Land Cover Change in the Great Plains: Predicting the Impact of Regional Forest Expansion on Biogeochemical Processes

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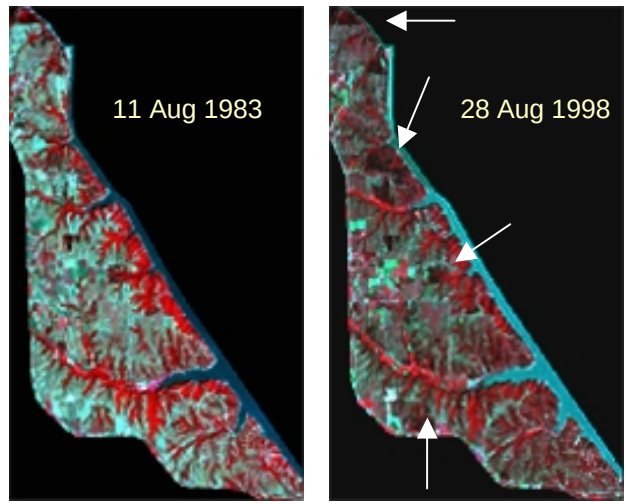
- **Assess change in forest cover in the Great Plains, quantify the effects of this change on biogeochemical processes and biodiversity, and link land cover change and biogeochemistry in a predictive ecosystem model**

- **Identify land cover change using Landsat TM and historic aerial photography, collect in-situ biogeochemical data, link in the General Ecosystem Model (MBL-GEM)**

- **Forest expansion decreases N availability in early spring but by midsummer, N availability in forest and prairie are equal.**
- **Litter decomposition is slower in forests due to litter chemistry differences.**
- **Forest expansion reduces plant species diversity.**
- **Cedar forest area is correlated to population growth at a regional scale.**

- **Identification of national sources and sinks of carbon – program element of USGCRP**
- **Accepted ARD activity; Increasing sinks of carbon = reduction of emissions according to Kyoto protocol**

Landsat TM images, from 1983 and 98
arrows indicate increase in cedar



Forest expansion reduces herbaceous species diversity.