

Saving large trees: Turning research knowledge into actionable products



Savanna Science Network Meeting
Skukuza, 2025

WARTHOG WALLOW
TRUST

Lion Sands
SABI SAND

Annelize Steyn
Ecologist Lion Sands Game Reserve

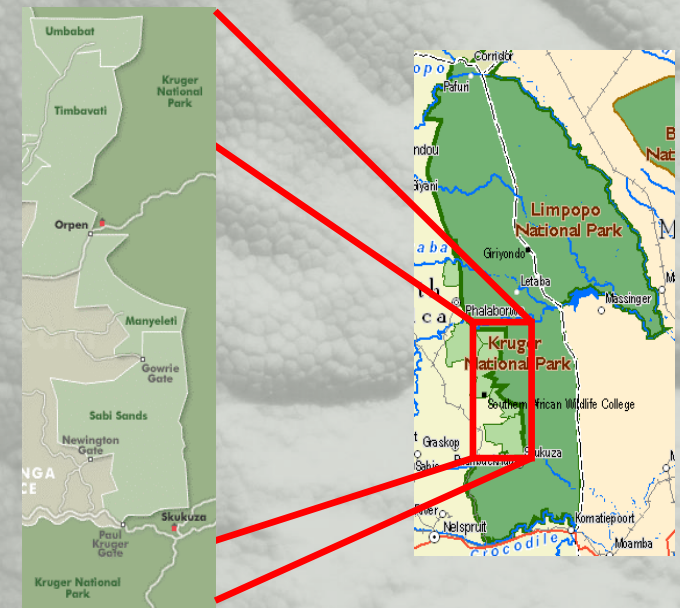


Elephants and trees



Elephants and trees

- Sabie Sand NR: 65 000 ha; 17 different privately owned properties; no internal fences, free roaming animal species
- Kingstown 3 386 ha in south, only property within SSNR with Sabie River frontage – 11km border with KNP
- Elephants have shown a noticeable increase in the targeting of specific large trees in recent years on Kingstown, and SSNR at large
- Many conservation management plans focus on reducing elephant numbers to reduce impact
- Alternatively, management could focus on protecting the trees themselves
- WHY?...iconic part of in landscape, raptor nesting sites, refuge, shade, food
- A number of available techniques to protect individual trees
- Several studies: showed wire mesh wrapping to be effective in reducing damage and mortality of large trees in other areas of SSNR & APNR
- No other property has implemented this as a management strategy on the scale we have embarked upon



METHOD

How?

- Trees are wrapped using standard method:
 - 1.8m fence, appr. 0.5m above ground(roughly knee height) to 2.3m high on main stem
 - Wire mesh is wrapped snug around the trunk
 - Overlap of 0.5m
 - Expansion seams
- Top end of wire netting wrapped flush with trunk to avoid collection of leaves or risk of animals being trapped
- Marked & mapped, and data collected
- Average 100 trees/day
- Focus on Marula and Knob thorn trees



