



**Ponderful**  
PONDS FOR CLIMATE

**BELGIUM** 

**PONDSCAPE : GROTE GETEVALLEI**



Pond Ecosystems for Resilient Future Landscapes in a Changing Climate

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# WHAT IS A PONDSCAPE ?

## DEFINITION

A pondscape is a network of ponds with spatial proximity (“connectedness”) and the surrounding landscape matrix.

The boundaries of a pondscape may be determined by physical or ecological settings (a valley, a catchment, a set of ponds in a nature reserve) or even determined by societal or political criteria (urban ponds, provincial or national boundaries).

## PRESSURE/THREATS ON PONDS AND PONDSCAPES

50-90% of pond have been lost from European countries over the past century. Furthermore, ponds are largely neglected in water- and nature-related national and EU policies and strategies, including the EU-WFD.

## WHY IS IT IMPORTANT TO PROMOTE THEM ?



### BIODIVERSITY ENHANCEMENT

Largely neglected and generally undervalued, ponds are remarkably important for biodiversity conservation. Pondscapes represent biodiversity hotspots.



### DISASTER RISK REDUCTION

Ponds and pondscapes play a fundamental role in mitigating flooding and also constitute a water reserve to fight fires.



### HUMAN HEALTH

Ponds and pondscapes provide a wide range of co-benefits for human societies such as support for human health and quality of life, spaces for physical activities, or social interaction, but also aesthetic experiences and educational and recreational activities.



### CLIMATE CHANGE MITIGATION AND ADAPTATION

Given their abundance and their high productivity, ponds influence markedly the carbon cycle by acting as both carbon sinks and sources.



### WATER MANAGEMENT

Pondscapes provide a water reserve that is particularly important in the context of water scarcity. It is particularly useful for watering animals and for irrigation.

# CONTEXT

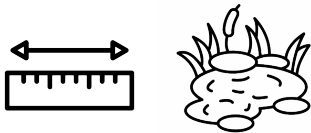
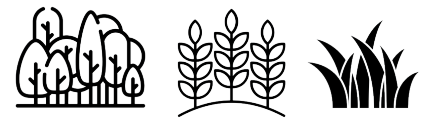
The Grote Getevallei is one of the last large open spaces in Flanders. The pondscape has largely been preserved from intensive agriculture and extensive urbanization. Villages historically developed along the drier valley edges, while the wet valley was used as pasture and hay land. Hedges, including hawthorn, were used as natural fencing for livestock. For agricultural purposes, the valley was drained deeper and deeper by digging ditches and later by underground drains. Where groundwater did not reach ground level, cattle drinking pools were created. Locally, these small landscape elements still form the basic structure of the landscape that can be found on the valley slopes to this day. Moreover, the pondscape is characterized by a unique biodiversity.



**Name of the pondscape :** Grote Getevallei  
**Name of neighboring large town (in a 30 km radius):**  
Tienen (36'000 habitants)  
**Bioclimatic zone :** Atlantic

