Waterbird conservation: what we have learnt and next steps

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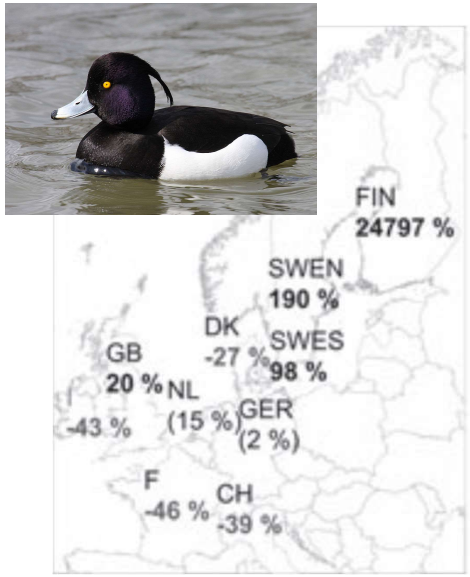
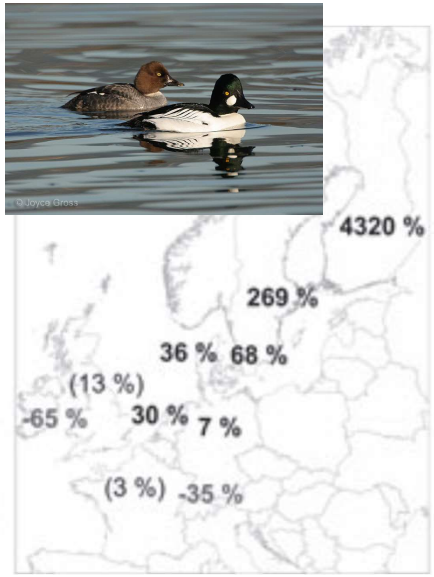
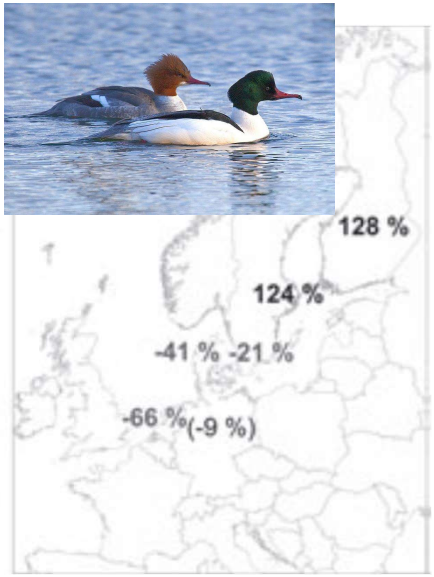
Change in winter distributions...







Lehikoinen et al. 2013. *GCB*, 19: 2071–2081

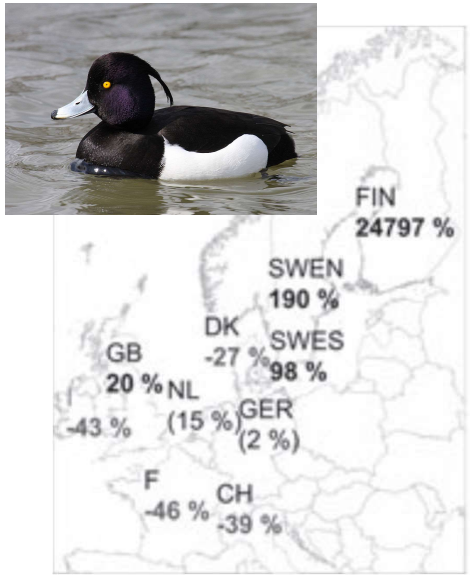
1980 - 2010

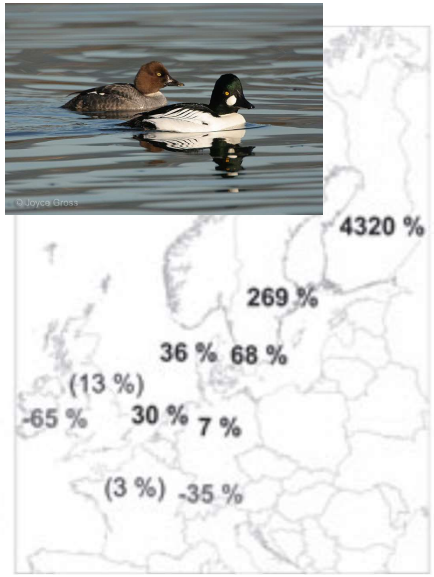
Pavón-Jordán et al. 2015. *Div Distr*, 21: 571–582

