Wednesday, October 14, 2015

Akagera National Park Aerial Census - August 2015

In August this year, Akagera Management Company conducted the third aerial census of the park since their management of Akagera, following the 2010 and the 2013 surveys. The following provides a summary and extracts from the report produced by Derek MacPhereson.

Total area counting methodology was used to count large herbivores resident in the survey area comprising the terrestrial part of Akagera National Park and the fringes of the wetlands associated with the Akagera River and system of lakes. A total of 12,275 animals were counted, an increase from 7,892 in 2013.

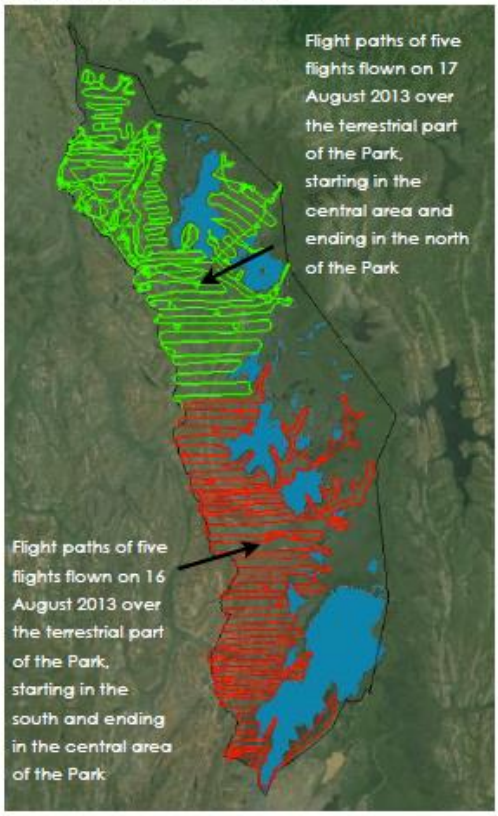
Ninety elephant, 2,567 buffalo, 79 giraffe, 219 eland, 108 Roan, 1,384 waterbuck, 1,827 Zebra, 805 Topi, 2,144 impala, 1,067 warthog and 1,565 hippopotami were counted during this survey. These population estimates are considered to be accurate enough to be meaningful to wildlife management decision-making processes. Other species participating in the survey were considered to be significantly undercounted due to being cryptic and secretive in nature.

Wildlife populations for many species are showing increasing trends most notably buffalo, waterbuck, zebra, topi and warthog. The population of roan antelope, a specie, considered by Lamprey in 2002 to be vulnerable to extirpation in this area, is recovering well. Numbers of eland are also increasing steadily.

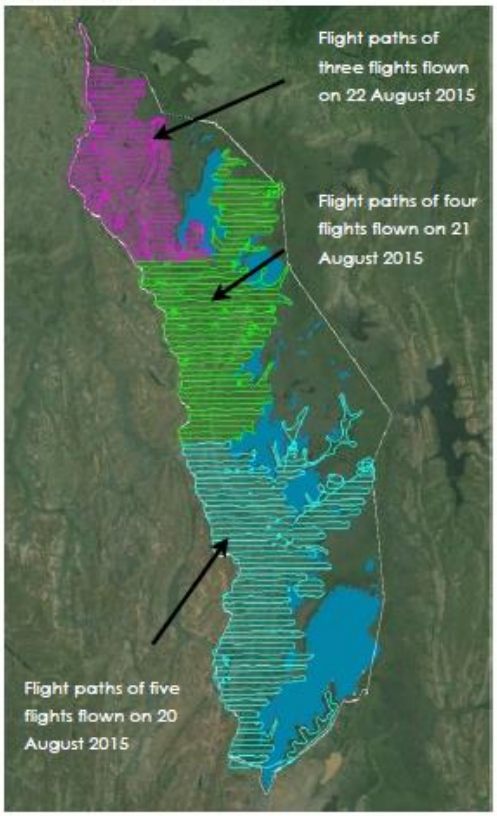
The survey was conducted using a R44 helicopter flying along east-west transects of the park with an average flight path spacing of 600 metres, beginning in the south and working up to the north. A total of 27.9 hours of flying time over four days was needed to complete the survey. The team consisted of: the Pilot, Celestine Kazungu; Derek McPhereson, the FSO (front seat observer) and data recorder noting down each sighting and giving a GPS coordinate, and then compiling the written report; Jes Gruner, the park manager and Eugene Mutangana, head of law enforcement, as the two RSO's (rear seat observer).

The maps below show the flight paths for both 2013 (left) and 2015 surveys for comparison. The 2013 census employed a variable flight path spacing as dictated by the nature of the vegetation and its impact on visibility (Map 2, Appendix 2). This slight difference in methodology caused the survey area to be more thoroughly searched in 2015 than in 2013. The result is that part of the recorded increase in wildlife population numbers for this period can be attributed to this improvement of search intensity.

