

Plant Translocation Practices and Outcomes: A Europe-Wide Survey and Analysis



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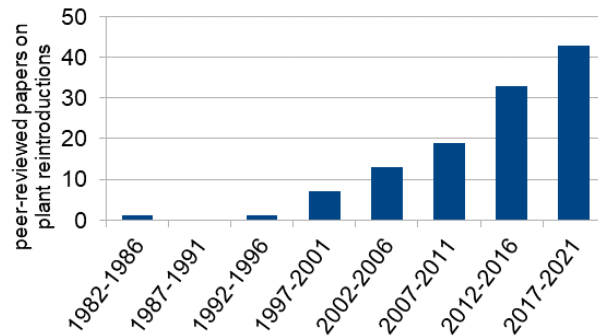
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Introduction

- Plant translocation is an increasingly used conservation technique



# translocation	# plant tax	Geographic scope	Source
249	172	Global	Godefroid et al. (2011)
949	849	Global	Godefroid & Vanderborght (2011)
304	128	Global	Dalrymple et al. (2011)
214	205	Global	Corli et al. (2023)
222	154	China	Liu et al. (2015)
1001	376	Australia	Silcock et al. (2019)
665	-	Australia	Whitehead et al. (2023)
76	50	Australia	Monks et al. (2023)
275	127	US	Bellis et al. (2023)
185	117	Italy	Abeli et al. (2021); D'Agostino et al. Unpubl.
436	193	France	Diallo et al. (2023); Julien et al. (2023)
836	572	Mediterranean	Fenu et al. (2023)

- Very few published cases
- Information very scattered and hidden in grey literature



Major obstacle to the exchange of information and experience among scientists and practitioners!

Aim

To analyze the current state of plant translocations across Europe (i.e. Objective 4 of WG2)

Methods

- Continent-wide survey (Google Forms)



Questionnaire on European Plant Translocations

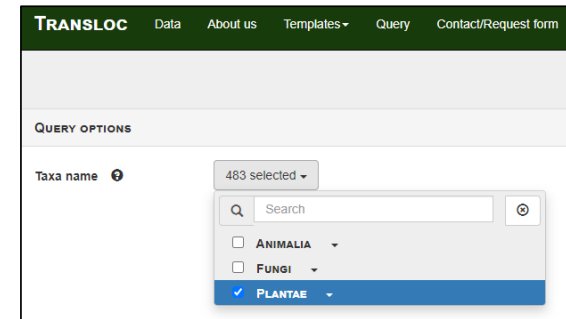


39 questions divided in 5 main categories:

- Basic biological and geographic information
- Translocation details
- Reasons which motivated the choices
- Obstacles
- Translocation results

sent by email on June 30, 2022 to 353 recipients with a letter contextualizing the process

- Scientific publications (Web of Science and Scopus databases)
- Grey literature (English, French, Dutch and Spanish)
- National/regional databases (TransLoc, Trans-Planta, IDPlanT, European Commission LIFE Public Database)



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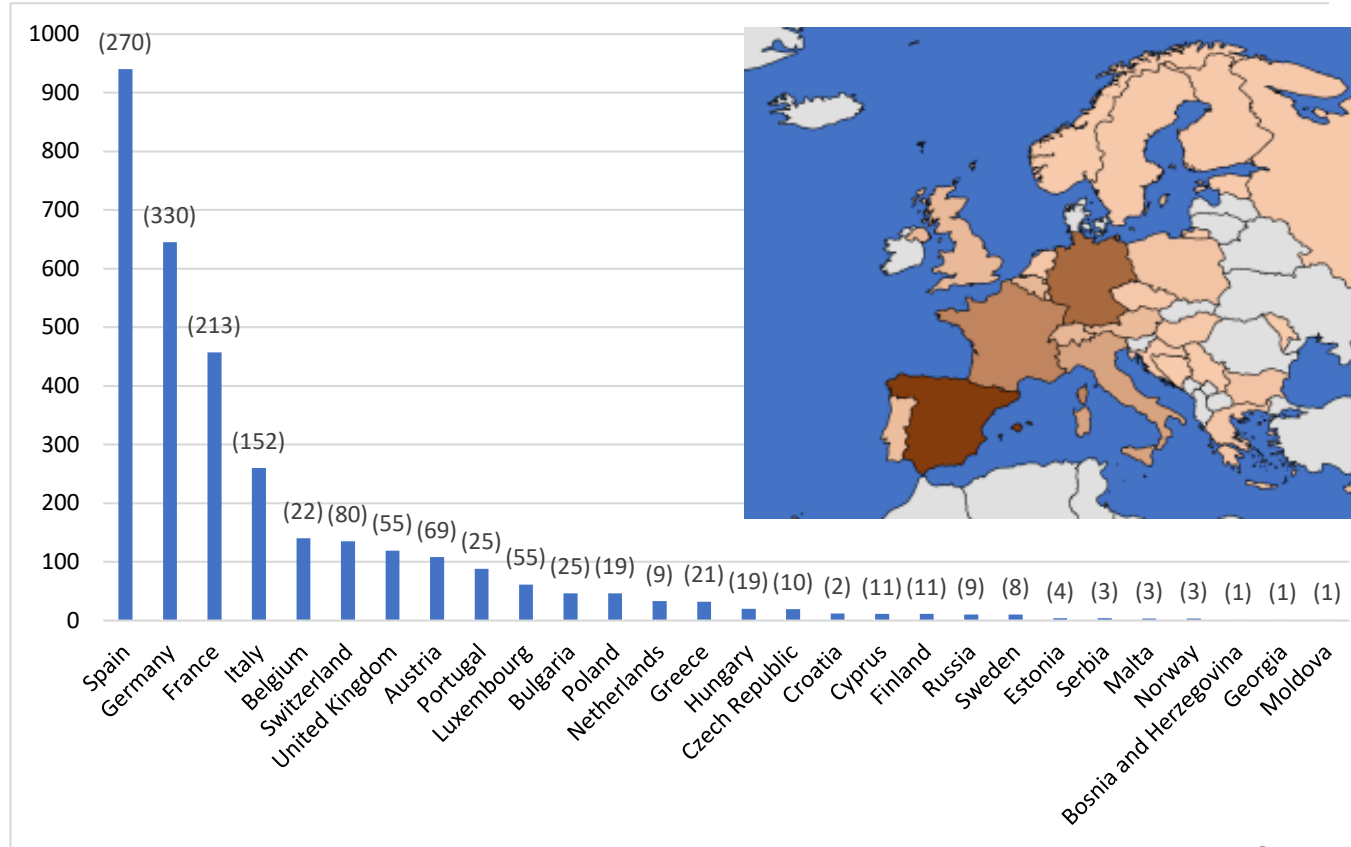
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Results

- 3218 plant translocations across the European continent
- 1184 taxa
- 28 countries



The largest dataset of its kind in the world!

