



## Population genetic structure of the tropical tree species *Aegiphila sellowiana* (Lamiaceae)

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**ABSTRACT.** The Tibagi River, located in southern Brazil, is associated with a significant degree of environmental heterogeneity, along its 550 km extension. There is concern about the integrity of this river's ecosystem, as human interference has been increasing. *Aegiphila sellowiana* (Lamiaceae) is an important pioneer tree species, commonly found near rivers; the fruit is consumed by avifauna. We studied this species along three ecological gradients, comprising the upper, middle, and lower regions of the Tibagi River basin. The genetic structure of nine subpopulations of *A. sellowiana* distributed along these gradients was investigated using RAPDs. Moderate levels of gene diversity (ranging from 0.091 to 0.132) were identified, inferred by a traditional approach and a Bayesian model-based method. The F-statistic,  $G_{ST}$  parameters and molecular variance analysis showed high genetic differentiation among the three regions (39.5 to 50.26%). Analysis of molecular variance revealed high levels of genetic variation between populations (50.26%), while lower values of genetic variation (ranging from 9.56 to 16.35%) were seen between subpopulations within

the upper, middle, and lower regions of the Tibagi River basin. The validity of these results was confirmed by principal coordinate analysis. Linear regression analysis showed significant correlations ( $r = 0.621$ ,  $P = 0.0001$ ) between the genetic and geographical distances. The differences observed in genetic variation between regions are probably due to habitat fragmentation; for conservation purposes, we recommend that at least one subpopulation from each region of the Tibagi River should be maintained.

**Key words:** *Aegiphilla sellowiana*; Genetic conservation; RAPD; Genetic diversity; Riparian population; Tropical tree