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# LYCOG: The Lysimeter CO<sub>2</sub> Gradient Experiment

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Engineering, Duke Univ.

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# Blackland Prairie

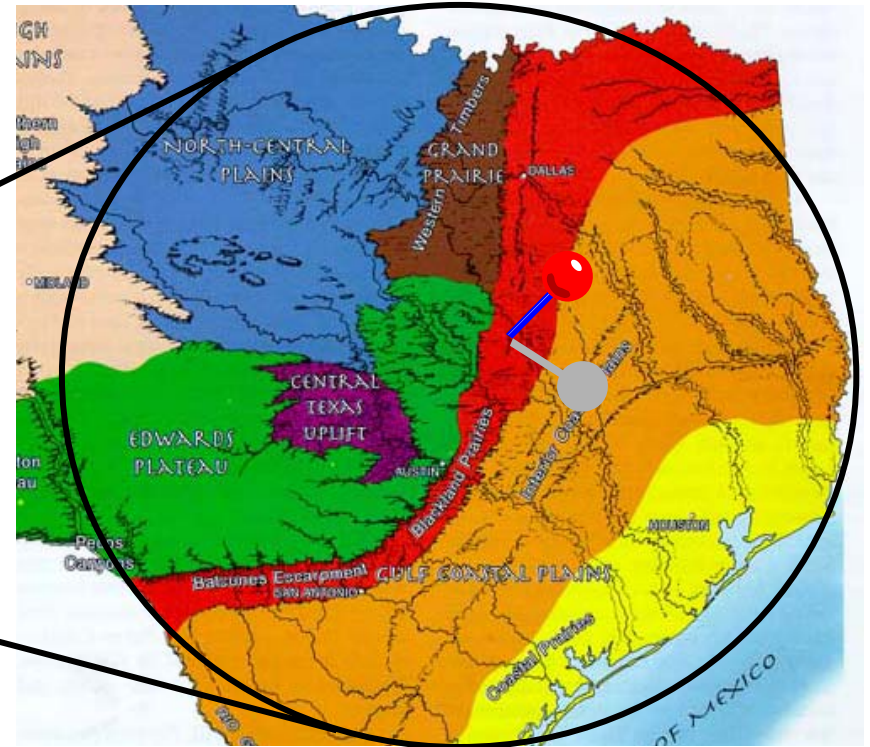
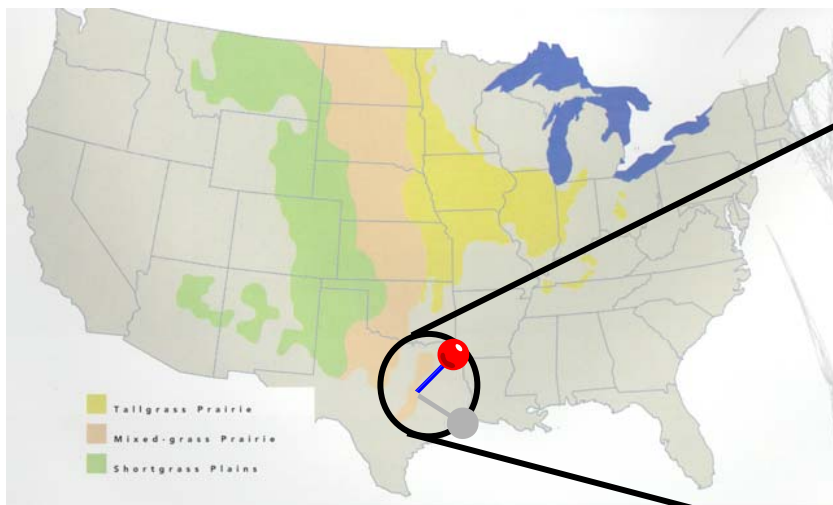
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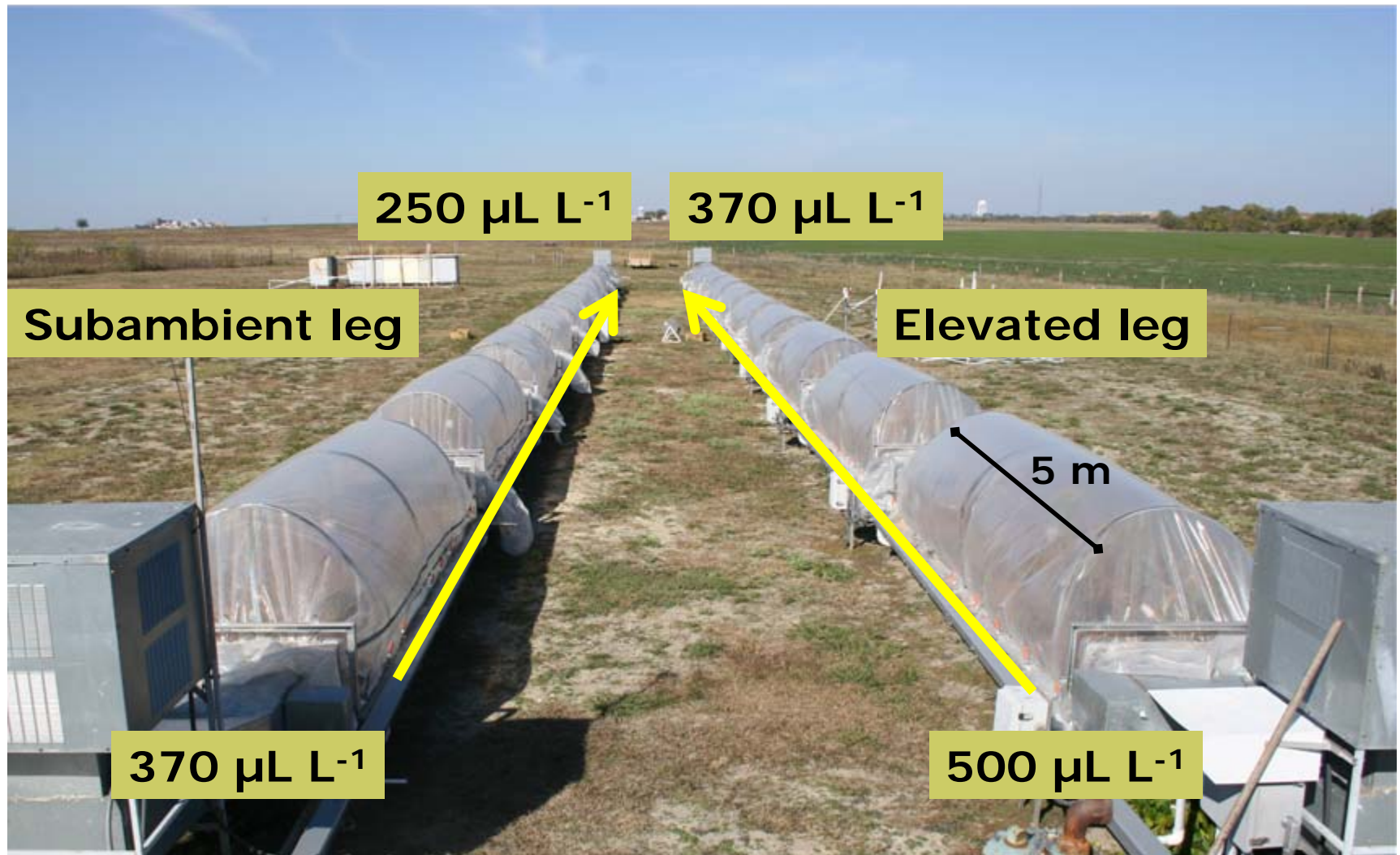
4/23/20

