

ELEPHANT IMPACT ON WOODY VEGETATION ALONG THE CHOBE RIVERFRONT, BOTSWANA

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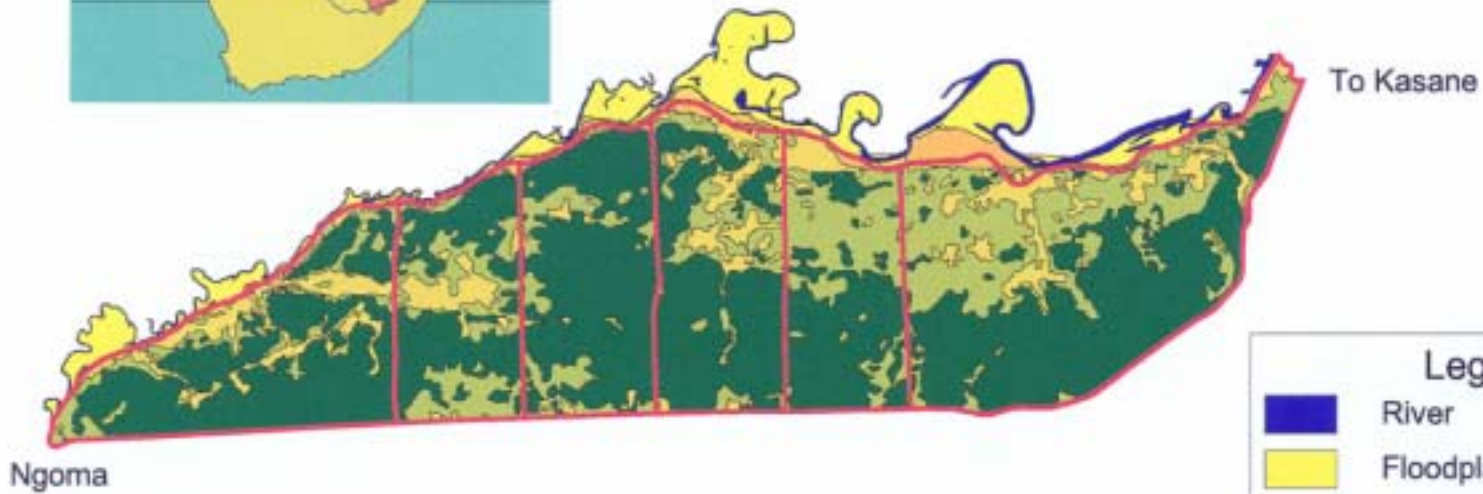


“The Chobe elephant problem”

- From the 1960's, concern that the Chobe riverfront woodland were dying
- Attributed to the increasing elephant population
- Concern about negative effects (food, habitat) on elephants themselves and on other herbivores and biodiversity generally

Our aim was to

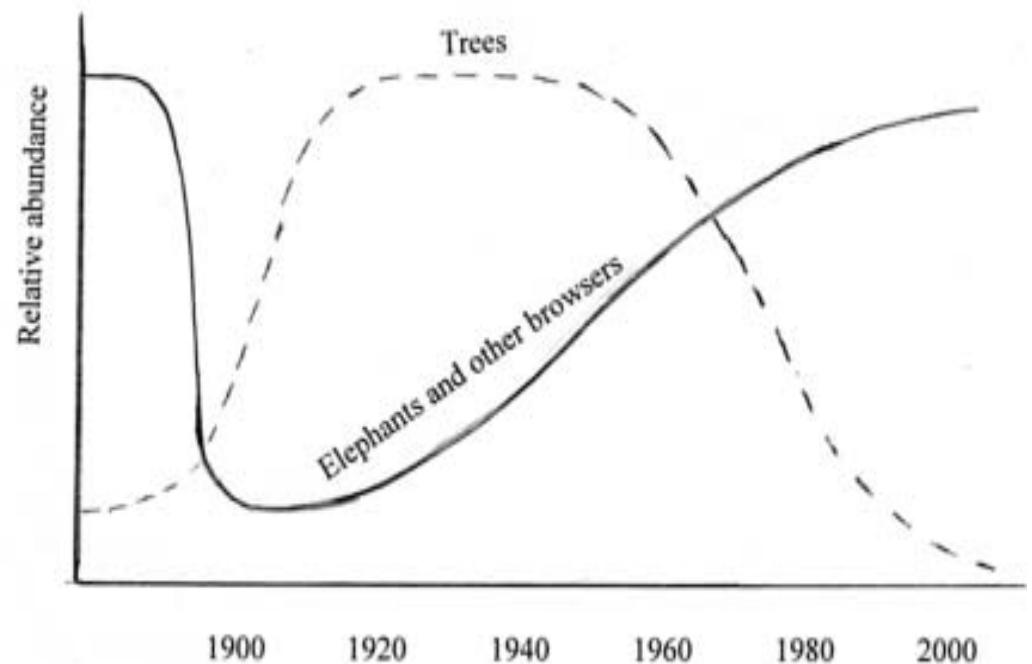
- Assess the changes taking place in the woody vegetation along the riverfront and their ecological significance
 - What and where are the changes?
 - What is the baseline?
 - What are the drivers of change?
 - What is the significance of changes in the woody vegetation for elephants and other browsing large herbivores?



