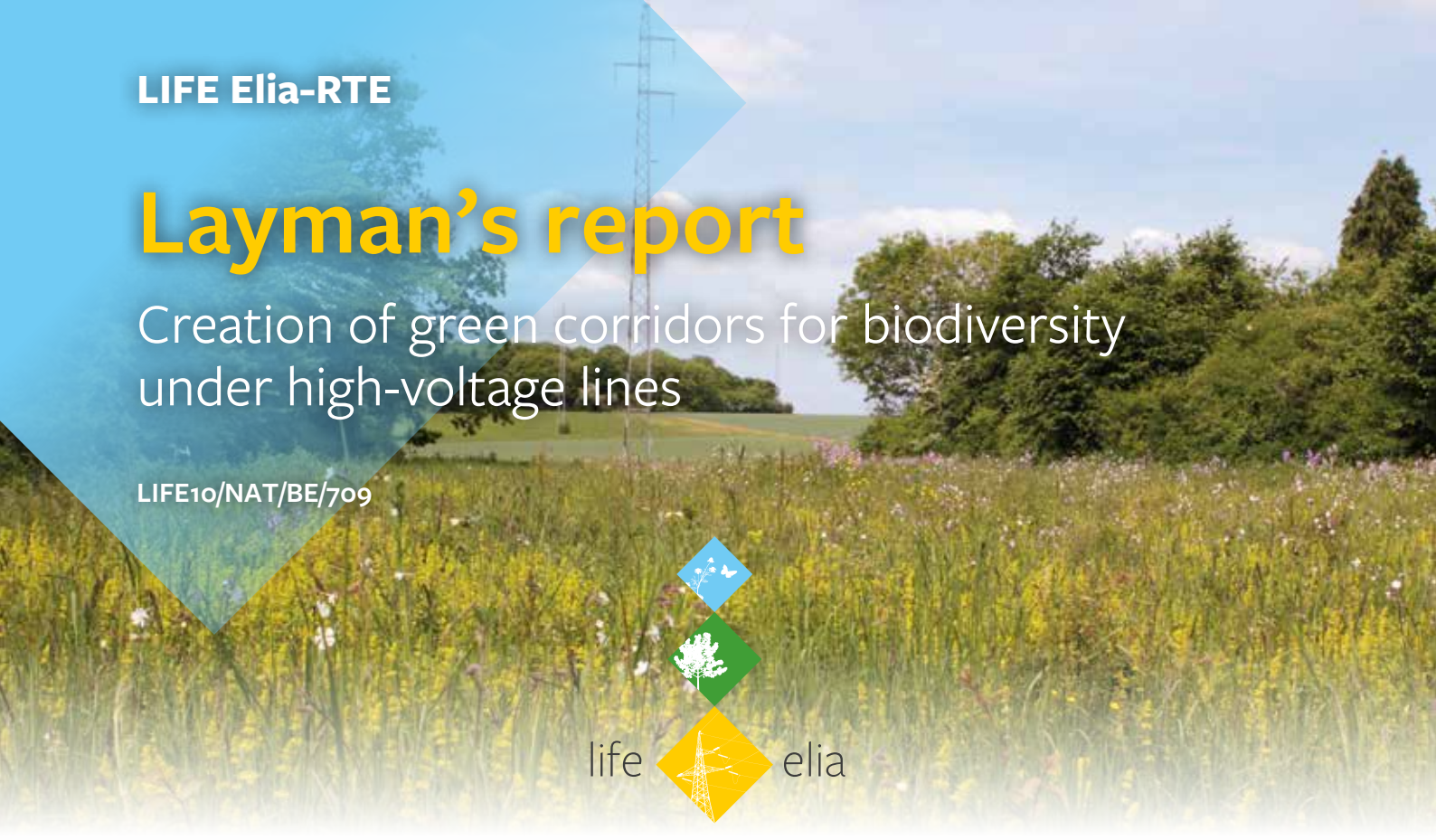


LIFE Elia-RTE

Layman's report

Creation of green corridors for biodiversity under high-voltage lines

LIFE10/NAT/BE/709

life elia

Powering a world in progress

Le réseau de transport d'électricité

Wallonie

The LIFE programme

LIFE means L'Instrument Financier pour l'Environnement [Financial Instrument for the Environment] of the European Union. This programme finances projects related to the environment, nature conservation and climate within Member States. Since 1992, the LIFE programme has co-financed over 4500 projects. During the 2014-2020 financing period, this programme will have financed projects for the environment and climate worth €3.4 billion.

