

ESTABLISHMENT AND COMPETITION OF NATIVE FOREST SPECIES IN ARAUCARIA ANGUSTIFOLIA STANDS WITH DIFFERENT COVERAGE DEGREES IN MISIONES, ARGENTINA

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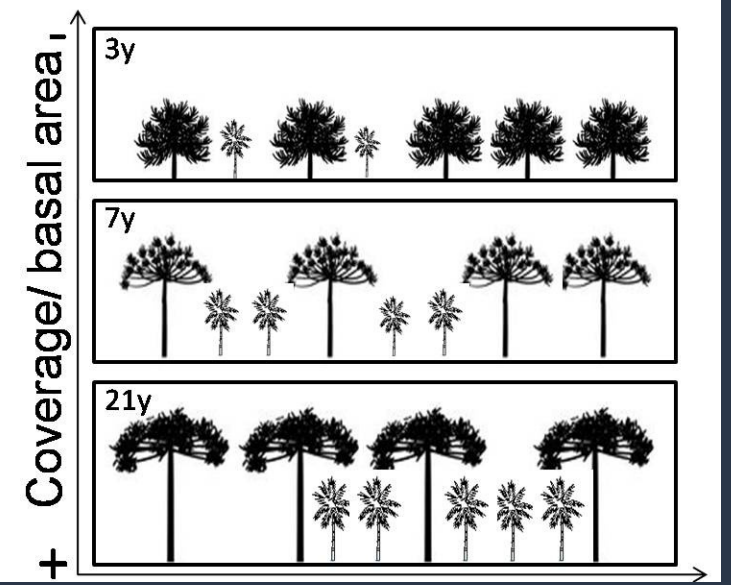
INTRODUCTION

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Mixed plantations with native species are a viable tool to meet current wood production and conservation demands that can contribute to the restoration of degraded forests. In Misiones, Argentina, 30000 ha are destined to mono-specific plantations of the native *Araucaria angustifolia* (Bertol.) Kuntze, for timber purposes. The mixes with other native timber species in uneven-aged plantations have ecological advantages over monospecific stands because they increase biodiversity and complexity. In mixed plantations, competition depends on the availability of resources, but also on the requirements and ages of the trees.

MATERIAL & METHODS

We enriched six *A. angustifolia* stands from 2y (1200 trees/ha) to 25y (220 trees/ha) with native forest species with different light requirements. In each stand, we installed 1000 m² plots and planted 50 six-month-old seedlings per plot within the planting rows. We analyzed the competition as the number of trees with higher DBH than the target tree in a 5m radius (NL). Also, the competition with the surrounding herbaceous vegetation was calculated according to its relative height to the plant: shorter height (1), equal height (2) and taller height (3) than the target plant.