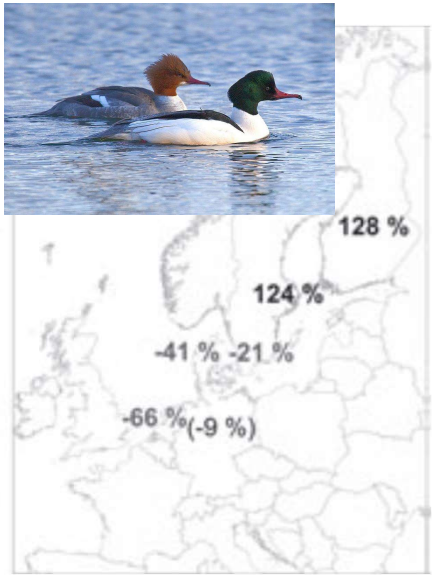
1990 - 2013

Wetlands INTERNATIONAL

...associated with winter warming







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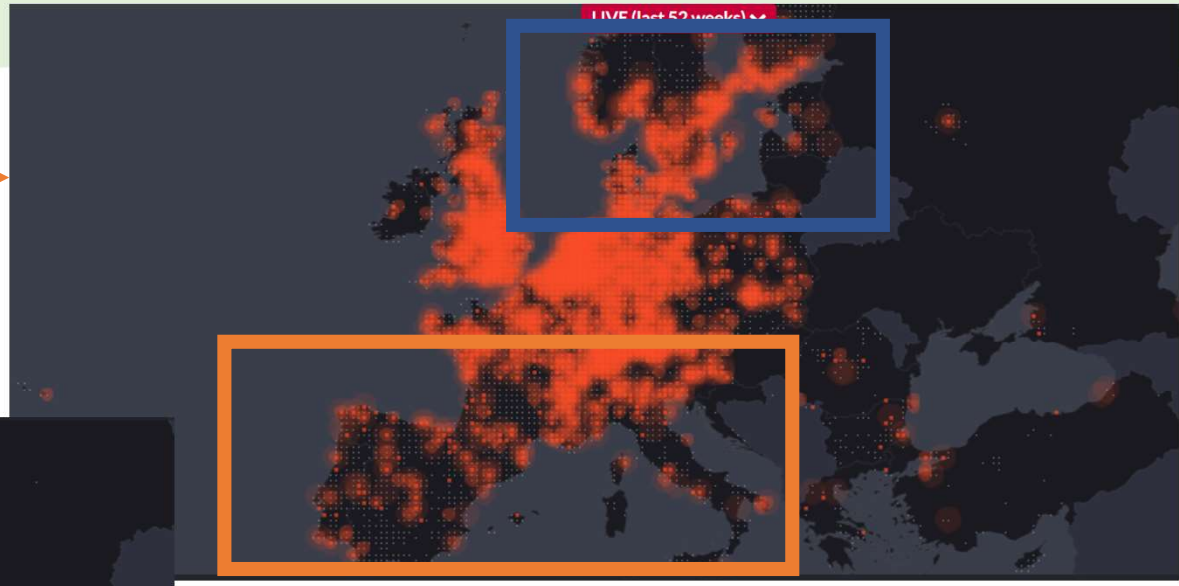
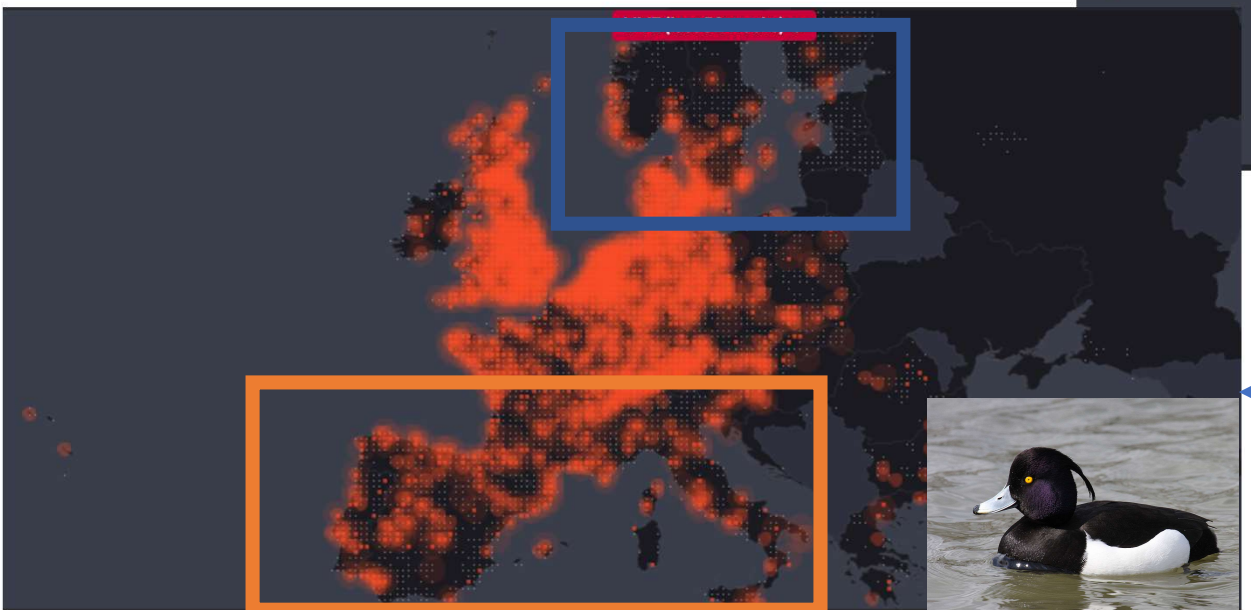
Wetlands INTERNATIONAL

