Detection of *Pinus sp*. and *Hovenia dulcis* as invasive species in native forests of South Brazil using National Forest Inventory (NFI-BR) data

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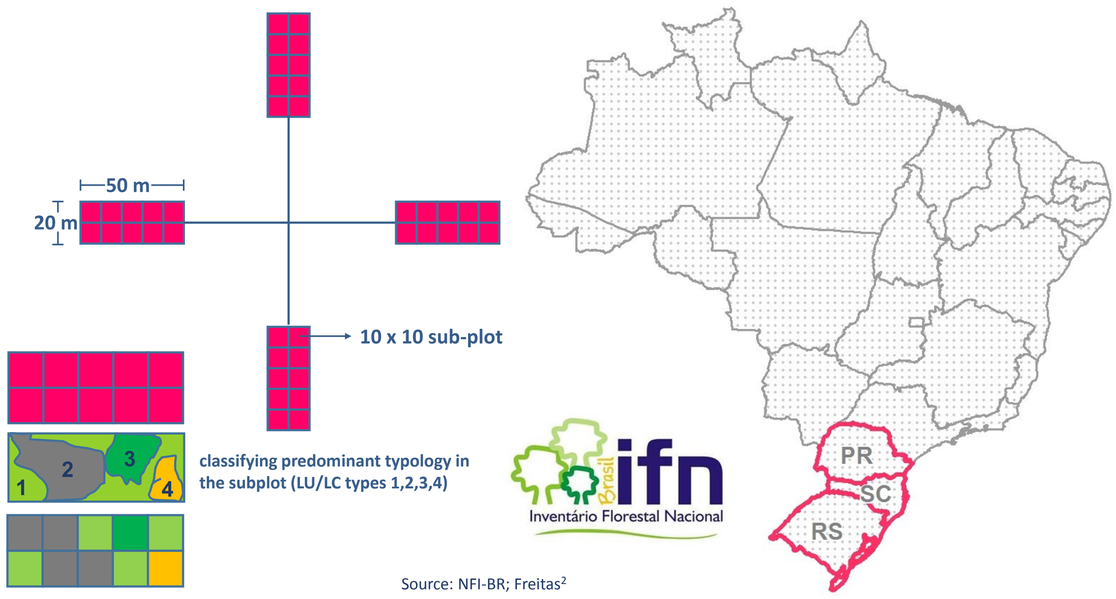
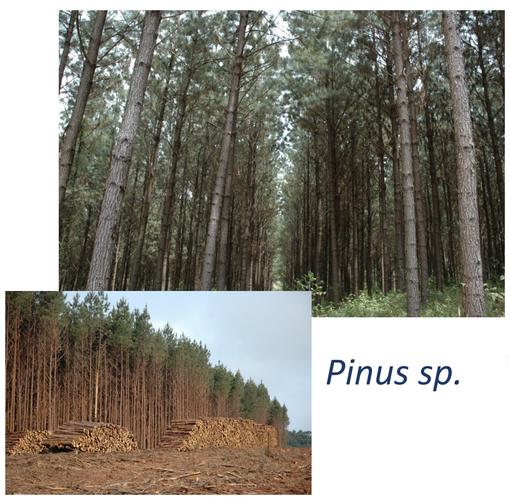
SCOPE AND MAIN OBJECTIVES

Brazilian NFI provides information on forest resources (natural forests and plantations) based on a 5-year cycle. Expected to cover the whole country, NFI-BR is based on a systematic grid of field clusters.

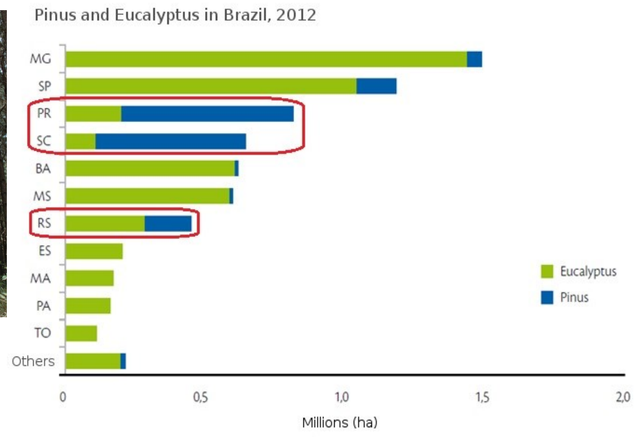


Source: NFI-BR; Freitas[2]

This study focused on the likelihood of native forests "invasion" by exotic species as *Holvenia dulcis* and the *Pinus spp* in the State of Paraná (PR), Santa Catarina (SC) and Rio Grande do Sul (RS), using NFI-BR data.



