

Goals and Additional Design Details for E120

Goals

To control plant species diversity in a well-replicated, long-term field experiment so as to determine the potential effects of plant species richness and plant functional-group richness on

- (1) stability of primary productivity in response to natural and experimentally induced climatic variation and in response to herbivores, pathogens, seed predators, and disease;
- (2) the species composition, abundances, stability and diversity of herbivorous insects, seed predators, predaceous insects, and parasitoids;
- (3) the densities, dynamics, stability and habitat choice of small mammals;
- (4) the dynamics of soil C and N, including rates of accretion, leaching losses, rates of mineralization, rates of fixation, and turnover of pools; and
- (5) the dynamics, species composition and biodiversity of soil micro- and macro-organisms, including soil mycorrhizal fungi, nitrifying bacteria, other bacteria, other fungi, soil micro-arthropods, earthworms, and soil arthropods.

Additional Design Details

Biodiversity II is contained within a block of 342 plots laid out in a grid adjacent to Biodiversity I. Each plot was laid out as a 13 m x 13 m square, but only the central 9 m x 9 m is actively maintained to contain the specified species and level of plant diversity. This is the only portion sampled. Plots were planted with grassland perennial herbaceous and savanna woody species. These plant species were in either the C4 grass, C3 grass, legume, other forb, or woody functional groups. The species composition of the plots was chosen by separate random draws of the appropriate number of species (1, 2, 4, 8, or 16 plant species) from a pool of 18 species. For diversity levels 1, 2, 4, 8, and 16 species, there are 39, 35, 29, 30, and 35 replicates, respectively.

To initiate the experiment, a field at Cedar Creek Natural History Area, Minnesota, was treated with herbicide and burned in August, 1993, had 6-8 cm of soil removed to reduce the seed bank, was plowed and harrowed, then divided into plots of which 168 form this experiment. Plots for Biodiversity II were manually seeded in May 1994 using seed addition rates and methods like those of Biodiversity I. All plots received, in total, 10g/m² of seed in May 1994 with seed mass divided equally among species. Due to insufficient water resources, the plots were not irrigated in 1994. Because a dry and windy spring led to some soil and seed erosion and to poor germination, plots were re-seeded in May 1995, at half the 1994 rate, and watered once or twice weekly with an irrigation system. Two species that did not germinate in 1994 were replaced with different species in the same functional groups in the 1995, with their seeding proportionate to 10g/m². Three species (*Elymus canadensis*, *Poa pratensis*, *Panicum virgatum*) did not establish in one of their two original monocultures, even after reseeded, and these three plots were abandoned after 1996.

All plots were mown in July 1994 to help control weeds, and manually weeded in August 1994. They were manually weeded twice in 1995, four times in 1996, and three or four times from 1997 onward. Selective herbicides were also used through 1997. Plots that were designated to contain only legumes and/or other forbs were sprayed with Assure (Quizalofop P-ethyl (Ethyl(R)-2-[4-(6-chloroquinoxalin-2-yl oxy)-phenoxy]propionate)), a selective herbicide against grasses, twice each growing season from 1994 through 1997. The plots designated to contain just grasses were sprayed twice a year through 1997 with 2,4-dichlorophenoxyacetic acid, a selective herbicide against forbs. All plots in Biodiversity II were burned each spring in late April or early May before plant growth had begun.

There were two problems in implementing Biodiversity II. The first concerned the legume *Petalostemum villosum*. It had, as a seed contaminant, a congener *P. candidum*, causing both species to be planted, but at approximately half the desired density for each species, in plots designated for *P. villosum*. Moreover, seed of the legume *Amorpha canescens* was inadvertently substituted the legume *P. villosum* in 16-species plots. Second, because virtually no *Solidago rigida*, a non-legume forb, germinated during 1994, we reseeded all plots planted originally to *Solidago rigida* with the non-legume forb *Monarda fistulosa*. Some *Solidago rigida* did germinate in 1995 and occurs in plots where originally planted.

Location

The experiment occupies a 10 hectare block of land in a former "brome field" on the land that formerly was part of the Peterson farm.

Other Plots Within the Experimental Block

Plots within the experimental zone which are not used in E120 are 76 additional plots that had functional group compositions drawn from an augmented species pool, 46 plots planted to 32 species, and 48 plots designated for other uses.

History of Big Biodiversity Field Plots

One hundred seventy plots were planted in the block of 342 big biodiversity plots which were not included in experiment e120. The assignment of species to these plots were randomly allocated in different ways than for the E120 plots. The following includes details about the plots within this group.

Plot	Species
001	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
004	Agrre Agrsm Andge Boucu Bougr Bucda Calca Elyca Koecr Leeor Panvi Poapr Schsc Sornu Spocr
007	Amoca Elyca Lesca Luppe Petpu Poapr Queel Quema
008	Achmi Amoca Asctu Liaas Luppe Monfi Petpu Solri Vicvi
010	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
013	Achmi Amoca Liaas Petpu
017	Agrre Agrsm Andge Boucu Bougr Bucda Calca Elyca Koecr Leeor Panvi Poapr Schsc Sornu Spocr
018	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
019	Agrre Agrsm Andge Boucu Bougr Bucda Calca Elyca Koecr Leeor Panvi Poapr Schsc Sornu Spocr
021	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
023	Agrre Agrsm Andge Boucu Bougr Bucda Calca Elyca Koecr Leeor Panvi Poapr Schsc Sornu Spocr
036	Panvi Schsc
038	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
039	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
040	Amoca Astca Baple Lesca Luppe Petca Petpu Petvi Vicvi
041	Andge Boucu Bougr Bucda Panvi Schsc Sornu Spocr
042	Agrre Agrsm Calca Elyca Koecr Leeor Poapr Stisp
043	Andge Koecr Panvi Poapr
047	Achmi Amoca
	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor

