

LIFE IN QUARRIES

Initial Workshop – 04/05/16

Afternoon session

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

1

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





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



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

ACTION 1
Dynamic management
of temporary ponds

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 Rheintal. 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 Kleingewässer 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.



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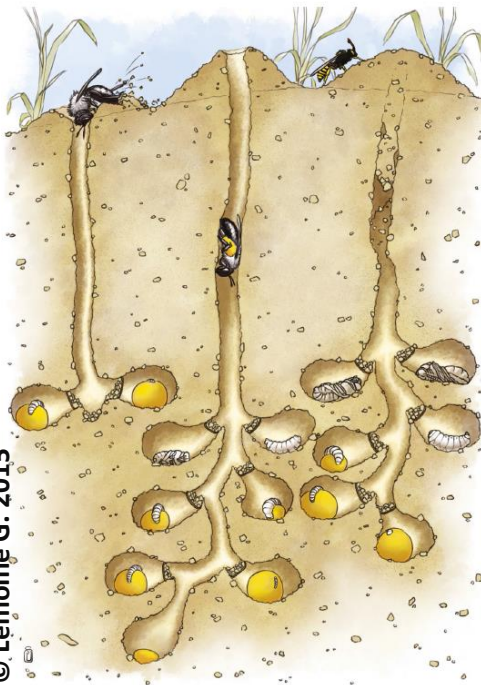
Regular refreshment of loose banks





Life In Quarries targeted concept

- Sand substrates : **ideal conditions for burrowers**
- **Sand martins, solitary bees,**
- **Barren surfaces** adequate for solitary bees installation
- **Regular refreshment** eased by activity
- **Avoid lack of habitat availability** and local extinction



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



Sibelco France

Sand martins in Crépy (FR)

Solitary bees in Bourron (FR)