Map 2: Flight paths flown during the census of the terrestrial species of mammals occurring in Akagera National Park in the 2013 census



Map 3: Flight paths flown during the census of the terrestrial species of mammals occurring in Akagera National Park in the 2015 census



While previous aerial surveys have been conducted, the methods used to conduct these surveys differed; 1968 & 1969 (Guinness & Spinage); 1990 (Vande weghe & Dejace); 1997 & 1998 (Williams & Ntayombya); 2002 (Lamprey) and in 2010 by Viljoen, the first when Akagera was under the management of AMC. Furthermore, the area of land that has made up the Akagera National Park and the adjacent Mutara Domaine de Chasse (hunting area) has been reduced in size over time. Different surveys have, therefore, covered different total areas. Consequently, comparison of the results of the different censuses is difficult and speculative. Therefore, while wildlife population trend analysis for the current, reduced park area, is possible for period 1997 / 1998 through to the present such comparison should be treated with extreme caution.

Notwithstanding these limiting factors, trend analysis remains useful when focused on those species that are tendered by the various authors as having the most accurate estimates. Relating wildlife population trends to historic events promoting human advance on the Protected Area and differing levels of wildlife management input in ANP reveals a definite correlation between the ebb and flow of these two major forces and wildlife populations.

The 2013 and 2015 surveys provide the most reliable comparison because very similar survey methodology was used. Close adherence to maintaining the method will produce reliable comparisons going forward.

Table 1 shows the total number of animals per specie and group sizes recorded for the 2013 and 2015 counts.

Table 1: The total number of animals per specie & group sizes recorded for the total area count in Akagera National Park, August 2013 & 2015

Year	2013					2015				
Specie	**Ave**	**Min**	**Max**	**N**	**Total**	**Ave**	**Min**	**Max**	**N**	**Total**
Birds										
Shoebill					1					1
Crowned Crane										54
Fish Eagle										118
Primates										
Baboon Troops					61					94
Vervet Troops					7					7
Blue Monkey Troops					2					8
Large Mammals & Reptiles										
Elephant	8.00	1	40	11	88	5.63	1	30	16	90
Hippopotamus	4.12	1	44	215	885	5.08	1	43	308	1565
Buffalo	22.27	1	250	94	2,093	19.45	1	181	132	2567
Lion										7
Leopard	1	1	1	3	3	1	1	1	5	5
Hyena	1	1	1	1	1	1.67	1	2	6	7
Crocodile						1.58	1	31	125	198
Giraffe	3.86	1	8	14	54	35.60	1	15	22	79
Eland	8.39	1	31	23	193	4.38	1	36	50	219
Roan	9.22	1	27	9	83	3.38	1	17	32	108
Waterbuck	3.82	1	31	248	948	4.06	1	52	341	1384
Zebra	5.68	1	40	176	999	5.97	1	38	306	1827
Topi	5.71	1	72	98	560	4.94	1	93	163	805
Sitatunga	1	1	1	3	3	1	1	1	3	3
Impala	8.52	1	37	124	1,057	13.07	1	194	164	2144
Reedbuck	2.15	1	6	22	47	1.83	1	6	24	44
Warthog	2.88	1	16	257	741	2.50	1	11	427	1067
Bushpig	4.17	1	8	6	25	3.33	2	6	3	10
Bushbuck	1.20	1	3	46	55	1.17	1	2	76	89
Oribi	2.50	1	7	8	20	2.40	1	6	5	12
Duiker	1.12	1	2	33	37	1.02	1	2	42	43
Klipspringer						1	1	1	2	2
Grand Total					7892					12275

Note: Primates and birds are excluded from the population grand total

Although the data is incomplete for some species, meaningful population trends are established comparing the results of previous wildlife censuses for buffalo, eland, waterbuck, zebra, topi, impala and warthog. Population trends were shown graphically for these seven species. Topi and zebra populations are shown here as examples, all seven species show a similar curve.

As already mentioned comparison of results from different survey methods should be treated with caution. The most reliable comparison is between the 2013 and 2015 surveys because very similar census methodology was used.

