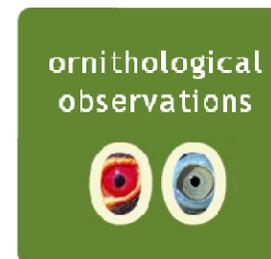
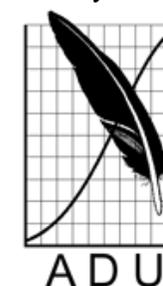


# Ornithological Observations



An electronic journal published by BirdLife South Africa and the Animal Demography Unit at the University of Cape Town



Ornithological Observations accepts papers containing faunistic information about birds. This includes descriptions of distribution, behaviour, breeding, foraging, food, movement, measurements, habitat and plumage. It will also consider for publication a variety of other interesting or relevant ornithological material: reports of projects and conferences, annotated checklists for a site or region, specialist bibliographies, and any other interesting or relevant material.

**Editor: Arnold van der Westhuizen**

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## **2528AB PIENAARSRIVIER – ANALYSIS OF SABAP1 AND SABAP2 DATA FOR THE QUARTER DEGREE SQUARE**

**Ernst F Retief**

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## 2528AB PIENAARSRIVIER - ANALYSIS OF SABAP1 AND SABAP2 DATA FOR THE QUARTER DEGREE SQUARE

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### Introduction and purpose

Three papers have been published in *Ornithological Observations* comparing data between the first and second Southern Africa Bird Atlas Projects (SABAP1 and SABAP2) (McKenzie 2011, De Swardt 2012, Carter 2012). These papers endeavour to explain changes in bird distribution and reporting rates for a relatively small area by considering various aspects such as reporting rates.

This paper attempts to explain the changes in bird distribution and reporting rates between the two projects for the 2528AB Pienaarsrivier Quarter Degree Square (QDS) by answering questions such as: (a) how did the reporting rates of birds change from SABAP1 to SABAP2, (b) are the changes significant, and (c) in those cases where the changes are significant, how can the changes be explained.

### 2528AB Pienaarsrivier Quarter Degree Square

This QDS, located about 50 km north of Pretoria, was selected for analysis for the following reasons:

- It contains a large number of lists (see below) for SABAP1 and SABAP2 and this makes the analysis of the data between the two projects feasible.

- The QDS contains a number of different habitats; for example, Rust de Winter Dam, good quality savanna, rural villages and agricultural land. These add to the value of the analysis, as this variety of habitats and land use patterns might explain some of the differences in data between the two projects.
- The number of lists per pentad in the QDS (see below) differs considerably and this could provide additional insight and might explain some of the differences in the reported data.

### Factors considered in the analysis

There are a number of possible factors that can explain changes in the data, such as reporting rates, between SABAP1 and SABAP2 for example:

- There is a difference in protocol between SABAP1 and SABAP2 in terms of the effort spent to create a list (time spent in the atlas unit) and the size of the atlas units (QDS vs Pentad). For more information see [www.sabap2.adu.org.za](http://www.sabap2.adu.org.za)
- Bird distributions may have changed due to habitat or land use changes.
- Changes related to the ability of observers in terms of birding skills and newly accessible birding areas as well as more or less access to roads in the QDS than during SABAP1.

### Lists submitted

All the data discussed in this report were downloaded on 31 October 2012 and the analysis is therefore applicable to all data submitted up to this date.

During SABAP1 146 lists were submitted for the area under discussion. For SABAP2, when combining the data submitted for all nine pentads in 2528AB 173 lists were submitted.



Table 1 indicate the number of lists that have been submitted per pentad as well as the number of species that have been recorded for each pentad.

**Table 1:** Number of lists submitted and number of species recorded per pentad

2500_2815 8 Lists 112 Species	2500_2820 12 Lists 132 Species	2500_2825 12 Lists 114 Species
2505_2815 9 Lists 123 Species	2505_2820 9 Lists 122 Species	2505_2825 8 Lists 112 Species
2510_2815 83 Lists 296 Species	2510_2820 9 Lists 149 Species	2510_2825 23 Lists 196 Species

The table above shows that a large percentage of the lists for the QDS have been submitted for pentad 2510\_2815 which is the first pentad on the well known birding road called the Zaagkuildrift road (Marais *et al.* 2008). This pentad also includes a wetland that contains a large number and diversity of waterbirds. Note should be taken of the large number of species that were recorded in this pentad. The pentad with the second most lists, pentad 2510\_2825, contains Rust de Winter Dam Nature Reserve which is also a well known birding spot. One of the questions this analysis needs to consider when evaluating species distribution and reporting rates, is the fact that 61.2% of the total number of lists submitted for the QDS were submitted for only two of the nine pentads.

