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# Constructing adaptation strategies for species in the Dutch National Ecological Network using multifunctional land-use options

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10<sup>th</sup> International Conference on Ecology, Brisbane, Australia

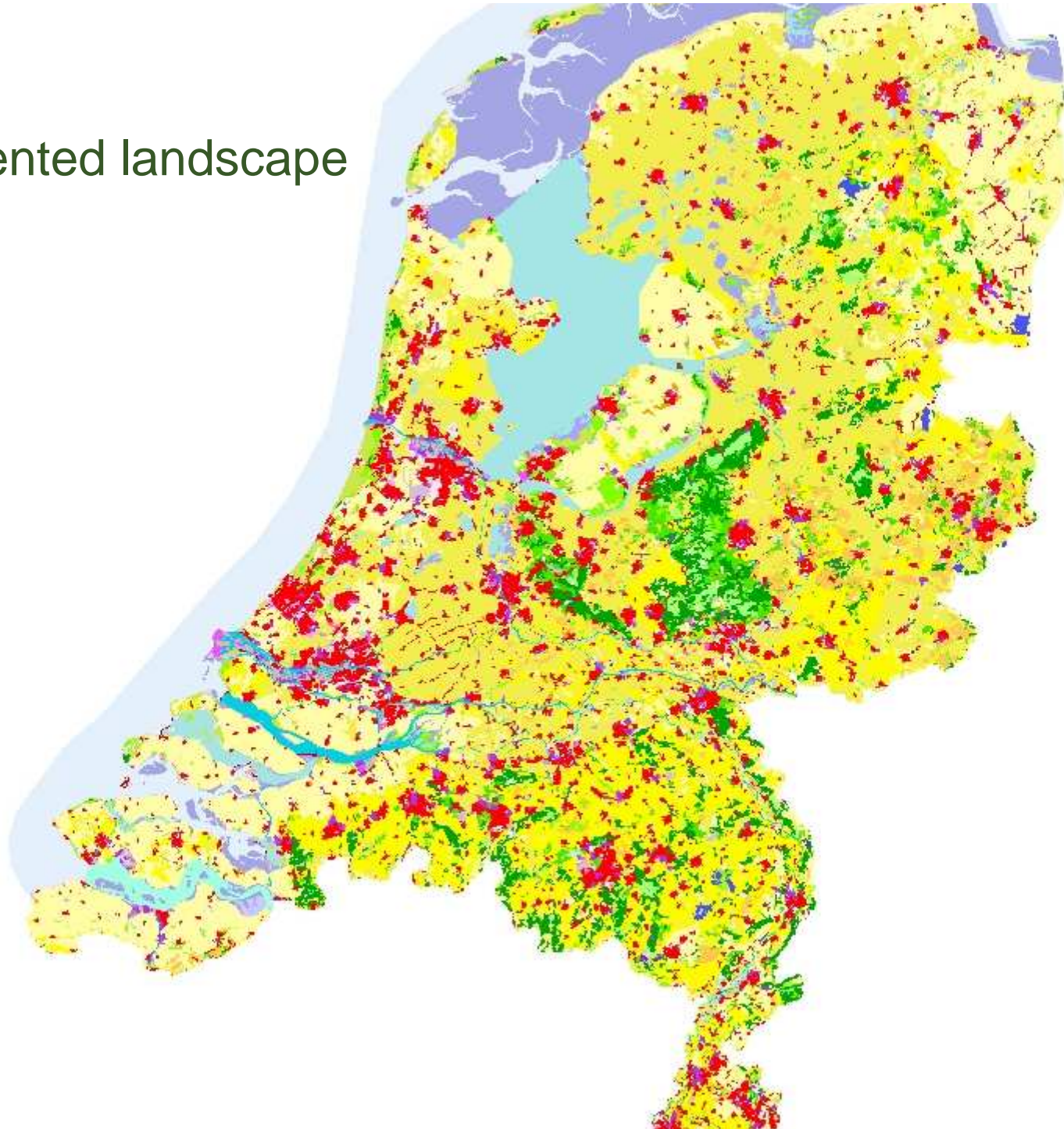
17<sup>th</sup> of August 2009

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## Presentation overview:

- Dutch habitat network under climate change pressure
- Options for adaptation on dairy farms
- Feasibility of adaptation options
- Concluding remarks

- Fragmented landscape





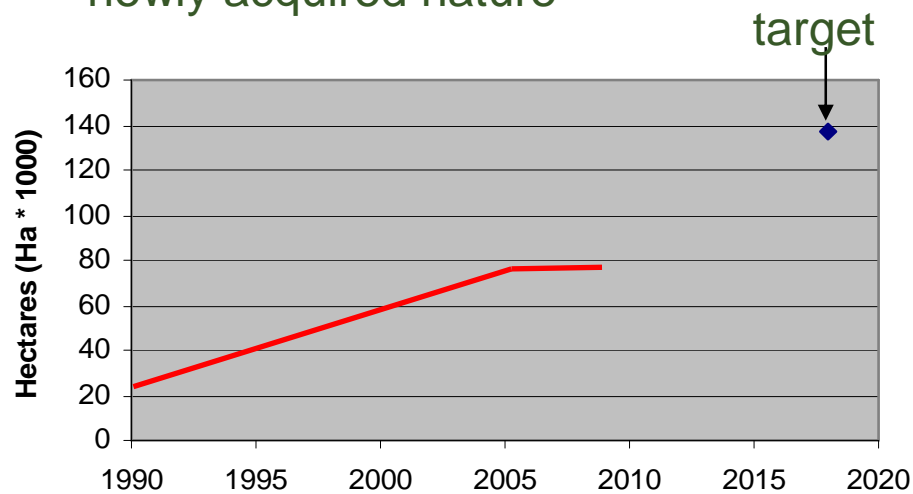
- Elements that connect the fragmented natural elements
- National Ecological Network (NEN)



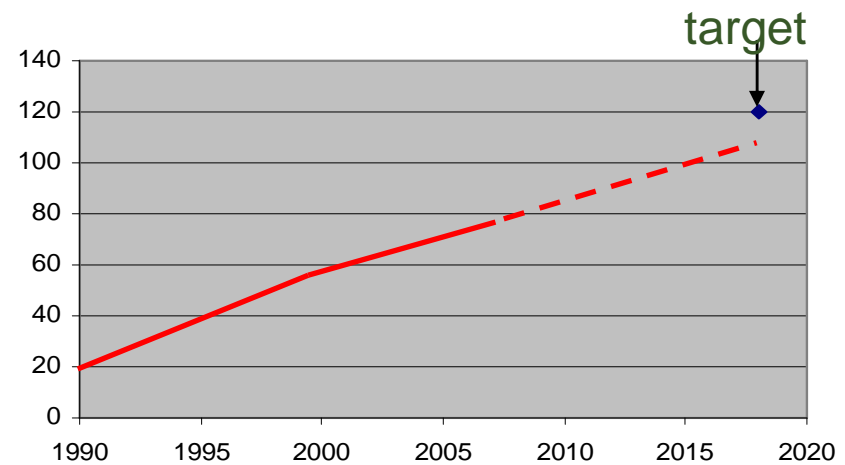
# Dutch National Ecological Network

- The network will be built up from:
  - existing nature
  - newly acquired nature
  - and new agri-environmental schemes
- Expansion of the network is halting because there is:
  - pressure on land
  - a lack of finance

