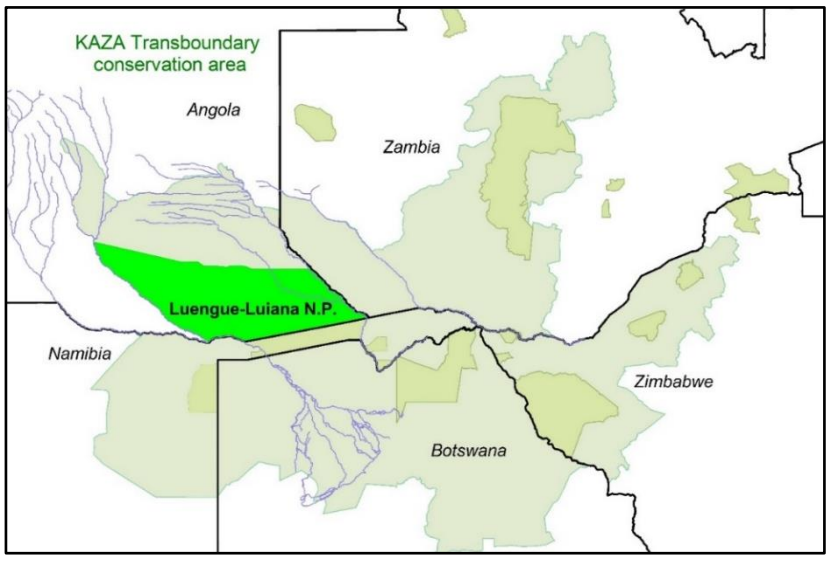
# GAME COUNTS IN LUENGUE-LUIANA N.P.

## October 2023

*In 2018, 2019 and 2020 three routes were counted. In 2021 four were counted and in 2022 and 2023 five were counted. Any sections of transect overlap were excluded from summaries and analyses.*

**Numbers seen:** **Animals** **Groups**

| Species | 2023 | 2022 | 2021 | 2020 | 2019 | 2018 | 2023 | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Baboon | | 12 | | | 66 | 6 | | 2 | | | 2 | 1 |
| Buffalo | **653** | 523 | 1,216 | 1,104 | 2,448 | 1,175 | **4** | 5 | 15 | 13 | 19 | 14 |
| Bushbuck | | | | | 3 | | | | | | 1 | |
| Bushpig | | | | | 23 | | | | | | 3 | |
| Duiker | **27** | 3 | 7 | 24 | 15 | 16 | **25** | 3 | 6 | 16 | 12 | 15 |
| Eland | **4** | | 12 | | 27 | 10 | **3** | | 2 | | 2 | 2 |
| Elephant | **153** | 644 | 159 | 47 | 85 | | **6** | 9 | 4 | 6 | 2 | |
| Giraffe | **15** | 5 | | 1 | 1 | | **5** | 2 | | 1 | 1 | |
| Hippo | | | | 16 | | | | | | 1 | | |
| Hyaena, spotted | | 1 | | | | | | 1 | | | | |
| Impala | **56** | 431 | 236 | 39 | 139 | 103 | **7** | 18 | 20 | 7 | 13 | 17 |
| Jackal, black-backed | | | 3 | | | | | | 2 | | | |
| Kudu | **75** | 33 | 4 | 52 | 28 | 25 | **17** | 11 | 3 | 10 | 9 | 6 |
| Lechwe, red | **28** | 42 | 93 | 142 | 183 | 405 | **5** | 2 | 4 | 8 | 14 | 8 |
| Leopard | **1** | | | | 1 | | **1** | | | | 1 | |
| Oribi | | | 12 | | | | | | 4 | | | |
| Ostrich | | | | 1 | | | | | | 1 | | |
| Reedbuck | **9** | 47 | 28 | 103 | 2 | 69 | **4** | 8 | 9 | 16 | 2 | 14 |
| Roan | | | | 23 | | | | | | 1 | | |
| Sable antelope | **88** | 13 | 22 | 9 | 45 | 8 | **12** | 5 | 7 | 4 | 12 | 2 |
| Steenbok | **13** | 13 | 20 | 2 | 14 | 6 | **13** | 13 | 19 | 2 | 12 | 5 |
| Tsessebe | **36** | 19 | | | | | **2** | 2 | | | | |
| Vervet Monkey | **3** | 27 | 45 | 34 | | 34 | **2** | 3 | 2 | 1 | | 1 |
| Warthog | **13** | 17 | 15 | 32 | 30 | 20 | **7** | 7 | 4 | 9 | 9 | 6 |
| Waterbuck | | | | | | 31 | | | | | | 2 |
| Wild dog | | | | 3 | 3 | | | | | 1 | 1 | |
| Wildebeest | **32** | 11 | 53 | 61 | 42 | | **3** | 3 | 3 | 8 | 3 | |
| Zebra, Burchell's | **112** | 69 | 206 | 26 | 55 | 14 | **8** | 5 | 7 | 3 | 6 | 3 |