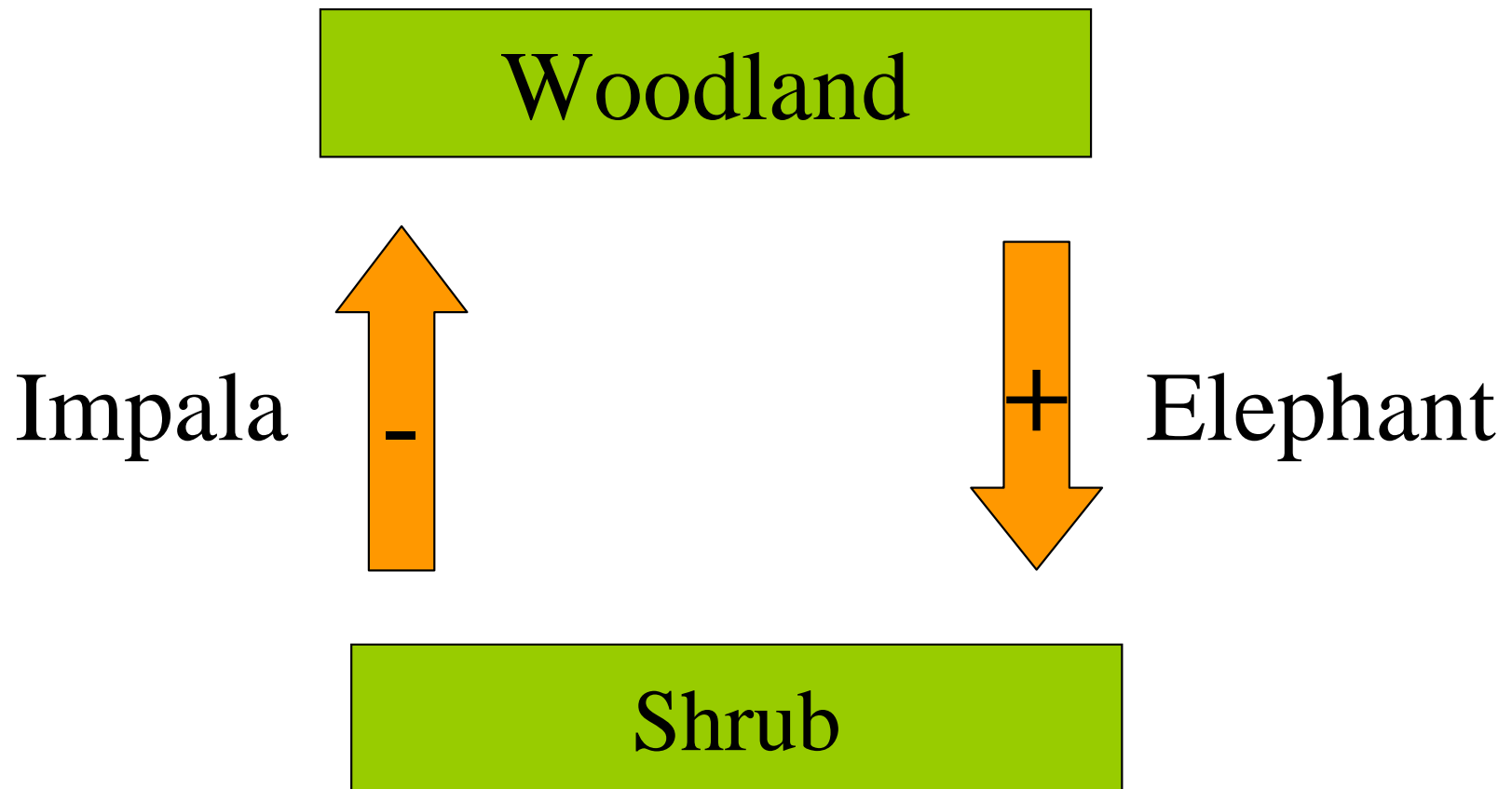
The changes in a perspective

(Simpson 1974 and others)

- In 1870's the alluvial crescent at the riverfront was an open flat
- In late 1800's elephants were close to extinction
- 1896 - rinderpest reduced ungulates
- Ca. 1900 - the woodlands established in a "window of opportunity"
- Herbivore density increased
- From 1960's - trees died without regeneration

