Life Elia
Biodiversity under high voltage overhead lines

Life Elia – RTE, Brussels, Elia, December 5th, 2017

Johan Mortier

Elia Group, a unique positioning at the heart of Europe

The Elia Group encompasses two leading TSOs in two European regions:

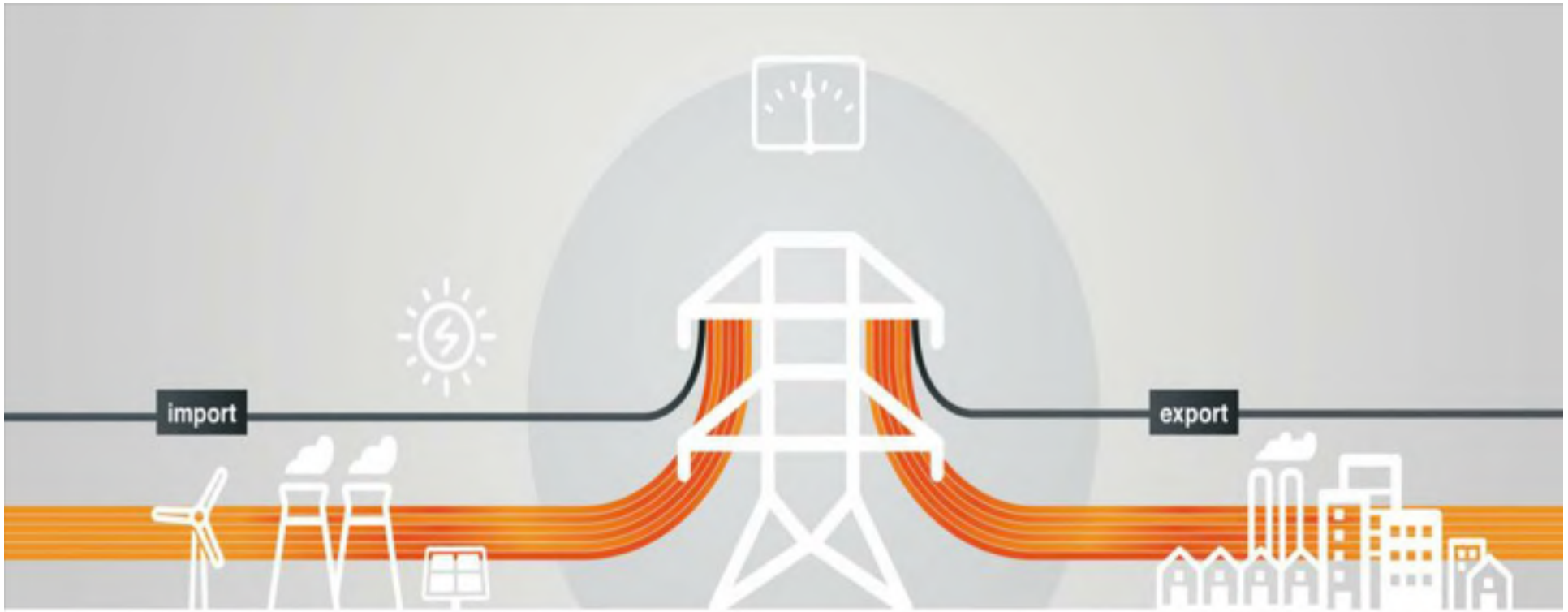
Elia in Belgium

- 8.430 km overhead lines a,d cables
- 22,000 towers
- 600 high voltage substations
- 1.250 employees

50Hertz in Germany

elia group
Powering a world in progress

TSOs at the Heart of the Electricity System



Producers

Electricity is produced from conventional and renewable energies.

Transmission System Operators (TSOs)

Ensure that electricity arrives from the producer to the consumer via the distribution system operators.

Consumers

Use the electricity fed by the producer into the power transmission grids.

Elia - Evolution of the energy landscape

Community / politics

Nucleair diminishes
Renewables rise

decentralised production

New infrastructures

Acceptation of projects

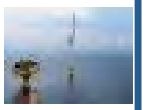
A clear energy policy (in Belgium, in Europe)

Market / Technology

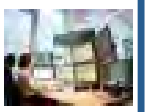
New technologies (HVDC)

New actors, « prosumers »

Fragmentation of energy landscape



evolution in enterprise models



Elia must / shall have to adapt and et lengthen its network

Life Elia – context

Trees grow and come too close or create a risk if they should fall on the conductors

Actual management in forests : cutting everything at 1.500 € / ha / 3 years (on average)

⇨ « No-man's land » :

- owner : received once a compensation for cutting down his trees and for loss of wood production capacity
- gestionnaire forestier : espace de non production
- public : impact on landscape
- Elia : recurring important cost, even growing

Life Elia In 2011 :
VALORISATION OF CORRIDORS OF HIGH VOLTAGE NETWORKS AS ACTIVE ELEMENTS BEING FAVORABLE TO BIODIVERSITY AND ECOLOGIC CONNECTIVITY

LIFE 10 NAT/BE/000709

ELIA

Coordinating beneficiary : Elia
Associated beneficiairies : RTE, CARAH Asbl, SOLON Asbl

Localisation : Belgium and France

Total budget of project :	**~~2.552.302 €~~ 3,2 M€**
CE contribution :	**1.165.901 €**
Duration of project :	**9/2011 – ~~8/2016~~ 12/2017**

Life Elia in 2017

Combining **electric security** with **biodiversity**

Through a **multipartner approach**

The project largely reached its objectives, and the company integrates on all levels the new vision on the management of the network

The management approved a prolongation (« Life2 »).

Life Elia - Balance

Public Acceptance

- improved relations with authorities and local communities
- Larger public, local economy
- owners, tenants, users
- Acceptability of overhead lines (and future projects)
- The corridor is no longer a “no man’s land”

Financial

- Cost – benefit analysis positive
- ROI from 3 to 9 years (according to actions)
- 2 to 4 times less expensive over 30 years (according to actions)

Improved securisation of overhead lines

Reduced risk through limited vegetation

Internal training of Elia’s patrollers

- increased **competences** (about vegetation)
- de **fierté** par rapport au travail

Life Elia – still a lot of opportunities in Europe

300.000 km of high voltage overhead lines

Contacts with other transmission system operators in Europe (17 countries)

Learning from each others particularities (organisation, legislation, ownership, …)

Other linear infrastructures with similar possibilities (gas, rail, roads, …) !

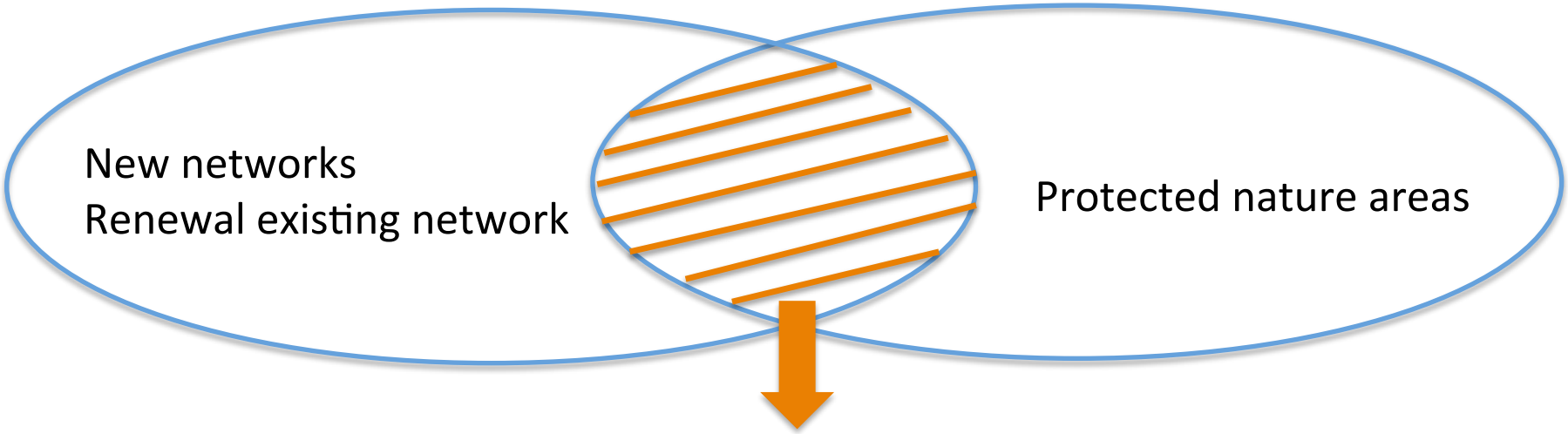
Life Elia – importance at European level

DG Energy

20% of energy should come from renewable sources

DG Environment

Natura 2000 biodiversity network (to be strengthened)



LIFE Elia

Electric security and more biodiversity

Elia, continuous endeavour ? – Potential

⇒ Forest and nature corridors (of > 500 m of length) : around 140 km

280 to 470 ha should be achievable (depending on width)

	Flemish Region	Walloon Region	Belgium	ha (width 30 m)	ha (width 30 m) and 2/3 realized	ha (width 50 m)	ha (width 50 m) and 2/3 realized
Maximum	143.1	135.3	278.4	835	551	1392	919
Stretches > 100 m	140.8	119.9	260.7	782	516	1304	860
Stretches > 250 m	127.5	85	212.5	638	421	1063	701
Stretches > 500 m	91.9	50.3	142.2	427	282	711	469
Stretches > 1 km	58	20.9	78.9	237	156	395	260

“Life 2” (internal to Elia) – What, why

- Realize 425 hectares according to the actual Life-Elia project
- React positively to propositions to participate in other stretches (were put on hold)
- Continue in Wallonia, start in Flanders
- Duration 1/2018 – 12/2022, five years

Arguments on which the decision was based

- **Positive image** : PA, relations with authorities, local communities, acceptability of overhead lines (and future projects)
- Improved **security of overhead lines** (reduced risk due to lower vegetation)
- Internal training of patrollers, improved **competencies** in relation to vegetation, becoming **proud** to be on the job

“Life 2”, financial elements (2018 – 2022)

(After-Life : 0,4 M€)

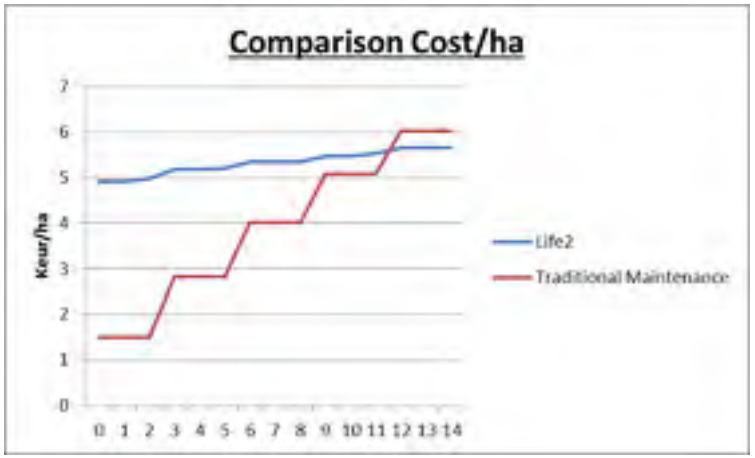
New realizations under lines : 0,7 M€

Expertise (cartography, conventioning, mgmt): 1,4 M€

Follow-up of bio-indicators : 0,2 M€

(stepping stones under towers : 0,2 M€)

Communication : 0,1 M€



LIFE-Elia-RTE project

The 7 french sites and the environnemental global approach

December 5th 2017

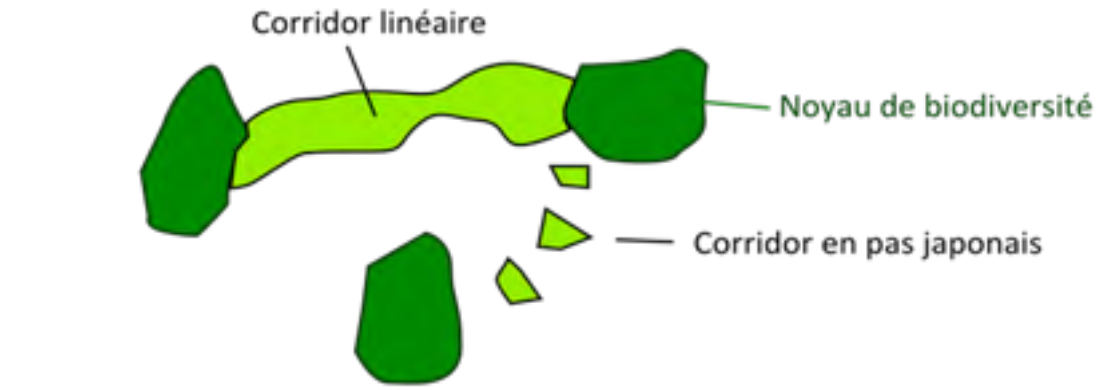
Jean-François LESIGNE and Agnès LABBAYE

01

Context

Scientific context : 1995-2005

Ecological corridors to connect biodiversity area in a fragmented landscape



Political et societal contexte

2007

2010

2012

Grenelle of Environnement

The « Grenelle law » 12th July 2010 organize the « Green and blue network »

National Strategy for Biodiversity

02

Biodiversity policy of RTE

Why RTE is concerned by Biodiversity ?

- **100,000 km of overhead lignes**
  - 70% in openlands (fields and meadows)
  - 20% in forests and natural areas
  - 10 % urban areas

- **RTE is not owning the land under overhead lines**

- **RTE is in charge by law of the control of vegetation under the overhead lines**
  - Safety of people
  - Safety of network

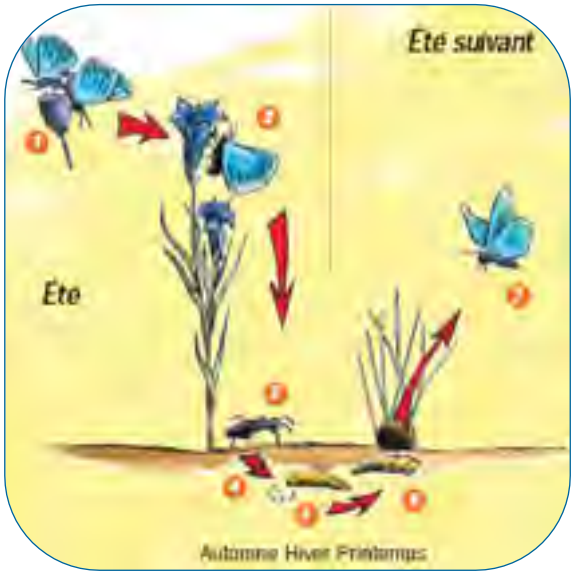
Lines in protected naturel areas: 16,000 km

Maintenance of vegetation

Each 3 or 5 years RTE : order to specialised companies the cutting of trees and other vegetation with machines

To the reconquest of openfield

The Naturel Area Conservatory of Aquitaine found sites of « gentianes pneumonantes » under HV lines, where the « Azuré des mouillères » lives…
-> a new partnership with RTE is signed



Scientists confirm the interest of area under overhead lines for biodiversity

Openfield in forest

Foot of towers

Muséum national d'Histoire naturelle

BASSIN PARISIEN

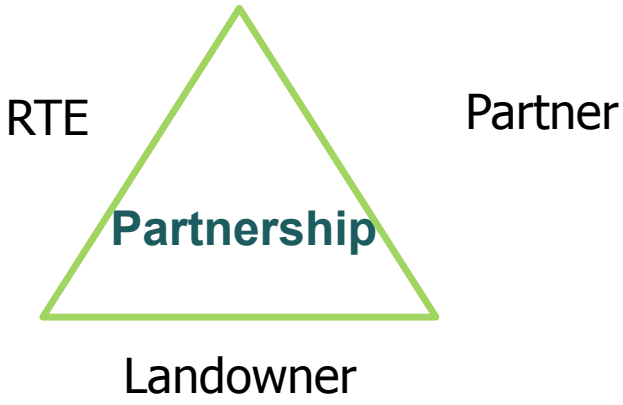
Cemagref
Science, water & land management

irstea

Always work in partnership

- National partnership with great organisation of natural areas manager, NGO, hunters federation, farmers…

- Experimentation of management techniques of some sites under lines need the agreement of landowner, RTE and a partner :



Engagements and partnerships for biodiversity

S

Signature de l'accord Réseau Électrique et Environnement

Engagement pour la préservation de l'avifaune

1992

2004

2008

2011

2012

2014

2014

2016

1990 | 199 5 | 2000 | 2005 | 2010 | 2015

2004

2010

2012

2013

2015

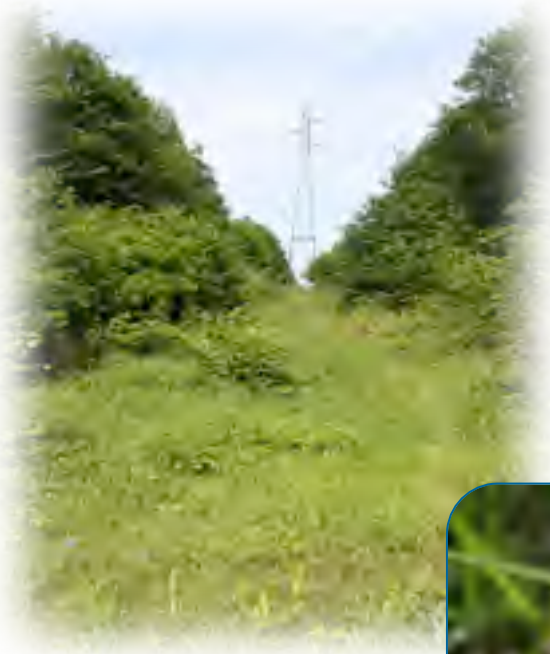
Parcs naturels régionaux de France

Conservatoires d'espaces naturels

AGIR pour la BIODIVERSITÉ

Réserves Naturelles DE FRANCE

Exemple of good set up for biodiversity



Openfield in forest

Exemple of good set up for biodiversity

Pasture

Pond

Bees field

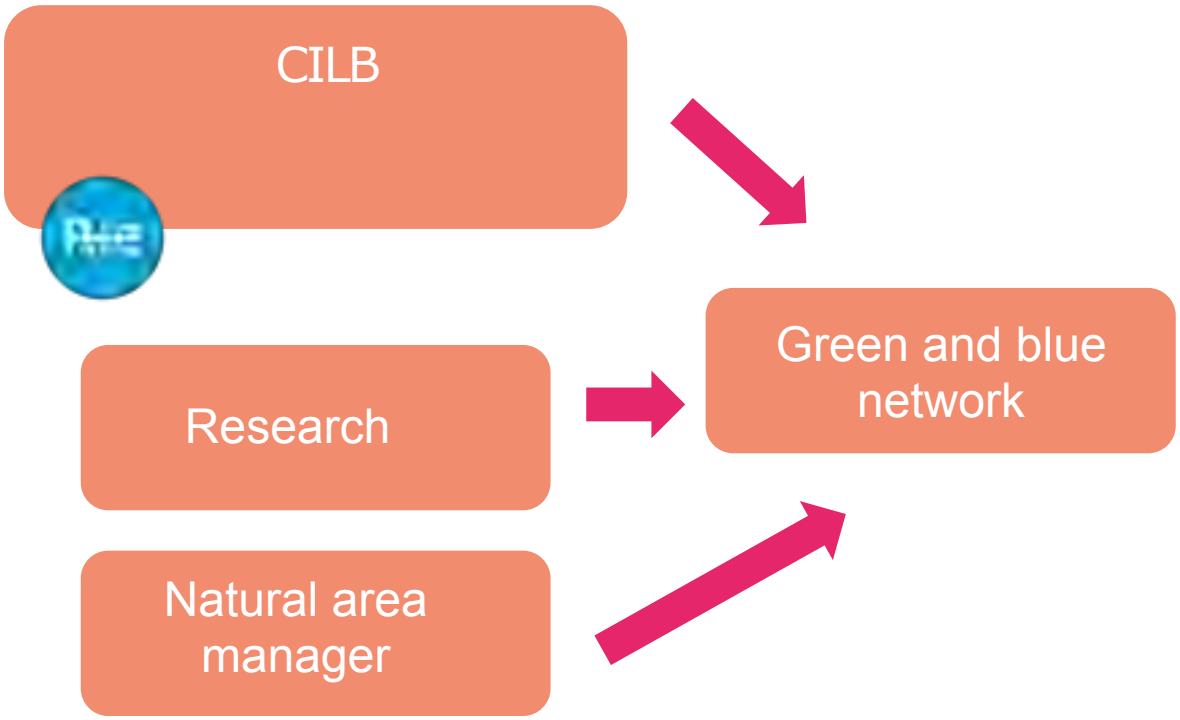
CILB : can the linear infrastructures contribute to ecological corridors ?

