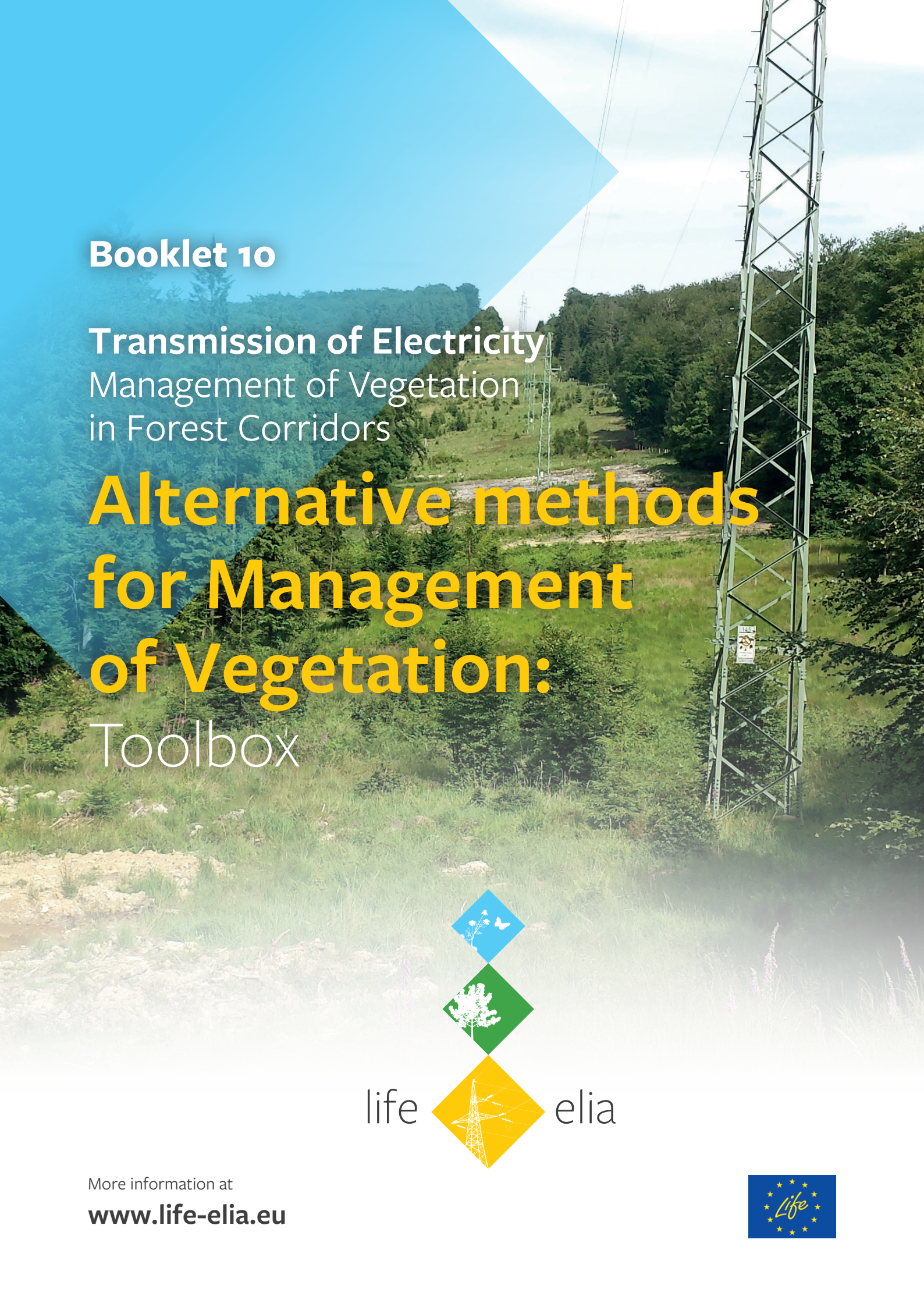

Booklet 10

Transmission of Electricity
Management of Vegetation
in Forest Corridors

Alternative methods for Management of Vegetation:
Toolbox

life elia

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1

Introduction

This booklet was written by the staff of LIFE Elia-RTE (2011-2017), a project financed by the LIFE+ programme of the European Union, by the Walloon government, by Elia and RTE (the latter two electricity Transmission System Operators (TSO) in Belgium and France, respectively).

