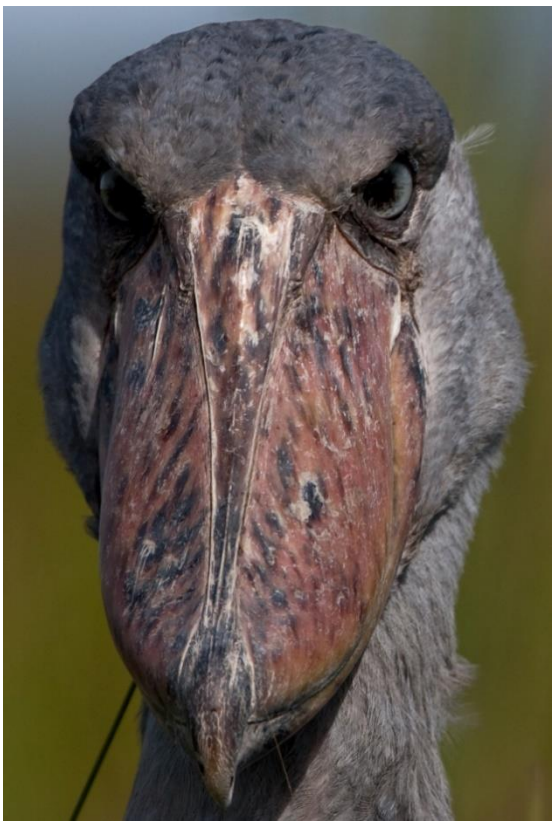
ZSL
LET'S WORK FOR WILDLIFE

EDGE

EVOLUTIONARILLY DISTINCT & GLOBALLY ENDANGERED

Survival Blueprint

Shoebill*, Balaeniceps rex*



Compiler: Judith Mirembe

Contributors: Judith Mirembe, Achilles Byaruhanga, Derek Pomeroy, Michael Opige, Dianah Nalwanga

Suggested citation: Mirembe *et al,* 2018. A survival Blueprint for the Conservation and Management of the Shoebill, *Balaeniceps rex* in Uganda. An Output from NatureUganda, Uganda and the EDGE of Existence Fellowship, Zoological Society of London 2018.

1. STATUS REVIEW

1.1 Taxonomy:

Kingdom: **Animalia**

Order**: Pelicaniformes** Formerly included in **Cicorniformes**

Family: **Balaenicipitidae**

Genus: ***Balaeniceps***

Species: ***Balaeniceps rex***

1.2 Distribution and population status:

1.2.1 Global distribution:

Country	Population estimate (plus references)	Distribution	Population trend (plus references)	Notes
Uganda	100-300 pairs (Carswell, Pomeroy, Reynolds, & Tushabe, 2005) 100-200 (Briggs, 2007)	Found in 12 of the 34 Important Bird Areas (IBAs) (Byaruhanga, Kasoma, & Pomeroy, 2001) Wetlands on the shores the Nile Valley, and lakes such as Lake Victoria, Lake George, Albert, Kyoga, Rice schemes (Modified wetlands) and other suitable areas	No clear trend information since the species appears scattered across suitable wetlands across the country (Dodman, 2013) however it is assumed to be decreasing due to the growing magnitude of threats.	No recent estimates of the population size across the whole country. Only data available is from the NatureUganda bi-annual waterbird census in a few of the IBAs.
South Sudan	5000 individuals (Briggs, 2007)	South Sudan	Declining	Holds 50-80% of total species population.
Ethiopia	<50 individuals (Dodman, 2013)	Across the country	Declining	
DR Congo	<1000 individuals (Dodman, 2013)		Declining	
Rwanda	<50 individuals (Dodman, 2013)	Across the country	Declining	
Tanzania	100-500 (Dinsen and Baker, 2006) A few hundred (Briggs, 2007)	Western TZ Malagarasi Region	Declining	The species is not well represented in the NPs but occurs in a few game reserves