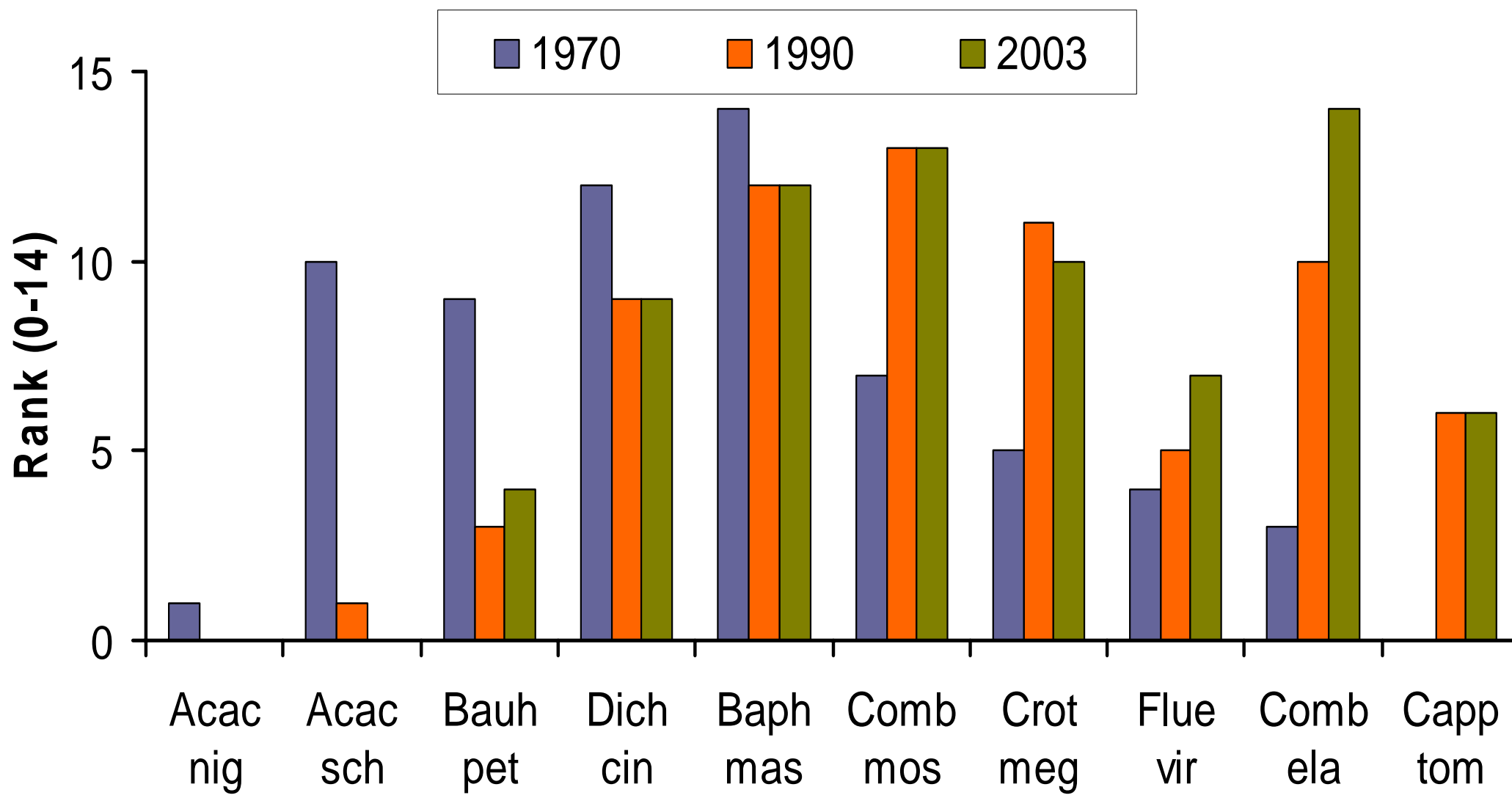


What are the drivers?



