

Scalluvia

scalluvia.eu

Layman's report • Life+ Scalluvia

Restoration of alder swamp forests and creeks
Polders of Kruibeke - Belgium





kingfisher © shutterstock

Conickshofke © vilda

With the 'Scalluvia' Life+ project, some 90 ha of alder swamp forests and creeks in the Polders of Kruibeke were given an optimal natural design so that rare species such as the bitterling, spined loach, bluethroat, kingfisher, little bittern, purple heron, beaver and otter can feel at home again. The project not only aims to restore these forests and creeks, but also to allow everyone to enjoy this jewel on the river Scheldt.

Life & Natura 2000

Through the LIFE+ programme, the European Commission allocates funds to support the restoration and development of Natura 2000 sites. Natura 2000 is a European nature network based on the Birds and Habitats Directives. In Natura 2000 areas, the Member States of the European Union are taking measures to ensure that the most vulnerable species of flora and fauna and their habitats are given every opportunity to flourish. The Polders of Kruibeke are also part of the Natura 2000 network with their mudflats, salt marshes, meadow bird areas, creeks and alder swamp forests. With the support of Europe, Life+ Scalluvia has worked to bring creeks and alder swamp forests to top condition.

More info:

<http://ec.europa.eu/environment/life/>

<https://www.natura2000.vlaanderen.be/>



Nature wants wet feet...

'Scalluvia' is a contraction of Scaldis (the Latin word for the Scheldt) and alluvial forests. In alluvial forests, the trees stand with their roots in the water. You can find them on clay or peaty soils. Rainwater from a slope in the landscape, the Wase Cuesta, enters the Scheldt valley near Kruibeke as groundwater on the surface.

The alluvial forest of Life+ Scalluvia is an alder swamp forest. The water level is high throughout the winter. During the summer, the soil only dries out superficially. The black alder is the most common species of tree, and is specifically adapted to this environment. The natural values of an alder swamp forest are considerable, with various animals and plants finding a suitable habitat there. Unfortunately, this type of forest is rare, both in Flanders and on a global scale, because it is very vulnerable.

alder swamp forest © vilda

The alder swamp forest used to provide local residents with firewood. In the nineteenth century, in order to make wet land more profitable, Viscount Stanislas Vilain XIII had canals dug through the alder swamp forest. The excavated soil from these 'rebates' was used to raise elongated strips of land on the nearby plots. This was followed by the planting of fast-growing trees such as poplars, which secured the landowner's income through the sale of timber. The water was pumped to the Scheldt via a steam-powered pumping station. Groundwater levels in the forests fell, and the habitat of the alder swamp forests was threatened with drying out.

The creeks in the polders are the remains of a number of breaches of the Scheldt dyke in the eighteenth century. The proliferation of weekend tourism, landfills and unregulated recreational fishing undermined the ecological balance. In recent decades, the waste water from the village centres of Kruibeke and Bazel has been discharged untreated into the forests and creeks. Pumps and non-return valves hampered fish migration.

With Life+ Scalluvia, Europe has made it a priority to restore these forests and creeks. From September 2013 to September 2018, four partners worked together to realise this project: Agentschap voor Natuur en Bos, De Vlaamse Waterweg NV, the local Natuurpunt association KRUIN vzw (Kruibeeks Natuurbehoud) and the municipality of Kruibeke. The total cost of the project was € 1,745,000, half of which was donated by the European Commission.



black alder © shutterstock





... local residents don't.

