LifeWatch Belgium

Lennert Schepers
Coordinator LifeWatch Flanders

LifeWatch

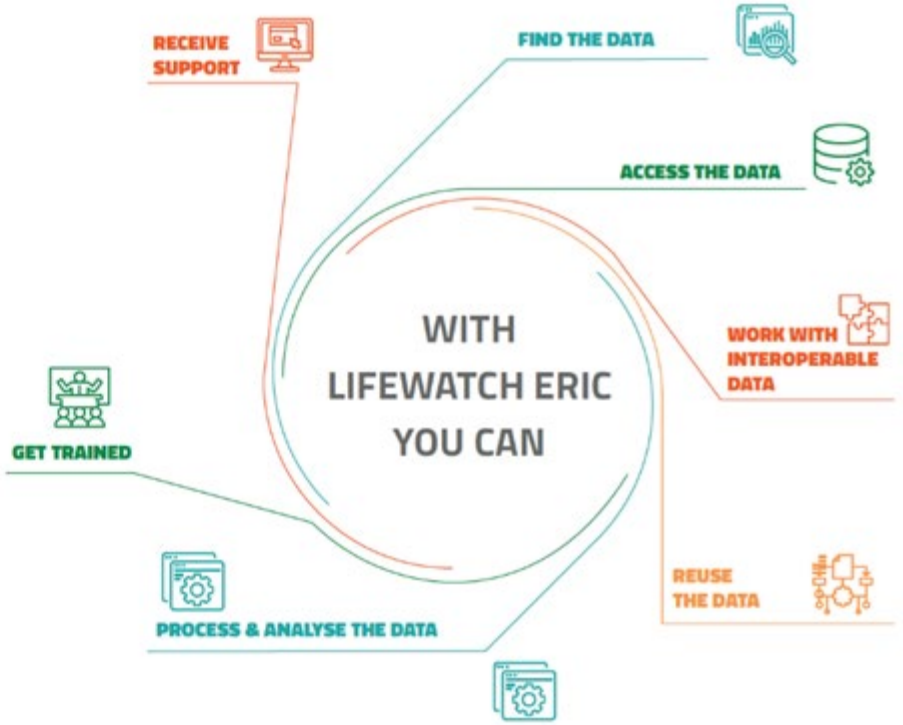
- Introduction LifeWatch
- LifeWatch Belgium
- Collaborations

Introduction LifeWatch

LifeWatch ERIC

e-Infrastructure for Biodiversity and Ecosystem Research

A distributed e-Infrastructure to support research and sustainability of biodiversity and ecosystems

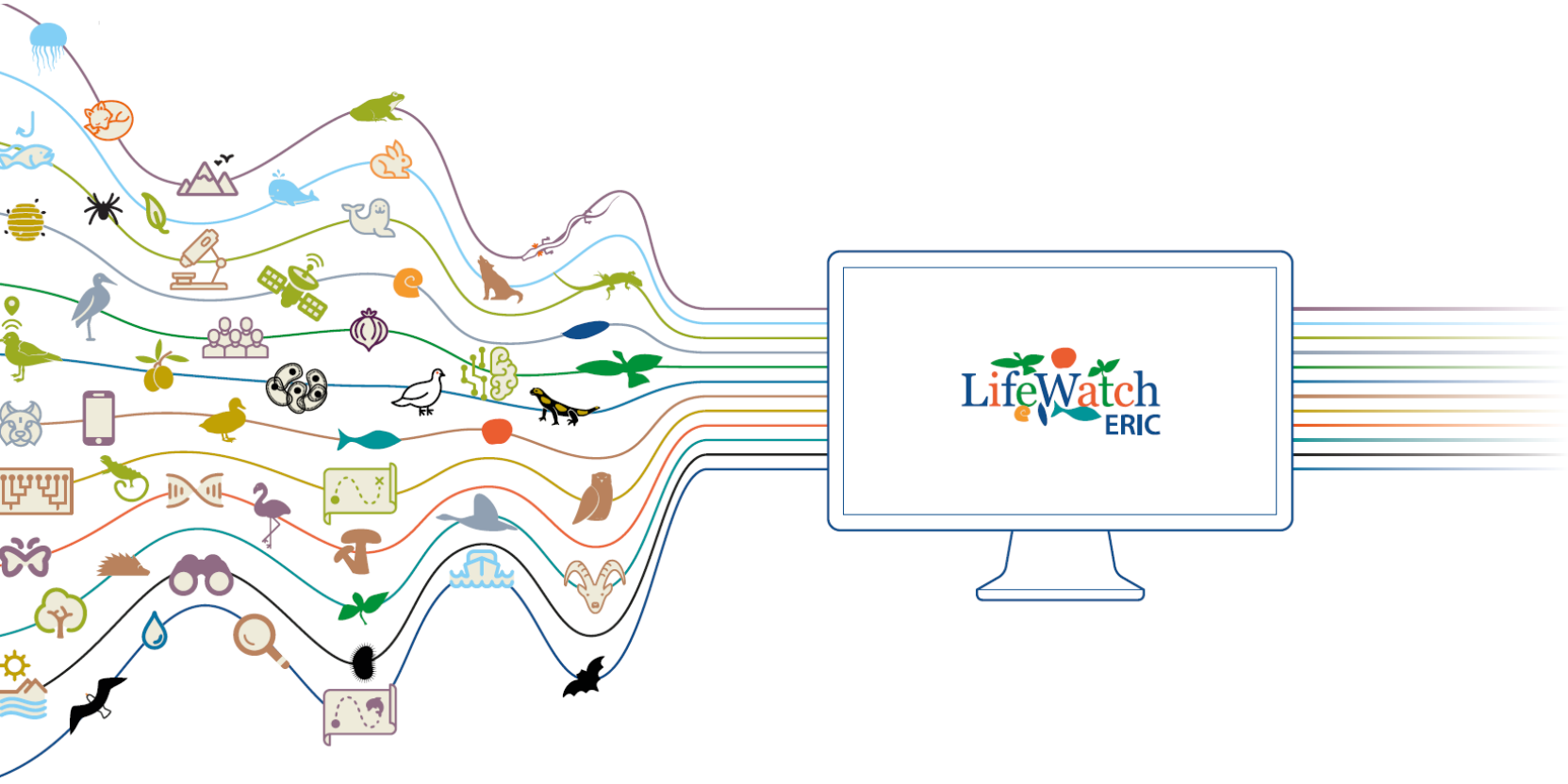


What is LifeWatch?

