Vrije Universiteit Brussel

Plant Biology and Nature Management

Biology

Modeling wetland connectivity for the protection of migratory waterbirds in Western Greece

Ronny Merken, Joachim Teunen, Faidra Bazigou & Nico Koedam

Glossy Ibis
(Plegadis falcinellus)

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Autumn & spring migration

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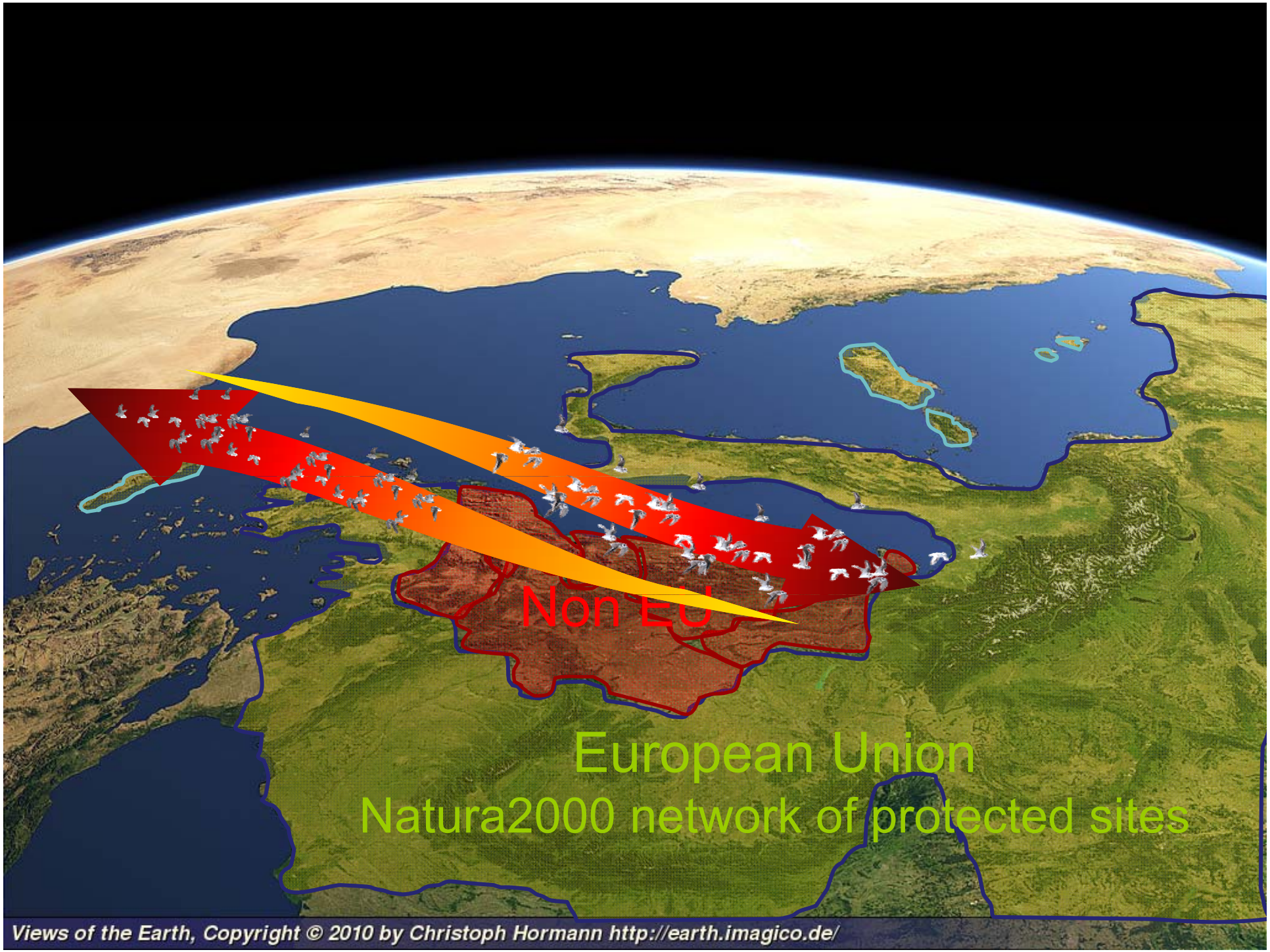
Non EU
European Union
Natura2000 network of protected sites
Views of the Earth, Copyright © 2010 by Christoph Hormann http://earth.imagico.de/

