

LIFE « HERBAGES »

Projet LIFE 11 NAT/BE/001060



Priority actions for grasslands and meadows
in Lorraine and Southern Ardenne (B)

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LIFE "Herbages"

7 years (2013-19) - **9,6 M€** - 75% financed by EC



Coordinator : Natagora (ex- Réserves Naturelles RNOB)

A Belgian nature conservation NGO in Brussels and Walloon Region.

Partners / beneficiaries:

- DNF : Nature & Forest Department (Walloon Region)
- DEMNA: Dprtmnt Etude du Milieu Naturel et Agricole
- Botanic Garden Meise



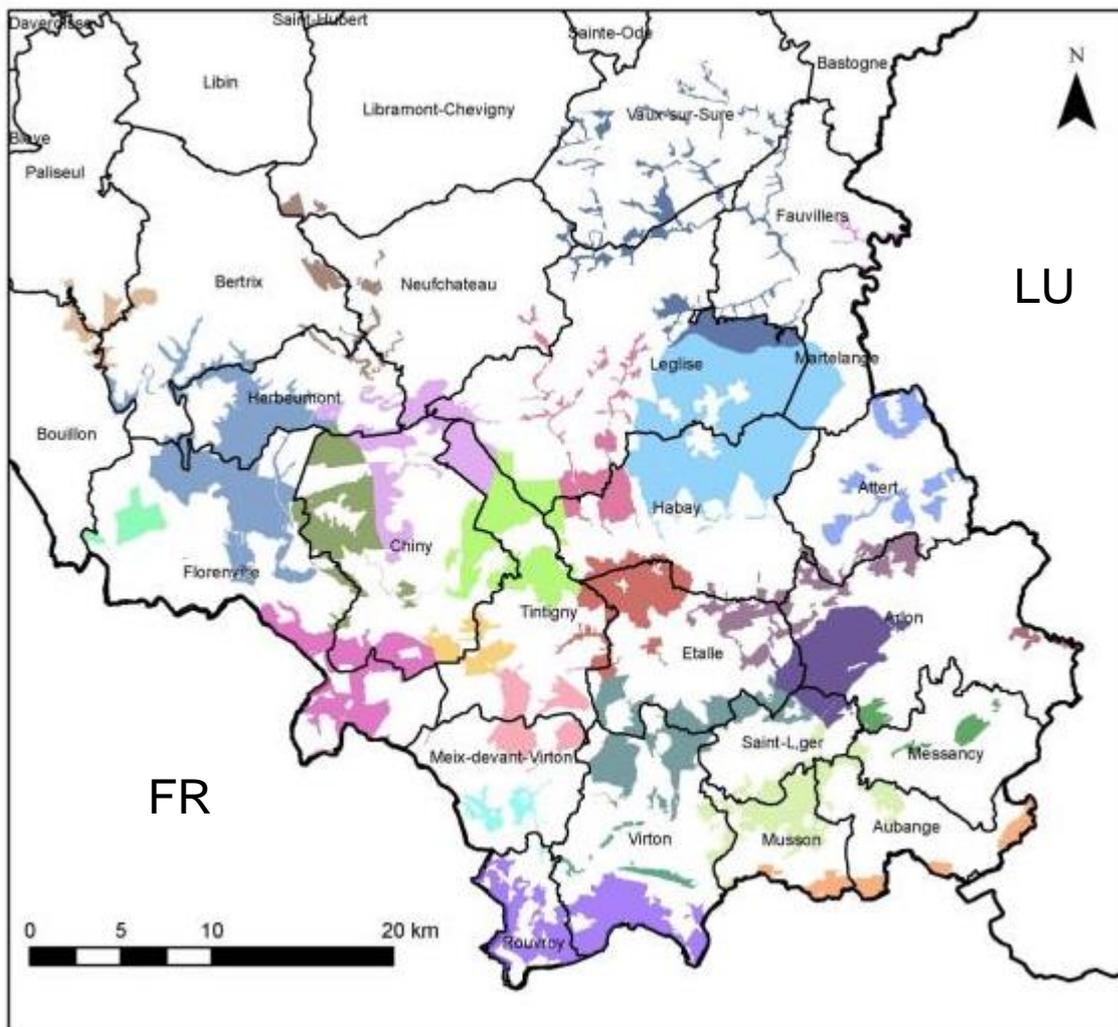
Wallonie



**Jardin botanique
Meise**



LIFE « Herbages » area: 26 Natura 2000 sites, 43.800 ha



- Basse-Vierge
- Bassin de l'Attert
- Bassin de la Marche
- Bassin de la Semois de Etalle à Tintigny
- Bassin de la Semois de Florenville à Aubay
- Bassin de la Semois de Jamoigne à Chiny
- Bassin de la Semois entre Tintigny et Jamoigne
- Bassin du Ruisseau du Messancy
- Bassin supérieur de la Vire et du Ton
- Camp militaire de Lagland
- Forêt d'Anlier
- Forêts de Muno
- Forêts et marais bajociens de Baranzy à Athus
- Haute-Sûre
- Haute-Vierge
- Marais de la Haute-Semois et Bois de Heinsch
- Sûre frontalière
- Vallée du Ruisseau de Breuvanne