**Species recorded**

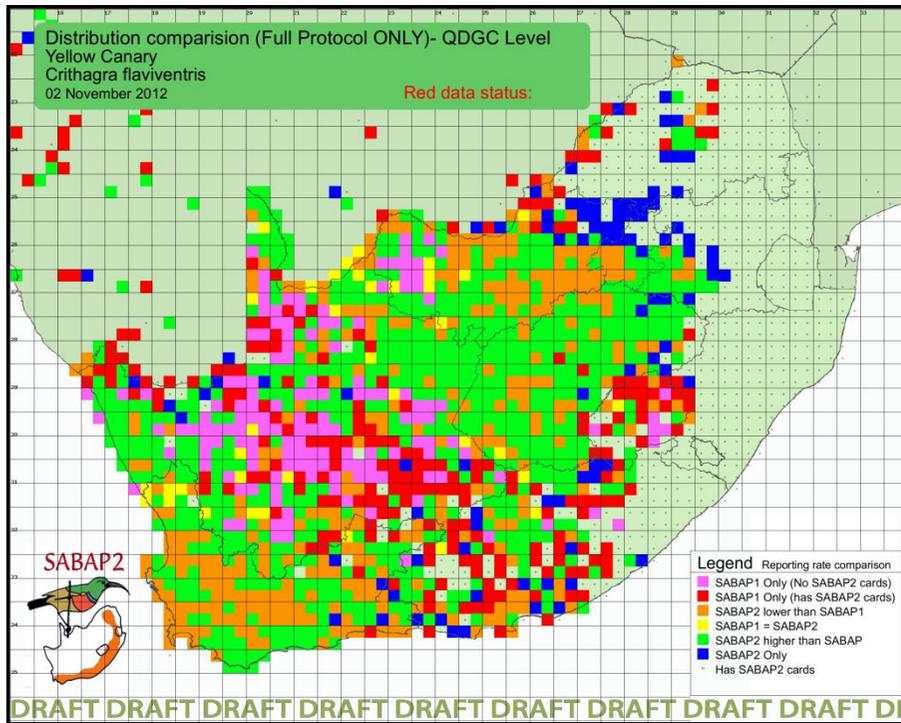
During SABAP1 353 species were recorded while during SABAP2 321 species were recorded.

Fifty four species recorded in SABAP1 have not been recorded in SABAP2. See Appendix 1 for a complete list of species. Of the 54 species, only two Rock Kestrel *Falco rupicolus* and Common Quail *Coturnix coturnix* have a SABAP1 reporting rate of over 10%. Blue Crane *Anthropoides paradiseus* and Cape Vulture *Gyps coprotheres* have a reporting rate of 6%. The rest of the species can be considered as vagrants and can be ignored from this analysis. Even the reporting rate for the four species mentioned above is quite low. Cape Vulture was most probably recorded as fly-overs during SABAP1 as there are no breeding sites for this species in the QDS. The grassland habitat for Blue Crane has most probably been transformed into agricultural lands and villages during the last 20 years. This transformation might also in part explain the decline in reporting rates for Rock Kestrel (although this species also uses other habitats) and Common Quail.

Twenty three species have been recorded during SABAP2 but not during SABAP1. For a complete list with reporting rates see Appendix 2.

As can be seen from the reporting rate column most of the species have a reporting rate below 5% and therefore can be considered as vagrants to this area or might even be misidentifications or incorrect data entries (the record of Green-backed Camaroptera *Camaroptera brachyura* should most probably be Grey-backed Camaroptera *Camaroptera brevicaudata*).

Of more interest are the higher reporting rates for Red-billed Oxpecker *Buphagus erythrorhynchus* and Yellow Canary *Crithagra flaviventris*. The range expansion of Red-billed Oxpeckers is well known as harmful livestock acaracides have been phased out in favour of products that are not harmful to this species. This change



**Fig 1** - Change in distribution of the Yellow Canary. The blue squares indicate where the species has expanded its range since SABAP1.

therefore reflects a genuine change in the abundance of this species. Yellow Canary has also been reported regularly by birders in northern Gauteng and southern parts of Limpopo. Numerous Out of Range Forms (ORFs) have been received for this species. The range change map (Fig 1) for this species supports this statement. The blue QDS in the northern parts of its range shows where the species have been recorded in SABAP2 but not in SABAP1, indicating the change in distribution of this species.