Photo:  
Wayne Polley

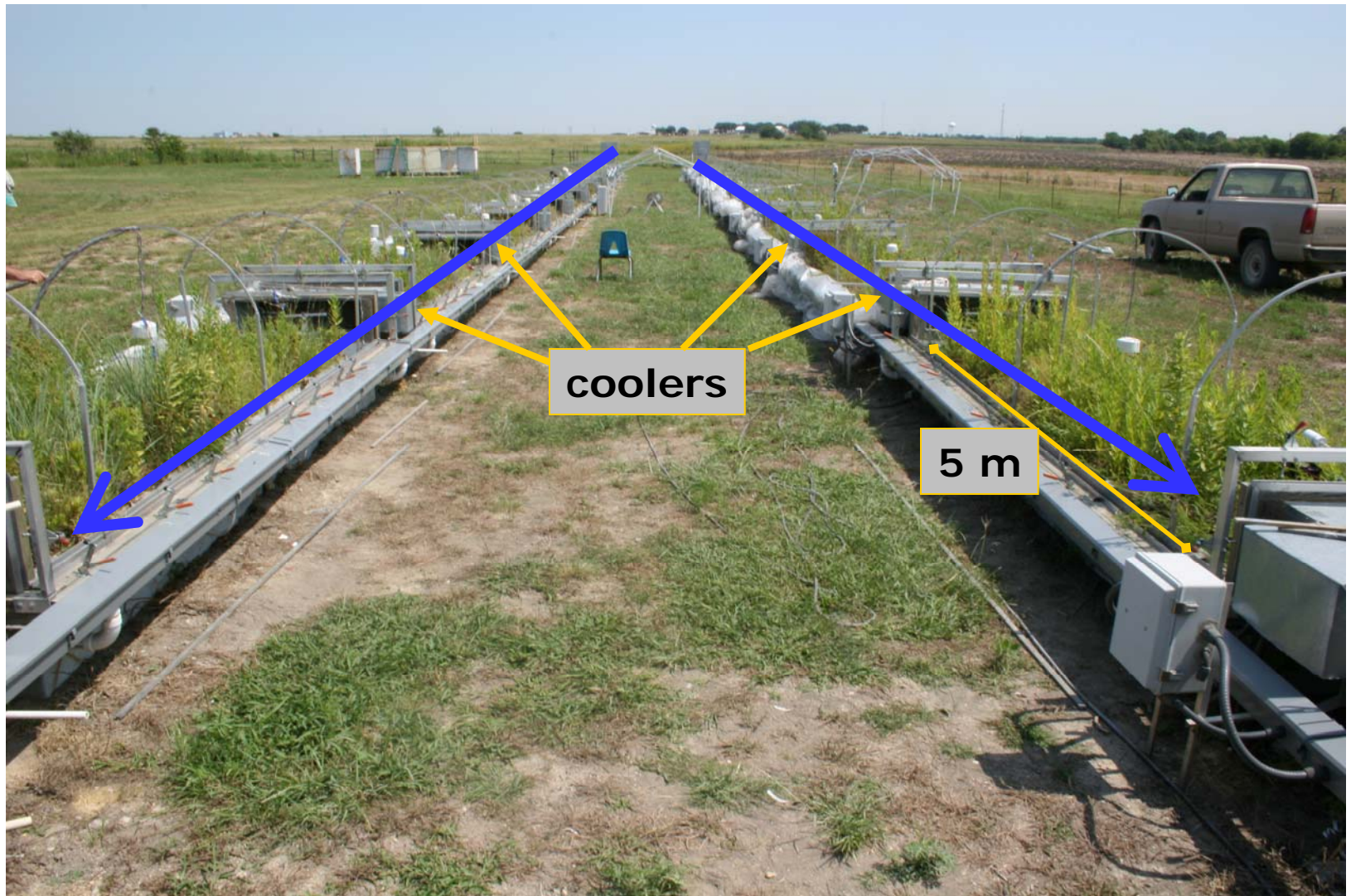
# Blackland Prairie



# LYCOG: LYsimeter CO<sub>2</sub> Gradient



# LYCOG: LYsimeter CO<sub>2</sub> Gradient



# LYCOG facility



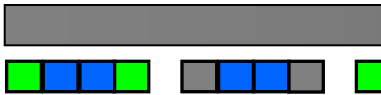
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BSSG

