

What is 'Par for the Course' for the Numbers of Bird Species Listed on a Visit to The Kruger National Park?

An Essay For Tickers And Twitchers

By

CLIFF MORAN AND JOHN HOFFMANN
Department of Zoology, University of Cape Town

Well, it is a stupid question, of course, and it all depends. But the short answer is probably less than you thought, almost certainly fewer than your birding compatriots might have led you to believe, and definitely many less than the much-vaunted numbers in various tourist publications, glossy magazines, and bird books, that state that there are in excess of 500 species of birds in the Kruger National Park (KNP). The matter is complicatedly nuanced.

How many species of birds are there in the KNP?

There is an obvious and copious abundance of birdlife in the KNP. Birds are everywhere, often on your table, or on the edge of your lunch plate. The sounds of birds are pervasive day and night. It is a wonderful place for birds and for birders. Checklists of local bird species are available at each of the major camps, and uniformly the listings are impressive. For example the list of birds "at the [Mopani] rest camp and its immediate surrounding areas in the northern region of the KNP" comprises 230 species of the "more common birds previously recorded in the area. However, rarities do occur." The dates of previous sightings, the frequency of these sightings and the proportion of rarities is left in the air to titillate the imagination. Birders expect impressively long lists, and, no doubt, many more birds are 'seen' in the KNP because of their mention on the lists than would be the case otherwise.

Joy Frandsen (undated) in the latest (2005) and official "Animal and Bird [which is a quaint distinction] checklist" of the KNP, lists 428 species of feathered animals. The definitive work on the birds of the KNP, however, is still the now rather dated, but in all other respects excellent, account by Kenneth Newman (first published in 1987 and updated in 1991). He notes that the number of bird species in the KNP is a movable feast depending on whether the "strays and stragglers" should be counted, in which case his total, as recorded in the introduction to his 1991 book is 507: otherwise his total is 476.

However, using KNP bird lists, Newman's (1991), Roberts VII (2005), and the authoritative and detailed information in the two volumes of "The Atlas of Southern African Birds" (Harrison *et al.* 1997), we believe that an estimated total count of 489 species of birds (excluding vagrants) in the KNP is as good as any. The fact that our count coincides so closely with that of Newman is due to a series of fortuitous compensating corrections, with some species having been added and others deleted over the years, since 1991, when his book was published.

What categories of birds are you most likely to see on a visit to the KNP?

The possibility of sighting any one of these 489 species mostly relates to how highly it scores on the six-point 'twitcher's dream-scale' (the TDS). To score highly on the TDS, the species should be: (i) common to abundant; (ii) widespread in its distribution across the park; (iii) always present, irrespective of seasons or rainfall patterns; (iv) conspicuous and diurnal; (v) noisy or have distinctive calls; and (vi) be easily identifiable. Relatively few species of birds in the KNP, or anywhere else for that matter, live up to these idealistic expectations.

Table 1 shows that over 25% (123) of the 'possible' 489 species in the KNP are rare or opportunistic/erratic (i.e. ephemerally abundant), over 52% are uncommon or just fairly common (141 + 115), and only about 20% (100) are common (87), very common (10) or abundant (3).

TABLE 1. Relative abundance of the 489 species of birds recorded in the KNP, mostly (except for the term 'opportunistic/erratic') following the definitions and calculated from the descriptions in Newman (1991) (supplemented through other sources as necessary). Newman's definitions refer to the frequency of species sightings in a 'suitable habitat'.

Abundance	Newman's definition	No. species
Rare (excluding vagrants)	Seen 10 or < 10 times per <i>year</i>	112 (22.9%)
Opportunistic/erratic	Visitors exploiting unusual events	21 (4.4%)
Uncommon	Seen 30 or less times per <i>month</i>	141 (28.8%)
Fairly common	Seen 1 – 10 times per <i>day</i>	115 (23.5%)
Common	Seen 10 – 50 times per <i>day</i>	87 (17.8%)
Very common	Seen 50 – 100 times per <i>day</i>	10 (2.0%)
Abundant	Seen 100 or more times per <i>day</i>	3 (0.6%)

In addition to their relative rareness or abundance, the excellent thumbnail descriptions of each species given by Newman (1991) provide evidence that a total of 107 species have very limited distributional ranges in the KNP, or are strictly seasonal (94). Many are highly cryptic – virtually invisible if they keep still – or they are shy and reclusive (109 species in total), or are strictly nocturnal (18). Only about 65 of the bird species, at a stretch, have really distinctive calls. Some groups of birds, in particular, no doubt for good biological reasons, show startling degrees of sexual dimorphism, making identification more difficult – for 58 species the males look quite different from the females. Further, at least 173 species can be easily confused with other species. These categorisations are, of course, not mutually exclusive. But the fact is that only about 126 of the 489 'possibles' in the KNP score highly on the TDS, thus making life easier for the birder.