Birth in 2008 of the Club of Linear Infrastructures and Biodiversity

Signature of the charte of CILB on June 27th 2011

The common targets of companies of CILB

Green and blue network: the common point



03

LIFE-Elia-RTE in France

Change of practices in the company

Experimentation

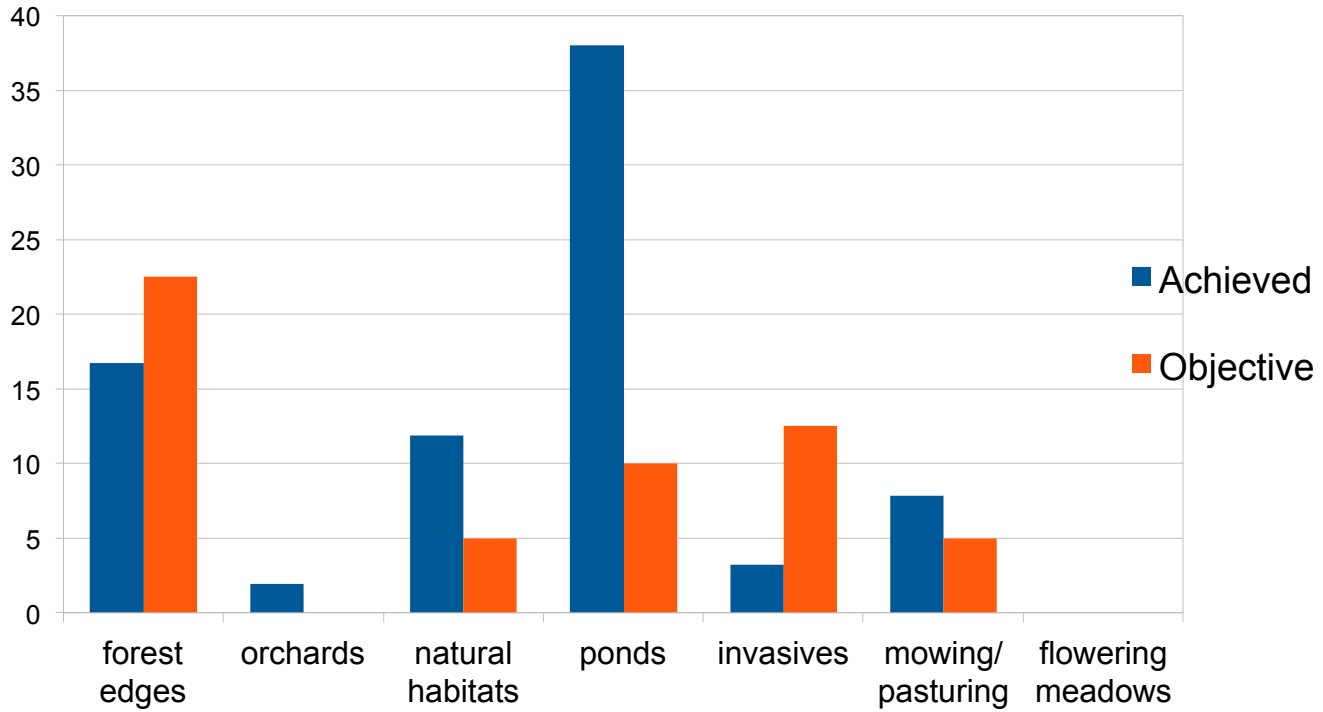
New management methods

Change to improve the management of vegetation under the lines

7 sites in France - 30 km

- 4 different bioclimatique zones in France
- Proposition of sites by regional focal points of RTE with our partners

Results


40
35
30
25
20
15
10
5
0
forest edges
orchards
natural habitats
ponds
invasives
mowing/ pasturing
flowering meadows
Achieved
Objective

Project LIFE-Elia-RTE

The 7 french sites and the environmental global approach

5th december 2017

Jean-François LESIGNE and Agnès LABBAYE

04

Organisation de RTE pour mettre en œuvre sa politique biodiversité

Les territoires de l'électricité

Groupes Maintenance Réseaux :

05

Beyond de LIFE : BELIVE

BiodiversitE sous les LIgnes par la Valorisation des Emprises
= Biodiversity under Overhead HV Lines by land restoration

Beyond the experience : a pilot upscaling

- **Identify costs on a larger scale**
- **Identify human resources**
- **Identify the right organization**

RTE Business Projet

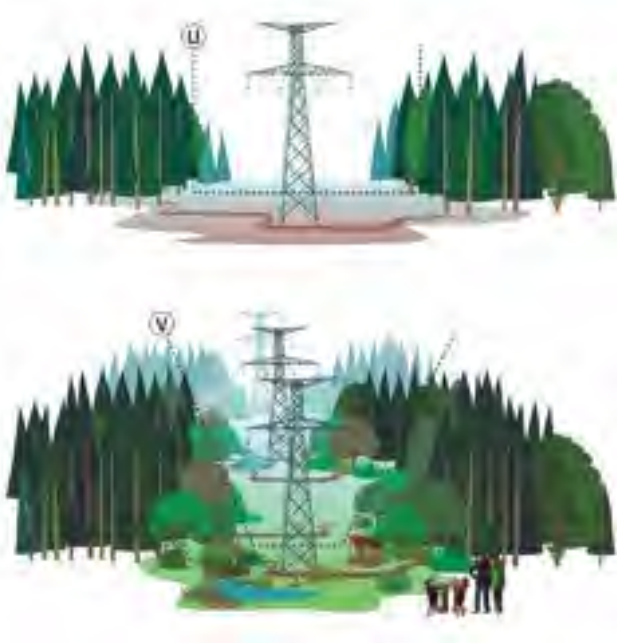
Change practices to promote biodiversity

- Transform 240 ha of electric corridors to biodiversity sites

No longer cut… but plant !

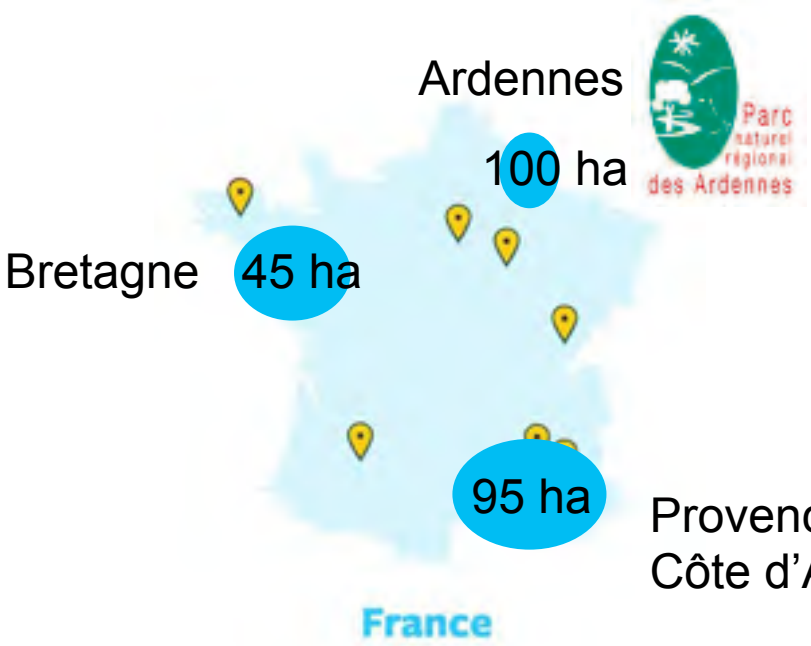
(a true philosophical revolution)

- Demonstrate the contribution of these corridors in the reconquest of biodiversity



Source http://www.life-elia.eu/

BELIVE : **B**iodiversit**E** sous les **LI**gnes par la **V**alorisation des **E**mprises



Provence Alpes
Côte d'Azur

→ Financial participation of the Ministry in charge of the Ecological Transition, as « pilot sites for reconquest of biodiversity »

→ Labeling by the research program ITTECOP

The challenge of BELIVE :

Go beyond LIFE experience and prepare a national upscaling, thanks to :

- a large scale operation, governance, organization
- and a complete feedback

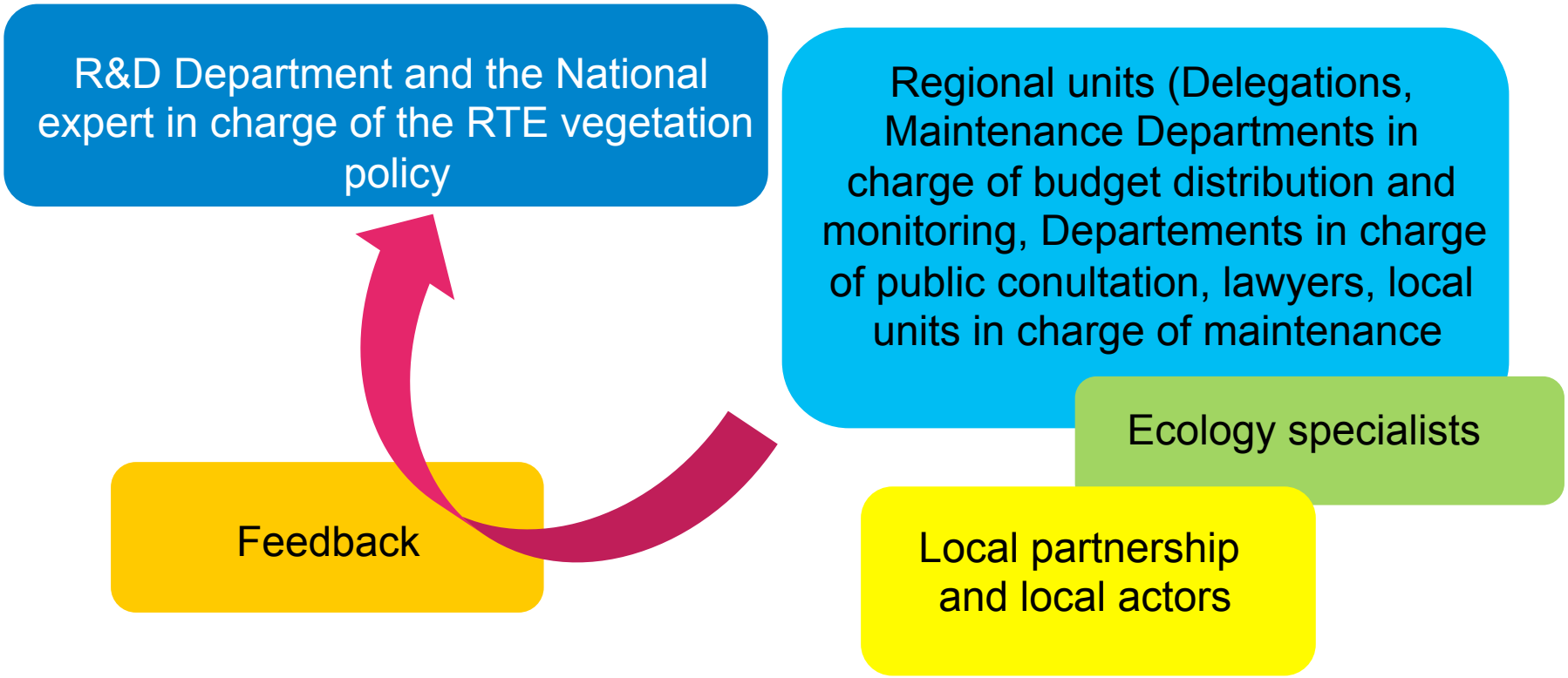
Set up working methods and test methods of vegetation management that can be used to at large scale.

Take a proactive approach towards the territories, thanks to a mapping of crossing the ecological stakes and the technical-economic stakes of RTE

Meet societal issues and expectations on biodiversity and landscape quality, face to land use pressure

Turn resolutely towards a partnership approach with local partners

The organization of the project



A financial and regulatory challenge

- **How ecological management costs, initially outweigh of the classical vegetation management, can be supported during the stages of the large–scale deployment ?**
  (the CBA of the LIFE experience shows that alternative management of vegetation generates lower costs over time, but the company has to invest first)

- **Would it be relevant to create an « easement of environmental interest » (backed up with electrical servitude) to ensure the realisation on long linear and the sustainability of these actions over time ?**

04

Thank you !

Jean-François Lesigne, Agnès Labbaye, Lisa Garnier, Bruno Salvi, Viviane Degret, - RTE

Strengthening Europe's energy networks

Tomasz JERZYNIAK
European Commission,
Directorate-General for Energy
Networks and Regional Initiatives

Energy transition to a low carbon society – a new opportunity for jobs, growth and investment

- "Clean energy package for all European"
- Paris agreement
- By 2030: 50-60% of electricity from RES

➢ Energy networks – the physical component to deliver on Europe's ambitious energy and climate goals

Energy networks – investment needs and benefits

- By 2030, about €180 billion are needed to upgrade and expand European energy networks (electricity and gas)

- As a result, €40-70 billion of annual savings in terms of avoided generation costs and more competitive wholesale prices are expected.

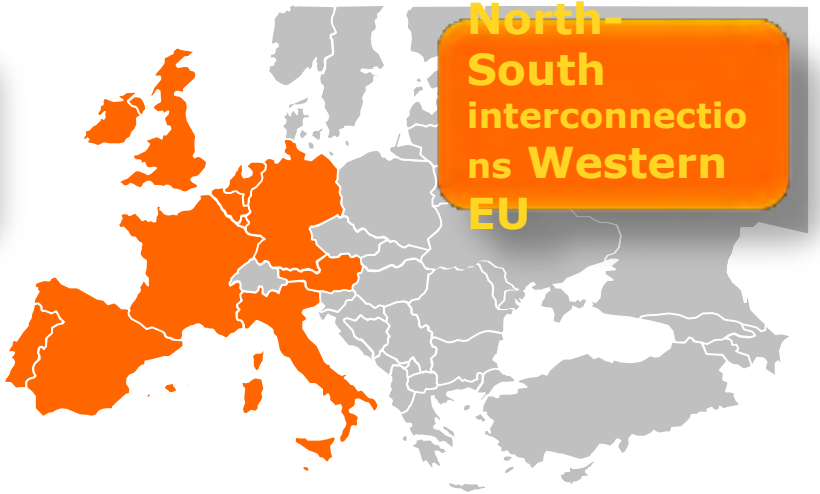
TEN-E regulation – to deliver European energy networks

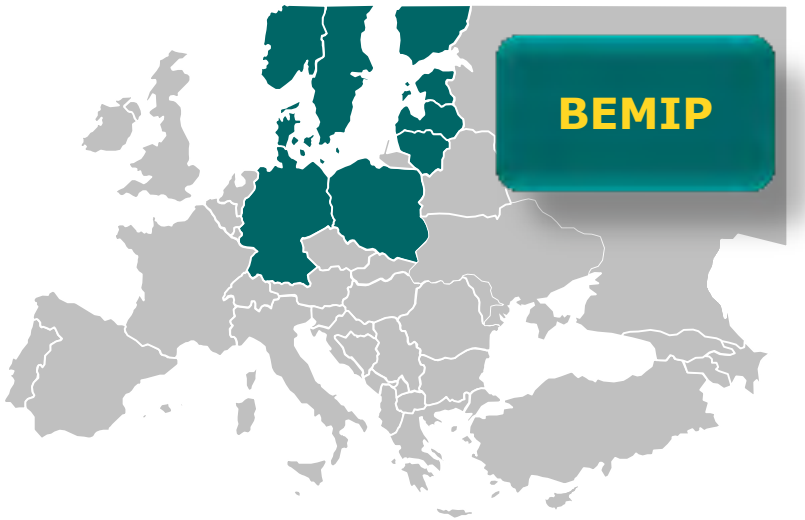
Process to identify projects of common European interest, with involvement of all stakeholders

Benefits

Accelerated permit granting			Improved Regulatory treatment		Financial support	
3.5 years	One stop shop	Participation	Incentives	Cost allocation	Financial instru-ments	Grants

Priority corridors: electricity grids





+ Electricity highways and smart grids

TEN-E framework: a clear success

- 30 Projects of Common Interest (PCIs) have been completed or will be in operation by the end of 2018;
- Other 47 PCIs are planned to be completed by 2020;
- Challenges still remain: interconnection gaps still exist, access to finance, technology and public acceptance

Strengthening Europe's energy networks

- 3rd Union list of Projects of Common Interest adopted on 24 November
- In total, 173 PCIs, of which 106 in electricity transmission and storage;
- In addition, 4 smart grids deployment projects;

Interconnection targets – to guide our policy efforts

10% interconnection target by 2020 - a strong political signal to focus our attention on interconnectivity

15% target by 2030 - endorsed by the European Council (October 2014) – *"while taking into account the cost aspects and the potential of commercial exchanges in the relevant regions"*

10% interconnection target – where are we now?

Country	Interconnection levels in 2017	Expected interconnection levels in 2020
AT	15%	32%
BE	19%	33%
BG	7%	18%
CY	0%	0%
CZ	19%	23%
DE	9%	13%
DK	51%	59%
EE	63%	76%
ES	6%	6%
FI	29%	19%
FR	9%	12%
UK	6%	8%
EL	11%	15%
HR	52%	102%
HU	58%	98%
IE	7%	18%
IT	8%	10%
LT	88%	79%
LU	109%	185%
LV	45%	75%
MT	24%	24%
NL	18%	28%
PL	4%	8%
PT	9%	21%
RO	7%	15%
SE	26%	28%
SI	84%	132%
SK	43%	59%

Interconnection targets for 2030 – Commission expert group

Expert Group recommendations:

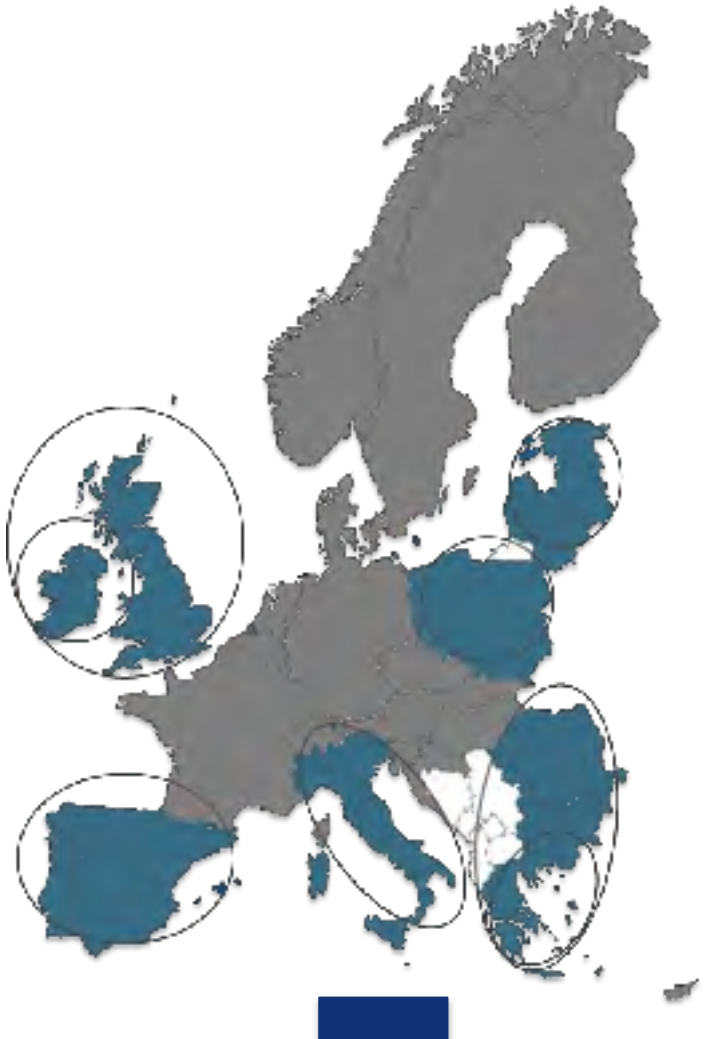
1. A refined framework with three relevant thresholds
2. Focus on well-functioning electricity market and efficient utilisation of existing infrastructure
3. Cost-benefit analysis as *conditio sine qua non*
4. Public involvement
5. Technological dynamism and regular review

1. Three relevant thresholds

- **The €2/MWh threshold** – minimising price differentials
- **The peak load 30% thresholds** – ensuring that electricity demand, including through imports is met in all conditions
- **The installed renewables 30% thresholds** – enabling export potential of excess renewable production