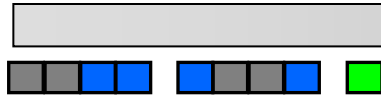
# LYCOG exper



~ 370  $\mu\text{L L}^{-1}$



~ 200  $\mu\text{L L}^{-1}$



~ 550  $\mu\text{L L}^{-1}$



~ 370  $\mu\text{L L}^{-1}$



# LYCOG Vegetation

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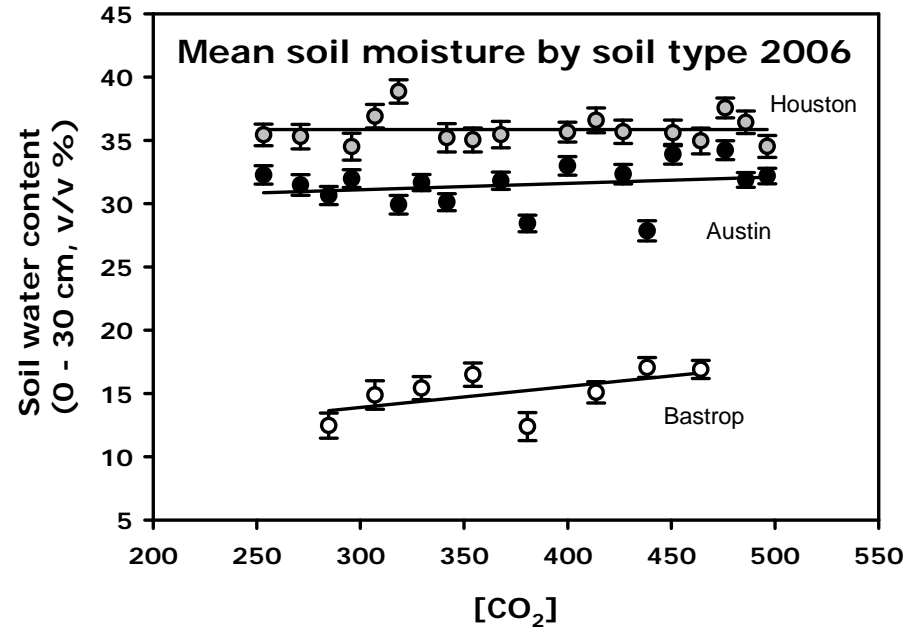
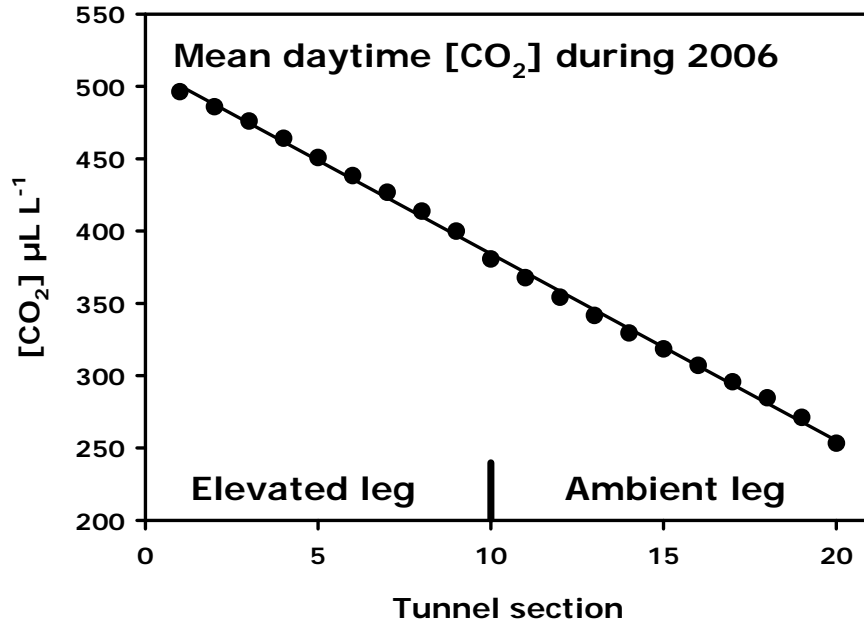
## □ **Grasses**

- *Sorghastrum nutans*
- *Schizachyrium scoparium*
- *Bouteloua curtipendula*
- *Tridens albescens*

## □ **Forbs**

- *Solidago canadensis*
- *Salvia azurea*
- *Desmanthus illinoensis* (legume)

