



# LIFE IN QUARRIES

Initial Workshop – 04/05/16

Afternoon session



Gembloux Agro-Bio Tech  
Université de Liège



TEMPORARY NATURE

Dynamic management  
of  
temporary ponds

Dynamic management  
of  
associated pioneer  
grasslands

Regular loose face  
refreshment and  
creations

Scree management

Annual creation  
of  
shelters

Development  
of  
vascular plant species

Translocations  
of  
Natterjack toad  
and of  
Crested Newt

Breeding  
of  
*Bombina variegata*

PERMANENT NATURE

Management  
of  
long term water  
bodies

Creation  
of linear of face  
favourable to  
reedbeds

Placement  
of  
terns platforms

Securing  
of  
chiropters galleries

Restoration and  
management  
of  
mowed grasslands

Restoration and  
management  
of  
grazed grasslands

Restoration  
of  
scree through last  
blasting

Creation  
of  
linear scree



# Dynamic management of temporary ponds





# Life In Quarries targeted concept

- Develop **networks of temporary ponds**
- **Pioneer conditions** in side areas
- **Permanent availability** within sites
- **Avoidance** in critical periods
- **Reinforce** core population's role

Dynamic management  
of temporary ponds

**ACTION 1**





# Sibelco Germany

## Yellow-bellied toad in active quarry

Dynamic management  
of temporary ponds

**ACTION 1**



# Temporary ponds in active quarries

- ▶ bare soil and seasonally flooded areas
- ▶ attract real pioneer species



Dynamic management  
of temporary ponds

**ACTION 1**

These conditions are found in most of our quarries in Western Germany, resp. in Ödingen (kaolin, campaigns), but also at Geigenflur, Lieblich II, Ludwig Hirsch (Meudt) and Christel (clay, mid size between 50 and 100 kt/a)



# Yellow bellied toads

Monitored by a biologist

ideal habitat conditions:

- incidentally temporary wet zones are created by exploitation
- additionally these structures are created to optimize and enlarge the habitats (max 80 cm deep, south orientated)
- even deeper wheel tracks are used to spawn

Dynamic management  
of temporary ponds

ACTION 1



clay mine in Germany, Meudt



# Information panels ... ... to raise public awareness

Dynamic management  
of temporary ponds

**ACTION 1**

**Tonbergbau und Umweltschutz**

**Schutz und Förderung von Gelbbauchunken**

*In Nordrhein-Westfalen sind Gelbbauchunken vom Aussterben bedroht. Die meisten der 24 noch bekannten Vorkommen befinden sich im südlichen Rheinland. Seit 2011 ist die Biologische Station Bonn / Rhein-Erft im Bundesprojekt „Stärkung und Vernetzung von Gelbbauchunkenvorkommen in Deutschland“ mit fünf Projektgebieten vertreten. Im Rhein-Sieg-Kreis besteht hierbei eine enge Kooperation mit SIBELCO Deutschland GmbH. Nach dem Start des Projektes im Jahr 2012 wurden bereits in den ersten drei Jahren in allen Projektgebieten wichtige Maßnahmen für den Schutz der Gelbbauchunke umgesetzt. So wurden zum Beispiel bestehende Fortpflanzungslebensräume optimiert und neue Laichgewässer angelegt. In den Projektgebieten mit bestehenden Gelbbauchunkenvorkommen wurden von 2013 bis 2015 auf den optimierten Flächen gute Reproduktionserfolge erzielt. Außerdem wurde in 2015 in ursprünglich besiedelten Gebieten und in Habitaten, die für die Vernetzung von Vorkommen eine wichtige Rolle spielen, mit der Ansiedlung von Gelbbauchunken begonnen.*

*Die Gelbbauchunke ist eine Ziel- und Leitart des Naturschutzes und steht Pate für dynamische Lebensräume. Sie benötigt für ihre Fortpflanzung besonnte Flächen mit geringem Bewuchs und vegetationsarme Kleingewässer. Der ursprüngliche Lebensraum umfasste vor allem die Auenbereiche von Flüssen, in denen durch Hochwässer immer neue Rohbodenflächen und Kleinstgewässer entstanden. Diese Bedingungen existieren heute meist nur noch in Abbaugruben, wie Tongruben oder Steinbrüchen. Gerade während der Betriebsphase dieser Abbaustätten können durch die Verfügbarkeit geeigneter Geräte mit vergleichsweise geringem Aufwand ideale Lebensräume für Gelbbauchunken geschaffen und erhalten werden.*

Projektgebiet **Qadringen**

Projektgebiet **Witterschlick**

**leben.natur.vielfalt**  
das Bundesprogramm

**BfN**  
Bundesamt für Naturschutz

Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit

**NABU**

Ansprechpartner:  
Dr. Matthias Schindler  
Biologische Station Bonn / Rhein-Erft  
Friesheimer Busch 1  
50374 Erftstadt  
m.schindler@biostation-bonn.de

2

# Regular refreshment of loose banks

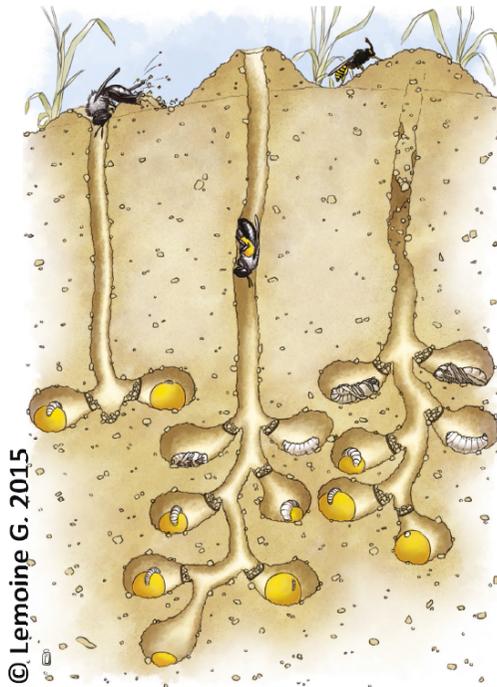




# Life In Quarries targeted concept

Regular refreshment of  
loose banks

ACTION 2



© Lemoine G. 2015

Nids d'*Andrena vaga*.  
Illustration de Sophie Desfougères

- ▶ Sandy substrates : ideal conditions for burrowers
- ▶ Sand martins, solitary bees, ....
- ▶ Need of barren surfaces for specific species installation
- ▶ Regular refreshment eased by quarrying activity
- ▶ Avoid lack of habitat availability and local extinction



# Sibelco France

Sand martins in Crépy (FR)

Solitary bees in Bourron (FR)

