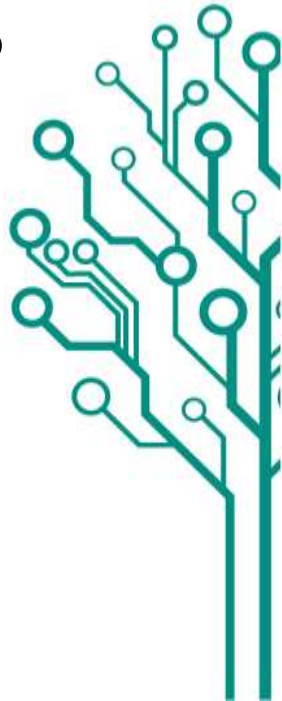

Mine land rehabilitation: Modern ecological approaches for more sustainable mining

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Instituto Tecnológico Vale

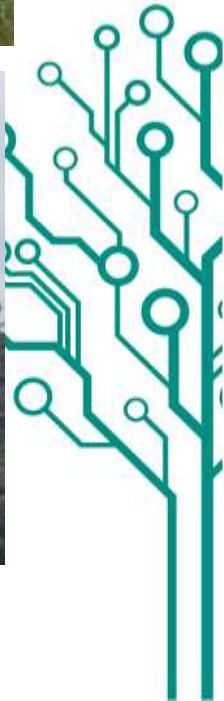


Mine land rehabilitation




Challenges:

- Species selection
- Biological invasions
- Monitoring

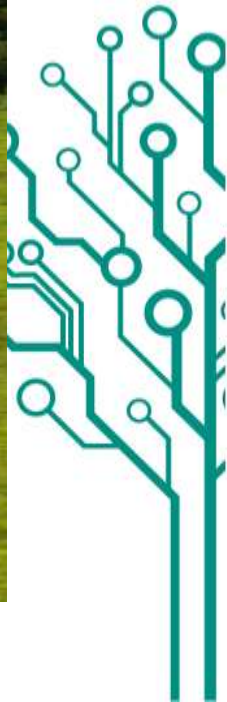


Functional and evolutionary ecology

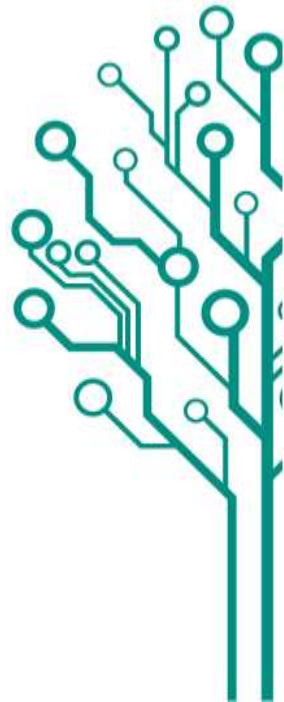
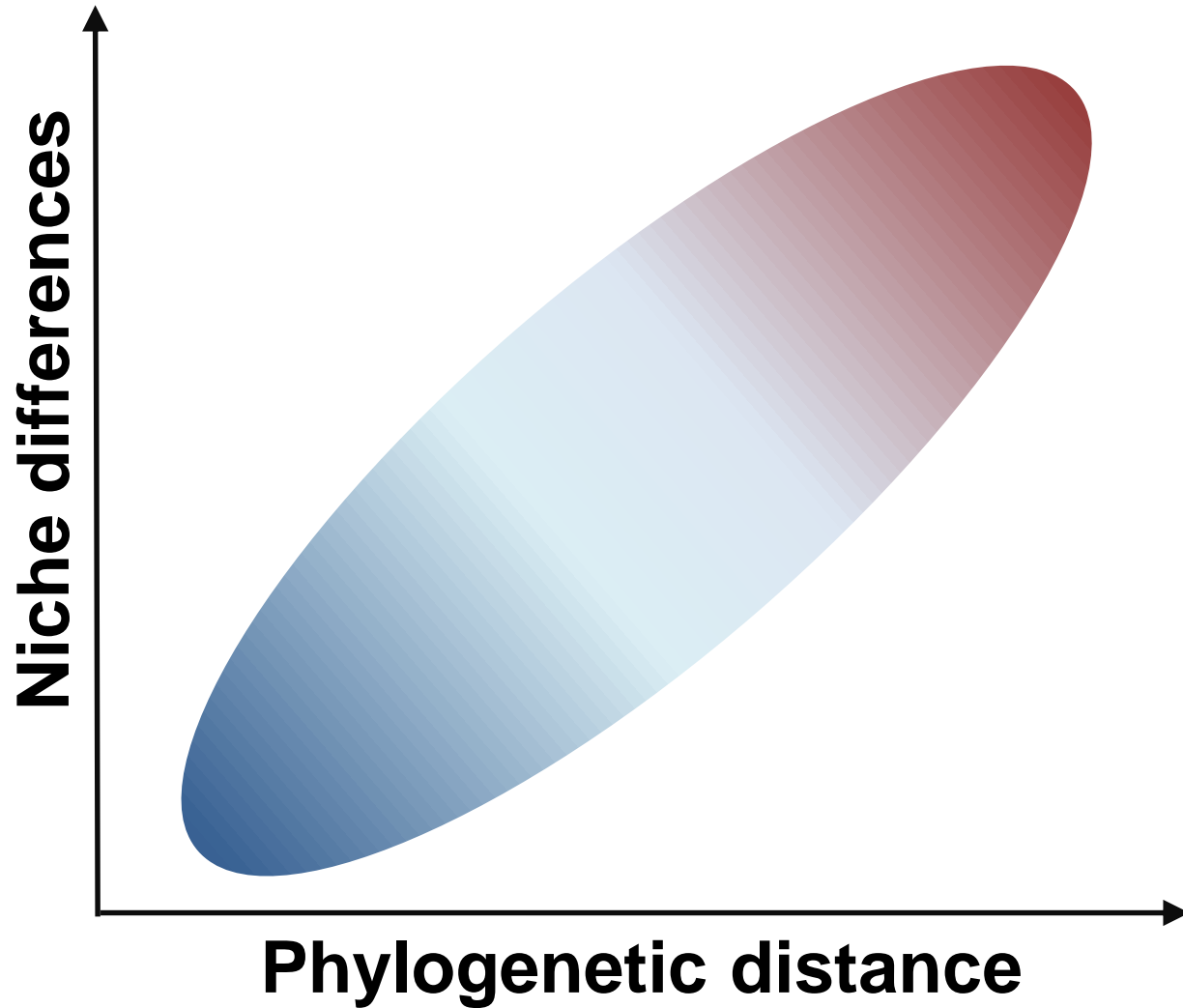