Zambia	1760 (Roxburgh & Buchanan, 2010)	Bangweulu Swamp	Declining	Bangweulu wetland forms the most southerly site with a resident breeding Shoebill population within the species home range,
Burundi	Unknown	Unknown	N/A	N/A
Kenya	1 Immature (B.Finch, 2012)	Yala Swamp Amboseli Np		Vagrant records
Central Africa Republic	Unknown	Unknown		Irregular visitors

1.2.2 Local distribution:

Country	Region / province	Site	Level of Protection	Population size	Reference(s)	Notes
Uganda	Shores of Lake Victoria	Mabamba Swamp	Ramsar, IBA	Unknown	N/A	The IBAs and some of the Ramsar sites are monitored under the ***Nature***Uganda waterbird monitoring scheme and the Shoebill is part of the water birds
		Makanaga Wetland	Community Conserved Area	Unknown	N/A	
		Sangobay Area	IBA	Unknown	NA	
		Lutembe Bay	IBA/Ramsar Site	Unknown	NA	
	Northern Uganda	Murchison Falls NP (Nile Delta)	National Park	>60	(Sempala, 1999) (unpublished). Msc study on the Shoebill Status and distribution in Murchison Falls NP.	
	Western Uganda	Queen Elizabeth NP	National Park	Unknown	NA	
		Toro-Semiliki Reserve	National Park			

	Central Uganda Central Uganda	Nabajjuzi Wetland	IBA			
		R.Katonga Wetlands				
		Nakasongola Wetlands	No Protection			
		Lugogo Wetland (Ziwa Rhino Sanctuary)	Sanctuary			
	Eastern Uganda	Lakes Kyoga and Nakuwa	Unprotected		(Dodman, 2013)	
		Lakes Opeta, Bisina	IBA		***Nature***Uganda	
		Kibimba Rice Scheme	IBA	Unknown		
South Sudan	South Sudan	Sudd Region				50-80% of global population
		Lol River System		Unknown	(Guillet, 1978)	Contains Suitable nesting and breeding sites
		Pongo River System		Unknown		
		Jur River System		Unknown		Threats such as cattle grazing, burning and fishing making shoebills abandon sites
		Bahr el Ghazal		Unknown		Threats such as cattle grazing, burning and fishing making shoebills abandon sites
		Tonj River System		Unknown		Shoebill occupies patches of suitable area whereas the others are heavily disturbed by fire, cattle and farming.
		Bar Gel and Naam System		Unknown		High disturbance of fishing shoebills
		Lau River System		Unknown		Seasonal river

		Bahr el Jebel		Unknown		The Islands of floating vegetation provide suitable nesting sites
Ethiopia	Western Ethiopia	Gambella Wetlands			(Dodman, 2013)	
		Weyto River	Unprotected	Unknown		Unprotected despite being near to Stephanie NP
Zambia	Northern Zambia	Wetlands of Mweru wantipa				
	North-eastern Zambia	Bangweulu wetlands	IBA, Ramsar Site	Approximately 1296 birds	(Roxburgh & Buchanan, 2010)	Most of the Bangweulu is under protection
Tanzania	Western Tanzania	Malagarasi-Muyobozi Ramsar	Protected	A few hundred (Briggs, 2007)	(Dodman, 2013)	However, still faces a number of threats. The Shoebill is not well represented in NPs, found in a few game reserves.
Rwanda	Eastern Rwanda	Akagera Wetlands	Protected Area	Unknown	N/A	N/A
DR Congo	Katanga Province	Parc National d' Upembe	Protected Area	Unknown	(Dodman, 2013)	Main area supporting shoebills
Burundi		Malagarazi wetlands				
Kenya		Yala Swamp	IBA			Vagrant records
Central African Republic	Unknown	Unknown		Unknown	Unknown	Irregular Visitor

1.3 Protection status:

The Shoebill, *Balaeniceps rex* is Vulnerable (VU) according to the IUCN Red Data List and Endangered (EN) on the Uganda National Redlist for Birds and is protected in all its range states. An International Single Species' Action Plan for the Shoebill has been published whose overall goal is to increase the Shoebill's population size and maintain its current range (Dodman, 2013). Wetlands in Uganda are held by the Government in trust for the people, in addition some of the wetlands fall under protected areas, Ramsar and IBA statuses which foster some protection for the species

