Interreg North-West Europe
Care-Peat
European Regional Development Fund

Interreg Care-Peat

Deliverable WP I1.1.2

Jointly refined restoration plan

Pilot - Vallei van de Zwarte Beek (Belgium)

Author(s)

Name	Organisation
Christof Vanackere	Natuurpunt
Chris Dictus	Natuurpunt

Revision history

Date	Author	Description

Table of contents

Table of figures

Introduction

General information

Deliverable number	WP I1.1.2
Deliverable name	Jointly refined restoration plan – Vallei van de Zwarte Beek (Belgium)
Deadline deliverable	Sept/19
Status	

Chapter 1: Field inventory

1.1 GIS data collections

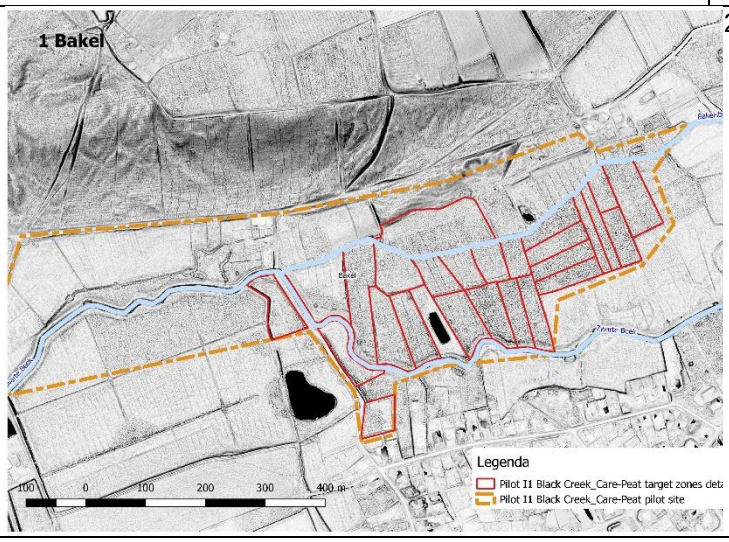
Collection of gis-data is required to define the measures needed for restoration of the peat-area. Secondly this data gives us information on how the measures need to be taken e.g. seasonal timing, technical requirements of used machinery, future adaptive management techniques. Also historical data is collected to learn more about the actual situation, e.g. land use, changes/fluctuations of water tables (if available),…

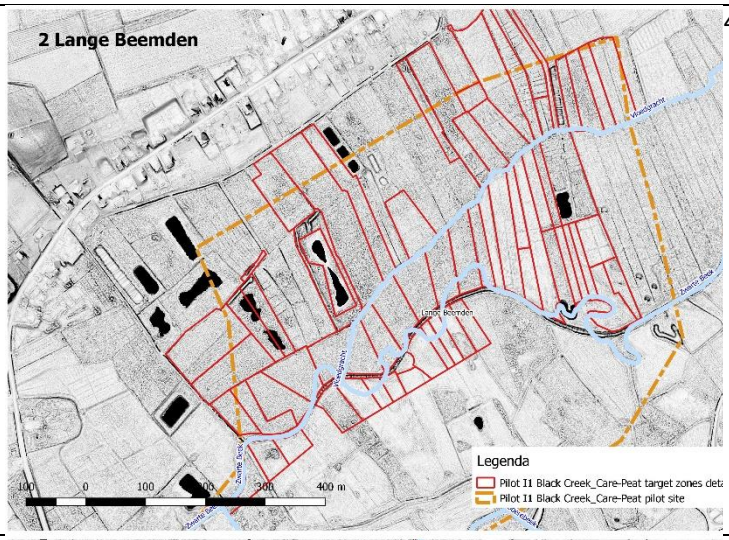
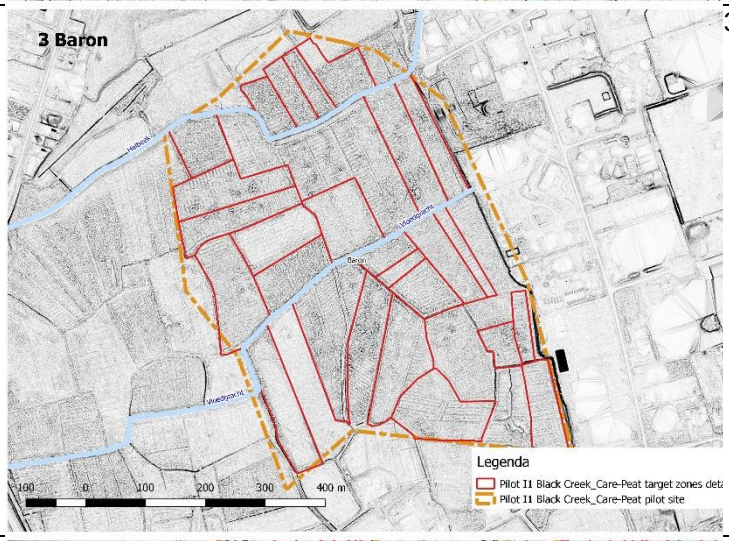
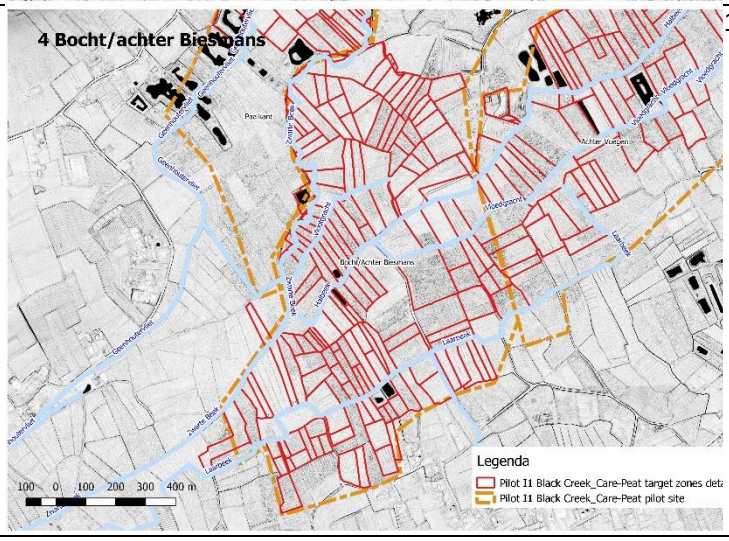
All data is uniformly combined in shapefiles and available for use. Additional data can later be imported when needed or if future insights needs a more nuanced planning of the restoration.

