

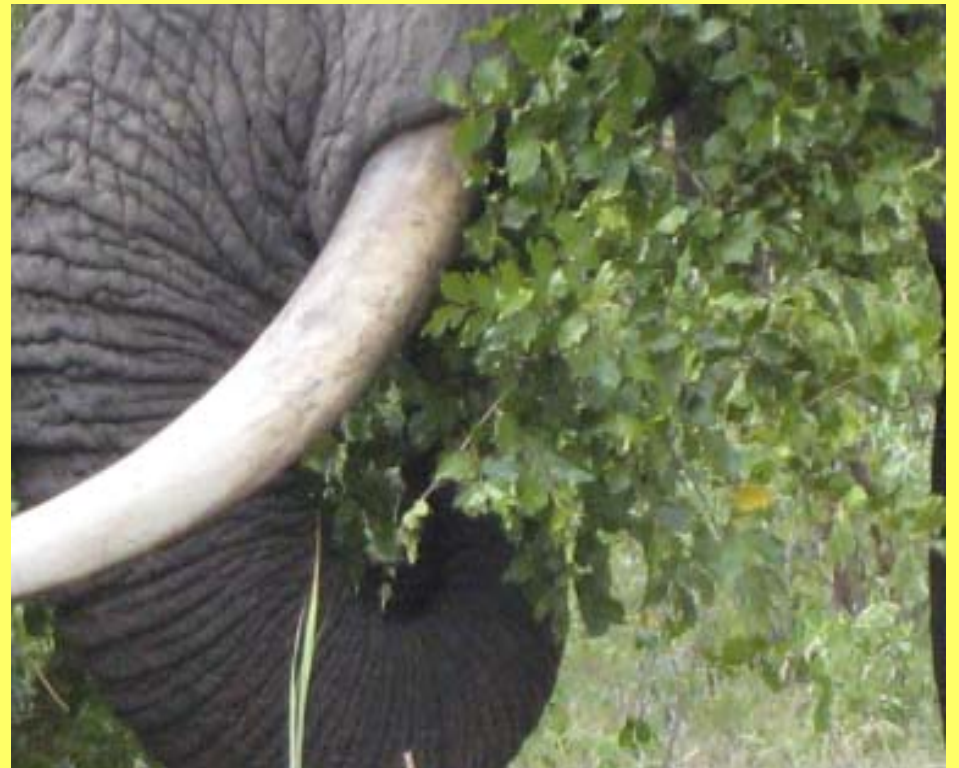


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TPCs for Large herbivores (incl. elephant): are they correctly defined?



“TPCs should detect **unacceptable change** in landscape function, structure and composition due to elephant utilization (or lack thereof)”



Background ideas for TPCs (1)

- There is “something” to which the present state can be compared
- The value of that “something” is considered to be the **benchmark**
- If the deviation between the value of the present state and that of the benchmark is considered to be too large, then there may be a reason to express concern:
a threshold of concern has been reached

Background ideas for TPCs (2)

- ‘The decline of the least dominant component is the most sensitive indicator of a species change’
- ‘Decline of the characteristic or dominant species indicates system change’
- ‘Loss of either the browser or grazer component indicates a change in available resources’

TPCs for large herbivores are based on numbers (censuses)



... not on individual wellbeing



Theoretical threshold = Benchmark:
“counts during the aerial census
between 1980 and 1993”



Why this benchmark?

Why this benchmark?

- Counts between 1980 and 1993 have nothing to do with a “theoretical threshold”; (...is there such a thing? ...)
- Yet, those counts can indeed serve as a benchmark
- But then not based on science but perhaps on aesthetics

