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Tree diversity not just in rainforests

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A temperate forest in Chile – in snow.

Rainforests get the headlines, but other forests also are home to thousands of unique and important tree species, new research reveals.

An international team studied DNA data from more than 10,000 forest and savanna sites across the Americas and discovered that nearly 30% of tree evolutionary diversity is only to be found in temperate and tropical dry forests.

The comparable figure for tropical rainforests is 26%.

"Our findings show that temperate forests and dry forests have unique evolutionary history that merits far greater conservation attention," says Toby Pennington, from the University of Exeter, UK.

"Protecting rain forests is obviously vital for many reasons, but we shouldn't ignore the unique tree biodiversity of temperate and dry forests."

The study found that temperate forests hold unique genetic lines of trees including members of the oak and elm families. Unique lineages in dry forests – such as the Caatinga of Brazil and the Chiquitania of Bolivia – include members of the pea and cacti families.

By examining the evolutionary structure of tree communities, the researchers – from the UK, the US, Chile and Brazil – tried to discover the main factors that prevent species expanding into new areas and environments.

The "fundamental divide" was found to be the presence or absence of freezing temperatures - which some plants cannot tolerate. There was also an "evolutionary split" between trees that exist in moist and dry forests in the tropics.

“Tree species that can inhabit areas experiencing freezing temperatures and/or environments subjected to seasonal water stress belong to a restricted set of phylogenetic lineages, which gives a unique evolutionary identity to extratropical forests and tropical dry forests in the Americas,” they write in a paper in the journal *Science Advances.*

“While our study is restricted to New World trees, we suggest that plant biodiversity globally may be evolutionarily structured following a tropics-extratropics pattern, while diversity within the tropics may be structured primarily around a moist-dry pattern.”

Source: https://cosmosmagazine.com/biology/tree-diversity-not-just-in-rainforests