How many species of birds have we seen in the KNP?

Since 1983, in the course of our official assignments, but frequently as ordinary tourists, we have visited the KNP, in aggregate nearly 50 times. We are as obsessed as any keen birder with the exhilarating intellectual exercise of identifying bird species and recording the results. To use a sporting analogy, after 30 or more years of conscientious birding, we are probably the equivalent of single-figure amateur golfers, that is to say, competent but by no means professional. Fortunately, on many of our visits to the park we have had the opportunity to do some serious birding with groups of like-minded birders, often in the presence of experienced KNP officials and less frequently accompanied by very proficient birders, not quite perhaps at the Kenneth

Newman or Alan Kemp level, but very good nonetheless. Over this period of time we have compiled 20 lists from birding trips that have been of at least three days duration – some of nine days duration – with a mean of 4.3 days, and we have had the good fortune of criss-crossing the park from Crooks' Corner to Crocodile Bridge.

During this time, we have accumulated a 'life-list' of 338 species of birds sighted in the KNP (about 69% of Newman's 'possibles'). Obviously, we added many 'new' species to our lists at the beginning and less near the end of the 22-year period. During the first 12 years of our observations – the first ten of the 20 lists – we added on average just over 13 'new' species' on every trip (ranging from 3 – 30 species): during the last 10 years we have added just under 4 'new' species per trip (range 0 – 10 species). As could readily be expected, our potential for adding 'new' species is rapidly levelling off.

Seasonal effects

The number of species sighted varied greatly according to the seasons (see Table 2), which is readily to be expected since many temporary migrants only arrive in the KNP in early summer and leave before the winter. The effects on bird species numbers of seasonal changes and changing weather patterns, that create and remove temporary habitats, are profound.

TABLE 2. Seasonal variability in the numbers of species of birds sighted in the KNP on 20 birding expeditions.

Season	Months	No. of lists generated	Range (No. of species)	Mean No. of species
'Summer'	October to February	12	117 – 173	153
'Shoulder' seasons	March and April, August and September	3	124 – 147	138
'Winter'	May to July	5	53 – 98	74

Two interesting points emerge. The record number of species sighted over the 22-year period since 1983 is 173 (during a visit to the relatively species-rich Pafuri area in the far-north of the KNP), but still a mere third of the 'possibles' enticingly listed in Newman's book and various KNP check lists. Secondly, the data indicate that on average, a visitor to the KNP will see about twice as many bird species in summer compared with the winter months.

The frequency and probability of sighting a particular species

Details of the total of 338 species on our KNP 'life-list' are given in Appendix 1 and show that, over the 22-year period, 31% (151) of the 489 'possibles' were never seen by us and are therefore not listed in Appendix 1. About 19% of the species (94) were seen only once. Only about 2% (12) species were seen every time, 'guaranteed' at any time of the year, at any place.

Further analysis, in Table 3, provides some support for the obvious: the chances of seeing a particular bird species depends on its conspicuousness and easy identification, its relative abundance, and its status as a resident of the KNP. About two thirds of the 338 bird species on 'our' KNP life-list (222) were sighted on less than half of our visits.

TABLE 3. The probabilities of sighting a particular bird species, and the number of sightings fitting these categorisations, as summarised from 'our' life-list of 338 species in Appendix 1. For each probability category the number of (i) conspicuous, diurnal, easily identifiable species of birds, (ii) those that are common, very common or abundant, and (iii) those that are resident are given as a proportion of the total number in each category.

Probability of sighting a given species	No. of species (% of total No. species – 338)	% conspicuous and easily identifiable	% common or more abundant	% resident
90% or more	32 (9.4%)	91%	84%	100%
75% or more	62 (18.3%)	90%	68%	97%
50% or more	116 (34.3%)	84%	60%	92%
> 25% but < 50%	82 (24.3%)	52%	23%	89%
< 25%	140 (41.4%)	39%	7%	66%

So, how many bird species are you likely to see on a visit to the KNP – what is par for the course?

Returning to the original question, and to use the previous sporting analogy, what is a reasonable par score for the KNP avi-course? Certainly our data provide a measure of reality that cannot easily be inferred from published check-lists, and we conclude that on a four-day birding trip to KNP in summer you will have achieved a par score if you were to list 150 or more species of birds (perhaps up to 170 or so with due diligence and perseverance in the Pafuri area), and approximately half those numbers in winter.