Field work – mapping and birding

- ground truthing: satellite Imagery + field photography

Σ ± 1100 km^2

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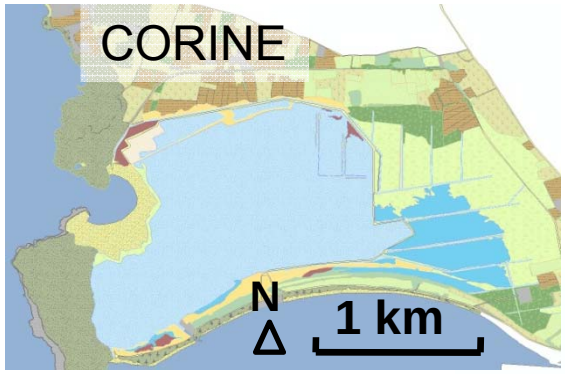
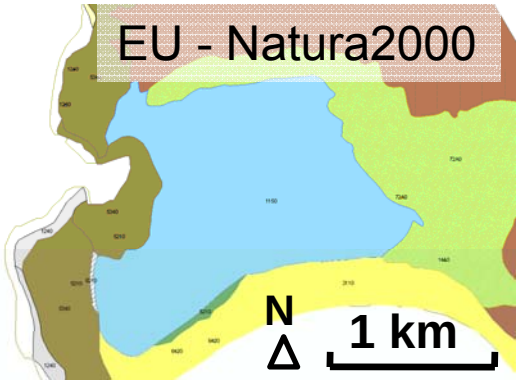
- typical vegetation classification





Pylos

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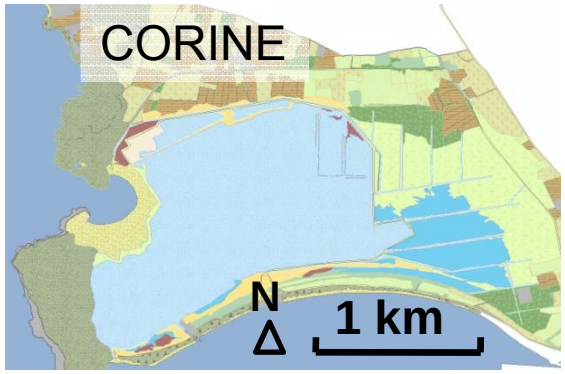
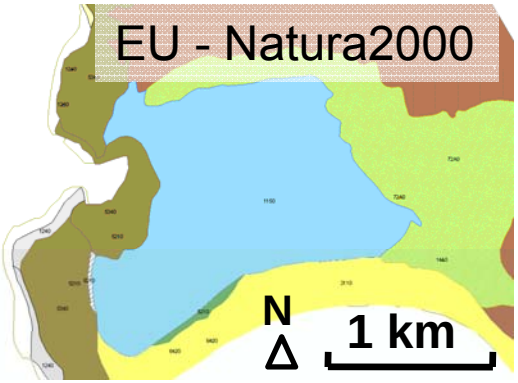
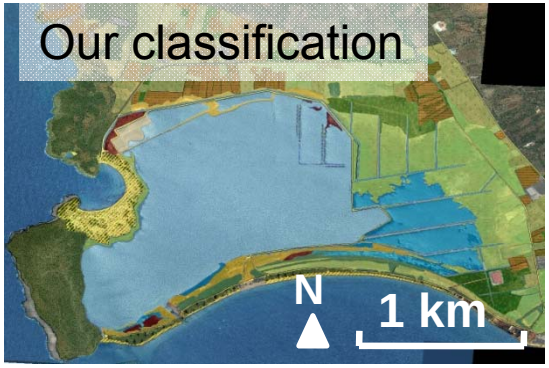
- typical vegetation classification (9 classes of stopover biotopes)







