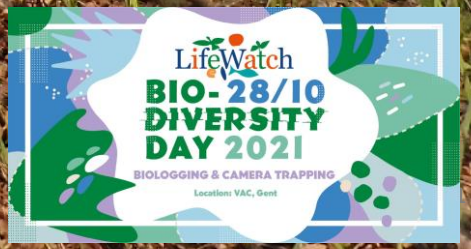
The camera trap snowball effect

Jim Casaer



Lifewatch – Catrein

- Start in 2016
  - Hardware (reliable, high performance) camera traps

    - High trigger speed (photo bursts)
    - No delay between triggers
    - Waterproof
  - Software
    - Managing camera trap projects, users, roles
    - Annotation, storing, archiving images

      => Agouti - WUR

AGOUTI

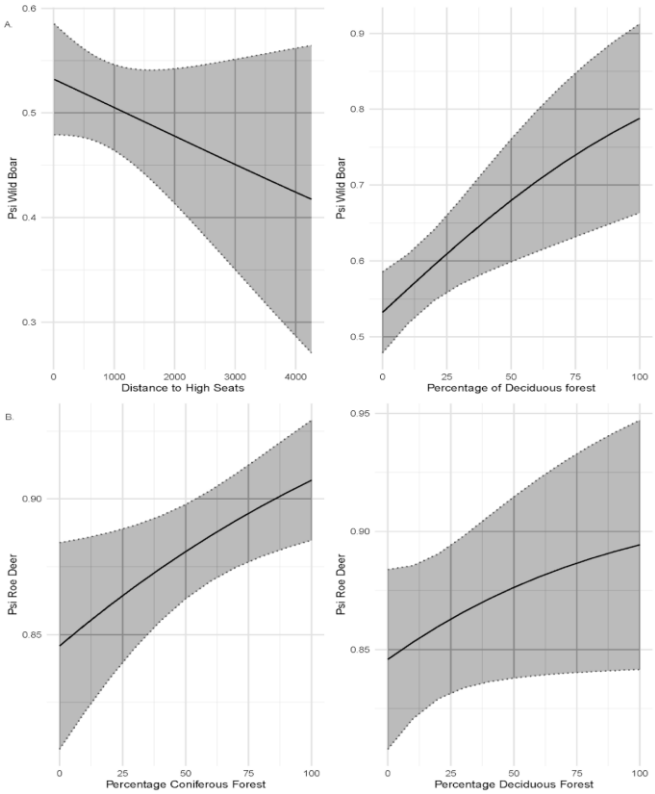
LifeWatch BELGIUM

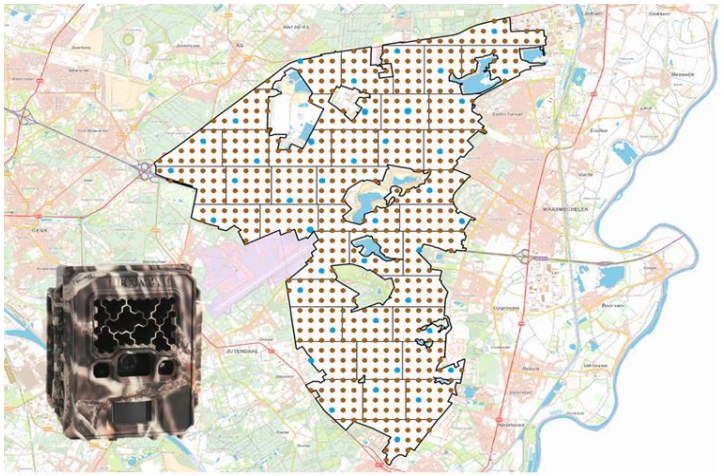
WAGENINGEN UNIVERSITY & RESEARCH

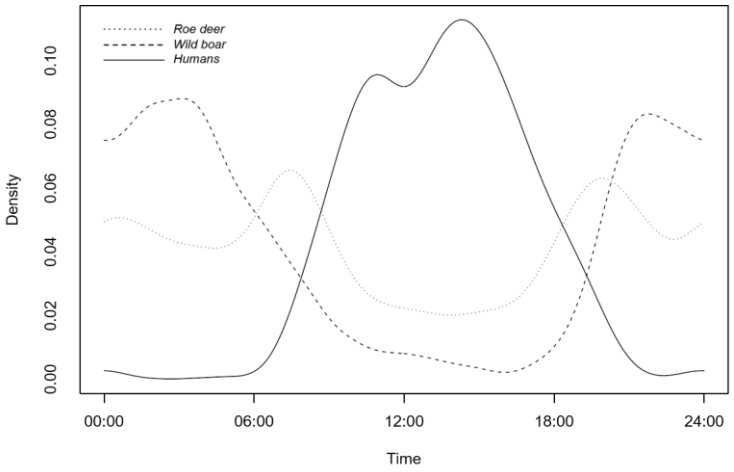
Vlaanderen is wetenschap

AGOUTI

- PhD in collaboration UHasselt – Jolien Wevers (2017 – 2021)
  - Living in the Anthropocene: wild boar and roe deer ecology in a human-dominated landscape