Bear in mind that on a four-day trip to the KNP, if you are first out of the gates at the break-of-day and retire exhausted after the last night drive, and if you are fortunate, you might list a total of just more than 30 vertebrate species other-than-birds. The reality is that the KNP is a bird park containing a limited, albeit spectacular, selection of vertebrate animals that are not birds, most of which are large and hirsute, or perhaps scaly, and provide some variety when the birding is less than satisfactory, if indeed that is ever the case.

Having said all that, our essay really misses the point and unfortunately goes some way towards strengthening the myth that the numbers of species seen and listed – the quantity of species of birds – is somehow of paramount importance. It is undeniable that listing bird species is an intellectual challenge, involving a definite thrill of the chase, and incorporating inevitable competitive dimensions, the essential ingredients of all the most worthwhile past-times. The point, however, is the immaculate quality of the avifauna: the richness of colours and sounds, the sheer magnificence of the birds, their exuberant abundance and presence, and above all their varied and interesting ways of life.

The KNP is an exhilarating treasure beyond price. And lest we forget, happy ticking!

Acknowledgements

Our sincere thanks go to several officials in the KNP including Ken Maggs, Dave Zeller, Wayne Lotter, and Llewellyn Foxcroft. Geoff Nichols, naturalist extraordinaire, pointed out birds that we would never otherwise have seen. Alan Kemp kindly edited an earlier draft of the typescript.

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APPENDIX 1. The 338 species of birds sighted in the Kruger National Park since 1983, arranged according to the number of times they were recorded on 20 birding trips (each of at least three-days duration - see text), then alphabetically by their common names as recorded in Hockey *et al.* (2005), and then by their Roberts number.

20. Bateleur, 146, Bulbul, dark-capped, 568, Drongo, fork-tailed, 541, Go-away-bird, grey, 373, Hornbill, African grey, 457, Hornbill, red-billed, 458, Hornbill, southern yellow-billed, 459, Lapwing, blacksmith, 258, Oxpecker, red-billed, 772, Starling, Cape glossy, 764, Turtle-dove, Cape, 354, Wood-dove, emerald-spotted, 358
19. Babbler, arrow-marked, 560, Canary, yellow-fronted, 869, Francolin, crested, 189, Goose, Egyptian, 102, Guineafowl, helmeted, 203, Kingfisher, pied, 428, Oriole, black-headed, 545, Roller, lilac-breasted, 447, Vulture, white-backed, 123, Wood-hoopoe, green, 452
18. Batis, chinspot, 701, Dove, laughing, 355, Fish-eagle, African, 148, Hoopoe, African, 451, Ibis, hadeda, 94, Kingfisher, brown-hooded, 435, Plover, three-banded, 249, Shrike, magpie, 735, Starling, Burchell's, 762, Wagtail, African pied, 711
17. Barbet, crested, 473, Cormorant, reed, 58, Hamerkop, 81, Lapwing, crowned, 255, Puffback, black-backed, 740, Stork, marabou, 89, Swift, little, 417, Vulture, hooded, 121, Waxbill, blue, 844
16. Korhaan, red-crested, 237, Parrot, brown-headed, 363, Spurfowl, Natal, 196, Starling, greater blue-eared, 765, Thick-knee, water, 298, Tit, southern black, 554
15. Barbet, black-collared, 464, Crombec, long-billed, 651, Flycatcher, southern black, 694, Ground-hornbill, southern, 463, Heron, green-backed, 74, Heron, grey, 62, Jacana, African, 240, Kite, black, 126, Paradise-flycatcher, African, 710, Scrub-robin, white-browed, 613, Spurfowl, Swainson's, 199, Stork, saddle-billed, 88, Swallow, red-breasted, 524, Swallow, wire-tailed, 522, Thrush, Kurrichane, 576
14. Bee-eater, little, 444, Bunting, golden-breasted, 884, Darter, African, 60, Eagle, martial, 140, Eagle, Wahlberg's, 135, Green-pigeon, African, 361, Helmet-shrike, white-crested, 753, Mousebird, red-faced, 426, Sandgrouse, double-banded, 347, Stork, yellow-billed, 90, Sunbird, white-bellied, 787, Woodpecker, bearded, 487
13. Buffalo-weaver, red-billed, 798, Crake, black, 213, Heron, goliath, 64, Owlet, pearl-spotted, 398, Palm-swift, African, 421, Sparrow, southern grey-headed, 804, Swallow, lesser-striped, 527, Tchagra, brown-crowned, 743, Turaco, purple-crested, 371, Vulture, lappet-faced, 124
12. Bush-shrike, grey-headed, 751, Cisticola, rattling, 672, Eagle, tawny, 132, Egret, great, 66, Sandpiper, common, 264, Snake-eagle, brown, 142, Starling, violet-backed, 761
11. Apalis, yellow-breasted, 648, Bee-eater, European, 438, Bee-eater, white-fronted, 443, Bush-shrike, orange-breasted, 748, Honeyguide, greater, 474, Kingfisher, giant, 429, Lapwing, white-crowned, 259, Lark, sabota, 498, Masked-weaver, lesser, 815, Roller, purple, 449, Swallow, barn, 518, Tchagra, black-crowned, 744
10. Cormorant, white-breasted, 55, Coucal, Burchell's, 391, Cuckoo, diderik, 386, Cuckoo, Jacobin, 382, Cuckoo, red-chested, 377, Dove, African mourning, 353, Egret, cattle, 71, Hornbill, trumpeter, 455, Kite, black-

