Multiscale socio-ecological networks in the age of information

Maxime Lenormand

▶ **To cite this version:**

Maxime Lenormand. Multiscale socio-ecological networks in the age of information. NetSci 2018, 2018, Paris, France. 10.1371/journal.pone.0206672 . hal-02890710

HAL Id: hal-02890710
https://hal.inrae.fr/hal-02890710v1

Submitted on 6 Jul 2020

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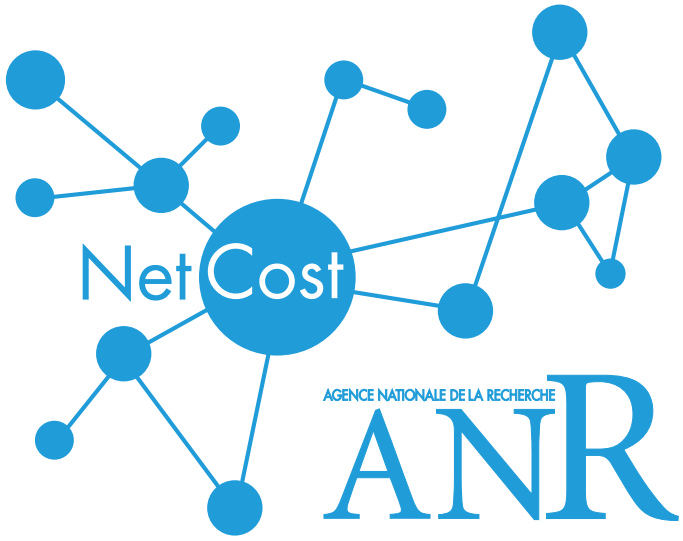
Multiscale socio-ecological networks in the age of information



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NetSci 2018|Paris, France

June13, 2018

irstea

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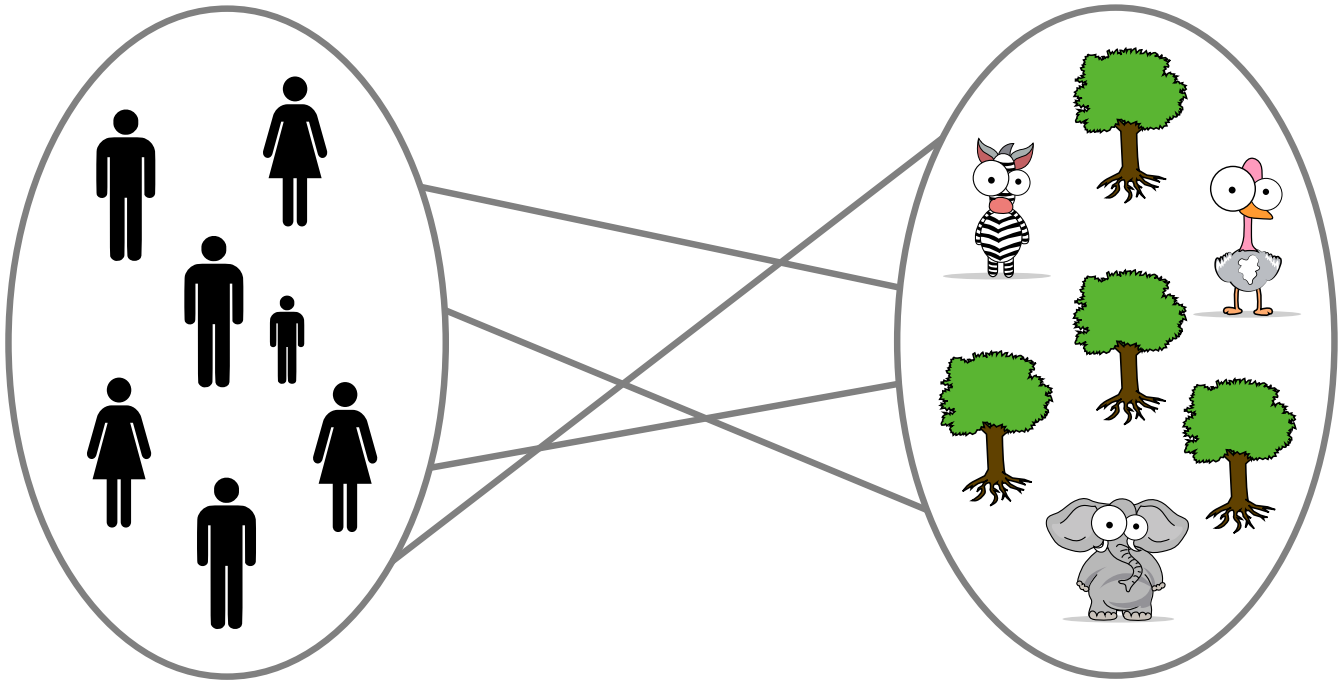
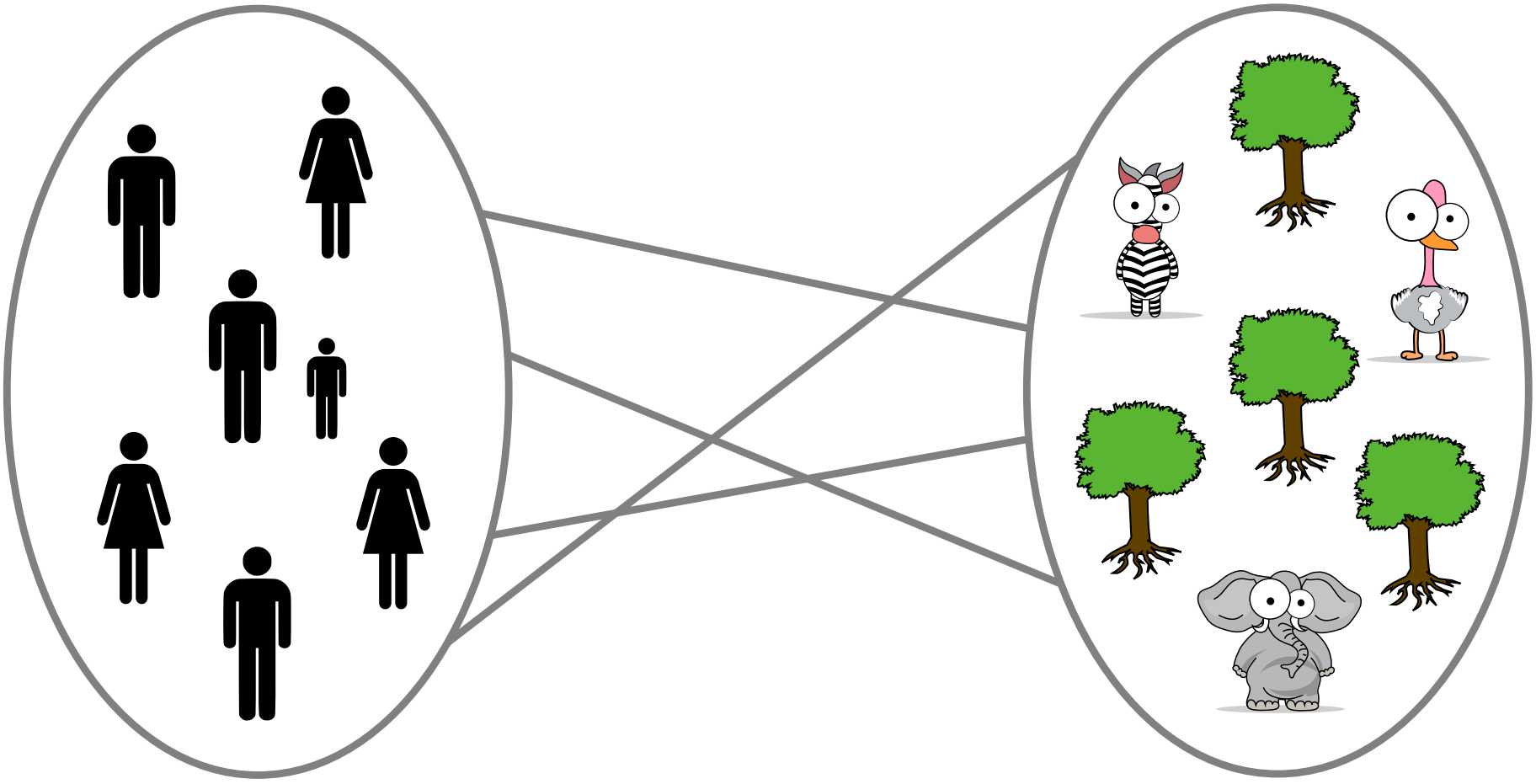
Motivation