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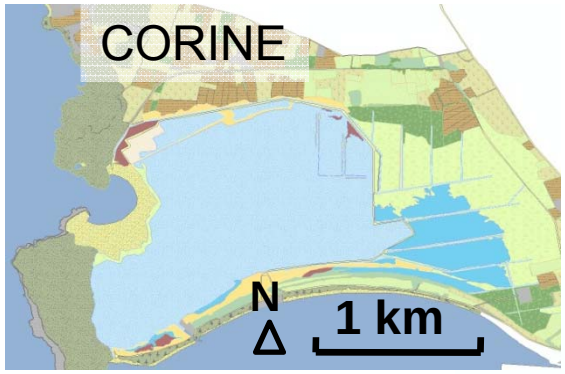
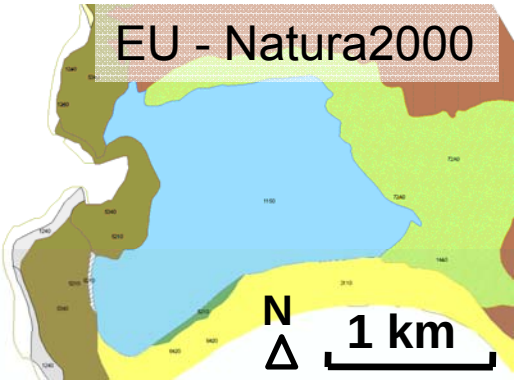
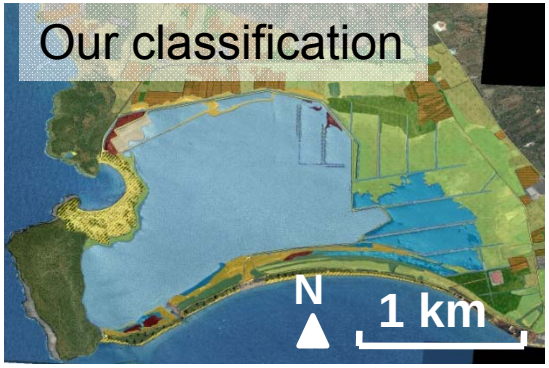
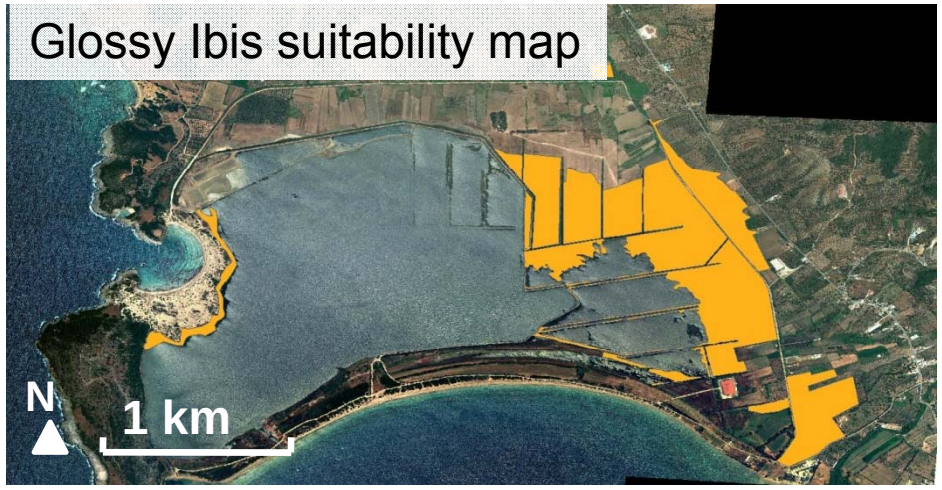






- bird observations of 9 species during peak migration (April to mid May 2011)

Results – suitability maps and disturbances



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  Habitat : freshwater or brackish wetlands / wet meadows

