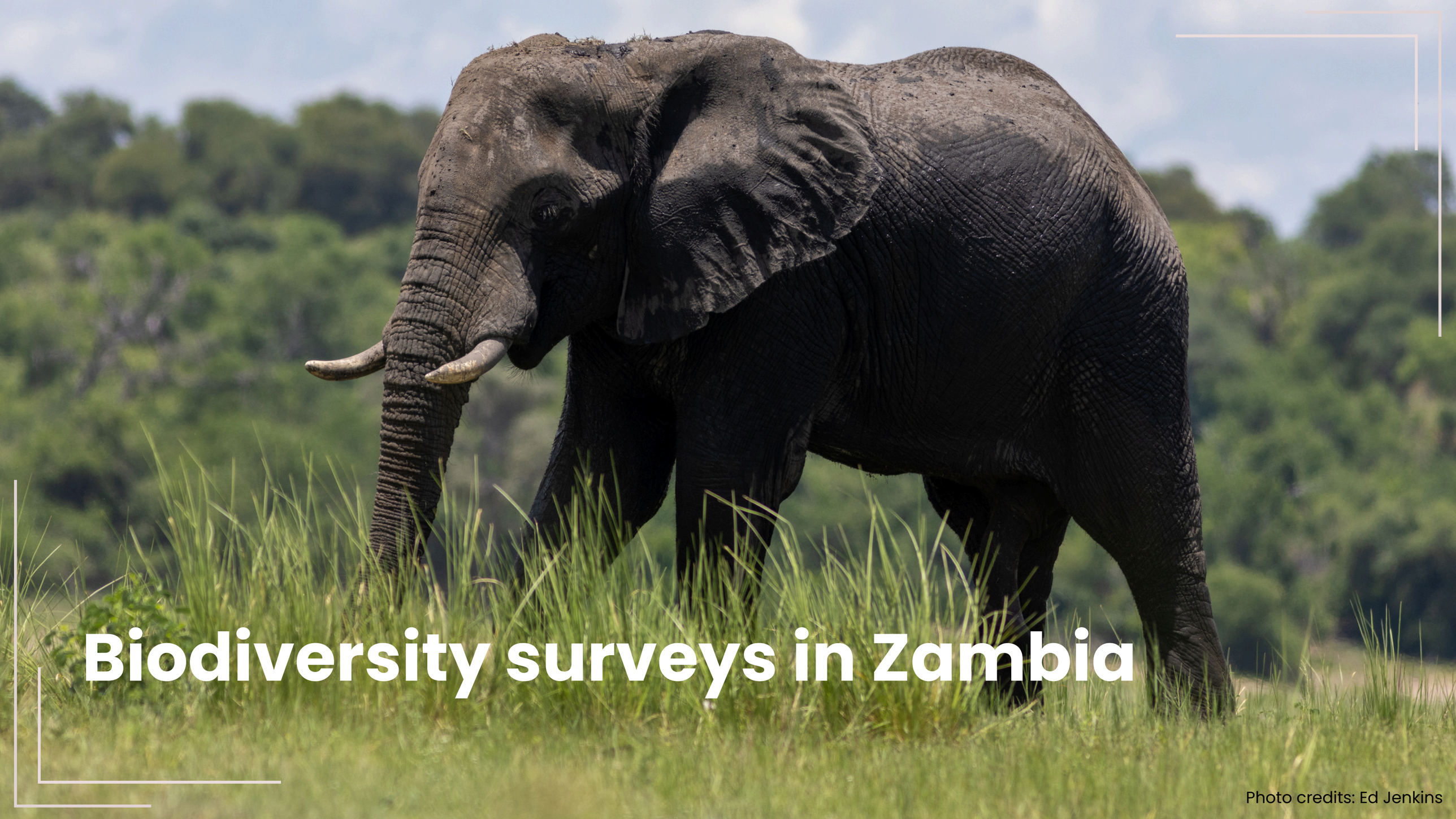

# Biodiversity surveys in Zambia

Photo credits: Ed Jenkins

# Grasslands and carbon projects

- Grasslands are very high in biodiversity, with more endangered species and potentially more chance for carbon storage, than tropical rainforests

- Carbon projects set a baseline which allows for changes to be assessed over time
    - This work will be used to develop a series of metrics for measuring biodiversity change over time across different areas


