

Savins quarry

Biodiversity & Ecological Land Restoration

Provins, France

Where is the quarry?

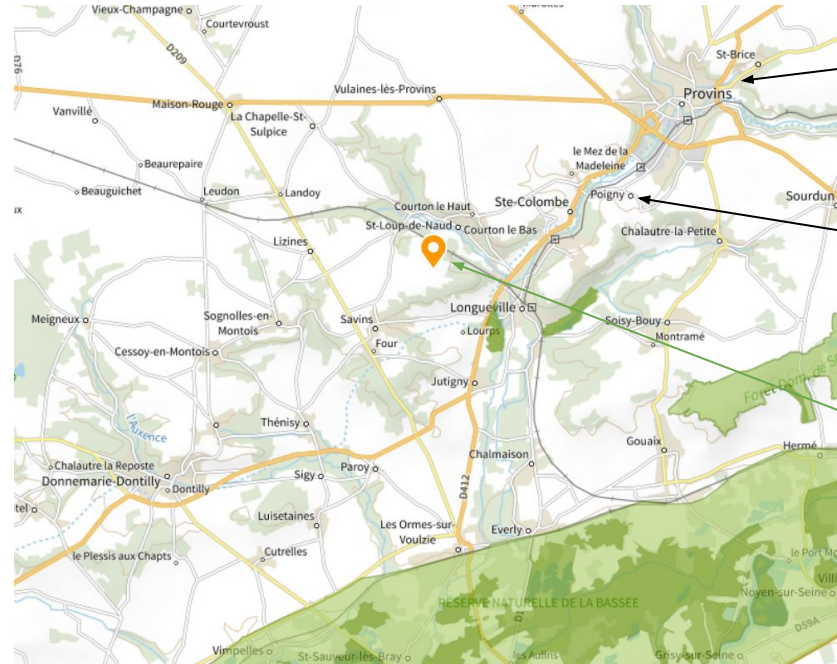
France map



The rehabilitated quarry occupies a 13.7ha area. It is around the town of Provins (UNESCO World Heritage) and the natural reserve of Bassée (Natural Area of Ecological Fauna and Flora Interest).

One of the objectives of the rehabilitation was to make a continuity with these areas of national interest.

Ile de France map



UNESCO World Heritage

Beaujeu Plant

Restored quarry

Legend

 Natural Area of Ecological Fauna and Flora Interest

Background

Before Imerys started to operate the quarry, the area was crop fields only.

The first operating permit order dates from 6th December 1989.

The quarry has been operated until 2014.

The backfilling of the quarry ended in 2020. The time window is explained by the seeking of a demanding contract for the quality and quantity of the backfilling soil.



Savins before the quarry (1950-1965). Source: IGN



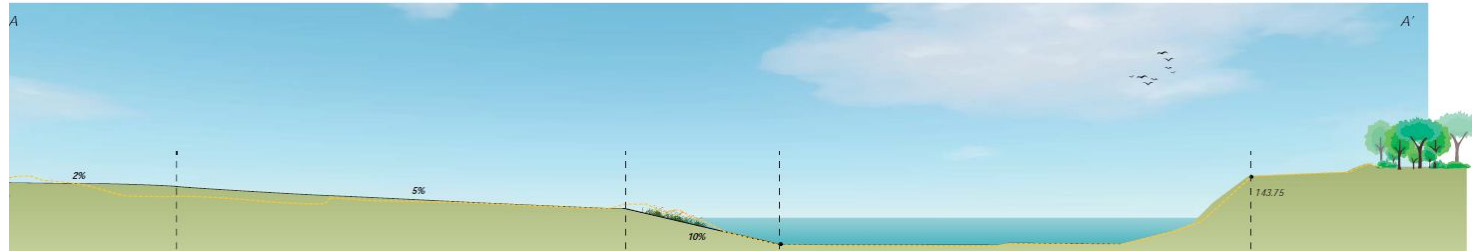
Savins quarry during the exploitation in 2014. Source: Imerys

How did we rehabilitate?

