Structural elements as solution to the loss of biodiversity

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Starting point

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- Species of the agricultural landscape have co-developed with it over centuries and adapted to it
- Fields and accompanying structures were optimal habitats
- Historically in Europe: a multifunctional landscape that does not only produce food
- Changing agriculture



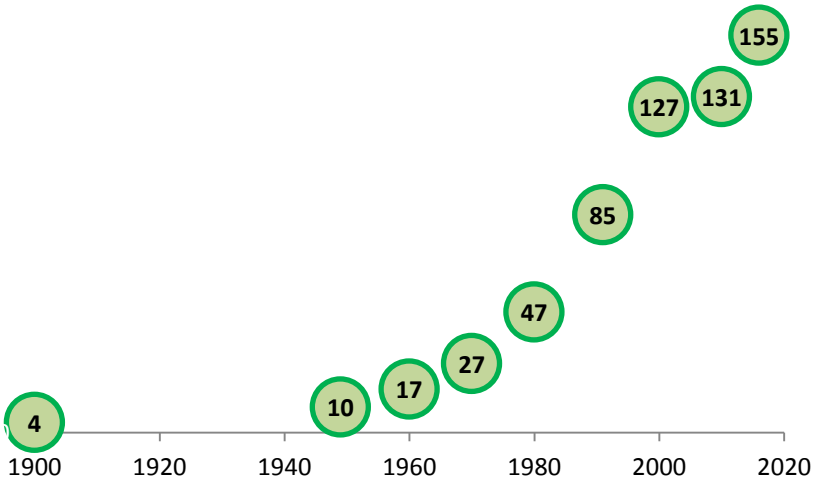
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Causes



Increase in yields through:

- Use of machinery and adaptation of agriculture to it
- Land consolidation
- Breeding, new crops
- Plant protection products / Pesticides
- Synthetic fertilizers
- General knowledge gain

Side effects:

- Larger farms with fewer workers
- Fewer landscape elements, structural diversity ...
- Also the abandonment of fields!

→ Habitat and site quality of arable land and grassland decreased

→ Landscape became more "impermeable" (islandization / fragmentization)

Regional differences

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Research history

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Research history

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Habitat quality?

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Species‘ needs:



Protection from enemies and weather, hiding places



Reproductive partners, viable population



Food



Habitat quality?

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Food:



→ Different requirements throughout the year

Habitat quality?

Protection from enemies and weather, hiding places



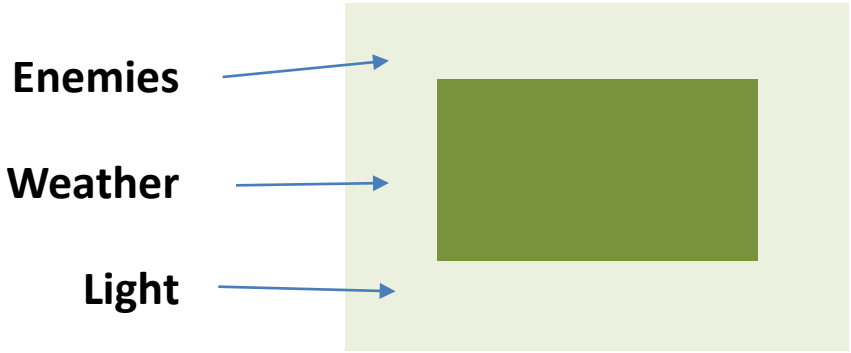
Habitat quality?

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Protection from enemies and weather



→ Core area of habitat must be sufficiently large





Habitat quality?

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Protection from enemies and weather



→ **Edge effect always the same extent**



Habitat quality?

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Schutz vor Witterung und Feinden







Habitat quality?