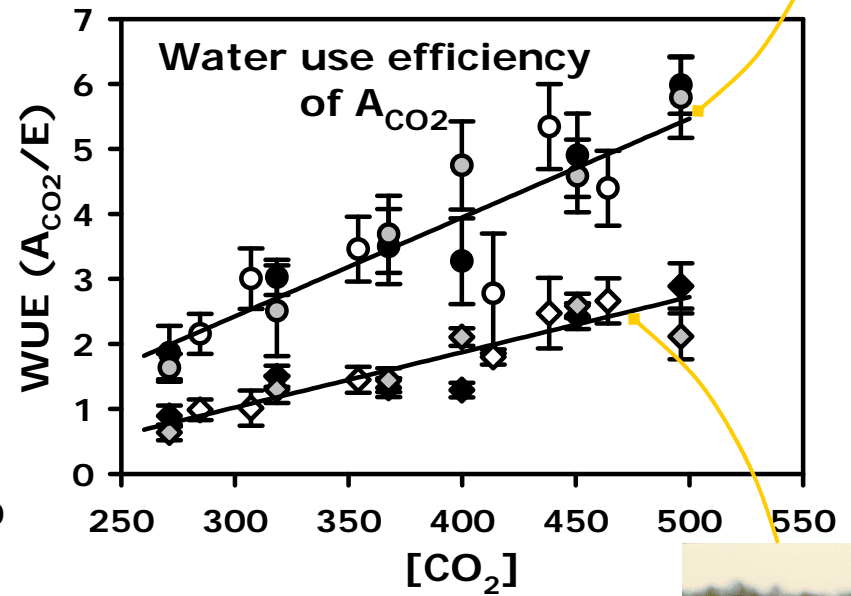
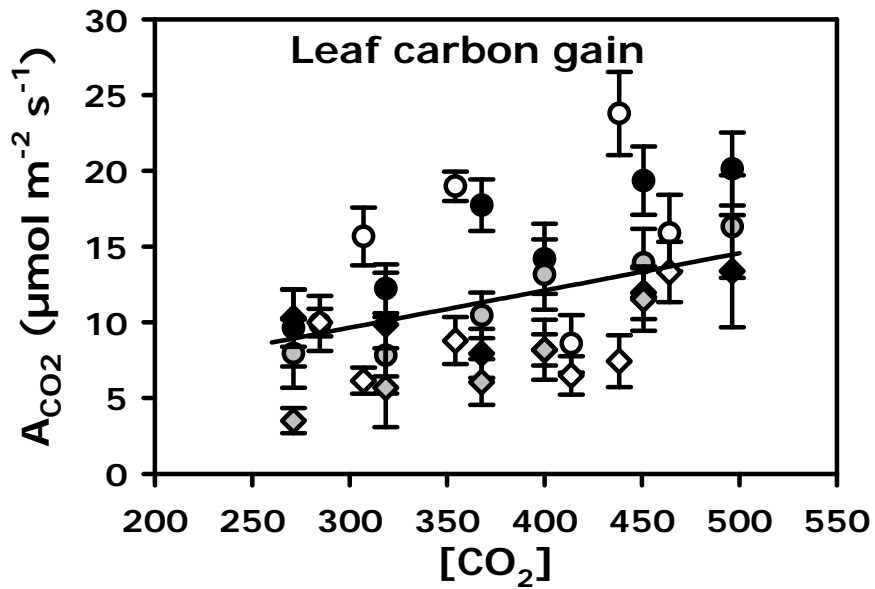
# LYCOG performance