How can we use **ICT data** to model and visualize **complex socio-ecological interactions** to better understand how **people** interact with **natural spaces**?

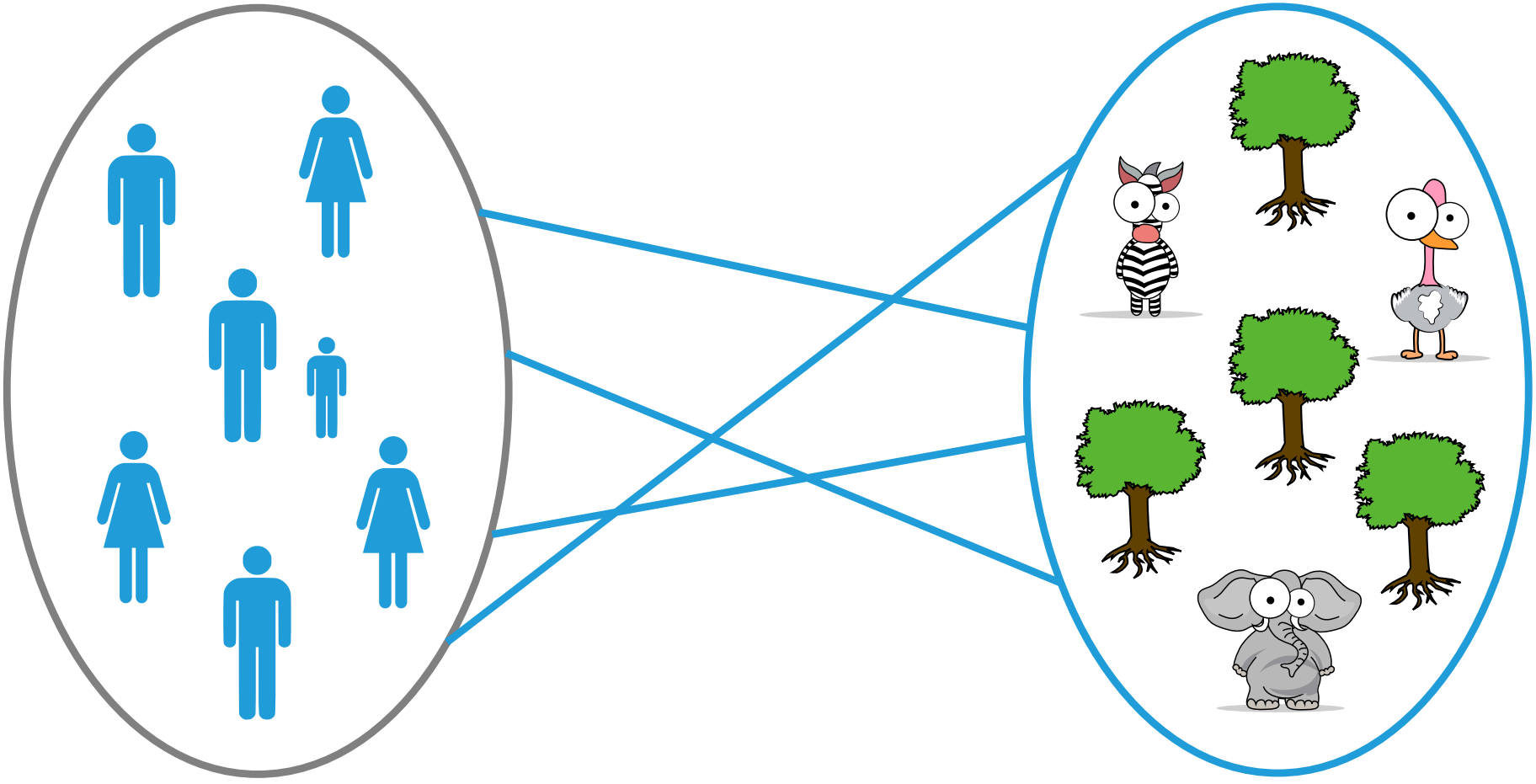


Spatio-temporal network



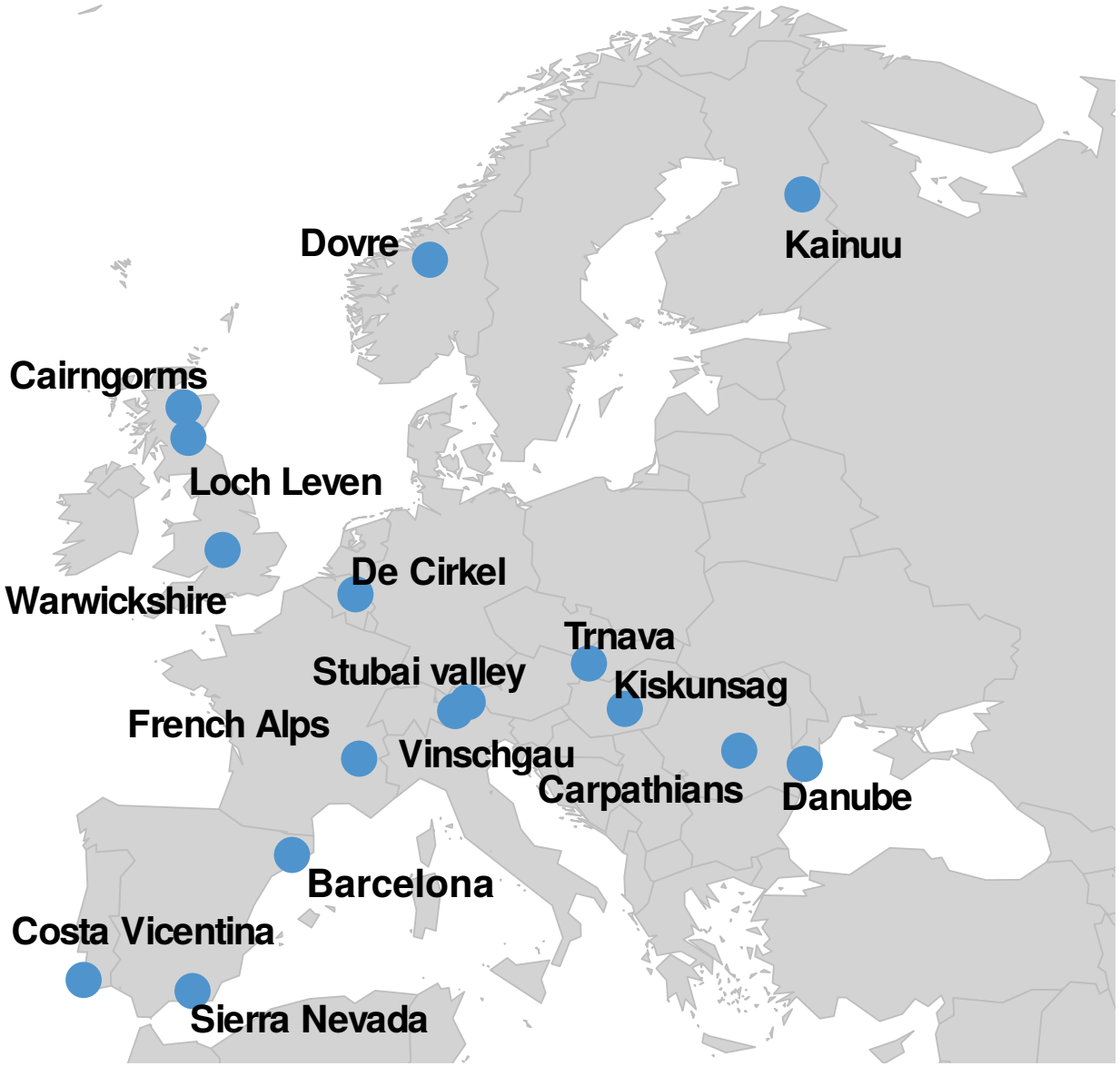
Δ_t Time window

Spatio-temporal network

