## ISU Monarch Data Summary for NCIG

Jarad Niemi, Seth Appelgate, and Nehemias Ulloa 2019-04-30

Table ?? and 4 provide mean count of nectar plant species averaged across all data collection events. Values in table represent the specific counting unit for each species, not necessarily a whole plant. Table 6 and 7 provide nectar plant species density (per 100m2) averaged across all data collection events.

Table 1: 2016 nectar plant species: mean count across all surveys  $\,$ 

Nectar Plant Species tallla tall2a tappla tarmlb tarm2a tbcrla tbcr2a tberla tber3a tbydla tbyd2a tcrala tcrela tdavla	tallla	tall2a	tapp1a	tarmin	tarmza	tbcrla	tbcr2a	$_{ m tberla}$	tber3a	tbydla	tbyd2a	tcrala	tcrela	tdavla	tdunza
alfalfa	ı	ı	1	'	7.7	ı	ı	ı	ı	379.0	128.7	ı	ı	ı	'
birdsfoot trefoil	1	ı	1	18.3	1	1	ı	ı	ı	1	1	ı	0.6	1	1
black medic	1	8.3	1	1	1	1	1	1	1	1	34.0	1	1	1	'
bladder campion	1.0	ı	1	1	1	1	1	1	1	1	1	1	1	1	1
canada thistle	1	2.0	1	1	1	1	ı	ı	1	1	1	ı	1	1	0.7
carolina horsenettle	1	ı	1	1	1	1	ı	7.3	2.3	1	1	ı	2.7	1	33.3
common cinquefoil	1	ı	1	1	1	1	1	1	3.0	1	1	8.7	1	1	1
common dandelion	1.3	1.0	1	1	1	1	1	1	0.7	1	1.7	1.3	1	1	'
common mallow	1	2.0	1	1	1	1	ı	ı	1	1	1	ı	1	1	'
common mullein	1.7	2.7	1	•	1	1	1	1	1	1	•	1	1	1	0.3
compass plant	1.0	3.3	1	1	1	1	1	1	1	1	1	1	1	1	1
eastern daisy fleabane	1	1	1	1	1	1	1	0.3	1	1	•	3.3	2.3	1	11.7
flowering spurge	1	1	1	3.0	1	1	1	1	1	1	•	1	1	1	1
golden alexanders	1	1	1	•	1	1	1	3.3	1	•	•	1	1	1	1
morning glory	231.7	1	1	1	1	1	1	0.3	1	1	1	1	1	1	'
ox eye sunflower	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4.0
queen annes lace	1	1	1	104.0	1	1	1	1	1	1	1	1	85.0	1	1
red clover	4.0	ı	16.7	2.7	377.0	1	1	0.3	124.0	58.0	70.3	161.0	129.0	•	1
smartweed	1.3	1.7	1	•	1	1	1	11.3	1	•	•	1	1	1	'
velvetleaf	1	ı	1	1	1	1	1	0.7	1	1	1	1	ı	1	1
white clover	388.7	473.3	3.3	1	8.0	42.0	1	1	16.0	644.7	757.0	134.3	13.7	1	2.0
white sweet clover	1	1	1	1	1	1	1	1	1	3.3	'	1.7	1	1	1
wild mustard	1	1	1	•	1	1	1	1	11.0	•	•	1	1	1	'
wild parsnip	1	1	1	1	1	1	1	1	1	0.3	1	1	1	0.3	'
vellow sweet clover	1	1	1	1	•		1	1	1	1	1.0	2.3	1	1	'

