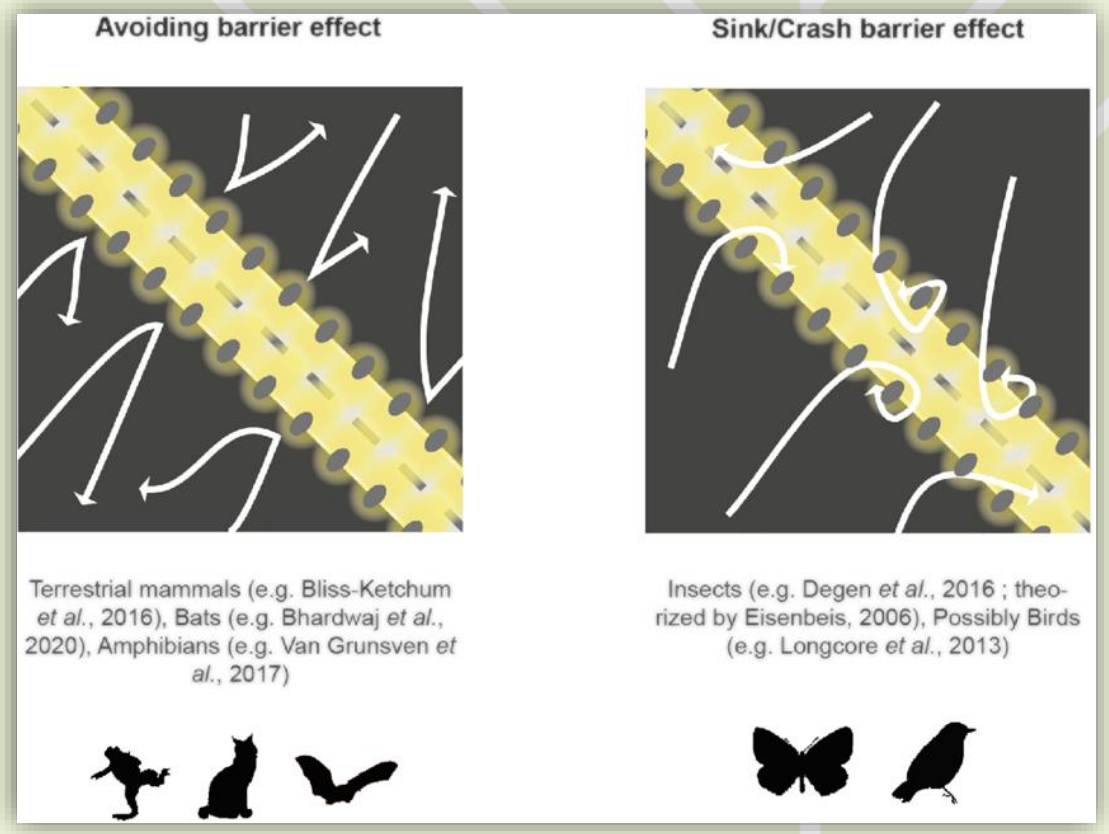
From “Batlight District Jette” to “LIFE B4B”

Lessons learned and way forward

Darkness as an equally important aspect of ecological connectivity

- Light pollution creates defragmentation through **barrier/attraction effect**, **disorientation**...
- … In addition to numerous other impacts, contributing to biodiversity loss: **collision, increased predation, disruption of circadian rhythm, disruption of reproduction**, etc.



Source : R. Sordello et al., 2022

01

Batlight Jette, a multi-stakeholder pilot project

Birth of the project

- Result of the **collaboration between 5 public and private actors**, starting in 2020. At the time, it was decided to revise the lighting masterplan of Jette, and a reflexion was carried out to put in place new lighting solutions in areas suspected by biodiversity experts to be ecological corridors.
- The replacement or modification of light points have been staggered over the **three years** of the project, and a monitoring system has been set up (both for light & bats)
- Project perimeter: neighborhood with biodiversity-rich green spaces enclosed within urban network

plecotus natagora

ENGIE Laborelec

1090 Jette

Sibelga

RADIANCE 35

Objectives

1. To assess the impact of light pollution on bat populations, and the environmental benefits of installing more biodiversity-friendly lighting

2. To strenghten the collaboration between stakeholders and to set up new protocols and methodologies for assessing the real impact of urban lighting on one specific territory’s biodiversity.