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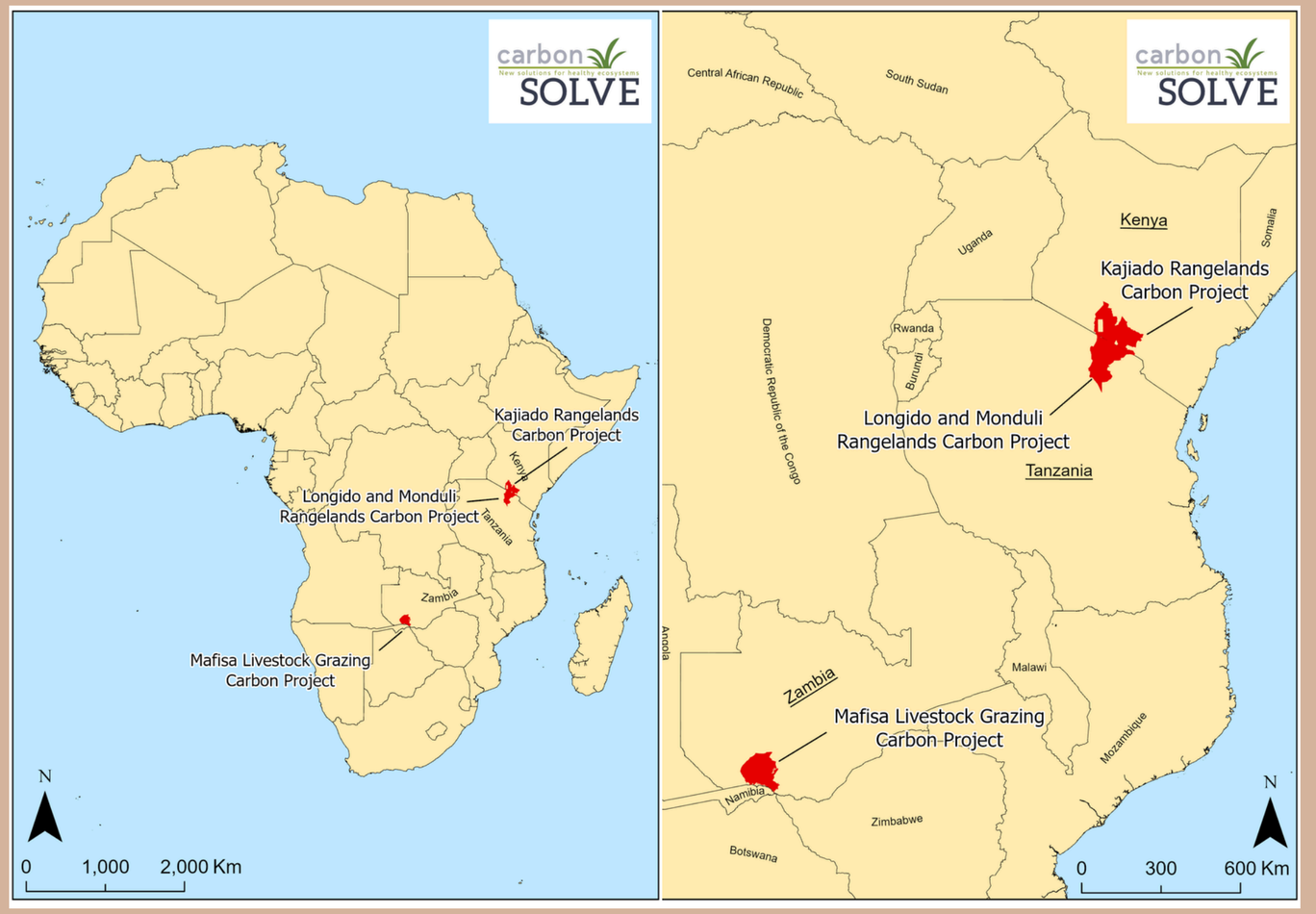
# Project overview

- The Mafisa Livestock Grazing Carbon Project (MLGCP) is a 1.26-million-hectare soil carbon project in southwestern Zambia in the Kavango Zambezi Transfrontier Conservation Area

- Working directly with local pastoral communities, the MLGCP is implementing rapid rotational grazing of livestock and fire management to reduce fire frequency and intensity in seasonally waterlogged soils