Functional ecology studies attributes that influence the fitness of a species as well as its interactions with other parts of the ecosystem

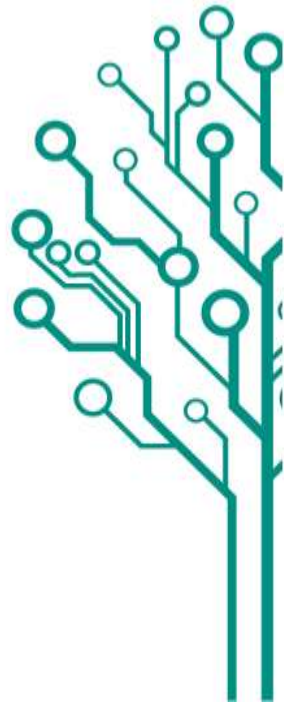
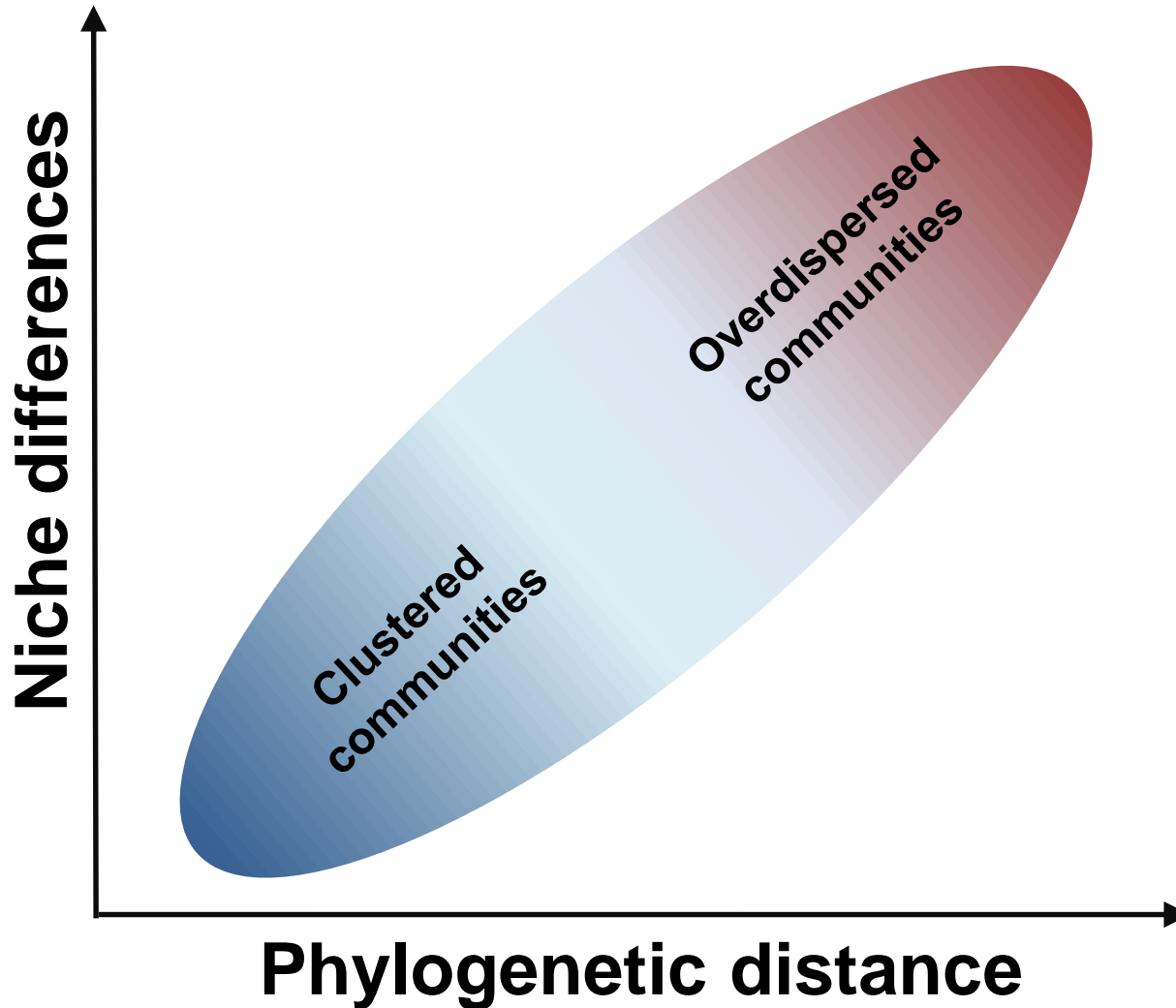
Evolutionary ecology correlates the evolutionary histories of species and the interactions between them