Just a stone's throw from Antwerp, in Kruibeke along the Scheldt, lies the largest flood plain in Flanders. Strolling through the picturesque villages of Kruibeke, Bazel and Rupelmonde, you'll find yourself walking through versatile tidal nature, open meadow bird area and centuries-old creeks surrounded by rare alder swamp forests. This varied and contiguous 600-hectare nature reserve can store up to 36 million m³ of water and protects the region from flooding. If a violent north-western storm coincides with spring tides, extra-high water levels pose a risk of flooding from the Scheldt and its tributaries. The Polders of Kruibeke are perfectly situated to collect any excess water. This prevents flooding upstream. Additional flood plains along the Scheldt and its tributaries reinforce this effect. They are all part of the Sigma Plan. The development work in the Polders of Kruibeke is based on the three pillars of the Sigma Plan: safety, nature and recreation. In addition to their function as a water buffer, the polders are home to a nature reserve with a European dimension. Visitors will receive a warm welcome in this versatile area with an extensive network of hiking and biking trails.



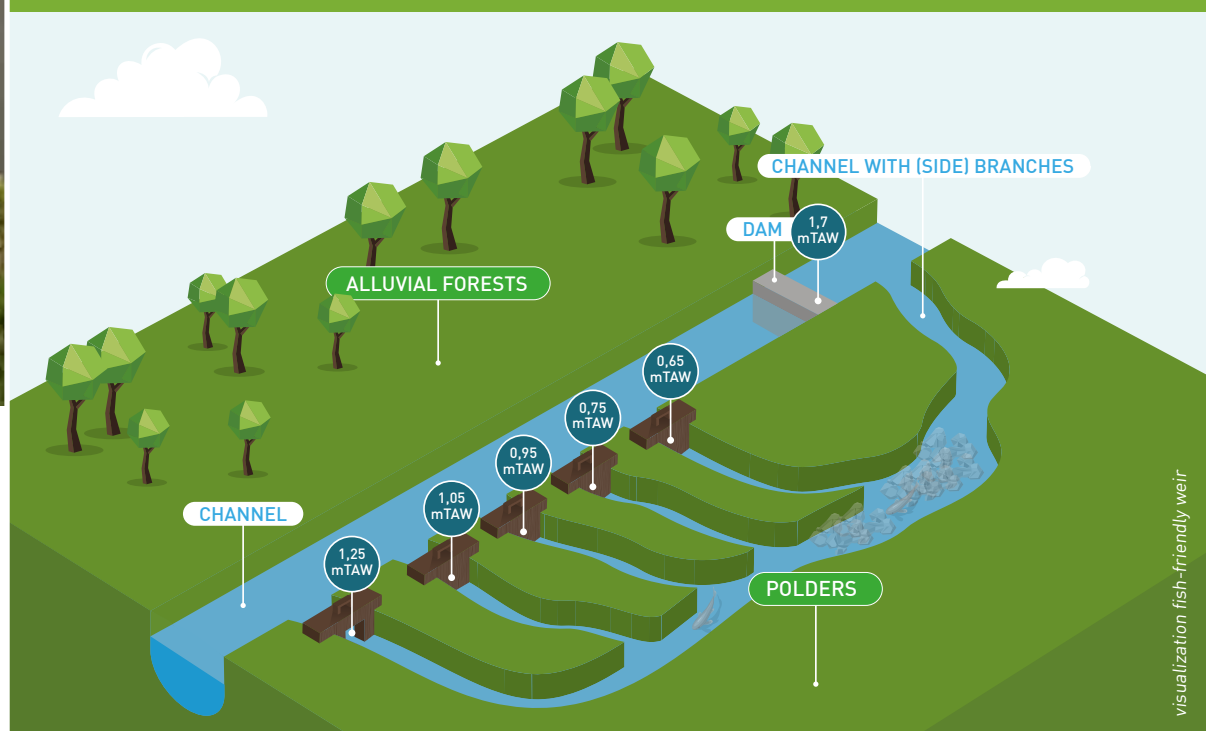
Towards a structurally rich alder swamp forest

- ✓ Divert and purify polluted water
- ✓ Dispose of waste and debris
- ✓ Combat drying out by placing weirs in the canals
- ✓ Fish must be able to migrate freely between the Scheldt and the polders
- ✓ Replace poplars and nettles with alder swamp forest carpeted with flowers
- ✓ Dead wood brings life to the forest
- ✓ Plant native shrubs for more variety
- ✓ Remove and control proliferating garden and non-native plants