1.4 Ecology, behaviour and habitat requirements:

The Shoebill is sedentary and is not migratory, but makes seasonal movements to find optimal feeding areas and due to significant water level variations, that may have a significant effect on their habitat (Dodman, 2013). Shoebills gain sexual maturity at 3-4 years and are monogamous (BirdLife International, 2018) . They are able to lay 1-3 eggs, at an interval of 5 days with one chick usually fledging to maturity due to siblicide, where the older chick kills the younger one (Dodman, 2013). This siblicide was illustrated by the video footage of taken from Bangweulu Wetlands in Zambia (BBC 2013). The Shoebill predominantly feeds on fish often showing a preference for lung fish *Protopterus aethiopicus* but may take other fish species

(Guillet, 1979) and other aquatic animals like amphibians, reptiles and small waterfowl (Hancock et al., 1992).

The Shoebill inhabits fresh water swamps ranging from extensive open swamps of the Sudd region in South Sudan to relatively small swamp-dominated lakes in Uganda (Dodman, 2013). They prefer feeding in areas where there is relatively low oxygen in the water and plenty of fish (i.e. floating vegetation, rooted vegetation on edges of open water channels or channels with sparse emergent vegetation) (Guillet, 1978). They are frequently seen in large undisturbed wetlands overgrown with vegetation, grasses, reeds and papyrus, but prefer to roost in vegetation that is shorter than the adult height and easy to penetrate, occasionally perching in trees (Brown, Urban, & Newman, 1982; Hancock, Kushlan, & Kahl, 1992)

1.5 Threat analysis:

Threats facing the Shoebill are divided into four groups according to (Dodman, 2013) and these are;

- Threats causing increased mortality; fire, illegal trade, potential legal international trade, subsistence hunting and killing by fishermen.
- Threats contributing to low productivity: livestock disturbance, disturbance by fishermen, removal of eggs by fishermen, settlements (camps), disturbance by river transport, papyrus cutters, flooding of nest areas, kleptoparasitism/foraging interference.
- Threats causing habitat loss, fragmentation and degradation; fire, oil and gas, mineral exploration and extraction, agriculture development, dredging canals, overgrazing, siltation, invasive species, horticulture, papyrus harvesting, climate change.
- Information gaps preventing effective conservation action (e.g. lack of knowledge of key breeding areas, ecology, distribution and threats).

Below is a summary of some of the threats:

Threat	**Description of how this threat impacts the species**	**Intensity of threat** *(low, medium, high, critical or unknown)*
Fire/Burning	Burning is done as a wetland management tool (controlled), to create room for agriculture as well as hunting purposes. Local people carry out hunting of the Sitatunga, a shy antelope that inhabits wetlands. They burn the wetland vegetation to create access routes and also to allow new palatable grass sprout for the antelope to graze. Some fires are set up accidentally by fishermen as they make temporary fires to prepare food. Shoebill young and eggs are killed in these fires, nests and important habitat are damaged. The fire may be set from a small village but quickly spreads all over the wetland.	Critical
Illegal Trade	Local people neighbouring Shoebill habitats sell the Shoebill young and eggs to people posing as tourists for zoos abroad.	High
Disturbance by fishermen	Fishermen canoes often scare away the Shoebill as they carry about normal fishing activity, since the shoebills are sensitive to any form of human disturbance. Whereas some fishermen intentionally chase away the Shoebill from its feeding areas due to competition for fish. Channels frequented by fishermen canoes tend to have no Shoebills at that particular time.	High
Disturbance by tourist and transport boats	With a small population left only in a few countries in Africa, the Shoebill is top on the list for any bird watcher's safari in Africa. Tourists often use canoes that have engines and these tend to make	Low

