Pinus kesiya spread on the endemic Tapia forest: ecological characteristic analysis approach

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Abstract

Biological invasion of alien species is the second major threat to the sustainability of biodiversity within natural forest ecosystems. In Madagascar, the forest vestige of the highlands, Tapia forest which is source of more than 7% of income of the local population, is subject to such invasion. Pinus sp are invading more and more this ecosystem. In relation to this phenomenon, two great theories can be raised to explain the installation of species within a community. In order to understand the method of installation of Pinus species inside the Tapia forest, this study has tried to understand if there are parameters that influence this phenomenon. From a forest inventory on a total area of 3.75 ha, or 0.7% of the total Tapia forest at Arivonimamo II, we collected all ecological data concerning the biophysical, dendrometric and topographic characteristics of the stand. Statistical analyzes such as multi-component analysis and comparison analysis of the environment (invaded and non-invaded) yielded the abundance of Uapaca bojeri (a dominant species in the forest) but also the specific diversity within the stand negatively affects the existence of Pinus. This means that the smaller the number of individuals and fewer species, the easier Pinus is to install. As a result, we concluded that the environmental characteristics influence the distribution of exotic species such as Pinus sp within a forest ecosystem such as the Tapia forest.

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