DIAS-FILHO, MOACYR B.[1,2], JAMES A. WISE [2] and TODD E. DAWSON [2]. [1]*EMBRAPA-CPATU, Belém, Brazil*, [2]*Ecology and Systematics, Cornell University, Ithaca, NY, 14853, USA*. **Irradiance and water deficit effects on gas exchange behavior of two C_3 Amazonian weeds**.

Soil moisture may play an important role determining a weed's ability to persist in the field and to compete with cultivated species. We investigated the gas exchange behavior of two perennial weed species from Brazilian Amazonia, a vine *Ipomoea asarifolia* (Convolvulaceae) and a shrub *Stachytarpheta cayennensis* (Verbenaceae), under well watered and water limited conditions. Under well-watered conditions, light saturated rates of photosynthesis (A) and stomatal conductance (g) in *I. asarifolia* were, respectively, 15 and 83% higher than in *S. cayennensis*. When water stress was imposed, A and g in *I. asarifolia* declined, respectively, by 29 and 57% in relation to *S. cayennensis*. Dark respiration and light compensation point were similar on well-watered plants. Under water limited conditions, *S. cayennensis* had 60% higher dark respiration and 35% higher light compensation point than *I. asarifolia*. The observed responses are in accord with the known distribution of the species in the field and, we believe, may provide important information for designing differential management strategies for controlling these weeds.

DILLENBURG, LUCIA R., JOSEPH H. SULLIVAN and ALAN H. TERAMURA. University of Maryland, College Park, MD, 20742, USA. Photosynthesis and pigment production in Liquidambar styraciflua - developmental and UV-B radiation effects.

Leaf expansion is very sensitive to different environmental stresses. This study describes ontogenetic changes in leaf size and physiology of Liquidambar styraciflua seedlings grown under UV-B irradiance levels simulating 0% (control), 16% (low) and 25% (high) stratospheric ozone reductions. Leaf size, light- and CO_2-saturated rates of O_2 evolution (A_{max}), and concentration of chlorophylls (chl), and UV-B absorbing pigments were measured over a 4-week period. Specific leaf weight, A_{max} and chl concentration increased with leaf age, except for a peak in A_{max} at early development. Chlorophyll b concentration increased at a slower rate than chl a. Recently unfurled leaves had the greatest concentration of UV-B absorbing pigments. The effects of UV-B radiation on leaf growth and physiology were small and not dose-dependent. Expansion of leaves exposed to low UV-B was slightly delayed compared to controls (1.63 vs. 1.90 cm^2/day), but final leaf size was unaffected by UV-B radiation. Physiological effects were less pronounced during the rapid expansion period. High UV-B tended to promote, while low UV-B inhibited accumulation of chl, especially chl a. In contrast, concentration of UV-B absorbing compounds was promoted only by low UV-B. The small inhibitory effects of UV-B on leaf growth and physiology suggests a high tolerance of the species to damaging UV-B radiation.

DIPPERY, JOY K.and BOYD R. STRAIN. Duke University, Durham, NC 27706, USA. Effects of Pleistocene, pre-industrial, current, and future CO_2 partial pressures on C_3 and C_4 plant growth.

To study plant growth in atmospheric CO_2 concentrations ranging from Pleistocene through predicted future levels, *Amaranthus retroflexus* (C_4) and *Abutilon theophrasti* (C_3) were grown in growth chambers at four CO_2 levels (15 Pa, Pleistocene minimum; 27 Pa, pre-industrial; 35 Pa, current; 70 Pa, future). Thirty-five days after emergence, shoot dry weight, root dry weight and leaf area did not differ between any CO_2 levels for the C_4 species. The C_3 species showed increased root and shoot dry weights and leaf areas when grown in CO_2 partial pressures of 15 Pa, 27 Pa and 35 Pa. This evidence indicates that plant growth in C_4 species is unaffected by atmospheric CO_2 levels ranging from the Pleistocene minimum through the future; whereas, C_3 species show growth increases as CO_2 partial pressures rise above the Pleistocene minimum.

DISTER, SHERI W.[1], LOUISA. R. BECK[1], AMERICO D. RODRIGUEZ[2], and MARIO H. RODRIGUEZ[2]. [1]TGS Technology, Inc., NASA Ames Research Center, Moffett Field, CA, 94035, USA, and [2]Centro de Investigacion de Paludismo, Tapachula, Chiapas, Mexico. A remote sensing and GIS-based investigation of the influence of surrounding land cover on malaria vector abundance within villages of Chiapas, Mexico.

In a multidisciplinary approach involving field studies, remote sensing data, and a geographic information system (GIS), the influence of surrounding land cover on the abundance of the malaria vector *Anopheles albimanus* was investigated for villages on the Pacific coastal plain of Chiapas,