- Vallée du Ruisseau des Aleines
- Vallée du Ton et Côte de Monkquintin à Ruette
- Vallées de Lactaireau et du Rabais
- Vallées de l'Eisch et de Clairefontaine
- Vallées de la Chevratte
- Vallées de la Vire et du Ton
- Vallées du Ruisseau de Mellier et Mandebas

Objective of the LIFE « Herbages »: the restoration of 400 hectares

Code	Ha	11 habitats (* priority)
6510	150	Lowland hay meadows
6520	5	Mountain hay meadows
6410	5	<i>Molinia</i> meadows
6430	60	Hydrophilous tall herb fringe communities
6120	55	Sand calcareous grasslands*
6210	18	Calcareous grasslands*
6230	65	<i>Nardus</i> grasslands*
7230	15	Alkaline fens
7220	2	Petrifying springs*
91D0	10	Bog woodland*
91E0	15	Alluvial forests*
	400	



Main actions of the LIFE « Herbages »

I. Land purchase (250 ha)

Parcels usually occupied by exotic plantations (*Picea abies*, *Populus* sp....), wetlands or dry slopes (sandy or calcareous).



Main actions of the LIFE « Herbages »

II. Habitat restoration (400 ha)

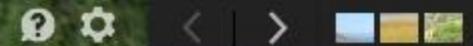
Deforestation, rotovating, seeding, mowing...



Main actions of the LIFE « Herbages »



Google



Main actions of the LIFE « Herbages »



Main actions of the LIFE « Herbages »

