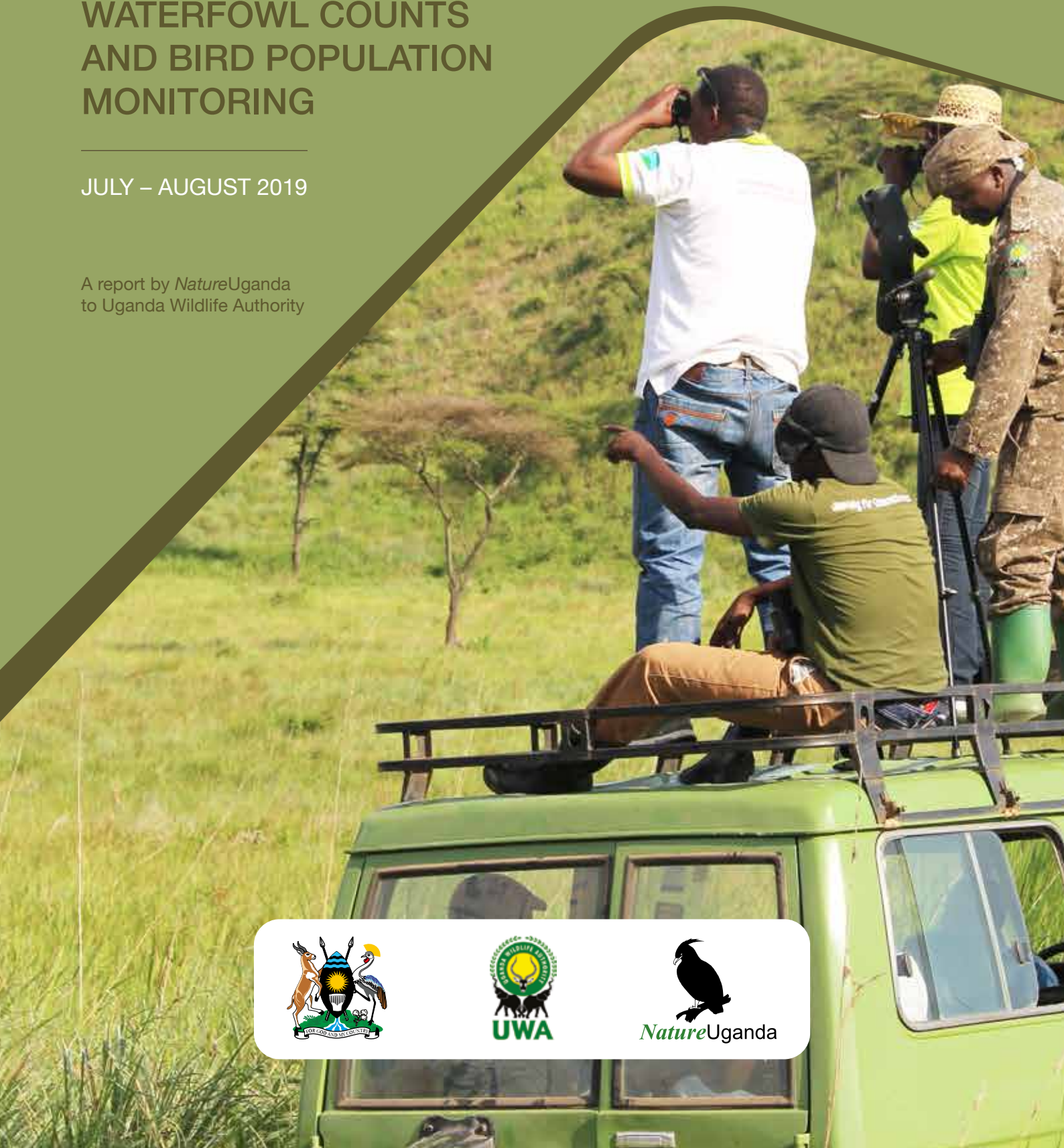
MONITORING OF BIRDS FOR SELECTED SITES IN UGANDA

WATERFOWL COUNTS AND BIRD POPULATION MONITORING

JULY – AUGUST 2019

A report by *Nature*Uganda
to Uganda Wildlife Authority



UWA

*Nature*Uganda

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Produced by NatureUganda with Financial support from Uganda Wildlife Authority

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Saddle-billed Stork

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Grey Crowned Crane

Acknowledgements

NatureUganda is indebted to Uganda Wildlife Authority for financial and technical support over the years for bird research and monitoring in selected sites in Uganda, and especially the protected areas. In particular, we are grateful for the financial support towards Waterfowl census and Bird Population monitoring (common birds monitoring) for selected sites in Uganda during this study. We are grateful to all the support from the technical team, the wardens, the rangers, guides and all UWA staff that made study easy and enjoyable for NatureUganda teams.

We would like to thank all Site Support Groups (SSGs) especially for the sites outside protected areas for the support, guidance and participation in the counts. Since 1990s, the SSGs have continued to support the conservation of sites for the benefit of community and biodiversity.

NatureUganda teams were supported by various government officials from the respective local governments and local councils (LCs), in ensuring that the monitoring teams were safe, well guided through villages, community gardens and homes, helped to access facilities such as boats and local guides.

NatureUganda staff and all volunteers who participated in the counts are appreciated. The information gathered has been valuable in supporting decision making in protecting species, sites and habitats.
Water bird monitoring started in 1980s and is one of the longest running biodiversity monitoring exercises in Uganda. The data accumulated has been shared with sector institutions for decision making; contributed to the identification of 34 Important Bird Areas (now Key Biodiversity Areas) used; contributed to identification and designation of 11 of the twelve Ramsar sites in Uganda; highlighted key sites for tourism development; highlighted critical sites and species for conservation; and contributed to increased knowledge on population trends of species in the world. This would not have been possible if it was not for the dedicated team at NatureUganda and many volunteers who made it possible. We value everyone who participated and it your support that make the programme sustainable.

CHAPTER ONE:

Introduction

Uganda has over 1060 bird species mainly because the country is strategically located in the center of central Africa and covers a high diversity of habitats suitable for many species. These habitats include among others the forests, woodlands, grasslands, agricultural lands, wetlands and open waters. This diversity of habitats makes Uganda one of the richest countries with respect to bird species diversity compared to its size in Africa. Africa is estimated to have 2,477 species (BirdLife International, 2018). The wetlands and open waters are good habitats for feeding, breeding and roosting of water birds while other vegetation types are rich in land birds. Africa is a very important continent for waterbirds with over 307 species in 33 families (Boere *et al*. 2006) ranging from migratory ducks and waders to seabirds and semi-resident herons and egrets. Not only for the impressive list of populations of African waterbirds, but also for the millions of migratory waterbirds that depend on wetlands and other ecosystems. Similarly, 22.5% of bird species in Uganda are waterbirds and about half of which are migrants and some congregatory species (Carswell *et al.* 2005).

1.1 History of Waterbird Monitoring in Uganda

The ***Nature***Uganda waterbird counts for Uganda have been consistently conducted annually in December-January and June-August since 1991. They have been conducted by thousands of volunteers across the country and it has been a training avenue for many ornithologists in this country. Annual reports summarizing the results have been provided as feedback to partners and have been used as decision-making tools for many conservation interventions such as designation of Ramsar sites and Important Bird and Key Biodiversity Areas (KBAs) among others. Results are also available in the reports produced by Wetlands International (Dodman & Diagana 1999, 2000 & 2001) for global utilization. The results of these annual counts are further presented in regional and global publications and conferences, providing a unique insight of the status of the African waterbird populations.

The African-wide waterbird census, which is coordinated by Wetlands International under the International Waterbird Census (IWC) programme, covers the collection and analysis of waterbirds in Africa as well as other regions including Asia, Europe and South America. Each year, participating volunteers count millions of waterbirds in over 100 countries using a standardized method, which makes it easy to compare the census data across regions. The IWC is a valuable source of information, making it possible to monitor changes in waterbird numbers and distribution; to improve knowledge of little-known waterbird species and wetland sites; to identify and monitor sites that qualify as Wetlands of International Importance (WMD/NU 2008) under the Ramsar Convention on Wetlands; to provide information on the conservation status of waterbird species; and to increase awareness of the importance of waterbirds and their wetland habitats at local, national and international level. Uganda has been contributing to this initiative using its well-developed capacity in the data generation and management since the mid 1990's (NU Unpublished: *20 years of Waterbirds monitoring report).*

Under the auspices of NatureUganda, Waterbird counts have covered 33 sites since 1991, with consistent counts covering 26 sites. These counts have produced a total of 129 species with 60 species being the average per site. Counts are carried out during January and July every year because of two main reasons; one being that many birds being migratory, they congregate on wetlands in large numbers at certain times of the year, mainly around January; the second being that counts in January are carried out worldwide while counts in July are conducted only in the East African region to monitor the intra-African migrant and resident species.

1.2 The need for the study

There have been recent advances in estimating the size and status of waterbird populations at the global level (Boere et al. 2006). The main objectives of this process are to assist in identifying and protecting Wetlands of International Importance under the Convention on Wetlands, to identify conservation and research priorities in order to maintain global waterbird biodiversity such as the Important Bird Area (IBA) networks (BirdLife International 2019) , to identify gaps in knowledge, and to support the implementation of the Conventions on Wetlands (Ramsar sites), Migratory Species and Biological Diversity. Significant advances continue to be

made by Wetlands international in reviewing and developing new estimates for waterbird populations occurring in Africa. It is therefore important for Uganda to create and strengthen the bird database and produce a detailed analysis of the population trends, habitat threats and migratory patterns of birds in Uganda in order to enrich the global database and also inform policies on conservation and tourism development in Uganda. Less attempts have been made in the study and monitoring land birds. In this report we also present results of survey and monitoring of landbirds through our established Bird Populations Monitoring. Like waterbirds, the purpose of BPM is to monitor the population trends and threats of terrestrial birds.

1.3 Justification

Birds have for a long time been used as indicators of the state of biodiversity and the environment, and that is the context from which they are monitored in this study. The results, from the ***Nature***Uganda monitoring programmes so far have been able to show that although the National Parks and other protected areas are rich in bird species, many of the best species-rich sites in Uganda are in privately owned sites outside Protected Areas including small-scale mixed agricultural sites and these need some form of protection (***Nature***Uganda2015*)*. They showed a need for promoting community conservation in the country in addition to protected areas. The continued bird monitoring will fill gaps in policy implementation at the three levels of International, National and Regional; International by supporting conventions and treaties like the Ramsar, Africa-Eurasian Waterbird Agreement (AEWA) and Convention on Biological Diversity (CBD) among others; National in supporting policy implementation like in the Wildlife Act, Forestry Act, Environment policies, Agricultural policies; and Local by contributing to the implementation of the local governments and community development plans in the country e.t.c.

The exercise will further collate information on migratory bird movements including data obtained from roosting or breeding areas to give an indication of their distribution in the country. This data is further used in global processes to help in establishing movements of birds, establishing important sites or routes for migratory birds and stopover points as well as linking migration movements of birds along flyways, to and from the breeding areas of Asia, Eastern Europe and Siberia. This programme also provides a platform for training enthusiastic individuals in bird monitoring using standard methods (Bibby *et al*. 2000) as well as being a source of information and research for students including postgraduate students.

1.4 Aims of the survey

The overall aim of this bird monitoring survey was to strengthen and populate the bird database and produce a detailed analysis of the population status, population trends where possible, habitat threats and migratory bird stopovers in Uganda to inform conservation and tourism policies. For case, historical data has been used in some sites to indicate the trends in the numbers of species for particular sites.

1.5 Objectives

Specifically, the objectives of the survey were;

i. To collect data for determining bird population estimates and monitoring of changes in bird numbers and distribution pattern. This was done using regular standardized counts of selected sites and comparing this with the available historical data.
ii. To investigate and evaluate information on conservation and tourism status of sites using birds as indicators. This would enable us to identify and monitor sites important for birds such as breeding, roosting, loafing or feeding areas.
iii. To increase awareness of the importance of birds and their habitats at local, national and international levels through publicizing the results from this survey
iv. Provide training to UWA staff in bird counting/ monitoring and improving the skills of the experienced ones. This would improve the capacity of UWA staff for future monitoring activities and over time, some will become expert tourist guides to improve visitor satisfaction.

Grey-Headed Gull

CHAPTER TWO:

Methods

2.1 Study sites selection

The sites surveyed included wetlands and water bodies in Important Bird Areas (IBAs) in National Parks and outside protected areas across the country plus other sites that have been previously covered in waterfowl counts and bird population monitoring surveys (Figure 1). The areas surveyed include protected areas including Murchison Falls National Park, Queen Elizabeth National Park, Kyambura Wildlife Reserve, Lake Mburo National Park, Katonga Wildlife Reserve.

In Lake Victoria basin, the teams covered Sango bay including Musambwa Islands, Mabamba Bay, Makanaga Bay, Lutembe Bay, Ssese Islands, sites in Lake Lake Nabugabo area, Mabira Forest Reserve, selected sites in Bujjagali Area, and, Kaku swamp in Kyazanga.

Other sites such as Nyamuriro swamp, Saka Lakes and areas near Mobuku were covered based on their previous counts and uniqueness of the sites. Other IBAs surveyed included rice growing areas in eastern Uganda such as Doho and Kibimba rice schemes. Further east in Teso region, the team covered Lakes Bisina and Opeta which host the only endemic bird species for Uganda the Fox's Weaver *Ploceus spekeoides*.

2.1 Bird Survey Methods

2.2.1 Waterbirds Survey Methods

Total count method (Bibby *et al.* 2000) was used to record all waterbirds in various study areas. Individual bird species were identified with the help of a pair of binoculars and where there was doubt about identification, we referred to the field guide for Birds of East Africa (Stevenson and Fanshawe, 2002). The survey team comprised of four to five people. Each with at least one experienced birder responsible for identifying birds and was responsible for coordination. Another person was a recorder. The rest of the team members were responsible for looking out for birds. We also worked with local site guides as a means to enhance capacity building and tourism in those areas. Counts were done on boats, on foot or in a vehicle depending on the nature of the survey site.

Counts on open waters were carried out using slow-moving boats, traversing along the shores. Counts on smaller crater lakes were conducted on foot moving around the site. Larger water bodies with motorable boats and open land areas were surveyed using a slow-moving vehicle with several stopovers. Difficult areas to move through were done by standing at a single strategic point and then telescopes were used to scan the sites for birds. Efforts were made to ensure that total counts of all the waterbirds in the target sites were made. Counts on drier wetlands were done using the transect method adopted from land bird survey.

2.2.2 Land birds Survey Methods

Birds in drier and walkable sites were surveyed following the standard Land Bird Population Monitoring methods (NatureUganda 2010). This method employs sectioned transects. Each transect was 2km long divided into ten 200m sections from which the total numbers of birds seen or heard whilst slowly walking were obtained. Data was recorded using standard field sheets which are internationally accepted for transect recordings (Annex 1). Birds were identified with the help of a pair of binoculars and in instances where a species was difficult to identify, the standard field guide reference book: "A Field guide to the Birds of East Africa" by Stevenson and Fanshawe (2002) was consulted for identification.

2.2.3 Red-listed species

Birds were categorized at global (IUCN, 2019, regional (Bennun and Njoroge 1996) and national (WCS, 2016). These categories are indicated as;

- CR Critical (Globally or Regionally or Nationally)
- EN Endangered (Globally or Regionally or Nationally)
- VU Vulnerable (Globally or Regionally or Nationally)

- NT Near-threatened (Globally or Regionally or Nationally)
- RR Regional Responsibility (Globally or Regionally or Nationally)

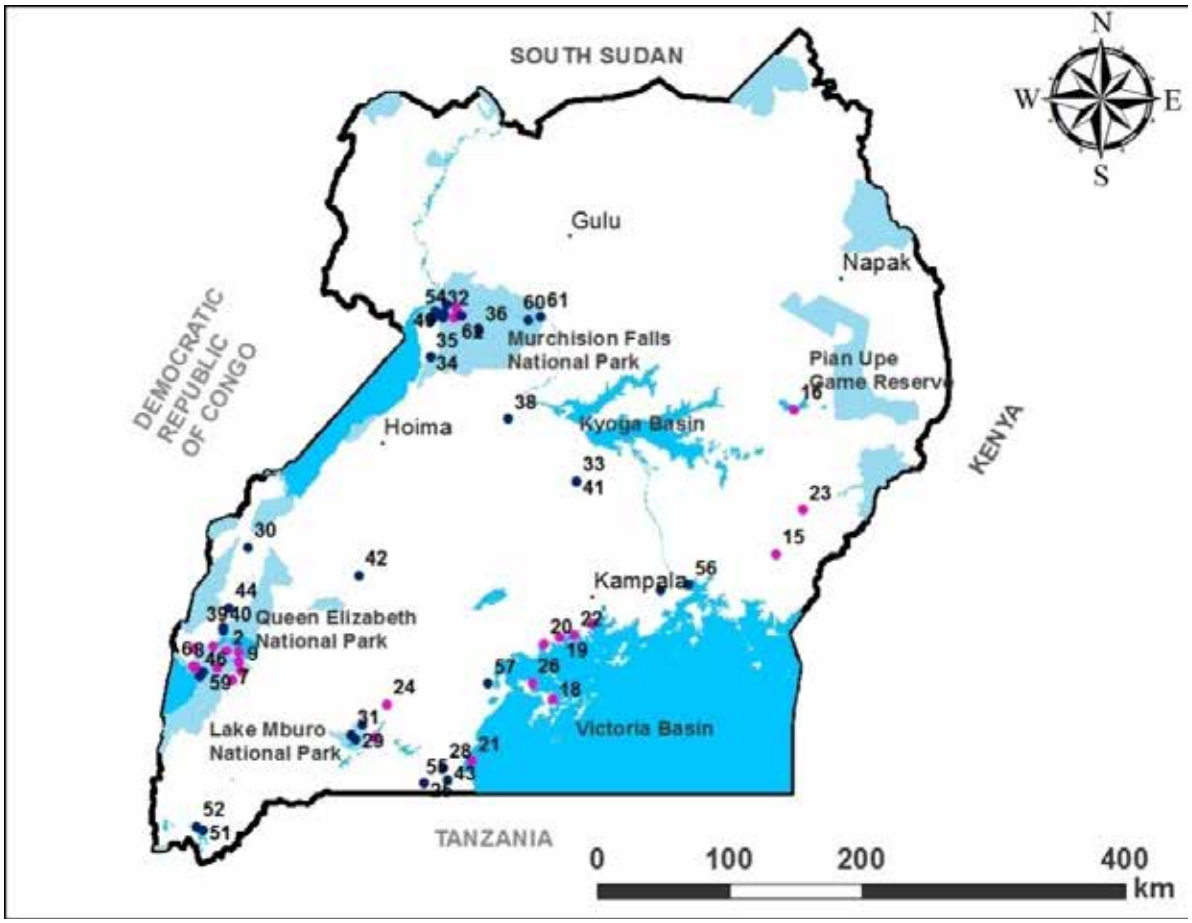
2.2.4 **Migratory classifications**

Bird species with migratory tendency were also considered as derived from the Uganda Bird atlas (Carswell *et al.* 2005). There were two categories of migrant species considered below.

- Afro-tropical migrants (AM)
- Pale-arctic migrants (PM)

However, some species can be both be Afro-tropical and Pale-arctic migrants.

Grey Heron



Key

Waterfowl Count (WFC) Sites

1. Bagusa Crater
2. Kasenyi Crater
3. Kashaka landing site
4. Kazinga Channel
5. Kikorongo Crater
6. Lake Katwe
7. Maseche Crater
8. Munyanyange Crater
9. Nshenyi Crater
10. Shoebill Swamp
11. MF- Albert Nile
12. MF- Peason Track
13. MF- Ferry Track
14. Lake Mburo
15. Kibimab Rice Scheme & Dam
16. Lake Bisina
17. Lutembe Bay
18. Lutoboka (Ssese Islands)
19. Mabamba Bay
20. Makanaga Bay
21. Musambwa Island
22. Nakiwogo Bay
23. Doho Rice Scheme
24. Kaku Wetland
25. Airstrip Ponds
26. Banga (Ssese Islands)
27. Lake Albert Delta

Bird Population Monitoring (BPM)/ Land-bird Sites

28. Phoenix Savanna
29. Rwonyo Gate
30. Saka Crater Lakes
31. Sanga Gate
32. MF- The South
33. Transparent Lake
34. Waiga North
35. Waiga South
36. Impareta Gate
37. MF- Jobi Grasslands
38. Kafu Borassus Palms
39. Kamulikwezi kob lek
40. Kasese Woodlands
41. Kashoya-Kitomi Ecotourism Education Centre
42. Kyegegwa West
43. Marabigambo Grassland
44. Kanyaminingo/Mubuku
45. MF- Palm Savanna
46. Mweya Peninsula
47. MF- North 1
48. MF- North 2
49. MF- North 3
50. Nshara Gate
51. Nyamuliro Lower
52. Nyamuliro Upper
53. Paara Woodlands
54. MF- North 4
55. Airstrip Grassland
56. Bujjagali
57. Kayanja Savanna
58. Bulyasi-Mabira
59. Channel Track
60. Chobe Acacia
61. Chobe Terminalia
62. Falls Woodland

Figure 1a. Location of the Waterbird and Land bird sites surveyed during the Bird counts in July 2019

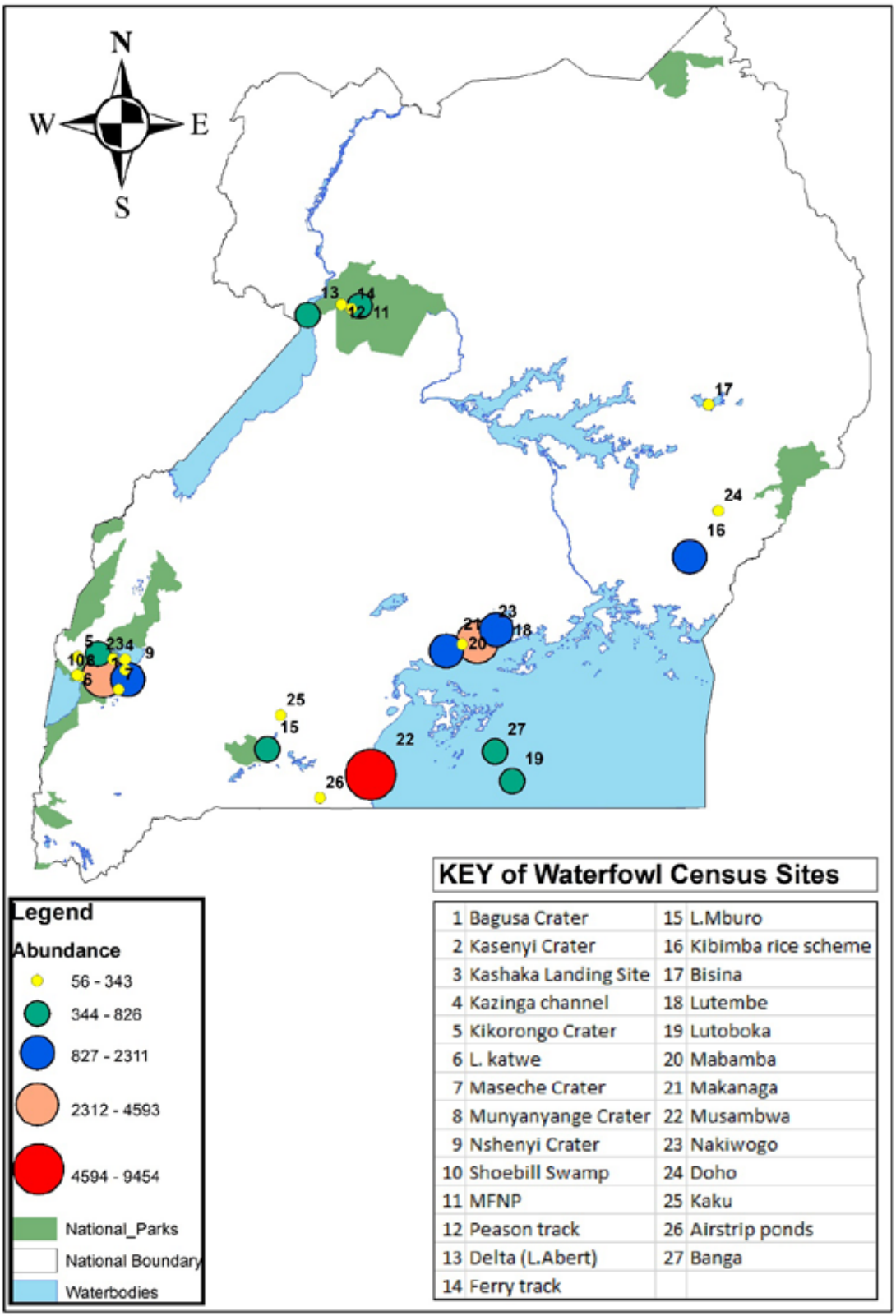


Figure 1b. Relative abundance (Number of individuals) of species recorded in the Waterbird sites surveyed during the Bird counts in July 2019

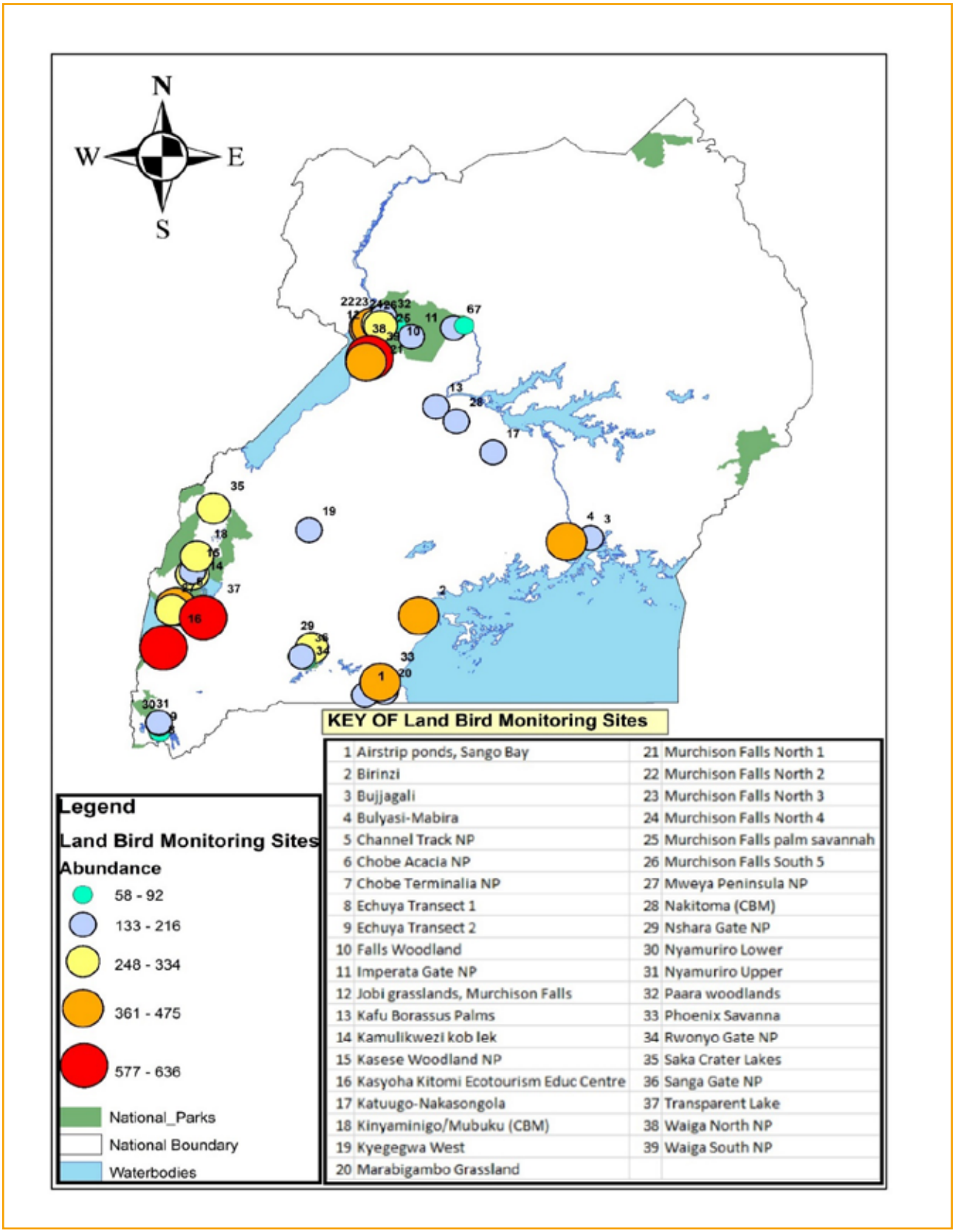


Figure 1c. Relative abundance (Number of individuals) of species recorded in the Land bird sites surveyed during the Bird counts in July 2019

CHAPTER THREE:

Results

3.1 SPECIES ACCOUNTS

3.1.1 Water Bird Counts

NatureUganda has been monitoring most sites for over 10 years and sometimes over 20 years. In the results presented, we have delivered information from NatureUganda previous work and presented population trends of some species or some sites. More details on the previous records of species or sites can be accessed from NatureUganda.