Hottentia palustris © Shutterstock

Sewage system works in the municipality have ensured that waste water is no longer discharged directly into the forests and creeks. To prevent the alder swamp forests from drying out, we placed three weirs in the canals: bulkheads that allow the water level to be raised and regulated. A fish-friendly weir guarantees an unobstructed passage for fish between the freshwater canals and the Scheldt. Engineers designed this weir with five arms at different heights. Ground and surface fish can find their way around every water level and rare fish such as the bitterling and the spined loach can expand their habitat.



The poplars were removed for the most part. This was because their leaves decompose very quickly. As a result, large amounts of nitrogen are released into the upper soil layers and only strong settlers such as nettle, cleavers and blackberry can thrive. At an interval of three to five years, the remaining poplars are being ringed in the wettest places, causing them to die off and topple over. Dead wood brings life to the forest; it is indispensable for insects such as beetles and for many kinds of mushrooms. Woodpeckers and bats make their homes in standing dead trees.

More than 90 tonnes of waste and debris, including a complete tennis court, have been cleared. Throughout the area, the former owners and users planted gardens with bamboo, conifers and rhododendrons. These non-native plants often threaten the indigenous ones. We removed these exotics so that the alder swamp forest can recover with black alder, willow and alder buckthorn.

In some places, we planted hazelnuts and European bird cherry to suppress proliferating species such as the Japanese knotweed and the Himalayan balsam. This gave the typical flower carpet with kingcup and cuckoo flower every opportunity again. Rare plants such as the water violet and the frogbit decorate the ditches of the swamp forest again.

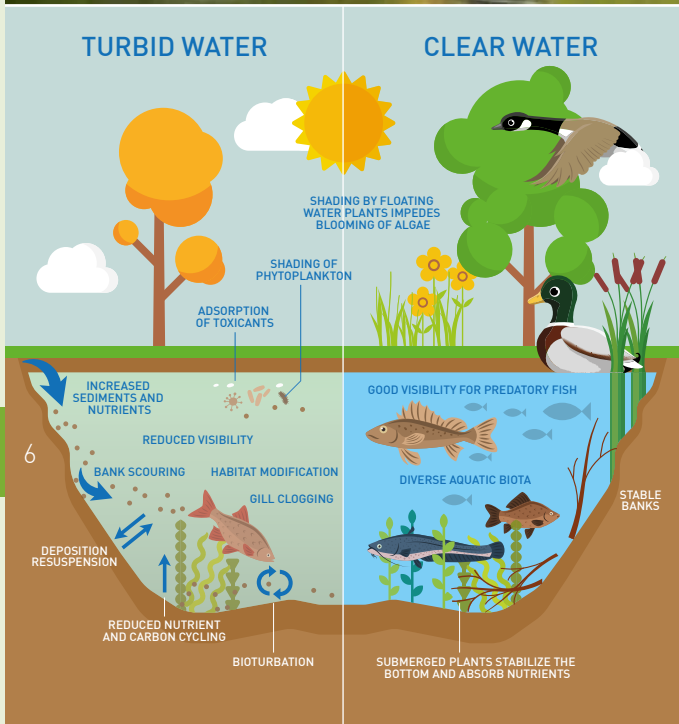


● Clean creeks: over quiet waters and deep soils

The former fish ponds and the Rupelmondse and Bazelse creeks were thoroughly cleaned up and ecologically enhanced. Bottom-dwelling fish such as carp and bream continuously introduced the soiling and organic nutrients from the thick layer of silt into the water column, allowing algae to bloom. These took away light and food from large aquatic plants and obstructed the view of the pike. Few animal and plant species were able to survive under these conditions. We restored the ecological balance by fishing out carp and bream, clearing silt and introducing water plants and pike. The slope of the bank has been made more undulating. A mosaic of marsh and water plants has been created, full of sheltered places for insects, fish, amphibians and birds such as the little bittern and the purple heron. Trees that were too close to the bank were cut down and placed in the water. They are ideal habitats for small aquatic animals and nurseries for fish. We have already found the rare freshwater sponge there, which are benefiting from the improved water quality.