1.1.1 GIS: Pilot site polygon and detailed target zones

Focus is on 250 hectares of the 750h peatland in the Nature Reserve Valley of the Black Creek ('Vallei van de Zwarte Beek') where restoration measures will hopefully have their positive effects.
Because of this massive site we will divide the pilot site in 7 areas as shown in Figure 1. Each zone will be discussed in Chapter 2 of this restoration plan.

The ***area for measures*** is aprox 450ha, this is a theoretical zone wherein we can implement larger scale hydrological measures e.g. adaptations on creeks managed by governmental organisations. These adaptations/measures will have a direct or indirect (long-term) impact on the ***Target Zone***. The latter is the actual Nature Reserve itself and is managed by Natuurpunt Beheer vzw. In the target zone we will define small-scale measures like removal of scrub, restoration of the topography of the surface, closing ditches etc.

Nr.	Area	Map	Area for measures	Area of Target zone
1	Bakel		29,5	11,5

2	Lange Beemden		49,1	25,0
3	Baron		32,8	20,2
4	Bocht		104,3	76,7

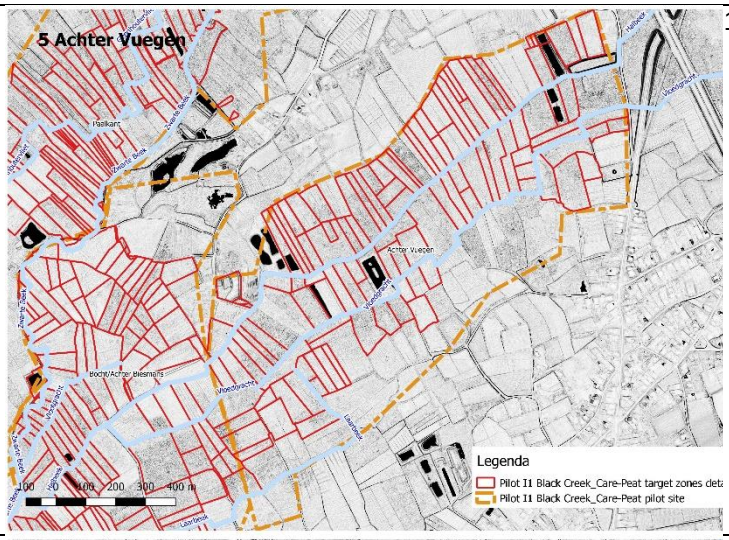
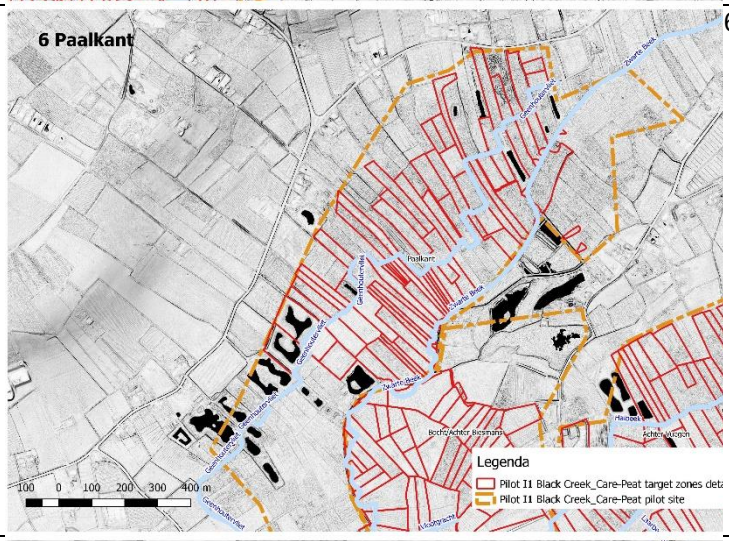
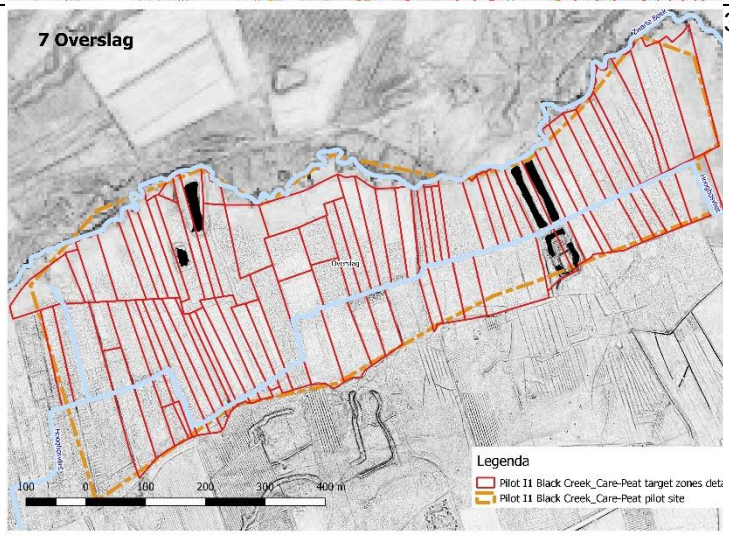
5	Achter Vuegen		112,0	62,7
6	Paalkant		66,0	34,2
7	Overslag		35,7	33,8
			Ca 450 ha	Ca 260 ha

Figure 1 7 zones of the Pilot Site Valley of the Black Creek

1.1.2 GIS: Soilmap and additional measures for peat-depth

The soil of the Valley of the Black Creek was mapped in 1965 and contains a peat-body of approx. 750 ha. However we did not have sufficient data on the peat soil (thickness, quality etc) to calculate the total mass of peat and to define quantitative measures. For this our voluntary workers of Natuurpunt executed additional measures to know the peat-depth, this data is mapped and available. All zones will be mapped by the end of January 2020. During the installation of the hydrological network (WPI1.1.1) we were also able to take measures on the peat. All data will be combined.