Altogether, a total of 29,066 individuals belonging to 85 species were recorded across 27 waterbird sites surveyed in July 2019 (Appendix I). Species richness was slightly higher in protected areas (72, Figure 1b) compared to the none-protected areas (69). A total of 21 Red-listed species were recorded; 7 globally (including the Grey Crowned Crane *Balearica regulorum* and African Finfoot *Podica senegalensis*), 20 regionally and 15 nationally Red-listed species (Table 1). A total of 84 individuals of Grey Crowned Crane were recorded from eight sites, with significant numbers (40 and 22 individuals) being recorded from Kaku wetland and Kibimba rice scheme respectively. However, the biggest population of the Grey-crowned Crane occurs outside protected areas. Unlike Grey Crowned cranes, the population of African Finfoot is not widely spread with all the six individuals recorded during this survey having been recorded only from Lake Mburo (Appendix I).

Table 1. Number of Red-listed species record across 27 waterbird sites surveyed

Category				Number of species
Red-list Species	Globally	Critically Endangered	G-CR	0
		Endangered	G-EN	2
		Near- threatened	G-NT	5
		Vulnerable	G-VU	1
	Regionally	Endangered	R-EN	0
		Vulnerable	R-Vu	6
		Near- threatened	R-NT	14
		Regional responsibility	R-RR	1
	Uganda	Endangered	U-EN	3
		Vulnerable	U-VU	9
		Near- threatened	U-NT	3

Among the Nationally Red-listed species, three are rated endangered (U-EN) including; Shoebill *Balaeniceps rex,* Black-Crowned Night Heron *Nycticorax nycticorax* and Grey-Crowned Crane. Six individuals of Shoebill (G-VU, R-Vu, U-EN) were recorded all together from three sites namely, Makanaga (4), Mabamba (1) and MFNP (1).

Similarly, a total of 335 species and 10,0077 individuals were recorded during the land-bird counts conducted with protected areas recording more birds than un protected areas (Table 2, Figure 1c).

Table 2: Species number and Abundance for the Waterbird and Landbird sites surveyed in July 2019

Landbird Site Name	Species	Abundance	Type
Transparent lake-Kasyoha Kitomi	90	577	PA
Education centre-Kasyoha Kitomi	87	636	PA
Bulyasi -Mabira CFR	72	475	PA
Saka lakes Fortportal	72	334	-
Waiga River -MFNP	68	598	PA
North1 -MFNP	67	404	PA
North 2 -MFNP	63	435	PA
Paraa woods MFNP	62	261	PA
Airstrip grassland Mutukula	56	216	-
Nshara gate -LMNP	56	285	PA
Kasese Woodland -QENP	56	216	PA
North 3 -MFNP	55	314	PA
Channel track -QENP	55	435	PA
Birinzi -Gulu Road	54	384	-
Waiga South -MFNP	54	361	PA
Imperata -MFNP	52	183	PA
Chobe Acacia -MFNP	49	164	PA
Sanga gate -LMNP	48	163	PA
Bujagali Cultivations	47	210	-
Kamulikwezi -QENP	47	298	PA
Kafu -Gulu Road	46	167	-
Phoenix savana - Nabugabo	46	401	PA
North 4/Paraa -MFNP	46	197	PA
The south -MFNP	45	136	PA
Mweya Peninsula -QENP	44	248	PA
Marabigambo grassland	41	198	-
Katugo - Gulu Road	40	155	-
Chobe Terminalia -MFNP	40	92	PA
Mobuku cultivation -Kasese Road	39	248	-
Nakitoma- Gulu Road	35	133	-
Falls woodland -MFNP	34	84	PA
Nyamuliro upper Swamp	32	202	-
Kyegegwa -Kasese RD	32	146	-
Rwonyo gate -LMNP	31	67	PA
Nyamuliro lower Swamp	28	141	-
Jobi Woodland -MFNP	28	197	PA
Echuya CFR1	26	79	PA
Echuya CFR2	20	58	PA
Palm Savana -MFNP	20	179	PA

Waterbird Site Name	Species	Abundance	Type
Nakiwogo -Entebbe	41	4593	-
Kazinga Channel -QENP	37	3451	PA
Murchison Falls -MFNP	36	826	PA
Kibimba Rice Scheme -Bugiri	33	1620	-
Lutembe bay - Entebbe	29	1277	-
Makanaga bay - Mpigi	28	1379	-
Shoebill Swamp -QENP	26	486	PA
Kikorongo Crater -QENP	25	343	PA
Airstrip Ponds Mutukula	22	134	-
Lake Mburo -LMNP	22	511	PA
Lake Bisina -Katakwi	20	187	-
Lutoboka - Ssese Islands	20	564	-
Pearson Track -MFNP	19	202	PA
L.Albert Delta A -MFNP	18	427	PA
Mabamba bay -Mpigi	17	194	-
Banga -Ssese Islands	16	599	-
Doho Rice Scheme -Butaleja	16	114	-
kaku wetland -Kyazanga	16	111	-
Kashaka landing -QENP	16	76	PA
Delta-Ferry channel-MFNP	14	56	PA
Musambwa Islands - Rakai	12	9454	-
Nshenyi Crater Lake -QENP	11	2311	PA
Munyanyange -QENP	10	217	PA
Maseche Crater -QENP	7	200	PA
Bagusa Crater -QENP	6	70	PA
Kasenyi Crater -QENP	6	97	PA
Katwe Crater -QENP	6	179	PA

NB: PA = Protected Area

i) Species abundance –Waterbirds

Grey-Headed Gull was the most abundant species recorded, followed by Long-tailed Cormorant and Pied Kingfisher (Table3). Musambwa Islands had the biggest number of Grey-Headed Gull (78%, N=8050) followed by Nakiwogo (12%, N=1230).

Table 3. The fifteen most abundant species recorded in 27 waterbird sites

Order	Species Name	Number[a]	Sites[b]
1	GREY-HEADED GULL *Chroicocephaluscirrocephalus*	10,357	6
2	LONG-TAILED CORMORANT *Microcarboafricanus*	2,827	18
3	PIED KINGFISHER *Cerylerudis*	2,761	21
4	LESSER FLAMINGO *Phoeniconaias minor*	2,222	4
5	JACANA *Actophilornisafricana*	1,290	18
6	LITTLE EGRET *Egrettagarzetta*	1,087	16
7	EGYPTIAN GOOSE *Alopochenaegyptiaca*	1,063	15
8	GREATER CORMORANT *Phalacrocorax carbo*	827	11
9	GLOSSY IBIS *Plegadisfalcinellus*	684	5
10	YELLOW-BILLED DUCK *Anasundulata*	645	8
11	SPUR-WINGED LAPWING *Vanellusspinosus*	581	19
12	BLACK-WINGED STILT *Himantopushimantopus*	467	9
13	SACRED IBIS *Threskiornisaethiopicus*	465	13
14	CATTLE EGRET *Bubulcus ibis*	404	11
15	RED-KNOBBED COOT *Fulicacristata*	384	7

Note: *a -number of individuals recorded, b- Number of sites the species was recorded*

None of the species occurred in all the sites, however, the most common species were Pied Kingfisher, Spur-winged Lapwing, Long Toed Lapwing, and African Jacana, with 21, 19, 18 and 18 out of 27 appearances respectively.

ii) Migrations

Twenty-two species of Palearctic migrants were recorded during the survey, the notable ones being; Osprey, Heuglins Gull, Lesser Black-Backed Gull, and Black-Headed Gull. There were also 3 Afrotropical migrants including African Crake and African Skimmer. Most of the species were residents. Palearctic migrants breed in Palearctic region between May and August but are expected in Uganda during the northern winter (October to March). Afrotropical migrants complete their journeys within the Afro-tropical region.

3.1.2 Land bird counts

Altogether, a total of 9,648 individuals belonging to 327 species were recorded from the 39 land bird sites surveyed (Appendix II). There was a slight difference between the number of sites located in protected areas (21) and none protected areas (18). MFNP had the biggest number of sites (14) followed by QENP (4) and later LMNP (3). In MFNP, Waiga River was the most species-rich site with 68 species followed by North1 with 67, the least was Palm Savana with 20 species.
In QENP, Kasese woodland had the biggest number of species 56 followed by Channel track 50. The species richest site in L. Mburo was Nshara gate with 56 followed by Sanga gate with 48 species. Overall, the most species-rich land bird site was Transparent Lake with 90 species followed by Eco-tourism education centre with 85 species. However, these sites are both located in Kasyoha Kitomi Central Forest Reserve.

Forty-two species are important as being of conservation concern, including seven globally red-listed species (Table 4). The number of species red-listed regionally and nationally was 38 and 13 respectively. Most species of conservation concern especially vultures occur in protected areas, which shows how important national parks are important in the conservation of these birds.

Table 4. Number of species of conservation concern recorded in the 39 Land bird sites

Category				Number of species
Red-list Species	Globally	Critically Endangered	G-CR	4
		Endangered	G-EN	2
		Near- threatened	G-NT	1
		Vulnerable	G-VU	0
	Regionally	Endangered	R-EN	0
		Vulnerable	R-Vu	8
		Near- threatened	R-NT	14
		Regional responsibility	R-RR	16
	Uganda	Endangered	U-EN	3
		Vulnerable	U-VU	7
		Near- threatened	U-NT	3

3.2 SITE ACCOUNTS

3.2.2 QUEEN ELIZABETH NATIONAL PARK (QENP)

QENP lying in the great Western Rift Valley was created in 1952 to protect its varied habitats such as grassland, woodland, moist tropical forest and wetlands (Roberts 2006). It is an IBA and includes Lake George a wetland of international importance/Ramsar Site. QENP has a high mosaic of habitats ranging from forests, woodlands, grasslands, and good sites for waterbirds such as the fresh and saline lakes, river systems and marshland. This makes it one of the most popular National Park in Uganda in terms of species richness, not only for birds but also other taxa. It has a remarkable bird species list of 612 and still counting.

During this survey, ten waterbird sites were visited including; Kazinga Channel, Munyanyange Crater, Katwe Salt Lake, Kasenyi Crater, Kikorongo Crater and associated Shoebill Swamp along Lake George as well as the craters in Kyambura Wildlife Reserve ie Bagusa, Nshenyi and Maseche craters and Kashaka landing site. In addition, Land Bird monitoring counts were conducted in four sites located along the Channel track, Mweya Paninsula at Mweya near the airfield and two sites near Kasese town (Kasese Woodlans and Kamulikwezi-Natural forest).

Little Egret

a) Waterbird sites surveyed in QENP

Overall, a total of 57 species were recorded in QENP. Freshwater sites had the largest number of species compared to saline craters (Figure 2). Kazinga channel was the most important site in terms of species richness followed by Shoebill Swamp (Figure 2). Among the craters, Kikorongo Crater had the largest number of species, followed by Kashaka landing site and Nshenyi Crater. The Lesser Flamingo which is one of the flagship bird species for QE, often recorded in huge numbers in this site is one of the specialized saline water species in Uganda.

The biggest congregation of Lesser Flamingos during this count was recorded in Nshenyi Crater followed by Maseche Crater. It is important to note that for some reasons, the numbers of Lesser Flamingos reduced over the years has reduced, from nearly 10, 000 individuals in 2015 to 2,000 in 2019 (Figure 3).

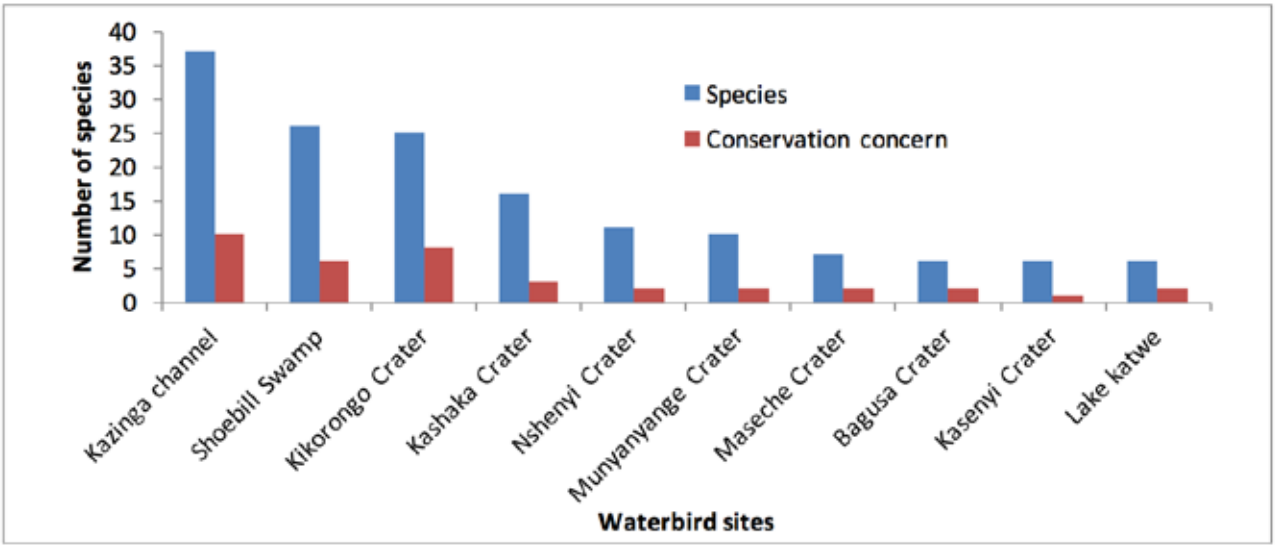


Figure2. Number of bird species and species of conservation concern recorded in QENP during the counts in July 2019

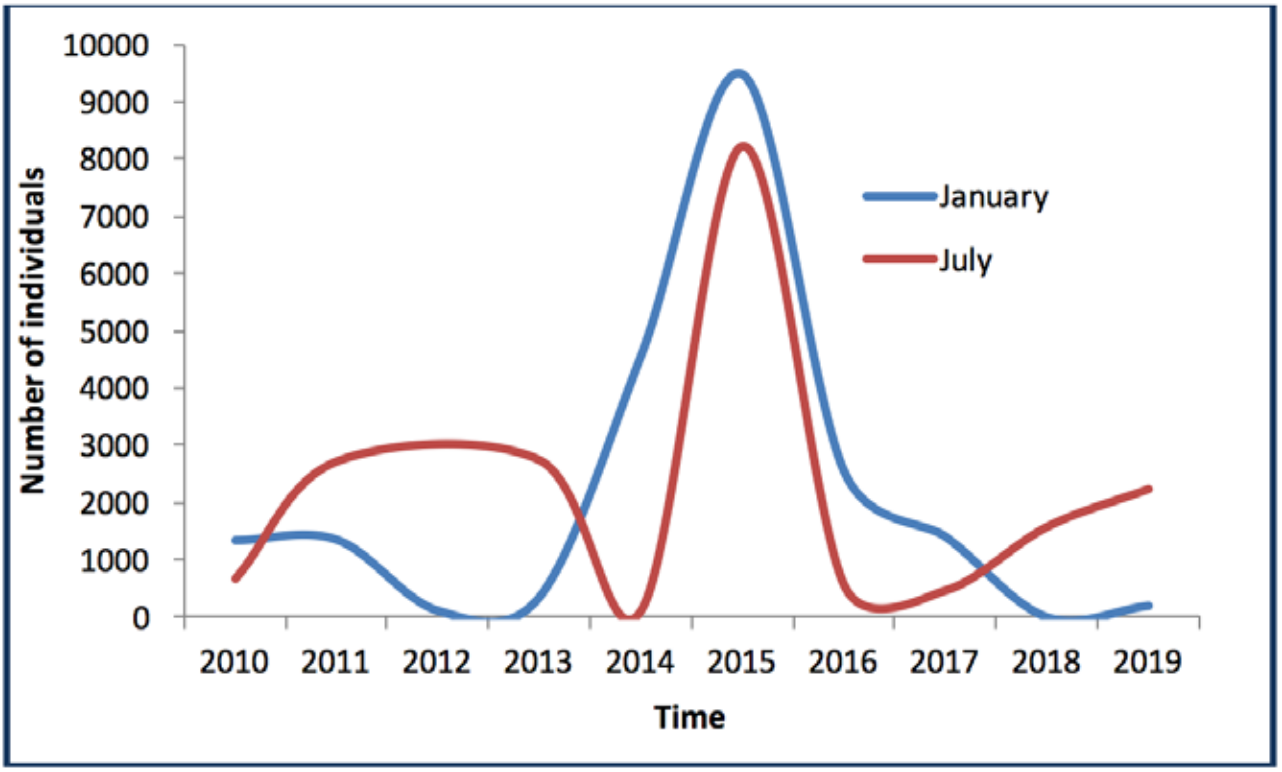


Figure 3. Fluctuations in numbers of Lesser Flamingos over a period of ten years in QENP.

b) Land birds recorded in QENP

Altogether, a total of 122 species were recorded in the four Land bird sites in QENP, with Kasese Woods being the most species-rich with 56 species, followed by Channel Track with 50 species, Kamulikwezi (48) and Mweya Peninsula (44) being the least. The amount of woody vegetation could have influenced the number of birds in each of the sites, because trees are critical for birds in many ways as they create a complex more heterogeneous habitat, which meets most birds' basic needs for food, nesting and roosting.

A total of 44 species of conservation concern were recorded including 5 Afrotropical Migrants, 2 Palearctic Migrants, 3 Globally Critical species, 1 Globally endangered species and 1 Globally Near-Threatened species (Table 5). Kasese Woods registering more of the CC species (21), followed by Channel track (18), Kamulikwezi (12) and then Mweya Peninsula (7).

Great Blue Turaco

Table 5. Number of species of birds for various categories

Category				All sites	Kasese woods	Channel Track	Kamulikwezi	Mweya Peninsula
Red-list Species	Globally	Critically Endangered	G-CR	3		3		
		Endangered	G-EN	1		1		
		Near- threatened	G-NT	1			1	
		Vulnerable	G-VU					
	Regionally	Endangered	R-EN					
		Vulnerable	R-Vu	2		1	2	
		Near- threatened	R-NT	4	1	3		
		Regional responsibility	R-RR	4	2	2	2	2
	Uganda	Endangered	U-EN	2		2		
		Vulnerable	U-VU	1				
		Near- threatened	U-NT	1	1			
Ecological feature	Forest specialist		FF	1	1			
	Forest generalist		F	14	12	3	5	1
	Tree species		f	25	16	20	12	10
	Wetland specialists		W	2				2
	Wetland visitor		w	23	9	7	5	10
	Grassland specialists		G	17		3	10	5
	Aerial feeder		AM	3	1	1		1
Migrants	Palearctic		PM	2	1			1
	Afrotropical		AM	5	2	2	2	2

c) Detailed accounts for Waterbirds sites in QENP

All the birds recorded during counts in the open water sites (WFC sites) in QENP are summarized in Appendix I and the detailed site accounts are given below;

i). Kazinga channel

This is a 32 kilometre waterway, which connects Lake George to Lake Edward. This channel is home to wintering wading birds and often has large numbers of Gull-billed Tern *Sterna nilotica*, African Skimmer *Rynchops flavirostris* and occasionally, the Pink-backed Pelican *P. onocrotalus*. This is one of the two sites in Uganda that have consistently recorded the African Skimmers *R. flavirostris*, the other site being Murchison Falls Nile Delta. Monitoring the channel started in 1991 and the site has since been consistently monitored. Two varying habitat types on the shoreline are surveyed. The Northern section is dominated by floating hippo grass (*Vossia cuspidata)* which appears to be spreading. The Southern banks are more open with sparse tree cover and occasional sand banks. The water edge of Lake Edward from the Mweya Peninsula offers mixed shoreline of sandy shore, sedge and Acacia. Sand banks and cliffs provide breeding habitats for the Pied Kingfishers while the acacia dominated shoreline provide habitat for breeding conditions for herons and egrets.

The '*Kazinga channel site*' can ideally be separated into two sections; the conventional '*Kazinga Channel* 'section starting from the Mweya jetty moving westwards toward Lake George for about 5kms and then crossing to the southern bank to the shores of Lake Edward ending at the Kazinga fishing village/ landing site; and the '*Kasoma count*' section starting from the month of Kazinga Channel following the peninsular shoreline

and ending on the Islands near Katwe. These two sections were selected because of the historical data from over 20 years.

A total of 3,451 birds belonging to 37 species were recorded, with Pied Kingfisher as the most numerous followed by Egyptian Goose and African Skimmer. Other notable species include Great White Pelican and African Skimmer. One species of global conservation concern and six regionally listed species were recorded (Table 6).

Table 6. Species of Conservation Concern recorded at Kazinga Channel

Species name	Red-list	Number of individuals
African Skimmer	G-NT,R-VU,U-VU	320
Grey Heron	R-NT	167
Great White Pelican	R-RR	5
Goliath Heron	R-NT, U-VU	5
Striated Heron	R-NT, U-NT	3
Saddle-Billed Stork	R-VU, U-VU	3

The number of migrants recorded was five, including four Palearctic migrants (Black-crowned Night Heron, Common Greenshank, Common Ringed Plover and Common Sandpiper) and one Afro-tropical migrant (African Skimmer). Figure 4 shows a gradual reduction number of species recorded on Kazinga channel over time. In addition, the chat shows how January and July counts vary, with January counts resulting in higher numbers of species than July. Such information could be used by the tourism department during itinerary planning.

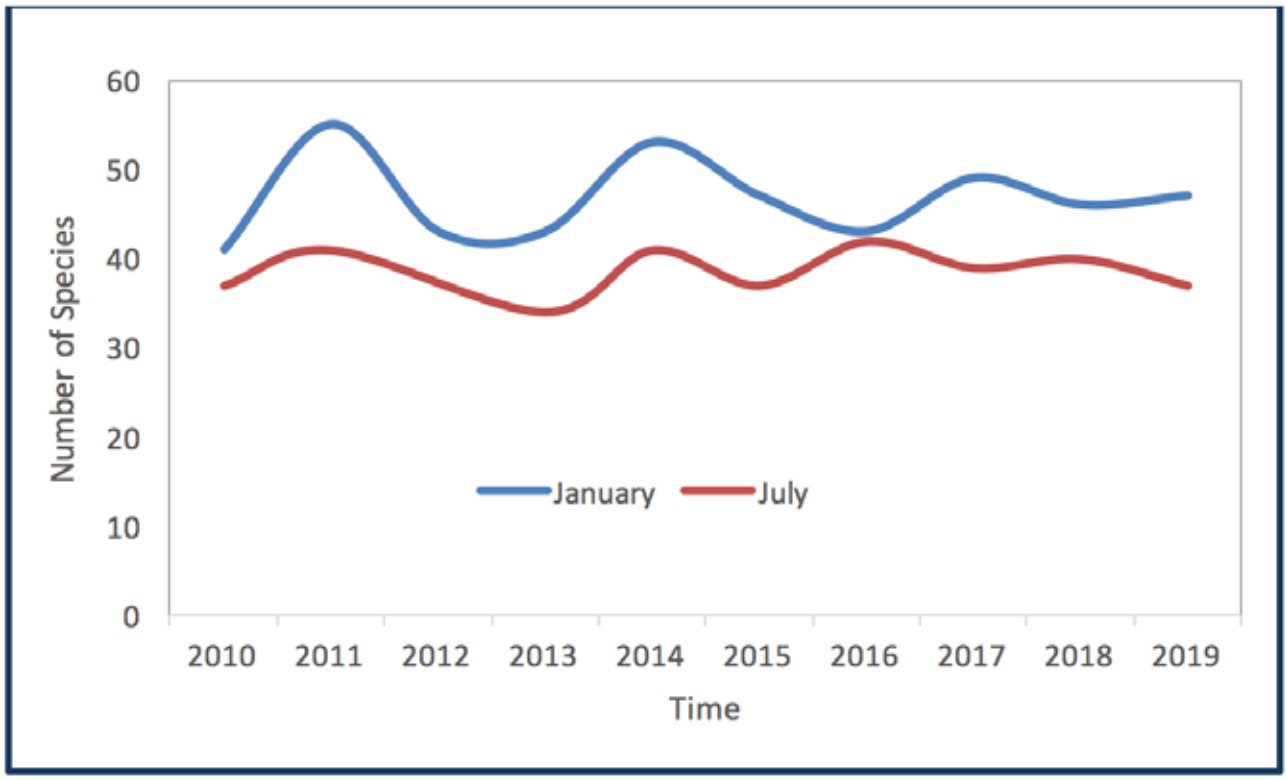


Figure 4. Number of bird species recorded on Kazinga Channel over the years


Common Fiscal

ii). **Munyanyange Crater Lake**

Munyanyange Crater Lake is situated north of the Mweya Peninsula near Katwe town. It lies just outside of QENP but is considered within the same IBA. It is part of the Kazinga Wildlife Sanctuary and a seasonal wetland. When the lake is full of water it covers an area of 40ha. The shores are muddy with patches of short grass, and often dries out completely. This lake is one of the sites where monitoring has been conducted for over 20 years. Counting is conducted by walking round the lake as close to the shore as possible. The Crater Lake is used a roost site for birds and therefore it is surveyed in the evenings.

The survey recorded a total of 10 species (Table 7), with Egyptian Goose being the most numerous. Lesser Flamingo was the only species of global conservation concern recorded. Only one Palearctic migrant was recorded (Black-winged Stilt) and no Afrotropical migrants. There is however a big decline noted in the number of bird species in the site over the years (Figure5) with the lake found completely dry on several occasions. This has been linked to climate change and the impact of human activities at the site and measures need to be taken to ensure the revival of this ecosystem.

Table 7. Number of individuals of each species recorded at Munyanyange Crater

Species Name	Habitat	Red-list/migrant	Number
Egyptian Goose	WW		44
Spur-winged Plover	W		40
Cattle Egret	WW		35
Sacred Ibis	WW		33
Pied Avocet	WW		25
Black-winged Stilt	WW	PM	21
Lesser Flamingo	WW	G-NT,R-NT, U-VU	8
Marabou Stork	W		6
Yellow-billed Egret	WW		4
Kittlitz's Plover	WW		1

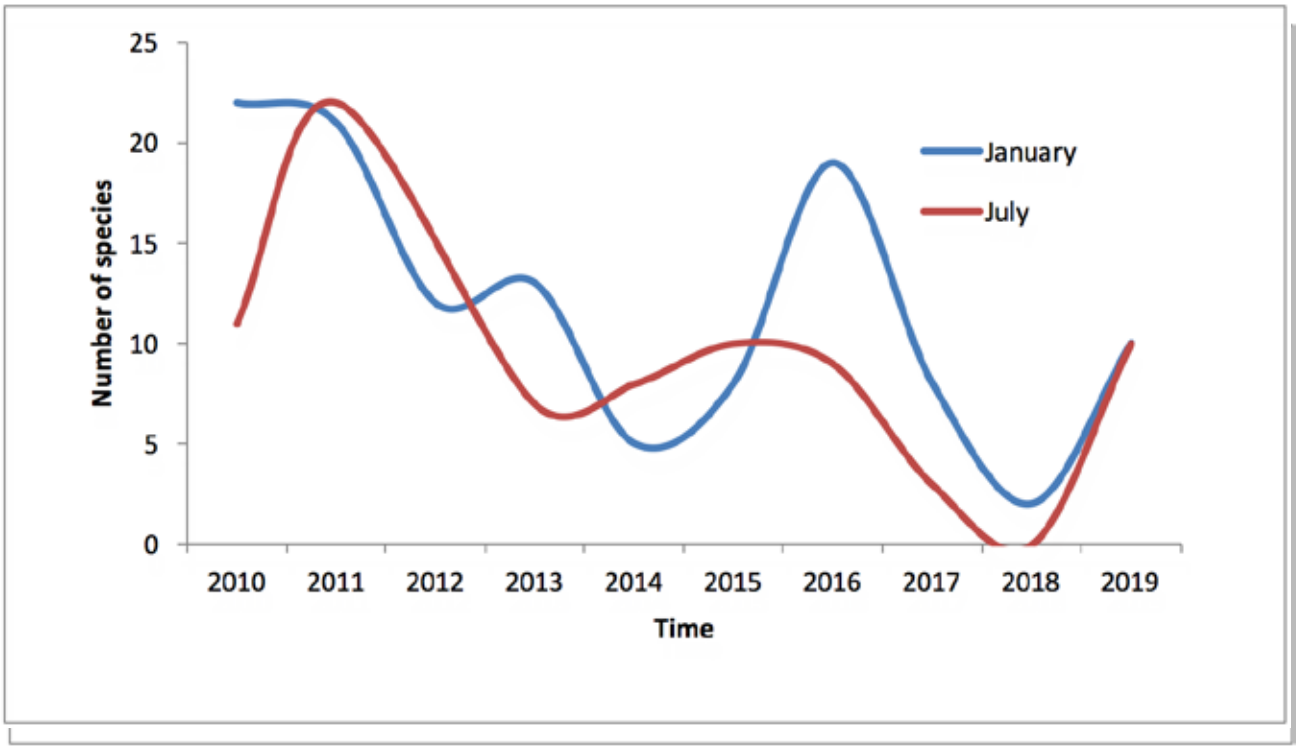


Figure 5. Number of species recorded at Munyanyange during the period 2010 – 2019

iii). **Katwe Crater Lake**

Lake Katwe is a Salt Lake near Lake Munyanyange in Katwe town Council just outside QENP. It is mainly covered with salt ponds and the area surveyed is within the ponds (on bridges) where a few birds are recorded. Salt mining is the major human activity at the lake, salts deposits have been mined here for a long time, which affects birds' presence at the site. For that reason, this site has only been surveyed in recent times when birds started seeking refuge at the site when Lake Munyanyange dries up. Occasionally, Lesser Flamingos are recorded here but in small numbers. A total of six species were recorded during this count, with Black-winged Stilt being the most numerous.

