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.

SECOND SOUTHERN AFRICAN BIRD ATLAS PROJECT (SABAP2): PROGRESS REPORT TO 6 DECEMBER 2012

LG Underhill, DM Harebottle, M Brooks

Recommended citation format:
Underhill, LG, Harebottle DM, Brooks M 2012. Second Southern African Bird Atlas Project (SABAP2): Progress report to 6 December 2012. Ornithological Observations, Vol 3: 243-250

URL: http://oo.adu.org.za/content.php?id=70

Published online: 11 December 2012

- ISSN 2219-0341 -

SECOND SOUTHERN AFRICAN BIRD ATLAS PROJECT (SABAP2): PROGRESS REPORT TO 6 DECEMBER 2012

LG Underhill, DM Harebottle, M Brooks*

Animal Demography Unit, Department of Zoology,
University of Cape Town, Rondebosch 7701, South Africa

* Corresponding author: les.underhill@uct.ac.za

Introduction

The Second Southern African Bird Atlas Project (SABAP2) (http://sabap2.adu.org.za) started in July 2007, and by early December 2012 had been running for nearly five and a half years. The project has been managed through six-monthly meetings of the SABAP2 Steering Committee, and each of these meetings has received a progress report. This paper is based on the report made to the Steering Committee at its meeting on 6 December 2012.

It takes the form of a series of questions and answers. It is a selective report; for example, regional coverage by provinces and countries is not considered in this report.

What progress was made with SABAP2?

The total number of pentads covered was 11 251 (65.0% of the atlas region) (Table 1). At the ends of the five calendar years from 2007 to 2011, these percentages were 3.7%, 18.1%, 34.0%, 47.5% and 57.6% (Table 1). The total number of full-protocol checklists received reached 79 254 on 6 December 2012. The number of observers who had submitted at least one checklist was 1123. The total number of records on these lists reached 4 174 959 on 6 December (Table 1). From the beginning of 2008 to 2012, an average of 915 000 full protocol records per year have been added to the SABAP2 database.

Table 1: Cumulative summary statistics for SABAP2, on 31 December each year, 2007 to 2011, and on 6 December 2012. The numbers refer to cumulative volume of data submitted by the given date.

	Number of Observers	Checklists	Records	Pentads	Percentage coverage
2007		642	67 677	1 202	3.7%
2008	412	10 414	577 034	3 140	18.1%
2009	661	27 473	1 492 377	5 879	34.0%
2010	885	45 921	2 467 768	8 244	47.5%
2011	998	63 411	3 369 273	9 968	57.6%
6 Dec 2012	1124	79 254	4 174 945	11 251	65.0%

The four million record mark was reached on 30 September 2012 (three million on 7 August 2011, two million on 19 July 2010, one million on 30 June 2009). Combining the SABAP1 and SABAP2 databases (including also the total of 316 668 incidental records and records on ad hoc checklists), the number of bird distribution records in the combined database for the two bird atlas projects totals 11.8 million.

How many citizen scientists were involved in SABAP2, and who were they?

Of 1 124 people who had submitted one or more checklist to SABAP2 by 6 December 2012, 47 had contributed more than 400 checklists to the project (Table 2). These 47 citizen scientists had submitted a total of 32 516 checklists, 41.1% of the total of 79 254 checklists submitted by this date.

The top five atlasers (Table 1) were Tim Wood, 1 525 checklists from 582 pentads, Duncan MacKenzie (1 308, 641), Andy Branfield (1 293, 242), Johan van der Westhuizen (1 276, 379) and Dawie Kleynhans (1 174, 361) (Table 1). These five citizen scientists submitted a total of 6576 checklists, and were responsible for 8.3% of the checklists in the database.

Table 2: Atlasers who had submitted 400 or more SABAP2 checklists by 4 December 2012. The final column is the average number of checklists per pentad visited.