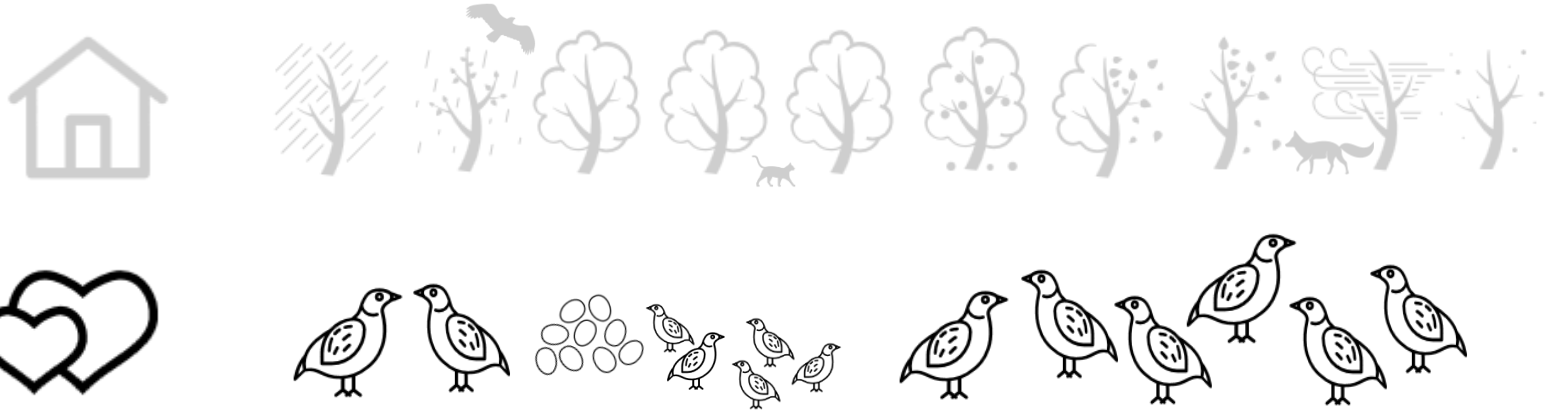
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Protection from enemies and weather



Habitatqualität?