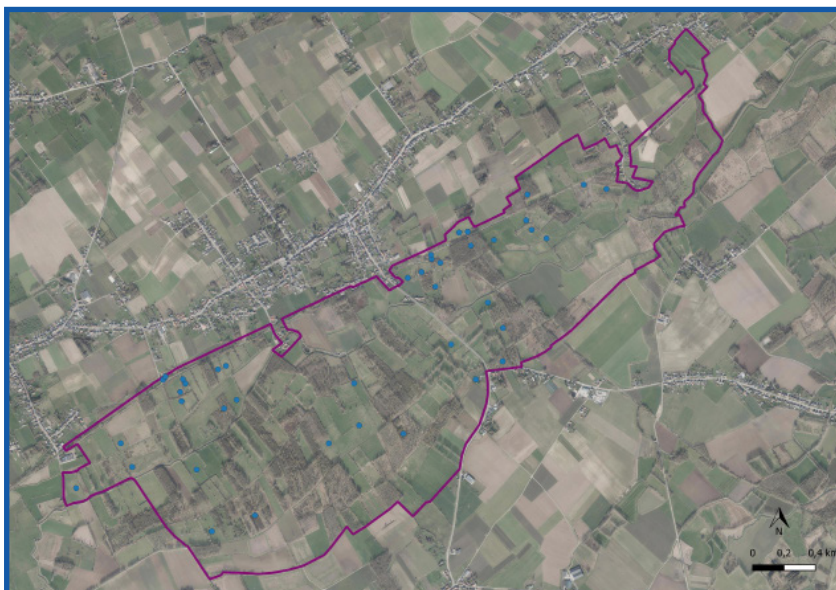
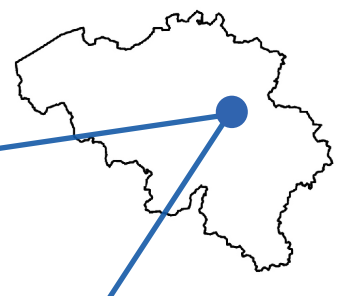
## Dominant land use :

Pondscape - Flower-rich grasslands, small landscape elements consisting of hedgerows, ditches and pools, shrubs, native deciduous forests and agricultural plots  
Surrounding environment - agriculture, grasslands and small forest patches



**Pondscape area :** 4.79 km<sup>2</sup>  
**Pond : number:** 41  
**density:** 9/km<sup>2</sup>  
**surface areas :** 10 to 207 m<sup>2</sup>  
**depths :** 11 to 76 cm  
**ages :** 5 to >100 years

**Land owner :** Province Vlaams-Brabant, Natuurpunt (NGO), private landowners (farmers)  
**Land manager :** Natuurpunt (NGO) and farmers  
**Public access :** 60 % of the area is accessible  
**Public amenities :** hiking trails, cycling routes, pic-nic spots, camping site and hides for nature observation

