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Carbon Dynamics in the Tropics

Ann E. Russell
_Iowa State University_, arussell@iastate.edu

James W. Raich
_Iowa State University_, jraich@iastate.edu

Ricardo Bedoya Arrieta
_Organization for Tropical Studies_

Oscar Valverde-Barrantes
_Kent State University - Kent Campus_

Eugenio González
_Texas A & M University - San Isidro de Peñas Blancas_

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Carbon Dynamics in the Tropics

Abstract
Native tree species differed in their effects on above- and belowground carbon stocks and fluxes in these 16-yr-old experimental plantations at La Selva Biological Station, Costa Rica. Results were explained primarily by differences in growth rates, C allocation, turnover rates, and tissue chemistry. In this experiment established in an abandoned pasture, all five tree species had attained biomass amounts similar to that of nearby mature forest, whereas the abandoned pasture control remained in arrested succession. Carbon sequestration averaged 5.2 Mg·ha⁻¹·yr⁻¹ across species, close to the annual per capita fossil-fuel use in the United States of 5.3 Mg C.

Keywords
native tree species, carbon stock, fluxes, carbon sequestration, botany, forestry, biogeochemistry

Disciplines
Ecology and Evolutionary Biology | Natural Resources and Conservation | Natural Resources Management and Policy

Comments
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Photo Gallery

CARBON DYNAMICS IN THE TROPICS

Photo 1. Landscape view of abandoned pasture in 1987 at La Selva Biological Station, Costa Rica. This land had been deforested and then grazed for ~30 years.

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Historical Photos 1 and 2 were found abandoned in a box at La Selva Biological Station, with no identification of the photographer’s name. It was determined that these photos were taken in 1987, based on planting records and knowledge of the landscape in this area. Photo 3 was taken by Ann Russell.