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BIRD DISTRIBUTION DYNAMICS

BIRD DISTRIBUTION DYNAMICS 9 – RED-BILLED BUFFALO-WEAVER *BUBALORNIS NIGER* IN SOUTH AFRICA AND SWAZILAND

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Introduction

This is the ninth paper of a new series in *Biodiversity Observations*. The objectives are to report on the ranges of bird species as revealed by the Second Southern African Bird Atlas Project (SABAP2, 2007 onwards) (Underhill 2016) and to describe how these ranges have changed since the first bird atlas (SABAP1, mainly 1987–1991). The two atlas projects are about two decades apart.

This series of papers is also made feasible by the development of two new standards for the presentation of maps, firstly pentad-scale distribution maps derived from SABAP2 data, and secondly range-change maps showing how distributions have changed between SABAP1 and SABAP2 (Underhill & Brooks 2016a, b). Because the papers in this series use these two new maps, the rules for interpretation are not provided in detail in each paper in this series.

The paper deals with the Red-billed Buffalo-Weaver *Bubalornis niger*, a weaverbird of the family Ploceidae (Figure 1). This African species has a “Least Concern” threat status.

Figure 1. Red-billed Buffalo-Weaver Bubalornis niger *in Satara Camp Kruger National Park. Photograph © Joan Young from the BirdPix section of the ADU Virtual Museum (see http://vmus.adu.org.za/?vm=BirdPix-9198).*

Red-billed Buffalo-Weaver *Bubalornis niger*

The Red-billed Buffalo-Weaver occurs in drier savannas in southern and eastern Africa. The Red-billed Buffalo-Weaver is widespread and common locally in eastern and southern Africa, but its distribution is

often patchy. This weaver is unmistakable and usually found in small flocks. Its bulky stick nests are conspicuous and last a long time, being built in large trees, especially Baobabs, and also on power line pylons and windmills (Hockey et al. 2005).

The current distribution of the Red-billed Buffalo-Weaver in southern Africa broadly matches that shown in the first map produced for the species (Mclachlan & Liversidge 1957). In South Africa it is found mostly north of 26°S but ranges to 26°S in the western and eastern parts of its range (Colahan 1997).

The eastern population of the Red-billed Buffalo-Weaver in South Africa extends southwards in the savanna corridor from Mpumulanga, through the lowlands of eastern Swaziland, and into northern KwaZulu-Natal. The southernmost record is from the Zululand Rhino Reserve (Davis 2016). The earliest published record from this corridor is of nests seen in July 1951 (Vincent 1951). An earlier record is a specimen collected on 29 May 1937 in north-eastern Swaziland (TM 21967), suggesting that the species has occurred here in historical times, although early authors did not list it from here. The buffalo-weaver occurs at a very low density in this corridor, with the estimated population in Swaziland being 80 birds (Parker 1994).

The western population of the Red-billed Buffalo-Weaver in South Africa occurs as far south as Kathu in the Northern Cape (SABAP1, 2).

An outlying population was established near Bloemhof Dam, Free State, where they were first seen in 1981 (Grobler & Herholdt 1987). Nests were recorded once (Muller 1986). The last published report of a sighting appears to be from May 2000 (Nuttall 2000). The species apparently no longer occurs here (SABAP2, Rick Nuttall pers. comm.). Efforts should be undertaken to confirm this, however, as most records have been outside the protected area of Sandveld Nature Reserve, and birders may tend to bird and atlas within the reserve. All known records from SABAP1 and the literature are listed together for the first time (Table 1).

A single bird was ringed out of range at Stonehenge farm, SW of Ventersdorp, North-west Province (Bernitz & Bernitz 1994, ring D25400). A SABAP1 record was submitted but rejected, but the ringing record is here taken as a valid distribution record, although probably of a vagrant passing through the area.

There is a gap in the distribution along the Transvaal escarpment (from north of Tzaneen to south of Lydenburg) and a gap westwards from here to Vaalwater, possibly due to inadequate habitat and nesting sites.

SABAP2 distribution

On the pentad scale, the SABAP2 distribution map (Figure 2) shows that the core of the range of the Red-billed Buffalo-Weaver in South Africa lies in the central to northern Kruger National Park, and along the Limpopo River near Pont Drif. Increased SABAP2 coverage along the Limpopo southwards may show this to be a part of the core range too (this region is where Andrew Smith collected the first Red-billed Buffalo-Weaver).

The Red-billed Buffalo-Weaver is clearly absent south of Pretoria, i.e. from the grassveld/highveld region.