Table 2: 2016 nectar plant species: mean count across all surveys

Nectar Plant Species t	tdun3a	t	tgrola	$_{ m tgro2a}$	$_{\text{thar1a}}$	tjonla	tnie1a	tgrola tgro2a tharla tjonla tniela tnknla tnkn2a tnorlb tpiola tpio2a tprd1a tprd2a	tnkn2a	tnor1b	$_{ m tpio1a}$	$_{ m tpio2a}$	$_{ m tprd1a}$	$^{\mathrm{tprd2a}}$
alfalfa	ı	ı	272.0	20.3	6.7	1	1	1	1	'	·	'	'	ı
oirdsfoot trefoil	İ	1	1	ı	1	1	1	1	33.3	1	1	1	1	İ
black eyed susan	ı	ı	1	ı	1	1	2.3	ı	ı	1	210.3	1	1	ı
blue vervain	ı	1	1	ı	1.3	1	1	ı	1	1	1	1	1	1
brown eyed susan	1	1	1	1	1	1	7.7	ı	1	1	1	1	1	1
canada goldenrod	1	1	1	1	1	53.7	1	1	1	1.0	1	1	1	1
canada thistle	1	1	93.3	45.3	30.7	1	1	1	1	1	1	1	0.3	8.3
carolina horsenettle	9.7	1	1	11.7	1	1	1	1	1	ı	13.3	1	1	1
chicory	ı	1	1	ı	1	7.3	1	ı	1	1	1	1	1	1
common evening primrose	1	1	1	1	1	1	1	1	1	1	17.3	1	1	1
common milkweed	ı	1	0.3	1.0	0.3	1	ı	1	1	1	1	1	1	1
common mullein	ı	ı	1	ı	1	1	ı	ı	ı	1	2.0	1	1	ı
common yarrow	ı	ı	1	ı	1	1	1	1	1	1	2.7	1	1	ı
eastern daisy fleabane	ı	ı	1	ı	1	0.3	1	1	1	1	1.3	1	1	ı
hoary vervain	İ	1	1	ı	1.7	19.0	1	1	1	1	1	1	1	İ
lanceleaf fogfruit	16.7	1	1	1	1	1	1	1	1	1	1	1	1	1
morning glory	1	1	26.0	10.7	1	1	1	1	1	1	1	1	1	1
musk thistle	1	1	1	1	1	3.3	1	1	1	1	1	1	•	1
plantain	1	1	1	1	24.3	'	1	1	1	1	1	1	1	1
prickly lettuce	1	1	1	1	1	1	1	1	1	1	1	1	1	4.3
queen annes lace	1	1	1	1		1	1	1	3.3	1	1	1	1	1
red clover	ı	ı	82.3	415.7	18.7	64.7	1	7.3	25.0	1	1	1	1	ı
stinging nettle	2.3	ı	1	1	1	1	1	1	1		1	1	•	1
white clover	ı	ı	1	ı	33.0	1	ı	107.7	257.0	1	ı	1	1	ı
whitestar	1	ı	1	1	1	1	1	1	1	1	13.7	1	1	1
whorled milkweed	1	1	1	1	1	1	1	1	1	1	2.0	1	1	1
wild parsnip	1	1	1	1	1	11.7	1	1	1	1	1	1	1	1
vellow sweet clover	1	1		1	4.3	'		1	1	1		1	1	4.3

Table 3: 2016 nectar plant species: mean count across all surveys

Nectar Plant Species	$_{ m tprela}$	$_{ m tpre2a}$	$_{ m tpre3a}$	$_{ m tpre4a}$	$_{ m tpre5a}$	$_{ m tpre6a}$	$_{ m tpre7a}$	$_{ m tpre8a}$	tsut2a	ttie1a	tprela tpre2a tpre3a tpre4a tpre5a tpre6a tpre7a tpre8a tsut2a ttie1a tuth3b tvanla tverla tvosla	tvan1a	tver1a	tvos1
