

Wildlife Monitoring in the Okavango Delta, Botswana

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The Okavango Delta is located in the northwest corner of Botswana and is the largest inland river delta in the world. It is home to a vast variety of animal and plant species who flourish under the annual flooding of the delta. This ecosystem is crucial to the survival of many species, which is why it is being researched and protected.

In 2012 The South African Regional Environmental Program (SAREP) and the Department of National Wildlife Parks (DWNP) decided there was a need for a standardized monitoring protocol for the Okavango Delta in Botswana. Aerial surveys were unable to give an accurate depiction of wildlife in the delta; data collection in the following categories was needed:

- Rainfall, Flood Levels, & Fire Occurrence
- Predator Sightings & ID
- Mortality: Poaching, Natural, & Predation
- Human-Wildlife Conflict
- Monitoring Threatened or Indicator Species

This information is collected through continuous monitoring and bi-annual surveys.

Table 12. Rare/Endangered animal sightings (refer to list of rare/endangered animals)

Date	Species	Count	Adults	Sub-Adults	Juveniles	Calves/ Foals	Undetermined	Grid	Vegetation	Notes	Recorded by
			M F ?	M F ?	M F ?						



Photo Credit: <http://www.safarionline.co.za/>

List of Mammals to be monitored on a continuous basis

Scientific Name	Common Name	Conservation Status	Population Trend
<i>Ceratotherium simum</i>	White Rhinoceros	Near Threatened	Increasing
<i>Diceros bicornis</i>	Black Rhinoceros	Critically Endangered	Increasing
<i>Felis nigripes</i>	Black-footed Cat	Vulnerable	Declining
<i>Hippotragus equinus</i>	Roan Antelope	Least Concern	Declining
<i>Kobus vardonii</i>	Puku	Near Threatened	Declining
<i>Hippotragus niger</i>	Sable Antelope	Least Concern	Declining
<i>Tragelaphus speki</i>	Sitatunga	Least Concern	Declining
<i>Smutsia temminckii</i>	Pangolin	Least Concern	Unknown
<i>Damaliscus lunatus</i>	Tsessebe	Least Concern	Declining



Table 14. Bi-annual herbivore count spreadsheet

Bi-Annual Wildlife Count		Transect		Year		Odometer reading			
Start Odometer	End Odometer	Month	Driver	Start time	End time				
Date	Habitat	Species	Adult	Sub-Adult	Juvenile	Calves	Undetermined	Perpendicular distance (Impala)	Grid



Table 15. Voluntary bi-annual Bird life Botswana datasheet

BIRD POPULATION MONITORING FIELD RECORDING SHEET

Name of compiler: _____ Number of observers: _____
 Site name/Habitat type: _____ Name of officers involved in count: _____
 Quarter degree square (eg 232443): _____
 Coordinates of the start point: _____
 Coordinates of the end point: _____
 Wind class (DD/NN/YY): _____
 Weather (L-U or S): _____
 Time each point count started (24h clock): _____
 Point 1 Point 2 Point 3 Point 4 Point 5 Point 6 Point 7 Point 8 Point 9 Point 10 Point 11
 Species name: _____
 Number of individuals at each point: _____
 Total count: _____
 What threats to or problems at this site are the cause of? _____
 Use your local knowledge of the site (ie, not just that observed on the day of the count) to provide the following information on the state of the landscape around your transect. Please use codes as described in the instruction to assess Spring, Scarce & Sensitive? _____
 Threat: _____ Habitat and/or population affected: _____ Timing: _____ Scope: _____ Severity: _____

Continuous monitoring was performed on daily drives. Observing bird of prey activity was able to lead us to predators and carcasses, alarm calls of birds alerted us to possible predators near by, and drives in open areas and random open point counts almost always offered us a variety of herbivores. Camera traps were also an integral part of data collection. They were used at known crossings and watering holes.