Conclusions on the actual situation:
The area where peat is present is actually larger than mapped in the study of 1965. Therefor we adjusted some boundaries of the pilot site. Peat-depth varies from 50cm to 600cm, averaged to 150à200cm for the entire pilot-site.
The peat in the middle and lower part of the pilot site is sometimes highly degraded in the top 0-50cm stratum of the soil whereas it is mainly preserved in the lower layers.

1.1.3 GIS: Vegetation surveys

During spring and summer of 2018 a vegetation survey was executed in a large part of the pilot. This data is supplemented by a second more detailed vegetation survey in spring and summer of 2019.

Data is available for GIS applications.

Conclusions on the vegetation surveys
Where peat is degraded it affects directly the vegetation and favours typical dominant plant species e.g. Soft rush (Juncus effuses) and Canary-grass (Phalaris arundinacea). It can also implement the settlement of invasive exotic plant species. This results in a degradation and at long last fundamental change of the entire habitat (Natura 2000). This is due to:

- *periods where waterlevels are extremely low; > -30cm*
- *release of nutrients when peat is oxidated*
- *unstable water levels. For preservation of peat and its rare biodiverse vegetations water tables must be high and stable year-round*
- *water quality*
- *the above situation works as a negative vicious circle*

1.1.4 GIS: Inventory of Hydrological structures

We gather valuable information from the open-source Digital Height Model of Flanders with a detail of 0,25m. Changes in topography due to human interventions are easily detectable.

The official waterways (categories 0-3) are also available as GIS-data. This we supplemented by the digitalised information obtained with the DHModel.

For Zone 1 – 7 we can now map all structures (ditches, trenches, creeks, dikes, ets) and describe the measures needed for the hydrological restorations of the peat-body. These maps will also be used in the administrative files e.g., procurements, permits etc.

For each zone a detailed plan will be made during spring 2020.

1.2 Stakeholder network

A big site implements also side-effects to neighbouring areas managed by different land-owners and users. Therefore stakeholder consultations are organised on a regular basis to achieve success.

The first step was to get the project known to the local partners:

- VMM (Flemish environmental Organisation)
- Watering Schulensbroek (local manager of watercourse category 2)
- Province of Limburg (co-landowner and water manager)
- Municipality of Lummen
- Municipality of Beringen
- Municipality of Halen

These are the first-line partners, involved with the water management at the pilot site. The first meeting took place in June 2019. A full list of all meetings below. The project is also communicated further internally at the province of Limburg by a staff member of the province. For this process we also worked closely together with INBO, being nature research institute of the Flemish government (Institute for Nature & Forest Research)

As we divided the pilot-site in different zones, we invite relevant stake-holders to discuss each zone.

Reports of the meetings and site-visits are stored on dropbox.

Date	Topic	Meeting	Att. list	report
17/06/2019	Meeting with local Natuurpunt volunteers and INBO, preparation for meeting 28/06/2019	NP, INBO	Y	
28/06/2019	Meeting associated partners	NP, INBO, Province, Beringen, Lummen, VMM	Y	Y
29/07/2019	Meeting associated partners	VMM, Watering, NP	Y	Y
5/09/2019	Meeting associated partners	Lummen, Halen, VMM, Province, NP	Y	Y
2/10/2019	Site-visit Zone 3 & 7 ass. Partners	Lummen, VMM, Province, NP		

Figure 2 List of meetings with Stakeholders

All details and discussions will be reported and documented by January 2022 under WPI1.3.1.

For watercourses category 1 and 2 in zones 4, 5 and 6 we highly depend on these stakeholders and their ambitions and willing to determine the intensity of the rewetting-measures. For these zones we must think about working in phases or stages and in long-term adaptive management.

Chapter 2: Procedures and administrative management for restoration measures

2.1 Categories of waterways

In Flanders, waterways are divided into different categories. Big rivers like Schelde and Maas are navigable channels and watercourses.

Smaller creeks and channels which are not navigable are divided into classified and unclassified watercourses. Classified watercourses are official creeks, streams, brooks that reach a river basin of at least 100ha. A stream starts as a Category 3 and grows to a Category 1 when the stream reaches a river basin of at least 5000ha.

Unclassified (Category 0) are local ditches, which have also a common interest, these are managed by municipalities or landowners. At the pilot there are a lot of these 'unofficial' ditches, rivulets and trenches which influence the waterlevels directly. Most of them are maintained yearly and thus needs high attention in the Care-Peat process.

Depending on the category the waterway will be managed by a different water manager:
- Category 1, being most of the Black Creek, is the responsibility of the VMM.
- All other categories are managed by 'de Watering het Schulensbroek', a local waterboard, but category 2 is supervised by the Province, whereas category 3 is under the supervision of the local municipalities.

At this very moment the arrangement for the pilot site is undergoing a drastic change, which is not yet active. Categories 2 and 3 will in the near future all be actively managed by the Province. Only the unclassified waterways will stay under the control of the Watering. This will make future arrangements on adapted management easier.

Name	Target Zone	Category	Manager	Length (m) 'ind'
Black Creek	1-6	1	VMM	8522
Black Creek	7	2	Watering (-> Province)	10600
Bakelsbeek	1	3	Watering (-> Province)	901
Vloedgracht (Meldert)	2	0	Watering Het Schulensbroek	1083
Kleine Vloedgracht	3, 4, 5	0	Watering Het Schulensbroek	3800
Halbeek	3, 4, 5	2	Watering (-> Province)	4812
Vlootgracht	4	0	Watering Het Schulensbroek	532
Laarbeek	4	0	Watering Het Schulensbroek	850
Laarbeek	4	3	Watering (-> Province)	3395
Geenhoutervliet	6	0	Watering Het Schulensbroek	1269
Geenhoutervliet	6	3	Watering (-> Province)	360
Geenhoutervliet	6	2	Watering (-> Province)	716
Hoogbosvliet	7	3	Watering (-> Province)	2087

Figure 3 Official Watercourses at the Pilot Site

2.2 Procedure

When speaking of rewetting larger areas of peatland it is important to know how and where water is drained from the peatbody. This occurs on small scale on the grasslands by human-made ditches that drain the surface water to a creek. These ditches are mapped during site-visits and supplemented by DHModels. When speaking of restoration of topography it means we suppress and close up these

ditches when they cause a drainage of the top layer. The removal of these structures is subject to basic regulations.

When looking at the classified ditches and smaller creeks there are far more complicated regulations and procedures according to the category.