Grey Crowned Crane and Greater Painted Snipe were also recorded in large numbers. Grey Crowned Crane, a globally and nationally endangered species was found feeding from open grassland near the lake. The Black-winged stilt was the only Palearctic migrant recorded for the site (Table 8). There was an increase in the number of species recorded at the site between 2013 and 2017 (Figure 6), beyond which numbers dropped, which might indicate the trends in human activity at the site.

Table 8. Number of species recorded at Lake Katwe

Species Name	Habitat	Red-list/Migrant	Number
Cattle Egret	WW		80
Grey Crowned Crane	WW	G-EN, U-EN,R-NT	5
Wattled Plover	WW		5
Spur-winged Plover	W		5
Painted Snipe	WW		3
Black-winged Stilt	WW	PM	81

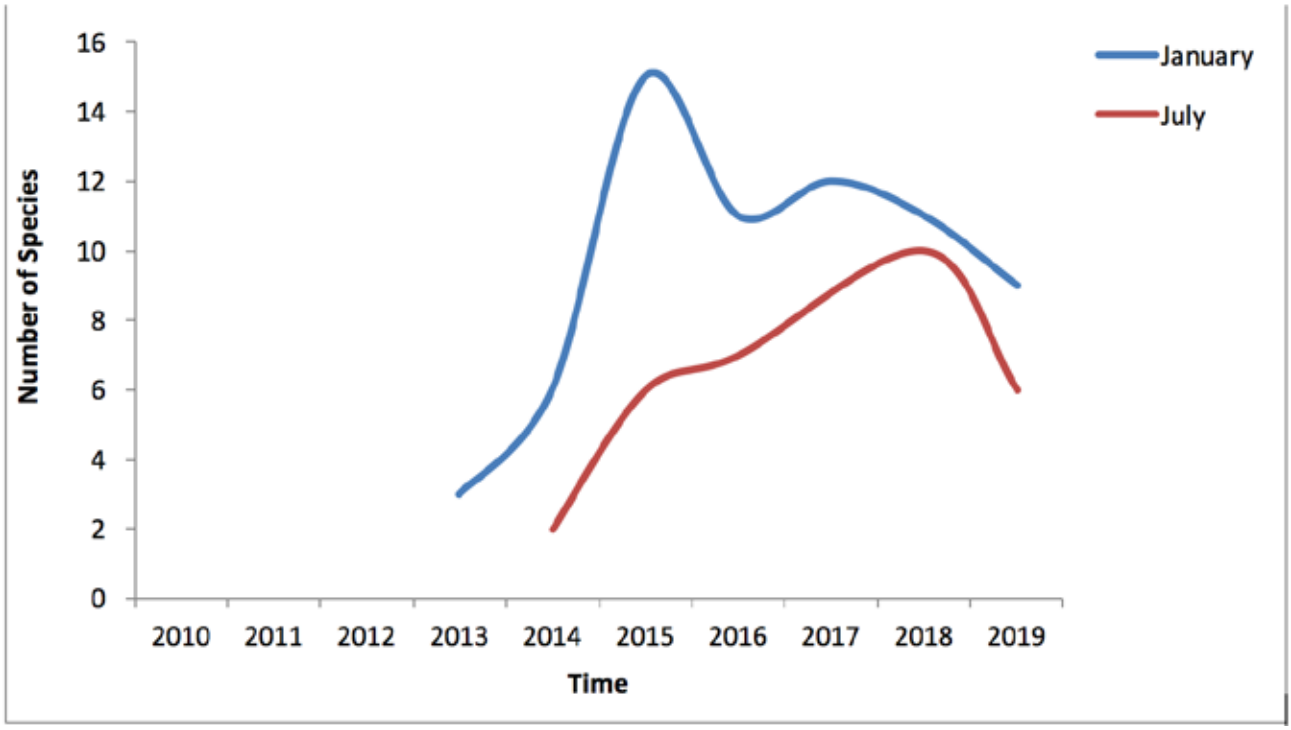


Figure 6. Number of species recorded at Lake Katwe during the period 2010-2019

iv). **Kasenyi Crater Lake**

The Kasenyi Crater Lake to the west of Lake George is nearly covered by salt ponds by local communities. The lake covers an area of 24ha and has been monitored since 1992.It is completely saline and is one of the Crater Lakes that are occasionally visited by Lesser Flamingo *P. minor.* The recent visit in 2019 indicated that the crater is a large roost for Egyptian Geese, Ibises, Pelicans, Terns and waders.

The survey in July 2019 recorded a total of six species including one Palearctic migrant (Table 9). Black-Winged Stilt was the most numerous species recorded followed by Kittlitz's Plover. Figure 7 shows a gradual decline in the number of birds recorded in this site over the years and the importance of January counts in terms of number of bird species recorded.

Table 9. Number of species recorded at Kasenyi crater

Species Name	Habitat	Red-list/migrants	Number
Black-Winged Stilt	WW	PM	61
Kittlitz's Sandplover	WW		11
Water Thick-Knee	WW		10
Spur-Winged Lapwing	W		9
Pied Kingfisher	WW		5
Marabou Stork	W		1

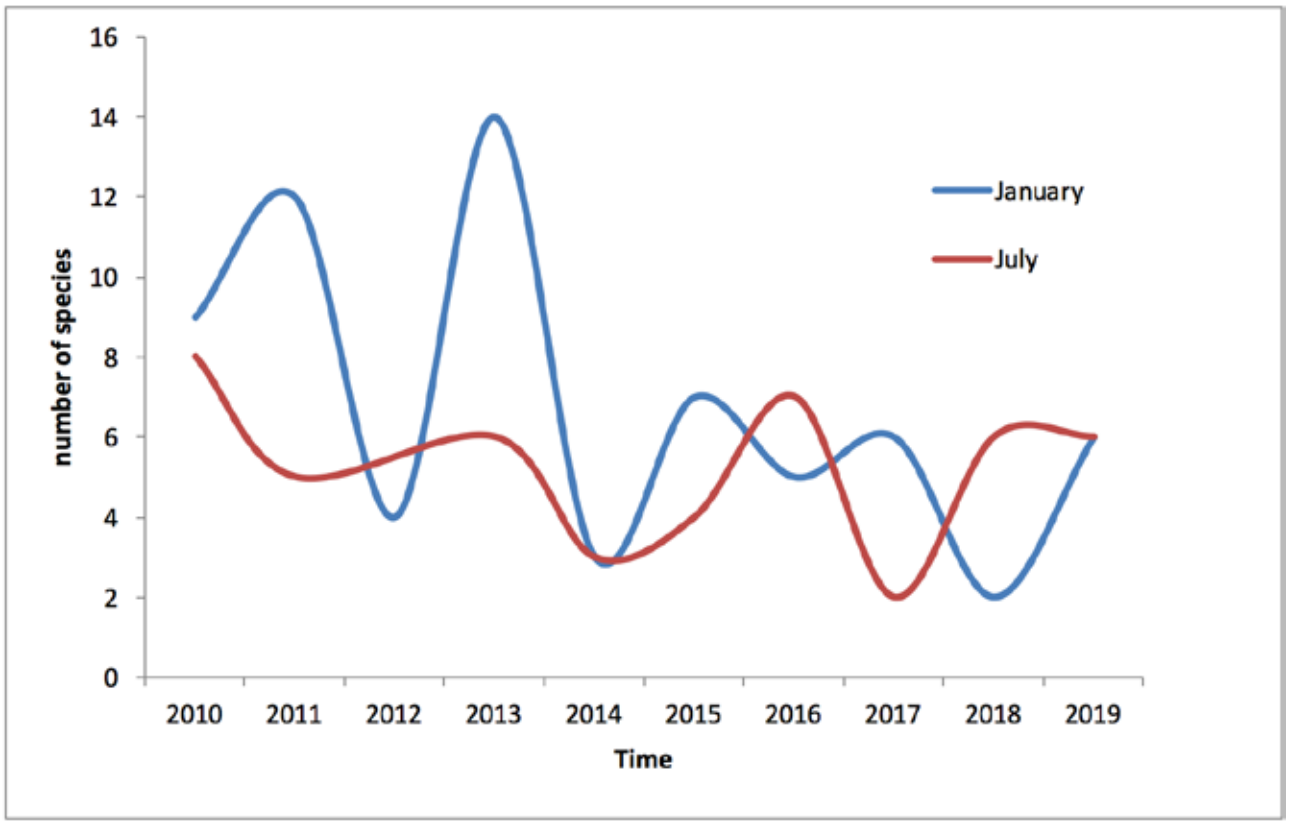


Figure 7. Number of species recorded over ten years

v). **Kikorongo Crater Lake**

The crater is approximately 90ha near the eastern edge of Lake George. Originally slightly saline, the lake has recently been inundated twice with water from nearby Lake George and occasionally contiguous with the marshes of the lake. The salinity, although reduced is still partially maintained due to the fact that constant evaporation takes place with no outflow. The shoreline is sandy or rocky but the catchment of the crater is wooded bushland, on one side merging with marshes of Lake George. Whereas in past years, it was possible to easily move around the Crater, sometimes due the heavy rains, counting is made by telescope from a vantage point for faraway sections.

This was the third-ranked site in terms of species richness after Kazinga channel and Shoebill swamp. We recorded a total of 25 species including the Little grebe, Lesser Flamingo, Whiskered Tern. Egyptian goose was the most abundant species recorded followed by Common Greenshank and Grey Heron. One species of global conservation concern (Lesser Flamingo) and one species of regional concern Grey Heron; were recorded (Table 10). Figure 8 suggests a slight increase in the number of birds that visit this site, which could be as a result of a total absence of or minimum human disturbance and improved site management.

Table 10. Species of conservation concern

Species Name	Habitat	Red-list/migrants	Number
Common Greenshank	WW	PM	37
Grey Heron	WW	R-NT	21
Little Stint	WW	PM	7
Curlew Sandpiper	WW	PM	6
Whiskered Tern	WW	PM	6
Lesser Flamingo	WW	G-NT,R-NT, U-VU	4
Ringed Plover	WW	PM	3
Black-winged Stilt	WW	PM	2

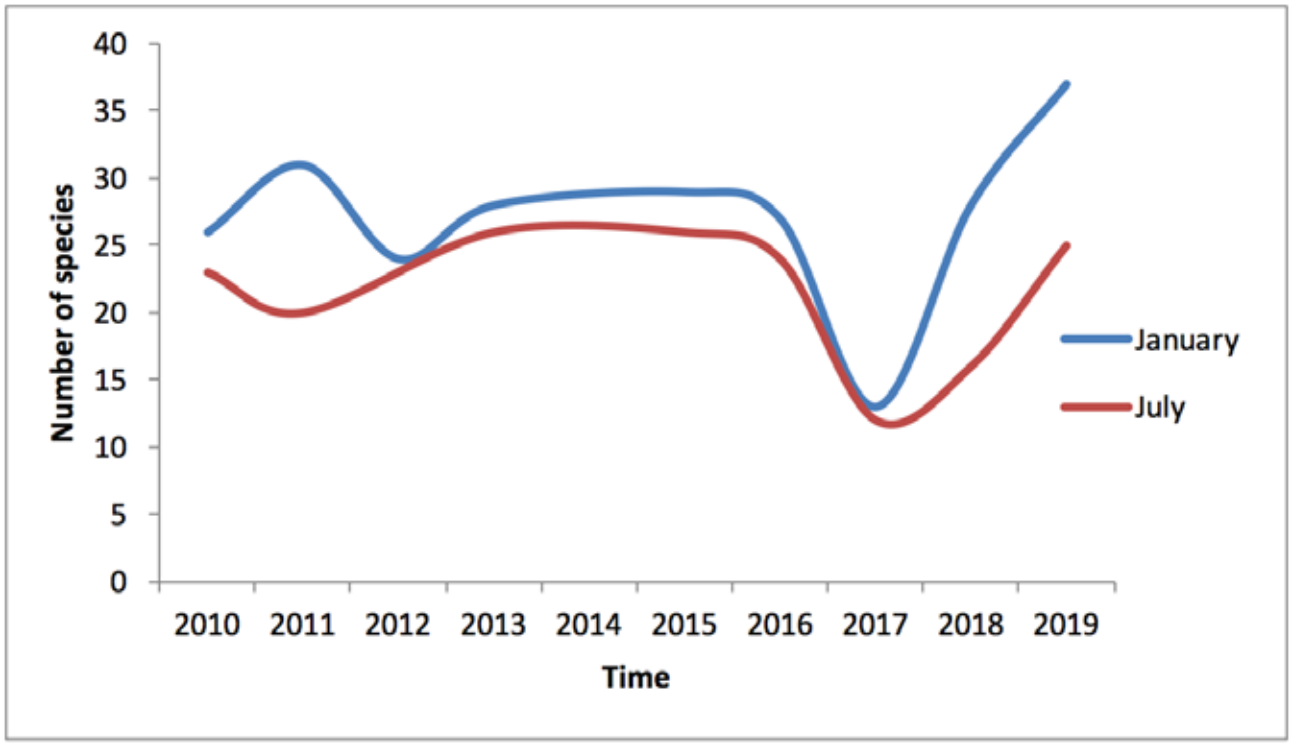


Figure 8. Number of species recorded in Kikorongo Crater Lake during the period 2010- 2019

vi). **Shoebill swamp**

Shoebill swamp refers to the flooded section to the east of Lake George outside the fringing papyrus from the edge of Lake Kikorongo for about 2km towards Hamukungu Village. The Shoebill *B. rex* is resident in the permanent swamp but not often recorded within the count periods and it was last recorded here in 1989. The area is rich with wildlife and therefore the counts are made in a slow-moving vehicle for safety reasons.

The swamp was one of the most important sites in terms of number of species recorded during the July survey, which may be because the count covers a substantial area of the swamp. A total of 26 species were recorded, including 21 water specialists and five wetland visitors. Egyptian goose was the most abundant species recorded at the site followed by Common Pratincole and Spur-Winged Plover. The number of species of conservation concern was six (Table 11), including two migrants (one of Palearctic and Afrotropical). The number of red-listed species was four, including one Globally endangered species (Grey Crowned Crane) and three regionally red-listed species namely, Great White Pelican, Grey Heron and Goliath Heron. There was a gradual increase in the number of birds recorded between 2010 and 2015, beyond which they did decline (Figure 9).

Table 11. Species of conservation concern

Species Name	Habitat	Red-list/migrant	Number
White-faced Whistling Duck	WW	AM	22
Great White Pelican	WW	R-RR	7
Grey Crowned Crane	WW	G-EN, R-NT, U-EN	6
Grey Heron	WW	R-NT	5
Goliath Heron	WW	R-NT, U-VU	2
Common Sandpiper	WW	PM	1

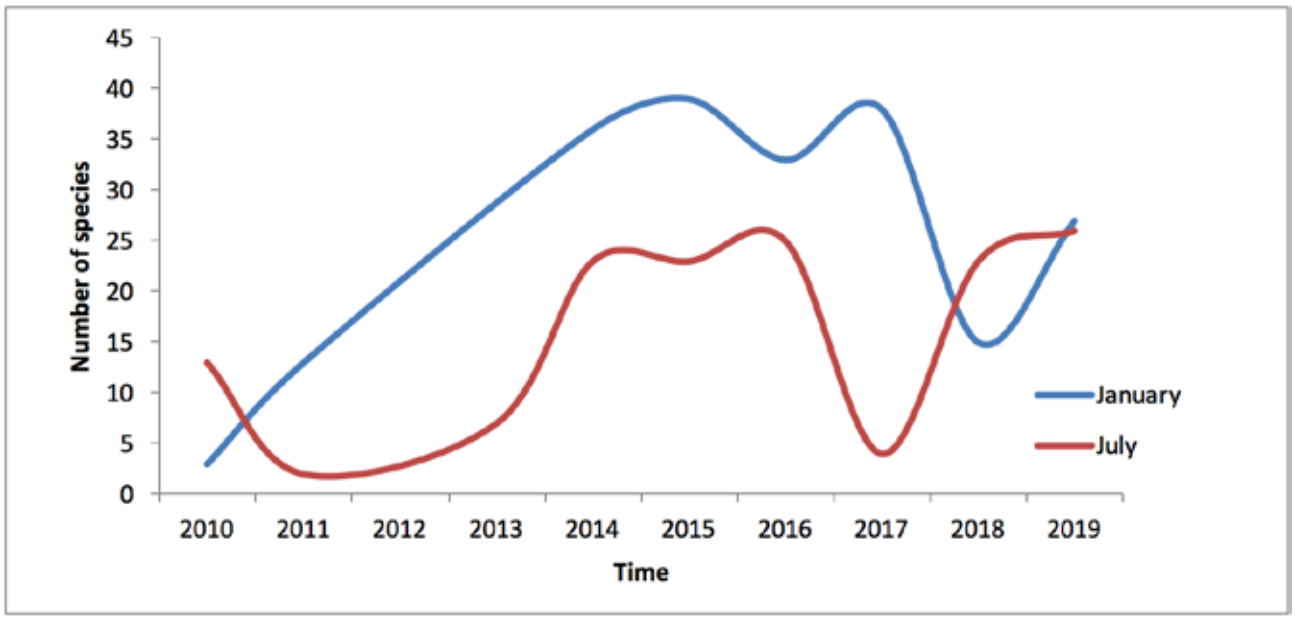


Figure 9. Number of bird species recorded at Shoebill Swamp over the period 2010 - 2019

Kyambura Wildlife Reserve

The reserve lies immediately south of Lake George contiguous with Queen Elizabeth National Park to the east. Most important for birds are the saline lakes, Nshenyi, Bagusa and Maseche and it is at these three crater lakes that bi-annual waterbird counts have been conducted. These crater lakes are within a few kilometres of each other and all lie just to the south of Kashaka village on Lake George. This village is very important for hosting occasional roosts for congregations of pelicans and other waterbirds and that is why it was included in the monitoring programme.

vii). **Nshenyi Crater Lake**

The pear-shaped crater covers an area of 25ha and has a wide swamp and muddy edge to its northern shore with tree cover on the eastern shore. It is a relatively difficult area to reach with tall grasses and no trails, making it hard to negotiate. Counts are done from a suitable vantage point where the lake and shoreline are scanned with a telescope. Being a saline lake, Nshenyi is one of the best places to locate the Lesser Flamingo *P.minor* in significant numbers, although in recent counts numbers have been much reduced.

During the July 2019 counts, this site had the biggest number of Lesser Flamingos (93%, n=2060) recorded in among the sites in QENP. A total of 11 species were recorded, including eight water specialists, three wetland visitors and only one Palearctic migrant (Table 12). Figure 10 shows an increasing trend in numbers of bird species recorded at this site over the years.

Table 12. Number of individuals of each species recorded at Nshenyi

Species Name	Habitat	Red-list/migrants	Number
Lesser Flamingo	WW	G-NT,R-NT, U-VU	2060
Black-winged Stilt	WW	PM	190
Sacred Ibis	WW		21
African Jacana	WW		12
Spur-winged Plover	W		11
Egyptian Goose	WW		6
Hamerkop	W		3
Little Grebe	WW		2
Little Egret	WW		2
Hadada Ibis	W		2
African Spoonbill	WW		2

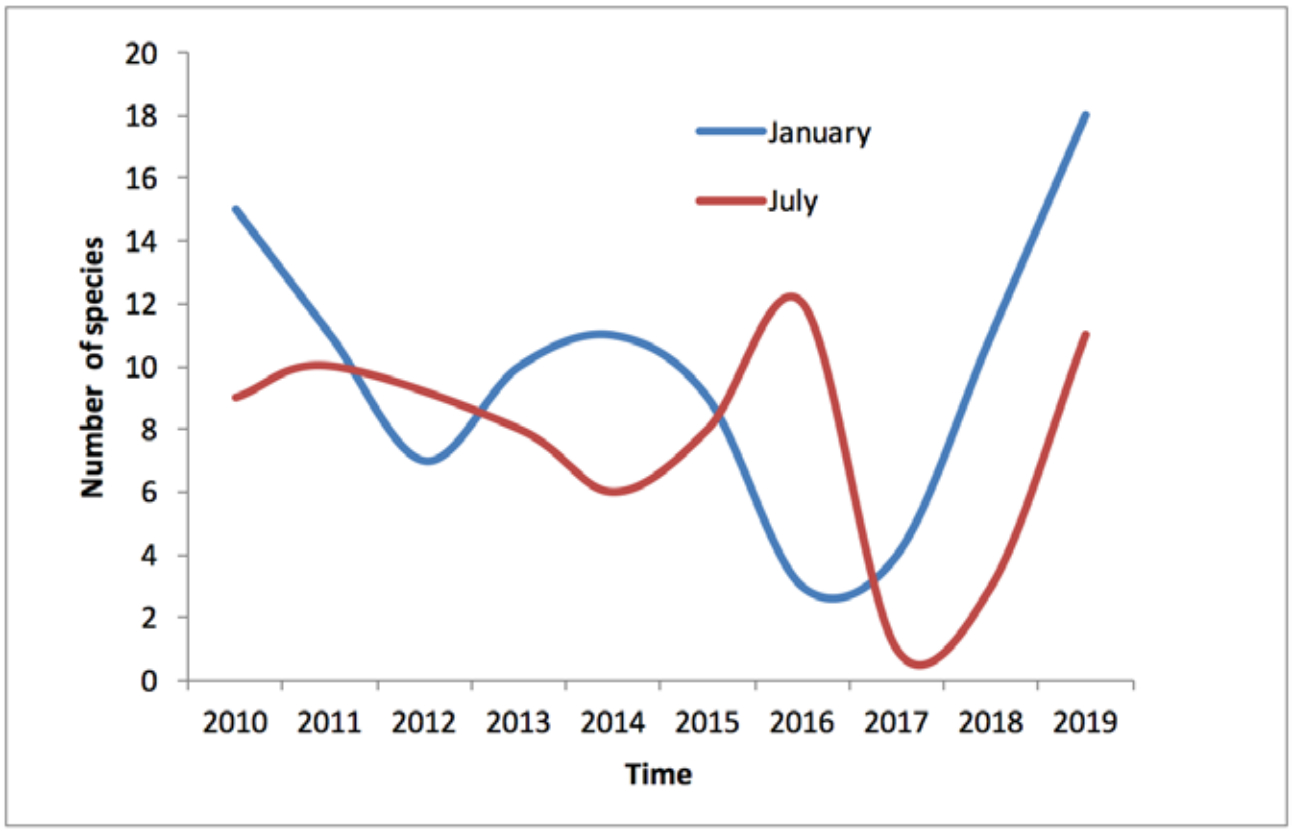


Figure 10. Number of bird species recorded at Nshenyi crater over the period 2010 - 2019

viii). **Maseche Crater Lake**

This lake covers an area of 15ha and is kidney shaped; it has a papyrus fringe and mud flats with tree cover to the north and east. This lake dries up during the dry season and leaves behind huge quantities of open or bare mud. The crater is also known for significant numbers of the Lesser Flamingo *P.minor*, and waders during the migration season. Maseche Crater is a relatively difficult area to reach with tall grasses and counts are made from suitable vantage points along the raised grounds near the shoreline using a telescope and binoculars.

A total of seven species were recorded, including the Lesser Flamingo, a globally and regionally near-threatened species. This was also the most abundant at the site, followed by Black-winged Stilt (Table 13). There is a general reduction in the number of birds recorded over a ten-year period (Figure 11).

Table 13. Number of species recorded at Maseche crater

Species Name	Habitat	Red-list/migrant		Numbers
Little Egret	WW			4
Hadada Ibis	W			2
African Spoonbill	WW			1
Lesser Flamingo	WW	G-NT,R-NT, U-VU		150
Spur-winged Plover	W			1
Black-winged Stilt	WW	PM		32
Pied Kingfisher	WW			10

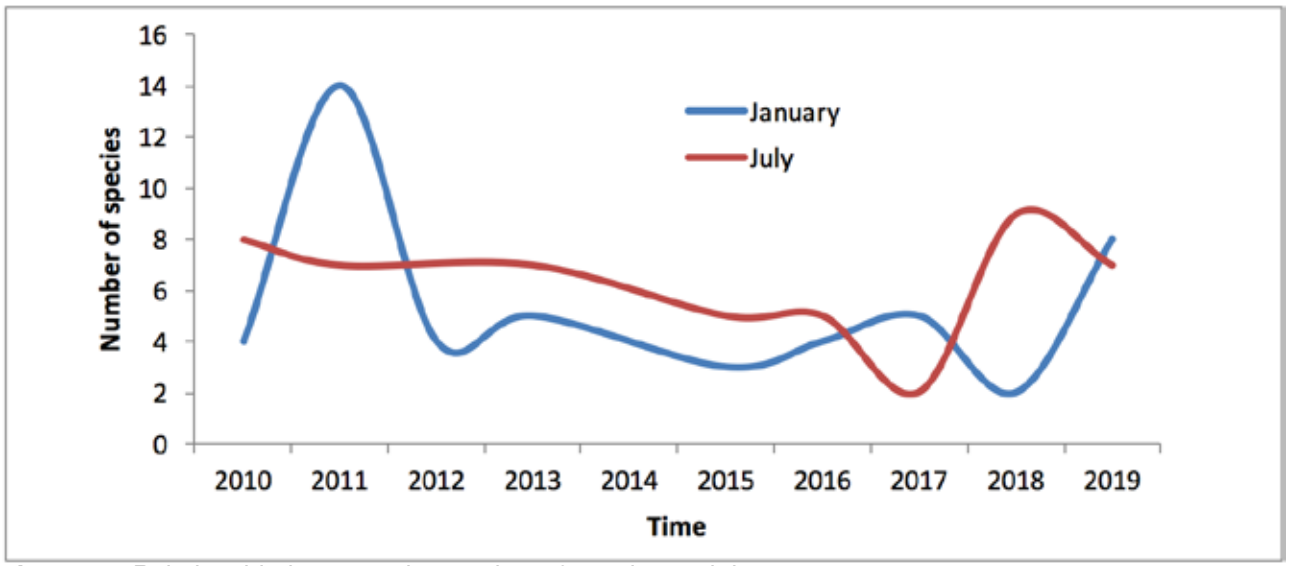


Figure 11. Relationship between the number of species and time

ix). **Bagusa Crater Lake**

Bagusa Crater covers an area of about 20ha and resembles a tear drop in shape. It has steep sides with a narrow edge of swamp vegetation. The shoreline is dominated by trees that cover three quarters of the lake edge. The saline crater is also known for significant numbers of the Lesser Flamingo *P.minor*, and waders during the migration season.

Bagusa Crater Lake is relatively easy to access and the total counts of waterbirds are conducted from a vintage point overlooking the lake using a telescope and binoculars.
A total of six species with 70 individuals were recorded on this crater with the majority of individuals being Black-winged Stilt (50). No birds of global conservation concern were recorded except for the two Palearctic migrants (Table 14). Migrants are of concern due to deteriorating air quality resulting from pollution, reduction in foraging and resting habitats, persecution etc. Other notable species include Greater Painted Snipe and Pied Avocet. Figure 12 shows that there is no significant change in the number of birds recorded at Bagusa over a period of ten years.

Table 14. Number of species recorded at Bagusa crater

Species Name	Habitat	Migrants	No. individuals
Black-Winged Stilt	WW	PM	50
Hadada Ibis	W		7
Greater Painted	WW		5
Egyptian Goose	WW		4
Pied Avocet	WW		3
White-winged Tern	WW	PM	1

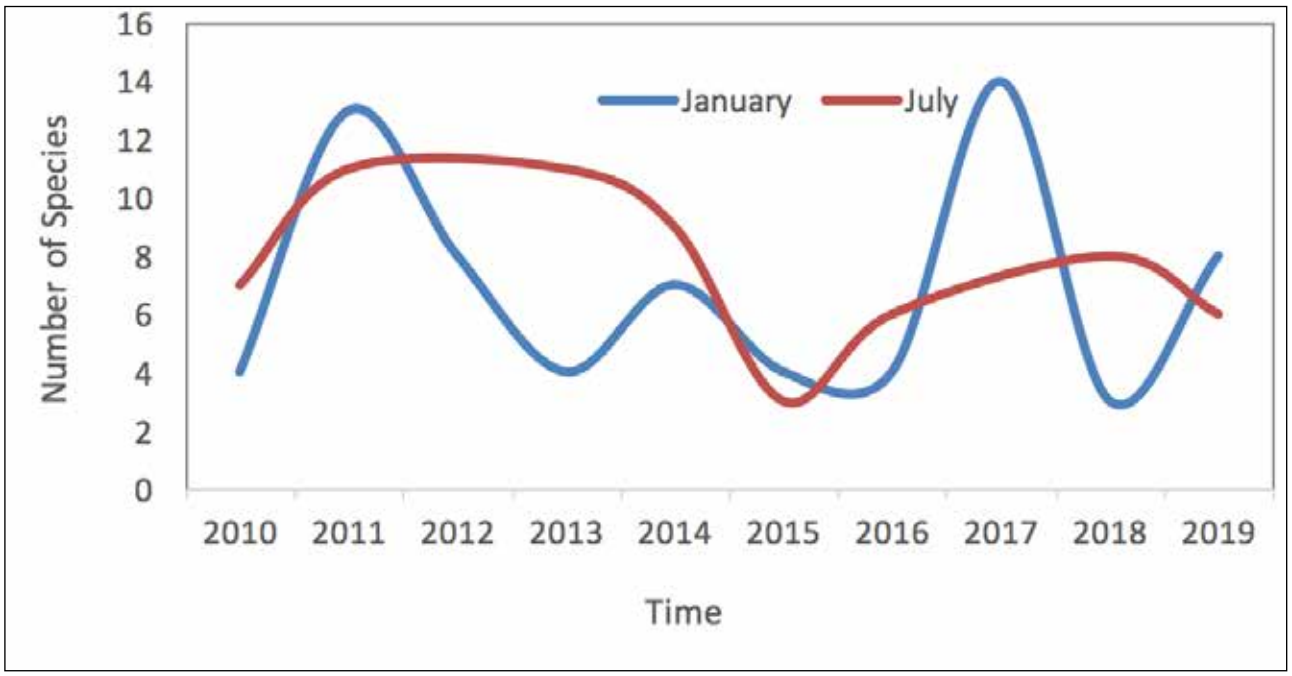


Figure 12. Number of bird species recorded in Bagusa crater during the period 2010 - 2019

x). **Kashaka Landing Site**

Kashaka village site includes the Kashaka boat landing area and the shoreline along Lake George. The shoreline from which counts are made is covered with the tall grass *Vossia cuspidata* extending outside into an open ground with mixed grass and woodland. The site is mainly a roosting area for the Pelicans, Marabous but the shoreline contains a marsh area with storks, waders and Ibises. The site is covered on foot walking along the shoreline of Lake George and periodically scanning for all waterbirds. The area covered extends for only about 400m across the open area.