alfalfa	1	1	1	ı	1	1	ı	1	1	1	1	1	1	100.3
birdsfoot trefoil	1	1	1	1	1	1	1	1	1	1	1	1	191.0	
black eyed susan	1	ı	1	ı	1	1	ı	1	1	'	1	71.0	1	
olue wild indigo	ı	ı	1	ı	1	1	ı	ı	1	1	1.0	1	1	
brown eyed susan	ı	ı	1	ı	1	1	ı	ı	1	1	77.0	34.3	1	
canada goldenrod	1	1	1	1	1	1	1	1	1	1	1.3	1	1	
canada thistle	1	1	1	ı	1	1	ı	ı	ı	1	13.7	1.7	1	
common dandelion	1.0	5.0	26.7	18.7	19.0	1.0	13.7	17.7	ı	1	1	1	1	
common milkweed	1	1	1	1	1	1	1	1	1	1	0.3	1	1	
eastern daisy fleabane	ı	1	1	ı	1	1	ı	ı	1	1	1	1	372.7	
morning glory	1	1	1	1	1	1	1	1	1	1	1	0.3	1	
ox eye sunflower	•	•	•	1		1	1	1	1		•	30.7	•	
plantain	98.3	6.7	1	ı	1	1	17.7	37.3	1	1	1	1	4.0	
purple prairie clover	ı	ı	1	ı	1	1	ı	ı	1	1	1	17.3	1	
queen annes lace	1	1	1	1	1	1	1	1	1	1	1	1	10.7	
red clover	1	ı	1	ı	1	1	ı	1	1	'	ı	1	32.0	
sawtooth sunflower	1	ı	1	ı	1	1	ı	1	1	'	1	2.7	1	
white clover	116.3	13.3	763.3	318.3	624.3	41.7	279.3	365.7	1	20.7	1	19.7	72.3	
wild bergamot	1	1	1	1	1	1	1	1	1	1	1	19.7	1	
wild parsnip	1	1	1	1	1	1	1	1	1	1	1	55.7	1	2.0
wellow sweet clower					1.3	1								

	alfalfa				•	16.3	16.7				113.3	54.0	7.3		ľ		•	1	Z0.7
	bedstraw	1	1	1	1	1	1	1	•	•	•	•	1	•	1	1	1	1	1
	birdsfoot trefoil	1	1	1	10.7	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	black eyed susan	1.0	1	10.7	1	0.7	•	1	1	•	4.7	0.3	0.7	2.3	1.7	1.0	•	•	1.0
	black medic	1.7	1	1.0	1	1	102.0	1.3	0.3	0.3	52.3	376.7	1	1	11.0	298.0	164.0	1	1
	bladder campion	34.0	ı	1	1	ı	1	ı	1	1	1	1	1	1	1	1	1	1	1
	blue vervain	1	ı	1.0	1	0.3	ı	1	1	1	1	1	1	1	1	ı	1	1	1
	brown eyed susan	1	0.3	1	0.7	1	1	1	ı	ı	1	1	1.0	1	1	0.7	1.7	1	1
	buffalobur nightshade	1	1.3	1	1	ı	1	1	1	1	1	1	1	1	1	1	1	1	1
	canada thistle	1	İ	ı	1	1	İ		1	1	1	1	1	1	1.3	i	ı	1	1
	chicory	1	ı	1	1	1	1		ı	ı	1	1	1	1	1	1	1	1	ı
	clasping venus looking glass	•	ı	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1
	common cinquefoil	1	ı	ı	1	ı	1	1	1	0.3	1	1	9.7	1	ı	1	1	1	1
	common dandelion	1	ı	3.0	0.3	11.0	2.7		1	0.9	27.3	55.0		1	ı	2.0	1	ı	1.0
	common evening primrose	1	1	1	1	1	1		1	1	1		11.7	1	1	1	1	1	1
	common mallow	1	1	1	1	1	1		1	1	1		1	1	1	1	1	1	1