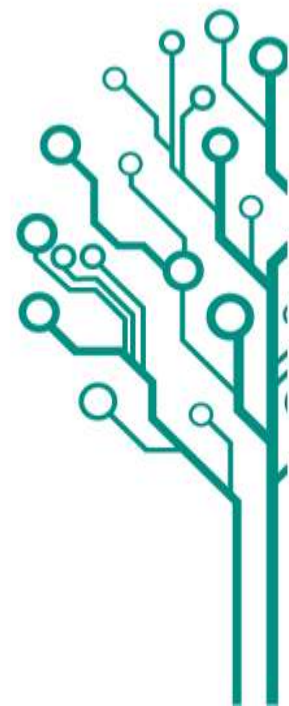
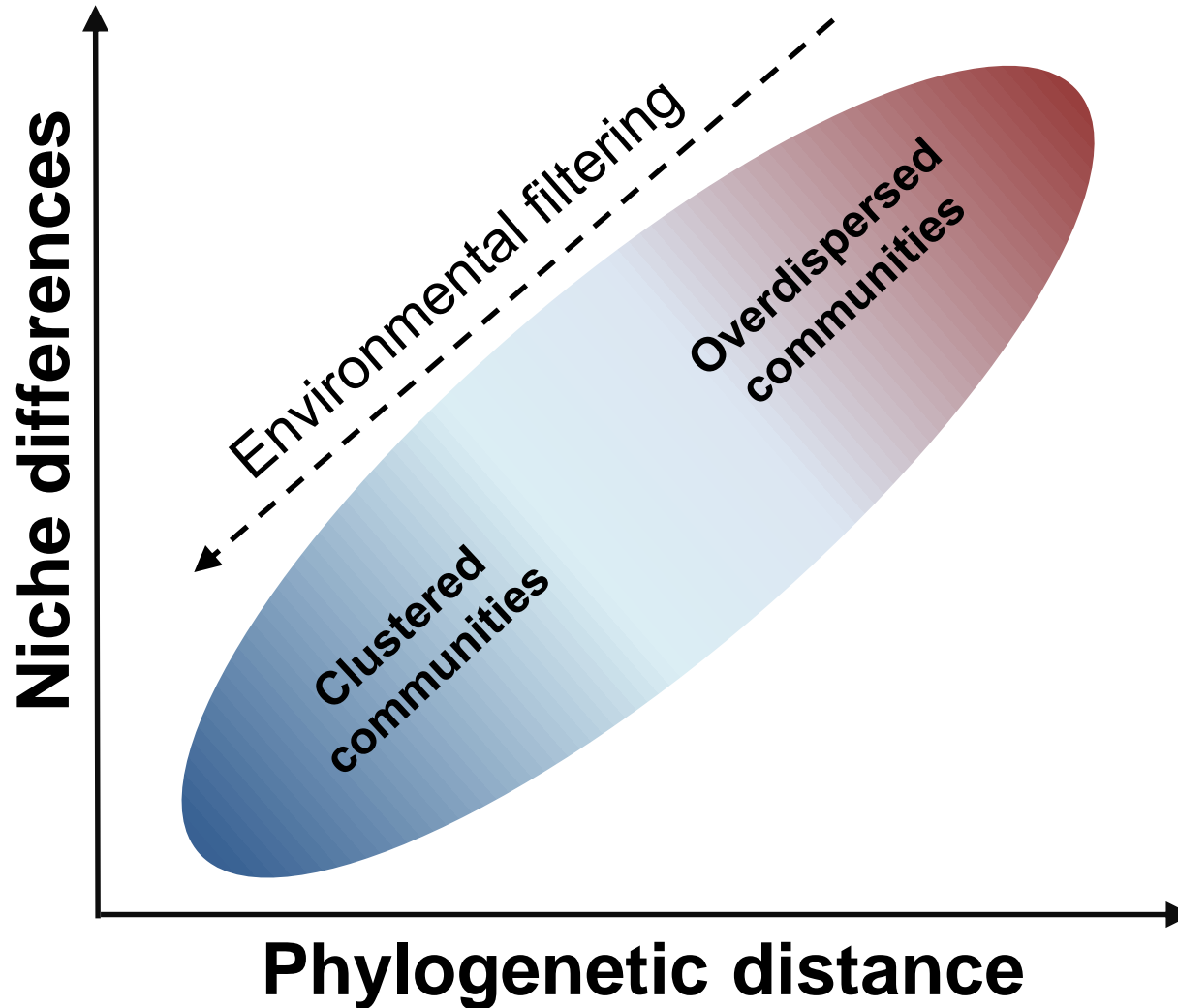
Community structure