Short- and long-term responses to winter warming

Warm winter





Cold winter

Maps: eurobirdportal.org

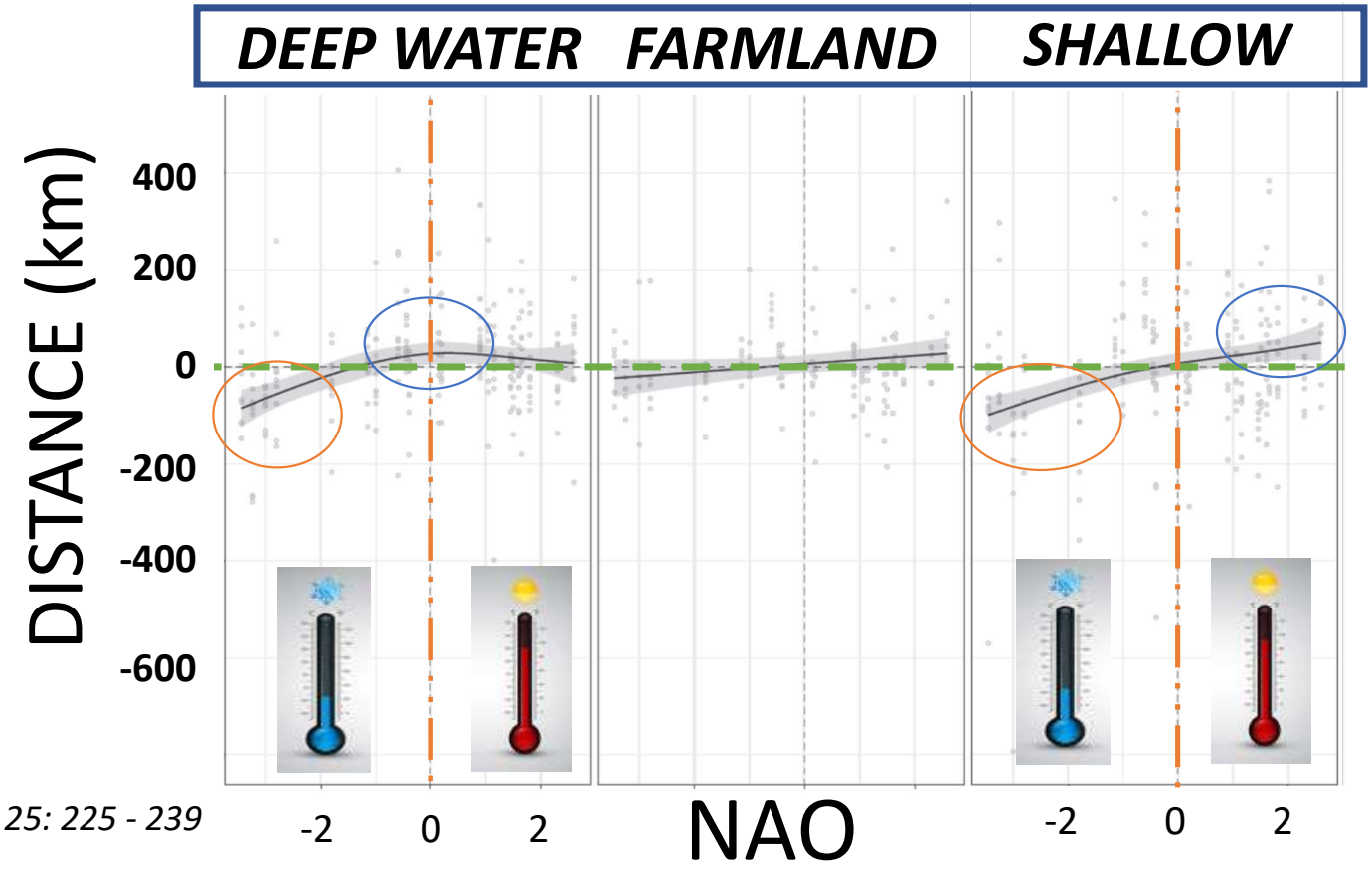
Short- and long-term responses to winter warming

- Year-to-year changes

Towards NE

NO MOVEMENT

Towards SW



Pavón-Jordán et al. 2019 *Div Distr 25: 225 - 239*

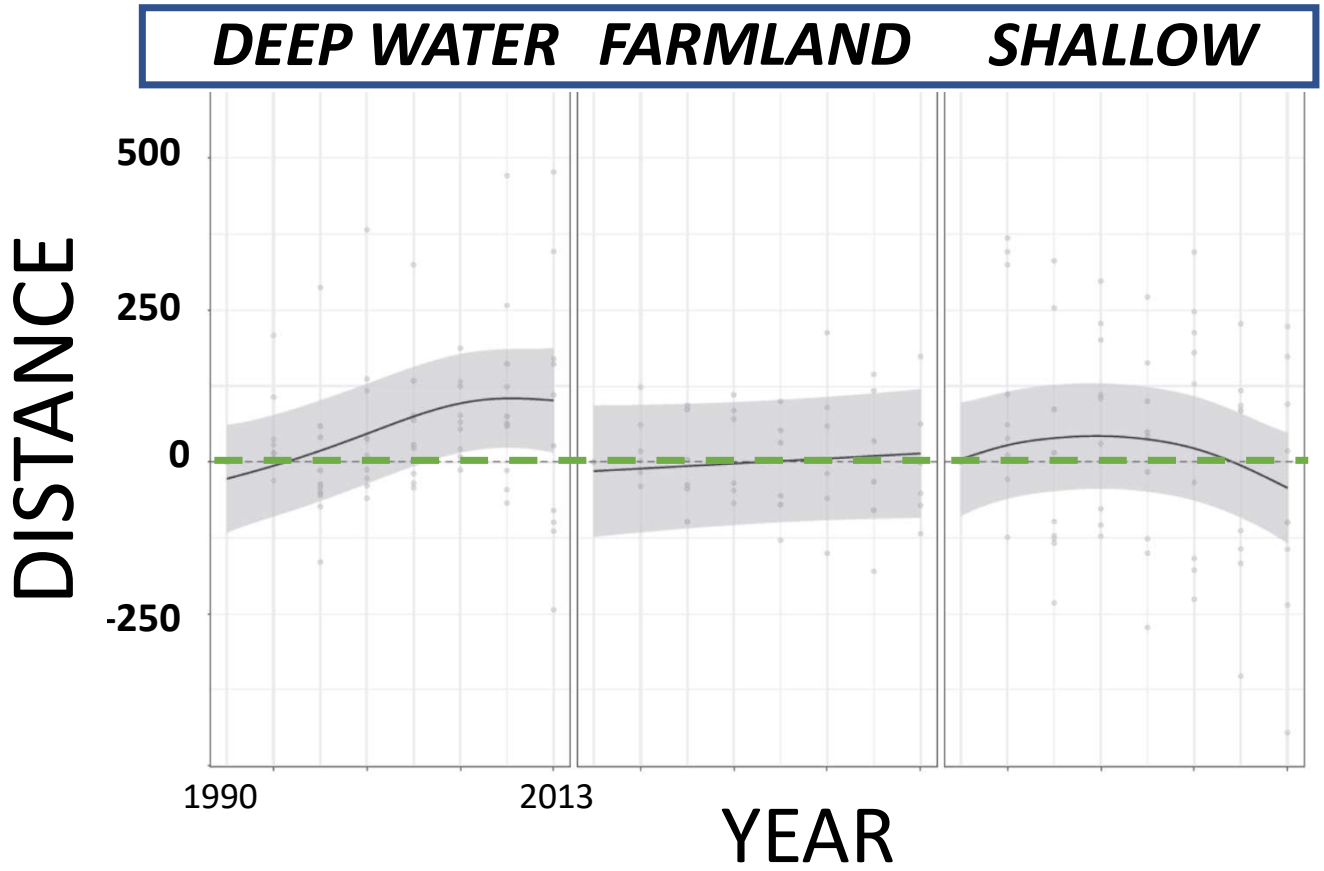
Short- and long-term responses to winter warming

