

# Dry heathlands and sandy open grasslands in a suburban environment in the south of Brussels (Belgium)

## Assessment of the conservation status

TAYMANS Julien & MAHY Grégory

Gembloux Agricultural University - Laboratory of Ecology - Passage des Déportés, 2 - 5030 Gembloux – Belgium -

Email : [taymans.j@fsagx.ac.be](mailto:taymans.j@fsagx.ac.be)

### Introduction



### Study area :

• The **upstream Dyle hydrographic subbasin** (43.000 ha), located in *Brabant phytogeographic district* → This region is characterized by a high diversity of local ecological conditions due to the alternance of important tertiary sand outcrops and quaternary silty layers.

### A worrying concern :

• Loss of open semi-natural habitats, in particular **dry heathlands**, **sandy grasslands** and **grassheaths** (further called "heathlands") due to:

- **Abandonment of former agro-sylvo-pastoral activities**, causing a natural afforestation towards the climactic forest, and **plantation of *Pinus sylvestris* orchards** during the 19<sup>th</sup> century;
- **Urbanisation** caused by the proximity of Brussels (~25 km) during the 20<sup>th</sup> century.

### Research questions

- What was the **evolution of heathlands distribution** from 1770 to the present?
- What is the **current conservation status of heathlands** in the study area?
- What is the **variation of local plant communities** within the studied semi-natural habitats?

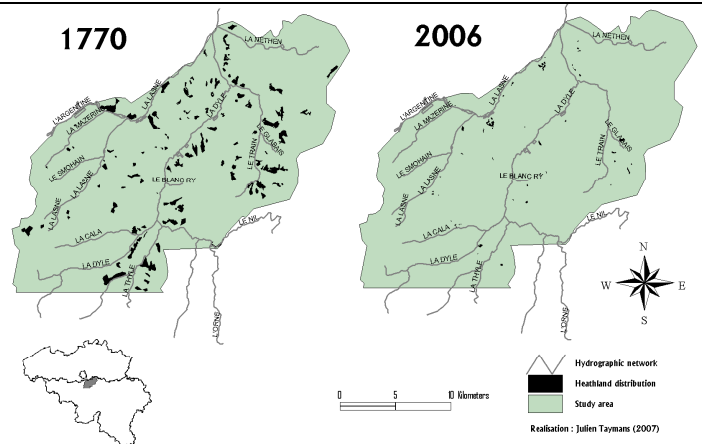
### Evolution of heathlands distribution

Current affectation of ancient heathlands (1770)	Number of patches	Area (ha)	Proportion of the total area (%)
Urbanisation	58	852,6	58,39
<i>Pinus sylvestris</i> orchard	26	291,6	19,97
Broad-leaved orchard	12	81,5	5,58
Natural afforestation	8	68,9	4,72
Meadow	6	65,2	4,47
Cropland	6	62,5	4,28
Roadway	1	23,3	1,6
Sand quarry	2	14,6	1
<b>Total</b>	<b>119</b>	<b>1460,2</b>	<b>100</b>

### Methods :

- Digitization of heathlands patches of historical maps (1770);
- Exhaustive survey of all ancient heathland patches to determine current affectation and digitization of all current heathland patches.

**Results :** **dramatic reduction (95%) of heathlands area** between 1770 and 2006 in the study area (see tables), mainly caused by urbanization.



### Current conservation status of heathlands in the study area

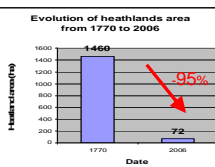
### Methods :

• Exhaustive survey of sand outcrops (192 sites analysed - ~737 ha) aiming at:

- Drawing up a floristic list for each of them;
- Assessing colonization by shrubs and trees;
- Assessing abundance of structural heathland species (*Calluna vulgaris*, *Vaccinium myrtillus*, *Molinia caerulea*, *Pteridium aquilinum*, *Deschampsia flexuosa* and *Cytisus scoparius*).

### Results :

- 393 vascular plant species observed;
  - 30 plant species of high conservation value at the regional scale;
  - Regional extinction of 4 dry heathlands typical species since 1956 : *Lycopodium clavatum*, *Genista pilosa*, *G. anglica* and *Cuscuta epithymum*;
  - Invasion of heathlands by social grasses, shrubs and trees, and (exotic) invasive species (10 sp.), in particular *Prunus serotina* (70% of sites were invaded), *Robinia pseudoacacia* (15%) and *Amelanchier lamarckii* (7%);
  - Remaining heathlands (72 ha) are threatened by spontaneous afforestation and urbanization.
- **Generalized ageing and encroachment** since the middle of the 20<sup>th</sup> century = **rather bad conservation status**



Evolution of heathlands from 1770 to 2006	1770	2006
Total area of heathland (ha)	1460	72
Number of patches	119	66
Mean size of patches (ha) (+/- s.d.)	12,3 (14,0)	1,1 (1,6)
Size of the largest patch (ha)	82,7	8,6

### Phytosociological characterization

### Methods :

- 144 vegetation relevés (9m<sup>2</sup>) using B.B. method;
- Directed sampling in representative areas;
- Twinspan classification

### Results :

- 241 vascular plant species;
  - **19 vegetation facies** varying in species composition and having their own indicator species
- **high diversity at the community level**



Picture 1 : Restored dry heathland, grazed by rustic sheep



Picture 2 : Sandy open grassland, included in a heathlands complex

### Perspectives

- A **plan of restoration priorities** has been established for the study area and **management measures** have been proposed.
- The potential for heathlands restoration is c. 360 hectares, in which c. 40 hectares should be restored in priority.