Species reintroductions / reinforcements

Fabienne Van Rossum & Sandrine Godefroid



Species reintroductions / reinforcements

6 typical species of 3 priority habitats



6120*: *Dianthus deltoides*,
Petrorhagia prolifera,
Helichrysum arenarium



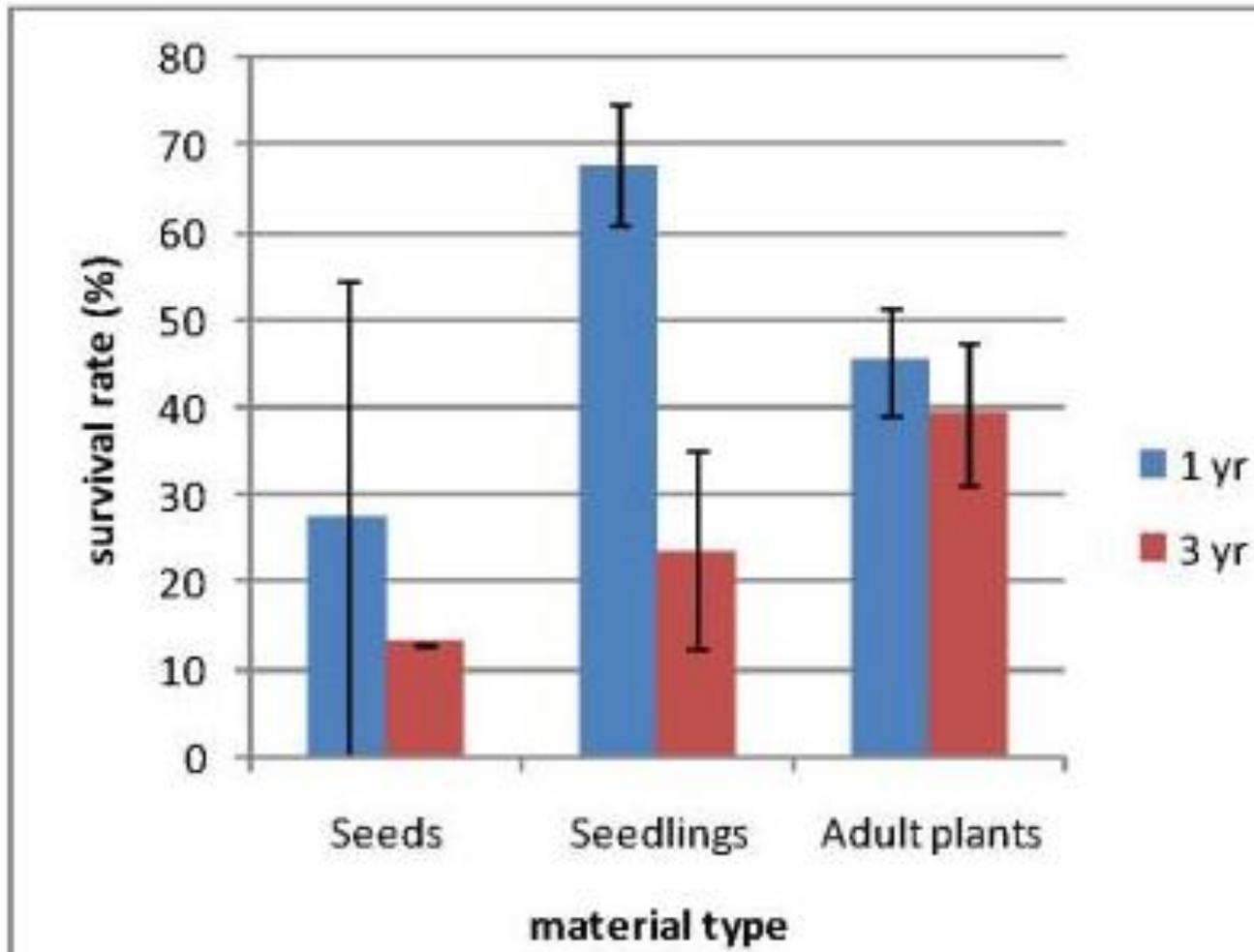
6210*: *Campanula glomerata*

6230*: *Arnica montana*,
Antennaria dioica



Species reintroductions / reinforcements