049	Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
051	Achmi Liaas
052	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
054	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
055	Boucu Bougr Bucda Panvi Queel Quema Sornu Spocr
059	Asctu Lesca
060	Agrsm Luppe Poapr Quema
061	Agrre Agrsm Calca Elyca Koecr Leeor Poapr Stisp
063	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
064	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
065	Schsc Sornu
066	Elyca Koecr Poapr Stisp
071	Lesca Petpu
072	Achmi Andge Asctu Monfi Panvi Schsc Solri Sornu Spocr
076	Andge Panvi Quema Schsc
077	Achmi Asctu Corpa Liaas Monfi Rudse Solne Zizau
078	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
079	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
080	Andge Luppe Petpu Sornu
084	Agrsm Amoca Lesca Luppe Petpu Queel Schsc Sornu
085	Amoca Lesca Liaas Monfi
086	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
088	Agrsm Andge Elyca Koecr Panvi Poapr Schsc Sornu
090	Amoca Astca Baple Lesca Luppe Petca Petpu Petvi Vicvi
091	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
095	Agrre Agrsm Andge Boucu Bougr Bucda Calca Elyca Koecr Leeor Panvi Poapr Schsc Sornu Spocr
096	Andge Boucu Bougr Bucda Panvi Schsc Sornu Spocr
097	Achmi Amoca Asctu Astca Baple Corpa Lesca Liaas Luppe Monfi Petca Petpu Rudse Solne Vicvi Zizau
099	Monfi Petpu Poapr Solri Sornu
100	Agrre Agrsm Andge Boucu Bougr Bucda Calca Elyca Koecr Leeor Panvi Poapr Schsc Sornu Spocr
101	Amoca Elyca Koecr Lesca Panvi Petpu Queel Schsc
102	Andge Schsc
103	Agrsm Andge Koecr Panvi
	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas

105	Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
112	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
114	Achmi Agrsm Amoca Monfi Solri
116	Achmi Amoca Asctu Astca Baple Corpa Lesca Liaas Luppe Monfi Petca Petpu Rudse Solne Vicvi Zizau
120	Achmi Amoca Asctu Lesca Liaas Luppe Monfi Petpu Solri
121	Andge Sornu
122	Achmi Asctu Corpa Liaas Monfi Rudse Solne Zizau
123	Luppe Panvi Petpu Sornu
124	Elyca
128	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
131	Andge Boucu Bougr Bucda Panvi Schsc Sornu Spocr
132	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
134	Achmi Amoca Asctu Lesca Liaas Luppe Monfi Petpu
140	Achmi Andge Asctu Liaas Monfi Panvi Schsc Solri Sornu
141	Achmi Amoca Asctu Astca Baple Corpa Lesca Liaas Luppe Monfi Petca Petpu Rudse Solne Vicvi Zizau
143	Andge Panvi Schsc Sornu
144	Achmi Amoca Liaas Luppe Monfi Petpu Schsc Solri Sornu
145	Achmi Andge Asctu Monfi Queel Quema Schsc Solri Sornu
147	Achmi Elyca Petpu Schsc
148	Agrsm Amoca Andge Elyca Koecr Luppe Poapr Sornu
150	Achmi Amoca Asctu Astca Baple Corpa Lesca Liaas Luppe Monfi Petca Petpu Rudse Solne Vicvi Zizau
152	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
154	Agrre Agrsm Andge Boucu Bougr Bucda Calca Elyca Koecr Leeor Panvi Poapr Schsc Sornu Spocr
155	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
158	Achmi Asctu Liaas Monfi Queel Rudse Solne Solri Zizau
159	Agrsm Amoca Elyca Koecr Petpu Poapr Queel Quema
162	Andge Boucu Bougr Bucda Panvi Schsc Sornu Spocr
172	Agrre Agrsm Andge Boucu Bougr Bucda Calca Elyca Koecr Leeor Panvi Poapr Schsc Sornu Spocr
173	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
179	Luppe Monfi Petpu Quema Solri
180	Lesca Luppe Petpu Vicvi
181	Achmi Asctu Monfi Panvi Queel Quema Schsc Solri Sornu
183	Andge Boucu Bougr Bucda Panvi Schsc Sornu Spocr
184	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
187	Amoca Lesca Luppe Panvi Petpu Queel Quema Schsc
188	Agrsm Elyca Koecr Panvi Poapr Queel Quema Schsc

191	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
192	Astca Lesca Luppe Petca Petpu Petvi Queel Quema Vicvi
194	Achmi Andge Asctu Liaas Monfi Panvi Rudse Solri Sornu
195	Andge Panvi Schsc Sornu
196	Agrsm Elyca Koecr Poapr
198	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
200	Andge Panvi Schsc Sornu
203	Achmi Asctu Liaas Solne
204	Agrsm Elyca Koecr Leeor Poapr Queel Quema Stisp
207	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
209	Achmi Amoca Asctu Astca Baple Corpa Lesca Liaas Luppe Monfi Petca Petpu Rudse Solne Vicvi Zizau
212	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
214	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
216	Achmi Amoca Asctu Lesca
217	Agrsm Andge Elyca Koecr Panvi Poapr Schsc Sornu
218	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
219	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
222	Koecr Petpu Queel Schsc
226	Agrrre Agrsm Andge Boucu Bougr Bucda Calca Elyca Koecr Leeor Panvi Poapr Schsc Sornu Spocr
228	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
238	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
240	Achmi Amoca Asctu Astca Baple Corpa Lesca Liaas Luppe Monfi Petca Petpu Rudse Solne Vicvi Zizau
241	Achmi Asctu Corpa Liaas
243	Poapr Queel
245	Bucda Panvi Schsc Sornu
246	Agrrre Agrsm Andge Boucu Bougr Bucda Calca Elyca Koecr Leeor Panvi Poapr Schsc Sornu Spocr
247	Agrrre Agrsm Andge Boucu Bougr Bucda Calca Elyca Koecr Leeor Panvi Poapr Schsc Sornu Spocr
249	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
250	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau

251	Asctu Monfi Solri
252	Amoca Liaas Monfi Petpu
254	Achmi Amoca Andge Lesca Luppe Monfi Panvi Petpu Solri
258	Agrre Agrsm Andge Boucu Bougr Bucda Calca Elyca Koecr Leeor Panvi Poapr Schsc Sornu Spocr
260	Panvi Queel Quema Sornu
261	Achmi Amoca Asctu Lesca Liaas Luppe Monfi Petpu
262	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
263	Liaas Quema
264	Amoca Astca Baple Lesca Luppe Petca Petpu Petvi Vicvi
269	Achmi Asctu Corpa Liaas Monfi Rudse Solne Solri Zizau
270	Agrsm Koecr Schsc Sornu
271	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
274	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
275	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
276	Agrre Agrsm Calca Elyca Koecr Leeor Poapr Stisp
277	Achmi Amoca Asctu Lesca Liaas Luppe Monfi Petpu
279	Koecr Monfi
281	Andge Boucu Bougr Bucda Panvi Schsc Sornu Spocr
284	Andge Panvi Schsc Sornu
285	Andge Panvi Schsc Sornu
288	Agrsm Andge Elyca Koecr Panvi Poapr Schsc Sornu
289	Amoca Lesca Luppe Petpu
294	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
295	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
297	Agrsm Koecr Panvi Schsc
298	Luppe Petpu
305	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
306	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
309	Achmi Agrsm Amoca Andge Asctu Astca Baple Boucu Bougr Broin Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
310	Andge Schsc
312	Rudse
314	Agrsm Asctu
315	Achmi Asctu Liaas Queel

316	Achmi Amoca Asctu Monfi
317	Agrsm Andge Elyca Koecr Panvi Poapr Schsc Sornu
320	Amoca Elyca Koecr Liaas Luppe Monfi Petpu Poapr Solri
323	Achmi Asctu Liaas Monfi
326	Poapr Quema
327	Amoca Andge Lesca Luppe Panvi Petpu Schsc Sornu
332	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
337	Agrsm Amoca Andge Elyca Poapr Queel Quema Sornu
340	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau
341	Achmi Agrsm Amoca Andge Asctu Baple Boucu Bougr Bucda Calca Corpa Elyca Koecr Leeor Lesca Liaas Luppe Monfi Panvi Petca Petpu Petvi Poapr Queel Quema Rudse Schsc Solne Solri Sornu Spocr Stisp Vicvi Zizau

Numbering of the plots for E120



Plots are numbered starting from the northeast corner, incrementing left to right in odd rows and right to left in even rows. Walking paths separate every row and driving paths divide the plots into 6x6 groups in the following arrangement. There are 18 Rows with 19 plots each.

Seeding rates

To assure adequate establishment, plots were seeded both in 1994 and 1995. Rates for 1995 are related to those of 1994 by an adjustment factor, with one factor for plots that retained their identities and another factor for plots in which species were changed or added. Factors for plots that were changed are marked with asterisks (*) below. Columns labelled B, C, D, etc. contain the grams of seed applied per plot for the corresponding treatment. The table describes the species planted within any of the 342 plots in the block of plots containing the plots for E120.

Code	Species Name	Year	Factor	B	C	D	E	F	H
Achmi	Achillea millefolium	1994	1	340	170	85	43	22.0	11.0
		1995*	.716	243	122	61	30	15.2	7.6
		1995	.716	243	122	61	30	15.2	7.6
Agrre	Agropyron repens	1994	1	1100	550	275	138	69.0	35.0
		1995*	.716	706	353	177	88	44.0	22.0
		1995	.5	493	247	123	62	31.0	15.4
Agrsm	Agropyron smithii	1994	1	1250	626	313	156	78.0	39.0
		1995*	.716	895	448	224	112	56.0	28.0
		1995	.716	895	448	224	112	56.0	28.0
Amoca	Amorpha canescens	1994	1	340	170	85	43	22.0	11.0

		1995*	.716	243	122	61	30	15.2	7.6
		1995	.25	85	43	21	10	6 5.3	2.7
Andge	Andropogon gerardi	1994	1	1650	825	412	206	103.0	52.0
		1995*	.716	1181	591	295	148	74.0	37.0
		1995	.1	165	83	41	21	10.3	5.2
Asctu	Asclepias tuberosa	1994	1	340	170	85	43	22.0	11.0
		1995*	.716	243	122	61	30	15.2	7.6
		1995	.716	243	122	61	30	15.2	7.6
Astca	Astragalus canadensis	1994	1	220	110	55	28	14.0	7.0
		1995*	.716	158	79	39	19	7 9.9	4.9
		1995	.5	110	55	28	13	8 6.9	3.4
Baple	Baptisia leucantha	1994	1	190	95	48	24	12.0	6.0
		1995*	.716	136	68	34	17	0 8.5	4.3
		1995	.5	95	48	24	11	9 5.9	3.0
Boucu	Bouteloua curtipendula	1994	1	1100	550	275	138	69.0	35.0
		1995*	.716	788	394	197	99	49.0	25.0
		1995	.5	550	275	138	69	34.0	17.2
Bougr	Bouteloua gracilis	1994	1	1540	770	385	192	96.0	48.0
		1995*	.716	1654	827	414	207	103.0	52.0
		1995	.5	1155	578	289	144	72.0	36.0
Broin	Bromus inermis	1994	1	1000	500	250	125	63.0	31.0
		1995*	.716	695	348	174	87	43.0	21.7
		1995	.716	695	348	174	87	43.0	21.7
Bucda	Buchloe dactyloides	1994	1	970	485	240	120	60.0	30.0
		1995*	.716	729	365	182	91	46.0	22.8
		1995	.716	729	365	182	91	46.0	22.8
Calca	Calamagrostis canadensis	1994	1	1000	500	250	125	63.0	31.0
		1995*	.716	652	326	163	82	41.0	20.4
		1995	.5	456	228	114	57	29.0	14.3
Corpa	Coreopsis palmata	1994	1	340	170	85	43	22.0	11.0
		1995*	.716	243	122	61	30	15.2	7.6
		1995	.5	170	85	43	21	10.6	5.3
Elyca	Elymus canadensis	1994	1	2000	1000	500	250	125.0	62.0
		1995*	.716	1432	716	358	179	90.0	45.0
		1995	.25	500	250	125	63	31.0	15.6
Koecr	Koeleria cristata	1994	1	1100	550	275	138	69.0	35.0
		1995*	.716	764	382	191	96	48.0	23.9
		1995	.716	764	382	191	96	48.0	23.9
Leeor	Leersia oryzoides	1994	1	1000	500	250	125	63.0	31.0
		1995*	.716	695	348	174	87	43.0	21.7
		1995	.716	695	348	174	87	43.0	21.7
Lesca	Lespedeza capitata	1994	1	340	170	85	43	22.0	11.0
		1995*	.716	243	122	61	30	15.2	7.6
		1995	.25	85	43	21	10	6 5.3	2.7
Liaas	Liatris aspera	1994	1	340	170	85	43	22.0	11.0
		1995*	.716	243	122	61	30	15.2	7.6
		1995	.716	243	122	61	30	15.2	7.6
Luppe	Lupinus perennis	1994	1	250	125	62	31	15.0	7.0