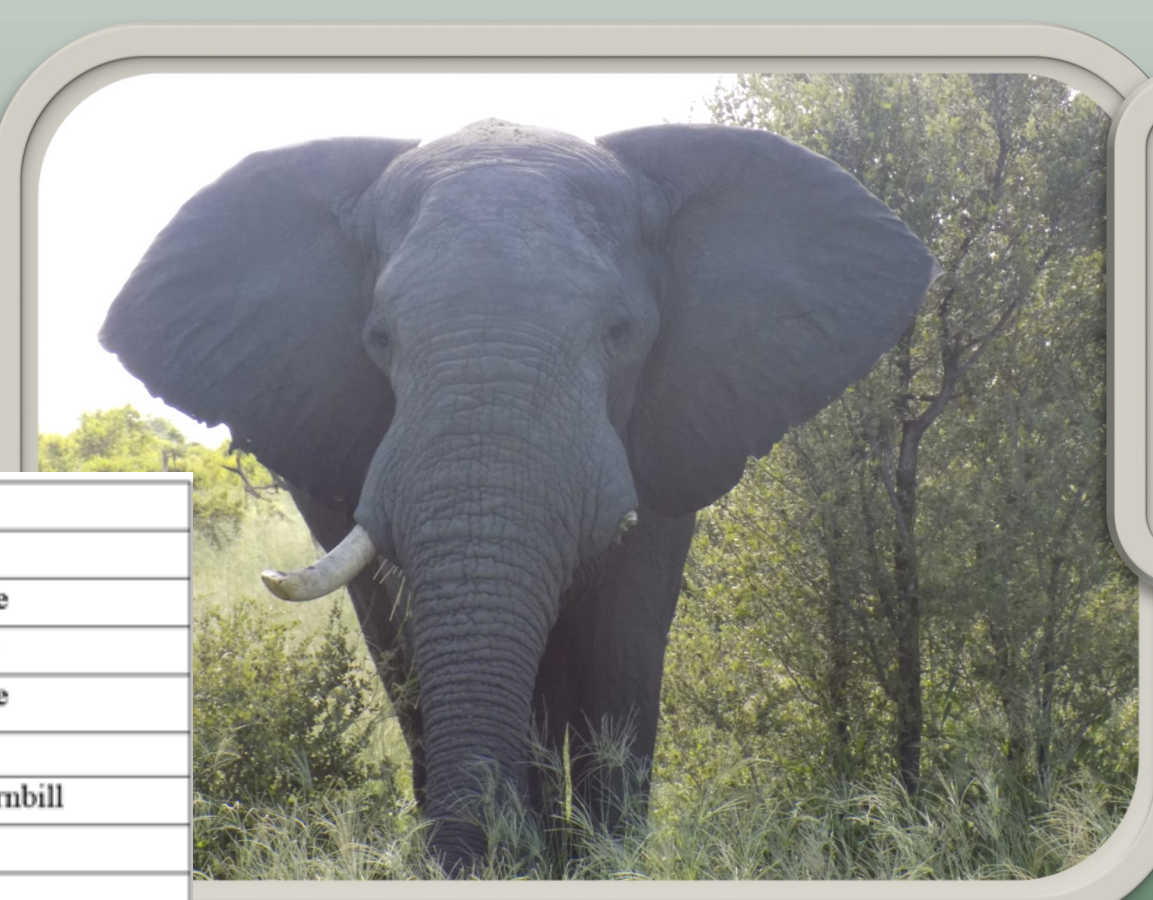
Many of the bi-annual surveys were performed in March—the end of the rainy season. They included: Bird Counts, Herbivore Transects, and Spoor Transects.