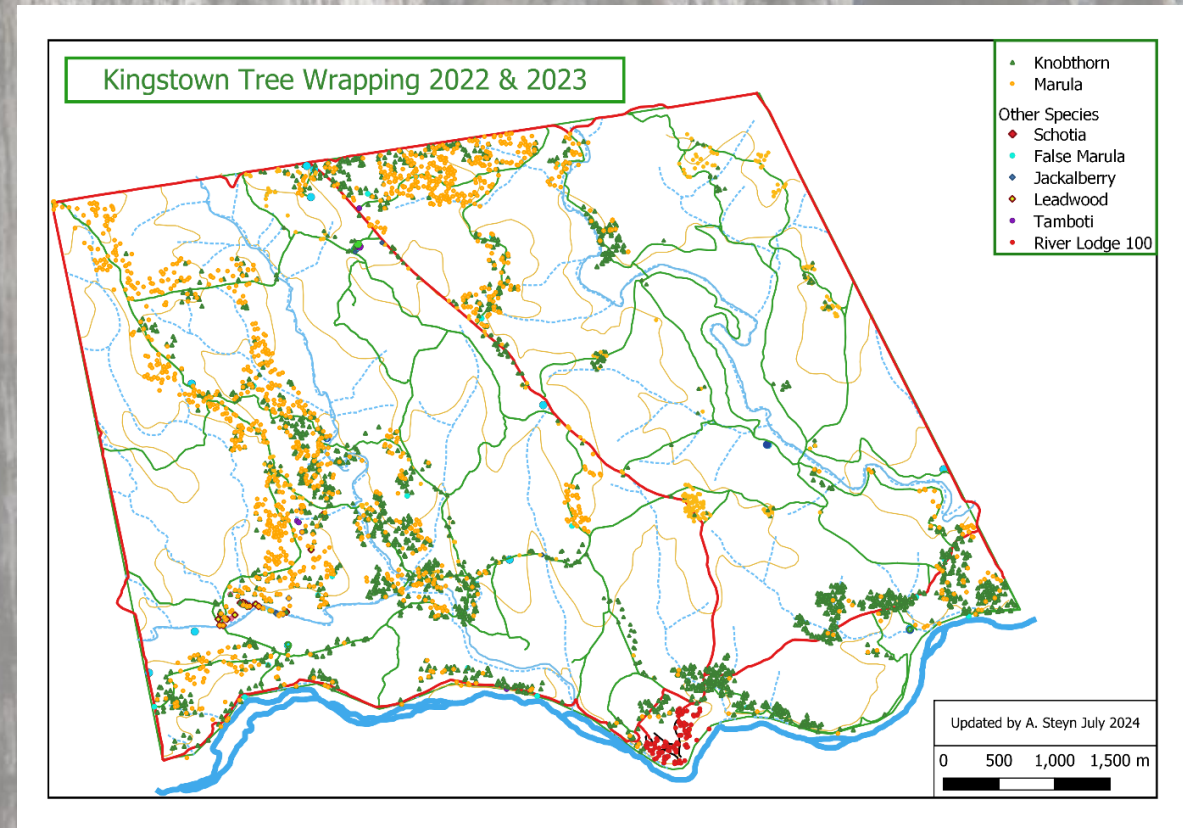
Summary Results

- **Phase 1: Started in June 2022 with 600 trees**
- **Followed up: Phase 2 June 2023: 3 400 trees for total of 4 000 trees**
- **Data collected in 2024: Phase 1 (2 years' data), and Phase 2 (1 year)**



Total number of wrapped trees per species

	Year		Total
	Phase 1 2022	Phase 2 2023	
Marula	271	1540	1811
Knobthorn	314	1738	2052
Black Monkey Thorn	4	0	4
False Marula	2	25	27
Jackalberry	2	6	8
Leadwood	1	19	20
Tamboti	2	7	9
Yellowwood	0	5	5
Schotia	1	0	1
Control	0	11	11
Total	597	3351	3948