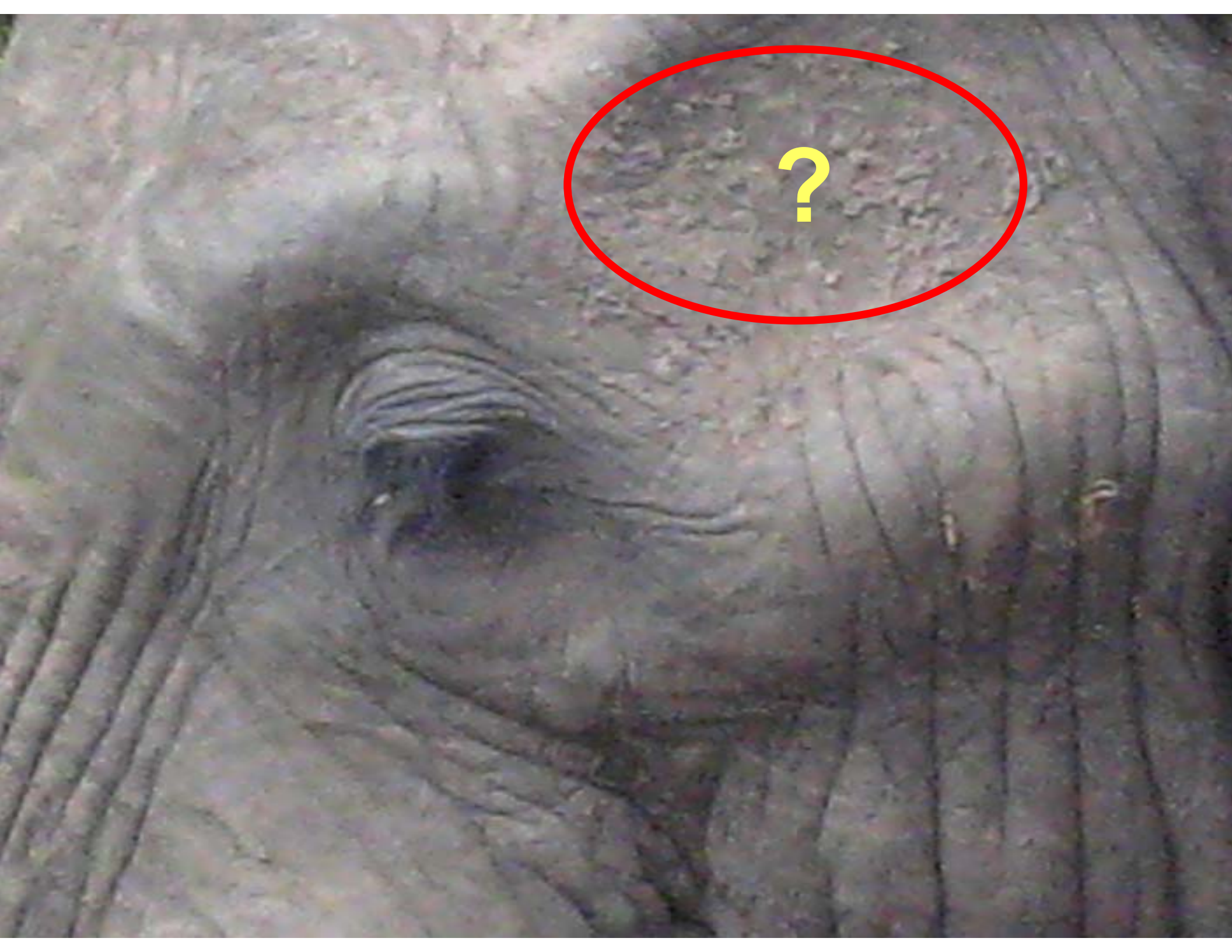
Graham Child “in Zimbabwe the benchmark [1930] was a **political choice**, not an ecological one”