In terms of species that have been recorded in SABAP1 and

SABAP2 and vice versa, only a few species, for example Red-billed Oxpecker and Yellow Canary, are of real importance in terms of changes in distribution. The general list of species between the projects has largely remained the same.

**Reporting rates differences between SABAP1 and SABAP2**

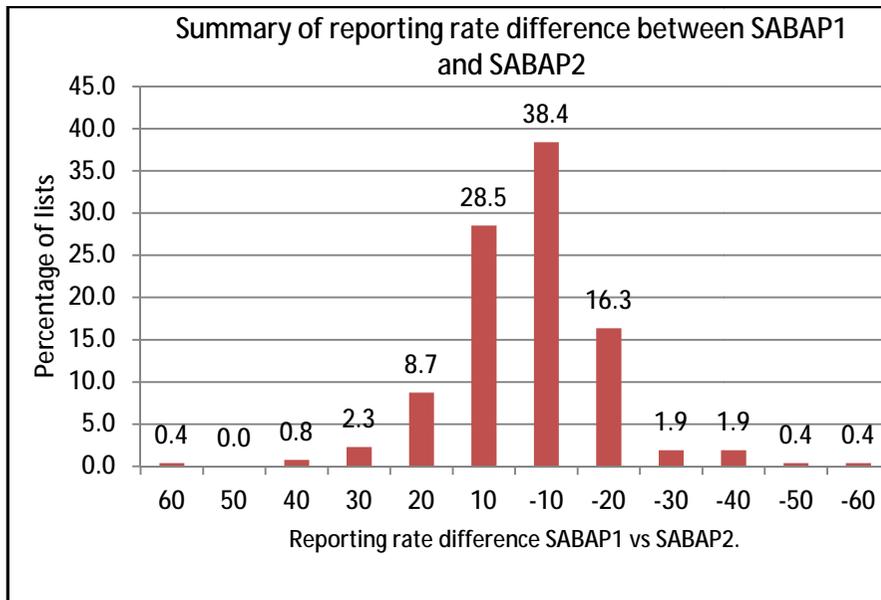
Reporting rates for species are important as it provides a rough indication of the relative abundance of a species in the QDS or pentad. The higher the reporting rate, the more common the species in the QDS and a lower reporting rate means that the species is less common.

A detailed analysis was done by comparing the reporting rate for each species between SABAP1 and SABAP2 (see Appendix 3). This list excludes all species that have been recorded only once or species that have already been discussed above, in other words species that have not been recorded during SABAP1 or SABAP2 but in the alternative project.

The analysis shows that 66.9% of species have a reporting rate that differs less than 10% from SABAP1 to SABAP2. Of these species, 28.5% have a positive and 38.4% a negative reporting rate (see Figure 2).

This high percentage is an indication that for most species the reporting rate remained similar between the two projects.

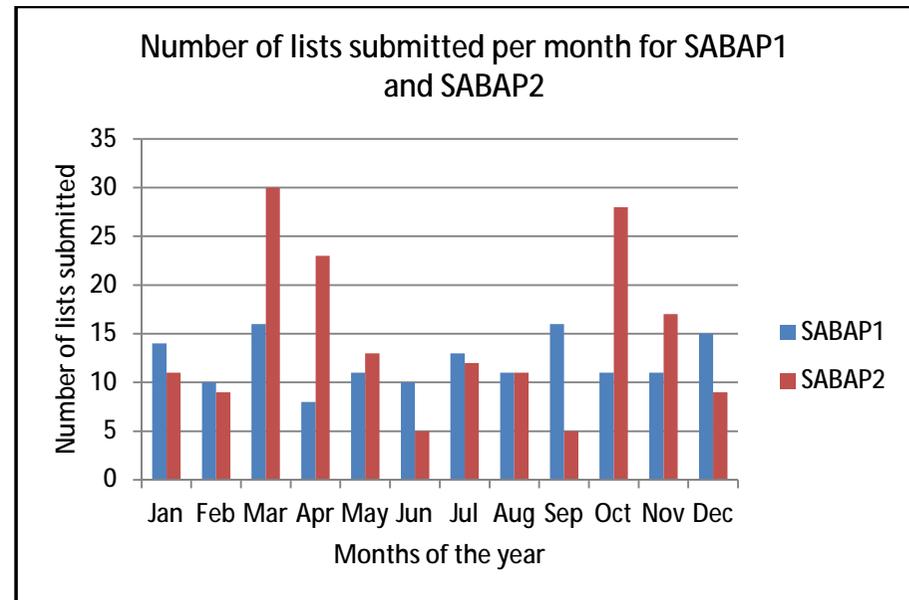
However of more importance is the species that have a larger than 10% change in reporting rate, either negative or positive. Thirty-two species had a positive reporting rate and 55 species a negative reporting rate. As indicated, this paper is an attempt to try and