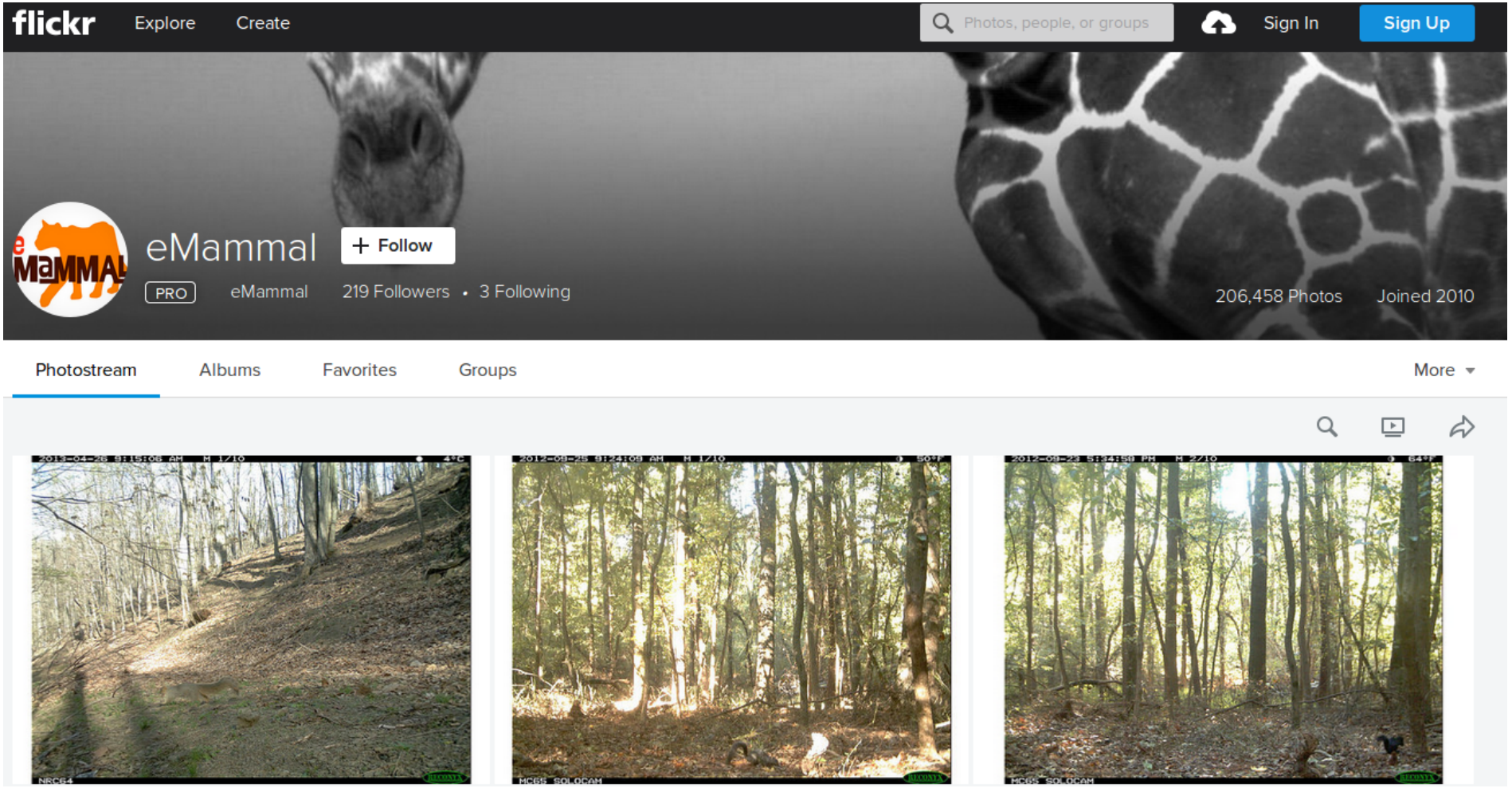


Δ_t Time window

16 case study sites

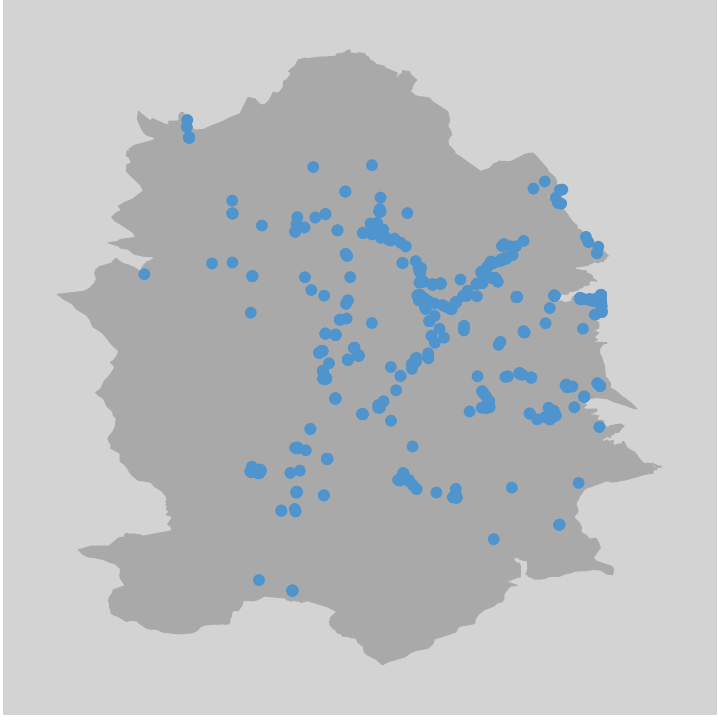


Flickr data


flickr
Explore
Create
Photos, people, or groups
Sign In
Sign Up
eMammal
+ Follow
PRO
eMammal
219 Followers • 3 Following
206,458 Photos
Joined 2010
Photostream
Albums
Favorites
Groups
More