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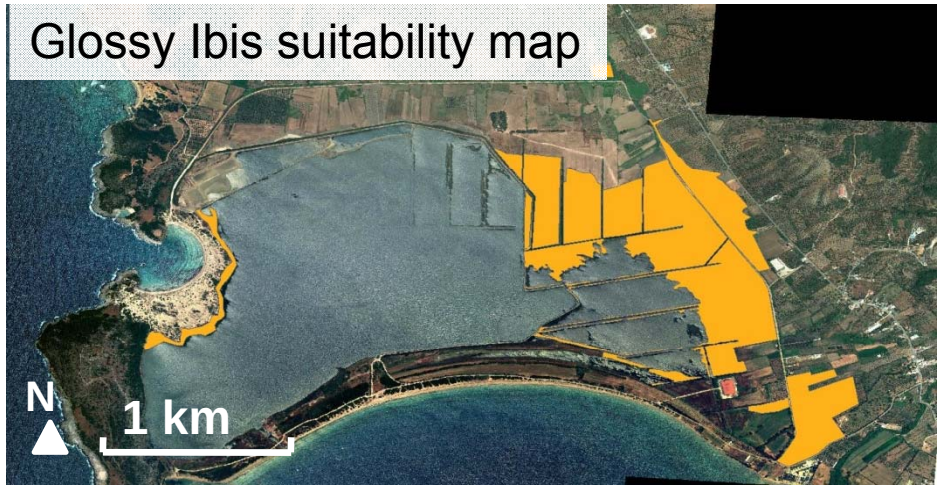

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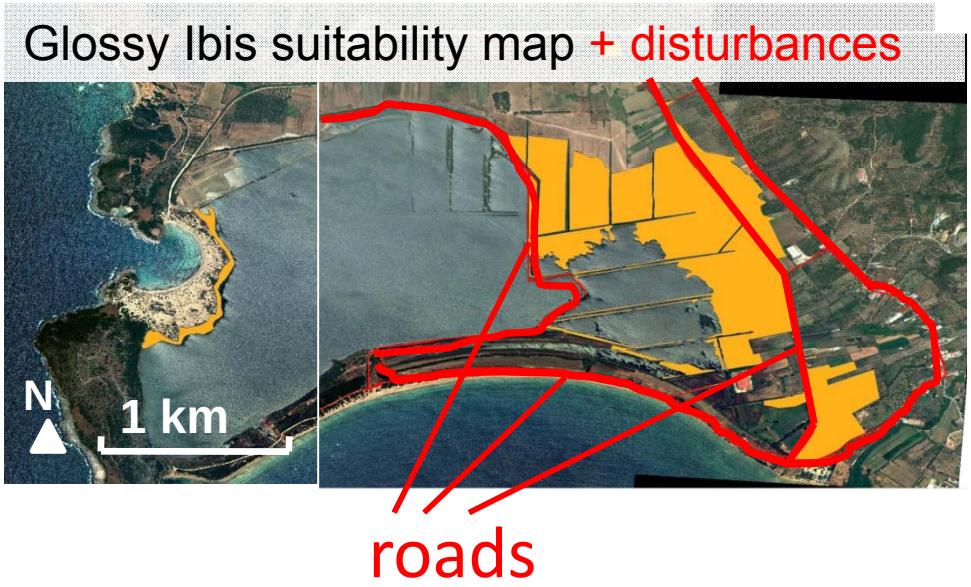