**Fig 2** - Graph showing difference in reporting rates from SABAP1 to SABAP2. A positive value indicates better SABAP2 reporting rate than SABAP1. Negative values indicate the opposite.

explain these differences by looking at the different factors that can be responsible for changes in reporting rates.

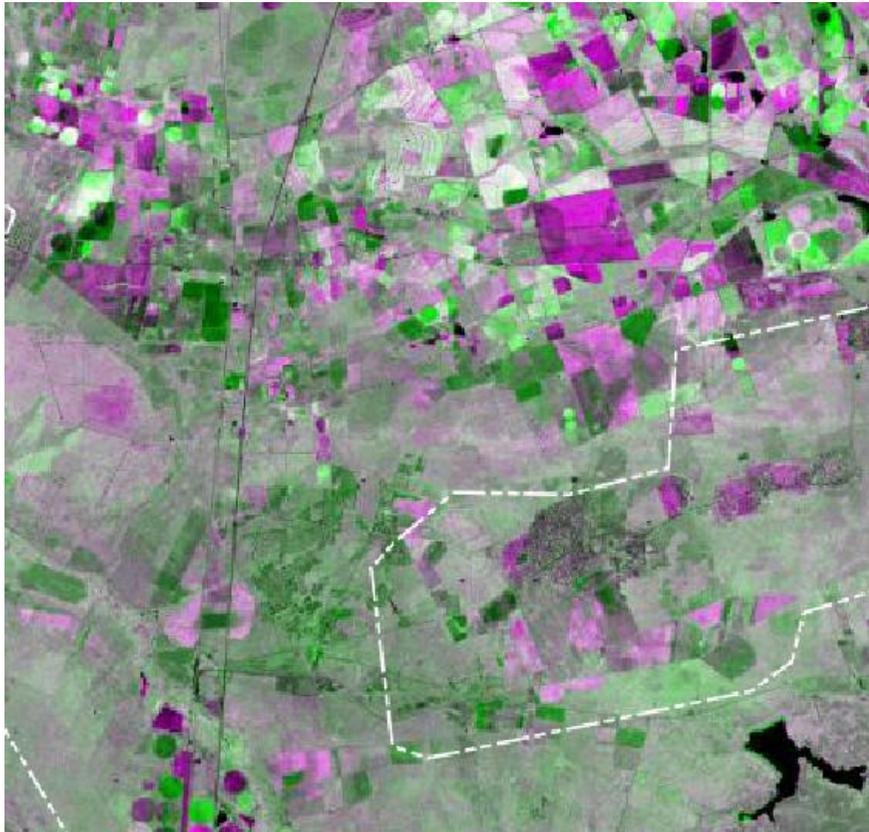
The **first factor** that might affect reporting rate is migration. Birds which are migrants have lower reporting rates than species which do not migrate. However this should not be a factor if lists were submitted for both projects throughout the year. The graph below shows that lists were submitted throughout the year for both projects and migration should therefore not be a factor in explaining differences in reporting rates for migratory bird species.



**Fig 3** - Number of lists submitted per month for SABAP1 and SABAP2

Six migratory bird species have negative or positive reporting rates of more than 10%. They are Greater-striped Swallow *Cecropis cucullata* (15.0%), Red-chested Cuckoo *Cuculus solitarius* (12.3%), Marsh Warbler *Acrocephalus palustris* (10.2%), European Roller *Coracias garrulus* (-13.1%), Steppe Buzzard *Buteo buteo* (-13.2%) and White-winged Tern *Chlidonias leucopterus* (-16.4%). However no link could be found between the migratory behaviour of the species and their higher or lower reporting rates.