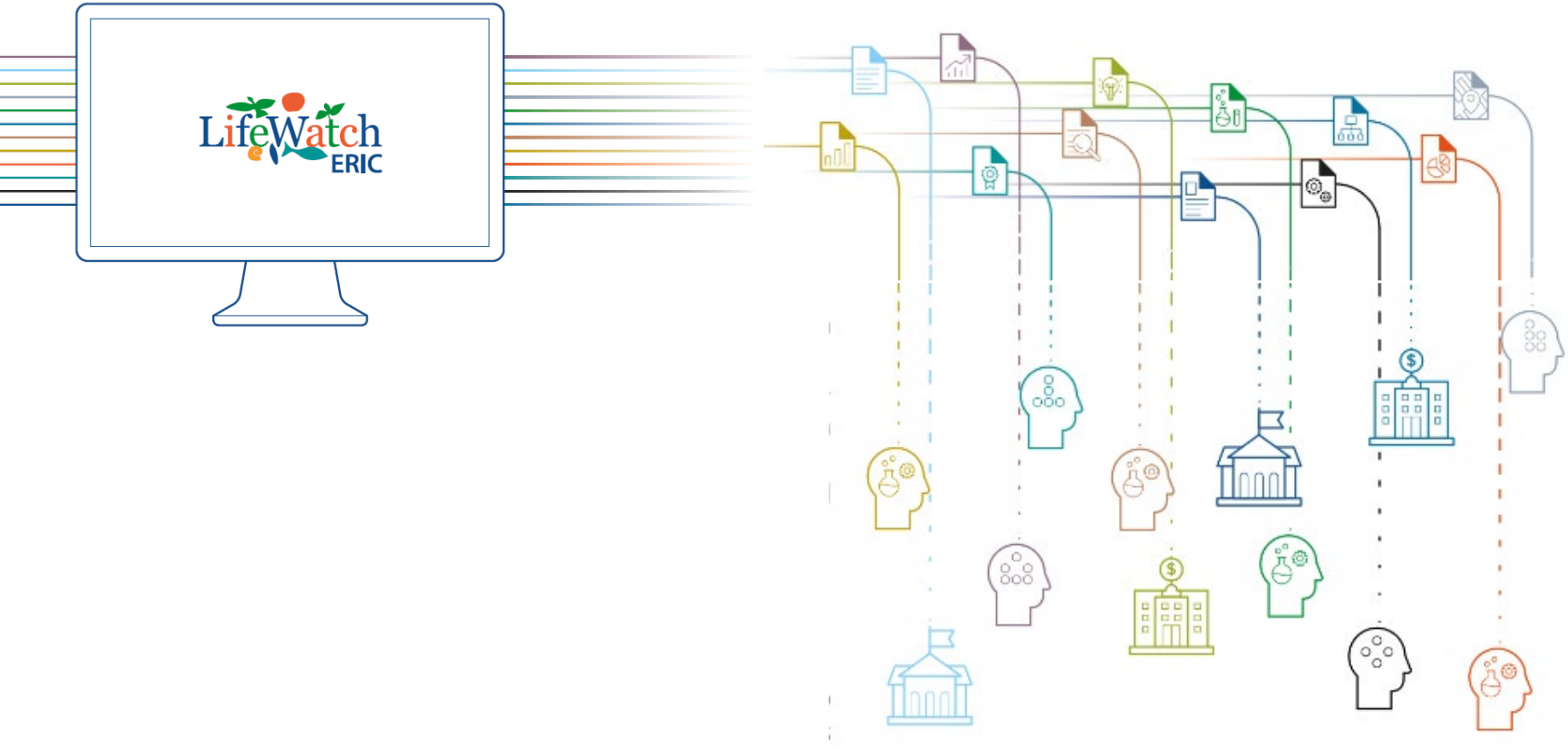
What is biodiversity?

LifeWatch BELGIUM

What is LifeWatch?



What is LifeWatch?



LifeWatch Belgium

What is LifeWatch Belgium?

Species Information Backbone

Central LifeWatch service that facilitates the standardisation and integration of species data and provides access

LifeWatch Flanders

VLIZ

Marine Freshwater Terrestrial Observatory

Integrated observation systems that generate long-term and openly accessible biodiversity data applying innova-

LifeWatch Flanders

RESEARCH INSTITUTE NATURE AND FOREST VLIZ

Thematic remote sensing

An interactive geoportal provides thematic pan-European remote sensing data. An object-based ecotope database

LifeWatch Wallonia-Brussels

UCLouvain

LIÈGE université Gembloux Agro-Bio Tech

Antarctic Biodiversity Portal

The Antarctic Biodiversity Portal (biodiversity.aq) works closely with the Scientific Committee on Antarctic Re-

LifeWatch Federal contribution

museum

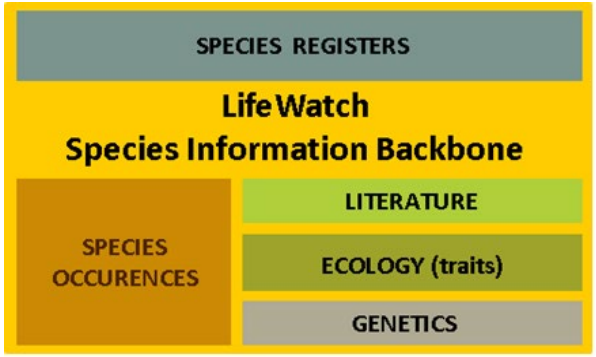
BopCo

The Barcoding Facility for Organisms and Tissues of Policy Concern (BopCo) provides, upon request, identifications of organisms or derived tissues and products of policy concern.

LifeWatch Federal contribution

AFRICA museum

LifeWatch Species Information Backbone



WoRMS World Register of Marine Species

Aphia

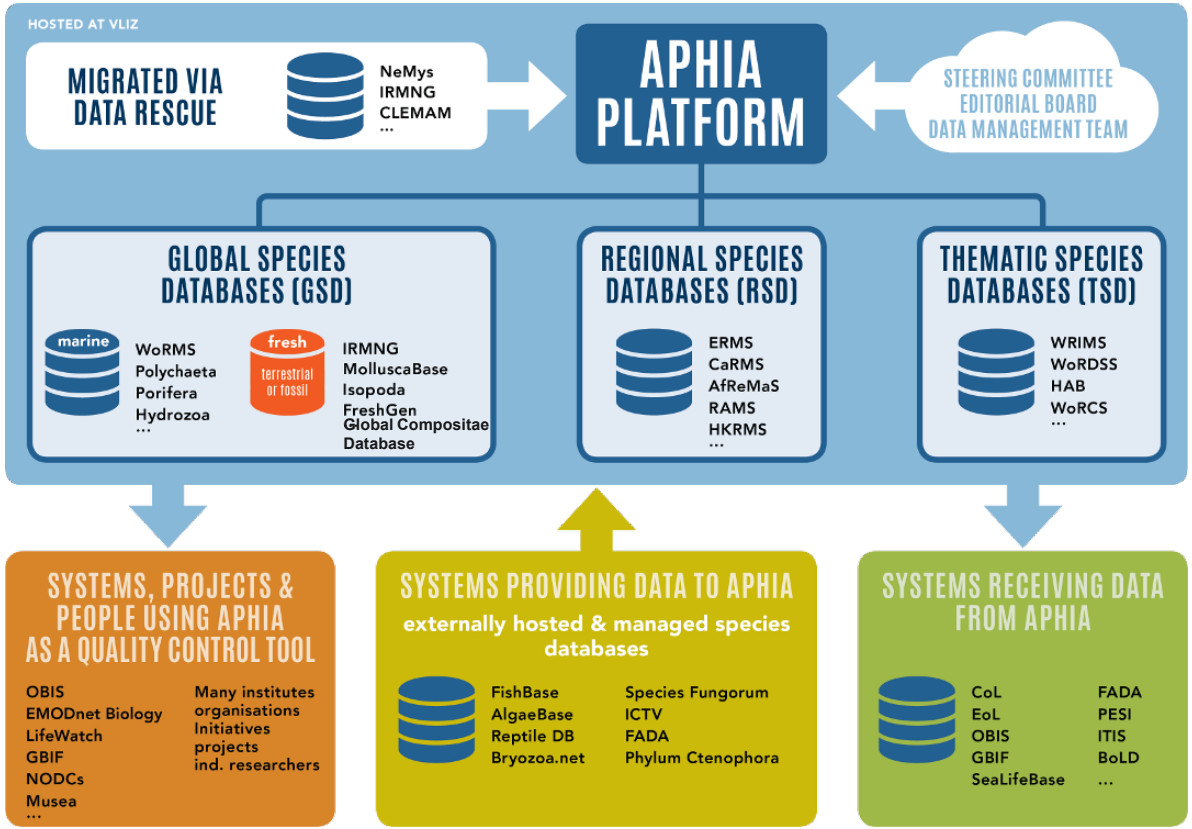
EurOBIS European Ocean Biodiversity Information System

