Annotated Bibliography: Productivity and Diversity

Tilman, Wedin, Knops (1996)

**Keywords: biodiversity, plant productivity, soil nitrogen utilization, species richness, grassland ecosystems**

*Title:* Productivity and sustainability influenced by biodiversity in grassland ecosystems

*Introduction (Tilman, 1996):* Species diversity increases the productivity and decreases nutrient loss for grassland ecosystems. Since different species have differing nutrient requirements, a diverse population will have access to more limiting resources than a grassland with lower species richness.

*Methods (Tilman, 1996):* Differing numbers of species were planted in 147 different plots. After two years productivity, nutrient capture, and nutrient leaching were measured in each plot. These same measurements were taken in a mature grassland that was undisturbed as a control.

*Results (Tilman, 1996):* Higher plant diversity lead to higher productivity when compared with species richness, standing crop (how they measured productivity), and biomass. There was less nitrogen at the rooting zone and below in higher diversity plots. This means tat nitrogen is used more readily by higher diversity plots resulting in less leaching as well.

*Conclusion (Tilman, 1996):* Higher plant diversity correlates with higher ecosystem productivity. The natural, mature grasslands showed the same results when determining the nitrogen levels ad total plant cover. Studies like these are becoming more important due to the loss of species diversity all over the world.

*Notes:* Many factors need to be considered to achieve an accurate model of the natural processes. This research is becoming more pressing with regards to climate change.