Pinus sp.



Source: ANUÁRIO ESTATÍSTICO ABRAF[1]

Pinus sp. is the most important source of timber in Southern Brazil, avoiding the overexploitation of natural resources.

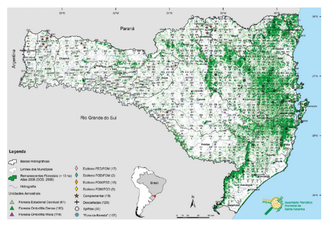
Hovenia dulcis

Hovenia dulcis, introduced in South Brazil as an alternative species for multiple uses, is now considered as invasive, being found on edges and clearings of forest patches.

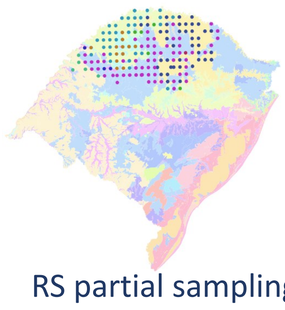
It is also found in forest areas that have experienced selective logging of commercial species.

Data covers the entire state of SC and part of PR and RS, where the work is still being carried out. A total number of 632 clusters (421-SC, 117-PR and 97-RS) were analyzed.

PR partial sampling



SC sampling

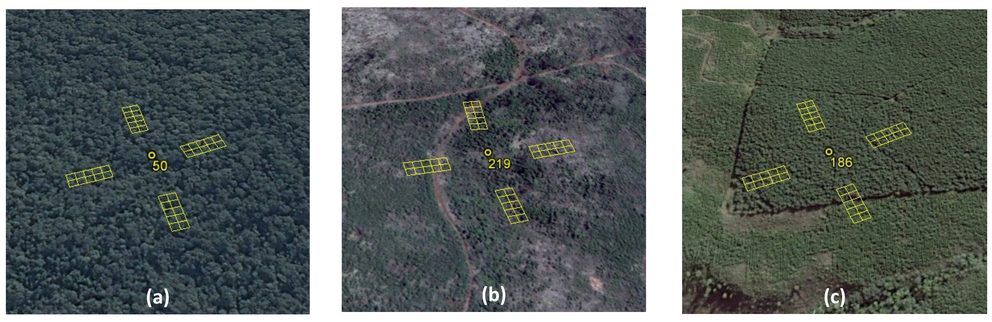


RS partial sampling

- the presence of *Pinus sp.* and *Hovenia dulcis* in clusters installed in native forest was investigated;
- sample units where pine plantations were the predominant use were not considered.

RESULTS

Results show that *Hovenia dulcis* is present in approximately 10% of the clusters installed in native forests of the three states (mainly in the Seasonal Deciduous Forest[3]), what should be considered a potential risk to the local biodiversity. Otherwise, *Pinus* species (as isolated trees) and outside the forest plantations have been found in less than 2% of the sampled clusters.



Field sampling clusters overlaid on Google Earth images of a dense native forest area (a), sparse tree vegetation (b) and forest plantation (c).

CONCLUSIONS

Hovenia dulcis can rapidly invade disturbed forest areas and compete with native plants. As it is highly appreciated by its fruits, its management is considered a challenge and depends on public awareness and specific legislation.

The NFI-BR sampling used in this study corroborates the results found by other authors[3] that *Pinus* species planted in South Brazil are not characterized as invasive species of native forest formations, as their density is < 0,1 trees.ha^{-1}, while present mainly on edges of forest patches.

It is important to mention that *Pinus sp.* stands are often planted close to forest remnants, establishing a tree transition zone between forest patches and forest plantations.

References

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