Marineregions.org towards a standard for georeferenced marine names

Aphia

APHIA PLATFORM

- Taxonomy
- Distribution
- Attributes
- Specimen
- Vernacular names
- Identification keys
- Notes
- Links
- Images
- Internal database management

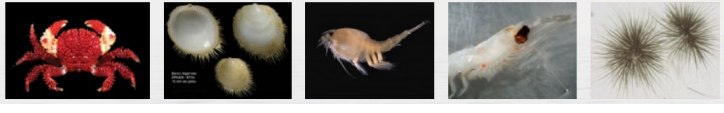


WoRMS

WoRMS
World Register of Marine Species

Taxonomic database that aims to provide an authoritative and comprehensive list of names of marine organisms

An authoritative classification and catalogue of marine names



Currently in WoRMS

Accepted marine species
242 133 (97% checked)

Marine species names, including synonyms
497 799

Species with image
41 588 (60% checked)

WoRMS editors
320

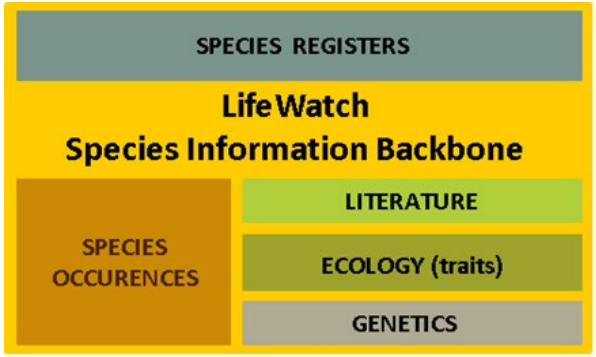
Registered institutional users
421

Webhits
94 636 312 (In 2022)

Citations
7124

WoRMS uses the **Aphia** system

LifeWatch Species Information Backbone



WoRMS World Register of Marine Species

Aphia

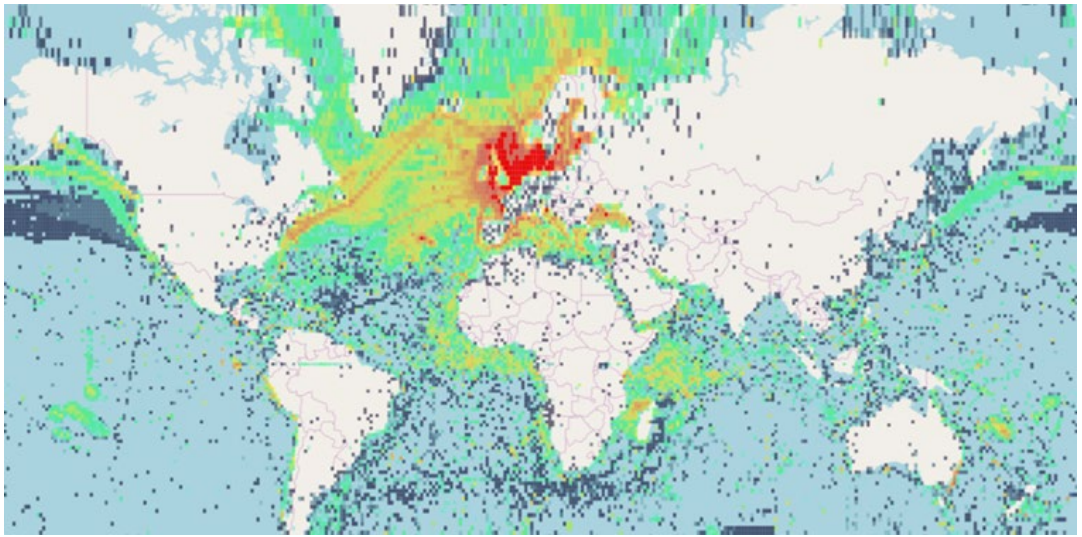
EurOBIS European Ocean Biodiversity Information System

Marineregions.org towards a standard for georeferenced marine names

EurOBIS – the European node of OBIS

EurOBIS
European Ocean Biodiversity Information System

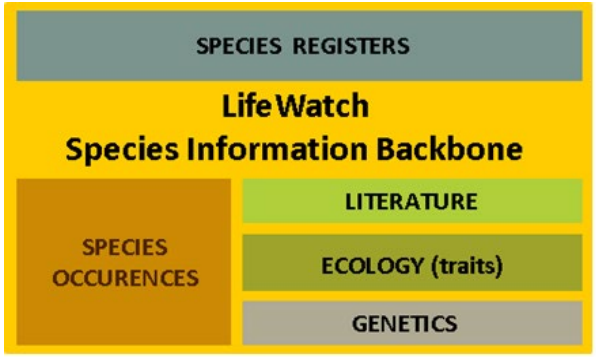
dataset on temporal and spatial distribution of **marine species** and **species traits** from all European regional seas



- 30 M species occurrence records
- 57 M measurements or facts
- 1251 datasets

EMODnet BIOLOGY
Dive into data on Europe's marine life

LifeWatch Species Information Backbone



WoRMS World Register of Marine Species

Aphia

EurOBIS European Ocean Biodiversity Information System

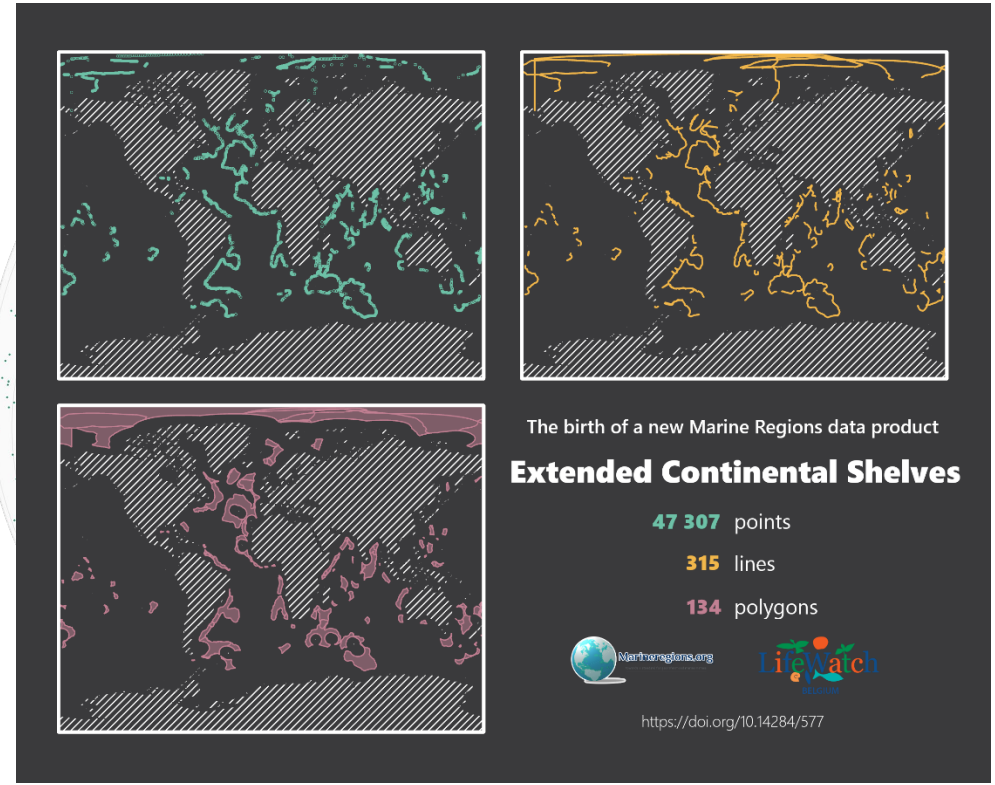
Marineregions.org towards a standard for georeferenced marine names

Geographic ‘glue’: Marine Regions

Marineregions.org

towards a standard for georeferenced marine names

- Standard list of marine georeferenced place names and areas.
- **62,976** marine georeferenced places
- Sources: authoritative gazetteers, ecological classifications,...