The **second factor** to be considered is changes in habitat and land use between SABAP1 and SABAP2. There is a very good chance that these two aspects could play a major role in explaining changes in reporting rates between the two projects.



**Fig 4** - Comparison of vegetation between 1990 and 2010 based on Landsat NDVI Change Imagery database. Green areas indicate an increase in vegetation and purple a decrease in vegetation.

A study of the QDS shows that the area contains a number of different habitats and different land use activities characterise the area. The northern section of the QDS is dominated by agricultural activities, while the southern parts contain much more natural vegetation. However it is changes in these patterns that might best explain the differences in reporting rates.

Figure 4 is a comparison of vegetation between 1990 and 2010 and is based on Landsat NDVI Change Imagery (see <http://www.arcgis.com/home/item.html?id=a1c44a0cde484dd88a0901c65624d327> for more information). The purple areas indicate a decrease in vegetation and the green areas an increase in vegetation. As can be seen from the map, the QDS has areas with an increase and decrease in vegetation. However it is interesting to note that many of the areas in purple are agricultural fields and there is no indication that these areas returned to natural habitats. This fact was confirmed during various visits to these pentads. From other images it is also clear that these agricultural units were in the area even before SABAP1 started. So it seems that a change in land use patterns did not really occur at a large scale and cannot fully explain the changes in reporting rate.

One aspect of the SABAP2 protocol that should be taken into account when doing this analysis is the fact that observers are allowed to enter "fly-overs" on their lists. Species recorded are therefore not necessarily users of the habitats where they have been recorded but could simply be passing through the area. Changes in species numbers due to habitat changes might therefore not be reflected in the data.

The question can be asked if the changes in reporting rate can be explained by looking at the preferred habitats of the species that have a reporting rate difference of more than 10%?

Waterbirds or birds associated with water are included in both categories, birds with a positive and a negative reporting rate of more than 10%. These waterbirds include waders, ducks, cormorants, geese and kingfishers and they have positive and negative reporting rates.



Table 2: Waterbirds and the difference in reporting rate

Species	Difference in reporting rate
Comb Duck	14.1%
White-faced Duck	16.1%
Common Moorhen	17.9%
White-breasted Cormorant	18.2%
Black Crake	19.7%
African Jacana	25.2%
Great Crested Grebe	-11.1%
Malachite Kingfisher	-11.3%
African Spoonbill	-12.8%
Wood Sandpiper	-13.4%
Pied Kingfisher	-15.8%
White-winged Tern	-16.4%
Yellow-billed Egret	-16.5%
Great Egret	-16.6%
Purple Heron	-16.9%
Yellow-billed Duck	-18.5%
Red-knobbed Coot	-18.6%

No clear pattern could be discerned here – many of these species are regularly recorded as "fly-overs" and can be recorded far from water. It is therefore not known whether these waterbirds were using wetland habitat in the pentads.

A few species on the list use grasslands as their preferred habitat. Although there are some grasslands in the QDS, it is fragmented and much of it has been converted to agricultural fields.

Table 3: Grassland species and their difference in reporting rates

Species	Difference in reporting rate
Northern Black Korhaan	18.0%
African Quailfinch	-10.4%
Pin-tailed Whydah	-15.4%
African Pipit	-22.0%
Secretarybird	-30.8%

In addition to grasslands Northern Black Korhaan *Afrotis afraoides* also uses old lands and agricultural fields (Dean 2005) which could explain their positive reporting rate although the author has not recorded this species in this area in agricultural lands. As there are many of these habitats in the QDS, it could explain the positive reporting rate for this species. Secretarybirds need large foraging areas and development of villages in the area would be disadvantageous to this species.

Most of the remaining species are woodland birds. Despite considering various factors, such as behaviour and other preferred habitats, no clear explanation could be deduced for the decrease or increase in reporting rates for these birds. It is especially the decline in reporting rate for Pied Crow *Corvus albus* (-53.8%) which is very puzzling as this species has shown a considerably increase in numbers and range in the rest of South Africa. The large decreases for African Hoopoe *Upupa africana* (-37.8%) and Sabota Lark *Calendulauda sabota* (-35.0%) and Southern Yellow-billed Hornbill *Tockus leucomelas* (-37.8%) can also not be explained.