The main goal of the project is the transformation of forest easements of high-voltage transmission line routes into ecological corridors in Belgium and France. Restoration activities aim at implementing innovative practices for management of vegetation of these green corridors in the forest, and raising awareness of various audiences about the importance of biodiversity in these linear habitats.

The results achieved during this LIFE Elia-RTE project are very encouraging. They are the fruit of numerous meetings, setting up of multiple partnerships, creation of many innovative work tools (cartography, databases, communication tools). There is also the maintenance of a climate of trust between the various stakeholders, and the clearly displayed willingness of the two TSOs (Elia and RTE) to promote biodiversity electricity corridors in the forest.

Implementation of this project followed a precise methodology, consisting of successive actions which were sequenced and which depended on each other. As well, to assist other TSOs wishing to implement a similar differentiated management approach for vegetation under large-scale lines, we propose some recommendations. They are intended as a simple feedback of experience, fruit of reflections and adjustments throughout the LIFE Elia-RTE project.

It seemed interesting to us, for the design of this last booklet of the LIFE project, to create links between our 9 previous booklets which address themes that are complementary to each other, targeting "actions", "tools" or "strategy", on this question of boosting biodiversity under the high-voltage network.

The goal of this booklet is therefore to propose some avenues, a methodology, a feedback of experiences that would allow other TSOs, in their own national context, to replicate all or part of this new philosophy for management of vegetation under electricity lines in the forest.

2

Early stages of the LIFE Elia-RTE project

Especially in the forest environment, management of the vegetation under and around the high-voltage network is essential. The natural growth of seedlings and other regrowths must be controlled by the TSO. It is obligatory to take action regularly to ensure the continuity and safety of electricity transmission. This regular work on the vegetation can create recurring nuisances on the sites, both in terms of landscape and biodiversity.

Tree topped under the electric power line

Open habitats in the forest display many matters of interest. The creation of gaps (clearings, paths or electricity safety corridors) can be used to bring these benefits related to open environments to the forest ecosystem! No longer consider the easement of high-voltage lines solely through the prism of necessary electrical safety but also as potential zones of great ecological interest. This bet aroused doubt, then astonishment and finally curiosity at Elia and RTE. Would it be possible, if not interesting, to reconcile line safety with biodiversity, while particularly meeting the expectations of rural owners or users? Could a constraint be turned into an opportunity?

Of course, both Elia and RTE already had developed projects favourable to biodiversity.
But this was in an ad hoc way, in response to local proposals from hunters, naturalists, farmers.
The LIFE approach, through its trial dimension, was good for testing the spread of this management that was favourable to biodiversity on a large territorial scale.

The financial and human resources made available by a tool such as the LIFE+ programme allowed us to test on a large scale the avenues for reconciliation of the safety needs of the TSOs and deployment of biodiversity in the forest corridors.

3 Replicability, but under what conditions?

3.1 Before beginning

3.1.1. A project to be built collectively

Requiring felling or mulching may be unavoidable in the case of conventional management.
The relationship with the owner falls within the strict framework of the TSO's contractual responsibility to ensure electrical safety.

But to set up a long-term partnership it is necessary to propose a totally innovative approach and set of relationships between entirely different actors. The TSO must abandon a posture of being the sole manager of the vegetation and adhere to a rationale of co-management with the owners and players in the field.
The challenge is to propose avenues for management of vegetation to which the players in the field will be favourable, in which they will find an interest and through which they can sustainably ensure success (see booklets 8 and 9).

