



Seed sources in forest and landscape restoration – Results from a global survey

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Genetic diversity is the foundation for:

Survival of trees on the restoration site

- Origin of seed must match (current and future) site conditions to ensure adaptedness

Good growth, reproduction and resilience over tree generations

- Seed source forests must be large and genetically diverse enough to avoid inbreeding and to contain genetic material for natural selection
- Good seed collection practices must be observed to capture the genetic diversity of the seed sources



Photo: Lee Soong Leong

Global survey on seed sources in forest and landscape restoration

- Conducted by APFORGEN, LAFORGEN, SAFORGEN and Bioversity International in Oct 2015
- Globally: 157 responses from 50+ countries
- Asia-Pacific: 56 responses from 18 countries
- Responses based on the respondent's most recent project

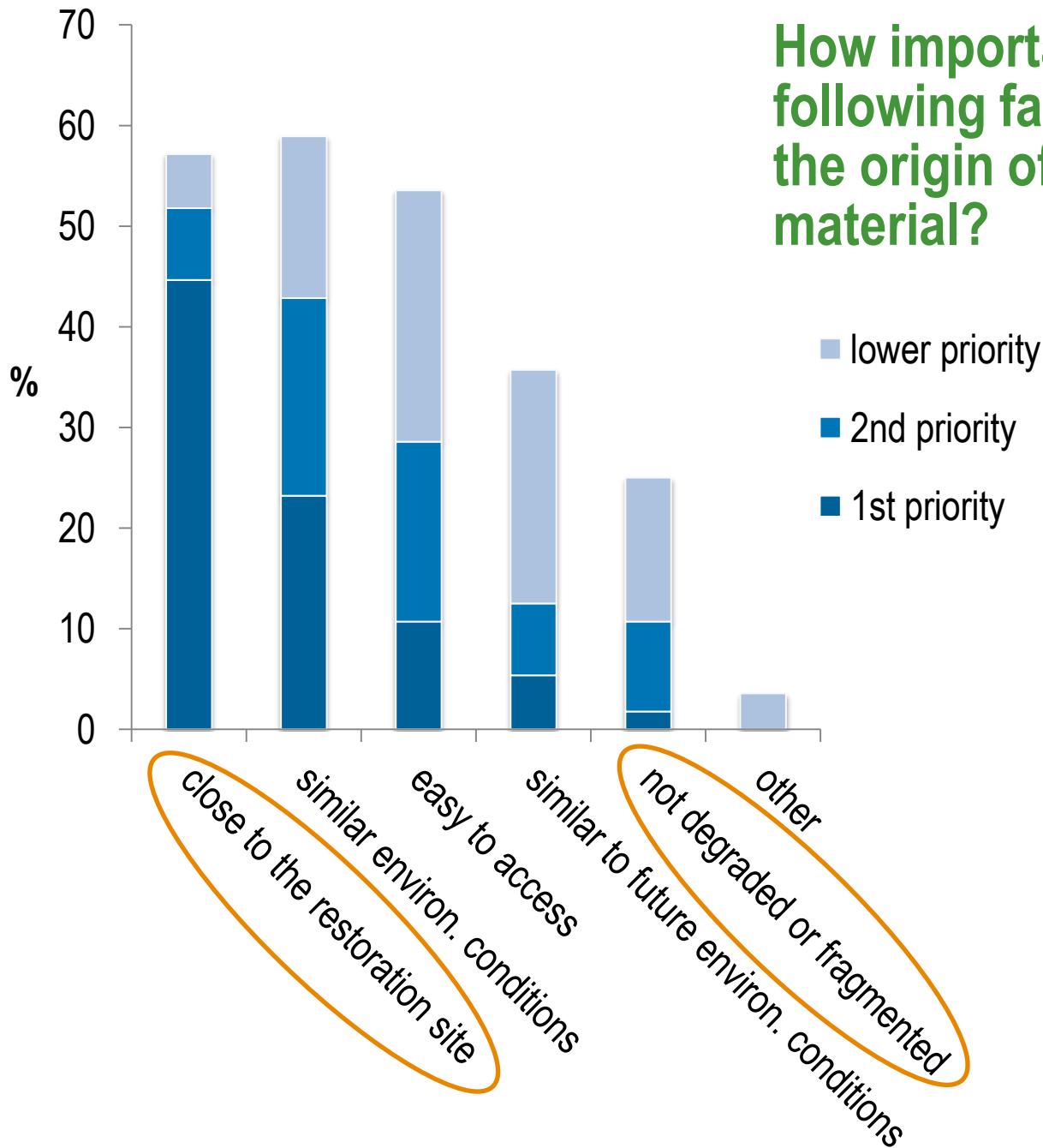


	Median	Range
Start date	2011	1980-2015
Project area	101-500 ha	<2 ha to >10,000 ha
Respondents' experience in FLR	5-10 years	<1 yr to > 20 yrs