A **third factor** to consider is species which have shown a considerable extension in range, even outside of the 2528AB QDS. It



is clear that the impressive increase in reporting rate of 51.3% of Common Mynah *Acridotheres tristis* can be explained by this factor. This species has considerably expanded its area of distribution during the last two years and has become common in areas where it previously occurred in much lower numbers. This increase can mostly be ascribed to their use of human created habitats. In recent years, this species has even been recorded gleaning parasites from domestic cattle and even wildlife such as Burchell's Zebra. This new behaviour will assist this species to expand even more.

A **fourth factor** that should be considered is the atlasing behaviour of the observers and whether this could explain the differences in reporting rates?

It is for example interesting to note that the top 10 atlasers that submitted cards for SABAP2 in the QDS submitted just over 50% of the total number of lists for the QDS. In total 50 atlasers submitted cards for this QDS. This is a large number of observers and to a large degree removes any bias in terms of the birding ability of observers.

As already mentioned, the Zaagkuil drift road in pentad 2510\_2815 is now a well known birding site. But what is important to note is that this area only became known as a good birding area after the completion of SABAP1. So while this cannot conclusively be confirmed, this area of the QDS may have been much better atlased during SABAP2.

There is no easy answer to this question and a conclusive answer can most probably not be provided. However the following interesting observations can be made.

Natal Spurrow *Pternistis natalensis* shows an increase in reporting rate of 36.0%, the second highest after Common Mynah. It was recorded 73 times in the QDS in only three pentads 2505\_2815, 2510\_2815 and 2520\_2825. In pentad 2510\_2815 this species was recorded 56 times, 76.7% of all records! If a number of these records are removed then this species might even have a negative change in reporting rate.

A similar analysis of Burchell's Starling *Lamprotornis australis* shows the same pattern. It has an increase in reporting rate of 32.0%. It was recorded 101 times and of these 60% were in pentad 2510\_2815. Thus even though this species was recorded in seven of the nine pentads, a large percentage of the records were recorded in only one pentad.

Arrow-marked Babbler *Turdoides jardineii* shows a similar tendency as it was recorded 108 times with 57 records in pentad 2510\_2815 (52%).

There is a clear pattern that species with a big increase in reporting rate also have a high number of lists submitted for pentad 2510\_2815 and this fact might "artificially" increase the reporting rate for these species.

The **fifth factor** to consider is the increase in population linked to the expansion of villages, the road network and the number of vehicles on roads. Unfortunately all efforts to obtain population numbers for this area were unsuccessful. The N1 highway and the old Pretoria and Bela Bela roads run through the three western pentads and the traffic on these roads must have a negative effect on the wildlife in the area. The number of trucks on these roads, even secondary roads, has most probably increased considerably during the last



number of years. Smaller towns, like Pienaarsrivier, have expanded considerably during recent years and natural vegetation has been removed. However it is not possible to quantify the effect of these changes on bird populations in general and it would be even more difficult to do so for specific species. Even so these factors might provide the best explanation for the general decrease in the reporting rate of some species.

### Conclusion and Summary

This article attempts to analyse SABAP1 and SABAP2 data in order to indicate differences between the two datasets and to try and explain the observed differences in bird species occurrence and reporting rates.

It is first of all clear that, in terms of species and reporting rates the situation has stayed much the same – vagrants excluded. For a minority of species, there was a more significant change in reporting rates. For some of these changes reasons could be found – for others not. It is clear that finding explanations for these changes is not easy and there are numerous factors to consider.

An important conclusion to be made is that hasty comparisons of data, especially about the status of species, between the projects at the level of individual grid cells should be avoided.

It is also important that atlasers be advised to target all pentads in a QDS to reduce observer bias. In addition, analyses should account for the observation process as much as possible.