There is therefore in this approach a necessary ability of the TSO to delegate management of vegetation to third parties, through an agreement of course, but first and foremost in a climate of trust.

This co-construction of the project is also an internal challenge for the TSO. This new mode of vegetation management constitutes a real (r)evolution for maintenance services. It is therefore essential to involve them as early as possible in the reflection on the types of development and their future management.
These services must take ownership of this new philosophy of the TSO in relation to vegetation.
They are the ones who will have to manage it subsequently on a daily basis.

3.1.2. Social expectations

A forest clear cutting created to make the electrical grid safe causes a long-term disturbance within the forest ranges. It has many negative repercussions: effects on soil protection, the stability and quality of neighbouring forest stands as well as on the landscape. Management of vegetation, carried out regularly, will also lead to negative effects on biodiversity: impacts on natural habitats, soil enrichment, disturbances to wildlife and disruption of ecological niches.

Ideally, a mindset of taking all these parameters into account ahead of creating new lines should ensure better acceptance of the grid by the population, neighbouring residents, authorities, associations. Certain accommodations, which may appear to be significant investments at first glance, will facilitate granting of permits. It is important here to subscribe further than the legal rationale of "Avoid, Reduce, Compensate", but to be seen to be resolutely proactive, to go beyond the prescribed regulations and to put biodiversity value-enhancing propositions at the very heart of the projects. The approaches thus set up will constitute a proof of the electricity manager's goodwill to take the exact measure of the importance of biodiversity and to involve local partners for the success of a sustainable project. In the same reasoning, conducting biological surveys, inventories focusing on heritage or unknown species, will let citizens perceive the high-voltage grid as a vector for protection of biodiversity. The biological data collected also plays a dual role of initial documentation of the biological value of the sites and will allow for their changes to be assessed following the development work (see booklet 7).

3.1.3 A variety of solutions in response to a variety of players

Plantation of wild apple trees, as a genetic reservoir to counteract their depletion

Based on the results of a cost-benefit analysis (see booklet 2) that can analyse the financial benefits over the long term of the choice of management favourable to biodiversity, a wide range of solutions can be envisaged to ensure thoughtful participative and sustainable safeguarding of forest easements.

- The edges of the forest meet obligations related to woodland and forest certification (PEFC or FSC type). More broadly, in a rationale of management of the forest range, they integrate the forest corridors in forest management (see booklet 4). The junction between open areas and the forest, these edges play a role of refuge for the biological diversity and integrate in the indispensable ecological mesh. They can also meet the calls for firewood by the residents or inhabitants of neighbouring communities. Finally, they serve for food and lodging for a whole range of fauna, including game.
- Agriculture can also be attracted to the corridors. Haying and grazing provide sustainable management of open sites under the lines. These are all fortuitous areas in some regions, for farmers seeking available land (see booklet 3).
- Wetlands, peat bogs, moors, ... are all precious natural environments that are too often abused. Nature conservation associations, administrations and regions can help TSOs in understanding the importance of these natural habitats, their restoration, management and integration in a regional or national ecological fabric (see booklet 6).
- Electricity corridors can also contribute to preservation of threatened genetic heritage, either with a view to preservation of threatened forest species (wild apple and pear trees, medlar trees), or with a desire to promote regional varieties of fruit trees. Under certain conditions, depending on national legislation, planting these orchards of low-height trees may be of interest to foresters, beekeepers, fruit producers, who will assist in their maintenance (see booklet 4).

3.2. The necessary initial inventory

Being able to inventory and evaluate all the parameters to be taken into account before setting up alternative management will ensure the best possible sustainability of decisions.

A Geographic Information System (GIS) will be effective if it incorporates scrupulously selected data organised in a relevant and practical manner. This tool will also greatly contribute to successful developments favourable to biodiversity by combining:

- the different potentialities of actions
- the owner or owners of the land
- the wishes of the owners and managers.