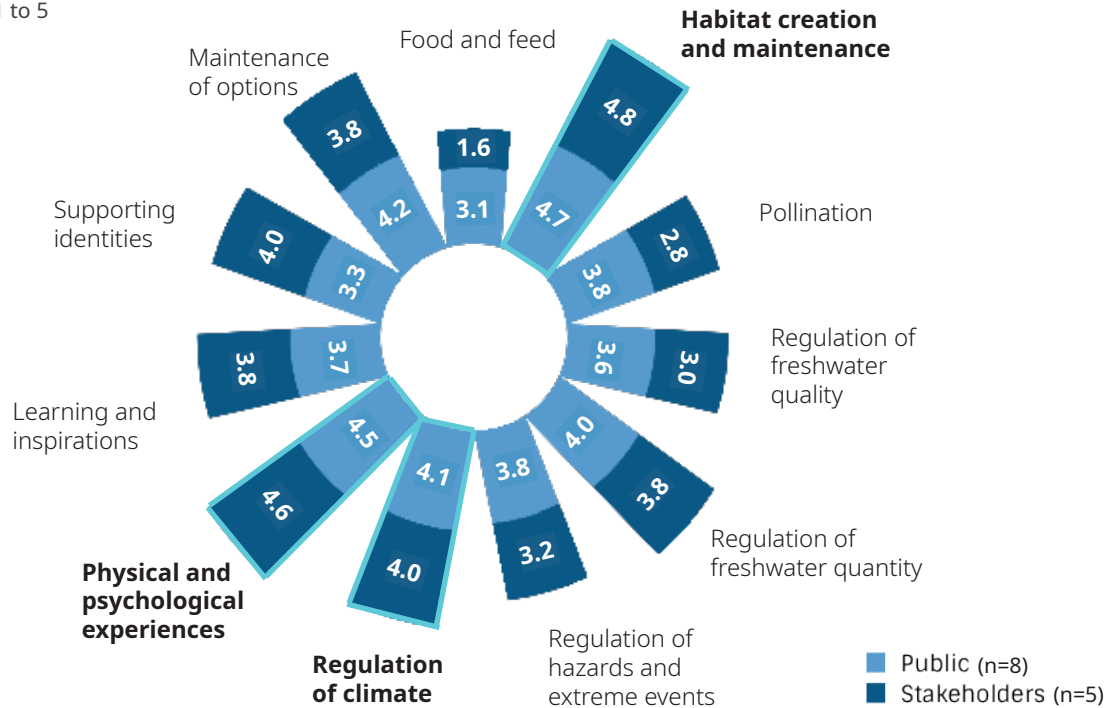




# LOCAL COMMUNITY EXPECTATIONS

## The 11 Nature's contribution to people (NCPs)

Scale : scores from 1 to 5



The expectations rely mainly on (i) the provision of habitats for biodiversity and (ii) the direct use of these natural areas by people (physical and psychological experiences).

# LOCAL POLICIES

The pondscape 'Grote Getevallei' comprises a variety of landscape characteristics that result in high biological diversity. Pond creation and pond restoration have contributed to the creation of suitable habitats for amphibians, including the Crested newt (*Triturus cristatus*). Most land is privately owned and used for multiple purposes, including farming. The province of Flemish Brabant and Natuurpunt owns land designated as nature reserve and is managed as such. In parallel, Natuurpunt is actively obtaining additional land in the region to ensure long term protection status and enlarge the area with focus on nature and biodiversity conservation, including strengthening biodiversity, restoring eco-hydrology and nature experience. In addition, Natuurpunt has agreements with local farmers. Farmers can use the grasslands under specific conditions, and implement management measures such as mowing or grazing.

Detailed management is largely done by teams of local volunteers, while more drastic management measures are carried out by a professional team of Natuurpunt. The management includes maintenance of terrestrial habitats (grasslands and hedgerows), periodic pond restoration (dredging, mowing shoreline vegetation), the creation of new ponds, and the creation of overwintering habitats for amphibians. In the 'Getevallei' from Hoegaarden to Geetbets and Landen, Natuurpunt now manages almost 1000ha, of which just over 250ha in the 'Grote Getevallei' between Tienen and Zoutleeuw.

>239 ha of the pondscape is protected and managed by NGO Natuurpunt

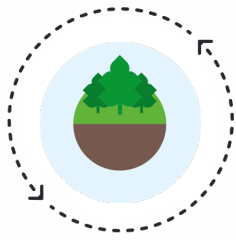
>239ha

Targeted management resulted in a stable population of Crested newt

The pondscape provides reproduction habitat for Aquatic shrew (*Neomys fodiens*), Red-backed shrike (*Lanius collurio*), Cloverleaf shrike (*Cyaniris semiargus*), Grassland shrike (*Carabus monilis*), Rusty-brown cutthroat (*Elatер ferrugineus*), Broad orchid (*Dactylorhiza majalis*) and Waxwort (*Hygrocybe obrussea*), among others.



# MAIN CHALLENGES AND OBJECTIVES



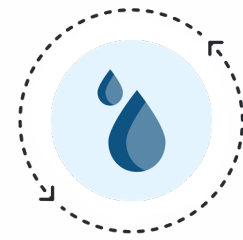
## BIODIVERSITY ENHANCEMENT

Multiple aquatic and terrestrial organism groups, including amphibians, birds and plants.



## HUMAN HEALTH

A place for walking, hiking, nature observation.



## WATER MANAGEMENT

Improved infiltration and retention of water in the valley and commitment to integrated water management



# NATURE BASED SOLUTIONS (NBS)

New pond creation and their management are here the Nature-based Solutions put in practice to address the three identified societal challenges.

