BEeS

The LifeWatch ERIC Biodiversity & Ecosystem eScience Conference

Seville
22-24/05/23

Threats and challenges to biodiversity and ecosystem conservation from an eScience perspective

LifeWatch ERIC

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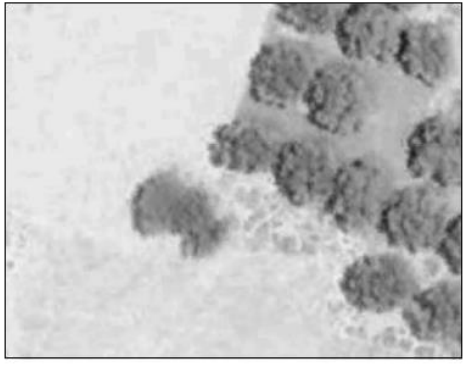
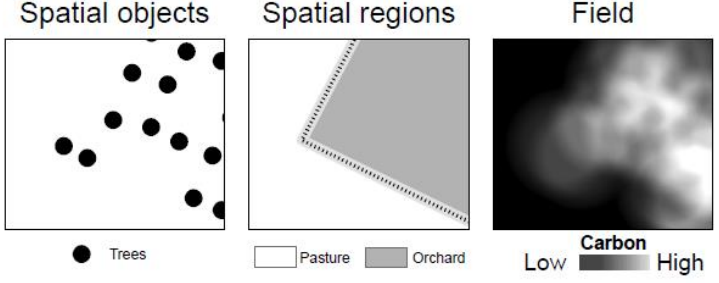
Julien Radoux, UCLouvain

All (geodata) models are wrong, but some are useful (e.g. for ecosystem accounting)





Spatial objects
- Categorical description
- Well defined boundaries

Spatial regions
- Arbitrary boundaries
- Quantitative description

Field
- No boundaries
- Quantitative variables

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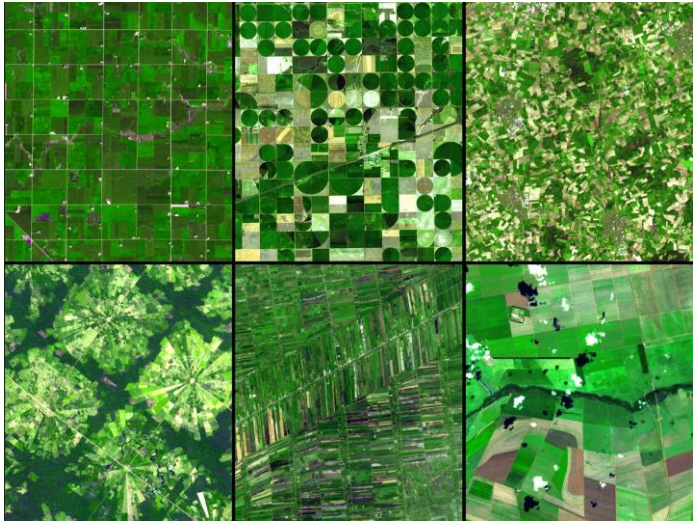
Datacubes store a large amount of information in a convenient way

But are what is the best geodata model to store biodiversity information?