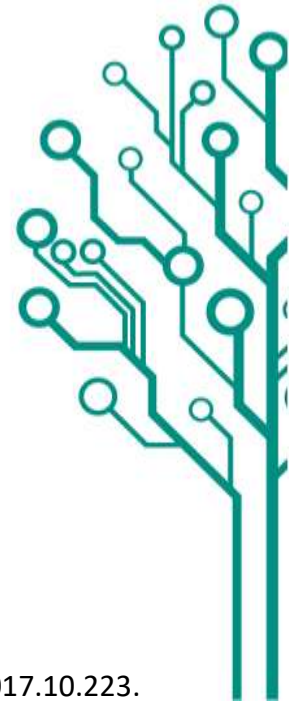
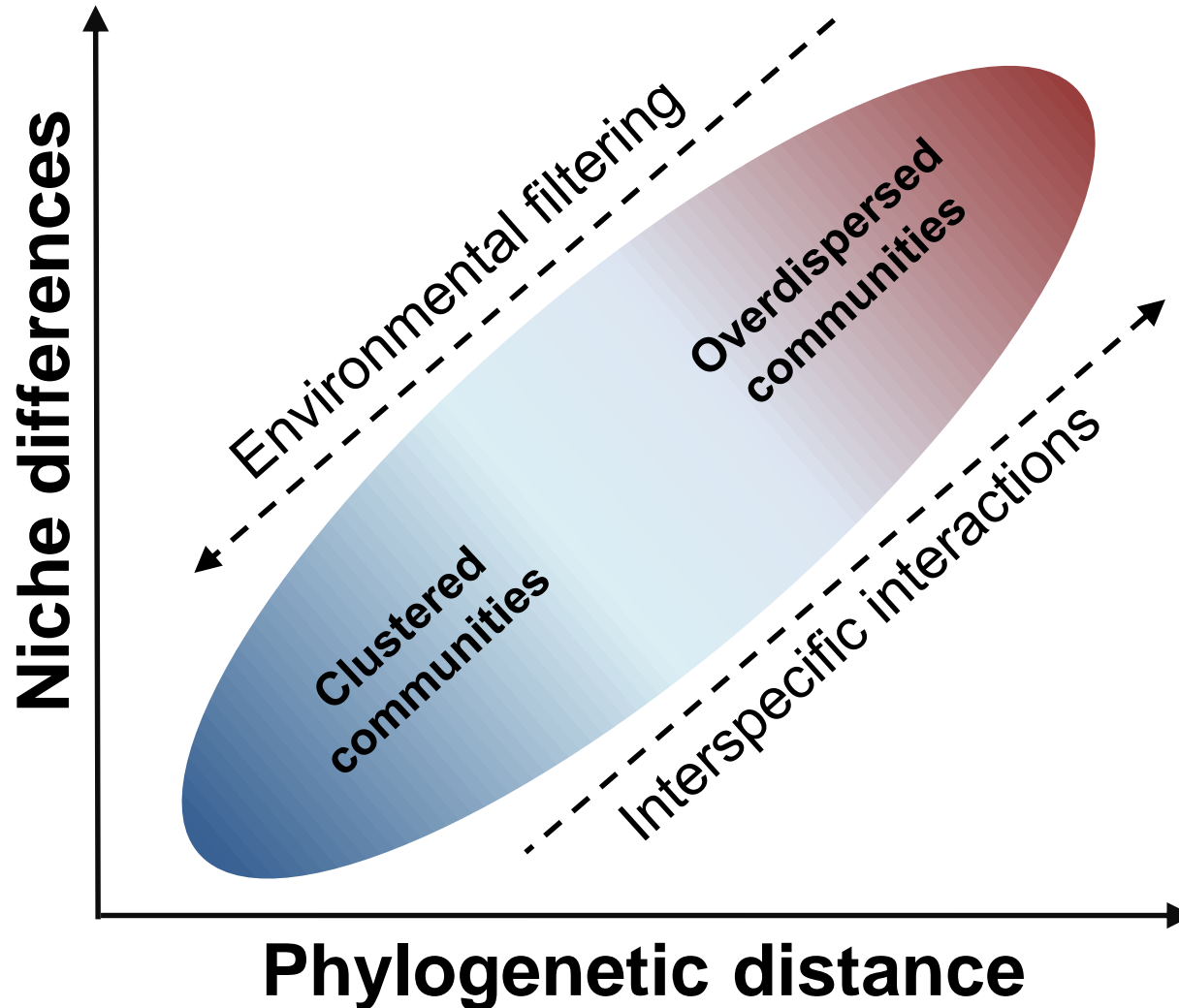
Community structure



