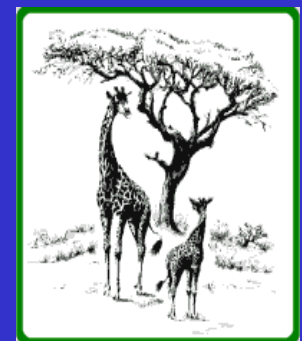


Browsers and savanna heterogeneity: agents, controllers, and responders

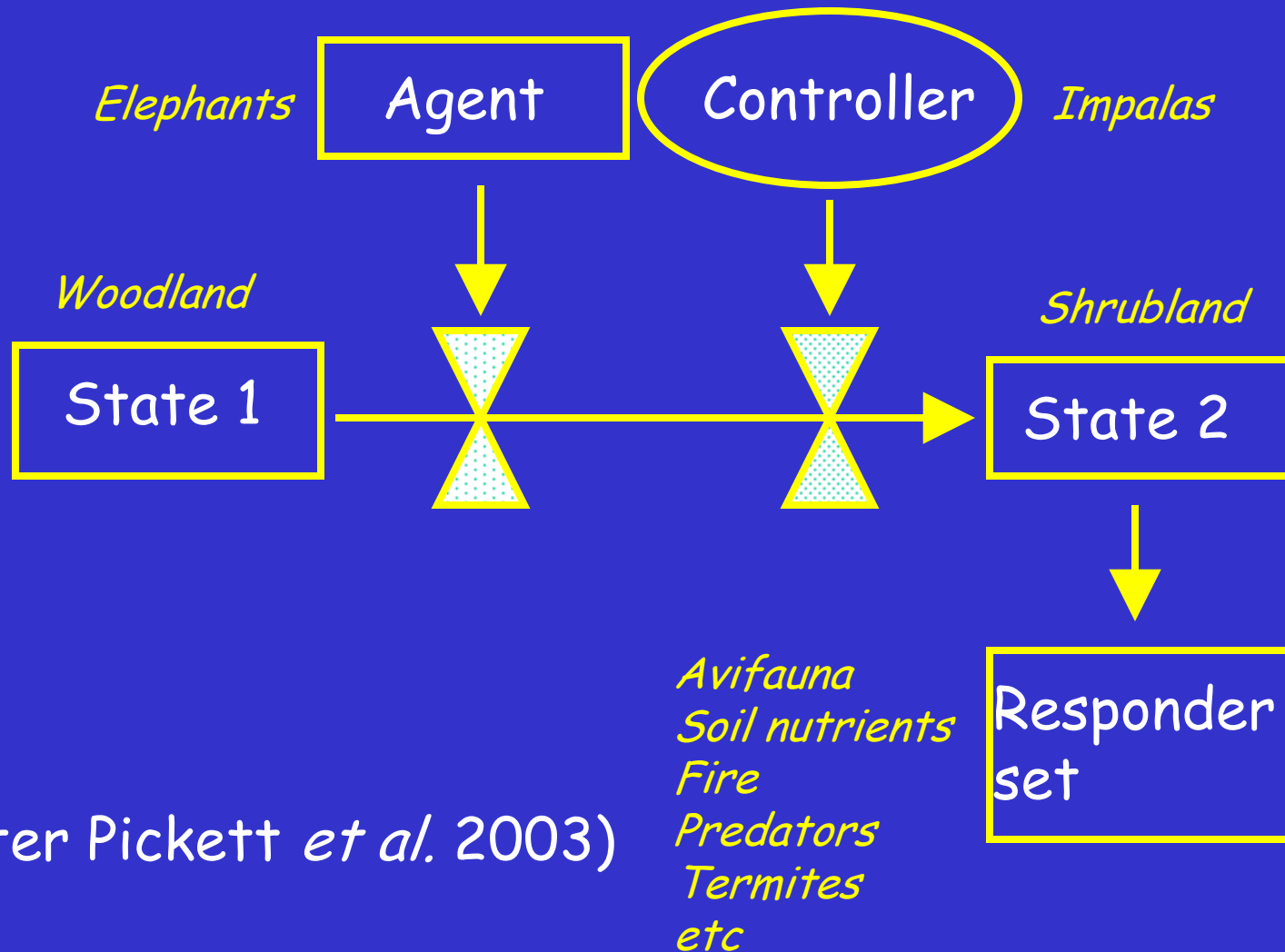
Johan du Toit

University of Pretoria

Mammal Research Institute



A framework for ecosystem heterogeneity



(after Pickett *et al.* 2003)