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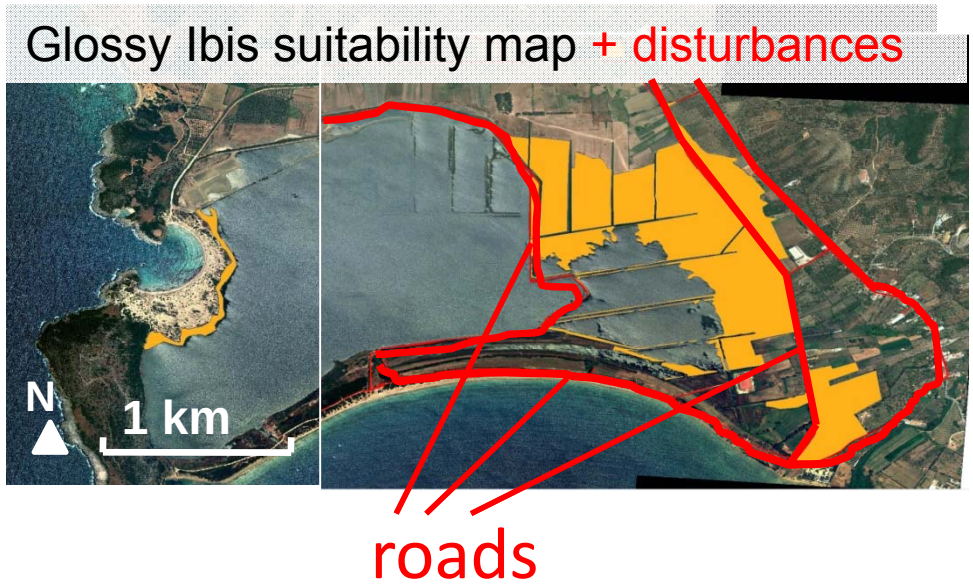

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→ **Buffer** around disturbance = smaller suitable habitat

Ongoing work: Modeling wetland connectivity

-Suitability maps = input for connectivity modeling

-**FLAP Model** (Downs & Horner, 2008)

- Flight Leg Allocation Problem:
- all stopovers = **nodes**
- all potential pathways = **links**

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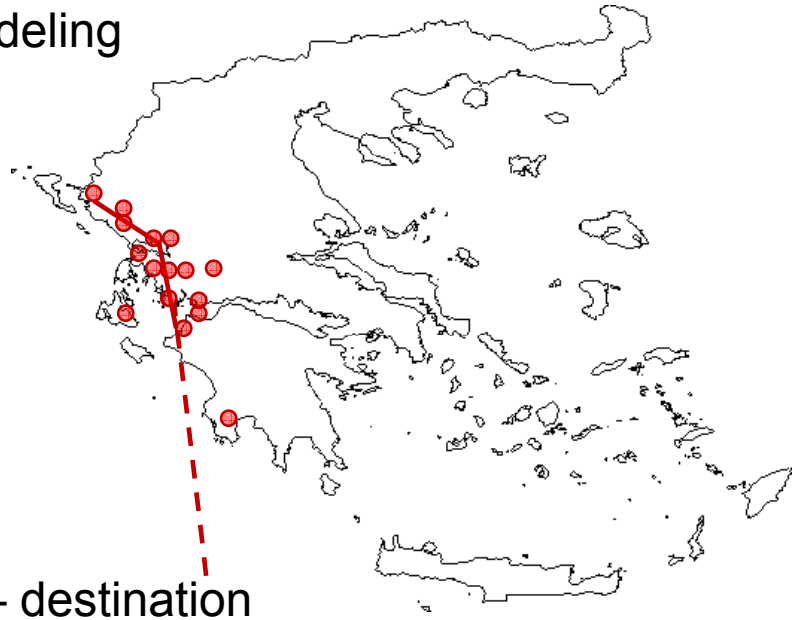

- Find optimal path between an origin – destination
- Fewest number of stops in the shortest distance
- Given that birds have limited daily flight capabilities and carrying capacities of wetlands

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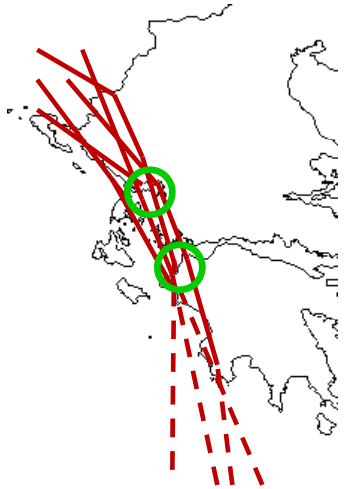
Expected output