- Long-term changes

Towards NE

NO MOVEMENT

Towards SW



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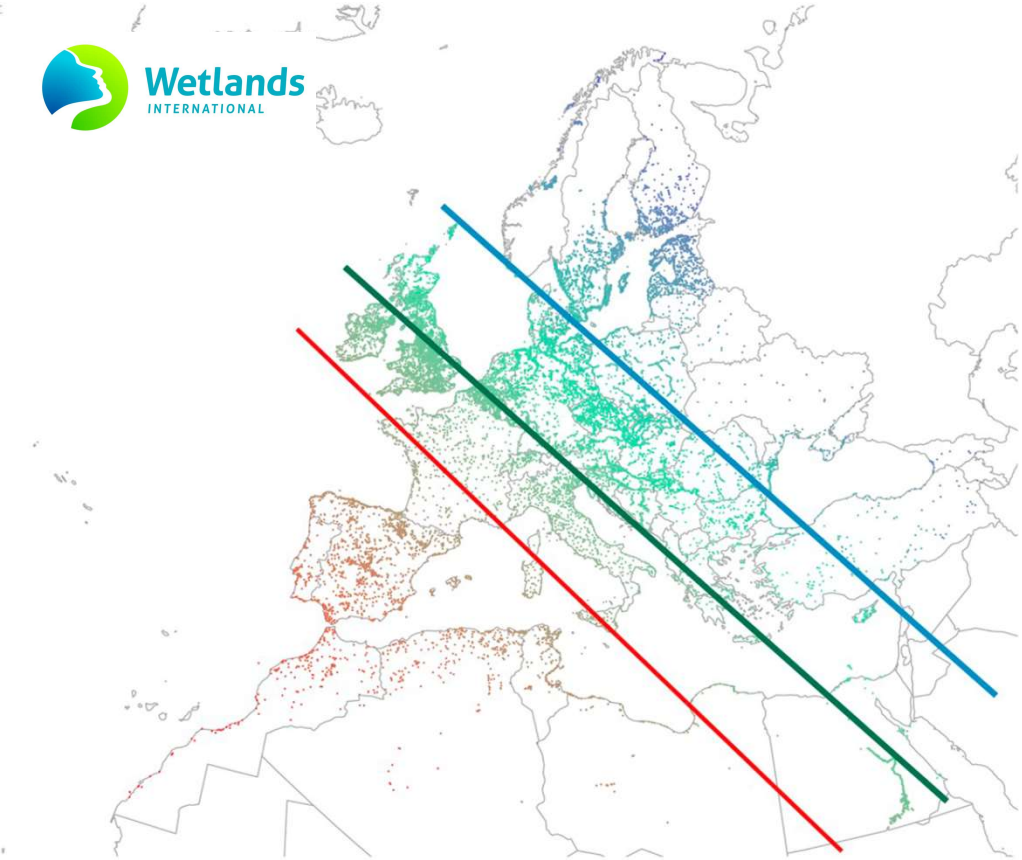
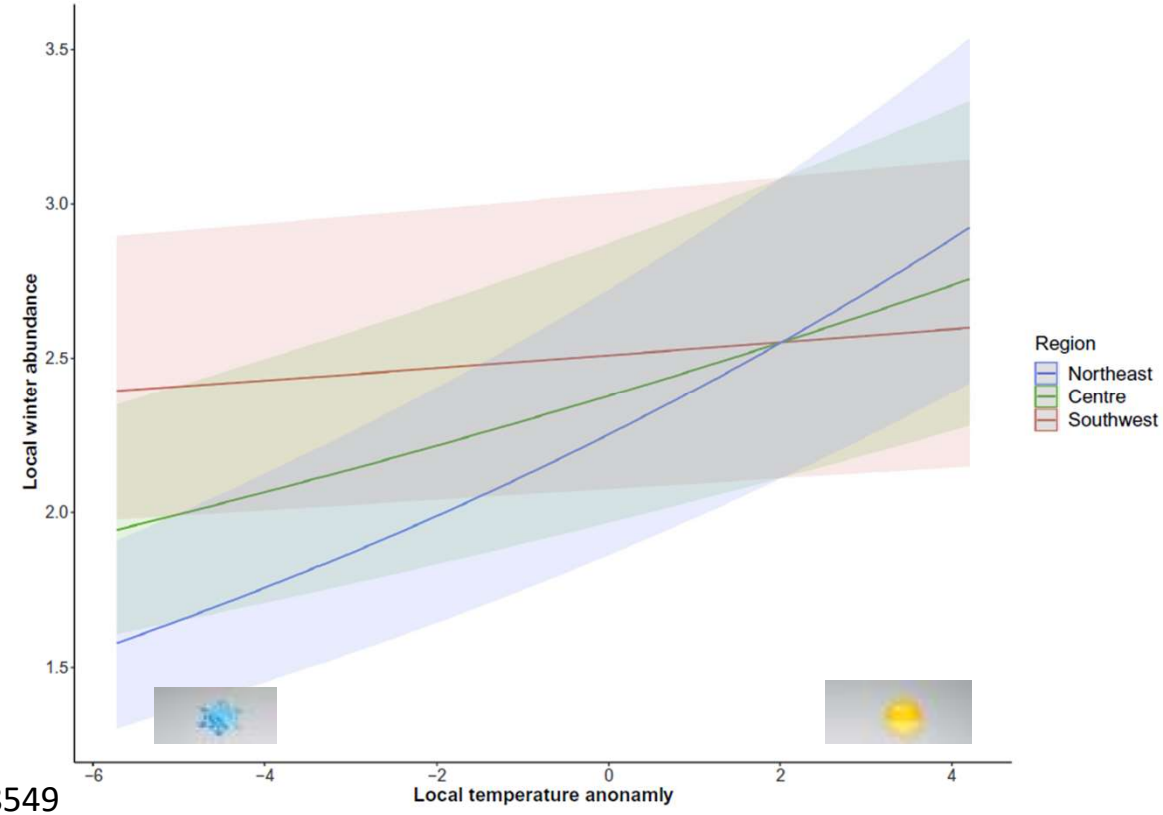
Geographical differences