Large squares : lack of details

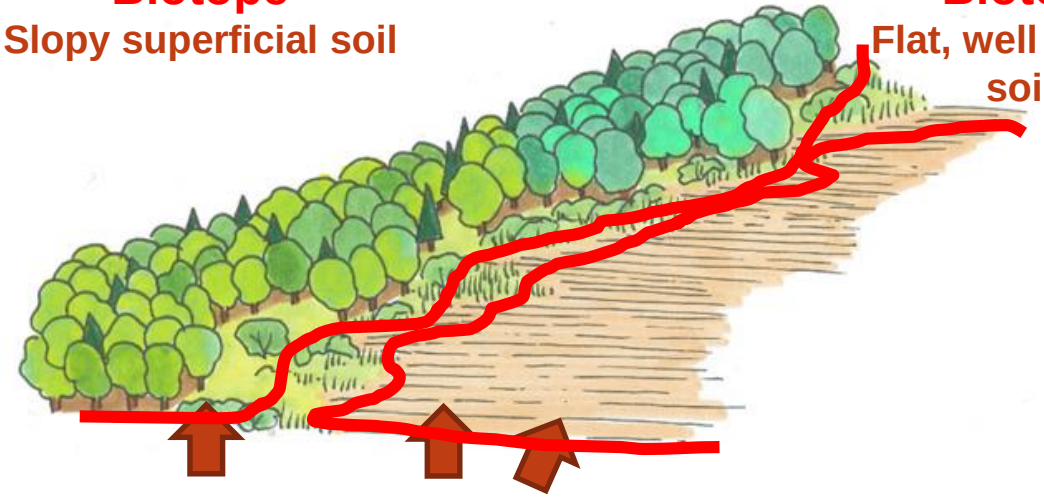
Small pixels : lack of context



Towards an operational partition for EA

Biotope
Slopy superficial soil

Biotope
Flat, well drained soils



Reproduction **Food**

Habitats are species specific

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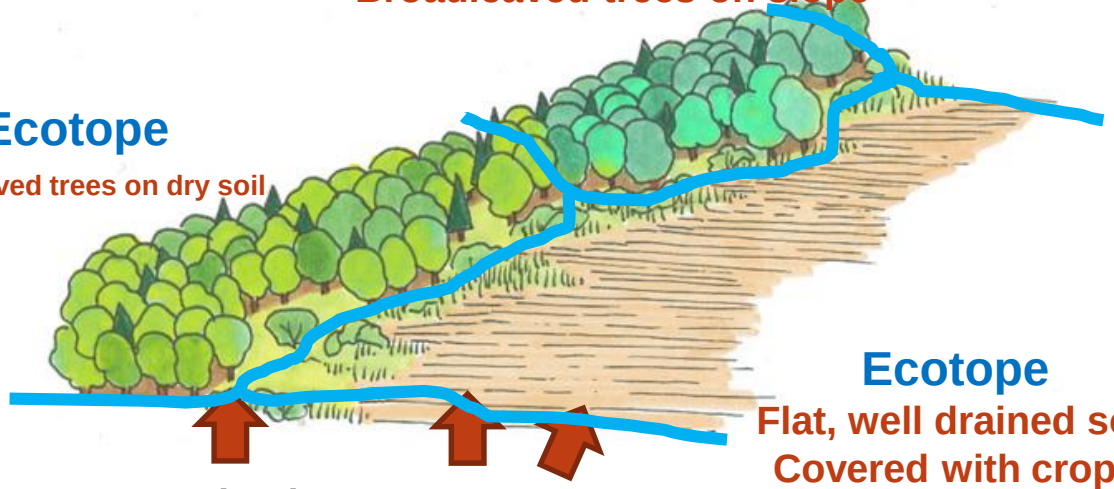
Towards operational partition for EA

Ecotope

Broadleaved trees on slope

Ecotope

Broadleaved trees on dry soil



Ecotope

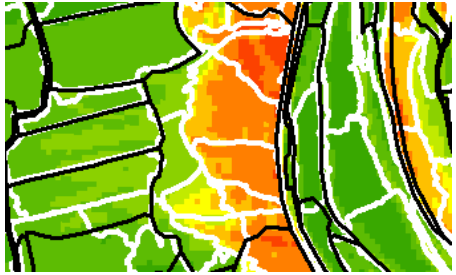
Flat, well drained soil
Covered with crops