Rank	Atlaser	Checklists	Pentads	Checklists/ pentad
1	Mr T.G. Wood	1525	582	2.62
2	Mr D.R. McKenzie	1308	641	2.04
3	Dr A Branfield	1293	242	5.34
4	Mr J van der Westhuizen	1276	379	3.37
5	Mr DH Kleynhans	1174	361	3.25
6	Mr D.H. De Swardt	1068	373	2.86
7	Mr J. Claassen	1023	460	2.22
8	Mr A van der Westhuizen	952	363	2.62
9	Mr S Theron	924	257	3.60
10	Mr A. Collett	904	194	4.66
11	Mr E. Marais	866	399	2.17
12	Mr I.A.Guthrie	863	354	2.44
13	Mr A.M. Archer	854	298	2.87
14	Mr J. Sewards	845	215	3.93
15	Mr P Lawson	834	493	1.69
16	Mr J.H. and Mrs K.C. Cox	766	474	1.62
17	Mr D Paterson	753	352	2.14
18	Mr J. Jones	711	116	6.13
19	Mr W Boshoff	695	232	3.00
20	Mr N Perrins	650	305	2.13
21	Mr J Carter	582	225	2.59
22	Mr J. Janse van Veuren	579	198	2.92
23	Ms L Van Deventer	560	352	1.59
24	Dr S Sutherland	560	171	3.27
25	Mr J.A. Gouws	551	115	4.79
26	Mr S. Terblanche	547	399	1.37
27	Dr C. Whittington-Jones	540	183	2.95
28	Mr G Lockwood	536	151	3.55
29	Mr R. Balt	531	354	1.50
30	Mr A. Stainthorpe	529	182	2.91
31	Mrs T Strachan	525	274	1.92
32	Mr A. Marx	525	205	2.56
33	Mr A J Featherstone	513	429	1.20
34	Mr R Johnstone	497	147	3.38
35	Mr D.M. Robinson	497	111	4.48
36	Ms F. Ellmore	487	183	2.66
37	Mr J.J. Curnick	471	124	3.80
38	Mr E du Plessis	459	31	14.81
39	Mr S.S. Rayne	432	112	3.86
40	Mr E Retief	428	221	1.94
41	Mrs L. Howe	427	109	3.92
42	Mr C.V. Summersgill	423	171	2.47
43	Mr M. Moll	417	204	2.04
44	Mr B Groom	417	69	6.04
45	Mr A Paton	416	160	2.60
46	Mrs A Vincent	410	288	1.42
47	Mrs L Steen	403	286	1.41

150 citizen scientists submitted between 100 and 400 checklists (data from SABAP2 database). They submitted a total of 32 151 checklists, 40.6% of the total. A further 358 atlasers submitted between 10 and 99 checklists, a total of 12 893 checklists, 16.3% of the total.

This core group of 550 citizen sciences are the people on whom the success of SABAP2 has rested. They submitted 92% of the checklists in the database.

Among the 47 atlasers in Table 2, the ratio of checklists to pentads ranged from 1.20 (Andy Featherstone who did 513 checklists for 429 pentads, and thus visited most pentads only once) to 14.8 (Eddie du Plessis who submitted 459 checklists from only 31 pentads, and thus visited a few pentads many times). These two atlasers were the leaders, among the top atlasers, in the two extremes of atlasing, “going wide” and “going deep”. The continuum between going deep and going wide was a personal choice made by individual atlasers,

and there was no pressure from the project management perspective to value one over the other.

Which were the most frequently recorded species?

For 39 species there were 25 000 or more records (Table 3). The total number of records of these 39 species was 1 372 619, which was 32.9% of the total database on 6 December 2012. The total number of species recorded in the SABAP2 database was 852; of these 30 had been recorded only on a single checklist.

The reporting rates of the most frequently recorded 39 species varied between 71.1% for Cape Turtle-Dove and 31.7% for Black-shouldered Kite (Table 3). The species listed in Table 3 are all common, ubiquitous, conspicuous and easily identified.

Table 3: The most frequently recorded species in SABAP2 by 6 December 2012 and the number of pentads they were recorded in. These 39 species had more than 25 000 records.

