

Identification of ES in quarries, monitoring and evaluation of ES significance of quarries in the landscape

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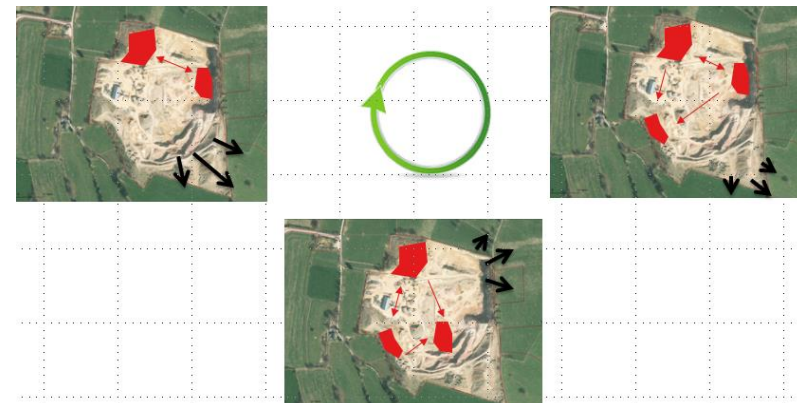


Objective: Active quarries = opportunity for nature



→ New concept : **Dynamic management of biodiversity**

Development, test and validation of best practises in daily quarry activities



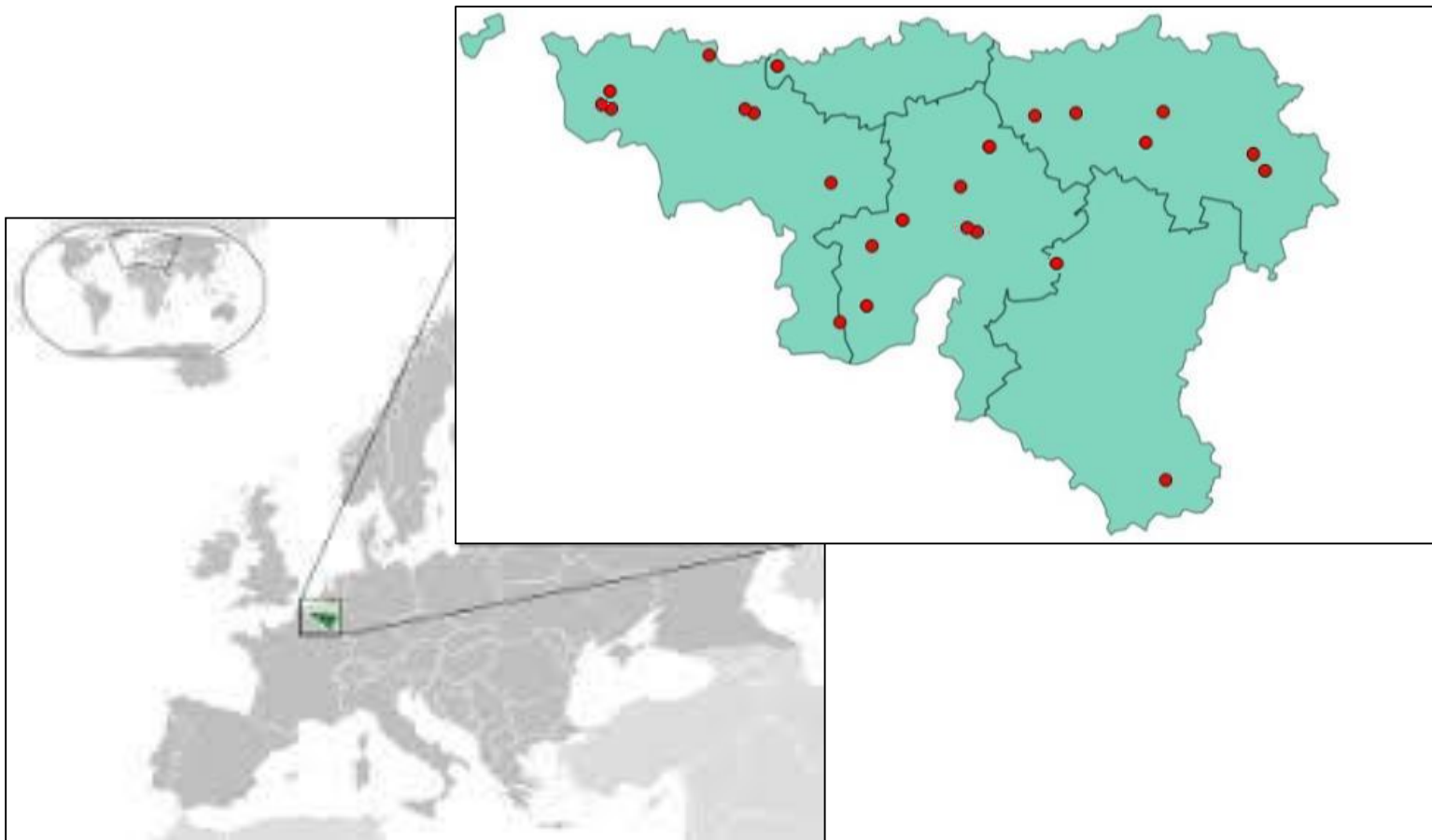
Life in Quarries [LIFE14 NAT/BE/000364]



Duration: 5 years

01/10/2015 - 30/09/2020

Location: Walloon region, Belgium



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Location: Walloon region, Belgium

Funding: 5 millions €

Co-financed by EU, Walloon region (BE) and extractive companies

Implemented with human and material resources from the quarries



Evaluation of Ecosystem Services

2016: Initial evaluation on 14 quarry sites

2018: Monitoring on 14 quarry site + initial evaluation in new sites

2020: Monitoring on 14 quarry sites + monitoring of new sites

A large, black, right-facing curly bracket that groups the three time-period descriptions on the left and points towards the overall action text on the right.