Regular refreshment of  
loose banks

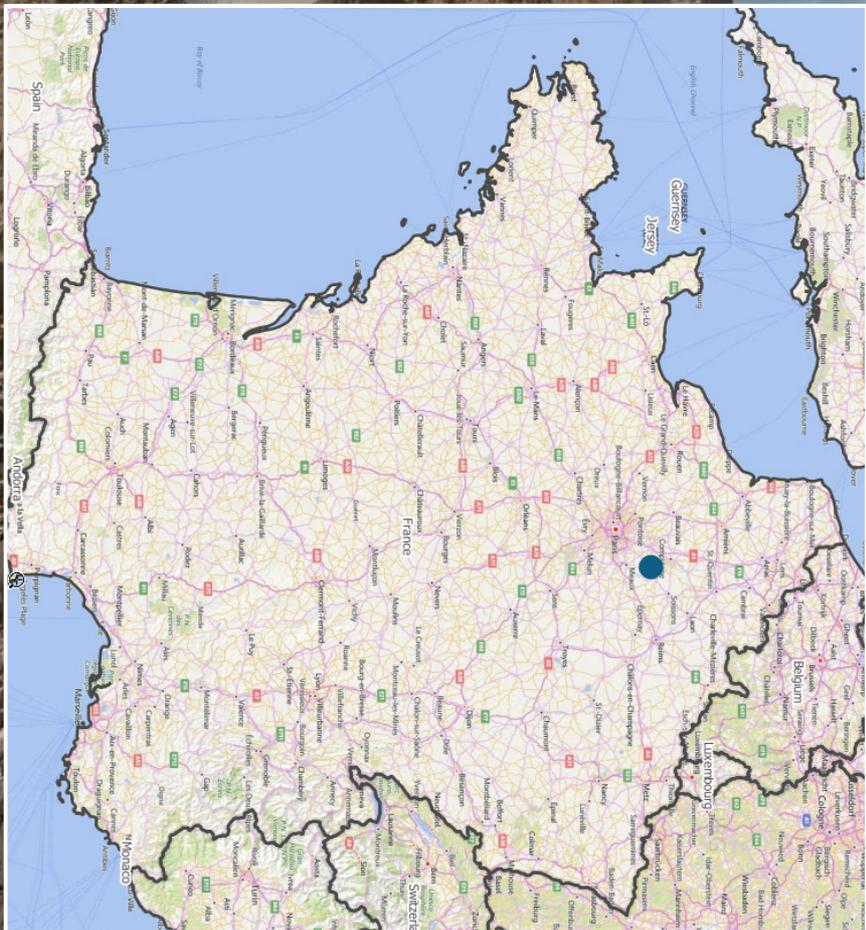
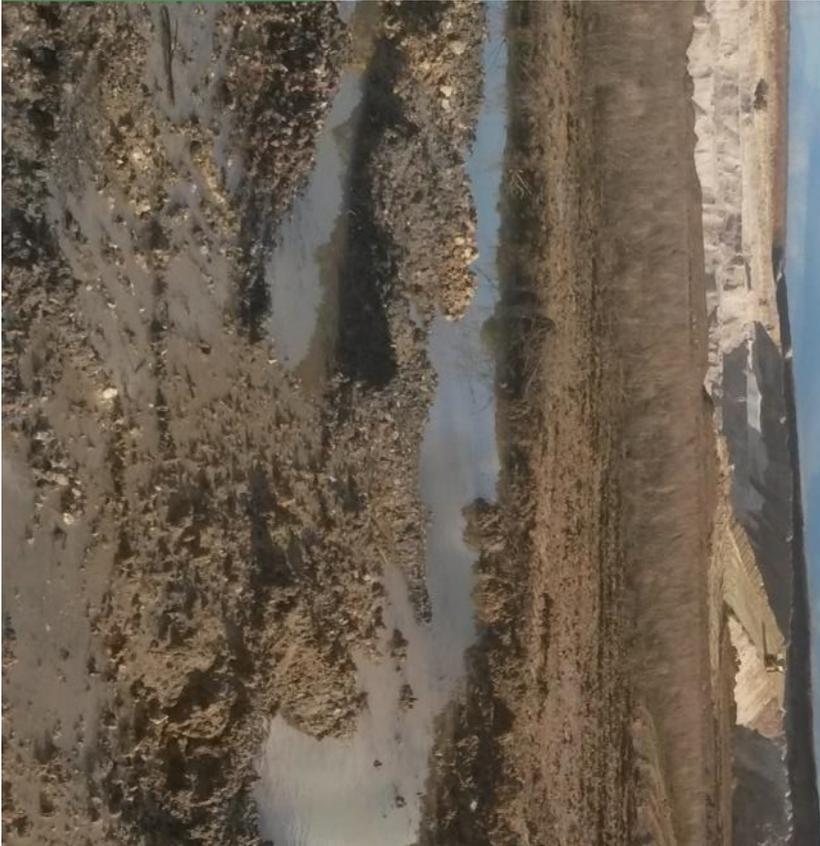
**ACTION 2**



# Sand martins Crépy - France

## ACTION 2

Regular refreshment of  
loose banks





# Sand martins Crépy - France



Regular refreshment of  
loose banks

ACTION 2



HOW to prevent interaction with mining activities?

- ▶ birds are prevented to nest in active quarry areas during summer, the clayed layer is regularly moved by the workers
- ▶ birds are guided to quarry areas where no activity takes place, steep slopes are created where they can make their nests
- ▶ when birds are nesting in a specific area, their nests will be protected till August (young birds fly off during August)



# Sand martins Crépy - France

Regular refreshment of  
loose banks

ACTION 2

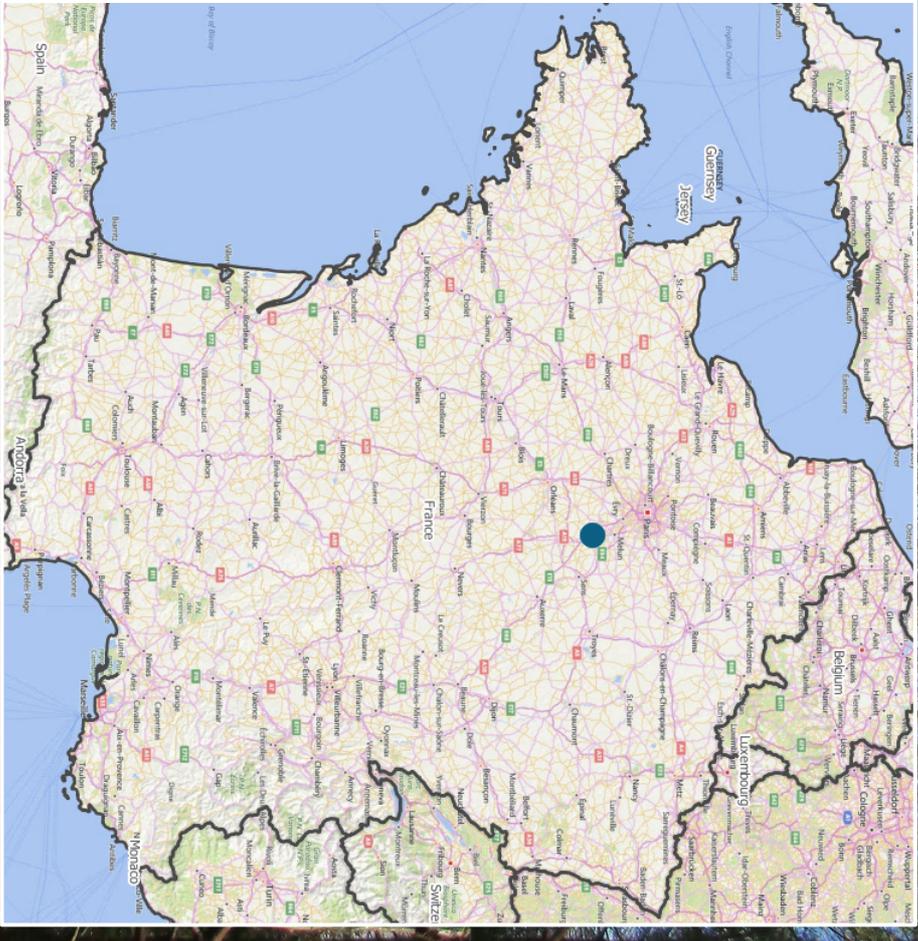


- ▶ staff training on identifying Sand martin nests
- ▶ monitoring in April & June