Regular refreshment of
loose banks

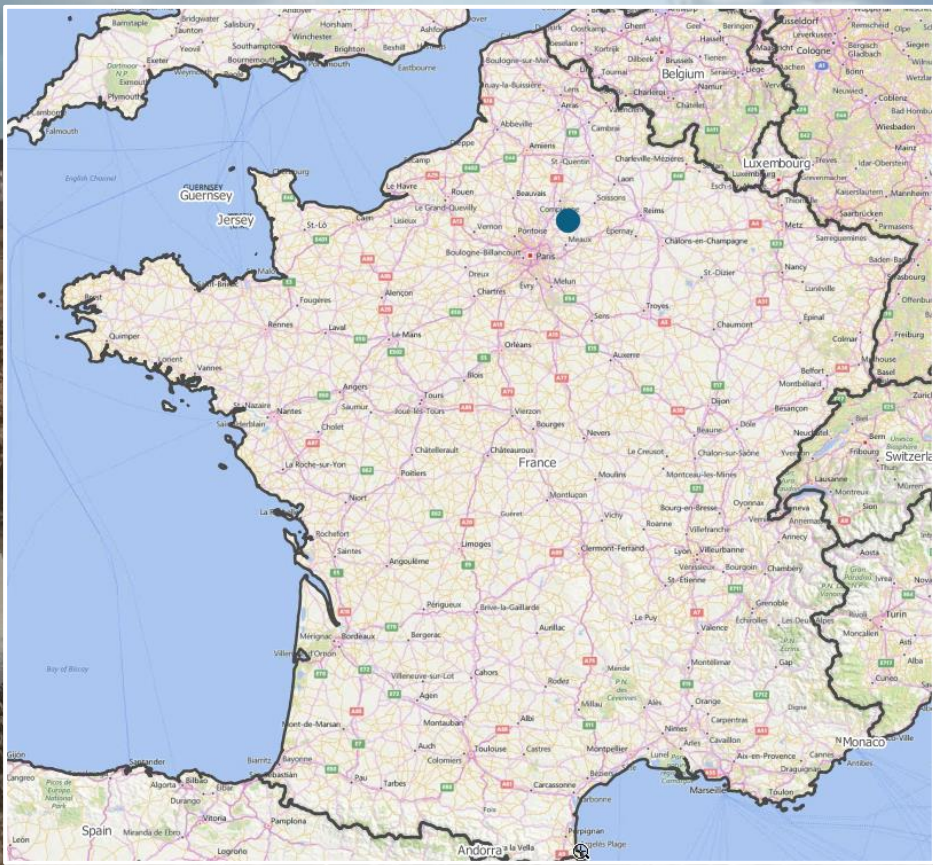


Sand martins

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

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

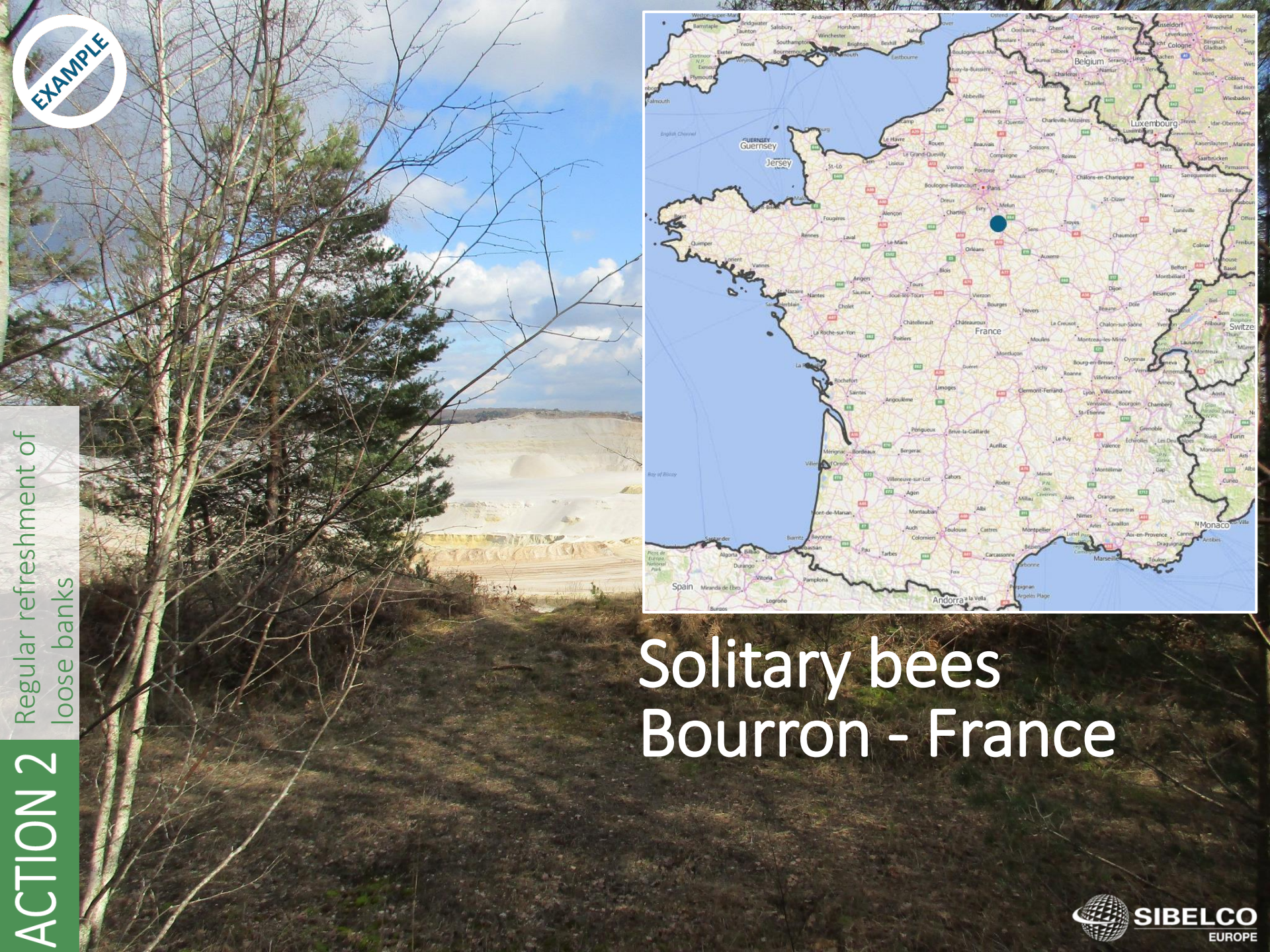
Regular refreshment of
loose banks

ACTION 2



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EXAMPLE

ACTION 2

Regular refreshment of
loose banks



Solitary bees

Bourron - France

EXAMPLE

Solitary bees Bourron - France

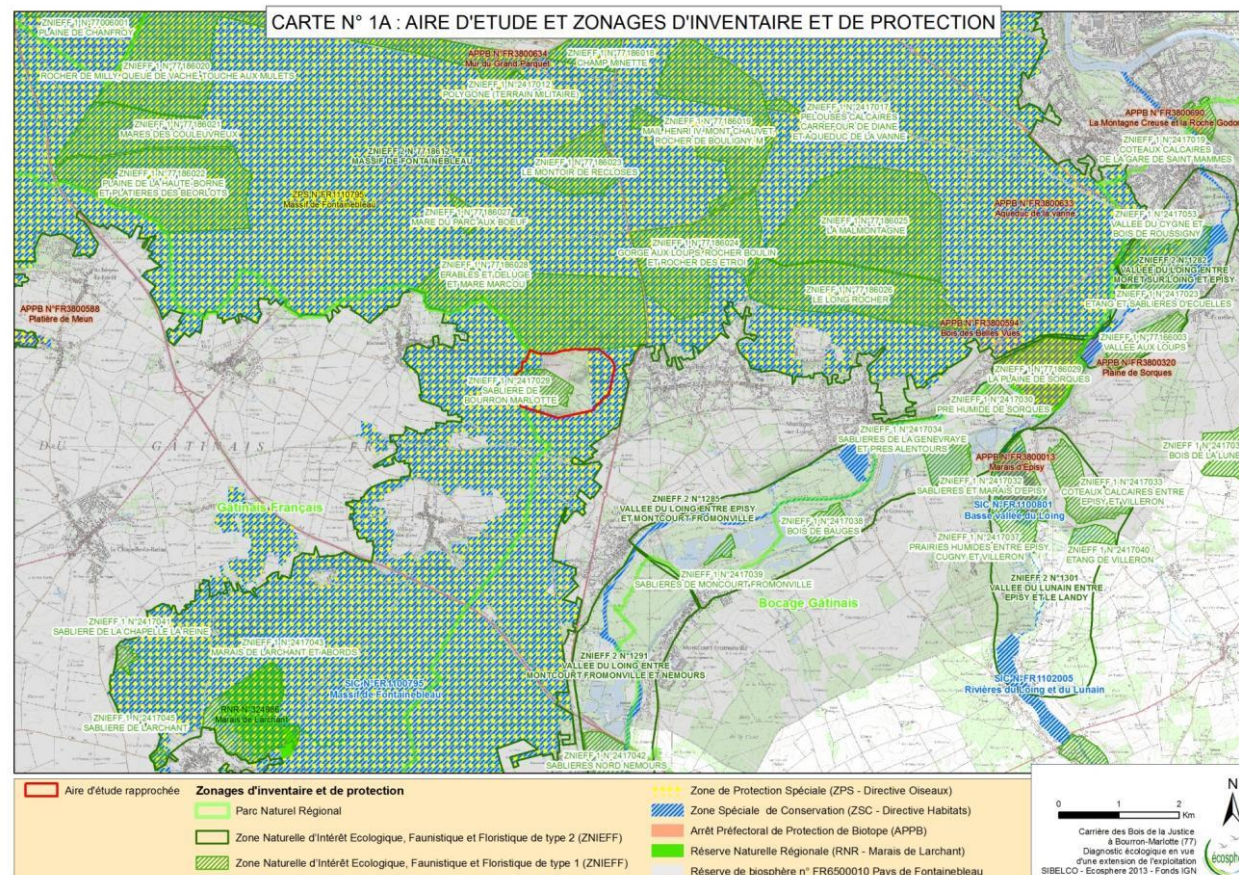


FONTAINEBLEAU SITES OF
EUROPEAN IMPORTANCE



Sibelco site « Bourron »

► In the Fontainebleau forest
part of Natura 2000 Network





Solitary bees Bourron – France

The quarry creates specific and unique habitats in the area

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



Regular refreshment of
loose banks

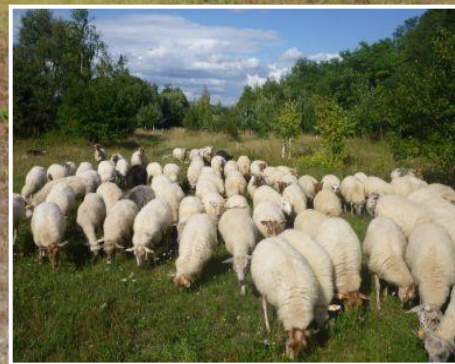
ACTION 2



3

ACTION

Management of scree and associated pioneer grasslands





Life In Quarries targeted concept



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



Sibelco Belgium

Scree management in Maatheide

Grassland management by grazing in
Maasmechelen



Scree management Maatheide - Belgium

ACTION 3
Management of scree and
associated pioneer grasslands





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

- ▶ 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)