## NEW POND CREATION

1997-2018

Creation of multiple small farmland ponds (approx.; 100m<sup>2</sup>), primarily aimed at the conservation of Crested newt

## PONDS AND PONDSCAPE MANAGEMENT



- Pond restoration and management (dredging, mowing shore vegetation)
- Maintaining small landscape elements (hedges, small woody plots that serve as overwintering habitats for amphibians)
- Increasing water retention and preventing underground drainage



- Creation and maintenance of hiking trails, cycling routes and nature observation points
- Creation of small camping site and "natural" playing zone for children
- Inspiring activities such as guided walks, management excursions, opportunity to participate in monitoring of Crested newt,...



- Not yet operational, but there is an increasing awareness for the buffering capacity against droughts and floods. The general idea is to slow down the drainage of water in the region so that the pondscape as a whole can buffer water for a longer time and as such prevent flooding downstream in the valley

# NATURE CONTRIBUTIONS TO PEOPLE AND MEASURED INDICATORS



## AQUATIC BIODIVERSITY

### SPECIES RICHNESS

Aquatic plants : 59

Amphibians : 8

(*Pelophylax lessonae*/kl. *Esculentus/bergeri*/kl. *Hispanicus*; *Pelophylax bedriagae*; *Triturus cristatus*; *Pelophylax ridibundus/kurtmuelleri*; *Rana temporaria*; *Bufo bufo*; *Ichthyosaura alpestris*; *Lissotriton vulgaris vulgaris*)

### AMOUNT OF

Conservation priority species (N) : 1

Species on Habitat Directive Annexes (N): 1\*

*Triturus cristatus* (Amphibians)

Invasive alien species (N): 1

### FLAGSHIP SPECIES :



*Triturus cristatus*



# NATURE CONTRIBUTIONS TO PEOPLE AND MEASURED INDICATORS



## REGULATION OF CLIMATE

Capacity of annual carbon storage in ponds (by primary production, by organic matter accumulation) (tons CO<sub>2</sub> e/pondscape/year)

**2.43t**

**1.05t**

Carbon accumulation rate (tons of CO<sub>2</sub> e/pondscape/year)



## PHYSICAL AND PSYCHOLOGICAL EXPERIENCE

Number of people visiting the pondscape (leisure, tourism, fishing, nature watching etc.) (nb/year)

**47'000**

**60%**

Area inside the pondscape accessible to the public

Self-reported satisfaction and well-being (scale 1 to 5)

**3.8**

**Most popular activities :**

hiking (23%), biking (16%) and wildlife observation (13%)



## LEARNING AND INSPIRATION

**>20**

(nb/year). Various scientific studies by Natuurpunt, KU Leuven, INBO, and/or SCK-CEN on biodiversity, ecology and ecohydrology. Regular biodiversity monitoring (Natuurpunt), study on greenhouse gas emissions from pools (KU Leuven), many guided nature walks and excursions (mainly organized by the local management team of Natuurpunt Linter and Zoutleeuw).