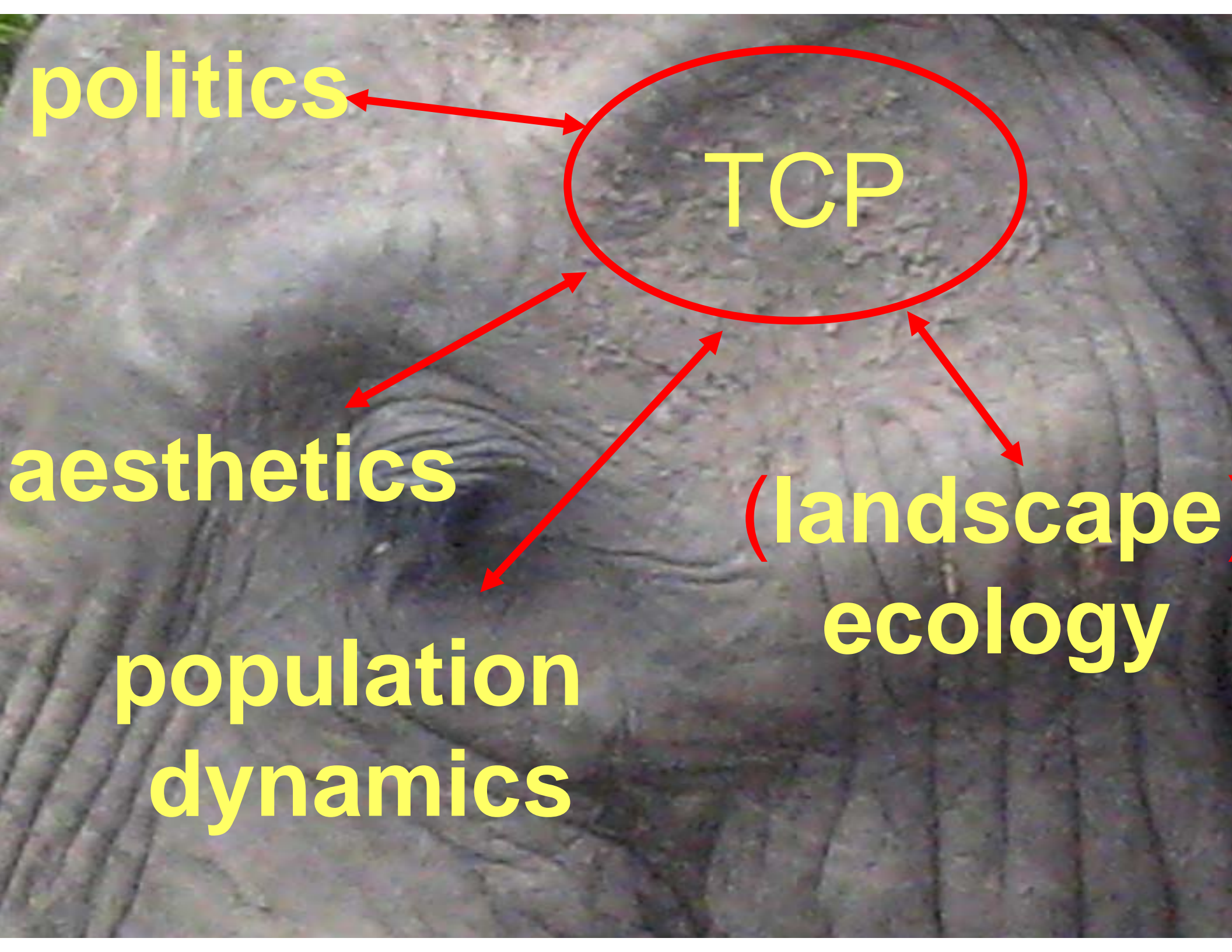


What is the (implicit) choice by KNP
Animals? Plants? Landscapes?

Not: 'let nature run its course'







politics

TCP

aesthetics

**(landscape
ecology)**

**population
dynamics**

TPCs appear to be neutral and even depoliticized, but the underlying value judgments and aesthetical norms may still be there!

- The benchmark does not appear to be a neutral choice
- The question is, whether the notion of a benchmark is correct anyhow

TPC is exceeded when:

- ‘The dominance ranking of the first or second ranked species descends to the third or lower position’
- (‘a drop of less than 5% proportional abundance will not be considered a drop’)
- Remember: this is in comparison to the state the mammal community found it self in during the period 1980 - 1993

Species that are covered are:

- Impala
- Giraffe
- Wildebeest
- Kudu
- White rhino
- Elephant
- Waterbuck
- Warthog
- Zebra

Dry season count of Selous

• Elephant	109.419	• Hippo	18.505
• Buffalo	78.893	• Waterbuck	12.060
• Wildebeest	69.044	• Eland	11.009
• Zebra	44.421	• Sable	9.728
• Impala	43.891	• Black rhino	2.541
• Hartebeest	34.507	• Greater kudu	1.635
• Warthog	20.232	• Giraffe	1.332