Range change between SABAP1 and SABAP2

In Figure 3, the approach described in Underhill & Brooks (2016b) was used to classify the quarter degree grid cells into six categories of increase and decrease. The relative increases and decreases are estimated using the Griffioen transformation (Underhill & Brooks

2016b), and involve an assumption that, in pentads where Red-billed Buffalo-Weavers occur, they are randomly distributed across the landscape, i.e. they are not clustered or in flocks. For the Red-billed Buffalo-Weaver, this is probably at best only partially true, so the results need to be treated with some caution.

Table 1. SABAP1 records and published records of the isolated population of the Red-billed Buffalo-Weaver in the Bloemhof area, Free State, South Africa.

Source	Locality	Status	Date	Person
Grobler & Herholdt 1987, Grobler 1989	Bloemhof area, 2725DA	seen: first seen; resident flock	1981	Johan du Preez
SABAP1-089084	2725DD	listed	12 Aug 1983	
SABAP1-089745	2725DD	listed	8 Dec 1983	
SABAP1-090569	2725DA	listed	Dec 1985	
Muller 1986	Bloemhof dam	seen: nest building in camel thorns	23 Feb 1986?	Anton Muller
Grobler 1987, SABAP1-091018	Bloemhof area, 2725DA	seen: family party	27 Nov 1986	Nick Grobler & Kotie Herholdt
Anon. 1988, SABAP1-084537	Bloemhof, 2725DA	seen	25 July 1987	EG Pratt
SABAP1-086736	2725DA	listed	1-5 May 1989	
SABAP1-087054	2725DA	listed	19 Aug 1989	
Nuttall 1993, Colahan 1993	Sandveld NR, Bloemhof dam	seen: 1	25 Feb 1993	Rick Nuttall
Nuttall 1996	Sandveld NR, Bloemhof dam	seen: 2 males foraged with Long-tailed Shrikes	26 Sep 1996	Rick Nuttall & Chris Bowden
Nuttall 2000	Hoopstad, 22 km from, towards Bloemhof	seen: c10, feeding on ground	26 May 2000	Rick Nuttall