# Carbon gain

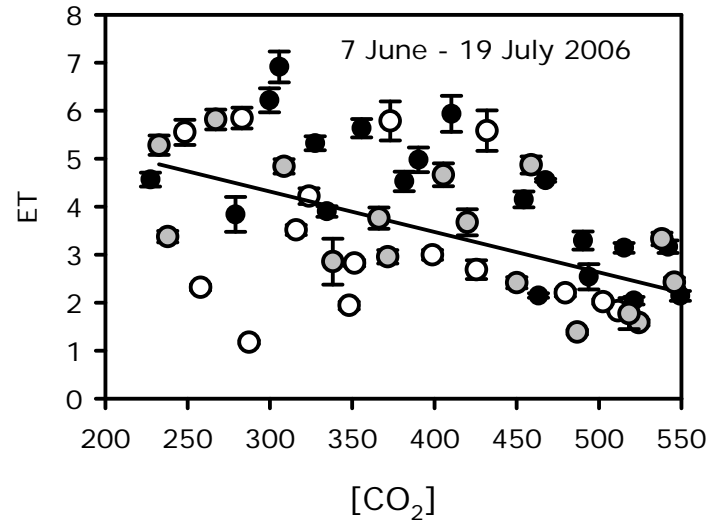
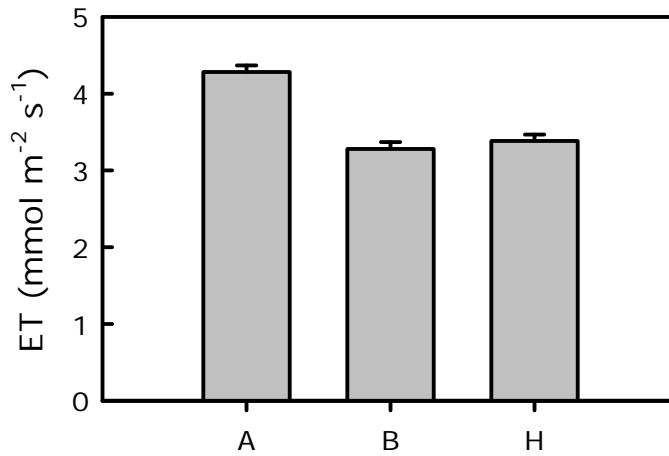
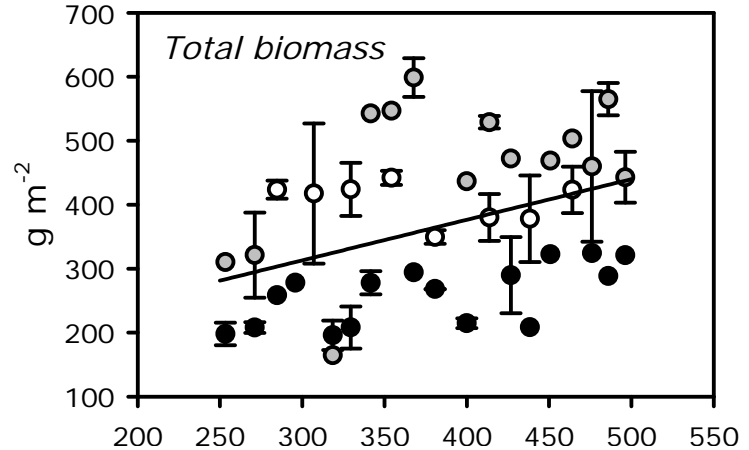
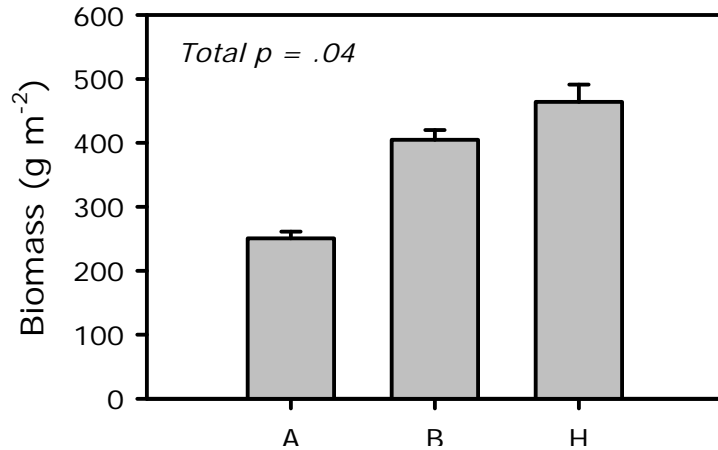