Here and there were the remains of holiday homes, shelters for anglers and all kinds of riverbank reinforcement. These were removed, together with tonnes of dumped debris and waste. The two most beautiful brick holiday homes were given a new function as a bat residence or bird-watching and study hut for our mascot, Xavier the Roe.

The creeks now have clear water with floating aquatic plants such as yellow water lily. Among the submerged aquatic plants, the pike watches its prey. This predatory fish maintains a varied fish population in balance. The development works did not fail to have an effect: in 2017, 18 species of fish swam in the Rupelmondse creek, compared with 13 in 2012. The otter visit in 2014 was even a first for Flanders.



Iris pseudacorus © shutterstock



“ What does Scalluvia mean to you?

“Every time I come here with my dog to walk, I see at least one roe deer. When I first brought Rita with me, we even saw eight of them together! It’s full of herons, geese and other birds. Isn’t it fantastic! And the Karperhuisje is now so beautiful, I’d like to live there!”

.....
Johan en Rita – passers-by with dog



“We cycle quietly and safely through the Polders to school. We can see there are lots of birds here. Since coming here with our family to walk, we’ve gained respect for nature. It’s good that efforts are being made here for nature. We hadn’t heard of Scalluvia before, but we do know the mascot, Xavier the Roe. Xavier’s a dude (laugh)!”

.....
Group of schoolchildren on bikes

“Because we’re located near the polder nature, we’ve drawn up a tourist plan. Relax in nature and afterwards eat good food with polder vegetables from our vegetable garden, that’s our concept. Every guest gets information about the various walks available. When I come home in the evening, I see the roe deer crossing. Why should I go on holiday abroad with so much beautiful nature in my back yard?”

.....
Sylvester – Hotel/restaurant Hofke Van Bazel



© vilda

"We often walk along the Beverpad (Beaver Path), which is a real nature experience. We find the Karperhuisje and the Coninckshofke in the alder swamp forest the most beautiful. Do you know Louis, the Bazel white? This white squirrel lived here and became a phenomenon on social media, but he's not been seen for a long time now."

Retired volunteers who collect waste with grabbers



"As guides, we experienced the developments first-hand, and were able to help welcome the public. In the past we only told the history of the Polders, but since 2013 we've also talked about the natural beauty of the alluvial forests and creeks. The Life+ Scalluvia project is a textbook example of how to combine and unlock history and nature harmoniously."

Freddy Moorthamer – Barbier Guide

"I don't come here often enough myself, but I'm very pleased when people come to tell me that we have such a beautiful polder! Co-ownership for the residents of Kruibeke was our main ambition. The transformation into a controlled flood plain was quite a challenge, but the ecological and recreational added value that Scalluvia has provided makes it more than worth it, for everyone."

Jos Stassen – Mayor of Kruibeke



Scalluvia before and after

BEFORE



alder swamp forest

AFTER

To restore the rare alder swamp forest to its natural state, poplars and plant species that do not belong there have been removed.



BEFORE



AFTER

The construction of canals and dams prevents the alder swamp forests from drying out. Ervin, the steel fish by Erwin Dieleman, marks the fish-friendly weir by which fish can freely migrate from and to the Scheldt.



Tonnes of dumped waste and debris, including a lot of asbestos, were cleared.



The holiday homes, shelters for anglers and bank protection made way for sloping, natural banks with marsh and water plants full of sheltered spots for dragonflies, fish, birds and amphibians. The anglers were given a new, specially equipped spot on the creek.

