the western population of the species was recorded in 76 quarter-degree grid cells, of which 29 (38%) fall either wholly or partially in South Africa (Herremans 1997). We surveyed all of these cells. Two surveys were conducted during the 2004/05 breeding season: the first during September/October 2004 and the second in March 2005. Our survey results are supplemented by information obtained from interviews with residents, local birdwatchers, bird guides and ornithologists in the region.

Within each cell, we surveyed the area for suitable habitat, i.e., areas that are sparsely vegetated with short grass and scattered small shrubs and trees, especially *Acacia tortillis* (Fig. 1). Once suitable habitat was located, we travelled at 30–40 km/h, stopping regularly to search for and/or listen for the presence of the birds. We also surveyed suitable habitat in cells where the species was not recorded during SABAP.

Results

Despite intensive search efforts, we found the species in only two of the cells (2525DA and 2624BC) in which it was recorded during SABAP. In addition to these, interviews with various people suggested that the species may also be present in six additional cells, viz., 2624DD and 2724BB (L. van Niewenhuijzen pers. comm.), 2824CB (W. Sinclair pers. comm.) 2824CC, and 2824CD (M. Anderson and W. Pike pers. comm.), and 2824DC (W. Sinclair pers. comm.). The species was not recorded in these cells during SABAP. We regard the presence of the species in these

cells as accurate as the respondents were either familiar with the species and/or their responses to our questions suggested that they are familiar with habits of the species. Nevertheless, in all these cells, except 2525CA, the species occurred at low densities or appeared to be seasonal, nomadic or erratic in occurrence.

Discussion

The findings of our survey have important implications for the conservation of the species. Not only has the western population in South Africa experienced a dramatic range reduction in the past decade, but the species also occurs in extremely low densities in all but one of the cells (2525CA). In this cell, the species was common only in, and immediately adjacent to, the western boundary of the Botsalano Nature Reserve. We failed to find any Short-clawed Larks further than 500 m from the reserve boundary. Interestingly, the Botsalano Nature Reserve is close to the Pitsane area in Botswana, reported to be the stronghold of this species (Herremans 1997).

Several cells, notably 2327CA, 2426CA, 2426CB, 2426CC, 2426CD and 2526AB simply had no suitable habitat for the species. These cells were characterized by broad-leaved woodland and severe bush encroachment (Fig. 2). According to Brooke (1984;

also quoted by Herremans 1997), the species is associated with *Tarchonanthus savannah* in South Africa. Notwithstanding scrupulously searching for Short-clawed Larks in this vegetation type, we failed to record the species here. Given the structure of this vegetation type, we believe it is unlikely that Short-clawed Larks would find this habitat suitable for habitation. Rather, the habitat association described by Herremans (1997) for Botswana appears to be relevant.

The species' presence towards the south of its range appears to be erratic. Most records are from the summer months, i.e., the species' breeding season, when males are more vocal and their display flights facilitate detection. However, even in the non-breeding season, the species can be found in suitable habitat as the birds are resident, occupy year-round territories and sing their characteristic territorial call throughout the year (Engelbrecht in press, Herremans & Herremans 1992). The seasonal and somewhat erratic appearance of the species towards the south of its range is therefore puzzling and requires further study.

The species' preference for open savannah habitat under continuous grazing pressure may, at times, limit its ability to occupy a given area on a permanent basis. On one hand, if heavily grazed areas are not managed properly, it may lead to overgrazing and bush-encroachment, rendering the habi-



Fig. 2. Severe bush encroachment characterizes many grid cells near Gaborone.

tat unsuitable for the species. On the other hand, if grazing and fire are withheld from suitable habitat, the grass will soon reach a climax state and the vegetation will become too dense, also making the habitat unsuitable for occupancy. This could explain why the birds are common only in the Botsalano Nature Reserve and the Polokwane Nature Reserve (in the eastern range) where there is continuous grazing pressure and properly managed fire programmes.

In light of the above, we have identified the following major contributors to range reduction:

Commercial agriculture: The natural vegetation in many of the cells has been altered or destroyed for crop farming, mainly maize and sunflower. These activities destroy large areas of natural vegetation leaving only small, isolated patches of natural vegetation. The dynamic habitats associated with commercial crop farming are not suitable for continuous year-round habitation by Short-clawed Larks, hence their absence from these areas. It is also possible that the use of pesticides may affect them negatively.

Pastures: Vast areas within the species' distribution range are cleared, ploughed and planted with pasture grasses, including *Digitaria*, *Chloris*, *Cenchrus* and various *Eragrostis* cultivars (Fig. 3). The clearing of vegetation for pastures and the replacement

of native species with grass mono-cultures undoubtedly has a detrimental impact on the species.

Subsistence agriculture: The main areas affected by traditional agricultural practices, e.g., dry-land crop farming and grazing by livestock, are to be found in cells 2426CA, 2426CC, 2525BB, 2525CD, 2525DA, 2525DC, 2526AB, 2625AD and 2625CB. Over-grazed areas with many stunted bushes and few large shrubs or trees generally characterize these cells. Herremans & Herremans (1992) described recently fallow land that is heavily grazed by livestock, with coppicing thorn trees, as the typical habitat of the species in south-eastern Botswana. Despite the species' relative abundance in and adjacent to the Botsalano Nature Reserve (2525DA), we failed to find them in areas where traditional rural agricultural practices were practised. Although we did not cross the border into Botswana, a concerted search took place adjacent to Pitsane, an area where the Short-clawed Lark is reportedly common. Although the habitat at Pitsane matches the habitat as described above, we failed to find any Short-clawed Larks in this area. Nevertheless, we found numerous other lark and pipit species in this habitat, e.g., Rufousnaped Lark *Mirafra africana*, Sabota Lark *M. sabota*, Spikeheeled Lark *Chersomanes albofasciata*, Long-billed Pipit *Anthus similes*, Buffy Pipit *A. vaalensis*



Fig. 3. "A picture paints a thousand words." Pastures (foreground), crop production (left back), and urban development (horizon) threaten the preferred habitat (behind first row of trees), and ultimately the survival, of the western population of the Short-clawed Lark in South Africa.

and African Pipit *A. cinnamomeus*.

Bush encroachment owing to poor land management practices is evident in several cells. This was found to be particularly severe in cells 2426CA, 2426CB, 2426CC, 2426CD, 2526AB and 2525BB. Given the state and extent of bush encroachment in these cells, it is difficult to believe that these areas could have presented suitable habitat for the species, even during SABAP (Fig. 2).

Urban development: Although the western population of the Short-clawed Lark occurs in relatively remote areas, changes in land-use practices within its range may affect the species detrimentally. Mining and urban expansion, e.g., around Mafekeng, Kimberley, Madibogo and Setlagole have destroyed large areas of suitable habitat.

Mis-identification: Unless calling or displaying, the Short-clawed Lark is not an easy lark to identify. This is supported by numerous erroneous descriptions in the literature, as pointed out by Herremans (1997). We therefore feel that the possibility exists that a number of reported sightings during SABAP may have been misidentifications of other larks, and possibly even pipits. Our view is supported by R. Nuttall and B. Colahan (pers. comms) regarding the species' presence in the Free State. Apart from an unconfirmed sighting of a Short-clawed Lark in the Sandveld Nature Reserve, by G. Dodd of Wales in March 2000 (R. Nuttall pers. comm.), there has been, as far as we could establish, no other confirmed sightings of the species in the Free State Province since SABAP. The species is most easily confused with Long-billed and Buffy Pipits, Long-billed Lark *Certhilauda curvirostris*, Sabota Lark and Rufousnaped Lark.

Conclusion

With a new bird atlas project in the pipeline, we urge the coordinators to carefully vet all records to ensure an accurate representation of the Short-clawed Lark's present distribution. The suggested misidentification of birds during SABAP could have given us a false sense of security. The recent down-grading of

the species conservation status to "Least Concern" (BirdLife 2004) should be reconsidered as a matter of urgency. A more intense survey, including the species' range in Botswana, is necessary to determine the full extent of the species' perceived range reduction. We also recommend an intensive monitoring programme of the western population of the Short-clawed Lark.

Acknowledgements

We thank Johan and Marie Britz for their hospitality during our stay on their farm near Stella.

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Why ring Caspian Terns?

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Caspian Tern *Sterna caspia* is a fairly widespread species. Wetlands International (2002) has identified 13 sub-populations occurring around the world, with the Australia/New Zealand population being a subspecies. In South Africa, the Caspian Tern is regarded as Near-threatened (Barnes 2000). Most Caspian Terns occur along the coastline where they are mainly concentrated at estuaries, while in the interior they frequent large impoundments along the Vaal River and other parts of the highveld and panveld (Underhill 2000). Taylor et al. (1999) reported some of the largest concentrations of Caspian Terns occurring on the highveld in the 1990s.

The latest CWAC (Coordinated Waterbird Counts) records show some interesting results. Table 1 indicates the 10 CWAC sites where most Caspian Terns were recorded during the 2004 summer count. It is evident that concentrations occur on many of the big dams in the Free State province, particularly during summer. Apart from large numbers, breeding has also been recorded at some of these sites, including the Vaal, Bloemhof and Gariep dams, mainly during the first half of

summer.

Table 2 indicates the ten CWAC sites where most Caspian Terns were recorded during the 2004 winter count. The results suggest that concentrations are more widespread in winter as compared to summer. Except for the top three sites, most concentrations were also noticeably smaller in winter. Winter 2004 only saw three sites with concentrations higher than 50 birds, compared to the seven in summer (Table 1). This could be due to juvenile dispersal after the breeding season.

In an attempt to learn more about the movements of Caspian Tern in South Africa, and possibly beyond our borders, Caspian Tern chicks were ringed at De Mond Nature Reserve (near Arniston, Western Cape) during the 2004/05 breeding season: 31 young Caspian Terns were ringed and 27 received individually engraved colour rings on their left tarsi. The rings are red in colour with a white alphanumeric code (Fig. 1).

The number of young birds ringed with colour rings constitutes about 1.8% of the southern African Caspian Tern population (Wetlands International 2002). Chances of

Table 1. The ten CWAC sites where most Caspian Terns were recorded during summer 2004.

Site	Province	Total
Krugersdrift Dam	Free State	181
Vaal Dam (East)	Free State	96
Vaal Dam (West)	Free State	96
Bloemhof Dam	Free State	91
Gariep Dam (East)	Free State	80
Barberspan	North West	66
Erfenis Dam	Free State	53
Koppies Dam	Free State	47
Gariep Dam (West)	Free State	42
Lake St Lucia	KwaZulu-Natal	36

Table 2. The ten CWAC sites where most Caspian Terns were recorded during winter 2004.

Site	Province	Total
Lake St Lucia	KwaZulu-Natal	167
Gariep Dam (East)	Free State	103
Gariep Dam (West)	Free State	52
Bloemhof Dam	Free State	23
De Hoop Vlei	Western Cape	19
Erfenis Dam	Free State	18
Orange River: (Bridge-Hohenfels)	Northern Cape	17
Langebaan Lagoon	Western Cape	15
Kalkfontein Dam	Free State	15
Vaalkop Dam	North West	11



Fig. 1. Example of an alphanumeric ring put on Caspian Terns at De Mond Nature Reserve during the 2004/05 breeding season.

seeing a ringed bird somewhere are good and the first two re-sightings have already been reported. Dr P Martin reported a bird at Cape Recife near Port Elizabeth on 12 February 2005. A second bird was reported at the Kromme Estuary at St Francis Bay on the 2 April 2005 by Mrs J. Tudhope. This provides evidence of dispersal of young birds, most probably with their parents.

With increased ringing efforts and more re-sightings, we aim to have an in-depth look into the dispersal patterns of Caspian Tern. Please keep a lookout for any of these ringed birds along the coastline and inland water bodies where they occur. If you see one, be sure to record the date, place and ring number. Information should be passed on to SAFRING.