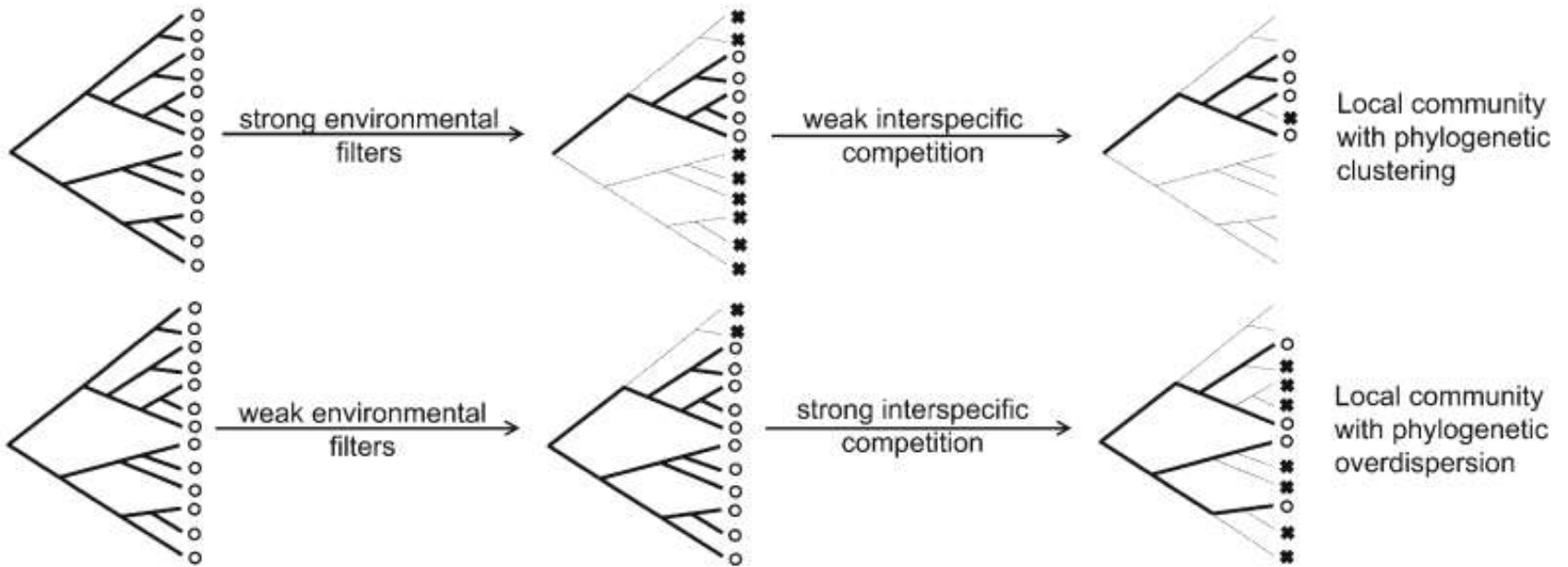
Community structure