BEFORE



© ANB

AFTER



© Paul D'Eer

A historic brick holiday home, known as the Coninckshofke, has been restored and furnished with two bird hides for watching birds and beavers on the Rupelmondse creek. On the information boards you will learn about life in and around the creek. Bee hotels in the shape of polder animals, made by pupils of the Sint-Jorisinstituut in Bazel, decorate the side wall. Outside are two picnic benches to relax. The adjoining orchard has been restored with local fruit varieties.



karperhuisje © vilda

BEFORE



karperhuisje © vilda

AFTER

In 1961, mason Cyriel De Roeck put all his skill and passion into the Karperhuisje. With European support, the roof and shutters were refurbished in 2016. Inside the house is set up for barn owls and bats. We also repaired the former lookout point over the creek. So be sure to climb up the stairs.



Romping in the Life+ Scalluvia play forest: an activity for the youth movement or an ideal stop during a family walk in the Polders of Kruibeke. Isn't Xavier the Roe hiding behind a tree there?



The ring dyke of the Sigma Plan protects the villages of Kruibeke, Bazel and Rupelmonde against flooding. The Arcade is literally and figuratively a gateway between the inhabited world and nature. The two other Life+ Scalluvia works of art, the Liefkensboom and Ervin, also offer a special perspective on nature.

Scoring with species

The development measures to restore the natural beauty of the alder swamp forests and creeks benefit many plants and animals, but six animals in particular, the so-called target species of the Life+ Scalluvia project. The demands that such a species places on its habitat determine the necessary measures. The success of the measures is gauged by the recovery or return of the species.



The more natural layout of the banks of the creeks provided the **bitterling** with a suitable spawning ground. The Polders now have a vital population that, thanks to the fish-friendly weir, is connected to other populations.



The **spined loach** scans sandy bottoms in search of snails and other aquatic animals. This rare species was introduced into the Rupelmondse creek after the development work. Hopefully it will be able to colonise other areas from here in the future.



If you stop for a moment on the Rupelmondse creek you may spot a **kingfisher**, a regular guest since the water quality has been at the right level. On a branch of a dead tree that has been laid in the creek, it has a good lookout post from which to spot fish.



The shy **bluethroat** lives in reed beds and marshy areas. Only when it turns colder does it head south. In the Polders of Kruibeke, the number of breeding pairs has more than doubled. This number may increase further due to the chamfering of the creek banks and the planting of reeds and reedmeace.



The **little bittern** is the smallest species of heron to be found in our region. It leads a hidden life among the reeds. Since 2016, the little bittern has been breeding in the Polders of Kruibeke. It has found its spot in the new marshy areas along the Rupelmondse creek.



The **purple heron** searches for fish and amphibians in the reed beds. During its migration to and from its wintering place in West Africa, it can regularly be spotted on the Rupelmondse creek. The restored alder swamp forest and the creek banks with marsh and aquatic plants also offer this species an ideal breeding ground.

Regular guests

The development work also benefited other animal species.

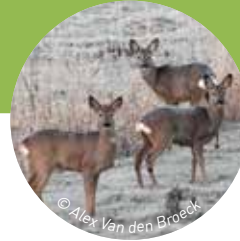
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Rupelmondse creek

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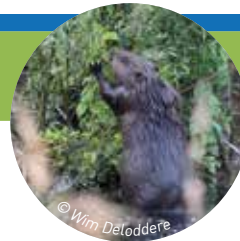
eel © shutterstock

serotine bat © vilda



© Alex Van den Broeck

The **roe deer** has become a regular guest. '**Xavier the Roe**' even became the mascot of the Polders of Kruike and Life+ Scalluvia.



© Wim Detodere

Since Life+ Scalluvia, **beavers** have enjoyed the Rupelmondse creek to their hearts' content. Along the Beaver Path you can see traces of their gnawing in the tree trunks. These architects of nature bring an extra dynamic to the ecosystem.