	noise and also they may spill oils in the water. The people on the boats may also drop rubbish in the wetlands. This in the long run will contribute to low productivity of the species. Some tourists get very close to the Shoebill thus putting it on tension and disrupting its normal activity patterns.	
Climate Change	Long dry spells lead to drying up of wetlands whereas heavy rains lead to flooding of the habitat. The floods may carry away shoebill nests and young and shoebills prefer feeding in shallow water. Climate change exacerbates the other threats.	Medium
Settlements	Fishermen camps set up in the wetlands, which compete for space with the Shoebill. These however are useful especially in monitoring the species' movements. However, if they are many, they will disrupt the species.	Low
Resource harvesting	Harvesting of papyrus, cattle feeds, grass for thatching houses. Depending on the scale, this may be dangerous as it causes disturbance.	Low
Sand Mining	Mining of sand involves excavations where the land is stripped of its vegetation creating pools of water. This makes the habitat unsuitable.	Unknown
Agriculture	Crop growing happening at the edges of the wetland may in the long run interfere with the Shoebill habitat.	Low

1.6 Stakeholder analysis:

Country	**Stakeholder**	**Stakeholder's interest in the species' conservation**	**Current activities**	**Impact** *(positive, negative or both)*	**Intensity of impact** *(low, medium, high or critical)*
Uganda	Community Site Support Groups e.g Mabamba Wetland Groups for example; Eco-tourism Association (MWETA) Makanaga Wetland Conservation Association (MAWECA). Community Conserved Areas groups (Lake Bisina, Lake Opeta)	Community Associations that consists of fishermen, bird guides, boatmen and crafts-women. Spearhead conservation of the wetland for sustainable livelihoods.	Eco-tourism, resource monitoring Fishing, wetland burning, wetland resource harvesting, hunting	Both	Critical
	Conservation Organisations (NatureUganda, FFI and other Institutions)	NGOs spearheading conservation and research in Uganda	Building capacity of the local people in monitoring, Research and Create awareness on threatened species and critical habitats	Positive	High

	Uganda Bird Guides' Club	The species is a tourist attraction	Training local guides, eco-tourism	Positive	High
	Uganda Wildlife Education Center (UWEC)/Zoo	Wellbeing of the birds	Rehabilitate sick birds, rescue kidnapped Shoebills	Positive	High
	Wetlands Management Department (WMD)	Protection of all wetlands in Uganda	They have the overall mandate in Uganda to protect wetlands.	Positive	Critical
	District Local Governments (e.g. Wakiso, Kumi, Katakwi e.t.c)	The wetlands have proved to be important sources of livelihoods to the surrounding communities	Developing and supporting the implementation of community livelihoods.	Both	High
	Ministry of Tourism, Wildlife and Antiquities (MTWA)	Promote tourism, wildlife and heritage resources	Spearheads development of National Species' Action Plans	Positive	High
	Uganda Wildlife Authority	Protection of all wildlife in Uganda	Monitoring and protection of wildlife and their habitats	Positive	Critical
International Agencies / NGOs	AEWA, African Eurasian Waterbird Agreement	Protection of waterfowl along migratory routes	Funder	Positive	High
	Wetlands International	Conservation of birds	Funder	Positive	High
	BirdLife International	Conservation of birds, habitats and global biodiversity	Funder	Positive	High
	Flora and Fauna International (FFI)	FFI works to protect threatened wildlife and habitats. It has worked and empowered communities around the shores of Lake Victoria, in Uganda	Implements conservation programmes in areas on the shores of Lake Victoria for example in Makanaga and Sango bay areas	Positive	High
Species' specialist working Group	Stork, Ibis and Spoonbill Specialist Group (IUCN)	Conservation of the species	Collaborating in conservation of the species	Positive	High