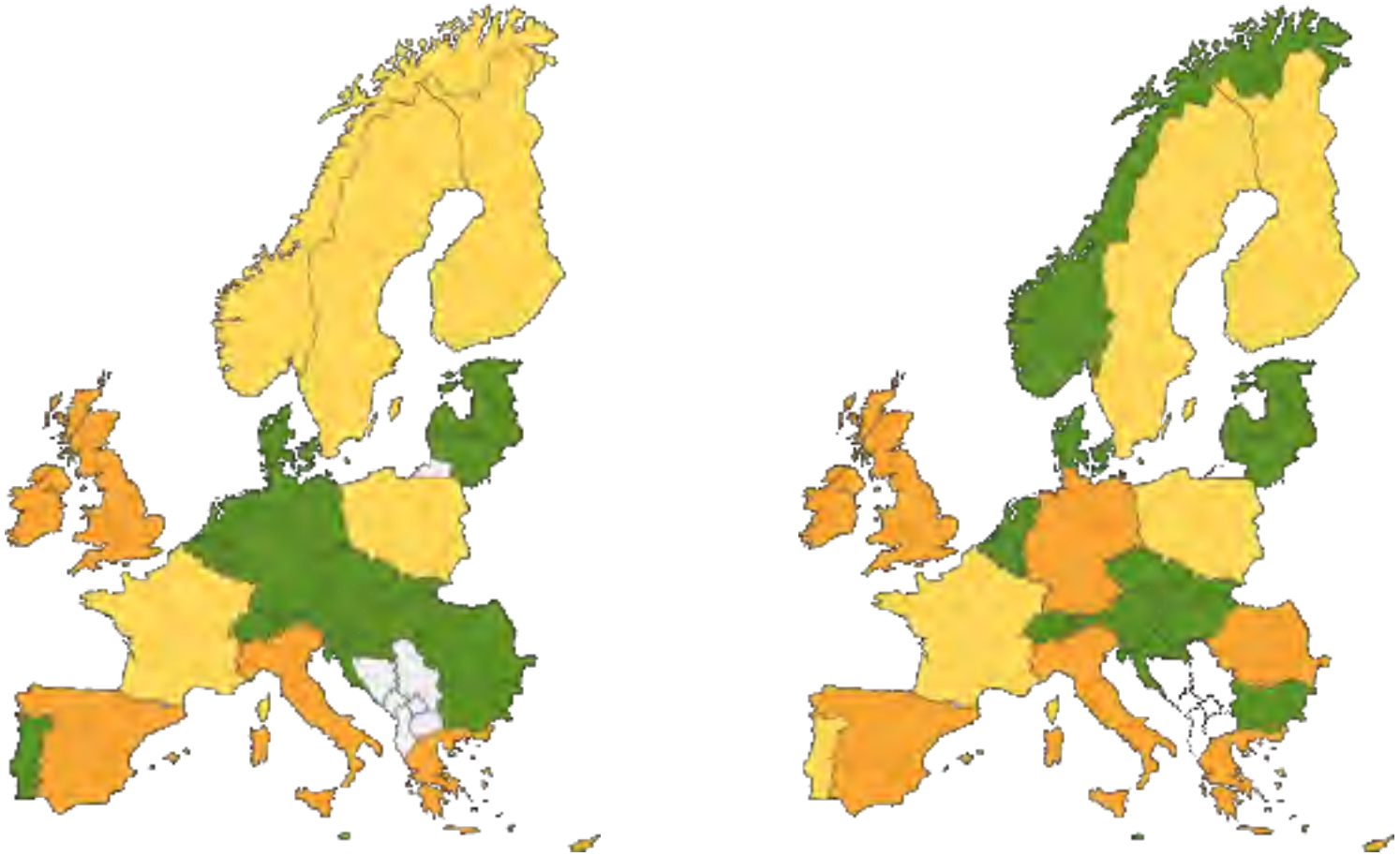
Result: Actions triggered whenever a country is below 30%

€2/MWh or more – price differentials



Regions, identified based on the relevant yearly average of absolute hourly price differentials of €2/MWh or more in 2020 in relation to Central/North-Western Europe and the Nordic Countries

Interconnection levels as measured by "peak load" & "installed renewables"



2. Well-functioning market and efficient utilisation of existing infrastructure

- the functioning of the **European electricity market should be improved** and based on clear, stable and non-discriminatory regulatory rules to send consistent signals - both to investors in grids as well as to users of the infrastructure.

- **the existing interconnectors should be used efficiently** and the capacity available to the market significantly increased compared to the current utilisation.

3. Cost-benefit analysis as *conditio sine qua non*

- Each new interconnector must be subject to a socio-economic and environmental **cost-benefit analysis** and implemented only if the potential benefits outweigh the costs.

4. Public involvement

- involvement of citizens, civil society groups and stakeholder groups potentially affected by the development of new interconnectors **is necessary at an early stage of interconnector development** to address perceived concerns about health issues or adverse impact on the landscape and nature ecosystems.

5. Technological dynamism and regular review

- Rapid technological developments in the near future:

- 1) Electrification, 2) growing energy efficiency, 3) evolution of energy mix, 4) decentralisation, 5) digitization/digitalisation, 6) storage, 7) smart integrated energy systems

- Result: **review the proposed methodological approach** of measuring interconnectivity and its associated methodologies regularly but not later than in five years

Energy networks – next steps

- Focus on missing infrastructure links;
- Reaching 10% and 15% targets based on a new approach and a set of thresholds that would trigger actions by MS, regulators and project promoters;
- Grids modernisation and digitalisation
- Wide public consensus about the role and need of energy networks

More information

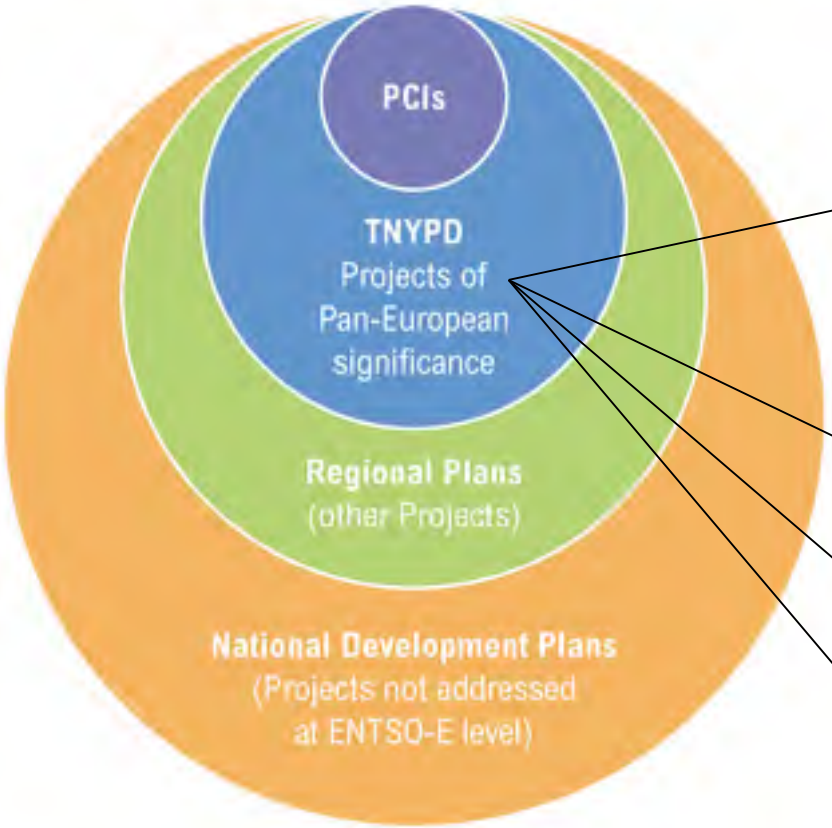
https://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest

Thank you for your attention

Tomasz JERZYNIAK

European Commission
Directorate-General for Energy
Tomasz.JERZYNIAK@ec.europa.eu

Energy infrastructure planning stages



- **Scenarios**
  - Storylines of possible futures
  - Methodologies
- **Regional Investment Plans**
  - Planning studies
  - Regional context
- **Project list**
  - Descriptions
  - Technical characteristics
  - Classification
- **Data sets**
  - Market (generation, demand)
  - Grid models (TYNDP2014)
- **TYNDP2016 report**
  - Project CBA assessments
  - System analyses
  - Vision

Bottom-up approach & multiple assessement of projects

LIFE Elia-RTE project :

Building strong tools to develop and monitor of actions on site : mapping, database and indicators

LIFE Elia-RTE
Final conference
Brussels, December the 5th 2017

Jean-François Godeau - jfgodeau@gmail.com
Simon de Voghel - devoghel.simon@gmail.com

LIFE actions A, C and D

- GIS – Database building-up, management and exploitation
- Overlook on LIFE project Sites
- Alternative vegetation management : Cost-Benefit analysis (CBA)
- Communication, information and public awareness

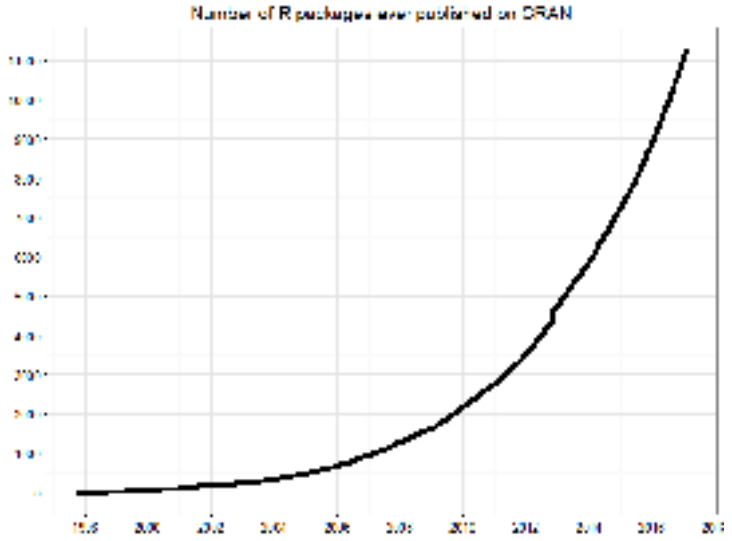
QGIS (ex Quantum GIS)
= Geographical Information system (open source ouvert and free)

http://www.qgis.org/
Windows/Apple/Linux
Web community
Always evolving (1.4 → 3.0)

Toolbox : hundreds of geotreatment tools (e.g. GRASS, SAGA, R…) + python

+

The « R project » (langage for statistics and ...)
http://www.r-project.org/



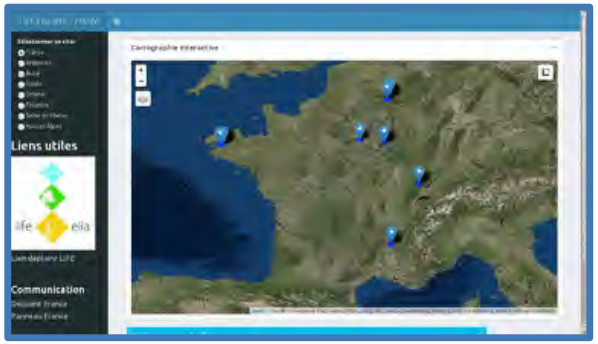
>11 000 packages + local packages

Interactive maps

Website and management plans

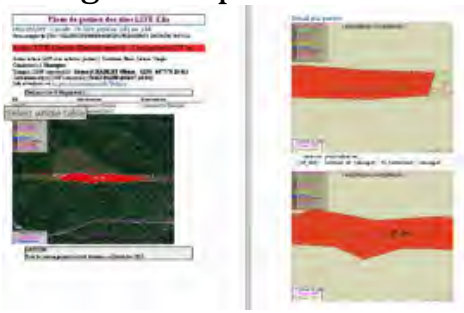
Web apps

Management plans (France)



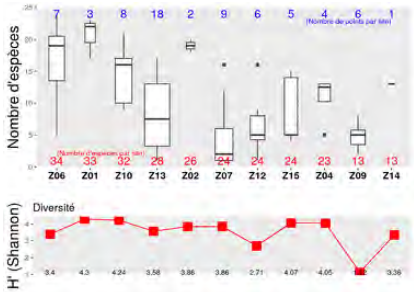
Automatized reporting

Management plans



Data analysis and presentation

Website



The management of vegetation under power lines :

A green translation of the Myth of Sisyphus !

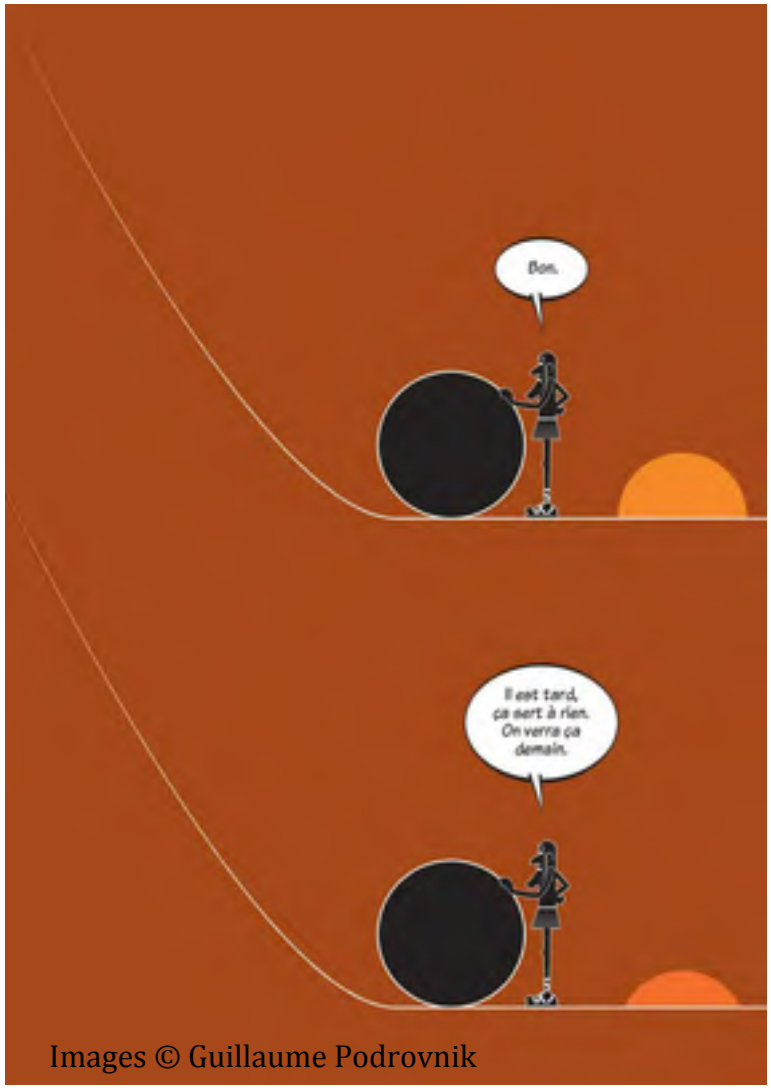
Couvin
<2000

Couvin
2010


41
0
250
500
Google

2015

Back to the starting point after 5 to 8 years !

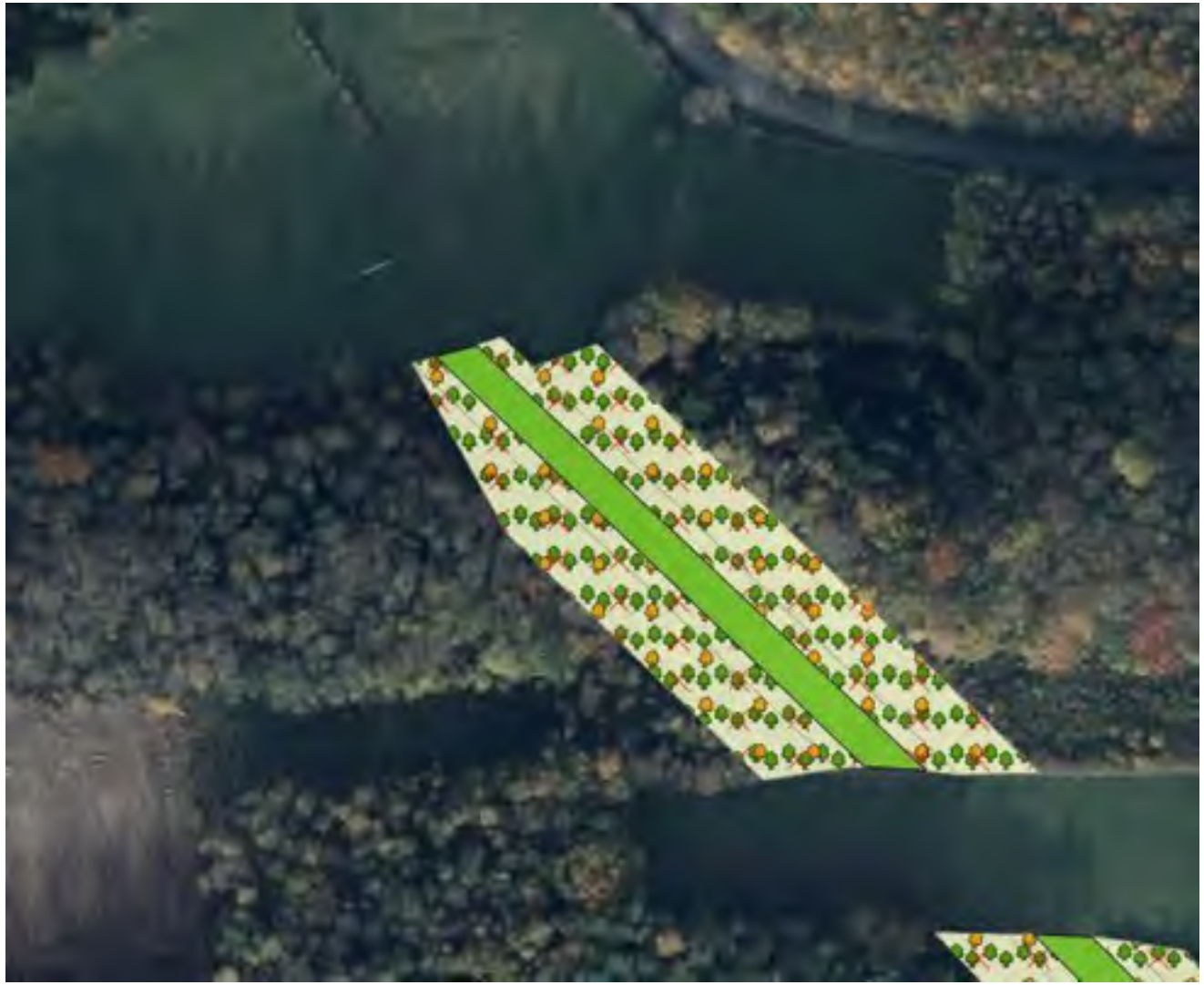


Images © Guillaume Podrovnik

Better procrastinate
and think otherwise !

« Well. »

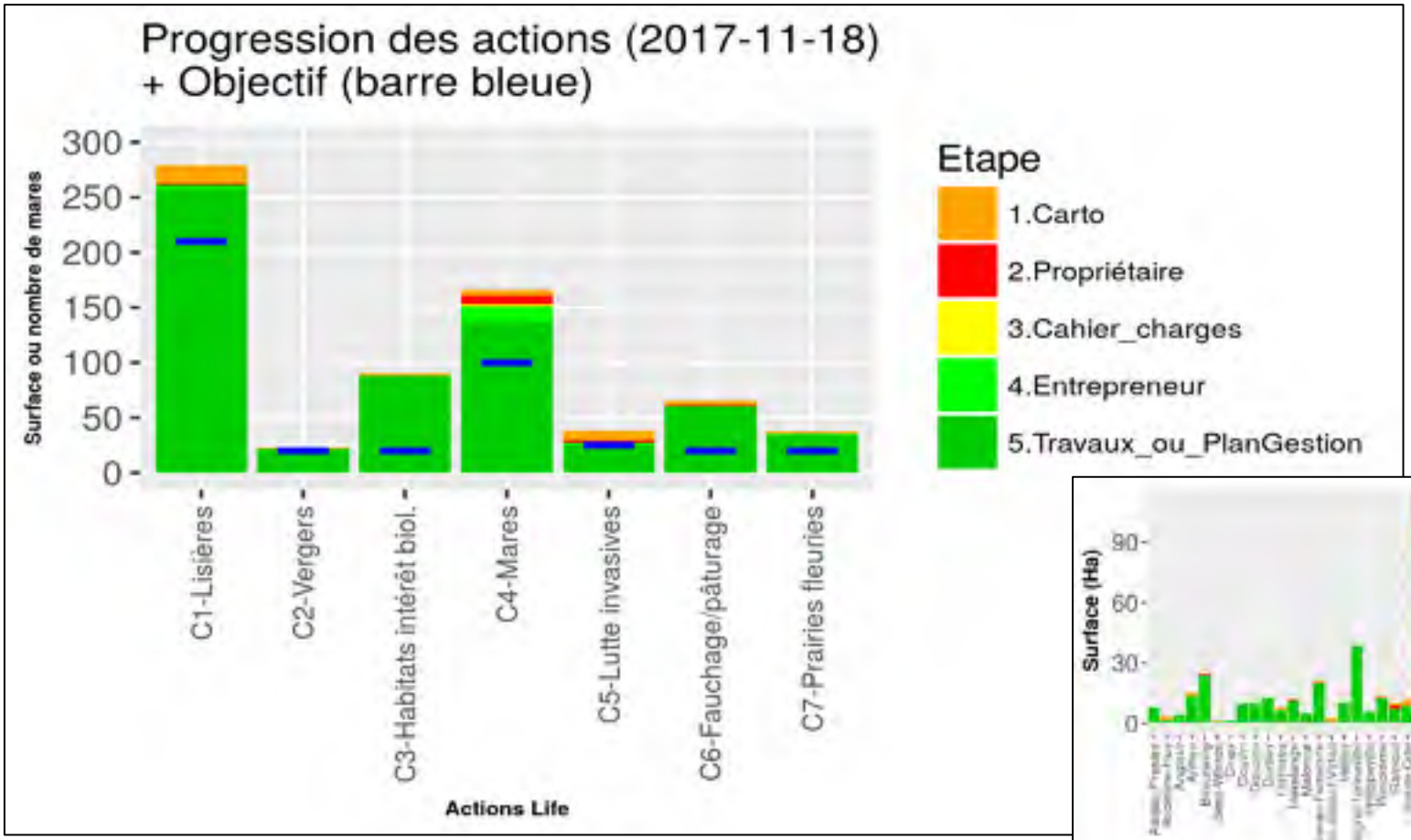
« It’s late.
There’s not point.
We’ll see tomorrow. »