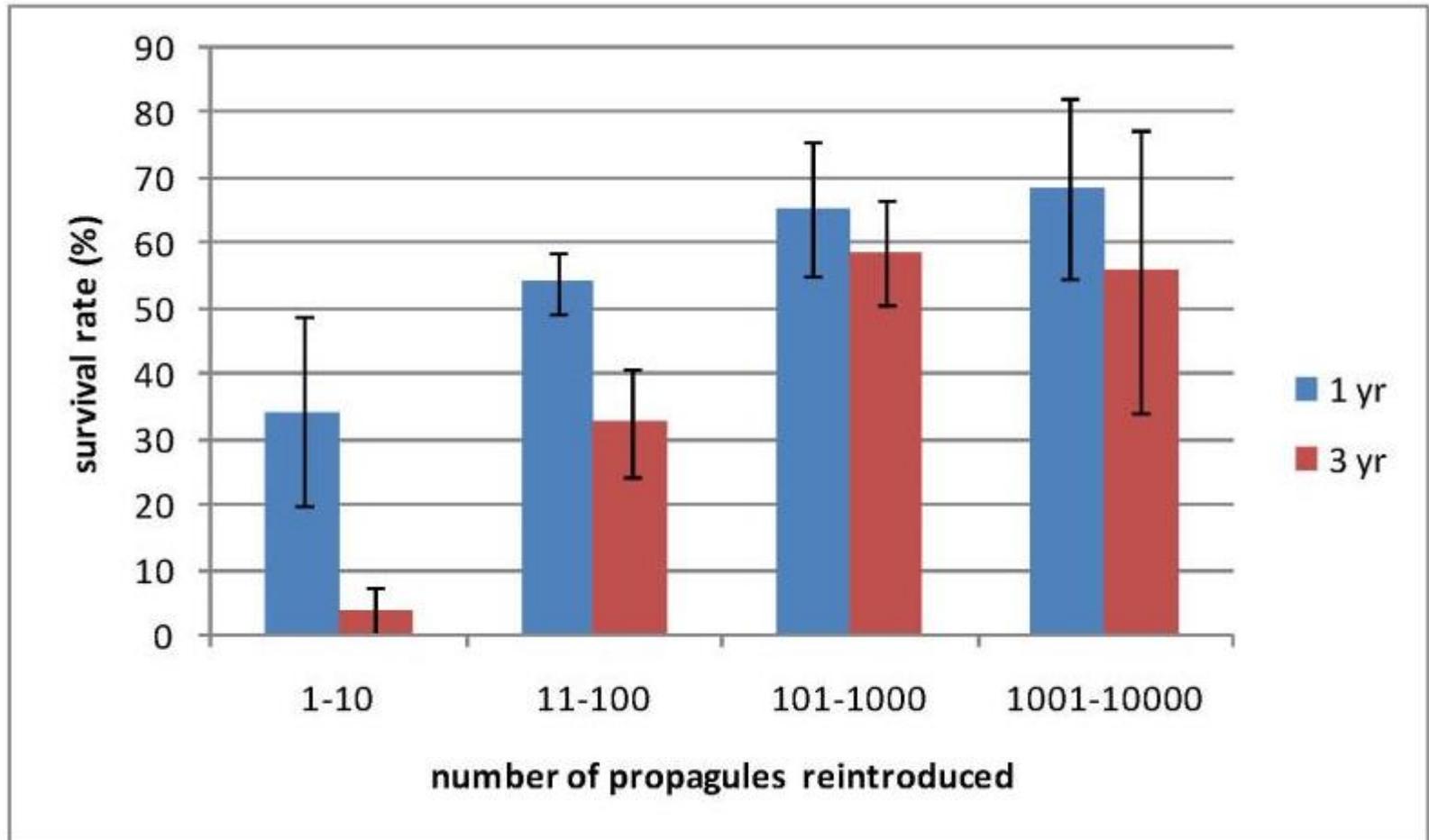
Method: seedlings plantations



Godefroid et al. 2011. How successful are plant species reintroductions? *Biological Conservation* 144: 672-682.

Species reintroductions / reinforcements

Objective: more than 2000 individuals / target species



Godefroid et al. 2011. How successful are plant species reintroductions? *Biological Conservation* 144: 672-682.