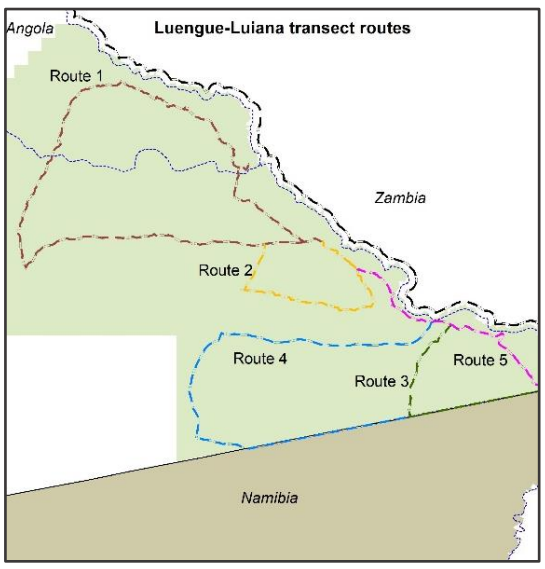

- Game counts in Luengue-Luiana N.P. (proclaimed in 2011) were initiated in 2018. Three road section transect routes were initially established. A further two were added in 2021.
- The transects are limited to the extreme south-eastern portion of the park and represent an area of approximately 2,030 km$^2$.
- The vegetation of the park is dominated by broad-leafed savannah with several riparian networks crossing the park.
- In total **28 species** have been recorded.
- For large herd species like buffalo, or floodplain species like red lechwe, extrapolation is not appropriate. Linear density provides a better indication of animal densities for animals that are associated with river courses.

## Transect statistics:

| | Total | Route 1 | Route 2 | Route 3 | Route 4 | Route 5 |
|---|---|---|---|---|---|---|
| Total Route km | **253** | 115 | 39 | 35.5 | 30 | 33 |
| Duration (hrs) | **22** | 4.4 | 5.4 | 4.9 | 3.9 | 3.4 |
| Total Area Represented (km$^2$) | **2,030** | | | | | |

Adequate numbers of sightings are required for each species to determine detection profiles which can be used to extrapolate animal numbers across the larger area represented by routes. Due to the general low number of sightings, very rough estimates can currently only be derived for some of the species in the area. The fact that transects are limited to one portion of the park, and that such a small percentage of the park is sampled, invalidates extrapolation to other areas of the park.

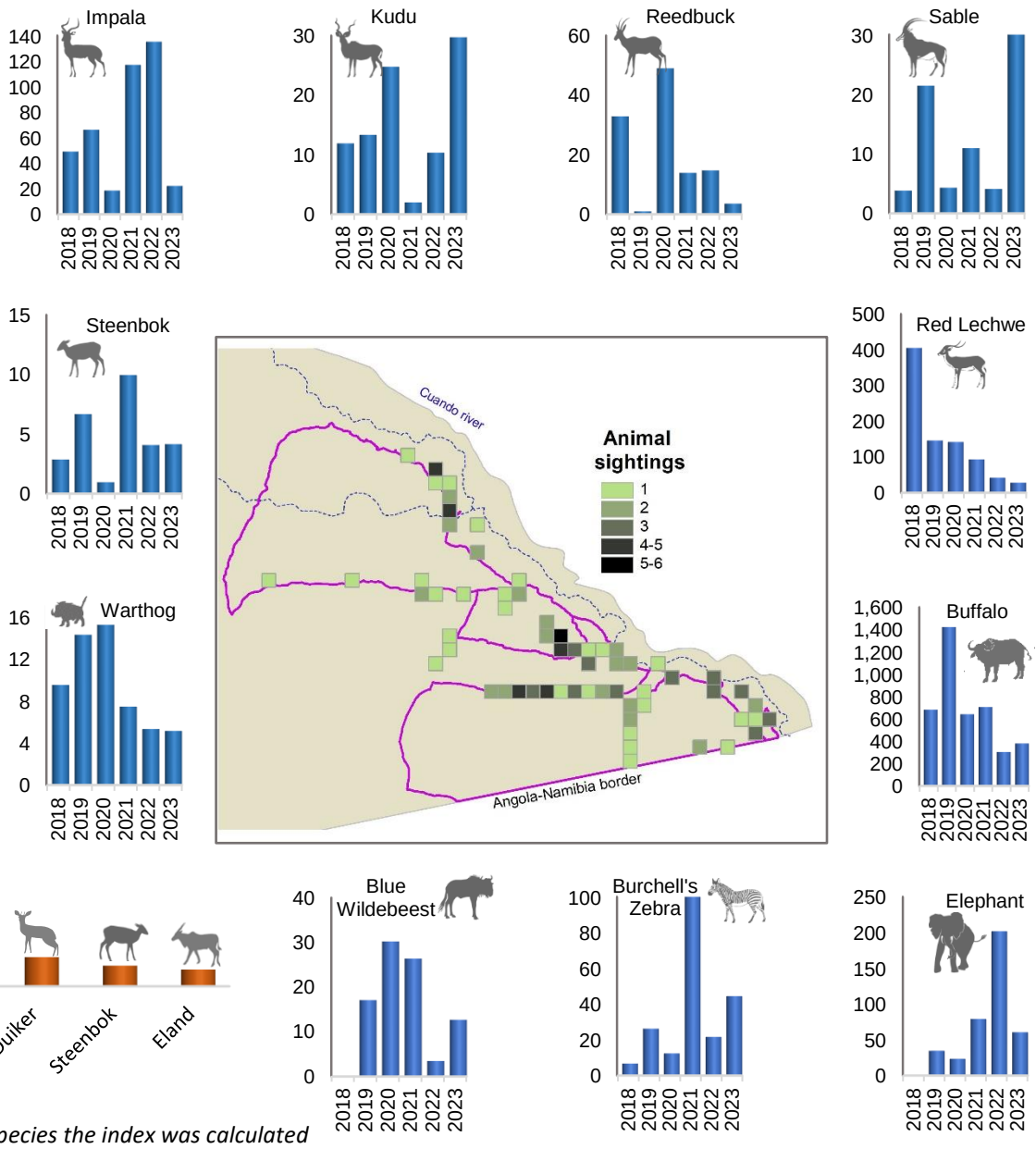
Trends (animals seen per unit distance and/or species densities) are a useful tool for assessing the stability of a particular species as long as the counting method remains consistent over time. This is perhaps more important for management purposes than trying to determine precise estimates. This visual representation can quickly highlight areas of concern. For example, why are red lechwe numbers declining year on year? Why do some species like kudu, impala and sable antelope show major spikes and drops?