Protocol – Light pollution

These measurement campaigns consisted of:

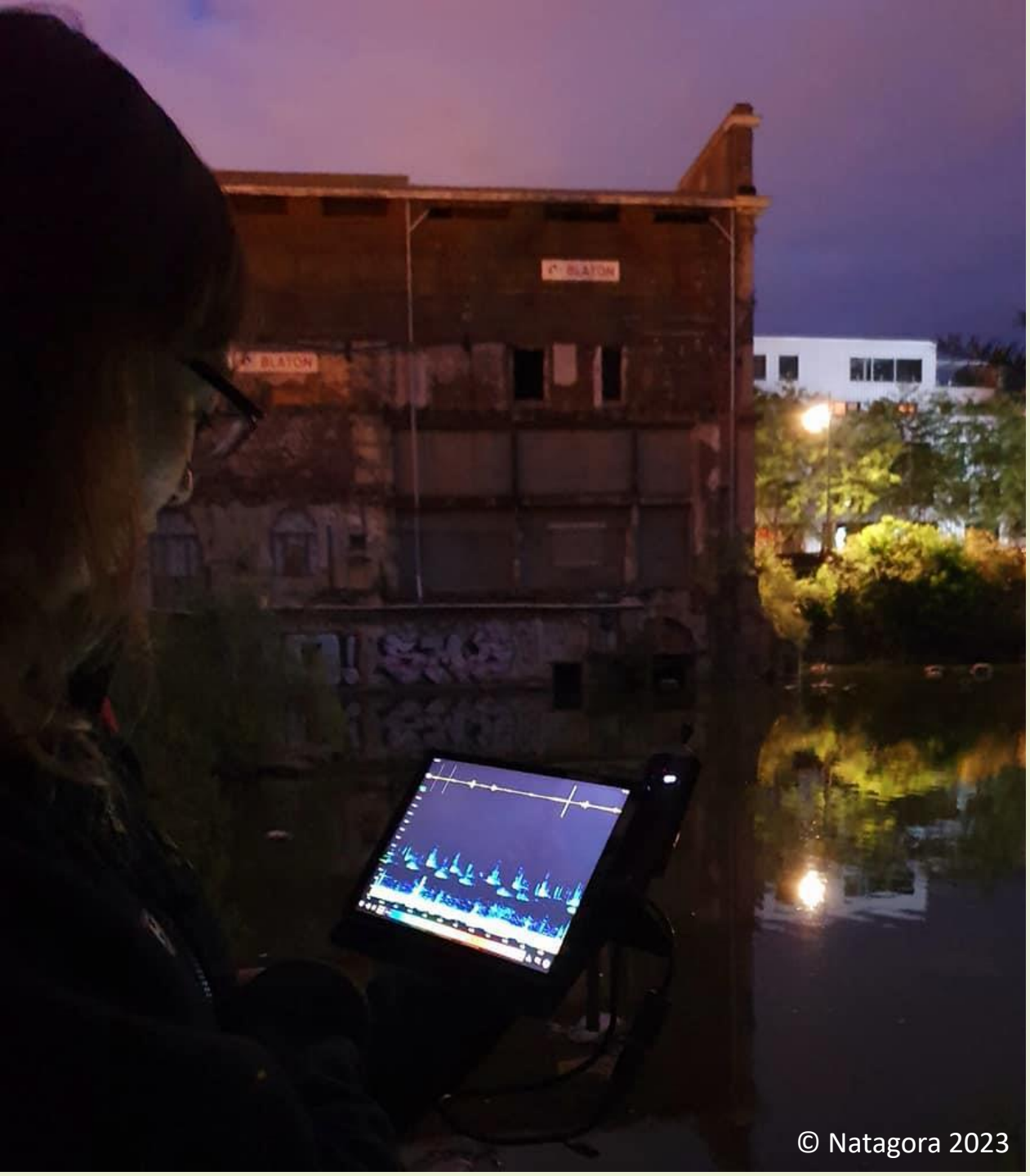
- illuminance mapping using the DyLA (Dynamic Lighting Asssessment) measurement system