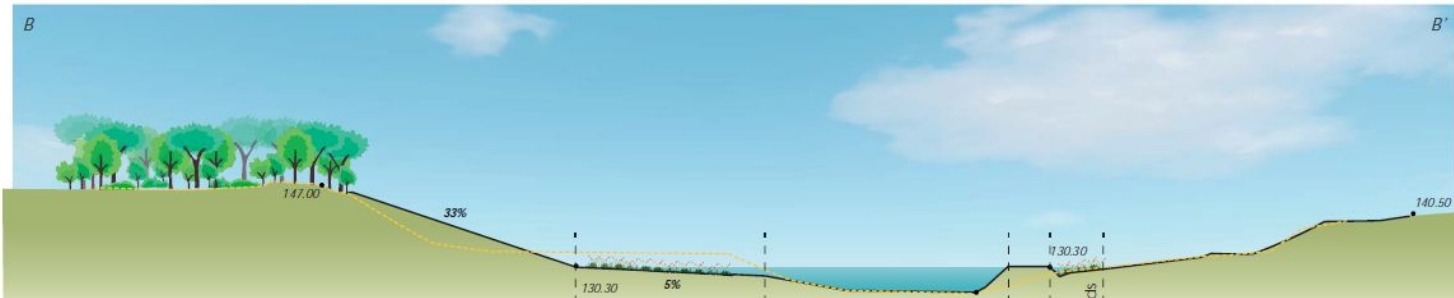
In order to meet our objectives, we have decided to model the topography of the site:

- The rehabilitation has then been done according to two topographical axis (see image below).

This rehabilitation technique, coupled with a quality soil, allowed to create a diversified and rich in biodiversity habitat.



Space potentially cultivable Creation of mesophilic grassland Creation of shoal areas (littoral zone) Pelagic zone Preservation of the existing site



Slope softening Creation of shoal areas (littoral zone) Pelagic zone Creation of sandy-gravelly island Preservation of the existing site

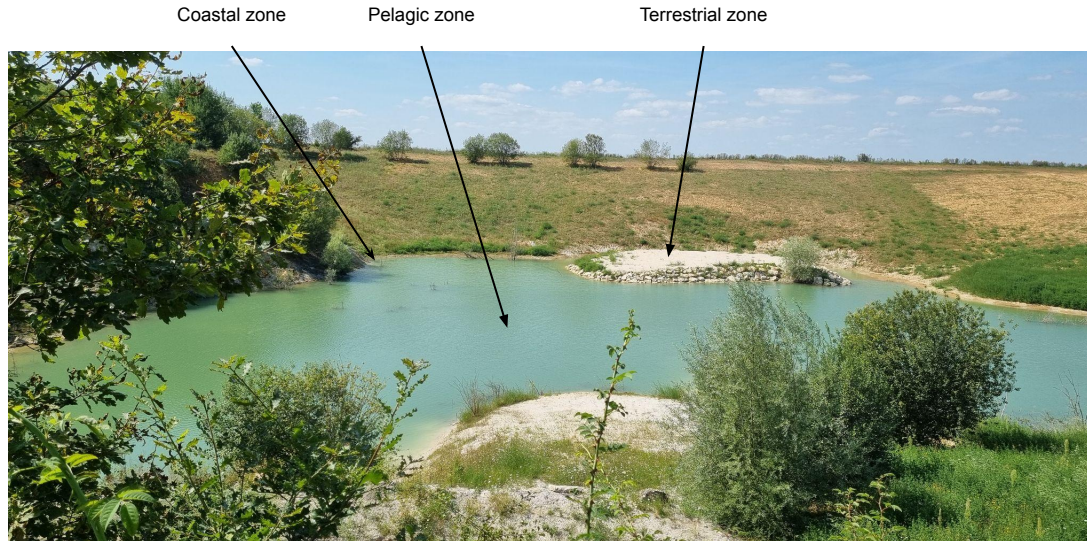


--- Natural ground initial state
— Natural ground projected state

Specificities of this rehabilitation - Water area

The water area (3ha) can be split into three areas:

- **The coastal zone** : Shallow, its vegetation provided a course of food and hiding places for wildlife breeding.
- **The pelagic zone** : Quite deep, it allows fish to feed and develop.
- **The terrestrial zone** : The island, as a nesting area, a resting area or a breeding area, is easily accessible to migratory species and allows to increase biodiversity.