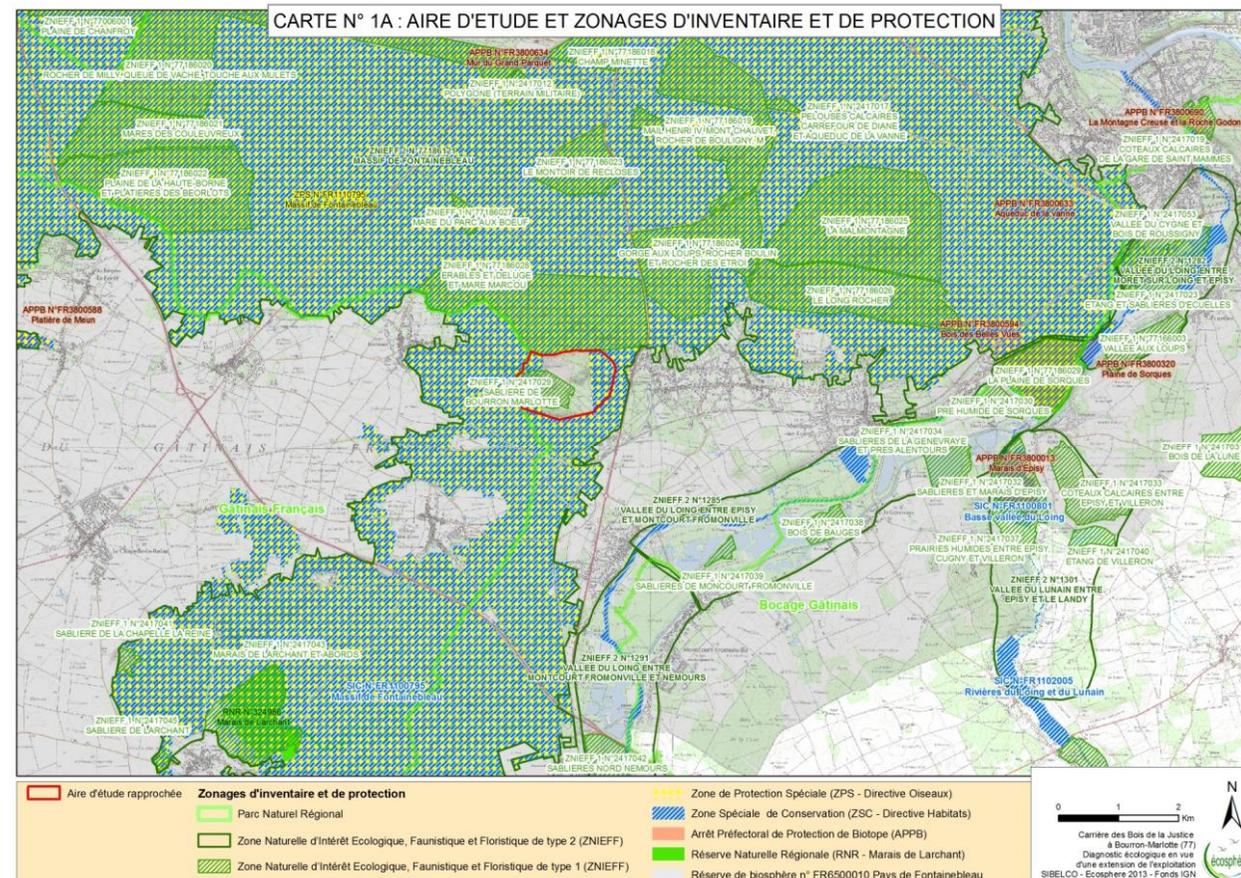


EXAMPLE

# ACTION 2 Regular refreshment of loose banks



# Solitary bees Bourron - France



## FONTAINEBLEAU SITES OF EUROPEAN IMPORTANCE



### Sibelco site « Bourron »

► In the Fontainebleau forest part of Natura 2000 Network





# Solitary bees Bourron – France

Regular refreshment of  
loose banks

The quarry creates specific and unique habitats in the area

- ▶ an open dry siliceous habitat and steep slopes
- ▶ solitary bees (and many other insects)

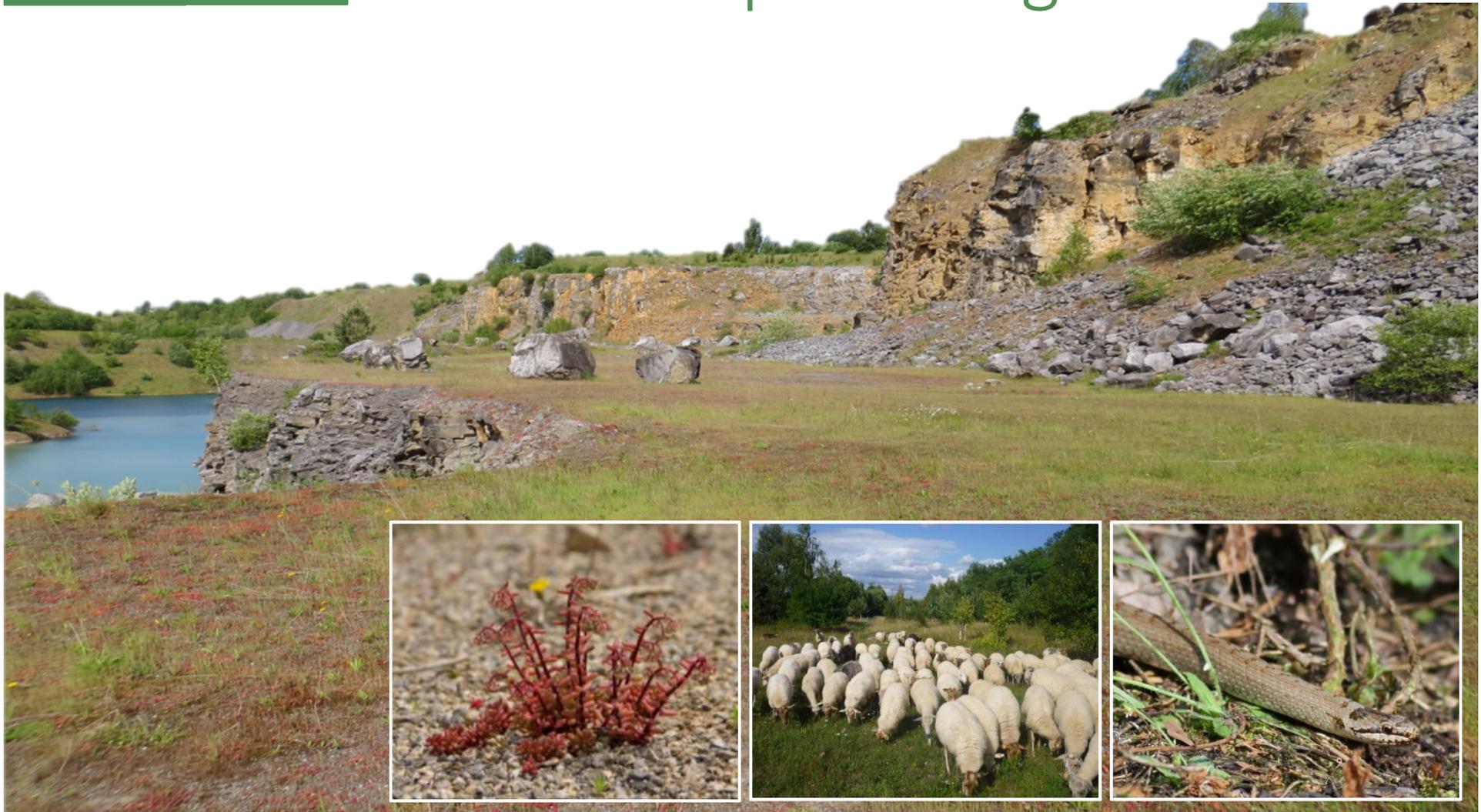


ACTION 2





# Management of scree and associated pioneer grasslands





# Life In Quarries targeted concept

Management of scree and associated pioneer grasslands

**ACTION 3**



- ▶ Nutrients poor substrates for **pioneer, patrimonial vegetation**
- ▶ **Food resources** for micro-fauna
- ▶ Creation of **source zones for passive colonization**
- ▶ **Good practices to lead to**
- ▶ Two **challenges**:
  - ▶ What management?
  - ▶ Concealable with security issues? What alternative?