Reproduction **Food**

Habitats are species specific

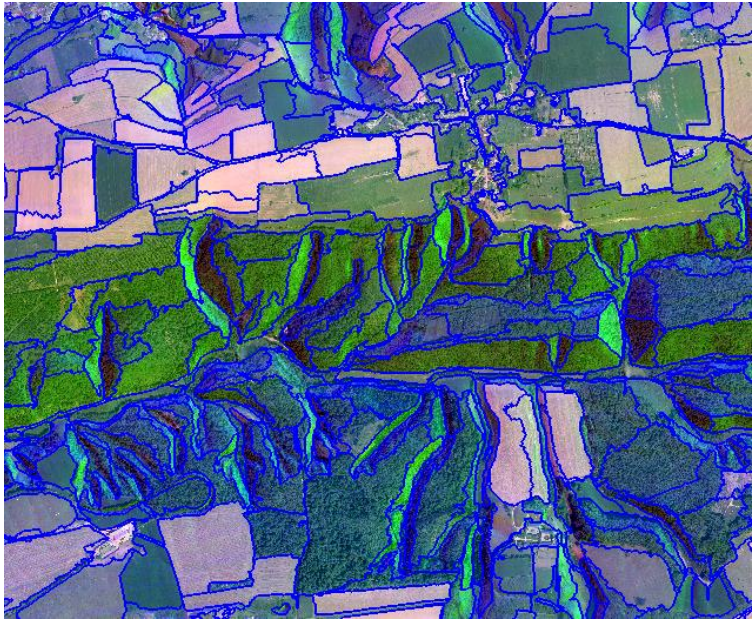
Automated ecotopes delineation with LIDAR and orthophotos

Orthophotos +
Hillshade from LIDAR +
Height from LIDAR



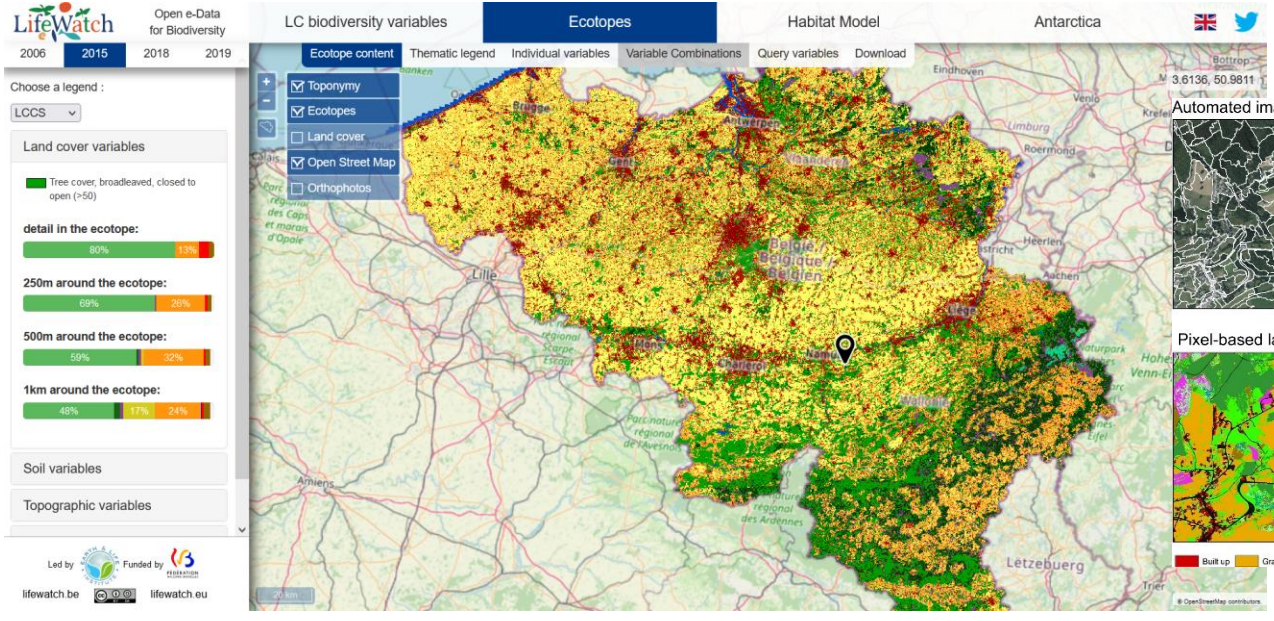
Black = Land cover
White = Ecotopes

Green = small slope
Red = steep slope



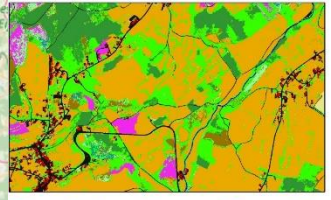
Results shown on color composite RGB + Hillshade in R and G