Flickr data

From more than **100,000** to **17,500** photos



Every Flickr photos has been classified and validated following the Common International Classification of Ecosystem Services

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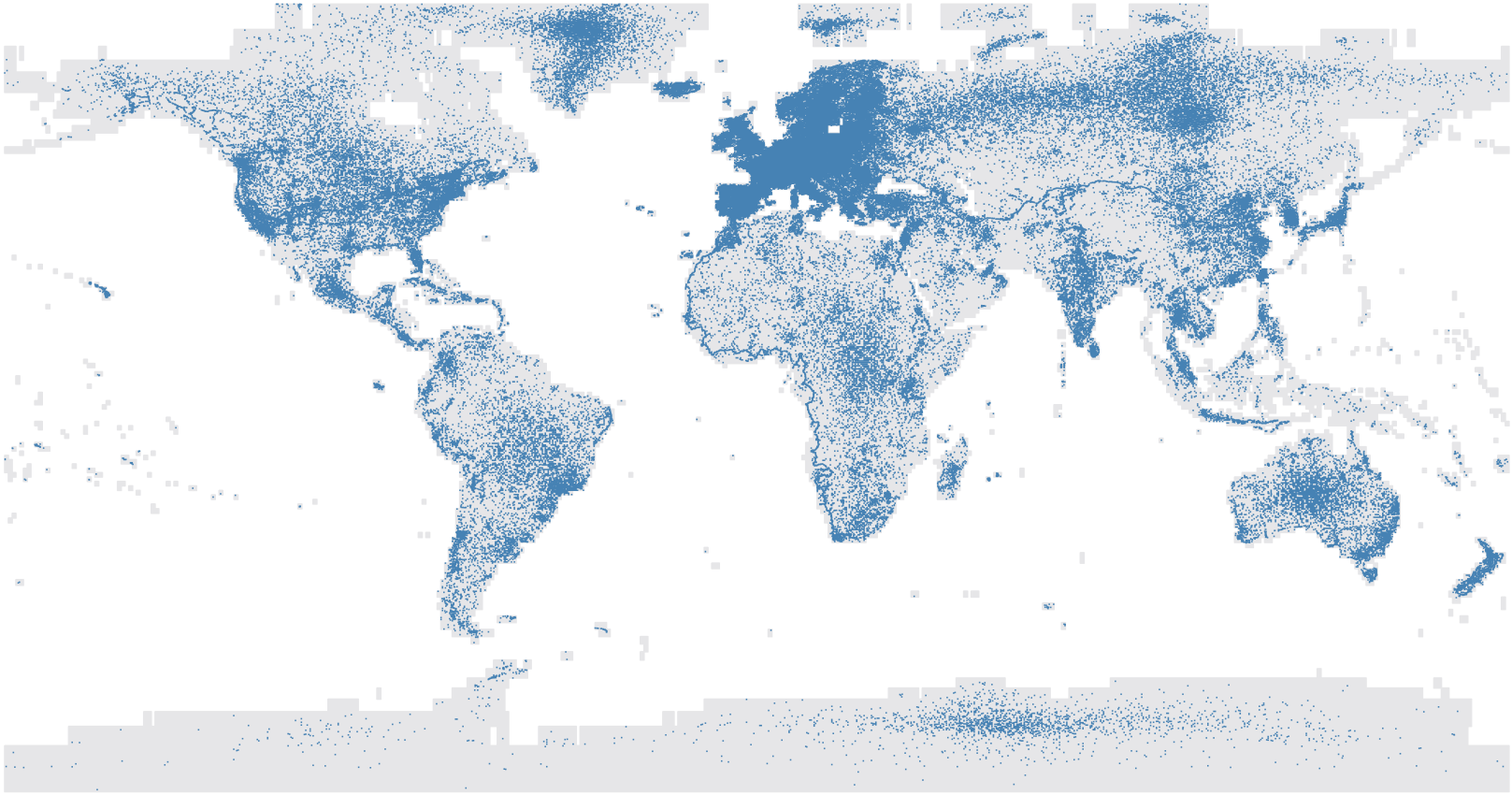
OpenNESS
Operationalisation of Natural Capital and Ecosystem Services