# Sibelco Belgium

Scree management in Maatheide

Grassland management by grazing in  
Maasmechelen



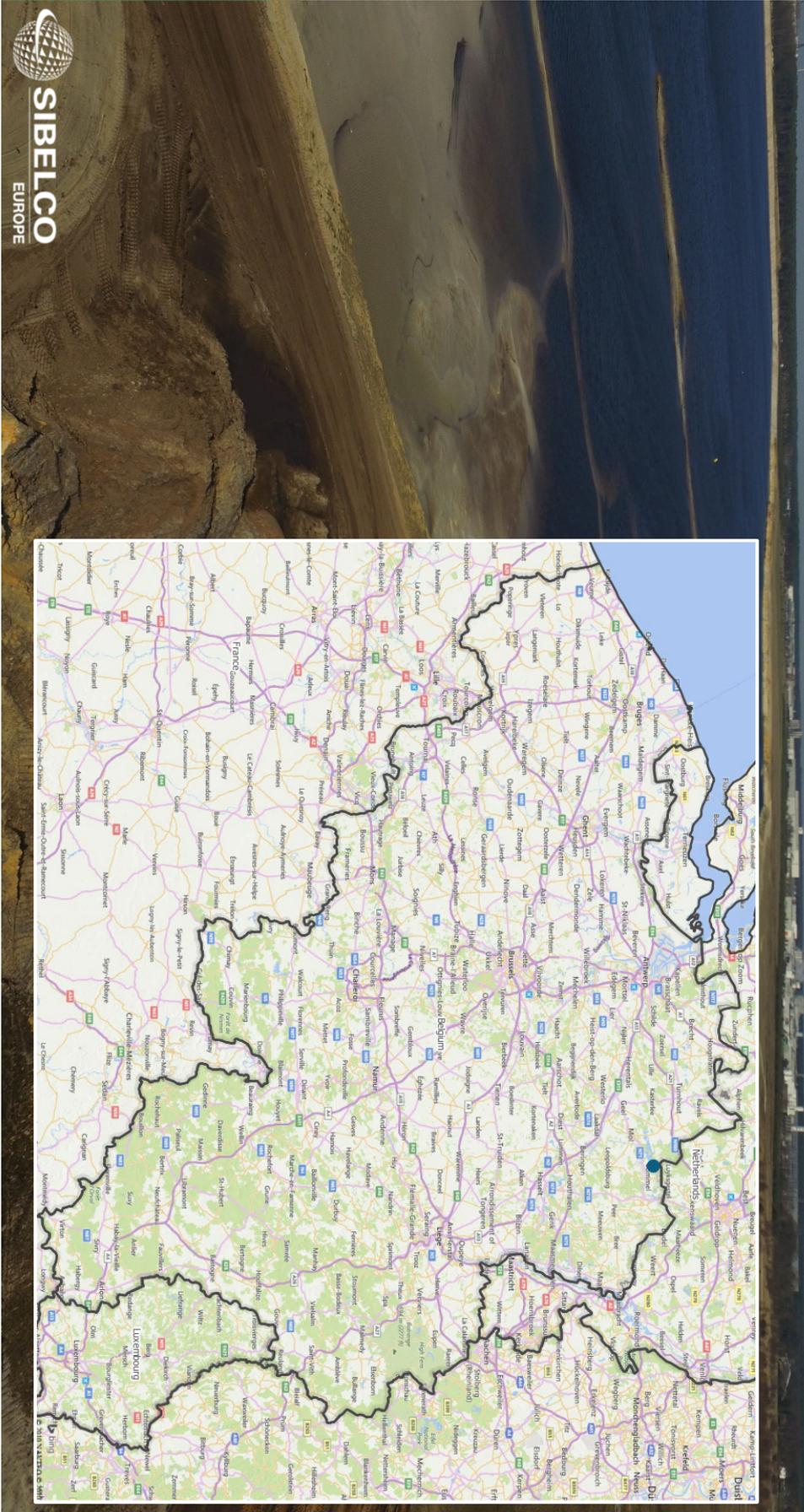
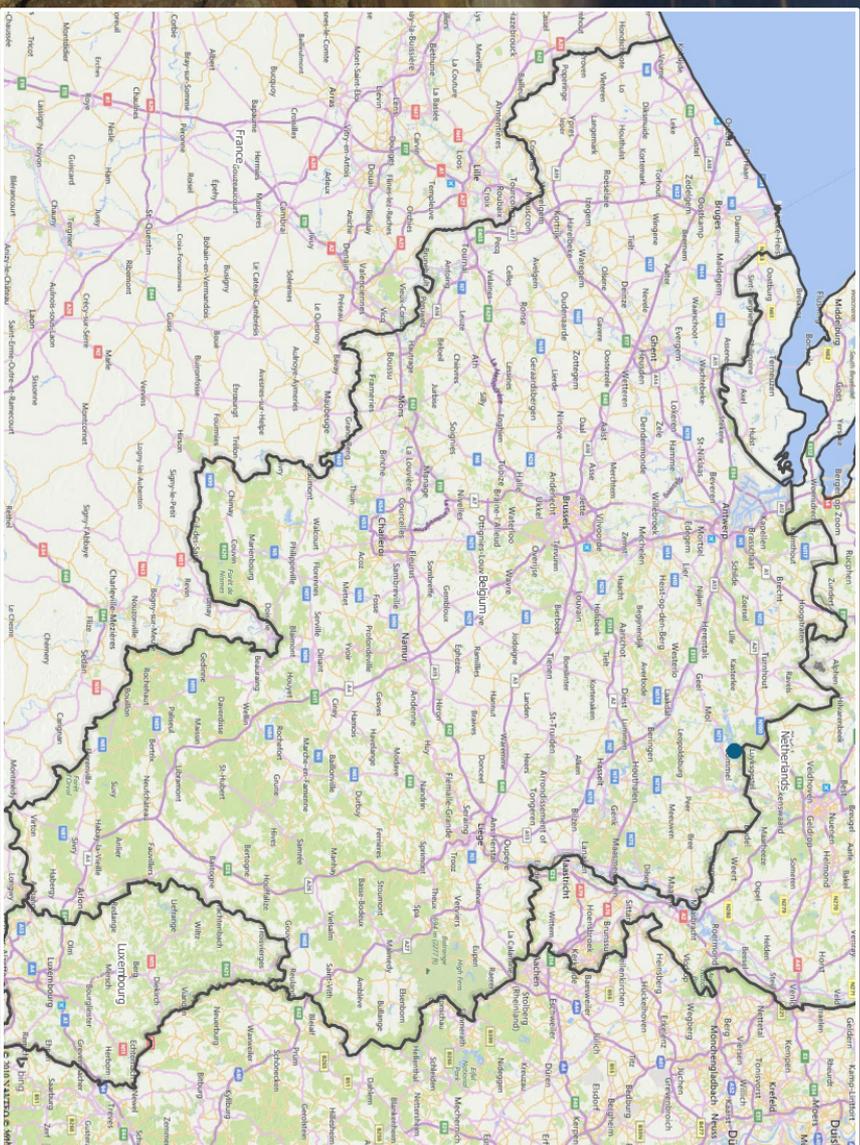
# Scree management Maathейde - Belgium

Management of scree and associated pioneer grasslands

## ACTION 3



SIBELCO  
EUROPE





# Scree management Maatheide - Belgium

Management of scree and  
associated pioneer grasslands

ACTION 3



The corridor will be an ideal habitat for the smooth snake:

- ▶ Dry, sandy heathland and grasslands
- ▶ Piles of dead wood and cut heath sods will be made