Procedures:

To be able to work on ditches and waterways different permits are needed:
- For classified waterways a special authorisation from the water manager is needed.
- For waterways and ditches in general we will need a permit because, especially in nature areas, it is forbidden to change the (micro)topography and the hydrology without having the proper permits.

All of this can be combined in one permit application where the province will have to decide, after having had the proper advices from nature and water administrations.

In general, as stated before, talks have already been organised with the competent water managers and nature authorities to get their views on the measures considered. In general the principle of maximal rewetting of the degraded peatland was unanimously accepted, though the impact on private land has to be considered.

Chapter 3: Restoration plan

3.1 Zone 1 Bakel

3.1.1 Situation

Target zone area: 11,5 hectare. Municipality Halen. Coordinate 202721.7,186412.1

The most downstream zone of the Valley of the Black Creek is also known as Bakel. At this point the valley is narrowed by higher sandstone hills and measures approx. 250m in width. There are 2 creeks that influence the water levels: the Black Creek itself and the much smaller Bakelsbeek. The entire Black Creek is managed by the VMM and will be discussed separately.

The Bakelsbeek is a Category 3 creek and managed by Watering Het Schulensbroek (and by the Province in the future). Due to historical maintenance the bed of the watercourse is now minus 100 à 150cm. In 2019 the Watering and Natuurpunt agreed that management of the watercourse was not necessary anymore. The last stream clearance occurred in 2019 due to a miscommunication of the Watering with the contractor.

Figure 4 Last clearance of the Bakelsbeek in 2019

3.1.2 Measures

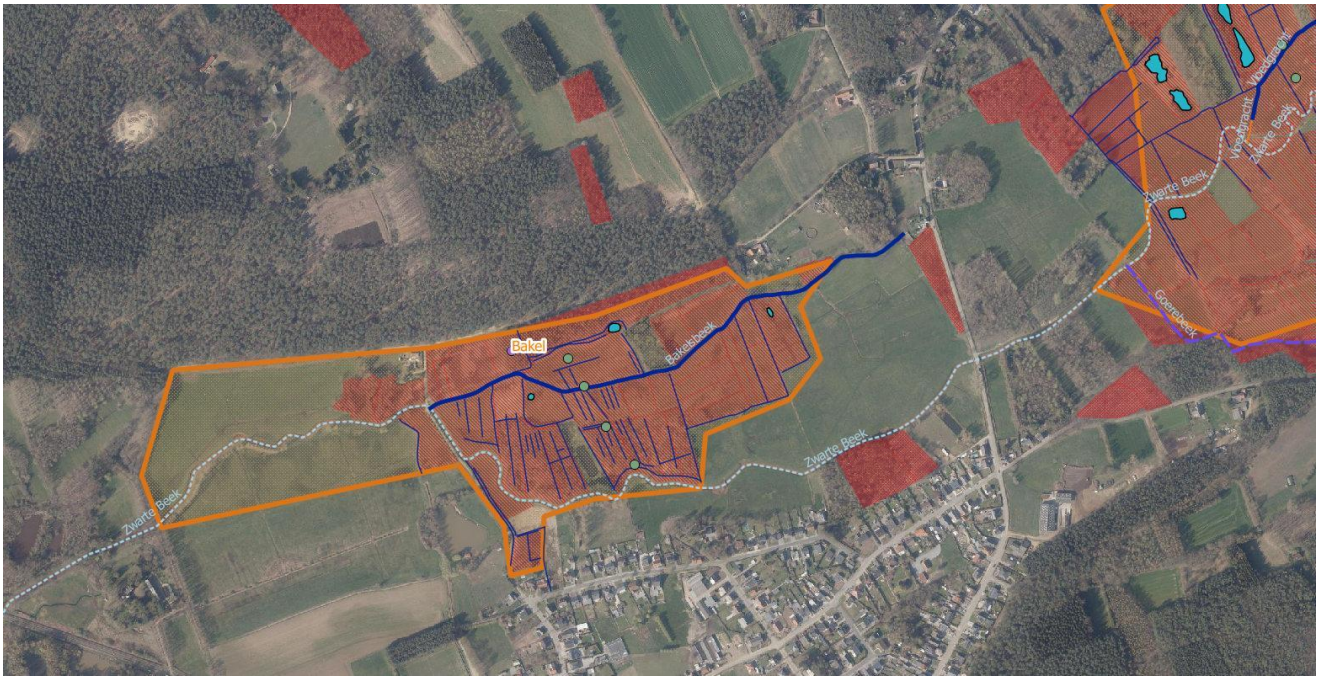


Figure 5 Zone 1 Bakel map

List of measures on zone 1:

- Bakelsbeek:
  - Putting sandbags to stow and level up the water
  - Slope the edges of the stream to become a bed of max -50cm
  - Measures must result in higher year-round waterlevels.
  - When there is insufficient material to block this ditch we can use local sand from the close by heath-restoration
- Local ditches in the grasslands
  - Grasslands where ditches create a change in micro-topography or result in drainage will be restored by filling them up with local material
- In the south zone (ca 17000m²) the current vegetation exists of willow and alder. Ditches are present each 15-30ms.The surface dries up entirely during summer which enhances a forestation. Profound measures are necessary to restore the site. After scrub removal the ditches will be blocked.
- On 2 locations human constructions and man-made ponds influence the natural topography and hydrology. Currently these 2 sites are private-owned and probably out of reach of this project. However Natuurpunt aspires to purchase these sites to restore the entire pilot zone.
- Varia: for the planned works and the future adaptive management of the site accessibility is crucial, we also implement some measures on this topic. E.g. create stable paths for mowing machines, a depot for management residues etc.
- Management on exotic plant-species, here mainly Prunus serotina.
- Removal of unnatural constructions, e.g. ruins, old fencing, illegal dumping

3.1.3 Adaptive management

Adaptive management will consist mainly of mowing of the grasslands to disadvantage dominant plant species. Secondly the management on exotic plant species will stay at high level during the next few years.

The rewetted area needs to be managed by specialised mowing equipment (tracks) and on the bogs and mires hand-labour will be necessary to preserve the site.