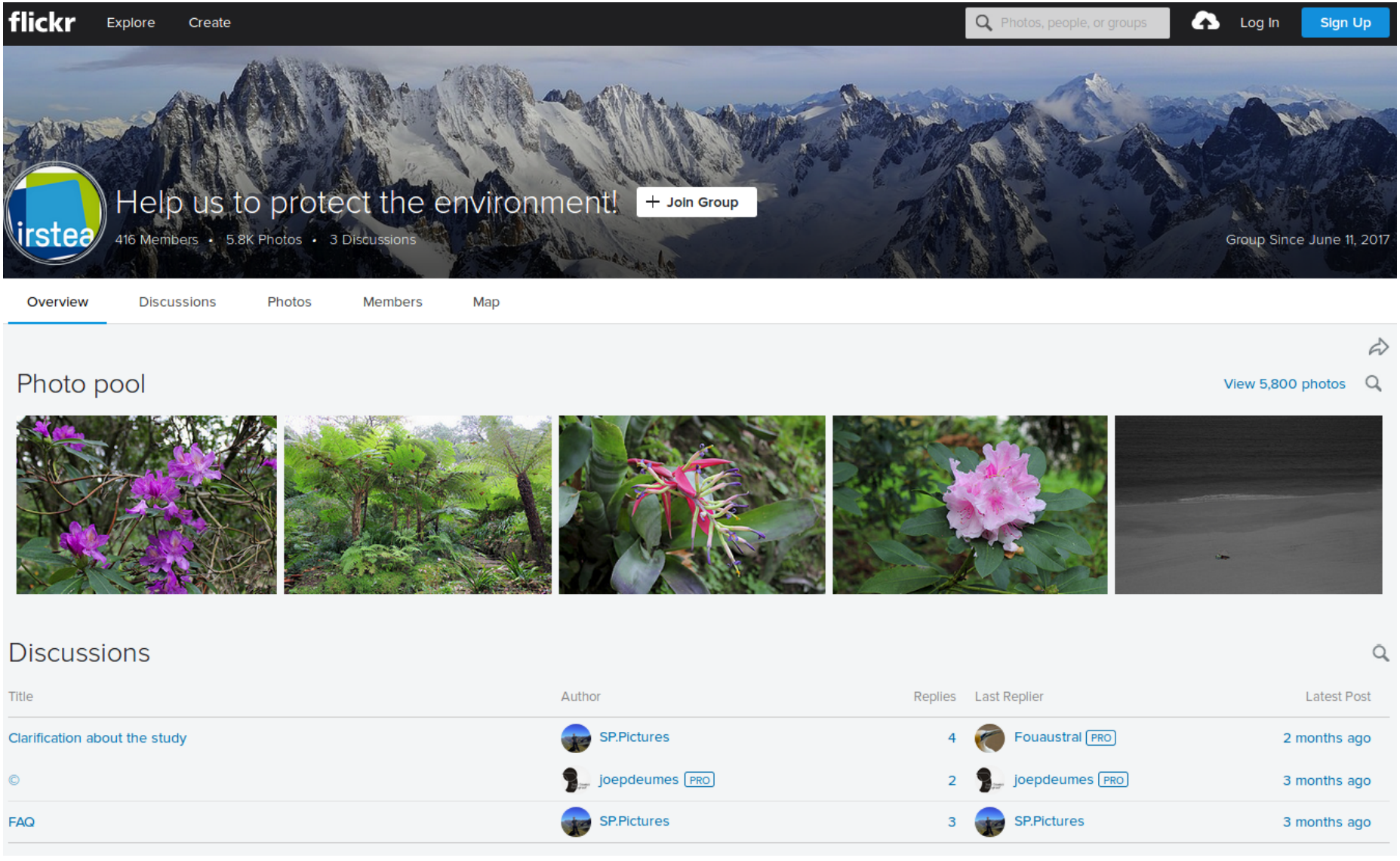
Flickr users

Identification of users' place of residence



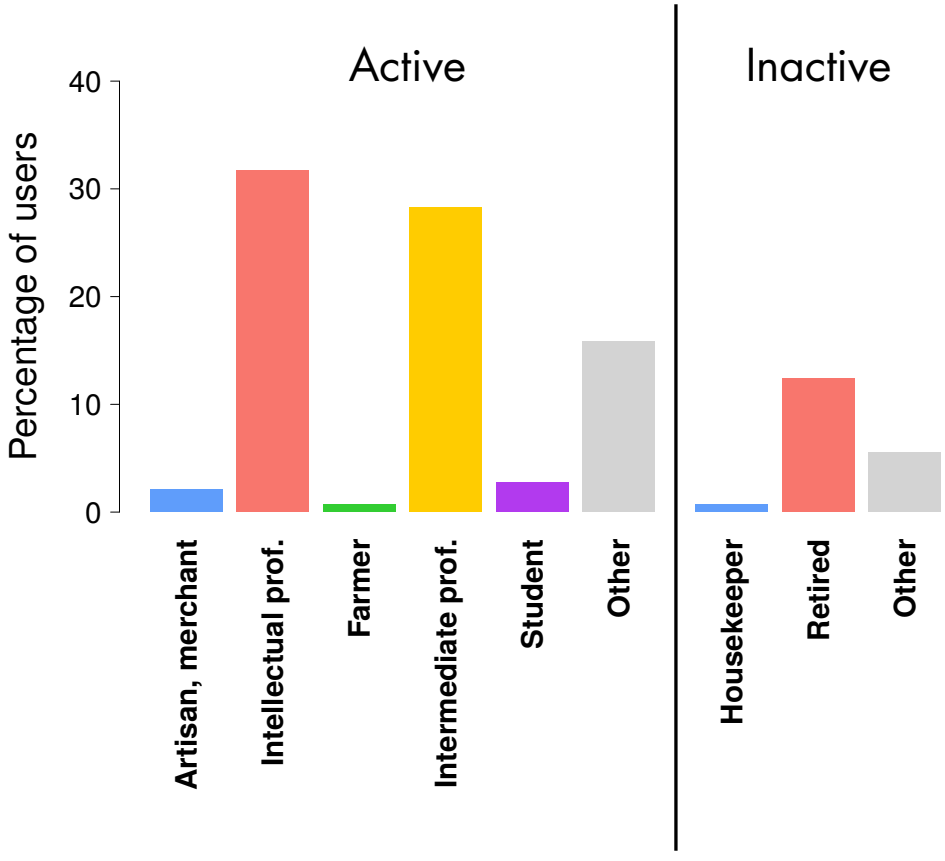
13,000 photos taken by **2,300** users

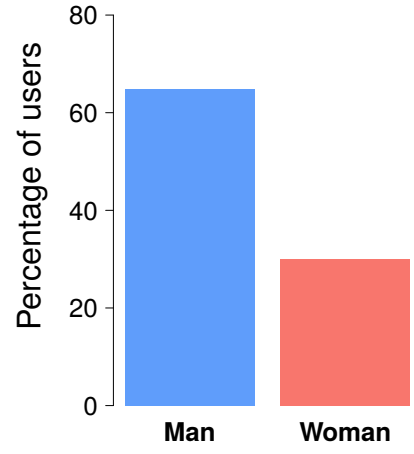
Flickr group & survey