1. Checking the respect of the IUCN guidelines & EC and Walloon laws

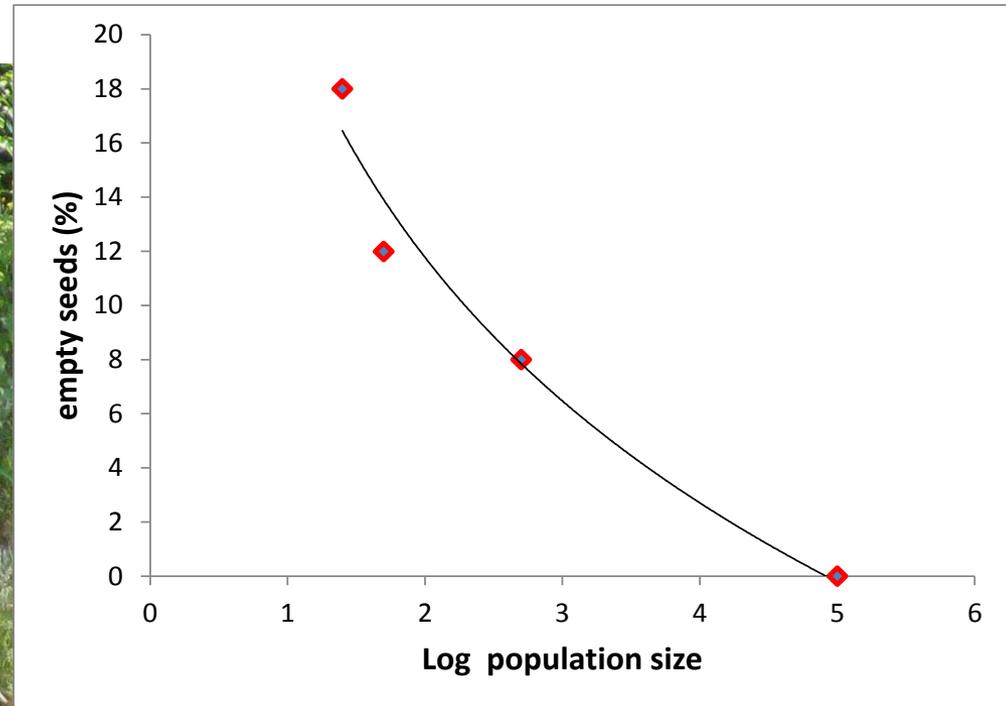
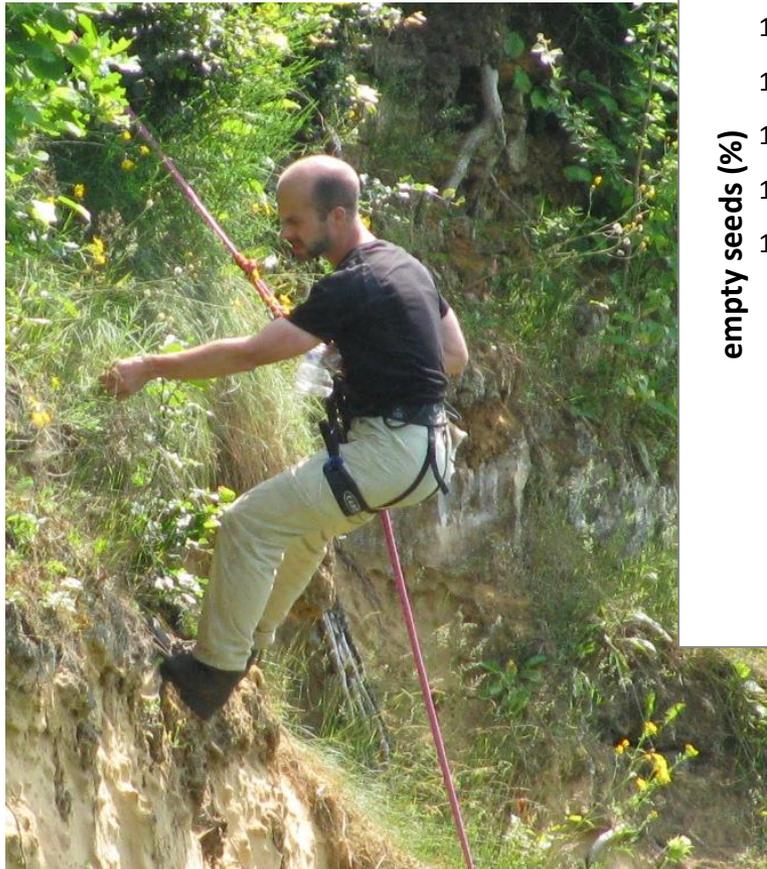


