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## Dendrochronological analysis and growth patterns of *Polylepis reticulata* (Rosaceae) in the Ecuadorian Andes

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Authors: C. Alvites<sup>1</sup>, G. Battipaglia<sup>2</sup>, G. Santopuoli<sup>1,7</sup>, H. Hampel<sup>3,4</sup>, R.F. Vázquez<sup>4,5</sup>, G. Matteucci<sup>6</sup> and R. Tognetti<sup>7</sup>

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# ABSTRACT

Relict tree species in the Andean mountains are important sources of information about climate variability and climate change. This study deals with dendroclimatology and growth patterns in *Polylepis reticulata* Hieron., growing at high elevation (mean of 4000 m a.s.l.) in three sites of the Ecuadorian Andes. The aims of the research were: (i) characterizing tree-ring boundaries; (ii) describing tree-ring patterns of the study sites; (iii) investigating the relationships between climate and radial tree growth; and (iv) determining the spatial correlation between seasonal climatic factors and tree-ring width of *P. reticulata*. Tree rings were characterized by semi-ring porosity and slight differences in fibre wall thickness between latewood and subsequent earlywood. In all sampling sites, tree rings in heartwood were more clearly visible than in sapwood. Tree-ring width was more related to temperature than to precipitation, with growth being also affected by site conditions and stand structure, as well as other local factors. No significant relationships were found between tree-ring chronologies of *P. reticulata* and El Niño-Southern Oscillation (ENSO) and Vapour Pressure Deficit indices. The study highlights that there is not a clear driving climate factor for radial growth of *P. reticulata*. Additional research is needed to study growth dynamics of this species and the impacts of local environmental variables.

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