- **Bird Counts** are performed at sunrise along pre-determined sections of road, every 3 days for 3 consecutive counts. They consist of a total of 11 points along the pre-determined road, each 200 meters apart. At each point the GPS coordinates are recorded and a timer is set for 5 minutes. In that 5 minutes every individual bird identified by sight or sound is recorded on the sheet (Table 15 to the left). They are used to determine trends of population, area usage, and seasonality for each area.
- **Herbivore Transects** are also performed first thing in the morning along a pre-determined section of road. They are performed by driving a 15kilometer distance at a rate of 10km/hour and recording each individual herbivore encountered. The GPS coordinates, odometer reading, and distance perpendicular to the road are all recorded as well as number of individuals, breakdown of males vs females vs age (adult, sub-adult, juvenile), what type of habitat they are in, and their current activity (standing, feeding, running, etc).
- **Spoor Transects** are often performed in conjunction with the herbivore transects but are separately recorded to keep track of species of predator (hyena, wild dog, lion, leopard, cheetah), number of individuals if identifiable, direction, and age of spoor in 6 hour increments (6, 12, 18, 24 hours)
- **Camera Traps** are set at regular known locations to catch glimpses of more evasive species, as well as nocturnal species. They are set 2 across from each other to ensure both sides of an animals flank is photographed to allow for proper individual identification .
- **7 Watering Holes** are monitored every 3 days to record water size (depth and circumference) and rainfall, as well as dung and spoor counts of both herbivores and predators to get an idea of who has been in the area in the past 24 to 36 hours.



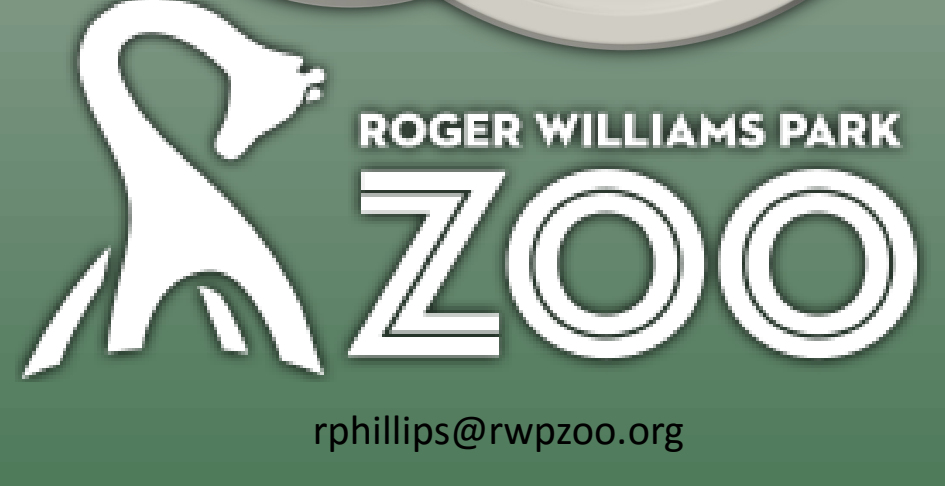
Birds of Concern

<i>Gyps coprotheres</i>	Cape Vulture
<i>Necrosyrtes monachus</i>	Hooded Vulture
<i>Trigonoceps occipitalis</i>	White-headed Vulture
<i>Torgos tracheliotos</i>	Lappet-faced Vulture
<i>Gyps africanus</i>	White-backed Vulture
<i>Rhynchops flavirostris</i>	African Skimmer
<i>Bucorvus leadbeateri</i>	Southern Ground-Hornbill
<i>Bugeramus carunculatus</i>	Wattled Crane
<i>Ephippiorhynchus senegalensis</i>	Saddle-Billed Stork
<i>Egretta vinaceigula</i>	Slaty Egret



In conclusion, there is currently no one in place to analyze the data being collected, but the collection is still vital. At some point, all of the information will be instrumental in making conservation decisions and changes. Volunteers and funding are desperately needed to continue this program.

You can help by spreading awareness, funding a research project for a species in need, experiencing it yourself, or making a financial donation to the project. \$200 can purchase a camera trap, batteries, SD card, and tree mounted security box.



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