What: Type of wire damage



Attempted



**Pulled
down**



Tusked



Ripped

Type of Tree impact



Tusked



Branch breaking



Pushed over



Debarking



Uprooting



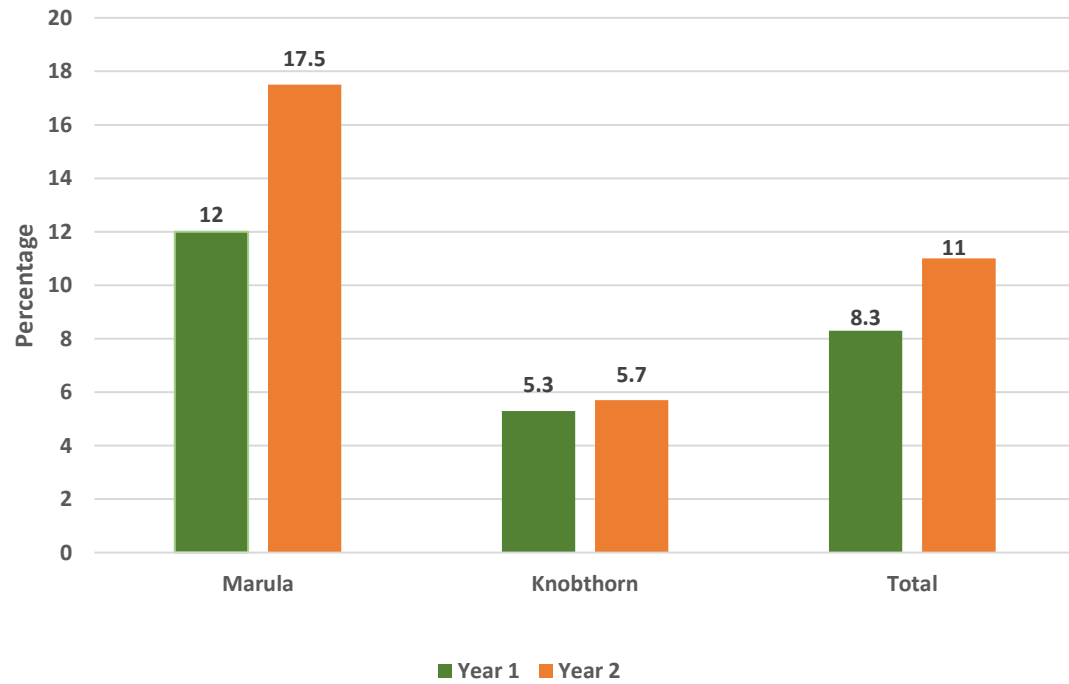