Wallonie

Species reintroductions / reinforcements

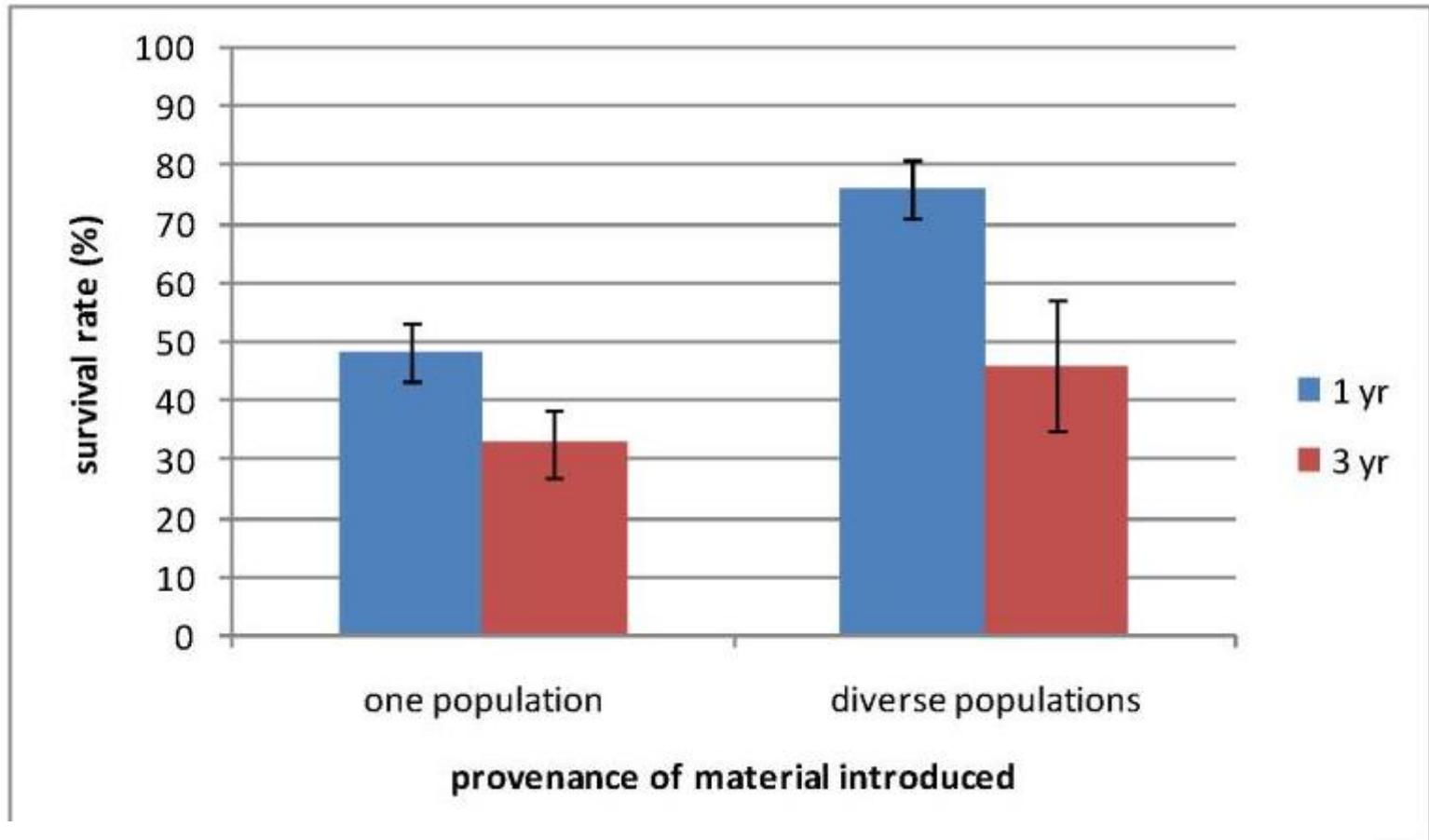
2. Feasibility analysis: germination and survival rates + genetic diversity of several potential source populations in the phylogeographic area

Method: seeds and leaf sampling, microsatellites analyses, min. 30 individuals / source population