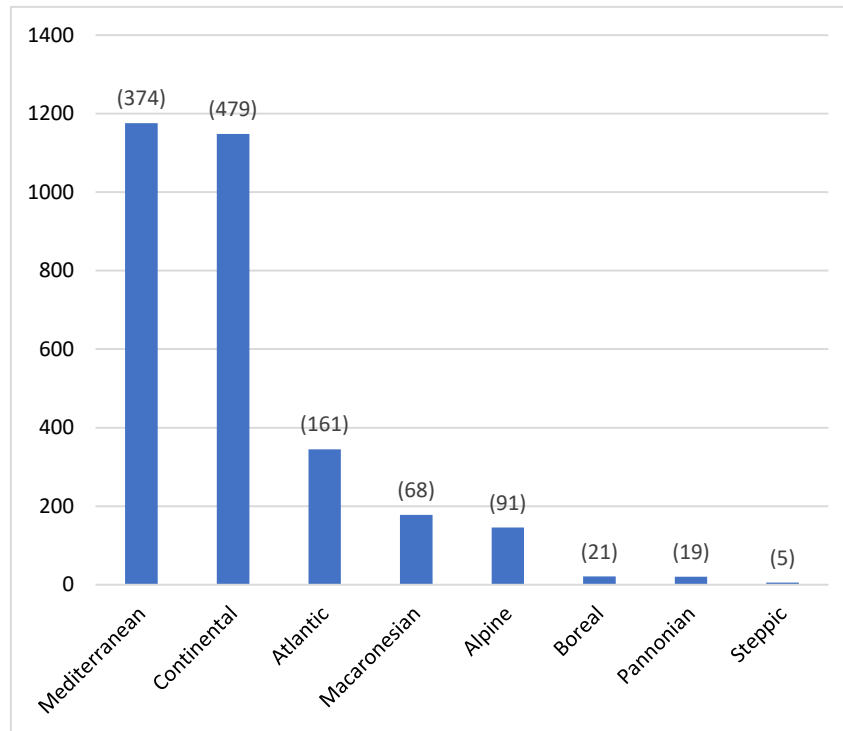


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Results

Bioregions

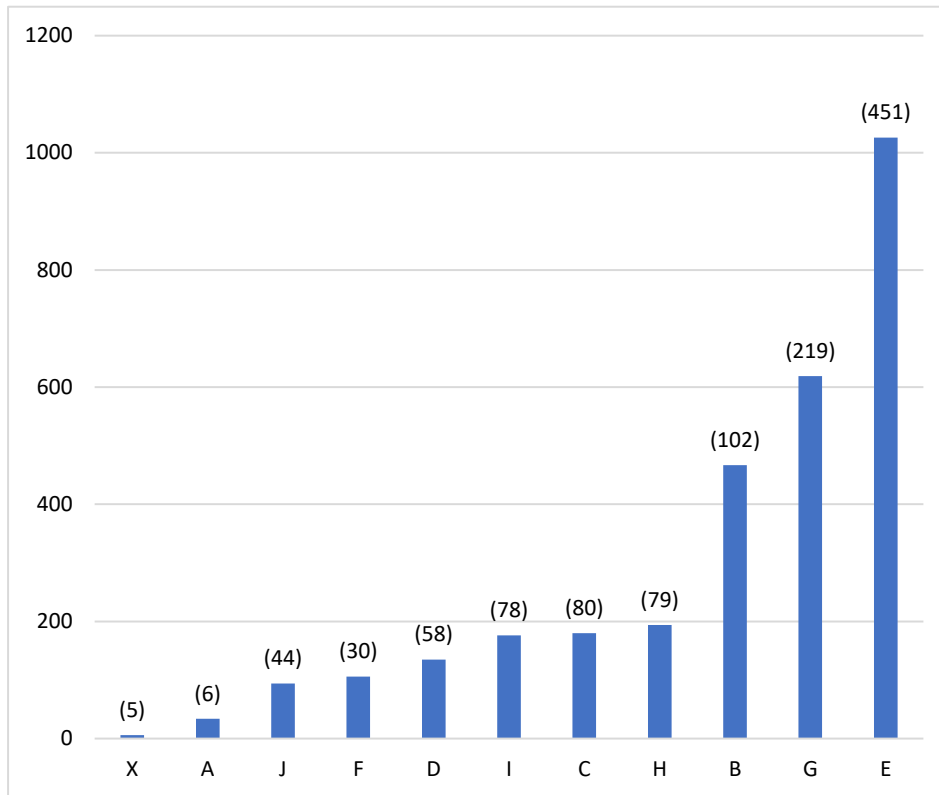


Biogeographic region	%
Mediterranean	38.7
Continental	37.8
Atlantic	11.4
Macaronesian	5.9
Alpine	4.8
Boreal	0.7
Pannonian	0.7
Steppic	0.2



Results

Habitats



Habitat types (EUNIS classification)	%
E : Grasslands and lands dominated by forbs, mosses or lichens	33.8
G : Woodland, forest and other wooded land	20.4
B : Coastal habitats	15.4
H : Inland unvegetated or sparsely vegetated habitats	6.4
C : Inland surface waters	5.9
I : Regularly or recently cultivated agricultural, horticultural and domestic habitats	5.8
D : Mires, bogs and fens	4.4
F : Heathland, scrub and tundra	3.5
J : Constructed, industrial and other artificial habitats	3.1
A : Marine habitats	1.1
X : Habitat complexes	0.2