RESULTS

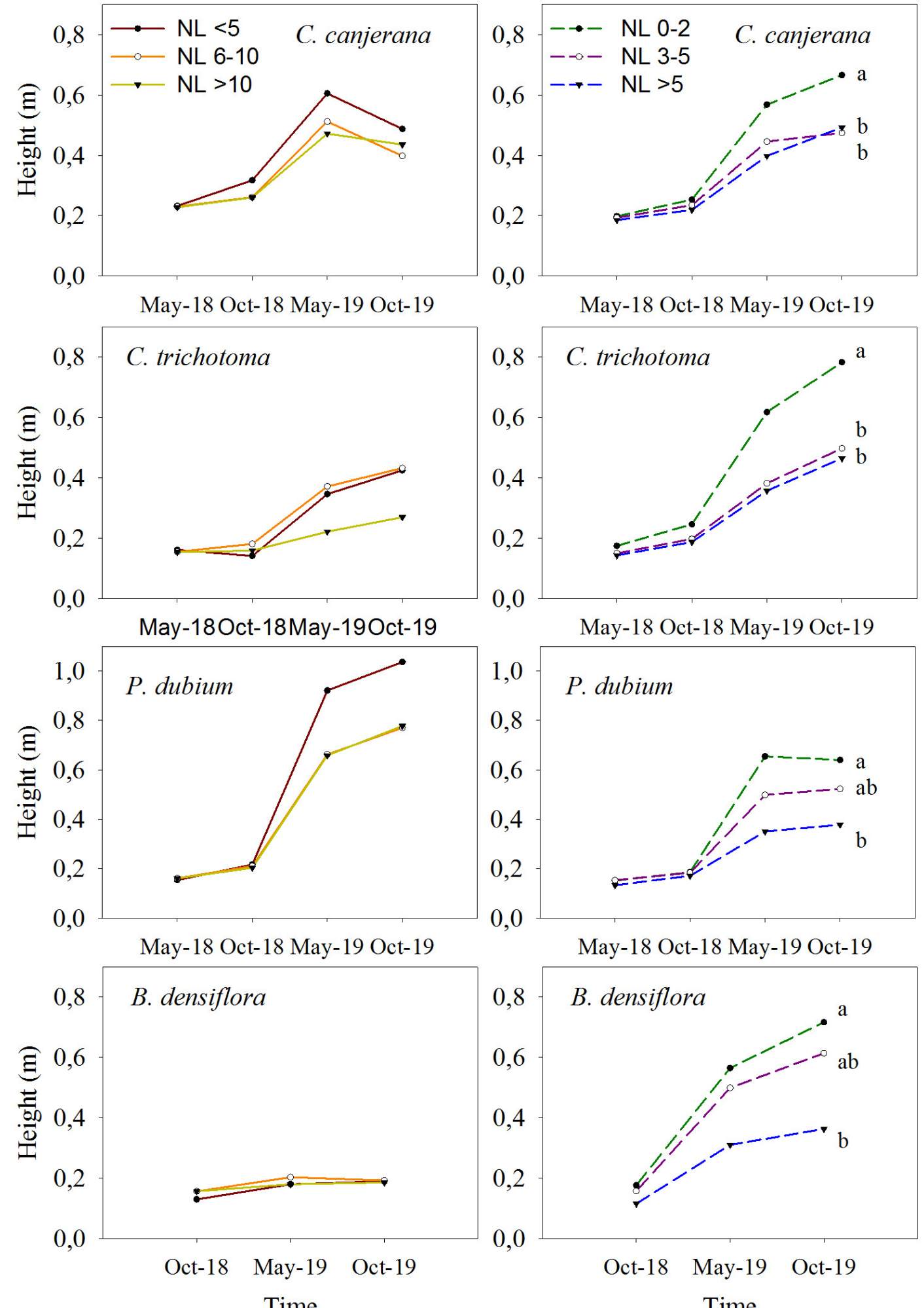


Figure 1. Plant heights by competition range NL along the time for youngest (left) and oldest (right) *A.angustifolia* stands.

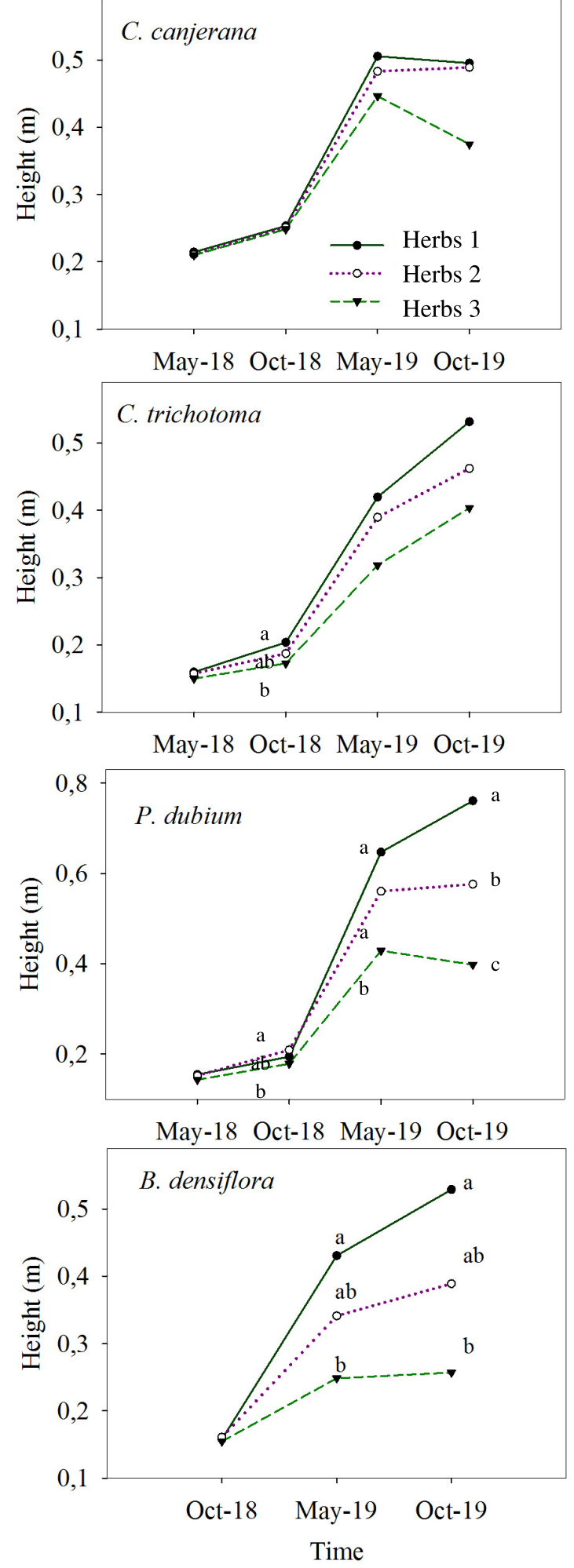


Figure 2. Plant heights by herbaceous competition range along the time.

After a year, survival was higher than 70% for all species in all stands, although species classified as frost-sensitive suffered damage in the youngest stand. The number of larger neighbours did not affect plant heights in younger stands but in older stands plants were taller if they had at most two neighbours in 5m radius (Figure 1). Sun-demanding plants were shorter if surrounding herbs covered it, while shade tolerant species were not affected by herbs (Figure 2).

CONCLUSIONS

It is possible to enrich mono-specific stands of different ages with native timber trees. Mixed plantations of *A. angustifolia* with other native species can be considered for wood production and conservation purposes in their natural area, increasing the connectivity between the remaining rainforests.