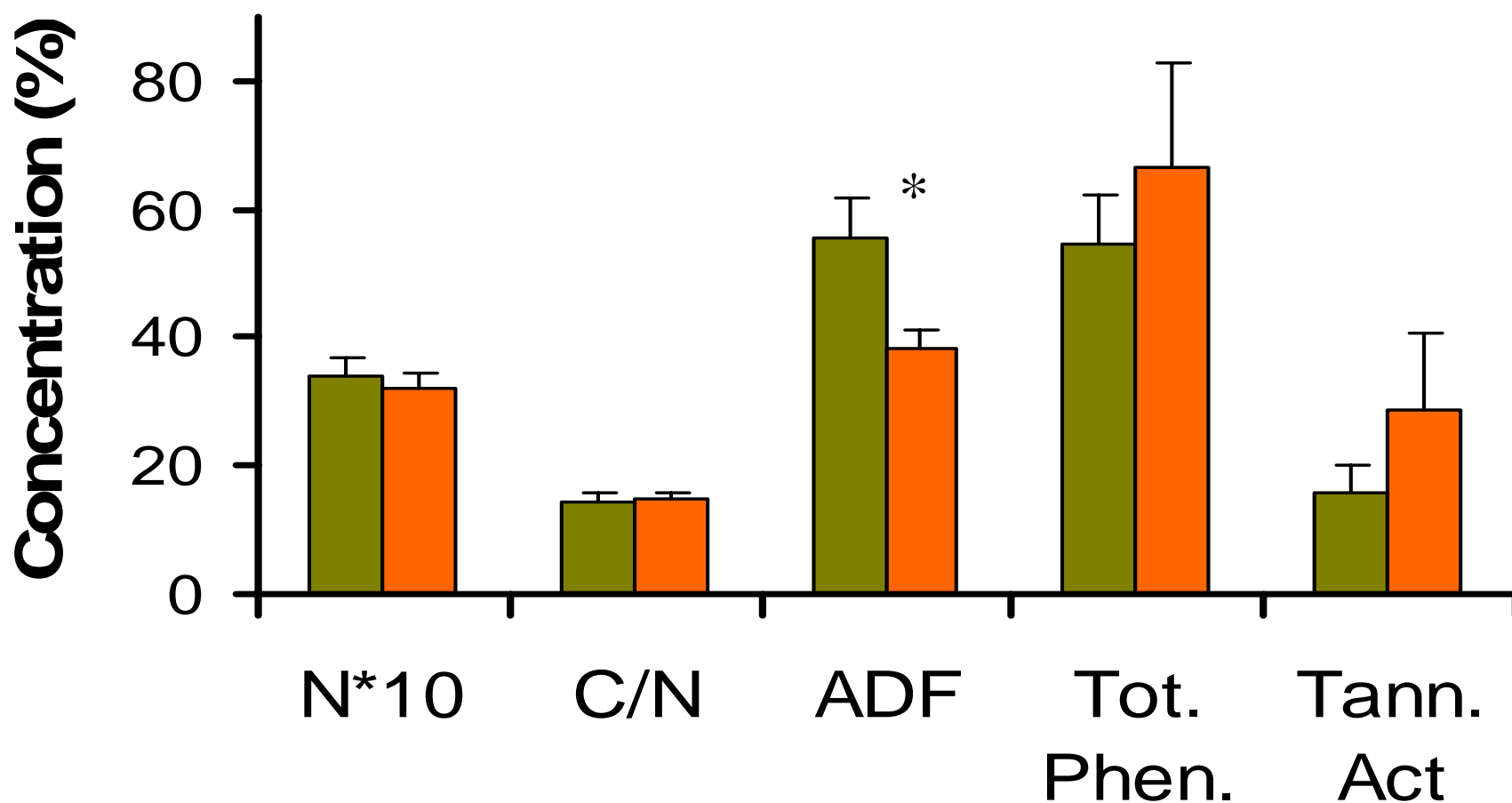
(Rutina 2004, Moe et al. 2003)

