Physical and biotic constraints on tree regeneration in secondary shrublands of Chiloé Island, Chile Limitantes físicos y bióticos de la regeneración arbórea en matorrales sucesionales de la Isla Grande de Chiloé, Chile

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Successional shrublands created by clearcutting and burning of forests are frequent in Chiloé Island and surrounding mainland in southern Chile. These areas are characterized by seasonally waterlogged soils, and vegetation dominated by sedges, ferns and shrubs, such as Baccharis patagonica, with thick carpets of Sphagnum moss occupying the spaces between shrubs. Tree regeneration in these sites was shown to be sparse or completely lacking (< 0.3 seedlings m-2) compared with 7.2 seedlings m-2 in adjacent forests. Colonization of shade-intolerant, pioneer trees may be reduced underneath Baccharis due to crown shading and on top of Sphagnum cushions, because of unfavorable conditions for tree establishment, including low pH and soil water saturation. We evaluated differences in germination rates among pioneer tree species grown in an experimental soil moisture gradient. Seed germination percentage was low for Drimys winteri and Nothofagus nitida unrelated to humidity conditions but differ