Marine freshwater terrestrial observatories

The observatory

RV Simon Stevin sampling campaigns

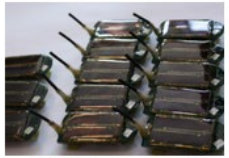
Broadband Acoustic Network

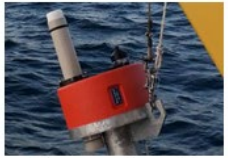
Fish acoustic receiver network

Video Plankton Recorder (VPR)

Zooplankton imaging sensor Zooscan

Marine genomic observations


GPS Bird tracking network


Cetacean passive acoustic network

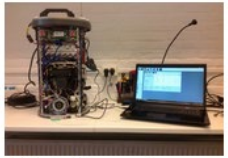
Sensor network for bat detection

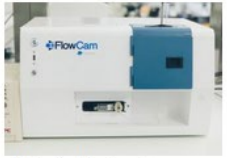
Birdcams

Remote groundwater monitoring

Climate monitoring research infrastructure (KLIVEG)

Motus wildlife tracking network


Phytoplankton scanning sensor Flow cytometer



Phytoplankton imaging sensor FlowCam

Camera trap research infrastructure (CATREIN)

Space remote sensing sensors

Aerial remote sensing sensor

Marine freshwater terrestrial observatories

The observatory – from sensor to virtual labs & data aggregators

- Acoustic network
- Bird tracking network
- Camera traps
- Fish telemetry network
- Marine biodiversity surveys & plankton imaging
- Marine genomics
- Soil moisture and groundwater

Camera traps & fish telemetry: development of international data platforms (Agouti & ETN)

LifeWatch BELGIUM

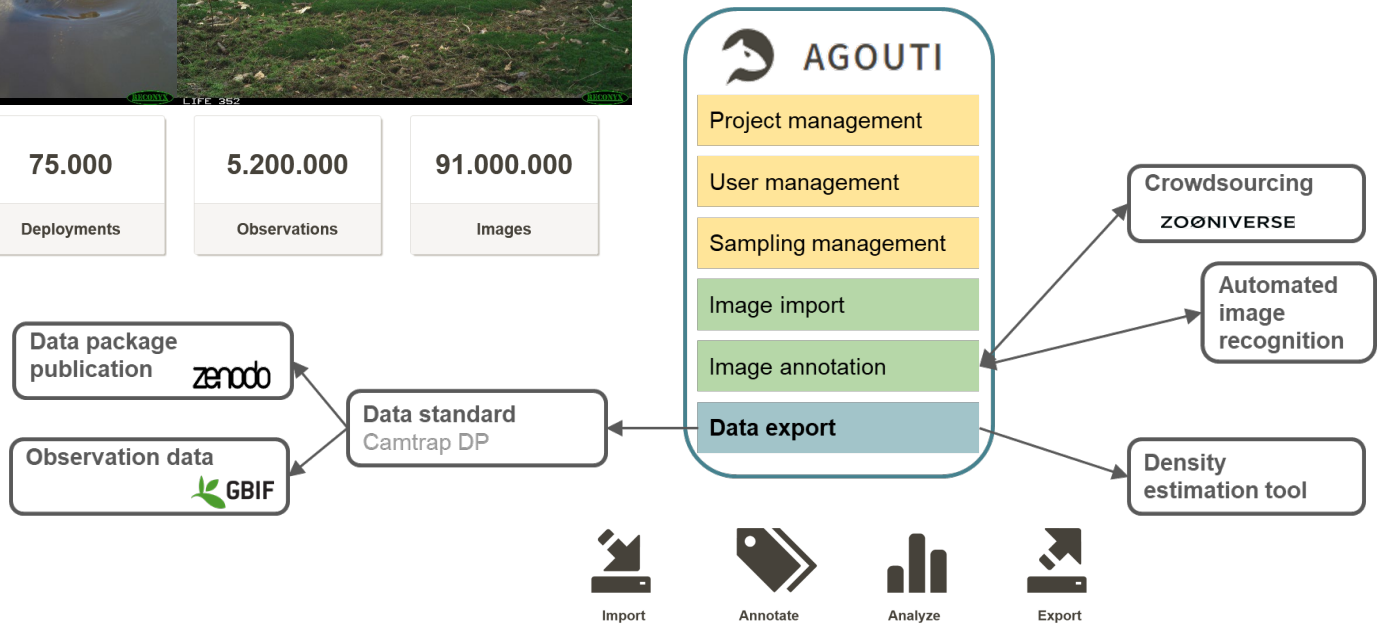
AGOUTI

WAGENINGEN UNIVERSITY & RESEARCH

RESEARCH INSTITUTE NATURE AND FOREST

Agouti

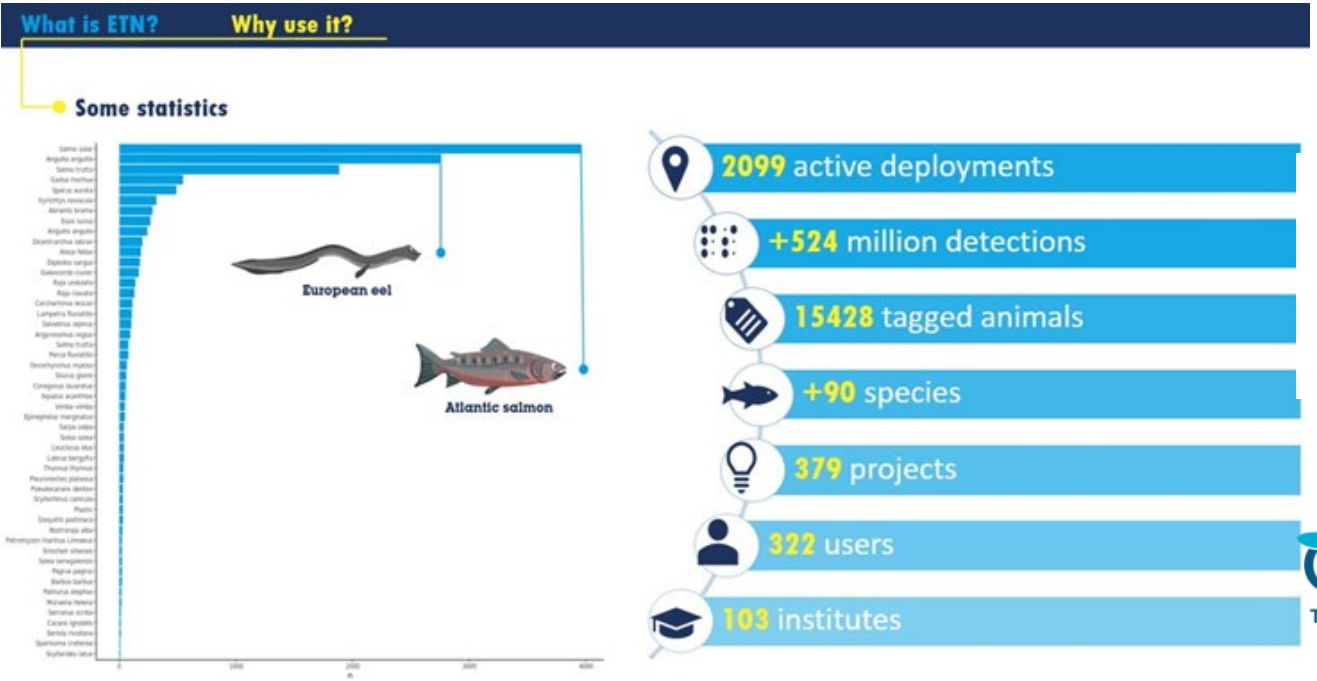
325	75.000	5.200.000	91.000.000
Projects	Deployments	Observations	Images



