

**UFW Research Award 2018**

**“Persistent Effects of pre-Colombian plant domestication on Amazonian forest composition.”**

**Carolina Levis MSc**

**Judicium**

The article of Carolina Levis describes the results of interdisciplinary research answering the question: Are Amazonian forest pristine or have they been modified by pre-Colombian people?

To answer this question Carolina Levis and her team combined 2 datasets and in doing so integrated two disciplines, ecology and archaeology, in a very innovative way.

The extent to which pre-Columbian people have modified Amazonian forests remains the subject of fierce debate. This article provided what was needed to advance this debate: a rigorous comparison of basin-wide plant data with basin-wide archaeological data.

As changes made by pre-Columbian people are currently difficult to detect, Carolina Levis focussed on domesticated tree species, i.e. tree species for which there is evidence that they have been selected and propagated. She came up with an updated list of domesticated tree species for the Amazon and analysed to what extent domesticated species dominate old-growth forests.

In the article Carolina Levis and her team compared modeled estimates of tree species abundance and distribution across Amazonia with the most comprehensive database of archaeological sites in South America to investigate the association between the distribution of 85 trees domesticated by pre-Columbian people and the distribution of ancient people. The analysis also incorporated environmental data to distinguish anthropogenic signals from previously documented environmental trends in Amazonian vegetation.

The analysis revealed that domesticated species are much more likely to be dominant in Amazonian forests than other species; forests close to archaeological sites have significantly higher abundance and richness of domesticated species than forests far from them in some regions of Amazonia; and domesticated species are more common in some regions of Amazonia than in others, and are sometimes most common far from the places where they were domesticated.

The importance of this research is twofold. As many archaeological artefacts like ceramics, and structures like mounds, are hidden in the forest they are difficult to find. Domesticated plants, however, are more visible and can point to archaeological sites within the forest. In future research, domesticated plant abundance can be a useful tool to search for archaeological sites within the Amazon forest. Additionally, the results also have implications for the conservation of the Amazon. The pre-Colombian people cultivated and managed a high number of plant species in forested landscapes, similar to the agroforestry systems we know today in indigenous communities. This may provide an opportunity to reduce deforestation and may be used as an alternative way of food production while maintaining forest structure and biodiversity.

The jury would like to mention that Carolina Levis has successfully headed a complex research team at a very young age. We are impressed by her drive and creativity and we see a bright future ahead of her. Her research is a very good example of our jubilee theme Wageningen Wisdom & Wonder. In summary, Carolina Levis fully deserves the UFW Research Award 2018!