		1995*	.716	179	90	45	22	11.2	5.6
		1995	.5	125	63	31	15	6 7.8	3.9
Monfi	Monarda fistulosa	1994	1	340	170	85	43	22.0	11.0
		1995*	.716	207	104	52	26	13.0	6.5
		1995	.716	207	104	52	26	13.0	6.5
Panvi	Panicum virgatum	1994	1	1800	900	450	225	112.0	56.0
		1995*	.716	1933	967	483	242	121.0	60.0
		1995	.5	1350	675	338	169	84.0	42.0
Petca	Petalostemum candidum	1994	1	340	170	85	43	22.0	11.0
		1995*	.716	243	122	61	30	15.2	7.6
		1995	.5	170	85	43	21	10.6	5.3
Petpu	Petalostemum purpureum	1994	1	340	170	85	43	22.0	11.0
		1995*	.716	236	118	59	30	15.0	7.4
		1995	.716	236	118	59	30	15.0	7.4
Poapr	Poa pratensis	1994	1	1650	825	412	206	103.0	51.0
		1995*	.716	1375	688	344	172	86.0	43.0
		1995	.333	640	320	160	80	40.0	20.0
Rudhi	Rudbeckia hirta	1994	1	340	170	85	43	22.0	11.0
		1995*	.716	243	122	61	30	15.2	7.6
		1995	.5	170	85	43	21	10.6	5.3
Schsc	Schizachyrium scoparium	1994	1	3000	1500	750	375	187.0	94.0
		1995*	.716	2148	1074	537	269	134.0	67.0
		1995	.1	300	150	75	38	18.8	9.4
Solne	Solidago nemoralis	1994	1	340	170	85	43	22.0	11.0
		1995*	.716	243	122	61	30	15.2	7.6
		1995	.716	243	122	61	30	15.2	7.6
Sornu	Sorghastrum nutans	1994	1	2200	1100	550	275	138.0	69.0
		1995*	.716	1575	788	394	197	99.0	49.0
		1995	.1	220	110	55	28	13.8	6.9
Spocr	Sporobolus cryptandrus	1994	1	420	210	105	53	27.0	14.0
		1995*	.716	601	301	150	75	38.0	18.8
		1995	.5	420	210	105	53	26.0	13.1
Stico	Stipa comata	1994	1	1000	500	250	125	63.0	31.0
		1995*	.716	644	322	161	81	40.0	20.0
		1995	.716	644	322	161	81	40.0	20.0
Vicvi	Vicia villosa	1994	1	340	170	85	43	22.0	11.0
		1995*	.716	243	122	61	30	15.2	7.6
		1995	.5	170	85	43	21	10.6	5.3
Zizau	Zizia aurea	1994	1	340	170	85	43	22.0	11.0
		1995*	.716	243	122	61	30	15.2	7.6
		1995	.716	243	122	61	30	15.2	7.6
Queel	Quercus ellipsoidalis	1994	1	0	0	0	0	.0	.0
		1995*	.716	238	119	60	29	15.4	7.0
		1995	.716	238	119	60	29	15.4	7.0
Quema	Quercus macrocarpa	1994	1	0	0	0	0	0	.0
		1995*	.716	357	179	90	44	23	10.5
		1995	.716	357	179	90	44	23	10.5

Species Assigned to Each Plot

Plot	Species
002	Lesca
003	Asctu Liaas Monfi Panvi Solri
005	Andge
006	Panvi Schsc
009	Achmi Agrsm Amoca Andge Asctu Elyca Lesca Liaas Luppe Monfi Panvi Petpu Poapr Quema Schsc Solri Sornu
011	Achmi
012	Achmi Koecr Luppe Monfi Petca Petvi Poapr Schsc Solri Sornu
014	Asctu Liaas
015	Agrsm Elyca Monfi Petca Petpu Petvi Poapr Queel Quema Solri
016	Asctu
020	Amoca
022	Agrsm Asctu Elyca Koecr Liaas Monfi Petca Petvi Quema Solri
024	Asctu Elyca Panvi Schsc
026	Agrsm Elyca Petpu Sornu
027	Achmi Agrsm Amoca Asctu Koecr Lesca Liaas Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
028	Lesca Petpu Queel Quema
029	Lesca
030	Achmi Agrsm Amoca Andge Asctu Elyca Koecr Liaas Luppe Monfi Panvi Poapr Queel Quema Schsc Solri Sornu
031	Schsc
032	Andge Queel
033	Agrsm Andge Liaas Petca Petvi
034	Achmi Agrsm Amoca Andge Asctu Elyca Koecr Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
035	Agrsm Amoca Andge Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Queel Quema Schsc Solri Sornu
044	Asctu Panvi Petca Petpu Petvi
045	Andge Liaas Petpu Quema
046	Achmi Agrsm Amoca Andge Asctu Elyca Koecr Liaas Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri
048	Koecr Lesca
050	Achmi Elyca Koecr Lesca Petca Petpu Petvi Poapr Quema
053	Lesca Poapr Quema Sornu
056	Luppe Schsc
057	Achmi Agrsm Koecr Lesca Monfi Petca Petvi Poapr Schsc Solri
058	Andge Monfi Poapr Solri Sornu
062	Elyca Lesca Petca Petvi Quema
067	Agrsm Koecr Luppe Monfi Petca Petvi Queel Quema Solri Sornu