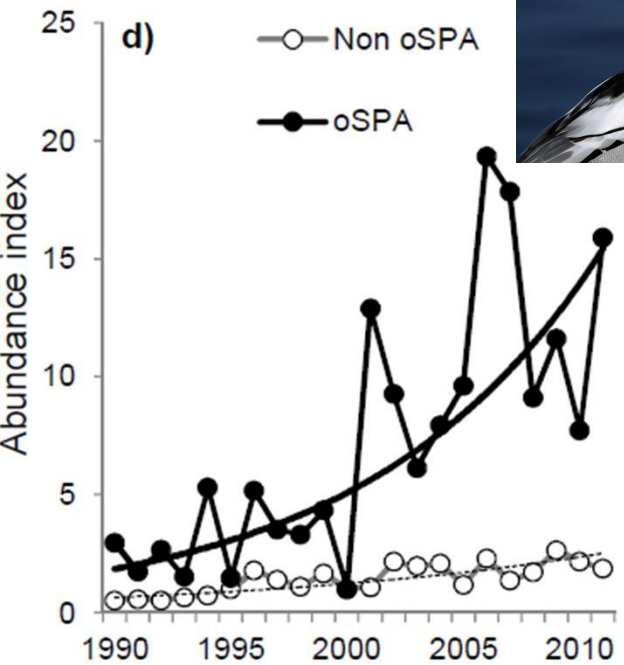




Pavón-Jordán et al. 2020 *Biological Conservation,* 246 (2020) 108549

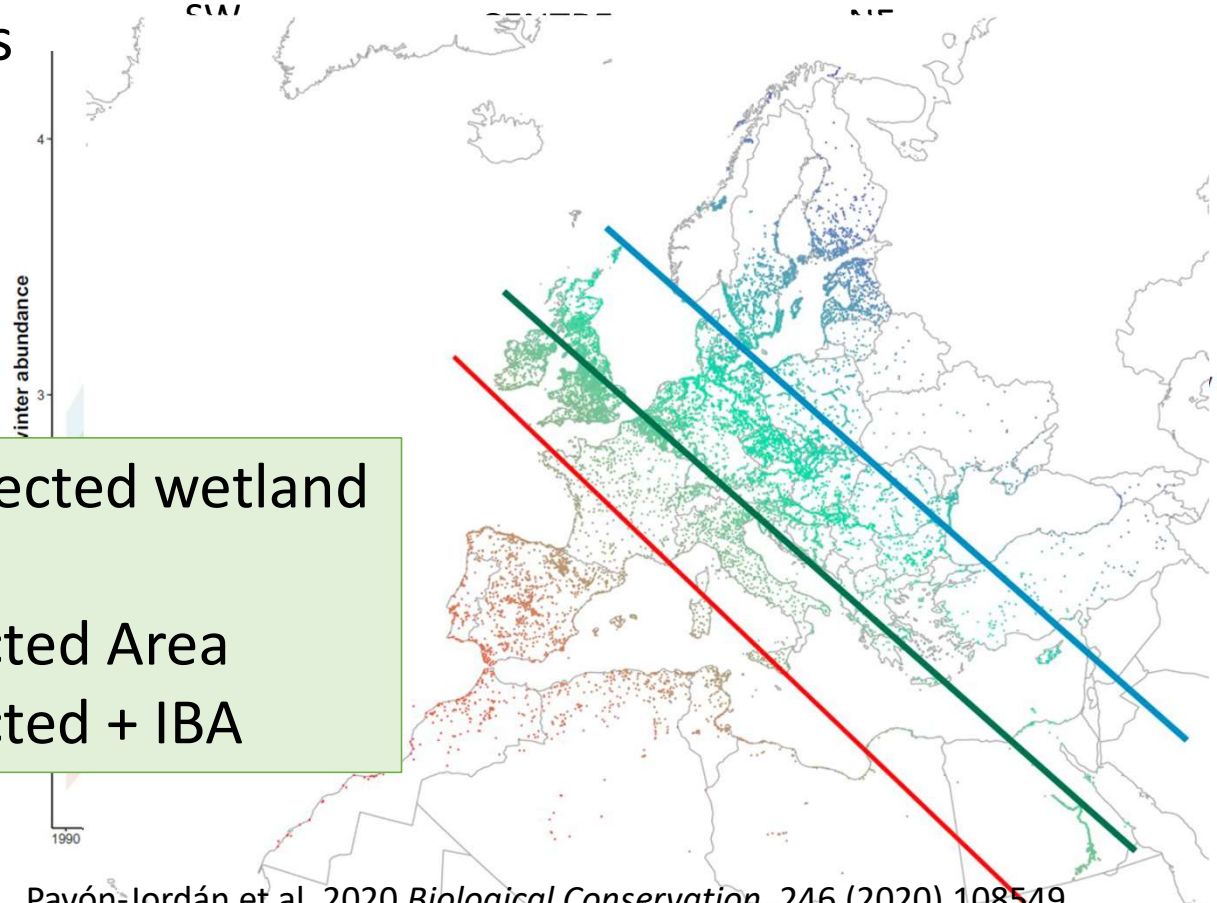
Consequences for conservation strategy

- Moving out vs. stepping stones