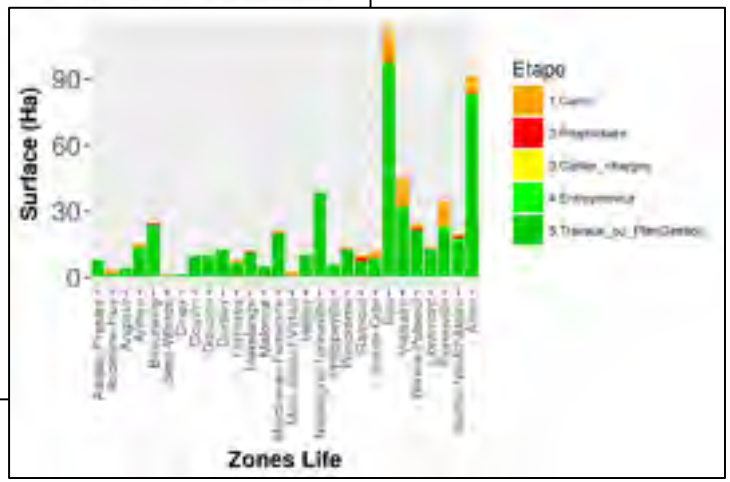


2016

2016

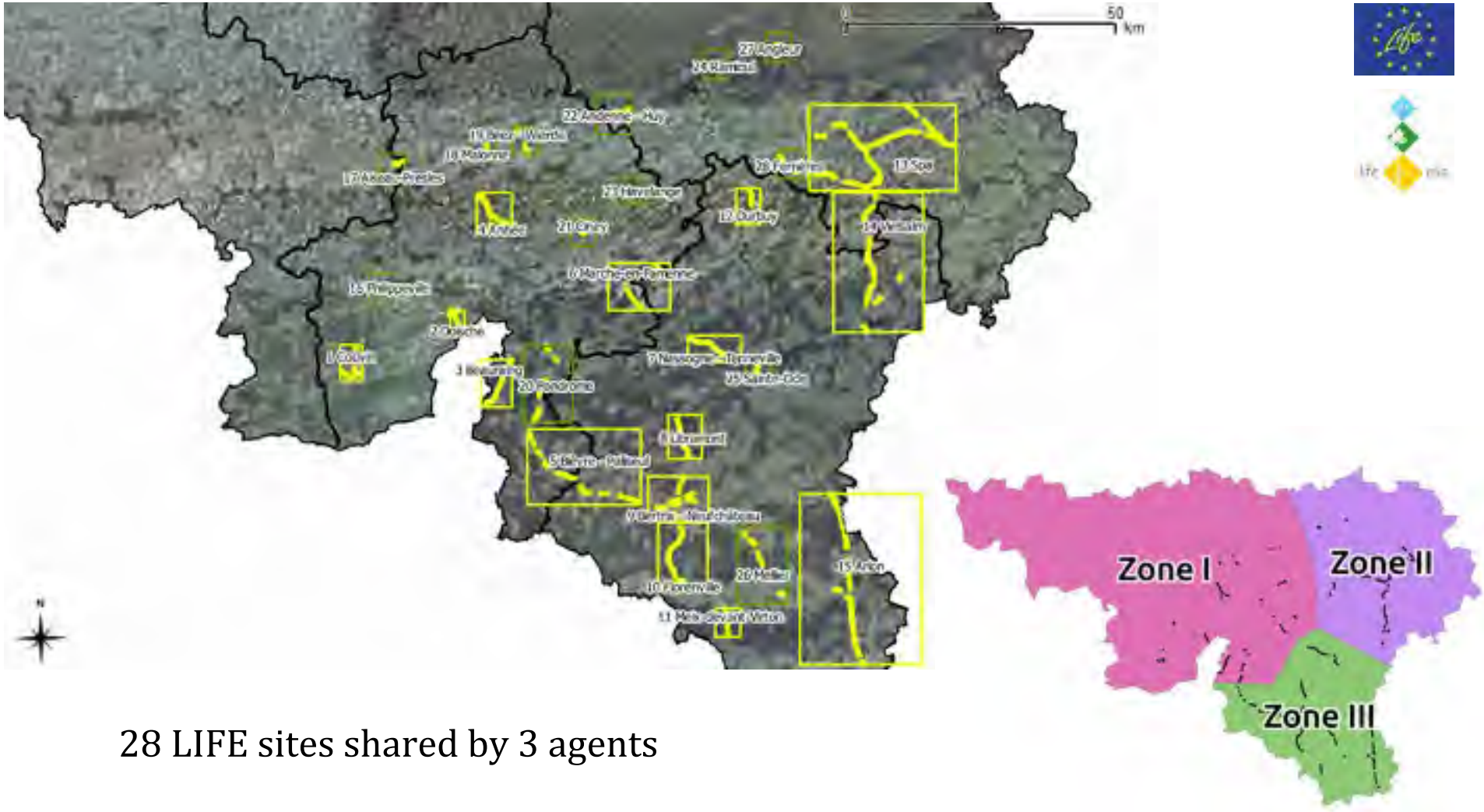
Results on sites


Progression des actions (2017-11-18)
+ Objectif (barre bleue)
Surface ou nombre de mares
300
250
200
150
100
50
0
C1-Lisières
C2-Vergers
C3-Habitats intérêt biol.
C4-Mares
C5-Lutte invasives
C6-Fauchage/pâturage
C7-Prairies fleuries
Actions Life
Etape
1.Carto
2.Propriétaire
3.Cahier_charges
4.Entrepreneur
5.Travaux_ou_PlanGestion

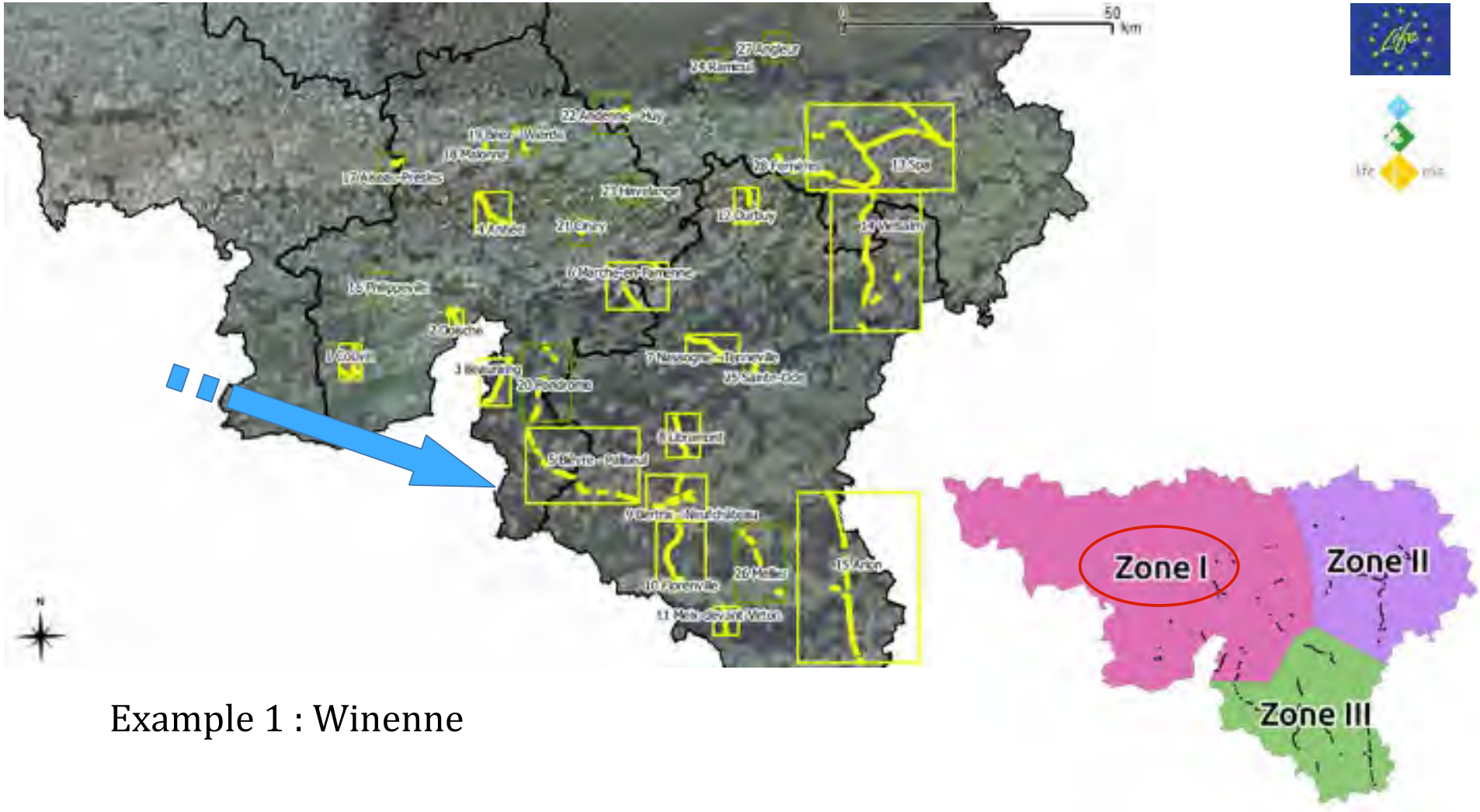

Surface (Ha)
90
60
30
0
Etape
Zones Life

Three examples :

- Winenne (Belgium)
- Parette (Belgium)
- Forêt d’Orient (France)



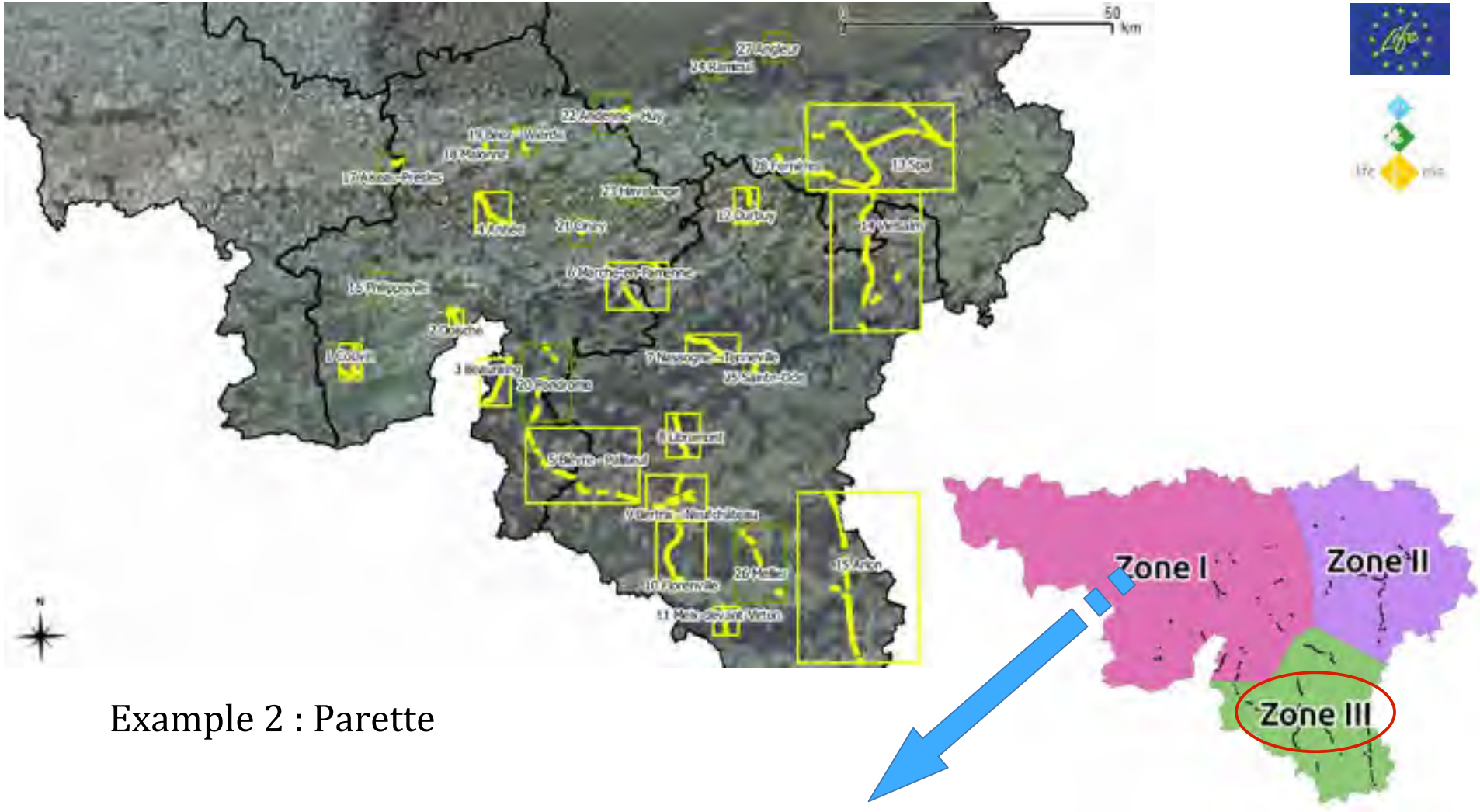
28 LIFE sites shared by 3 agents



Example 1 : Winenne


0
100
200
300
400
500 m
2012-2013
2015

Heathland: 3.7 ha
Edge (improved) : 75 a
Edge (planted) : 20 a
Juniperus : 119
Ponds : 4



Example 2 : Parette

Example 2 :
Parette
(October 2011)

Example 2 : Parette (October 2011)

100-m wide corridor (2 lines)
dense regrowth of birches and alder buckthorn
cut the vegetation
deep gyro-spinning of the soil
sown a mix of local flowered meadow seeds
contract with a local farmer
access to agri-environmental measures

August
2016

Example 3 :
Forêt d'Orient

Example 3 :
Forêt d'Orient

Example 3 :
Forêt d'Orient

Example 3 : Forêt d'Orient

Management plans

- Common langage to various stakeholders

Owners

50 municipalities + 220 private owners

Managers

8 directions - 24 cantonnements - 81 triages

Stakeholders in France

3 Regional Natural Parks – ONF - 1 Federation of hunters - 2 National Nature Reserve - 10 municipalities - 80 private owners

- Access in the office, on site, during meetings…

Web interfaces

- Evolution of the content

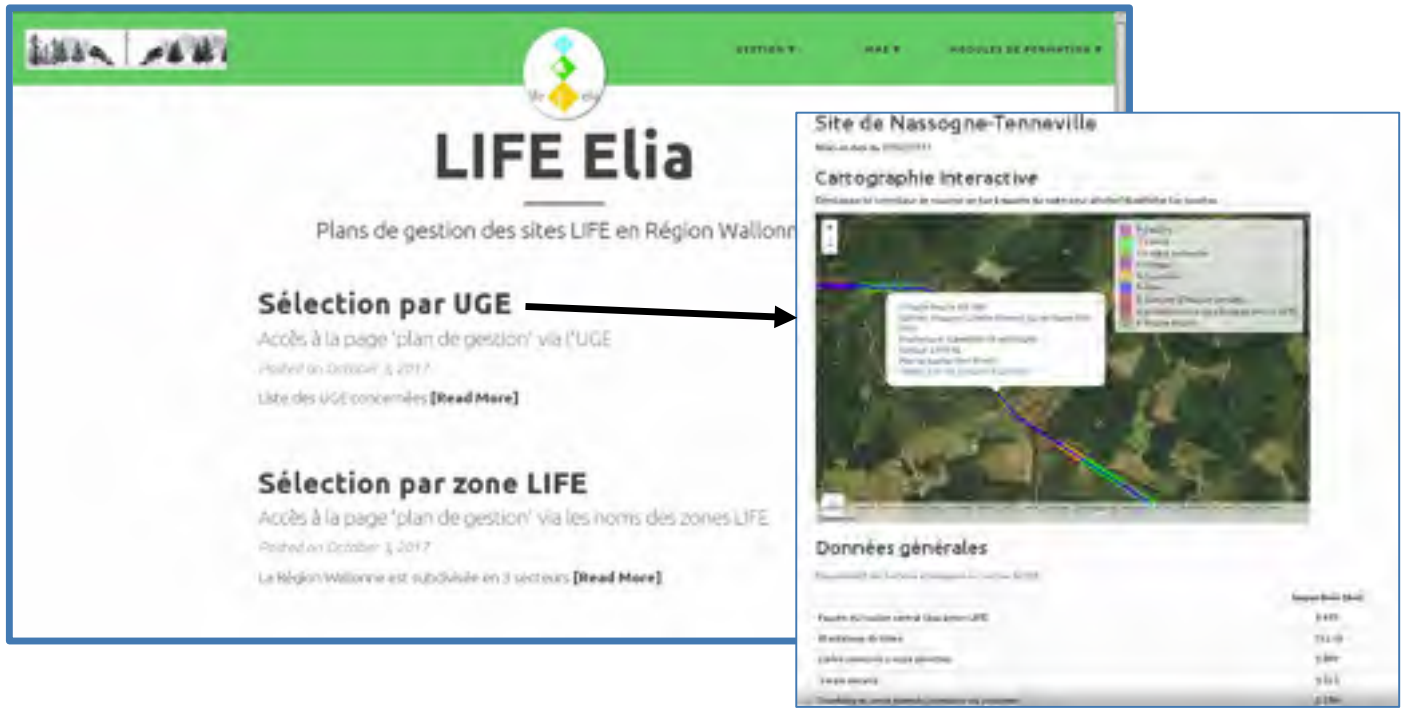
Form as *.doc

- « Readable »

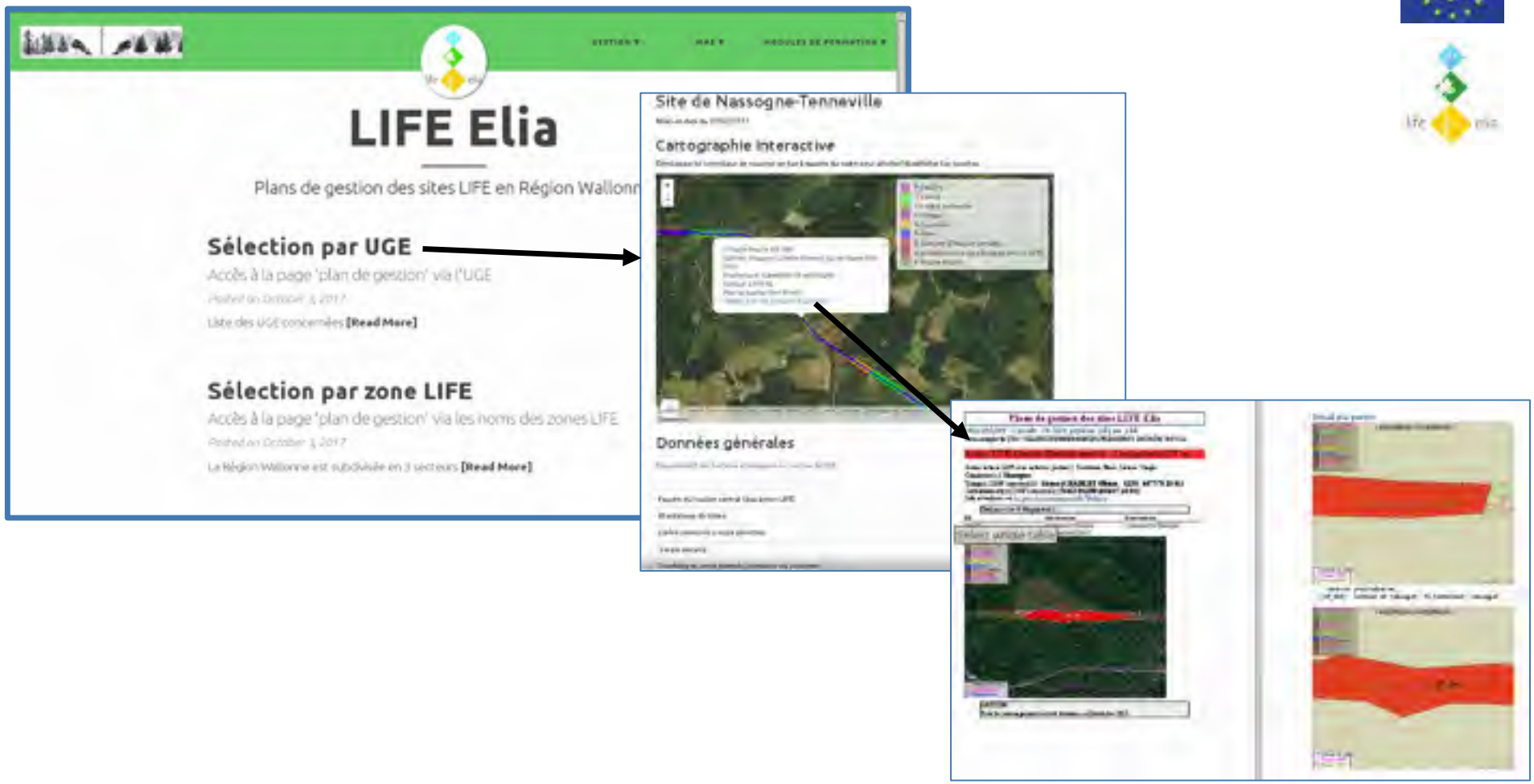
Short
Standard structure
Interactive maps
Georeferenced pictures