Figure 4: Zebra Population Trend 1998 - 2015

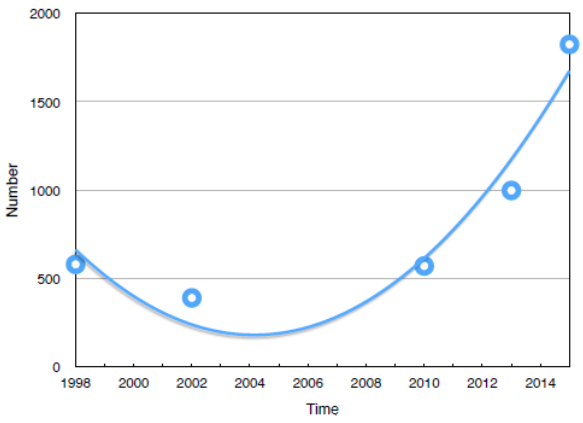
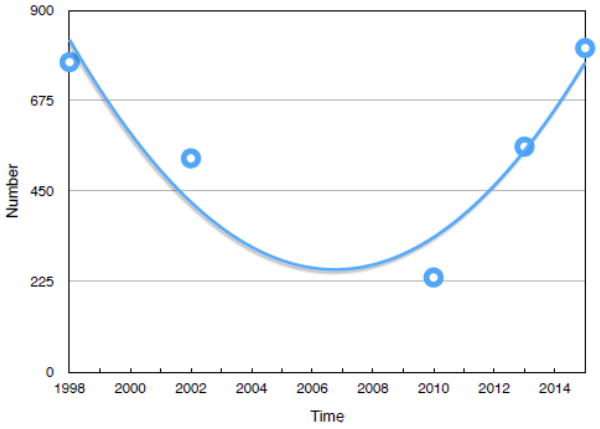
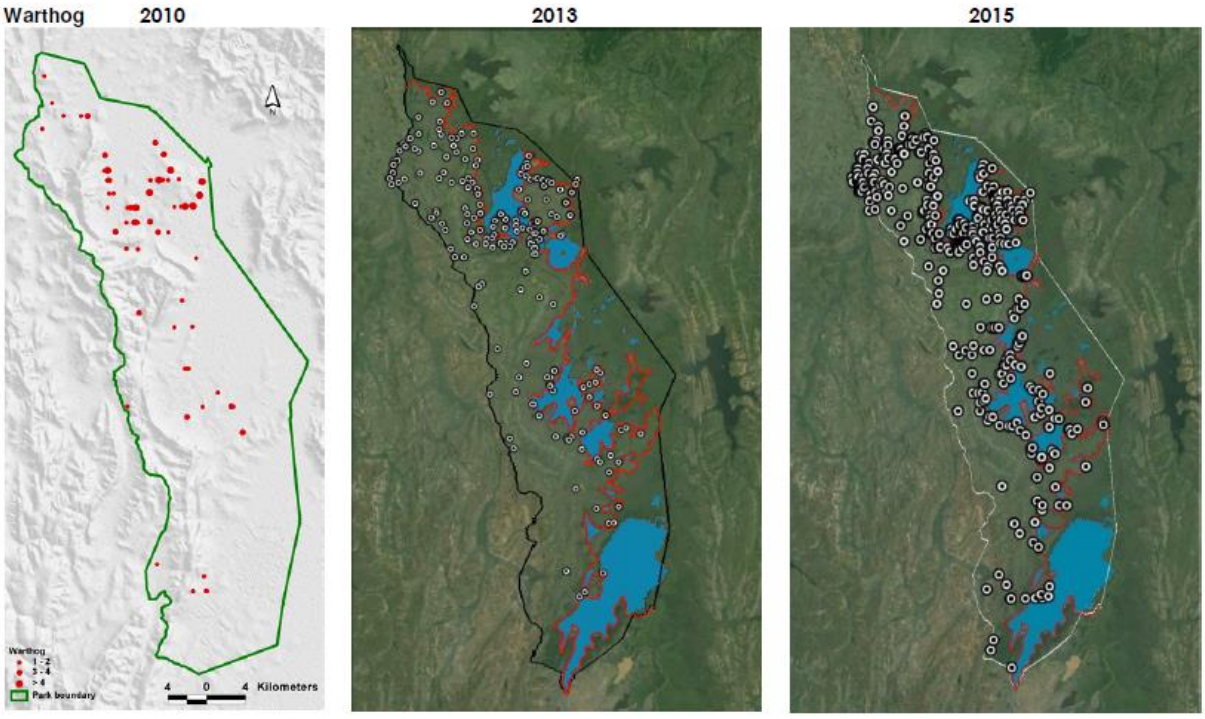


Figure 5: Topi Population Trend 1998 - 2015



Distribution data for the species elephant, buffalo, eland, waterbuck, zebra, topi, impala, warthog and hippopotamus includes that from the 2010 and 2013 surveys. Where possible, this allows for comparisons to be made in terms of change in distribution patterns over time for some species.

Map 13: Warthog distribution during the 2010, 2013 & 2015 wildlife censuses of Akagera National Park



Although the count did not include the papyrus swamp, and is it recommended that a separate specific wetland survey be conducted, a shoebill was spotted again in this census, as well as three sitatunga. Five leopards were also seen, and seven hyena.

Photos by Jes Gruner:

Buffalo recorded increase of approximately 11% per annum, within expected limits for a population that is not subject to predation

Elephant population remained stable since 2013 census. it is also very possible to miss a few elephants and it is likely the population is between 90 – 100 individuals.

This specie is well known as being small, well camouflaged and difficult to spot from the air, especially in wooded regions and often undercounted in aerial surveys. The increase represents an annual average of 51%. As in the case of Zebra the recorded increase is likely to be due to a combination of increased search intensity and breeding.

Giraffe numbers increased from 54 in 2013 to 79 in 2015.