The problem

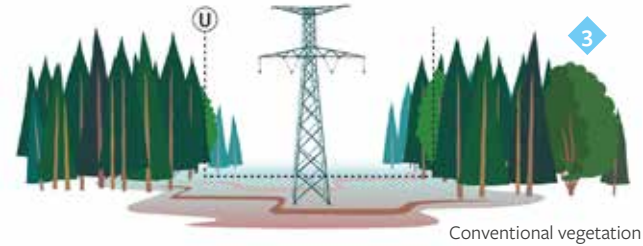
To ensure the safety of the electrical network and thus avoid any incidents or supply interruptions which could happen, the Transmission System Operator (TSO) must monitor the vegetation that grows in the immediate vicinity of the high-voltage lines.

When high-voltage lines cross forest environments, the TSO manages the vegetation either by rotary cutting1 or by manual cutting. These operations create a sort of vicious circle since in reality they favour germination and growth of the trees' seeds (by the supply of light to the ground and the supply of organic matter in the soil) which will later pose a problem for the electrical wires.

Solutions and the LIFE Elia-RTE project

The LIFE Elia-RTE projects is one of many projects supported by the LIFE programme.

The main goal of the projects is setting up alternative management (V-shaped corridor2) for vegetation under the high-voltage lines in Belgium and France. These innovative methods, replacing conventional management by rotary or manual cutting (U-shaped corridor3) have been presented to the electricity Transmission System Operators in Europe.



Conventional vegetation management

Alternative vegetation management

The LIFE Elia-RTE project

6.5 years

(2011-2017)

€3.2 M

Financing

- 36% European Commission
- 25% Wallonia
- 24% Elia
- 15% RTE

7

Persons

28 Belgium — **7** France

Sites

486 Belgium — **42** France

ha restored

7

Field actions

18

European countries

7 actions

The 7 actions of the LIFE Elia-RTE project have in common to favour biodiversity and to limit or even prevent the growth of trees which, depending on their height at maturity, constitute a threat to the safety of electricity power lines.

The idea is therefore to implement these actions, where relevant, and then manage the vegetation in the long term with appropriate methods.

Actions

	Results obtained
Forest edges	273 ha
Orchards	24 ha
Natural habitats	100 ha
Combating invasive species	28 ha
Grazing and mowing	68 ha
Flowering meadows	34 ha
Total	**528 ha**
Ponds	175 ponds

1 Planting and restoration of forest edges
2 Planting fruit trees of wild and local species
3 Restoration of natural habitats protected by the "Habitats" European Directive (bogs, moors, chalky grasslands and lean meadows)
4 Digging of ponds
5 Establishment of a pasture or mowing
6 Combating invasive plant species
7 Harvesting seeds, sowing and mowing of flower meadows

Results obtained

60
Municipalities concerned

220
Private owners involved

27
Active farming operators under the lines

20
Contracted hunting organisations

138 km
High-voltage lines restored

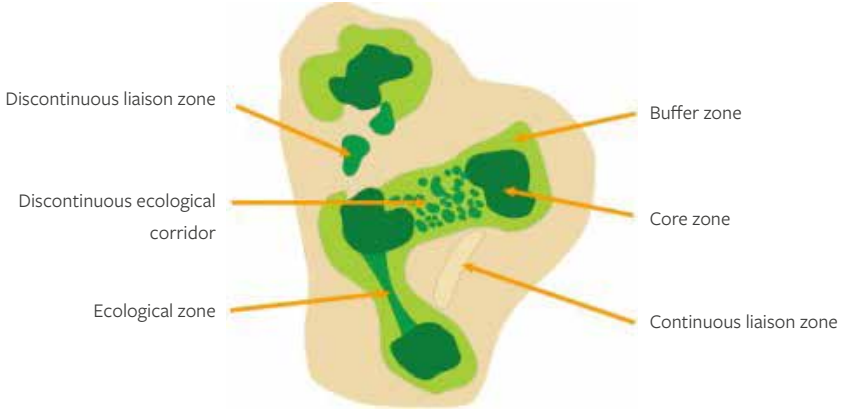
3 complementary networks

The electrical network

The high-voltage electrical network (from 1,000 to 400,000 Volts in general) carries electricity from the place of production to large users (industries) and to the electricity distribution network. This network supports the energy transition since it has to adapt to the new renewable energies produced in various locations of the country. The Transmission System Operator is responsible for its maintenance and therefore for the vegetation which grows under the electrical power lines.