© vilda

Otters have also discovered the nature reserve, thanks to the improved water quality of the creeks and canals. They now find plenty of fish there, along with rough vegetation and reeds for shelter.



© Wouter Faveyts

Elia, the Belgian transmission grid operator, has installed a nesting platform on one of the high-voltage pylons by the Rupelmondse creek. We also placed an artificial nest in a tall tree by the creek. Species such as stork, tree and peregrine falcon can breed there, but we hope that the **osprey** which occasionally comes to take a look makes its nest there.



Question of communication: 10 keys

Public opinion regarding the Polders of Kruikeke has evolved in 15 years from massive resistance to pride and enthusiasm. Life+ Scalluvia also played its part by making local residents co-owners of the area in ten steps. It is precisely this last phase that will ensure the sustainability of the entire project. Clear communication and participation were key to the strong support. For this Life+ Scalluvia was recognized as a finalist for the Natura 2000 Award 2018.

- 1 **Listen to the expectations of the users of the nature reserve.**
We involved anglers, walkers, cyclists, local residents, traders, local nature, culture and youth associations in our project.
- 2 **Invest in communication and focus on the end result.**
Through the website, articles in the press, newsletters and by using social media (Twitter, Facebook) we were able to reach large numbers of people. Information films show 'before and after', the creation of works of art in a natural setting, the natural richness of Scalluvia and how children can learn more about the alder swamp forests. Watch our videos at scalluvia.eu/publicaties.
- 3 **Visit similar areas to exchange knowledge and areas of concern.**
Together with those involved we went to see how Life+ Hoge Venen alder forests were restored for the beaver, and how the banks of the Kleine Nete were made more natural for the rare spined loach (Life+ Kleine Nete).
- 4 **Support bottom-up actions and go for quick results.**
Schoolchildren literally helped build the project with tree planting campaigns, dead hedges and bee hotels. The local nature association KRUIN has been monitoring biodiversity over the years to be able to evaluate nature management.
- 5 **Gain external recognition.**
The visit of the Belgian royal couple and European funding impressed the proud local residents.
- 6 **Experience in the field.**
Information evenings and freely accessible guided site walks clarified the 'how and why'. Site signs and information panels presented the current state of affairs.
- 7 **Train ambassadors.**
We invested in the training and equipping of volunteer associations KRUIN, Barbiergidsen (Barbier Guides) and Natuurouders (Nature Parents).
- 8 **Invest in children and young people.**
Young people can indulge themselves in the new play forest. With the 'Scalluvia Jungle' teaching package, the Nature Parents are focusing on 3rd grade primary education. Pupils from the Sint-Jorisinstituut in Bazel not only made nesting boxes and bee hotels, but also the work of art 'Liefkesboom'. Some are even dedicating their final project to the nature reserve.
- 9 **Use clear rules and supervision.**
The accessibility regulations were drawn up in a participatory manner and are clearly communicated in the field. The forest ranger keeps an eye on the situation.
- 10 **Give your project an identity.**
The Polders of Kruikeke are a strong brand, with Xavier the Roe as their mascot.



Explore the Polders

Crossing the Polders, you will encounter time capsules: a resting or picnic bench accompanied by an information pillar. As a walker or cyclist, you can pick up bite-sized chunks of information about the past, present and future of the place. Top designer Stefan Schöning designed the outdoor furniture with the signature of the region. The concrete of the inlet and outlet constructions is repeated in the capricious tiles with green joints, the cycle paths alongside the cobblestone roads and the graphically printed information pillars. The wood of the forests translates into bird-watching points and benches. During the 'Palavering about the Polders' workshop, locals helped determine where the time capsules would be placed and what they would tell. For example, we collected the regional stories, special observations and anecdotes of the area. Or did you already know that in the Coninckshofke, Torre let an otter eat at the table, and that there used to be a duck decoy in the swamp forest?

