Focal species for transport infrastructure planning – from concept to practical implementation

Grzegorz Mikusiński, et al.
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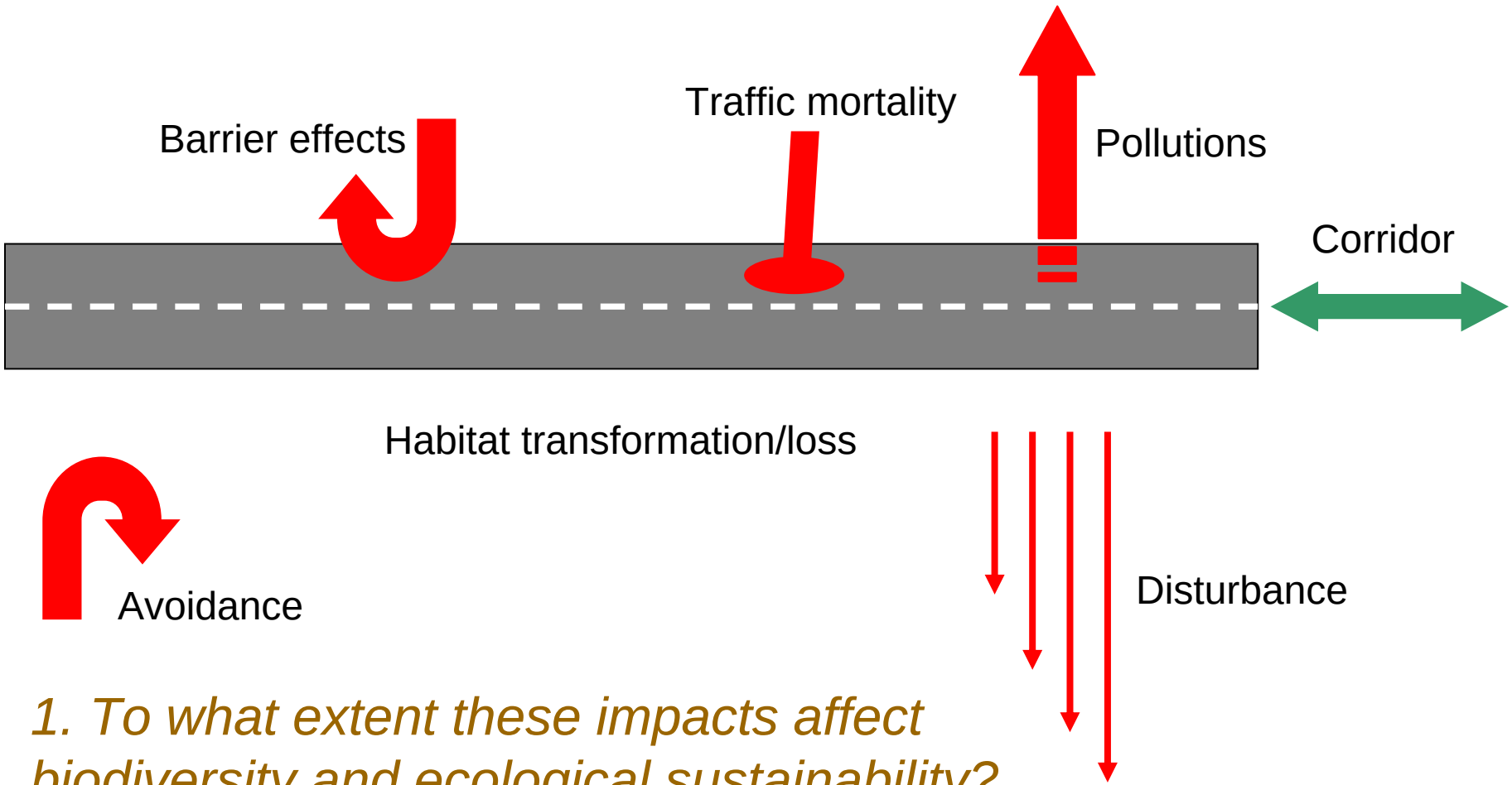
Ecological impacts of transport infrastructure