# Scree management Maatheide - Belgium

Management of scree and associated pioneer grasslands

ACTION 3



- Active sand quarry Maatheide Lommel – Belgium
- In between 2 nature areas
- Sibelco creates a **permanent nature corridor** (app. 15 ha)
- Sibelco creates a **temporary nature zone** in phases that will be mined > 2035 (app. 25 ha)



inrichting op lange termijn



# Scree management Maatheide - Belgium

Management of scree and associated pioneer grasslands

ACTION 3



- Design for species related to heathland, inland dunes, shrubs and acid grasslands

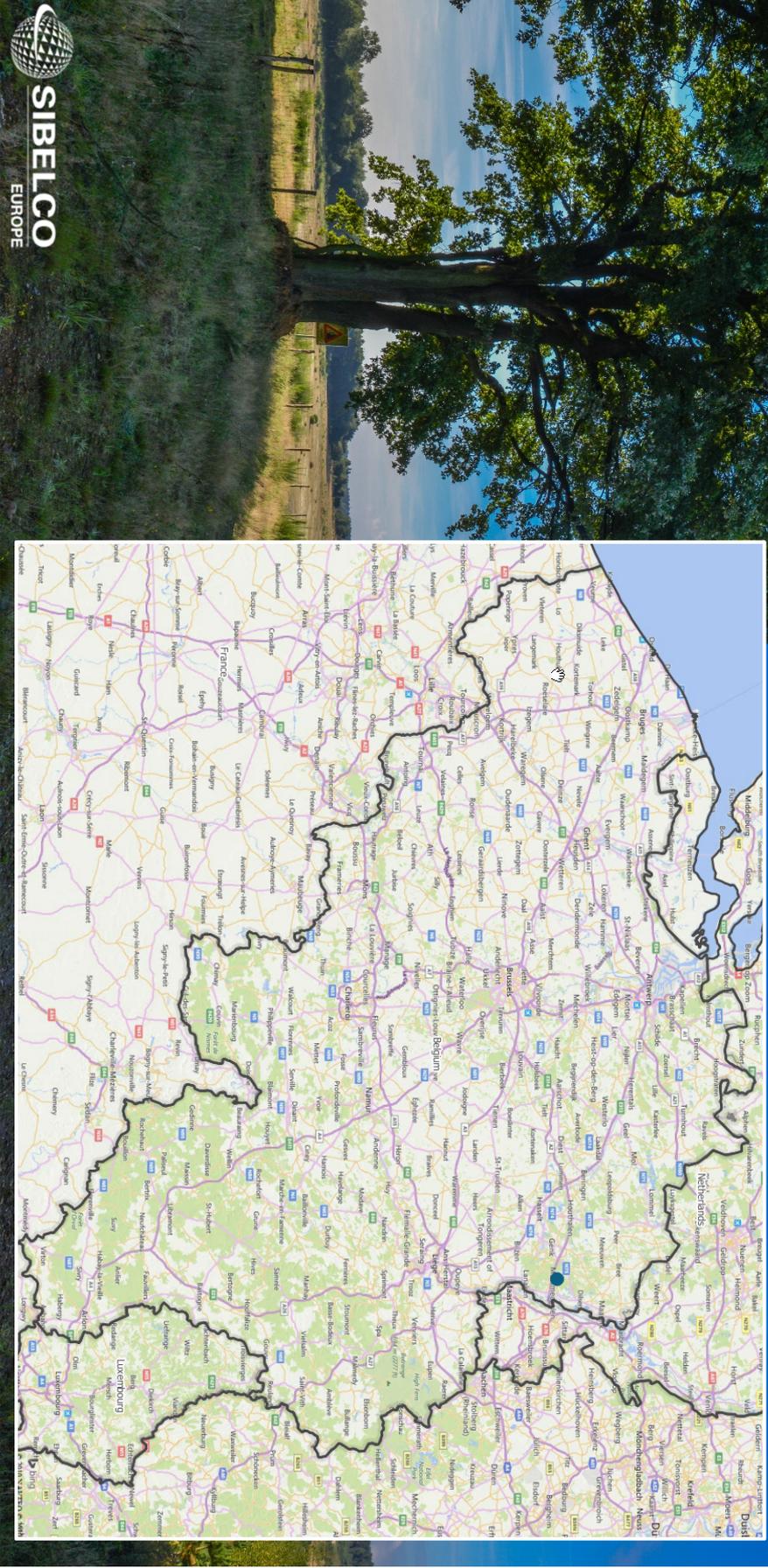




# Pioneer grasslands Maasmechelen - Belgium

Management of scree and associated pioneer grasslands

**ACTION 3**

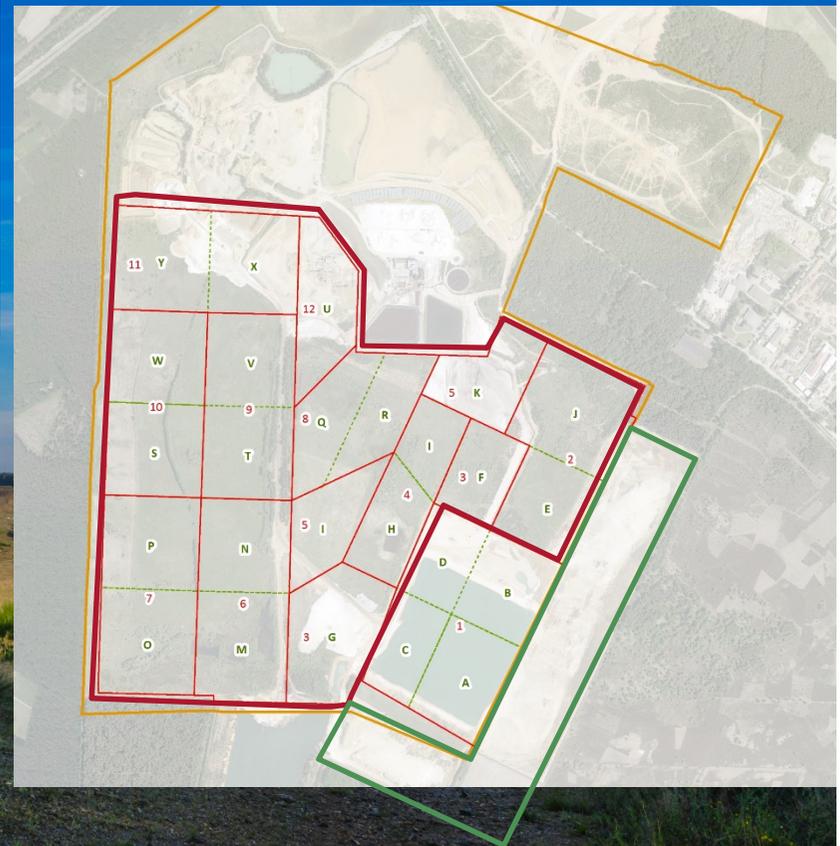




# Pioneer grasslands Maasmechelen - Belgium

Management of scree and associated pioneer grasslands

- Grazing pioneer grasslands in active quarry  
Mechelse Heide Zuid - Belgium
- Mining during 30 years
- **In phases to be mined**
- **In phases reconstructed**



ACTION 3



# Pioneer grasslands Maasmechelen - Belgium

Management of scree and  
associated pioneer grasslands

ACTION 3

- Sheep are used to maintain grasslands and open areas.
- In cooperation with ANB and a shepherd





# Pioneer grasslands Maasmechelen - Belgium

Management of scree and associated pioneer grasslands

ACTION 3



- Management of pioneer grasslands based upon monitoring of target grassland species
- E.g. Eurasian skylark, Meadow pipit, Common quail



# 4

## Management of long term water bodies





# Life In Quarries targeted concept

- ▶ **Long term nature** addressed during the exploitation phase
- ▶ Large water bodies lack **gentle slopes**
- ▶ **Management and creation** of large ponds
- ▶ Installation of **terns platforms** as nesting ground for birds