The Chobe floodplain

the only drinking water in the
dry season for $>10,000 \text{ km}^2$



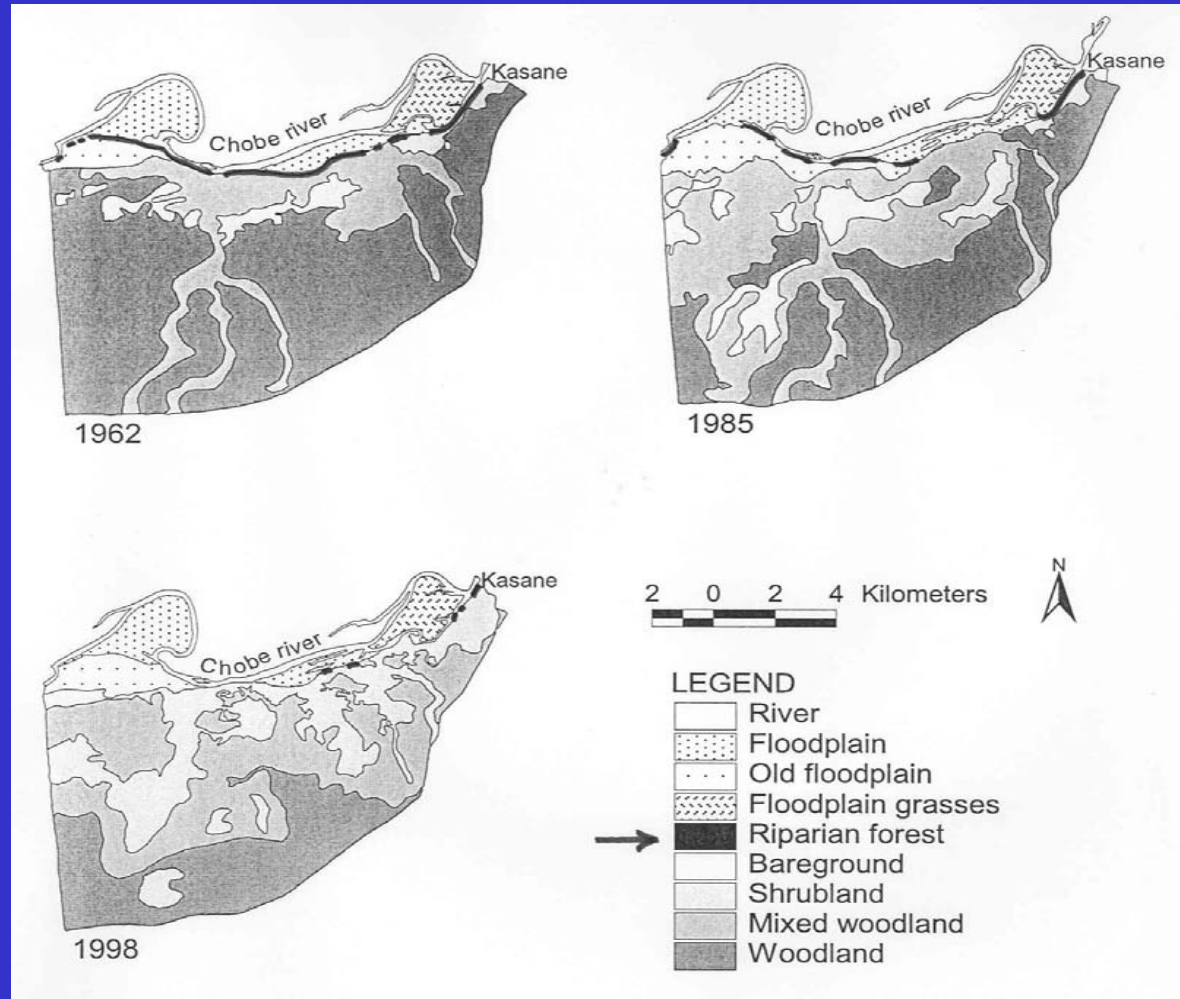
Lucrative tourism industry...