	common milkweed	1	ı	ı	1	ı	ı		ı	ı	1		1	1	1	1	1	1	1
	common mullein	1	ı	ı	1	ı	1		ı	ı	1		1	1	ı	0.3	0.3	ı	ı
	common purslane	1	ı	1	1	ı	ı			1	1		1	1	1	1	1	1	1
	common yarrow	1	1	1	1	1	1			1	1		1	1	1	1	1	1	1
	compass plant	1	ı	0.3	1	1	İ		1	1	1		1	1	1	İ	1.3	1	1
	culvers root	1	ı	1	1	1	1			1	1		1	1	ı	1	1	ı	1
	eastern black nightshade	1	1	1	1	2.0	1			1	1		1	1	1	6.7	1	1	1
	eastern daisy fleabane	1	ı	1	1	ı	ı			13.0	1			49.7	1	0.9	73.7	1	1
	field pennycress	1	1	1	1	1	1			1	1		1	1	1	1	1	1	20.0
	foxglove beardtongue	1	ı	ı	1	ı	ı		ı	ı	1		ı	1	1	ı	1 (	1	1
	groundcherry	1	ı	1	1	1	1		1	1	1		1	1	1	1	0.3	1	1
Ę	hawkweed	1	1	1	1	1	1		1	1	1		1	1	1	1	1	1	1
5	hoary alyssum	1	İ	ı	1	ı	İ		1	1	۱ (		ı	1	1	İ	1	1	1
	hoary vervain	ı	ı	ı	1	ı	ı		I	I	0.3		1	I (	ı	ı	ı	1	ı
	Ironweed	ı	ı		1	ı	ı		ı	ı	1	1	1	1.0	ı	ı	ı	ı	
	marestail	٠ .	1	20.3	1	ı	1		1	1	1	1	1	1	1	1	1	1	1
	morning glory	5.3	İ	İ	1	٠ ٥	İ	ı	l	ı	İ	ı	ı	ı	ı	- 61	' c.	ı	ı
	ox exe sunflower				'	i '	'				'	'	•			- '	) '		0.3
	partridge pea	,	ı	2.7	1.0	2.0	5.0		1	1	8.0	4.7	10.3	1	1	3.3	0.3	1	) '
	pineapple weed	13.3	•	. 1	1	1	1			1	1	. 1		ı	1	3.3	0.7	1	1
	prairie cinquefoil	•	1	1	1	1	1	1	3.3	ı	ı	1	1	1	1	1	1	1	1
	prickly sowthistle	1	•	1	1	1	1	1	1	1	4.0	5.0	1	1	1	1	1	1	1
	þe	1 (	3.3	1	ı	1	1 (	1	1	1	ı	ı		1	1	1	1	1	1
	prostrate vervain	12000.0	1	ı	ı	ı	70.0	I	ı	ı	I	ı	1.7	ı	ı	ı	I	ı	ı
	purple prairie crover	'	ı		- 090	1	1	1	1	1		1		- 20		· c	٠ ،	1	1
	queen annes race red clover	2.7		105.7	29.3	129.7	1 1	' '	- 67.7	356.3	- 089	14.7	181.7	12.3		0, 00 0, 00	. c	' '	506.7
	rough avens	i	İ	. 1	) I	. I	ı	ı	. !	) I	) I	. '	. 1	) I	1	)	) 1	1	. 1
	shepherds purse	1	ı	ı	1.3	9.0	ı	ı	ı	ı	22.7	41.0	ı	ı	ı	ı	ı	1	2.7
	shortstalk chickweed	1	ı	1	1	1	ı	1	ı	ı	ı	1	1	ı	ı	1	15.3	1	1
	smartweed	1.3	14.3	84.0	1.3	3.3	17.7	39.7	218.3	47.7	1	1	38.0	2.0	1	2.3	11.3	1412.7	2.0
	velvetleat	1	İ	0.7	1	ı	1	İ	1	ı	1	1	1	1	ı	ı	ı	İ	ı
	venice mallow	1	İ	1 0	' 6	1	1 '	ı	ı	1 1	, , ,	1 1	1 1	1 1	1	1 '	1 1	1	1 '
	white clover	ı	1 1	249.0	2.3	87.3	33.7	İ	ı	33.7	450.3	402.7	1.96.7	0.7	ı	74.7	7.609	1	J.7
	white sweet clover	1	7.7	ı	ı	ı	ı	ı	ı	ı	ı	1	ı	ı	ı	ı	ı	ı	ı