Pavón-Jordán et al. 2015. *Div Distr*, 21: 571–582

i) Unprotected wetland
ii) IBA
iii) Protected Area
iv) Protected + IBA



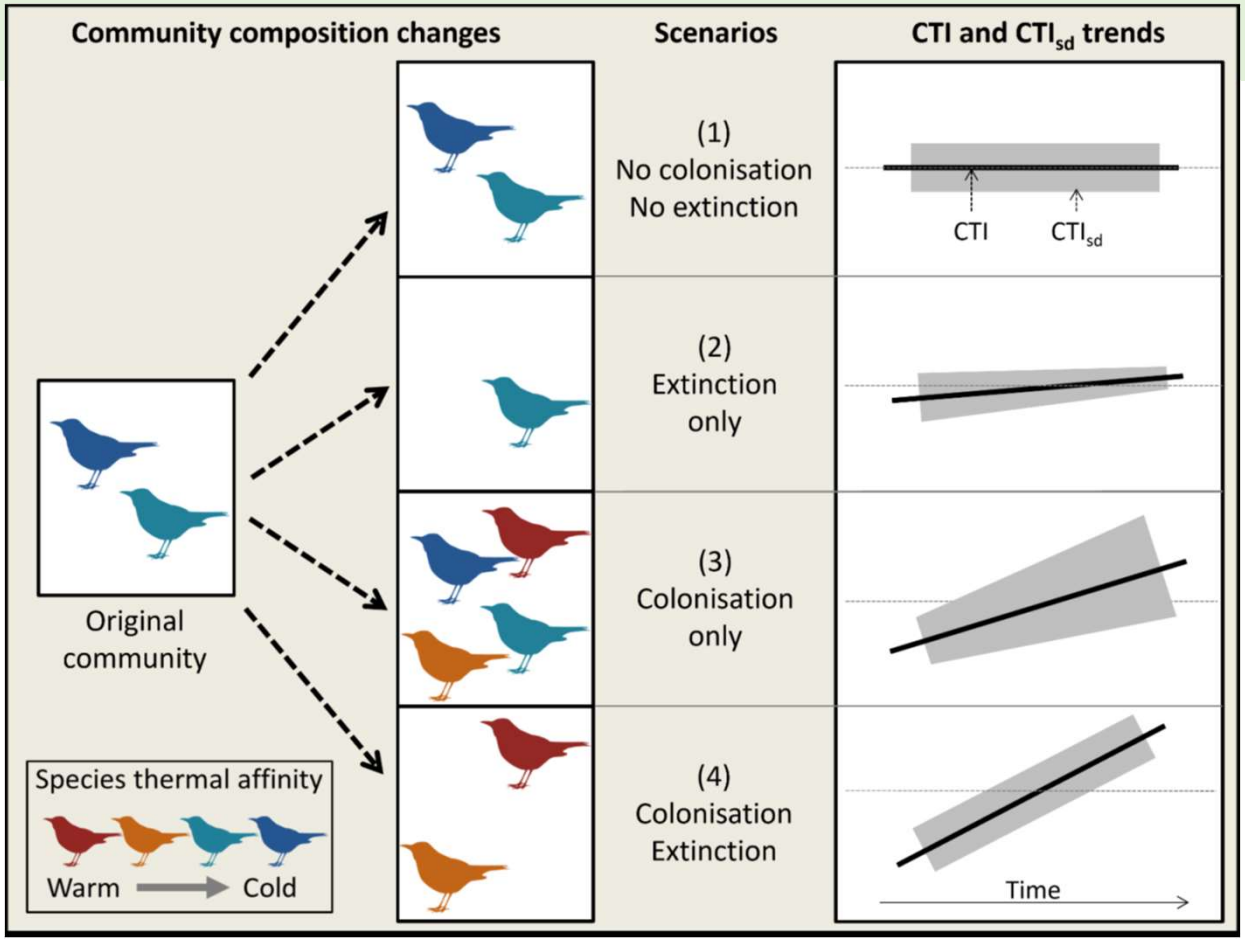
Pavón-Jordán et al. 2020 *Biological Conservation,* 246 (2020) 108549