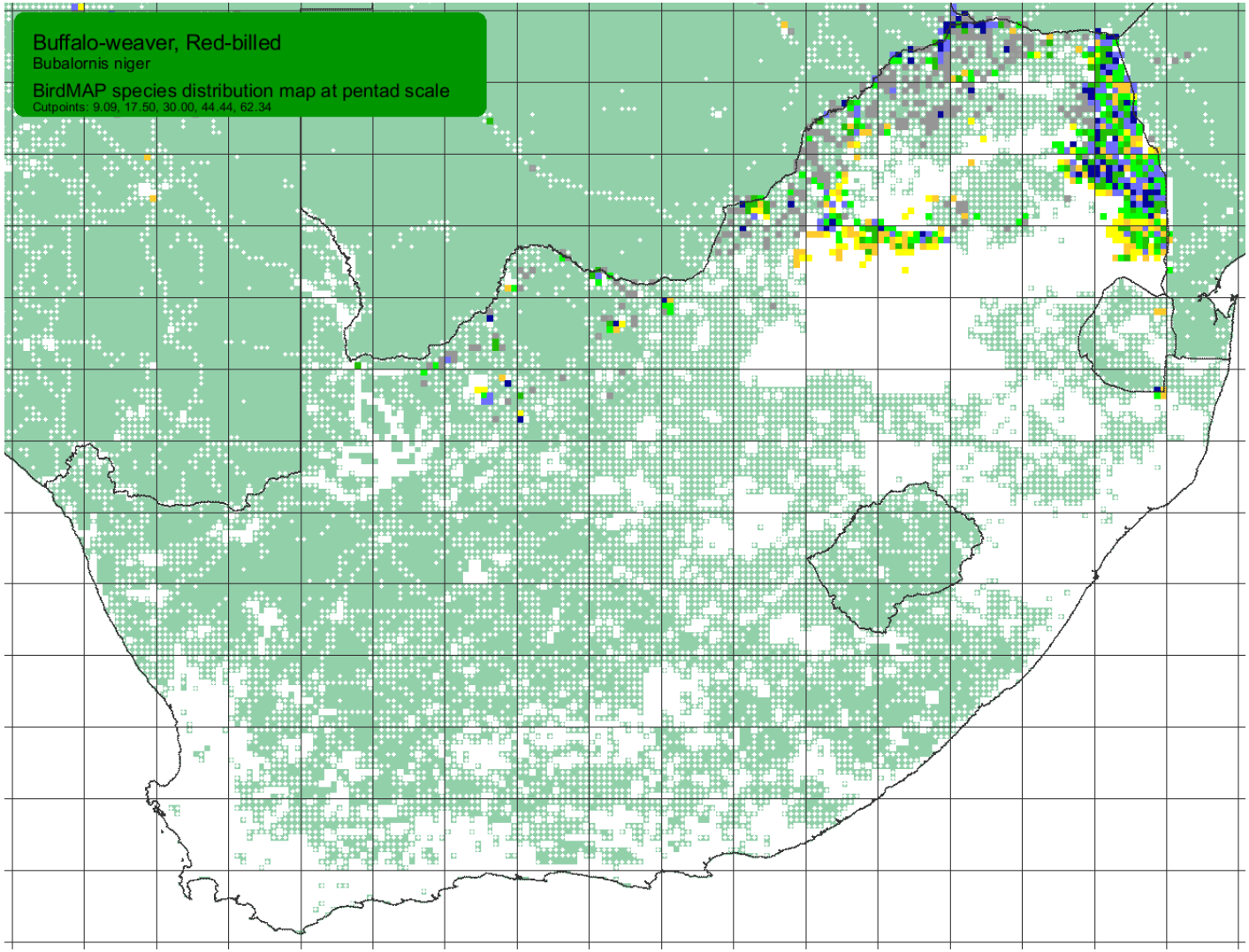

Figure 2: SABAP2 distribution map for the Red-billed Buffalo-Weaver, downloaded 12 December 2016. The detailed interpretation of this map is provided by Underhill & Brooks (2016a). Pentads with four or more checklists are either shaded white, species not recorded, or in colour, with shades based on reporting rate: yellow 0–9.1%, orange 9.1–17.5%, light green 17.5–30.0%, dark green 30.0–44.4%, light blue 44.4–62.3 and dark blue 62.3–100%. In pentads shaded grey or with white dots, there are one, two or three full protocol checklists, or there are ad hoc lists, or incidental records. In pentads shaded grey, the species was recorded as present; in pentads with white dots the species has not been recorded. If a pentad has four or more checklists, and the species has been recorded on an ad hoc checklist or as an incidental recorded, it is shaded yellow, indicating that the species has a low reporting rate.