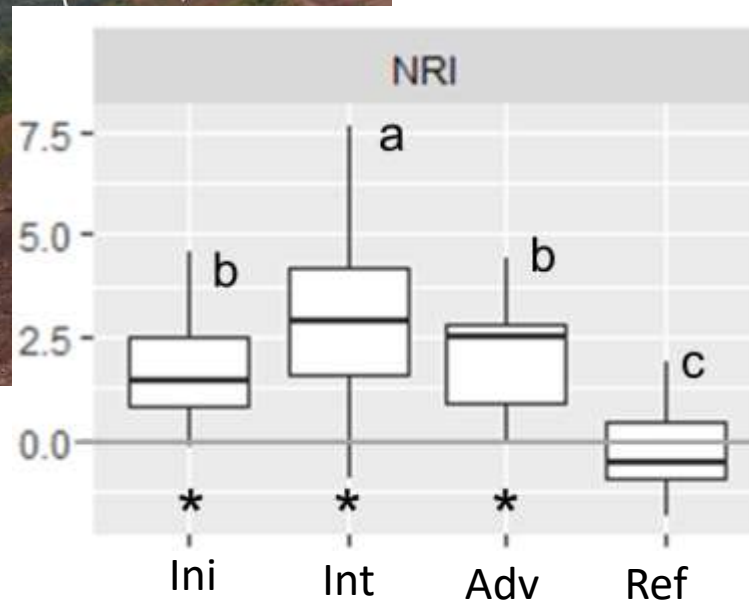
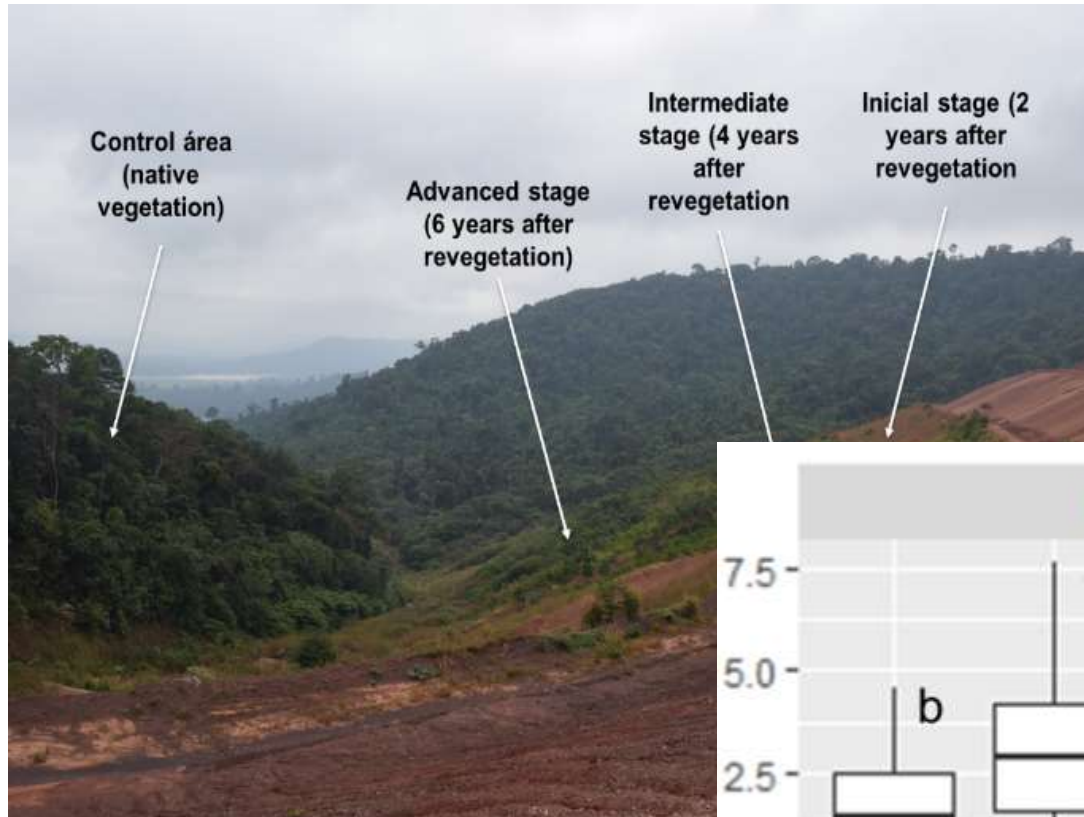
Community structure