3. Seed collection (1)

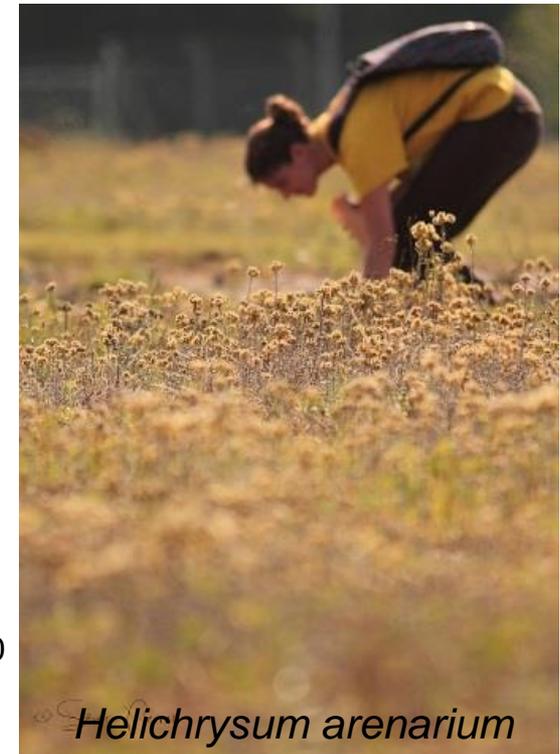
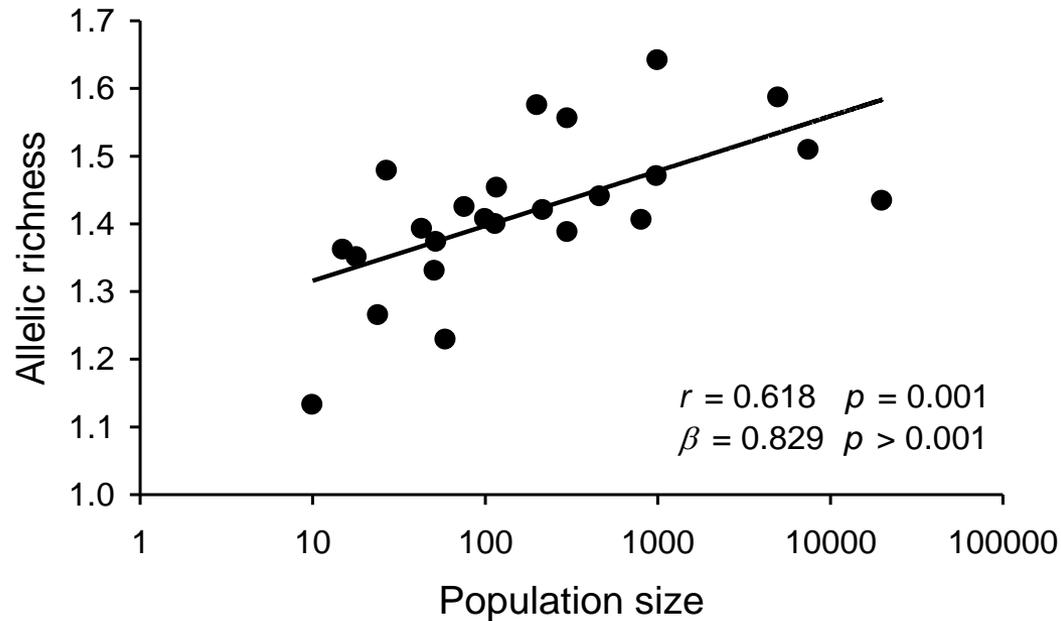
- 3-4 source populations / species



Godefroid et al. 2011. How successful are plant species reintroductions? *Biological Conservation* 144: 672-682.

3. Seed collection (2)

- min. 50 individuals / source population (in order to capture at least one copy of 95% of the alleles that occur in the target population at frequencies greater than 5%)



Van Rossum et al. 2004 *Conserv. Genetics*
Van Rossum et al. 2006 *Acta Oecol*

4. Soil sampling in target sites

Objective: to confirm that target species are absent from the soil seed bank

Methods:

- 5 soil cores in 2 plots (4m²) per site (2 depths: 0-5cm and 5-10cm)
- soils samples put in seed trays for direct germination in the greenhouse



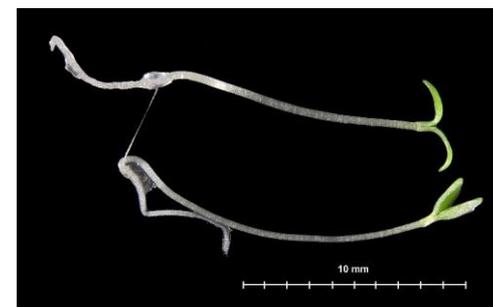
5. Plant propagation in the nursery (1)

Germination in controlled conditions (incubators with defined T° and photoperiod) on agar in Petri dishes



5. Plant propagation in the nursery (2)

Seedling transfer from Petri dish to seed trays



Dianthus deltoides



Campanula glomerata

5. Plant propagation in the nursery (3)

Repotting into larger pots (9 x 9 x 10 cm)