LifeWatch BELGIUM

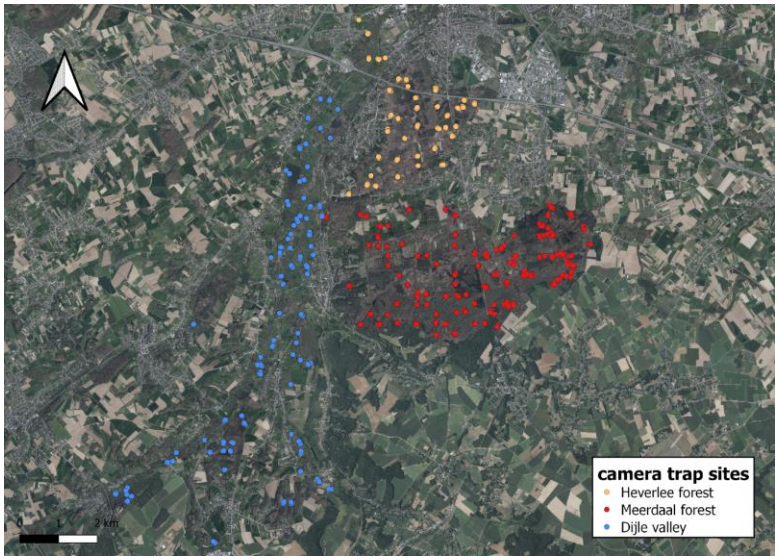
Vlaanderen is wetenschap

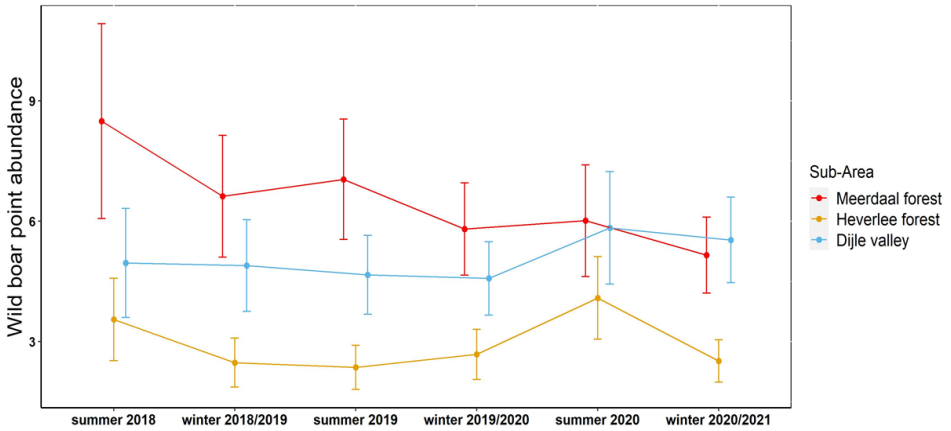
www.inbo.be

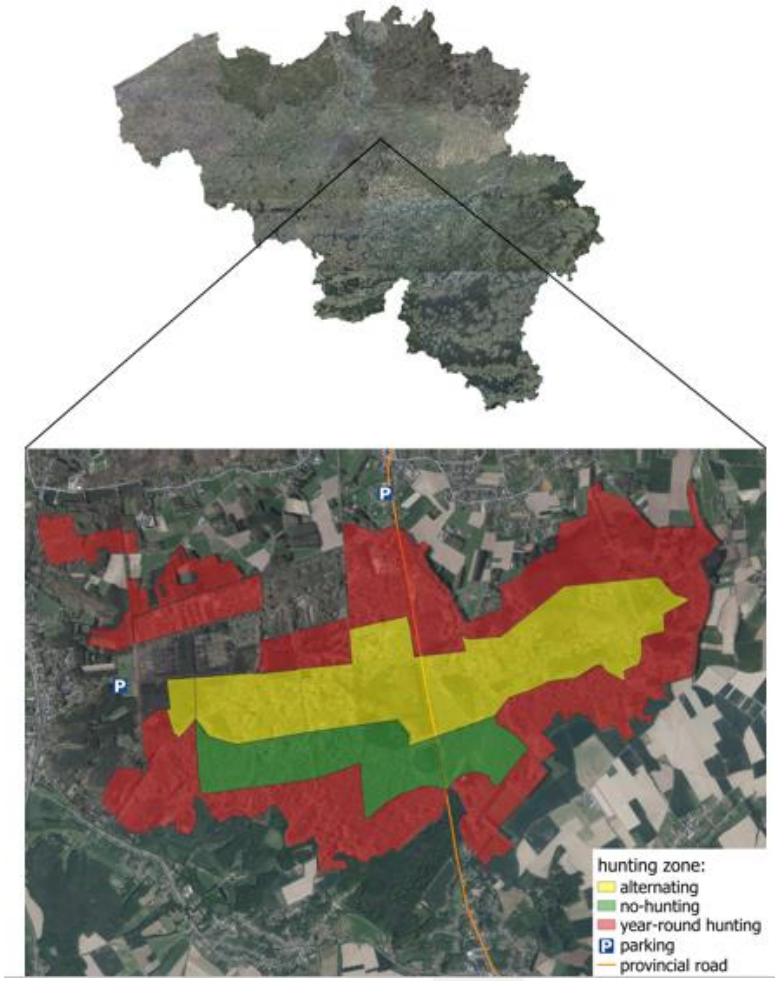
Miel Cnuts – Msc

- Use of CT to study effect <u>wild boar - management</u>

AGOUTI





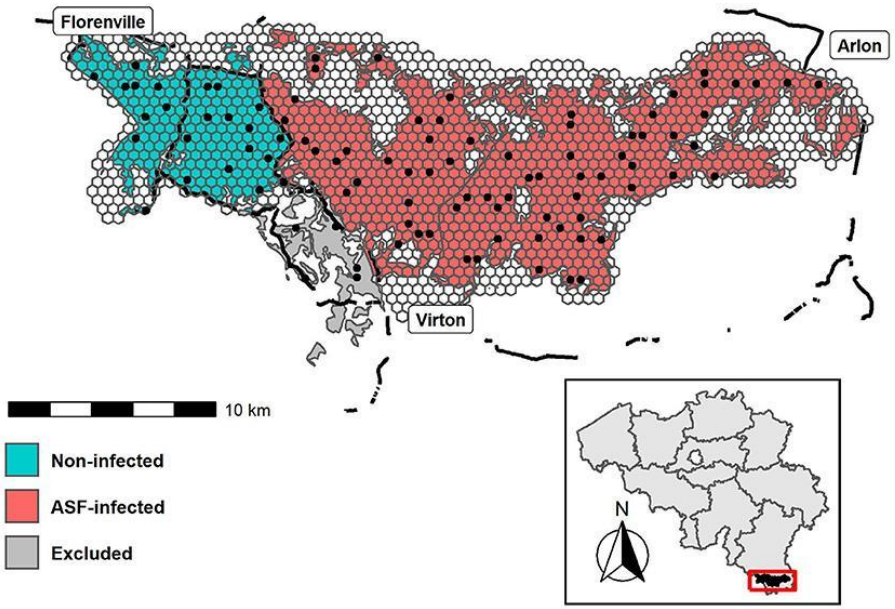


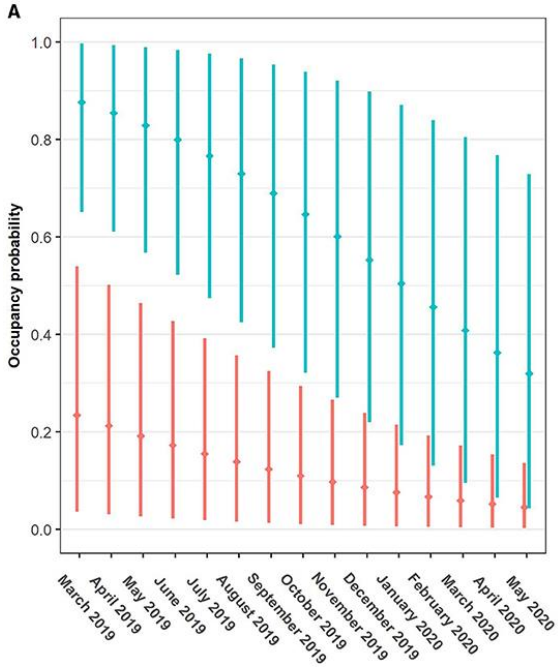
LifeWatch BELGIUM

Vlaanderen is wetenschap

www.inbo.be

- PhD in collaboration UHasselt/KUL – Martijn Bollen
  - A Statistical Framework for Camera Trap Data Analysis in Ecological Research





Managing African Swine Fever: Assessing the Potential of Camera Traps in Monitoring Wild Boar Occupancy Trends in Infected and Non-infected Zones, Using Spatio-Temporal Statistical Models