	wild bergamot						' '					' '							
	wild mistard	'						'	' '			7.3	'						- X - X
	wild parsnip	1	1	1	•	1	1	1	ı	ı	1	) 1			1	1	1	1	)
	T T																		

	canada thistle	1	11.3	8.3		3.0	'	'		-	'	3.0	'	'	19.3	'	1	<u> </u>	9.0	1.5
	carolina horsenettle	1	1	1	1	1	1	1	5.7	1.0	1	ı	ı	1	1	6.3	5.3	ı	1	2.3
	catnip	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16.0	1	1	20.0	1
	chicory	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	common cinquefoil	126.7	21.0	3.0	0.3	1	23.0	1	0.3	1	1	1	114.7	0.7	1	1	0.7	1	1	1
	common dandelion	0.7	0.3	1	1	1	5.0	2.3	1	0.3	1.0	1.3	1	1	1	0.3	0.7	1	1	1
	common evening primrose	•	1	1	1	1	2.7	1	1	1.0	1	1	1	1	4.0	1	1	1	1	1
	common mullein	1	1	1	1	1	1	1	0.3	1	1	0.3	1	1	1	18.0	19.3	1	ı	1
	common selfheal	1	1	1	1	ı	1	1	1	ı	ı	'	ı	1	1	1	'	ı	1	1
	common sneezeweed	1	ı	ı	1	ı	ı	ı	ı	ı	1	1	1	ı	ı	ı	1	ı	ı	1
	common yarrow	1	1	1	1	1	1	1	1	1	1	1	1	3.3	1	1	1	1	1	1
	compass plant	•	ı	1	2.0	1	1	ı	1	1	1	1	ı	1	1	1	1	1	1	1
	cup plant	1	ı	1	1	1	1	65.0	ı	1	1	1	1	1	1	1	1	ı	ı	1
	deptford pink	1	1	ı	1	ı	ı	ı	1	ı	1	ı	1	80.3	1	1	1	1	ı	1
	eastern daisy fleabane	1	1	1	195.3	1	1	1	93.3	197.7	1	1	24.0	928.3	1	51.7	301.7	1	1	1
	field pennycress	1	1	1	1	1	13.7	101.0	1	1	1	1	1	1	1	4.3	1	1	ı	1
	field thistle	1	1	1	1	ı	1	1	1	ı	ı	1	1	1	1	1	1	ı	1	1
	flowering spurge	1	ı	1	က္	1 (	1	1	1	1 1	1 1	' !	1	1	1	1	1	1	1	1
	foxglove beardtongue	1	1	1	5.0	0.3	1	1	1	0.7	2.7	8.7	İ	1	23.3	1	1	İ	1	1
	golden alexanders	1	1	1	0.3	1.7	1	1	1	1	0.3	1	İ	1	6.7	1	1	İ	0.7	1
	great blue lobelia	1	1	1	1	ı	1	1	1	1	ı	1	1	1	1	1	1	İ	1	1
	groundcherry	1	1	İ	1	İ	1	1	1	1	İ	1	1	1	3.0	1	1	1	ı	1
	hoary alyssum	1	1	1	1	İ	1	1	1	1	ı	1	1	1	1	1	1	1	1	1
	hoary vervain	0.3	1	4.0	1	1	1.0	0.3	1	1	9.3	1.0	1.7	1	1	10.0	127.7	1	10.0	1
	ironweed	1	1	0.3	1	1	1	1.3	1	1	1	1	1	1	1	1	1.3	1	ı	1
	lanceleaf fogfruit	1	1	1	1	İ	1	1	ı	1	İ	1	1	1	1	1	4.0	İ	ı	1
	leadplant	1	1	1	1	İ	1	1	1	1	İ	1	1	1	1	1	1	1	ı	1
(	lesser burdock	1	1	1	1	İ	1	1	1	ı	ı	1	1	1	1	1	1	1	ı	0.7
6	marestail	1 1	1	13.7	1	30.7	1.7	0.7	1 .	1 (	ı	1	255.3	6.7	0.7	1	1	İ	1	1 .