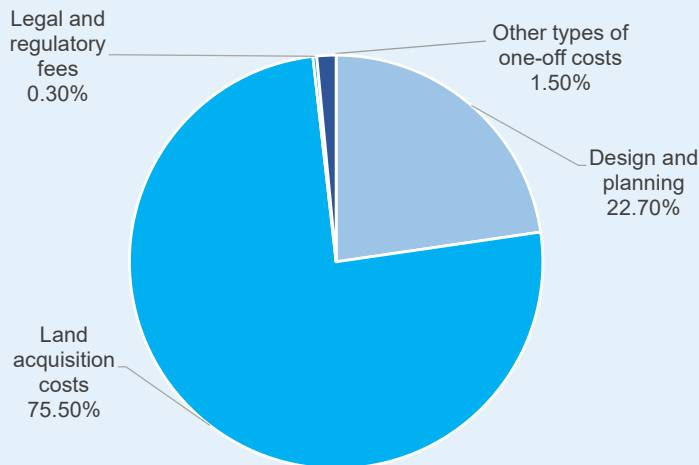


# COSTS AND BENEFITS ANALYSIS

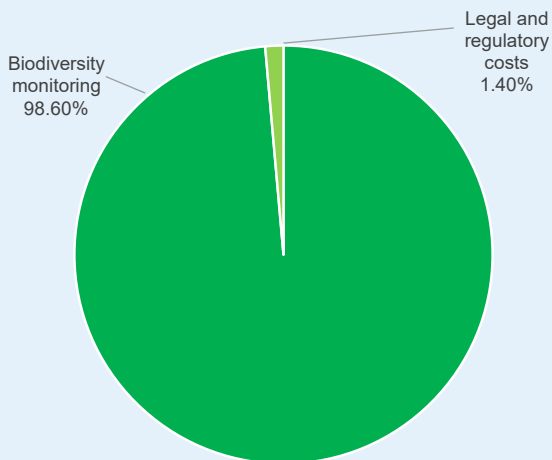
## OVERALL COSTS ASSESSMENT



### SHARE OF COSTS FOR NBS ACTION

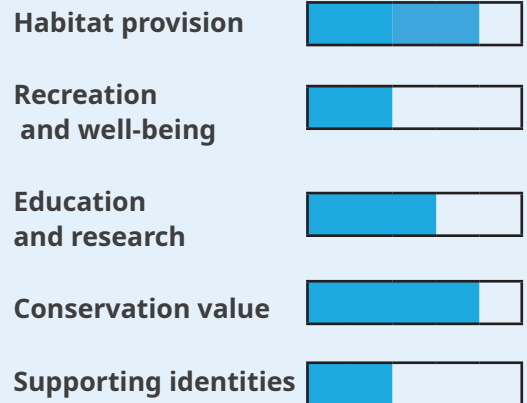


Relative cost of NbS creation measures



Relative cost of ongoing NbS management measures

## BENEFITS ASSESSMENT



### SUITABLE FINANCE INSTRUMENTS TO REDUCE THE GAP

- ✓ 1. Voluntary contributions /donations
- ✓ 2. Subsidies
- ✓ 3. Grants

## REMAINING THREATS

1. Intensive agriculture, especially erosion and the influx of fertilizers and pesticides, is a problem for water quality and reproduction of Crested newts.
2. Infrastructural works (additional paving of roads, increase in built-up area, more intensive drainage through water management infrastructure, etc.) put pressure on water resources and on aquatic habitats. For example, an increase in nutrient loading is expected in the watercourses flowing through the pondscape.
3. Climate change resulting in shorter hydroperiods that prevent long term conservation of amphibian populations.
4. Ill-considered reforestation of valuable cultural-historical landscapes.

# SUCCESS STORY AND TRANSFERABILITY

## ACTIVE BIODIVERSITY CONSERVATION MANAGEMENT OF THE PONDSCAPE

There has been an ongoing and highly effective biodiversity conservation management in the pondscape for several decades. The main actor with respect to nature conservation in the region is NGO Natuurpunt. The current management is largely organized by a team of local volunteers that is supported by professionals from Natuurpunt. Natuurpunt owns land in the region that is protected by designation as nature reserve. Nature reserves are managed following an approved management plan. In addition, Natuurpunt works closely with other actors in the region to enhance nature protection. Natuurpunt also strives to further expand the area of nature reserve by acquiring additional land.



The management targets both terrestrial and aquatic biodiversity, and largely focusses on the maintenance of historical landscape elements such as flower-rich grasslands, hedges, farmland ponds and semi-natural forest patches. Over the past decades, several (>20) small farmland ponds have been created to enhance aquatic habitat availability and connectivity. Existing ponds are periodically managed by dredging and cutting back edge vegetation. The long-lasting management efforts have proved to be successful in conserving biodiversity in the region, most notably the long term maintenance of a large population of Crested newt.







HANDBOOK :



APPENDIX :



## PHOTOS CREDITS

*Triturus cristatus*, cover1, p.5 © Pieter Jan Alles  
Gete vallei, cover2&3, p.2, p.6, p.8 and backcover © Pieter Jan Alles

## AUTHORS

Lemmens P., von Plüskow L-M.,  
Wijns R., De Meester L.

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