068	Achmi Agrsm Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
069	Achmi
070	Andge Asctu Luppe Schsc
073	Monfi Queel Solri
074	Achmi Agrsm Asctu Elyca Koecr Petca Petvi Quema Sornu
075	Asctu Panvi
081	Achmi Agrsm Elyca Lesca Liaas Petpu Poapr Schsc
082	Achmi Amoca Andge Asctu Elyca Lesca Liaas Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
083	Luppe
087	Sornu
089	Achmi Agrsm Amoca Andge Asctu Elyca Koecr Liaas Luppe Panvi Petpu Poapr Queel Quema Schsc Sornu
092	Sornu
093	Agrsm Koecr Luppe Petpu
094	Lesca
098	Achmi Agrsm Andge Koecr Luppe Panvi Poapr Queel
104	Achmi Elyca Koecr Liaas Luppe Petpu Queel Schsc
107	Agrsm Amoca Andge Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri
108	Achmi Agrsm Amoca Andge Elyca Koecr Liaas Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
109	Andge
110	Elyca Lesca Luppe Panvi
111	Achmi Agrsm Lesca Monfi Petca Petvi Poapr Queel Quema Solri
115	Agrsm Andge Asctu Elyca Koecr Monfi Poapr Queel Solri
117	Asctu Luppe
118	Achmi Agrsm Andge Asctu Koecr Monfi Petpu Quema Solri
125	Petpu Schsc
126	Bargr
127	Lesca Quema
129	Liaas
130	Achmi Asctu Elyca Liaas Panvi Petpu Quema Schsc
133	Lesca Monfi Petca Petvi Schsc Solri
135	Schsc
136	Achmi Agrsm Amoca Andge Asctu Elyca Lesca Liaas Luppe Monfi Panvi Petpu Queel Quema Schsc Solri Sornu
137	Amoca
138	Achmi Elyca Koecr Liaas
139	Agrsm Elyca Koecr Lesca
142	Koecr
146	Achmi Andge Lesca Monfi Panvi Poapr Queel Quema Solri
149	Monfi Petca Petvi Quema Solri Sornu
151	Queel
153	Agrsm
156	Achmi Agrsm Amoca Andge Asctu Elyca Koecr Lesca Liaas Monfi Panvi Petpu Queel Quema Schsc Solri Sornu
157	Agrsm Koecr

160	Achmi Agrsm Amoca Andge Asctu Koecr Lesca Liaas Luppe Monfi Panvi Petpu Queel Quema Schsc Solri Sornu
161	Quema
163	Sornu
164	Agrsm Amoca Andge Asctu Elyca Koecr Lesca Liaas Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
165	Poapr Sornu
166	Bagr
167	Liaas
168	Andge Koecr
169	Achmi Agrsm Andge Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Poapr Queel Quema Solri Sornu
170	Achmi Asctu Elyca Koecr Monfi Petca Petpu Petvi Queel Solri
171	Koecr Luppe
174	Achmi Agrsm Amoca Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Queel Quema Schsc Solri Sornu
175	Luppe Sornu
176	Agrsm Liaas Panvi Poapr
177	Andge Asctu Koecr Liaas Petca Petvi Quema Schsc Sornu
178	Achmi Agrsm Elyca Koecr Liaas Monfi Panvi Schsc Solri
185	Petpu
186	Achmi Agrsm Amoca Asctu Elyca Koecr Lesca Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
189	Queel Schsc
190	Lesca Liaas Petpu Quema
193	Andge Luppe
197	Asctu Panvi
199	Luppe Queel Quema Schsc
201	Lesca Petpu Queel Sornu
202	Achmi Agrsm Amoca Andge Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Poapr Schsc Solri Sornu
205	Petpu
206	Agrsm Andge Asctu Lesca Luppe Monfi Poapr Solri Sornu
208	Achmi Agrsm Koecr Lesca Luppe Panvi Poapr Schsc
210	Achmi Elyca Koecr Lesca Liaas Luppe Poapr Schsc
211	Monfi Petca Petvi Solri
213	Achmi Andge Koecr Lesca Petca Petvi Poapr Quema Schsc
220	Achmi Agrsm Amoca Andge Asctu Koecr Lesca Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
221	Queel Quema
223	Koecr Liaas Poapr Queel
224	Achmi Sornu
225	Elyca Petpu Queel Schsc
227	Agrsm Amoca Andge Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Poapr Quema Schsc Solri Sornu
229	Andge Petpu Poapr Schsc
230	Panvi
232	Koecr Luppe Monfi Panvi Petca Petvi Queel Schsc Solri Sornu
233	Liaas Petpu Poapr Queel

234	Elyca Luppe
235	Achmi Agrsm Amoca Andge Asctu Lesca Liaas Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
236	Lesca Panvi
237	Poapr
239	Achmi Agrsm Amoca Andge Asctu Elyca Koecr Lesca Luppe Monfi Petpu Poapr Queel Quema Schsc Solri Sornu
242	Agrsm Amoca Andge Asctu Elyca Koecr Liaas Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
244	Bagr
248	Bagr
253	Achmi Agrsm Amoca Andge Asctu Koecr Lesca Liaas Luppe Monfi Panvi Petpu Poapr Quema Schsc Solri Sornu
255	Queel
256	Agrsm
257	Achmi Agrsm Amoca Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
259	Lesca Schsc
265	Luppe
266	Achmi Agrsm Andge Petca Petpu Petvi Quema Schsc Sornu
267	Liaas
268	Koecr
272	Petca Petvi Queel
273	Achmi Andge Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
278	Elyca Sornu
280	Schsc
282	Sornu
283	Achmi Agrsm Andge Asctu Elyca Panvi Schsc Sornu
286	Lesca Poapr Schsc Sornu
287	Achmi Elyca Monfi Schsc Solri
290	Monfi Solri
291	Petpu
292	Andge Elyca Koecr Lesca Luppe Petca Petvi Poapr Sornu
293	Andge Asctu Lesca Luppe Petpu Queel Quema Schsc
296	Quema
299	Agrsm Amoca Andge Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Poapr Quema Schsc Solri Sornu
300	Luppe Panvi
301	Achmi Agrsm Amoca Andge Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Poapr Quema Schsc Solri Sornu
302	Liaas Luppe Monfi Quema Solri
303	Achmi Agrsm Koecr Liaas Luppe Monfi Petca Petvi Poapr Solri
304	Agrsm Koecr
307	Asctu Luppe Monfi Panvi Petpu Queel Quema Schsc Solri
308	Asctu
311	Koecr Panvi
313	Achmi Koecr Lesca Liaas Luppe Petca Petpu Petvi Quema
318	Achmi Agrsm Amoca Andge Asctu Elyca Koecr Lesca Luppe Monfi Panvi Poapr Queel Quema Schsc Solri Sornu

