

APPENDIX. Supporting information: The effects of local filtering processes on the structure and functioning of native plant communities in experimental urban habitats

Figure S1. Photos of study plots taken in (A) June 2017 and (B) June 2018. Photo credit: D. Borowy

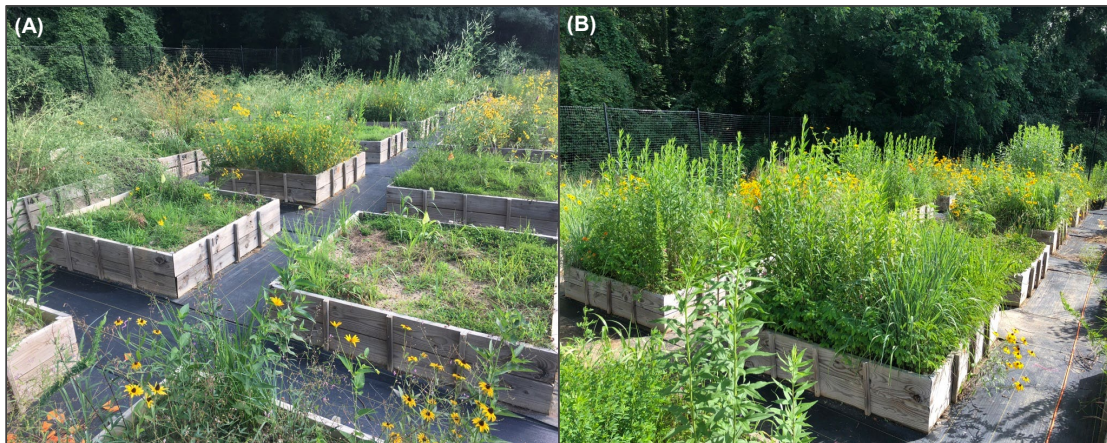


Table S1. List of seeded native species pool and associated functional groups and community type. Status column identifies species that successfully germinated and established in the experimental plots (✓); species that germinated but persisted in low densities (i.e., less than 5 individuals across all plots) (-); and species that did not germinate over the course of the study (X).

Species	Growth Form	Photosynthetic Pathway	Life History	Primary Dispersal Mode	Community Type	Status
<i>Andropogon virginicus</i> L.	Graminoid	C4	Perennial	Wind	2, 3, 4	✓
<i>Asclepias tuberosa</i> L.	Forb	C3	Perennial	Wind	1, 6	✓
<i>Aster laevis</i> L.	Forb	C3	Perennial	Wind	2, 5	✓
<i>Bidens frondosa</i> L.	Forb	C3	Annual	Attachment	1, 4	✓
<i>Chamaecrista fasciculata</i> (Michx.) Greene	Forb-legume	C3	Annual	Ballistic	3, 6	✓
<i>Coreopsis verticillata</i> Ehrh.	Forb	C3	Perennial	Unassisted/bird	1, 4, 6	✓

<i>Desmodium paniculatum</i> (L.) DC.	Forb-Legume	C3	Perennial	Attachment	2, 3, 5	✓
<i>Elymus hystrix</i> L.	Graminoid	C3	Perennial	Attachment	1, 2	✓
<i>Eupatorium altissimum</i> L.	Forb	C3	Perennial	Wind	3, 6	✓
<i>Heliopsis helianthoides</i> (L.) Sweet	Forb	C3	Perennial	Bird	2, 5	✓
<i>Lespedeza capitata</i> Michx.	Forb-Legume	C3	Perennial	Bird	1, 6	✓
<i>Liatris spicata</i> (L.) Willd.	Forb	C3	Perennial	Wind	2, 4	✓
<i>Monarda punctata</i> L.	Forb	C3	Annual	Unassisted	3, 4, 6	✓
<i>Oenothera fruticosa</i> L.	Forb	C3	Biennial-Perennial	Wind	1, 4	X
<i>Oxalis violacea</i> L.	Forb	C3	Perennial	Unassisted-ballistic	2, 5	—
<i>Penstemon hirsutus</i> (L.) Willd.	Forb	C3	Perennial	Unassisted	2, 6	✓
<i>Rudbeckia hirta</i> L.	Forb	C3	Annual	Bird	2, 4, 5	✓
<i>Schizachyrium scoparium</i> (Michx.) Nash	Graminoid	C4	Perennial	Wind	1, 4, 5	✓
<i>Silene stellata</i> (L.) W.T. Aiton	Forb	C3	Perennial	Unassisted/wind	1, 5	X
<i>Solidago odora</i> Aiton	Forb	C3	Perennial	Wind	3, 5	X
<i>Sorghastrum nutans</i> (L.) Nash	Graminoid	C4	Perennial	Wind	3, 5, 6	✓
<i>Thalictrum thalictroides</i> (L.) A.J. Eames & B. Boivin	Forb	C3	Perennial	Ant	3, 4, 5, 6	—
<i>Tridens flavus</i> (L.) Hitchc.	Graminoid	C3	Perennial	Attachment	3, 6	✓
<i>Trillium grandiflorum</i> (Michx.) Salisb.	Forb	C3	Perennial	Ant	1, 3	X
<i>Viola sagittata</i> Aiton	Forb	C3	Perennial	Ant	1, 2, 4	✓

15 **Table S2.** Mean and standard errors of (A) season 1 and (B) season 4 soil variables.