Monitoring the restoration and adaptive management will be done by:

- The installed hydrological network in WPI1.1.1 If fluctuations or low tables occur we can adjust our management.
- Vegetation surveys (key-species)
- All interventions will be captured in GIS

3.2 Zone 2 Lange Beemden

3.2.1 Situation

Target zone area: 25ha. Municipality Lummen. Coordinates 203871.8,187084.8

The zone is similar to Bakel as it is divide by a parallel creek, the Vloedgracht (cat. 0). Due to the yearly clearance-management the bed of the creek is now minus 100-150cm. Currently this watercourse functions as a sewage for the houses situated north of the valley. This issue is discussed on the meeting with associated partners. The Municipality of Lummen is responsible for the installation of a new sewage-system so household water won't affect the nature-reserve in the future. Planning is to install this within 5 or 6 years, meaning we can't fully restore this zone as it would contaminate the peat with household water.

Figure 6 Cleaning of the Vloedgracht, March 2019

3.2.2 Measures

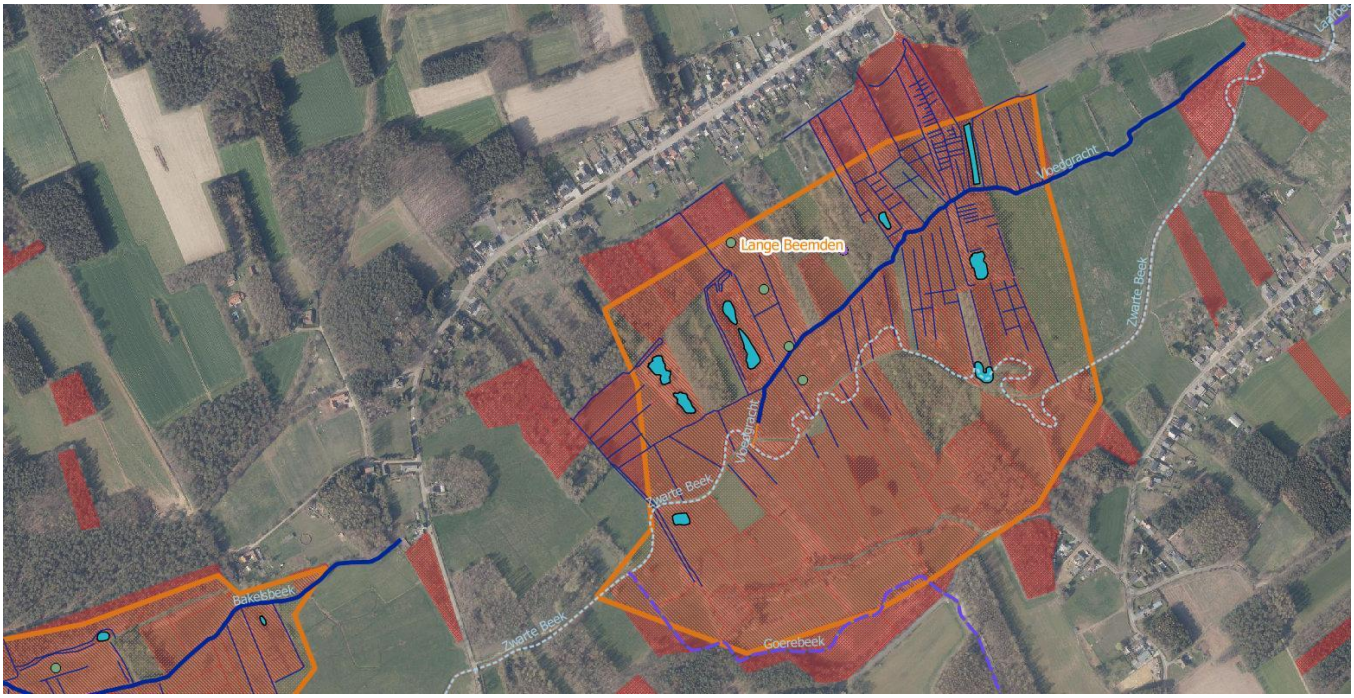


Figure 7 Zone 2 Lange Beemden map

- Vloedgracht two restoration phases
  1. In winter 2019-2020 we will block the Vloedgracht with sandbags at different places.
  2. After installation of the new sewage system the water stream will be filled up to a -50cm level and more upstream up to ground level
- to ensure there is no impact on higher level grounds (privately-owned) we investigate the possibility to install a by-pass to the Black Creek. If this can be executed we can achieve high success with zero impact on surrounding areas.
- Human constructions and man-made ponds on 3 sites influence the natural topography and hydrology. Although these 3 sites are imbedded in the nature reserve, the biodiversity is extremely low. These sites will be restored to stimulate a natural evolution
- Local ditches in the grasslands
  - Grasslands where ditches create a change in micro-topography or result in drainage will be restored by filling them up with local material
- Varia: for the planned works and the future adaptive management of the site accessibility is crucial, we also implement some measures on this topic. E.g. create stable paths for mowing machines, a depot for management residues etc.
- Management on exotic plant-species, here mainly Prunus serotina.
- Removal of unnatural constructions, e.g. ruins, old fencing, illegal dumping

3.2.3 Adaptive management

Adaptive management will mainly consists of mowing of the grasslands to disadvantage dominant plant species. Secondly the management on exotic plant species will stay at high level during the next few years.

The rewetted area needs to be managed by specialised mowing equipment (tracks) and on the bogs and mires hand-labour will be necessary to preserve the site.

Monitoring the restoration and adaptive management will be done by:

- The installed hydrological network in WPI1.1.1 If fluctuations or low tables occur we can adjust our management.
- Vegetation surveys (key-species)
- All interventions will be captured in GIS

3.3 Zone 3 Baron

3.3.1 Situation

Target zone area: 20,2ha. Municipality Lummen. Coordinates 209426.0,190710.4

Halbeek (Cat. 2) runs on the northern part and the (Kleine) Vloedgracht runs in the middle of the valley. In the east there is an industrial area on 'reclaimed' land. There is no influx of contaminated water as overflows are installed on factory ground.

VMM will investigate water quality of the Halbeek.

Province of Limburg will investigate the frequency of overflow.

The invasive exotic species Himalayan balsam (Impatiens glandulifera) is present in the Halbeek.