European Tracking Network (ETN)

https://europeantrackingnetwork.org/

European Tracking Network (ETN)

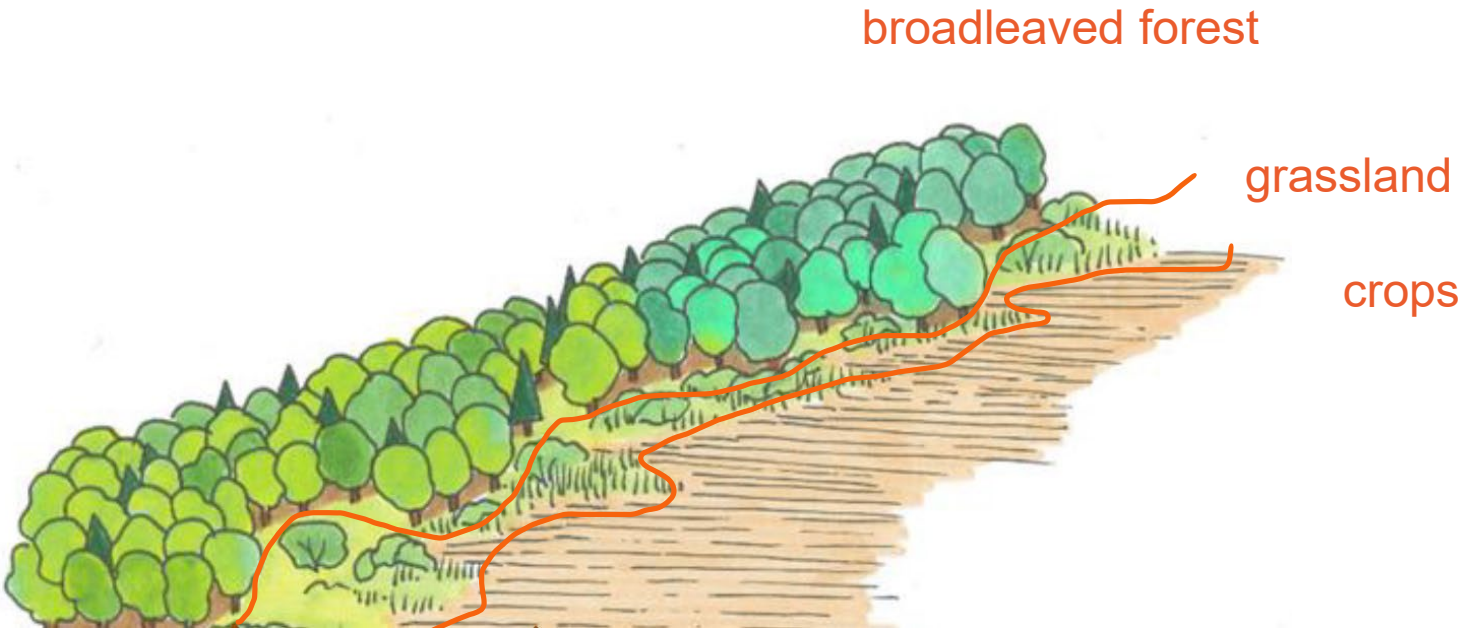


https://europeantrackingnetwork.org/

Thematic Remote Sensing

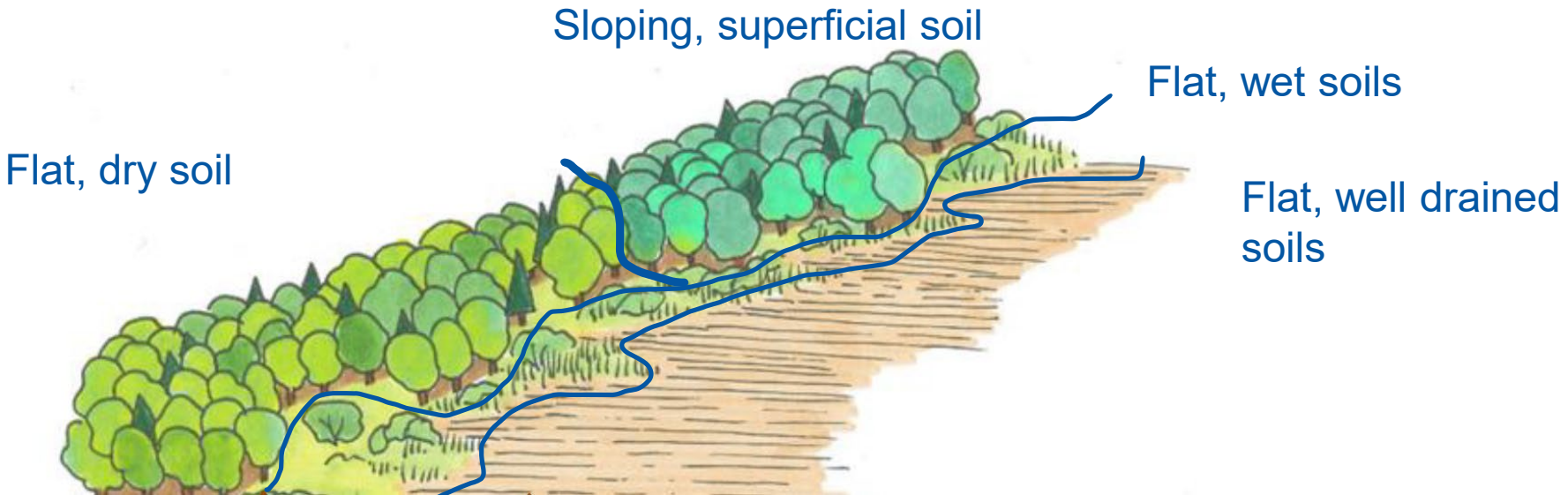
Thematic Remote Sensing

- **Land cover**



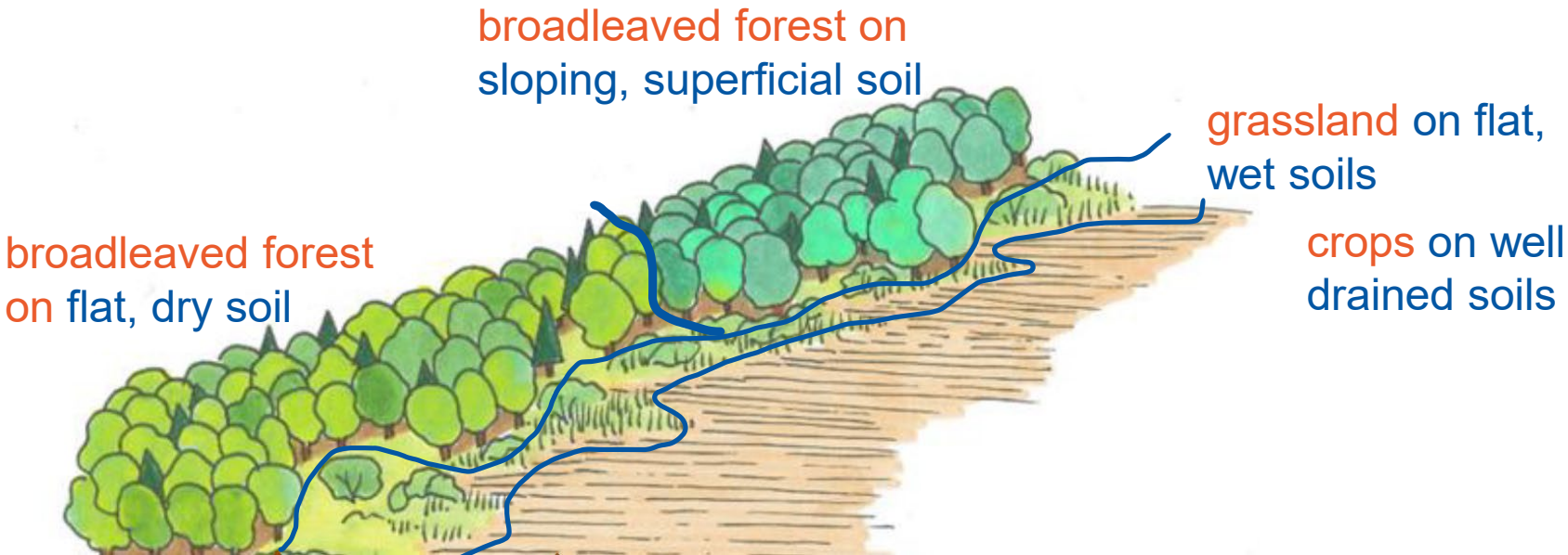
Thematic Remote Sensing

- **Biotope:** topography and slope



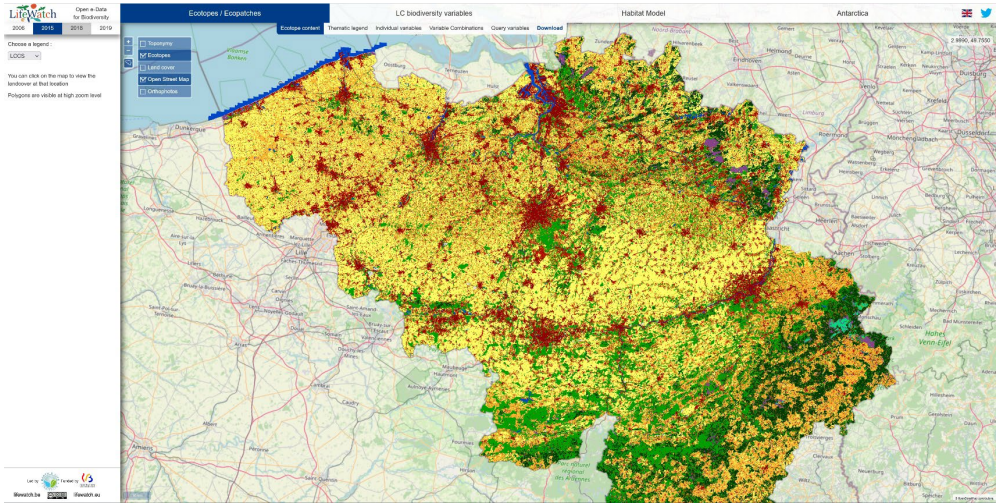
Thematic Remote Sensing

- **Ecotope**: smallest ecologically distinct spatial unit

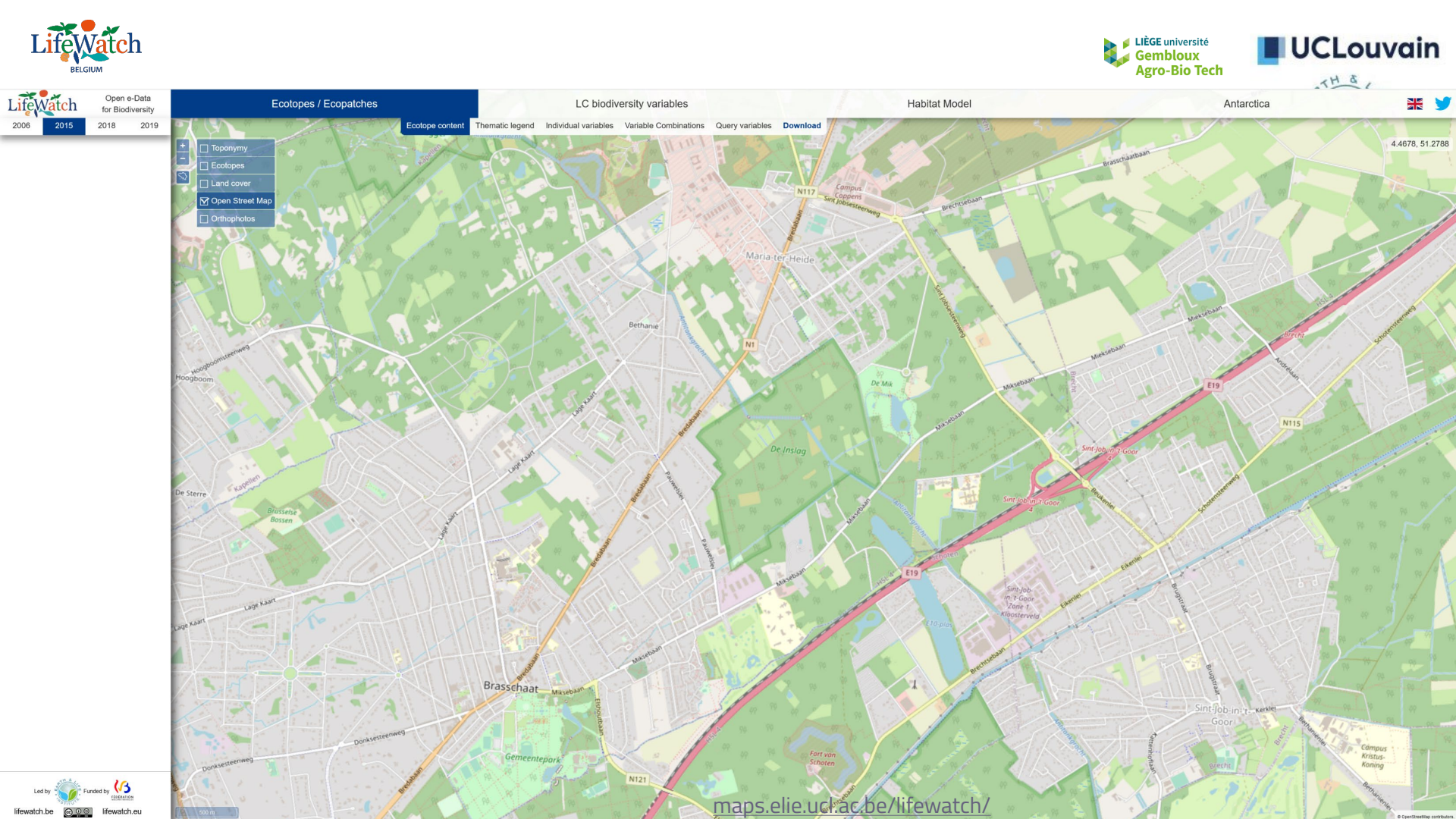


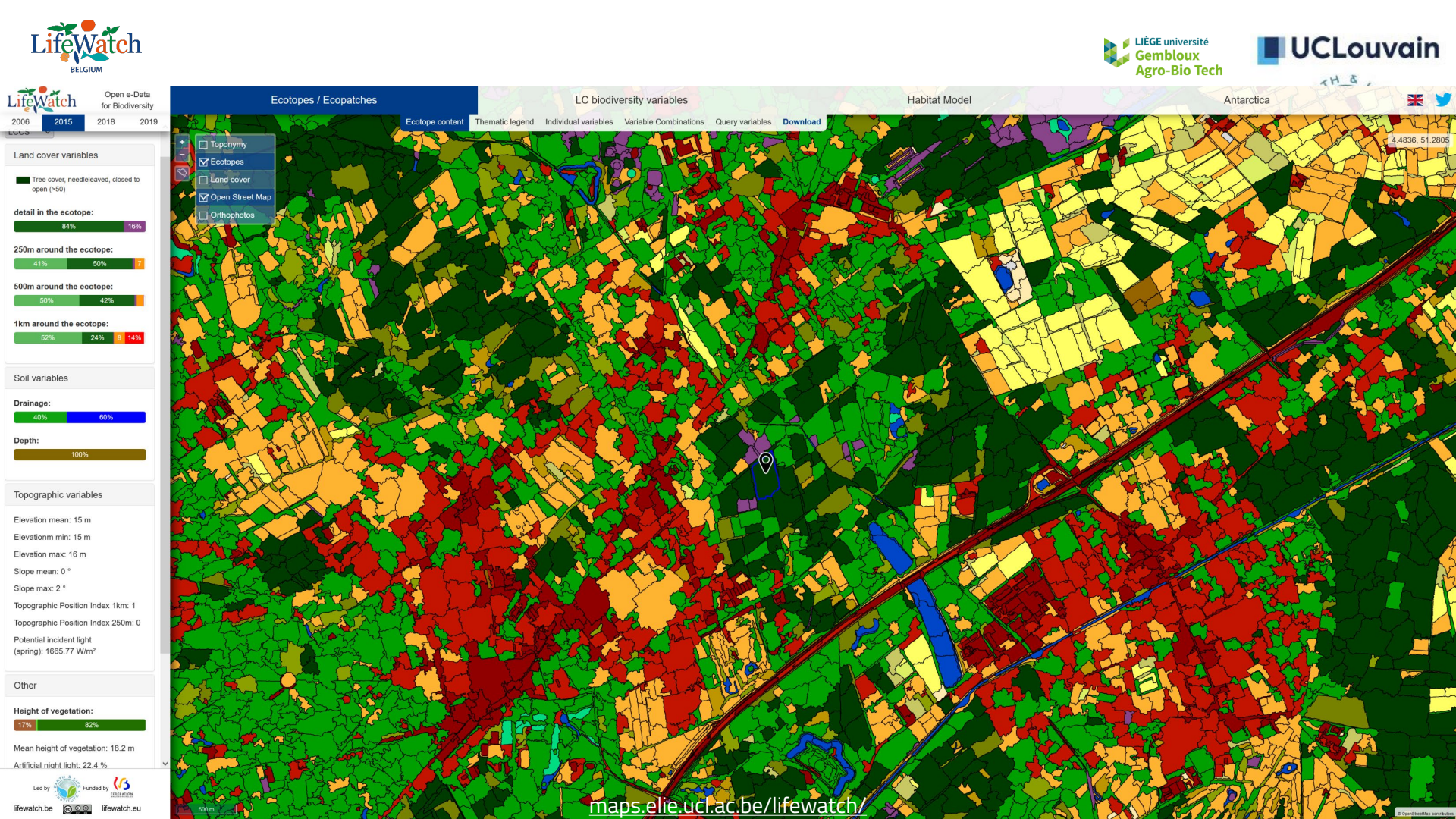
Thematic Remote Sensing

- **Ecotopes:**
  - Spatial regions/polygons at ecologically relevant scale
  - Each ecotope integrates 100+ variables
    - Topography
    - Context (proximity to roads etc.)
    - Land cover
    - Soils
    - Climate



maps.elie.ucl.ac.be/lifewatch/


LifeWatch
BELGIUM
LIÈGE université
Gembloux
Agro-Bio Tech
UCLouvain
LifeWatch