- shouldered, 127, Scimitarbill, common, 454, Shrike, southern white-crowned, 756, Snake-eagle, black-chested, 143, Starling, wattled, 760
9. Cuckoo, Klaas's, 385, Dove, Namaqua, 356, Firefinch, red-billed, 842, Greenbul, sombre, 572, Greenshank, common, 270, Hawk-eagle, African, 137, Kingfisher, malachite, 431, Openbill, African, 87, Prinia, tawny-flanked, 683, Pytilia, green-winged, 834, Scops-owl, African, 396, Sparrow, house, 801, Sunbird, scarlet-chested, 791, Vulture, white-headed, 125, Weaver, red-headed, 819, Woodpecker, golden-tailed, 483
 8. Boubou, southern, 736, Brubru, 741, Bunting, cinnamon-breasted, 886, Bustard, Kori, 230, Mousebird, speckled, 424, Quelea, red-billed, 821, Shrike, red-backed, 733, Stork, black, 84, Sunbird, Marico, 779, Waxbill, common, 846, Weaver village, 811
 7. Dove, red-eyed, 352, Duck, white-faced, 99, Egret, little, 67, Nightjar, fiery-necked, 405, Nightjar, square-tailed, 409, Robin-chat, white-throated, 602, Sandpiper, wood, 266, Swallow, grey-rumped, 531, Thrush, groundscraper, 580, Tit-flycatcher, grey, 693
 6. Bee-eater, southern carmine, 441, Camaroptera, green-backed, 657, Cisticola, red-faced, 674, Cuckoo, African, 375, Duck, comb, 115, Eremomela, yellow-bellied, 653, Flycatcher, African dusky, 690, Flycatcher, ashy, 691, Flycatcher, spotted, 689, Goshawk, gabar, 161, Harrier-hawk, African, 169, Kingfisher, woodland, 433, Sandpiper, marsh, 269, Spoonbill, African, 95, Stilt, black-winged, 295, Sunbird, collared, 793, Swallow, mosque, 525, Swift, white-rumped, 415, Weaver, spectacled, 810
 5. Barbet, acacia pied, 465, Bustard, black-bellied, 238, Courser, bronze-winged, 303, Courser, Temminck's, 300, Cuckooshrike, black, 538, Eagle-owl, Verreaux's, 402, Flycatcher, pale, 696, Goshawk, dark chanting, 163, Helmetshrike, Retz's, 754, Heron, purple, 65, Kingfisher, striped, 437, Lapwing, Senegal, 256, Lark, rufous-naped, 494, Masked-weaver, southern, 814, Oriole, Eurasian golden, 543, Ostrich, common, 1, Petronia, yellow-throated, 805, Robin-chat, red-capped, 600, Robin-chat, white-browed, 599, Roller, European, 446, Starling, red-winged, 769, Stork, woolly-necked, 86, Thick-knee, spotted, 297, Warbler, willow, 643, White-eye, Cape, 796, Widowbird, white-winged, 829
 4. Bishop, southern-red, 824, Cliff-chat, mocking, 593, Cuckoo, Levaillant's, 381, Duck, African black, 105, Greenbul, yellow-bellied, 574, Goshawk, African, 160, Grebe, little, 8, Heron, squacco, 72, Honeyguide, lesser, 476, Paradise-whydah, long-tailed, 862, Plover, Kittlitz's, 248, Roller, broad-billed, 450, Ruff (female = reeve), 284, Secretarybird, 118, Shikra, 159, Swift, Horus, 416
 3. Bush-shrike, gorgeous, 747, Buzzard, lizard, 154, Cuckoo, black, 378, Eagle, African crowned, 141, Eremomela, burnt-necked, 656, Finch, cut-throat, 855, Finfoot, African, 229, Firefinch, African, 840, Francolin, Shelley's, 191, Heron, black-headed, 63, Hornbill, crowned, 460, Kingfisher, grey-headed, 436, Lark, dusky, 505, Lark, flappet, 496, Mannikin, bronze, 857, Mannikin, red-backed, 858, Neddicky, 681, Plover, white-fronted, 246, Rush-warbler, little, 638, Scops-owl, southern white-faced, 397, Shrike, lesser grey, 731, Sparrowhawk, little, 157, Starling, Meve's, 763, Stonechat, African, 596, Stork, white, 83, Sunbird, amethyst, 792, Swamp-warbler, lesser, 635, Vulture, Cape, 122, Wattle-eye, black-throated, 705, Wren-warbler, Stierling's, 659
 2. Apalis, bar-throated, 645, Boubou, tropical, 737, Brownbul, terrestrial, 569, Buttonquail, kurrichane, 205, Chat, Arnot's, 594, Crow, pied, 548, Dove, tambourine, 359, Eagle, lesser spotted, 134, Egret, yellow-billed, 68, Eremomela, green-capped, 655, Falcon, peregrine, 171, Firefinch, Jameson's, 841, Fishing-owl, Pel's, 403, Flycatcher, fiscal, 698, Francolin, coqui, 188, Goose, spur-winged, 116, Guineafowl, crested, 204, Hawk, African cuckoo, 128, Ibis, African sacred, 91, Martin, rock, 529, Night-heron, black-crowned, 76, Night-heron, white-backed, 77, Owlet, African barred, 399, Oxpecker, yellow-billed, 771, Painted-snipe, greater, 242, Parrot, Cape, 362, Pipit, African, 716, Pratincole, collared, 304, Seed-eater, streaky-headed, 881, Sparrowlark, chestnut-backed, 515, Spinetail, Böhm's, 423, Stint, little, 274, Swallow, pearl-breasted, 523, Swift, African black, 412, Swift, alpine, 418, Wagtail, Cape, 713, Weaver, yellow, 817, Wood-owl, African, 394, Woodpecker Bennett's, 481, Woodpecker, cardinal, 486
 1. Apalis, Rudd's, 649, Bittern, little, 78, Buzzard, steppe, 149, Camaroptera, grey-backed, **No Roberts number (split-off from 657)**, Chat, familiar, 589, Crested-flycatcher, blue-mantled, 708, Cuckoo, great spotted, 380, Cuckoo, thick-billed, 383, Cuckooshrike, white-breasted, 539, Dove, lemon, 360, Duck, fulvous, 100, Eagle, Verreaux's, 131, Eagle-owl, spotted, 401, Falcon, Amur, 180, Flamingo, greater, 96, Harrier, Montagu's, 166, Hawk-eagle, Ayres's, 138, Heron, rufous-bellied, 75, Honey-buzzard, European, 130, Honeyguide, scaly-throated, 475, Ibis, glossy, 93, Indigobird, dusky, 864, Indigobird, village, 867, Kestrel, Dickinson's, 185,