Management plans in Belgium (on-line & Mobile)

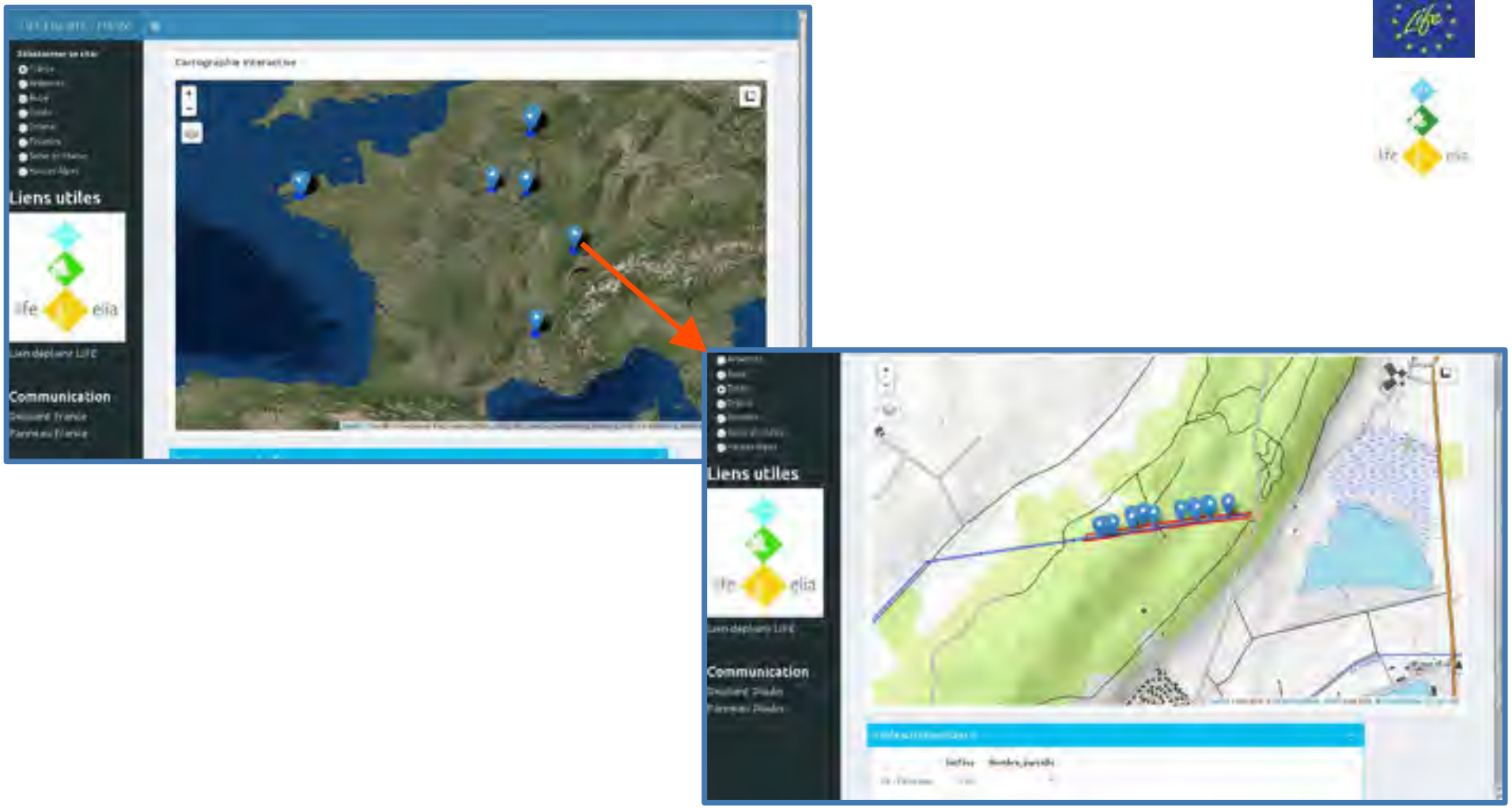
Management plans in Belgium (on-line & Mobile)



Management plans in Belgium (on-line & Mobile)



Management plans in France (on-line & Mobile)



- ~~GIS – Database building-up, management and exploitation~~
- ~~Overlook on LIFE project Sites~~
- Alternative vegetation management : Cost-Benefit analysis (CBA)
- Communication, information and public awareness




Wallonie
SPW

elia
Powering a world in progress

Rte
Le réseau de transport d'électricité

solon

Carah

Biological monitoring

Points d'inventaires répétés:

* chiroptères: 44
* Oiseaux: 37
* Rhopalocères: 43

+ débuté botanique en 2014: 14 points (transects sur demi-ligne) => env. 30 en 2015

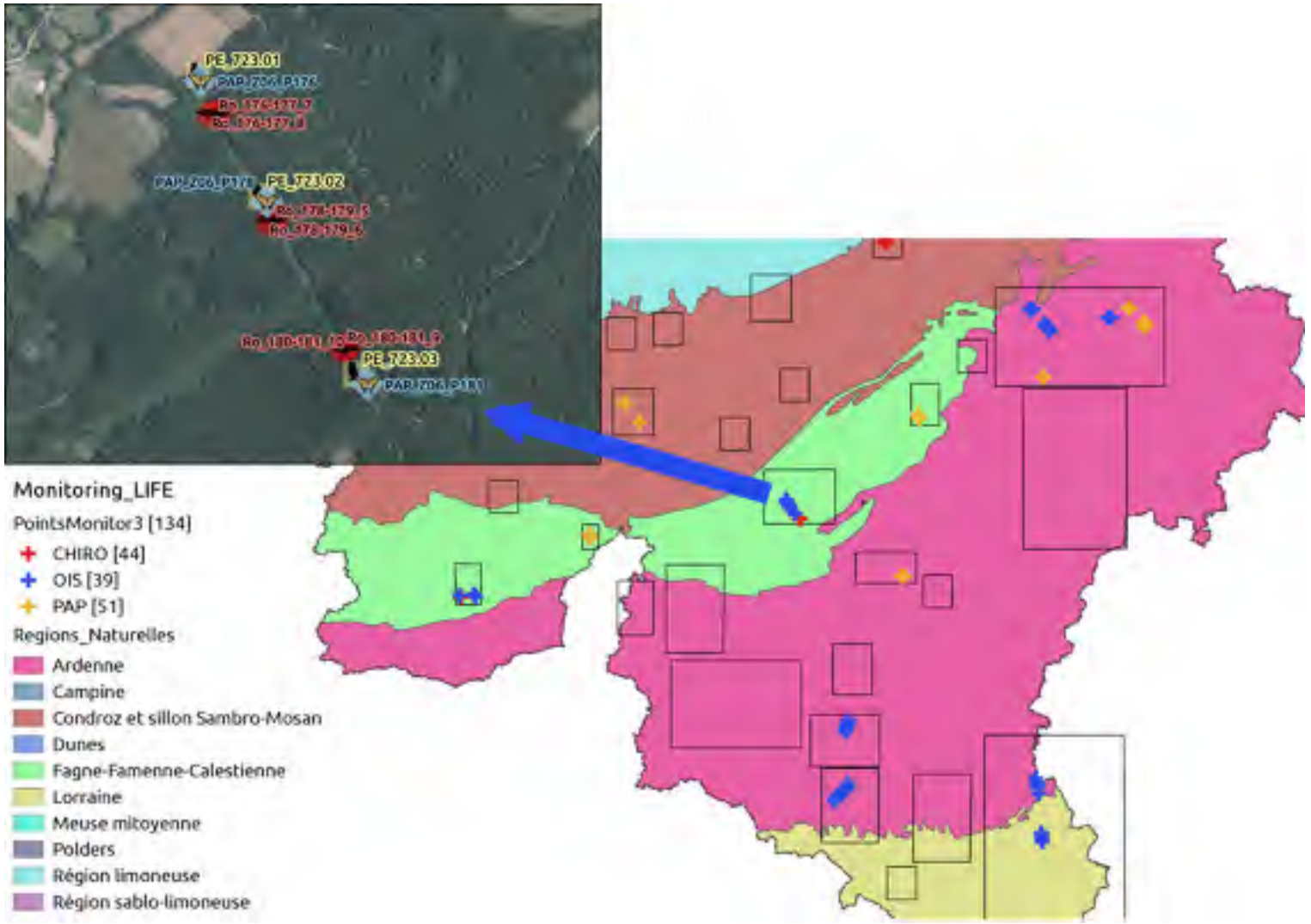
+ inventaires batraciens sur 10 mares en 2015 et 10 autres mares en 2016

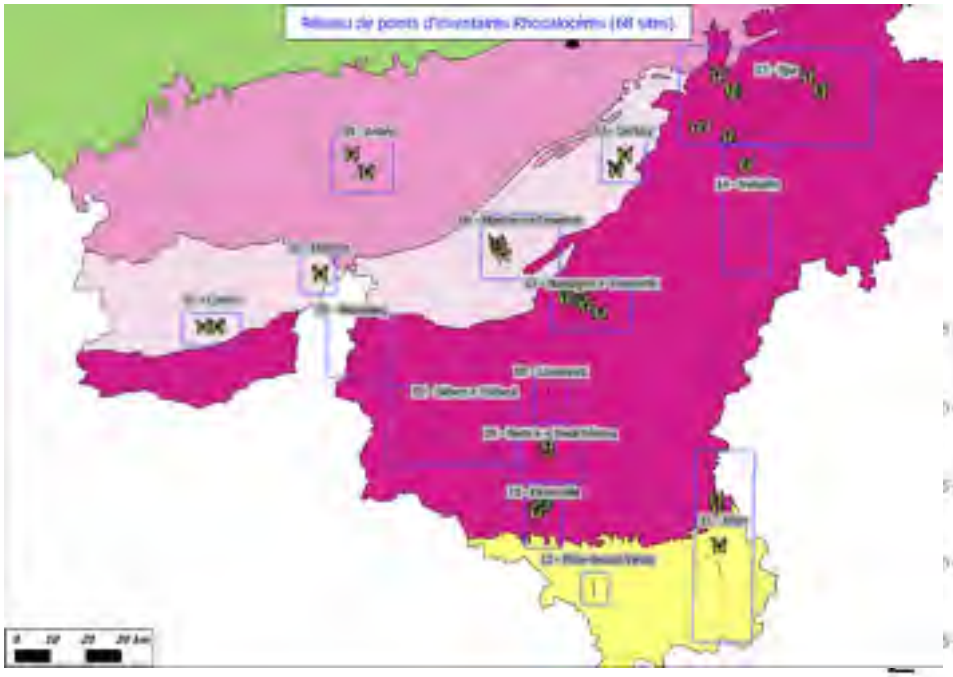
+ odonates sur ces même 11 mares ou plus: (collaboration bénévoles)

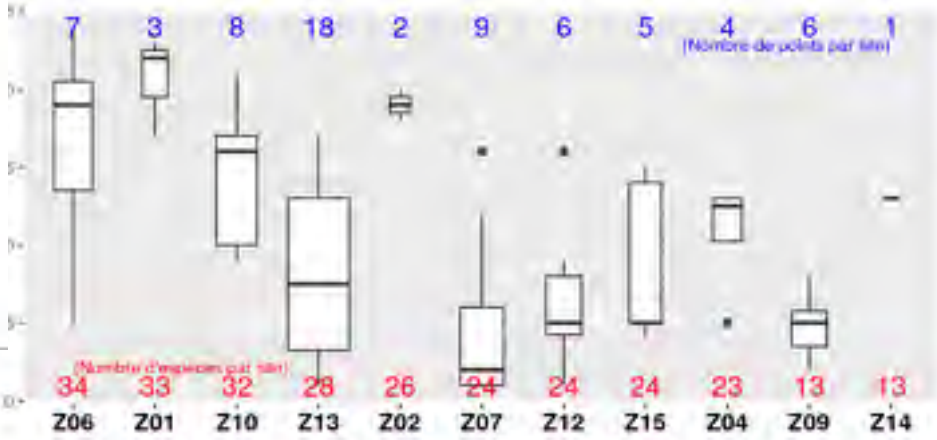
+ collaboration avec PN forêt d'Anlier

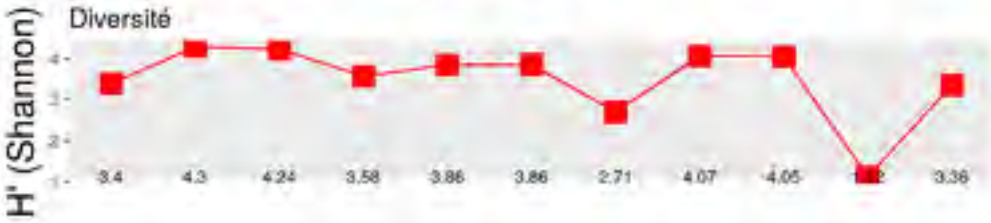
+ inventaires en France:

* Finistère: suivi bota site Le Nivot
* Ile-de-France: Rhopalocères, Chiroptères (+ orthoptères, hemiptères...)
* Ardennes: prise en charge par le PNR: Odonates, Chiroptères, Rhopalocères
* Drôme: amphibiens, odonates, botanique, rhopalocères


PE_723.01
PE_723.02
PE_723.03
Monitoring_LIFE
PointsMonitor3 [134]
CHIRO [44]
OIS [39]
PAP [51]
Regions_Naturelles
Ardenne
Campine
Condroz et sillon Sambro-Mosan
Dunes
Fagne-Famenne-Calestienne
Lorraine
Meuse mitoyenne
Polders
Région limoneuse
Région sablo-limoneuse


Réseau de points d'inventaires Rhocalocènes (44 sites)


7 3 8 18 2 9 6 5 4 6 1
(Nombre de points par site)
(Nombre d'espèces par site)
34 33 32 28 26 24 24 24 23 13 13
Z06 Z01 Z10 Z13 Z02 Z07 Z12 Z15 Z04 Z09 Z14

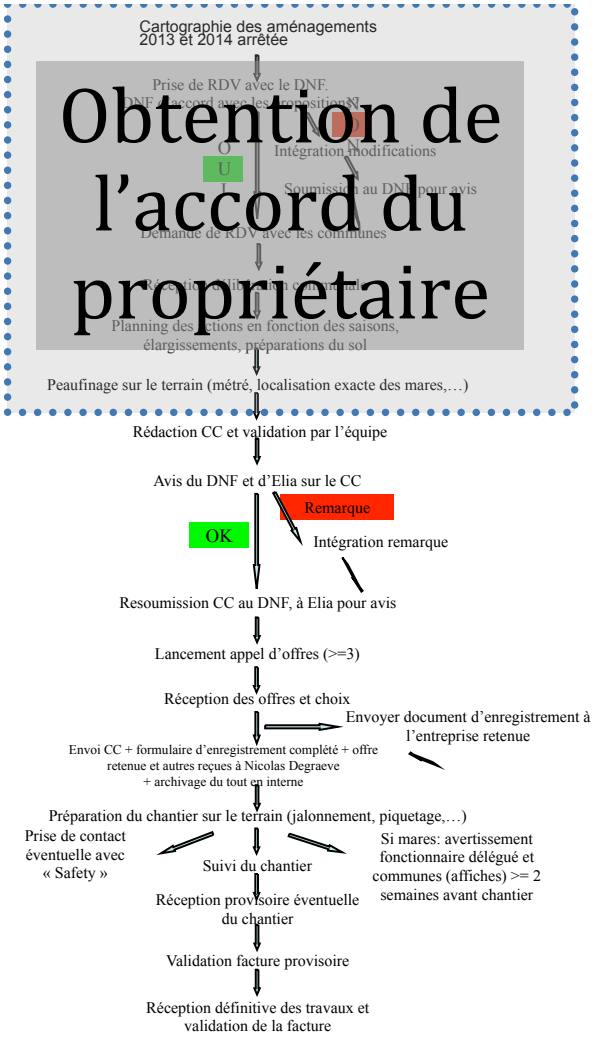

Diversité
H' (Shannon)
3.4 4.3 4.24 3.58 3.86 3.86 2.71 4.07 4.05 3.36

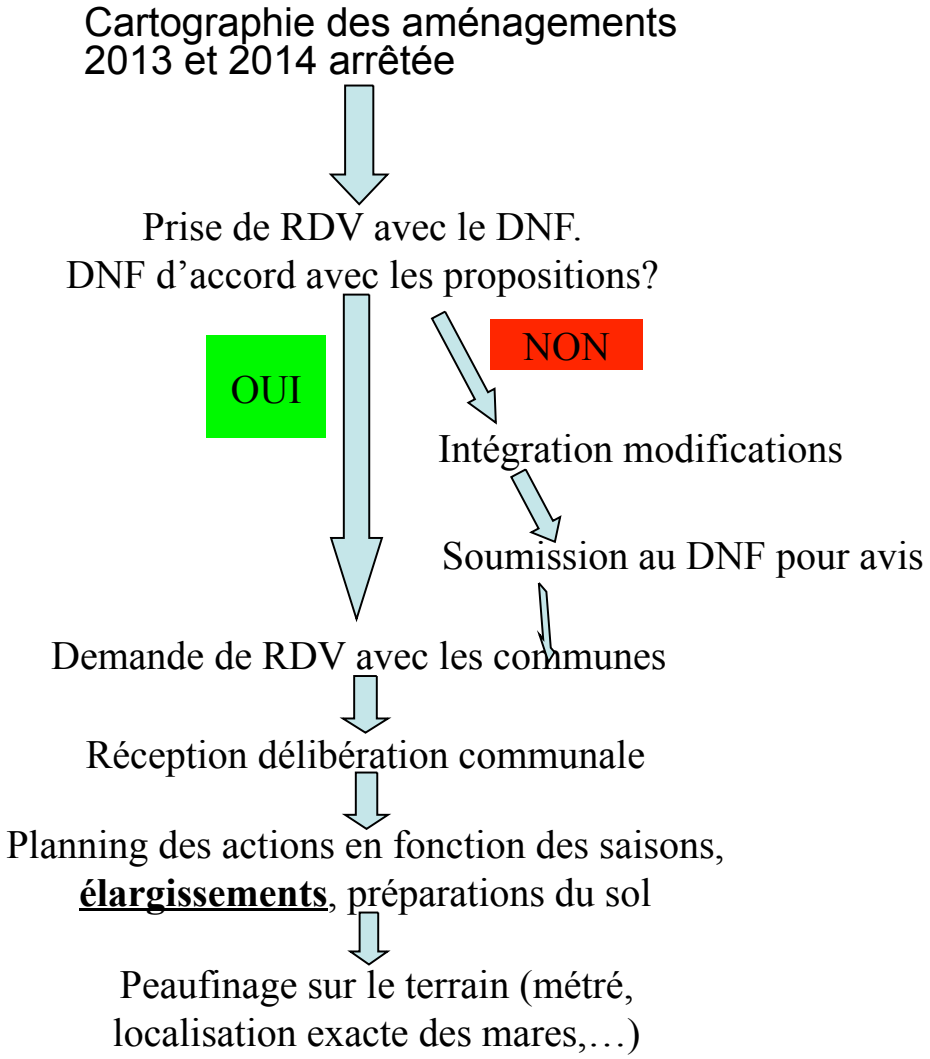
	Longueur (m)
Longueur couloir	155936
X Cadastre	**Somme**
Indét	951
Privé	69892
Publique	66489
Publique non soumis	52
Société publique	2878
Somme	140262