Some polder dwellers could not wait for the concrete to dry up during the reconstruction of the Verkortingsdijk. Do you recognise their traces in the paving stones of the Sporenpad (Traces Path)? The Beaver path also deserves its name. Put on your boots and spot the traces of gnawing in the tree trunks along the path.

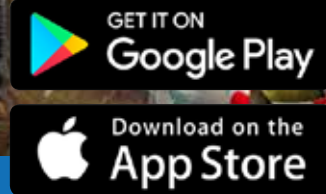
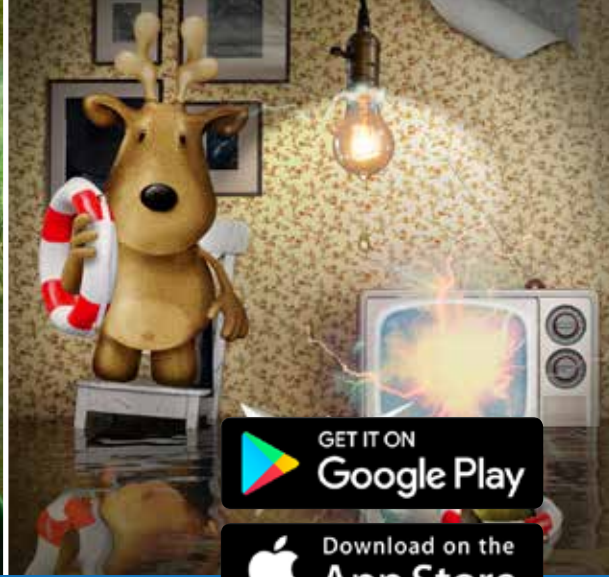
The Liefkesboom walk takes you past all these special Life+Scalluvia spots. Ask for the walks brochure at the tourist information office or the information centre of De Vlaamse Waterweg. On its website, Toerisme Oost-Vlaanderen (East Flanders Tourism) presents other walking routes through the area: the Rupelmondse and Kruibeekse creek routes and the Barbierbeek route. Various cycling routes also cross the area. Link: scalluvia.eu/wat-valt-er-te-beleven-2/

Dogs must be kept on a lead in the Polders of Kruibeke so as not to disturb the many birds and other animals, but in the newly developed dog meadow at the end of the Oud-Veerstraat they can have free rein.

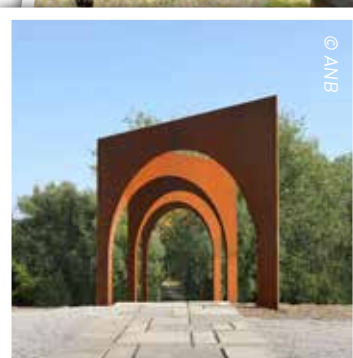
The little ones can enjoy themselves from sunrise to sunset in the Scalluvia play forest on the Dweerse Gaanweg in Bazel, and Sport.Vlaanderen has created a loop through the Polders of Kruibeke for the sporty types.

Anglers can find spots to fish along both the Bazelse and Rupelmondse creeks. The setting is beautiful for anglers who love nature and the somewhat more challenging work. Hidden in the reeds you can learn the art of waiting - a heron shows you how to do it.





Download the free *Polder Ranger* app and *Xavier the Roe* app and use them to explore the Polders of Kruibeke! Scan the pillars at the resting points and Xavier will appear to show you the way. Signposted routes lead you past the most beautiful places, 'tags' with photos, quizzes and other information revealing the latest news or the great stories of the past.



Art in a natural setting

Culture and nature are the common thread throughout the history of the Scheldt valley. The origin of the creeks, the inhabitants of the alder swamp, the striking lime trees, all form a source of inspiration for artists. We received numerous proposals for art in the Polders. In response, we created a number of works of art in and around the alder swamp forests that allow the natural environment to be experienced in a different, more intense way.