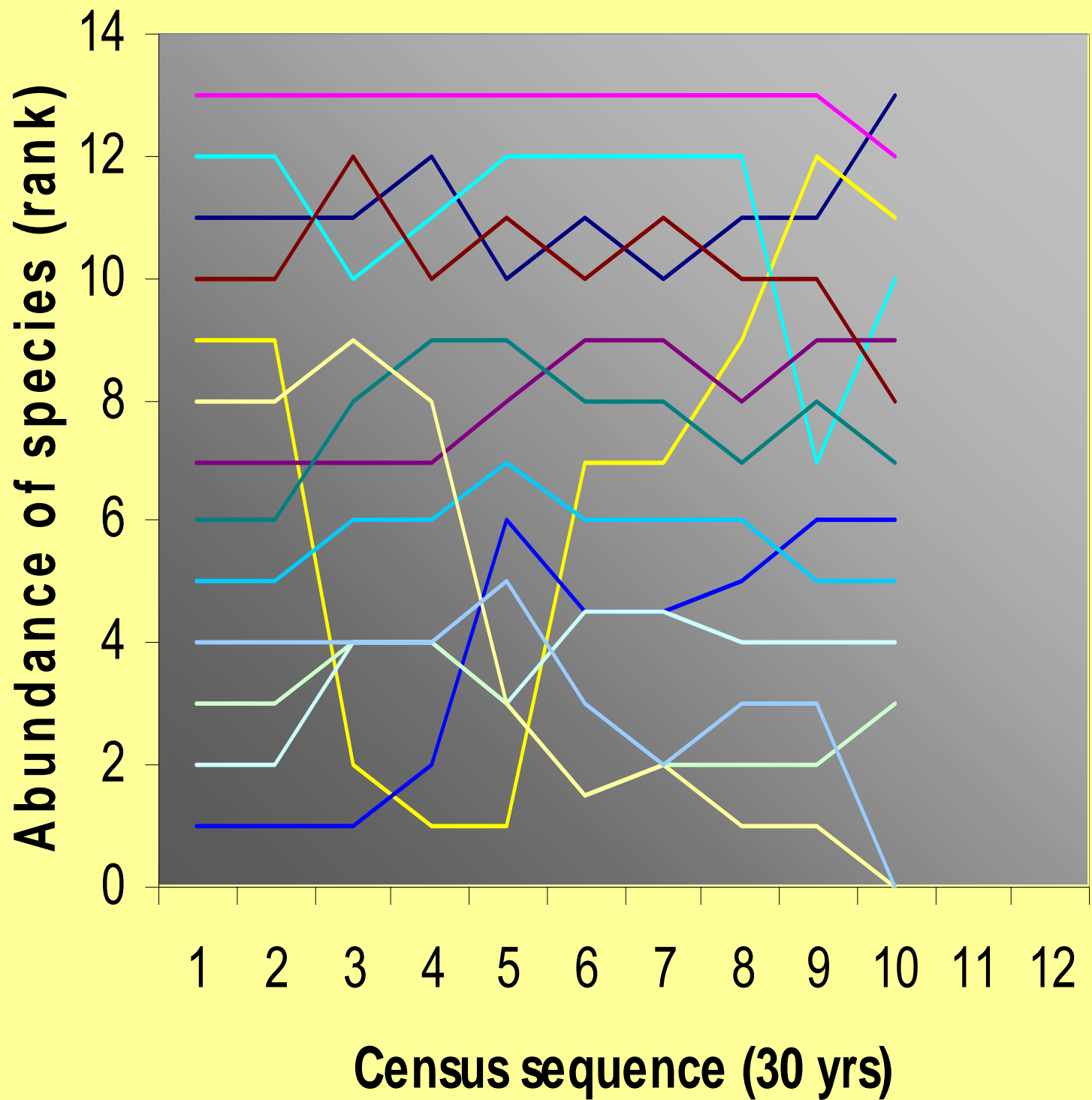
In case of the Selous, the TPC would thus have been exceeded if buffalo and wildebeest would have swapped rank!

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The TPC is easily exceeded!



- For buffalo and wildebeest to swop rank since ~1993 very small changes in growth rate are sufficient
- Buffalo: -0.269% p.a.
- Wildebeest: $+0.287\%$



- Baboon
- Buffalo
- Wildebeest
- Impala
- Burchell's zebra
- Elephant
- Hippopotamus
- Warthog
- Giraffe
- Bushbuck
- Waterbuck
- Reedbuck
- Black rhinoceros

Increase of geese

	1975	2003	annual
• White fronted	120,000	289,000	3.1%
• Barnacle	50,000	326,000	6.7%
• Bean	25,000	163,600	6.7%
• Brent	15,000	79,036	5.9%
• Greylag	2,000	597,000	20.4%
• Lesser white-f.	1,000	80	- 9.0%
• Red-breasted	100	12	- 7.6%
• Egyptian	(10)	15,000	26.1%
• Canada	(10)	9,600	6.8%

Increase of geese

	1975	2003	
• White fronted	1	3	TCP!
• Barnacle	2	2	
• Bean	3	4	
• Brent	4	5	
• Greylag	5	1	
• Lesser white-f.	6	8	
• Red-breasted	7	9	
• Egyptian	8	6	
• Canada	9	7	

More TPCs

- ‘3 least dominant as a group occupy (?? at present, I suppose) less than half of the proportional abundance in the benchmark’
- Example of Selous:
 - Black rhino 2.541
 - Greater kudu 1.635
 - Giraffe 1.332
 - Σ 5.508 50% = 2752

- Do we really believe that if greater kudu and half the giraffe population of the Selous would disappear, that this indicates a **system change**?