Consequences for conservation strategy

Community changes (based on CTI)

Inside *vs* **outside** SPAs:

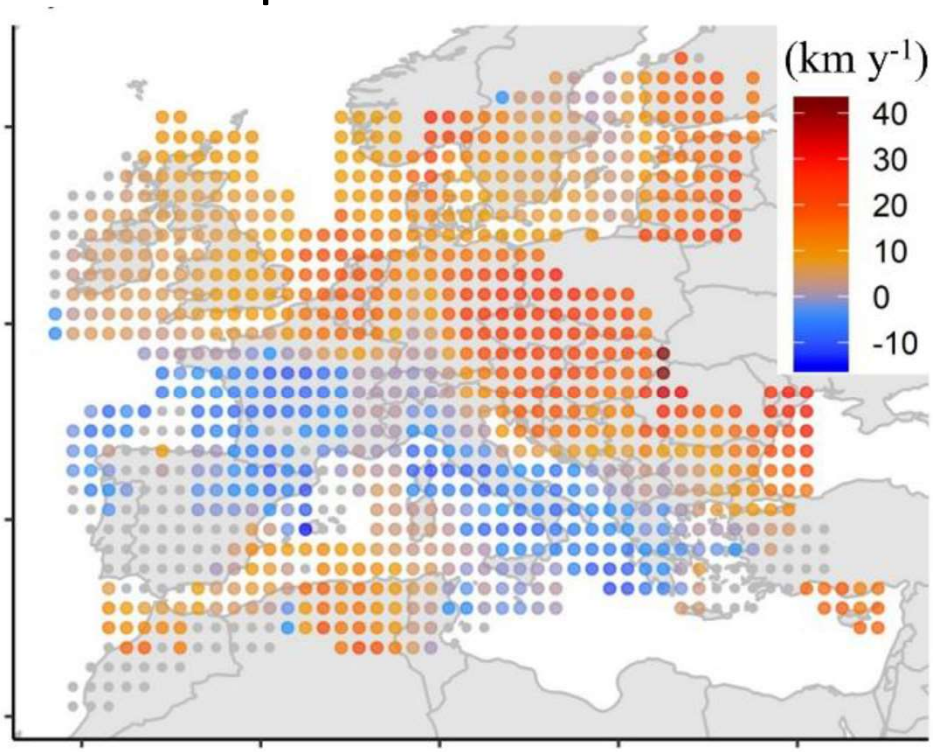
- More species
- Higher colonisation
- Lower *extinction*
- Lower climatic debt



Gaget et al. 2021. *Conservation Biology*, 35, 3, 834–845.

Consequences for conservation strategy

- Many (**mobile**!) waterbird species are lagging behind changes in temperature



Climatic debt still present

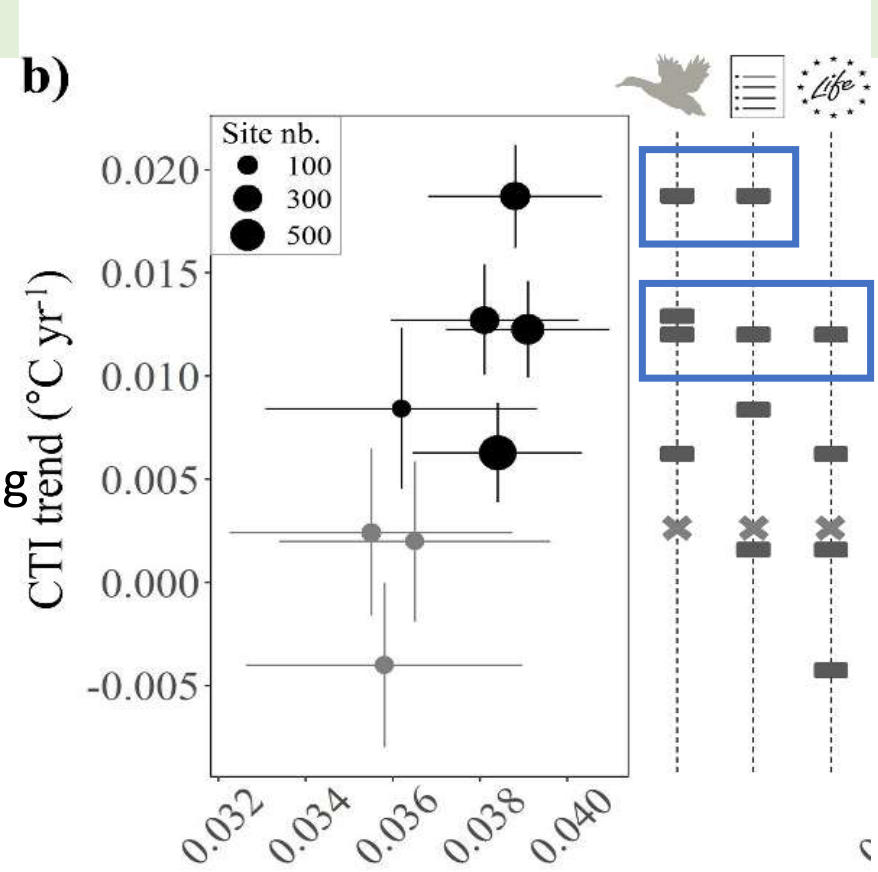
Changes in temperature *vs* changes in CTI

Facilitating climate warming adaptation cannot be based only on habitat connectivity

Gaget et al. 2021. *Conservation Biology*, 35, 3, 834–845.