newly acquired nature

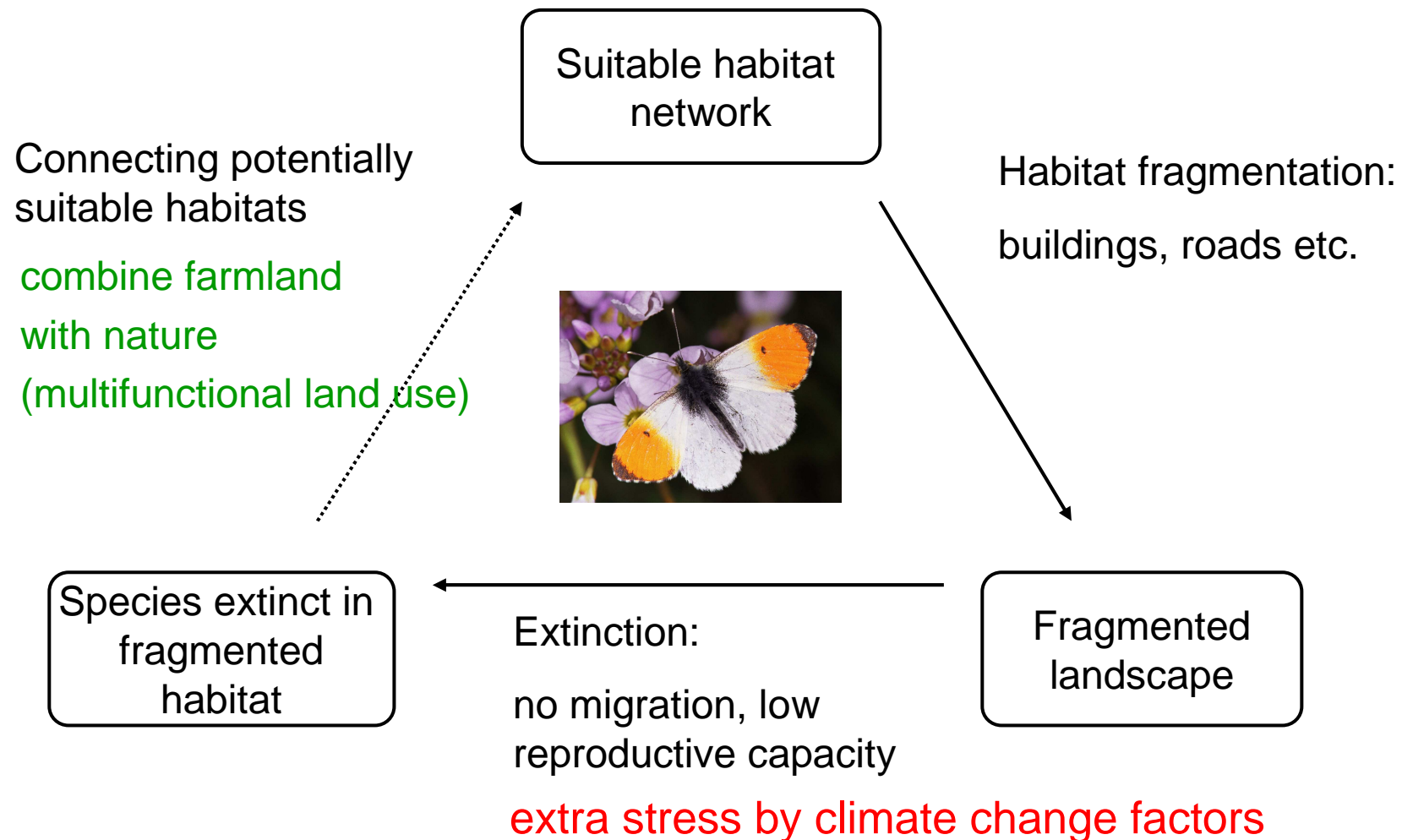


new agri-environmental schemes



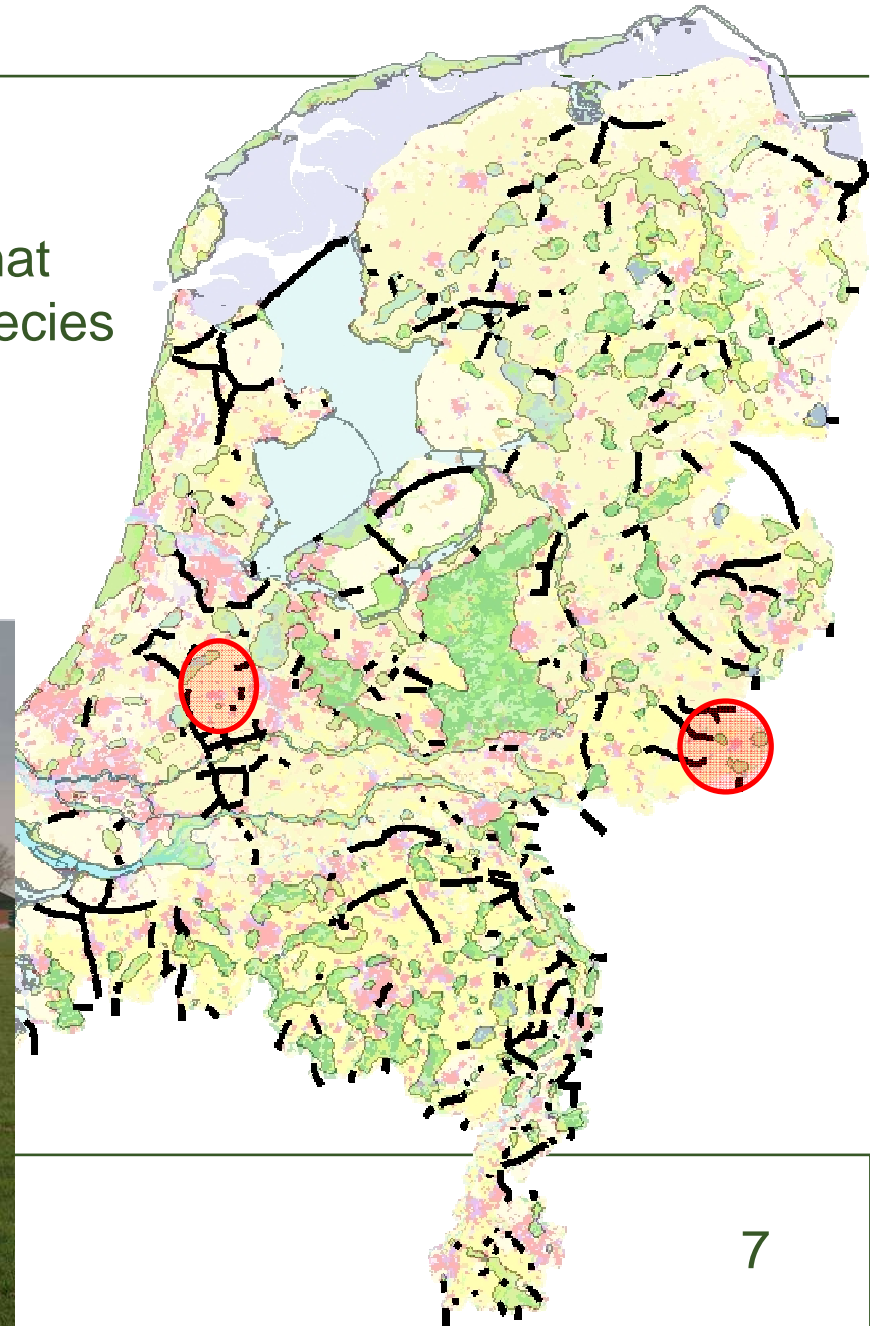
source: MNP 2009

# Dutch National Ecological Network with climate stress



# Explore possibilities

- We explored the possible creation of multifunctional landscape elements that connect and expand the habitat of species
- Two landscape types





# Species and measures

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- Selected species:
  - butterflies, birds and plants that have a preference for a cool climate
  
- Measures:
  - asses what landscape elements farmers can implement on their land and what the impact on the selected species is.