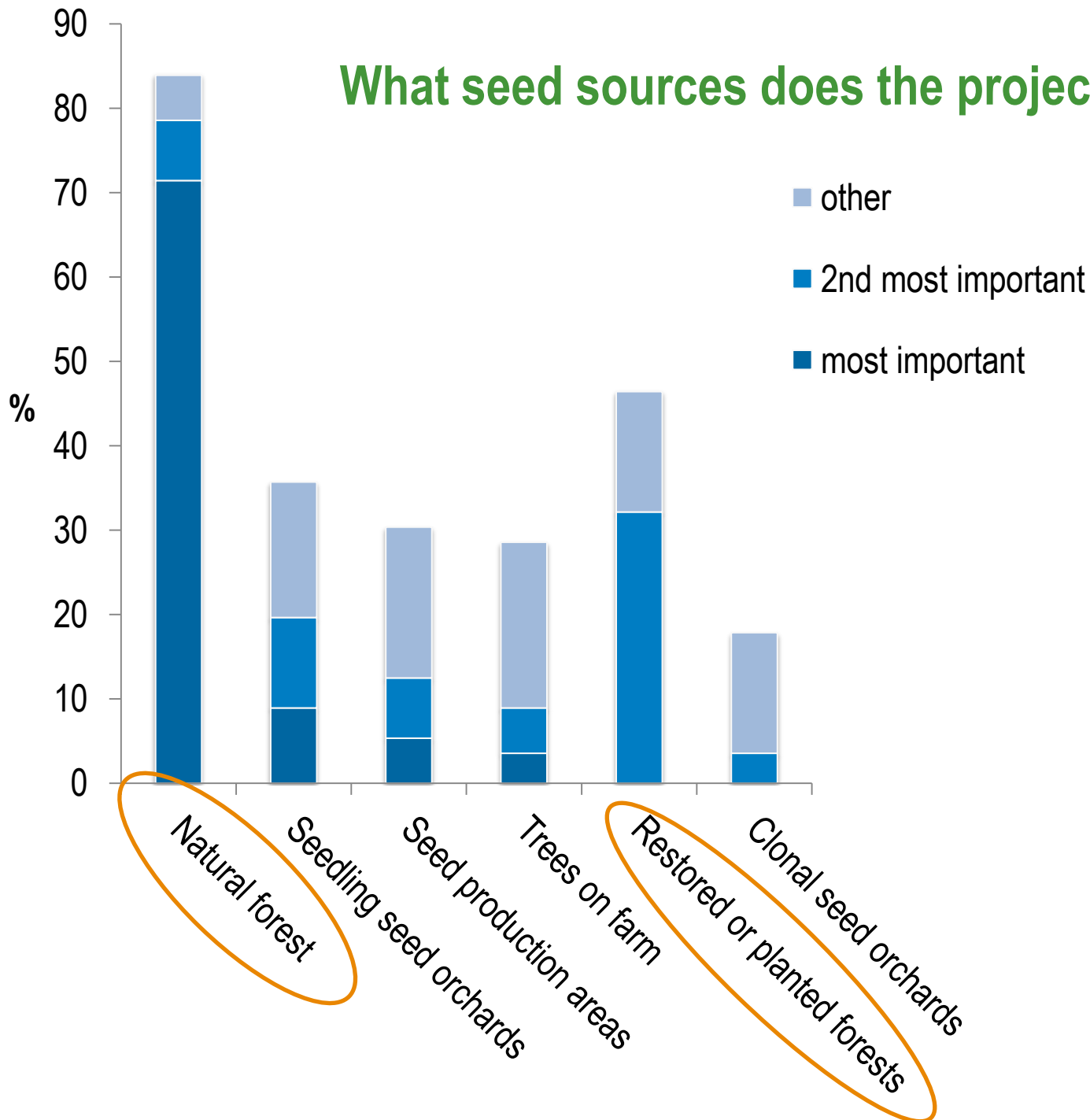


Results: Seed sources

How important are the following factors in choosing the origin of the propagation material?



What seed sources does the project use?



Is climate change considered when planning where or how to get propagation material for the project? If yes, please explain how.