1.7 Context and background information that will affect the success of any conservation action for this species:

	Description	Barriers to conservation	Opportunities for conservation
Socio-cultural effects and cultural attitudes	Most of the locals in areas where the species is resident do not eat birds.		This protects the birds especially the Shoebill.
	Localised capture for traditional/cultural purposes in Uganda, food in Malagarasi region in Tanzania (Dodman, 2013).	Decreasing local populations	Rewarding people that rescue shoebills would encourage others to save them.
Economic implications	The Shoebill is a big attraction to foreign tourists thus foreign exchange.	Eco-tourism activities may exert pressure on the habitat. Some of the clients connive with the locals to traffic the species	Eco-tourism is a source of livelihoods to the local people. Infrastructural development of the sites
Existing conservation measures	Some of the Important Bird Areas/PAs got the status because they are habitats to the Shoebill. The International Single Species' Action Plan for the Shoebill whose overall goal is to increase population size and maintain current range.	The non-protected areas where the Shoebill is sighted attract less attention and may thus be neglected The Action Plan needs collaboration from the different stakeholders as well as funding to implement some of the activities listed.	Creation of more IBAs/PAs. The Action plan gives clear steps for conserving the species
Administrative/political set-up	Some of the sites like Mabamba wetland have become popular so the local government has increased interest.	Political context in Uganda may change.	Support available from the government to foster conservation of Shoebill. Enforcement of laws.
Local expertise and interest	The local NGOs are concerned with conservation of the species.	Duplication of efforts and concentrating on the same popular sites.	More research can be carried out and data gathered used in formulation of

			policies and legislations to protect the species.
	Local people have been trained in monitoring of the species, threats and habitat.	This training has however happened in a few of the known sites while the unknown are left out. Lack of monitoring and evaluation lead	Monitoring and reporting of threats by the communities.
	Site support groups have been set up in some of the areas where the Shoebill inhabits.	Lack of monitoring and evaluation to these groups may make them give up conservation.	The members of the SSG can monitor the species and give updates.
Resources	The species is a charismatic one and always attracts funding.		Funds available for its conservation.
	Communities in some of the Shoebill habitats are well empowered with knowledge to protect the species.		Communities are able to safeguard the species.

2. ACTION PROGRAMME

Vision (30-50 years)	
A stable population of the Shoebill in all the range states	
Goal(s) (5-10 years)	
An increased population and a stable habitat for the Shoebill in Uganda	
Objectives	**Prioritisation** *(low, medium, high or critical)*
Domestication of National Management Action Plan for the Shoebill from the International Species Action Plan.	**High**
Discover and document more Shoebill strongholds to reduce pressure on the few that are known	**High**
Create awareness on plight of the Shoebill	**High**
Bridge the knowledge gaps in ecology, distribution, population trends and size, breeding and foraging requirements	**High**
Integrate all groups working on the conservation of the Shoebill	**Medium**
Habitat Protection	**High**

Activities	Country / region	Priority *(low, medium, high or critical)*	Associated costs (currency)	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
Objective 1: Domestication of National Management Action Plan for the Shoebill from the International Species Action Plan.								
Develop site management plans for the critical Shoebill areas.	All range states	Critical	20,000 Pounds per range state	10 Years	The Ministry of Tourism, Wildlife and Antiquities, Birdlife International, Storks and Ibises Specialist Group	Action Plans developed for each state	Some states may not be ready	Species Management
Strengthening of laws to minimise human disturbance in critical Shoebill conservation areas	Uganda	Critical	20,000 Pounds	10 Years	Ministry of Tourism, Wildlife and Antiquities, *Nature*Uganda, Uganda Wildlife Authority (UWA), Local Government, Community Site Support Groups (SSG)	Laws put up to guide activities such as eco-tourism activities	The laws may not be followed	Law and Policy
Objective 2: Discover and document more Shoebill strongholds to reduce pressure on the few that are known								
Nation-wide survey of all the Shoebill habitats to map occurrence, core breeding areas	Uganda	Critical	30,000 Pounds	5 Years	Conservations agencies, Ministry of Tourism Wildlife and Antiquities, Uganda Wildlife Authority (UWA),	Up-to-date map showing all the Shoebill sites	Knowing all the areas may expose the shoebills to traffickers	Species Management