The ecological network

The ecological network consists of core zones (zones where biodiversity is the richest), buffer zones (zones bordering the core zones) and liaison zones (zones necessary for movement of animal and plant species from one core zone to another). These liaison zones can be continuous or discontinuous.



The network of partners

The Transmission System Operator does not own the land under the high-voltage lines. Arrangements made under these lines must therefore be done with the consent of owners (public or private) and the managers of these environments (forest administrations, federations of foresters or hunters, local nature conservation associations).

Complementarity of networks

Linear infrastructures, such as the high-voltage network, can contribute to taking biodiversity into account while strengthening the ecological network.

Be intelligently developing these spaces it is possible to restore natural habitats and favour animal and plant species that have sometimes become scarce.

By incorporating them in a local socio-economic context, these actions also have a positive impact on many local partners.

Actions in the field

Working method

To implement these actions in favour of biodiversity, a very specific working method is followed :

STEP 1

Initial mapping

The purpose of this operation is to assess the risks that neighbouring forest stands could represent for the line and to estimate the potential for establishing alternative management actions.

STEP 2

Preparation of development proposals

On the basis of potentialities revealed by the initial mapping, development proposals are set out on the map. These proposals are submitted to the Transmission System Operator's vegetation management teams.

STEP 3

Consultation with the owners and managers of the parcels concerned and final choice of developments

The purpose of this step is to explain the project's philosophy to local partners and to involve them in the choice of work to be done, taking their expectations and interests into account.

STEP 4

Signing of agreements with the Transmission System Operator, the owners and managers

This signature formalises the agreement on implementation of the developments

STEP 5

Writing specifications, calling for tenders and selecting contractor

To ensure the success of the work, writing a good specification is essential. The choice of contractor is made after competitive call.

STEP 6

Site work

Monitoring then acceptance of the site ensures compliance with the specifications and, if necessary, adapting the work according the realities in the field.

STEP 7

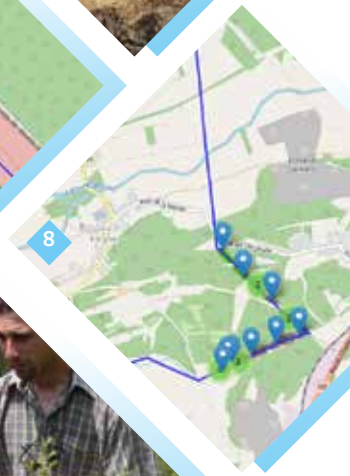
Writing management plans

The management plans specify the actions for maintenance of the vegetation to be carried out in the long term. Set out in a calender, these actions will contribute to containing or eliminating vegetation that could threaten the high-voltage line.

Long-term management

Management plans for each site ensure the continuity of actions undertaken as part of the LIFE Elia-RTE project. To ensure that they are implemented, the LIFE Elia-RTE project prepares a dynamic and evolving mapping to record all the information relating to the various developed sites. The databases (cadastral, work carried out, long-term management, georeferenced photos,...) are linked to polygons reproduced in a Geographical Information System8 that can be adapted according to the needs of users in the field, including patrollers of the electricity Transmission System Operator (TSO).

Training sessions for the TSO's personnel9 are also provided to ensure good continuation of the development's maintenance.



Communication

Different communication actions have been deployed during the project to sensitise:

Professionals in the sector

- Publishing of 10 thematic brochures
- Publishing of 2 Best Practices handbooks for vegetation management
- Production of a 13 minute video and video clips
- Training of the electricity Transmission System Operator's personnel
- Organisation of 3 symposia at the end of the project (Namur, Brussels and Paris)
- Holding more than 100 conferences and writing more than 20 articles in specialised journals.

The general public

- Publish the www.life-elia.eu website online
- Writing 8 information leaflets
- Erecting 40 interpretive panels in the field
- Construction of 3 viewing areas
- More than 80 press articles

European networking

In order to disseminate information and best practices in Europe, a networking campaign enabled meetings to be held with the persons responsible for Environment and Vegetation of 18 electricity Transmission System Operators (TSO).
An event organised on the LIFE Elia-RTE project's sites in Belgium in June 2015 brought together 40 participants from 16 European countries.

