Mine land rehabilitation: Modern ecological approaches for more sustainable mining

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Mine land rehabilitation

Challenges:
- Species selection
- Biological invasions
- Monitoring
Functional ecology studies attributes that influence the fitness of a species as well as its interactions with other parts of the ecosystem.

Evolutionary ecology correlates the evolutionary histories of species and the interactions between them.
Community structure

Phylogenetic distance

Niche differences

Phylogenetic distance
Community structure

- Niche differences
- Phylogenetic distance

- Overdispersed communities
- Clustered communities
Community structure

Niche differences

Phylogenetic distance

Environmental filtering

Overdispersed communities

Clustered communities
Community structure

Phylogenetic distance

Niche differences

Environmental filtering

Overdispersed communities

Clustered communities

Interspecific interactions

Species selection
Species selection

Unpublished data.
Biological invasions


Monitoring
Conclusions

• Phylogenetic methods are able to optimize mine land rehabilitation:
  • The selection of promising species for mine land rehabilitation may be guided by phylogenetic community structure
  • Lessons from community assembly may identify native species able to control invasive species
  • Functional and phylogenetic methods are promising indicators for the success of mine land rehabilitation
Thank you!

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