A total of 16 species were recorded, at Kashaka landing site, with the Hamerkop being the most abundant species recorded followed by Spur-winged Lapwing. The species of regional concern recorded include Grey Heron, Purple Heron and Striated Heron (Table 15), the latter is also of national conservation concern rated near threatened by the National Red data list (WCS, 2016). Identified anthropogenic factors influencing birds here include fishing, trading and transport. Figure 13 shows how the number of species declined at this site over time. However, the higher numbers of species recorded in months of January indicate the site hosting Palearctic migrants, highlighting its importance in the conservation of migratory species along their migration pathways.

Table 15. Species of conservation concern recorded at Kashaka landing site in July 2019

Species Name	Habitat	Red-list	Number
Grey Heron	WW	R-NT	1
Purple Heron	WW	R-NT	2
Green-backed Heron	WW	R-NT, U-NT	1

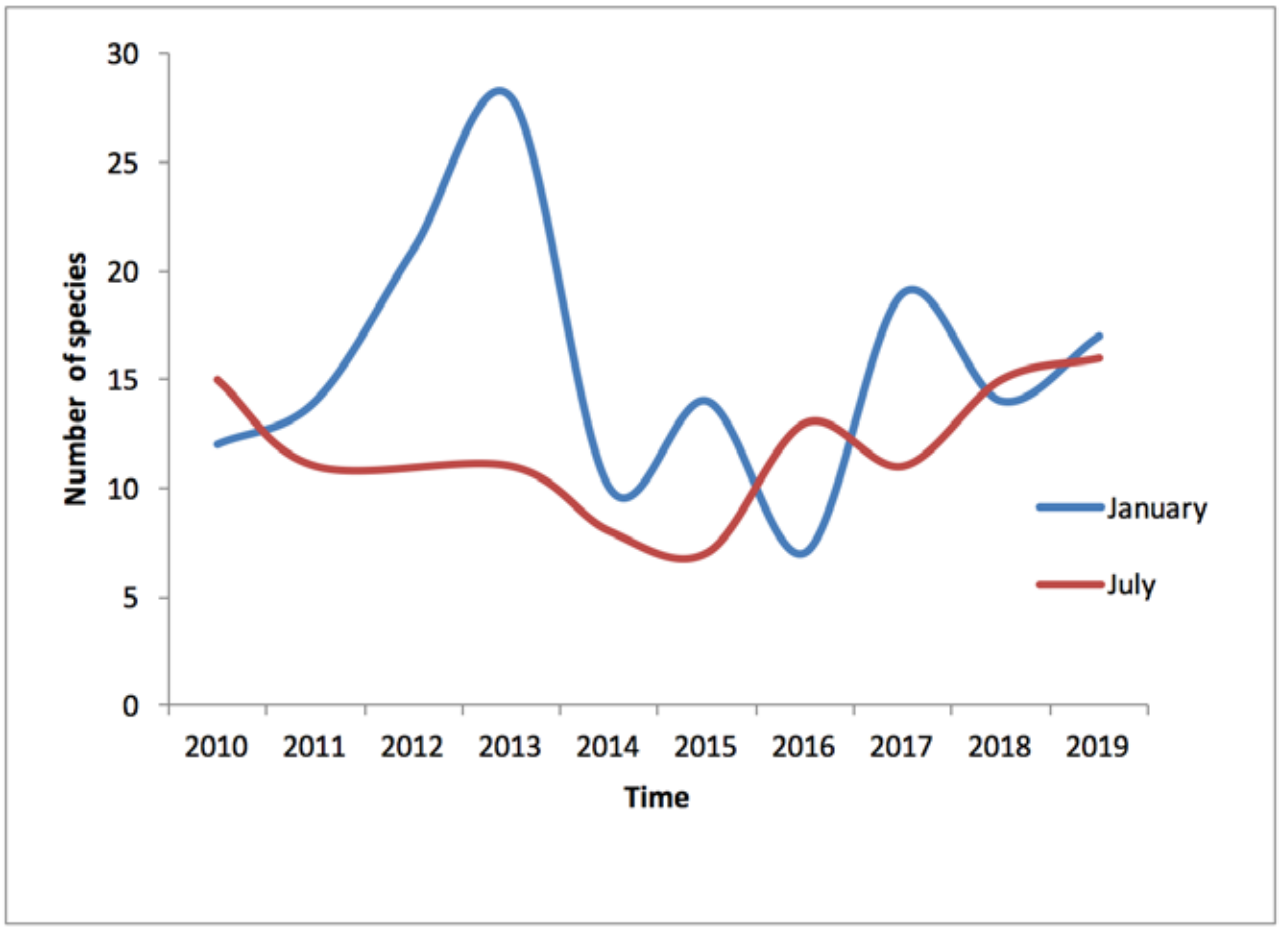


Figure 13. Number of bird species recorded in Kashaka Landing site during the period 2010 -2019

d) Detailed account for Land bird sites in QENP

All the birds recorded during the land bird sites (BPM sites) in QENP are summarized in Appendix II and the detailed site accounts are given below;

i). Kasese Woods

Located a few km from Kasese, this site is a secondary disturbed forest patch at the interface between the park and the communities. It is highly disturbed due to encroachment by humans in search of firewood as well as poaching. The high canopies provide foliage for the canopy species while the thick understorey provides the camouflage required by the shy understorey species. A total of 56 species were recorded in this site (Appendix II) indicating how important the site is for species conservation. This includes four species that are regionally or nationally Red-listed as of conservation concern, with one (Black Coucal) being rated Near-Threatened. Olive Sunbird was the only forest specialist species recorded; this could be due to the absence of natural primary forest to support several forest interior species. Three migrants were recorded, of which two are Afrotropical migrant, with Black Kite as the Palearctic migrant.

ii). Kamulikwezi

This is mainly Grassland, with a few scattered trees, the habitat supports several grassland birds and raptors. Raptors require open areas for hunting. A total of 48 species were recorded. Four species are listed as of conservation concern, with one (Martial Eagle) rated as Globally Near-Threatened, two (Grey Capped Warbler and Bare-faced Go-away bird) rated as of Regional responsibility and Red-necked Falcon rated as Nationally Vulnerable.

iii). Channel Track

This site is a few meters off the turn off from Mweya to Katungulu via Katungulu gate. A total of 50 species were recorded in this site with three being categorized globally Critically Endangered (White-backed Vulture, Ruppell's Vulture and Hooded Vulture) and one species being rated globally Endangered (Lappet-faced Vulture). The above species were found gorged after feeding on an elephant carcass. Luckily the cause to death

of the elephant was not due to poisoning, otherwise, all these birds would have died. We also recorded a good number of tree species (f) due to the presence of an extensive woodland. None of the species was a Forest specialist. Two Afro-tropical migrants (Violet-backed Starling and Grey-backed Fiscal) were recorded but no Palearctic migrant was recorded.

iv). **Mweya Peninsula**

This site is located near the rangers Camp in Mweya starting from the football picht through the thickets of the Mweya experimental plot to the Mweya airstrip. The site is mainly dominated by Sickle bush shrubs (Kalema njojo), grasses and herbs. A total of 44 species were recorded at this site during the survey in July 2019. Because the site is located near Kazinga Channel, several water birds were found on land and hence included in the count; the common two being Egyptian Goose and Water Thick-knee. Among the species recorded at the site are two species of conservation concern; Grey-capped Warbler and Red-chested Sunbird both rated under Regional responsibility. Three migrants were also recorded, with one (Black-winged Pratincole) being a Palearctic migrant and two (Red-Billed Quelea and Grey-backed Fiscal) being Afrotropical Migrants Appendix II.

3.2.2 LAKE MBURO NATIONAL PARK

Lake Mburo waterbird counts have been conducted since 1994. The counts consisted of one water bird count on Lake Mburo and three land bird counts at Nshara gate, Rwonyo starting from the gate at the old park headquarters and then Sanga gate.

A. Detailed account for Water bird sites in Lake Mburo National Park

i) **Lake Mburo**

The area of Lake Mburo is counted using a motor boat. The surveyed is the north eastern side that is mainly covered by woodland interspersed with papyrus wetlands in the valleys. The shoreline is popular for African Finfoot *P. senegalensis,* White-backed Night Heron *Gorsachius leuconotos* and African Darter *Anhinga rufa.*

A total of 22 species and 511 individuals were recorded during the count on Lake Mburo (Appendix I), Pied Kingfisher being the most numerous (185) followed by African Fish Eagle (101) and then Hamerkop at 43 individuals (Table 16). A total of seven species of conservation concern were recorded with the African Finfoot being the only globally red-listed species while the Black Crowned Night Heron was the only migrant recorded. Other Red-listed species are shown in Table 17

Table 16. The ten most abundant species recorded in Lake Mburo

Species Name	Habitat	Individuals
Pied Kingfisher	WW	186
African Fish Eagle	WW	101
Hamerkop	W	43
Green-backed Heron	WW	39
Malachite Kingfisher	WW	38
Water Thick-knee	WW	18
African Jacana	WW	16
Black Crake	WW	10
Common Squacco Heron	WW	9
African Finfoot	WW	8

Table 17. Species of conservation concern recorded in Lake Mburo

Species Name	Habitat	Red-list	Individuals
Green-backed Heron	WW	R-NT, U-NT	39
African Finfoot	WW	R-VU, U-VU,G-EN	8
Black Crowned Night Heron	WW	PM	4
African Darter	WW	R-VU, U-VU	3
Rufous-bellied Heron	WW	R-NT, U-VU	2
Saddle-billed Stork	WW	R-VU, U-VU	2
Giant Kingfisher	WW	R-NT, U-NT	2

B. Detailed account for Land bird sites in Lake Mburo National Park

The land bird counts in Lake Mburo were conducted at three sites i.e. Nshara gate, Rwonyo and Sanga gate. Among these, Nshara gate recorded the highest number of species with 56 species, followed by Sanga gate at 48 species and then Rwonyo at 31 species (Appendix II).

i) Nshara gate

The site at Nshara gate is located at the boundary of the park at Nshara gate including the main road from the gate. It is a grassland site with scattered acacia and some thickets that provide cover for some understorey birds like apalises and camaropteras. A total of 56 species and 285 individuals were recorded at Nshara gate, with the Blue-napped Mousebird being the most numerous (32) followed by Speckled Mousebird (22). Five species of conservation concern were recorded (Table 18) including one Afro-tropical migrant (Violet-backed Starling) and two regionally important species; Yellow-billed Oxpecker (R-VU) and the Grey Heron (R-NT).

Table 18. Species of conservation concern recorded in Nshara gate

COMMON NAME Scientific Name	Ecology	Red-list	Individuals
YELLOW-BILLED OXPECKER *Buphagus africanus*		R-VU	17
SPOT-FLANKED BARBET *Tricholaemala chrymosa*		R-RR	6
BARE-FACED GO-AWAY BIRD *Corythaixoides personatus*		R-RR	4
VIOLET-BACKED STARLING *Cinnyricinclus leucogaster*	Af	AM	2
GREY HERON *Ardea cinerea*	W	R-NT	1
			30

ii) Rwonyo

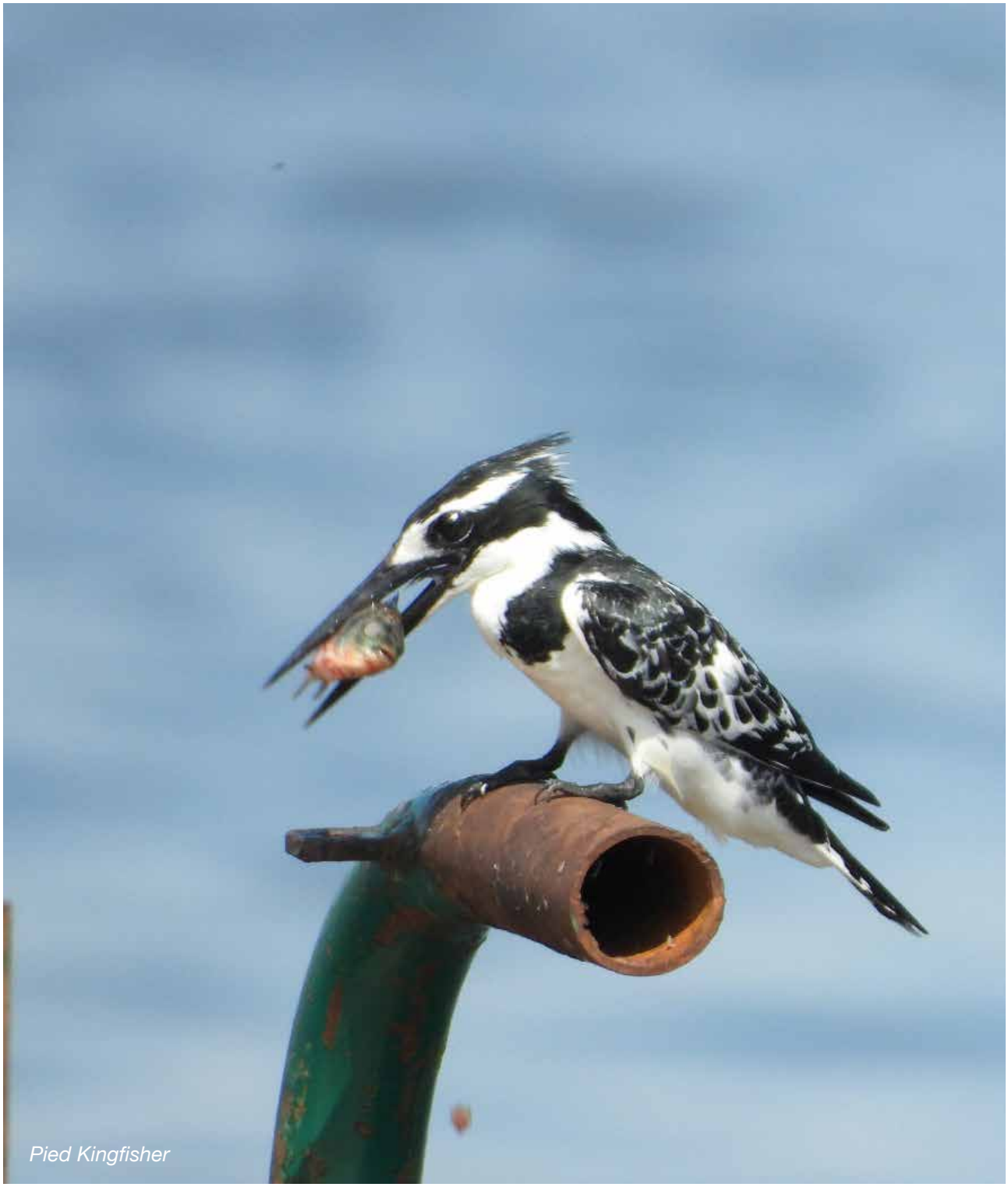
This site is located at Rwonyo headquarters starting from the Rwonyo gate through the main road to then going through the bushed grassland to the students Campsite and then back to the UWA offices at Rwonyo. This transect is occasionally used as a tourist birding route. A total of 31 species and 64 individuals were recorded at Rwonyo, with Ruppell's Starling being the most numerous (10) followed by Lesser Masked Weaver (7). Two species of conservation concern were recorded here (Bateleur and Spot Flanked Barbet) rated Regionally near threatened and species with Regional responsibility respectively. (Appendix I)

iii) Sanga gate

Sanga gate site is located at the boundary of the park at Sanga gate including the main road from the gate, through the bushes and then back to the gate. A total of 48 species and 163 individuals were recorded at Sanga gate (Appendix II).Ruppell's Starling was the most numerous (32) followed by Red-Cheeked Cordon-Bleu (10) and Bronze Mannikin (10). Five species of conservation concern, were recorded here particularly, the Grey Crowned Crane (G-EN) and White-backed Vulture which is currently categorized as critically endangered (G-CR). Details of other species of conservation concern are shown in Table 19.

Table 19. Species of conservation concern

COMMON NAME Scientific Name	**Ecology**	**Red-list**	**Individuals**
SPOT-FLANKED BARBET *Tricholaemala chrymosa*		R-RR	4
GREY CROWNED CRANE *Balearica regulorum*	WG	G-EN,R-NT, U-EN	2
WHITE-BACKED VULTURE *Gyps Africanus*	G	G-CR, R-NT	2
BATELEUR *Terathopius ecaudatus*	G	R-NT	1
GREY-CAPPED WARBLER *Eminia lepida*	fw	R-RR	1



Pied Kingfisher

3.2.3 MURCHISON FALLS- RIVER NILE DELTA

A. Detailed account for Water bird sites in Murchison Falls National Park

Waterbird counts in this site are conducted along the River Nile. The river section monitored is from the falls down to Lake Albert. However, the area is divided into two parts, the upper section to the falls and the lower section to the Delta and Lake Albert and covers a distance of about 27kms. The habitat along the river is a mixture of Hippo grass *Vossia cuspidate,* patches of papyrus, tree dominated areas, papyrus dominated areas in the delta and sand backs along Lake Albert. Some areas have steep sided cliffs towards the falls.

Four separate counts are conducted with a motorized boat travelling downstream or upstream from the jetty. Counting upstream covers both sides of the river reaching the area just below the falls. The first section downstream considers the west bank down to Lake Albert. The return journey along the east bank back from the delta to Paraa (NW) has steeper sided cliffs with tree cover and scattered reed and grass islands. The third section resumes with counts along the north bank but this time traveling in an easterly direction towards the falls (NE). Habitat is similar but includes areas of sandstone cliffs, short grass and reed beds munched short by numerous Hippopotamus *Hippopotamus amphibious.* The final return section is along the southern bank in a westerly direction back towards Paraa (SE). The water current here is strong, the falls being close and the rocks visible above the turbulent waters provide good resting sites for birds. Continuing upstream the river widens and more extensive marshy areas and trees are encountered.

i). Murchison Falls

The site begins from the bottom of falls and ends at the beginning of Ferry track on the turn off to Wankeko. We started by counting all water birds along the northern bank (N.E) and later along the southern bank (S.E). The overall number of species recorded was 37, including 32 water specialists and four wetland Visitors. The site is a breeding site for several water birds including Pied Kingfishers and Red-Throated Bee Eaters that breed on the sand banks along the river. The most abundant species was Pied Kingfisher followed by Egyptian goose and African Darter. There were fewer numbers of Long-Tailed Cormorant compared to the usual numbers, implying that the bird could be migratory or could be breeding in other places unknown to us. The number of species of conservation concern was 14, including two globally Red-listed species (Grey Crowned Crane and African Skimmer). The number of regionally and nationally Red-listed species was 11 and eight respectively (Table 20). Palearctic migrants recorded were three including Black-crowned night Heron and Common-Ringed Plover.

ii). Ferry Track

This site is located along the middle channel (from the Wanseko turn off to the delta). A total of 14 species were recorded including 13 Water specialists and one Wetland visitor. The speed of water in this section of the river is always high, which negatively affects the number of birds recorded as only those used to being in high tide can survive. Pied Kingfisher was the most abundant species recorded in this site. The number of species of conservation concern was three, including two nationally and three regionally red-listed species (Table 21).

Table 20. Species of conservation concern

Species Name	Habitat	Red-list/migrants	Number
African Darter	WW	R-VU, U-VU	92
Purple Heron	WW	R-NT	8
Great Egret	WW	R-VU	8
Goliath Heron	WW	R-NT, U-VU	6
Rock Pratincole	WW	R-VU, U-VU	6
Woolly-necked Stork	WW	R-NT, U-VU	5
Green-backed Heron	WW	R-NT, U-NT	4
Grey Heron	WW	R-NT	2
Common Ringed Plover	WW	PM	2

Grey Crowned Crane	WW	G-EN,R-NT, U-EN	1
Black-crowned night heron	WW	PM	1
Common Sandpiper	WW	PM	1
African skimmer	WW	G-NT,R-VU,U-VU	1
Giant Kingfisher	WW	R-NT, U-NT	1

Table 21. Species of conservation concern recorded

Species Name	Habitat	Red-list	Number
African Darter	WW	R-VU, U-VU	4
Purple Heron	WW	R-NT	4
Goliath Heron	WW	R-NT, U-VU	2

iii). **Pearson Track**

This site is located along the Northern Channel on Lake Albert. It was the second species richest site after Murchison Falls. A total of 19 species were recorded including 16 water specialists and three wetland visitors. Spur-Winged Lapwing was the most abundant species recorded here followed by Pied Kingfisher. The number of species of conservation concern was five, including one globally Red-listed species (Grey Crowned Crane). The number of birds belonging to regional red-list was four, including Goliath Heron and Saddle Billed Stork. Three species doubles as national and regional red-list species (Table 22).

Table 22. Species of conservation concern recorded on Pearson Track

Species Name	Habitat	Red-list	Number
African Darter	WW	R-VU, U-VU	16
Goliath Heron	WW	R-NT, U-VU	2
Purple Heron	WW	R-NT	2
Saddle-billed Stork	WW	R-VU, U-VU	1
Grey Crowned Crane	WW	G-EN,R-NT, U-EN	5

iv). **Delta**

This site is located at the end of the river along the shores of L. Albert, open waters are considered only in shallow sections. A total of 18 species including 18 Wetland specialists and one Wetland visitor were recorded. African Jacana was the most abundant followed by White-winged Black Tern. The high number of Terns could be due to the presence of open water sections within the site. Shoebill was the notable species, and the chances of seeing this species are higher in the delta compared to other sites on the Albert Nile. The number of species of conservation concern was five, including one Globally red-listed species (Shoebill), three and two were regionally and nationally Red-listed species respectively (Table 23). The number of migrants was two, including one of both Palearctic and Afrotropical migrants.

Table 23. Species of conservation concern recorded in the Delta

Species Name	Habitat	Red-list	Number
African Darter	WW	R-VU, U-VU	1
Shoebill	WW	G-VU, R-VU, U-EN	1
White-winged Tern	WW	PM	81
Fulvous Whistling-Duck	WW	AM	4
Lesser Jacana	WW	R-NT	1

Abdim's Stork

B. **Detailed account for Land bird sites in Murchison Falls National Park**

Fourteen Land bird sites were surveyed in MFNP, including Chobe Acacia, Chobe Terminalia, Falls Woodland, Imperata, Jobi, MF North1, MF North2, MF North3, MF North4, Palm Savanah, The South, Paraa Woodland, Waiga South and Waiga North. A total of 184 species were recorded, with 149 species being recorded from eight sites located in the North of the Nile and 129 species from six sites in the South of the Nile. In general, numbers were higher in sites with more woody vegetation compared to open grassland areas. However, more open areas in the northern sector are particularly important for raptors including vultures which are globally threatened. Five species are of global conservation concern were recorded, with two being classified as Globally Critically Endangered (White-headed Vulture and Ruppell's vulture), similarly, there were several species of regional and national importance recorded in these sites (Table 24).The biggest number of species was recorded from Waiga river (68) followed by North 1 with (67), the least was Jobi and Palm Savana each with 28 and 20 species respectively (Figure 14).

Table 24. Number of species of conservation concern recorded in various land bird sites in Murchison Falls National Park

Categories[a]	All sites (MF)	Waiga River	North1	North2	Paraa woodland	North3	Waiga South	Imperata	Chobe Acacia	North4	The South	Chobe Terminalia	Falls woodland	Jobi	Palm Savana
G-CR	2									2				2	2
G-EN	1			1	1										
G-NT	2		1						1						
G-VU	0														
R-EN	0														
R-VU	5			1		1			2	1		1			
R-NT	10		2	2		2	3			3	3	1		3	3
R-RR	4	2	2	1	2	2	2	1		2	3		1		
U-EN	2			1		1								1	1
U-VU	4								1			1			
U-NT	1			1											
Total	31	2	5	7	3	6	5	1	4	8	6	3	1	6	6

a: Conservation concern Categories

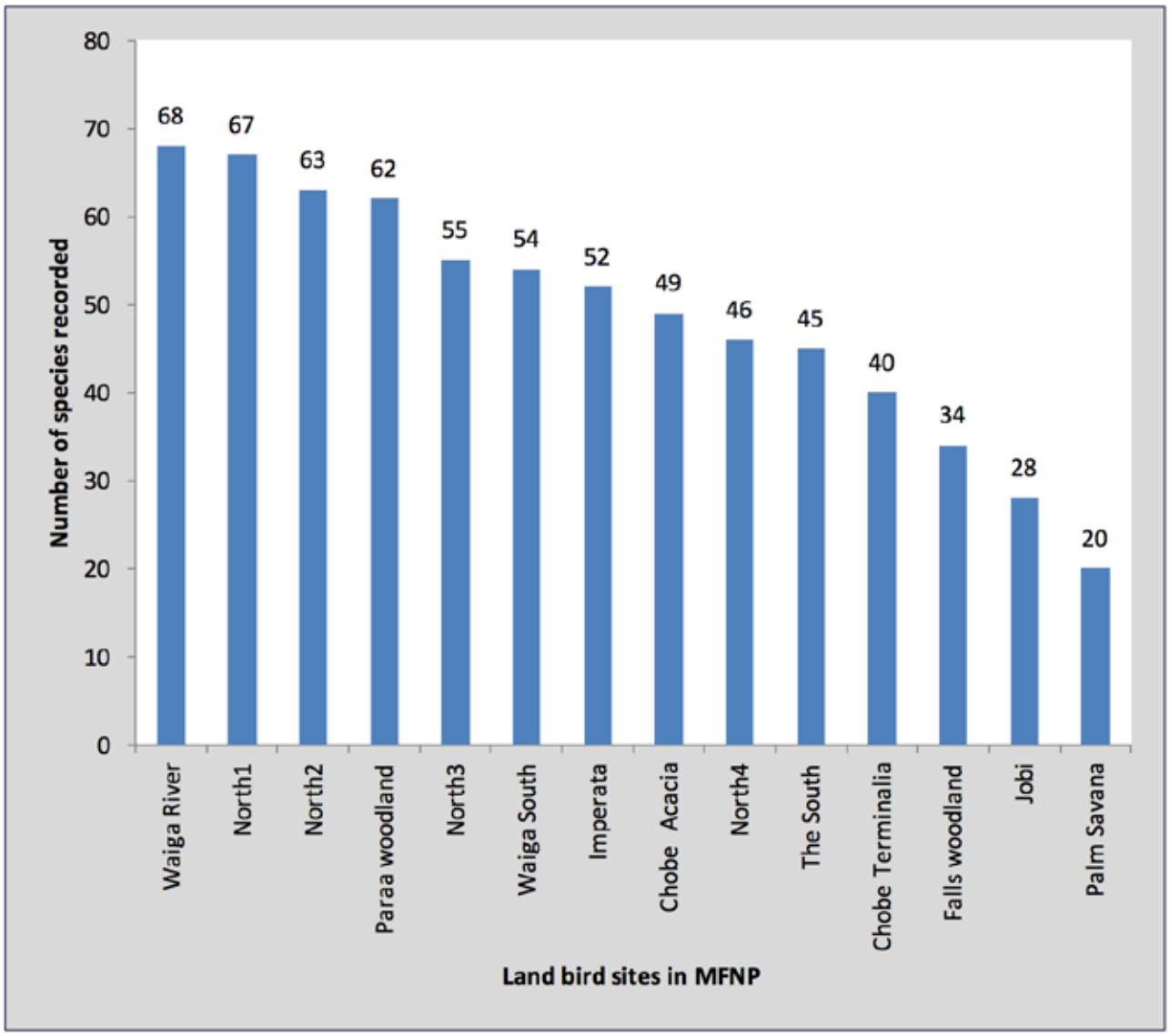


Figure 14. Number of species recorded in various land bird sites in Murchison Falls National Park

African Palm Swift was the most numerous species recorded with 255 individuals, followed by Red-billed Quelea with 210 individuals. Similarly, African Palm Swift was the most widespread (common) with sightings in 12 sites. Unsurprisingly, Common Bulbul was also common with 11 sightings (Table 25a &b).