BUT



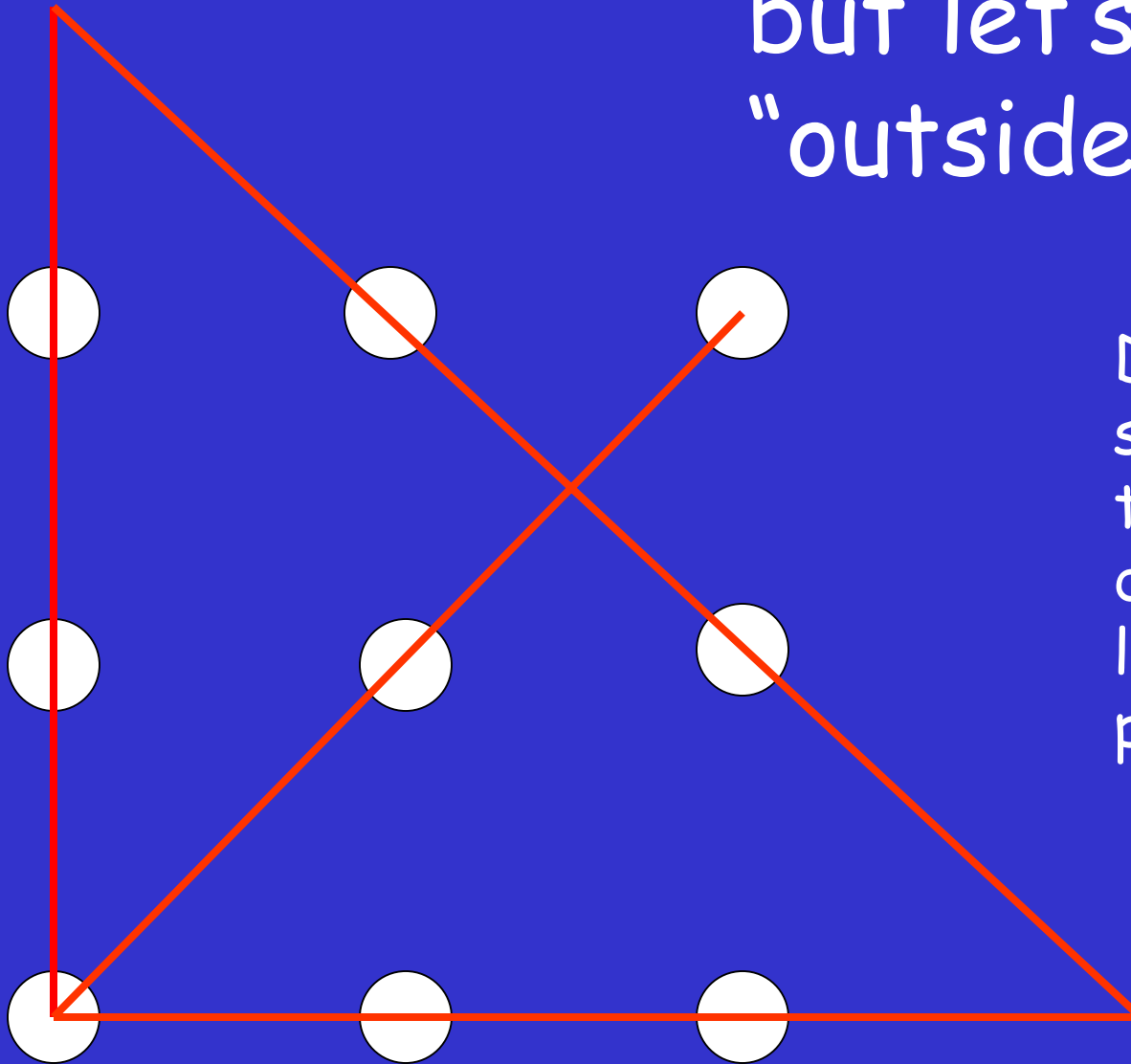
... continual claims
of elephants
destroying
Chobe's woodland

Woody vegetation dynamics: Chobe, Botswana



Mosugelo et al. (2002)

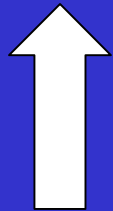
Kneejerk reaction: cull elephants
but let's think
"outside the box"