Management of  
long-term water bodies

**ACTION 4**





# Sibelco Belgium

water body management in Maasmechelen  
floating islands in Mol

Management of  
long-term water bodies

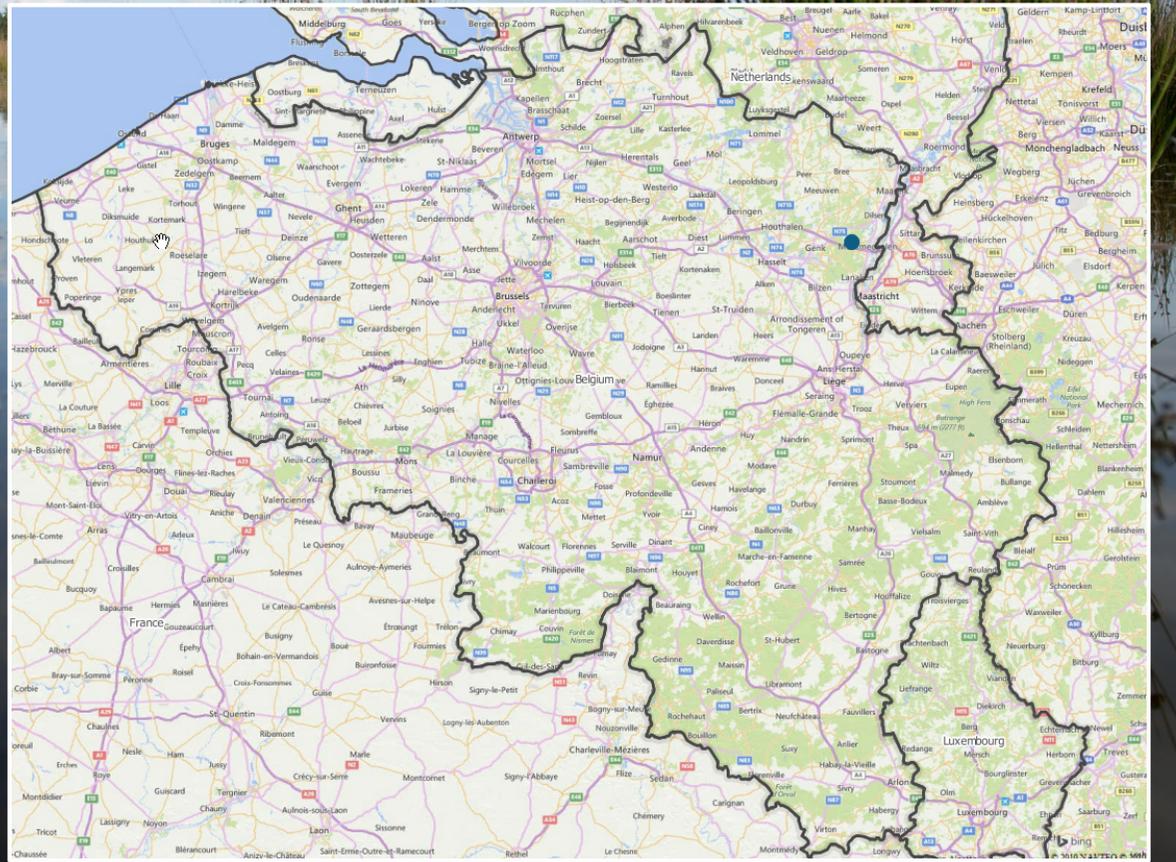
**ACTION 4**



# Management of water bodies Maasmechelen

Management of  
long-term water bodies

ACTION 4



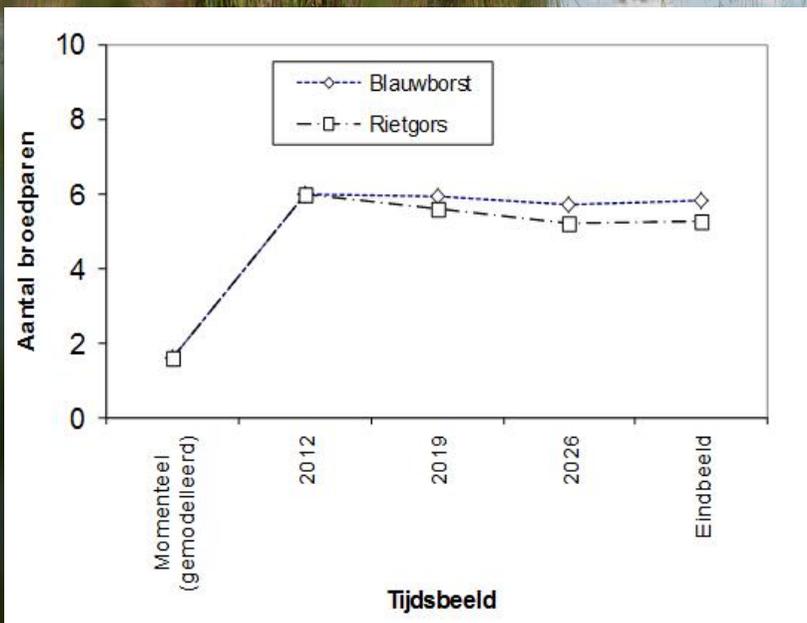


# Management of water bodies Maasmechelen

- ▶ Monitoring marsh species  
(Bluethroat, Common reed bunting)

Management of  
long-term water bodies

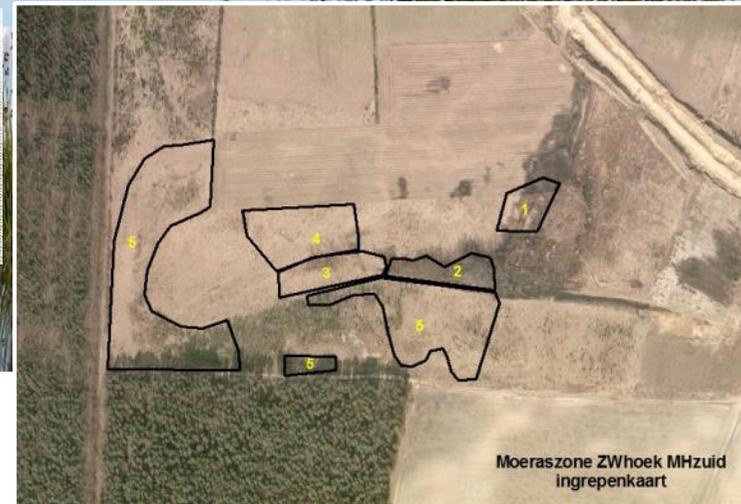
ACTION 4





# Management of water bodies Maasmechelen

- ▶ Situation 2008: afforestation, silting
- ▶ Actions: re-opening of the landscape and deepening the ponds to avoid silting, ...



Management of  
long-term water bodies

ACTION 4



# Management of water bodies Maasmechelen

► Photos after realisation summer 2015 ...

Management of  
long-term water bodies

ACTION 4





# Management of water bodies Maasmechelen

▶ Photos after realisation summer 2015 ...