Acknowledgements

Thanks to Cape Nature for allowing ringing to take place, especially the staff at De Mond Nature Reserve who provided much needed support during the field trips, and to Marine and Coastal Management for providing colour rings.

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First record of a “Crested Spurfowl”?

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On 30 April 2005, a covey of four francolins was seen in a clearing in the Polokwane Game Reserve. The covey comprised an adult Crested Francolin *Dendroperdix sephaena* and three strikingly different looking birds (Figs 1 and 2). Their plumage colouration did not match any description in the literature. The general colour was deep russet brown, with white streaks and stripes on the breast, belly and the upper parts. They had a black facial mask and the contrasting grey crown gave them a capped appearance. The neck and throat were also a paler grey colour. Their bills were black and they had red legs. All three birds were noticeably larger than the Crested Francolin.

These three birds raise interesting questions. Are they a hitherto un-described colour morph of the Crested Francolin, or could they be hybrids? Given the difference in size between the Crested Francolin and the three other birds, we are somewhat reluctant to ascribe their different appearance simply to an aberrant colour morph of the species. However unlikely it may seem, we believe that these birds may be hybrids. As far as we could establish, there are no reports in the literature of hybrids involving Crested Francolins.



Fig. 1. A parent and one of the possible hybrids.

If these birds are indeed hybrids, which other species are suspected? In addition to the Crested Francolin, the Polokwane Game Reserve is host to four other francolin and spurfowl species: Coqui Francolin *Peliperdix coqui*, Shelley's Francolin *Scleroptila shelleyi*, Natal Spurfowl *Pternistes natalensis* and Swainson's Spurfowl *P. swainsonii*. The three mystery birds most closely resembled Swainson's Spurfowl in plumage colouration. Although Swainson's Spurfowl is known to hybridise with two of its congeners, namely the Rednecked Spurfowl *P. afer* and Natal Spurfowl (Little et al. 2000), the likelihood that it would interbreed with the taxonomically distinct and distant Crested Francolin is indeed slim. Nevertheless, given their appearance, we postulate that the three birds may well be “Crested Spurfowl”. We will attempt to catch these birds and obtain material for a genetic analysis to confirm their identity.

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Fig. 2. One of the hybrids.

European Starling uses overhead lines to evade sparrowhawk

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While standing in my front garden in Pinelands, Cape Town, on 17 February 2005, about 15 minutes before sunset, I observed a Redbreasted Sparrowhawk *Accipiter rufiventris* in a large tree in my garden. From its large size, I judged the bird to be female.

About 50 m across the street from the tree in which the sparrowhawk was perched, is a small group of large, dense pine trees in which a few hundred European Starlings *Sturnus vulgaris* regularly come to roost in the evenings. I have on various occasions seen African Goshawk *Accipiter tachiro* and Peregrine Falcon *Falco peregrinus minor* hunting at this roost. As is usual at that time of day, European Starlings were arriving at the roost from all directions.

As a lone starling was slowly flying in to the roost, the Redbreasted Sparrowhawk darted out of the tree towards the starling, which, instead of flying the last 10 m or so into the roost tree, turned sharply left and flew over my garden with the sparrowhawk in hot pursuit. The birds were flying no more than 10 m above the ground. As they passed over me I could hear the starling fairly quietly ‘cursing’, that is, letting out a random stream of ratchety, almost staccato, calls. About 20 m on, with the sparrowhawk about a metre from the starling's tail, the latter attempted some evasive manoeuvres, diving and spiralling while still flying at speed in the same general direction. The sparrowhawk mimicked every move, following the starling but still unable to catch it. The starling then flew straight on for another 10–20 m, allowing the sparrowhawk to come within centimetres of its tail.

At this point, the starling seemed to change direction instantly, diving at speed almost straight down through a set of telephone and

powerlines strung across my neighbour's garden. The sparrowhawk again followed instantly, as if attached by a short, invisible string to the starling's tail. However, instead of passing through the lines as the starling had done, it collided with them with an audible ‘whack’ and tumbled to the ground out of sight behind my neighbour's boundary wall. As I went round to investigate, the sparrowhawk flew up, back into the tree in my garden from where it had embarked on its hunting sortie. I noticed that it landed unsteadily and looked extremely ruffled, with many feathers out of place. After preening for a few minutes it flew slowly away from the starling roost.

Presumably starlings have for eons evaded avian predators by flying into dense or thorny vegetation, as many other species do. This case is interesting, however, because the starling used a series of human-made objects that were not obviously ‘dense’ or ‘bushy’, nor generally three-dimensional as a shrub or tree is. The lines in question consist of four approximately 1-cm thick electricity lines spaced exactly horizontally about 20 cm apart, with a single telephone line about 50 cm above them. At this point I do not know if the starlings at this roost habitually avoid becoming dinner by using powerlines, or if this particular bird calculated, on the spur of the moment, that it would be able to fit through the 20 cm gap without its pursuer being able to do so, but it would be fascinating to experimentally test the ability of this famously adaptable species to ‘think on its feet’. Perhaps, also, *Accipiter* individuals used to hunting in relatively open habitats are not as adept at passing through small spaces as those that inhabit dense forest.

Notes on the status of the African Goshawk in Gauteng

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Background

The African Goshawk has a crescent-shaped distribution in South Africa, confined to the north, east and south of the country. Field guides and other books consulted show the bird's distribution does not extend as far west as Gauteng (Maclean 1985, Newman 1992, Sinclair et al. 2002, Steyn 1982). Its preferred habitat is indigenous forest, but it has adapted to plantations of exotic trees and well-wooded suburbia. It is an unobtrusive bird and likely to be overlooked except when flying and calling over forest canopy in the early morning during territorial and courtship displays. It can be confused with the smaller Ovambo Sparrowhawk or the even smaller Shikra and Little Sparrowhawk (Steyn 1982).

Gauteng is the smallest (17 000 km²), most heavily industrialized and most densely populated (8 million) of South Africa's provinces. There are two distinct biomes, which are altitude related. The northern half is Middleveld or Bushveld, and the altitude ranges between 1100 and 1400 m a.s.l. The vegetation has been modified by human settlement, agricultural activity and mining.

The Magaliesberg mountain range extends east-west across the province from Rustenburg in the west to east of Pretoria, and rises to a height of 1830 m a.s.l. The Magaliesberg contains a number of well-wooded kloofs.

The southern half of the province, the Highveld, is composed mainly of grassland and Bankenveld, and lies above 1500 m a.s.l. Many plantations, stands and avenues of exotic trees, notably eucalyptus and Black Wattle, were planted in the 20th century. Dense stands of poplar are commonly found in low-lying areas, and many Weeping Willows have been planted along watercourses. The vegetation has again been much modified by agriculture, human development and by gold mining. The low-density northern

suburbs of Johannesburg, such as Houghton and Saxonwold, are well treed, mainly with mature exotics.

Early records

The 1968 *Check List of Birds of the South Central Transvaal* (Tarboton) described 451 species, recorded in a rectangular area extending from roughly Rustenburg in the west, Bronkhorstspuit in the east, Rust-de-Winter in the north and Heidelberg in the south. The checklist was compiled from records of members of the Witwatersrand Bird Club over the preceding 15 years, as described in field cards, nest record cards, items in the WBC news sheet and elsewhere. The survey area was subdivided into a 7.5' × 7.5' grid, onto which was plotted the occurrence of each species. Distribution maps of 126 birds were produced, including one for the African Goshawk. This showed that the bird had been recorded in 11 of the 143 grid cells, nine of which were on the highlying ground in the south of the area. It is noteworthy that there were only two sightings of the Ovambo Sparrowhawk *Accipter ovampensis*, both in the Bushveld area.

The *Check List* was followed in 1987 by *Birds of the Transvaal* (Tarboton et al.). This is an inventory of birds recorded in the then Transvaal, compiled from museum collections, ringing records, atlasing by bird clubs, nature conservancies, etc., and from literature. Special surveys were undertaken to supplement information in under-reported cells. The study area was divided into 456 15' × 15' grid cells and included the then 'homelands', giving a total area of 286 000 km². Records for the period 1960–86 were plotted.

The African Goshawk was recorded mainly in the escarpment region of the Drakensberg Mountains. The text made reference to sightings reported earlier from the

Witwatersrand and Pretoria areas, but stated that the reliability of these was equivocal. The Ovambo Sparrowhawk was most commonly recorded along the Highveld/Bushveld boundary (Zeerust to Bronkhorstpruit) where it is a breeding resident. It thus seems likely that at least some of the sightings of the African Goshawk in the 1968 survey were misidentifications of Ovambo Sparrowhawk, which at that time was thought to be a vagrant only in the area. W. Tarboton stated: "I don't think any of the Jhb birders in the 1960s, myself included, considered Ovambo Sparrowhawk a serious possibility – we only had Roberts to go on, and the illustration in it lacked the critical detail in the tail pattern needed to identify Ovambos; also, the text offered little by way of ID guidance."

It was thought that if the African Goshawk did occur in the area now called Gauteng, it would be in the kloofs of the Magaliesberg. A survey was conducted on farms on both the northern and southern sides of the mountain. The survey was led by Warwick Tarboton, assisted by members of the Northern Transvaal Ornithological Society (now Birdlife Northern Gauteng) and the Witwatersrand Bird Club, between 1978 and 1980. The African Goshawk was not recorded (P. Leinberger pers. comm.).

Recent records

In 2002, Etienne Marais of BLNG started a long-term collaborative project to atlas birds within 100 km of Pretoria and 100 km from the centre of Johannesburg. This area embraces the whole of Gauteng and includes portions of the Free State, North West, Limpopo and Mpumalanga. Participants are encouraged to submit sightings electronically per 3' × 3' grid square. The following observations of African Goshawk were extracted from the database:

- In April 2002, Etienne Marais recorded an individual calling and displaying in the early morning above the tree canopy in a kloof at Amanzintaba Resort, Gauteng,

about 36 km north-east of Bronkhorstspuit, in the Gouwsberg.

- A BLNG outing to this resort in October 2002 again recorded the species.
- In December 2002, Rob Geddes reported the bird at nearby Trichardt's Poort.
- In April 2003, Frans and Adele van Vuuren observed an African Goshawk at Trichardt's Poort.

On 1 October 2004, Johnny Wilson posted on Pretoria BirdNet a report of a recent sighting of a pair of displaying African Goshawks at Ezemvelo Nature Reserve, south of Amanzintaba.

On 5 October 2004, Avon Vosloo posted on Pretoria BirdNet a report describing his observations of a pair of African Goshawks successfully raising chicks for the preceding five years on a farm near to the village of Magaliesburg, which lies about 70 km west-south-west of Pretoria.

Summary

There is a small population of African Goshawks in the Gouwsberg east of Pretoria and they may breed there.

The account of an established breeding pair of African Goshawks at Magaliesburg west of Pretoria is interesting, but as no details were furnished to distinguish the birds from the similar Ovambo Sparrowhawk, this record will necessarily be held in abeyance until independently confirmed.

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Greater Flamingo chicks rescued in eastern Bushmanland

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On 23 March 2005 I received a phone call from Francois Augustyn, a farmer on the property adjoining Van Wyksvlei Dam (30°24'S, 21°47'E), just south of Van Wyksvlei town in eastern Bushmanland. He reported that the dam had dried up and that flamingos were dying. Within an hour (at about 09h30) a team of four people (Mark Anderson, Eddie McFarlane, Themba Mathebula and Thapelo Khatwane), in two bakkies, were on their way to the Dam to rescue flamingos.

Greater Flamingos have previously bred at the Van Wyksvlei Dam, including three occasions during the 1970s (Boshoff 1979; Anderson 2000a). During the summer of 1977/8, André Boshoff and his colleagues captured 623 chicks when the dam dried up (Boshoff 1979). They were transported to the farm Jakkalskuil, near Carnarvon, where most of the birds apparently fledged (Boshoff 1979).

