INTRODUCTION

Invasive plants represent an important threat for biodiversity conservation. The invasion is determined by the interaction between the environmental conditions of the areas of introduction and the characteristics of the species that determine their response to those environmental conditions, facilitating their establishment and invasion.

MATERIAL AND METHODS

We evaluated the patterns of occupation of the climatic space based on the native and introduced distribution ranges and the differences of six key functional traits. We used trait probability density function to estimate species probabilistic niches. We then classified species into four groups according to the climatic differences between the distribution ranges. The comparisons between the climate shift groups and the distribution ranges were evaluated with mixed linear models. Additionally, we compared the functional traits between species groups using ANOVA.

RESULTS AND DISCUSSION

In general, native and introduced climate niches of the invasive woody legume species were highly dissimilar. Our results showed a very limited overlap between native and introduced distribution range for 20 species, low overlap for 44 species, moderate overlap for 37 species, high overlap for only 6 species and no species showed very high overlap. 107 species (out of 107) presented significant differences between native and introduced space (pvalue dissim < 0.001). However, all species had at least some part of their introduced climatic space nested within their native range space.

MAIN CONCLUSIONS

The studied species seem to show climate conservatism, as we did not find sufficient evidence that all invasive woody legume species are distributed in new climatic conditions in the introduced area; instead, they are invasive in climatic conditions that are rare in their native distribution. Four different behaviors between distribution ranges are possible; however, the expansion of the climatic niche in introduced areas is by far the most common among woody legumes. These different behaviors may be the result of the time elapsed since introduction and of adaptation to a new environment. The functional traits of the species groups are consistent with the expected patterns for their climatic distribution. In some species, climatic variables in the native distribution seem to be restricted to their distribution in the introduced range.