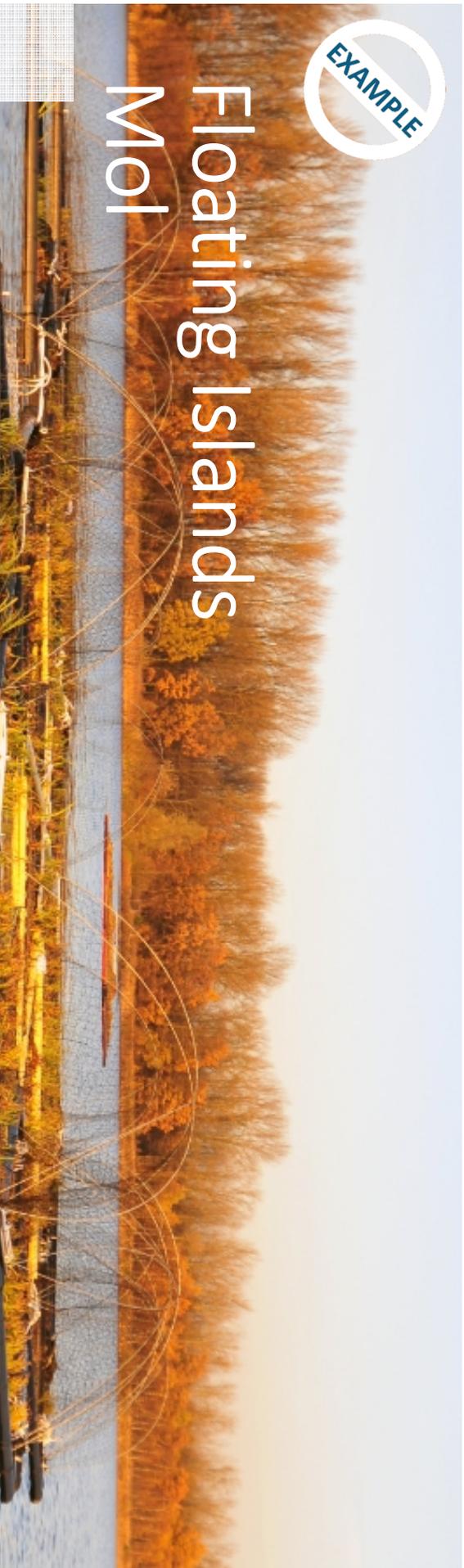


Management of  
long-term water bodies

**ACTION 4**



# Floating Islands Mol

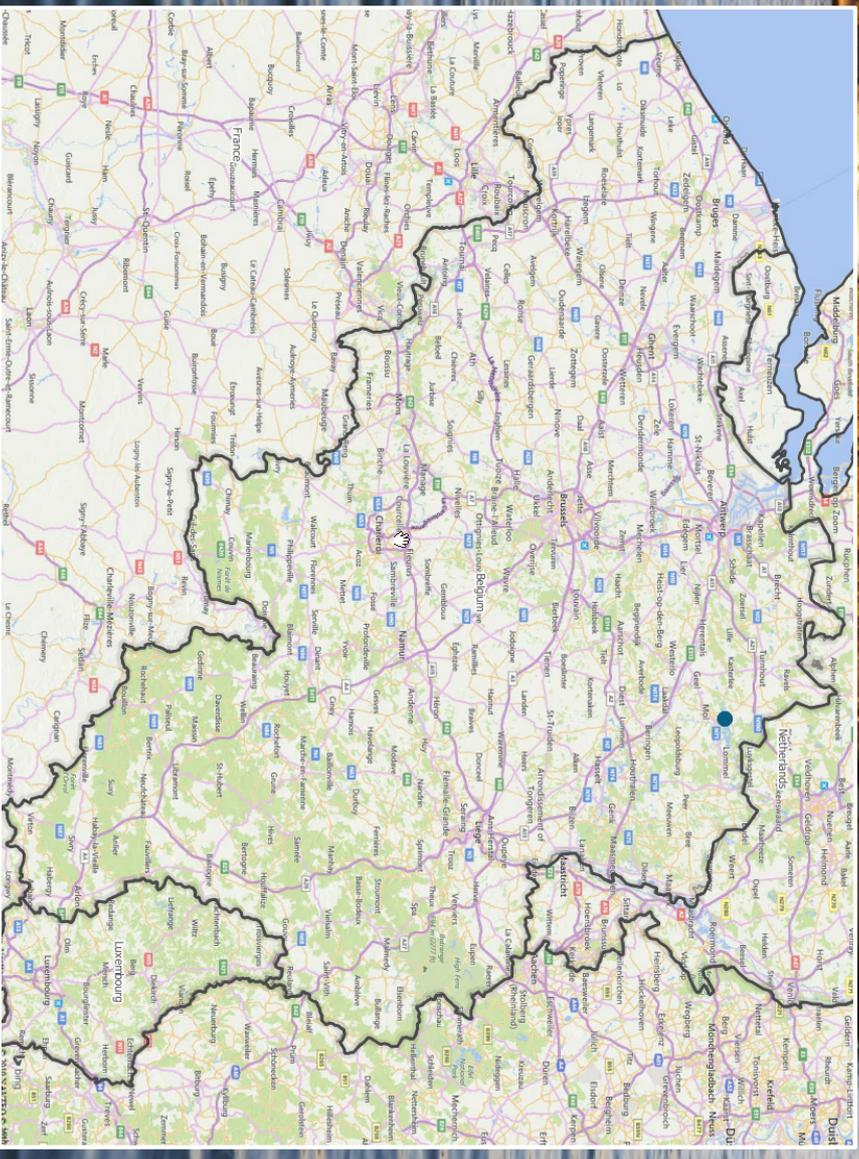


## Management of long-term water bodies

## ACTION 4



**SIBELCO**  
EUROPE





# Floating Islands Mol

Management of  
long-term water bodies

- ▶ In former quarry Rauw Mol
- ▶ As an experiment, a test case for nature and to create biodiversity
- ▶ In association with University of Hasselt and NGO Natuurpunt

ACTION 4





# Floating Islands Mol

Management of  
long-term water bodies



## ACTION 4

- ▶ 4 floating islands, a total surface area of 250m<sup>2</sup>
  - ▶ 2 with sedge vegetation, 1 with peat mosses (for Black tern) and 1 with rocks (for Common tern)
- ▶ Attached with a fixed cable



5

# Translocation of protected species in active quarries





# Life In Quarries targeted concept

Translocation of protected  
species in active quarries

**ACTION 5**

- ▶ Quarries as **habitats** for endangered & protected species
- ▶ ... not always colonized
- ▶ Reintroduction of **new core populations**
- ▶ **Legal constraints** as a source of habitat under-use



Translocation of protected  
species in active quarries

**ACTION 5**

# Sibelco England

## Great crested newt management Devon (UK)



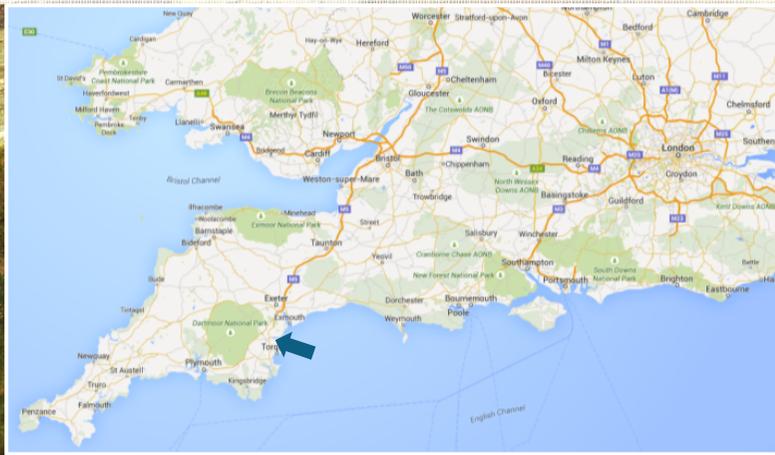
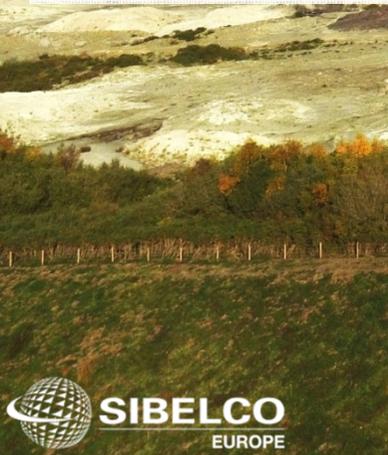
# Great crested newts Devon (England)