3.3.2 Measures

Figure 8 Zone 3 Baron map

- Halbeek
  - Adaptive management: less frequent clearances, placement of gabion baskets to prevent severe clearances.
- Vloedgracht yellow line: fill up to ground level.
- Vloedgracht blue line: fill up to -50cm, placement of gabion baskets to prevent severe clearances.
- Local ditches in the grasslands
  - Grasslands where ditches create a change in micro-topography or result in drainage will be restored by filling them up with local material

- Varia: for the planned works and the future adaptive management of the site accessibility is crucial, we also implement some measures on this topic. E.g. create stable paths for mowing machines, a depot for management residues etc.
- Management on exotic plant-species if necessary
- Removal of unnatural constructions, e.g. ruins, old fencing, illegal dumping
- Special attention goes to the alder-forest on the eastside of the pilot. These are currently degraded due to drainage of the peat. Blocking of the ditches will result in restoration of this Natura 2000 habitat (Habitat E91E0).

3.3.3 Adaptive management

Adaptive management will mainly consists of mowing of the grasslands to disadvantage dominant plant species.

The rewetted area needs to be managed by specialised mowing equipment (tracks) and on the bogs and mires hand-labour will be necessary to preserve the site.

Monitoring the restoration and adaptive management will be done by:

- The installed hydrological network in WPI1.1.1 If fluctuations or low tables occur we can adjust our management.
- Vegetation surveys (key-species)
- All interventions will be captured in GIS

3.4 Zone 4 Bocht

3.4.1 Situation

Target zone area: 76,7. Municipality Lummen. Coordinates 206878.1,188953.8

Influenced by:

- Black Creek (cat 1)
- Vlootgracht (cat 0)
- Halbeek (cat 2)
- Laarbeek (cat 0 and 3)
- Vloedgracht (cat 3)

All watercourses are managed and cleared on a regular basis.

In June 2019 the University of Manchester Metropolitan University and National University of Ireland Galway took samples of the water as well as peat samples.

Figure 9 Recently cleared Halbeek, peat is exposed to the surface

3.4.2 Measures

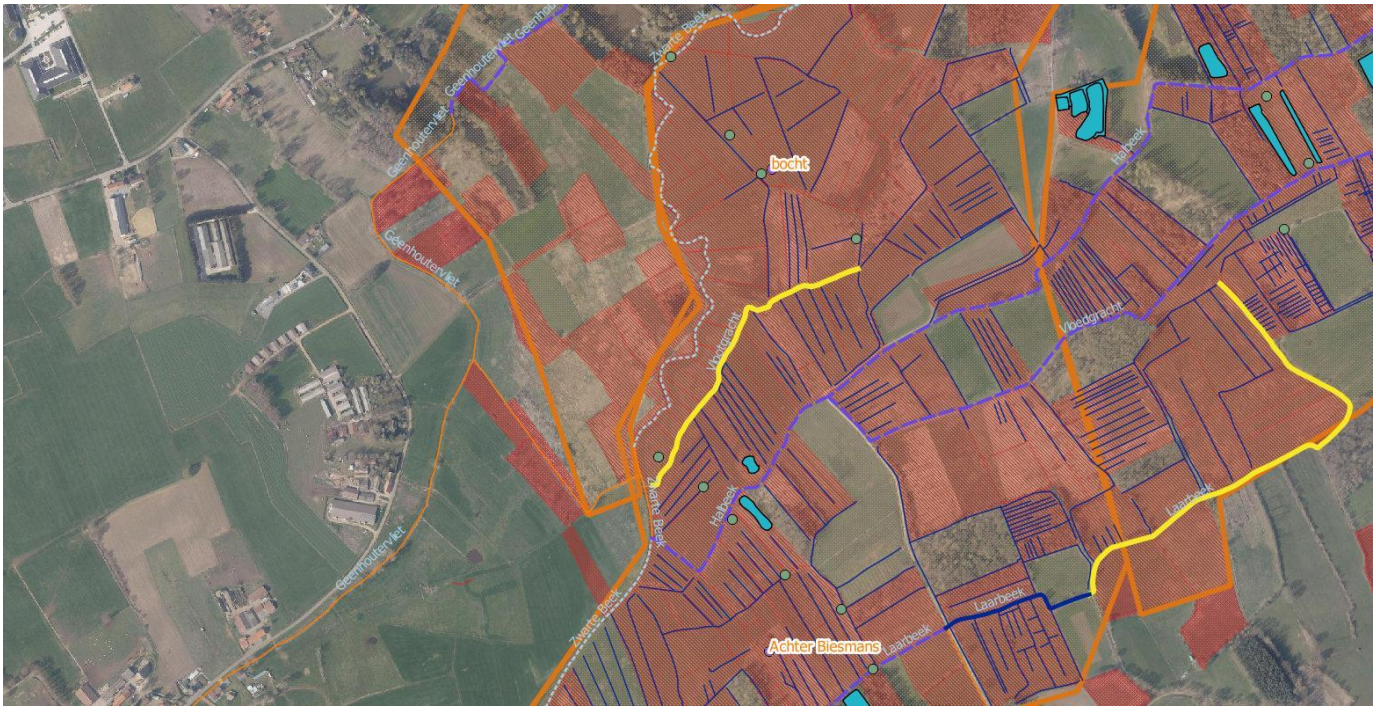


Figure 10 Zone 4 Bocht map

- Vlootgracht
    - Ditch blocking to ground level
- Halbeek: fill up to – 50 cm and adaptive management, use of sandbags and placement of gabion baskets to prevent severe clearances.
- Vloedgracht: fill up to – 50 cm and adaptive management, use of sandbags and placement of gabion baskets to prevent severe clearances.
- Laarbeek: fill up to – 50 cm and adaptive management, use of sandbags and placement of gabion baskets to prevent severe clearances. (Further upstream we will try to fill up to groundlevel (see zone ‘Achter Vuegen’)

- Local ditches in the grasslands
    - Grasslands where ditches create a change in micro-topography or result in drainage will be restored by filling them up with local material
- Varia: for the planned works and the future adaptive management of the site accessibility is crucial, we also implement some measures on this topic. E.g. create stable paths for mowing machines, a depot for management residues etc.
- Management on exotic plant-species if necessary
- Removal of unnatural constructions, e.g. ruins, old fencing, illegal dumping

3.4.3 Adaptive management

Adaptive management will mainly consists of mowing of the grasslands to disadvantage dominant plant species.

