Biodiversity Observations

http://bo.adu.org.za

An electronic journal published by the Animal Demography Unit at the University of Cape Town

The scope of Biodiversity Observations consists of papers describing observations about biodiversity in general, including animals, plants, algae and fungi. This includes observations of behaviour, breeding and flowering patterns, distributions and range extensions, foraging, food, movement, measurements, habitat and colouration/plumage variations. Biotic interactions such as pollination, fruit dispersal, herbivory and predation fall within the scope, as well as the use of indigenous and exotic species by humans. Observations of naturalised plants and animals will also be considered. Biodiversity Observations will also publish a variety of other interesting or relevant biodiversity material: reports of projects and conferences, annotated checklists for a site or region, specialist bibliographies, book reviews and any other appropriate material. Further details and guidelines to authors are on this website.

Paper Editor: H. Dieter Oschadleus

CAPE WHITE-EYES IN THE EASTERN CAPE: PLUMAGE CHARACTERS, SURVIVAL, AND MOVEMENTS

Adrian JFK Craig, Mark D Galpin, Patrick E Hulley, Anthony J Tree

Recommended citation format:
Craig AJFK, Galpin MD, Hulley PE, Tree AJ 2017. Cape White-eyes in the Eastern Cape: plumage characters, survival, and movements. Biodiversity Observations, Vol 8.25: 1-5

URL: http://bo.adu.org.za/content.php?id=320

Published online: 15 May 2017

– ISSN 2219-0341 –

AFRING NEWS

CAPE WHITE-EYES IN THE EASTERN CAPE: PLUMAGE CHARACTERS, SURVIVAL, AND MOVEMENTS

Adrian JFK Craig[1], Mark D Galpin[2], Patrick E Hulley[1], Anthony J Tree[3]

[1]Department of Zoology & Entomology, Rhodes University, Grahamstown, 6140, South Africa

[2]P.O. Box 2, Kenton-on-sea, 6191, South Africa

[3]P.O. Box 2793, Port Alfred, 6170, South Africa

Contact author: a.craig@ru.ac.za

Introduction

Over the past 30 years, we have handled several thousand Cape White-eyes *Zosterops virens* in the Eastern Cape, and some of the data have appeared in publications on the moult of this species (Craig & Hulley 1996, Hulley et al. 2004). Most of our captures have been in Grahamstown and the immediate vicinity, but the sample includes birds from the coastal belt, inland forests, and the Karoo. Skead (1967) considered the Eastern Cape region to be a zone of overlap between the grey-bellied (Fig. 1a) and green-bellied forms (Fig. 1b), then treated as subspecies. However, this plumage character may be malleable in individual birds (Thompson & Taylor 2014), and there is limited molecular differentiation between grey-bellied and green-bellied birds (Oatley et al. 2012, Cox et al. 2014). Thus belly colour is no longer considered a useful taxonomic character, although it may still serve to differentiate some geographical populations.

Figure 1a. *Grey-bellied Cape White-eyes (photo: Warwick Tarboton).*

Most white-eyes which we have handled are grey-bellied (cf. Craig 1990), but it has been suggested that birds from the montane forests show altitudinal migration in winter, moving to the coast and other lower, warmer localities. Thus we have examined our data to see if there is any seasonality in the occurrence of this plumage type, and also looked at recaptures for evidence of movements, and information on survival.

Methods

All birds were captured in mist-nets, ringed, and released. Standard measurements were taken; moult and plumage state were recorded. AC also examined Cape White-eye specimens in two local museums, noting plumage type, date, locality, and moult condition. Records by AJT also included flank colour, which is quite variable,

but helps to differentiate these birds. This varies from grey (*atmorii* type), grey-olive (the common coastal form), light buff-olive, buff (*sundevalli* type) and green (*virens*).

Figure 1b. *Green-bellied Cape White-eyes (photo: Warwick Tarboton).*

Results and Discussion

Skead (1967) indicated that green-bellied birds were more common to the east of Grahamstown, and in the montane forests. Although we have also recorded green-bellied Cape White-eyes in karooid areas as far inland as Cradock, they are clearly not common here nor in Grahamstown (Table 1). However, they are also greatly outnumbered by grey-bellied birds at the montane forest site of Fort Fordyce (Table 1); a single green-bellied bird in a catch of 30 white-eyes in October 2007 and none recorded on > 30 other visits. We had expected that green-bellied birds might be non-breeding visitors to the Grahamstown area, and consequently more common in winter (Craig 1990). In this region the peak breeding months are October to December, with wing-moult following from February to April (Hulley et al. 2004). Certainly no birds of this colour phase were recorded in Grahamstown during the main breeding period, and most birds arrived when wing-moult should have been completed (Table 2); none of these green-bellied birds were in moult, and there were no recaptures.