Habitat Protection	All range states	Critical		>15 years	Conservation agencies and governments in different range states	More habitats protected		Species Management
Upgrade status of Shoebill habitats for example from unprotected to protected areas (Pas)	Uganda	High	50,000 Pounds	10 Years	Government agencies such as; Uganda Wildlife Authority (UWA), Ministry of Tourism, wildlife and antiquities (MTWA), Conservation NGOs, IUCN	Increased number of PAs with Shoebills	Upgrading of sites involves beaucratic tendencies which cause delays. It is a long process and may involve a lot of consultations	Species Management
Objective 3: Create awareness on plight of the Shoebill								
Conduct national awareness campaigns targeting the different stakeholders from tour operators, to tourists, local people	Uganda	High	10,000 Pounds	10 Years	Conservation agencies such as Nature Uganda, UWA, MTWA	Reduced threats	Inaccessibility of some areas.	Education and awareness
Objective 4: Bridge the knowledge gaps in ecology, distribution, population trends and size, breeding and foraging requirements.								
Convene a Shoebill working group for Uganda	All range states	High	40,000 Pounds	5 years	IUCN, Birdlife International, Conservation agencies	A group committed to conservation of the species set up and running	Not all stakeholders are willing or able to attend and contribute	Improving Knowledge

Regular Monitoring of populations across the range states	All range states	Critical	80,000 Pounds per year	Over 50 years	Birdlife International Partners in all range states,	Estimates of populations known and reports written		Species' Management Capacity Building Improving knowledge
Extensive research on ecology of the Shoebill to find out the core breeding areas, distribution	Uganda	Critical	30,000 Pounds	10 Years	IUCN, Birdlife International,			Improving Knowledge. Capacity building. Species' Management
Objective 5: Integrate all groups working on the conservation of the Shoebill								
Stakeholder mapping for all those doing work on the Shoebill	All ranger states	High	50,000 Pounds	5 years	Birdlife International, Stork, Ibis and Spoonbill specialist Group (IUCN), Conservation NGOs,	Stakeholder network fully understood		Species' Management
Stakeholder workshop for all range states to report on progress of the actions proposed in the International Single species action plan for the Shoebill	All range states	High	75,000 Pounds	5 Years	Birdlife International, Stork, Ibis and Spoonbill specialist Group (IUCN), Conservation NGOs,	Reports from different Countries	The costs of organising the workshop may be too high. Some of the range states may not make it.	Species' Management

3. LITERATURE CITED

BirdLife International. (2018). Species Factsheet; Balaeniceps rex. Retrieved November 6, 2018, from http://www.birdlife.org/

Briggs, P. (2007). Top billing: Shoebill. *Africa -Birds and Birding*, *12*(1), 50–54.

Brown, L. H., Urban, E. K., & Newman, K. (1982). *The Birds of Africa Volume 1*. London: Academic Press Limited.

Byaruhanga, A., Kasoma, P., & Pomeroy, D. (2001). *Important Bird Areas in Uganda.* Kampala: East African Natural History.

Carswell, M., Pomeroy, D., Reynolds, J., & Tushabe, H. (2005). *The Bird Atlas of Uganda* (First). British Ornithologists' Club & British Ornithologists' Union.

Dodman, T. (2013). *International Single Species Action Plan for the Conservation of the Shoebill* (Vol. 51). Bonn, Germany. https://doi.org/10.13140/RG.2.2.25553.33127

Guillet, A. (1978). Distribution and conservation of the shoebill (Balaeniceps rex) in the southern Sudan. *Biological Conservation*, *13*(1), 39–49. https://doi.org/10.1016/0006-3207(78)90017-4

Guillet, A. (1979). Ostrich : Journal of African Ornithology ASPECTS OF THE FORAGING BEHAVIOUR OF THE SHOEBILL. *Ostritch: Journal of African Ornithology*, *50*(4), 252–255.

Hancock, J. A., Kushlan, J. A., & Kahl, M. P. (1992). *Storks, Ibises and Spoonbills of the World*. Academic Press.

Roxburgh, L., & Buchanan, G. M. (2010). Revising estimates of the Shoebill (Balaeniceps rex) population size in the Bangweulu Swamp, Zambia, through a combination of aerial surveys and habitat suitability modelling. *Ostrich*, *81*(1), 25–30. https://doi.org/10.2989/00306525.2010.455815

Sempala, P. (1999). *Abundance of Large Water birds with special reference to the Shoebill*. Makerere University, Kampala.