Dataprism based on ecotope boundaries, with land cover and biotope information

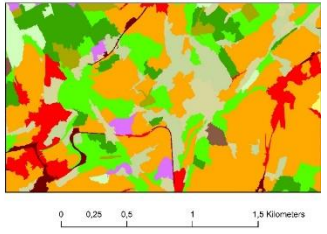


Automated image segmentation (topography and orthophotos)

Pixel-based land cover classification (2 m)

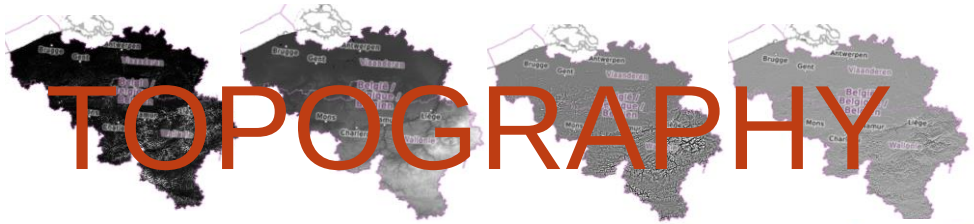


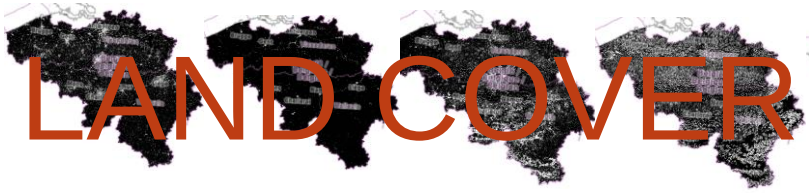
Ecotopes (here with LCCS labels)