Overall action to monitor the impacts of the project on Ecosystem Services

1. Which ecosystem services have you tried to put a value on and why?

Every ecosystem service provided by a quarry and its surrounding.



Provisioning

- *Crops*
- *Wood*
- *Game*
- *Drinking water*
- ...

Regulating

- *Protection against flood*
- *Pollination*
- *Capture of dust*
- ...

Cultural

- *Outdoor activities (Bike, walk,...)*
- *Hunting*
- *Education*
- *Intrinsic value of existence and heritage*
- ...

1. Which ecosystem services have you tried to put a value on and why?

Very few studies about ecosystem services assessment in **active** quarries

- Understand the impact of the quarries on different stakeholders,
- Take better informed decisions about management decision, taking into account environmental impacts,
- Communicate more efficiently about quarries nature and environment.

2. Are some ecosystem services more difficult to put a value on than others?

3. How have you valued the ecosystem services (qualitative or quantitative)?

Provisioning

- Quite easy to evaluate,
 - Quantitative,
 - Example: Wood production.
- 
- A diagram consisting of three green arrows pointing from the text "Example: Wood production." to three separate text boxes on the right. The top arrow points to "Forested areas = potential supply", the middle arrow points to "Wood actually cut = real supply", and the bottom arrow points to "Selling price of wood = economic value".
- Forested areas = potential supply
 - Wood actually cut = real supply
 - Selling price of wood = economic value

2. Are some ecosystem services more difficult to put a value on than others?

3. How have you valued the ecosystem services (qualitative or quantitative)?

Regulating

- Difficult to evaluate,
- Expert Committee → Matrix of Burkhard
- Quantitative scores but no specific matrix.

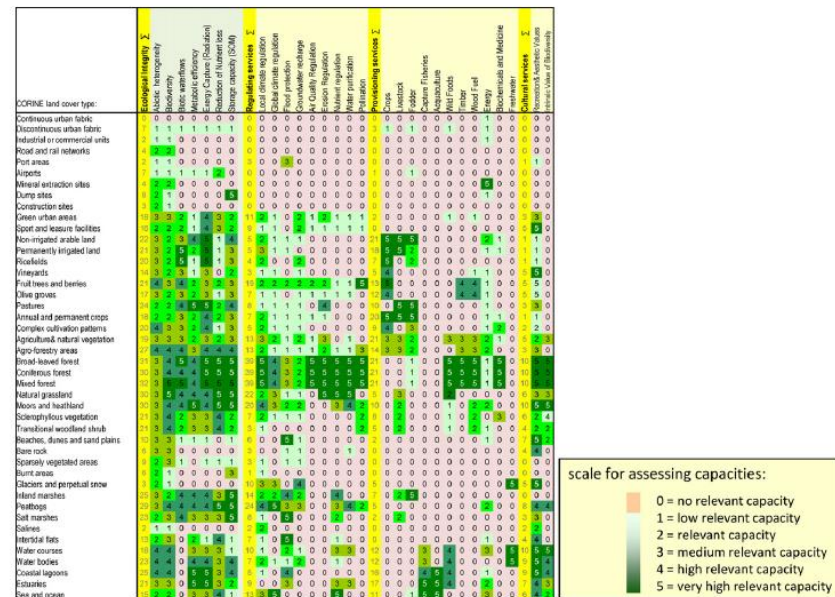


Fig. 2. Assessment matrix illustrating the capacities of different land cover classes to support ecological integrity (column at the left side) and to supply ecosystem services (the three columns at right). The values/colors indicate the following capacities: 0/rosy - no relevant capacity; 1/light green - low relevant capacity; 2/light green - relevant capacity; 3/yellow green - medium relevant capacity; 4/blue green - high relevant capacity; and 5/dark green - very high relevant capacity (after Burkhard et al., 2009).

2. Are some ecosystem services more difficult to put a value on than others?

3. How have you valued the ecosystem services (qualitative or quantitative)?

Cultural

- Difficult to evaluate,
- Survey during quarries visits and activities
- Qualitative



4. Success stories

New methodology

Active quarries

Integrated evaluation



Biophysical evaluation

Social evaluation

Economical evaluation



5. Difficulties encountered

- Contact with local residents,
- Concept of quarry limits,
- Management of ecosystems.

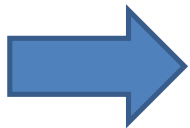


Conclusion

Provisioning services → easiest to assess BUT will decrease by 2020.

Regulating services → difficult to assess, experts opinion

Cultural services → Positively impacted by the LIFE in Quarries BUT difficult to assess because of limited information.



For monitoring of ecosystem services in quarries (2018), focus on **cultural services**.

Thank you for your attention !



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