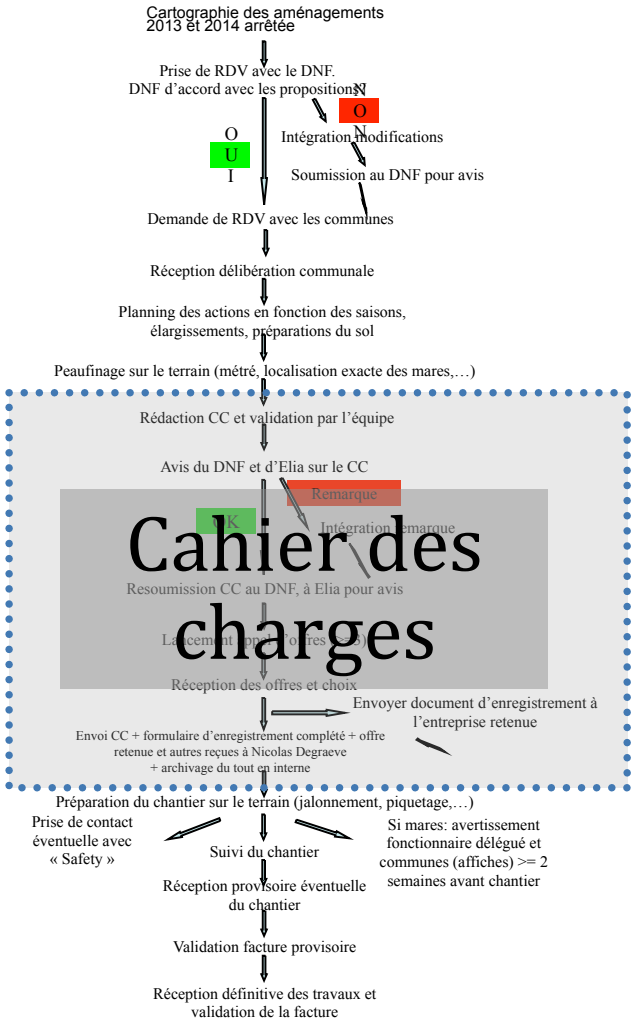
Récolte des graines en 2012

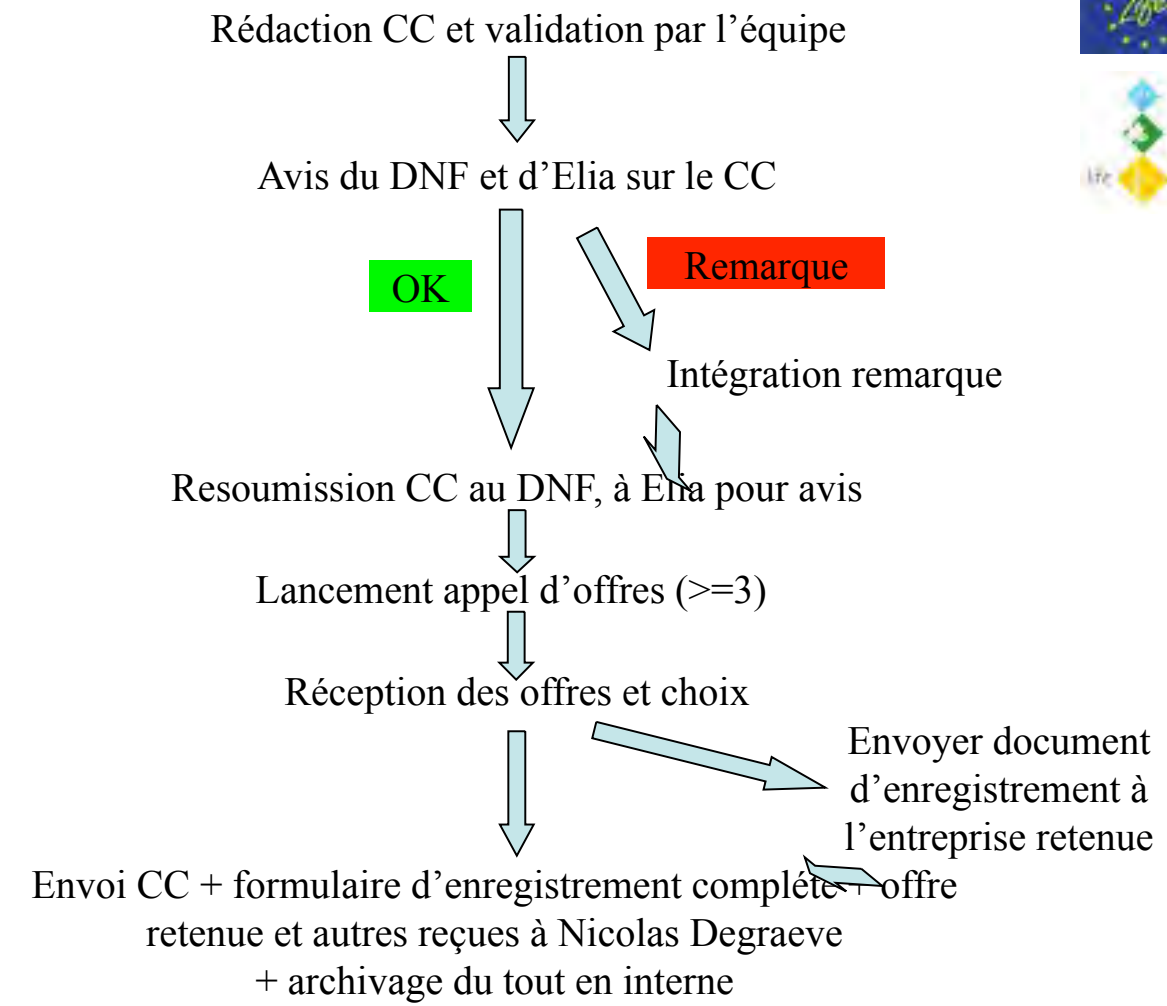
Espèce	Poids brut	Poids net	Plants estimés
Viorne mancienne	2.95 kg	710 gr	1.600
Viorne obier	5.5kg		
Pommier sauvage (France)	50 kg	353 gr	3.000
Pommier sauvage (Belgique)		400 gr	3.500
Houx			1.150 boutures
Sureau noir	14.6 kg	871 gr	17.000
Cornouiller mâle	22.15 kg	3.049 kg	3.000
Fusain d'Europe	8,4 kg		
Troëne	5 kg	782 gr	8.000
Cornouiller sanguin	0.4 kg	109 gr	500

Obtention de l'accord du propriétaire






Cartographie des aménagements 2013 et 2014 arrêtée
Prise de RDV avec le DNF. DNF d'accord avec les propositions?
O U I
N O N
Intégration modifications
Soumission au DNF pour avis
Demande de RDV avec les communes
Réception délibération communale
Planning des actions en fonction des saisons, élargissements, préparations du sol
Peaufinage sur le terrain (métré, localisation exacte des mares,…)
Rédaction CC et validation par l'équipe
Avis du DNF et d'Elia sur le CC
Remarque
OK
Intégration remarque
Resoumission CC au DNF, à Elia pour avis
Lancement appel d'offres (>=3)
Réception des offres et choix
Envoyer document d'enregistrement à l'entreprise retenue
Envoi CC + formulaire d'enregistrement complété + offre retenue et autres reçues à Nicolas Degraeve + archivage du tout en interne
Préparation du chantier sur le terrain (jalonnement, piquetage,…)
Prise de contact éventuelle avec « Safety »
Suivi du chantier
Si mares: avertissement fonctionnaire délégué et communes (affiches) >= 2 semaines avant chantier
Réception provisoire éventuelle du chantier
Validation facture provisoire
Réception définitive des travaux et validation de la facture
Cahier des charges


Rédaction CC et validation par l'équipe
Avis du DNF et d'Elia sur le CC
OK
Remarque
Intégration remarque
Resoumission CC au DNF, à Elia pour avis
Lancement appel d'offres (>=3)
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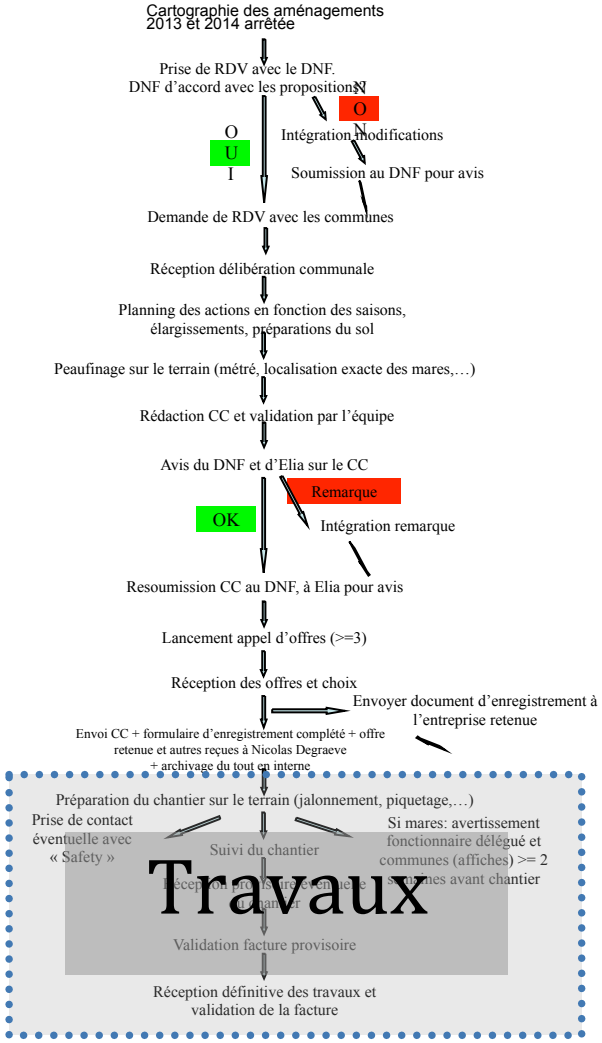


Préparation du chantier sur le terrain (jalonnement, piquetage,…)

Prise de contact éventuelle avec « Safety »

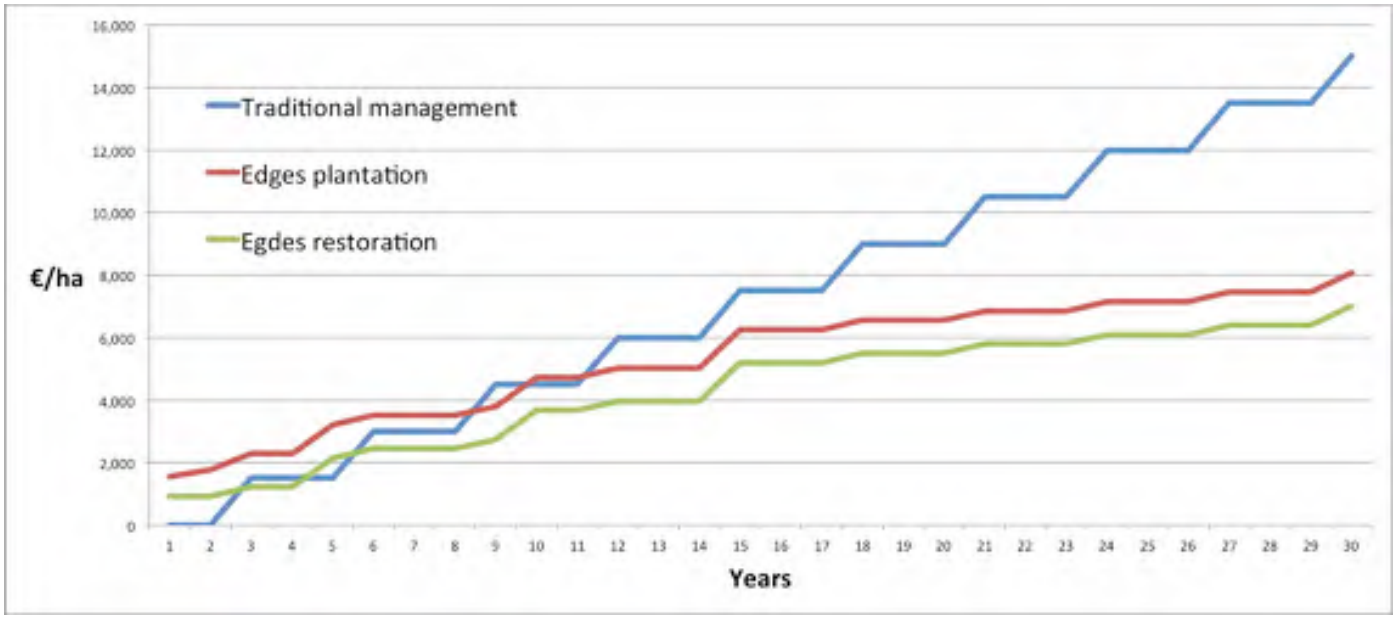
Si mares: avertissement fonctionnaire délégué et communes (affiches) >= 2 semaines avant chantier

Suivi du chantier

Réception provisoire éventuelle du chantier

Validation facture provisoire

Réception définitive des travaux et validation de la facture



Alternative vegetation management : Cost-Benefit analysis (CBA)

5/12/2017, Brussels

Simon de VOGHEL (LIFE Elia-RTE)

1. Cost-benefit analysis : the context

"Implementing actions for nature is really nice !

But the problem is

that these actions are expensive

and we don't always have the budget for it…"

1. Cost-benefit analysis : the context

Why a cost-benefit analysis ?

- Assess clearly the potential gain/loss for the TSO
- Economical monitoring : EU request

How the CBA was led ?

- Comparing costs of traditional methods for vegetation management VS alternative methods (on basis of paid bills)
- Area of study : Walloon Region in Belgium (replicable elsewhere in Europe)
- CBA led with Elia's Department (Maintenance, Environment, Budget)

2. CBA : the data

Hypothesis

actions are undertaken right after a last mulching

unit for comparison : €/ha/year

worst case scenario (very safe for the TSO)

Weighted Average Cost of Capital = 5%

2. CBA : the data

Challenge : compare the costs !

- Of a "**traditional**" vegetation management
- Of an "**alternative**" vegetation management

Traditional vegetation management

- **Mulching :**
  - Undertaken on low vegetation
  - In average every 3 years
  - Average cost : 1.500 €/ha/
- **Manual clear-cuts :**
  - In difficult areas (rocky or steep areas)
  - Average cost : 2.800 €/ha/year

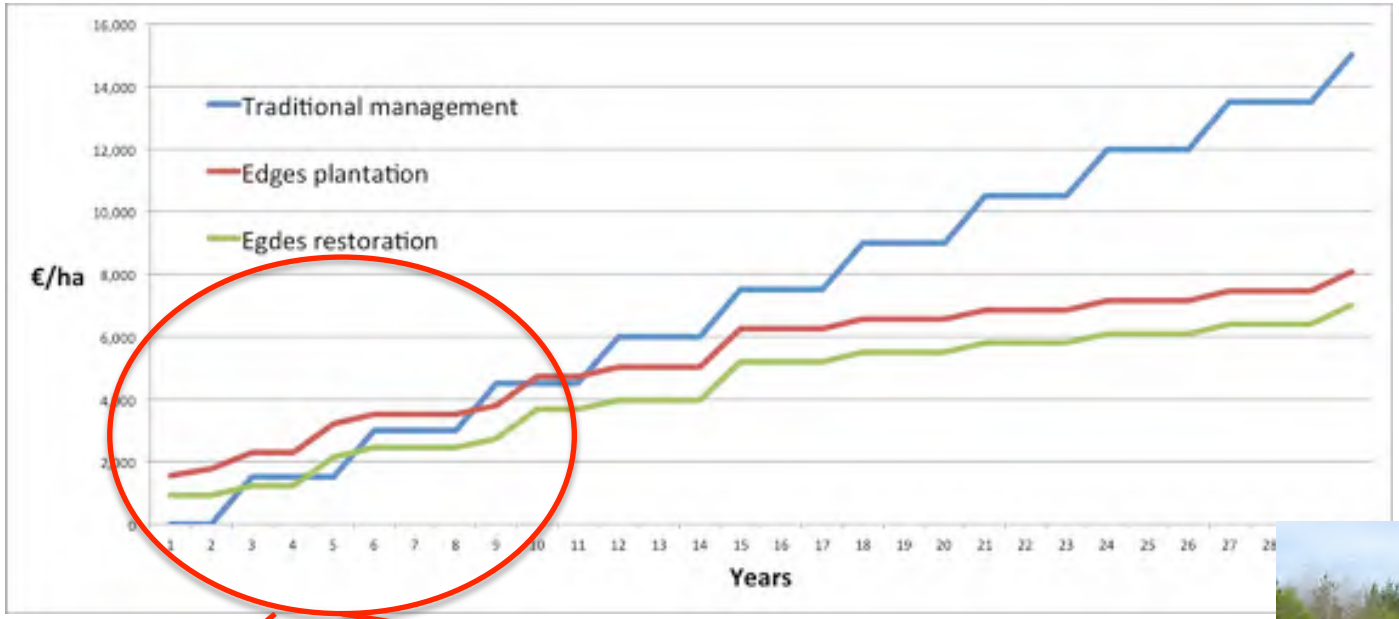
2. CBA : the data

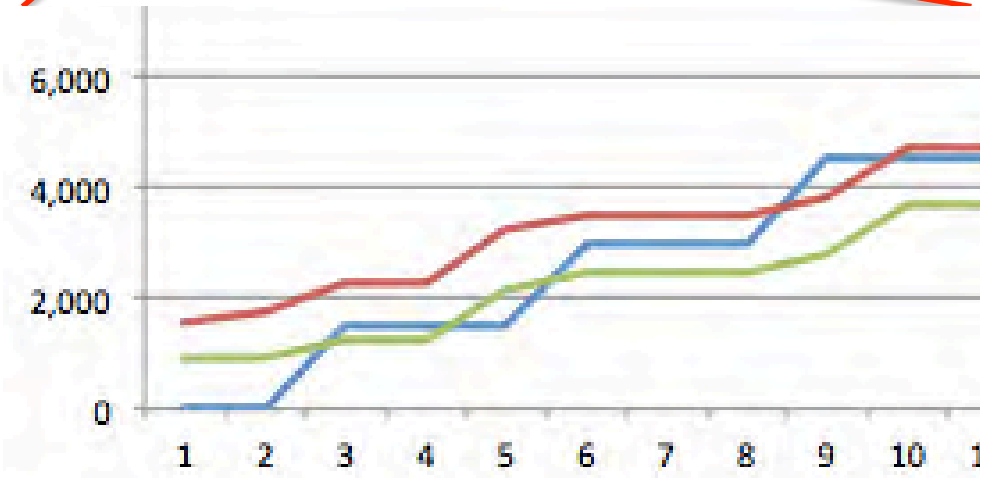
Alternative vegetation management / LIFE Elia-RTE

- Average costs based on paid bill
- For each action, all costs are listed and calculated
  - example : *plantation/restoration ot forest edges*
    - Plants and workforce
    - Protection
    - Maintenance of the plantation
    - Selective cuttings on the long term