*Fuligule Morillon in the quarry of Savins.
Source: Imerys*

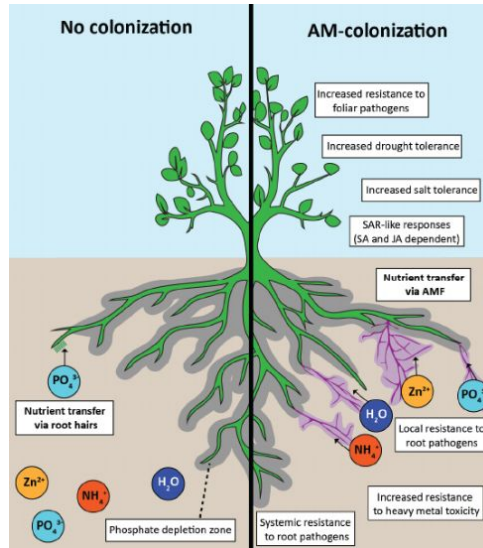
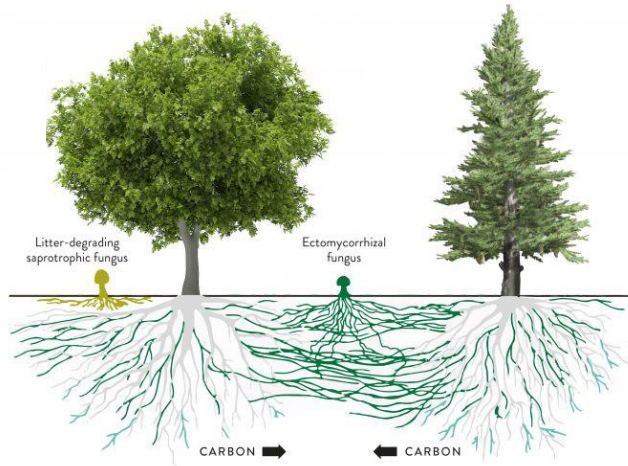
Specificities of this rehabilitation - Mycorrhization

We have decided to use disruptive innovation projects to address tomorrow's environmental and societal issues.

To do so, we turned towards tree species which are climate change and disease resistant. Plus, during their planting, we used the mycorrhization technique which ensures every element of the ecosystem is present.

The mycorrhizal fungi have the particularity of entering into symbiosis with the roots of the plants, allowing a faster et more efficient growth.

Mycorrhizae: social networks of terrestrial ecosystems



Source : Agronomy 2017,7, 75



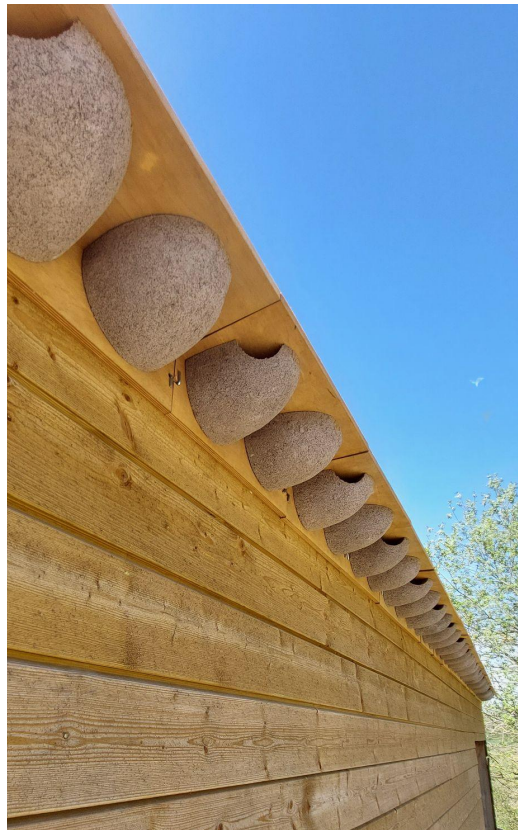
Tree with mycorrhiza in the quarry of Savins in 2022.

Source: Imerys

Specificities of this rehabilitation - Bird observatory

In order to make the rehabilitation as pedagogical as possible:

- A bird observatory with nesting boxes has been created.
- An educational panel is being created, to communicate on the rehabilitation and the species inventory.



Nesting boxes details:

40 double nest boxes for House Swallows, i.e. 80 potential nests, 5 nest boxes for Barn Swallows inside the observatory as well as a nest box for Barn Owls.

Specificities of this rehabilitation - The adjustments

To stimulate the diversity of species, we diversified the accommodation environment, especially:

- Installation of 8 beehives to favour the integration of bees on site,
- Production and harvesting of honey on site,
- We left some of the banks stonier,
- We arranged big stones at strategic points,
- We arranged dead wood for insects,
- Installation of hedges on the edge of the quarry and
- Steep limestone slope to allow the nesting of certain species.



Big stones.
Source: Imerys



Banks stonier.
Source: Imerys



Hedges.
Source: Imerys



Dead wood.
Source: Imerys

The adjustment

Making the site and the biodiversity safe was a major issue, with:

- The installation of gates,
- The installation of a fence around the site and the bird observatory,
- The installation of “Fishing and hunting prohibited” sign,
- The refurbishment of access road and
- The reduction of the slope of the embankments.