Management of scree and associated pioneer grasslands

ACTION 3



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



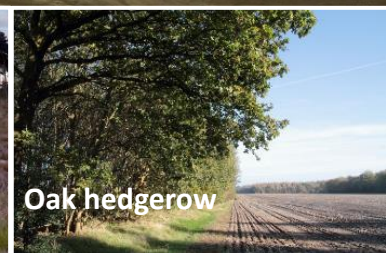
Dune hollow



Inland dune



Dry heath – Nutrient-poor grassland



Oak hedgerow



Shrub



Snake bulge

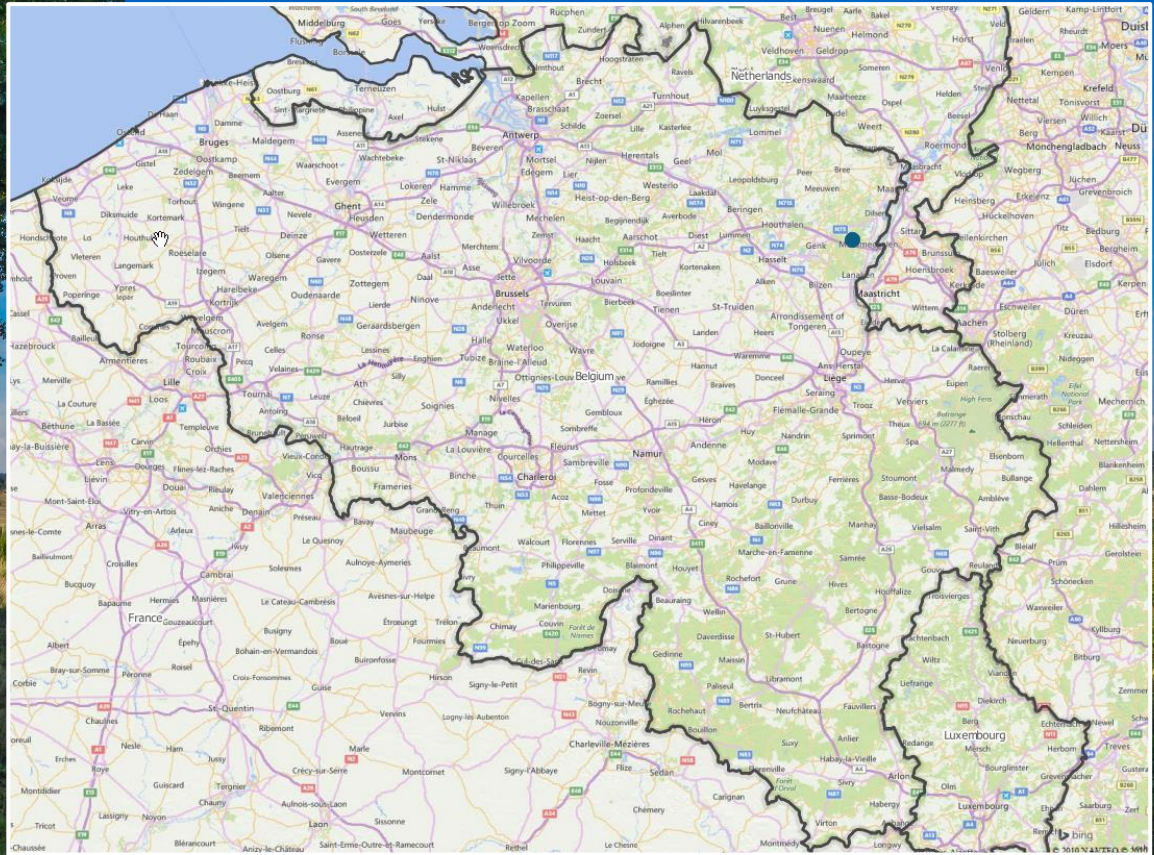


Pioneer grasslands

Maasmechelen - Belgium

Management of scree and associated pioneer grasslands

ACTION 3