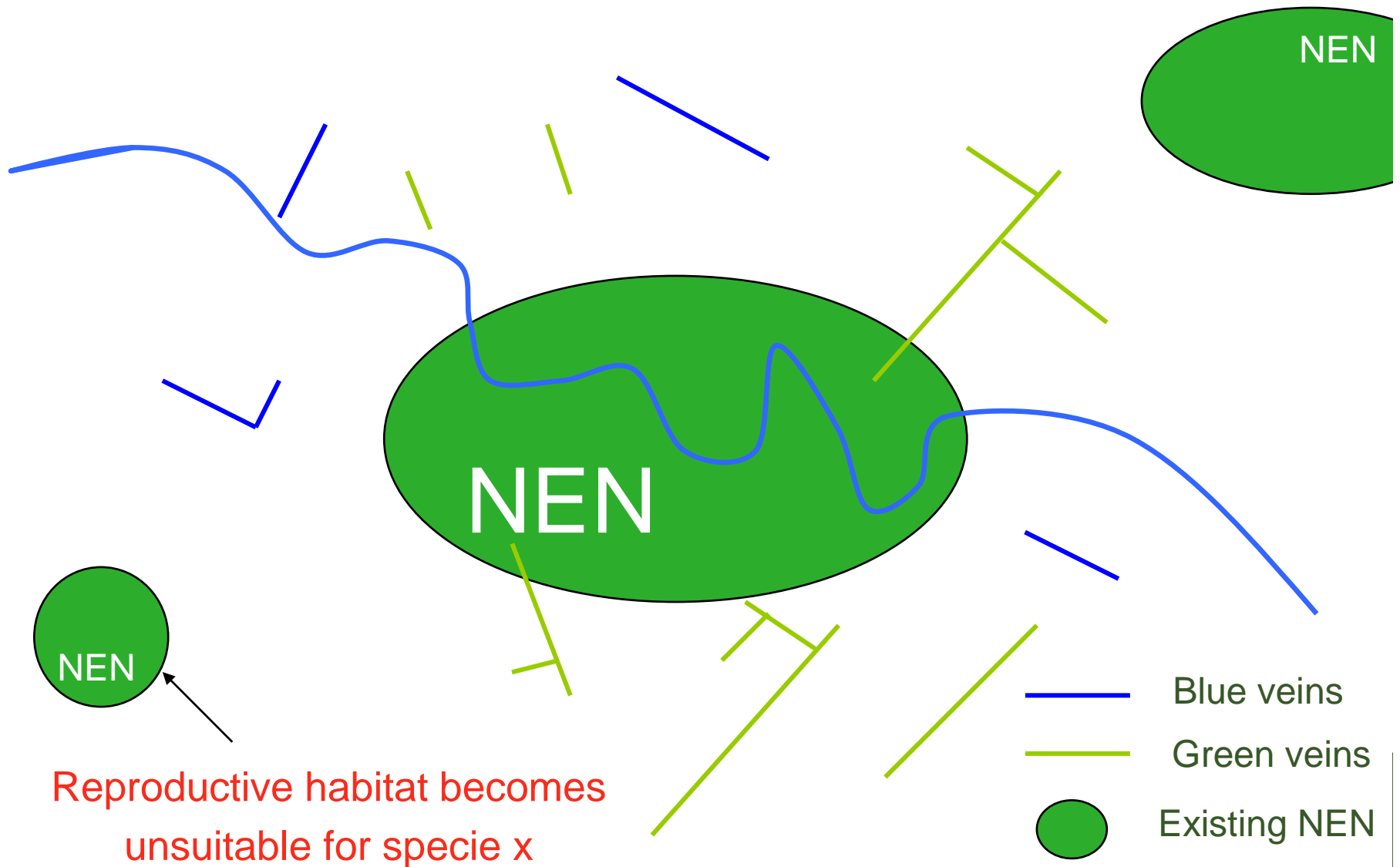
# Measures

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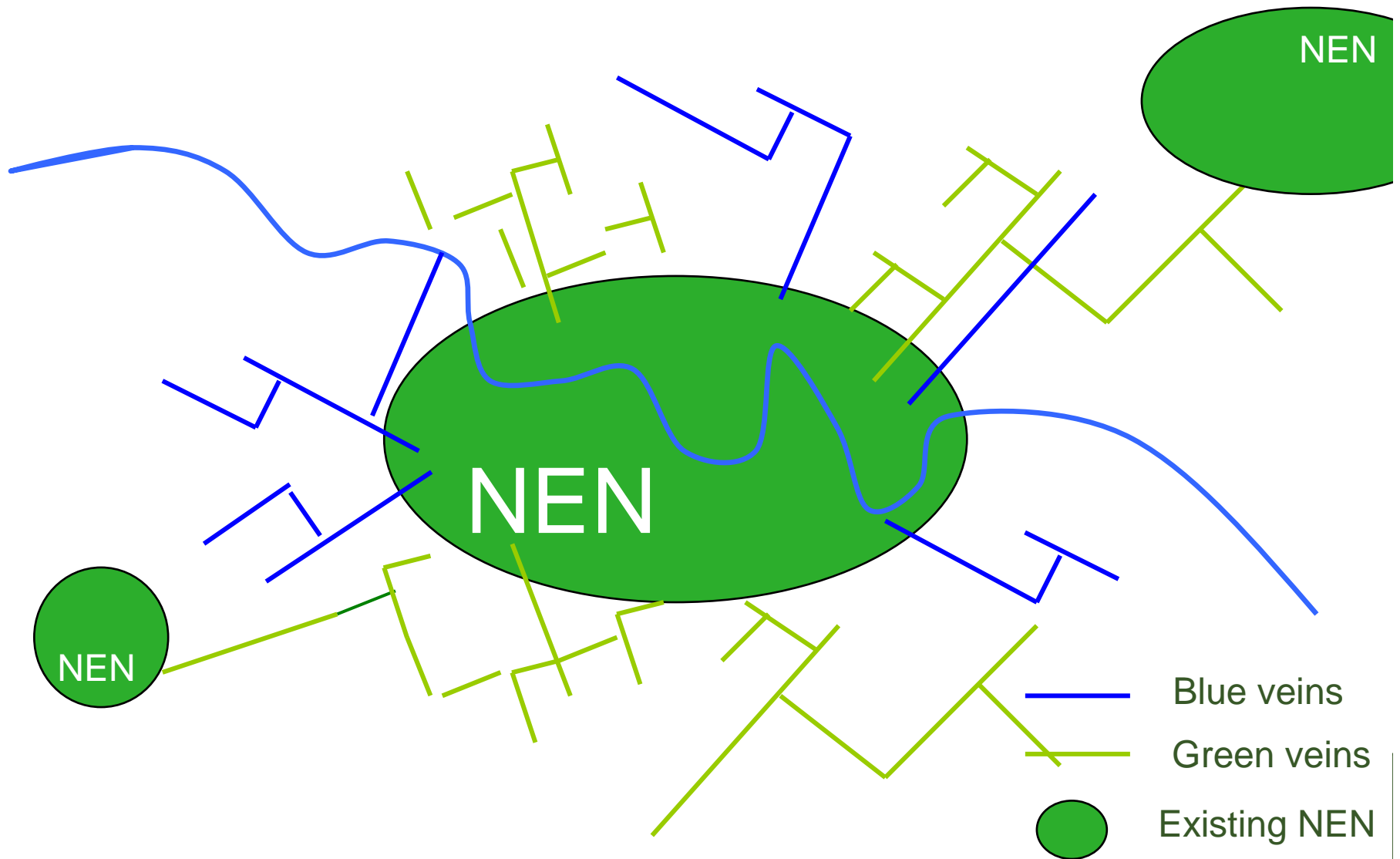
- Green and Blue Veining
  - offer better migration options for species
- Increasing the area of suitable habitat on farms
- Buffering of existing NEN areas
  - water retention against drought