Ranking of woody species at the Riverfront

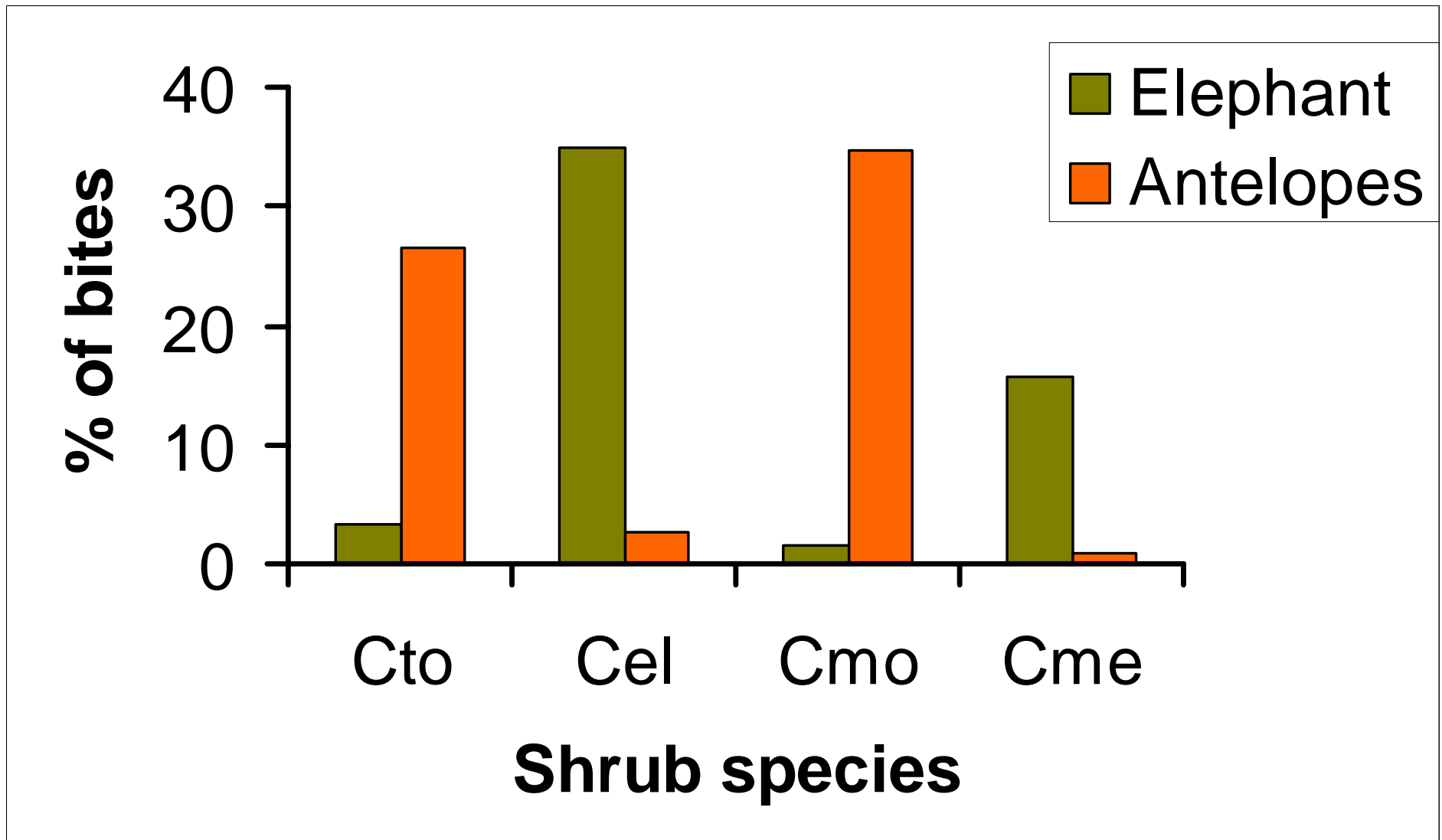


Traits of increasing and decreasing woody species

■ Decreasing species ■ Increasing species