Martijn Bollen[1,2,3*], Thomas Neyens[2], Maxime Fajgenblat[2,4], Valérie De Waele[5], Alain Licoppe[5], Benoît Manet[5], Jim Casaer[3] and Natalie Beenaerts[1]

[1]Centre for Environmental Sciences, UHasselt – Hasselt University, Hasselt, Belgium
[2]Data Science Institute, UHasselt – Hasselt University, Hasselt, Belgium
[3]Research Institute Nature and Forest, Brussels, Belgium
[4]Laboratory of Aquatic Ecology, Evolution and Conservation, KU Leuven – Leuven University, Leuven, Belgium
[5]Department of Natural and Agricultural Environment Studies, Public Service of Wallonia, Gembloux, Belgium

AGOUTI

Wallonie service public SPW

Vlaanderen is wetenschap

AGOUTI

Wallonie service public SPW

Vlaanderen is wetenschap

LifeWatch BELGIUM

www.inbo.be

IAS – management

Coypu

Muntjac

Muskrat

MICA
Management of Invasive Coypu and muskrAt in Europe

AGOUTI

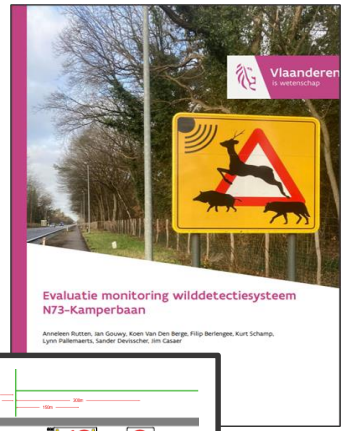
LifeWatch BELGIUM

Vlaanderen is wetenschap

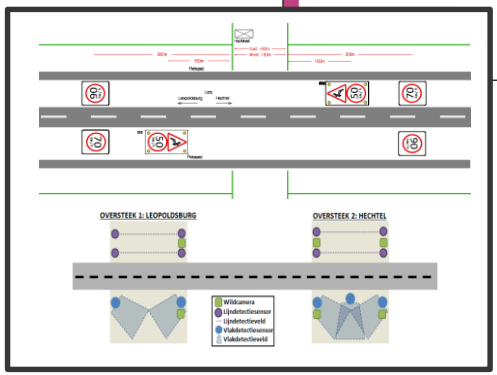
www.inbo.be

Other management monitoring

AGOUTI



PARTRIDGE
Protecting the Area's Resources Through Researched and Innovative Demonstration of Good Examples



LifeWatch
BELGIUM

Vlaanderen
is wetenschap

AGOUTI

Broadening the scope both topics and species

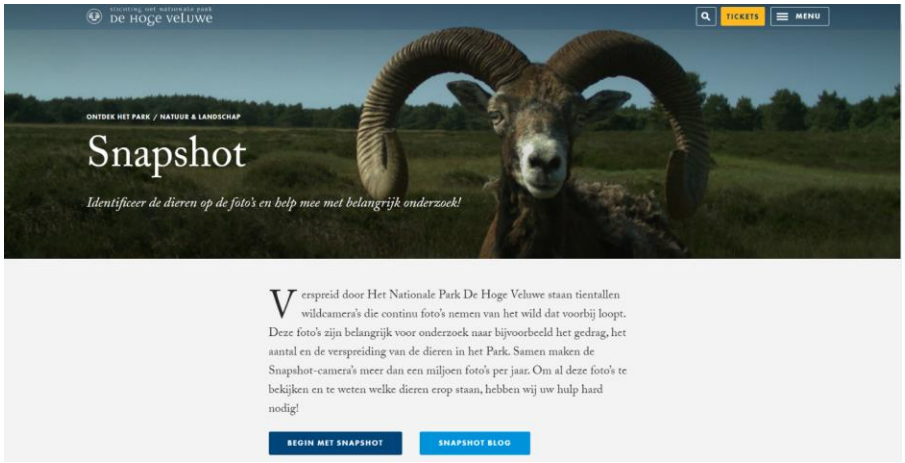
- Ecology of native species
  - Presence
  - Distribution
  - Habitat use
- Management of native species
  - Trends <- numbers, population growth, disease management
  - Distribution <- landscape of fear, human – wildlife interactions
- Management of IAS
  - Presence
  - Control