Minimum (viable) population size

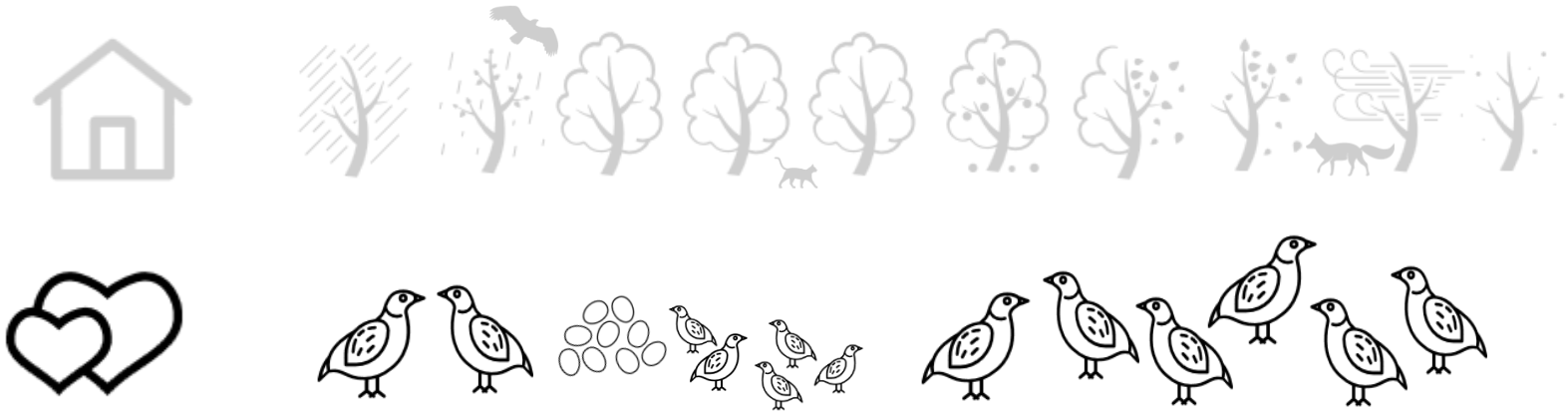


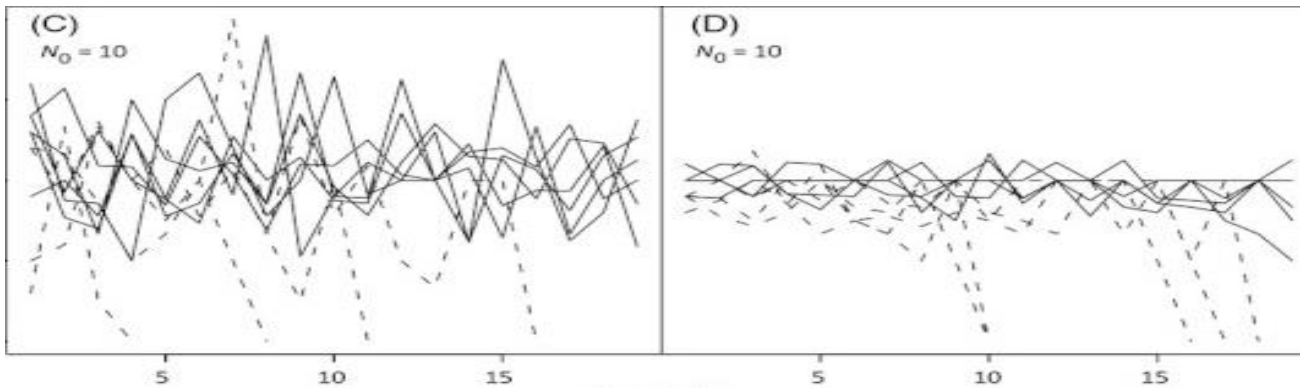
→ Environmental conditions not stable
→ Populations fluctuate
→ **May cause extinction in small populations**

Habitatqualität?

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Minimum (viable) population size

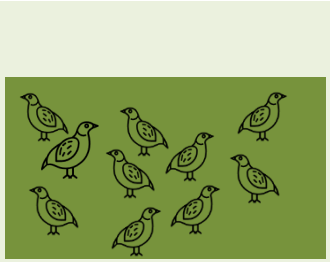




Habitat quality?

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Minimum (viable) population size