Table 25a. The ten most numerous species recorded in MF land Bird sites

COMMON NAME Scientific Name	Ecology	Individuals
AFRICAN PALM SWIFT *Cypsiurus parvus*		255
RED-BILLED QUELEA *Quelea quelea*	A	210
SPECKLED MOUSEBIRD *Colius striatus*		164
COMMON BULBUL *Pycnonotus barbatus*	f	161
VIOLET-BACKED STARLING *Cinnyricinclus leucogaster*	Af	157
GREY-BACKED CAMAROPTERA *Camaroptera brachyura*	f	143
BLACK-HEADED GONOLEK *Laniarius erythrogaster*	f	113
RED-THROATED BEE-EATER *Merops bulocki*	W	103
RATTLING CISTICOLA *Cisticola chiniana*		96
PIAPIAC *Ptilostomus afer*		82

Table 25b. The ten most spread (common) species recorded in the land bird sites in MFNP.

COMMON NAME Scientific Name	Ecology	Sites
AFRICAN PALM SWIFT *Cypsiurus parvus*		12
COMMON BULBUL *Pycnonotus barbatus*	f	11
BLUE-SPOTTED WOOD DOVE *Turtur afer*	F	11
RED-CHEEKED CORDON-BLEU *Uraeginthus bengalus*		11
TAWNY-FLANKED PRINIA *Prinia subflava*	fw	11
RUPPELL'S STARLING*Lamprotornispurpuroptera*		11
SPECKLED MOUSEBIRD *Colius striatus*		10
GREY-BACKED CAMAROPTERA *Camaroptera brachyura*	f	10
BLACK-HEADED GONOLEK *Laniarius erythrogaster*	f	10
RATTLING CISTICOLA *Cisticola chiniana*		10

Grey Crowned Crane, with chicks

3.2.4 LAKE VICTORIA REGION

Lake Victoria has an extensive shoreline with varied and mixed vegetation cover. Counts are conducted on selected sites especially those within Important Bird Areas or Ramsar sites. These include Ssese Islands, Lutembe Bay, Mabamba Bay and Nakiwogo bay, Musambwa Island and the Airstrip ponds.

a) **Waterbird sites in the Lake Victoria Region**

Nine waterbird sites were surveyed in the Lake Victoria basin including Lutembe bay, Nakiwogo, Mabamba bay, Makanaga bay, Musambwa Islands, Airstrip ponds, Kaku wetland, Lutoboka and Banga Island. The last two are part of Ssese Islands. We recorded 18,305 individuals of 62 species in these sites. Species richness was highest in Nakiwogo followed by Lutembe and then Makanaga bay (Figure 15). Similarly, the number of species of conservation concern (CC) was highest in Nakiwogo and Lutembe bays and lowest in Kaku wetland (Figure 15).

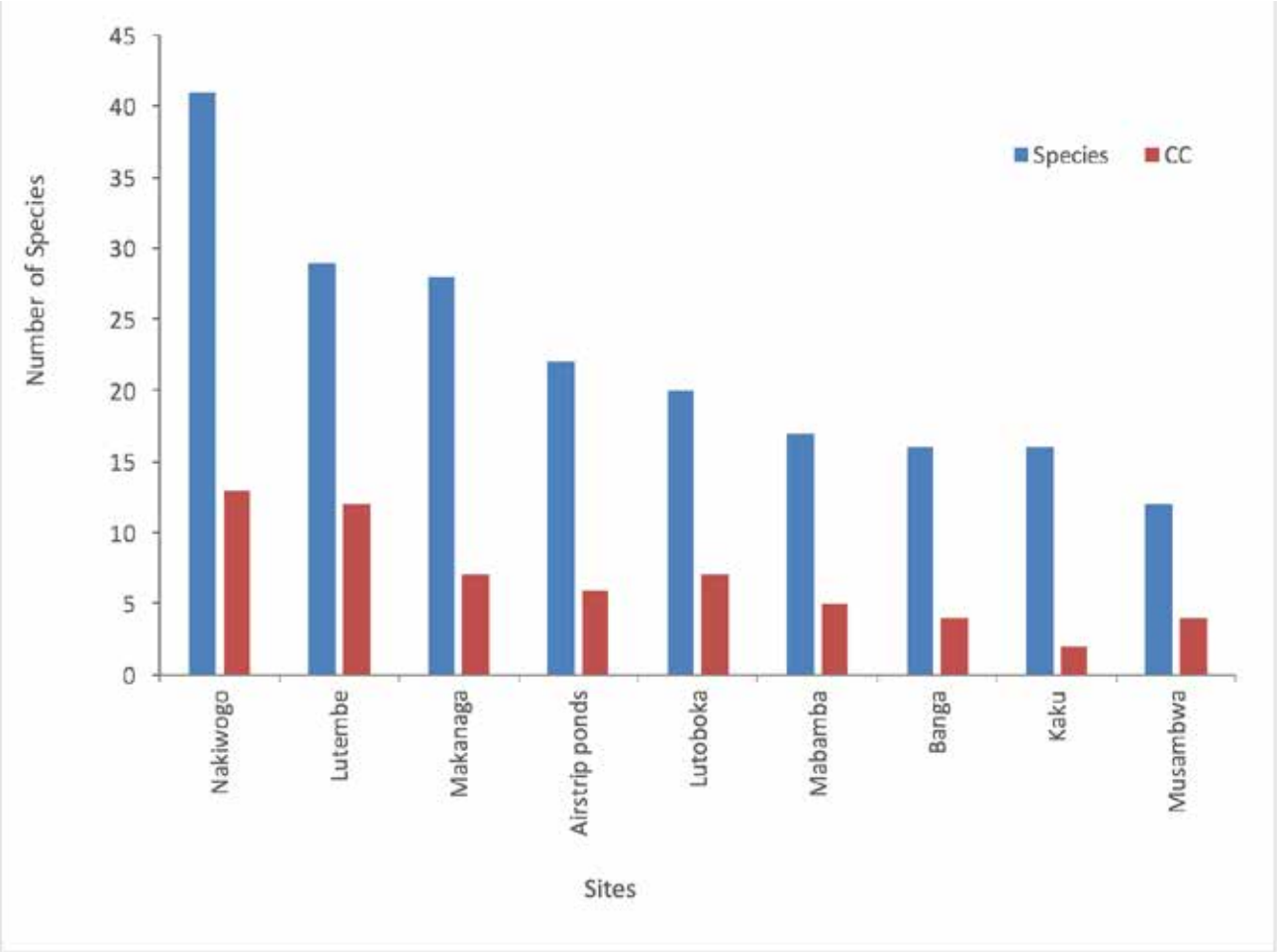


Figure 15. Number of bird species and Species of Conservation concern (CC) recorded from various sites on Lake Victoria during the survey.

Nakiwogo was the largest of all sites surveyed, and hence the high number of species recorded, the most abundant being the Grey-headed Gull followed by Long-tailed Cormorant. The site supports a good number of species of conservation concern, such as Grey Crowned Crane and Migrants such as Black-headed Gull and Glossy Ibis. For Lutembe which had the second highest number of species recorded (28), the most abundant species was Grey-headed Gull, which use muddy islets as roost and feeding sites, followed by Yellow-billed Duck, Lesser Black-backed Gull and Heuglins Gull. Lutembe had a good number of species of conservation concern recorded including ten Palearctic migrants, two regionally and one Nationally Red-listed species respectively. The next largest site to Nakiwogo was Makanaga which recorded a total of 28 species and 1,379 individuals of birds with the African Jacana being the most abundant contributing to 48% of the individuals recorded at this site. Seven species of conservation concern were recorded in this site, particularly Uganda's National bird, Grey Crowned Crane (G-EN) and Shoebill (G-VU, U-EN) which is one of the most sought for by tourists, four individuals of them being found in the swamp toward the endpoint of the site.

b) **Land bird sites in the L. Victoria Region**

Altogether, a total of 154 species were recorded from the six land bird sites in the Lake Victoria Basin. The sites included Marabigambo grassland, Airstrip grassland, Phoenix Savanna, Birinzi grassland, Mabira (Bulyasi) cultivation and Bujagali. The most species-rich site was Mabira with 72 species followed by Airstrip grassland with 56 species (Figure 16). Generally, these sites were all species-rich all sites having more than 40 species recorded (Figure 16).

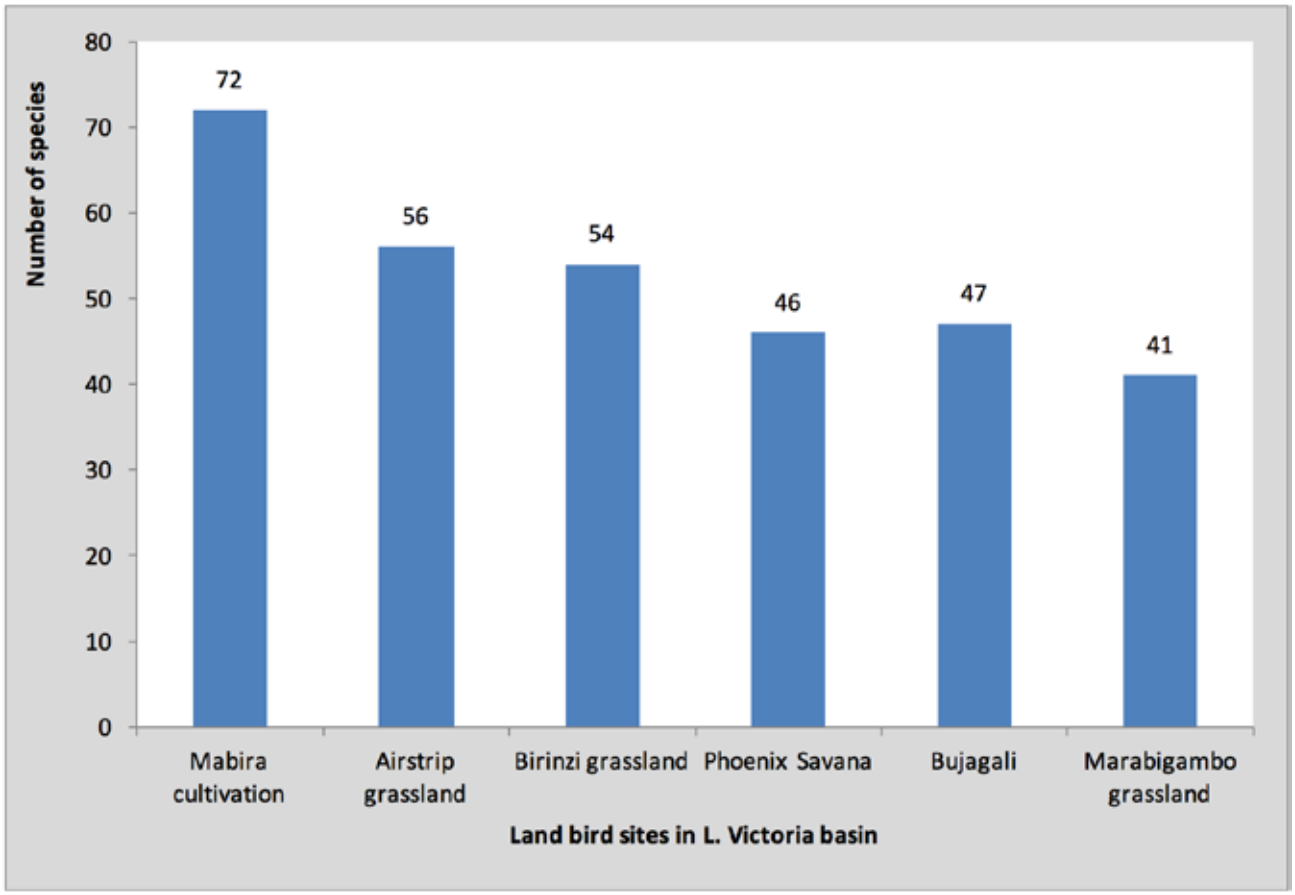


Figure 16: Number of species recorded in various sites surveyed in the Lake Victoria region

The number of species of conservation concern recorded in these sites was 14 (Table 26). Four species are of global concern including Hooded Vulture (G-CR) and Grey Crowned Crane (G-EN). Eleven species are of regional importance were recorded including Black Heron seen at Marabigambo grassland and Toro Olive Greenbul at Mabira. Six species were nationally red-listed, however, most of these are also listed either as globally or regionally endangered (Table 26).

Most species recorded in this region are forest associated (68), including one forest specialist (Toro Olive Greenbul) and twenty-six forest generalists. The big number of forest birds may be attributed to the fact that two sites (Mabira cultivation and Marabirambo grassland) are neighbouring big forest reserves, added to the fact that other sites have a good number of trees.

Table 26. Number of species of conservation concern recorded in surveyed sites in L. Victoria region

	Category			All sites combined	Birinzi	Marabigambo grassland	Airstrip grassland	Phoenix savana	Mabira Cultivation	Bujagali
Red-list Species	Globally	Critically Endangered	G-CR	1					1	
		Endangered	G-EN	1			1			
		Near- threatened	G-NT	1					1	1
		Vulnerable	G-VU	0						
	Regionally	Endangered	R-EN	0						
		Vulnerable	R-Vu	3		1		1	2	
		Near- threatened	R-NT	3	1	1	2	1	1	1
		Regional responsibility	R-RR	5	1	2	2	4	3	2
	Nationally	Endangered	U-EN	2			1		1	
		Vulnerable	U-VU	3		1		1	2	1
		Near- threatened	U-NT	1					1	

Goliath Heron

A. Detailed account for Water bird sites in the Lake Victoria Region

i). Ssese Islands

Ssese Islands comprise 84 mainly volcanic, tree covered Islands with occasionally sandy beaches. NatureUganda has been conducting bird monitoring counts here since 2006 covering four separate Islands; Lutuboka Point, Banda Island, Banga Island and Kitobo Island. Because of the rocky nature of the islands few wading birds are present. It is primarily a breeding site particularly for Long-tailed Cormorant *P.africanus*, Greater Cormorant*P.Carbo*and Little Egret *E.garzetta*. The sites are vulnerable to various threats especially landuse change and habitat destruction due to unending developments. Only two Islands; Lutoboka and Bangawere surveyed and counts were counted using motorized boats moving along the banks.

A total of 1,163 individuals from 22 species were recorded on the two Islands of Banga and Lutoboka, with the later recording more bird species (20) than the former (16). Seven species of conservation concern were recorded including three Palearctic migrants (Table 27). Most notable species were the White-backed and Green-backed night herons recorded on the Islands (Appendix I). Two species, Long-tailed Cormorant and the Hamerkop were recorded with breeding colonies on Banga Island.

Table 27. Species of conservation concern

Species Name	Habitat	Red-list	Individuals (Lutoboka, Banga)
Common Sandpiper	WW	PM	26, 21
White-backed Night Heron	WW	R-NT, U-EN	2
Glossy Ibis	WW	PM	2
Grey Heron	WW	R-NT	1,
Green-backed Heron	WW	R-NT, U-NT	1, 2
Common Greenshank	WW	PM	1
Giant Kingfisher	WW	R-NT, U-NT	1

ii). Nakiwogo Bay

The site comprises of a series of small low-lying volcanic islands and a sandy shoreline. The sitemonitored is located to the south and east of Entebbe Airport. It has extensive areas of sand banks, rocky out-crops and Papyrus beds. Three of the larger islands have small fishing communities settled on them with little space for roosting birds. Another small grassy island has a small population of pigs and another island has a large goat population and the last one has a small Army detach. While on the boat we circumnavigate the 12 or so islands and associated shoreline to the north and west of the bay.
A total of 4,593 individuals from 41 species were corded in this site. This included a number of species of conservation concern, such as Grey Crowned Crane and Migrants such as Black-headed Gull and Glossy Ibis. The Grey headed gull was the most abundant species at the site with 1,230 individuals recorded followed by the Long-tailed Cormorant with 1,016 individuals (Appendix I)

iii). Lutembe Bay

Situated on the northern shores of the lake at the mouth of Murchison Bay with a large horticultural farms. The bay covers an area of about 500 ha. It is a shallow, papyrus-fringed lagoon which has almost been cut off from the main lake by encroaching papyrus swamp on both sides with a narrow mouth allowing water to flow in and out of the main lake. The dominant vegetation is Papyrus, interspersed with patches of reed and tall grass. There are several muddy islands which are used as roost sites for terns, gulls and wading birds. The site has been monitored since the 1990s and previous records show that Lutembe bay is a major Palearctic migration stopover site. The bay regularly holds up to 50,000 birds and counts of over 2,000,000 white winded Black terns have been recorded between 1999 to 2003 (Byaruhanga& Nalwanga 2007).

Counts were conducted from a slow-moving canoe from Lutembe landing site. Moving into the lagoon the counts were done in a clockwise direction covering the whole area of the bay. Since the bay is mainly a roost site, the count was conducted in the late afternoon. A total of 1,276 individuals from 28 species were recorded, including 12 species of conservation concern (Appendix I). Among these C-species were 10 Palearctic

Migrants and two regionally near-threatened species; the African March Harrier and Green-backed Heron (Table 28). The most abundant species was the Grey-headed Gull (912) which were recorded on muddy islets used as roost and feeding sites.

Table 28. Species of conservation concern recorded at Lutembe

Species Name	Habitat	Red-list	No. individuals
Slender-billed Gull	WW	PM	29
Gull-billed Tern	WW	PM	11
Lesser Black-backed Gull	WW	PM	10
Common Greenshank	WW	PM	6
Ruff	WW	PM	6
Marsh Sandpiper	WW	PM	4
Little Stint	WW	PM	3
Green-backed Heron	WW	R-NT, U-NT	2
White-winged Tern	WW	PM	2
Heuglin's Gull	WW	PM	2
African Marsh Harrier	WW	R-NT	1
Common Sandpiper	WW	PM	1

iv). **Mabamba bay**

Located about 55km west of the capital Kampala, Mabamba bay is reached through Mabamba landing site by taking the main Masaka road and turning south on a marram road in the trading centre opposite Mpigi town. This is an area of extensive marsh, predominantly papyrus interspersed with clumps of reed, sedge and ferns; floating patches of Water Lily *Nymphea caerulea* and Water Hyacinth *Eichhornia crassipes* make up part of vegetation mosaic. Monitoring of this site has revealed the presence of several species of global conservation interest including the Blue Swallow *H. atrocaerulea* and Shoebill *B. rex.*

An eco-tourism business has developed on the sites with the Shoebill *B. rex* the main attraction for the visitors added to the site's proximity to the Entebbe International Airport and the Capital City -Kampala. Counts were conducted from a motorized canoe, traveling out along all the channels to the right and then to the main channel to the left reaching the broad lagoon.

A total of 17 species and 194 individuals of birds were recorded. African Jacana was the most abundant followed by Pied Kingfisher and Yellow-billed Duck. All the species of conservation concern (Table 29) were Regionally Red-listed apart for one, Shoebill which is currently categorized as Globally Vulnerable (G-VU) and endangered for Uganda (U-EN). Major human activities noted were; tourism, transport and fishing. These activities within the swamp need to be regulated to reduce their impact on the Wetland and birds that live there.

Table 29. Species of conservation concern recorded at Makanaga

Species Name	Habitat	Red-list	Number
Purple Heron	WW	R-NT	8
African Marsh Harrier	WW	R-NT	5
Goliath Heron	WW	R-NT, U-VU	1
Shoebill	WW	G-VU, R-VU, U-EN	1
Lesser Jacana	WW	R-NT	1

v). **Makanaga Bay**

Makanaga bay is an extension of Mabamba bay but can be accessed via Namugobo landing site about 20

minutes from Kamengo trading centre still on Masaka road. It is an area of extensive marsh, predominantly papyrus interspersed with clumps of reed, sedge and ferns; floating patches of Water Lily *Nymphea caerulea* and Water Hyacinth *Eichhornia crassipes* make up part of vegetation mosaic. Counts were conducted from a motorized canoe, moving slowly along the main channel covering all open water areas and mud flats up to Bussi landing site. Similar to Mabamba, this site is known for the Shoebill and tourism business is slowly developing in the area.

This site is next to Nakiwogo in terms of size and richness. A total of 28 species and 1,379 individuals of birds were recorded, with African Jacana being the most abundant at the site (Appendix I). Several species were also important as being of conservation concern, particularly Uganda's National bird, Grey Crowned Crane (G-EN) and Shoebill (G-VU, U-EN) which is one of the most sought for by tourists, four individuals of them being found in the swamp toward the endpoint of the site. The number of birds seen indicates that the site has a high potential for tourism development.

vi). **Musambwa Islands**

The Musambwa Islands are situated on L. Victoria in Rakai district and can be through Sango bay or Kasensero landing sites. The islands are composed of three rocky Islands which are 3 kilometres offshore from Sango Bay. The largest Island *Ennene* is 5ha, the second largest; *Entono* is 3ha, while the smallest is just a small rocky outcrop jutting out of the lake. The two larger islands are sparsely vegetated with shrubs and short, weather beaten trees, especially *Ficus* species. The shoreline consists of hard rock with no sandy beach or swamp vegetation. Waterbird counts have been coordinated since 1999, highlighting this site as an important breeding and roosting site for some species with regular counts of 60,000- 100,000 Grey-headed Gulls *L. cirrocephalus* roosting and an estimated over 20,000 pairs breeding.
It has been estimated that over 16% of the world population of Grey-headed Gull *L.cirrocephalus.* Counts were conducted from a motorized boat travelling slowly around the islands where egrets, cormorants and gulls can be easily recorded.

A total of 12 species and 9,454 individuals were recorded. Grey Headed Gull was the most abundant (8,050) followed by Long-tailed Cormorant (759) and Greater Cormorant (354). Other Notable species were Lesser Black-backed Gull, Heuglin's Gull and Red-Knobbed Coot. Grey Heron (R-NT) was the only Red-listed species recorded. Other species of conservation concern were Migrants (Appendix I).

vii). **Kaku Wetland**

Located along Masaka road Masaka town and Kyazanga Trading centre, this swamp is reeds and grasses with a seasonally changing open water swamp. It has been recently encroached mainly for growing crops like maize, cabbage, cassava ant tomatoes some of which require herbicides which pauses threats to the birds and other biodiversity in the site. The site is known for roosting Grey-crowned Crane with numbers up to 195 recorded in February 2017. Counts at this site were conducted from a moving vehicle with stopovers at vantage points covering about 3-4km along the swamp. A total of 111 individuals belonging to 16 species were recorded, including 13 water specialists and three wetland visitors. Grey Crowned Crane was the most abundant, with a total of 40 individuals. The future of Waterbirds that occur there is in doubt since the wetland is being degraded for crop growing and cattle grazing. This is likely to affect the number of other aquatic lives that occur. The number of species of conservation concern was two including the regionally Near-Threatened African marsh harrier (Appendix I).

viii). **Airstrip ponds**

These are shallow ponds found to the west of the Sango Bay area about two kilometres east of the main Kyotera- Mutukula road. The ponds were formed in the mid-1970sout of extraction of gravel and murrum for the construction of a runway for jet fighters. There are seven ponds in total, six contain some levels of water throughout the year but the seventh only fills up during the rains. The ponds are of approximately 2-5ha each and are approximately 1-2 metres deep, stretching in a line for a distance of three kilometresat 1150m asl. Half of the pools have floating vegetation cover and Water Lilies *Nymphea caerulea*, while the remainder are swamped by reed spreading from the edge. The ponds were surveyed on foot from a small, straight track which is used as a transect line.

We recorded a total of 134 individuals belonging to 22 species from five out of the seven ponds. The two ponds without water were covered by Vossia and no bird was recorded there. The most abundant species was Common Moorhen followed by African Jacana. The site supports a good number of birds of conservation

concern including White-backed Duck and Rufous Bellied Heron (Table 30).

Table 30. Species of conservation concern recorded

Species Name	Habitat	Red-list	Individuals
White-backed Duck	WW	R-VU, U-VU	20
Common Sandpiper	WW	PM	2
Glossy Ibis	WW	PM	2
Grey Heron	WW	R-NT	1
Purple Heron	WW	R-NT	1
Rufous-bellied Heron	WW	R-NT, U-VU	1

B. Detailed accounts for Land bird sites in the Lake Victoria Region

i). Phoenix Savanna

Located along the road connecting Minziro to Kyebe sub-county, a few kms from Marabigambo forest, this site is mainly grassland with a few patches of acacia and Phoenix palms. The only human activity carried out is cattle grazing. A total of 46 bird species and 401 individuals were recorded. The Cattle Egret was the most numerous species recorded in the site (140), which may be due to large herds of cattle grazed in the area but also a high abundance of insect life especially aquatic insects that could have attracted these birds. Six species of conservation concern were recorded, all of which are regionally red-listed apart from Red-necked Spurfowl which is also nationally Red-listed as Vulnerable (Appendix II).

ii). Birinzi

This site is located near Lake Birinzi, along Kampala Bukakata road. Historically, the site was mainly grassland however, it is being converted to Eucalyptus plantations and gardens, which affects bird species composition, for example, in future, and we are likely to record very few grassland birds because the habitat is being converted. A total of 54 species and 384 individuals were recorded with the White-headed Sawing being the most numerous (54) followed Vieillot's Black Weaver (35) and then Bronze Mannikin (35) (Appendix II). Two species of conservation concern were recorded; including the African Marsh Harrier which is Regionally Red-listed (R-NT). The number of migrants was four including two Palearctic migrants and two Afro-tropical migrants. Other than farming, some sections are overgrazed, while planting of Eucalyptus was also observed.

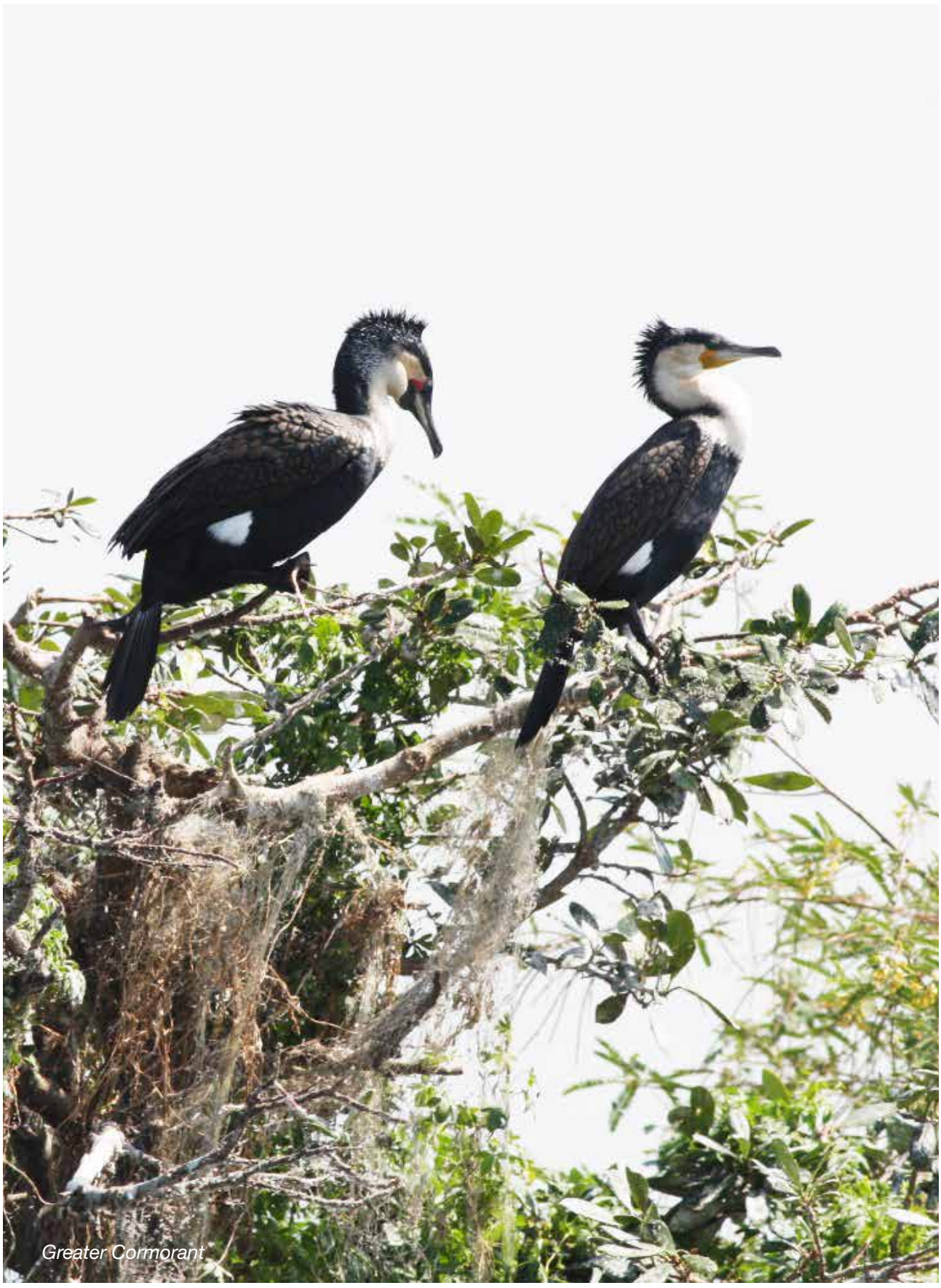
iii). Mabira Cultivations

The site in Mabira is a cultivated area just outside Mabira Central Forest Reserve on the right-hand site of the road in Najjembe as you go to Jinja along the Kampala-Jinja highway. It is mainly comprised of small holder gardens with scattered trees all located along the forest edge. Crops grown include Bananas, coffee, cassava and all on small scale. A total of 72 species and 475 individuals were recorded, with Black-headed Weaver being the most numerous (67), followed by Common Bulbul (43). Seven species of conservation concern were recorded including the Hooded Vulture which is currently categorized as Globally Critically Endangered occurring mainly in city centres in the country mainly near abattoirs. Other C- Species recorded here include among others; Toro Olive Greenbul and the Grey Parrot (Appendix II) which is being threatened due to illegal trade outside Uganda for sale as pets in international markets. The majority of the species recorded are forest associated including two forest specialists (Toro Olive Greenbul and Grey Parrot), 15 forest generalists and 26 forest visitors, the high number of forest species may be because the site is near to Mabira forest. Other notable species recorded include White-breasted Negrofinch and Green Crombec.

iv). Bujagali

Located along the river Nile, near Bujagali dam (Busoga side), the transect passes through communities with small holder mixed cultivations. Major crops grown include Banana, Maize and Cassava. The site is also characterized by a number of fruiting trees and a few native ones. A total of 47 species and 210 individuals were recorded with Common Bulbul and Bronze Mannikin as the most numerous each with 44 and 23 species respectively (Appendix II). The number of species of conservation concern was three including Grey parrot (G-NT, R-NT, U-VU), Red-chested Sunbird(R-RR) and White-headed Sawing(R-RR). The number of migrants was two including Black Kite (PM/AM) and Violet-backed Sunbird (AM).
Twenty-three forest associated species including one forest specialist (Grey Parrot), six forest generalist and

19 forest visitors were recorded. A few water related species were also recorded given the site's location near Lake Victoria. These included two water specialists (African Fish Eagle and Pink-backed Pelican) and five wetland visitors.