- light color temperature and light spectrum mapping using the on-board spectrometer

Protocol

Localisation	Technologie	Eclairement moyen	CCT	longueur	nombre maximal de chauves-souris	chauves-souris/100 mètres linéaires
Avenue du sacré coeur	LED ambrées	12.9	NA	255	29	11
Avenue du sacré Coeur	LED blanches	26.5	3093	280	3	1
Rue Bonaventure	MHHP	18.4	2900	600	5	1
Avenue Henri Liebrecht	MHHP	17.2	2900	250	5	2
Avenue Henri Liebrecht	LED rouges	17.2	NA	250	5	2
Parc Roi Baudouin	MHHP	11.7	2900	1000	12	1
Drève de Dieleghem	LED blanc chaud	18.1	2936	250	7	3
Jardins de Jette	MHHP	20.5	2900	800	19	2
Rue du Bois	LED blanches	9.3	3000	600	19	3
Bois de Dieleghem	NA	0.1		800	16	2
Bois de Laerbeek	NA	0.1		1300	53	4

Source : ENGIE 2022



Protocol – Bat monitoring

Measuring the impact of the new lighting on biodiversity through a long-term (> 3 years) **bat monitoring** in ecological corridors where lighting has been replaced, using various methods :

- long-term recording
- punctual bats monitoring (at least three times a year) : by bicycle, by car, on foot (listening points)

