Figure 29. Dynamics of particular trophic groups at Cedar Creek and the influence of successional vegetation change, N addition, and plant species richness on consumer abundance and diversity.

(A) Based on E014. Grasshopper densities, averaged over all 22 fields in the old field chronosequence, fluctuated by an order of magnitude from 1988-1999. These fluctuations are best correlated with warm summers, which occurred in 1988 (drought year) and 1995.

(B) Abundance of deer mice in all 22 old fields of E014 varied by over an order of magnitude with peak abundance lagging one year behind abundant oak mast crops.

(C) Granivorous rodents (primarily Peromyscus maniculatus) decline significantly with field age in E014, apparently in response to declines in seed availability associated with the dominance of C4 grasses, which produce much less seed per unit biomass, in later successional fields.