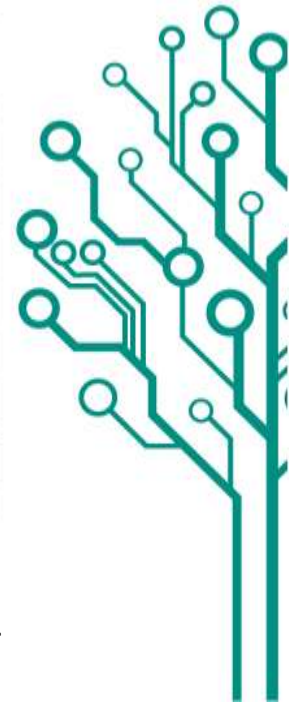
Species selection



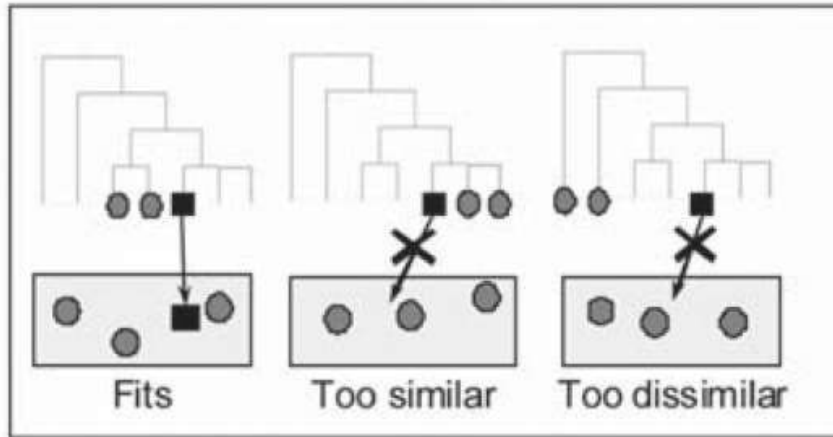
Species selection



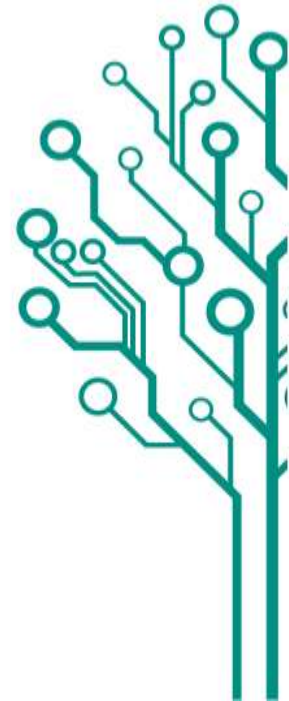
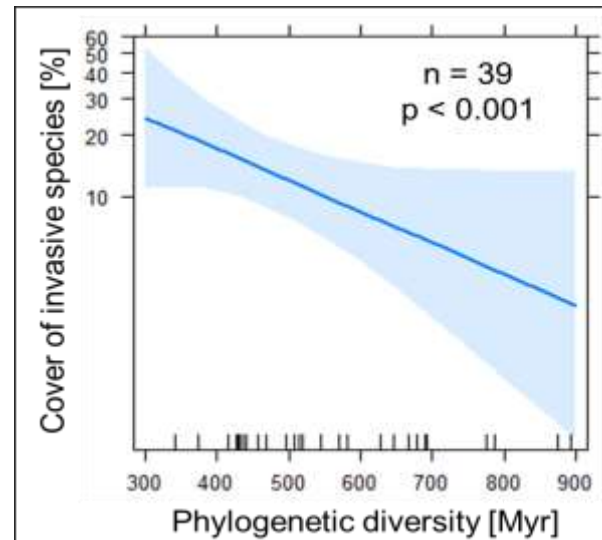
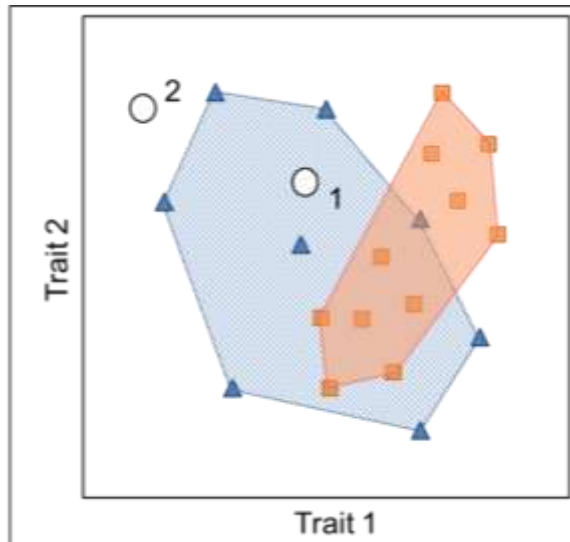
Unpublished data.