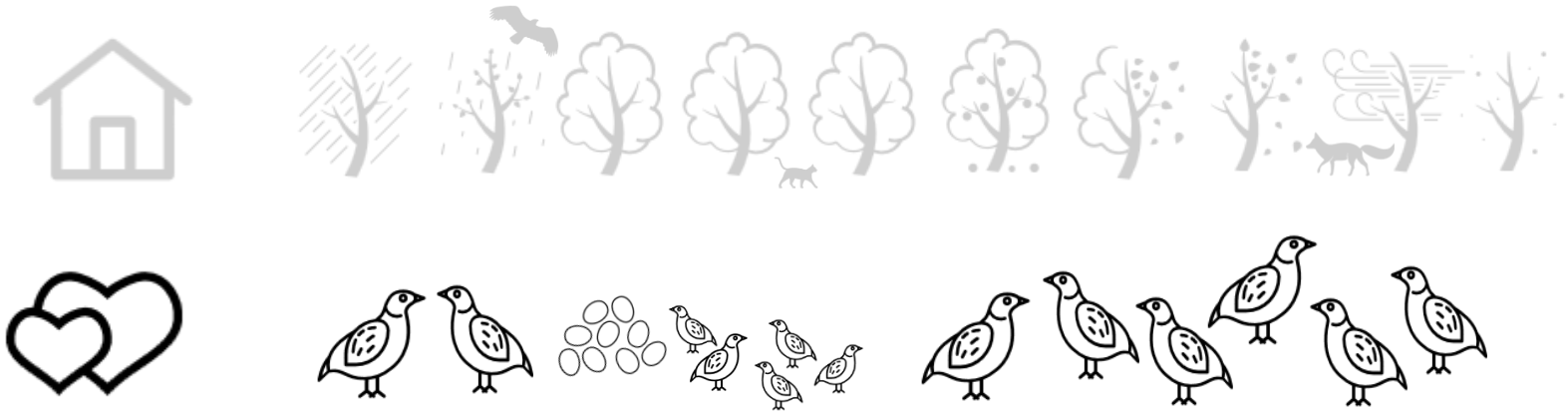


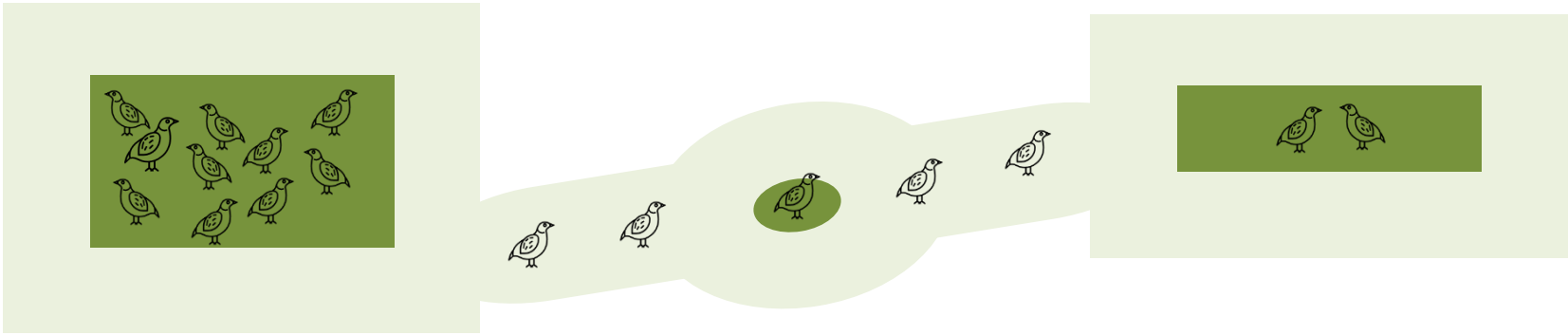


Habitat quality?

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Minimum (viable) population size





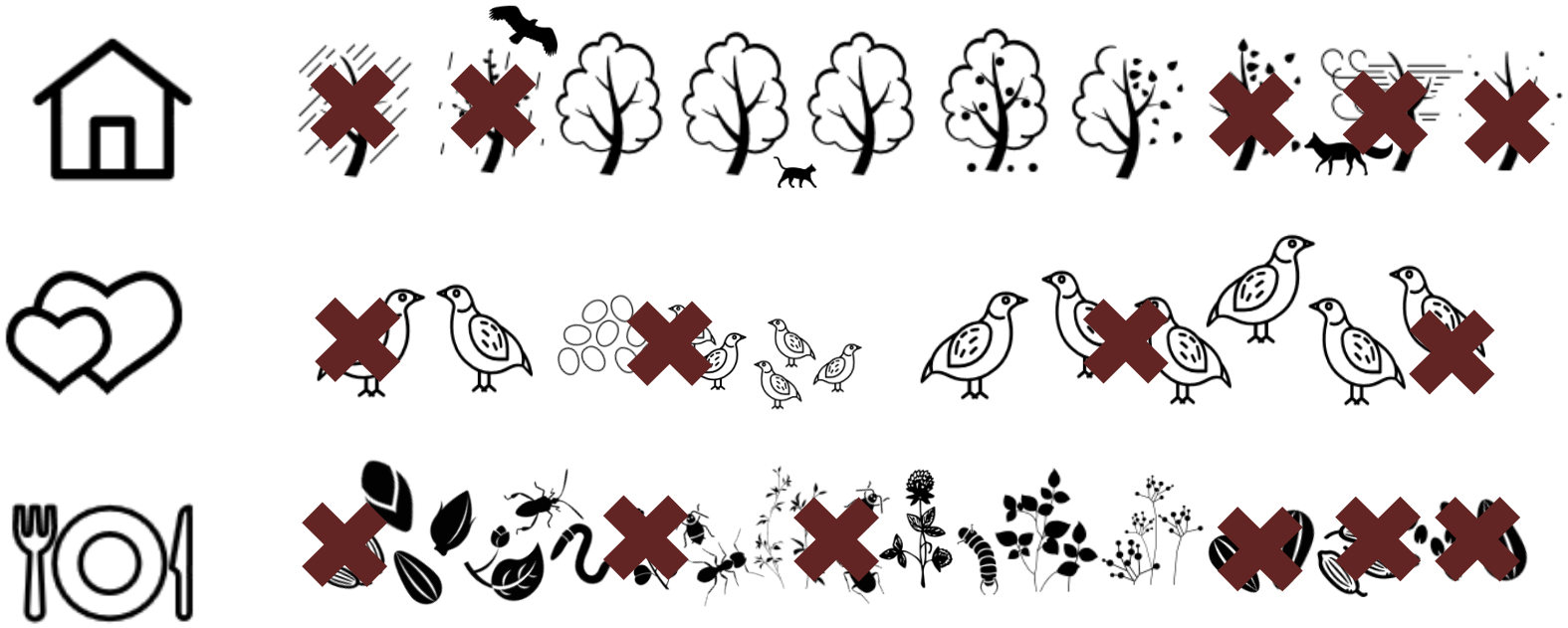
Habitat quality?



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Habitat quality?

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Conclusion

→ Landscape permeability through stepping stones and corridors to connect different habitats

→ Preserve, enhance & create/restore habitats