Dutch goose population now some 1.5 million (1975: 150,000)

No indication for
“system change” if

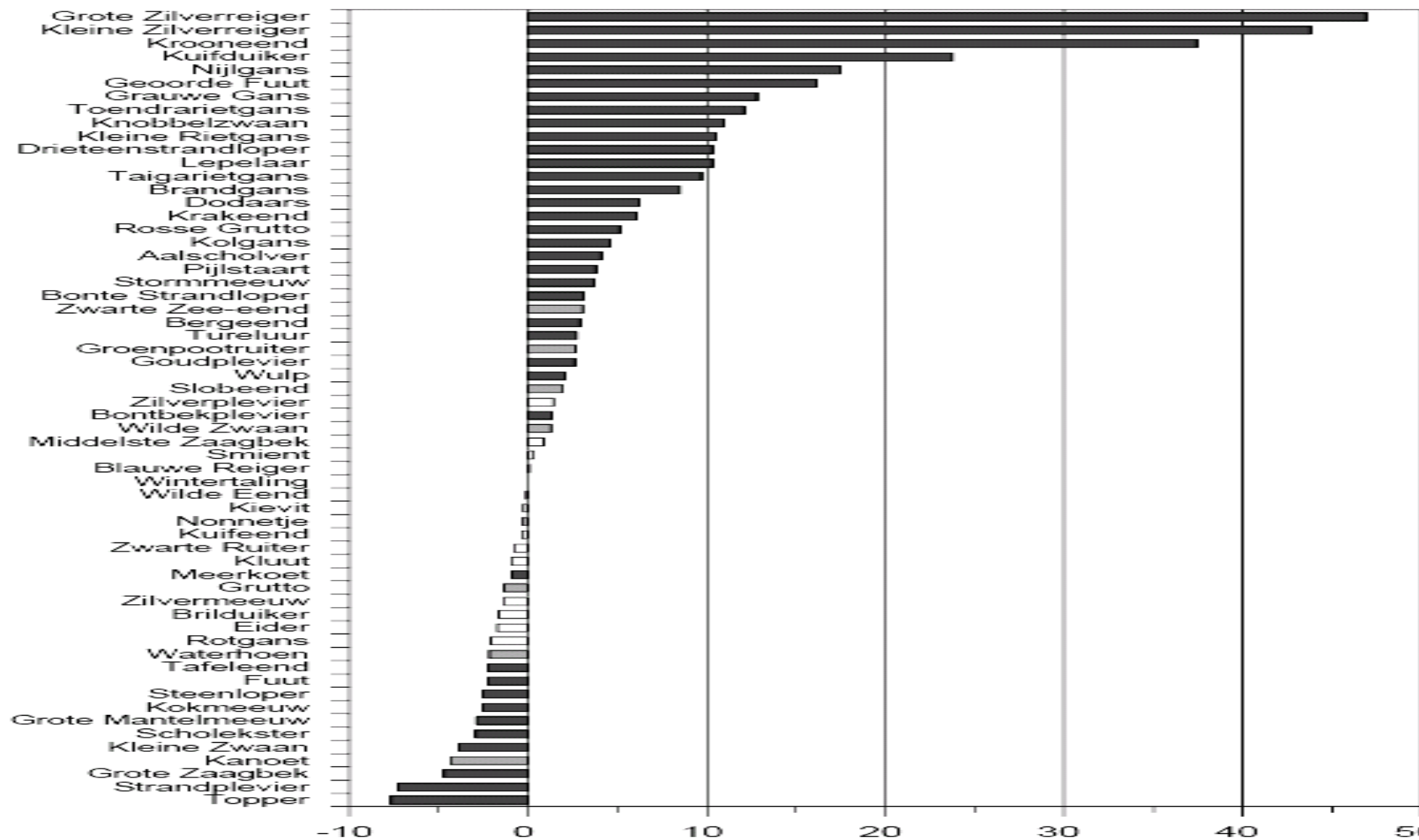
- Grey lag (2000)
- Lesser white-fronted (1000)
- Red-breasted (100)

would have gone extinct
in the Netherlands



In-/Decrease of waterfowl in the Netherlands 1993 and 2003

OVON-monitoringrapport 2005/03



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- Animal communities are much more dynamic than acknowledged in the system
- Many changes in abundance are much more “random” than realized
- There is still “non-ecology” involved