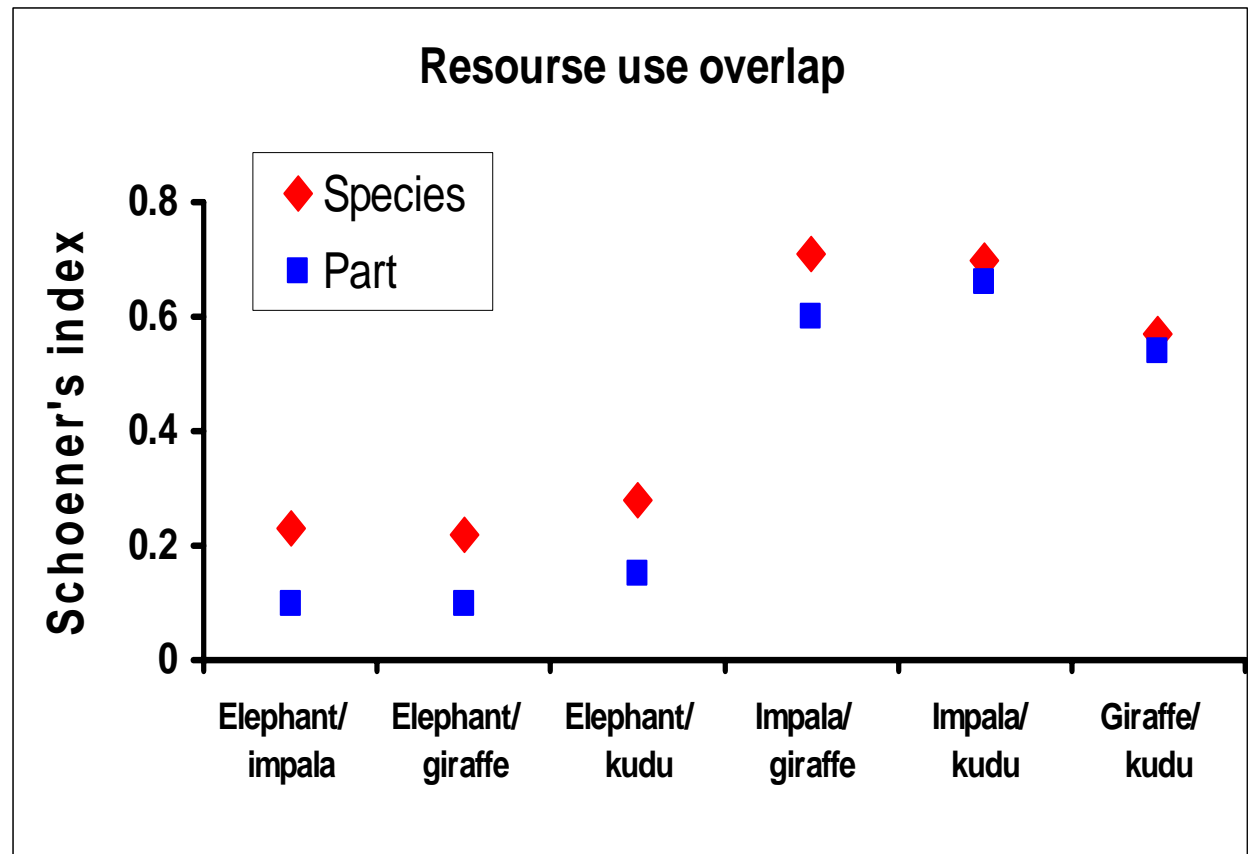


Elephants and antelopes both feed on the shrubs, but largely on different species
(Makhabu 2005)