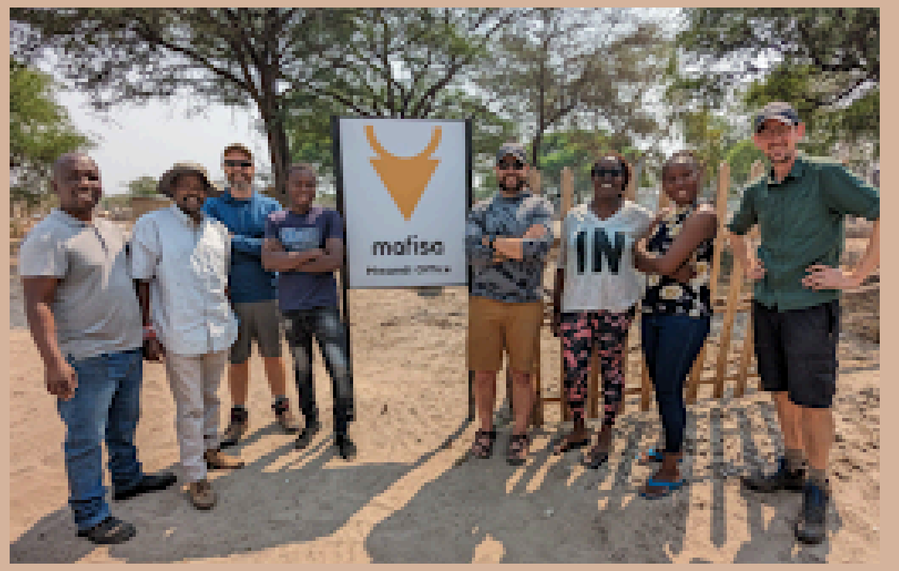
# Project area

- Biodiversity surveys were conducted at 272 sampling sites
- The southern portion was surveyed in August - September 2023
- The northern portion was surveyed in January 2024
  - Further surveys are planned to take place every 3-5 years



# Project team

- Staff from Biodiversity Research Institute and CarbonSolve worked to plan this study and execute the field data collection with expert support from:
  - Dr. Moses Chibesa (Copperbelt University)
  - Mokwani Kaluwe (Zambia Forestry Department)
  - Patrick Masiliso (Mafisa)
  - Andrew Mbenjile (BirdWatch Zambia)
  - Teleka Mhlanga (Mafisa)
  - Chaona Phiri (independent avifauna expert)




# Vegetation surveys

- 262 species of plants identified across 88 sites

- 60 grass species identified
  - 13 annuals
  - 42 perennials
  - 5 both annual and perennial

- Grazing is more prevalent than browsing


Photo credits: Ed Jenkins

Photo credits: Ed Jenkins

# Invertebrates

- 833 pitfall traps across 68 sites
- Four 25 meter transects swept at 88 sites

## Dung beetles:

- 4,601 individual dung beetles and 20,481 trap hours

## Grasshoppers:

- 145 grasshoppers collected

# African birds

- A total of 256 birds from 69 families were detected in point count surveys (n=461)
- 112 bird species from 43 families were detected from acoustic recordings
- Columbidae, Ploceidae, and Estrildidae were most common across habitats


# Bird species richness

- 24 families had more than 100 individuals detected across all survey sites

- Using point count data, species richness values (number of species) ranged from 1 - 30, with an average of 13.44 per site


# Raptors

- 299 individuals of 32 species were detected

- Most numerous species were:
  - Lizard Buzzard
  - White-backed Vulture
  - Brown Snake-eagle

Brown Snake-eagle
*Circaetus cinereus*

Photo credits: Ed Jenkins


Photo credits: Ed Jenkins

# Mammals

- A total of 2,789 individuals of seven different mammal species were observed during transect surveys

- 98.9% included five domesticated species (cattle, donkeys, pigs, goat, and sheep)

- Wild species observed include Vervet monkey, Common Duiker, and Smith’s Bush Squirrel

# Conclusions

- Next steps are to repeat these surveys over time to monitor changes in carbon sequestration and biodiversity

- The better we understand the relationships between herbivores and the vegetation in these landscapes, the more likely we will be able to achieve sustainable outcomes that benefit nature and people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