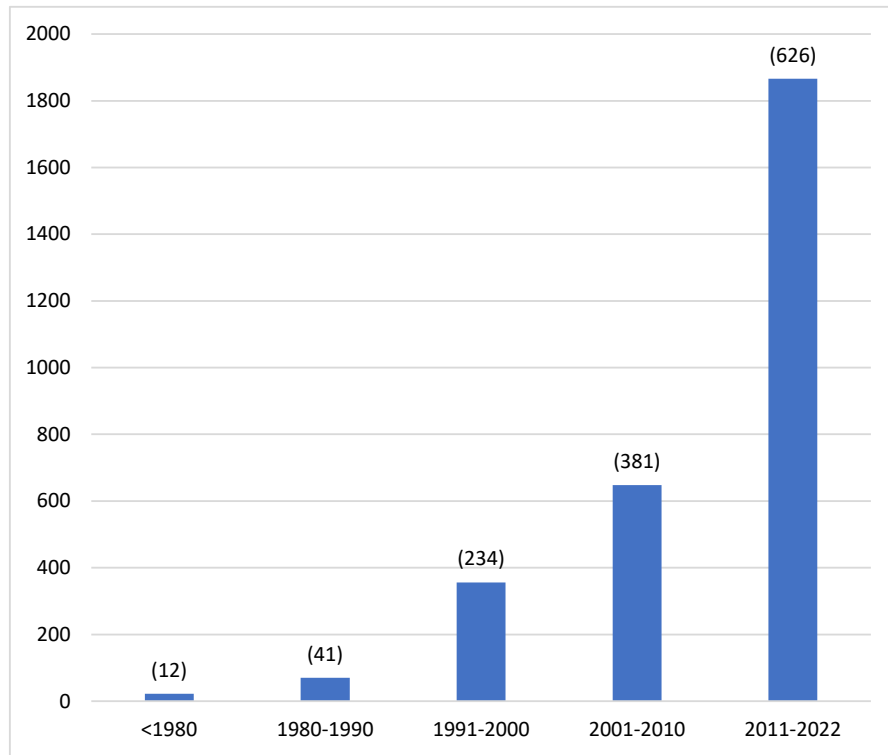


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Results

Start date



Years	%
<1980	0.7
1980-1990	2.4
1991-2000	12.0
2001-2010	21.9
2011-2022	63.0



Oldest cases:

<i>Aldrovanda vesiculosa</i>	1908
<i>Pinus heldreichii subsp. leucodermis</i>	1958
<i>Ranunculus weyleri</i>	1958
<i>Lysimachia minoricensis</i>	1959
<i>Calla palustris</i>	1965
<i>Cochlearia polonica</i>	1967

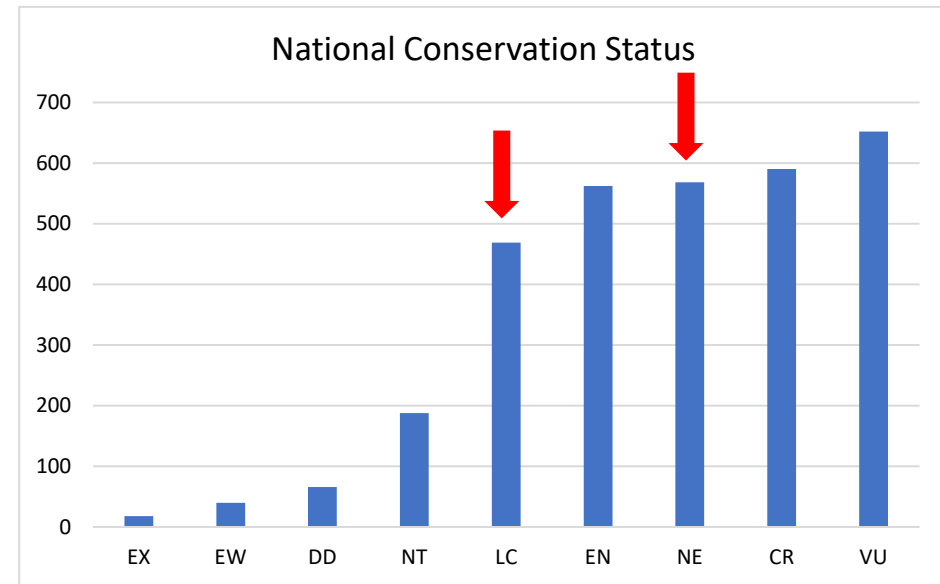
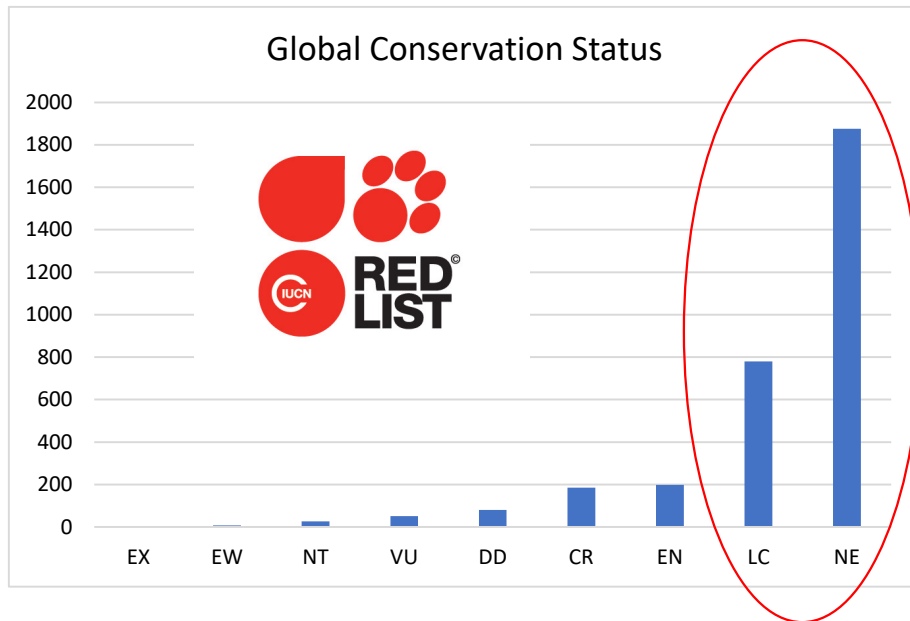