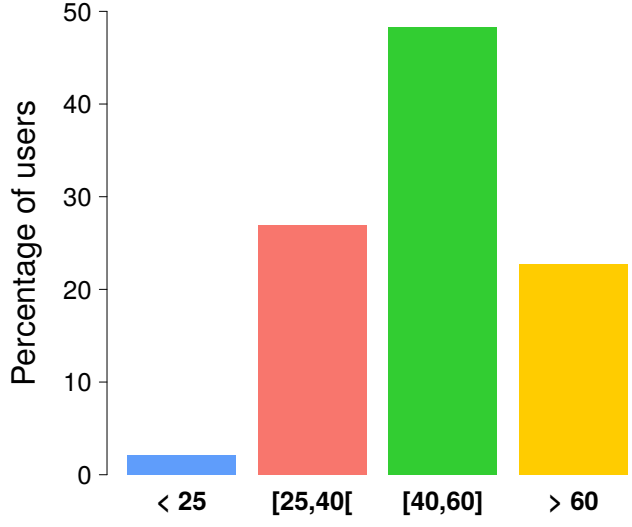


Flickr group & survey

11% response rate

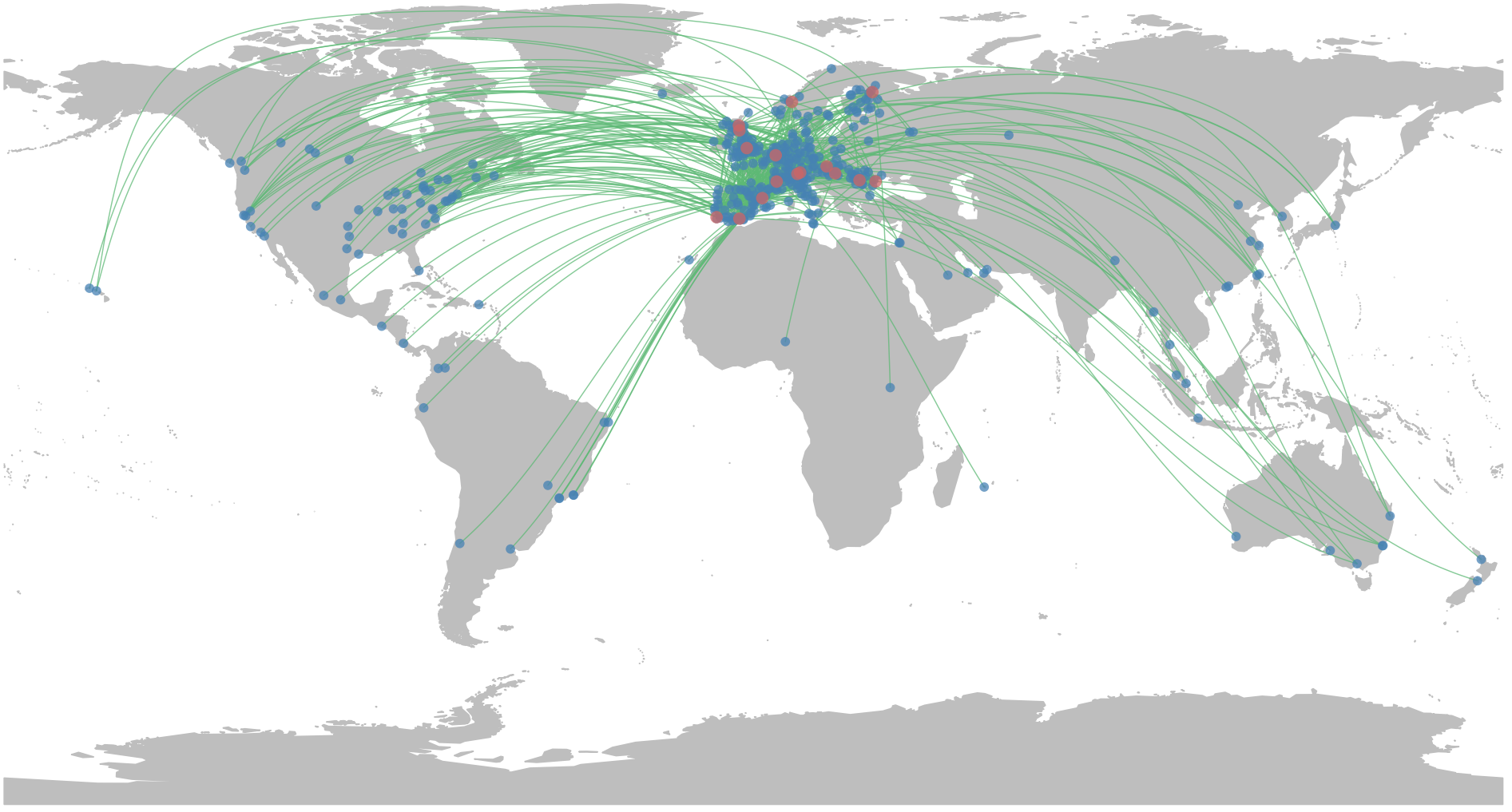




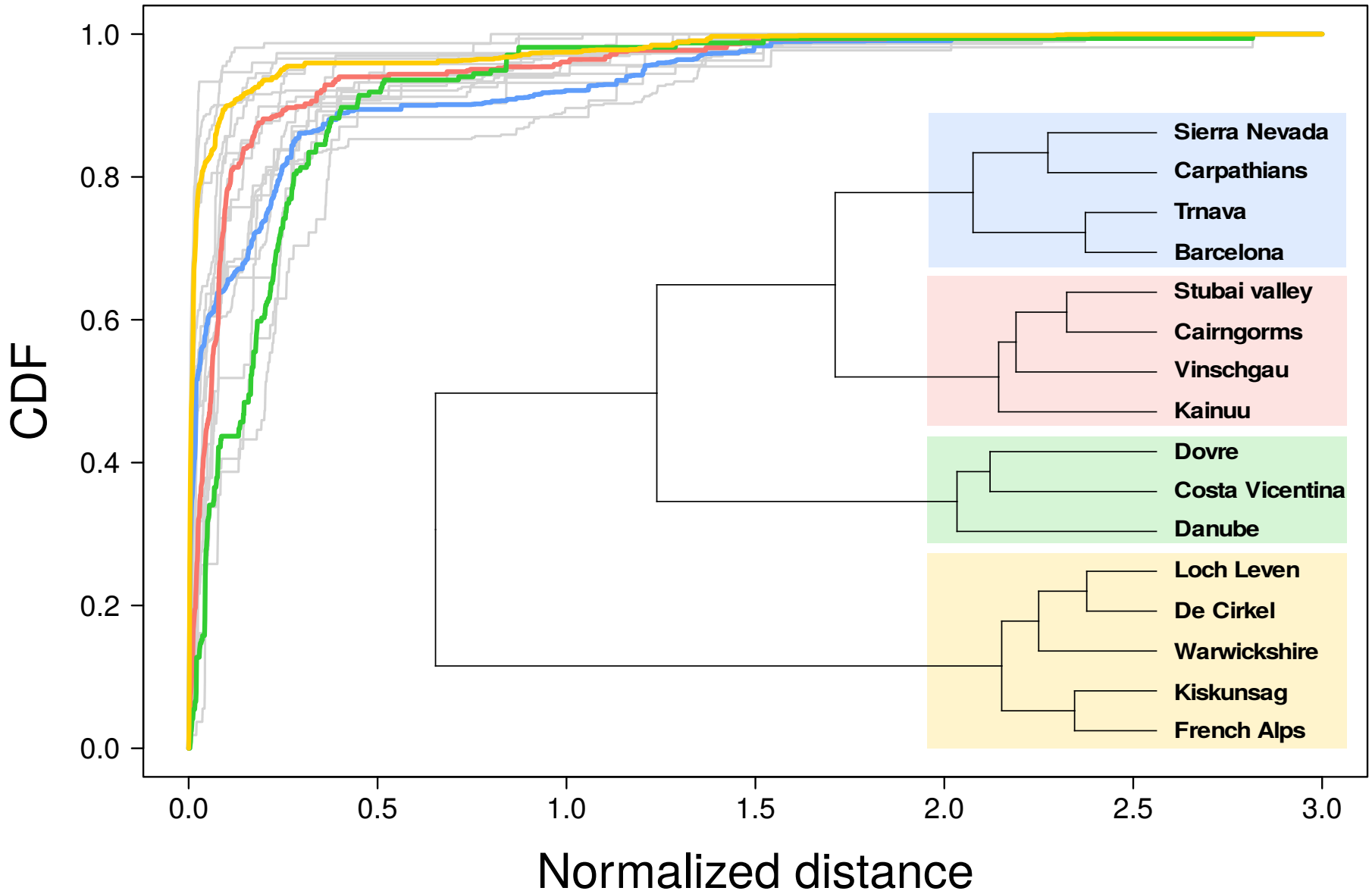


90% of accuracy in the users' place of residence detection!