1. To what extent these impacts affect biodiversity and ecological sustainability?

2. How to measure and communicate these impacts?

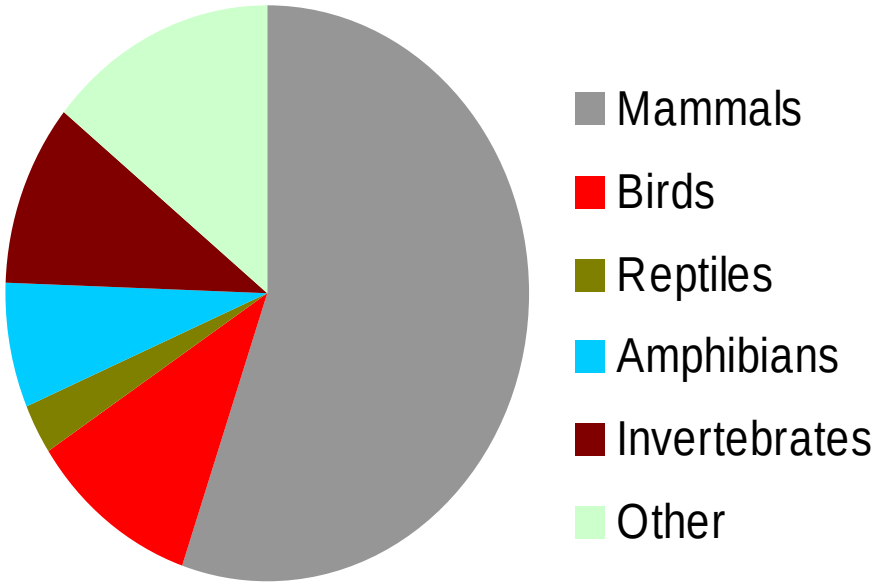
Include

Species as tools for assessing ecological sustainability

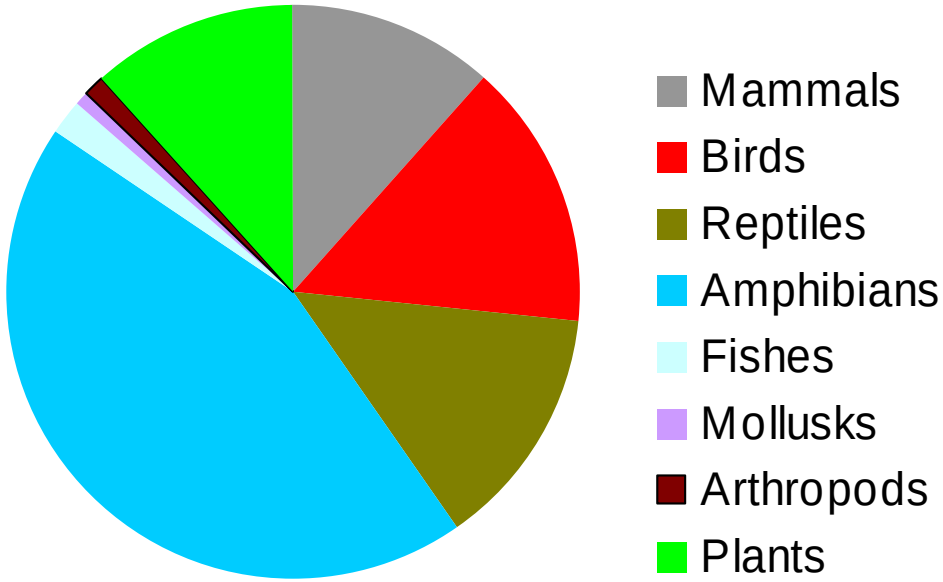
- Many species and impacts
- Species that represent broader biodiversity
  - Useful shortcut
  - Umbrella species hypothesis
  - Focal species
- Already used in conservation planning
- Focal species for transport infrastructure planning?

Include

Species affected by infrastructure



Scientific papers (n=234)
After Mikusiński et al. 2007



Globally threatened species (n=545)
After IUCN 2008

Include

What should characterise the “ideal” focal species for infrastructure planning?

Defining criteria

Biological criteria

Impact-related criteria

Technical criteria

Social criteria

Biological criteria

- good auto-ecological knowledge
- not too rare and not too limited in geographic distribution
- umbrella function - good representation of other species
- general sensitivity
  - resource limitation
  - area limitation
  - dispersal limitation
  - process limitation
- supports an individual and population approach

Include

Impact-related criteria

- sensitive to impact
  - barrier
  - disturbance
  - mortality
  - fragmentation
- clear response to mitigation measures

- value of species
- public interest
- communication

Social criteria

Technical criteria

- match in ecological and planning scales
  - local - project design
  - landscape - location study
  - regional - strategic planning
  - national - development directives
- easy to survey
- data availability
- link to quality objectives
- performance targets
- measurement (currency)

Focal species for transport infrastructure planning

	Barrier	Disturbance	Mortality	Habitat fragmentation
Regional- or continental scale	large mammals	large mammals	large mammals	large mammals
Landscape-scale	large and semi-aquatic mammals, fish (trout)	breeding birds	large and medium-size mammals, game species	middle-size mammals, specialised birds,
Local scale	small mammals, amphibians, arthropods	breeding birds	amphibians, threatened species	-

Include

Towards practical implementation

- Performance targets and ”currency”
- Integration of different scales
- Regional adjustments
- Creating systems with set of focal species
- Practical implementation

Thank you!