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A picture of trees surrounded by the Amazon
Brics / Claus Brabrand

[Tree Diversity in the Amazon Puzzles Scientists](#)

No one knows how so many species can exist in a single area

The Amazon is one of the richest areas in the world, in terms of tree diversity, recent studies show. On a single patch of soil, measuring about 25 hectares, researchers managed to identify more than 1,100 species of trees, whereas the same area was populated by 600 species of birds and some 170 species of mammals. Scientists have failed to provide an explanation as to why this happened, and theories on the matter are scarce and subjective.

The patterns by which species diversity is achieved in ecological communities are a discovery that all botanists or wild life experts are looking for. No one has yet been able to determine exactly what causes species to multiply and diversify, though theories on the matter exist. One of these theories states that all living things inside a given study area are equal in terms of opportunities they have and that the only difference between them is pure chance.

However, modern researches, done at the Smithsonian Tropical research Institute, show that this is seldom the case, as the traits or characteristics certain individuals inside species have are the real engine that promotes diversity throughout the ecosystem. As proof, the researchers showed that these traits are not distributed evenly throughout the studied area, as neutral theory adepts might have expected, but instead they were spread in specific locations, not at all random.

Ph.D. candidate Nathan Kraft, at the University of California in Berkeley, added "The traits we measured give us important clues about the strategy of each species in the forest - how they make a living, if you will. One exciting thing that we found is that trees growing near each other in basically the same habitat may employ very different strategies." The truth is that the intricate connections that form between species living inside closed off habitats are very difficult to "decipher," especially over short periods of time. Though some studies have been going on for more than two decades, they are barely starting to scratch the surface of what Mother Nature pieced together in millions of years of evolution.