*Sorghastrum nutans*



*Solidago canadensis*

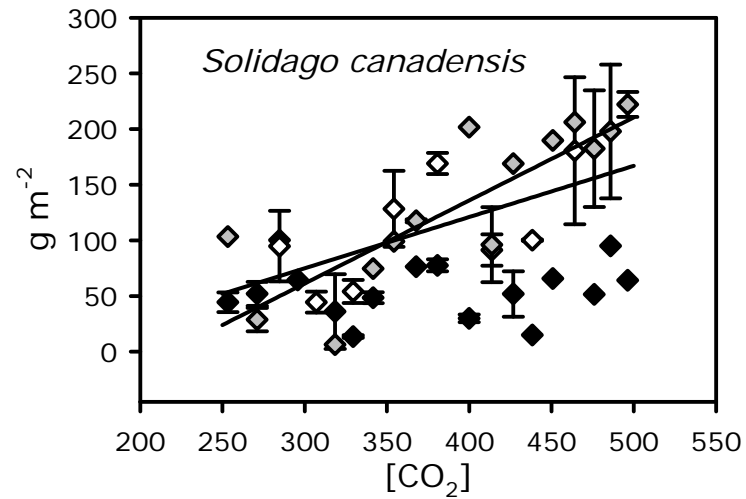
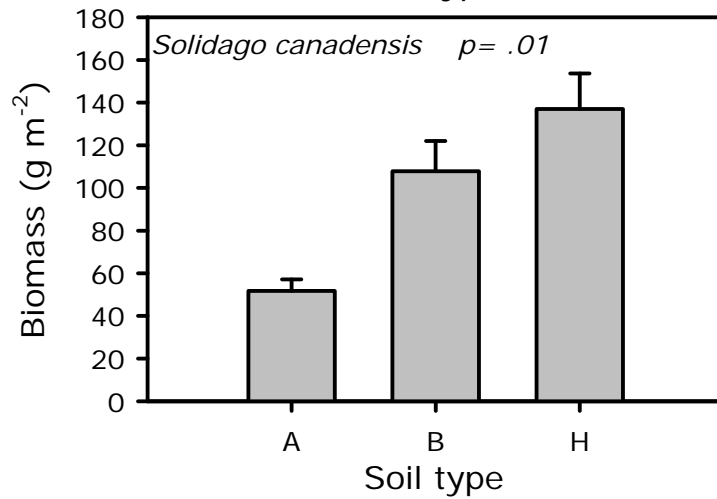
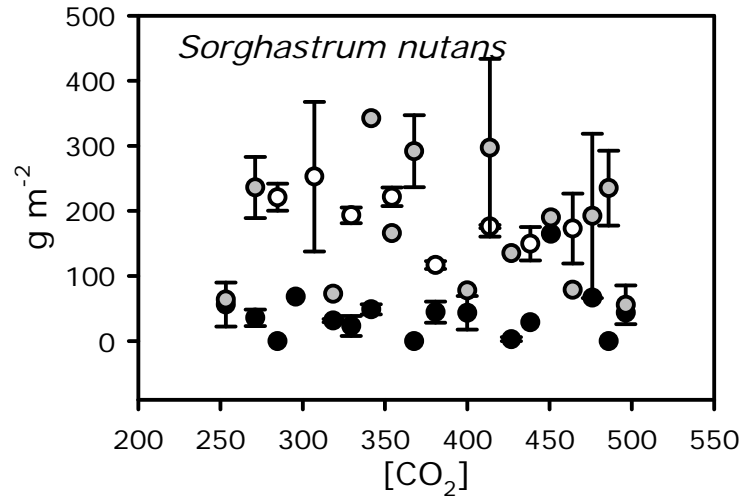
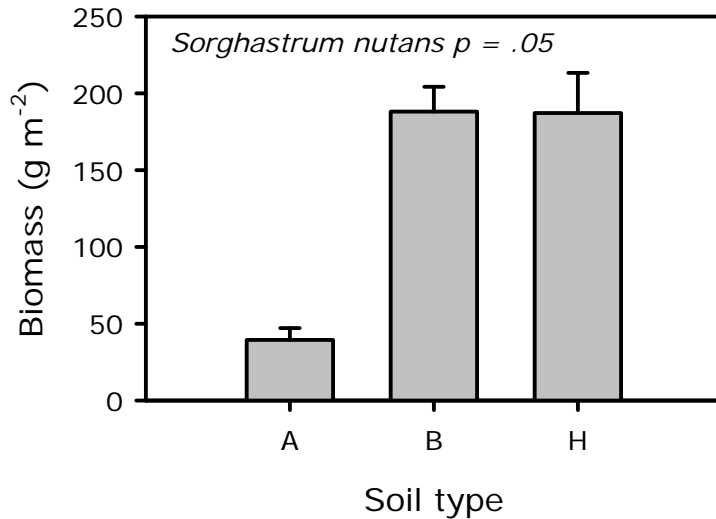
# Aboveground biomass



Soil type

[CO<sub>2</sub>]

# Aboveground biomass



## Early Conclusions

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- ❑ Good control of CO<sub>2</sub>
- ❑ Expected impacts on physiology of C<sub>3</sub> and C<sub>4</sub> species
- ❑ Strong soil effects on NPP
- ❑ Strong CO<sub>2</sub> x soils effects on some species.
- ❑ Soils can strongly impact ecosystem responses to [CO<sub>2</sub>]