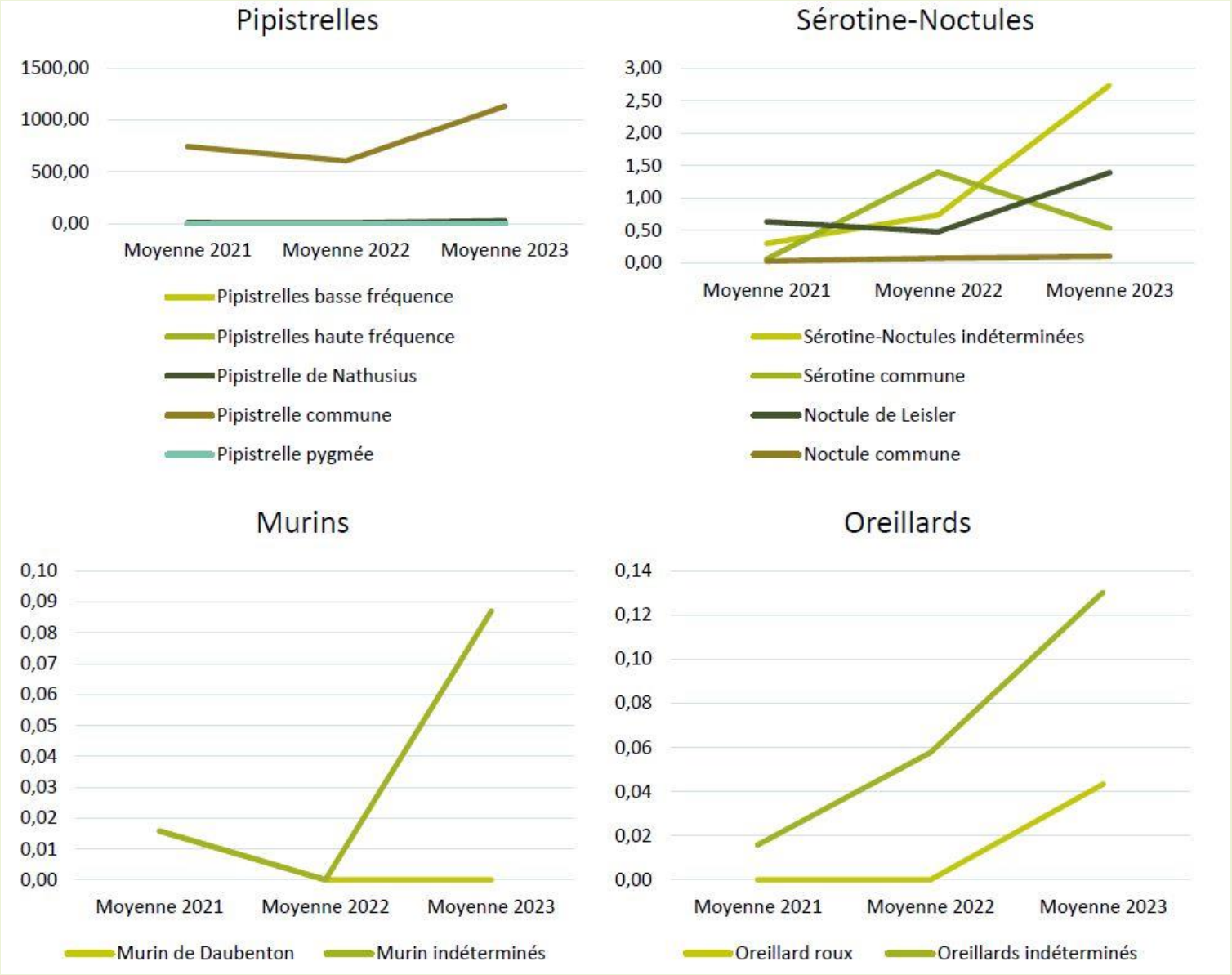
Protocol – Bat monitoring

Results

All the lighting changes (Batlamp and red gelatine) appear to have had less impact on bats :

- Overall growing trend in the diversity and abundance of the bat population within the perimeter.
- The change in lighting even seems to have led to the return of an Annex II species under the Habitats Directive: Geoffroy's bat (Myotis emarginatus)

Results


Pipistrelles
1500,00
1000,00
500,00
0,00
Moyenne 2021
Moyenne 2022
Moyenne 2023
Pipistrelles basse fréquence
Pipistrelles haute fréquence
Pipistrelle de Nathusius
Pipistrelle commune
Pipistrelle pygmée
Sérotine-Noctules
3,00
2,50
2,00
1,50
1,00
0,50
0,00
Moyenne 2021
Moyenne 2022
Moyenne 2023
Sérotine-Noctules indéterminées
Sérotine commune
Noctule de Leisler
Noctule commune
Murins
0,10
0,09
0,08
0,07
0,06
0,05
0,04
0,03
0,02
0,01
0,00
Moyenne 2021
Moyenne 2022
Moyenne 2023
Murin de Daubenton
Murin indéterminés
Oreillards
0,14
0,12
0,10
0,08
0,06
0,04
0,02
0,00
Moyenne 2021
Moyenne 2022
Moyenne 2023
Oreillard roux
Oreillards indéterminés

Results

- Sociological study on lighting changes carried out in the neighborhood :

  50% of those questioned expressed positive feelings, 23% expressed anxiety, 27% didn't pay attention. Communication proved to be key, acceptance rate raised after explaining the aim (protecting biodiversity)

- The collaboration and partnerships that have been developed throughout the project can be regarded as a major success, and allowed for the development of other projects at a larger scale

02

LIFE B4B – An upscaling to the Brussels Region

Action « reducing light pollution » within LIFE B4B

Overview

- Objective: To develop and implement an agenda for the reduction of public lighting in and around Natura 2000 areas in Brussels, with a view to reducing its impact on biodiversity and to develop a dark ecological network

- Collaboration with road network managers and public lighting operators (Sibelga, Bruxelles Mobilité, Environment Brussels Agentschap Wegen & Verkeer) as well as other project's partners (notably ANB, SPW, Sonian Forest Foundation)