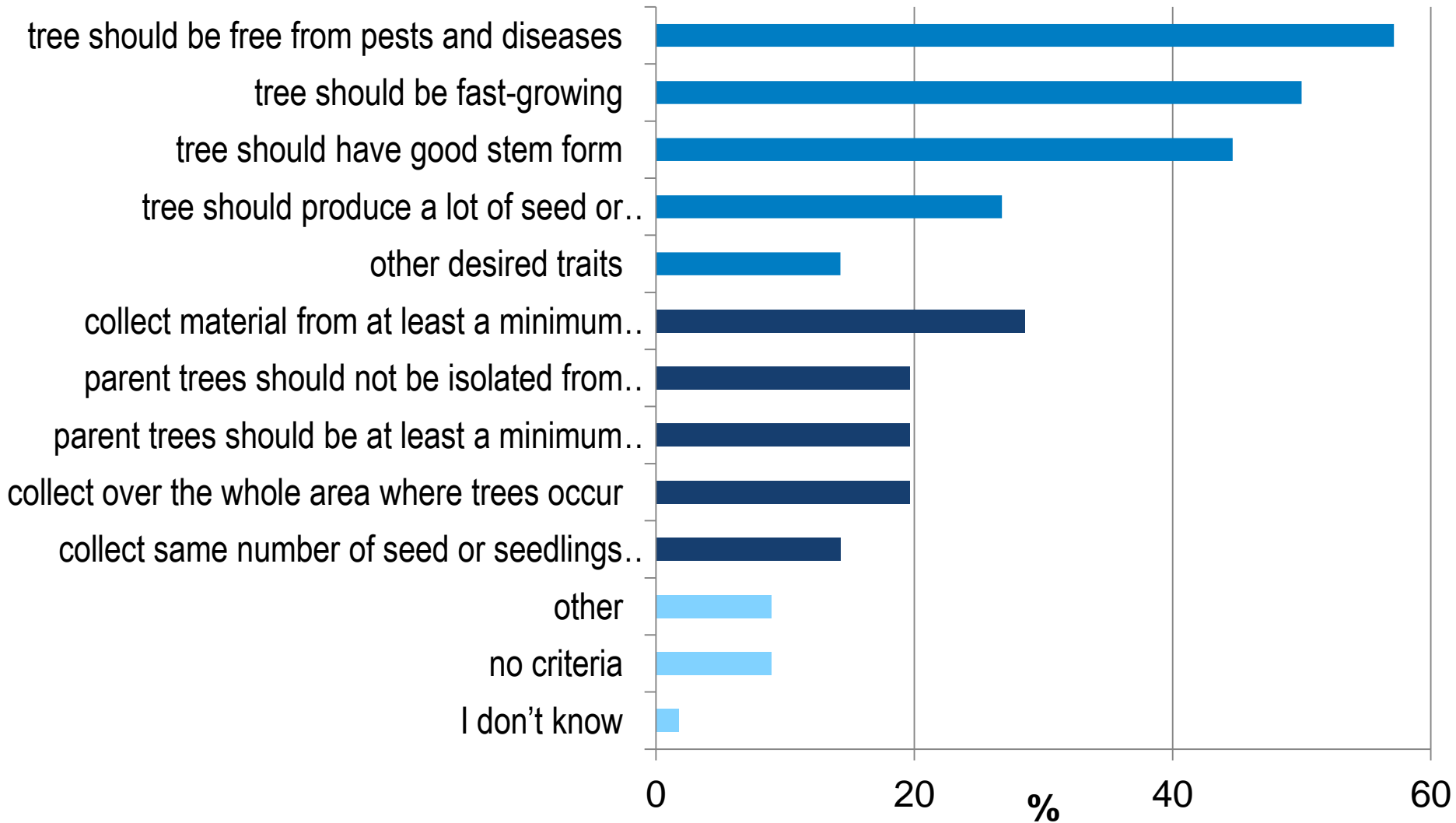
“no”	73%
“yes”	27%
“yes”, with relevant seed sourcing strategies explained	14%





Results: Seed trees

What criteria does the project have for selecting the parent trees for target species?