no measure

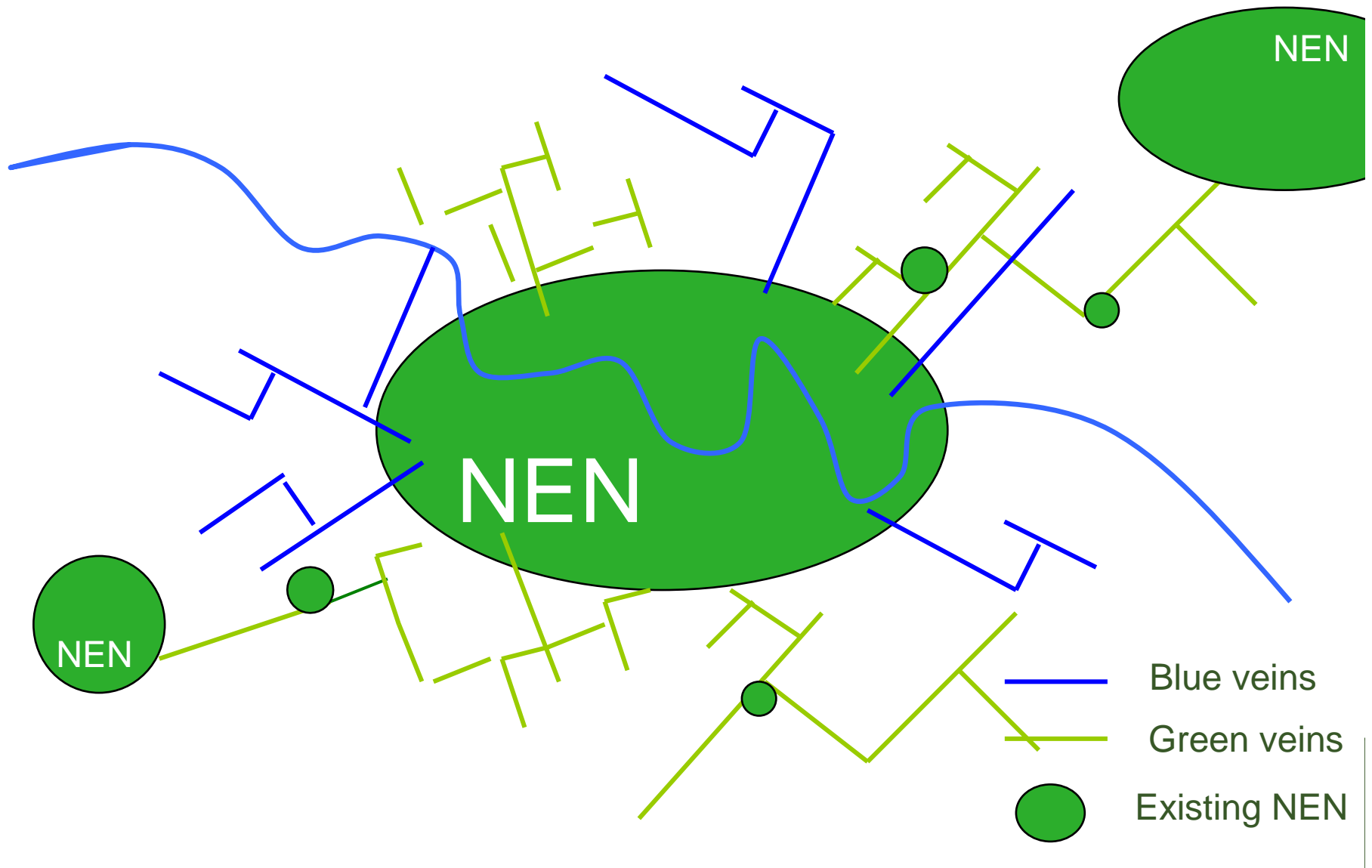


+ green blue veining



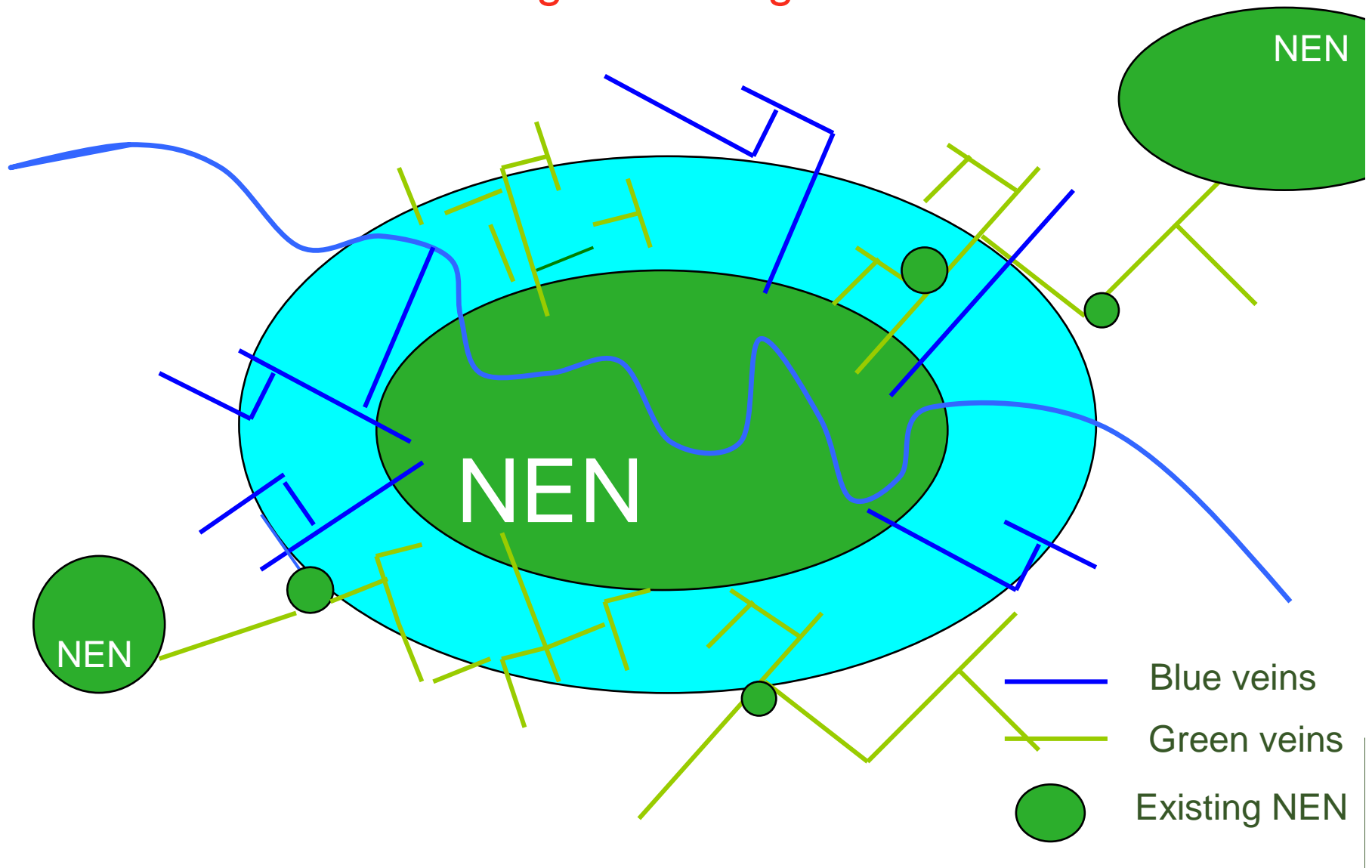
+ green blue veining

+ increased area of habitat at field level





- + green blue veining
- + increased area of habitat at field level
- + buffering of existing nature



# Results for the Eastern part of Holland

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- Hedgerows

- ++ White Admiral (*Limenitis camilla*) (butterfly)

- + Parnassia (*Parnassia palustris*) (flower)

- + Icterine Warbler (*Hippolais icterina*) (bird)



- Natural ditch banks

- ++ Ragged Robin (*Silene flos-cuculi*) (plant)

- ++ Orange tip (*Anthocharis cardamines*) (butterfly)



# Concluding remarks

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Hedgerows and ditches are beneficial for some species. However, it is not clear in what density the elements should occur in the landscape

Discussions with stakeholders reveal that funding schemes lack proper design and do not suite nature management well

- There is a need for improved policy for multi-functional nature to achieve the targets of the NEN under climate change!!



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# Thank you for your attention

## Any questions?



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