Draw four
straight lines
through all
dots, without
lifting pen from
paper

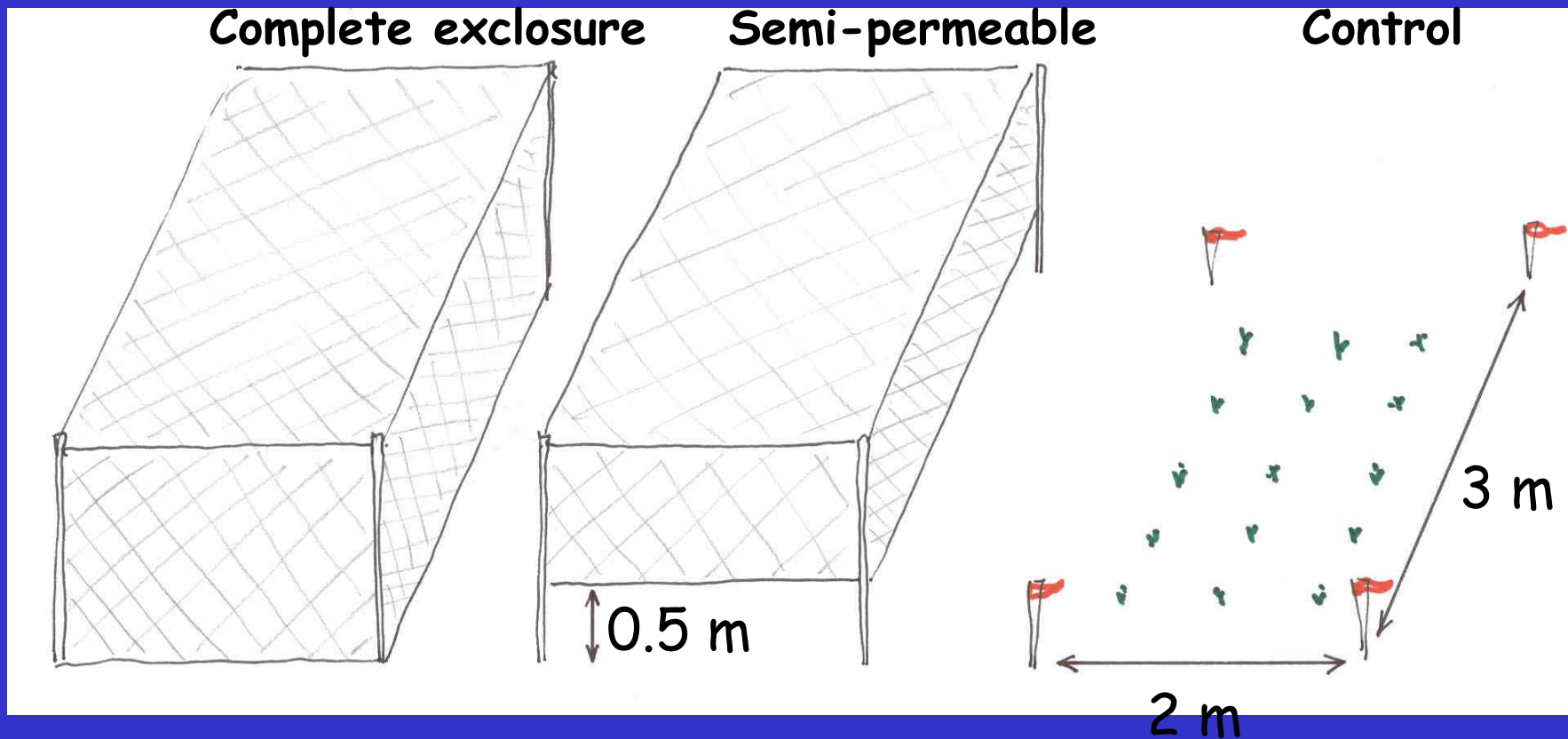


?