Rank	Reference number	Species	Records	Pentads
1	316	Cape Turtle-Dove	56 254	9 393
2	84	Hadeda Ibis	54 908	7 266
3	707	Common Fiscal	54 233	8 632
4	317	Laughing Dove	52 573	8 256
5	314	Red-eyed Dove	49 985	6 609
6	89	Egyptian Goose	47 131	6 641
7	245	Blacksmith Lapwing	44 179	6 129
8	686	Cape Wagtail	44 009	6 630
9	803	Southern Masked-Weaver	41 033	7 645
10	192	Helmeted Guineafowl	40 400	6 410
11	786	Cape Sparrow	38 757	6 994
12	311	Speckled Pigeon	38 291	6 214
13	1172	Cape White-eye	38 025	4 898
14	581	Cape Robin-Chat	37 531	5 270
15	545	Dark-capped Bulbul	35 778	4 182
16	517	Fork-tailed Drongo	34 616	5 306
17	808	Southern Red Bishop	33 192	5 683
18	61	Cattle Egret	32 685	5 465
19	784	House Sparrow	31 990	5 445
20	390	Speckled Mousebird	31 884	4 572
21	50	Reed Cormorant	31 786	4 615
22	737	Cape Glossy Starling	31 560	5 622
23	4142	Southern Grey-headed Sparrow	31 405	6 255
24	522	Pied Crow	30 733	5 904
25	242	Crowned Lapwing	30 559	5 287
26	96	Yellow-billed Duck	30 310	4 664
27	576	African Stonechat	29 539	5 467
28	55	Black-headed Heron	28 891	4 951
29	493	Barn Swallow	27 596	6 564
30	502	Greater Striped Swallow	27 434	5 894
31	212	Red-knobbed Coot	27 188	4 070
32	709	Southern Boubou	26 957	3 763
33	637	Neddicky	26 834	5 758
34	692	African Pipit	26 201	6 460
35	722	Bokmakierie	26 191	5 603
36	431	Black-collared Barbet	26 129	3 420
37	81	African Sacred Ibis	25 496	3 519
38	392	Red-faced Mousebird	25 287	5 019
39	130	Black-shouldered Kite	25 069	5 266

What was the extent of coverage on an annual basis?

Since the calendar year 2009, and up until 2012, annual coverage of the 17 318 pentads in the atlas region was the range 27.8% to 31.6% (Table 4). This level of annual coverage should be adequate to enable the ranges of many species, especially those with ranges in the eastern and southern parts of the SABAP2 region, from which most of the data comes, to be mapped annually. Annual distribution maps were, in fact, feasible, starting from 2009.

Table 4: Annual SABAP2 statistical summary, as at 6 December 2012.

Year	Checklists	Records	Pentads	Coverage percentage
SABAP2007 (six months)	1 859	106 272	929	5.4%
SABAP2008	9 764	538 709	3 173	18.3%
SABAP2009	17 322	925 337	4 816	27.8%
SABAP2010	18 454	972 966	5 428	31.3%
SABAP2011	17 359	897 003	5 474	31.6%
SABAP2012 (to 6 December 2012)	14 450	733 252	4 921	28.4%

What are the plans to produce distribution maps on a pentad scale?

The current version of the distribution map on a pentad scale for the Red-billed Quelea provides a combination of presence-absence data and reporting rates (Fig. 1). One of the objectives of this exercise was to make use of records provided by incidental observations and ad hoc checklists on equal terms with records from full protocol checklists.

If a reporting rate is calculated from a pentad with only one checklist, then the reporting rates for all species on the list are either 0 or 1. The smallest number of checklists for which there is a reasonable number of different possible values for the reporting rate is four. There are then five possible reporting rates: 0.00, 0.25, 0.50, 0.75 and 1.00. Thus reporting rates can only meaningfully be shown for pentads with four or more checklists. Pentads with four or more checklists are shown in colour in the new distribution maps (Fig. 1).

Dark grey is used in Fig. 1 to represent the presence of a species if it is recorded from a pentad with three or fewer full protocol checklists, recorded on an ad hoc checklist or as an incidental record. Absence from a pentad with this level of data is represented as a small white circle. White circles should be interpreted as pentads from which the absence of the species is "possible".

For pentads with four or more full protocol checklists and in which the species is present, the reporting rate is represented in colour (Fig. 1). Six colours are used, and the cutpoints between colours are chosen so that the numbers of pentads shown in each colour are as equal as arithmetically possible. The colours used are yellow, orange, two shades of green and two shades of blue. Thus dark green and the two shades of blue represent presence in the pentad at reporting rates above the median reporting rate. Pentads shaded yellow have the smallest one-sixth of reporting rates, etc. Pentads shaded yellow should not be considered the core of the range of the species.

If the species is not recorded in a pentad with four or more checklists, the pentad is shown as a white square (Fig. 1). White squares should be interpreted as pentads from which the absence of the species is "probable". Of course the strength of the “absence” depends on the conspicuous of the species; if a Hadeda Ibis has not been reported after four checklists, the species is fairly certain to be absent. But if a skulking species such as the Purple Swamphen is not detected after four checklists, we are less certain of absence. Methods are becoming available to quantify the levels of uncertainty.