5. Plant propagation in the nursery (4)

Monitoring of the vegetative growth
(roset diameter or length/width of the longest leaf)

individual	repotting date	Roset diameter (cm)	
		1/09/2014	22/09/2014
1	19/08/2014	8.2	16.7
2	19/08/2014	5.3	10.8
3	19/08/2014	6.2	12.3
4	19/08/2014	5.0	10.6
5	19/08/2014	5.0	12.1
6	19/08/2014	5.8	13.1
7	19/08/2014	6.1	10.7
8	19/08/2014	6.2	12.6
9	19/08/2014	6.1	14.7
10	19/08/2014	5.8	10.6
11	19/08/2014	6.2	10.7
12	19/08/2014	4.7	11.9
13	19/08/2014	6.5	11.7
14	19/08/2014	5.2	10.1
15	19/08/2014	5.7	10.5
16	19/08/2014	6.1	11.4
17	19/08/2014	6.4	12.2
18	19/08/2014	5.5	10.4
19	19/08/2014	5.9	11.4
20	19/08/2014	5.9	11.4



5. Plant propagation in the nursery (5)

Plant hardening (acclimatation to outdoor conditions) during 2 weeks in order to prevent transplant shock



6. Transplantation into the target sites (1)

- 3-5 target populations / species
- 500 to 700 individuals / target population

The soil must be sod-cut and roots of the competing plants must be pulled. Simple deforestation is not enough (e.g. *Rubus* sp. invasion...).



Species reintroductions / reinforcements

6. Transplantation into the target sites (2)

Mapping of each individual simultaneously with planting



	1		2		3		4		5		6		7		8		9	
1	B18		V481		V487		F13		V475		B17		V476		B17		V482	
2		V488		B18		V489		B18		V483		F12		V477		V471		B18
3	B17		V470		V469		F13		V472		B18		V478		B18		V484	
4		V490		B17		V491		B18		V485		F12		V479		V473		B17
5	B17		V474		V480		F13		V492		B16		V321		B16		V486	
6		V566		B17		V578		B18		V572		F12		V571		V584		B16



		V101		F12		V101		B16		V101		B16		V101		V101		B17
B17		V101		F11		V100		B62		V101		B45		V100		V100		B17
	V100		F11		V100		B24		V100		B20		V998					
B35		V100		B46		V577		F11		V306		V997		B61				
	V100		F11		V100		B19		V304		B20		V999					
B25		V100		B25		V105		F69		V105		V524		B20				
	V101		F11		V104		B24		V100		B20		V998					
V93		B283		V94		F65		B27		V929		V805						

7. Monitoring of the transplanted species



Vegetative growth
(roset diameter)



Fruiting success
The collect of the ripe
seeds to count them and
check if empty

Flowering (number of
flower heads per stem)

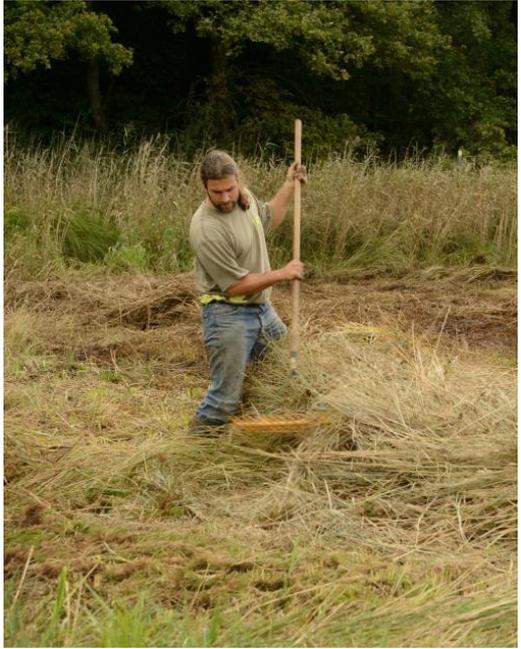


Main actions of the LIFE « Herbages »

III. Sustainable management

Agriculture: mowing or grazing





Main actions of the LIFE « Herbages »

IV. Improving connectivity

V. Monitoring the impact of restoration actions

VI. Public awareness



Thank you!



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