Snapped stem



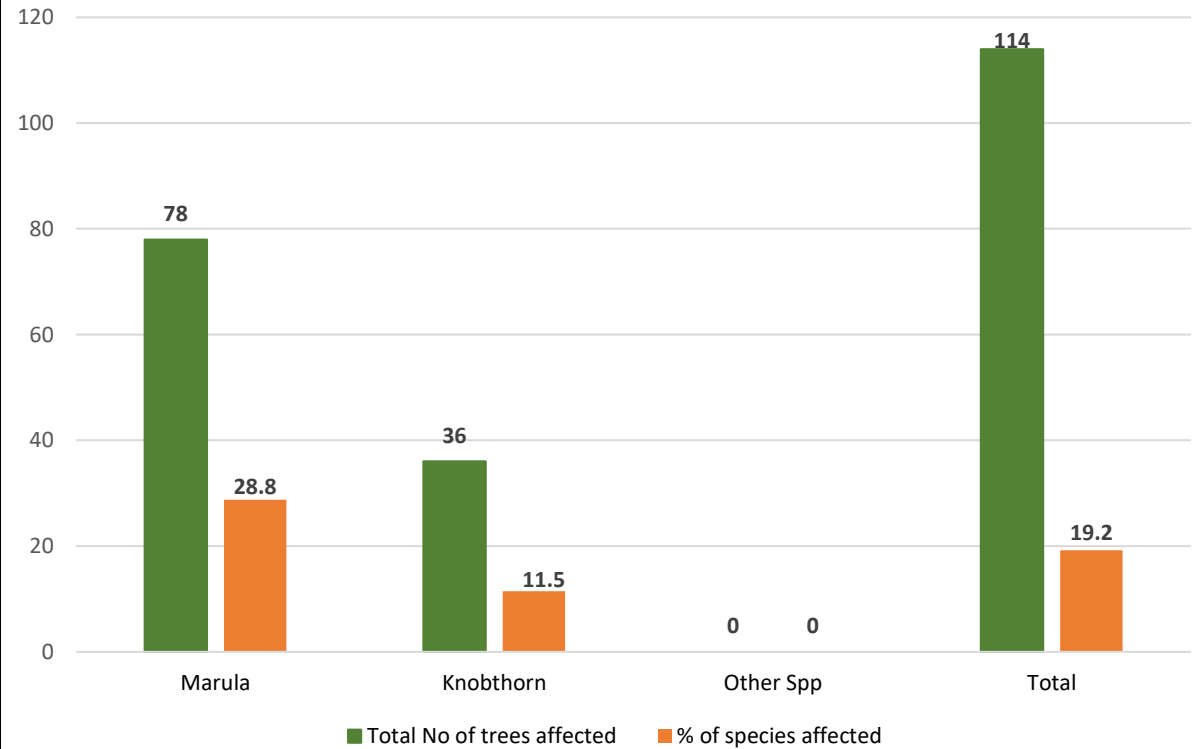
Snapped stem

Results Phase 1 of 2022

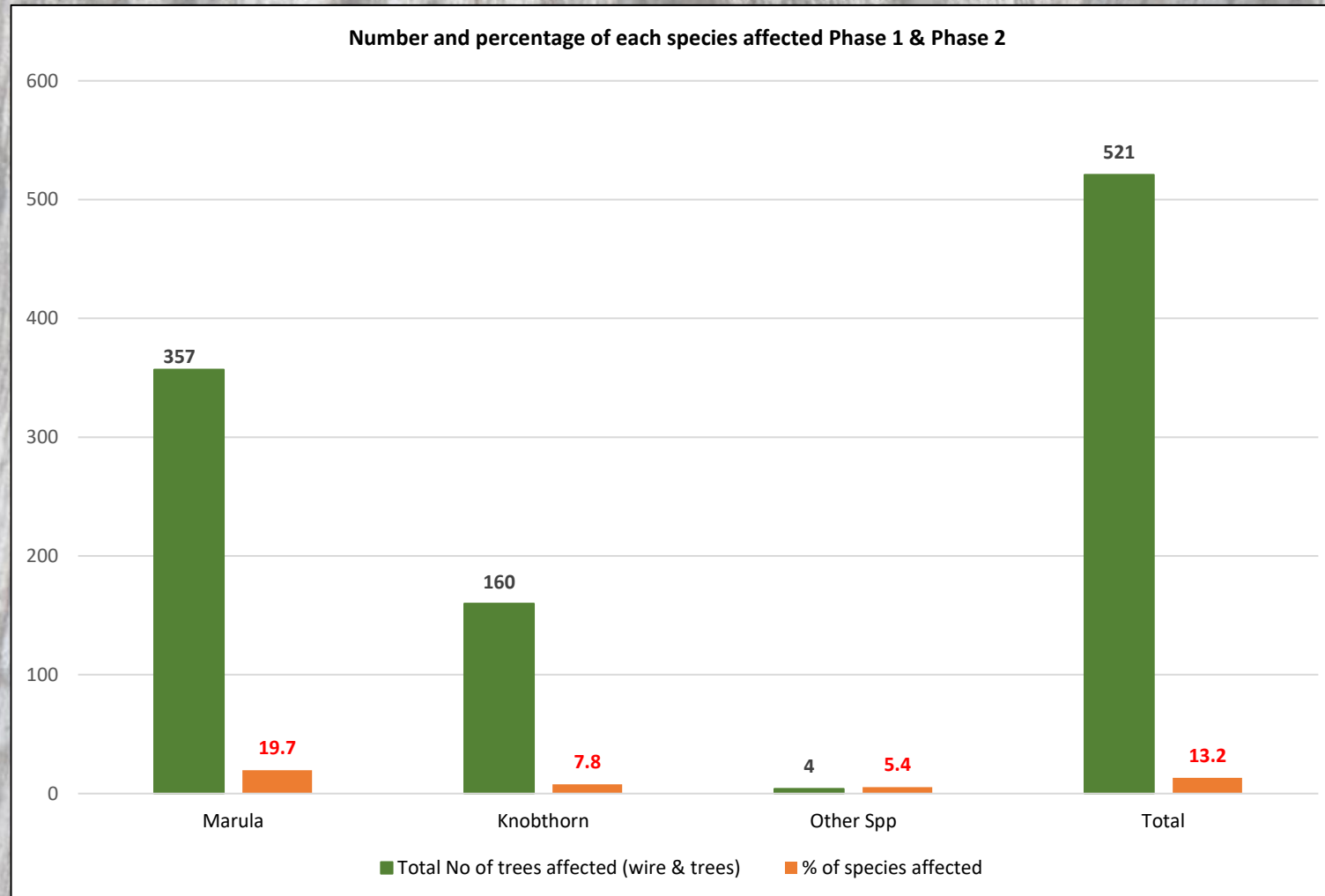
Percentage of trees affected per year Phase 1