322	Queel Schsc
324	Elyca Poapr
325	Koecr Monfi Panvi Petpu Solri
328	Achmi Agrsm Amoca Andge Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Poapr Quema Schsc Solri
329	Achmi Agrsm Amoca Andge Elyca Koecr Lesca Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri Sornu
330	Andge Liaas
331	Achmi Agrsm Amoca Andge Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Queel Quema Schsc Solri
333	Elyca
334	Elyca Sornu
335	Koecr Petca Petvi
336	Achmi Agrsm Amoca Andge Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Queel Quema Schsc Solri Sornu
338	Monfi Solri
339	Achmi Amoca Andge Asctu Elyca Koecr Lesca Liaas Luppe Monfi Panvi Petpu Poapr Queel Quema Schsc Solri
342	Luppe Monfi Solri

Species abbreviations

Species codes of five characters are assigned from the first three characters of the genus name and the first two of the species. These abbreviations are used in other files to shorten documentation of the experiment.

Abbreviation	Species	Functional Group
Achmi	Achillea millefolium	Forb
Agrsm	Agropyron smithii	C-3
Amoca	Amorpha canescens	Legume
Andge	Andropogon gerardi	C-4
Asctu	Asclepias tuberosa	Forb
Bagr	Bare ground	-
Elyca	Elymus canadensis	C-3
Koecr	Koeleria cristata	C-3
Lesca	Lespedeza capitata	Legume
Liaas	Liatris aspera	Forb
Luppe	Lupinus perennis	Legume
Monfi	Monarda fistulosa	Forb
Panvi	Panicum virgatum	C-4
Petca	Petalostemum candidum	Legume
Petpu	Petalostemum purpureum	Legume
Petvi	Petalostemum villosus	Legume
Poapr	Poa pratensis	C-3
Queel	Quercus ellipsoidalis	Woody

Quema	Quercus macrocarpa	Woody
Schsc	Schizachyrium scoparium	C-4
Solri	Solidago rigida	Forb
Sornu	Sorghastrum nutans	C-4

Treatments applied to plots

A plot's group code shows which functional groups are present in the plot, with the left-most column representing C-3 grasses, the second column representing C-4 grasses, the third representing forbs other than legumes, the fourth representing legumes, and the fifth representing woody plants. Again, if a column is 1, the corresponding group is present in the plot. If 0, it is not. For example, Plot 3 has group code 01100, which means the plot has both C-4 grasses and forbs other than legumes, but nothing else.

Plot	Treatment	Number of Groups	Group Code(34FLW)	Number of species
002	B	1	00010	01
003	D	2	01100	04
005	B	1	01000	01
006	C	1	01000	02
009	F	5	11111	16
011	B	1	00100	01
012	E	4	11110	08
014	C	1	00100	02
015	E	4	10111	08
016	B	1	00100	01
020	B	1	00010	01
022	E	4	10111	08
024	D	3	11100	04
026	D	3	11010	04
027	F	5	11111	16
028	D	2	00011	04
029	B	1	00010	01
030	F	5	11111	16
031	B	1	01000	01
032	C	2	01001	02
033	D	4	11110	04
034	F	5	11111	16
035	F	5	11111	16
044	D	3	01110	04
045	D	4	01111	04
046	F	5	11111	16
048	C	2	10010	02
050	E	4	10111	08
053	D	4	11011	04
056	C	2	01010	02
057	E	4	11110	08

058	D	3	11100	04
062	D	3	10011	04
067	E	5	11111	08
068	F	5	11111	16
069	B	1	00100	01
070	D	3	01110	04
073	C	2	00101	02
074	E	5	11111	08
075	C	2	01100	02
081	E	4	11110	08
082	F	5	11111	16
083	B	1	00010	01
087	B	1	01000	01
089	F	5	11111	16
092	B	1	01000	01
093	D	2	10010	04
094	B	1	00010	01
098	E	5	11111	08
104	E	5	11111	08
107	F	5	11111	16
108	F	5	11111	16
109	B	1	01000	01
110	D	3	11010	04
111	E	4	10111	08
115	E	4	11101	08
117	C	2	00110	02
118	E	5	11111	08
125	C	2	01010	02
126	A	0	00000	00
127	C	2	00011	02
129	B	1	00100	01
130	E	5	11111	08
133	D	3	01110	04
135	B	1	01000	01
136	F	5	11111	16
137	B	1	00010	01
138	D	2	10100	04
139	D	2	10010	04
142	B	1	10000	01
146	E	5	11111	08
149	D	4	01111	04
151	B	1	00001	01
153	B	1	10000	01
156	F	5	11111	16
157	C	1	10000	02
160	F	5	11111	16
161	B	1	00001	01
163	B	1	01000	01

164	F	5	11111	16
165	C	2	11000	02
166	A	0	00000	00
167	B	1	00100	01
168	C	2	11000	02
169	F	5	11111	16
170	E	4	10111	08
171	C	2	10010	02
174	F	5	11111	16
175	C	2	01010	02
176	D	3	11100	04
177	E	5	11111	08
178	E	3	11100	08
185	B	1	00010	01
186	F	5	11111	16
189	C	2	01001	02
190	D	3	00111	04
193	C	2	01010	02
197	C	2	01100	02
199	D	3	01011	04
201	D	3	01011	04
202	F	4	11110	16
205	B	1	00010	01
206	E	4	11110	08
208	E	4	11110	08
210	E	4	11110	08
211	C	2	00110	02
213	E	5	11111	08
220	F	5	11111	16
221	C	1	00001	02
223	D	3	10101	04
224	C	2	01100	02
225	D	4	11011	04
227	F	5	11111	16
229	D	3	11010	04
230	B	1	01000	01
232	E	5	11111	08
233	D	4	10111	04
234	C	2	10010	02
235	F	5	11111	16
236	C	2	01010	02
237	B	1	10000	01
239	F	5	11111	16
242	F	5	11111	16
244	A	0	00000	00
248	A	0	00000	00
253	F	5	11111	16
255	B	1	00001	01

