

DEADLINE FOR RECEIPT OF SUBMITTED ABSTRACTS: FEBRUARY 10, 1991.

Make one copy and mail this original to: Dr. Rodolfo Dirzo, Centro de Ecología, UNAM, Apdo. Postal 70-275, México 04510 DF, MEXICO.

**TYPE ABSTRACT BELOW, FOLLOWING EXAMPLE ON PREVIOUS PAGE**

CONDIT, RICHARD\*, S. P. HUBBELL, and R. B. FOSTER. Smithsonian Tropical Research Institute, APO Miami FL 34002, and Department of Ecology, Evolution, and Behavior, Princeton University, Princeton NJ 08544.  
Dynamics and equilibrium status of a neotropical forest over one decade.

The species composition and structure of a tropical moist forest on Barro Colorado Island in Panamá has been studied in detail from 1980 to 1990. All free-standing stems over 1 cm diameter-breast-height in a 50 ha plot were censused in 1980-1982, 1985, and 1990. There are 301 species represented in the census, with a turnover of 1 species out of 300 between censuses. There are 245,000 individuals in the plot, with 13-16% turnover. From 1982-1985, common species tended to increase in abundance more than rare species, suggesting that the forest composition is shifting. We will present an update of this analysis using data from the 1990 census, determining how many species increased during both census intervals and how many decreased during both. In addition, we have searched for factors that might regulate species abundance and diversity in the forest. We analyzed spatial patterns in survival, growth, and recruitment of 12 common species and incorporated the results in population models. Results suggest that most populations are not regulated by density-dependent factors, but we found one abundant species whose population probably is. Overall, we conclude that the community is not subject to strong regulating factors and is not at equilibrium.

PLEASE ANSWER THE FOLLOWING QUESTIONS:

Yes, I plan to present an additional symposium or contributed paper. (If no, skip this section). This information will help to avoid schedule conflicts.

Author(s) \_\_\_\_\_

Title \_\_\_\_\_

Society \_\_\_\_\_

\*\*\*\*\*

Audio-Visual Needs: SLIDE

Subject Matter of Paper: Dynamics of tropical forests

Dynamics and Equilibrium Status of a Neotropical Forest Over One Decade  
Richard Condit, S.P. Hubbell, R.B. Foster

Stability and Change in Tropical Communities and Implications for Conservation Biology  
ESA Symposium, 5 August 1991

- I. Introduction: goals of BCI 50-ha census are studying stability and change in forest
- II. Factors regulating population growth
  - A. Importance of neighborhood effects regulating observed tree densities
  - B. Review of observed neighborhood effects
  - C. Simulation of population with varying neighborhood effects
    - 1. In theory, neighborhood effects can regulate population at any density
    - 2. Observed effects at 30-m distance could regulate densities of ~10 trees per ha
    - 3. A quarter of species might have such effects, but densities are much lower
- III. It appears that observed local neighborhood effects are insufficient to maintain observed populations



A proposal for a joint Association for Tropical Biology -  
Ecological Society of America Symposium

Organizer: Richard B. Primack, Boston University

Symposium Title: Stability and Change in Tropical Communities with  
Implications for Conservation Biology

Summary Description:

A variety of competing theories have been proposed to explain the great diversity of species in tropical communities. Ecologists are now advancing beyond simple descriptions to quantitative studies of how the communities change over time. An important component of these investigations is often the community response to disturbance, and whether the community returns to its original state. The impact of human disturbance on tropical communities, with an emphasis on the conservation of biological diversity, is a particular, current focus. This research is often concerned with calculating <sup>natural</sup> rates of species turn over, and distinguishing <sup>these from</sup> ~~natural~~ rates caused by human disturbance. The purpose of this symposium will be to bring together ecologists working with both animals and plants to discuss their current research on tropical communities.

Symposium Speakers:

Introduction: Richard Primack, Boston University

Robert Bierregaard, Smithsonian. Effects of forest fragmentation in Brazil on animal communities. (He has agreed to speak.)

Joseph Connell, University of California, Santa Barbara. Impact of disturbance on the species composition of reef communities. (He has agreed to speak.)

Pamela Hall and Richard Primack, Boston University. Species turn over and stability of rain forest tree communities in Borneo. (She has agreed to speak.)

Richard Condit and Steve Hubbell. Princeton University. Species diversity and dynamics of trees at Barro Colorado Island, Panama. (They have agreed to speak.)

John Terborgh, Duke University, and Robin Foster. Changes in plant and animal diversity during riparian succession in Peru. (They have tentatively agreed to speak, but are delaying confirmation until other commitments are resolved.)

Bette Loiselle and John Blake, University of Missouri at St. Louis. Stability and diversity of bird communities along elevational and successional gradients in Costa Rica. (They have agreed to speak.)