



## The nutrient behavior and stock in plants of the Sanjiang Plain freshwater marsh (Northeast China)

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Wetlands are important carbon pools, which contain approximately 10% (15Gt) of the terrestrial carbon store ....(IPCC 2000). They also exhibit high primary productivity and are important nutrient reservoirs among the terrestrial ecosystems in the world. During 2002–2004, we investigated the contribution of three dominant macrophyte species to the C, N and P stocks in the largest freshwater marsh of China (Sanjinag Plain) : *Deyeuxia angustifoli*, (seasonal waterlogged and non-waterlogged marsh), as well as *Carex lasiocarpa* and *Carex pseudocuraica* (waterlogged marsh). All three plants showed rapid growth in the rainy season. The belowground part, with high nutrient bioaccumulation, contributes most to the total biomass. In this freshwater marsh, production rates ranged from  $9.9 \text{ g m}^{-2}\text{d}^{-1}$  (min) to  $36.2 \text{ g m}^{-2}\text{d}^{-1}$  (max), total biomass from 639 t 3626  $\text{g m}^{-2}$ , and total net primary productivity from 1900 t 2700  $\text{g m}^{-2}\text{a}^{-1}$ . Seasonal variation of nutrient concentration was dependent on the growth stage of species, indicating the significant impact of temperature and light on plant growth. Roots exhibited the highest nutrient concentrations of all plant organs. Concentration increased with growth time until late July when plants matured.. The three studied species comprise 80% of the grass covered marsh of Sanjiang Plain); consequently they contributed largely to the annual nutrient stocks,  $10.99 \times 10^6\text{t}$ ,  $788.36 \times 10^3\text{t}$  and  $18.10 \times 10^3\text{t}$  for TOC, TN and TP, respectively. Our results indicate that (a) the nutrient bioaccumulation capacity of above- and belowground parts of these macrophyte species was mostly dependent on hydrological conditions and (b) the function of freshwater marsh species for global nutrient cycling and stock estimation may be more important than previously recognized.