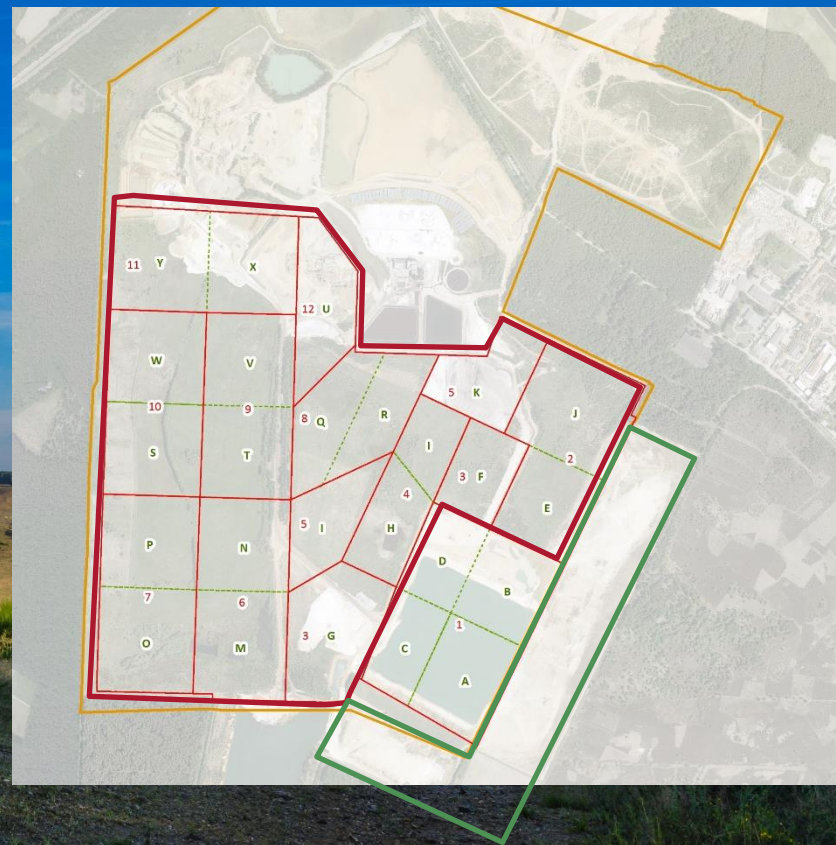




Pioneer grasslands Maasmechelen - Belgium

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**





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





Sibelco Belgium

water body management in Maasmechelen
floating islands in Mol

Management of
long-term water bodies

ACTION 4

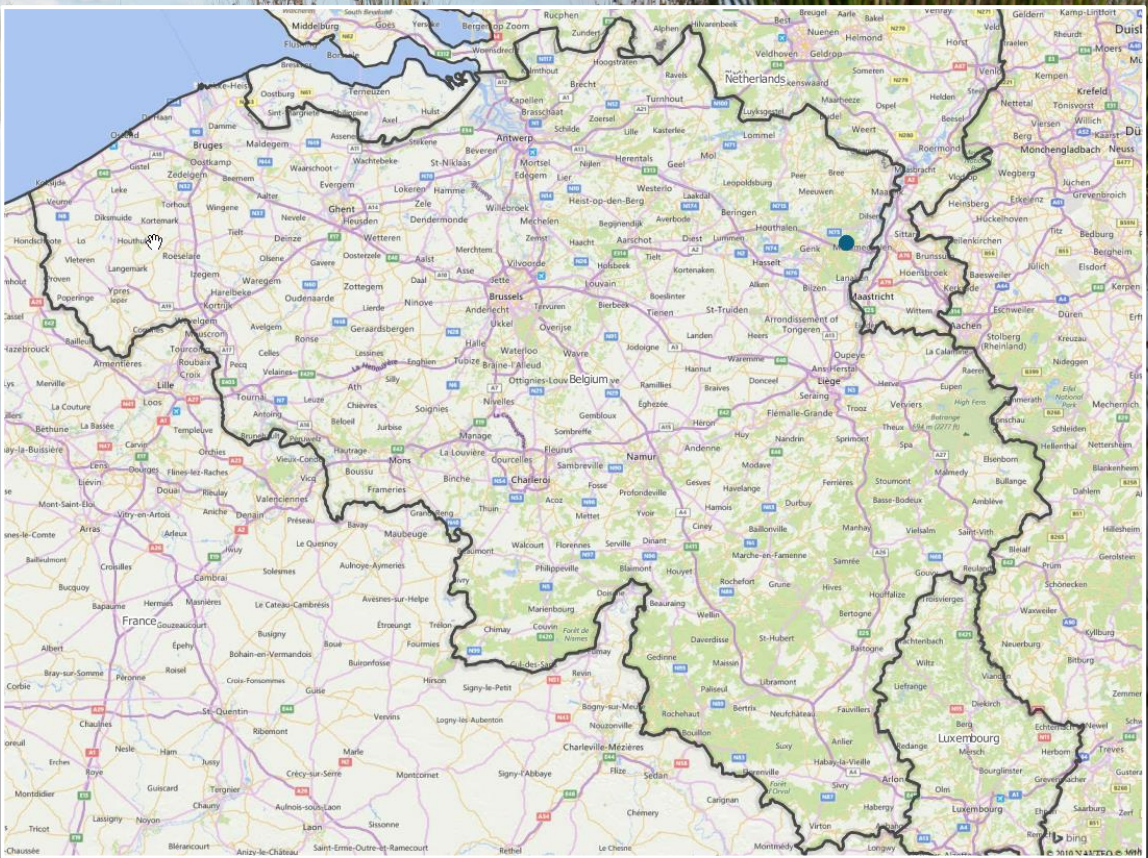


Management of water bodies

Maasmechelen

Management of