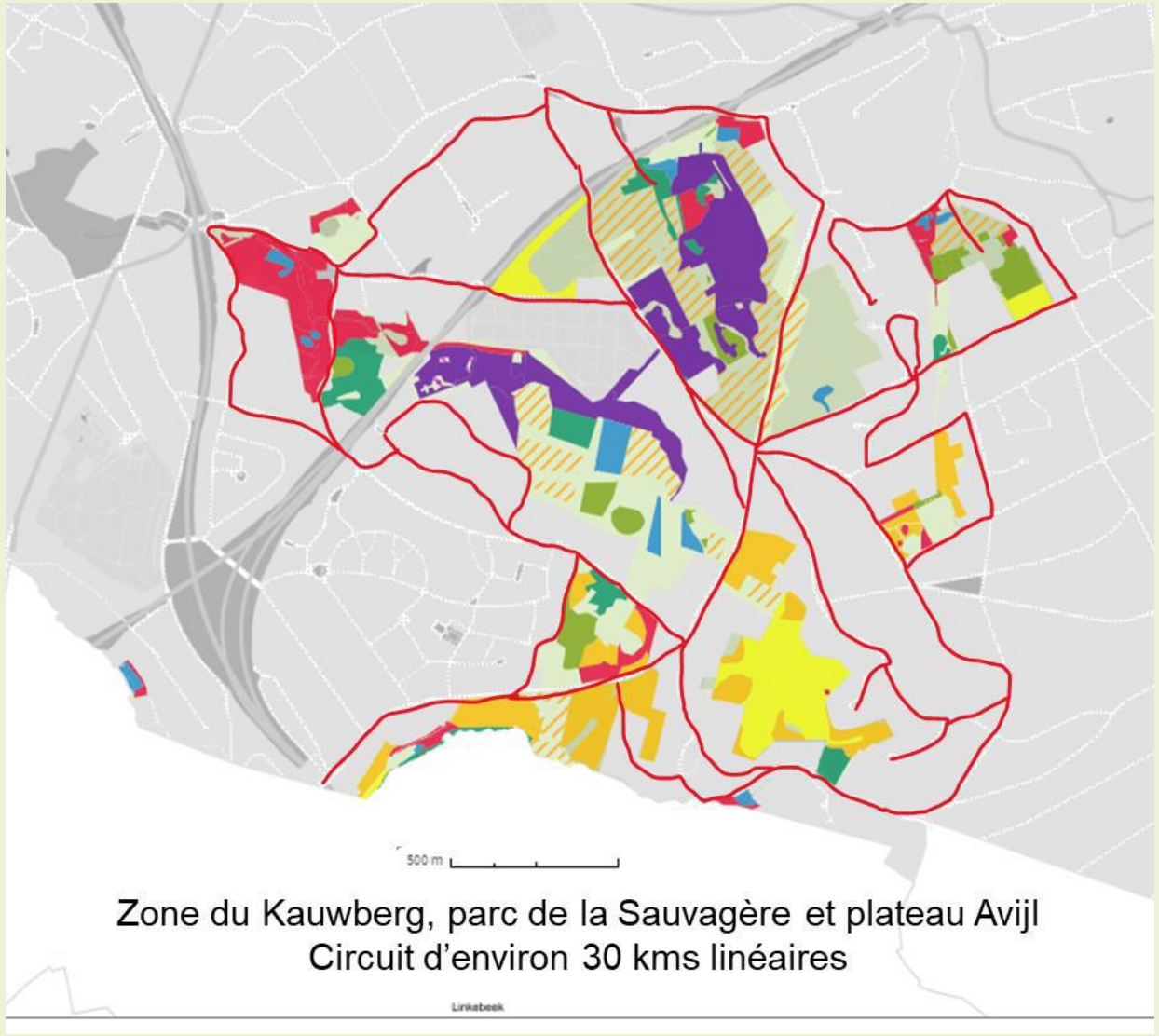
Inventory – Adjustment - Transfer

- **Inventory :** (1) combination of GIS data on all public light points in Brussels, (2) Identification of potential light disturbances and existing dark zones through satellite imagery, (3) measurement on ground with a car equipped with various sensors