Translocation of protected species in active quarries

- ▶ Clay quarry in Devon – UK
- ▶ Surveys commenced in 2009 as part of preparation for EIA (Environmental Impact Assessment)
- ▶ Great Crested Newts (European Protected Species) were found in 2010

ACTION 5



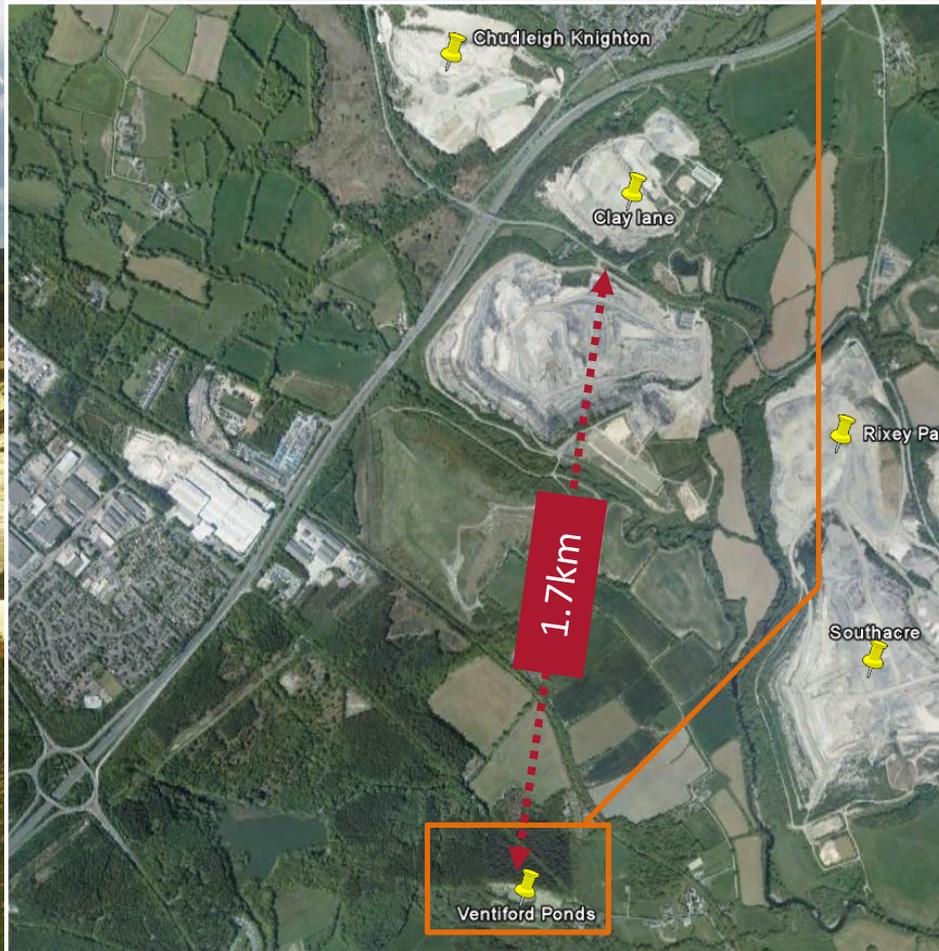


# Great crested newts Devon (England)



Translocation of protected species in active quarries

**ACTION 5**



- ▶ Ventiford ponds used in mitigation for pending loss of Clay Lane Quarry talings lagoons
- ▶ High number of individual newts were removed from Clay Lane Quarry to the Ventiford ponds
- ▶ High effort to be in line with the legislation



# Great crested newts Devon (England)



Translocation of protected species in active quarries

ACTION 5



► The area around Clay Lane Quarry was fenced to prevent newts from entering.



► High intensive management of the new ponds.

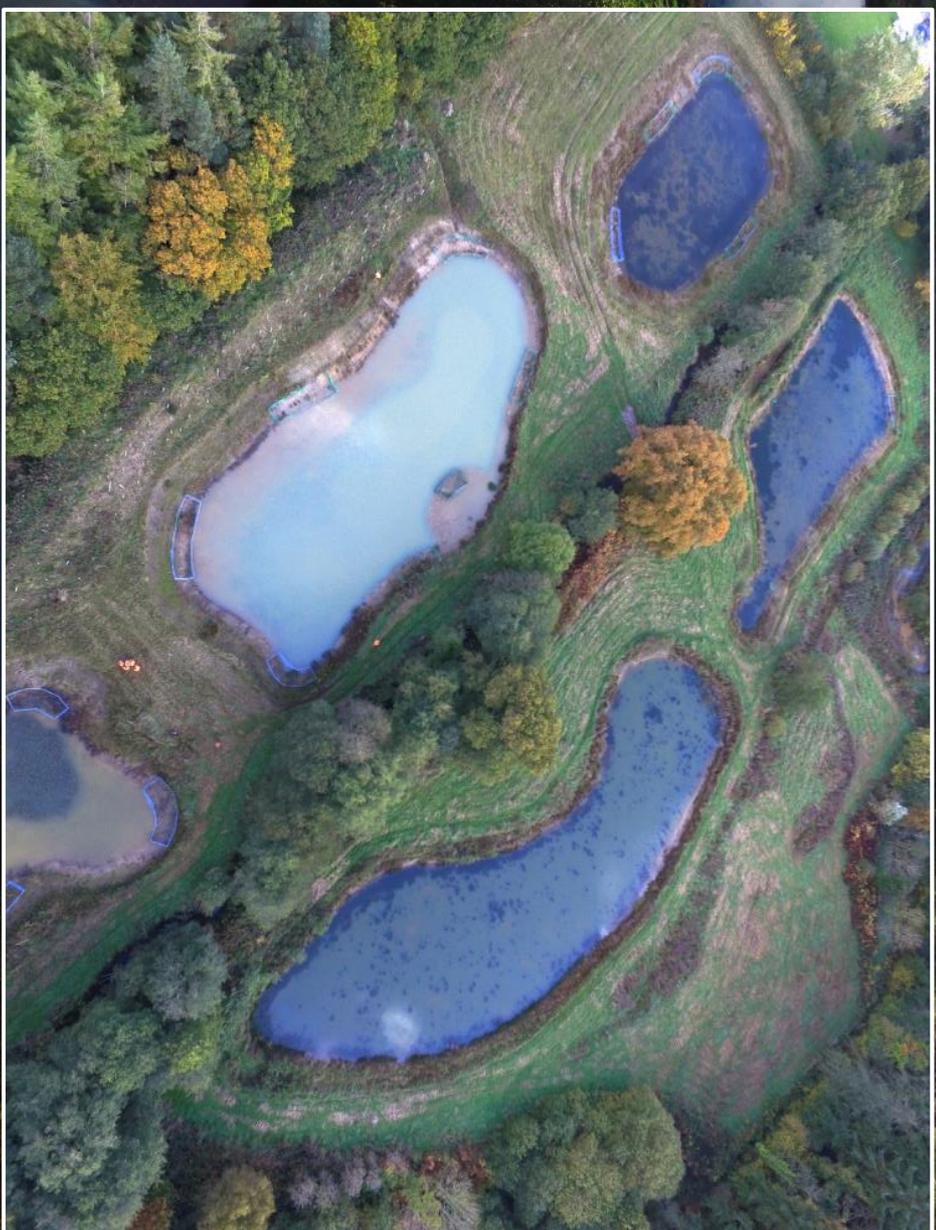
► Pond with fencing, protecting marginal planting



# Great crested newts Devon (England)

## ACTION 5

Translocation of protected species in active quarries



ACTION 5

# Translocation of protected species in active quarries

Or the other way around...

Take advantage of adequate habitat conditions for reintroduction of endangered species