Finally, if the species is recorded as present in a pentad as an incidental record and/or on an ad hoc checklist, and the pentad has four or more full protocol checklists, then the species is represented on the new distribution map, in yellow, the colour associated with the lowest reporting rate.

For the Red-billed Quelea (Fig. 1), the absence and low reporting rates from the urban parts of Gauteng are represented well, a feature which was only marginally shown in the quarter degree grid cell maps produced by SABAP1. The core of the range, the pentads which contain the uppermost one-third of reporting rates, is represented in the two shades of blue. The large area of the Free State shown in grey represents presence of Red-billed Queleas in pentads with fewer than four full protocol checklists. In the Western Cape, the blue records in the Little Karoo indicate the extent to which

Red-billed Queleas have become established there. The scattering of yellow, orange and light green pentads in the Overberg and Swartland demonstrate the arrival of this species in this region. The white squares represent "probable" absence, and the white circles represent "possible" absence.

The key to success with these distribution maps on a pentad scale is going to be to increase the depth of coverage at the level of the pentad. From the perspective of these maps, there are three major categories of pentad: 22% with four or more full protocol checklists, 43% with one to three full protocol checklists, and 35% without full protocol checklists; however a substantial proportion of which have ad-hoc lists and/or incidental records (Fig. 2).

Atlasers steadily improved depth of coverage (Table 5). In January 2009, 79.1% of pentads which had been visited had fewer than four checklists; In December 2012, this figure has decreased to 66.1%. This decrease has happened in spite of the fact that over this almost four-year period, coverage has increased from 2870 pentads to 11250 pentads (Table 5).

Table 5: Progress statistics for colour-coded pentads on SABAP2 coverage map between January 2009 and 6 December 2012. The percentages are relative to the number of pentads covered on each date (see also legend on Fig. 2).

Check-lists	Map colour	Jan 2009	%	Oct 2010	%	Oct 2011	%	June 2012	%	Dec 2012	%
1	Yellow	1511	52.6	3685	47.9	4385	45.4	4612	43.4	4720	42.0
2–3	Orange	761	26.5	1806	23.5	2209	22.9	2527	23.8	2712	24.1
4–6	Light Green	305	10.6	973	12.6	1264	13.1	1307	12.3	1432	12.7
7–10	Dark Green	121	4.2	426	5.5	705	7.3	899	8.5	982	8.7
11–16	Light Blue	86	3.0	281	3.6	327	3.4	406	3.8	441	3.9
17–24	Dark Blue	38	1.3	219	2.8	324	3.4	345	3.2	360	3.2
25–49	Red	39	1.4	196	2.5	261	2.7	303	2.9	349	3.1
50–99	Purple	9	0.3	71	0.9	124	1.3	144	1.4	160	1.4
100+	Pink	0	0.0	36	0.5	60	0.6	81	0.8	95	0.8
Total		2870	100	7693	100	9659	100	10624	100	11251	100