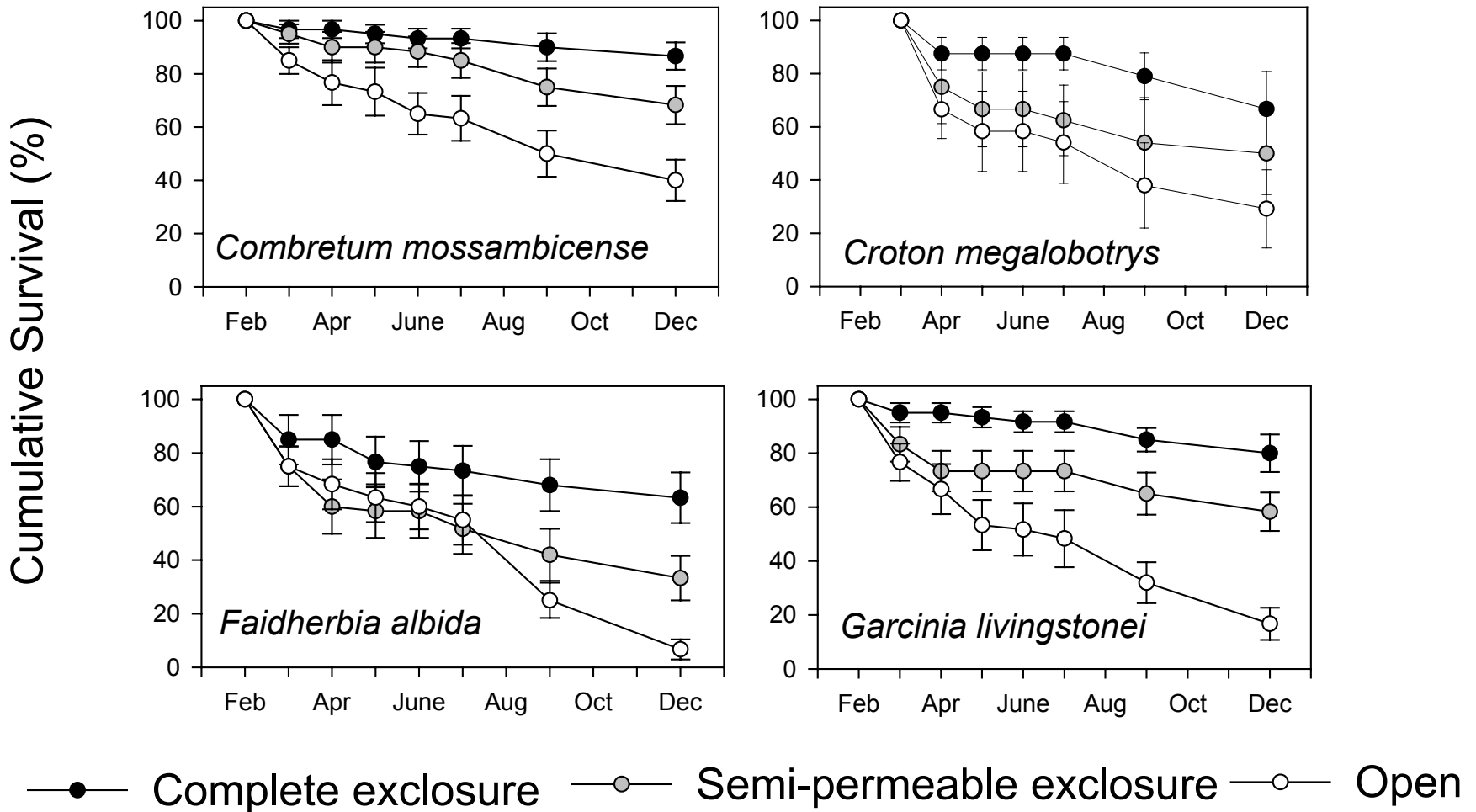


Seedling predation experiment

6 plots in forest fragments; 6 between fragments;
Tree species: *Faidherbia albida*; *Garcinia livingstonii*;
Combretum mossambicense, *Croton megalobotrys*
