

NAME _____

Mid-term Exam
Bio 150 – Prairie Restoration
Friday October 17, 2003

Use only the space provided -- non-relevant information will be penalized.

1. Define each term in a single sentence or phrase (words only, please) (3 pts. each).

petiole

chloroplast

inflorescence

rhizome

whorled

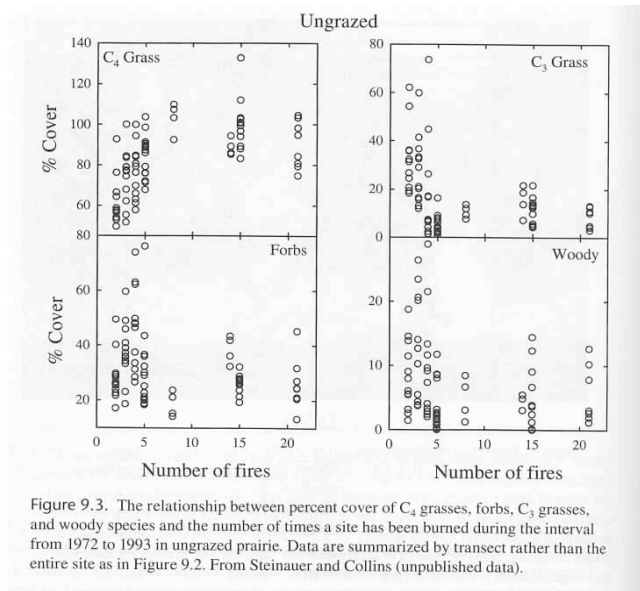
carbon fixation

2. Explain why tallgrass prairies in Iowa have no *endemic* species. (10 pts.)

3. Imagine that you measure the height of 25 *Andropogon gerardii* stems within one of the CERA prairies. Describe (in words) the difference between the *standard deviation* (s or SD) and the *standard error* (SE) you would calculate from these data. If you increased your sample size to 100, how would the magnitude of these two statistics change? (12 points)

4. In a single paragraph, describe the relationships between the following terms: *succession*, *climax*, *disturbance*, *dominance* and *species diversity*. (16 points)

5. The data below illustrate the effects of fire frequency on the abundance of various classes of plants at Konza Prairie. Interpret these results, providing a biological explanation for any significant patterns in the data. (16 points)



- (b) What effects might fire frequency have on insect species? Describe and justify your hypotheses. (8 points)

5. Recently, paleoecologists have suggested that ground fires were common in upland oak forests before European settlement and likely had strong effects on the nature of the forest understory (i.e., all the plants that grow under the big trees that form the canopy). CERA contains many acres of upland oak forest. Design an experiment to test the effects that fire has on the plants of the forest understory at CERA. Assume you are allowed to use an area that is 200 m x 200 m, as much help as you need, and up to two years to carry out the study. Describe your design in enough detail that the reader could understand your goals and methods (20 pts.)