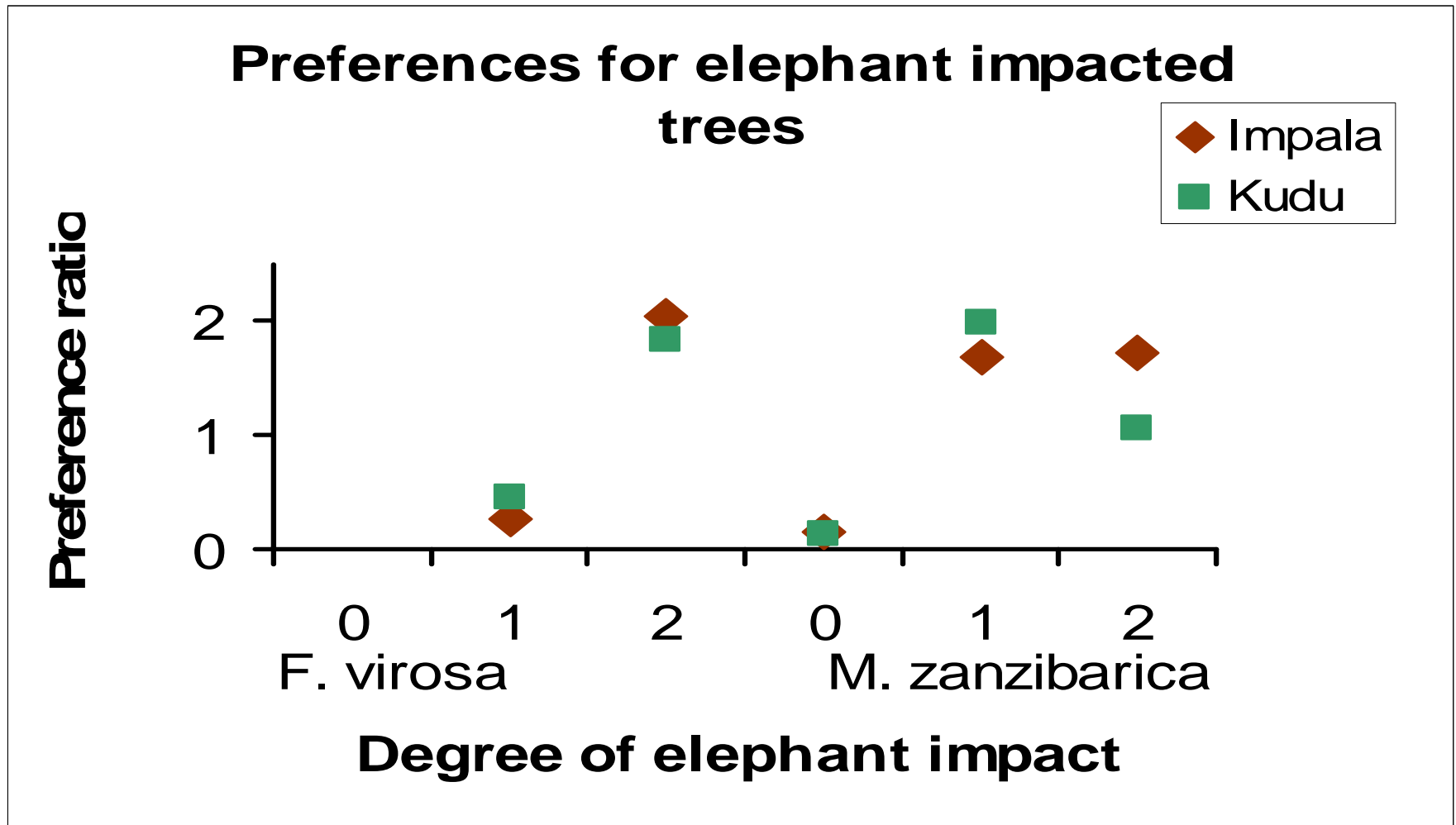
Resource partitioning within the browsing guild at the Riverfront

- Elephant eat other species than the ungulates
- Ungulates eat the same species
- Elephant eat other plant parts than the ungulates
- Ungulates eat the same plant parts



(Makhabu 2005)

Elephants facilitate feeding by other browsers?



(Makhabu et al. 2006)

Conclusions

- There have been profound changes in woody vegetation since the 1870's
- .. largely caused by elephants and other large herbivores
- no evidence for a general decrease in productivity or richness of the ecosystem
- it is difficult to predict the future