(5 seedlings/species/treatment/plot)

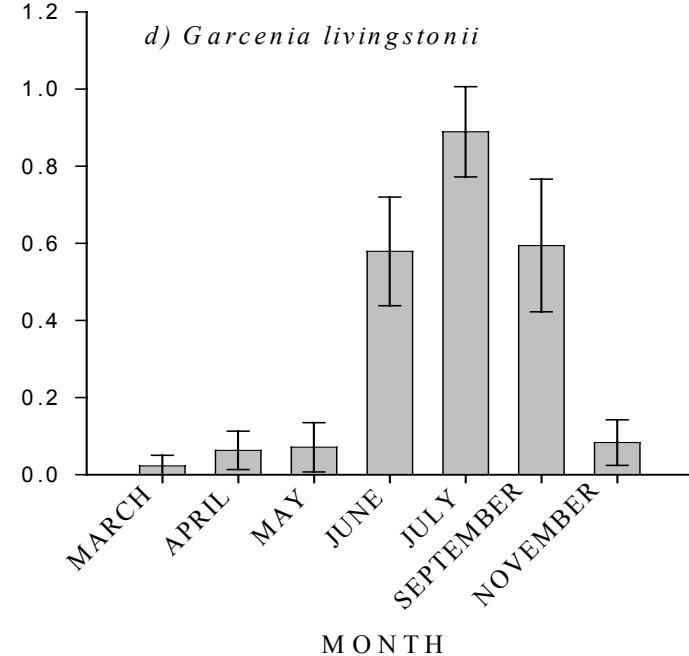
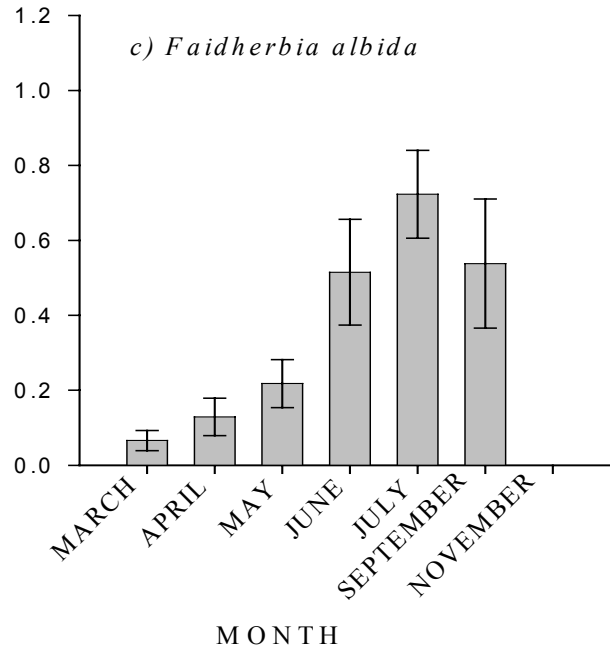
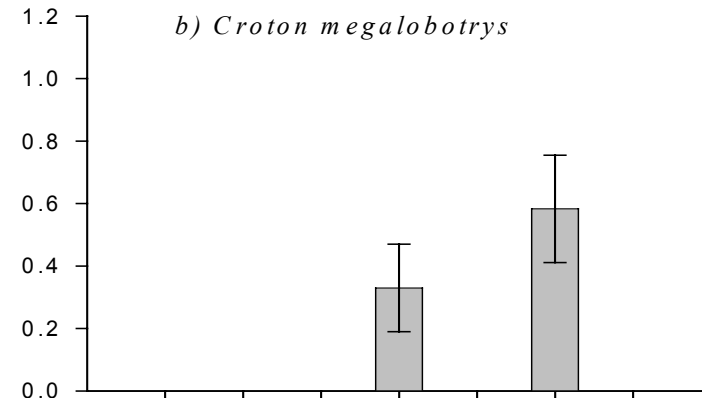
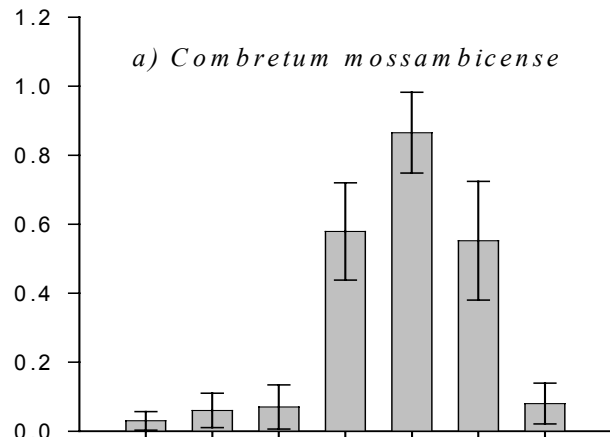