long-term water bodies

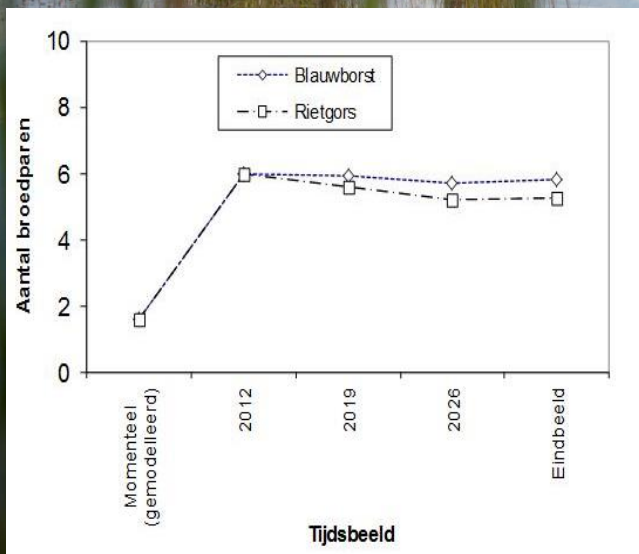
ACTION 4





Management of water bodies Maasmechelen

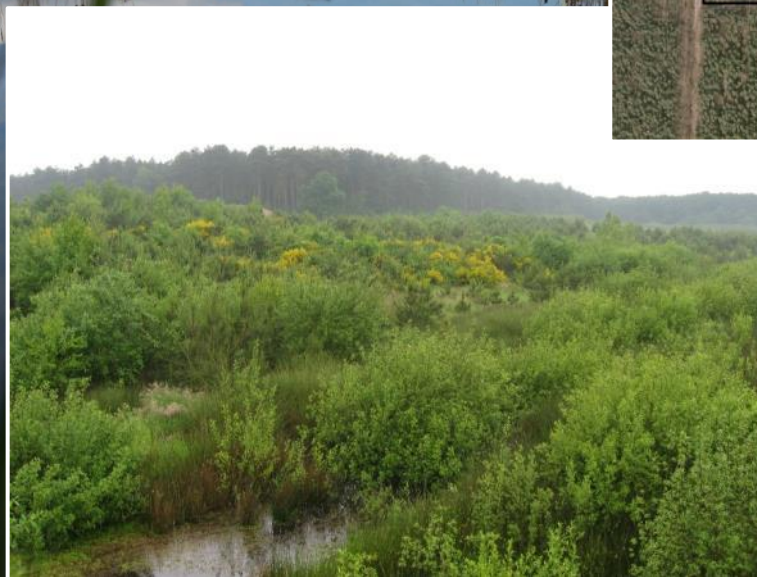
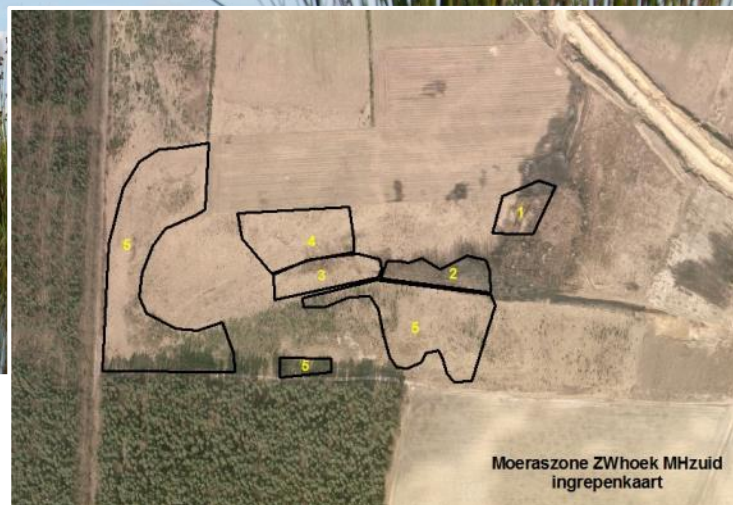
- Monitoring marsh species (Bluethroat, Common reed bunting)





Management of water bodies Maasmechelen

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





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 ...