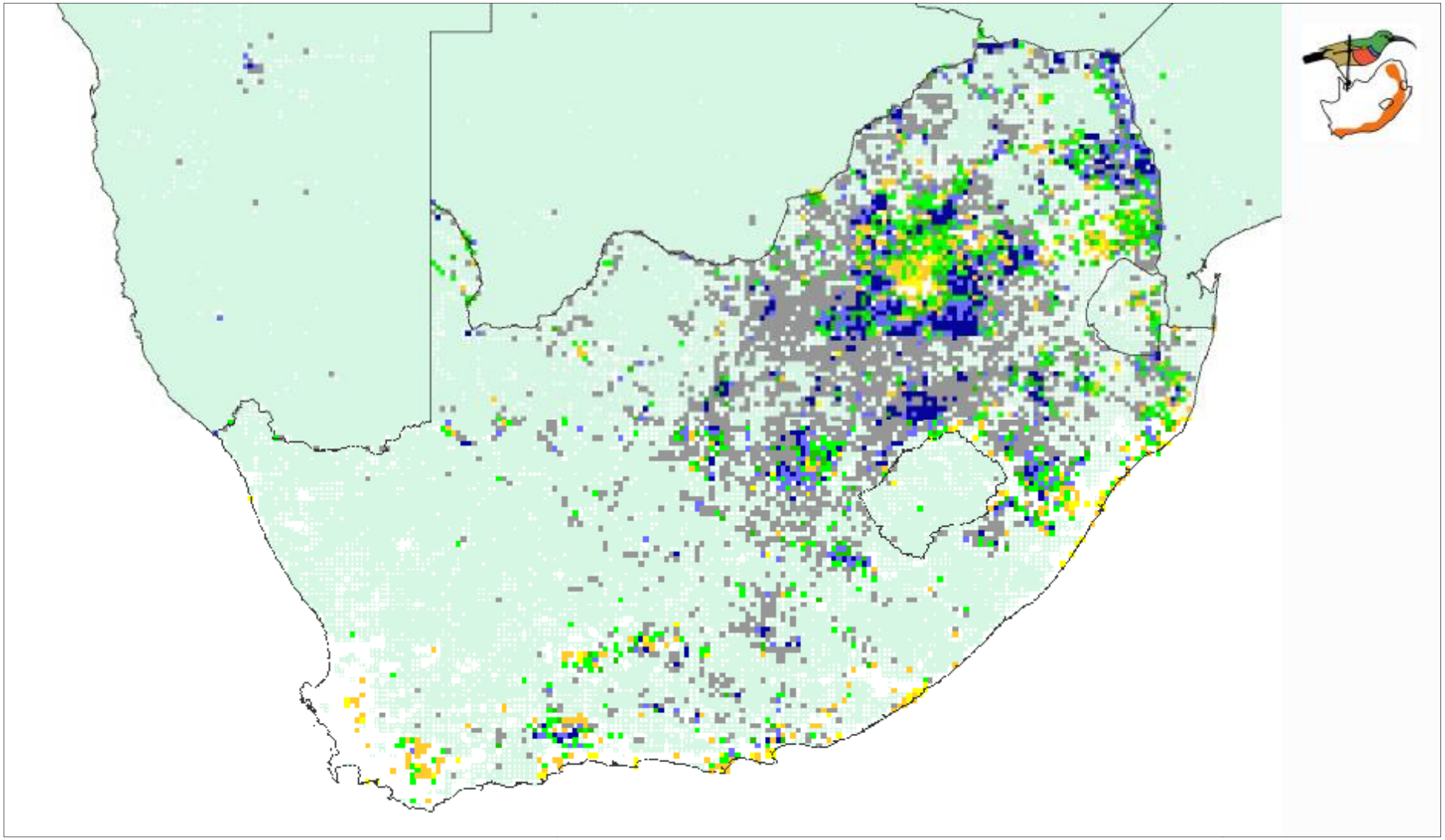

Fig 1 - Draft SABAP2 distribution map for the Red-billed Quelea, on pentad scale (see text for explanation)