Exclusion of large herbivores has a significant effect on seedling survival

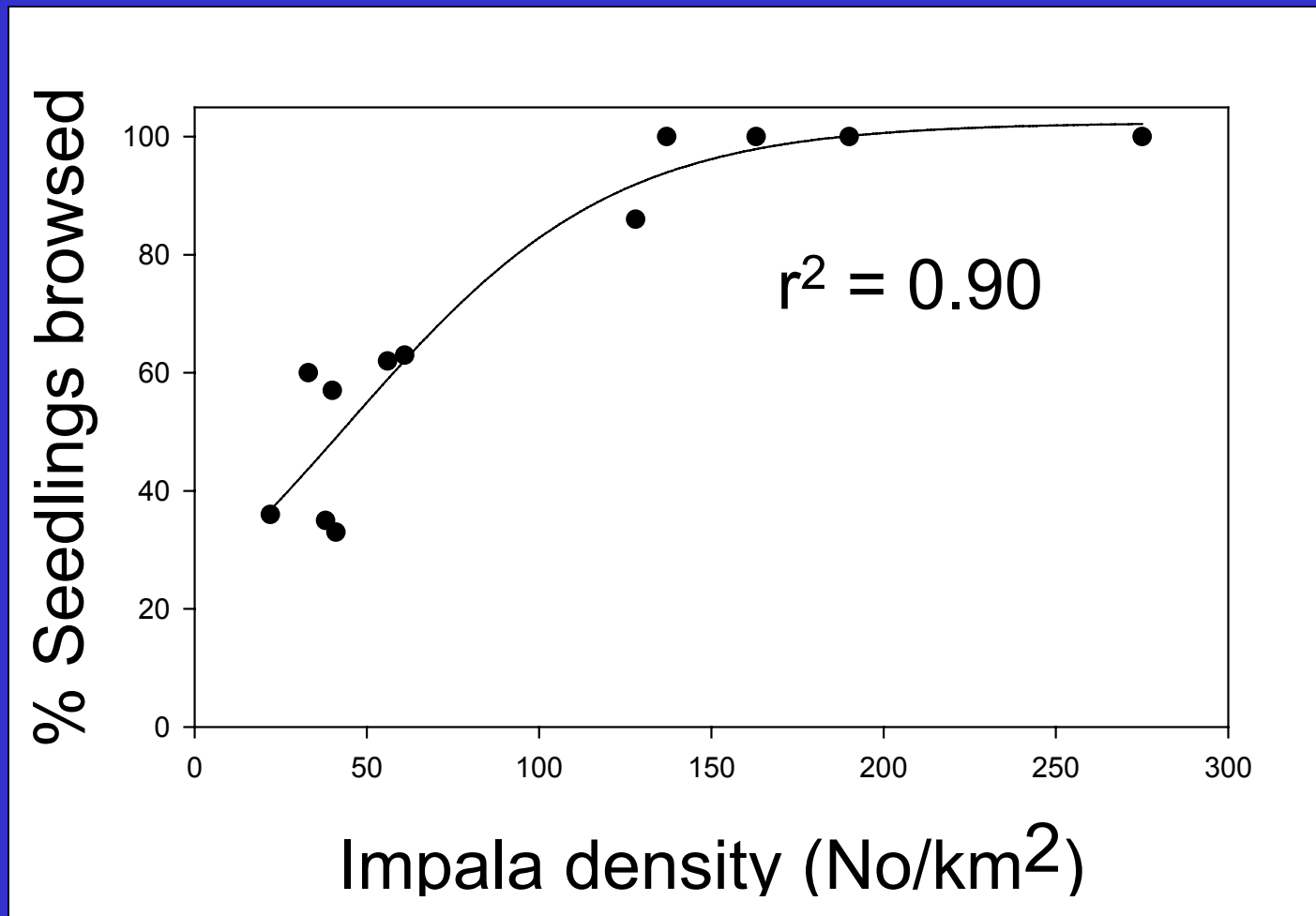


Seedling predation is greatest in the dry season, when insects are least active

Proportion of all seedlings browsed



Impalas are important seedling predators in the Chobe riparian zone

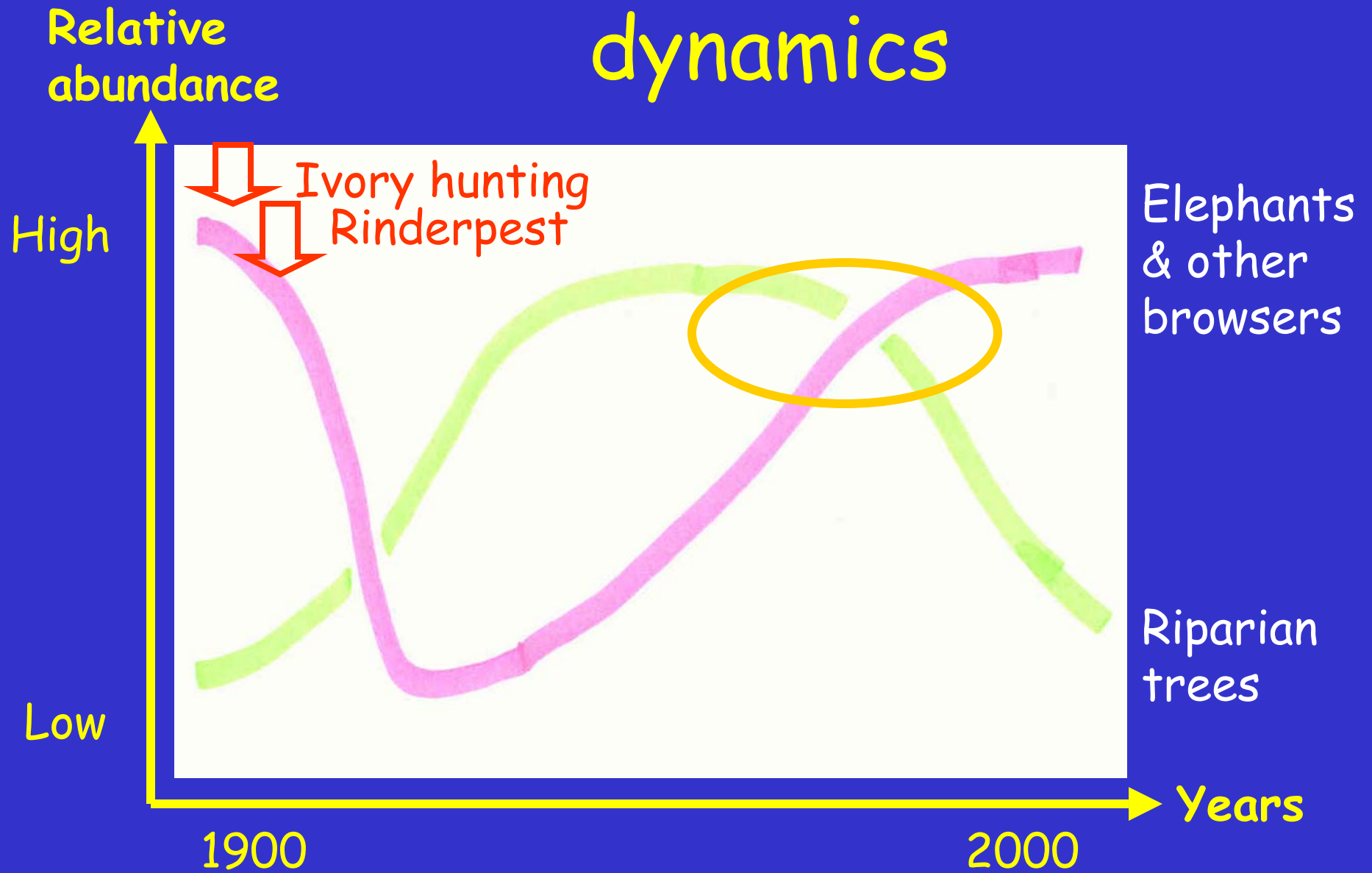


Elephants have changed the Chobe riparian zone into a state that is controlled by smaller browsers, such as impalas