LifeWatch BELGIUM

Vlaanderen is wetenschap

Software development

- Goals
  - Tools for calculating densities
  - Artificial intelligence
    - Species recognition
  - Citizen Science
    - Snapshot
  - Standardized export
    - Standard
    - Export of
      - Data
      - Images



Export

Camera Trap Data Package (or **Camtrap DP** for short) is a community developed data exchange format for camera trap data.

Usage

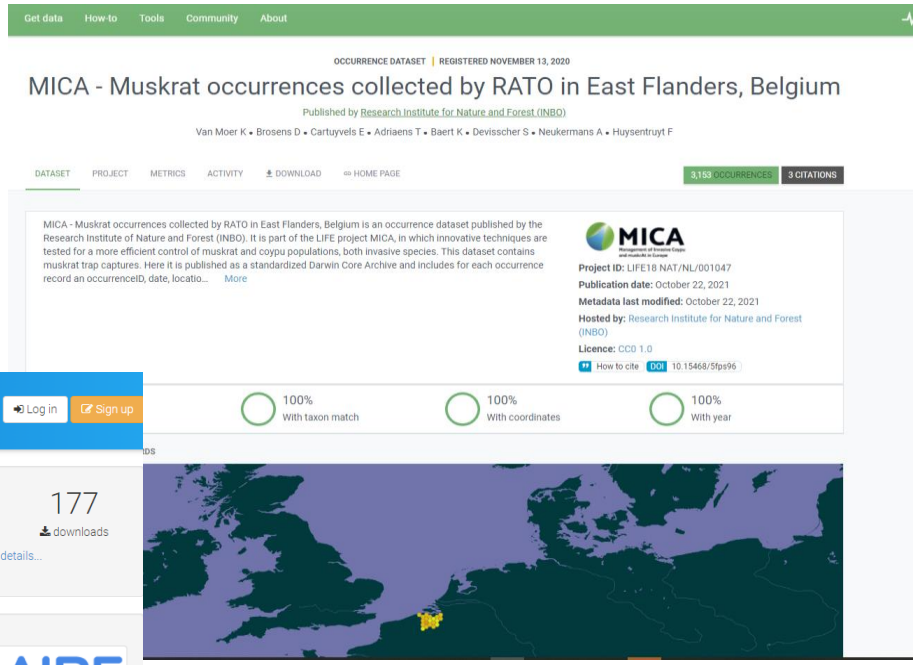
A Camtrap DP is a Frictionless Data Package that consists of:

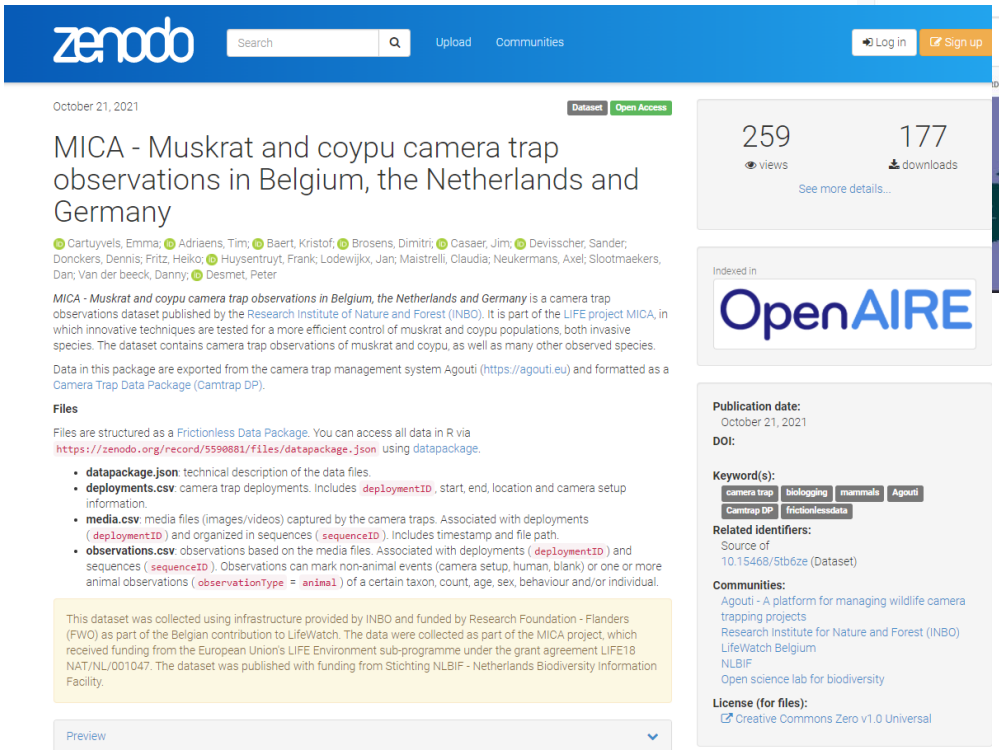
File	Description
datapackage.json	Metadata regarding the data package and camera trap project.
deployments.csv	Table with camera trap deployments.
media.csv	Table with media files captured by the camera traps.
observations.csv	Table with observations based on the media files.

- Standardization
  - Agouti
  - Trapper
  - eMammal
  - Wildlife Insights
- Hosted
  - Biodiversity Information Standards (TDWG)

Export

AGOUTI





LifeWatch BELGIUM

Vlaanderen is wetenschap

www.inbo.be

Artificial Intelligence

AGOUTI

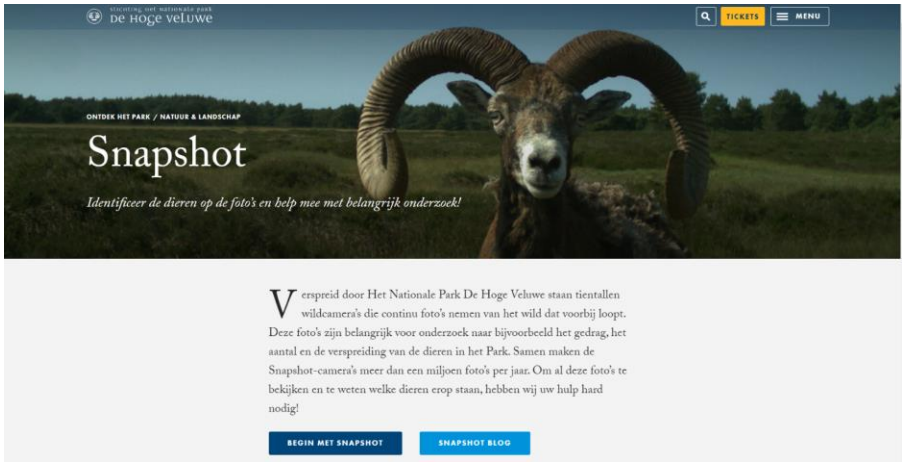
Onafgeronde Fotoseries

Total results: 225

Meetpunt	Begin	Einde	Fotoreeksen	Voortgang	
B_HS_val 3_meander ANB	02/10/2020 00:08	02/11/2020 07:21	108	56% 33%	Annoteren AI is klaar ..
B_ML_val 01_vrouwkeshoek	04/03/2021 01:45	01/04/2021 07:47	248	30% 45%	Annoteren AI is klaar ..
B_ML_val 04_Roeselaerekreek	10/11/2020 19:34	08/12/2020 09:12	280	39 43%	Annoteren AI is klaar ..
B_ML_val 03_De Val	03/03/2021 23:32	01/04/2021 08:10	227	40%	Annoteren AI is klaar ..

Software development

- Goals
  - Citizen Science
    - Snapshot
    - => on hold
      - AI
      - No budget
  - Tools for calculating densities



ENETWILD

efsa
European Food Safety Authority

MAMMALNET
WATCH WILDLIFE FOR SCIENCE

LifeWatch
BELGIUM

Vlaanderen
is wetenschap

RESEARCH INSTITUTE
NATURE AND FOREST

Contact : jim.casaer@inbo.be