256	B	1	10000	01
257	F	5	11111	16
259	C	2	01010	02
265	B	1	00010	01
266	E	5	11111	08
267	B	1	00100	01
268	B	1	10000	01
272	C	2	00011	02
273	F	5	11111	16
278	C	2	11000	02
280	B	1	01000	01
282	B	1	01000	01
283	E	3	11100	08
286	D	3	11010	04
287	D	3	11100	04
290	B	1	00100	01
291	B	1	00010	01
292	E	3	11010	08
293	E	4	01111	08
296	B	1	00001	01
299	F	5	11111	16
300	C	2	01010	02
301	F	5	11111	16
302	D	3	00111	04
303	E	3	10110	08
304	C	1	10000	02
307	E	4	01111	08
308	B	1	00100	01
311	C	2	11000	02
313	E	4	10111	08
318	F	5	11111	16
322	C	2	01001	02
324	C	1	10000	02
325	D	4	11110	04
328	F	5	11111	16
329	F	5	11111	16
330	C	2	01100	02
331	F	5	11111	16
333	B	1	10000	01
334	C	2	11000	02
335	C	2	10010	02
336	F	5	11111	16
338	B	1	00100	01
339	F	5	11111	16
342	C	2	00110	02

Dataset Specific Methods

aafe120 - Abstract

In the summers of 2007 and 2008, leaf traits were measured in the Cedar Creek biodiversity experiment [E120]. Three fully mature leaves were sampled from ten individuals of each species collected within the maintained experimental plots as well as from the unmaintained experimental plots. Each individual was identified from a randomly chosen plot to cover the range of diversity treatments. Fresh leaves were scanned on a flatbed scanner on the same day as collection with petioles and sheaths removed. Leaf area, perimeter and Feret's diameter were calculated from the scanned leaves using ImageJ software (Rasband 1997-2004). This allowed calculation of perimeter per area (P/A, cm/cm²), which is empirically correlated with leaf hydraulic conductance across a wide range of taxa (Sack et al. 2003). Perimeter per leaf area x Feret's diameter is a unitless measure of leaf lobedness Cavender-Bares et al 2006 that influences the leaf radiation balance (Givnish 1976). After scanning, leaves were dried at 65°C for three days and weighed to calculate specific leaf area (cm²/g).

Seed mass was determined by collecting seed heads for ten plants per species with fully mature seeds, air drying the seed heads, and then weighing together ten seeds (and dividing by ten) to calculate a mean seed mass per plant. For five species, seed mass was taken from online commercial databases, including the Native Seed Network, Wildflower Farm Inc., and Prairie Moon Nursery. Plant height was measured at maturity from the root collar to the apical meristem or to the top of the vegetative canopy for five to ten individuals per species. Some values were also taken from the USDA Plants Database.

aafe120 - Sampling

Obtain 5 samples from within the biodiversity experiment and 5 samples from the out-group of not maintained plots. Each sample should consist of 3 mature leaves of the plant. Keep these leaves cold and dry until scanning.

aafe120 - Scanning

Scanning of leaf samples should ideally be done on the same day that samples are obtained. If this is not possible, keep samples refrigerated.

To begin scanning, cut petioles from the leaves and measure with a ruler. Number a transparency and put leaves in appropriate area on transparency. Scanning is easiest if transparency remains on the scanner with ruler. Make sure scan contains all leaves and the ruler. Make sure the scan is in true color. Save the image as:

Plant AbbreviationNumber_mm_dd_yy

Use a sharpie to number the leaves. After the scan, the leaves should be returned to an envelope and placed in a drier at 65°C then weighed when dried

Using ImageJ:

Open the image from File / Open. This should bring up the image in true color in another window.

Setting scale: Click analyze / set scale. Run a line across the ruler for 8 centimeters. Enter known distance as =8.0 and Unit of Length as =cm. Click global in order to make this the default for all following images.

Measuring Parameters: Click Process / Binary / Threshold (or Make Binary depending on version. Click Analyze / Set Measurements. This will bring up a window and make sure that Area Perimeter and Feret's Diameter are the only boxes checked. Select the wand from the toolbar and select one of the leaves. A yellow outline should appear on the black object. Click analyze / measure. This will bring up a third window with the data. Save this into an excel or spss spreadsheet.

age120 - Main Plots All Arthropod Insect Sweepnet Sampling 1996-2006

This dataset contains arthropods samples from the main group of 172 plots in E120. Please see main E120 web page for details on plot treatments and other information. These main plots were sampled by sweepnet one to three times per summer from 1996-2006. Sampling dates were: 16/Aug/1996, 20/Jun/1997, 28/Jul/1997, 22/Aug/1997, 22/Jun/1998, 20/Aug/1998, 22/Jun/1999, 20/Aug/1999, 26/Jun/2000, 22/Aug/2000, 23/Jun/2001, 19/Aug/2001, 22/Jun/2002, 20/Aug/2002, 18/Aug/2003, 17/Aug/2004, 17/Aug/2005, 16/Aug/2006. August samples corresponded to approximate peak plant biomass. Problems with spoilage in June samples containing lupine (samples were difficult to dry before mold became a problem) prompted the termination of June sampling after 2002. Samples are not available from all plots on all dates, either due to spoilage or because they were not sampled. Plots were sampled regardless of any changes in plot treatment.

In each month, all plots were swept in one day. A 38cm diameter muslin sweep net was used to make 25 sweeps while walking a line about 10m long through the interior of each plot about 2-3m from the plot edge. A "sweep" consisted of a quick, approximately 2-meter-long horizontal swing of the net. Each sweep sample was transferred to a 1-gallon plastic bag with label identifying plot number. Bags were placed in a chest freezer, and later opened, thawed, and sorted. Extraneous plant material was shaken and discarded. The remaining sample was viewed under a dissecting scope, and species and the number of each encountered was tabulated. Identification was generally to species or genus, but occasionally a morphological descriptive is used when identification was uncertain. Many specimens were mounted and labeled, to serve as reference material and to more closely examine and determine problematic species. As of 2012, reference specimens have primarily been transferred to the University of Minnesota Insect collection on the Saint Paul Campus. Photos of some morphospecies are posted on the Insects of Cedar Creek website. *Be Cautious comparing across studies, there is no guarantee that morphospecies descriptions within this study and others match up.