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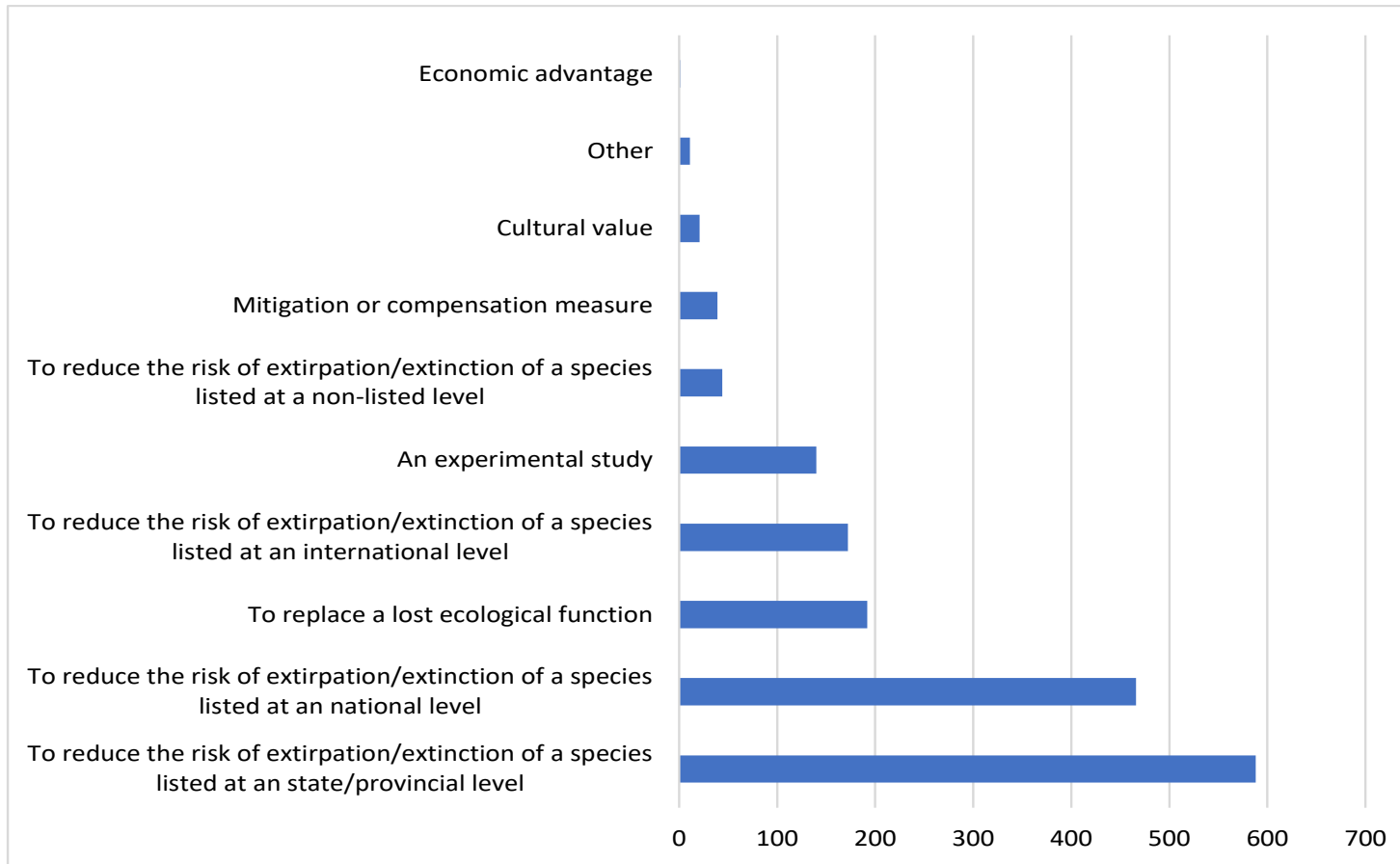
Results

