

MORTALITY AND RECOVERY IN A TYPHOON-PRONE OLD GROWTH  
DIPTEROCARP FOREST IN PALANAN, ISABELA, PHILIPPINES

by

HAZEL TY CONSUNJI

A Master's Thesis Submitted to the  
Institute of Environmental Science and Meteorology  
College of Science  
University of the Philippines  
Diliman, Quezon City

as partial fulfillment of the requirements  
for the degree of  
Master of Science in Environmental Science

June 2012

## **ABSTRACT**

### **MORTALITY AND RECOVERY IN A TYPHOON-PRONE OLD GROWTH DIPTEROCARP FOREST IN PALANAN, ISABELA, PHILIPPINES**

Hazel Ty Consunji  
University of the Philippines, Diliman 2012

Adviser:  
Tolentino B. Moya

Tropical cyclones affect forest ecosystems at different levels depending on the intensity and frequency of the wind disturbance, other abiotic and biotic factors, and the interactions between and among these factors. Spatial patterns of tree damage as influenced by exposure to disturbance (aspect), frequency of disturbance, tree size and density, and the mode of recovery, were examined in the typhoon-prone 16-hectare Palanan Forest Dynamics Plot in Palanan, Isabela, Philippines from 1998 to 2010. Data from 6 1-hectare plots – 3 from the leeward area, and 3 from the windward area, were used for the analysis. Results showed that all four factors influenced the pattern of damage in the plot. The course of recovery was also associated with the pattern of damage. There was a relatively low average annual mortality of 2.6% in the plot, despite experiencing frequent and high intensity typhoon disturbances. There was also a net increase in species abundance,  $\alpha$  diversity, and basal area; the latter suggests that the forest acts as a carbon sink. These findings imply that intact old-growth forests are not only able to withstand constant external pressures (resistant), but also are able to recover – and even exceed, their original structure, composition and function (resilient). Thus, protecting and conserving these remaining primary forests in the country is an efficient and effective climate change adaptation and mitigation strategy.