

THIRD ANNUAL RABI SCHOLARS RESEARCH SYMPOSIUM
12 noon to 2 p.m., Friday, September 19, 2008
Columbia University

LEE, Charlene

Mentors: Kevin Griffin, Lamont-Doherty Earth Observatory; and Stephanie Searle, Canterbury University, Christchurch, New Zealand

The effects of Night-Time Warming on Chlorophyll Fluorescence of *Quercus rubra* L. Along an Urban to Rural Gradient

Urbanization and climate change are occurring at rapid rates across the globe, but the way plants will respond to this change is not completely understood. Studies have predicted that warming will be more pronounced at night than during the day, which will lead to a decrease in diurnal temperature range, similar to what many urban cities are experiencing today. Using a naturally occurring temperature gradient from New York City extending northwards into more rural areas, we measured Fv/Fm (an measure of maximum photosynthetic efficiency), height, diameter, and biomass of common red oak seedlings (*Quercus rubra* L.) grown along a transect. Oak seedlings were also grown and measured in growth chambers. Our results show that Fv/Fm was significantly higher in the most urban site than the most rural site for all sampling periods along the transect, and for most sampling periods in the growth chambers. Biomass was negatively correlated with distance from the city for all sampling periods along the transect. It is hypothesized that the difference in diurnal temperature range is one of the factors that is responsible for these differences.