

HO06 Assessing carbon stocks in the forests of Cuscuo National Park

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The international community has been aware of the extent of deforestation in the tropics, and the consequences of this tropical forest loss, since the advent of satellite imagery analysis in the 1970s. However, despite this awareness, funding for conservation initiatives to address tropical deforestation has, with local exceptions, been extremely limited on a global scale. This funding issue may now be changing, however, with the development of the carbon-focused funding platforms which have expanded in the wake of international agreements such as the 2005 Kyoto protocols and the 2016 Paris agreement. The clause in these agreements allowing for emissions offset schemes, such as those managed by organisations like REDD+, Natural Forest Standards, and Ecosphere+, have, for the first time, put a substantial financial value on the Worlds' remaining tropical forests through the carbon stocks they sequester, which in turn has led to the possibilities of extensive funding driven by both the public and private sector becoming available for their protection.

A major issue with securing REDD+ and associated funding sources, however, is the data 'vacuum' that exists in most tropical forest ecosystems. Carbon credits issued as part of offset schemes have to be rigorously assessed to be sold on the international market, but for most tropical forests baseline carbon stock measurements are lacking, which precludes applications for carbon-offset funding. Studies regarding how best to assess tropical carbon stocks have therefore become an extremely important area of research with direct conservation implications.

Operation Wallacea has been conducting habitat structure surveys in the cloud forests of Cuscuo National Park, Honduras, for 13 years now, and these data have been used to produce one of the most robust estimates of carbon stocks in any Mesoamerican forest. Students taking this option will learn how to conduct baseline habitat structure surveys in our permanent 20m x 20m habitat plots, how to convert this habitat data into stratified carbon stock calculations using allometric equations, and use remote sensing techniques to extrapolate carbon stock estimates from the habitat surveys to estimate the total carbon sequestered in the forests of Cuscuo National Park. There are also various possibilities for students to examine further aspects of the carbon surveys in greater detail, such as developing carbon equations for particular tree types, or assessing the mechanics of how carbon stock estimate data can be translated into practical conservation interventions.

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