Table 1. *Green-bellied Cape White-eyes handled in the Eastern Cape, compared to all birds ringed at the same time and locality*

Locality	Birds ringed	Green-bellied	Date of capture of green-bellied birds
Great Fish Reserve	71	0	
Grahamstown	2357	35	May-July 1967-69; May-Oct 1986-99
Farms N of Grahamstown	17	1	July 2009
Fish River, Cradock dist.	190	2	2 in January 2000, 1 recaptured December 2000
Fort Fordyce	182	1	October 2007
Mountain Zebra NP	27	1	January 2003
Kenton-on-sea	46	3	August 2011
Bathurst & Port Alfred	1315	44	Feb-Oct 1989-2007 in Bathurst; June and July 2013-2014 Port Alfred
Total	4190	87	(2%)

On the coast (Bathurst, Kenton and Port Alfred) it would seem that most records of green-bellied Cape White-eyes are from a slightly later period in winter (Table 2), and green-bellied birds were noted as "pairs" on six occasions whereas no 'mixed' pairs were recorded.

Table 2. *Months when green-bellied Cape White-eyes were recorded at Grahamstown and Coastal areas*

Locality	J	F	M	A	M	J	J	A	S	O	N	D	Total
G/town	0	0	0	0	5	15	5	3	5	2	0	0	35
Coastal	0	1	0	1	0	7	7	17	9	2	0	0	44

One green-bellied individual in Bathurst was recaptured 11 times over a period of 72 months, and may have been resident (noted as paired with another green-bellied bird) or an annual visitor; its recapture history is summarised in Table 3. There were a few other recaptures of green-bellies: two ringed in August, recaptured in September of the same year; three caught twice in the same month of August; one ringed in February, recaptured 18 months later in August. Three green-bellied birds from Bathurst had active wing-moult; in March, April and September. The four birds caught on Banksia Farm, between Port Alfred and Bathurst, (R Teifel) were all found on the same day (29 June) and were part of an influx of grey- and green-bellied birds.

In the East London Museum collection (with 247 Cape White-eyes from the Eastern Cape), there are 94 specimens of green-bellied birds, none from localities west of East London and King William's Town (this collection now incorporates all birds formerly in the Amathole Museum [KWT] and in the Port Elizabeth Museum). The bulk of these green-bellied specimens (54) come from the former Transkei region, and thus the months of collection (April-October) are likely to reflect the timing of museum collecting trips rather than random sampling through the year. The only summer records of green-bellied birds come from the East London and King William's Town districts. In the Albany Museum collection, there are 22 Cape White-eye specimens from the Eastern Cape, four of the green-bellied form. Two of these green-bellied birds are from Pondoland, but there are also single birds from Port Alfred (July) and Bathurst (June). Only two other birds, both grey-bellied, are from the coastal belt (Kenton-on-sea, January; Boknes, May).

Table 3. *Recaptures of green-bellied Cape White-eye X79849 in Bathurst*

Year	Months recaptured
2000	Sept (*ringed*), Oct
2001	Apr
2002	July, Aug, Dec
2003	Mar
2004	Sept
2005	Sept, Oct

The oldest recovery of a dead Cape White-eye from our ringing was 5 years later (Table 4). Where cause of death was recorded, seven birds were caught by cats, five hit by vehicles, and two were killed by Common Fiscals *Lanius collaris* while in the mist-net. Captures by cats and vehicle collisions represent the situations in which small garden birds are most likely to be picked up by casual observers. However, this is a small sample, and a better idea of survival is provided by recapture data.

Table 4. *Cape White-eye recoveries (18 birds found dead)*

Interval (months)	1-6	9	18	24-30	36	42	51	60
No. birds	7	1	2	4	1	1	1	1

Table 5. *Cape White-eye recaptures in Grahamstown (n = 228 individuals) and coastal area (n = 104)*

Months since ringing	Grahamstown	Coastal area
2-6	98	24
7-12	45	14
13-18	20	16
19-24	16	15
25-30	12	8
31-36	8	8
37-48	10	16
49-60	8	2
61-72	4	1
73-84	3	
85-96	2	
97-108	1	
109-120	0	
121-132	1	

Recaptures indicate a much wider range of ages (Table 5). The oldest bird was recaptured more than 10 years after ringing (AF75152, ringed as an adult in the Grahamstown Botanical Gardens on 30 November 2000, recaptured there on six occasions, the last time on 17 March 2011). One bird was recaptured 8 times, one 6 times; three 5 times, two 4 times, seven 3 times, and 22 birds twice. Thus like some other small passerines in South Africa, ages > 10 years may not be unusual for the Cape White-eye; there is an earlier record of a bird ringed as an adult found 10 years 8 months later (Oatley 1993).