Migratory birds need good quality and connectivity of wetland stopovers

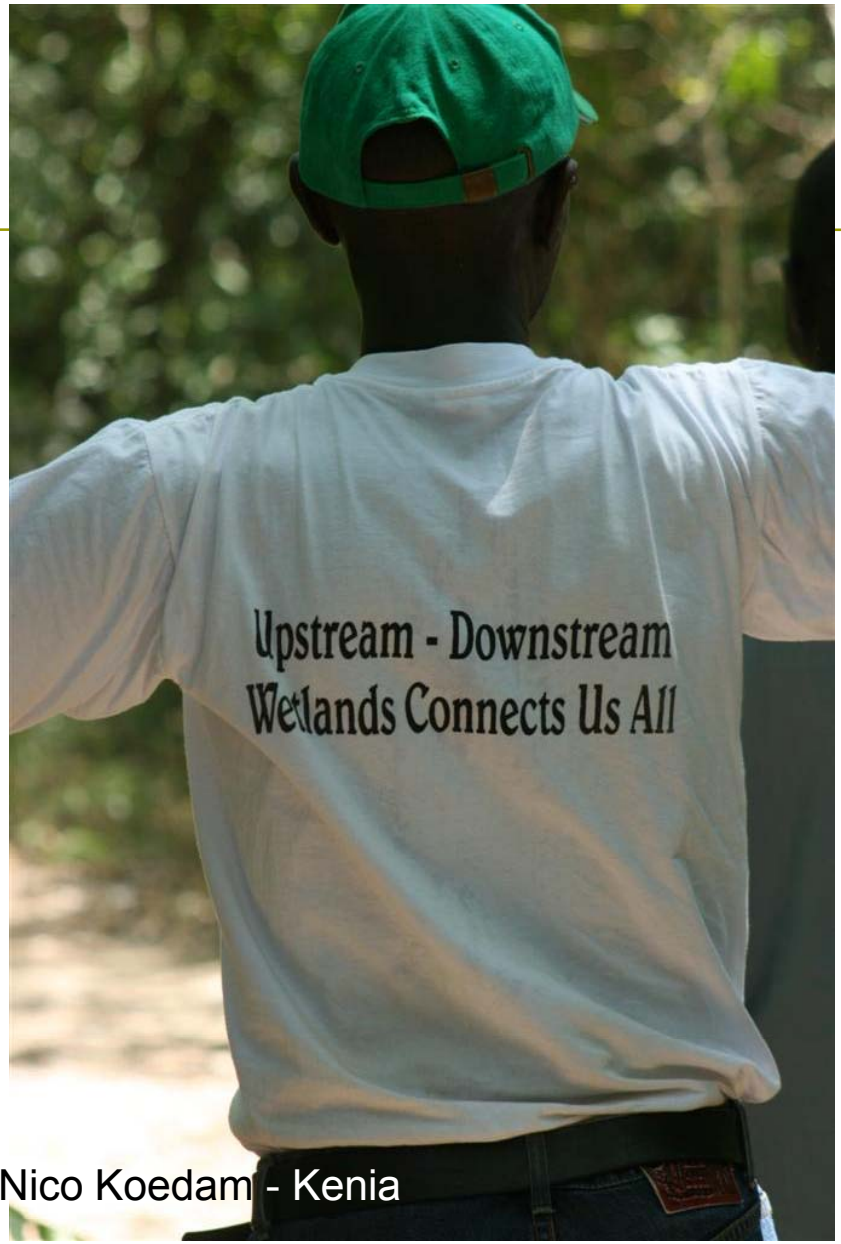
We will provide **:**

- assessment of wetland **suitability** (species specific)
- suggestion of **priority sites** to better address protection schemes for migratory waterbirds
  - sites used in **multiple** pathways per species
  - sites without **substitute** sites
- the model allows us to use the **Birds Directive** in a migratory context



It looks like an easy job for migratory birds,
but we know it is a challenge we have to facilitate

Thank You



Nico Koedam - Kenia