Conservation status



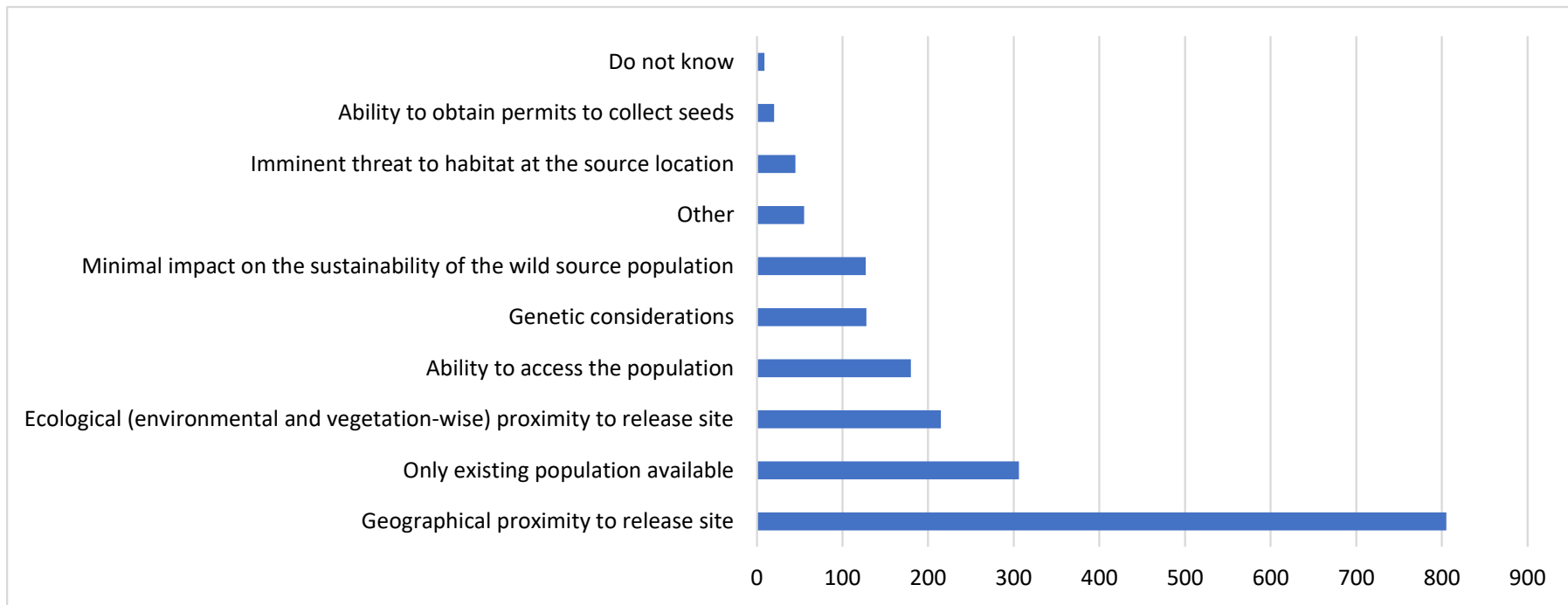
Results

Reasons to justify the use of translocation as a conservation measure



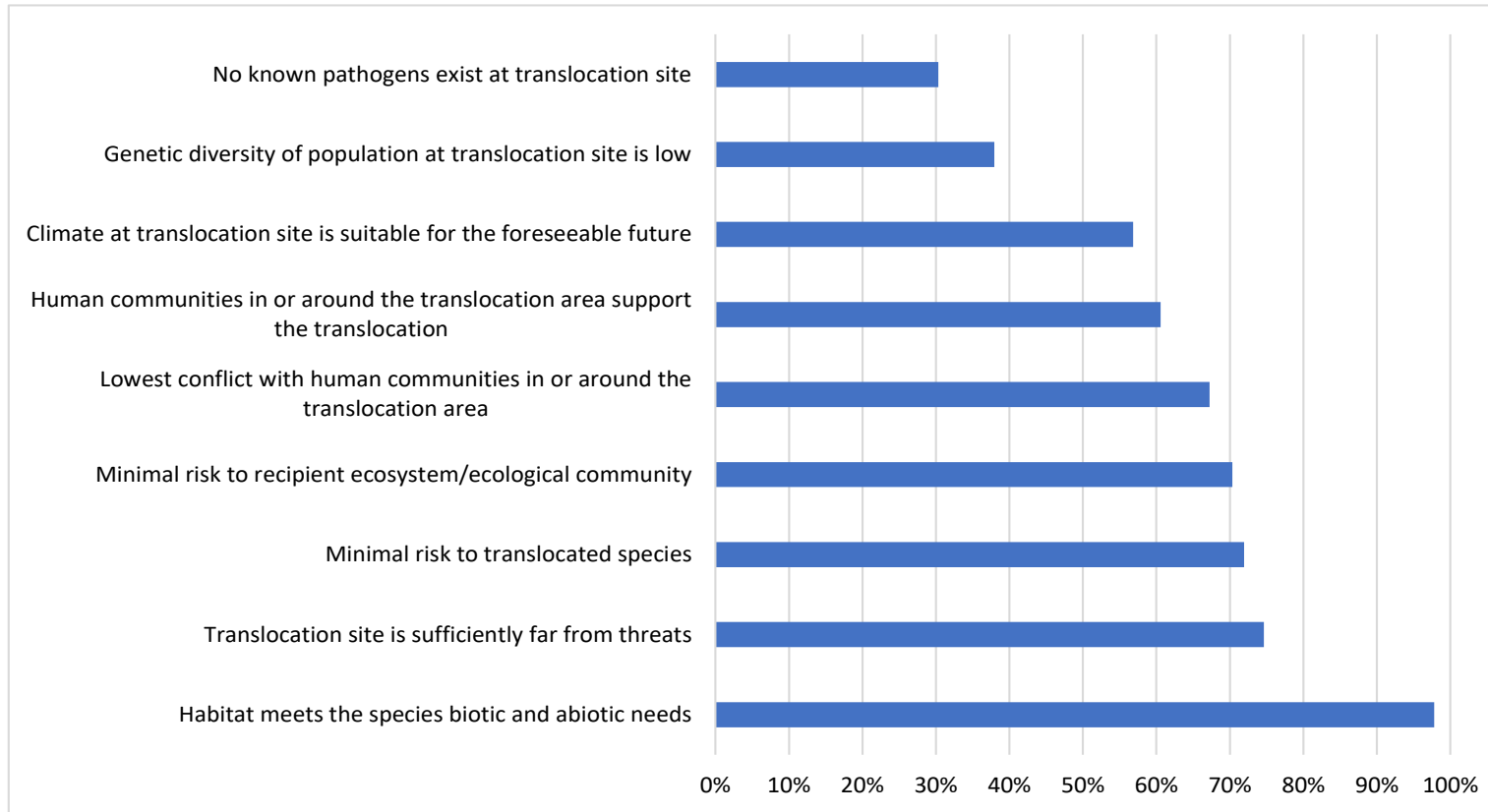
Results

Reasons for selecting source populations



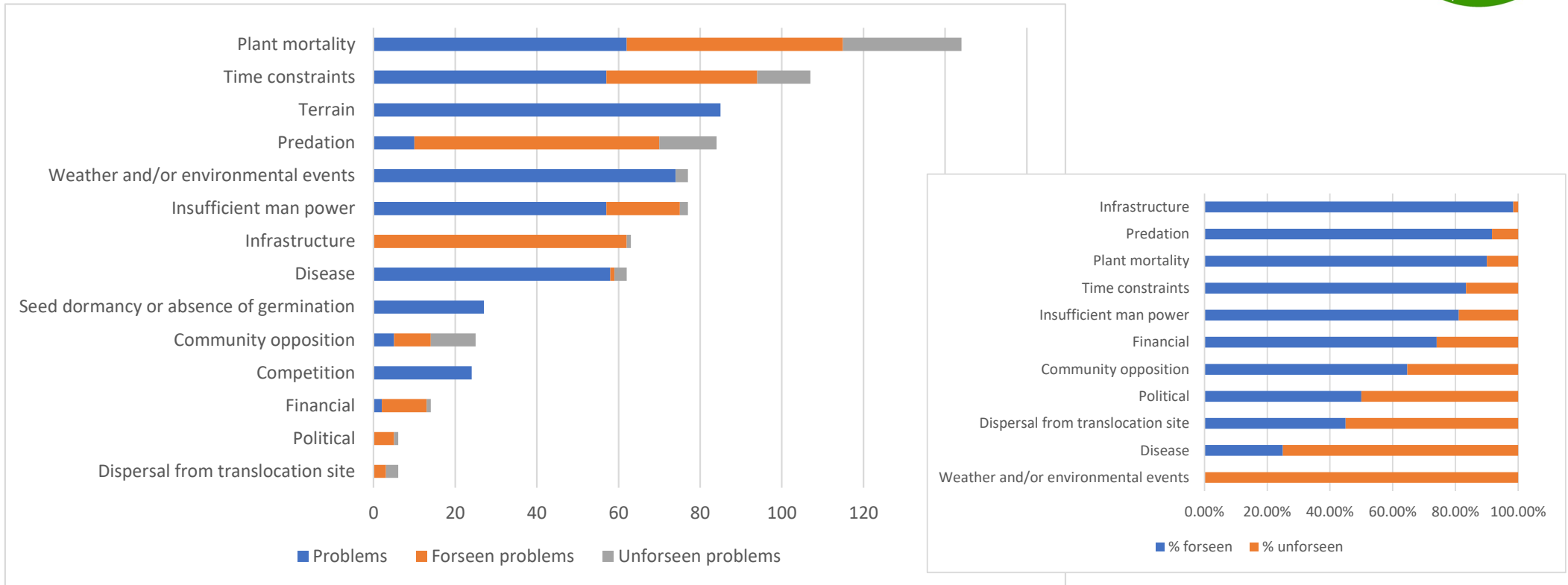
Results

Factors affecting the decision as to where to translocate a species



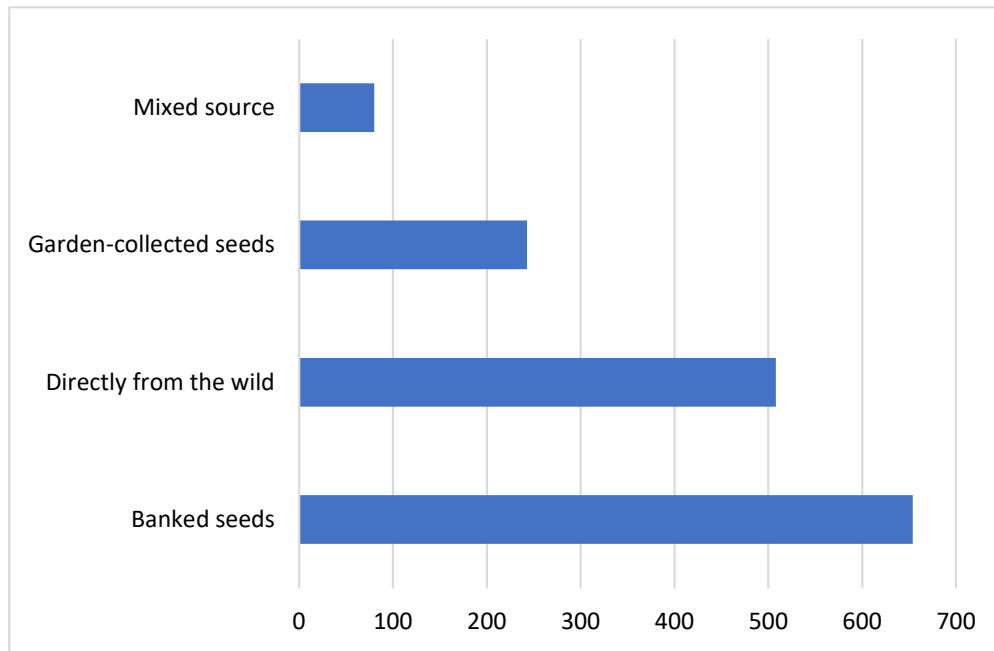
Results

Obstacles



Results

Seed sources



Biological Conservation 281 (2023) 109991