Most of our birds were recaptured or recovered at the original ringing site; 10 had moved < 3 km in a direct line of flight. However, one grey-bellied individual ringed in Grahamstown in August 1986 was recovered in Patensie in December 1988, 164 km to the west in a straight line. Only two other movements of > 100 km have been reported for this species: a bird ringed in January 1989 at Pietermaritzburg, KwaZulu-Natal was recovered 10 years later in July 1999 at Sasolburg, 405 km to the north-east in the Free State; another KZN bird was recovered at Ladysmith in December 2000, 135 km north of Pietermaritzburg where it had been ringed in August of the same year (Symes et al. 2001). At this time about 45 000 Cape White-eyes had been ringed in South Africa (Oschadleus & Underhill 1999, Oschadleus 2000). An earlier analysis, based on an estimated 15 000 ringed birds with 38 recoveries, had reported no movements beyond 31 km (Prys-Jones 1985). The SAFRING database now records > 75 000 Cape White-eyes ringed, with > 7 000 recaptures, and > 200 recoveries; clearly this would warrant a detailed analysis.

Conclusions

Almost all our records of green-bellied Cape White-eyes are outside the breeding season, with a peak in winter. They possibly come from localities to the east of Grahamstown, Bathurst and Port Alfred, but we have no direct evidence of such movement, nor of altitudinal migration between coastal and inland sites. The higher frequency of green-bellied birds at the coastal ringing sites may suggest local movements within the coastal belt, or occasional coastwards movement by adjoining populations, which could also account for the diversity of flank colours recorded in a small proportion of the birds.

Acknowledgements

We are grateful to Francis and Watty White, Robert and John Dell, and Hugh Collett, who allowed us access to their farms; to SANParks for permission to ring birds in the Mountain Zebra National Park; and to the Eastern Cape Parks Board for permission to ring birds at Fort Fordyce and in the Great Fish Reserve. Chris Brown, Bo Bonnevie and Robin Teifel kindly made their ringing records available to us. Special thanks to Warwick Tarboton for allowing us to use his photos to illustrate the plumage differences. Costs have been supported by a research grant from Rhodes University.

References

Cox SC, Prys-Jones RP, Habel JC, Amakobe BA, Day JJ. 2014. Niche divergence promotes rapid diversification of East African sky island white-eyes (Aves: Zosteropidae). Molecular Ecology 23: 4103-4118.

Craig AJFK. 1990. White-eyes revisited. Safring News 19: 13-15. (online at http://safring.adu.org.za/papers/safring_19_1_13.pdf)

Craig AJFK, Hulley PE. 1996. Supplementary head molt in Cape White-eyes: a consequence of nectar feeding? Journal of Field Ornithology 67: 358-359.

Hulley PE, Craig AJFK, Underhill GD, Bonnevie, BT, Nuttall RJ, de Swardt DH. 2004. Timing of moult and breeding in the Cape White-eye, *Zosterops pallidus,* from three different geographical regions in South Africa. Emu 104: 353-358.

Oatley G, Voelker G, Crowe TM, Bowie RCK. 2012. A multi-locus phylogeny reveals a complex pattern of diversification related to climate and habitat heterogeneity in southern African white-eyes. Molecular Phylogenetics and Evolution 64: 633-644.

Oatley T. 1993. Selected recoveries from SAFRING: Oct 1992 – June 1993. Safring News 22: 66-73.

Oschadleus HD. 2000. Report on the 1999-2000 ringing year. Safring News 29: 90-93. (online at http://safring.adu.org.za/papers/safring_29_2_93.pdf)

Oschadleus HD, Underhill LG. 1999. SAFRING ringing totals over 50 years. Safring News 28:11-13. (online at http://safring.adu.org.za/papers/safring_28_1_11.pdf)

Prŷs-Jones RP. 1985. Movements, mortality and the annual cycle of white-eyes in southern Africa. Safring News 14 (1):25-35. (online at http://safring.adu.org.za/papers/safring_14_1_25.pdf)

Skead CJ. 1967. Sunbirds of southern Africa also the sugarbirds, the white-eyes and the Spotted Creeper. Cape Town: A.A. Balkema.

Symes CT, Downs CT, Brown M. 2001. Movements and timing of moult and breeding of the Cape White-eye *Zosterops pallidus* in KwaZulu-Natal. Afring News 30: 35-39.

Thompson L J, Taylor B. 2014. Is the Cape White-eye *Zosterops virens* or *Zosterops capensis*? Ostrich 85: 197-199.