The interactions between all the elements of these databases will make it possible to compare the choices and refine development decisions as well as to foresee their integration in drawing up management plans.

Dynamic and simple to use, it must enable effective work both in the field and in the office.
To perform our cartographic work, we prefer open source tools, which are constantly evolving and allow each user to buy into the work and master it.

3.2.1. Concrete actions as the first showcase of the change

The first experiences in the field of this change in relation to vegetation are paramount for the TSO. They must ideally be carried out by enthusiastic local actors who can become the best ambassadors of this interest, for other actors of the rural world who are ready to invest in the "no man's land" of electricity power line easements.

This first accomplishments, even of modest size, must make it possible to arouse the trust of all players, both internal to the TSO (maintenance services, cooperatives) and external (owners, managers, farmers, naturalists, hunters, etc.).

Confidence in this idea of alternate management of vegetation. Confidence as well between these various players called on to co-construct these local projects.

Well exploited, these initial successes can create a significant snowball effect. They can generate spontaneous requests from owners wishing to see this new management method applied to their own land, farmers making their livestock available to maintain the easement, hunters finding interest in game that can be drawn from these replanted edges...

These successful experiences also make it possible to draw a first assessment of the causes of success, obstacles encountered, easily mobilised partners, legal difficulties or constraints related to future management.

It is on the basis of this initial feedback that the panel of different vegetation management methods can be refined. Forest edges, ponds, restoration of natural habitats, flowered, grazed or mown meadows (see booklets 3, 4, 5, 6), will provide opportunities for local actors to identify their strengths or weaknesses, winning partnerships or those difficult to mobilise (see booklet 8).

Establishment of a sheep pasture on sloped and difficult to access terrain

3.2.2. Biological and economic indicators

The ability to evaluate the interest of these new methods of vegetation management is really central to this type of approach, for their internal acceptance by the TSO first of all but also for their sustainable ownership by external actors.

This interest can be measured with two types of tools: biological indicators which will show the gain in biodiversity and economic indicators which will allow comparison of conventional vegetation management with those of restorations implemented within the framework of these projects in support of biodiversity.

The choice of biological groups to be studied, the frequency of monitoring, the size of specimens, the analysis and communication of results should be carefully considered by the TSO in partnership with biodiversity experts. The purpose is to apply these monitorings to managed environments in a large-scale manner. It is therefore necessary to place the cursor at the right spot, between a sharp scientific approach and a search for pragmatism in development of vegetation management under industrial easements (see booklet 7).

Study of the colonisation of ponds by newts by laying nets. It is not essential to inventory each pond when they are hollowed out.

It is also essential to be able to measure the actual cost of such a change in relation to vegetation. This will be a decisive tool for a potential decision of the TSO to make such methods of differentiated vegetation management general to its entire network. Such cost-benefit analyses must monopolise the enterprise's internal resources (maintenance services, financial management) and external resources (environmental engineering firms, biodiversity expert firms,...) (see booklet 2).

3.2.3. Long-term management plans

Considering entrusting management of the corridor's vegetation to local partners, on the medium and/or long term, requires a clear framework for both the TSO and the local player. As much as it is necessary for a precise specification to enable correct accomplishment of restoration activities, it is also essential to correctly benchmark the methods of site management. Writing of a simplified management plan must allow the different stakeholders to easily identify their respective roles. Explanatory, summary, detailed, illustrated, it will set the schedules for interventions (mowing, targeted felling, dates and grazing pressure, ...), clearly identify the players concerned (owners, managers, hunters, breeders, ...) and the tools for potential subsidy (duration of agro-environmental measures, Natura 2000 contract, ...). This management plan will be the reference framework for the TSO's maintenance service in its role of oversight of the status of the network's safety and in its ongoing dialogue with local players to whom vegetation management has been delegated.

The management plan is created from well-structured data in the GIS. It will have to be designed dynamically, which will allow it to be adapted throughout the terrain's development.