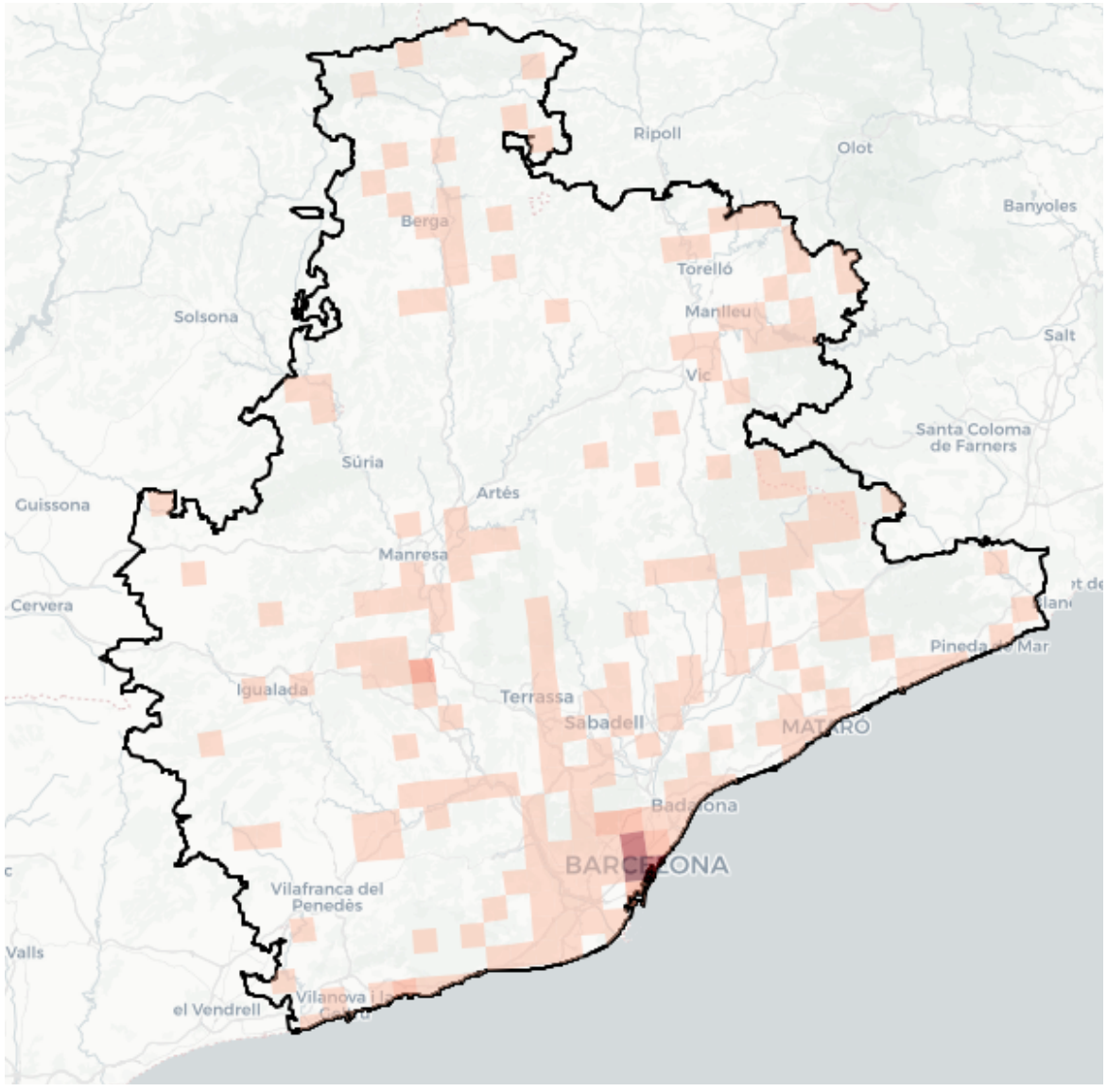
Spatio-temporal network



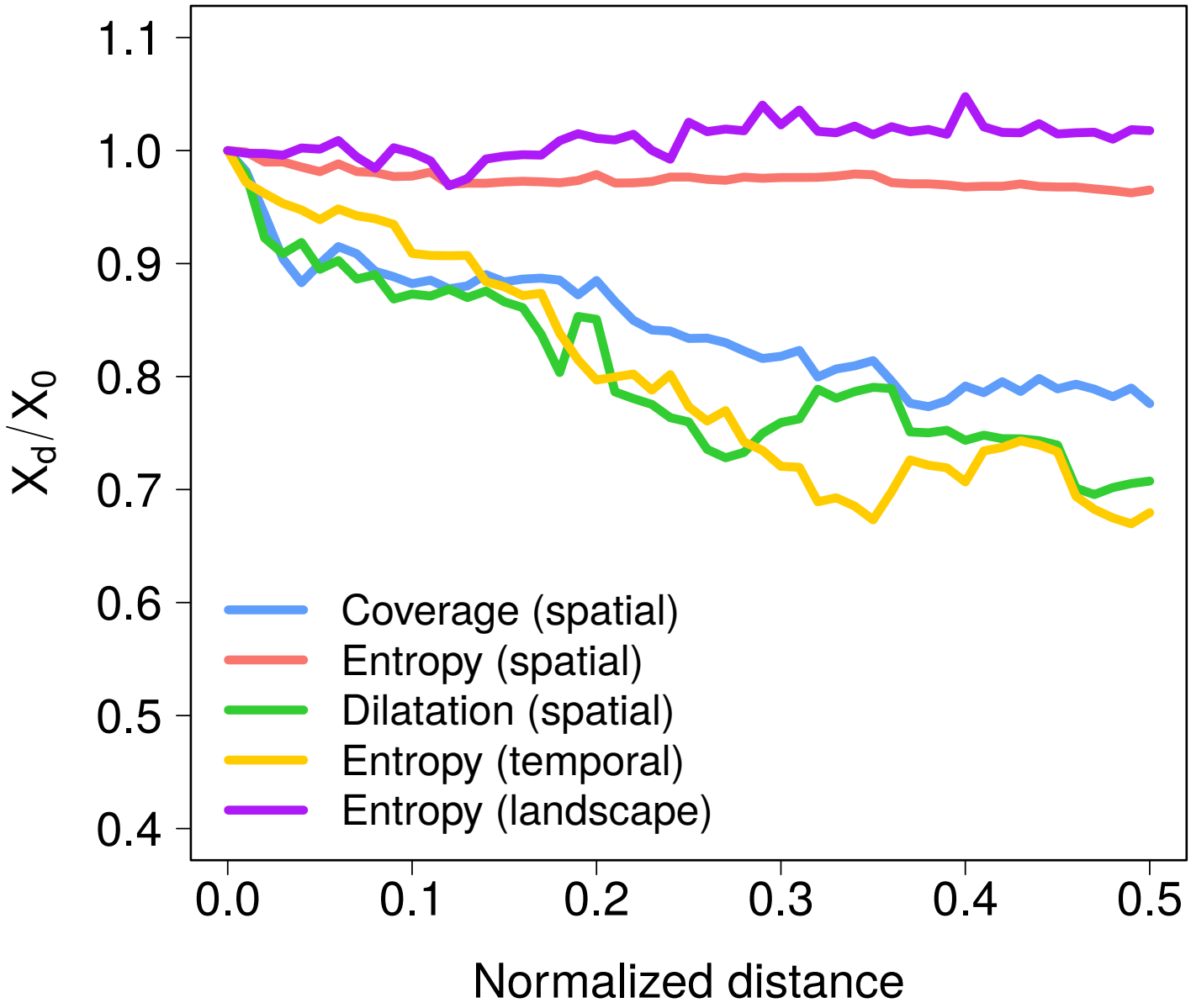
Attractiveness



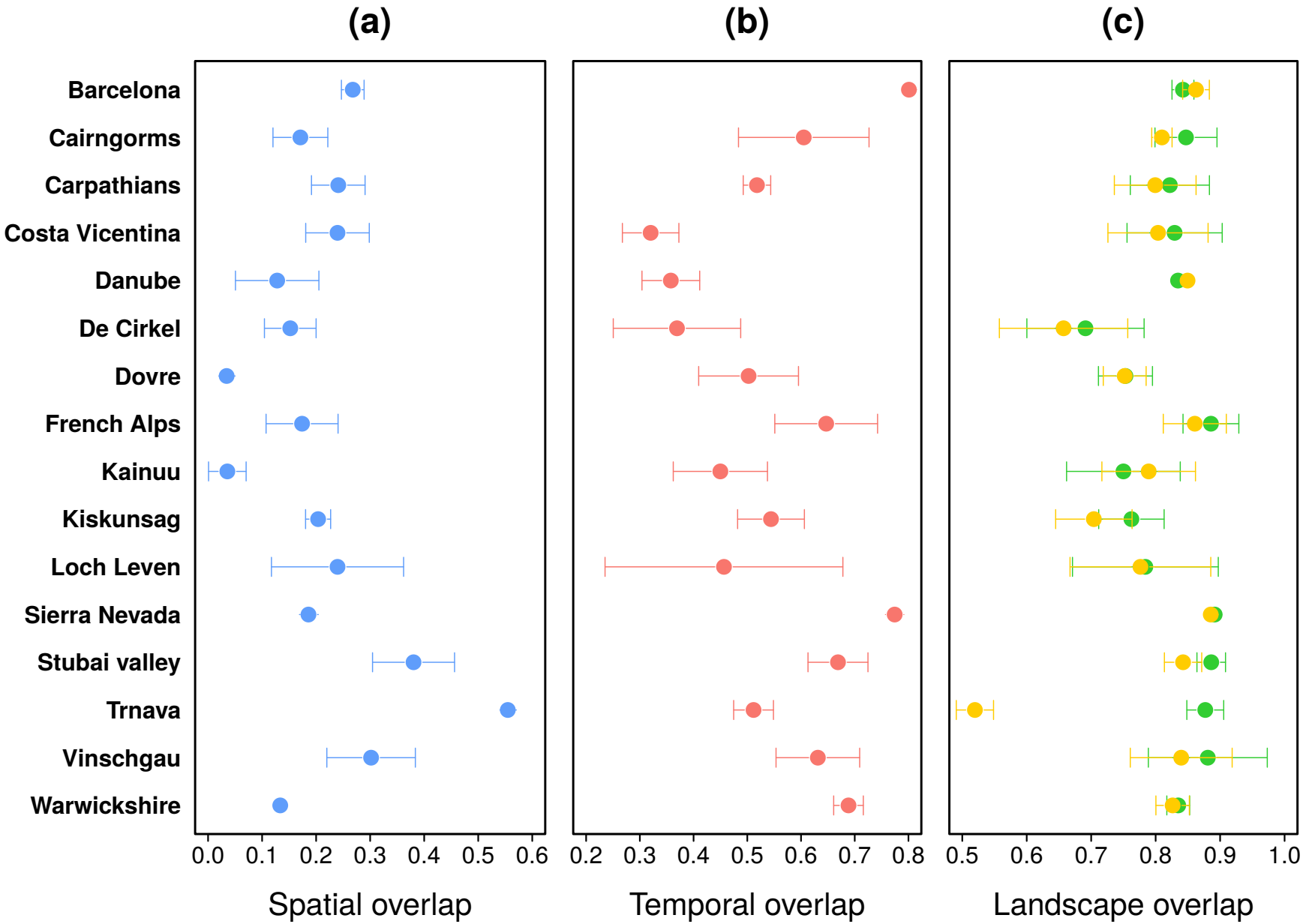
Exploration



Exploration



Exploration



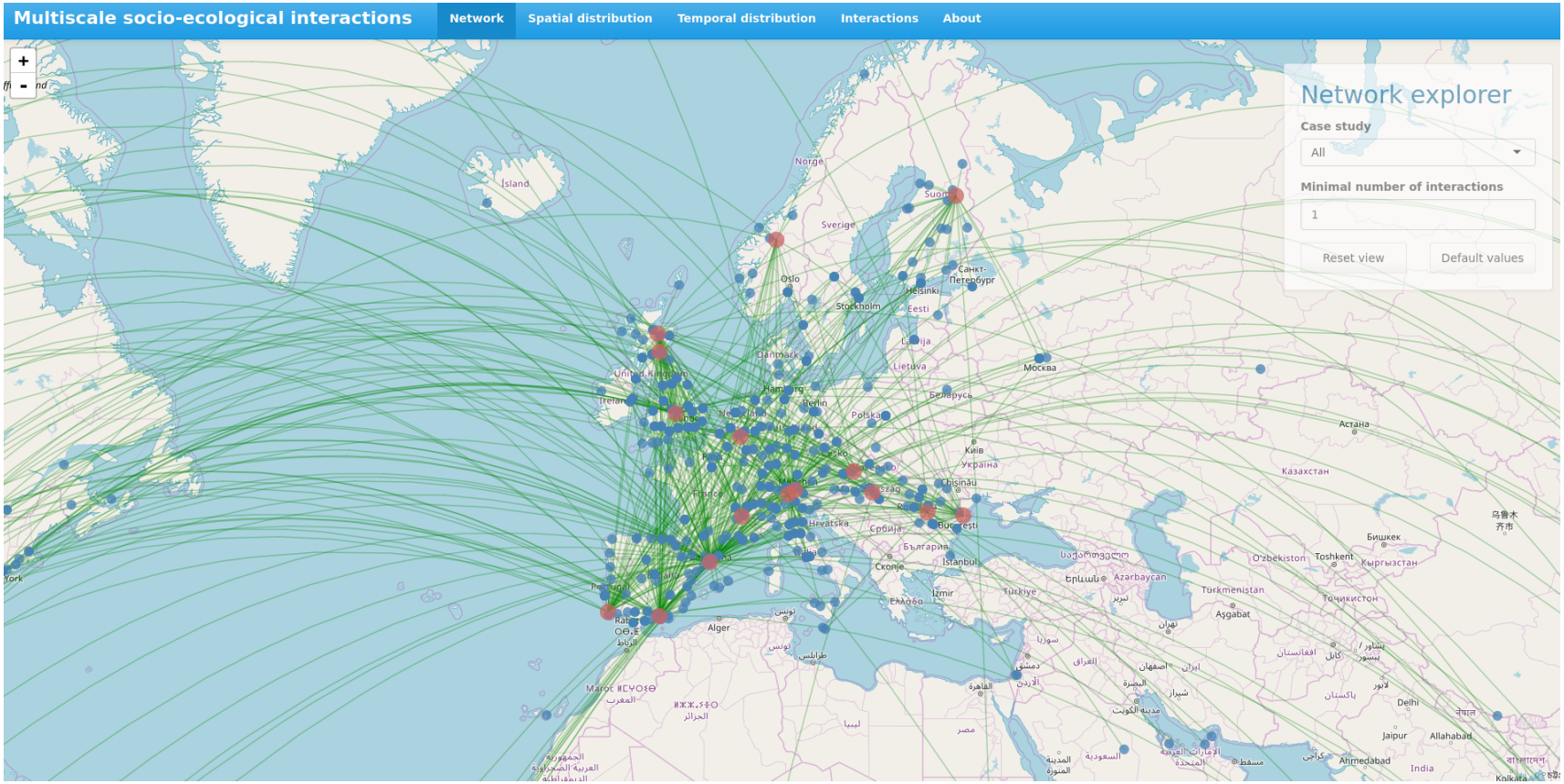
Take home message

Modelling of social-ecological interactions with a spatio-temporal network & ICT data

Diversity of spatio-temporal contexts, individuals and type of interactions

Resillience planning

AHIA project outputs



https://github.com/maximelenormand/AHIA

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Self-promotion

Physics Reports 734 (2018) 1–74

Contents lists available at ScienceDirect

Physics Reports

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Human mobility: Models and applications

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