We were greeted on arrival by a depressing scene. The large dam was bone dry, save a tiny, muddy pool near the dam wall. About half a dozen dead flamingo chicks lay at the edge of the pool, and at another tiny muddy depression to the south, while small groups of weak birds were seen scattered across the barren dam. Within a relatively short space of time, 41 non-flying chicks were caught. Some of the birds could not yet fly and were relatively easily caught, while those that could fly short distances were not as easily caught. This was a tremendous team effort for which Mr Augustyn had recruited his family and his farm staff to assist. An additional 30 flamingos were already reasonably strong fliers and it was not possible to catch these birds. It was expected that they would be able to move to other wetlands in the area. Mr Augustyn informed me that there were two small wetlands within a few kilometres of the dam.

The 41 chicks were transported to the

farmer's house and these, together with nine birds that had been caught earlier by Mr Augustyn and his staff, were given electrolyte/glucose fluids. They were very thirsty. An adult Greater Flamingo, caught earlier at the dam by Mr Augustyn, was also given fluids and placed in an enclosure with the young birds.

It was decided to relocate the birds to Kamfers Dam, just north of Kimberley: a wetland that is frequented by many flamingos, especially Lesser Flamingos (Anderson 2000a). Various aspects of Kamfers Dam, especially the numbers of flamingos, breeding attempts, conservation efforts, and environmental problems, have been previously described (e.g., Abrahams & Anderson 2001, Anderson 2000, 2004, Anderson & Koen 1994, Barnes & Anderson 1998, Van Niekerk 2000).

As soon as the 51 flamingos had received fluids, they were loaded into my bakkie and transported to Kimberley. They were not crated, but the birds seemed quite relaxed under the bakkie canopy, especially considering that they occupied the majority of the available space. They remained standing, except for the adult bird, which lay down. I think that this may have been to evade continual harassment by the young birds, which incessantly begged for food from the adult bird. I drove carefully, especially along the short stretch of gravel road to Copperton, and I was especially cautious when applying brakes and taking sharp turns. Nevertheless, it was an arduous journey, with delicate cargo on board. Other motorists greeted the convoy and its cargo with interest, perhaps suspecting that a load of unusual Ostriches was being transported. A refuel stop at Prieska resulted in lots of local interest and a barrage of questions and comments.

Upon arrival in Kimberley at about 21h40, the birds were transported to Kamfers Dam and ringed. We roped in Tania Anderson and Julius Koen to assist with this task (our children, Ryan and Stephanie Anderson, and Heinrich Koen also participated). The birds were all marked with SAFRING rings and the majority of the birds were also marked with colour rings (the same as those I use to mark Blue Cranes). As I did not have many rings, not every bird was marked with a unique colour combination.

The birds were then given a quick veterinary inspection by Wendy Welham and a topical antiseptic spray was applied to the few birds which had minor cuts or abrasions. They were then placed into another bakkie, so that they could all be released simultaneously.

Within one hour of arriving at Kamfers Dam, the birds were released. They walked as a flock into the water and their calls suggested that they were happy to be in this wetland habitat. The dam's resident birds (which numbered 9340 Lesser and 255 Greater Flamingos on 15 March 2005) could be heard responding to the new arrivals' calls.

Subsequent monitoring was done by Eddie McFarlane on 25 March 2005, when several ringed birds were seen. However, despite using a telescope, this proved difficult, owing to the relatively large numbers of flamingos at the dam. Themba Mathebula visited Kamfers Dam on several occasions, including 30 March 2005 and 21 April 2005 and, despite a thorough search along the entire circumference of the dam, located only three dead, ringed birds.

On 18 April 2005, 10 380 flamingos were counted at Kamfers Dam, comprising mainly Lesser Flamingos. There were also at least 50 (but probably more) 'grey' birds, presumed to be young Greater Flamingos from the recent breeding event at Sua Pan in Botswana. On 29 April, it was estimated that the number of immature Greater Flamingos had grown considerably, possibly numbering a few hundred individuals, but no count was conducted.

Both Greater Flamingos and Lesser Flamingos are listed in the *South African Red*

Data Book (Anderson 2000b, c), with their populations estimated to number c.50 000 each in southern Africa (Anderson 2000b, c, Simmons 1996). Their status is therefore precarious, mainly because of low recruitment and threats to their feeding grounds, as well as their main breeding grounds at Etosha Pan in Namibia and Sua Pan in Botswana (Simmons 1996). Their conservation status and low numbers therefore justified the recent Van Wyksvlei rescue operation, even for only 50 birds. They certainly had no chance of survival at this remote, dry wetland. The breeding event is also significant, as Greater Flamingos seldom breed in South Africa (see Anderson 1994, 2000a, c) and there have been only a few documented breeding events in the Northern Cape province (Anderson 2000a, Boshoff 1979).

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Appeal for help: look out for rings on Lesser Flamingos!

Dr Brooks Childress, chair of the international Flamingo Specialist Group, is appealing to all birders in southern Africa to keep a special look-out for rings on Lesser Flamingos. It has long been debated whether the southern and East African populations are one big population or separate, isolated populations, or whether there is even exchange between them. The following account from Brooks highlights the need to start looking more earnestly for rings on Lesser Flamingos in southern Africa, as it may shed some light on these issues:

“In November 1962, Lesley Brown, Alan Root and volunteers from the East Africa Natural History Society (now Nature Kenya) ringed 8000 young Lesser Flamingos at Lake Magadi in Kenya, using rings from the British Trust for Ornithology. Officially, only 14 of these rings have ever been recovered. Most of the recoveries have been in Kenya, but one was in Western Sahara, which is a disputed part of Morocco, 6900 km from Lake Magadi! Because of the longevity of Lesser Flamingos (>40 years) and their ability to move long distances, lots of birds with these rings should still be around and some may be in southern Africa. Wim van den Bossche of BirdLife Belgium spotted one on a live bird at Lake Bogoria in July 2003 (identified by ring type and appear-

ance), and a dead bird with one of these rings was also found at Lake Bogoria the same month (we don't know if it was the same bird).”

Brooks has also ringed 260 Lesser Flamingos at Lake Bogoria in the four years 2001–04 with a metal East African Ringing Scheme ring on the right tibia and an orange plastic ring with a black two-letter code, on the left tibia. If a bird with these rings were spotted in southern Africa, that would be an indication that there is at least limited interchange.

In southern Africa, concentrations of Lesser Flamingos are restricted to breeding sites at Sua Pan and Etosha Pan and a handful of non-breeding localities (Walvis Bay, Sandwich Harbour, Kamfers Dam Wadrif Saltpan, Berg River Estuary and Langebaan Lagoon), although they can occur in smaller numbers at other suitable saline wetlands in the region. Anyone visiting these localities or coming across Lesser Flamingo flocks is asked to please look for any of the above rings, and to take photographs where possible. Resightings can be sent to SAFRING (safring@adu.uct.ac.za, tel: 021-6502421, Fax: 021-6503434) and should include date, locality, flock size, and ring details.

Brooks Childress and Doug Harebottle

The population status of seabirds at Penguin Island, 1997–2002

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Penguin Island is a Western Cape Nature Conservation seabird reserve located 60 m offshore of the town of Lamberts Bay and 120 km north of Cape Town. The only published account of the island and its seabirds is that of Jarvis and Cram (1971). Information on the numbers of birds breeding there is scattered through a number of species reviews, but most of these were published 10–20 years ago.

The birds at Penguin Island were monitored by VLW over the five-year period 1997–2002, during which >10 000 seabird carcasses were assessed for cause of death (Ward & Williams 2004). Based on these surveys, we are currently preparing a series of in-depth articles appraising the impacts of the major causes of death, or population fluctuations, of selected species at the island. Once the series of articles is completed, we intend to produce an overview document that, for the entire seabird population, compares past population information with that during our survey period.

Our aim here is two-fold:

- 1) to provide, in a single document, an indication of the population and breeding status of seabirds at the island during the period 1997–2000;
- 2) to provide further details on some species that will not be covered more fully in subsequent articles.

Methods

It was not possible to count all the seabirds that occurred at the island. Three important groups of birds could not be satisfactorily counted: breeding Cape Gannets, non-breed-

ing Cape Cormorants, and roosting migrant terns.

Most Cape Gannets, the numerically dominant species at Penguin Island, breed in a single large colony on the flat central area of the island. No attempt was made to count the number of Cape Gannets breeding at the island as this is impossible from the ground without creating excessive disturbance. The number of pairs cited in Table 1 is based on a count made from aerial photographs taken in 2001.

Cape Cormorants can be counted in their breeding colonies, but non-breeding birds gather in dense roosts during the late afternoon and are then impossible to count accurately.

Migrant terns mainly use Penguin Island for roosting in numbers that, during peak migration, may be in the thousands. They generally arrive at the island from late afternoon until after dark and so, again, were impossible to count accurately. Mid-morning counts of terns remaining at the island were used to assess trends in numbers.

Counts of active nests (adults giving site-ownership displays, nest-building, incubating or brooding, or nestlings) on the island, on boats moored in the adjacent harbour, and on the roof of the mainland fish factory, were done weekly from the start of September 1997 to the end of September 2002. Counts of moulting African Penguins were done over the same period and at the same frequency.

Counts were made of all volant individuals (newly fledged or older birds, including nesting adults), of all species except Cape Cormorants and Cape Gannets, weekly between 08h00 and 12h00 from the start of

January 1999 until the end of September 2002. All counts were made, using binoculars or telescope, from fixed points on the island or the harbour.

Results

Eight species bred on the island, but only five did so regularly (see Table 1). Cape Gannets, 11 768 pairs (69% of all pairs) were by far the most numerous with Cape Cormorants, 4838 (28%), a distant second. Six species bred on boats moored in the harbour including two species, Greyheaded Gull and Greater Crested Tern, that did not attempt to breed on the island. The only species recorded breeding on the factory roof was the Khoisan Gull (of which at least two additional pairs bred on buildings on the island).

The recorded maximum numbers of active nests at any one time indicates an overall breeding seabird population of 17 097 pairs. Allowing two pre-breeding-age individuals

per pair, the island supported 68 000 seabirds.

There were an additional six Khoisan Gull nests on the fishing factory roof.

African Penguin

The maximum number on the island at any time during the selected period was 39, the median number was 4 and on some occasions there were no penguins on the island. Overall, a maximum of 27 pairs bred on the island at any one time.

The maximum number of moulting birds in any one year was 168. This is well over the number of breeding birds. The SAFRING database has records of 37 penguins ringed at localities other than Penguin Island which have been controlled or recovered there (Table 2). Of these, 16 were controlled or recovered in adult plumage and 27 in juvenile plumage. Most (21) were originally ringed at either Dassen or Robben islands, the locali-

Table 1. The numbers (minimum, maximum and median) of volant birds, and the maximum number nests active at any one time on Penguin Island, and on boats in the adjacent harbour, during the period September 1997 to September 2002.

Species	Max	Min	Med	Nests	
				islands	boats
African Penguin <i>Spheniscus demersus</i>	39	0	4	27	0
Cape Gannet <i>Morus capensis</i>	–	–	–	11 768	0
Cape Cormorant <i>Phalacrocorax capensis</i>	–	–	–	4838*	189
Great Cormorant <i>Ph. (carbo) lucidus</i>	66	1	13	29	0
Bank Cormorant <i>Phalacrocorax neglectus</i>	12	0	3	2	0
Crowned Cormorant <i>Phalacrocorax coronatus</i>	61	0	13	7	16
Benguela Gull <i>Larus hartlaubii</i>	156	0	631	1	80
Greyheaded Gull <i>Larus cirrocephalus</i>	20	0	4	0	6
Khoisan Gull <i>L. (dominicanus) vetula</i>	749	54	204	115	6
Greater Crested Tern <i>Sterna bergii</i>	115	1	76	0	3
Sandwich Tern <i>Sterna sandvicensis</i>	90	0	3	0	0
Common Tern <i>Sterna hirundo</i>	736	0	7	0	0
Sacred Ibis <i>Threskiornis aethiopicus</i>	32	0	3	0	0
Grey Heron <i>Ardea cinerea</i>	3	0	1	0	0
Total	2040	56	958	16 787	300

* The median number of Cape Cormorant pairs in any one year was c.2500.

ties where there has been most ringing effort. However, two were ringed in Namibia and five in Algoa Bay. This indicates that birds from the entire breeding range of the species may come ashore at Penguin Island.