Greater Cormorant

3.2.5 LAKE KYOGA BASIN SITES

Lake Kyoga is extensive covering over 1720 Km^2. However, the waterbird counts were conducted on three sites namely; Lake Bisina, Kibimba Rice Scheme and Doho Rice Scheme. All these sites are IBAs, but they lack formal protection. A total of 1,921 individuals of 45 species were recorded altogether. Species richness was highest in Kibimba Rice Scheme followed by Lake Bisina and then Doho Rice Scheme (Figure 17). Similarly, Kibimba Rice Scheme had the highest number of Species of conservation concern recorded (14) followed by Lake Bisina (6) and the Doho Rice Scheme (3). There is a consistent number of Grey-crowned Crane recorded in the sites for the past ten years with the January counts being more consistent than the July counts (Figure 18).

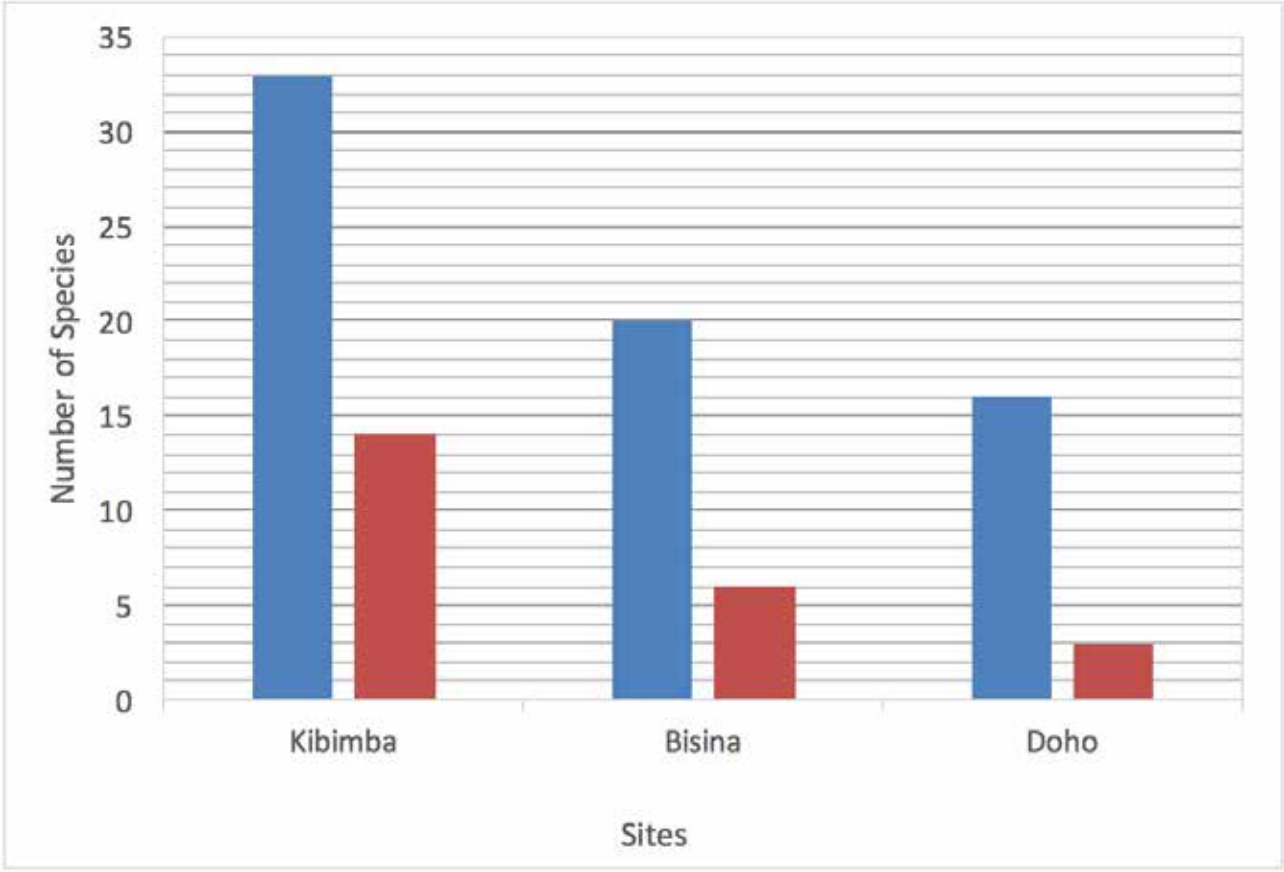


Figure 17. Number of Species (blue) and Species of Conservation Concern (Orange) recorded in the Kyoga basin sites

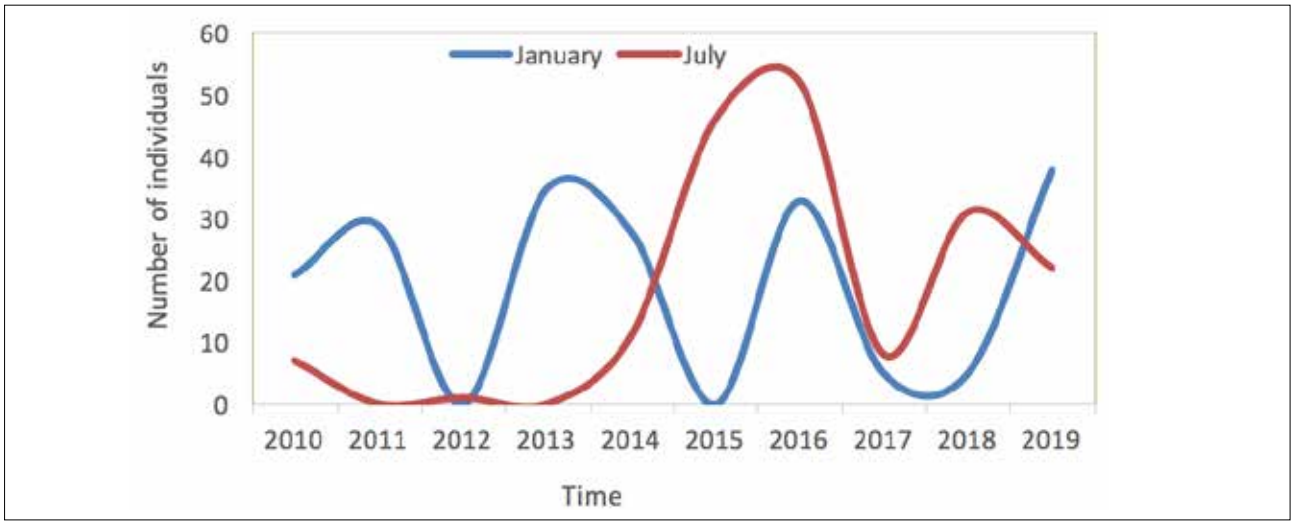


Figure 18. Numbers of Grey Crowned Cranes recorded from the three sites in Kyoga Basin (Kibimba, Doho and Bisina) from 2010 to 2019.

A. Detailed accounts for the water bird sites in the Kyoga basin

i). Lake Bisina

Lake Bisina lies in the north –eastern Uganda, 45 km away south of Soroti town. This lake is fringed by a papyrus strip and the open areas are shallow dominated by submerged and floating plants especially water lilies. The site is popularly known as one of the breeding sites for the Fox's Weaver *P. spekeoides*, Uganda's only endemic bird species and the Shoebill *B.rex* has also been recorded here. Counts were conducted from a slow-moving canoe boarded from the western shore following the lake edge in a clockwise manner to katakwi landing site. The return journey was a straight cruise from one end point in Katakwi side to the start point on Soroti landing site. A total of 20 species and 181 individuals were recorded in this site with the Long-tailed Cormorant being the most numerous, (38 individuals), followed by Red-knobbed Coot (34) and Long-toed Plover (22) (Appendix I). Six species of conservation concern were recorded including one Palearctic migrant (Osprey) and two Nationally Red-listed species; White-backed Duck and Green-backed Heron (Table 31).

Table 31. Species of Conservation Concern

Species Name	Habitat	Red-list	Numbers
White-backed Duck	WW	R-VU, U-VU	10
Green-backed Heron	WW	R-NT, U-NT	8
Lesser Jacana	WW	R-NT	8
Purple Heron	WW	R-NT	5
Grey Heron	WW	R-NT	1
Osprey	WW	PM	1

ii). Kibimba Rice Scheme

Kibimba Rice scheme is located in eastern Uganda in the town of Bujiri and is managed under the Tilda Company. The scheme is made up of rice paddies and fields at varying stages of growth and the Dam, which supplies water to the rice fields. The dam is majorly open water with occasional lilies and hyacinth but has recently been infested with the invasive *Salvinia molesta*, a notorious water weed in most of the Kyoga waters. The site monitored covered the rice fields and the dam. Counts in the fields were done on a moving vehicle while those on the dam were done by moving along the bridge as the dam was fully covered by *S. molesta* making it unmotorable by boat.

A total of 33 species and 1620 individuals were recorded with the most abundant species being the Glossy Ibis, followed by the Sacred Ibis, Little Egret and Cattle Egret (Appendix I). However, the Kibimba dam was largely covered with, *S.molesta* water weed which resulted in very few birds being recorded at this dam. The number of species of conservation concern recorded here was 14, including two Globally Red-listed species (Grey Crowned Crane and Black-Tailed Godwit), most of the species are categorized as regionally red-listed. The Number of Palearctic migrants was three and none was categorized as Afrotropical migrant (Table 32).

Table 32. Species of Conservation Concern

Species Name	Habitat	Red-list	Numbers
Purple Heron	WW	R-NT	29
Black-winged Stilt	WW	PM	28
Grey Crowned Crane	WW	G-EN, R-NT, U-EN	22
Grey Heron	WW	R-NT	11
White-backed Duck	WW	R-VU, U-VU	6
Wood Sandpiper	WW	PM	4
African Marsh Harrier	WW	R-NT	3
Woolly-necked Stork	WW	R-NT, U-VU	1
Common Sandpiper	WW	PM	1
Goliath Heron	WW	R-NT, U-VU	1
Rufous-bellied Heron	WW	R-NT, U-VU	1
Green-backed Heron	WW	R-NT, U-NT	1
Black-tailed Godwit	WW	G-NT, PM	1

iii). **Doho Rice Scheme**

Located in Butaleja District in Eastern Uganda, the Doho Rice Scheme is an IBA formally a seasonal wetland on the river Manafwa floodplain. Established in 1942 as a government venture to increase food production this intensive irrigated rice cultivation was formed when a dam was put in place. These rice fields have irrigation channels which allow water to flood certain fields and it is these flooded fields which are favourable to resident and migrant birds. The rice scheme covers an area of 3,200 ha. Some species have benefited from the modified flooded wetland including large numbers of wintering Palearctic waders such as Wood Sandpiper *T. glareola*, Ruff *P. pugnax* and Black-winged Stilt *H. himantopus*. Counts were conducted on a vehicle through access roads with stopovers at vantage points along all the fields. The dam was counted while moving along the banks.

A total of 16 species and 114 individuals were recorded in Doho Rice Scheme with the Little Egret being the most recorded in the site (14 individuals), followed by Great Egret (14) (Appendix I). This low number of birds in this site was due to the fact that several rice paddies (in the southern sector) were closed, and inactive making them not suitable for birds. Few species (3) were recorded from the dam, despite the absence of any vegetation cover on the dam. Rice paddies located in the northern sector (left of the main road) had more birds compared to the ones in the south; this could be due to a high number of active paddies in this sector. Several birds such as Egrets feed on insects associated with rice harvesting, weeding and planting, so in the absence of these activities, the birds were not encountered. Only three species of conservation concern were recorded in this site; thus the Great Egret (R-VU), Green-backed Heron (R-NT, U-NT) and the Grey Heron (R-NT).

3.2.6 OTHER LAND BIRD SITES

i). **Nyamuriro swamp**

Situated in southwestern Uganda in Rubanda district, Nyamuriro Wetland System is a remnant of the extensive papyrus swamp system that once covered the whole of the Ruhuhuma valley. It is accessed from the main Kabale to Kisoro road. The wetland is served by the only outlet of Lake Bunyonyi and flows in a roughly westerly direction towards Lake Mutanda in Kisoro district. It has a long history of drainage issues. During the 1960s the swamp was dominated by *Cyperus*and *Miscanthidium* species vegetation but was extensively drained in the 1970s for agricultural purposes. Fortunately, because of deep flooding during the rainy seasons the swamp has never totally drained, indeed a road which was constructed across the swamp was washed away during heavy floods. The Nyamuriro Wetland System covers an area of 5,100ha of which 92% has been converted or modified wetland cultivation leaving just under 5% of the original swamp vegetation. Since 2001 when ***Nature***Uganda became involved, this drainage has slowed down and some recovery has been made. Counts are conducted on foot using the many footpaths along the main river focusing on the degraded section and restored section.

The degraded wetland recorded a total of 28 species and 141 individuals with Fan-tailed Widowbird (32) being the most numerous followed by Speckled Mousebird (10). Five species of conservation concern (Appendix II) were recorded including the Grey Crowned Crane (G-EN, R-NT, U-EN). The Carruthers's Cisticola is one of the Papyrus endemics (R-RR) whose future is at risk due to habitat modification. One Palearctic migrant species (Abdim's Stork) is the only migrant recorded at the site.

On the other hand, the restored section recorded a total of 32 species and 202 individuals, indicating a slight difference in species richness between the degraded and restored sections of the swamp. This may be because the lower part is heavily disturbed by Potato gardens which alter the habitats and reduce the available suitable habitats in the wetland. Some species recorded are important as being of conservation concern, notable being Grey Crowned Crane, Carruther's Cisticola and Bateleur (Appendix II). Fourteen species are wetland associated including three water specialists (most important category) and eleven wetland specialists.

ii). **Katugo**

This site is located on in Nakasongola along Kampala-Gulu highway. The biggest proportion of the site is cultivated mainly bananas, with some sections having Cassava as well as Maize. The species recorded are not different from the ones recorded in most cultivated sites (Nalwanga 2011). A total of 40 species and 155 individuals were recorded with African Palm Swift as the most numerous (19) followed by Red-checked Cordon Bleu and Common Bulbul (Appendix II). Four species of Regional responsibility (R-RR) were recorded in this site; including Grey Capped Warbler, Spot-Flanked Barbet, Rufous Sparrow and White-headed Sawing.

The number of forest birds was good, with 12 and 6 being forest visitors and forest generalists respectively. This may be due to the presence of a good number of trees especially fruit trees such as Mangoes, guava and Papaya.

iii). **Nakitoma**

A total of 35 species and 133 individuals were recorded with Lesser Blue-eared Starling as the most numerous (18) followed by Grey-backed Camaroptera (15) and African Palm Swift (10). Most of the species recorded are forest visitors (9). Two species of Forest generalists were recorded (White-crested Turaco and Northern Puffback). This may be because the biggest part of the site is a woodland. One species of conservation concern, the Bateleur (R-NT) was recorded in this site (Appendix II). Cutting down of trees for charcoal burning is the major conservation issue in this site as it will impact on the bird community that occur there, especially forest birds.

iv). **Kafu**

The site is predominantly grassland with scattered Borassus Palms, with some sections converted into cultivations especially for cassava growing and maize. A total of 46 species and 167 individuals were recorded, African Palm swift was the most numerous, probably because of the presence of Borassus Palms on which they roost and breed. Two species of conservation concern (African Marsh Harrier and Spot-Flanked Barbet; Regionally Near-Threatened and Regional Responsibility respectively) were recorded in this site (Appendix II). Most of the species recorded here are forest visitors, or wetland visitors, mainly due to the presence of thickets and water ponds within the site.

v). **Mobuku**

This site located in Kasese district in western Uganda is a cultivated site mainly composed of Eucalyptus plantation, maize, and Bananas. The species recorded here are typically the ones expected to occur in most cultivated areas and such a habitat supports quite a good number of species due (intermediate disturbance hypothesis). A total of 248 individuals belonging to 39 species were recorded (Appendix II). Black-headed Weaver was the most numerous (60) followed by Speckled Mousebird (31). Two species of conservation concern (Northern Brown Throated Weaver and Village Indigobird) categorized as Regional Responsibility and Regionally Vulnerable respectively were recorded in this site. Additionally, two Palearctic migrants (Common Sand Martin and Black Kite), were recorded.

vi). **Kyegegwa**

This site located along Fortpotal-Kampala highway before Fortportal town. It is generally agricultural area dominated with small holder farms of Banana and maize with scattered trees. A total of 146 individuals belonging to 32 species were recorded with Red-billed Quelea being the most numerous (35 individuals). Two Palearctic migrant species (Barn Swallow and Black Kite) and five Afrotropical migrant species (Red-billed Quelea, Broad-billed Roller, Grey-backed Fiscal, Woodland Kingfisher and Black Kite) were recorded at the site. Migrants are of concern due to the risks faced during their migratory pathways. There were also three forest generalists(F) recorded including Black and White Casqued Hornbill, Blue-spotted Wood dove and Lizard Buzzard (Appendix II), these are less specialized and usually found in remnant patches of encroached forests and forest edge.

vii). **Saka lakes**

Saka lakes are crater lakes situated about 7km from Fortportal town near Kibale National Park. They are two lakes, the big one and most attractive being Lake Saka and the other Lake Kaitabagoro. They are located on Saka road accessed directly from Fortportal town following Lugard road towards Mountain of the moon hotel, past the golf course then on to Saka road. The main activities on Lake Saka are bird watching, canoe riding as well as cycling and fishing. Counts here were done on foot following the path along the banks of the lakes.

A total of 334 individuals belonging to 72 species were recorded. The site is one of the most species-rich sites surveyed. This could be due to habitat heterogeneity (water and land) encountered at the site. Birds are counted while walking around the lake, hence including both land and Waterbirds. Bronze Mannikin and White-headed Sawing were the most numerous each with 28 and 26 individuals recorded (Appendix II). Five species of conservation concern were recorded including the Grey-Crowned Crane(G-EN), Cinnamon-chested bee-eater (RR), and Joyful Greenbul (R-NT). The site supports a good number of forest birds including one Forest specialist (Joyful Greenbul), 16 Forest Generalists and 18 Forest visitors. Two Palearctic migrant species were recorded; (Common buzzard) and Woodland Kingfisher.

viii). **Transparent Lake –Kasyoha-Kitomi Forest reserve**

This site is located near the transparent lake inside Kasohya Kitomi Central Forest Reserve in Rubirizi District. It is a natural forest site under NFA. A total of 90 species and 577 individuals were recorded making this site one of the most species rich sites encountered during this monitoring (Appendix II). This may be because the site covers a variety of habitats (mainly water and forest) with each habitat attracting different bird species. One species of global conservation concern (Grey Crowned Crane) was recorded in this site. Most of the species recorded are forest birds including two forest specialists (Chestnut Wattle-eye and White-throated blue Swallow), 19 forest generalist and 30 forest visitors. The presence of a good natural tree cover in the area accounts for the presence of many birds associated with forests, similarly, the river itself and the damp valleys within the site attracted a number of water birds (19) including five water specialists. Other important species included one Palearctic migrant and a number of Afrotropical migrants.

ix). **Ecotourism Education Centre –Kasyoha-Kitomi Forest reserve**

Similar to the transparent Lake, this site is also located at the Ecotourism centre inside Kasohya Kitomi Central Forest Reserve in Rubirizi District. It is a natural forest site under NFA. A total of 87 species and 636 individuals were recorded with Yellow-backed Weaver as the most numerous (40) followed by White-throated bee-Eater (29). The species recorded include one species of global conservation concern; the Grey-crowned Crane, five species of regional and two species of national conservation concern (Appendix II). The area supports a good number of birds associated with forests, including one forest specialist (Shinning Blue king-fisher), 12 forest generalist and 30 forest visitors. This is due to the presence of many trees, including some large native ones. Similarly, the damp valleys within the area support a good number of birds associated with wetlands, including seven water specialists and twenty-one wetland visitors. Other special species included one Palearctic migrant and six Afrotropical migrants recorded (Appendix II).

x). **Echuya Central Forest Reserve**

Echuya is a highland Central Forest Reserve under NFA located in Rubanda and Kisoro districts in western Uganda. It is a bamboo forest with other hard wood species and a swamp with papyrus, reeds and other grasses, supporting many wetland species. A total of 137 individuals belonging to 32 species were record-ed with Yellow Whiskered Greenbul being the most abundant (21 individuals), followed by Common Bulbul (18), Sooty Boubou (12) and then Regal Sunbird (11) (Appendix II). The site is important for forest species (FF and F) as well as tree species(f). Six species of conservation concern were recorded including the Grau-er's Swamp-warbler, Rwenzori Batis, Doherty's Bush-Shrike, Regal Sunbird, Eastern Mountain Greenbul and Red-faced Woodland-Warbler (Appendix II) all rated regional responsibility on the East African Red-list except the Grauer's Swamp-Warbler, which is a Globally endangered and regionally and Nationally vulnerable.

3.3 Discussion and Conclusion

Unlike January counts, July counts are carried out in a period when Palearctic migrants have left for Europe to breed typically between March and October, therefore, numbers observed and recorded in this survey are by no means reflecting the overall numbers that occur in the surveyed areas without most migrants. The overall number of Water birds recorded was relatively good, for example this study recorded 85 out of 160 Water bird species known for Uganda (Carswell *et al* 2005). Sites located in protected areas had more numbers compared to none protected areas, which shows how important protected areas are towards biodiversity conservation as seen in previous reports (NatureUganda 2015).

Species richness varied amongst sites, for instance, there were more species in QENP compared to other Murchison falls and Lake Mburo National Parks. This could be due to the heterogeneity of the surveyed sites within QENP. In particular, the presence of both fresh and saline water sites within QENP attracts a variety of species, which is not the case in the other sites. Another important factor could be due to the difference in the number of sites surveyed, for in instance, one site was surveyed in LMNP compared to 10 and 4 in QENP and MFNP respectively.

In the Kyoga Basin, high abundance food sources within rice Paddies at Kibimba and Doho rice schemes especially insects, which support quite a number of insectivores such as egrets and waders. Egrets take advantage of moving tractors and combined harvesters to find food (insects). However, factors like pesticides and water weeds have affected the bird diversity in these sites. For example, very few species were recorded at the dam at Kibimba, which was due to the extent at which the invasive *Salvinia molesta* had covered the dam. This weed negatively affects life under water, thereby, reducing the resource busket available for water birds.

Species diversity at Nakiwogo bay was outstanding compared to other sites within L.Victoria basin, which could be attributed to its size and presence of several rocky islands, which provide secure roosting and nesting sites for a number of water birds. Furthermore, there was greater species diversity at Makanaga compared to Mabamba swamp, mainly due to the fact that Makanaga wetland is still intact with a variety of islands for bird s to rest while Mabamba has been disturbed for quite a long time due to the tourists' influx at the site. In fact, we recorded four Shoebills at Makanaga compared to one at Mabamba bay. Unfortunately, the diversity of species at Mabamba is likely to worsen due to the increasing pressure from tourism and transport activities at the site. This calls for further sensitization and provision of viable and sustainable alternatives for the high population at the site.

Among the threats recorded in the IBAs during our survey, charcoal burning, agricultural expansion and hunting on birds are the main threats that need immediate attention. For example, the number of Grey Crowned Cranes recorded at Kaku wetland was good, but this wetland, in particular, is undergoing continuous conversions especially for commercial agriculture notably Cabbage and Tomatoes growing as well as and cattle grazing. With the rate of wetland degradation in the country, something needs to be done to control that rate and conserve our National bird which can't survive without water in its life cycle. In the same way, hunting and trapping of birds observed in some none-protected IBAs definitely has an impact on the bird's population in those areas and community sensitization is needed to curb this practice. This is noted specifically due to the low numbers of large birds recorded in some sites especially around the Kyoga basin.

CHAPTER FOUR:

Threats

4.1 THREATS TO BIRDS AND THEIR HABITATS IN THE SITES SURVEYED

4.1.1 Wetland encroachment, use of Herbicides and pesticides

This is a general threat resulting from agriculture and affecting many habitats across the country. It was observed at Kaku wetland, where a significant area was converted into farmland. The major crops grown were tomatoes, cabbages and maize. Wetland encroachment will affect breeding processes of a number of aquatic life including Grey Crowned Cranes. Use of herbicides and pesticides could cause toxic effects on birds and other living organisms within the wetland either directly through poisoning or indirectly through feeding on the poisoned food.

Plate 1. Crop growing at Kaku Wetland

4.1.2 Encroachment of breeding sites

Due to charcoal burning and demand for firewood, trees and thickets on most of the islands on Makanaga bay were cleared. This will impact on breeding processes of a number of water birds especially Night herons and fish Eagles. Many other birds also use these trees as roosting and loafing sites and all these will be affected with the removal of these trees.

4.1.3 Fishing and trapping of bird fishing nets

Overfishing has an impact on fish-eating birds such as Kingfishers, Cormorants, and Fish Eagles etc. While hunting, fish-eating birds often get caught and entangled in the fishing nets. This problem could be difficult to be dealt with, as long as fishing as an occupation is still ongoing on most of the open water sites. However, regulating the fishing methods to ensure that they are friendly to other wildlife especially birds is vital for sustainability.

4.1.4 Unregulated tourism and transport activity

Tourists have a tendency of getting too close to the birds (Shoebill), the birds will soon become habituated, this is likely to increase the risk of poaching since the birds will get used to associating with people, as well as the risk of transmitting zoonotic diseases.

4.1.5 Loss of nesting, roosting and foraging especially in MFNP

As a result of a number development underway in MFNP such as the bridge construction at Paraa and a number of roads under construction, birds have lost important habitats especially in the natural forest and grasslands. This calls for the need to closely monitor the mitigation measures suggested during the EIA studies to ensure that they are implemented.

4.1.6 Algal bloom and Water pollution

This threat was recorded mainly from two sites; Nakiwogo and Lutembe bays on Lake Victoria. Algal blooms can reduce the chance of aquatic life to find food, and this can cause the entire population to migrate or die. Research shows Algal bloom produce toxins that are detrimental to aquatic life and when consumed, these toxins move up the food chain and can impact birds and other animals (Van Dolah et al. 2001, Landsberg 2002).

4.1.7 Hunting at trapping of birds

Evidence of hunting/trapping of birds was observed at Doho rice scheme in Eastern Uganda. In this area, birds are hunted and trapped for food. The habit of catching birds is being encouraged by the fact that rice paddies are owned by different individuals, this makes access to the scheme open. There is need for raising awareness of the need for the conservation birds as key players in the wetland ecosystems in this part of the country.

Plate 2. A boy at Doho rice scheme found carrying an African Crake which he had trapped from the paddies, he captures birds for food.

4.1.8 Invasive Salvinia at Kibimba dam: A threat to many water bodies in Uganda

In Uganda little is known of the giant Salvinia, the species is poorly documented and yet it ranks second close behind the water hyacinth on a list of the world's most noxious aquatic weeds. *Salvinia molesta* also known as the Kariba weed is an invasive free-floating aquatic water plant native to south-eastern Brazil. Over the years, the species has spread widely throughout the World and is invasive in a variety of aquatic habitats, including lakes, rivers and rice paddies. It is currently listed among the 100 most invasive species. The species has been known to exist in Uganda although little is known of its introduction. Many infestations have been documented in the Lake Kyoga region the most recent being in 2014 (NewVision). During the July Water Fowl Counts in Eastern Uganda, NatureUganda team noted that the Kibimba Rice Scheme Dam was heavily infested by the Kariba weed. The NewVision of 2nd August 2018 ran a story on how the weed had rendered the Uganda shs.4.7 billion Leye Dam in Kole District useless. The dense vegetation mats formed by the Kariba weed reduce water flow, lower the light penetration and oxygen levels in the water. This stagnant dark environment negatively affects the biodiversity and abundance of freshwater species, including fish and submerged aquatic plants. S. molesta can alter wetland ecosystems and cause wetland loss and also poses a severe threat to socio-economic activities dependent on open, flowing and/or high-quality water bodies, including hydro-electricity generation, fishing and boat transport. It is spread within an aquatic system by the movement of plants by wind, water currents, floods and animals. Spread between aquatic systems is assumed to be mainly by humans moving plants intentionally (e.g. as ornamentals), unintentionally as a hitch-hiker on boats, or in shipments of aquatic plants and fish.