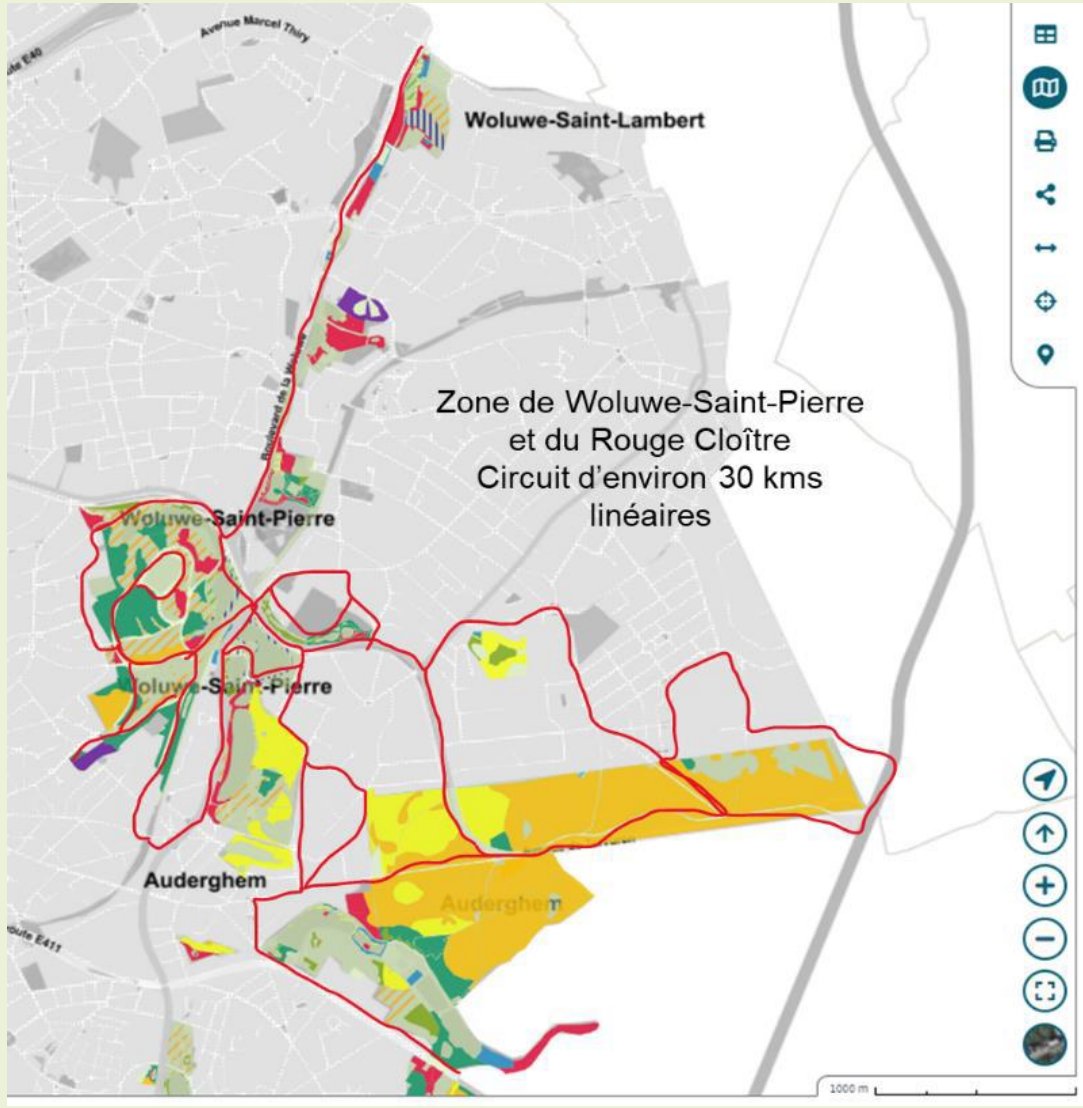
- **Adjustment** of light operators' investment plans, based on which interventions need to be taken to make lighting N2000-proof, and which interventions are feasible for each of the operators

- **Transfer :** lessons learned, transregional projects, etc.