The rewetted area needs to be managed by specialised mowing equipment (tracks) and on the bogs and mires hand-labour will be necessary to preserve the site.

Monitoring the restoration and adaptive management will be done by:

- The installed hydrological network in WPI1.1.1 If fluctuations or low tables occur we can adjust our management.
- Vegetation surveys (key-species)
- All interventions will be captured in GIS

3.5 Zone 5 Achter Vuegen

3.5.1 Situation

Target zone area: 62,7ha. Municipality Lummen and Beringen. Coordinates 207980.2,190125.9

Influenced by:

- Halbeek (cat 2)
- Laarbeek (cat 0)
- Vloedgracht (cat 0 and cat 3)

As in other target zones, all watercourses are managed and cleared an a regular base.

3.5.2 Measures

Figure 11 Zone 5 Achter Vuegen map

- Halbeek: fill up to – 50 cm and adaptive management, use of sandbags and placement of gabion baskets to prevent severe clearances.
- Vloedgracht: fill up to – 50 cm and adaptive management, use of sandbags and placement of gabion baskets to prevent severe clearances.
- Laarbeek: fill up to ground-level and adaptive management
- Local ditches in the grasslands
    - Grasslands where ditches create a change in micro-topography or result in drainage will be restored by filling them up with local material
- Varia: for the planned works and the future adaptive management of the site accessibility is crucial, we also implement some measures on this topic. E.g. create stable paths for mowing machines, a depot for management residues etc.
- Management on exotic plant-species if necessary
- Removal of unnatural constructions, e.g. ruins, old fencing, illegal dumping

3.5.3 Adaptive management

Adaptive management will mainly consists of mowing of the grasslands to disadvantage dominant plant species.

The rewetted area needs to be managed by specialised mowing equipment (tracks) and on the bogs and mires hand-labour will be necessary to preserve the site.

Monitoring the restoration and adaptive management will be done by:

- The installed hydrological network in WPI1.1.1 If fluctuations or low tables occur we can adjust our management.
- Vegetation surveys (key-species)
- All interventions will be captured in GIS

3.6 Zone 6 Paalkant

3.6.1 Situation

Target zone area: 34,2ha. Municipality of Beringen. Coordinates 206925.1,190306.5

Influenced by:

- Black Creek (cat 1)
- Geenhoutervliet (cat 0, 3 and 2)

As in other target zones, all watercourses are managed and cleared an a regular base.

In zone 6 there are a few ditches which drain the grasslands to the Geenhoutervliet. These unofficial watercourses are not managed and are mainly filled with seepage water. In June 2019 the University of Manchester Metropolitan University and National University of Ireland Galway took samples of the water as well as peatsamples.

3.6.2 Measures

Figure 12 Zone 6 Paalkant map

- Geenhoutervliet cat 2 and 3: fill up to – 50 cm and adaptive management, use of sandbags and placement of gabion baskets to prevent severe future clearances.
- Geenhoutervliet cat 0 : fill up to 0 cm and adaptive management, use of sandbags and placement of gabion baskets to prevent future clearances.
- Parallel ditches (see DHM): fill up to ground-level
- Grasslands where ditches create a change in micro-topography or result in drainage will be restored by filling them up with local material
- Varia: for the planned works and the future adaptive management of the site accessibility is crucial, we also implement some measures on this topic. E.g. create stable paths for mowing machines, a depot for management residues etc.
- Management on exotic plant-species if necessary

- Removal of unnatural constructions, e.g. ruins, old fencing, illegal dumping

3.6.3 Adaptive management

Adaptive management will mainly consists of mowing of the grasslands to disadvantage dominant plant species.

The rewetted area needs to be managed by specialised mowing equipment (tracks) and on the bogs and mires hand-labour will be necessary to preserve the site.

Monitoring the restoration and adaptive management will be done by:

- The installed hydrological network in WPI1.1.1 If fluctuations or low tables occur we can adjust our management.
- Vegetation surveys (key-species)
- All interventions will be captured in GIS

3.7 Zone 7 Overslag

3.6.1 Situation

Target zone area: 33,8ha. Municipality of Beringen. Coordinates 216459.5,198195.1

Influenced by:

- Black Creek (cat 2)
- Old Creek (‘Oude Beek’/’Hoogbosvliet’) (cat 3)

The peatlayer in this zone is 7m on the deepest point, this is the so-called Paleo-valley. Whilst the Old Creek follows this valley, the Black Creek rest its banks on higher sand-ground. In this up-stream part of the Valley, the Black Creek is a small (Cat 2) watercourse and measures nearly 100-150cm in width.

The Old Creek hasn’t been managed since 1999 and is blocked at several points to rewet the area.

After recent restoration measures the area is restoring from drainage and landuse. This site still needs refinement and adaptive management but we see this site as a model for all other zones of the pilot.