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## Appendix 1

Species	SABAP1 reporting rate
Common Quail	12.3%
Rock Kestrel	10.3%
Blue Crane	6.8%
Cape Vulture	6.2%
Common Scimitarbill	5.5%
Lark-like Bunting	0.7%
Lesser Flamingo	0.7%
White-backed Vulture	4.8%
African Harrier-Hawk	4.1%
Cape Crow	4.1%
Familiar Chat	4.1%
Yellow Wagtail	4.1%
Rufous-cheeked Nightjar	3.4%
Flappet Lark	3.4%
Ant-eating Chat	3.4%
Martial Eagle	2.7%
Jackal Buzzard	2.7%
Meyer's Parrot	2.7%
Klaas's Cuckoo	2.7%
Cape Grassbird	2.7%
African Pygmy-Goose	2.1%
Pied Avocet	2.1%
Spotted Eagle-Owl	2.1%
Fairy Flycatcher	2.1%

Red-chested Flufftail	1.4%
Denham's Bustard	1.4%
White-bellied Korhaan	1.4%
Common Ringed Plover	1.4%
Grey Plover	1.4%
Terek Sandpiper	1.4%
Cuckoo Finch	2.1%
Booted Eagle	1.4%
Maccoa Duck	0.7%
Lappet-faced Vulture	0.7%
European Honey-buzzard	0.7%
Tawny Eagle	0.7%
Pallid Harrier	0.7%
Long-billed Pipit	0.7%
African Green-Pigeon	0.7%
Red-throated Wryneck	0.7%
Monotonous Lark	0.7%
Clapper Lark	0.7%
South African Cliff-Swallow	0.7%
Grey Penduline-Tit	0.7%
Common Swift	0.7%
Half-collared Kingfisher	0.7%
Olive-tree Warbler	0.7%
Grey-headed Kingfisher	0.7%
Collared Pratincole	1.4%
Verreaux's Eagle-Owl	1.4%
Alpine Swift	1.4%
Rock Martin	1.4%



Lazy Cisticola	1.4%
African Pied Wagtail	1.4%

Green-backed Camaroptera	0.6%
Cuckoo Finch	0.6%

## Appendix 2

Species	SABAP2 Reporting Rate
Red-billed Oxpecker	7.5%
Yellow Canary	5.8%
African Purple Swamphen	4.6%
Southern Carmine Bee-eater	4.0%
Sedge Warbler	4.0%
River Warbler	2.9%
Thick-billed Weaver	2.9%
Little Sparrowhawk	1.7%
Bronze-winged Courser	1.7%
Dwarf Bittern	1.2%
Cape Teal	1.2%
Lesser Moorhen	1.2%
Water Thick-knee	1.2%
Common Swift	1.2%
Purple Indigobird	1.2%
African Openbill	0.6%
South African Shelduck	0.6%
Cape Shoveler	0.6%
Lizard Buzzard	0.6%
African Finfoot	0.6%
Caspian Tern	0.6%

## Appendix 3

Species	N of Pentads	SAABP2 Reporting Rate	Sabap1 Reporting Rate	Difference in Reporting Rate
Common Myna	9	52.0%	0.7%	51.3%
Natal Spurfowl	3	42.2%	6.2%	36.0%
Burchell's Starling	7	58.4%	26.0%	32.4%
Arrow-marked Babbler	9	62.4%	35.6%	26.8%
African Jacana	4	52.6%	27.4%	25.2%
Woodland Kingfisher	3	28.9%	5.5%	23.4%
Red-eyed Dove	9	63.6%	40.4%	23.2%
Southern Boubou	7	47.45%	24.7%	22.7%
Rattling Cisticola	9	72.3%	50.0%	22.3%
Black Crake	3	30.6%	11.0%	19.7%
Brown-hooded Kingfisher	5	35.3%	15.8%	19.5%
Southern Masked-Weaver	9	84.4%	65.1%	19.3%
Cape Turtle-Dove	9	86.7%	67.8%	18.9%
Palm-Swift, African	9	39.3%	20.5%	18.8%
Northern Black Korhaan	6	43.4%	25.3%	18.0%
Common Moorhen	3	22.0%	4.1%	17.9%
White-faced Duck	7	54.9%	38.4%	16.6%
Red-billed Firefinch	8	33.5%	17.8%	15.7%
Southern Grey-headed Sparrow	9	50.9%	35.6%	15.3%
Greater Striped Swallow	8	33.5%	18.5%	15.0%
Southern Pied Babbler	5	22.5%	7.5%	15.0%