Contents lists available at ScienceDirect

Biological Conservation

journal homepage: www.elsevier.com/locate/biocon

Perspective

Using stored seeds for plant translocation: The seed bank perspective

F.J. White^{a,*}, A. Ensslin^b, S. Godefroid^c, A. Faruk^d, T. Abeli^e, G. Rossi^a, A. Mondoni^{a,f}

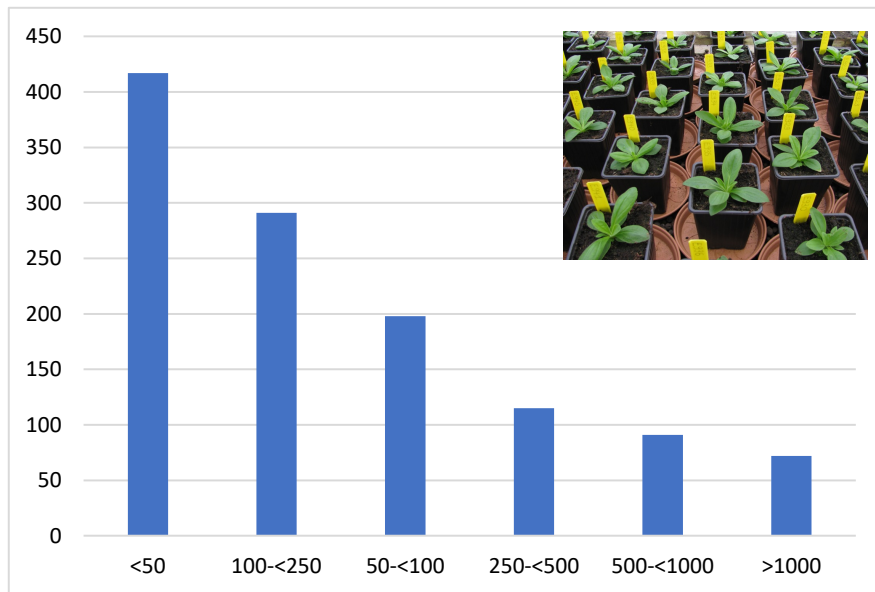
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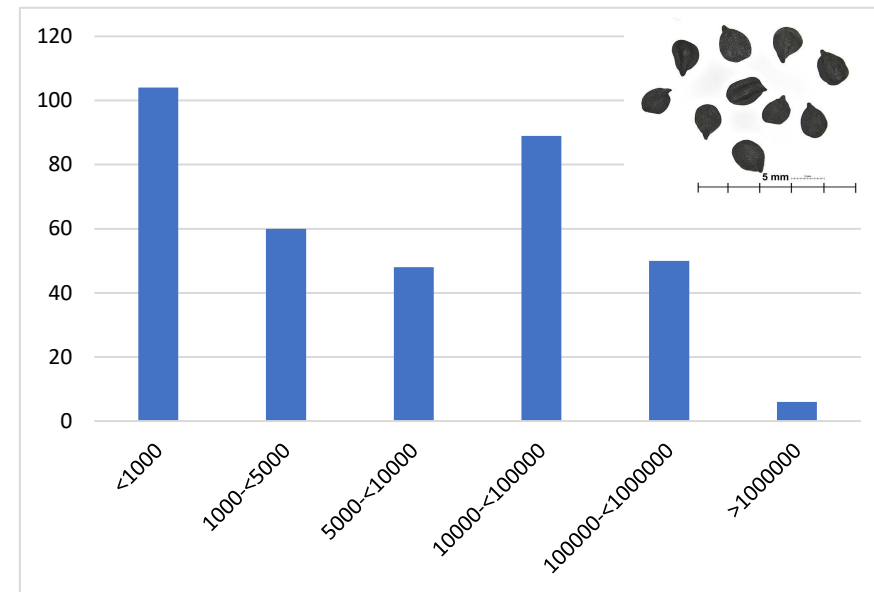
Check for updates