**Abundance estimates in the 2,030 km$^2$ represented by routes 1-5**

| | Estimate | 95% CI |
|---|---|---|
| Impala | **1,067** | 150-7,596 |
| Kudu | **2,616** | 855-8,007 |
| Reedbuck | **172** | 52-571 |
| Sable | **1,225** | 563-2,668 |
| Steenbok | **1,349** | 189-9,611 |
| Warthog | **729** | 240-2,215 |

**Trends: animals per 100km**



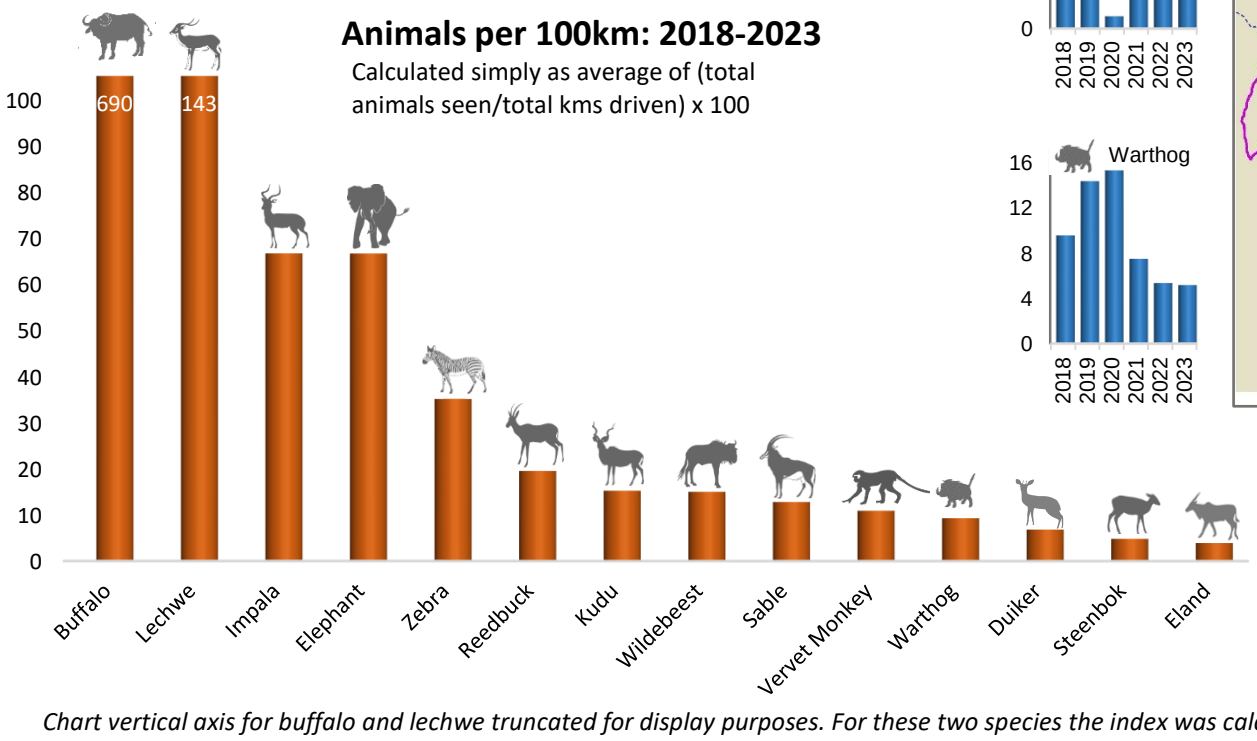




*Chart vertical axis for buffalo and lechwe truncated for display purposes. For these two species the index was calculated using only river sections of transects. Only frequently observed species are shown in the chart.*