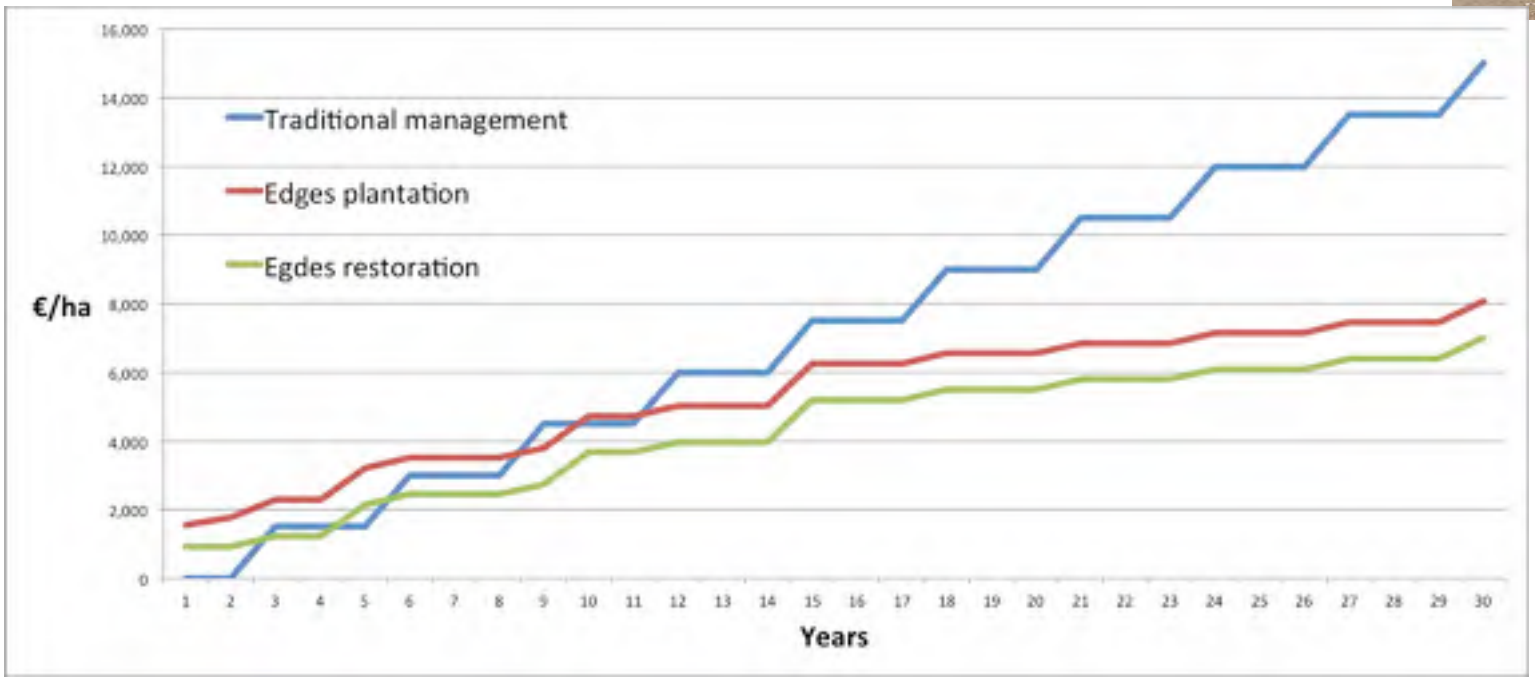
3. CBA : results

3. CBA : results





3. CBA : results



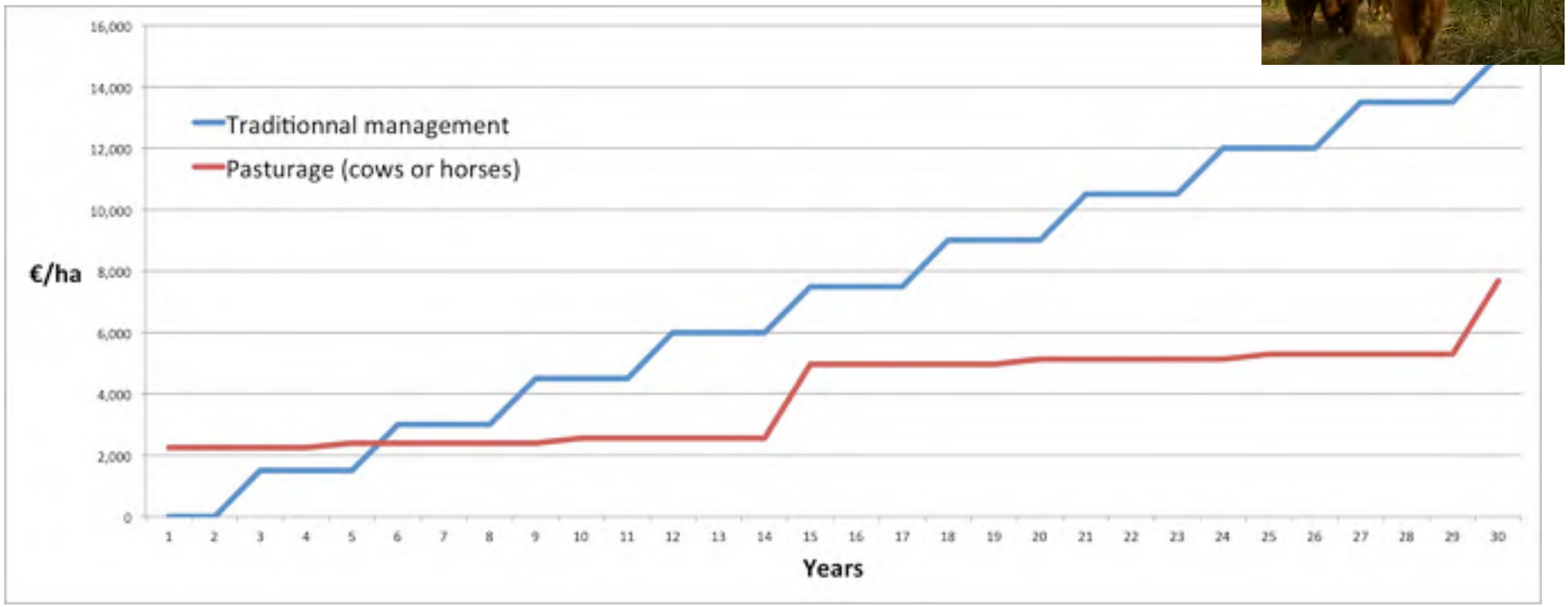
Comparison

return on investment from **6** to **12 years**

LIFE method from **1,4 to 1,8 times cheaper** on a 30 years timescale

life elia

3. CBA : results



Comparison

return on investment from **6 years**

LIFE method from **2 times cheaper** on a 30 years timescale

3. CBA : results

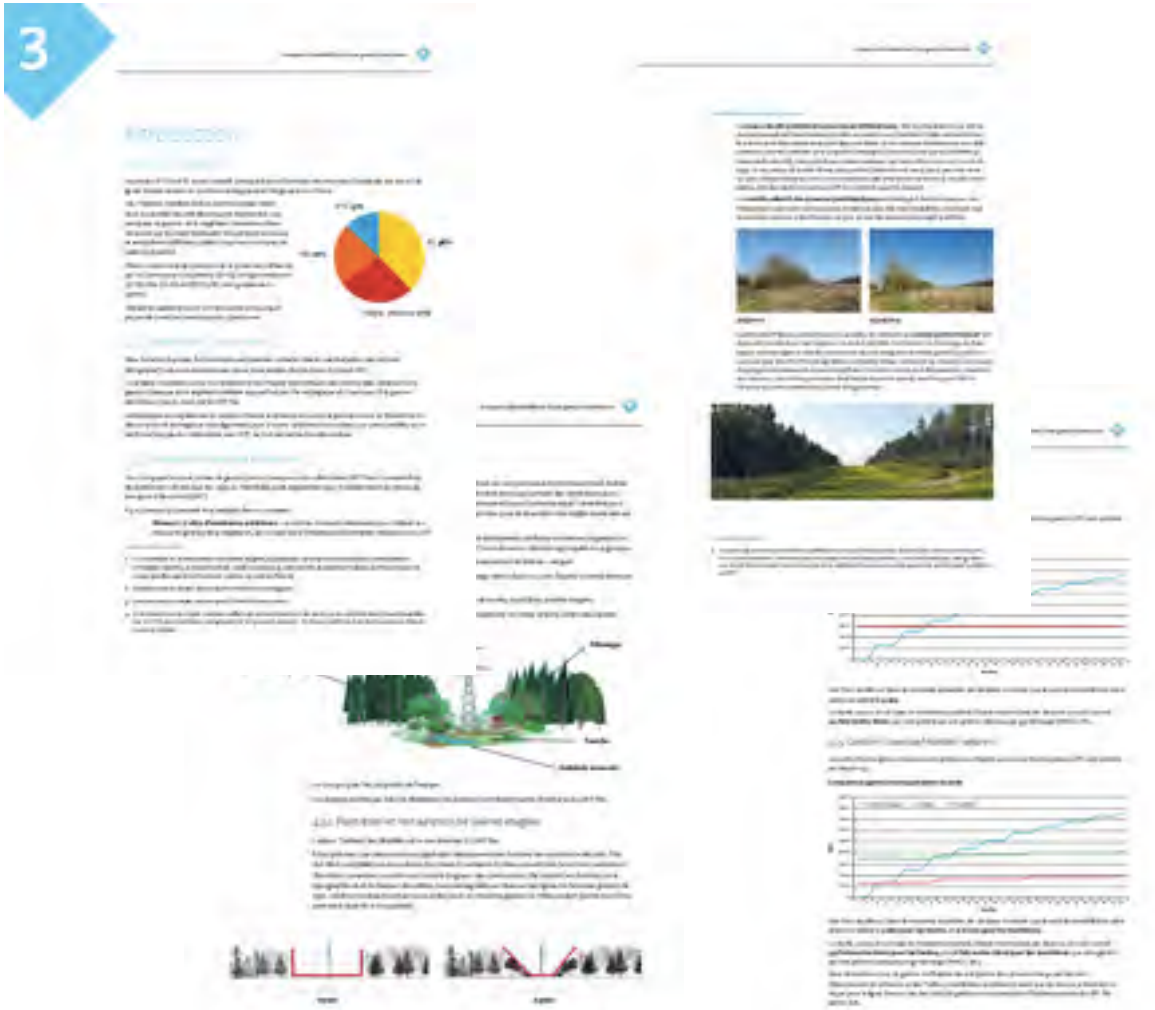
Actions	Comparison traditional management/LIFE method: Return on investment	Comparison traditional management/LIFE method: After 30 years	With WACC = 5%: After 30 years
Planted edges	9 years	1.9 times cheaper	1.4 times cheaper
Restored edges	3 years	2.1 times cheaper	1.8 times cheaper
Pasturage	6 years	2 times cheaper	1.8 times cheaper
Pasturage in hard conditions	5 years	4.7 times cheaper	3.9 times cheaper
Mowing	6 years	4.9 times cheaper	2.5 times cheaper
Natural habitats (heathlands)	3 years	5.3 times cheaper	3.9 times cheaper
Natural habitats (peatlands)	9 years	3 times cheaper	1.8 times cheaper

3. CBA : results

And what about other type of benefits ?

3. CBA : results

4. CBA : resources



www.life-elia.eu/en/

---> Our Publications

5. CBA : conclusions

“And what if it was cheaper

to work with nature as a partner ? ”

Communication, information and public awareness

5/12/2017, Brussels

Simon de VOGHEL (LIFE Elia-RTE)

1. Communication : 3 main sections

A network of partners!

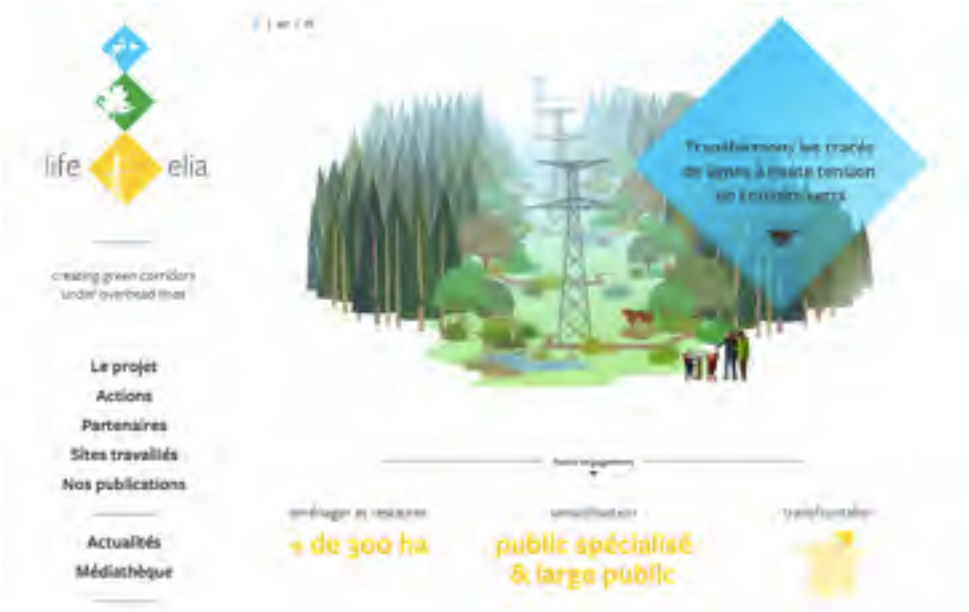
3 sections of the LIFE Elia-RTE's communication :

- Make the information available
- Gather experiences from Belgian and French experiences
- Train for a better action on site

2. Communication : make the information available

Internet : www.life-elia.eu/en/

- **Content**
  - Actions
  - Sites
  - Monitoring
  - Our publications
  - Gallery
  - News (127)



- **Visits**
  - 21,000 visitors (420/month)_30,000 sessions_120,000 pages viewed
  - 12 countries with more than 300 visits

3. Communication : gather experiences

10 brochures

« Techniques » brochures

« Actions » brochures

« Strategical » brochures

…and 2 Vademecum !

4. Communication : trainings and information

Trainings for TSO's staff

- **Elia**
  - **4 cluster :**
    - Regulation
    - Species and habitats
    - Vegetation management
    - Partnerships
- **RTE**
  - Indoor/outdoor
- **In Europe**
  - On demand

4. Communication : trainings and information

Trainings for landmanagers

- Private owners
- Municipalities
- Forest Administration

Conferences and press articles

- 128 conferences (30 in Europe)
- Around 2.800 people

4. Communication : trainings and information

Information for the public

- **9 leaflets**

4. Communication : trainings and information

Information for the public

- **9 leaflets**
- **3 watching towers**
  - Along walking paths
  - Local wood
  - Unveiling with European Commission, Elia, Minister of Nature and the Mayor of Nassogne

4. Communication : trainings and information

Information for the public

- **9 leaflets**
- **3 watching towers**
- **41 didactic pannels (30 BE, 11 FR)**
  - The site, species, habitats and actions
  - Integrated in tourism promotion
  - In the 3 watching towers

4. Communication : trainings and information

Information for the public and the experts

- **13’ movie**
- 17 other videos (Gallery on the internet site)

5. Communication : 3 awards

2015 :

- “Best Environmental Practices” - RGI (Europe)

2016 :

- “Natura 2000 Award” - European Commission (Europe)
- “Sustainable partnerships” - The Shift (Belgium)

5. Communication : conclusions

- **One motto:**

  « *do what you say and say what you do !* »

- **One insight :**

  « *On site actions are feeding communication and communicatoin is contributing to achieve actions* »

- **Within TSO :**
  - Employees are proud !
  - Positive for the image of the company !

EU Nature & Biodiversity policy priorities

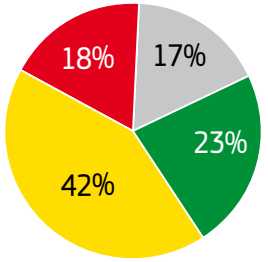
Dr Micheal O'Briain, DG Environment, European Commission

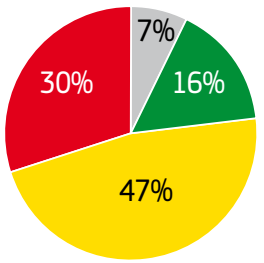
LIFE Elia-RTE project : final conference

5 December 2017 - Elia Headquarters – Brussels

What's happening to biodiversity in Europe?

- *Europe has suffered more human-induced fragmentation than any other continent*
- *50% of wetlands and high-nature-value farmland gone*
- *> 40% of all bird species have unfavourable status*
- *Only 23% of species and 16% habitats of EU conservation concern have favourable status*





Why does it matter?

- *A moral duty: to conserve the sheer variety of life on earth*
- *An environmental asset: healthy ecosystems play a vital role in regulating the environment – e.g. a major tool for climate change adaptation*
- *An economic imperative: ecosystem goods & services provide a whole range of direct and indirect economic benefits*

Our life support system

EU biodiversity strategy to 2020
« Our life insurance, our natural capital »

A 2050 VISION

European Union biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored…

A 2020 HEADLINE TARGET

Halt the loss of biodiversity and ecosystem services in the EU and restore them insofar as feasible, and step up the EU's contribution to averting global biodiversity loss

European Commission

1979: The Birds Directive

- ***Protects all species of naturally occurring birds in the wild state in the EU.***
- ***Overall objective is to maintain the populations of all wild bird species in the EU at a level which corresponds to their ecological, scientific and cultural requirements, or to adapt the population of these species to that level.***

1992: The Habitats Directive

- **Protects 1000+ other threatened plants and animals and c.230 habitat types**
- **Overall objective is to ensure that these species and habitat types are maintained at, or restored to, a *'favourable conservation status'*.**

The Natura 2000 network

- cornerstone of EU biodiversity policy
- >27 000 sites
- > 1 000 000 km²
- 18 % EU land
- ~5 % EU seas
- Largest co-ordinated PA network
- Almost complete on land
- Some additional work for marine

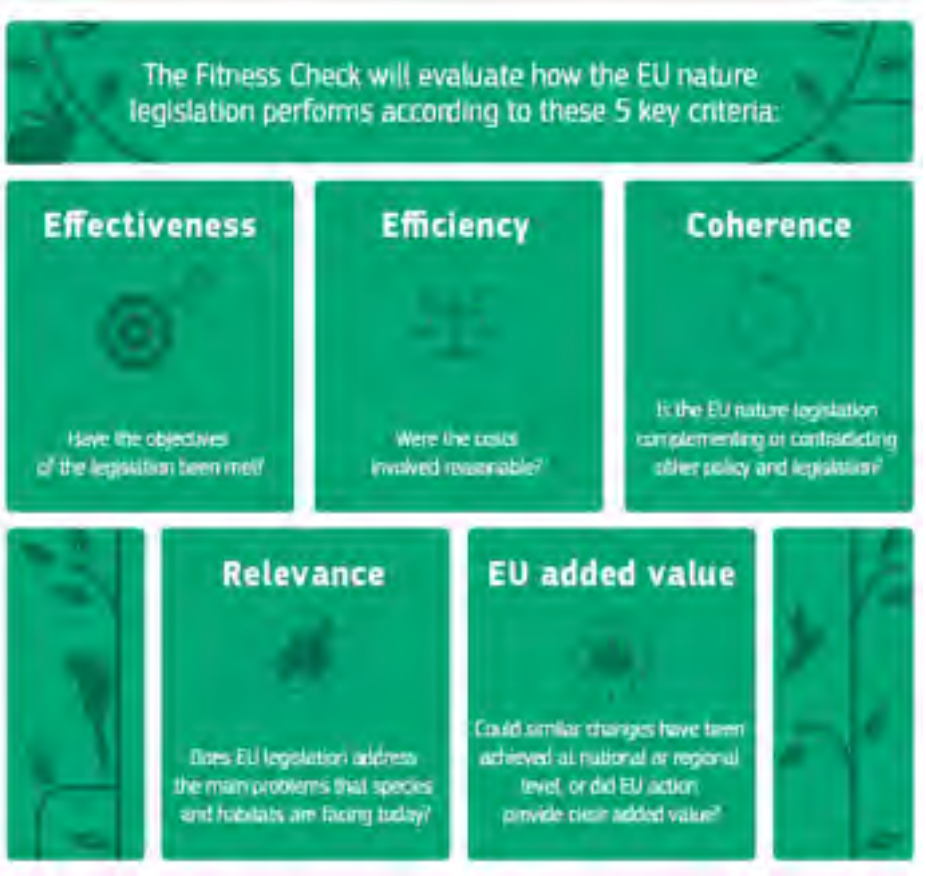
European Commission

Key principles of Natura 2000

- *Conservation of species & habitats irrespective of political boundaries*
- *Member State contribute in relation to their importance for species & habitats*
- *Site selection is exclusively scientific*
- *Sites have strong legal protection*
- *Not nature reserves – management in collaboration with land owners & users*
- *Promotes sustainable development : new activities or development affecting N2000 are not automatically excluded but require approprate assessments*

The Fitness Check of the Nature Directives

- Comprehensive evaluation of Birds and Habitats Directives
- Extensive evidence gathering & stakeholder consultation at MS and EU levels
- Over 552,000 response to EU public consultation



European Commission

Key findings of Fitness Check

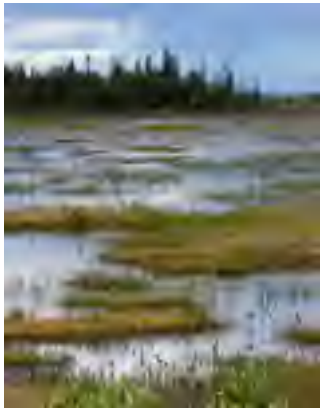
- **Too many species & habitats show negative trends**
- **Only 50% of Natura 2000 sites properly managed**
- **Marine Natura 2000 network incomplete**
- **Funding shortage and weak policy integration**
- **Cases of inflexible application & permitting delays by national & local authorities**
- **Insufficient knowledge, awareness, engagement & cooperation**

EU Nature Action Plan

- to **realise the full potential of the EU Nature Directives** to achieve **healthy ecosystems**, whose services benefit **people, nature & the economy**
- to **boost their contribution** towards reaching the **EU's biodiversity targets** for 2020
- to **improve** the Directives' **coherence with** broader **socio-economic objectives**

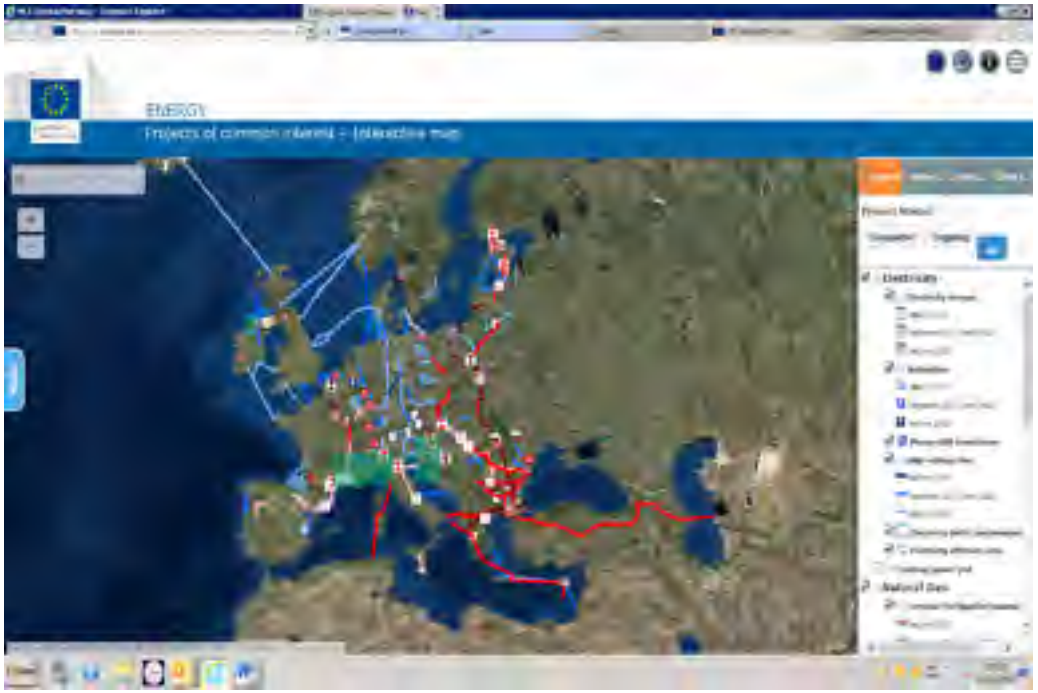
Approach of Action Plan

- **4 priority areas of Action:**
  - Improving guidance and knowledge and ensuring better coherence with broader socio-economic objectives
  - Building political ownership and strengthening compliance – especially to ensure a functional Natura 2000 network
  - Strengthening investment in Natura 2000 and improving synergies with EU funding instruments
  - Better communication and outreach, engaging citizens, stakeholders and communities
- **15 Actions & over 100 measures**
- **Timeframe 2017-2019**
- **Key Actors**: Member States, European Commission, Committee of the Regions, European Investment Bank, European Environment Agency, Stakeholders