Ecological transects by car (route)

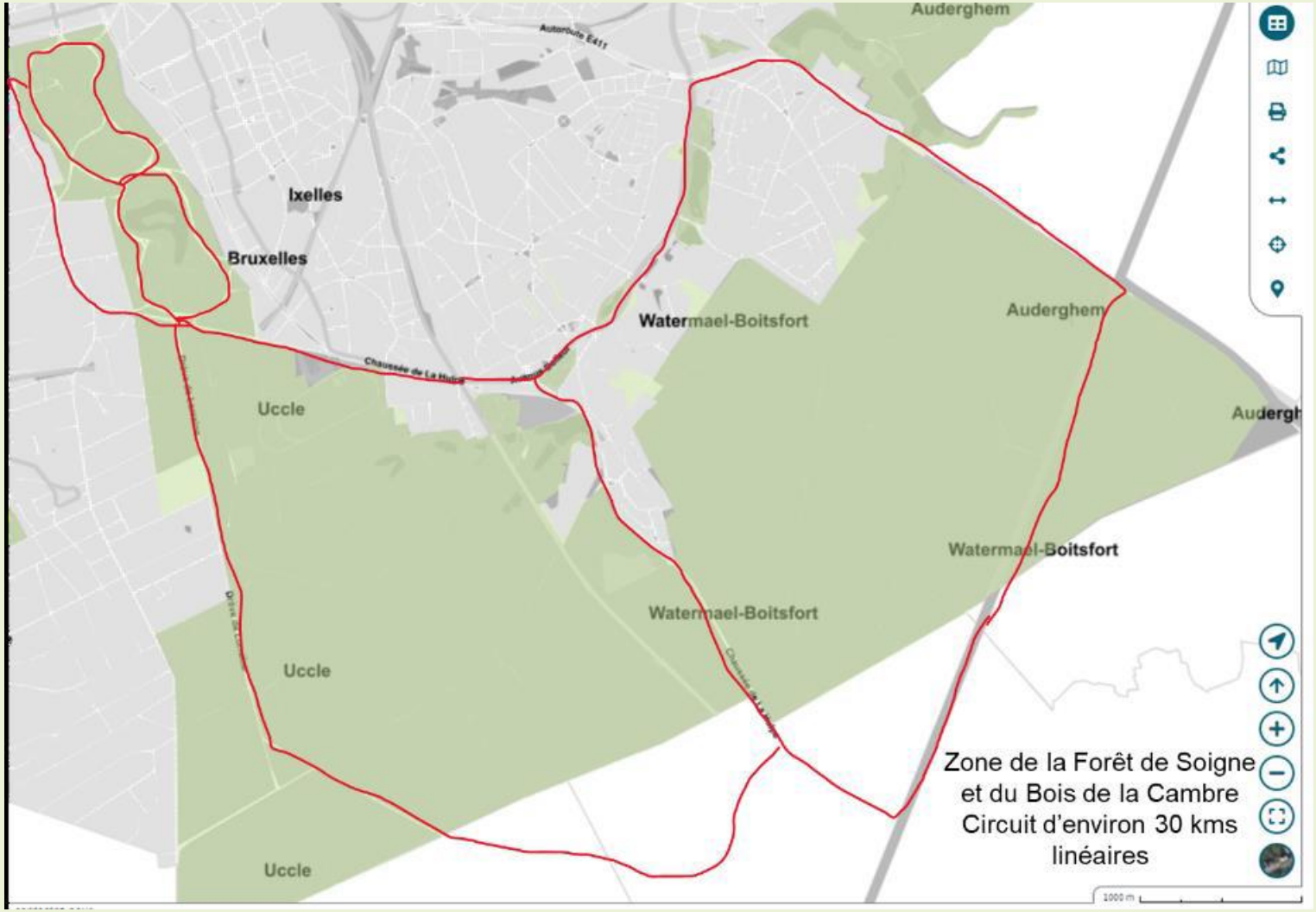


Zone du Kauwberg, parc de la Sauvagère et plateau Avijl
Circuit d'environ 30 kms linéaires



Zone de Woluwe-Saint-Pierre
et du Rouge Cloître
Circuit d'environ 30 kms
linéaires

Ecological transects by car (route)



Thank you for your attention

Contact:

Nathan Brison (nbrison@environnement.brussels)

Nicolas Hoffait (nhoffait@environnement.brussels)

Cofinancé par
l'Union européenne

Belgium for Biodiversity

NATURA 2000