Kestrel, lesser, **183**, Kingfisher, half-collared, **430**, Lapwing, African wattled, **260**, Lark, monotonous, **493**, Lark, red-capped, **507**, Longclaw, yellow-throated, **728**, Martin, brown-throated, **533**, Moorhen, common, **226**, Nightjar, European, **404**, Nightjar, pennant-winged, **410**, Osprey, **170**, Owl, barn, **392**, Pelican, great white, **49**, Pipit, bushveld, **723**, Pipit, striped, **720**, Plover, Caspian, **252**, Pygmy-goose, African, **114**, Quail, common, **200**, Rail, African, **210**, Sandpiper, curlew, **272**, Saw-wing, black, **536**, Scrub-robin, bearded, **617**, Sparrow-weaver, white-browed, **799**, Swallow, greater-striped, **526**, Tern, white-winged, **339**, Tinkerbird, yellow-fronted, **470**, Trogon, narina, **427**, Warbler, olive-tree, **626**, Whydah, pin-tailed, **860**, Whydah, shaft-tailed, 86. (Three additional species were sighted on one occasion only during very short trips to the KNP, and therefore are not included in the 20 lists which are the subject of analysis in this compilation. Nonetheless, for the record, they were: Heron, black, **69**, Owl, marsh **395**, and Widowbird, fantailed, **828**.)