From how many trees per species is the propagation material usually from, if known?

unknown	45%
<i>Among those who knew:</i>	
Up to 5 trees	35%
More than 15 trees*	52%
More than 30 trees	35%
More than 50 trees	29%

*Minimum recommended

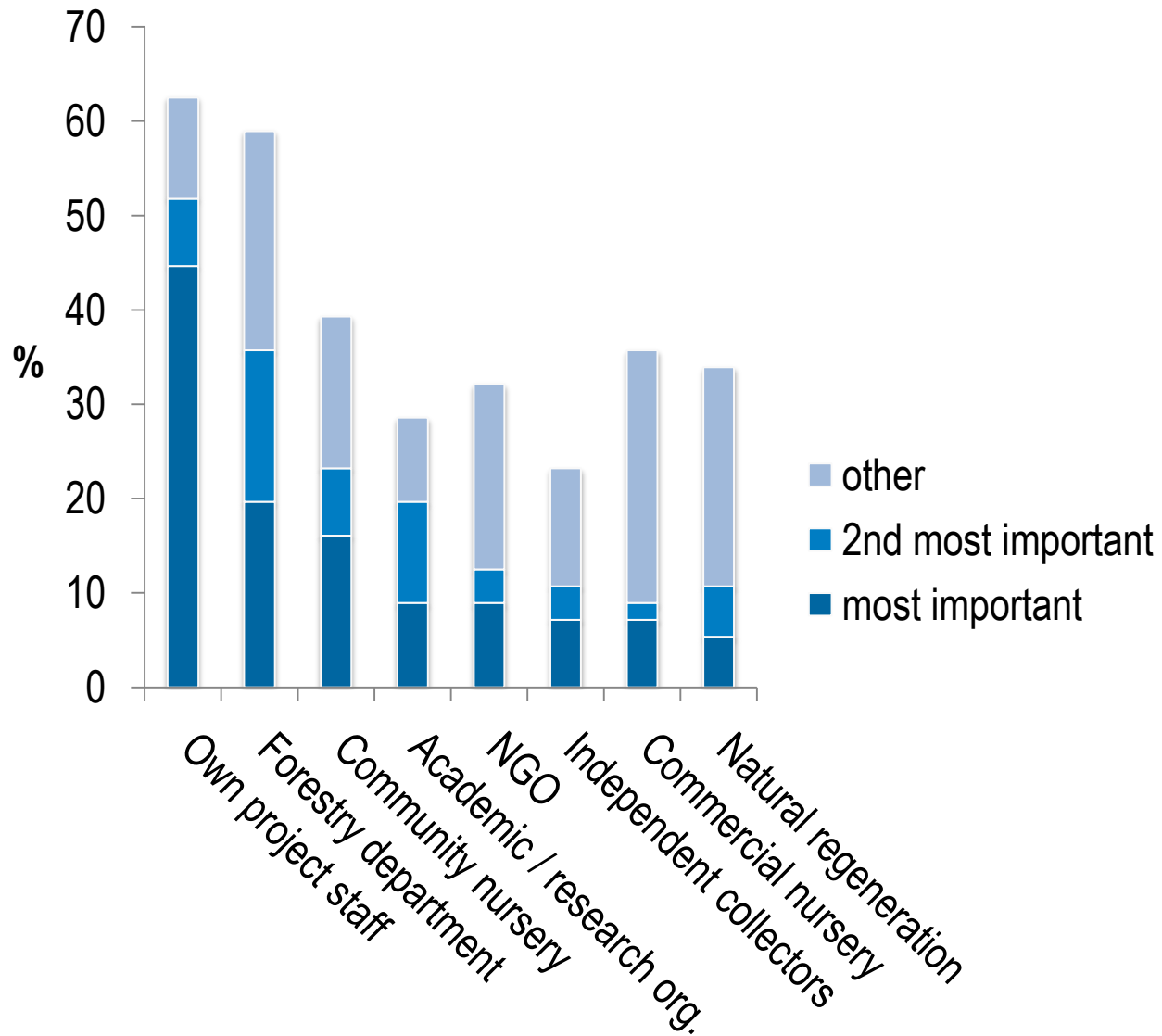


Myristica malabarica (wild nutmeg) seed tree in Karnataka, India. Photo: Life Trust