Bank Cormorant

Bank Cormorants attempted to breed on the island twice during the survey period. One pair made two attempts during 1997. Three pairs built nests at the end of the survey period in 2002. All nesting attempts were on an isolated rock within the colony of Cape Fur Seals *Arctocephalus pusillus*. Only two carcasses of Bank Cormorants were found during the study. Both were found in 1997 and had been killed by fur seals.

Acknowledgements

We thank Dr R. Crawford of the Marine and Coastal Management division of South Africa's Department of Environmental Affairs and Tourism for provision of their latest census data based on aerial photographs of the colony. The following persons kindly conducted counts during periods when VLW had short breaks from the island: Jenny Hensley, Michael Jameson, Donald Jephtha, David Keith and Keith Spencer.

Table 2. The ringing localities of all African Penguins in the SAFRING database, other than locally ringed birds, that have been controlled or recovered at Penguin Island. NB: Cape Town birds released after de-oiling.

Locality	Juveniles	Adults
Ichaboe, Namibia	0	2
Jutten Island	0	1
Dassen Island	5	4
Robben Island	9	3
Cape Town	2	3
Boulders	0	1
Dyer Island	1	1
Algoa Bay	4	1
Total	21	16

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There's always one exception . . .

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Mercury Island is the most important breeding site for the African Penguin *Spheniscus demersus* along the Namibian coast (Kemper et al. 2001). During February 2005, a total of 13 breeding adults were equipped with GPS data loggers (Earth & Ocean Technologies, Kiel, Germany) which not only give information about the exact positions of the birds at sea, but also about the birds' diving depth and water temperature.

All penguins (except one) used a limited area about 20 km northwest of Mercury Island to forage for food. Foraging trips lasted 15 hours on average (excluding the exception), and most birds left the colony between 4:30 and 6:45 in the morning. All birds arrived alive and well back at the island in the evening, carrying their loggers attached to their backs with loads of data for analysis. Not so the exception . . .

This exceptional bird went to sea on 26 February and did not turn up at the colony that evening. On the same day, two orcas were seen in Spencer Bay, just off the island. When the bird did not arrive that evening, our fear was that our penguin (including our logger) could possibly be inside those orcas, which, apart from the bird's untimely demise, would make retrieval of the device quite difficult. But to our great surprise, after days of nest monitoring, night-time flashlight checks and getting used to the idea of having lost the bird and the device, our exceptional bird returned to its nest on 1 March, and fed its chicks as if nothing unusual had happened. We cannot imagine how our exception bird explained its absence to its partner who had taken over the daily feeding shifts for the two downy chicks.

Looking at the data on the logger, we found that this bird was a real exception to

the rule: it not only stayed out for four days, but also travelled >60 km to the west, from where it then drifted northward during its first night at sea. Unluckily, we do not know what other exceptional things the bird did on its trip because the battery went flat after one and a half days at sea.

Coming back to the other 12 birds equipped during the study . . . All foraged in an area between 25°27' to 25°39'S and 14°39' to 14°49'E, and diet samples during the study period (although not taken from equipped birds) showed that the penguins preyed almost exclusively on pelagic goby *Sufflogobius bibarbatus*. This fish species constitutes the main prey organism for African Penguins in Namibian waters, after the crash of anchovy and pilchard stocks due to overfishing (Crawford et al. 1985).

Penguins at Mercury Island not only depend on the island as an important breeding site but also on localised feeding grounds close to the island, as shown in this study. Protected status should be given to the island, as well as the surrounding waters, to prevent a further decrease of numbers of this endangered species.

Data loggers can be used to monitor the foraging behaviour and availability of prey around breeding islands, and breeding studies over longer periods. Further studies should aim to detect inter-annual changes that could have effects on population trends in the African Penguin in Namibia.

Acknowledgments

Many thanks to Joan James and Rian Jones at Mercury Island for all their help and support during field work, and for doing a great job in monitoring and protecting the African Penguin for years. Thanks to the Ministry of

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The Bird-sit Tree

(Previously published in the *Mbango Valley Newsletter*)

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About 5 m from my study window there grows a splendidly gnarled old girl. She's an *Antidesma venosum*, a Tassel-berry, national tree number 318. At about 8 m tall, she's pretty big for her species and provides welcome shade on hot summer afternoons. After losing her leaves in late winter to briefly display her twisted limbs and deeply fissured grey bark to the sun, she soon gets coy and replaces her green cloak. Between October and January, her countless dangling reddish blooms fill the air with the scent of honey. Happily there's a smaller male close by in the forest, and between them they ensure a magnificent crop of berries every season.

By late February and through into April, these berries, like miniature bunches of grapes, gradually ripen from green to red to black. The black ones are delicious – if you can find any. The Afrikaans name for this tree says it all: “*Voëlsitboom*”, the “Bird-sit Tree”.

The species list for our old girl is awesome. It includes not only fruit-eaters, but insectivores, raptors and the simply quizzical who come to see what all the fuss is about.

Birds: Black Sparrowhawk, African Goshawk, Little Sparrowhawk, Spotted Eagle Owl, Natal Francolin, Red-eyed Dove, Laughing Dove, Tambourine Dove, African Green Pigeon, Purplecrested Lourie, Knysna Lourie, Burchell's Coucal, Speckled Mousebird, Little Bee-eater, Brownhooded Kingfisher, Pygmy Kingfisher, Redbilled Woodhoopoe, African Hoopoe, Crowned Hornbill, Blackcollared Barbet, Redfronted Tinkerbarbet, Golden-

rumped Tinkerbarbet, Knysna Woodpecker(!), Goldentailed Woodpecker, Forktailed Drongo, Squaretailed Drongo, Blackheaded Oriole, Blackkeyed Bulbul, Sombre Bulbul, Olive Thrush, Natal Robin, Brown Robin, Greenbacked Bleating Warbler, Tawnyflanked Prinia, Dusky Flycatcher, Bluemantled Flycatcher, Paradise Flycatcher, Cape Batis, Chinspot Batis, Greyheaded Bush Shrike, Southern Boubou, Puffback, Plumcoloured Starling, Blackbellied Starling, Redwinged Starling, Purplebanded Sunbird(!), Grey Sunbird, Black Sunbird, Olive Sunbird, Collared Sunbird, Whitebellied Sunbird, Cape White-eye, Greyheaded Sparrow, Thickbilled Weaver, Forest Weaver, Spotted-backed Weaver, Bluebilled Firefinch, Redbilled Firefinch, Grey Waxbill, Common Waxbill, Bronze Mannikin, Redbacked Mannikin, Pintailed Whydah and Yelloweyed Canary. That's 64 different species in a single tree! Not all at once of course, but bird parties of up to fifteen species are not unusual.

Mammals: Vervet Monkey, Rock Dassie, Tree Dassie, Woodland Dormouse, Large-spotted Genet, Blue Duiker (not *in* the tree, but feeding on fallen fruit below), and Egyptian Fruit Bat.

Reptiles: Spotted Bush Snake, chameleon (sp. unknown), Tropical House Gecko, Common Dwarf Gecko and Water Monitor (Leguaan).

In all then, our tree's a stunning mini-ecosystem and an asset to any garden, and the only drawback is constant distraction when one is busy trying to work in one's study!

Gleaning by Red-winged Starling on Plains Zebra

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Oxpeckers *Buphagus* spp. are obligate gleaners (Dean & MacDonald 1981, Maclean 1985), commonly seen perched on large mammals in search of ectoparasites. It has been postulated that facultative gleaning also occurs in areas where specialist gleaners are absent or occur in low densities (Dean & MacDonald 1981, Fennessy 2003, Roche 2003, Tilson 1977). These alternative gleaners thus fill the empty niche left by oxpeckers (Fennessy 2003, Tilson 1997). This hypothesis is supported by observations of species other than oxpeckers gleaning ectoparasites off large mammals (see Dean & MacDonald 1981, Fennessy 2003, Roche 2004, Roche & Kilpin 2003, Symes & Davies 2004). Gleaning behaviour by Red-winged Starlings *Onychognathus morio* has been recorded at various localities on various large mammal species (e.g., Maclean 1993, Roberts 1995, Roche 2004, Steyn 2001). Many of the recent published accounts of gleaning are in areas where oxpeckers are absent (Dean & MacDonald 1981; Fennessy 2003; Roche 2004).

During a visit to Ezemvelo Nature Reserve, Gauteng (25°42'S, 28°57'E), on 29 January 2003, a single adult male Red-winged Starling was observed gleaning ectoparasites off the back and neck of a Plains Zebra *Equus quagga*. A similar observation was repeated on 20 September 2003 in the same general area (Ernst Retief pers. comm.). During my observation, which lasted for c.5 min, the zebra did not appear discomforted by the presence of the gleaning Red-winged Starling.

Ezemvelo Nature Reserve is close (c.30 km) to Loskopdam Nature Reserve, where successful attempts to relocate Red-billed Oxpecker *Buphagus erythrorhynchus* took place in the 1980s (Mundy 1997). Red-

billed Oxpeckers are thus, as expected, present in Ezemvelo Nature Reserve, although at low densities (pers. obs.). This record, therefore, supports the hypothesis that facultative gleaning by other species also occurs in areas with low obligate gleaner densities.

A behaviour pattern can evolve from an individual's own activities or by learning from others. A new behaviour pattern can spread through a system of demonstrators (those carrying out the behaviour) and observers (those watching the behaviour being performed). This is called cultural transmission, with famous examples such as British tits opening milk bottles (Fisher & Hinde 1949), termiting in chimpanzees (Goodall 1964), food washing in Japanese macaques (Kawai 1965) and dietary preferences in rats (Galef 1996).

In the absence of obligate gleaners, a trophic and behavioural niche is open to other birds, and it may spread as individuals watch others do it. Low densities of obligate gleaners may, however, be needed to act as demonstrators, without being numerous enough to competitively exclude other species. At Ezemvelo Nature Reserve and northern KwaZulu-Natal, oxpeckers are present and could therefore act as demonstrators. However, facultative gleaning also occurs in areas without oxpeckers (e.g., Eastern Cape; Roche 2004) and could thus be initiated through either movement of facultative gleaners from areas with oxpeckers to areas without oxpeckers, or learning from an individual's own activities, giving rise to new behaviour.

Acknowledgements

Bill Bateman and Trish Fleming participated in the field trip when the gleaning was observed. Bill is also thanked for comments and suggestions on the article.

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Fowl flushings: Strandfontein sewage supports significant species

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Through their “foul flushings”, large numbers of Cape Town residents support significant bird species in ways they generally don’t consider. Were it not for our bodily excretions there would be significantly fewer wetland birds, not only in Cape Town but probably in the entire Western province. Our sewage may even impact waterbird numbers at an international scale! Phew! – as we remark when we pass some of the richer ponds at Strandfontein sewage works.

Strandfontein’s 320 hectares of open water make it the single largest wetland area in the metropolis. Coupled with the immediately adjacent Zeekoevlei and Rondevlei and adjacent shrublands, this is one of the largest wetland areas in the province, and is appropriately designated as the False Bay Ecology Park.