European Commission

Improve guidance & knowledge and ensure better coherence with broader socio-economic objectives



Improve EU guidance on site permitting, species protection, sectoral & ecosystem services

Fill knowledge gaps and improve quality & access to data

Building political ownership and strengthening compliance

Completing Natura 2000 network & establishing conservation objectives & measures

Stakeholders Engagement in site management & co-operation at Biogeographical level

Species & habitat Action Plans

European Commission

Strengthening investment in Natura 2000 & improve synergies with EU funding instruments

Update funding strategies (PAFs) for Natura 2000

10% increase in nature & biodiversity within LIFE budget

Promote synergies with CAP & other EU funds & private sector funding

Provide EU guidance to support deployment of green infrastructure

Better communication & outreach, engaging citizens, stakeholders & communities

recognition of good management of Natura 2000

knowledge exchange & engagement of local & regional authorities

Involve young people

EUROPEAN SOLIDARITY CORPS

Expenditure supported by visitors to Natura 2000 sites ≈ €50–85 billion/ year (in 2006)

strengthen links between natural and cultural heritage

THANK YOU FOR YOUR ATTENTION

For more information and updates: http://ec.europa.eu/environment/nature/index_en.htm
http://ec.europa.eu/environment/nature/legislation/fitness_check/action_plan/index_en.htm

Greening Electricity Networks

John Sinner & Stefanie Lindenberg

LIFE Elia RTE project conference, Brussels, 5 December 2017

Presentation struucture

1. Overview EIB
2. EIB Support to Electrictiy Networks
3. EIB's Natural Capital Finance Facility

1) The EIB: the EU bank

- Natural financing partner for the EU institutions since 1958
- Around 90% of lending is within the EU
- Shareholders: 28 EU Member States

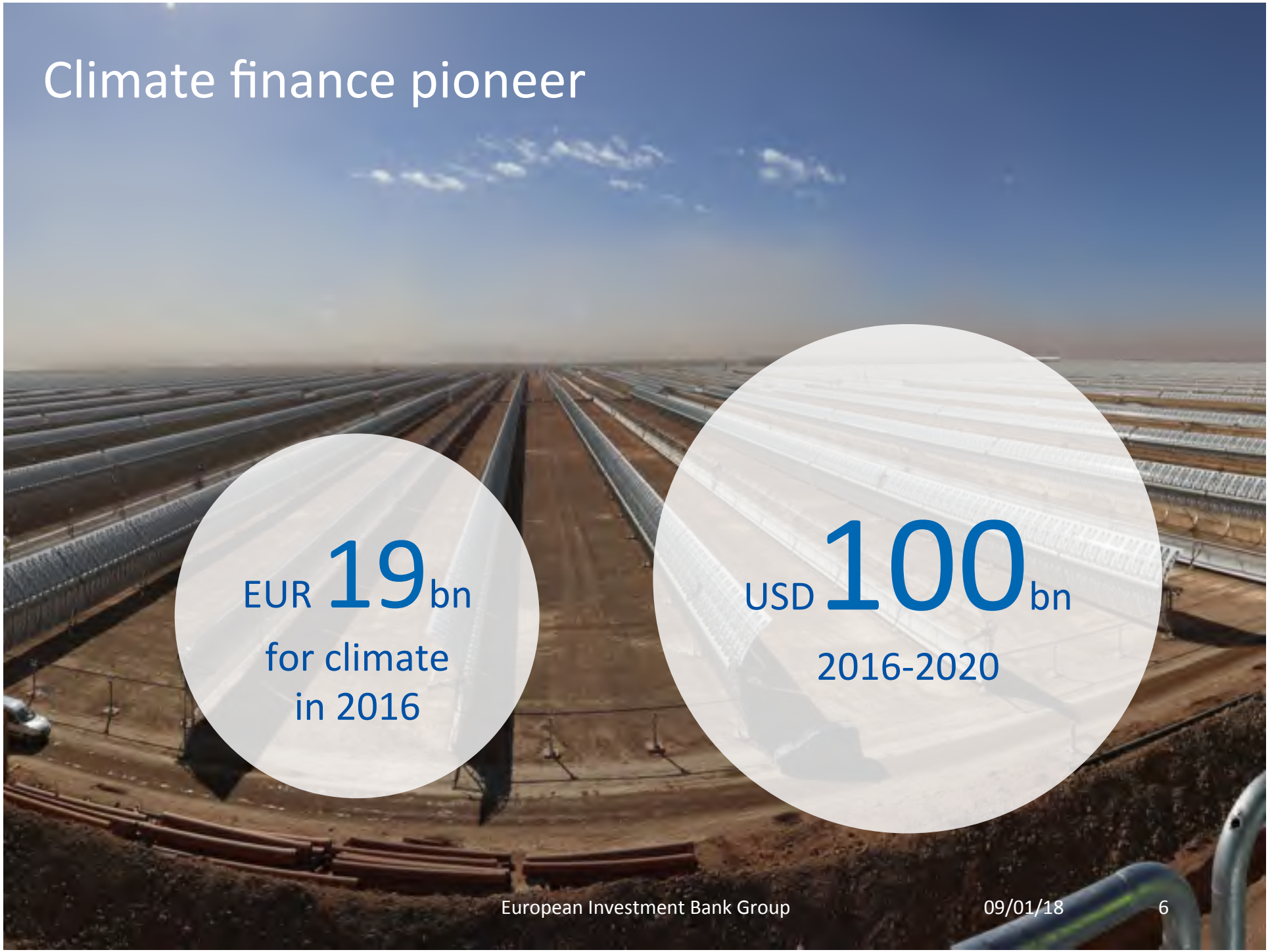
Investing in Europe's growth

The EIB at a glance

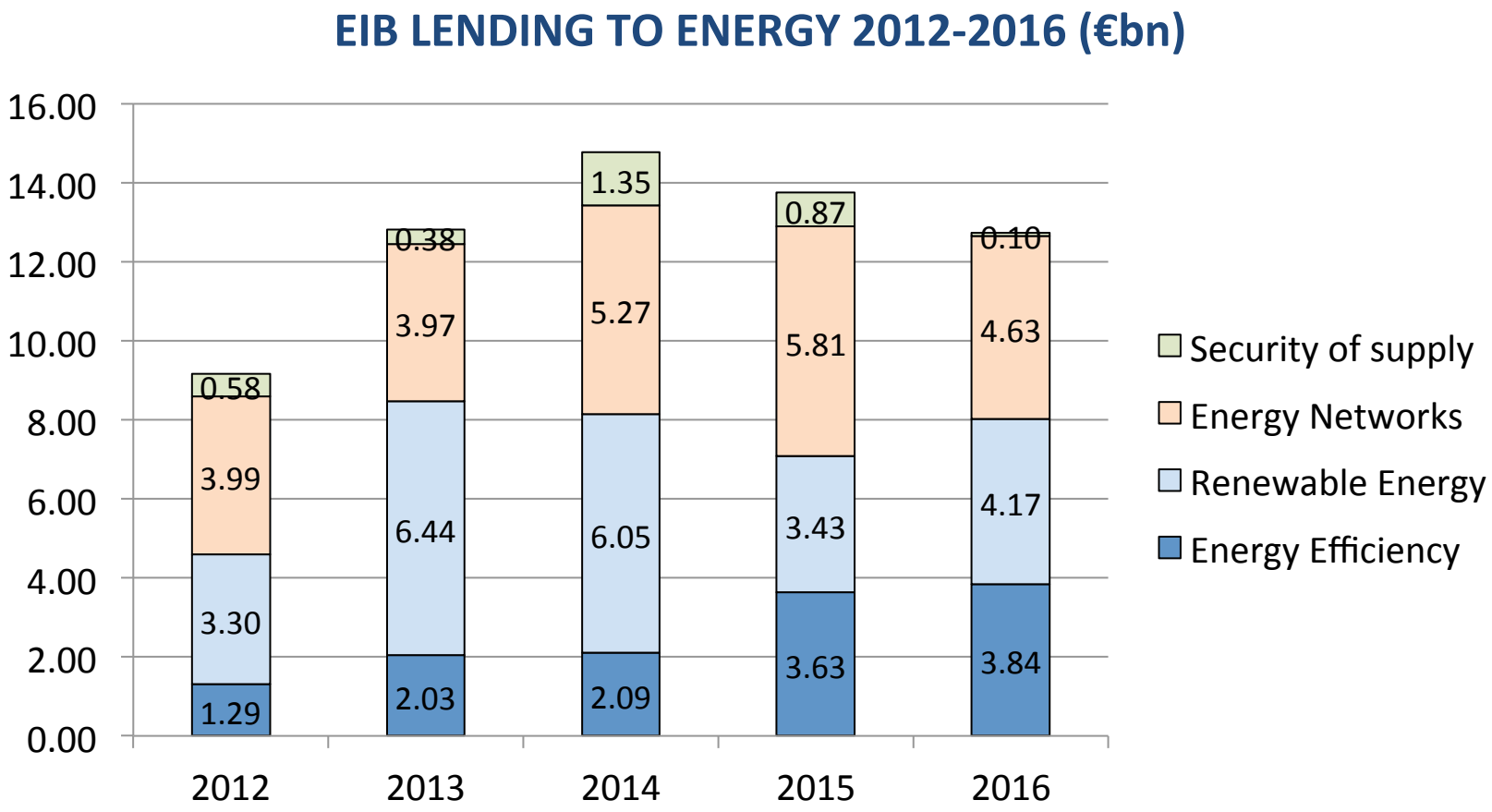
- Largest multilateral lender and borrower in the world
  - We raise our funds on the international capital markets
  - We pass on favourable borrowing conditions to clients
- Some 450 projects each year in over 160 countries
- Headquartered in Luxembourg and has 40 local offices
- Around 3 000 staff:
  - Not only finance professionals, but also engineers, sector economists and socio-environmental experts
  - Almost 60 years of experience in financing projects

EIB Group financing in 2016

Climate finance pioneer



2) EIB lending to Energy



EIB financing for network investments

- Typically multi-year investment programmes
- In line with TYNDPs
- Verify compliance of projects with relevant EU legislation
  - Environmental (EIA, Natura 2000…), procurement, markets…
- Use of Best Available Technology
- Socio-economic welfare test for investments
  - it analysis of investments
  - Externalities considered (emissions, security of supply, biodiversity…)

EIB and PCI/TEN-E: EUR 8.2 bn for electricity

Outlook future & reflections

- Investment in power grids to increase by 40% 2020-2030 (compared to 2010-2020)
- Capital-intensive
  - key challenge: keep cost of capital low
  - EU CEF and EFSI funding
- Maintaining security of supply in future networks
  - Integration of ever growing RES and distributed generation
  - Changes in load patterns
    - New, flexible, electricity demand (transport, heating…)
    - Growing energy efficiency
    - Emergence of «prosumers»
  - Move from national to regional network management
    - Interconnections: projects of common interest (PCI)
- How minimise environmental impacts?

3) Natural Capital Finance Facility (NCFF)

- A financial instrument blending EIB finance with EC funding under the LIFE programme (*the EU's funding programme for the environment and climate action*)
- Loans & grant-based technical assistance component
- Overall size: EUR 100-125 million
- Pilot phase: 2015 – 2019

NCFF: Objective & Rational

Support the achievement of the objectives of the LIFE regulation by financing projects inside the EU that

1. Are likely to have a positive impact on biodiversity and/or
2. Apply ecosystem-based solutions for adaptation to climate change

+ can generate a revenue stream or save costs

NCFF: Project categories

- Pro-biodiversity businesses
- Biodiversity offsets
- Payment for ecosystem services
- Nature-based solutions for adaptation to climate change
- **Green infrastructure** (e.g. green corridors under transmission line)

NCFF-Set up

- Target: 9 -12 operations
- Typical operation size: EUR 3-15 million
  - Loan (direct or intermediated or investment in equity fund)
  - NCFF-tranche integrated in larger project
  - Tenor 15 years and possibly longer, 3 years grace period
- Up to 75% of project costs
- Risk profile: higher than usual through EC FLP
- **Support Facility** (TA): EUR 10 million, up to EUR 1 million per project

NCFF – Support Facility

Provides financing for (examples):

Prepatory actions

- Initial mapping excercise
- Establishing environmental baselines
- Establish biological indicators
- Involvement of stakeholders & raising awareness

Implementation

- Sheduling restoration
- Preparing managment plans

Monitor indicators and impacts of the project

How to put in practice?

- NCFF loan for greening of corridor only

EIB NCFF loan (e.g. € 3m + TA (grant)

- EIB loan for, e.g. extension of transmission line + NCFF loan tranche integrated

EIB loan for transmission line (e.g. € 100 m)

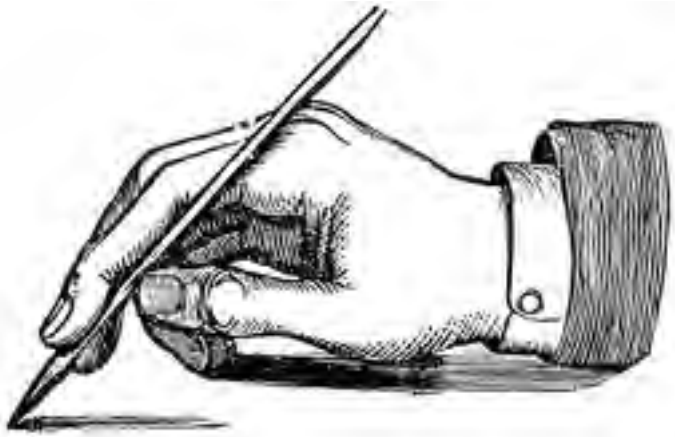
EIB NCFF loan (e.g. € 3m + TA (grant)

Why interesting?

- Reduce environmental impacts (i.e. less offset needed) ⟶ positive impact on biodiversity
- Improve public acceptability of new transmission lines
- NCFF provides TA (up to 1 million)
  - Funding to demonstrate reduced impact
- Mid to long-term cost reduction for management of these corridors

Get in touch

- j.sinner@eib.org or s.lindenberg@eib.org



- E-mail: NCF_Instrument@eib.org to set up a call

Networking in Europe : sharing experiences and building a network

5/12/2017, Brussels

Simon de VOGHEL (LIFE Elia-RTE)

1. Networking in Europe

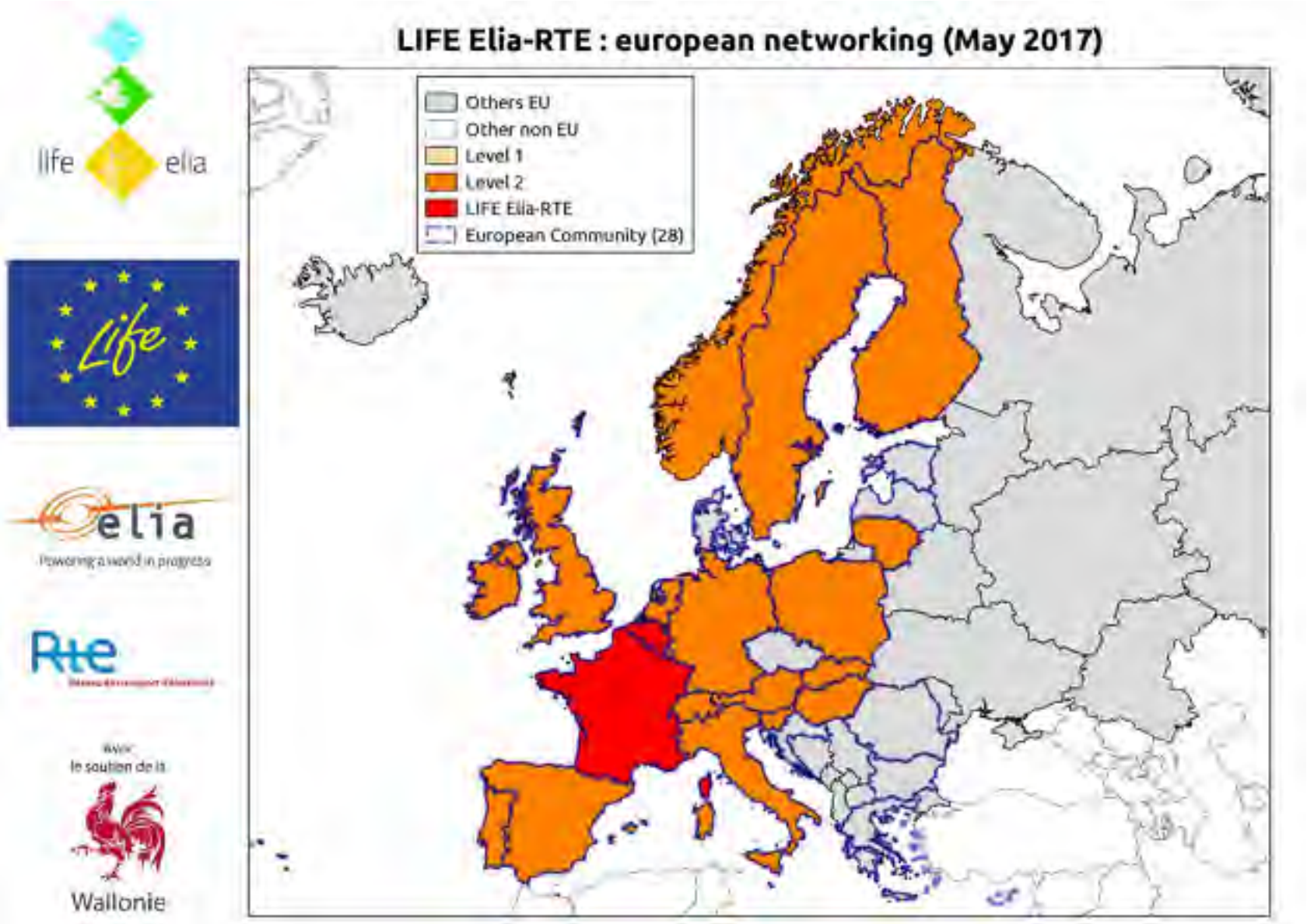
300.000 km of high-voltage lines !

1. Networking in Europe: objectives

Networking :

- Share the know-how of LIFE Elia-RTE project (LIFE programme)
- Involve TSO in the draft of a Vade-Mecum of Best Practices
- (Launch pilot sites in EU Member States)

2. Networking in Europe : contacts



2. Networking in Europe : contacts

- In contact with **18 TSO (16 visited)**

---> meetings with different Departments

  - Environment / Maintenance /Communication et Corporate Social Responsibility

- Field trip – 2 days in June 2015
  - 40 people from 22 institutions – 16 countries
  - CBA presentation
  - Visits of 6 sites in Wallonia
- Pilot sites in Portugal with REN

3. Networking in Europe : feedbacks

Meetings in Europe : feedbacks

- TSOs do not own the land under HV lines
- Vegetation management is globally similar (mulching and manually)
- Various involvement in biodiversity issues
- Most TSOs are interested in alternative vegetation management but…
  - There is not often the budget
  - It is not always easy to shift methods within a big company
  - Regulation is not always “open”
  - Fears of the biodiversity trap

3. Networking in Europe : feedbacks

Meetings in Europe : feedbacks

- Nature positive actions as main communication channel for TSO
- In some countries, club of linear infrastructure companies
- Struggle to develop new infrastructure projects…(public perception, nature issues, landscape)

===> strong interest from TSO to "do something" in the vegetation management area as a solution to the global expectations form society

4. Networking in Europe : institutions

Presentation in different institutions (30 in total)

- European Commission
  - DG Environment
  - DG Energy
  - DG Budget
- ENTSO-E
  - Position paper
- CIGRE
- European Investment Bank
- Other conferences (RGI, IENE, Landowners…)

5. Networking in Europe : conclusions and perspectives

Conclusions

- Nevermind the context, LIFE Elia-RTE methods can be adapted and replicated in Europe
- The project has impacted positively different TSO
- There is a need/demand of going further in several directions
  - Regulation issues (nationnaly and internationally)
  - Operate the change within the company
- Rather than an end…the beginning of a discussion

5. Networking in Europe : conclusions and perspectives

Perspectives

- The team : remain available
- TSO :
  - Individual VS Shared movement
  - Tools for financing
    - A LIFE Governance (landownership, environmental right-of-ways, temporary biodiversity…)
    - A LIFE Nature on protected areas
  - First step is the hardest…