Numerous conferences were also held at the European Commission (DG Environment, DG Energy and DG Budget), at ENTSO-E (the European federation of TSOs) as well as with NGOs active in this sector.

Awards

The LIFE Elia-RTE project has received 3 Awards:

- Natura 2000 Award (2016, EU-DG Environment)
- Sustainable partnerships Award (2016, The Shift)
- Best Environmental Practices Award (2015, RGI)

NATURA 2000 AWARD

Sustainable Partnerships Award 2016

„Creating Green Corridors" by LIFE Elia-RTE
GOOD PRACTICE OF THE YEAR
CATEGORY: ENVIRONMENTAL PROTECTION

Biological and economic assessment

Biological inventories

In order to measure the concrete impact of actions on biodiversity, a series of biological indicators were measured. Inventories were taken according to specific and repeatable protocols. They targeted the following groups: upper plants, birds, butterflies, dragonflies, reptiles, amphibians and bats.

More than a dozen species of community interest (Appendix II of the Habitats Directive) have thus been identified and will benefit from the management established. For example, in the French Ardennes, the Inondated Clubmoss quickly recolonised peat bogs and in Belgium the Mouse-Eared Bat hunts in grassy areas now managed by mowing.

The complete report is available at the www.life-elia.eu website.

Cranberry Fritillary (*Boloria aquilonaris*)

Orange-Spotted Emerald (*Oxygastra curtisii*)

Inondated Clubmoss (*Lycopodiella inundata*)

Bechstein's Bat (*Myotis bechsteinii*)

Fly orchid (*Ophrys insectifera*)

Cost-benefit analysis

A cost-benefit analysis was conducted with the goal of comparing the costs associated with conventional vegetation management by the Transmission System Operator (TSO) and the costs associated with alternative methods of vegetation management. Despite a more substantial initial investment, the results show that alternative methods are 1.4 to 3.9 times less costly over 30 years.

Although the "secondary" benefits generated by the actions of the LIFE Elia-RTE on the landscape quality, the improvement of ecosystemic services and the positive impact on the image of the TSO's brand were not calculated as part of the LIFE project, they are no less significant elements to be taken into account.

	Comparison of LIFE Elia-RTE actions with conventional management		**Comparison of LIFE Elia-RTE actions with conventional management with updated values and taking inflation into account**
Actions	**Threshold of profitability**	**Comparison after 30 years**	**Comparison after 30 years**
Planted forest edges	9 years	1.9 times less costly	1.4 times less costly
Restored forest edges	3 years	2.1 times less costly	1.8 times less costly
Grazing	6 years	2 times less costly	1.8 times less costly
Grazing in difficult areas	5 years	4.7 times less costly	3.9 times less costly
Mowing	6 years	4.9 times less costly	2.5 times less costly
Natural habitats (moors)	3 years	5.3 times less costly	3.9 times less costly
Natural habitats (peat bogs)	9 years	3 times less costly	1.8 times less costly

Conclusions

As part of the 20-20-20 targets of the European Commission, the Member States are developing their capacity to produce green energy from wind or solar power, for example. With this general context of decentralisation of energy production centres, Transmission System Operators face a daunting challenge – they have to strengthen or even create a new network. This is in territory where there is increasing pressure on the land given the urban, landscape and environmental issues.

The practical solutions provided by the LIFE Elia-RTE project, in addition to being replicable throughout Europe by adapting certain parameters, are also relevant responses to this major issue since they improve the landscape, hosting of biodiversity and societal acceptance of electrical works.

Prospects

Following the LIFE Elia-RTE project, the Belgian TSO (Elia) and the French TSO (RTE) decided to continue in 2018 the work carried out and to steadily make these biodiversity-friendly practices widespread.

There are many prospects since the same principles could be applied along other linear infrastructures such as the electricity distribution, gas, rail and even road network.

By strengthening the ecological network, the high-voltage electricity network becomes a true ecological corridor!

Created with the financial support of the LIFE programme of the European Union, the Walloon Region, Elia and RTE.

Areas of implementation of natural space restoration under high-voltage lines

In Belgium (Walloon region):

- 155 km of electrical corridors

In France:

7 sites in the different biogeographic regions

- Atlantic: Finistère, Seine-et-Marne
- Continental: Aube, Ardennes, Doubs
- Mediterranean: Drôme
- Alpine: Hautes-Alpes

Follow the project at:
www.life-elia.eu/en/

life elia