Results

Quantity of material used



Plug plants

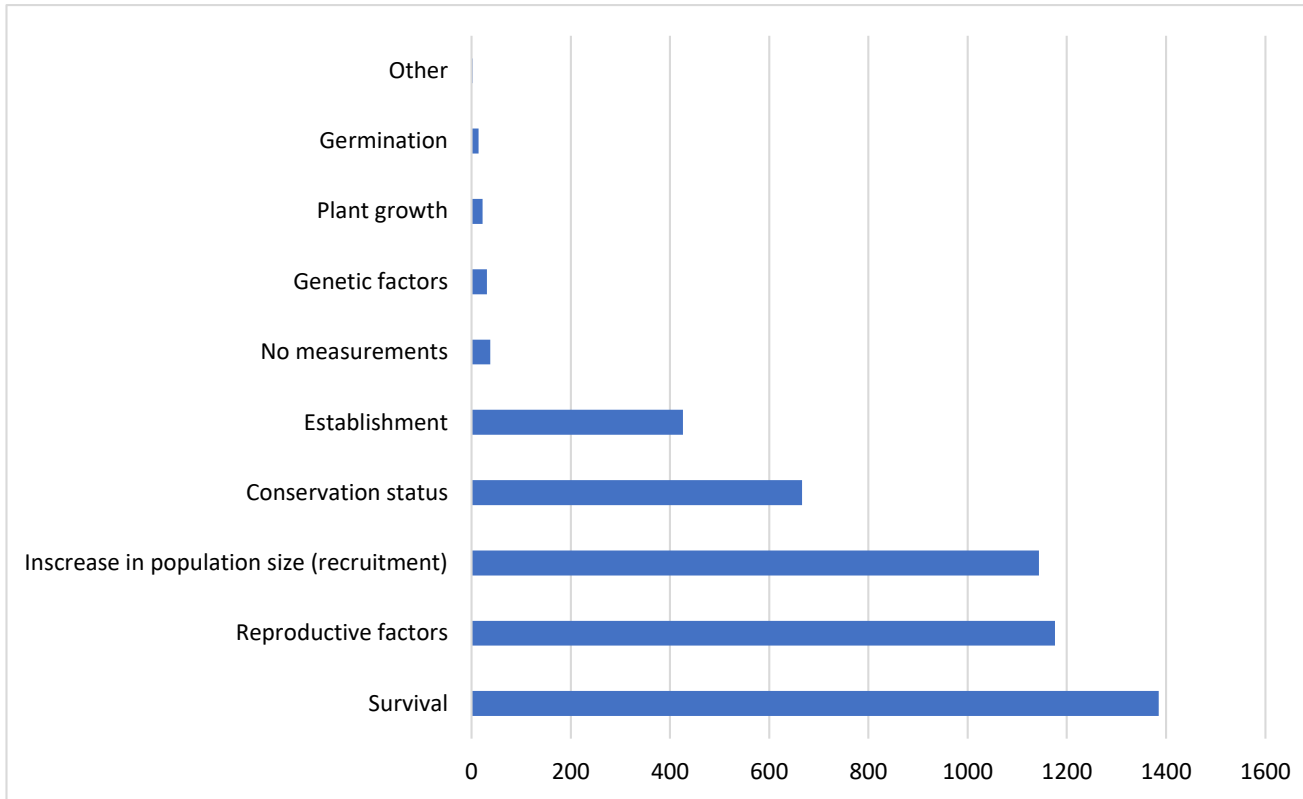


Seeds



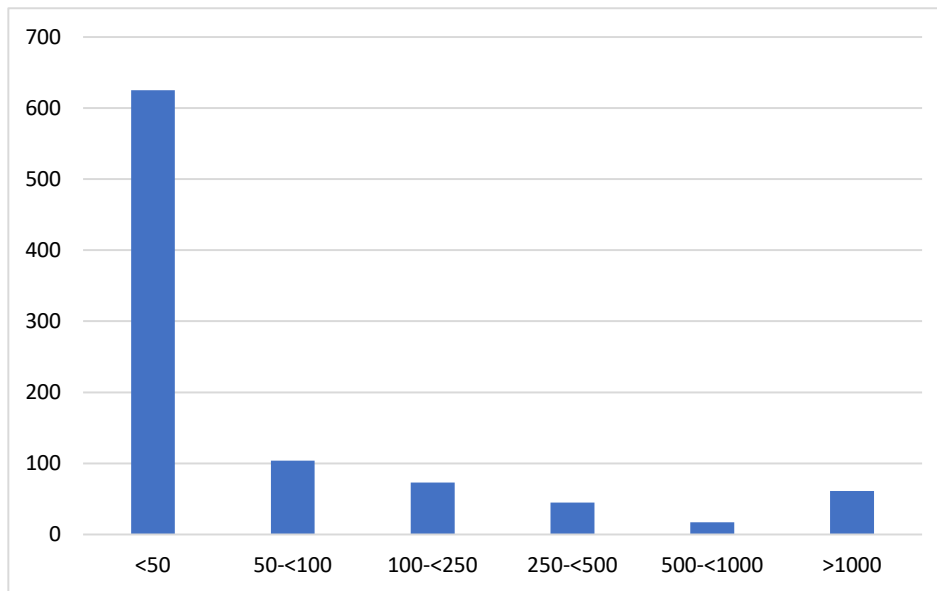
Results

Variables used to assess translocation success among monitored projects

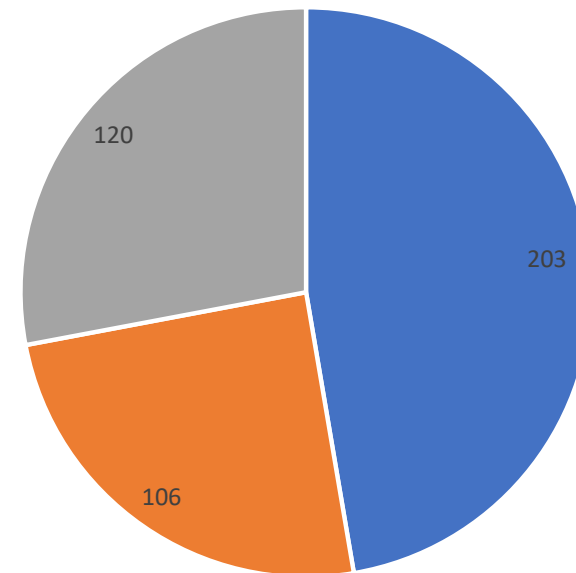


Results

Number of survivors recorded during the last monitoring



Medium-term success (5 years) and estimation of the self-sustainability of a restored population



- Not persisting after 5 years
- Persisting, but not self-sustaining
- Self-sustaining population