(A)	Fill			Topsoil		
Soil Variable	Mean \pm SE	Min	Max	Mean \pm SE	Min	Max
Moisture (%)	0.86 \pm 0.04	0.72	1.14	1.04 \pm 0.03	0.78	1.20
pH	7.68 \pm 0.04	7.37	7.86	7.62 \pm 0.04	7.32	7.80
Organic matter (%)	2.94 \pm 0.04	2.72	3.14	3.09 \pm 0.05	2.84	3.38
Aluminum (mg/K)	26.54 \pm 0.84	23.97	32.54	24.6 \pm 0.30	23.46	26.91
Arsenic (mg/K)	0.14 \pm 0.01	0.07	0.18	0.18 \pm 0.002	0.18	0.20
Calcium (mg/K)	2573 \pm 59.79	2226	3011	2720 \pm 127.99	2376	4002
Cadmium (mg/K)	0.33 \pm 0.03	0.19	0.49	0.29 \pm 0.03	0.21	0.60
Chromium (mg/K)	0.13 \pm 0.01	0.08	0.16	0.08 \pm 0.01	0.06	0.13
Copper (mg/K)	0.42 \pm 0.02	0.26	0.54	0.33 \pm 0.03	0.23	0.70
Iron (mg/K)	19.29 \pm 2.35	5.84	32.49	6.62 \pm 1.09	4.33	14.81
Potassium (mg/K)	104.35 \pm 2.26	90.7	116.4	105.9 \pm 1.66	92.58	114.17
Magnesium (mg/K)	266.96 \pm 18.08	214.1	417.4	319.07 \pm 11.02	232.20	354.10
Manganese (mg/K)	14.84 \pm 0.62	11.88	18.04	12.98 \pm 0.29	11.32	14.21
Sodium (mg/K)	53.00 \pm 1.49	46.49	66.43	48.66 \pm 1.07	42.80	56.24
Phosphorus (mg/K)	2.67 \pm 0.1	2.15	3.23	2.61 \pm 0.06	2.08	2.88
Lead (mg/K)	1.12 \pm 0.05	0.93	1.49	1.49 \pm 0.07	0.80	1.83
Zinc (mg/K)	1.18 \pm 0.08	0.65	1.56	0.99 \pm 0.11	0.71	1.95

16

(B)	Fill			Topsoil		
Soil Variable	Mean \pm SE	Min	Max	Mean \pm SE	Min	Max
Moisture (%)	0.64 \pm 0.03	0.49	0.86	1.04 \pm 0.03	0.66	0.87
pH	7.54 \pm 0.08	6.91	7.79	7.62 \pm 0.04	7.16	7.80
Organic matter (%)	3.02 \pm 0.12	2.47	4.03	3.09 \pm 0.05	2.69	3.42
Aluminum (mg/K)	16.70 \pm 0.70	14.86	23.22	24.65 \pm 0.30	12.80	17.01
Arsenic (mg/K)	0.15 \pm 0.007	0.09	0.17	0.19 \pm 0.002	0.17	0.21
Calcium (mg/K)	2061 \pm 76.35	1591	2592	2720 \pm 127.99	1632	2555

Cadmium (mg/K)	0.32 ± 0.02	0.21	0.42	0.29 ± 0.03	0.18	0.25
Chromium (mg/K)	0.10 ± 0.005	0.08	0.14	0.08 ± 0.006	0.05	0.07
Copper (mg/K)	0.31 ± 0.019	0.20	0.44	0.33 ± 0.04	0.15	0.25
Iron (mg/K)	8.55 ± 0.52	4.74	11.30	6.62 ± 1.09	2.60	3.41
Potassium (mg/K)	99.35 ± 7.6	70.40	159.92	105.91 ± 1.66	68.91	145.99
Magnesium (mg/K)	201.82 ± 3.51	176.80	220.60	319.08 ± 11.01	192.30	293.80
Manganese (mg/K)	9.44 ± 0.64	6.69	15.08	12.98 ± 0.29	6.04	10.70
Sodium (mg/K)	29.27 ± 0.50	26.61	31.76	48.66 ± 1.07	28.79	32.06
Phosphorus (mg/K)	3.05 ± 0.14	2.32	3.91	2.61 ± 0.06	2.22	3.96
Lead (mg/K)	0.78 ± 0.04	0.58	1.06	1.49 ± 0.07	1.06	1.36
Zinc (mg/K)	0.70 ± 0.04	0.48	0.97	0.99 ± 0.11	0.33	1.51

17

18 **Table S3.** Pearson's correlation coefficients and associated p-values of soil variables for
19 each PCA axis.

	PCA Axis	Pearson's r	P
Aluminum (Al)	1	0.87	4.51E-16
Arsenic (As)	1	-0.48	5.51E-04
Cadmium (Cd)	1	0.46	1.04E-03
Calcium (Ca)	1	0.46	9.31E-04
Chromium (Cr)	1	0.76	5.35E-10
Copper (Cu)	1	0.78	6.31E-11
Iron (Fe)	1	0.82	1.05E-12
Manganese (Mn)	1	0.90	6.26E-18
Moisture	1	0.32	2.61E-02
pH	1	0.38	7.42E-03
Sodium (Na)	1	0.85	2.48E-14
Zinc (Zn)	1	0.73	3.22E-09
Arsenic (As)	2	0.51	1.88E-04
Cadmium (Cd)	2	-0.47	7.23E-04

Calcium (Ca)	2	0.67	1.93E-07
Chromium (Cr)	2	-0.53	9.39E-05
Iron (Fe)	2	-0.44	2.00E-03
Lead (Pb)	2	0.82	9.48E-13
Magnesium (Mg)	2	0.96	5.02E-27
Moisture	2	0.89	3.76E-17
Organic matter (OM)	2	0.42	3.26E-03
Potassium (K)	2	0.40	4.71E-03
Sodium (Na)	2	0.42	2.85E-03