Access to the Quarry of Savins in 2022. Source: Imerys



Biodiversity's increasing return

BEFORE



Quarry of Savins in March 2021. Source: Imerys

AFTER



Quarry of Savins in June 2022. Source: Imerys

Biodiversity's increasing return

BEFORE



Quarry of Savins in March 2021. Source: Imerys

AFTER



Quarry of Savins in June 2022. Source: Imerys

Until today



Quarry of Savins in June 2022. Source: Imerys

Biodiversity's return about the fauna : Birds

More than 90 species have been identified by the Pie Verte Bio 77 association.



Whitethroat. Source: PieVerteBio77



Goldfinch. Source: PieVerteBio77



Black stork. Source: PieVerteBio77



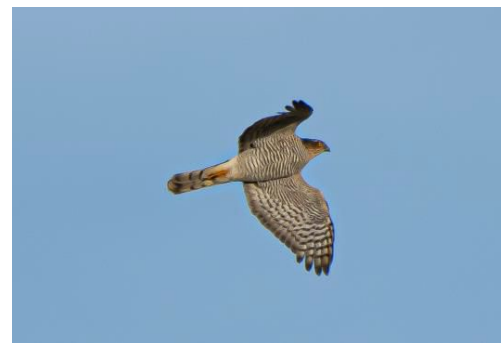
Kingfisher of Europe. Source: PieVerteBio77



Little Grebe. Source: PieVerteBio77



Common Pipistrelle. Source: PieVerteBio77



Eurasian sparrowhawk. Source: PieVerteBio77

Biodiversity's return about the fauna : Mammal

A few mammals were also seen....



Roe deer. Source: PieVerteBio77



Hare. Source: PieVerteBio77



Wild boar. Source: PieVerteBio77



Fox. Source: PieVerteBio77

Biodiversity's return about the fauna : amphibians and fishes

To boost biodiversity, several species were reintroduced in 2020 by the PieVerteBio77 association.



Green frog. Source: PieVerteBio77



Common frog mating. Source: PieVerteBio77



Female palmate newt, female crested newt and giant salamander. Source: PieVerteBio77



Frog tadpole. Source: PieVerteBio77



Egg laying of common frogs. Source: PieVerteBio77

A few months later, they had many children...

Biodiversity's return about the fauna : Reptiles and Insects

In addition to the introduction of bees with the hives, other insects and reptiles have appeared.



Bees. Source: Imerys



Wall lizard. Source: PieVerteBio77



Smooth snake. Source: PieVerteBio77



Golden cockchafer. Source: Imerys



Aurore. Source: PieVerteBio77



Azure damselfly. Source: Imerys

Biodiversity's return about the Flora

167 species have been identified in may 2022 by the consultancy firm Ecosphère, including two species considered as "uncommon" in the Ile-de-France area.

"Uncommon" species in Ile-de-France



White Sweet Clover. Source: Ecosphère



Purple Osiers. Source: Ecosphère



Denseflower Mullein. Source: Ecosphère



Melilotus officinalis. Source: Ecosphère



Greater Butterfly-orchid. Source: Ecosphère



Yellow-wort. Source: Ecosphère



Woodland strawberry. Source: Ecosphère

Site valorization



*Participation in the Provins forum on natural resources
from November 08 to 13, 2021*



*Upcoming Participation in the Biodiversity forum in Provins from November
7 to 12, 2022*



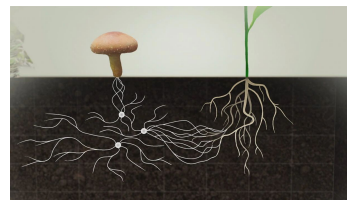
*Quarry visits with associations and
Imerys personnel*



*Partnership with the PieVerteBio77 association
for the faunal inventory*



*Partnership with the Ecosphere design
office for the floristic inventory*



*Partnership with a forester for tree
mycorrhization*



*Partnership with a beekeeper for hive
management*

Our projects

Our ambition is to pass on this biodiversity sanctuary to the next generations

To do so, we have to:

- Maintain the sanctuary in the long run (fix the damaged fences, replace the warning signs, keep a restricted access, maintain the tracks, the bird observatory...).
- Raise awareness among local communities about the importance of on-site biodiversity (awareness about the use of pesticides, organisation of open days, participation in forums, installation of educational panels, create partnerships with associations and schools).
- Remove invasive species. As part of the floristic inventory, three invasive exotic species have been identified on site. In partnership with a local landscape gardener, these species are going to be eliminated as soon as possible to avoid their development.



Caring for our planet



The rehabilitated quarry of Savins in March 2022. Source: Imerys