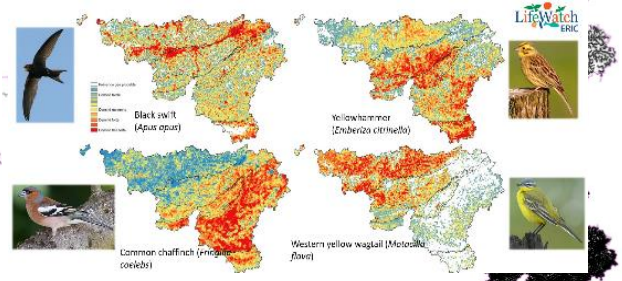


100+ variables for 3 millions polygons,

successfully used for birds, plants and butterflies models

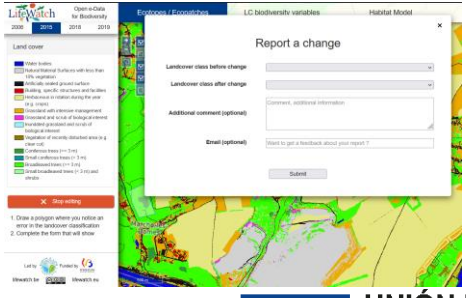


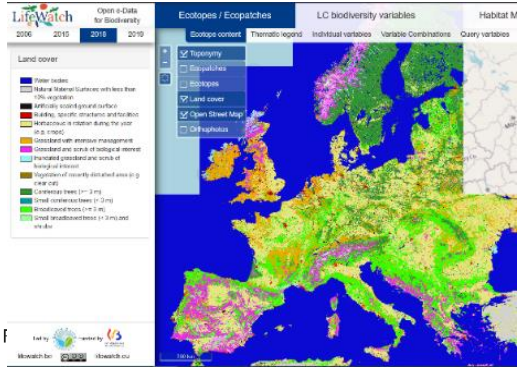




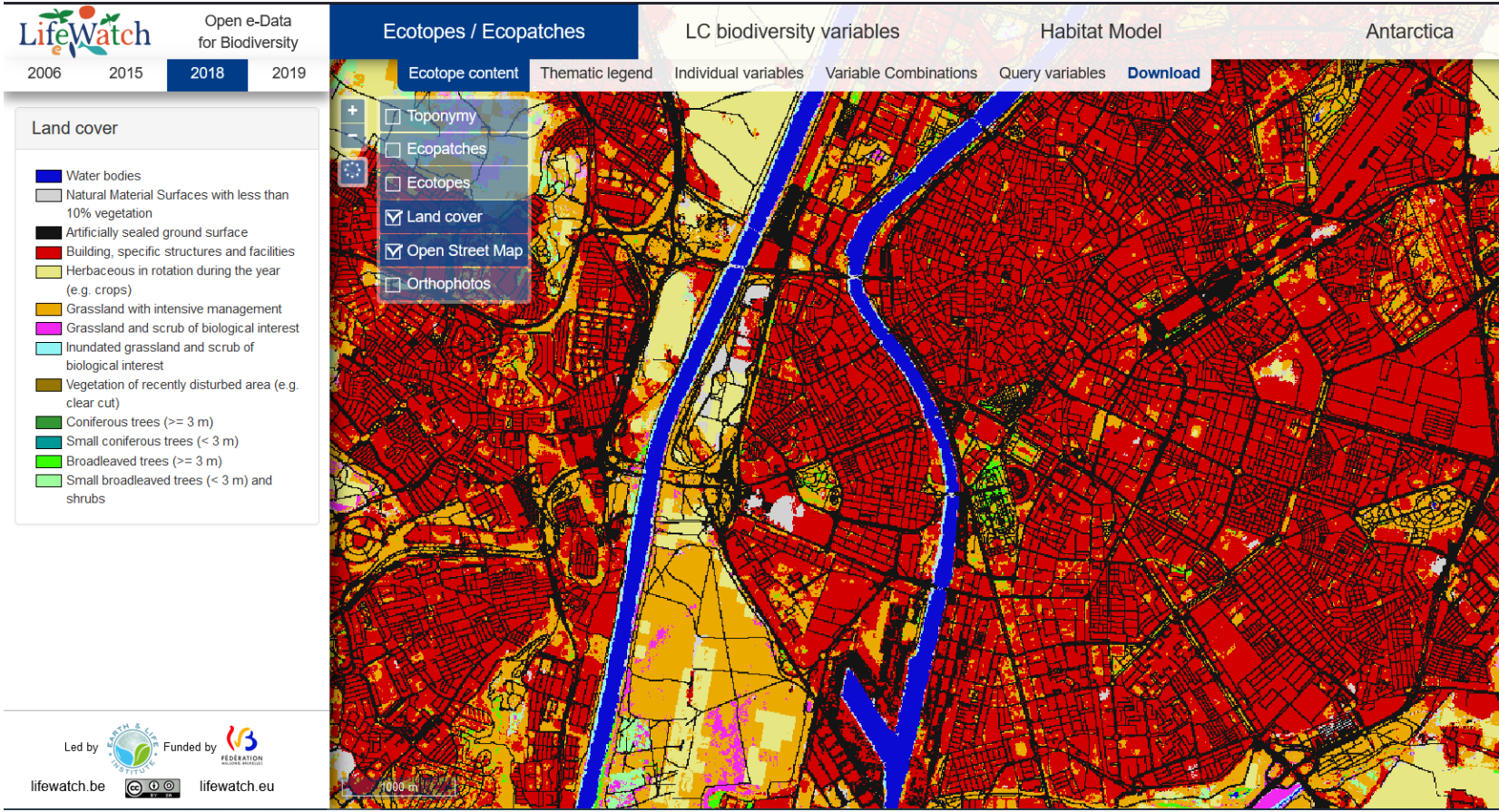
Dataprism version of Europe : the ecopatches

- Coarser spatial resolution than ecotopes, but still high resolution (10 m)
- Made using remote sensing data and the best available sources
- Could be further improved with contributions of Lifewatch nodes and VGI
- Thriving to achieve the best quality that an infrastructure can offer
  - Long term vision
  - Continuous upgrades
  - 12 million polygons