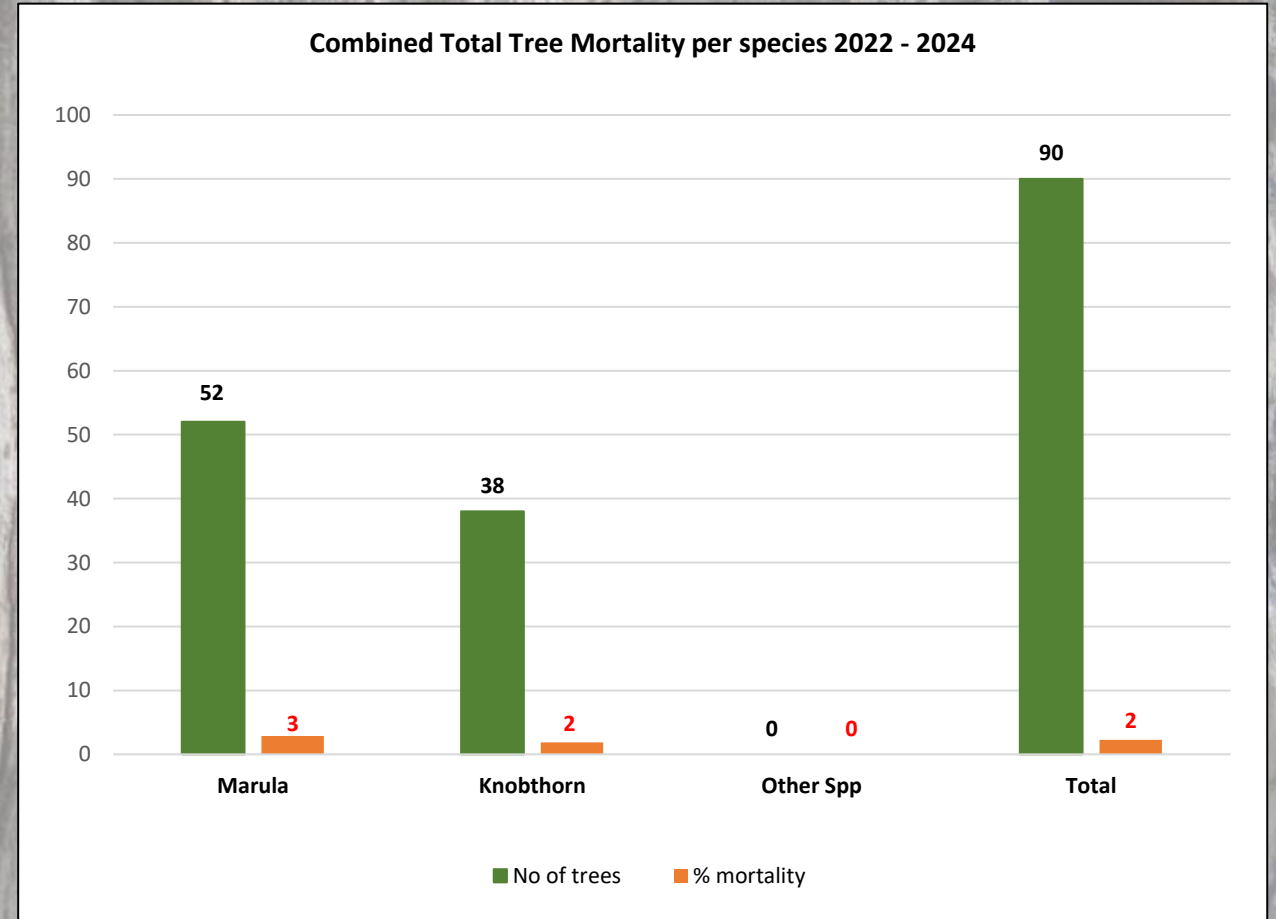
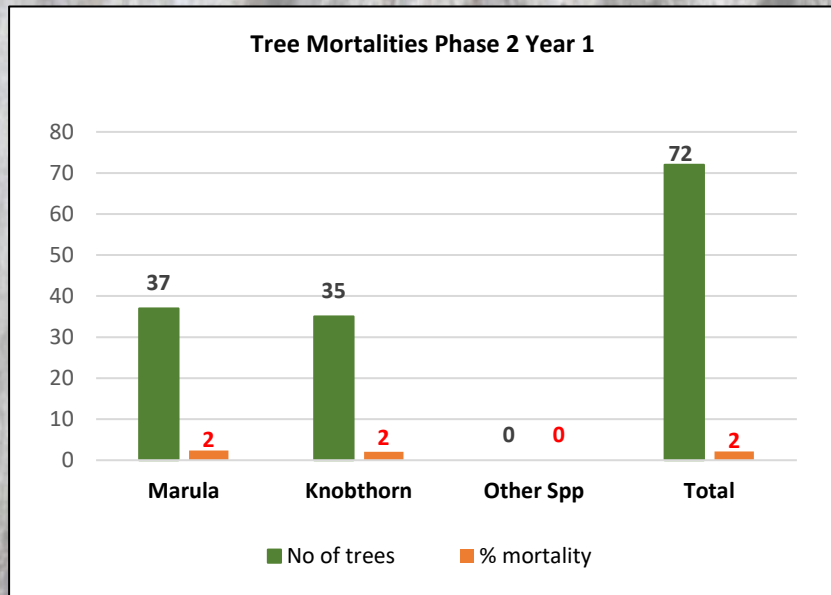
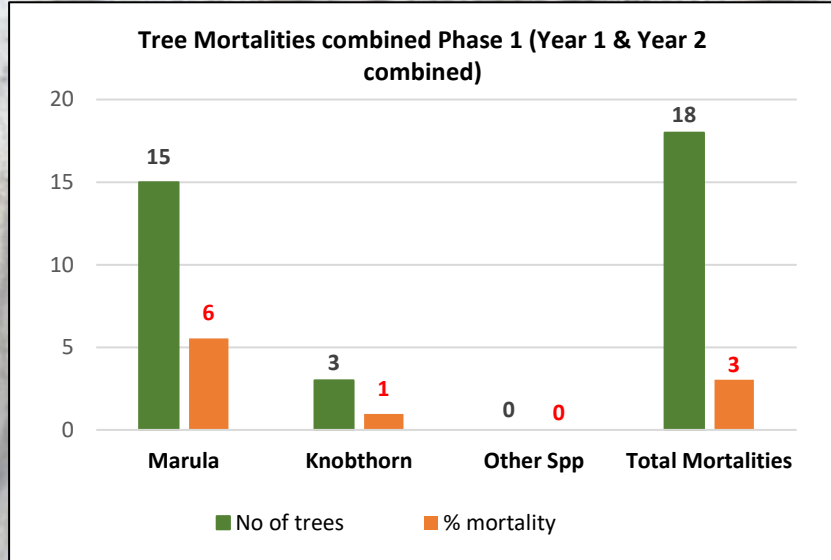
Total nr and Percentage of trees affected after 2 years