3.3. Communication and transparency

Presentation of challenges of differentiated management of corridors to students

Communication is essential and must be done via all potential channels. It must, as a priority, be first directed locally, informing neighbouring residents, the people for whom the high-voltage network is a part of the daily landscape. This targeted approach will help understanding of the TSO's willingness to incorporate its network in a territorial project. The Fêtes de la Nature organised in France and in which RTE actively participates are a good example. They allow, through children, associations and simple walkers, a demonstration of the positive impact of the developments.

In addition to the local press, which relays the achievements of the projects, a dynamic follow-up, using internet technologies, allows a much larger and more geographically dispersed audience to be reached. It therefore opens up a space for dialogue with the community of internet users.

A final necessary step is that of transparency: specifying the expected results and those observable in the field, constraints encountered, difficulties overcome. Information panels, benchmarks, ... all opportunities to inform neighbouring residents, walkers, partners are necessary to better understanding of the challenges and acceptance of the new management methods.

4 Integration within the TSOs' national policies

In order to best integrate the experience acquired during the LIFE Elia-RTE project in other national contexts, it seems important to follow the steps essential for successful implementation of the project such as described in this booklet. A phasing in this evolution within the TSO seems relevant between implementation on trial sites, analysis of feedback and spreading throughout the network.

4.1. Designation of trial sites

Before large-scale changes to the existing practices of safety management, it is essential to go through the test phase on trial sites. This will allow for an initial medium-scale analysis before a decision to implement throughout the TSO's network. This trial phase should be prioritised in a geographical space or spaces in which the partners are identified, considered open to progress, and capable of incorporating the new management proposals into their practices. Nature parks, hunters' federations, naturalists' associations, groups of breeders will all be intermediaries allowing good implementation of the trial project and its success.

If this trial phase is carried out on several sites, in several regions, it is interesting to open and diversify the selection criteria to enrich feedback. Among the variables are: the types of natural environment, the fabric of local players, the identities of various partners, the traditional methods of vegetation management, ...

In the trial zone, implementation of a specific communication, strengthening of contacts between partners and managers of the management cases will serve as a subsequent facilitator. It will allow actions on other sites in the vicinity to be extended, based on the experience gained and the positive consequences on the users of the developed space.

4.2. Enhancement of innovative actions

Presentation to a TSO's staff of shrubs to be prioritised in the edges

The first quality of an innovative action is to arouse the curiosity of the main players and those who can benefit from the results. Priority zones for testing this alternative management will gain by being highlighted for their educational character.

They will act as a showcase illustrating the TSO's desire to modify its relationship with vegetation. Visits to such sites by TSO staff as well as their partners in the field (biodiversity experts, contractors, ...) makes it possible to reassure, reinforce in the new orientation and encourage collaboration on other sites.

Selected with relevance and well developed, these initial accomplishments will demonstrate the positive interactions between the electricity operator, rural partners, and the gains in terms of biodiversity and landscapes.

4.3. Nationwide deployment

After having been able to carry out the trial projects phase, the implementation rationale must also be based on a phase of auditing the policies practiced by the enterprise, a sign of questioning itself about its work methods, its relationship with the natural environments and its willingness to work in partnership. The observations made, lessons learned, well-targeted pitfalls, fully integrated costs should allow the TSO to make the decision to spread these new methods to its entire network.

A close analysis of the TSO's human and financial resources for such a changeover should be carried out and lead to a reasonable agenda for implementation over several years. It is important to avoid the effects of an announcement which can raise the hopes of rural partners but which then, once faced with reality, must be postponed or revised downwards.

It is therefore appropriate to draw up a genuine, multi-year strategic plan, which marks the turn made by the TSO in its relationship with the territories.

The reconciliation of electrical challenges (in the context of the energy transition) with those of preservation of our environment, biodiversity, landscapes and the expectations of society is what is at stake.

LIFE Elia
Enhancement of the electricity transmission network's easements as active vectors for biodiversity

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