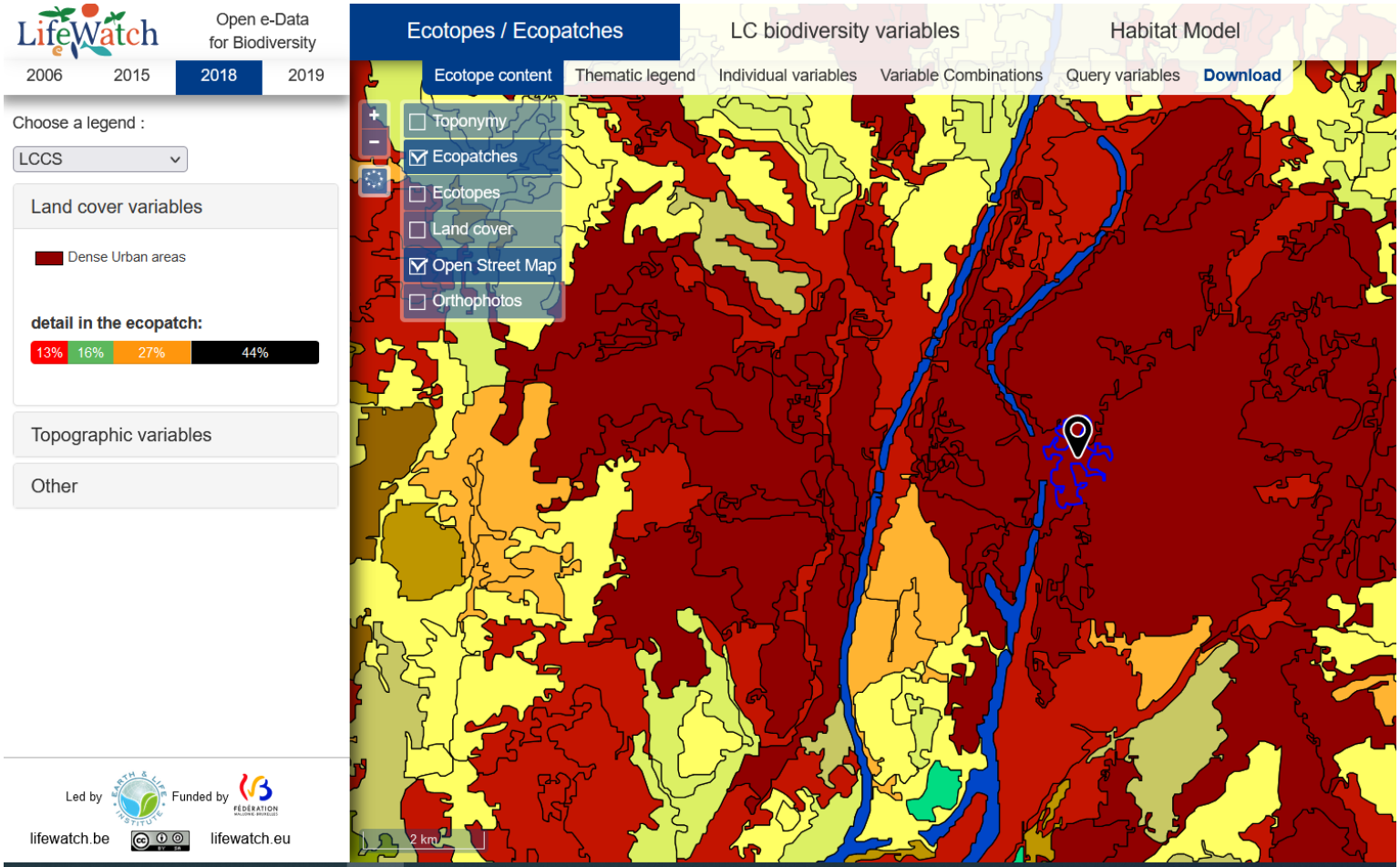




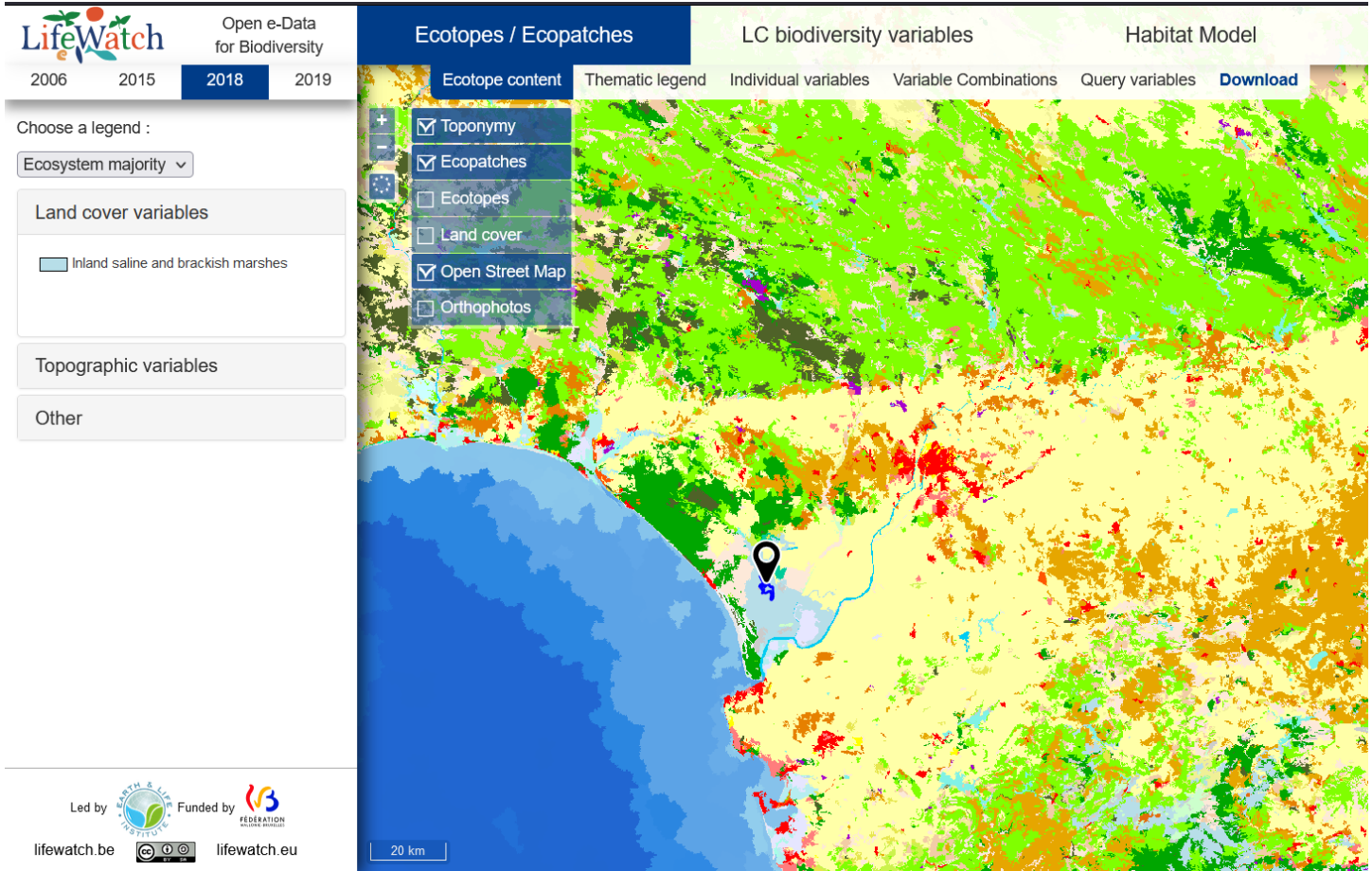
Land cover view



Dataprism view with LCCS land cover



Ecosystem view



Interested or just curious : uclouvain.be/lifewatch

(Ecopatches are still in beta version, official release end of June)

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