Open e-Data
for Biodiversity
2006
2015
2018
2019
Ecotopes / Ecopatches
LC biodiversity variables
Habitat Model
Antarctica
Ecotope content
Thematic legend
Individual variables
Variable Combinations
Query variables
Download
Toponymy
Ecotopes
Land cover
Open Street Map
Orthophotos
4.4678, 51.2788
Maria-ter-Heide
Campus Coppens
Brasschaat
Gemeentepark
Fort van Schoten
Sint-Job-in-'t-Goor
Campus Kristus-Koning
Brasselse Bossen
De Mik
De Inslag
Bethanie
Hoogboom
De Sterre
Lage Kaart
Bredabaan
Miksebaan
Brechtsebaan
Brasschaatbaan
Schotensteenweg
Eikenlei
Donksesteenweg
Sint-Job-in-'t-Goor Zone 1 Kloosterveld
E19
N1
N117
N115
N121
maps.elie.ucl.ac.be/lifewatch/
Led by
Funded by
lifewatch.be
lifewatch.eu


LifeWatch
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UCLouvain
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Open e-Data
for Biodiversity
2006
2015
2018
2019
Ecotopes / Ecopatches
LC biodiversity variables
Habitat Model
Antarctica
Ecotope content
Thematic legend
Individual variables
Variable Combinations
Query variables
Download
Toponymy
Ecotopes
Land cover
Open Street Map
Orthophotos
4.4836, 51.2805
Land cover variables
Tree cover, needleleaved, closed to open (>50)
detail in the ecotope:
84%
16%
250m around the ecotope:
41%
50%
7
500m around the ecotope:
50%
42%
1km around the ecotope:
52%
24%
8
14%
Soil variables
Drainage:
40%
60%
Depth:
100%
Topographic variables
Elevation mean: 15 m
Elevationm min: 15 m
Elevation max: 16 m
Slope mean: 0 °
Slope max: 2 °
Topographic Position Index 1km: 1
Topographic Position Index 250m: 0
Potential incident light (spring): 1665.77 W/m²
Other
Height of vegetation:
17%
82%
Mean height of vegetation: 18.2 m
Artificial night light: 22.4 %
Led by
Funded by
lifewatch.be
lifewatch.eu
500 m
maps.elie.ucl.ac.be/lifewatch/

Choose a legend :

LCCS

Land cover variables

Tree cover, mixed leaf type (broadleaved and needleleaved)

detail in the ecopatch:

54% 39%

Topographic variables

Elevation: 22.21 m

Slope: 0 °

Topographic Position Index 1km: 1.5241

Potential incident light (spring): 2233.59 W/m²

Other

Artificial night light: 1.5 %

Distance to settlements: 9.62547 m

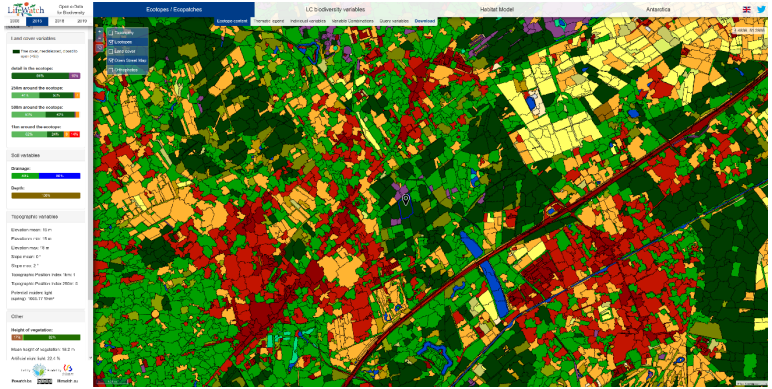
Distance to roads: 4.86139 m

Toponymy
Ecopatches
Ecotopes
Land cover
Open Street Map
Orthophotos

-8.5242, 44.6197

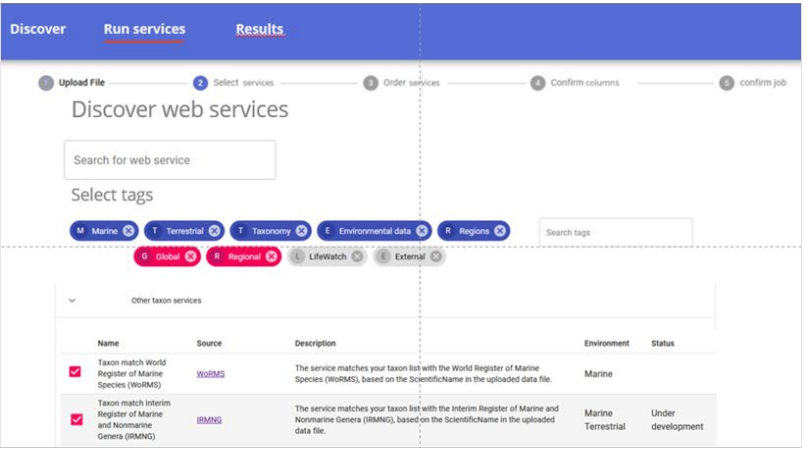
Collaborations

Solving climate change questions by combing data

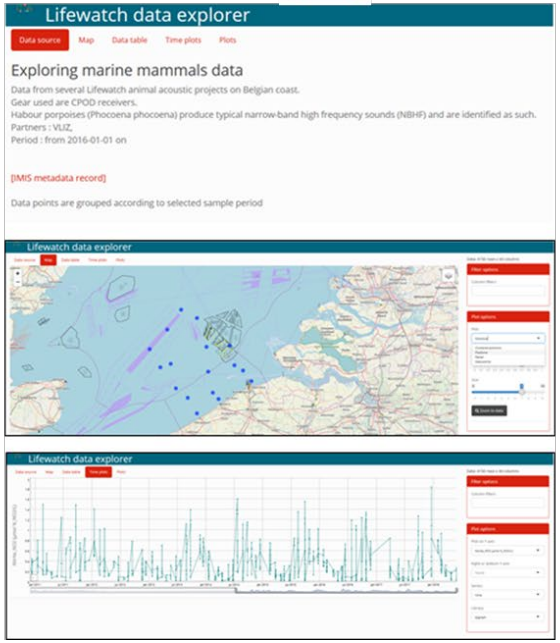


Virtual labs & open science

lifewatch.be/e-lab (dev)

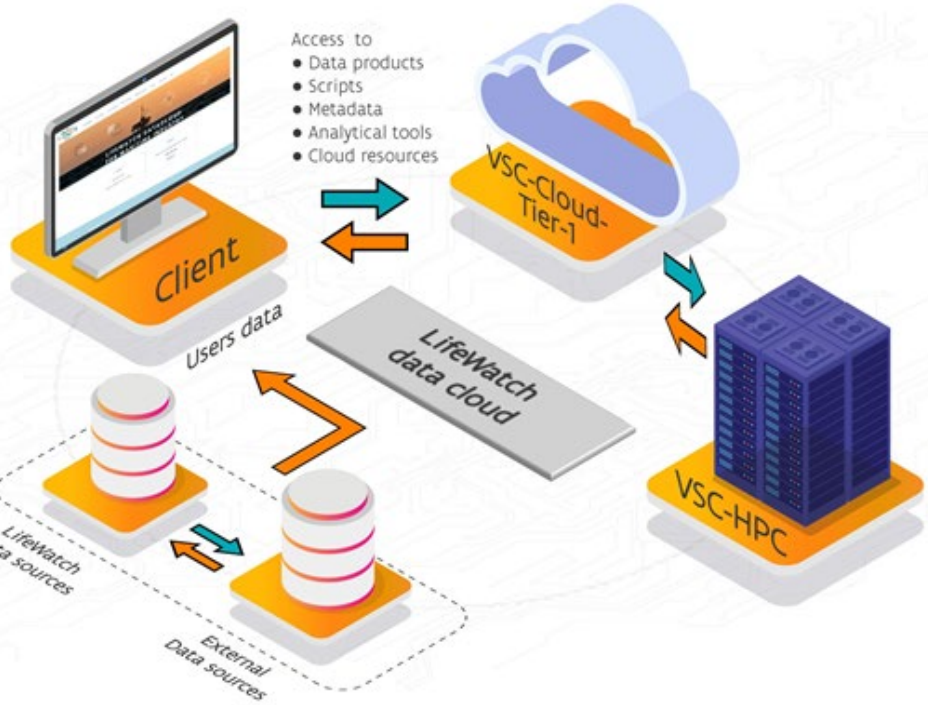


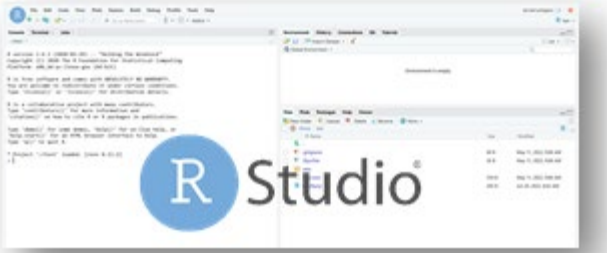
data explorer



software packages

Virtual labs & open science



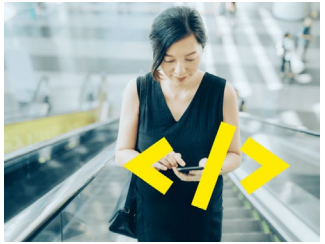


Virtual labs & open science

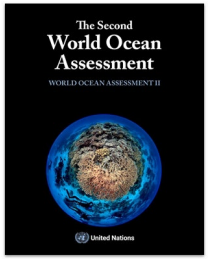
- Data sharing
- Data standards, best practices, guidelines
- Interoperability (EOSC, VSDS)
- Digital Twins

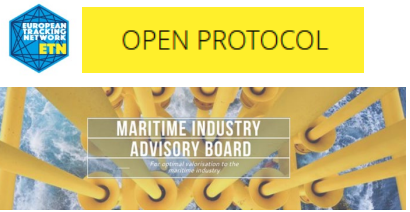
EDITO
European Digital Twin Ocean

Vlaamse Smart Data Space



Outreach, valorisation, citizen science





OPEN PROTOCOL

biodiversa+
European Biodiversity Partnership

Use of biodiversity monitoring data in private decision making

Thank you

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info@lifewatch.be

LifeWatch BELGIUM

fwo