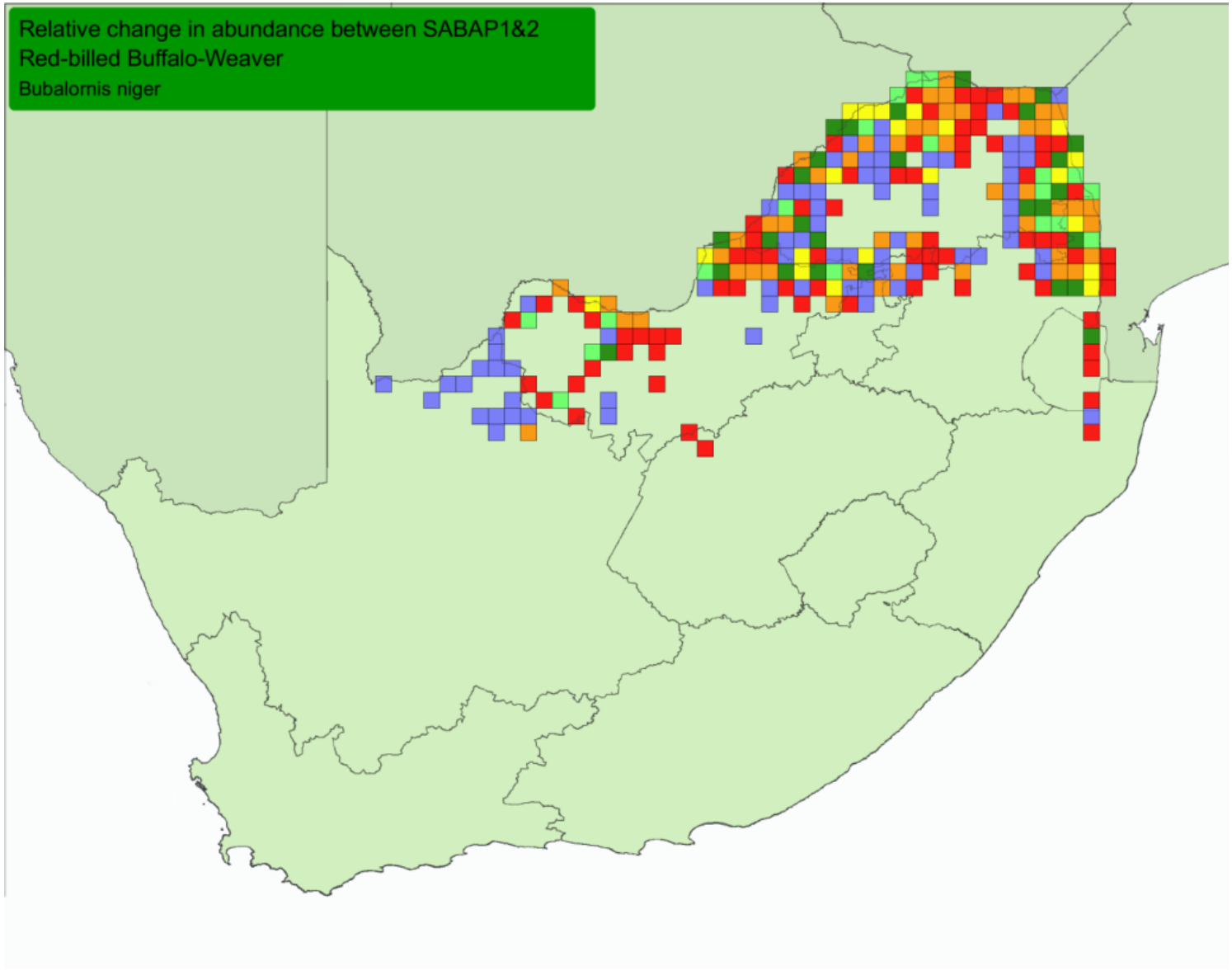

Figure 3: Range-change map between SABAP1 and SABAP2 for the Red-billed Buffalo-Weaver, downloaded 12 December 2016. Red, orange and yellow represent quarter-degree grid cells with very large, large, and small relative decreases and blue, dark green and light green represent grid cells with very large, large and small relative increases respectively. A count of the number of grid cells in each category is provided in Table 2. Only grid cells with at least four checklists in both SABAP1 and SABAP2 are shown. All these gird cells had Red-billed Buffalo-Weaver recorded in them either in SABAP1 or in SABAP2 or in both. Fuller information on the interpretation of this range-change map is provided in Underhill & Brooks (2016b).

Table 2. Range-change summary for the Red-billed Buffalo-Weaver between SABAP1 and SABAP2. The table provides a count of the number of quarter degree grid cells of each colour in Figure 3. Also shown are the same summaries when the analysis is restricted to grid cells with at least 30 checklists for both SABAP1 and SABAP2.

Status	Four checklists for SABAP1 & SABAP2		30 checklists for SABAP1 & SABAP2	
	Count	%	Count	%
Red (very large decrease)	76	29	26	27
Orange (large decrease)	49	19	21	22
Yellow (small decrease)	20	8	7	7
Light gree (small increase)	19	7	10	10
Dark green (large increase)	27	10	13	14
Blue (very large increase)	72	27	19	20
Total	263	100	96	100

Results are shown in Figure 3 for only the 263 quarter degree grid cells for which there are four or more checklists for both SABAP1 and SABAP2 and in which Red-billed Buffalo-Weaver occurred in either SABAP1 or SABAP2 (Table 2). In other words, grid cells in which Red-billed Buffalo-Weaver did not occur in either project are not included in this analysis.

Of these 263 quarter degree grid cells, 76 (29%) are red, and 49 (19%) are orange. This suggests very large (red) or large (orange) decreases in 48% of the quarter degree grid cells. The numbers of grid cells shaded blue (very large increase) and dark green (large increase) are 72 (27%) and 27 (10%) respectively, giving a total of 37%. The apparent decreases outweigh the apparent increases.

The groups of blue grid cells suggesting very large increases include the western edge of the Kruger National Park and the westernmost part of its range in South Africa. The latter represents a large westward expansion in range from Kathu to Askham, close to Tswalu and through Van Zylsrus, a distance of about 100 km, between SABAP1 and SABAP2. There is also a PHOWN (http://weavers.adu.org.za/phown_vm.php?vm=17165) record from Askham based on the 2010 Google Streetview, indicating nest building and possible breeding.

The two red cells in the Free State represent the isolated population that was present around Bloemhof Dam from at least 1981 to 2000 (see above). The cells in Swaziland to KwaZulu-Natal are off a low base, so changes in reporting rate are not meaningful.

Repeating the quantitative count of Figure 3 and Table 2 using grid cells with 30 or more checklists in both SABAP1 and SABAP2, the sampling error is considerably smaller than with four checklists for both projects, but there are now only 96 grid cells which meet this criterion (Table 2). In this restricted analysis, 49% of grid cells show large or very large decreases, and 34% show large or very large increases. The two sets of results are similar.

Conclusion

In South Africa the Red-billed Buffalo-Weaver has more grid cells with decreases in reporting rate than cells showing increases, between SABAP1 (1987–1991) and SABAP2 (2007–). Underhill & Brooks

(2014) listed this weaver as a species with the most severe range decreases in southern Africa.

Local populations may increase in size and then decrease (Vernon & Dean 2005). Northern South Africa is at the southern edge of the range of this species, and South Africa forms a small part of its global distribution, so the decreases noted here may not be a problem, but the species needs to be monitored for future changes in status.

The Red-billed Buffalo-Weaver has shown a range expansion westwards in the Northern Cape. This may be due to good rainfall in previous years (Colahan 1997). It appears to have been present in the Swaziland to Zululand savanna corridor at low density for many decades.

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