

Yes, "less than 4 billion humans on the planet"
Ethical arguments are important

Frank Götmark

Department of Biological and Environmental Sciences

University of Gothenburg, Göteborg, Sweden

Arguments for 'less than 4 billion humans'

- 1) About 3 billion is a sustainable level, several studies suggest.
- 2) About 3 billion can fulfil traditional human ethics.
- 3) However, "3 billion" and human ethics have limitations. Only broader ethics can fully protect other species and restore their homes on the planet.
- 4) Such an approach suggests "less than 3 billion".



Photo: Iki- waner GFDLv1.2



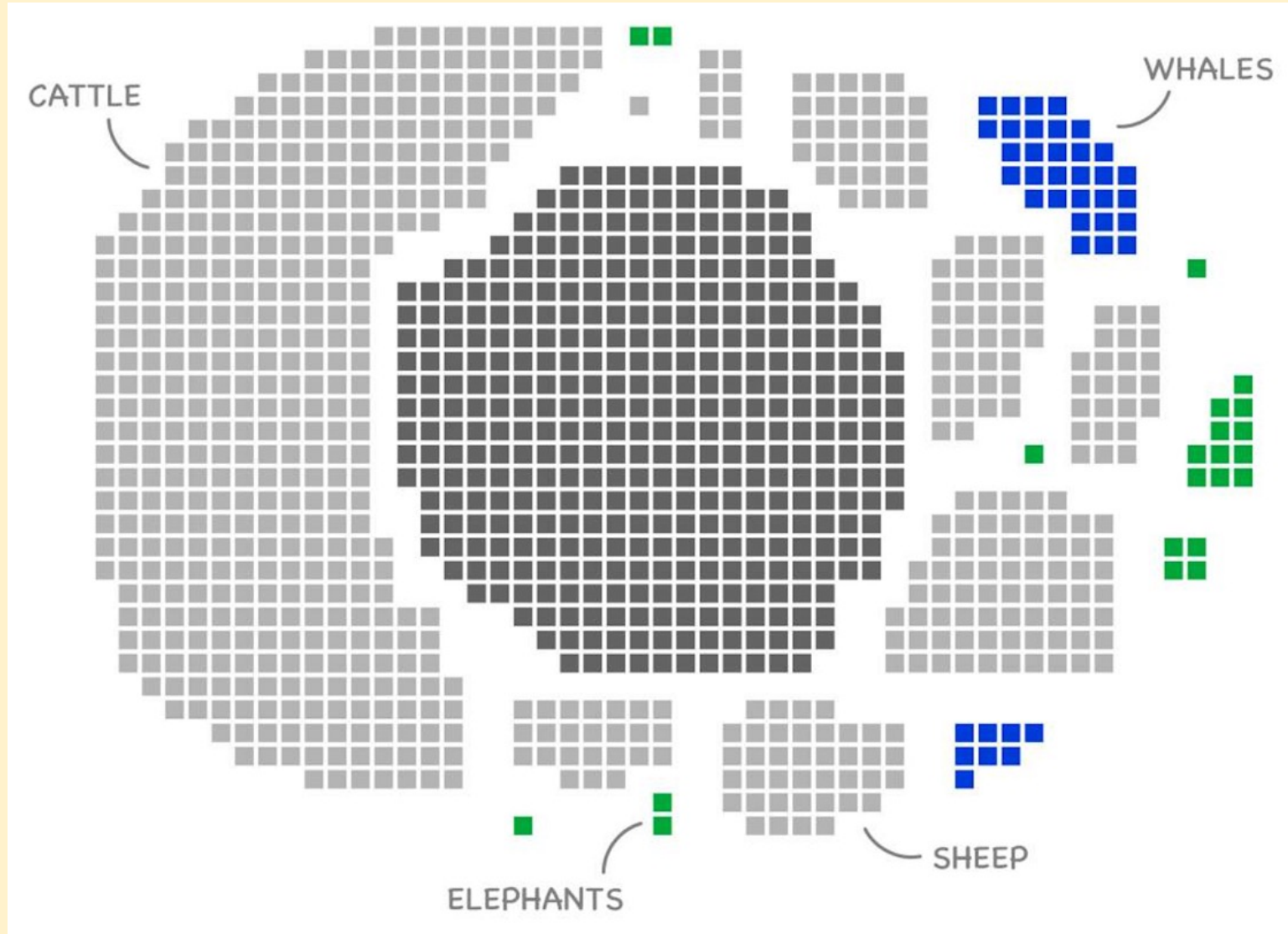
Photo: <https://www.theorangutanproject.org/>



Photo: Angeladepaula CC BY-SA 3.0

Photo: Roosevelt Pinheiro/ABr CC BY 3.0 BR

Human biomass, livestock and pets, and remaining mammals on Earth



1 square = 1 million ton
Black: humans
Grey: livestock and pets
Blue: marine mammals
Green: terrestrial mammals

A declining population makes rewilding possible



Northern Velebit Park, Croatia. Photo: LeonardoDj

The Oder River Delta: Rewilding with declining population



Photo: Andreas Lippold

Conclusions

- 1) Estimates of a sustainable population of 3 billion gives hope for traditional human ethical concerns
- 2) These estimates do not include protection of other species and wildlife restoration
- 3) *Homo sapiens* is the only species capable of planning a future world. Broader ethics, including also the rights of other species, are needed
- 4) A population of 2-3 billion leads to better conditions for *Homo sapiens*, for other species, and natural ecosystems