Plots which were designated part of the main e120 experiment and which are included in this data set are as follows:

2, 3, 5, 6, 9, 11, 12, 14, 15, 16, 20, 22, 24, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 44, 45, 46, 48, 50, 53, 56, 57, 58, 62, 67, 68, 69, 70, 73, 74, 75, 81, 82, 83, 87, 89, 92, 93, 94, 98, 104, 107, 108, 109, 110, 111, 115, 117, 118, 125, 126, 127, 129, 130, 133, 135, 136, 137, 138, 139, 142, 146, 149, 151, 153, 156, 157, 160, 161, 163, 164, 165, 166, 167, 168, 169, 170, 171, 174, 175, 176, 177, 178, 185, 186, 189, 190, 193, 197, 199, 201, 202, 205, 206, 208, 210, 211, 213, 220, 221, 223, 224, 225, 227, 229, 230, 232, 233, 234, 235, 236, 237, 239, 242, 244, 248, 253, 255, 256, 257, 259, 265, 266, 267, 268, 272, 273, 278, 280, 282, 283, 286, 287, 290, 291, 292, 293, 296, 299, 300, 301, 302, 303, 304, 307, 308, 311, 313, 318, 322, 324, 325, 328, 329, 330, 331, 333, 334, 335, 336, 338, 339, 342.

age120 - Main Plots All Arthropod Insect Sweepnet Sampling 1996-2006: Data Preparation

Data was prepared primarily by Nick Haddad, John Haarstad and Stephanie Pimm Lyon. Colleen Satyshur corrected a sampling date discrepancy and re-formatted columns to match 2013 standard arthropod attributes.

acqe120 - Developing seedheads treated with fungicide and insecticide

In 2005, we selected six species based on the availability of sufficient monoculture replication. For most species in the biodiversity experiment there were only one or two monoculture plots; we used all species for which there were three monoculture plots except for one, *Andropogon gerardii*, which had two

monoculture and a two-species plot in which its woody species competitor was almost entirely absent (which made it a de facto monoculture). For each of the six species we randomly selected three 16-species plots (hereafter polycultures) from the 35 polycultures in the larger biodiversity experiment, with the stipulation that they contained the focal species and were not already assigned to some other focal species. In total, 36 plots (18 monocultures and 18 polycultures) were used for our natural enemy removal experiment.

Eight seedheads of six species were selected and randomly assigned to one of four treatments, namely, insecticide, fungicide, insecticide and fungicide, or water (controls). Plots contained two replicate seedheads per treatment. After flowering, between mid-July and mid-August, seedheads were saturated weekly with the respective treatment using spray bottles. We used a 3 % concentration of Mavrik Aquaflow (Wellmark International, Schaumburg, IL), a pyrethroid insecticide with the active ingredient taufluvallinate (22.3 % by volume) and a 1 % concentration of Captan (Bonide Products, Inc., Oriskany, NY), a phthalimide fungicide (50 % by volume).

As seeds ripened from August to September, we visited plots three times a week and harvested seedheads, along with >10 cm of stem, once they were fully mature but before seeds dispersed. Collected seedheads were stored dry at room temperature and ambient humidity for several weeks to after-ripen. We separated seeds from stems and vegetative materials and hand-counted the apparent number of seeds per seedhead.

Next, to assess differences in seed viability due to natural enemy treatments, we tested germination on 30 apparent seeds per seedhead wherever possible. Apparent seeds that contained insects or seeds consumed by fungi would not germinate, providing a means to indirectly measure seeds consumed by predators.

Further details on this dataset can be found in the publication: Beckman, Noelle G.; Dybzinski, Ray; Tilman, G. David; Neighborhoods have little effect on fungal attack or insect predation of developing seeds in a grassland biodiversity experiment; *Oecologia*, 2014; 174(2): 521 - 532. 2014

invre120 - Vegetation sampling

Aboveground biomass from each plot has been sampled by clipping narrow strips. The biomass has been sorted, dried, and weighed separately for each strip. Different areas of the plot have been sampled each year and the size of the clipped strips have periodically changed. See aboveground vegetation sampling for details on equipment and other field methods.

nbe120 - Instrumentation-Plant aboveground biomass carbon and nitrogen

Samples were analyzed using C-N Analyzers, NA1500, Carlo-Erba Instruments or ECS 4010, COSTECH Analytical Technologies Inc., Valencia, CA, USA
Lab analysis were done at University of MN or at the Ecosystems Analysis Lab, University of Nebraska, Lincoln

nbe120 - Plant aboveground biomass carbon and nitrogen

Clip strip harvests were 10cm wide by 6 meters in length. Four strips per plot were harvested, typically in late July-early August. Clip strip locations in the plots were rotated each year to minimize sampling effect. For this dataset, unsorted biomass from two clip-strips was air dried at 40 degrees C. After drying, biomass samples were ground with a standard Thomas Wiley® Mill. The resulting ground sample was stirred to homogenize, then a sub-sample was re-ground in a Wiley® Mini-Mill using a 20 mesh screen. Final ground samples were placed in labelled glass scintillation vials and re-dried prior to lab analysis for percent carbon and nitrogen.

pce120 - Vegetation Sampling

Percent cover of species within 4 permanently marked quadrats within each plot has been recorded annually in July from 1996 to 2000.

ple120 - Vegetation Sampling

Aboveground biomass from each plot has been sampled by clipping narrow strips. The biomass has been sorted, dried, and weighed separately for each strip. Different areas of the plot have been sampled each year and the size of the clipped strips have periodically changed. See aboveground vegetation sampling for details on equipment and other field methods.

rbe120 - Sampling

Beginning in 1997, root biomass is sampled after clipping by collecting three 5 cm diameter x 30 cm deep cores per clipped strip. Roots are washed free of soil, sorted from other organic material, dried and weighed.