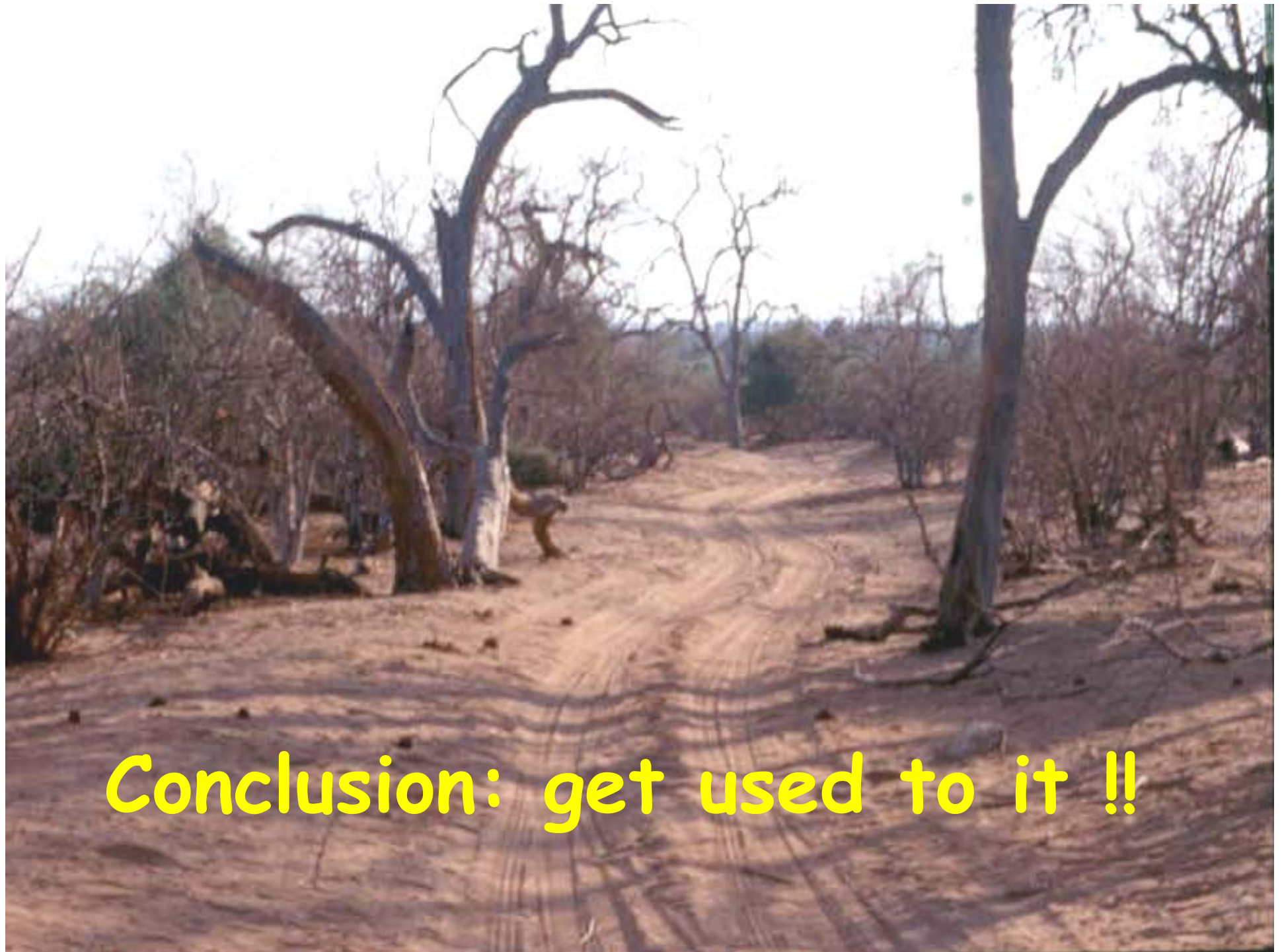


But where did Chobe's
riparian forest come from in
the first place?

Chobe woodland dynamics



(from Walker, 1989)



Conclusion: get used to it !!

Acknowledgements



- Stein Moe
- Lucas Rutina
- Steward Pickett