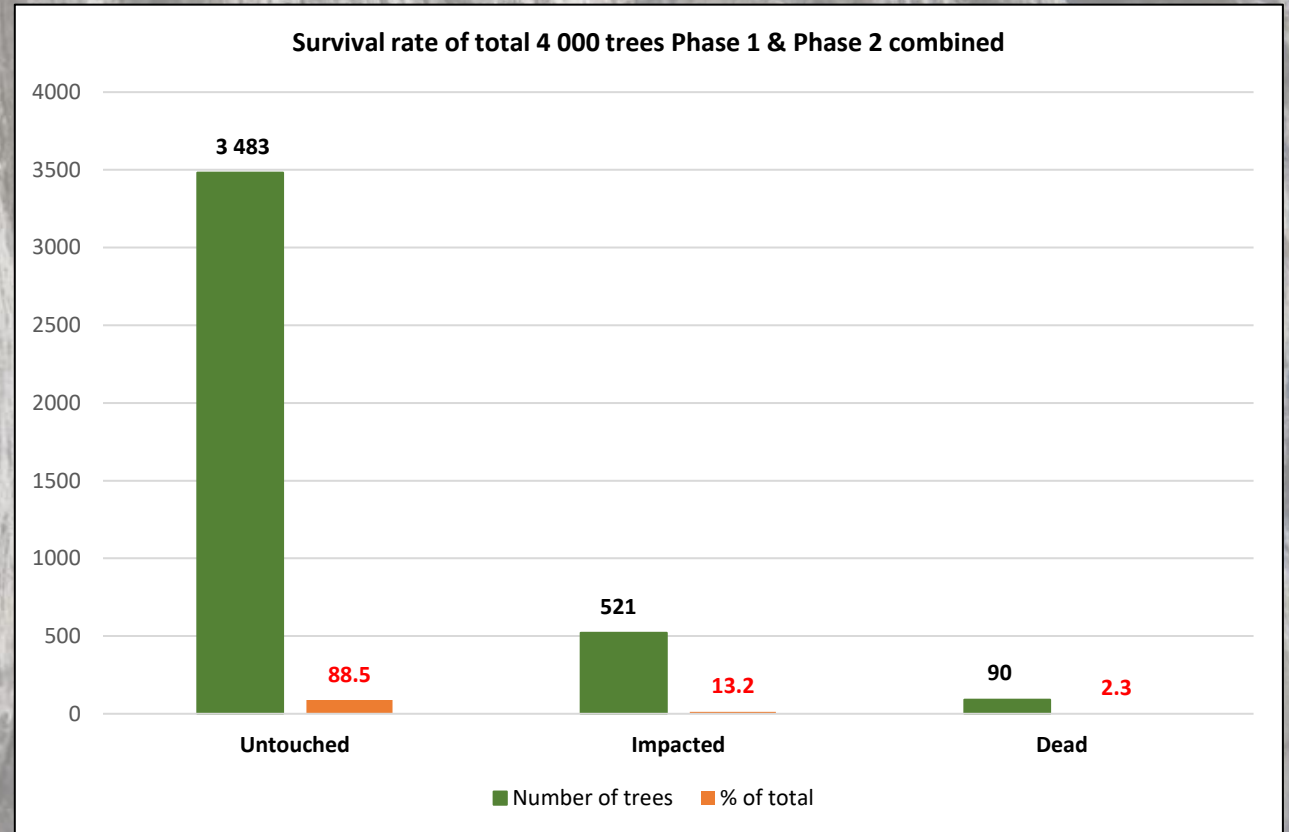
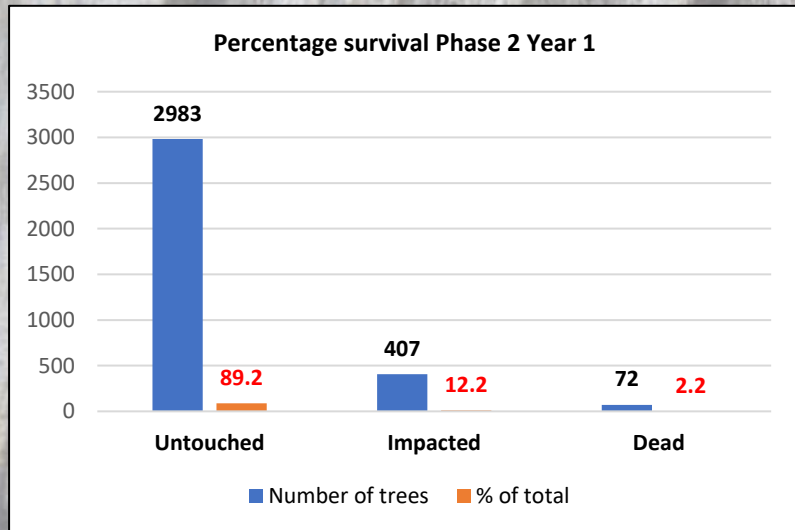
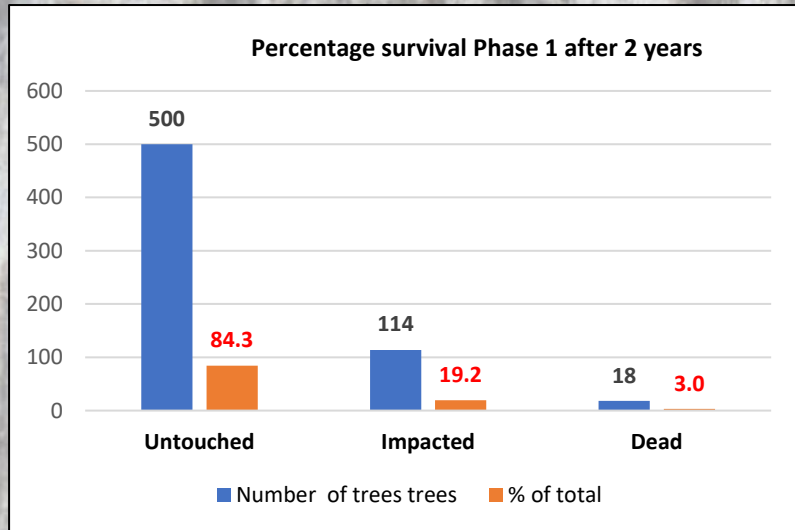
Results Phase 1 & 2 combined