3.7.2 Measures

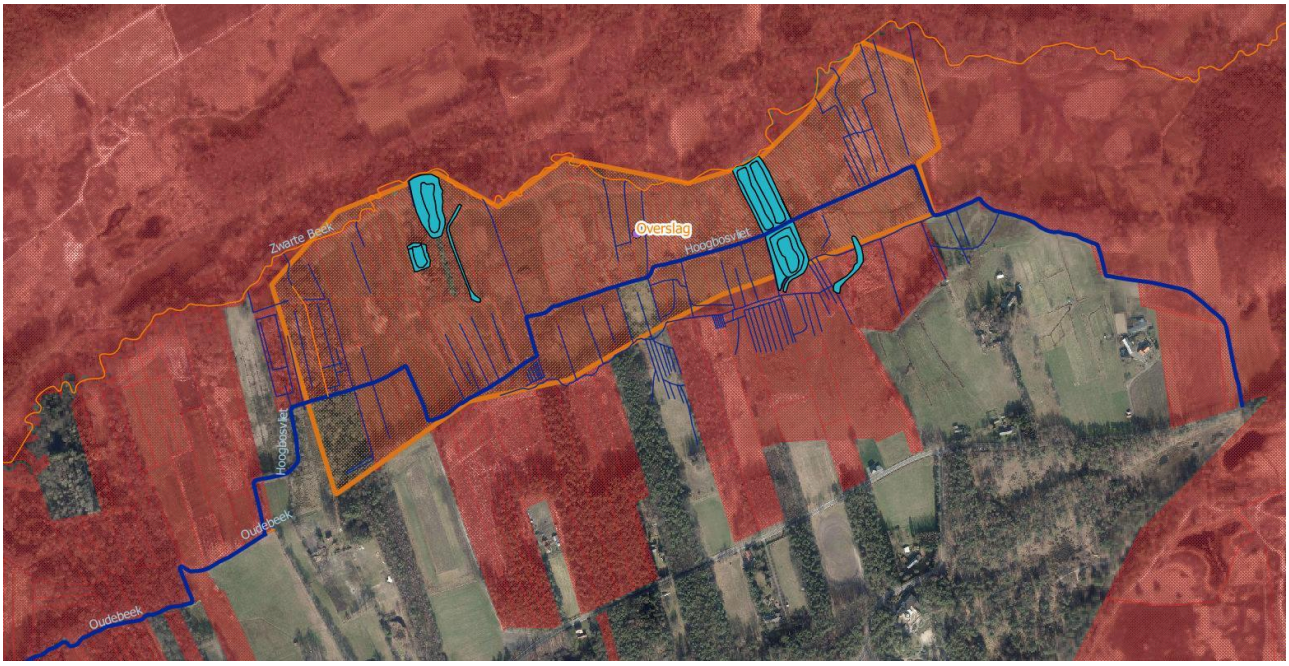


Figure 13 Zone 7 Overslag map

- Old Creek: fill up to – 50 cm and adaptive management
- Parallel ditches (see DHM): fill up to ground-level
- Leakage to Black and Old Creek can still be present. Difficult to detect but needs to be managed.
- Grasslands where ditches create a change in micro-topography or result in drainage will be restored by filling them up with local material
- Varia: for the planned works and the future adaptive management of the site accessibility is crucial, we also implement some measures on this topic. E.g. create stable paths for mowing machines, a depot for management residues etc.
- Management on exotic plant-species if necessary
- Removal of unnatural constructions, e.g. ruins, old fencing, illegal dumping

3.7.3 Adaptive management

Adaptive management will mainly consists of mowing of the grasslands to disadvantage dominant plant species.

The rewetted area needs to be managed by specialised mowing equipment (tracks) and on the bogs and mires hand-labour will be necessary to preserve the site.

Monitoring the restoration and adaptive management will be done by:

- The installed hydrological network in WPI1.1.1 If fluctuations or low tables occur we can adjust our management.
- Vegetation surveys (key-species)
- All interventions will be captured in GIS

3.8 Black Creek ('Zwarte Beek')

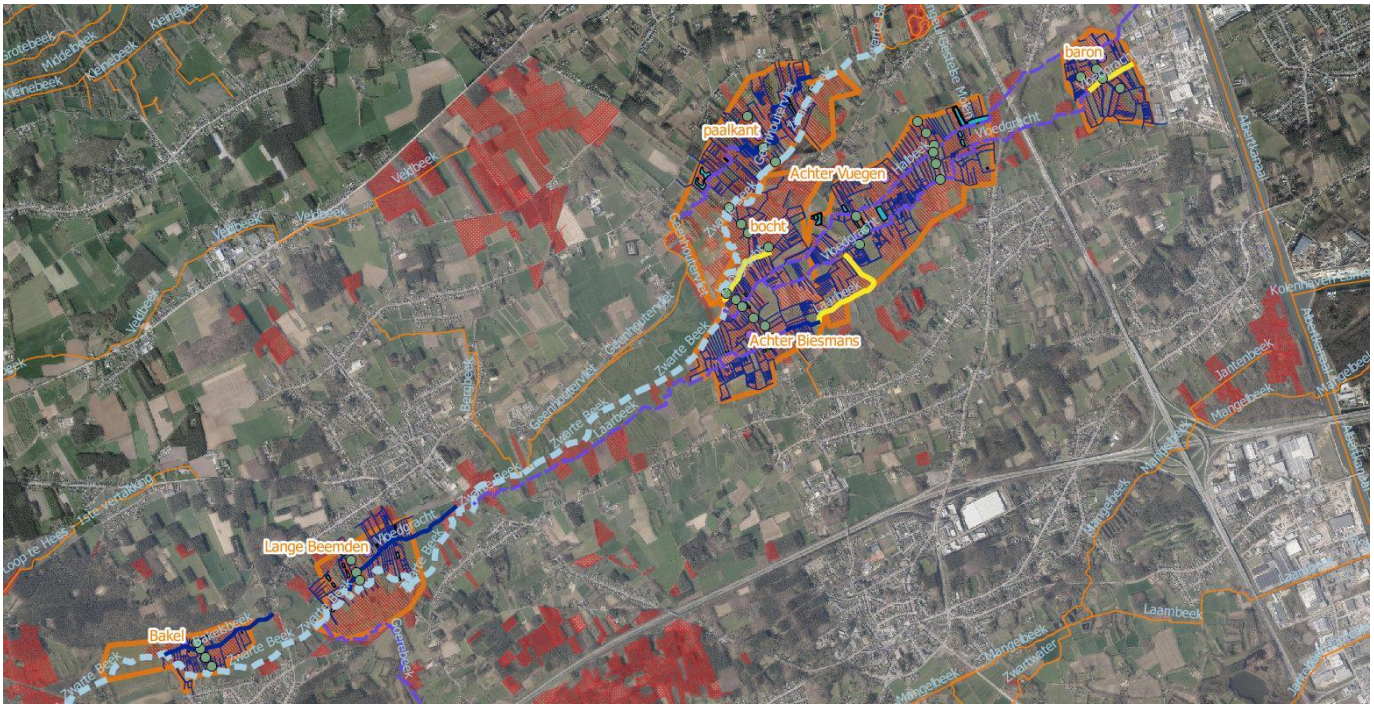


Figure 14 Black Creek ('Zwarte Beek') map

The Black Creek influences all zones directly except for Zone 3 Baron. The BC also functions as an important water-regulator for the entire region and is managed by the VMM (Flemish Environmental Organisation, government).

In 2017 the VMM, Natuurpunt and the Province restored parts of the stream to its original shape which resulted in 850m extra watercourse and 30 new (historic) meanders over a stretch of about 2,5km.

The current management of the creek is to be discussed as there are probably ways to restore the water tables to a more natural situation in which they can be kept high year-round. Fluctuations and drainage must be avoided.