On a positive note, many approaches have been put forward to combat this invasive species ranging from manual or mechanical removal to biological control using the Salvinia weevil; *Cyrtobagous salviniae* that feeds on the plant. This biological control method is being experimented in Lake Kyoga by NARO and it could be used to fight the species in other areas of the country. Chemical control using herbicides has been used in some instances although this should be the last resort as it is expensive and comes with other implications on the aquatic life. Because of the great difficulties associated with its manual or mechanical removal, chemical and biological control, regulatory prevention remains the most effective management strategy available. The effects of this weed on living things have been widely studied, but it is important to note that its presence makes it very difficult for water birds to access resource in the water. In fact, very few birds were recorded from the dam.

Plate 3. *Salvinia molesta* at Kibimba dam

CHAPTER FIVE:

Monitoring and Evaluation Framework

Activity	Monitoring indicator	Means of Verification	Frequency of monitoring	Responsible party
1. Waterfowl counts	Species richness Species abundance Congregations Migrants Breeding sites Congregation site and number	Counts reports	Twice a year- In January and July	NatureUganda, UWA, Volunteers, local site guide
2. Land bird counts	Species richness Species abundance Congregations Migration Breeding sites Congregation site and number	Counts Reports	Twice a year- In January and July	NatureUganda, UWA
3. Road raptor counts	Species richness Species abundance Congregations Migration Breeding sites Feeding sites	Counts Reports	Once a year- In January	NatureUganda, UWA
4. Nightjar surveys	Species richness Species abundance Feeding sites	Counts report	Twice a year- In January and July	NatureUganda, UWA, Volunteers, local site guide
5. Threats monitoring	Occurrence of threats Conservation Interventions in place	Monitoring reports	One a year	NatureUganda& UWA,

CHAPTER SIX:

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CHAPTER SEVEN:

Appendices

Appendix I: List of Bird species recorded in the Landbird sites surveyed in July 2019

Atlas No.	COMMON NAME Scientific Name	Ecology	Conservation status, migrants	Education centre-Kasyoha Kitomi	Transparent lake-Kasyoha-Kitomi	Birinzi -Gulu Road	Nakitoma- Gulu Road	Kafu -Gulu Road	Katugo - Gulu Road	Marabigambo grassland	Airstrip grassland Mutukula	Phoenix savana - Nabugabo	Bulyasi -Mabira CFR	Bujagali Cultivations	Nyamuliro lower Swamp	Nyamuliro upper Swamp	Saka lakes Fortportal	Mobuku cultivation -Kasese Road	Kyegegwa -Kasese Road	Nshara gate -LMNP	Rwonyo gate -LMNP	Sanga gate -LMNP	Echuya CFR2	Echuya CFR1	North1 -MFNP	Chobe Terminalia -MFNP	Chobe Acacia -MFNP	Falls woodland -MFNP	Palm Savana -MFNP	Jobi Woodland -MFNP	Imperata -MFNP	The south -MFNP	North 2 -MFNP	North 3 -MFNP	North 4/Paraa lodge -MFNP	Waiga South -MFNP	Waiga River -MFNP	Paraa woods MFNP	Mweya Peninsula -QENP	Channel track -QENP	Kamulikwezi -QENP	Kasese Woodland -QENP
50	EGYPTIAN GOOSE Alopochen aegyptiaca	WG									2															1								63	2				4			
57	YELLOW-BILLED DUCK Anas undulata	W		2																																					
142	HELMETED GUINEAFOWL Numida meleagris	G		22		1	2	2	2	1		1														2				3					2					5	
145	HARLEQUIN QUAIL Coturnix delegorguei	G																																						2	
157	HEUGLIN'S FRANCOLIN Pternistis icterorhynchus	G																												1										
155	SCALY FRANCOLIN Pternistis squamatus	F															2																								
161	RED-NECKED SPURFOWL Pternistis afer		R-VU, U-VU							1		3																												1	
154	CRESTED FRANCOLIN Dendroperdix sephaena					2					1									5		1			3												6	4	6		
282	FERAL PIGEON Columba livia domestica																	12																							
284	AFRICAN MOURNING DOVE Streptopelia decipiens																								7					1	1		3	5	3	3	7		4		3	
283	RED-EYED DOVE Streptopelia semitorquata	f		6	8	20		2	3	5	2	11	1	17				3	4	6	2					1	3					1	2	7			6	1	1	5	4	3
285	VINACEOUS DOVE Streptopelia vinacea																								3		5				7	1	8	7		9	4	18				
289	LAUGHING DOVE Streptopelia senegalensis			2		5		6			1						8	14	1	3																			2	2	
268	AFRICAN GREEN-PIGEON Treron calvus	F		6	7				4								1								3	2	11														2
273	EMERALD-SPOTTED WOOD DOVE Turtur chalcospilos	F																		1	1																					

Atlas No.	COMMON NAME Scientific Name	Ecology	Conservation status, migrants	Education centre-Kasyoha Kitomi	Transparent lake-Kasyoha-Kitomi	Birinzi -Gulu Road	Nakitoma- Gulu Road	Kafu -Gulu Road	Katugo - Gulu Road	Marabigambo grassland	Airstrip grassland Mutukula	Phoenix savana - Nabugabo	Bulyasi -Mabira CFR	Bujagali Cultivations	Nyamuliro lower Swamp	Nyamuliro upper Swamp	Saka lakes Fortportal	Mobuku cultivation -Kasese Road	Kyegegwa -Kasese Road	Nshara gate -LMNP	Rwonyo gate -LMNP	Sanga gate -LMNP	Echuya CFR2	Echuya CFR1	North1 -MFNP	Chobe Terminalia -MFNP	Chobe Acacia -MFNP	Falls woodland -MFNP	Palm Savana -MFNP	Jobi Woodland -MFNP	Imperata -MFNP	The south -MFNP	North 2 -MFNP	North 3 -MFNP	North 4/Para lodge -MFNP	Waiga South -MFNP	Waiga River -MFNP	Para woods MFNP	Mweya Peninsula -QENP	Channel track -QENP	Kamulikwezi -QENP	Kaseese Woodland -QENP
272	BLACK-BILLED WOOD DOVE Turtur abyssinicus																								5	1						10	1	2	4							
271	BLUE-SPOTTED WOOD DOVE Turtur afer	F		4	5	2		2	2		1	1	5	1			5	3	1			3			12	1	4	2			2	12	10	5	11	8	8	2	1	6	1	1
270	TAMBOURINE DOVE Turtur tympanistria	F		6	4			1					1									1	1										3			7	3	1				2
	RING-NECKED DOVE			4	5	3				1							5			8	4	9																	1	6	2	3
341	SWAMP NIGHTJAR Caprimulgus natalensis	Wg																																1						1	
358	AFRICAN PALM SWIFT Cypsiurus parvus				5		10	66	19	10	1			1				3	3						5	1	9		63	64	5	4	5	1	15	38	36				3
363	WHITE-RUMPED SWIFT Apus caffer																																					17				
365	LITTLE SWIFT Apus affinis																4																									
325	SENEGAL COUCAL Centropus senegalensis	f																							2	1						1	4	2								
326	BLUE-HEADED COUCAL Centropus monachus	W																						1																			
323	WHITE-BROWED COUCAL Centropus supercilosus				3	2	2		1		2	1			1		6		1	1	1				5		2				1	10	1		8	6	5	1	2	3	3	
324	BLACK COUCAL Centropus grillii	W	R-NT, U-NT																																							5
321	YELLOWBILL Ceuthmochares aereus	F																							2		1															
307	LEVAILLANT'S CUCKOO Clamator levaillantii	Af																								1						1										
319	KLAAS' CUCKOO Chrysococcyx klaas	f		1	2								1				1																						1			
317	AFRICAN EMERALD CUCKOO Chrysococcyx cupreus	F		2	3				1																		2															
320	DIEDERICK CUCKOO Chrysococcyx caprius			2	2			1			1		1											1					1											2	2	
314	DUSKY LONG-TAILED CUCKOO Cercococcyx mechowi	FF																						2																		
309	RED-CHESTED CUCKOO Cuculus solitarius	AF		3	4					3											1				3						1			3		1	5		2	3	
310	BLACK CUCKOO Cuculus clamosus	Af/FF																												1												
296	GREAT BLUE TURACO Corythaeola cristata	F			11								4	16			4																									
305	EASTERN GREY PLANTAIN-EATER Crinifer zonurus			13	9	3	5	2	4				4				9		1						1								3	3	3		10				
303	BARE-FACED GO-AWAY BIRD Corythaixoides personatus		R-RR								6	2								4																				6	

Atlas No.	COMMON NAME Scientific Name	Ecology	Conservation status, migrants	Education centre-Kasyoha Kitomi	Transparent lake-Kasyoha-Kitomi	Birinzi -Gulu Road	Nakitoma- Gulu Road	Kafu -Gulu Road	Katugo - Gulu Road	Marabigambo grassland	Airstrip grassland Mutukula	Phoenix savana - Nabugabo	Bulyasi -Mabira CFR	Bujagali Cultivations	Nyamuliro lower Swamp	Nyamuliro upper Swamp	Saka lakes Fortportal	Mobuku cultivation -Kasese Road	Kyegegwa -Kasese Road	Nshara gate -LMNP	Rwonyo gate -LMNP	Sanga gate -LMNP	Echuya CFR2	Echuya CFR1	North1 -MFNP	Chobe Terminalia -MFNP	Chobe Acacia -MFNP	Falls woodland -MFNP	Palm Savana -MFNP	Jobi Woodland -MFNP	Imperata -MFNP	The south -MFNP	North 2 -MFNP	North 3 -MFNP	North 4/Para lodge -MFNP	Waiga South -MFNP	Waiga River -MFNP	Para woods MFNP	Mweya Peninsula -QENP	Channel track -QENP	Kamulikwezi -QENP	Kaseese Woodland -QENP
297	BLACK-BILLED TURACO Tauraco schuetti	FF																							1																
298	WHITE-CRESTED TURACO Tauraco leucolophus	F					1			1												1													4						
302	ROSS'S TURACO Musophaga rossae	F		7	7	2											2																								
185	GREY CROWNED CRANE Balearica regulorum	WG	G-EN,R-NT, U-EN	10	8						4						3					2												2								
36	MARABOU STORK Leptoptilos crumeniferus	w		4									5									1										1			2						
29	YELLOW-BILLED STORK Mycteria ibis	W																																1							
30	AFRICAN OPENBILL STORK Anastomus lamelligerus	AwG									1																														
32	ABDIM'S STORK Ciconia abdimii	AG	AM												2																										
9	PINK-BACKED PELICAN Pelecanus rufescens	W												1			2																								
28	HAMERKOP Scopus umbretta	w		9	6						1					1	2						1																		
14	SQUACCO HERON Ardeola ralloides	W																																1							
17	CATTLE EGRET Bubulcus ibis	G				2				2	12	140							3															3							
25	GREY HERON Ardea cinerea	W	R-NT																		1																				
26	BLACK-HEADED HERON Ardea melanocephala	w		4	3	3										1	2	3	2	1			1																	2	
24	PURPLE HERON Ardea purpurea	W	R-NT																															3							
23	GREAT WHITE EGRET Ardea alba	W	R-VU																															1							
22	INTERMEDIATE EGRET Ardea intermedia	W																																1							
19	BLACK HERON Egretta ardesiaca	W	R-NT							1																															
42	SACRED IBIS Threskiornis aethiopicus	W		4							3					7	7						1																	
44	AFRICAN SPOONBILL Platalea alba	W									1																														
39	HADADA IBIS Bostrychia hagedash	w		16	8	4				1	6	1				4	2	9			2					1	2				1	1	2		3					2	
38	GLOSSY IBIS Plegadis falcinellus	pW	PM								4																														
6	LONG-TAILED CORMORANT Microcarbo africanus	W																7								1							1								

Atlas No.	COMMON NAME Scientific Name	Ecology	Conservation status, migrants	Education centre-Kasyoha Kitomi	Transparent lake-Kasyoha-Kitomi	Birinzi -Gulu Road	Nakitoma- Gulu Road	Kafu -Gulu Road	Katugo - Gulu Road	Marabigambo grassland	Airstrip grassland Mutukula	Phoenix savana - Nabugabo	Bulyasi -Mabira CFR	Bujagali Cultivations	Nyamuliro lower Swamp	Nyamuliro upper Swamp	Saka lakes Fortportal	Mobuku cultivation -Kasese Road	Kyegegwa -Kasese Road	Nshara gate -LMNP	Rwonyo gate -LMNP	Sanga gate -LMNP	Echuya CFR2	Echuya CFR1	North -MFNP	Chobe Terminalia -MFNP	Chobe Acacia -MFNP	Falls woodland -MFNP	Palm Savana -MFNP	Jobi Woodland -MFNP	Imperata -MFNP	The south -MFNP	North 2 -MFNP	North 3 -MFNP	North 4/Para lodge -MFNP	Waiga South -MFNP	Waiga River -MFNP	Para woods MFNP	Mweya Peninsula -QENP	Channel track -QENP	Kamulikwezi -QENP	Kaseese Woodland -QENP
5	GREATER CORMORANT Phalacrocorax carbo	W		16	3																																				
7	AFRICAN DARTER Anhinga rufa	W	R-VU, U-VU																							1																
200	SENEGAL THICK-KNEE Burhinus senegalensis	W																															5									
201	WATER THICK-KNEE Burhinus vermiculatus	W																																		2						
212	KITTLITZ'S SANDPLOVER Charadrius pecuarius	W																																		1						
213	THREE-BANDED PLOVER Charadrius tricollaris	W								1																																
227	LONG-TOED LAPWING Vanellus crassirostris	W																															4									
223	SPUR-WINGED LAPWING Vanellus spinosus	WG										2																								5						
225	SENEGAL LAPWING Vanellus lugubris	AG								3	14	2									5														11						
226	CROWNED LAPWING Vanellus coronatus	G									6										4														6						
221	AFRICAN WATTLED LAPWING Vanellus senegallus	W						5		2	4										5	1					2			2	1										
193	JACANA Actophilornis africana	W																									2					11	1								
250	COMMON SANDPIPER Actitis hypoleucos	PW	PM							2																															
208	BLACK-WINGED PRATINCOLE Glareola nordmanni	Pw	PM																																	1						
73	BLACK-SHOULDERED KITE Elanus caeruleus	G																																							2	
90	AFRICAN HARRIER HAWK Polyboroides typus	f		2	1											1					1																				
77	PALM-NUT VULTURE Gypohierax angolensis										1	1						4																	1					2		
88	BATELEUR Terathopius ecaudatus	G	R-NT				1									1						1	1						1	4					1	1						
85a	BLACK-CHESTED SNAKE EAGLE Circaetus pectoralis																											1													
87	WESTERN BANDED SNAKE EAGLE Circaetus cinerascens	F																			1	1																			1	
80	HOODED VULTURE Necrosyrtes monachus	f	G-CR, U-EN										2																											2		
81	WHITE-BACKED VULTURE Gyps africanus	G	G-EN, R-NT																				2																	43		
82	RÜPPELL'S VULTURE Gyps rueppellii	G	G-CR, R-NT, U-EN																											2	8					5				4		

Atlas No.	COMMON NAME Scientific Name	Ecology	Conservation status, migrants	Education centre-Kasyoha Kitomi	Transparent lake-Kasyoha-Kitomi	Birinzi -Gulu Road	Nakitoma- Gulu Road	Kafu -Gulu Road	Katugo - Gulu Road	Marabigambo grassland	Airstrip grassland Mutukula	Phoenix savana - Nabugabo	Bulyasi -Mabira CFR	Bujagali Cultivations	Nyamuliro lower Swamp	Nyamuliro upper Swamp	Saka lakes Fortportal	Mobuku cultivation -Kasese Road	Kyegegwa -Kasese Road	Nshara gate -LMNP	Rwonyo gate -LMNP	Sanga gate -LMNP	Echuya CFR2	Echuya CFR1	North1 -MFNP	Chobe Terminalia -MFNP	Chobe Acacia -MFNP	Falls woodland -MFNP	Palm Savana -MFNP	Jobi Woodland -MFNP	Imperata -MFNP	The south -MFNP	North 2 -MFNP	North 3 -MFNP	North 4/Paraa lodge -MFNP	Waiga South -MFNP	Waiga River -MFNP	Paraa woods MFNP	Mweya Peninsula -QENP	Channel track -QENP	Kamulikwezi -QENP	Kasese Woodland -QENP
83	LAPPET-FACED VULTURE Torgos tracheliotos		E-CR, R-NT																																			2		
125	MARTIAL EAGLE Polemaetus bellicosus		NT, R-VU																								1												1	
122	LONG-CRESTED EAGLE Lophaetus occipitalis	F		2	3								2				1							1															1	
116a	TAWNY EAGLE Aquila rapax	O					2																					1		1		2								1
118	WAHLBERG,S EAGLE Hieraaetus wahlbergi							1																															2	
109	LIZARD BUZZARD Kaupifalco monogrammicus	F		2	2	1							2	4			2	1	1																			2	1
96	DARK CHANTING-GOSHAWK Melierax metabates																																3							
95	GABAR GOSHAWK Micronisus gabar										1																													
94	WESTERN MARSH HARRIER Circus aeruginosus	Pw	PM																																	1				
93	AFRICAN MARSH HARRIER Circus ranivorus	W	R-NT			2		1				1			2																								
98	AFRICAN GOSHAWK Accipiter tachiro	F				1																																	
100	SHIKRA Accipiter badius	F																										1										1	
103	LITTLE SPARROWHAWK Accipiter minullus	f				1																						1											
105	RUFOUS-CHESTED SPARROWHAWK Accipiter rufiventris	F	R-NT								2																													
76	AFRICAN FISH EAGLE Haliaeetus vocifer	W		4	3									1			2			1								1						1	1					
75	BLACK KITE Milvus migrans	pA	PM	2	2	2	4						1	1				1	1						1										1					1
114	AUGUR BUZZARD Buteo augur			8	4											1								1															
110	COMMON BUZZARD Buteo buteo	P	PM														1																							
369	SPECKLED MOUSEBIRD Colius striatus			28	25	14	3	1	7	22	11	29	27		10		9	31	7	22		2			42		5				8	2	43	6	9	23	5	21	15	41	3	11
368	BLUE-NAPED MOUSEBIRD Urocolius macrourus							1			1	1								32		4			13							1	3	2		2	6	1	14	19	11	9
419	CROWNED HORNBILL Lophoceros alboterminatus	f		2	5																1																			1
418	AFRICAN PIED HORNBILL Lophoceros fasciatus	F			3																																			
420	AFRICAN GREY HORNBILL Lophoceros nasutus						5															1			13					1	2		1		5			1				

Atlas No.	COMMON NAME Scientific Name	Ecology	Conservation status, migrants	Education centre-Kasyoha Kitomi	Transparent lake-Kasyoha-Kitomi	Birinzi -Gulu Road	Nakitoma- Gulu Road	Kafu -Gulu Road	Katugo - Gulu Road	Marabigambo grassland	Airstrip grassland Mutukula	Phoenix savana - Nabugabo	Bulyasi -Mabira CFR	Bujagali Cultivations	Nyamuliro lower Swamp	Nyamuliro upper Swamp	Saka lakes Fortportal	Mobuku cultivation -Kasese Road	Kyegegwa -Kasese Road	Nshara gate -LMNP	Rwonyo gate -LMNP	Sanga gate -LMNP	Echuya CFR2	Echuya CFR1	North1 -MFNP	Chobe Terminalia -MFNP	Chobe Acacia -MFNP	Falls woodland -MFNP	Palm Savana -MFNP	Jobi Woodland -MFNP	Imperata -MFNP	The south -MFNP	North 2 -MFNP	North 3 -MFNP	North 4/Para lodge -MFNP	Waiga South -MFNP	Waiga River -MFNP	Para woods MFNP	Mweya Peninsula -QENP	Channel track -QENP	Kamulikwezi -QENP	Kaseese Woodland -QENP
422	BLACK-AND-WHITE CASQUED HORNBILL Bycanistes subcylindricus	F			2								4	3			3		2						2																
408	EURASIAN HOOPOE Upupa epops	p	PM																																				1		
405	COMMON SCIMITARBILL Rhinopomastus cyanomelas							2												1					4														3	1		
456	LESSER HONEYGUIDE Indicator minor	f																													2						1			2		
455	GREATER HONEYGUIDE Indicator indicator	f				2												1												1												
465	NUBIAN WOODPECKER Campethera nubica											1									2					2						1	2		1	4	3			2		
473	CARDINAL WOODPECKER Dendropicos fuscescens				1			1	1					1							2					1									1		2					
477	GREY WOODPECKER Mesopicos goertae	f																														1					2					
446	CRESTED BARBET Trachyphonus vaillantii	f																				2	1																			
430	YELLOW-THROATED TINKERBIRD Pogoniulus subsulphureus	FF																								6																
431	YELLOW-RUMPED TINKERBIRD Pogoniulus bilineatus	F				1	2						2																									1	1	3		
432	RED-FRONTED TINKERBIRD Pogoniulus pusillus												1																													
433	YELLOW-FRONTED TINKERBIRD Pogoniulus chrysoconus	f					1	3		1			6	1								1	4			6	4				1						2					
435	HAIRY-BREASTED BARBET Tricholaema hirsuta	F				1																																			
437	SPOT-FLANKED BARBET Tricholaema lachrymosa		R-RR					1	1			2									6	5	4			4												2		3		
439	WHITE-HEADED BARBET Lybius leucocephalus						7																																		
441	BLACK-BILLED BARBET Lybius guifsobalito																									2					1	2	1			3	2				
443	DOUBLE-TOOTHED BARBET Pogonornis bidentatus	f			5	7		1						3					1																	3	1		4		
389	RED-THROATED BEE-EATER Merops bulocki	W																							12	5	1				18		7	39	13		8				
390	WHITE-THROATED BEE-EATER Merops albicollis	Af	AM	29									2										4																		
388	SWALLOW-TAILED BEE-EATER Merops hirundineus	A	R-NT																														2			1					

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387	CINNAMON-CHESTED BEE-EATER Merops lafresnayii	F	R-RR												2	2	6																									
385	LITTLE BEE-EATER Merops pusillus	G				9				4	3									2					4																	
399	LILAC-BREASTED ROLLER Coracias caudatus																				1																					
401	BROAD-BILLED ROLLER Eurystomus glaucurus	Afw		1		1	1			1									1	2	2										2				3	1	2	3				
378	AFRICAN PYGMY KINGFISHER Ispidina picta	fw		2	1		1						2					1		1					4		3	4					5		3	6			8			1
380	MALACHITE KINGFISHER Corythornis cristata	W		1	3																																				
381	SHINING-BLUE KINGFISHER Alcedo quadribrachys	FFW	R-VU, U-VU	1																																					
382	GIANT KINGFISHER Megaceryle maxima	W	R-NT, U-NT																		1					1								1								
383	PIED KINGFISHER Ceryle rudis	W		6	13																																				
373	GREY-HEADED KINGFISHER Halcyon leucocephala	Afw					1	1												1						1						1										
376	STRIPED KINGFISHER Halcyon chelicuti					1														1	2	5				1	6	1			1				2	2	8				
375	WOODLAND KINGFISHER Halcyon senegalensis	A		2	2	1											1		1			2																			1	9
129	COMMON KESTREL Falco tinnunculus	P	PM																																		2					
132	GREY KESTREL Falco ardosiaceus							1																					1									1				
137	AFRICAN HOBBY Falco cuvieri	F												1																											
290	GREY PARROT Psittacus erithacus	FF	G-NT,R-NT,U-VU										1	2																											
292	BROWN PARROT Poicephalus meyeri							2													8	2	3			1						1				1	3				
293	RED-HEADED LOVEBIRD Agapornis pullarius	F		11								2		6						4											2					2				
534	GREY CUCKOO-SHRIKE Ceblepyris caesius	FF																						1																	
530	RED-SHOULDERED CUCKOO-SHRIKE Campephaga phoenicea																																						1		
531	BLACK CUCKOO-SHRIKE Campephaga flava	Af																					1																		
848	WESTERN BLACK-HEADED ORIOLE Oriolus brachyrynchus	F			1	2														1	1																				

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849	MONTANE ORIOLE Oriolus percivali	FF																					1	1																		
748	RWENZORI BATIS Batis diops	F	R-RR																				1	1																		
749	CHIN-SPOT BATIS Batis molitor	f		4	4																							2			1									1		
751	WESTERN BLACK-HEADED BATIS Batis erlangeri	f						2					1																									3				
743	CHESTNUT WATTLE-EYE Dyphorophyia castanea	FF			6																																					
c	comMon wattle eye			6	4		1	1	1				1	2			5	1							3	2	5	3			1	2					3	3	1	6		
742	BLACK-AND-WHITE FLYCATCHER Bias musicus	f		4	6								3	1																												
844	BRUBRU Nilaus afer																					2				1	4			2	2		1					4				
824	GREY-HEADED BUSH-SHRIKE Malaconotus blanchoti										1																											4				
836	NORTHERN PUFFBACK Dryoscopus gambensis	F		4	2		4		1															2	1		1	1				2	2	2	4		2	2				
830	MARSH TCHAGRA Bocagia minuta	w															1																									
831	BROWN-CROWNED TCHAGRA Tchagra australis			3			2	1	1								5								6				1				2			14			1			4
833	BLACK-CROWNED TCHAGRA Tchagra senegalus			2	4		1																					1	1	1	4	3	3	1	3			3	1	9	1	
828	SULPHUR-BREASTED BUSH-SHRIKE Cholorophoneus sulfureopectus	f									1	6								1					8	1	7	1				7	8				1	3		3		3
837	SOOTY BOUBOU Laniarius leucorhynchus	FF																					4	8																		
841	TROPICAL BOUBOU Laniarius aethiopicus	f		4	2	6		1			9	4	1				5	1		6		2				1					3									5		
842	PAPYRUS GONOLEK Laniarius mufumbiri	w	G-NT,R-NT,U-VU																						1																	
843	BLACK-HEADED GONOLEK Laniarius erythrogaster	f				5	5	8	3		7	5								9		5			18	3	2	1		1		12	18	1	12	24	21		9	21	8	12
829	DOHERTY'S BUSH SHRIKE Telophorus dohertyi	F	R-RR																				2	1																		
853	FORK-TAILED DRONGO Dicrurus adsimilis	f/F				4															3	4					1				2						2			2		3
817	ISABELLINE SHRIKE Lanius isabellinus	P	PM								2																															
815	GREY-BACKED FISCAL Lanius excubitoroides	Afw		5	2			2		1	15	7						2	2	3																			3	8	5	

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812	COMMON FISCAL Lanius collaris	G		3	3					6					3	3	1	2												4										1	
858	PIAPIAC Ptilostomus afer							2						1				7											33	49											
855	PIED CROW Corvus albus			8	10		2							1	2			2						1																4
739	AFRICAN PARADISE-FLYCATCHER Terpsiphone viridis	f		7	6			2						1		3		2				1			11			1			1	5				1	7	1		1		
740	RED-BELLIED PARADISE-FLYCATCHER Terpsiphone rufiventer	F															1																								
776	WESTERN VIOLET-BACKED SUNBIRD Anthreptes longuemarei	Af												1																										
794	COLLARED SUNBIRD Anthodiaeta collaris	F											1																											
781	GREEN-HEADED SUNBIRD Cyanomitra verticalis	F			9	1							2				4																							
784	OLIVE SUNBIRD Cyanomitra olivacea	FF																																						1
787	SCARLET-CHESTED SUNBIRD Chalcomitra senegalensis	f		6	4	2			1		1		4	3		1	5	3	1								2				1				6		1				5
790	BRONZE SUNBIRD Nectarinia kilimensis	f		9	10												5																							
796	OLIVE-BELLIED SUNBIRD Cinnyris chloropygius	F										1	1				3																							
800	REGAL SUNBIRD Cinnyris regius	F	R-RR																				4	7																
801	BEAUTIFUL SUNBIRD Cinnyris pulchellus							1																	9	1	4	2				3	4		9	2	6	3			
802	MARICO SUNBIRD Cinnyris mariquensis						1			1	1	1	1	1	2		4					2												2		1		1			2
803	RED-CHESTED SUNBIRD Cinnyris erythrocercus	W	R-RR	1									12	8																		1					2		1	
808	VARIABLE SUNBIRD Cinnyris venustus	f								1	1		8	3			1	2			2					2										2			
810	COPPER SUNBIRD Cinnyris cupreus	fw										3	5	1		2						1															3	4	2	2
890	WHITE-BROWED SPARROW-WEAVER Plocepasser mahali							3																																
891	CHESTNUT-CROWNED SPARROW-WEAVER Plocepasser superciliosus							6																								2	3	1		1	1	1			
889	SPECKLED-FRONTED WEAVER Sporopipes frontalis																								7					2										
937	GROSBEAK WEAVER Amblyospiza albifrons	fW											1									2			1							1	1				7				