Tree mortalities



Tree survival rates



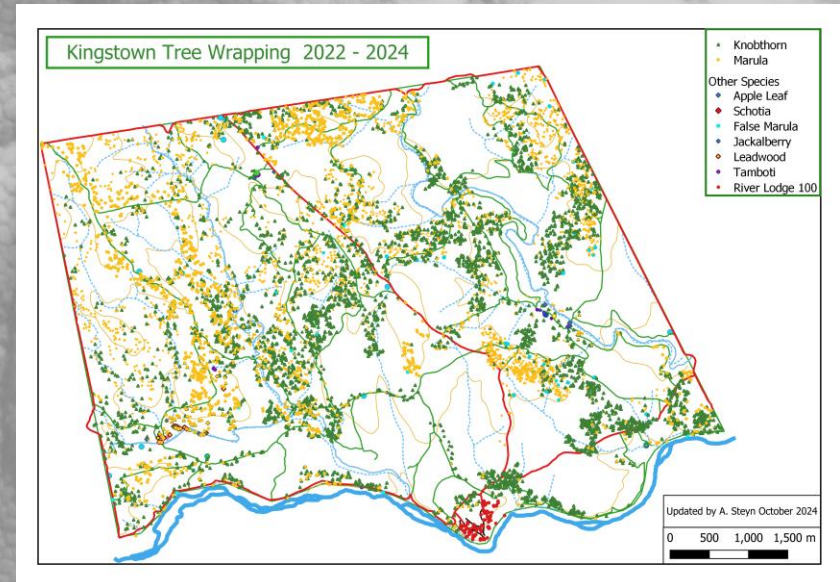
Conclusions

- **Data concurs** with other studies where **type of impact & mortalities of trees impacted by elephant** after wire netting was applied
 - Wire-netting was **particularly effective (100%) against bark-stripping**, with **no tree experiencing total bark stripping or fence removal up to date**
 - While a small number of trees were uprooted, snapped main stems, **reduced proportion and severity of other elephant impact and thereby contributes to survival of trees**
 - Maintains **functionality of trees** for other organisms in the ecosystem by allowing access for refuge, shade, food, and other activities
 - Relatively **low maintenance strategy** of reducing elephant impact. The wire netting does not need to be replaced for at least 4 years, due to over lapping & extension seams added in wire netting
 - In addition, wire netting is not very visible to tourists
 - It was shown that this method can help **extend the survival of large trees** amidst increasing elephant populations, thereby conserving their **ecological value within savanna** ecosystems and providing an effective strategy for managers and landowners to maintain these iconic and valuable tree species