There is presently a proposal to extend a major road artery, the R300 extension toll road, across part of the Strandfontein settling pans. As part of the environmental impact assessment (EIA) for this project, I was tasked to evaluate the significance of Strandfontein for waterbirds, and found myself more impressed than I expected to be.

Many EIAs only consider whether or not the area to be impacted has any listed national or international Red Data species, that is, species potentially threatened with extinction. While important, the Red Data approach is, for me, far too narrow as it emphasizes only threatened species. The significance of a wetland needs to be considered in terms of both human and bird needs. In human terms, as an employee of CapeNature, I want to see the significance of the wetland at a provincial level and, as a birder citizen of Cape Town, I want to assess the significance at the met-

ropolitan level – where can I go to see birds. From the birds’ perspective, I want to see how important the wetland is, if not for each species (that becomes too complex), then for groups of species. Most waterbirds breed on small wetlands and only use large open-water areas, like the Strandfontein pans, outside their breeding period when they need a refuge which does not dry up, provides ample food, and is big enough for them to avoid shoreline disturbances.

The waterbirds of Strandfontein have been counted on a pretty regular, generally monthly, basis for the past 30 years, making this wetland one of, if not the best, appraised in Africa! At any given time, Strandfontein usually supports >15 000 waterbirds. If one takes the maximum number counted on any one occasion for each of the 93 regularly recorded species, the figure indicates an overall carrying capacity of >100 000 waterbirds, making it the richest wetland for birds in the entire Western Cape Province (Table 1). However, that total is biased by the occurrence during a single count of an estimated 51 000 Cape Cormorants. If we exclude Cape Cormorants then Strandfontein is the Western Cape’s third richest wetland in terms of waterbird numbers. By the same token, it is by far the most important wetland for birds within greater Cape Town.

At times Strandfontein supports 11% of the entire global population of the Benguela (Hartlaub’s) Gull and 10% of the estimated global population of the Khoisan (Kelp) Gull. In terms of the best estimates of sub-Saharan or southern African populations (Delany & Scott 2002), Strandfontein supports at least 1% of the regional population of 17 species. It is the single most important locality in the

Table 1. Western Cape wetlands which support more than 10 000 waterbirds, taken as the sum of the maximum CWAC count for each waterbird species.

Wetland	Total of max. counts
Strandfontein	105 093
Berg River wetlands	89 473
Langebaan Lagoon	64 345
Bot River Lagoon	28 222
De Hoop Vlei	25 487
Swartvlei wetlands	19 619
Voëlvlei	18 313
Berg River – Die Plaat	17 777
Rietvlei	17 661
Rondevlei	16 148
Touws wetlands	15 194
Jakkalsvlei	14 885
Verlorenvlei	14 778
Wadrif Saltpan	12 173
Knysna Lagoon	10 503
Rocher Pan	10 359

Western Cape for at least 12 species and supports >5% of the provincial population of 21 species of waterbirds (Table 2).

Strandfontein supports seven national Red Data species (Barnes 2000). Most significant of these is the African Marsh Harrier rated as Vulnerable. Strandfontein is one of only four wetlands where this species breeds in greater Cape Town and supports 29% of the metropolitan population. The other six Red Data species are all classified Near-threatened: Great White Pelican, Cape Cormorant, Greater Flamingo, Lesser Flamingo, African Oystercatcher and Caspian Tern. Three other Red Data species occur as occasional visitors.

Regional guilds

A different approach to assessing the significance of a wetland for waterbirds is appraisal of the importance of the wetland to birds based on where, geographically, they breed. The waterbirds of Strandfontein breed in four recognizably different geographic areas. First there are those species the majority of whose

population at Strandfontein breed, or were bred, at Strandfontein. These I designate local breeders. The number of such local species is small, as are their populations, at Strandfontein. I recognize birds as members of this group if an estimated 60% of the individuals that occur at Strandfontein breed, or were bred, there. At Strandfontein this probably applies only to **African Marsh Harriers**, **Purple Swamphens** and **Moorhens**.

Most of the waterbirds using Strandfontein are visitors which breed in one of three broad geographical areas: the Cape winter-rainfall area; summer-rainfall areas in southern Africa; and areas in the northern hemisphere. These three regional sources of visitors can each be subdivided according to whether species feed mainly in freshwater or in brackish or salty water. In the following section, only representative species are given per guild and species named in bold are of particular conservation importance at Strandfontein.

Cape winter rainfall region breeders

The local populations of species in this guild breed largely (though often not solely) in the Cape winter-rainfall region. Though some individuals may breed at Strandfontein, the majority (>60%) breed elsewhere within the winter rainfall region. Freshwater members of this guild are **Yellowbilled Duck**, **Cape Shoveller** and **Great White Pelican**. Cape marine species with important local populations at Strandfontein include **Khoisan Gulls**, **Benguela Gulls**, **Swift Terns**, **Cape Cormorants**, and **African Oystercatchers**.

Intra-African migrants

These are species which have their main breeding areas in summer-rainfall areas of southern Africa, but substantial numbers migrate to the Cape winter-rainfall region when their breeding wetlands decrease or dry-up in winter. These include freshwater species such as the **Great Crested Grebe** and **Southern Pochard** which breed on small or ephemeral pans in the highveld. This guild also includes a suite of species which breed on ephemeral

Table 2. A list of 26 priority waterbird species which occur on the Strandfontein wetlands, with relevant criteria and percentages of regional populations.

Species	Regional guild	Global	Red Data status	Southern Africa	Western Cape	Cape Metro
African Marsh Harrier	1		V		8.8% =1 st	29%
Little Grebe	2a			1%	22% =1 st	55%
Spurwinged Goose	2a				14.2% =1 st	65%
Yellowbilled Duck	2a			1%	6% =4 th	24%
Cape Shoveller	2a			1%	16% =1 st	46%
Maccoa Duck	2a			0.5%	27% =1 st	54%
Great White Pelican	2b		NT	15%	8%	26%
Cape Cormorant	2b		NT	1%	88% =1 st	99%
African Oystercatcher	2b	GNT	NT		6.7%	37%
Caspian Tern	2b		NT		3%	21%
Swift Tern	2b			1%	11% =2 nd	44%
Khoisan Gull	2b	10% R		1%	18%	46%
Benguela Gull	2b	11% S		1%	19%	33%
Black-necked Grebe	3a			1%	28% =1 st	84%
Greater Flamingo	3a		NT		20% =2 nd	72%
Lesser Flamingo	3a		NT		11% =2 nd	38%
African Shelduck	3a			1%	1%	38%
Pied Avocet	3a			1%	15% =1 st	44%
Cape Teal	3a			1%	25% =1 st	68%
Southern Pochard	3b			1%	31% =1 st	55%
Great Crested Grebe	3b	1.7% R			5%	18%
Redknobbed Coot	3b			0.4%	5% =4 th	38%
Whiskered Tern	3b				17% =3 rd	67%
Sandwich Tern	4a			1%	40% =1 st	88%
Little Stint	4b			1%	5%	22%
White-winged Tern	4b			1%	35% =1 st	41%

Regional guilds:

- 1 Breeding resident; at least 60% of number counted breed at Strandfontein.
- 2 Local migrant that breeds on W. Cape freshwater wetlands (2a) or at marine locations (2b).
- 3 Intra-African migrants that breed at saline ephemeral pans (3a) and at freshwater wetlands (3b).
- 4 Migrant that breeds at Palaearctic marine (4a) and freshwater localities (4b).

Global: Maximum count at Strandfontein as a percentage of the estimated global population of the species S or race R concerned.

Red Data Status: Status of the species in the South African Red Data book (Barnes 2000). V = Vulnerable; NT = Near-Threatened

Southern Africa %: maximum count at Strandfontein as a percentage of the sub-continental population (Delany & Scott 2002).

Western Cape %: maximum count at Strandfontein as a percentage of the maximum counts at 63 wetlands across the Western Cape Province

Cape Metro %: maximum count at Strandfontein as a percentage of the maximum counts at 22 wetlands across the Cape Town metropolitan area (east to Wellington/Gordon's Bay, north to Malmesbury).

saline or brackish pans: **Blacknecked Grebe**, **Greater and Lesser flamingo**, Cape Teal and Avocet.

Palearctic migrants

These are species which breed in the northern hemisphere but which migrate to southern Africa during the boreal winter. These include marine species such as Sandwich and Common terns, and shorebirds, notably at Strandfontein, **Little Stint**, Greenshank, Curlew Sandpiper, and Ruff.

Conclusion

The emboldened names show that in each guild there are species of especial conservation significance in terms of the proportion of their southern African population which occurs at Strandfontein. Thus Strandfontein is of conservation importance not only in terms of metropolitan, provincial and national populations, but also at a wider global level because it supports significant numbers of birds which breed elsewhere in Africa and Eurasia.

The international importance of Strandfontein wetlands is widely recognized. Normally a wetland of such significance would be given special protection by being registered under the international Ramsar Convention. Strandfontein more than fulfils the necessary criteria for such registration. That it is an artificial wetland and actively managed for sewage treatment and flood water absorption does not preclude Ramsar status. The City of Cape Town has been urged to register Strandfontein, but has so far hesitated to do

so, probably fearing some loss of management control. South Africa is now a signatory to the African-Eurasian Waterbird Agreement (AEWA) and so has obligations to minimize loss of any wetland areas significant for waterbirds, to minimize negative impacts on such wetlands (which would include building roads across Strandfontein pans), or, in cases where loss of wetland area or value occurs, to provide compensation through the creation of wetlands of similar area and bird-supporting value. These obligations, accepted by South Africa, apply to Strandfontein irrespective of whether it is a registered Ramsar site.

Thus it is clear that Strandfontein has significance not only for the conservation of locally bred birds, but also for the conservation of birds from distant African regions, as well as regions as far afield as Western Europe and Siberia. It is because of its importance to waterbirds from many regions in both Africa and Eurasia that there would be strong international opposition, via the African-Eurasian Waterbird Agreement (AEWA), to any development likely to reduce the carrying capacity of the Strandfontein wetlands.

A final message from the birds: Keep flushing – your sewage works are much to our liking!

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A survey of waterbirds at Lake Ngami: December 2004

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Lake Ngami is part of the Okavango River delta system and is situated at the southern edge of the Delta. In recent years, it has generally been dry and has been inundated only occasionally, generally in years when there has been a relatively high flood in the Delta. In such years, water has flowed from the Kunyere River, which originates in the southern Okavango Delta, into Lake Ngami, entering the lake at its eastern end. Prior to 2004, the last significant inundation of Lake Ngami was in 1989, though small amounts of water also reached Lake Ngami in 1992 and 2000.

In June 2004, water started to flow strongly into Lake Ngami from the Kunyere River and it slowly filled. By October 2004, when the lake reached its maximum extent, the lake was approximately 12 km long, from east to west, and up to 4 km wide, from north to south. In November 2004, with reduced inflow, the waters of the lake started to drop. As the lake was shallow, it retreated quite quickly and by late December, the lakeshore had retreated by c.2 km from the west. At the same time, water had also retreated c.500 m along the southern shore, but only a short distance along the more steeply sloped northern shore.

Several waterbird counts, by different observers, were made at Lake Ngami as water levels rose from June to October. During this period, numbers of birds, although relatively low, gradually increased. Numbers of waterbirds on seasonal floodplains in the Okavango Delta, however, tend to be highest as water levels drop, especially prior to the onset of the main rains. The receding waters provide attractive feeding conditions for many species, such as pelicans, herons and terns, and the exposed muddy shores are attractive to numerous wading birds. Large numbers of birds, particularly ducks, congregate on such

waters at the end of the dry season and then disperse to seasonal pans when they are inundated after the first heavy rains.