White-browed Sparrow-Weaver	7	53.2%	38.4%	14.8%
Comb Duck	5	20.2%	6.2%	14.1%
White-breasted Cormorant	2	20.2%	6.2%	14.1%
Marico Flycatcher	9	57.8%	43.8%	14.0%
Chestnut-vented Tit-Babbler	9	59.0%	45.2%	13.8%
Crested Francolin	8	49.1%	35.6%	13.5%
Red-chested Cuckoo	2	18.5%	6.2%	12.3%
Chestnut-backed Sparrowlark	8	23.7%	11.6%	12.1%
Crowned Lapwing	9	68.2%	56.8%	11.4%
Magpie Shrike	9	79.8%	69.2%	10.6%
Marsh Warbler	2	11.6%	1.4%	10.2%
Black-crowned Tchagra	3	4.0%	14.4%	-10.3%
African Quailfinch	9	23.1%	33.6%	-10.4%
Red-crested Korhaan	3	5.2%	15.8%	-10.6%
Cape Glossy Starling	9	75.7%	86.3%	-10.6%
White-throated Swallow	2	5.8%	16.4%	-10.7%
Amethyst Sunbird	6	8.1%	19.2%	-11.1%
Malachite Kingfisher	1	9.2%	20.5%	-11.3%
African Grey Hornbill	6	24.3%	35.6%	-11.3%
Black-backed Puffback	3	5.8%	17.1%	-11.3%
Gabar Goshawk	4	8.1%	19.9%	-11.8%
Cape Longclaw	3	2.3%	14.4%	-12.1%
Emerald-spotted Wood-Dove	4	9.8%	21.9%	-12.1%
Brown-crowned Tchagra	9	26.6%	39.0%	-12.5%
Violet-eared Waxbill	5	12.7%	25.3%	-12.6%
Barred Wren-Warbler	5	9.2%	21.9%	-12.7%
African Spoonbill	4	13.9%	26.7%	-12.8%
Green Wood-Hoopoe	7	14.5%	27.4%	-12.9%

European Roller	1	4.0%	17.1%	-13.1%
Steppe Buzzard	4	12.1%	25.3%	-13.2%
African Wattled Lapwing	7	19.7%	32.9%	-13.2%
Wood Sandpiper	4	13.3%	26.7%	-13.4%
Levaillant's Cisticola	2	3.5%	17.1%	-13.7%
Chin-spot Batis	8	30.1%	43.8%	-13.8%
Long-tailed Widowbird	3	2.3%	17.1%	-14.8%
Grey Heron	5	18.5%	33.6%	-15.1%
Pin-tailed Whydah	8	20.2%	35.6%	-15.4%
Cinnamon-breasted Bunting	5	3.5%	19.2%	-15.7%
Kurri-chane Thrush	3	3.5%	19.2%	-15.7%
Pied Kingfisher	4	33.5%	49.3%	-15.8%
White-winged Tern	2	11.0%	27.4%	-16.4%
Yellow-billed Egret	1	4.0%	20.5%	-16.5%
Great Egret	2	15.6%	32.2%	-16.6%
Purple Heron	2	2.3%	19.2%	-16.9%
Green-winged Pytilia	9	35.8%	52.7%	-16.9%
Golden-breasted Bunting	7	21.4%	38.4%	-17.0%
White Stork	1	2.9%	19.9%	-17.0%
Fork-tailed Drongo	9	71.7%	89.0%	-17.4%
Namaqua Dove	9	46.2%	63.7%	-17.5%
Red-breasted Swallow	8	14.5%	32.9%	-18.4%
Yellow-billed Duck	6	22.0%	40.4%	-18.4%
Red-knobbed Coot	3	11.6%	30.1%	-18.6%
Marico Sunbird	9	16.8%	36.3%	-19.5%
Greater Kestrel	6	11.6%	31.5%	-19.9%
White-bellied Sunbird	9	28.3%	49.3%	-21.0%
Cape Wagtail	2	2.9%	24.0%	-21.1%



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African Pipit	9	15.0%	37.0%	-22.0%
Yellow-fronted Canary	6	16.2%	39.7%	-23.5%
Common Fiscal	7	26.0%	51.4%	-25.4%
Secretarybird	4	3.5%	34.2%	-30.8%
Lilac-breasted Roller	9	22.5%	53.4%	-30.9%
Acacia Pied Barbet	8	14.5%	47.9%	-33.5%
Sabota Lark	6	7.5%	42.5%	-35.0%
Southern Yellow-billed Hornbill	6	37.6%	75.3%	-37.8%
African Hoopoe	6	10.4%	51.4%	-41.0%
Pied Crow	9	33.5%	86.3%	-52.8%