Considerations/reflections

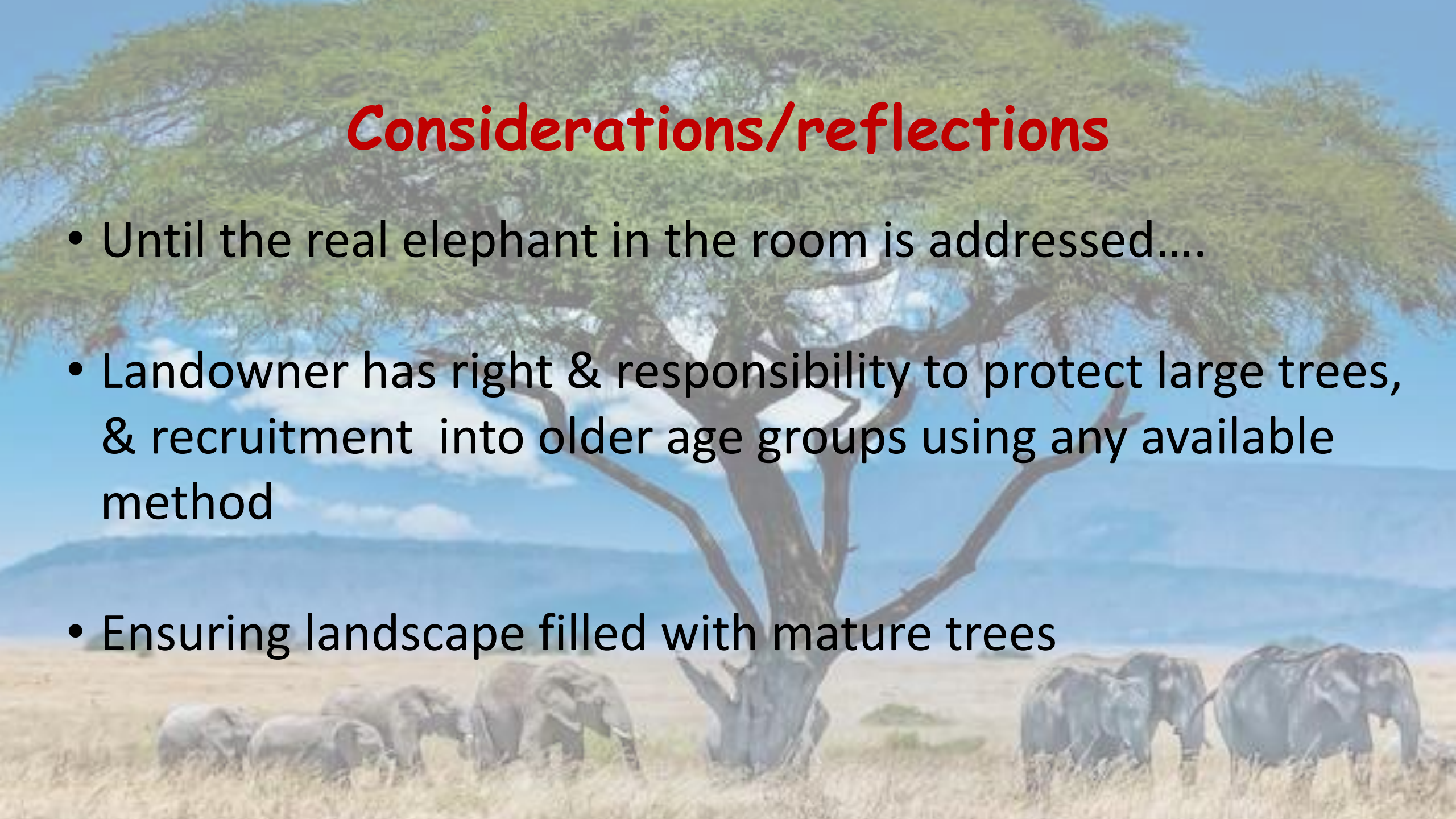
Way forward

- Based on prior studies validating the efficacy of fencing as a long-term protective strategy, this management project is continuing
- Another **4 000 trees** were wrapped in 2024, and the last **3 000** trees will be done in 2025, increasing total to **11 000** trees , equating to ~50% of large trees
- More control trees will also be marked and mapped to enable a better comparison
- Continuous maintenance of wrapped trees is necessary



Considerations/reflections

- Until the real elephant in the room is addressed....
- Landowner has right & responsibility to protect large trees, & recruitment into older age groups using any available method
- Ensuring landscape filled with mature trees



Gratitude to:

- Warthog Wallow Trust
- SSNR
- Singita
- Nkaxa Habitat Management Services

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