The Chobe floodplain, the Makgadikgadi Pans and Okavango Delta are the most important sites for waterbirds in Botswana. Lake Ngami is part of the Okavango Delta and, when inundated, is the most important single site for waterbirds within the Okavango Delta. Large numbers of waterbirds, including up to half a million Redbilled Teal *Anas erythrorhyncha*, breeding Great White Pelicans *Pelecanus onocrotalus*, and a great diversity of other species have been recorded there in the past (Tyler 2001).

Fieldwork

When Lake Ngami was visited on the afternoon of 23 December 2004, it was immediately obvious that there were large numbers of birds present and the decision was made to make a full count of the waterbirds at the lake. At this time, the main summer rains had not yet materialised.

Access to the northern shore of the lake was straightforward as there was a vehicle track along the shore, close to the water. Large numbers of birds were present along the shore, and on the open water offshore; these were counted on 24 December, by driving along the shore and stopping at regular intervals.

At the eastern end of the lake, where the Kunyere River flows into the lake, large numbers of birds were present in emergent vegetation, along the muddy shore and in an area of wet grassland. It was rather difficult to count the birds here as many birds were concealed in emergent vegetation or hidden by the large flock of Great White Pelicans along the shore. The morning of 25 December was spent in the shade of a tree, observing the area and counting birds when they briefly came into view,

usually after disturbance. The wet grassland at the eastern end of the lake was counted on foot on the morning of 26 December, by wading across the Kunyere River from the southern shore.

There were also large numbers of birds present in the extensive area of shallow water and muddy shore at the western end of the lake where the water was retreating. Several hours were spent counting this area on foot on the afternoons of 25 December and 27 December.

The southern shore was neither as accessible nor as straightforward to count as the northern shore. Much of the southern shore of the lake was either wet grassland or, in some parts, flooded *Acacia* savanna. It was not possible to approach the shore of the lake with a vehicle. The southern shore was counted, on 26 and 27 December, by parking the vehicle at regular intervals and then walking through the wet grassland and wading 100 m or so into the water, so that all the birds that were visible along the shore and in the open water could be counted. This method was time consuming, and while large numbers of birds were counted in this way, many more were probably missed, as they were not visible in the long grass or flooded savanna.

On the morning of 28 December, we double-checked a few species, particularly White Pelican, Little Egret and Black-winged Pratincole, to confirm that no birds had either been counted more than once or overlooked over the previous four days.

Results

Little Grebes were present in large numbers and were found mainly in areas of deeper, open water, off the northern shore.

Due to the large number of **Great White Pelicans** present, and the conspicuousness of the species, care was taken to make an accurate count. The large majority (up to 4000) spent much of the five days roosting on a sand bank at the eastern end of the lake, with a few, smaller groups elsewhere. Most of the few **Pink-backed Pelicans** were seen in the vicinity of the same sand bank.

The large number of **Reed Cormorants** was one of the noticeable features of the count. The majority of these birds were seen in large flocks along the northern shore; other aggregations were noted in areas of open water. **Darters** were present in much smaller numbers and the majority were seen at the eastern end of the lake, in the vicinity of some dead trees on the water, where they were possibly breeding.

Grey Herons were common, either singly or in small groups. They particularly favoured the shallow water along the southern shore and a few appeared to be breeding on some dead trees in water at the eastern end of the lake. **Black-headed Herons** are sparse in northern Botswana (Penry 1994); the four birds present were all seen in wet grassland on the southern shore. Only four **Goliath Herons** and four **Purple Herons** were seen, though both these species are common in the Okavango Delta (Penry 1994). **Little Egrets** were common and found mainly in large, quite mobile flocks, mainly along the northern shore. Both **Great Egrets** and **Yellow-billed Egrets** were common. It is difficult to distinguish between these two species at long range, so the more distant birds were not positively identified. It is likely, therefore, that both species were under-recorded. Great Egrets were generally seen singly or in small groups, often in deeper water, while the majority of Yellow-billed Egrets were seen in loose flocks, usually in wet grassland. Nearly all the **Black Herons** were seen at the eastern of the lake, where a flock of about 100 birds was seen foraging in shallow water amongst emergent vegetation. The few **Slaty Egrets** were seen singly in wet grassland on the southern shore. While a few **Cattle Egrets** were seen in the vicinity of cattle, the large majority of birds were present in a flock of 200 birds in a bare muddy area at the western end of the lake. Most **Squacco Herons** were seen amongst emergent vegetation at the eastern end of the lake, though a few were seen in more open water elsewhere. Though common in the Okavango Delta, only a single **Green-backed Heron** was seen at Lake Ngami, presumably due to the

lack of favourable habitat. We flushed 160 **Black-crowned Night-Herons** from a roost in flooded trees on the southern shore and a further 20 birds were flushed from a second roost; a few more birds were seen elsewhere. The great majority of Black-crowned Night-Herons were immature birds.

Small numbers of **White Storks** were seen in long grass away from the water, but the 77 birds counted were all beside water, at the western end of the lake, at midday on 27 December. Many **African Openbills** were perched on dead trees at the eastern end of the lake, though others were seen in small, mobile, flocks along the southern shore. Relatively large numbers of **Yellow-billed Storks** were present and most frequented the wet grassland and shore on the southern side of the lake. Few **Marabou Storks** were seen. Three **Saddle-billed Storks**, a pair and a singleton, were seen along the southern shore.

Glossy Ibises were common and they were generally seen singly or in small groups. The majority were seen along the southern shore, usually in shallow water or wet grassland. **African Sacred Ibis** was uncommon, with only a few birds seen along the southern shore. All the **African Spoonbills** were seen in flocks on the southern side of the lake, either along the shore or in shallow water.

Greater Flamingos were common in large flocks along the southern shore. A small flock of 15 **Lesser Flamingos** was seen only on 23 December.

White-faced and **Fulvous ducks** were widespread in pairs or small groups. As they were often encountered in wet grassland, where they were not easily seen, some birds of both species were probably overlooked. Breeding was confirmed for Fulvous Duck: a nest with 10 eggs was found in long grass and a pair with dependent young was seen. Fulvous Duck was the only duck species for which breeding was confirmed. **White-backed Duck** is a relatively uncommon species in Botswana and the number seen at Lake Ngami, all of them in open water off the northern shore, is notable. **Egyptian Geese** and **Spur-winged Geese** were seen mainly

in flocks in wet grassland along the southern shore. **Yellow-billed Ducks** are common in the Okavango Delta (Penry 1994), but few were seen at the lake. **Cape Teal** do not generally occur in the Okavango Delta, so the record of a single bird is of note. The 150 **Hottentot Teal** were in a single flock amongst emergent vegetation at the eastern end of the lake. The huge numbers of **Red-billed Teal** present were a daunting task to count. The majority of them were found in several large flocks of 1000–3000 birds along the northern shore. Few **Cape Shovelers** were seen; this species is uncommon in the Okavango Delta (Penry 1994). **Southern Pochards** were widespread, usually in pairs or small groups, on open water. A few **African Pygmy-Geese** were seen in open water off the northern shore. **Comb Ducks** were numerous; the majority were on open water and wet grassland along the southern shore. Owing to the preference of Comb Duck for wet grassland, where they are not easily seen, it is likely that some birds were overlooked.

A pair of **Wattled Cranes** was seen in a bare muddy area at the western end of the lake.

Purple Gallinule appeared to be fairly common in wet grassland along the southern shore of the lake. Owing to its skulking nature, it is likely that this species was under-recorded. **Common Moorhen** were present in large numbers on open water; it is likely that, owing to its skulking habits, many more birds were overlooked. A pair of Common Moorhen with dependent young was seen. Three **Lesser Moorhens** were seen amongst flooded acacias along the southern shore. Small numbers of **Red-knobbed Coot** were seen on open water. A pair of Red-knobbed Coot, with dependent young, and an adult Red-knobbed Coot, incubating on a nest, were seen.

African Jacanas were present in small numbers, mainly along the northern shore.

Greater Painted Snipe were encountered, singly or in pairs, in muddy areas at the western end of the lake or along the Kunyere River, where it flowed into the lake.

Ringed Plover is a scarce migrant in Botswana (Penry 1994); the number of birds present, all on the muddy shore at the western end of the lake, is therefore notable. Small numbers of **Kittlitz's Plovers** were present, all in muddy or bare areas at the western end of the lake. The lack of **Three-banded Plovers**, apart from a single pair, is notable. The absence of this species has been noted on previous visits to Lake Ngami. It is possible that Three-banded Plover has a preference for smaller, more sheltered waters, rather than the open shore of larger areas of water, such as Lake Ngami. The **Caspian Plovers** were nearly all found in a large flock of about 500 birds in a bare muddy area, beside water, in loose association with a flock of Black-winged Pratincoles, at the western end of the lake. **Grey Plover** is a sparse migrant in Botswana (Penry 1994) and the five birds seen along the muddy shore at the western end of the lake were unexpected. **Blacksmith Lapwings** were common and were encountered mainly in grassland and bare areas close to water, especially along the southern shore.

There were large numbers of both **Wood Sandpiper** and **Ruff**. Both species were mainly found in wet grassland and shallow water along the southern shore and at the western end of the lake. Due to their preference for wet grassland, where they were difficult to observe, it is likely that many birds of both species were overlooked. There were few **Common Sandpipers**, owing to lack of suitable habitat. **Greenshanks** were widespread along the shores of the lake, usually singly. **Marsh Sandpipers**, however, were confined to the muddy shores at the eastern and western ends of the lake, often in small groups. **Little Stints** were also confined to the muddy eastern and western ends, where they were mainly found in large flocks. The few **Curlew Sandpipers** were in the same areas. Both **Black-tailed Godwit** and **Curlew** are rare birds in Botswana and the records of both species are notable. A flock of six Black-tailed Godwits was seen at the eastern end of the lake on 24 December, and a single bird remained at the same location until 28

December, while a flock of 15 Black-tailed Godwits was seen along the southern shore on 26 December. Two Curlews were seen at the eastern end of the lake on 24 December. Two **African Snipe** were seen amongst flooded acacias on the southern shore of the lake.

The high number of **Black-winged Stilts** is one of the most notable features of the count. Black-winged Stilts were widespread around the shore of the lake, although they were particularly numerous along the muddy shores at the western end. Several pairs of adult Black-winged Stilts with dependent young were noted. Two small groups of **Avocets** were noted along the southern shore.

Black-winged Pratincoles were seen in three large flocks, which frequented bare ground beside water, both at the eastern and western ends of the lake. A single flock of about 300 **Collared Pratincoles** frequented an area of damp grassland, where the Kunyere River flowed into the lake, and a few more birds, mainly in pairs, were found in grassland along the southern shore of the lake. One of these pairs, judging by its distraction display, was breeding. The Collared Pratincoles appeared to have a slightly different habitat preference to the Black-winged Pratincoles, been found mainly in short, damp grassland, although the two species of pratincole were found side by side at times.

A few **Grey-headed Gulls** were present on open water off the southern shore. Both **Whiskered Terns** and **White-winged Terns** were quite common. They were encountered mainly in mobile flocks, either hawking over both water and wet grassland, or roosting beside water. One active Whiskered Tern nest was seen off the southern shore of the lake.

A variety of raptors was noted. A pair of **Western Banded Snake-eagle** *Circaetus cinerascens*, was seen in *Acacia* woodland where the Kunyere River flows into the lake; this species occurs in the Okavango Delta, but there do not appear to be any previous records at Lake Ngami (Penry 1994). Three **Montagu's Harriers** *Circus pygargus* and two **African Marsh-Harriers** *Circus ranivorus* were seen over grassland at the western end

of the lake. During the five days, only one **Bateleur** *Terathopius ecaudatus* was observed. Bateleur has declined on the western side of the Okavango Delta, which is a cattle rearing area, in the past 15–20 years. When I lived on the western side of the Delta from 1985–88, Bateleur was common, being the most visible raptor, but now it is noticeably less common. Other raptors seen at Lake Ngami were three to four **Yellow-billed Kites** *Milvus aegyptius*, a **Tawny Eagle** *Aquila rapax*, a **Wahlberg's Eagle** *Aquila hahnborgi*, two **African Fish Eagles** *Haliaeetus vocifer*, a **Steppe Buzzard** *Buteo vulpinus*, two **Southern Pale Chanting Goshawks** *Melierax canorus*, two **Gabar Goshawks** *Melierax gabar*, an **African Harrier-Hawk** *Polyboroides typus*, two **Red-necked Falcons** *Falco chicquera* and two **Red-footed Falcons** *Falco vespertinus*.