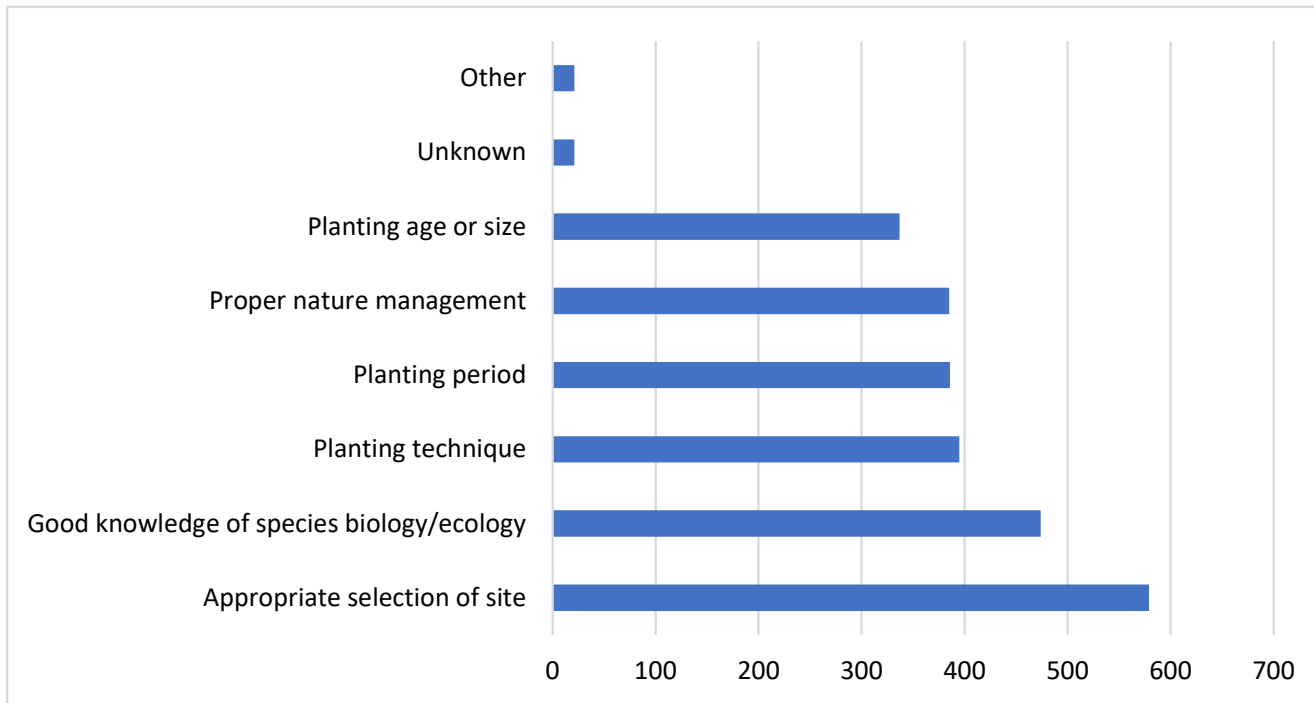


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Results

Reasons for success*

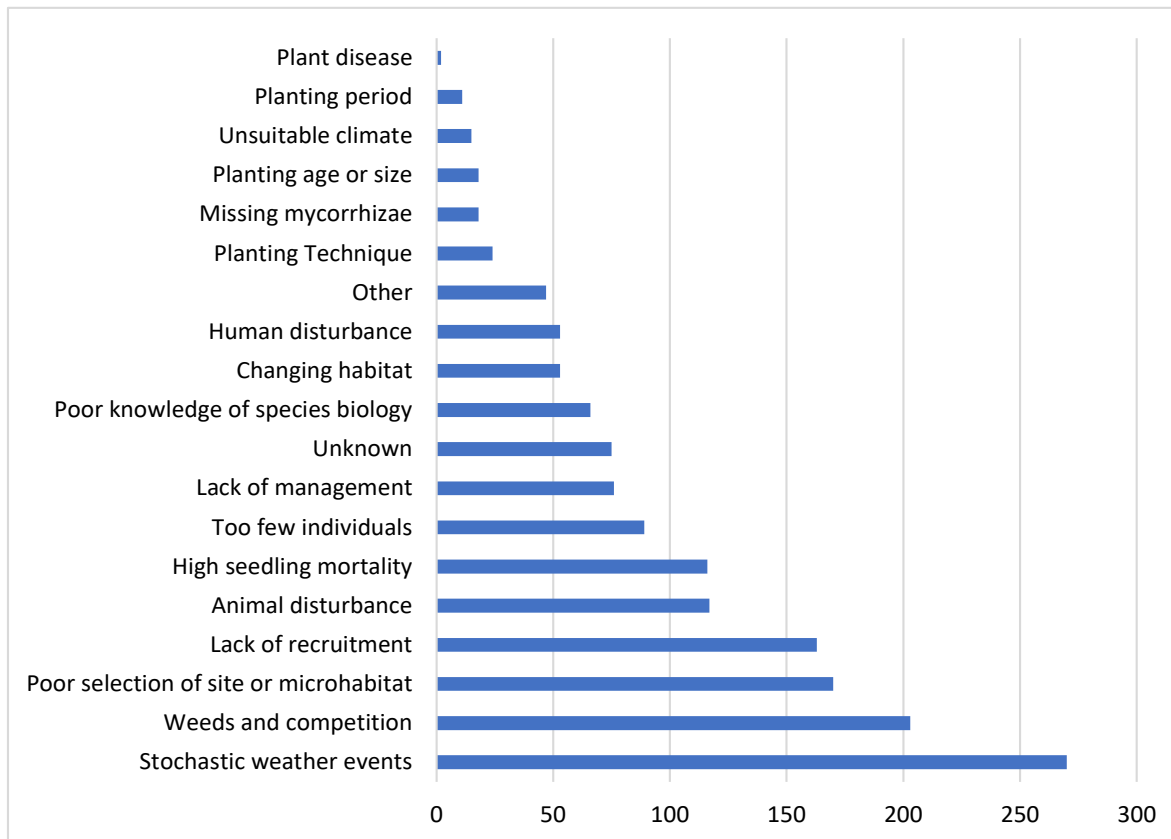


*based on the respondents' impressions or on data collected by them



Results

Reasons for failure*



*based on the respondents' impressions or on data collected by them



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Conclusions

- Using the extensive network of the COST ConservePlants Action allowed us to gather detailed data on 3218 plant translocations (1184 taxa) in 28 European countries
- Success rate for plant translocations remains however low
- We strongly advocate a better distribution of experiences and validated protocols so that the quality of translocations increases in future
- The database generated by this work is intended to serve this aim, i.e. to be an information tool for practitioners involved in this kind of conservation measure
- This will facilitate exchanges between stakeholders and contribute to improving the science and practice of plant translocations in Europe and beyond



Acknowledgements



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Questions ?



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