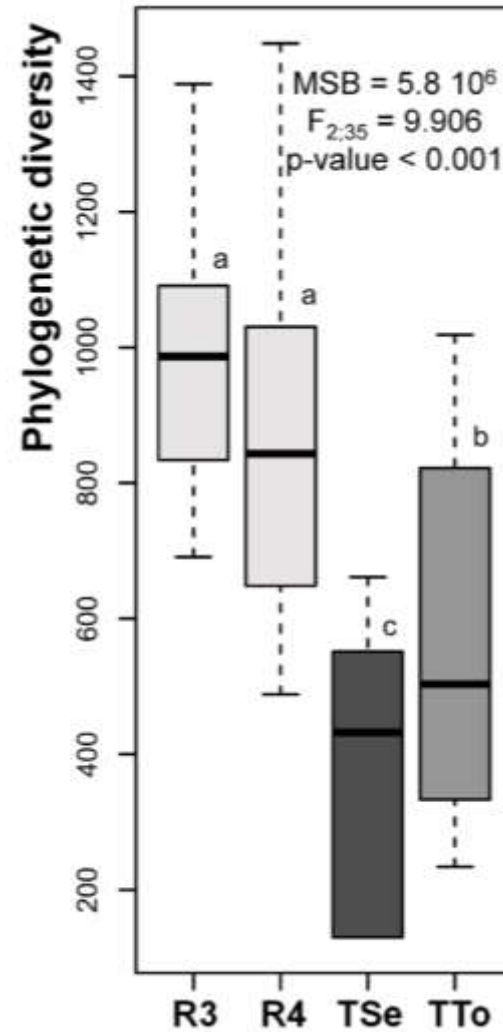
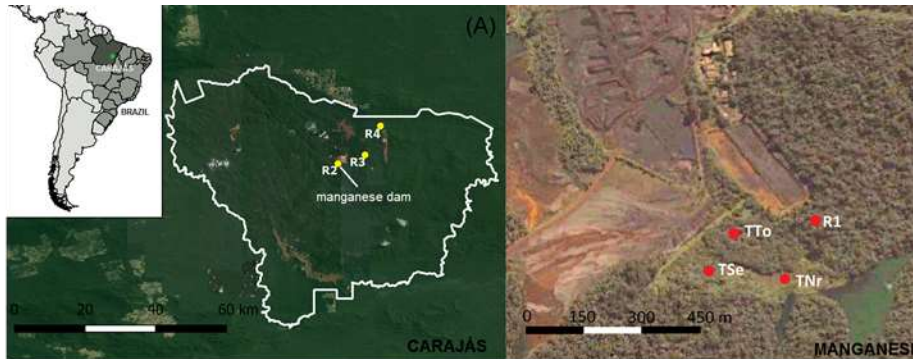
Biological invasions



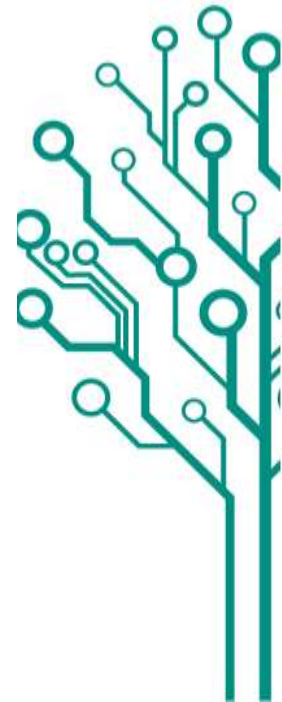
Carboni et al. 2013. *Ecography*,
 10.1111/j.1600-0587.2012.07479.x



Monitoring



Unpublished data.



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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