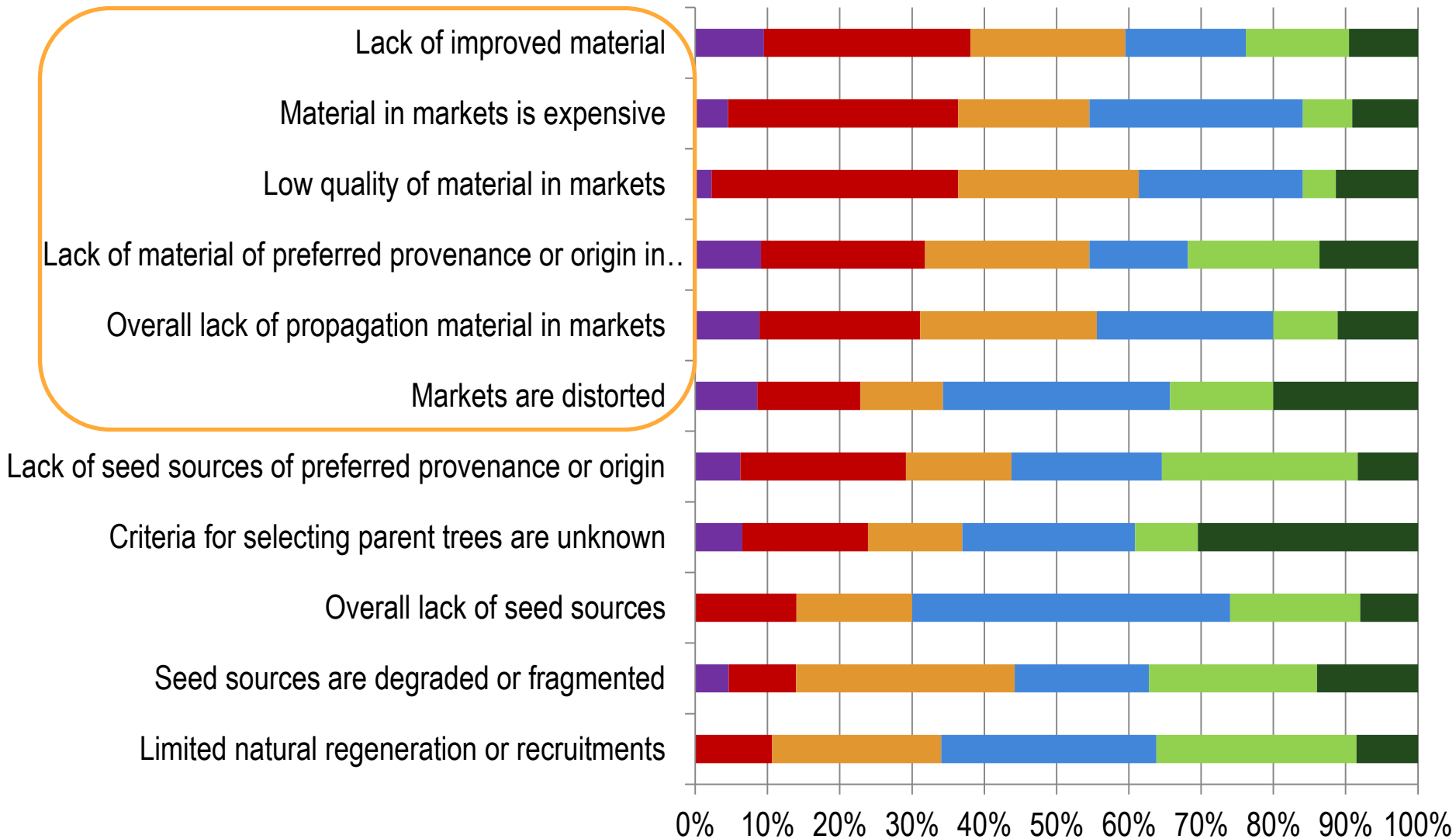
Results: Seed suppliers

Who supplies propagation material for the project?



Does the project have some of the following problems in getting propagation material for target species?

■ consistently
 ■ very often
 ■ fairly often
 ■ sometimes
 ■ very rarely
 ■ never





Conclusions

Conclusions

Seed sources

- Current strategies unlikely to help create climate-resilient forests
- Overemphasis on using “local” seed sources
- Impacts of degradation on the quality of seed sources consistently overlooked
- “Seed collection chains” may worsen bottlenecks

Seed trees

- Few projects have criteria that help collect genetically diverse seed
- Number of seed trees clearly insufficient in most projects

Broadhurst et al. 2006, Broadhurst 2011; Vranckx et al. 2012; Lengkeek et al. 2004; Kindt et al. 2006; Rogers & Montalvo 2004; Thomas et al. 2015

Conclusions

Seed suppliers

- Most projects collected propagation material on their own
- Most common problems with seed supply were all related to markets
- Few projects relied on natural regeneration and dispersal as primary or even secondary seed supply mechanisms

To scale out restoration, need to:

- strengthen seed supply systems for quality seed
- assist natural dispersal and regeneration where feasible, as cost-effective restoration method





Thank you

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www.apfor-gen.org

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