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923	CARDINAL QUELEA Quelea cardinalis	A	R-RR		2																																					
924	RED-HEADED QUELEA Quelea erythrops	A																																		2	25					
925	RED-BILLED QUELEA Quelea quelea	A										32							35						4						5					9	192		20			
927	BLACK BISHOP Euplectes gierowii	w		3	4			1	5				13	4												1																
929	SOUTHERN RED BISHOP Euplectes orix	G		1																																			1		1	
930	NORTHERN RED BISHOP Euplectes franciscanus	G																													2		3	4		9	8					
928	BLACK-WINGED BISHOP Euplectes hordeaceus													1																	6											
933	YELLOW-MANTLED WIDOWBIRD Euplectes macroura	G																													6											
934	WHITE-WINGED WIDOWBIRD Euplectes albonotatus	G																																							4	
935	RED-COLLARED WIDOWBIRD Euplectes ardens																														1					1						
932	FAN-TAILED WIDOWBIRD Euplectes axillaris	w			3					24	18	31			32	2	4																									
936	VILLAGE INDIGOBIRD Vidua chalybeata	w	R-VU, U-VU										5					1								1															1	
893	BAGLAFECHT WEAVER Ploceus baglafecht	f		16	13								5				4	6																								
895	LITTLE WEAVER Ploceus luteolus							1																	4		9		1								4	2	1	1		
894	SLENDER-BILLED WEAVER Ploceus pelzelni	fW																					1																2			
897	SPECTACLED WEAVER Ploceus ocularis	f		3	5	3		2		1	1	3	1				1	2								1						1	9	1	1	4	6	1	4	41	1	1
896	BLACK-NECKED WEAVER Ploceus nigricollis	f			9					1					2																											
900	HOLUB'S GOLDEN WEAVER Ploceus xanthops	w		7													1			3																						
902	NORTHERN BROWN-THROATED WEAVER Ploceus castanops	fW	R-RR												3	7		2																								
903	LESSER MASKED WEAVER Ploceus intermedius																				7																					
908	BLACK-HEADED WEAVER Ploceus cucullatus				11	29		1	1		3		67	2	6	3	12	60	9								4	1				1	2			12	10	10		10	156	
907	VIEILLOT'S BLACK WEAVER Ploceus nigerrimus	f		21	11	35							10						34																							

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910	YELLOW-BACKED WEAVER Ploceus melanocephalus	W		40	26									3			3	4	5						5	1						5	5	4		22	5	4	20			
922	RED-HEADED WEAVER Anaplectes rubriceps																					3											1								
959	RED-BILLED FIREFINCH Lagonosticta senegala			12	8	10	3				5	1	1				1	3	2	5		3			1	2					1		1						3	1	
963	AFRICAN FIREFINCH Lagonosticta rubricata																			2																7					
956	BROWN TWINSPOT Clytospiza monteiri	f																																		1					
947	RED-WINGED PYTILIA Pytilia phoenicoptera																														2										
974	RED-CHEEKED CORDON-BLEU Uraeginthus bengalus						1		17				2	2						8	1	10			15	3	2		7	3		2	8	20	2	1	8	1	1	1		
966	FAWN-BREASTED WAXBILL Estrilda paludicola																																3								
969	COMMON WAXBILL Estrilda astrild	wG		12	11				1																										3	3				
970	BLACK-CROWNED WAXBILL Estrilda nonnula	f											15			50	6	2																		3					
971	BLACK-HEADED WAXBILL Estrilda atricapilla	F		7																																					
943	WHITE-COLLARED OLIVEBACK Nesocharis ansorgei	fw	R-RR	8																																					
942	WHITE-BREASTED NEGROFINCH Nigrita fusconotus	F											1																												
939	GREY-HEADED NEGROFINCH Nigrita canicapillus	F											9																												
978	AFRICAN QUAILFINCH Ortygospiza atricollis	wG									1																														
976	ZEBRA WAXBILL Amandava subflava					5																																			
980	BRONZE MANNIKIN Spermestes cucullata			19	19	35		5	10	1			27	23		50	28	24	2	15		10			3	1	6				4			1		5	1	4			
981	BLACK-AND-WHITE MANNIKIN Spermestes bicolor	f			26								3																												
985	PIN-TAILED WHYDAH Vidua macroura	G		5	8	20			2	11	3	2													4		1						1	15	1	1			2		
984	VILLAGE INDIGOBIRD Vidua chalybeata								1					1																											
880a	HOUSE SPARROW Passer domesticus																		2																			2			
880	RUFOUS SPARROW Passer cordofanicus		R-RR						1																																

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881	NORTHERN GREY-HEADED SPARROW Passer griseus			12	11			1					8	5			6	4	2	9	1				1	2	1											2			1
525	PLAIN-BACKED PIPIT Anthus leucophrys	G								1		1																													
522	AFRICAN PIPIT Anthus cinnamomeus	G				6				2	6									2								1													
529	YELLOW-THROATED LONGCLAW Macronyx croceus	G				1				7							1	1	3						3															6	
516	CAPE WAGTAIL Motacilla capensis	W													8	4																									
520	AFRICAN PIED WAGTAIL Motacilla aguimp	w		8	11			1		3		1	2			3		1	4							2														
991	AFRICAN CITRIL Crithagra citrinelloides	f		6	6												4																							
995	YELLOW-FRONTED CANARY Crithagra mozambica			6	6	3			10				18	12	2	3		1	2			2				3		1												
997	BRIMSTONE CANARY Crithagra sulphurata												1																											
999	STREAKY SEEDEATER Crithagra striolata	f													7	14							7	1																
990	YELLOW-CROWNED CANARY Serinus flavivertex	F												1								1																		
1007	CABANIS' BUNTING Fringillaria cabanisi																										1													
1006	BROWN-RUMPED BUNTING Fringillaria affinis	G																									2													
1005	GOLDEN-BREASTED BUNTING Fringillaria flaviventris				2								4									1																		
707	YELLOW-BELLIED HYLIOTA Hyliota flavigaster	F																														1								
732	AFRICAN BLUE-FLYCATCHER Elminia longicauda	f		10	10								12	4		3	3						1	1																
771a	WHITE-SHOULDERED BLACK TIT Melaniparus guineensis																											3												
773	GREY PENDULINE TIT Anthoscopus caroli	f																				1																		
487	RUFOUS-NAPED LARK Mirafra africana										2																													
489	FLAPPET LARK Mirafra rufocinnamomea	G																												1	1	6					1			
690	NORTHERN CROMBEC Sylvietta brachyura													1												1							1							
691	RED-FACED CROMBEC Sylvietta whytii	F																			1	1															3			

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692	GREEN CROMBEC Sylvietta virens	F											2																													3
621	MOUSTACHED GRASS WARBLER Melocichla mentalis						1		1			1	3													1						4	5	6		7	7	13			2	3
663	RED-WINGED GREY WARBLER Drymocichla incana	w	R-NT																																1							
661	WHITE-CHINNED PRINIA Schistolais leucopogon												1																												
667	YELLOW-BREASTED APALIS Apalis flavida	f																																3							
664	BUFF-BELLIED WARBLER Phyllolais pulchella	f											1															1	2		3			2		4	1	5				
677	GREY-BACKED CAMAROPTERA Camaroptera brachyura	f		2	2	7	15	5	6	2	4	4	16	9						4	3	9			1	26	8	12	13		2		1	10	30	3	14		18	7	18	7	17
701	GREY-CAPPED WARBLER Eminia lepida	fw	R-RR	2	2				2	2	2	7	1			4						1				6							1	10				6	8	1	8	1	5
	Whistling Cisticola						6	1	2																		4	4			3											1
638	RED-FACED CISTICOLA Cisticola erythrops	w				1					2	2	9			4	3	14								4	4	2			2						1	32	1			1	7
640	CROAKING CISTICOLA Cisticola natalensis								1																			1		12		1			1					9		
641	TRILLING CISTICOLA Cisticola woosnami								1		1	3								5		5						1	2													5	
642	CHUBB'S CISTICOLA Cisticola chubbi	Fw																4	2					2	2																		
645	RATTLING CISTICOLA Cisticola chiniana																										31				1	6		17	6	18	3	5				
647	WINDING CISTICOLA Cisticola marginatus	w															1																		4							
648	CARRUTHERS'S CISTICOLA Cisticola carruthersi	W	R-RR													2	3																									
652	SHORT-WINGED CISTICOLA Cisticola brachypterus																																				2					
654	TABORA CISTICOLA Cisticola angusticauda																				2																					
655	ZITTING CISTICOLA Cisticola juncidis	wG																												24	13					16				6		
658	TAWNY-FLANKED PRINIA Prinia subflava	fw		5	3		4		12	1	4	6	25	3			8	3								8		1	5	2	12	1	11	1	1	7	6	5		5		3
660	BANDED PRINIA Prinia bairdii	F																						1																		
662	RED-WINGED WARBLER Prinia erythroptera	F																													3		1								
622	FAN-TAILED GRASSBIRD Schoenicola brevirostris	fw																															1	1							

Atlas No.	COMMON NAME Scientific Name	Ecology	Conservation status, migrants	Education centre-Kasyoha Kitomi	Transparent lake-Kasyoha-Kitomi	Bitinzi -Gulu Road	Nakitoma- Gulu Road	Kafu -Gulu Road	Katugo - Gulu Road	Marabigambo grassland	Airstrip grassland Mutukula	Phoenix savana - Nabugabo	Bulyasi -Mabira CFR	Bujagali Cultivations	Nyamuliro lower Swamp	Nyamuliro upper Swamp	Saka lakes Fortportal	Mobuku cultivation -Kasese Road	Kyegegwa -Kasese Road	Nshara gate -LMNP	Rwonyo gate -LMNP	Sanga gate -LMNP	Echuya CFR2	Echuya CFR1	North1 -MFNP	Chobe Terminalia -MFNP	Chobe Acacia -MFNP	Falls woodland -MFNP	Palm Savana -MFNP	Jobi Woodland -MFNP	Imperata -MFNP	The south -MFNP	North 2 -MFNP	North 3 -MFNP	North 4/Para lodge -MFNP	Waiga South -MFNP	Waiga River -MFNP	Para woods MFNP	Mweya Peninsula -QENP	Channel track -QENP	Kamulikwezi -QENP	Kaseese Woodland -QENP
616	GRAUER'S SWAMP-WARBLER Bradypterus graueri	W	G-EN,R-VU,U-VU																				2																			
619	CINNAMON BRACKEN WARBLER Bradypterus cinnamomeus	F																					3	2																		
498	WHITE-HEADED SAW-WING Psalidoprocne albiceps	f	R-RR	22	11	54			1	21		3	14	1		3	26										2				3	1	1	2				2			
497	BLACK SAW-WING Psalidoprocne prisoptera	f														2							1																		
505	LESSER STRIPED SWALLOW Cecropis abyssinica			16	11	3	4						5							2						2	1														
503	RUFOUS-CHESTED SWALLOW Cecropis semirufa									2										3		1																			
504	MOSQUE SWALLOW Cecropis senegalensis			10	6												1																							
509	WIRE-TAILED SWALLOW Hirundo smithii	w																					2																		
510	WHITE-THROATED BLUE SWALLOW Hirundo nigrita	FFW			5																																			
513	BARN SWALLOW Hirundo rustica	Pw	PM			5													3																						
512	ANGOLA SWALLOW Hirundo angolensis	w				3				3		1			8	12						1																		1	
500	COMMON SAND MARTIN Riparia riparia	PW	PM							21	4							12																						
547	YELLOW-THROATED GREENBUL Atimastillas flavicollis	f		9	16	12					1		4									3					1													
545	JOYFUL GREENBUL Chlorocichla laetissima	FF	R-NT														6																							
537	EASTERN MOUNTAIN GREENBUL Arizelocichla nigriceps	FF	R-RR																						1																
542	YELLOW-WHISKERED GREENBUL Eurillas latirostris	F			2																		5	16																
538	LITTLE GREENBUL Eurillas virens	F			2					1			5											3				3				1								3	
551	TORO OLIVE GREENBUL Phyllastrephus hypochloris	FF	R-VU, U-NT										2																											
549	LEAF-LOVE Phyllastrephus scandens	F	U-NT						17																															
562	COMMON BULBUL Pycnonotus barbatus	f		17	17	23	9			2	6	12	43	44	7	6	15	21	10	7	3	6	7	11	21	7	6	10		8	12	15	9	17	20	21	15	12	22	13	13
699	RED-FACED WOODLAND-WARBLER Seicercus laetus	FF	R-RR																					4																
709	GREEN HYLIA Hylia prasina	F															1																						

Atlas No.	COMMON NAME Scientific Name	Ecology	Conservation status, migrants	Education centre-Kasyoha Kitomi	Transparent lake-Kasyoha-Kitomi	Bitinzi -Gulu Road	Nakitoma- Gulu Road	Kafu -Gulu Road	Katugo - Gulu Road	Marabigambo grassland	Airstrip grassland Mutukula	Phoenix savana - Nabugabo	Bulyasi -Mabira CFR	Bujagali Cultivations	Nyamuliro lower Swamp	Nyamuliro upper Swamp	Saka lakes Fortportal	Mobuku cultivation -Kasese Road	Kyegegwa -Kasese Road	Nshara gate -LMNP	Rwonyo gate -LMNP	Sanga gate -LMNP	Echuya CFR2	Echuya CFR1	North -MFNP	Chobe Termina!ia -MFNP	Chobe Acacia -MFNP	Falls woodland -MFNP	Palm Savana -MFNP	Jobi Woodland -MFNP	Imperata -MFNP	The south -MFNP	North 2 -MFNP	North 3 -MFNP	North 4/Para lodge -MFNP	Waiga South -MFNP	Waiga River -MFNP	Para woods MFNP	Mweya Peninsula -QENP	Channel track -QENP	Kamulikwezi -QENP	Kaseese Woodland -QENP
760	AFRICAN HILL BABBLER Sylvia abyssinica	FF																					5	4																		
811	NORTHERN YELLOW WHITE-EYE Zosterops senegalensis	f		13	13				6				7	3			3						3	4	3			1		1		3									
764	BLACK-LORED BABBLER Turdoides sharpei									10	7	15			5																						15	5			
763	DUSKY BABBLER Turdoides tenebrosa	W																																6							
761	BROWN BABBLER Turdoides plebejus						4															12																			
762	ARROW-MARKED BABBLER Turdoides jardineii																				5														6					5	5
879	RED-BILLED OXPECKER Buphagus erythrorynchus		R-NT, U-VU																							7															
878	YELLOW-BILLED OXPECKER Buphagus africanus		R-VU																		17													1							
877	WATTLED STARLING Creatophora cinerea																				10																				
872	RUPPELL'S STARLING Lamprotornis purpuroptera			2	6	8	3	12			12		5				2				18	10	32			1			6	7	1	2	2	5	10	3	11	6	6	8	1
871	SPLENDID STARLING Lamprotornis splendidus	c			6				7													2				3															
870	LESSER BLUE-EARED STARLING Lamprotornis chloropterus						18											1				1																			
876	VIOLET-BACKED STARLING Cinnyricinclus leucogaster	Af	AM									33									2					5								9		87	23	4	14	15	49	25
588	BROWN-BACKED SCRUB-ROBIN Cercotrichas hartlaubi	f																1				1																	1		
589	WHITE-BROWED SCRUB-ROBIN Cercotrichas leucophrys						4				1	1	1	1		4	1				1	1	1			2					1	7						2			
719	ASHY FLYCATCHER Muscicapa caerulescens	F						2																																	
720	SWAMP FLYCATCHER Muscicapa aquatica	W																																					6	1	
723	AFRICAN DUSKY FLYCATCHER Muscicapa adusta	F		4	4				1				3				4							4										1		14	1				
728	GREY TIT- FLYCATCHER Myioparus plumbeus	F																					1		1																
714	PALE FLYCATCHER Bradornis pallidus							1																			1						11					2			
713	NORTHERN BLACK FLYCATCHER Melaenornis edolioides			4	3	3	1	3	2				1	1			5	1			2					1	5							1	2	2		11		

Atlas No.	COMMON NAME Scientific Name	Ecology	Conservation status, migrants	Education centre-Kasyoha Kitomi	Transparent lake-Kasyoha-Kitomi	Birinzi -Gulu Road	Nakitoma- Gulu Road	Kafu -Gulu Road	Katugo - Gulu Road	Marabigambo grassland	Airstrip grassland Mutukula	Phoenix savana - Nabugabo	Bulyasi -Mabira CFR	Bujagali Cultivations	Nyamuliro lower Swamp	Nyamuliro upper Swamp	Saka lakes Fortportal	Mobuku cultivation -Kasese Road	Kyegegwa -Kasese Road	Nshara gate -LMNP	Rwonyo gate -LMNP	Sanga gate -LMNP	Echuya CFR2	Echuya CFR1	North1 -MFNP	Chobe Terminalia -MFNP	Chobe Acacia -MFNP	Falls woodland -MFNP	Palm Savana -MFNP	Jobi Woodland -MFNP	Imperata -MFNP	The south -MFNP	North 2 -MFNP	North 3 -MFNP	North 4/Paraa lodge -MFNP	Waiga South -MFNP	Waiga River -MFNP	Paraa woods MFNP	Mweya Peninsula -QENP	Channel track -QENP	Kamulikwezi -QENP	Kasese Woodland -QENP
713a	SOUTHERN BLACK FLYCATCHER Melaenornis pammelaina																																						20			3
716	SILVERBIRD Empidornis semipartitus																								3					1		1	1									
576	WHITE-BROWED ROBIN-CHAT Cossypha heuglini	f		4	3	2			1		2		4			1				2	1	3			1	1	1	1						1	1			5	10	12		3
578	SNOWY-CROWNED ROBIN-CHAT Cossypha niveicapilla	Fw			2							1					1									1																1
565	WHITE-STARRED FOREST ROBIN Pogonocichla stellata	F																					3	1																		
586	SPOTTED PALM-THRUSH Cichladusa guttata							1																	13					2		9	16	4	1	10	8	14				
592	AFRICAN STONECHAT Saxicola torquatus				5							5			9		3																									
601	SOOTY CHAT Myrmecocichla nigra					5					1						9		1										3		8											
612	AFRICAN THRUSH Turdus pelios	f		7	5		1	1	1				12	2			4	3	1			1						1						1			1	1		7		
	Number of species Recorded			87	90	54	35	46	40	41	56	46	72	47	28	32	72	39	32	56	31	48	20	26	67	40	49	34	20	28	52	45	63	55	46	54	68	62	44	55	47	56
	Number of individuals recorded			636	577	384	133	167	155	198	216	401	475	210	141	202	334	248	146	285	67	163	58	79	404	92	164	84	179	197	183	136	435	314	197	361	598	261	248	435	298	216

Appendix II: List of Bird species recorded in the water bird sites surveyed in July 2019

Name of Species	Airstrip Ponds Mutukula	Bagusa Crater -QENP	Banga -Ssese Islands	Delta A (L.Albertshoreline) -MFNP	Delta- Ferry channel - MFNP	Doho Rice Scheme -Butaleja	kaku wetland -Kyazanga	Kasenyi Crater -QENP	Kashaka landing site -QENP	Kazinga Channel -QENP	Kibimba Rice Scheme -Bugiri	Kikorongo Crater Kasese -QENP	Lake Bisina -Katakwi	Lake Katwe Crater -QENP	Lake Mburo -LMNP	Lutembe bay - Entebbe	Lutoboka - Ssese Islands	Mabamba bay -Mpigi	Makanaga bay - Mpigi	Maseche Crater -QENP	Munyanyange -QENP	Murchison Falls -MFNP	Musambwa Islands - Rakai	Nakiwogo -Entebbe	Nshenyi Crater Lake -QENP	Pearson Track -MFNP	Shoebill Swamp -QENP	Grand Total
African Crake						1																						1
African Darter				1	4										3							92				16		116
African Finfoot															8													8
African Fish Eagle			5						1	25		1			101	2	3	2	7			23		5				175
African Jacana	22			214	2	5	4		3	131	3		15		16	55	1	56	657			35		24	12	9	26	1,290
African Marsh Harrier							2				3					1		5	3					3				17
African Open-billed Stork			17	20	3	2	3				66		5			1	9					1		16		1		144
African skimmer										320												1						321
African Spoonbill										3	11	8															13	35
Allen's Gallinule				1																								1
Black Crake	1					10			4	45	5		20		10			5	7			6		4			17	134
Black Heron																						1						1
Black-crowned night Heron																			1			1						2
Black-headed Gull																								7				7
Black-headed Heron						2	1				75								1			3					1	83
Black-tailed Godwit											1																	1
Black-winged Stilt		50						61			28	2		81						32	21			2	190			467
Cattle Egret			31		2		35			13	131			80			6				35	6		55		10		404
Common Greenshank										14		37				6	1											58
Common Moorhen	40																		9					9			1	59
Common Pratincole												1															99	100
Common Sandpiper	2		21							2	1				7	1	26					1		33			1	95
Common Squacco Heron	2			17	1		2		1	33	1		1		9	5		15	23			2		3		1	1	117

Name of Species	Airstrip Ponds Mutukula	Bagusa Crater -QENP	Banga -Ssese Islands	Delta A (L.Albertshoreline) -MFNP	Delta- Ferry channel - MFNP	Doho Rice Scheme -Butaleja	kaku wetland -Kyazanga	Kasenyi Crater -QENP	Kashaka landing site -QENP	Kazinga Channel -QENP	Kibimba Rice Scheme -Bugiri	Kikorongo Crater Kasese -QENP	Lake Bisina -Katakwi	Lake Katwe Crater -QENP	Lake Mburo -LMNP	Lutembe bay - Entebbe	Lutoboka - Ssese Islands	Mabamba bay -Mpigi	Makanaga bay - Mpigi	Maseche Crater -QENP	Munyanyange -QENP	Murchison Falls -MFNP	Musambwa Islands - Rakai	Nakiwogo -Entebbe	Nshenyi Crater Lake -QENP	Pearson Track -MFNP	Shoebill Swamp -QENP	Grand Total
Curlew Sandpiper												6																6
Egyptian Goose	2	4	7							373		175			2	7	36				44	95	15	114	6	4	179	1,063
Eurasian Spoonbill																				1					2			3
Fulvous Whistling Duck				4																								4
Giant Kingfisher			1												2							1						4
Glossy Ibis	2										581						2		1					98				684
Goliath Heron					2					5	1							1				6				2	2	19
Great Egret						14	1			15									4			8						42
Great Snipe														3														3
Great White Pelican										5																	7	12
Greater Cormorant			21		2					281						2	2	3	3			9	354	143		7		827
Green-backed Heron			2			5			1	3	1		8		39	2	1					4		6				72
Grey Crowned Crane							40				22			5					2			1		3		5	6	84
Grey Heron	1		1			2			1	167	11	21	1				1					2	1	28			5	242
Grey-headed Gull				11						11						912			143				8,050	1,230				10,357
Gull-billed Tern				10												11							4	8				33
Hadada Ibis	3	7					1			30	4		5		5		2			2		26		16	2	2	4	109
Hamerkop			10				1		19	31					43		11							5	3		1	124
Heuglin's Gull																2							36					38
Kittlitz's Plover								11		20		11									1						21	64
Knob-billed Duck											8													2				10
Lesser Black-backed Gull																10							4	16				30
Lesser Flamingo												4								150	8				2,060			2,222
Lesser Jacana				1									8					1	5									15
Little Bittern					1	1				1			2															5
Little Egret			68			44			2	55	146	1			3	17	134		5	4		5	151	446	2	4		1,087
Little Grebe												8													2			10
Little Stint												7				3												10

Name of Species	Airstrip Ponds Mutukula	Bagusa Crater -QENP	Banga -Ssese Islands	Delta A (L.Albertshoreline) -MFNP	Delta- Ferry channel - MFNP	Doho Rice Scheme -Butaleja	kaku wetland -Kyazanga	Kasenyi Crater -QENP	Kashaka landing site -QENP	Kazinga Channel -QENP	Kibimba Rice Scheme -Bugiri	Kikorongo Crater Kasese -QENP	Lake Bisina -Katakwi	Lake Katwe Crater -QENP	Lake Mburo -LMNP	Lutembe bay - Entebbe	Lutoboka - Ssese Islands	Mabamba bay -Mpigi	Makanaga bay - Mpigi	Maseche Crater -QENP	Munyanyange -QENP	Murchison Falls -MFNP	Musambwa Islands - Rakai	Nakiwogo -Entebbe	Nshenyi Crater Lake -QENP	Pearson Track -MFNP	Shoebill Swamp -QENP	Grand Total
Long-tailed Cormorant	1		367	32	3	8			4	148	53		38		2	47	215	11	111			7	759	1,016		5		2,827
Long-toed Plover	1				3		7			1	32		22		8	16		12	74			2		17		6	10	211
Malachite Kingfisher	2					8			1	38	4		1		38	5	4	11	7			13		6			1	139
Marabou Stork								1	5	7		5									6						3	27
Marsh Sandpiper																4								2				6
Night Heron										12					4													16
Osprey													1															1
Painted Snipe		5																										5
Palm-nut Vulture																1												1
Pied Avocet		3										1									25							29
Pied Kingfisher	3		25	18	24	2		5	11	1,266	2	3	7		186	40	61	32	65	10		388		572		37	4	2,761
Pink-backed Pelican				4					2	46	2	3			3								5	56				121
Purple Heron	1				4				2		29		5					8	6			8		5		2		70
purple swamphen													2						27									29
Red-knobbed Coot	11			6									34						1				16	314			2	384
Ringed Plover										2		3										2						7
Rock Pratincole																						6						6
Ruff																6												6
Rufous-bellied Heron	1										1				2													4
Sacred Ibis	3		14		3		3			21	303	1						1			33		59	2	21		1	465
Saddle-billed Stork										3					2											1		6
Senegal Thick-knee																						7		1				8
Shoebill				1														1	4									6
Slender-billed Gull																29												29
Spur-winged Goose													1			1			7			11						20
Spur-winged Plover	2		3				1	9	16	246	20	19		5		9	7		2	1	40	36		37	11	81	36	581
Three-banded Plover	1									4		1																6
Water Thick-knee								10				2			18							6		2			6	44

Name of Species	Airstrip Ponds Mutukula	Bagusa Crater -QENP	Banga -Ssese Islands	Delta A (L.Albertshoreline) -MFNP	Delta- Ferry channel - MFNP	Doho Rice Scheme -Butaleja	kaku wetland -Kyazanga	Kaseny Crater -QENP	Kashaka landing site -QENP	Kazinga Channel -QENP	Kibimba Rice Scheme -Bugiri	Kikorongo Crater Kasese -QENP	Lake Bisina -Katakwi	Lake Katwe Crater -QENP	Lake Mburo -LMNP	Lutembe bay - Entebbe	Lutoboka - Ssese Islands	Mabamba bay -Mpigi	Makanaga bay - Mpigi	Masecche Crater -QENP	Munyanyange -QENP	Murchison Falls -MFNP	Musambwa Islands - Rakai	Nakiwogo -Entebbe	Nshenyi Crater Lake -QENP	Pearson Track -MFNP	Shoebill Swamp -QENP	Grand Total
Wattled Plover							3			12				5													2		22
Whiskered Tern				2								6																	8
White-backed Duck	20										6		10																36
White-backed Night Heron																	2											2
White-faced Whistling Duck	1			3	2	4					25		1			2			7			1					22	75
White-winged Tern		1		81												2								1				85
Wood Sandpiper											4													1				5
Woolly-necked Stork											1											5						6
Yellow-billed Duck	12		6				6									78	40	27	196					280				645
Yellow-billed Egret				1		5	1			9		1						3	1		4	5		1				31
Yellow-billed Stork						1			3	53	39	16												4			17	133
Total Individuals	134	70	599	427	56	114	111	97	76	3,451	1,620	343	187	179	511	1,277	564	194	1,379	200	217	826	9,454	4,593	2,311	202	486	29,678
Total Species	22	6	16	18	14	16	16	6	16	37	33	25	20	6	22	29	20	17	28	7	10	36	12	41	11	19	26	90

Yellow-necked Spurfowl

About *Nature* Uganda

NatureUganda, the East Africa Natural History Society (EANHS) in Uganda, is a membership, research and conservation organization established to undertake conservation actions using scientifically proven methods for the benefit of the people and nature. It is the oldest membership organisation in Uganda, having been founded (as EANHS) in 1909 as a scientific organization with the primary aim of documenting the diversity of wildlife in East Africa.

By the mid-1990s, EANHS-Uganda had attracted many members and broadened the scope of activities in scientific research, conservation action, public awareness raising and advocacy. At this point it was realized that a formal registration within Uganda would be necessary as a response to the increasing activities. The Society was therefore registered as a non-profit, independent national organization in 1995 with the operational name of NatureUganda Đ The East Africa Natural History Society.

NatureUganda has been the national Partner of BirdLife International since 1995, and the societyÕsprogrammes are based on the four well-established pillars of BirdLife global strategy, namely Species, Sites, Habitats and People.

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- ¥ Create a nature-friendly public
- ¥ Enhance knowledge of UgandaÕs natural history
- ¥ Advocate for policies favorable to the environment
- ¥ Take action to conserve priority species, sites and habitats.

NatureUganda has its secretariat in Kampala- Naguru, and services its 3,000 members and supporters though branches in Gulu, Mbale, Muni, Busitema and Mbarara.

Inspired by the original purpose of the East African Natural History Society to document the diversity of wildlife in East Africa. NatureUgandaÕs work is hinged on scientific information generated through well laid down research and monitoring programmes. Considering that 90% of UgandaÕsGDP is derived from Natural Resources (tourism, forestry, fisheries), biodiversity conservation is a priority for the country. NatureUganda supports biodiversity protection and economic development through its research, public awareness and education, policy and advocacy, and conservation programmes. We provide quality scientific information mainly using birds as indicators to support local and national governments to make informed decisions. The support is provided through established partnerships with government agencies including Uganda Wildlife Authority (UWA), National Forestry Authority (NFA), National Environment Management Authority (NEMA), Wetlands Management Department (WMD).

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