Polder mascot Xavier the Roe and an old lime tree inspired teacher Ariane De Wit and her mechanics pupils at the Sint-Jorisinstituut in Bazel for their work of art 'Liefkesboom'. The old lime tree was traditionally known as a meeting place for lovers. Romantic souls can pick up a padlock at Rupelmonde tourist office to hang on the work of art.

On World Fish Migration Day in 2016, Mayor Jos Stassen and the pupils of the Sint-Petrusschool in Bazel inaugurated an artistic fish on the fish-friendly weir on the Blauwe Gaanweg. The work of art 'Ervin' is by Erwin Dieleman, who, as site supervisor, guided the construction of the weir in the right direction. No coincidence, therefore! The large steel construction depicts a freely migrating fish.

The most striking work of art, the 'Arcade', was produced by the internationally renowned artistic duo Gijs Van Vaerenbergh with the help of many sponsors. The work of art runs across the wall that forms the new ring dyke between the village and the nature reserve and invites you to visit the alder swamp forests.



Unknown, unloved

The **Natuurouders** (Nature Parents) explore nature with primary school children. In this way they support teachers in lessons about nature and the environment.
More info: natuurouders.kruike@gmail.com

The **Barbiërgidsen** (Barbie Guides) are an enthusiastic group of nature guides, tourist guides, an agricultural guide and archaeologist who want to introduce everyone to the Polders of Kruike and their surroundings. They organise monthly guided walks there, and also act as guides for groups on request. More info: www.barbiërgidsen.be

Local ambassadors were given support to make their nature education function more professional. Every month the Barbie Guides go to the Polders to tell the stories of the region. The local nature association KRUIN organises information evenings and guided thematic walks around the creeks and alder swamp forests. You can discover all the activities on the website www.scalluvia.eu and the Facebook page 'De Polders van Kruike'. Everyone is welcome!

The Nature Parents organise spectacles for young people. Thanks to the clever structure of the excursions, water classes and activities in the polders, the schoolchildren learn while playing and having fun. The teaching package 'Scalluvia Jungle' offers 3rd grade primary schoolchildren an adventure in the swamp forest under the guidance of the Nature Parents and lesson sheets to work on in the classroom. Make mud cakes during a soil investigation and build a beaver castle. If you put your hand in the tree fruit box, be careful: the shell of a sweet chestnut is prickly! Have you ever looked through an underwater viewer? Loads of wriggling water beasts!

NATURE PARENTS



BARBIËRGIDSEN





● The future

Enthusiastic volunteers from KRUIN and employees of the Research Institute Nature and Forest (INBO) will regularly map out the nature values of the area, even after the end of the Life+ Scalluvia project. They will observe the coming and going of plants, birds, fish, butterflies, dragonflies and damselflies. With the knowledge we have gathered, we have drawn up a management and accessibility plan for the next 24 years. In the alder swamp forests we give nature free rein, the beavers provide dynamism and spontaneous rejuvenation. We pay constant attention to the exotic plants: we regularly remove new shoots and seedlings. Thanks to monitoring, we can keep our finger on the pulse and adjust the management and recreation where necessary. After the development work, the nature management plan will be the guideline for managing and conserving the forests and creeks properly in the future and forms a solid basis for the establishment of a Flemish Nature and Forest Reserve.



Colophon

The Life+ Scalluvia project in the Polders of Kruikebe has been achieved with the support of the LIFE European Union Programme (LIFE 12 NAT/BE/000596). Through the LIFE Programme, the EU supports projects within the European Union that contribute to the implementation, updating and development of its policy on environmental protection, nature conservation and climate change.

 **Duration:** The kick-off meeting was held on 10 September 2013. A year's extension brought the end date of Scalluvia to 1 September 2018.

 **Budget:** € 1,745,000, of which 50% co-financing from the EU Life+ Programme.

 **Partners:** Agentschap voor Natuur en Bos, De Vlaamse Waterweg NV, Municipality of Kruikebe, Kruikebe vzw

Brochures can be ordered from: Scheldeproject.anb@vlaanderen.be

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