EXAMPLE

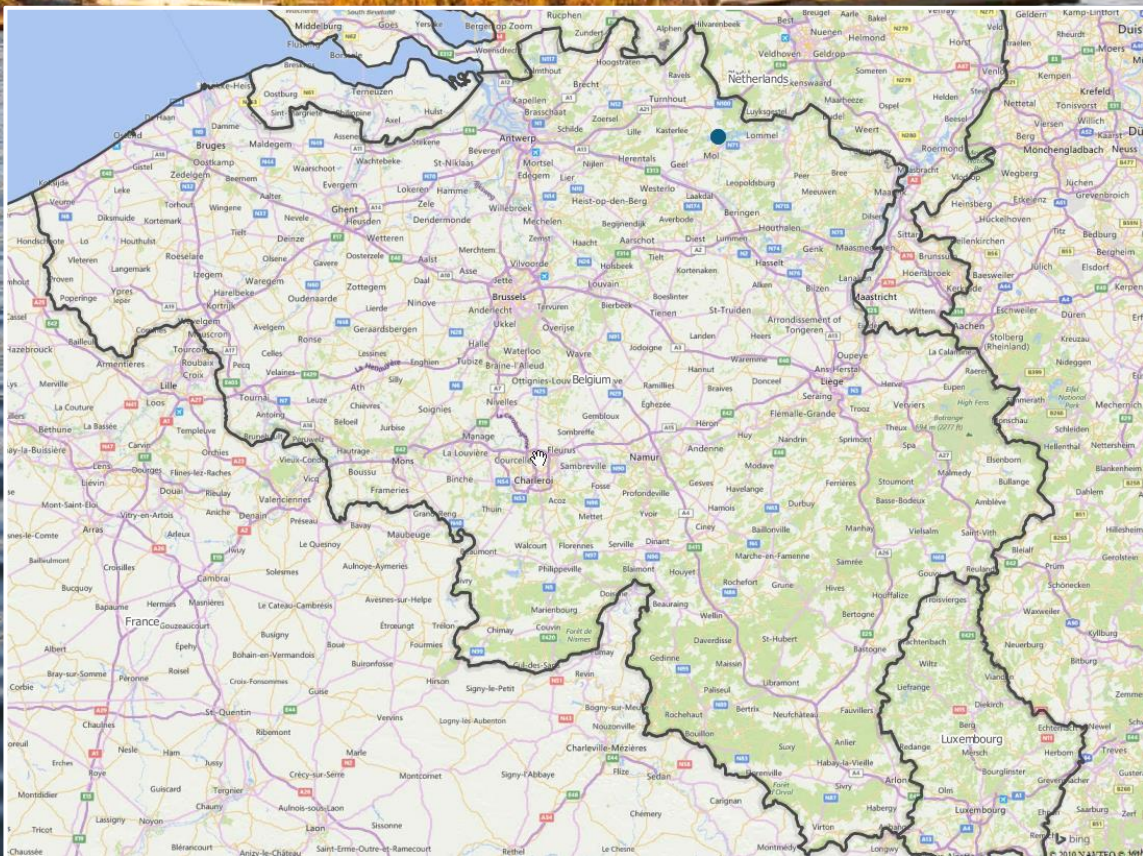
Floating Islands Mol

Management of
long-term water bodies

ACTION 4



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EXAMPLE

Floating Islands Mol

- 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



EXAMPLE

Floating Islands Mol

Management of
long-term water bodies



- 4 floating islands, a total surface area of 250m²
 - 2 with sedge vegetation, 1 with peat mosses (for Black tern) and 1 with rocks (for Common tern)
- Attached with a fixed cable

ACTION 4

5

Translocation of protected
species in active quarries



Life In Quarries targeted concept

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



Sibelco England

Great crested newt management Devon (UK)