Blue-cheeked Bee-eaters *Merops persicus* and **Barn Swallows** *Hirundo rustica* were abundant over the lake. In the shorter grassland around the lake, **Grassveld Pipits** *Anthus cinnamomeus* were common and evidently breeding, but neither **Plain-backed Pipit** *Anthus leucophrys* nor **Buffy Pipit** *Anthus vaalensis* were seen. Flocks of **Red-capped Larks** *Calandrella* and a few **Chestnut-backed Sparrowlarks** *Eremopterix leucotis* were present in short grassland. **Harlequin Quails** *Coturnix delegorguei* were common in the longer grass at the western end of the lake. Small numbers of **Yellow Wagtails** *Motacilla flava* were present near water and in wet grassland. **Sedge Warblers** *Acrocephalus schoenobaenus* were common in thickets, bushes and long grass round the lake.

Discussion

A great diversity of waterbird species, 71 in total, was seen at Lake Ngami from 23–28 December 2004. Of species that occur in the Okavango Delta and that seem likely to occur at Lake Ngami, only **Hamerkop** *Scopus umbretta* and **African Skimmer** *Rhynciops flavirostris* were not seen. Some species, such as **Rufous-bellied Heron** *Ardeola rufiventris*,

Black Crake *Amaurornis flavirostris* and **Long-toed Lapwing** *Vanellus spinosus*, that are common in the Okavango Delta, were not seen at Lake Ngami, but they are less likely to occur there as they are primarily species of permanent swamp.

Of the species seen at Lake Ngami, eight were present in numbers which exceeded the 1% threshold of the estimated southern African or larger population (Tyler 2003b; Wetlands International 2002). These species were **Great White Pelican**, **Greater Flamingo**, **Red-billed Teal**, **Comb Duck**, **Caspian Plover**, **Black-winged Stilt**, **Black-winged Pratincole** and **Whiskered Tern**, while **White-backed Duck** numbers exceeded the 0.5% threshold. A site that regularly hosts at least 0.5% of a species' population is considered to be of national importance for that species, while a site that regularly hosts 1% of a species' population is considered to be of international importance. The number of **Great White Pelicans** seen at Lake Ngami represents 25%, and the number of **Black-winged Stilts** 20%, of the southern African population (D. Harebottle pers. comm.).

The total number of birds counted at Lake Ngami is greater than has been counted at any other single site in Botswana in recent years, with the exception of Sua Pan, in the Makgadikgadi Pans system, where huge numbers of **Greater and Lesser flamingos** occur and breed in years of good rainfall (Tyler 2001).

Waterbirds were counted in parts of the Okavango Delta from January to March 2003 (Tyler 2003a). It was found that, along the Boteti and Thamalakane rivers, species diversity and highest density of many species were greater than in other parts of the Delta. The Boteti and Thamalakane rivers, like Lake Ngami, though part of the Okavango Delta system, lie outside of the mosaic of areas of permanent swamp, seasonal floodplain and floodplain woodland that constitute the main part of the Okavango Delta. Diversity and density of many species at Lake Ngami were both high in December 2004 and are likely to be much higher than at sites within the main part of the Okavango Delta.

Table 1. Total numbers of waterbirds recorded at Lake Ngami on 23–28 December 2004.

Species	No. of birds	Species	No. of birds
Little Grebe <i>Tachybaptus ruficollis</i>	700	Cape Shoveler <i>Anas smithii</i>	8
Great White Pelican <i>Pelecanus onocrotalus</i>	5200	Southern Pochard <i>Netta erythrophthalma</i>	240
Pink-backed Pelican <i>Pelecanus rufescens</i>	46	African Pygmy-Goose <i>Nettapus auritus</i>	8
Reed Cormorant <i>Phalacrocorax africanus</i>	3200	Comb Duck <i>Sarkidiornis melanotos</i>	4750
African Darter <i>Anhinga rufa</i>	120	Spur-winged Goose <i>Plectropterus gambensis</i>	155
Grey Heron <i>Ardea cinerea</i>	420	Wattled Crane <i>Grus carunculatus</i>	2
Black-headed Heron <i>Ardea melanocephala</i>	4	African Purple Swamphen <i>Porphyrio madagascariensis</i>	40
Goliath Heron <i>Ardea goliath</i>	4	Common Moorhen <i>Gallinula chloropus</i>	2650
Purple Heron <i>Ardea purpurea</i>	4	Lesser Moorhen <i>Gallinula angulata</i>	3
Great Egret <i>Egretta alba</i>	250	Red-knobbed Coot <i>Fulica cristata</i>	50
Little Egret <i>Egretta alba</i>	1050	African Jacana <i>Actophilornis africanus</i>	90
Yellow-billed Egret <i>Egretta intermedia</i>	200	Greater Painted-snipe <i>Rostratula benghalensis</i>	18
Black Heron <i>Egretta ardesiaca</i>	120	Common Ringed Plover <i>Charadrius hiaticula</i>	30
Slaty Egret <i>Egretta vinaceigula</i>	9	Kittlitz's Plover <i>Charadrius pecuarius</i>	30
Cattle Egret <i>Bubulcus ibis</i>	240	Three-banded Plover <i>Charadrius tricollaris</i>	2
Squacco Heron <i>Ardeola ralloides</i>	90	Caspian Plover <i>Charadrius asiaticus</i>	500
Green-backed Heron <i>Butorides striatus</i>	1	Grey Plover <i>Pluvialis squatarola</i>	5
Black-crowned Night-Heron <i>Nycticorax nycticorax</i>	190	Blacksmith Lapwing <i>Vanellus armatus</i>	1000
White Stork <i>Ciconia ciconia</i>	77	Common Sandpiper <i>Actitis hypoleucos</i>	3
African Openbill <i>Anastomus lamelligerus</i>	210	Wood Sandpiper <i>Tringa glareola</i>	2200
Saddle-billed Stork <i>Ephippiorhynchus senegalensis</i>	3	Marsh Sandpiper <i>Tringa stagnatilis</i>	100
Marabout Stork <i>Leptoptilos crumeniferus</i>	14	Common Greenshank <i>Tringa nebulaia</i>	60
Yellow-billed Stork <i>Mycteria alba</i>	310	Curlew Sandpiper <i>Calidris ferruginea</i>	10
African Sacred Ibis <i>Threskiornis aethiopicus</i>	7	Little Stint <i>calidris minuta</i>	1200
Glossy Ibis <i>Plegadis falcinellus</i>	520	Ruff <i>Philomachus pugnax</i>	3500
African Spoonbill <i>Platalea alba</i>	120	African Snipe <i>Gallinago nigripennis</i>	2
Greater Flamingo <i>Phoenicopterus ruber</i>	980	Black-tailed Godwit <i>Limosa limosa</i>	21
Lesser Flamingo <i>Phoenicopterus minor</i>	15	Eurasian Curlew <i>Numenius arquata</i>	2
White-faced Duck <i>Dendrocygna viduata</i>	400	Pied Avocet <i>Recurvirostra avosetta</i>	15
Fulvous Duck <i>Dendrocygna bicolor</i>	400	Black-winged Stilt <i>Himantopus himantopus</i>	4200
White-backed Duck <i>Thalassornis leuconotus</i>	138	Collared Pratincole <i>Glareola pratincola</i>	320
Egyptian Goose <i>Alopochen aegyptiacus</i>	460	Black-winged Pratincole <i>Glareola nordmanni</i>	1000
Yellow-billed Duck <i>Anas undulate</i>	8	Grey-headed Gull <i>Larus cirrocephalus</i>	9
Cape Teal <i>Anas capensis</i>	1	Whiskered Tern <i>Chlidonias hybridus</i>	240
Hottentot Teal <i>Anas hottentota</i>	150	White-winged Tern <i>Chlidonias leucopterus</i>	400
Red-billed Teal <i>Anas erythrorhyncha</i>	20 000	TOTAL	58 524

Numbers of waterbirds at Lake Ngami gradually increased from June 2004, when water started to flow into Lake Ngami, until December 2004. It seems likely that bird numbers reached their maximum in December 2004, when the count took place, due to

the quite rapid dropping of water level and retreat of the lake in early 2005. The count is evidence of the both the great species diversity and the high numbers of certain species that occur when Lake Ngami is inundated. Many species of waterbird in southern Africa

are highly mobile and opportunistic and clearly they take advantage of the suitable conditions that are present at Lake Ngami when it is inundated, even if such conditions occur only irregularly.

The waterbirds at Lake Ngami, until recently, have been unprotected. Owing to the presence of large numbers of water birds in 2004, for the first time since 1989, Lake Ngami was gazetted as a no-hunting area in November 2004. The waterbirds at Lake Ngami are now protected and there was no disturbance from hunting during my visit – in fact, there was virtually no disturbance at all. While large numbers of cattle were present, though not as large as prior to the cattle-lung disease outbreak in the late 1990s, when all cattle in the area were slaughtered, these cattle in no way disturbed the birdlife. During my five days at the lake, the only people I saw

were a small number of visitors, who drove along the northern shore of the lake to look at the birds, and a few herdboys. Five days of camping beside the lake and appreciating its birds were both peaceful and enjoyable.

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Estimating Maccoa Duck populations in South Africa using CWAC data

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To develop an accurate population estimate is rather difficult when you are dealing with a nomadic waterbird species such as Maccoa Duck *Oxyura maccoa*. This species is dispersed over southern Africa, occurring in all nine provinces of South Africa as well as neighbouring countries.

Scott & Rose (1996) estimated the Maccoa Duck population at between 15 000 and 25 000 birds. Wetlands International (2002) estimated the southern African regional population as <10 000 birds. It is now believed that these figures were over-estimates based on the lack of knowledge at the time (Berruti 2005; Berruti et al. 2005).

During a recent International Maccoa Duck Action Plan Workshop, held in Wakkerstroom, an attempt was made to revise the population estimates for the species' entire range. South Africa supports the largest population of Maccoa Duck in Africa, and therefore it was particularly important to revise this country's current population estimate. The method used the latest CWAC (Coordinated Waterbird Counts) data. All maximum

Table 1. Provincial population estimates for Maccoa Duck based on the sum of all maximum CWAC counts, multiplied by a factor of 1.5.

Province	Totals
Eastern Cape	30
Free State	1125
Gauteng	305
KwaZulu-Natal	6
Mpumalanga	1257
North West	14
Northern Cape	455
Limpopo	48
Western Cape	2148
Total for South Africa	5388

counts, for all sites where Maccoa Duck occurred over the past 12 years, were summed. This sum was multiplied by a factor of 1.5 to allow for the occurrence of immature birds. The data included counts in both the breeding and non-breeding seasons (Table 1).

Wetlands International (2002) employed similar methods to develop their waterbird population estimates, but only used census data derived from counts made towards the end of the non-breeding season.

The CWAC results compare well with the best-guessed estimates from many of the South African attendees at the workshop (Table 2). It is also worth mentioning that Hëyl (1993) estimated a total of 2400 birds for the former Cape Province (Western, Northern and Eastern Cape provinces), and according to Clarke (1974), the central Free State area supported about 1098 birds during the non-breeding season. These estimates also compare favourably with the latest CWAC data.