Consequences for conservation strategy

- Which site features help waterbirds?
  - Water N2K site facilitating species/group?
  - Water N2K site classified under Birds Directive (Habitat vs Birds Directive)
  - Sites designated under Birds Directive with management plan yielded best results facilitating climate change adaptation
  - Does it have a management plan?
  - Is it included in a LIFE project?



Gaget et al. 2022. *Conservation Biology*, 1-9, doi.org/10.1111/cobi.13877.

So…

- General trend of abundance **shift** towards northern and eastern Europe
  - Implications at local scale?

- Protected areas **can accommodate** changes in distribution and abundance
  - Wintering numbers increased in protected areas (especially those that were listed as IBA)
  - Good performance of Birds and Habitats Directives (in general)

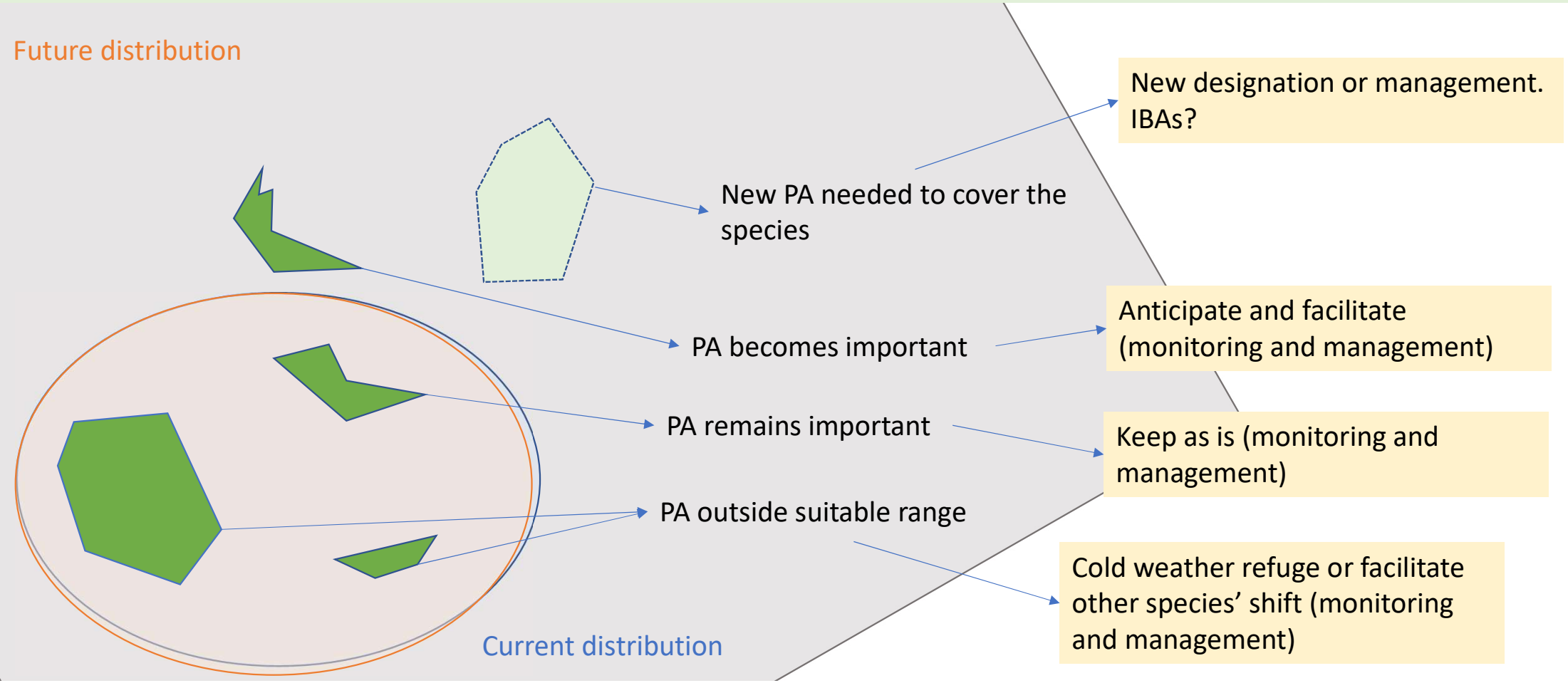
- Faster community change (lower debt) inside protected areas

- Good coverage of sites (Guillemain & Hearn 2017 Biodiv. Conserv. 26:2347–2360) but Large numbers winter **outside** the network of protected areas
  - Especially northern and eastern Europe - Newly available sites

- Designation of **non-protected IBAs** can contribute to EU protected area target (30%) and climate change adaptation of waterbird populations – International coordination

- Need to keep in mind both year-to-year and long-term changes
  - Important to **keep cold-weather refugia**

Consequences for conservation strategy



Next steps

- increase knowledge of species responses and uncertainty of future distributions
  - Is the current PA network good enough?
  - New target: 30%

- Better understanding on management actions
  - Are management plans implemented? Funding issues? Stakeholder disagreements?
  - What is implemented at site level – revise evidence
  - Rationale. Why do site managers do what they do?
  - What works where (species *vs* habitat; passive *vs*. active management)

- Management of game species (25 waterbird species in Birds Directive's Annex II)
  - Changes in distribution, (local) abundance and phenology
  - Transparent reporting of numbers

Thank you very much

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