Translocation of protected
species in active quarries

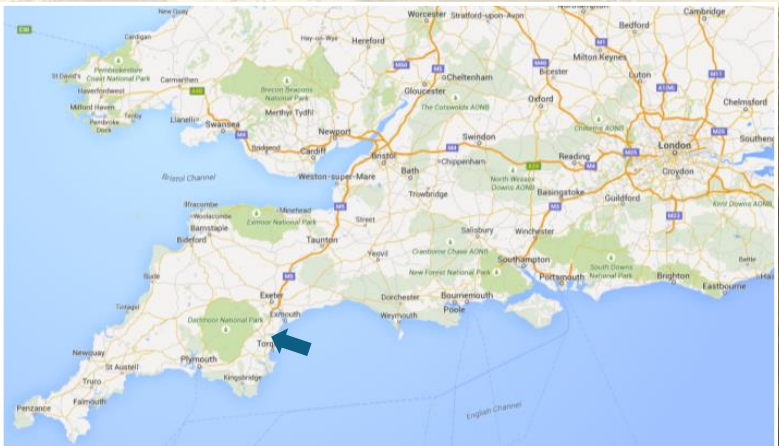
ACTION 5



Great crested newts Devon (England)

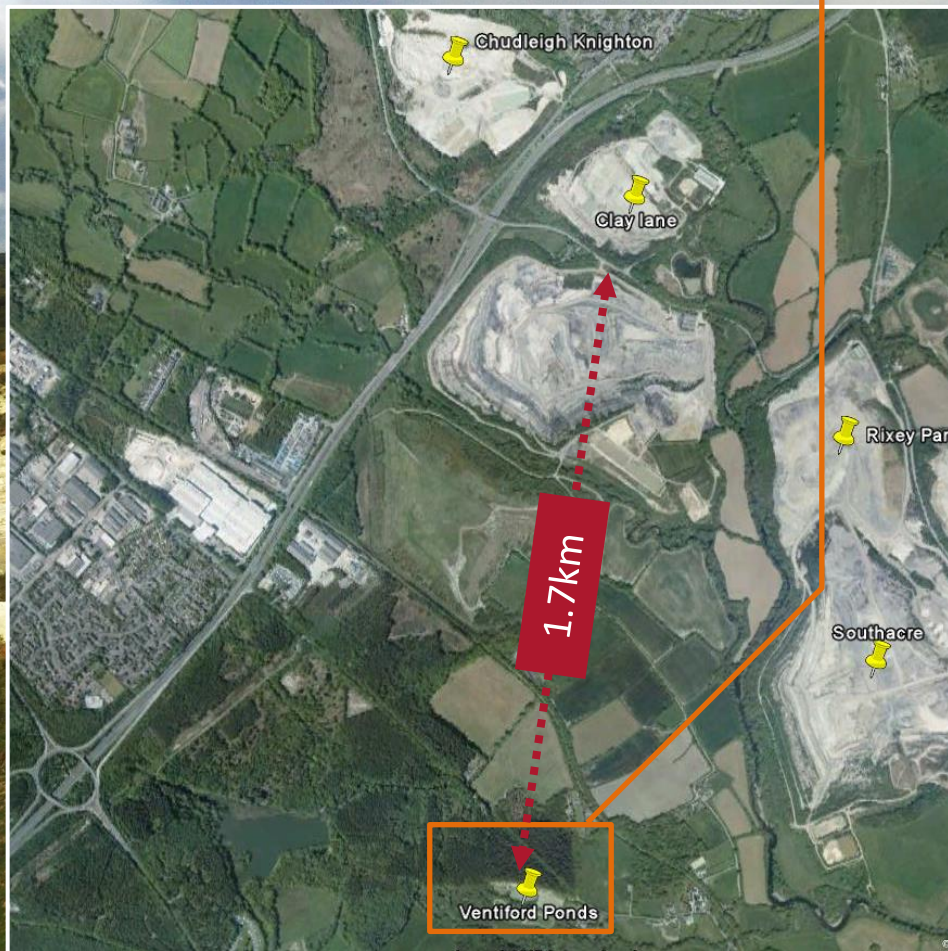


- ▶ Clay quarry in Devon – UK
- ▶ Surveys commenced in 2009 as part of preparation for EIA (Environmental Impact Assessment)
- ▶ Great Crested Newts (European Protected Species) were found in 2010





Great crested newts Devon (England)



- 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)



► 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



5

Translocation of protected species in active quarries

Or the other way around....

Take advantage of adequate habitat conditions for reintroduction of endangered species