During the workshop, it was agreed that the new population estimate for Maccoa Duck in South Africa ranges between 4500–5500 birds, based on the final figure of 5388 (Table 1; Berruti et al. 2005). This could be seen as a conservative estimate as evidence suggests that Maccoa Duck has been

Table 2. Best-guessed population estimates for Maccoa Duck in South Africa from South African workshop attendees.

Area	Totals
Western Cape area	2000
Highveld area	2000
Rest of South Africa	1000
Total for South Africa	5000

spreading in South Africa over recent years (Maclean 1997). Taking into consideration that CWAC does not nearly cover all available habitats where this species could occur, it could be assumed that more than 5388 birds occur in South Africa. Further monitoring is essential to develop a better population estimate and to determine the extent of distribution and population fluctuation.

Caveats

As mentioned earlier, estimating numbers of birds, especially per province, is difficult. CWAC coverage differs greatly from province to province. Provinces such as the Western Cape, KwaZulu-Natal and Gauteng than Limpopo, North-West and Eastern-Cape provinces. As a result, poorer estimates can be expected from the poorly surveyed provinces and *vice versa*. However, it should be borne in mind that a low estimate does not necessarily mean a poor estimate. The estimate of six birds for KwaZulu-Natal is probably due to the lack of suitable habitat (deep nutritious waters with emergent vegetation). Cyrus & Robson (1980) also reported low numbers for KwaZulu-Natal.

Most CWAC counts are done twice a year during midsummer and midwinter. Summer counts take place from mid-January to mid-February, and winter counts during July. Bearing in mind that Maccoa Duck movements are erratic and nomadic (Clarke 1974), it is expected that six-monthly counts could miss out on peaks in numbers occurring at certain times of the year at certain wetlands. As counts take place over a month-long period, there is also a small chance of double-counting birds at some sites, especially where sites are situated close to one another.

Recommendations

In order to obtain better population estimates for Maccoa Duck, especially provincial estimates, one needs to regularly survey more wetlands. It is recommended that CWAC coverage be expanded in Limpopo, North-West and the Eastern Cape provinces. There is also scope for improvement in the other six

provinces. This will not only benefit Maccoa Duck, but all waterbird species.

If you know of any wetland in your area where Maccoa Duck occur or breed, please consider counting this site for CWAC, or at least inform the ADU of the whereabouts of the site. Your contribution will be greatly appreciated, and will make a contribution to conservation of our waterbirds.

Acknowledgements

Thanks to all participants at the International Maccoa Duck Workshop for their valuable input towards developing a new National Population Estimate for Maccoa Duck; to the African-Eurasian Waterbird Agreement (AEWA) for providing financial support; and the African Gamebird Research Education and Development Trust (AGRED), BirdLife South Africa (BSA) and Endangered Wildlife Trust (EWT) for their role in organising and facilitating the workshop.

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KIRSTEN LOUW

Kirsten died tragically on 12 May 2005, in Cape Town, aged 26. He was known to many as one of Cape Town's finest naturalists as his interests in natural history ranged widely from birds and butterflies to frogs and fynbos. He was also an aspiring artist and writer. At the time of his death, he was registered as a doctoral student in the Percy FitzPatrick Institute of African Ornithology, UCT, where he was working on the ecological correlates of various migratory behaviours in the sub-Saharan avifauna.

His association with the ADU began in 1998 when he assisted with data checking for the Birds in Reserves Project (BIRP). During the two years with the unit he ensured that records from over 1000 BIRP checklists were accurate and error-free. He also participated in several ADU projects. For CWAC he assisted on numerous occasions with counts at Langebaan Lagoon, the Berg River and Bot River estuaries, Raapenberg Bird Sanc-

tuary and Edith Stephens Wetland Park. He contributed over 100 BIRP checklists, most of them for Rondevlei Bird Sanctuary on the Cape Flats, and initiated BIRP monitoring at two Natural Heritage Sites. He also participated in the Southern African Frog Atlas Project (SAFAP). Most recently, he assisted with the coordination of waterbird roost counts at Die Oog Bird Sanctuary in Bergvliet, Cape Town.

His enthusiasm in assisting with ADU projects was evident from the outset and he eagerly promoted participation within the bird clubs and other environmental groups he was involved with. He was a long-standing committee member of the Cape Bird Club and represented the club at ADU projects meetings where he always had innovative ideas. He was also a popular public speaker and his passion for his subject was evident whenever he spoke about birds, butterflies or endangered plants.

His contributions to the ADU, and indeed African ornithology, have been invaluable and he contributed a wealth of knowledge. The void left by Kirsten will be difficult to fill and he will be sorely missed by all who knew him.

Doug Harebottle
ADU

Chirps from the Past

From *Ibis* 1944, volume 86, pages 93–94:

“Do Young Birds Play?”

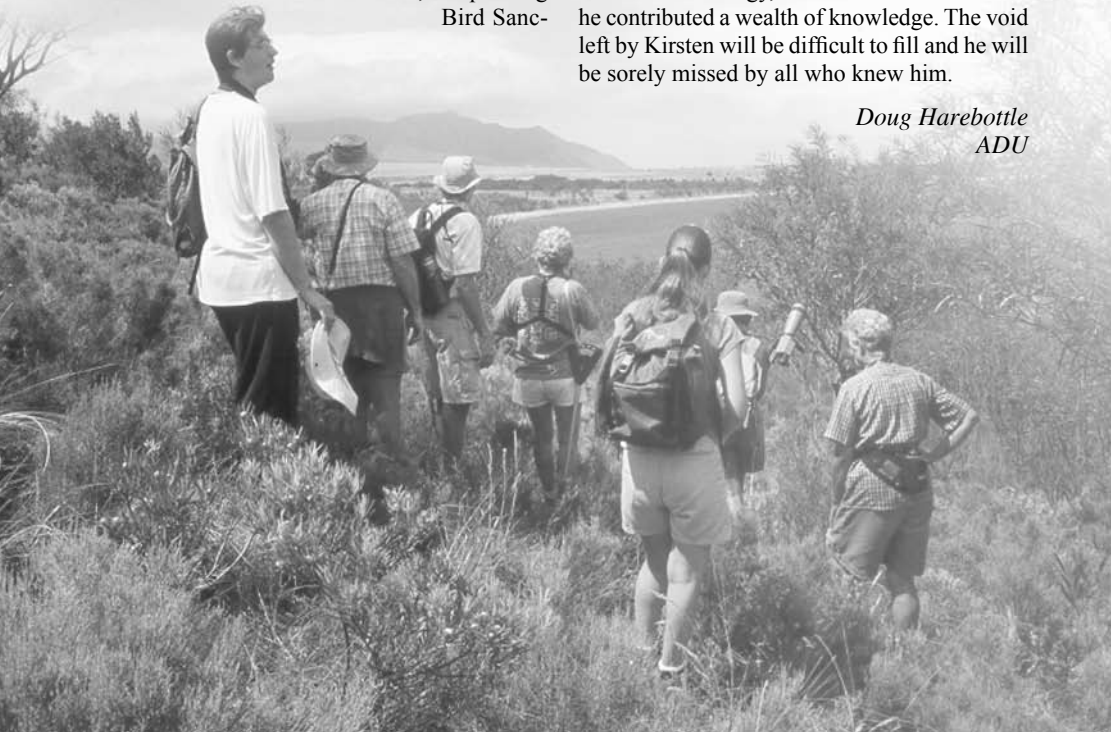
By R. F. and W. M. Moreau

(Received 23 September, 1943)

“In *The Personality of Animals* (Pelican Books, 1940), H. Munro Fox writes: “Some birds may perhaps play, but young birds do not play like puppies and kittens”.

“We think that there are notable exceptions to this generalization. We have described (*Ibis*, 1938, p. 647) how young *Tauraco fischeri* (Reichenow) chased each other about and played tricks on each other in monkey fashion. We have seen young Silvery-cheeked Hornbills, *Bycanistes cristatus* (Rüppell), not long fledged, barging each other, wrestling on a branch in what, we think, was play, not earnest. Swynnerton (*Ibis*, 1908, p. 405) described a very similar thing in four young Trumpeter Hornbills, *Bycanistes bucinator* (Temminck): “they would hustle each other and worry each other with their bills”.

“Recently we watched two young White-necked Ravens, *Corvultur albicollis* (Latham), on the grass outside our house at Amani, who seemed undoubtedly to be playing a sort of “King of the castle” game. One, standing on a tuft, would pick up and brandish defiantly a lump of dry cow-dung or a small stick. The other would charge up to it and they would wrestle for the object. Once the challenger leapt at the other bird and struck with its feet. On another occasion the bird with the twig actually threw it towards the other.”



Birds in Culture

Biologist's Ambivalence

(on taking blood samples from
Wandering Albatrosses)

Clear brown disc of apprehension
Staring past me,
Snowflake feathers, clean sweet smell,
Slightly musty,
I feel so tender and protective
As I hold, hug,
So other hands can grip and prod
And steal your blood.

*Marianne de Villiers
Marion Island, April 2005*

The Long Drop at the Swartkop Hut on Marion Island

At Swartkop lives an albatross
Who's calm and peaceful, seldom cross.
Far from the madding crowd is she
But not averse to company.

And when a human comes to rest
Atop the nearby strange white nest,
She dips her head and turns her gaze
And wonders at its horrid ways:

Not e'en the youngest chick, newly fed
Would make a mess *inside* its bed...

*Marianne de Villiers
Marion Island, April 2005*

Waterbird count on Vaal Dam

High harbour walls, the water is low,
Dark early hours with a soft morning glow;
Chugging motor – we're not yet undersail –
Early gulls give unearthly wail.

The motor's stopped, unrolled canvas flaps,
A light morning breeze is somehow trapped;
Martins and swallows above us fly,
Terns and others give mournful cry.

The water's shallow, we are far from land,
But Goliath is wading on a bank of sand;
A lightning strike and there is one fish less,
It struggles now in the heron's caress.

Ducks and geese graze on stubbled grass,
The water's still like polished glass;
Somehow we glide along our designated route,
Flamingos six, then one hundred coot.

Rare in these parts, the Horus Swift;
The wind just drops so now we can drift;
Rarer still the light grey harrier:
Happy birders seem somehow happier.

We eat and drink and the day's just gone;
It's gently back, then one gives song
Of new birds seen, new experiences gained,
A job well done and new friends made.

*Jamie Smith
BirdLife Vaal Dam,
January 2004*

Keurboom's Estuary

Going to the water's edge to watch the terns,
 whose flight seems delirious as they dip and ride
 invisible undulations of air or whim, and there finding
 the twin fluids of wind and tide at their own entertainment.

Middle and far across the lagoon, the fierce forbidden star mirrors herself
 in the ruffled flood: an incandescence continuously, silently shattering.
 And nearer, gusts and crosswinds ricochet from the banks, skittering
 across the shallows as if they were shoals of impossibly fast fish,

dashing in fluid fits just below the surface tension, accelerating
 and hesitating in zestful stampedes and sprints. In deeper,
 a wind whittles and scallops the lagoon without breaking its skin,
 except when hurling a tern, like a white dart, from the sky.

Nature has her moods,
 but no matter how melancholy the poet,
 he must acknowledge that one of them
 is joy.

James Harrison

Red Scoria breaks the Island Mist

Grey lava clinks beneath our feet
 We are Kildalkey bound, hooray!
 Antarctic Terns above us scream
 Will red scoria break the morning mist?

Over ferny banks we slowly go
 Skirting black lava on our way
 The Soft Plume yields a welcome drink
 Can red scoria break the swirling mist?

King Penguins bugle far ahead
 The mountains shine in full array
 We reach the hut and enter in
 As red scoria breaks the passing mist

You might well think our walk is done
 As dark night follows on from day
 But journeys mean much more than miles
 When red scoria breaks the island mist

*JCH,
 Marion Island,
 April 2005*