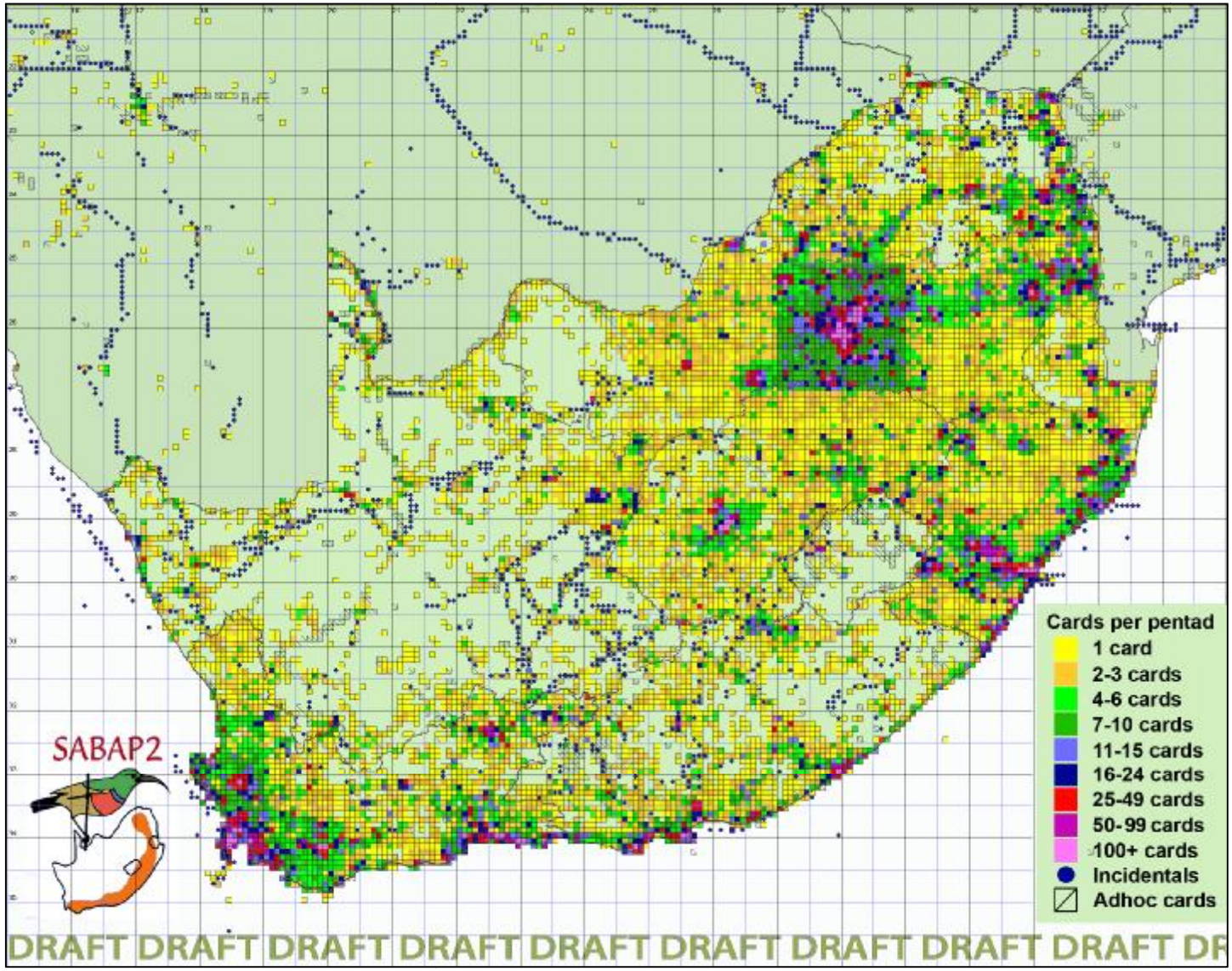

Fig 2 - SABAP2 coverage map on 4 December 2012, including pentads with ad hoc lists (represented as squares with diagonal lines) and incidental records (blue dots).

Going forward into 2013, what are the fieldwork priorities for the citizen scientists who participate in SABAP2?

1. To increase overall coverage, through full protocol checklists, and also through ad hoc checklists and incidental records, especially in areas where coverage is poor.
2. To view four full protocol checklists per pentad as the minimal satisfactory level of coverage, but not to regard four checklists per pentad as "adequate" coverage.
3. To achieve as much coverage each year as possible; SABAP2013 should have a target of 30%.
4. To improve seasonal coverage, so that each pentad has a sample of checklists in every month of the year.
5. To increase the diversity of atlasers who have visited each pentad.

These priorities all involve tensions. The key tension is between obtaining only a few lists per pentad (going wide) and between obtaining many lists per pentad (going deep). Both are equally important. There are, as yet, no pentads in which the volume of data can be considered "adequate." Once the checklists for a pentad are subdivided by year and season, sample sizes become relatively small.

A second tension is between full protocol lists (two hours fieldwork or longer) and ad hoc lists (and incidental records). Here there is a real preference for full protocol lists whenever possible. But in the same breath, we hasten to add that whenever it is not feasible to do full protocol lists, SABAP2 really does want records to be submitted, and especially unusual records. And this is true of areas where coverage is thin; in this context thin coverage can be taken to mean wherever there are less than 25 checklists for the pentad. But in areas with no checklists, or less than say four checklists, we would argue that it should be made mandatory to submit all incidental records.

- oo0oo -

Acknowledgements

The largest sponsorship for SABAP2 was contributed by the citizen scientists who participated in the project. The bulk of the remaining funds to provide the core funding for the project was provided by SANBI. In 2012, part of the Harry Oppenheimer Fellowship awarded to LGU was used to support SABAP2. Honeyguide Wildlife Tours and Crane Cape Tours have also provided funding.

SABAP2 is a partnership between SANBI, BirdLife South Africa and the Animal Demography Unit in the Department of Zoology at the University of Cape Town.