	morning glory	0.7	1 (	1	1 (	1	1.3	1	4.0	2.0	1	1	1	1	1	1 (	] 	1	1.7	1.0
	musk thistle	1.7	11.0	1	1.0	ı	1	1	ı	1	1	1	1	1	1	41.3	17.7	ı	ı	1
	new england aster	1	1.7	1	1	İ	1	1	ı	ı	i	1	1	1	1	1	1	İ	1	1
	nodding stickseed	1	· 1	1	1	İ	1	1	ı	ı	i	1	1	' 1	1	1	1	İ	1	1
	ox eye daisy	1	0.7	1 1	۱ (	1 1	i	۱ و	1	' 6	1 0	1 0	1 0	6.7	1 0	1 6	' 1	Î.	1 ' 2 1	1 0
	ox eye sunflower	9.0	1.0	62.7	0.0	7.69	7.1.0	£.4 5.4	0.7	4.3	236.0	144.0	48.0	15.3	47.3	83.0	48.7	ı	7.97	12.0
	pale purple coneflower	ı	ı	ı	1	ı	ı	1.3	ı	ı	0.7	0.7	1	1	1	1	1	ı	ı	1
	paniclediear tick treron	1	ı	1	1	İ	ı	ı	ı	ı	İ	1	ı	ı	1		1	İ	ı	1
	partruge pea											' '				F. 1				' '
	plantain	4.7	1	ı		17.0		1	ı					1	1	1	1.0	1	1	1
	prairie blazing star	. 1	1	ı	1		1	1	ı	ı	1		1	1	1	ı	1	ı	1	
	prairie cinquefoil	1	1	1	1	ı	1	0.7	ı	1	ı	0.3	1	1	1	1	1.3	İ	1	1
	prickly lettuce	0.3	1	1	1	1	6.7	1	1	1	1	1	3.3	118.0	1	17.3	3.3	1	11.7	1
	prickly sowthistle	1	1.0	ı	1	ı	ı	1	ı	ı	ı	1	'	ı	1	ı	1	İ	ı	1
	prostrate vervain	1	ı	1	1	1	0.7	1	1	1	1	1	1	1	1	1	1	ı	1	1
	purple prairie clover	1	1	1	1	1	1	1	1	1	1	1	0.3	1	1	1	1	1	ı	1
	queen annes lace	1	1	1	350.3	1	1	1	1	1	1	1	1	943.3	1	6.3	36.7	İ	1	0.7
	red clover	68.3	28.3	290.7	1043.0	3244.0	176.3	1	197.7	889.3	206.3	111.3	661.3	1056.3	1	54.0	103.0	1	783.0	3081.7
	rough avens	1	ı	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	ı	1
	rough cinquefoil	1	1	1	1	1	1 6	1 0	1	1	1	1	1	1	1	1	1	1	ı	1
	shepherds purse	I (	1 (	1 (	1	ı	4.3	68.3	1 ( 1	1 (	ı	1	1	I	0	1 (	1 (	ı	1 (	(
	smartweed	58.3	9.3	18.3	ı	ı	ı	ı	170.0	50.0	ı	I	ı	ı	16.7	2.3	10.0	I	190.0	7.67
	still goldenrod	ı	ı	ı	ı	ı	ı	ı	л 1 С	ı	ı	1	ı	ı	ı	- 66	٠ ،	I	I	ı
	Sunging nettie	1		1	'	· 0	ı	ı	0.0	1	1	1 -	1	1	1	60.07	 	ı	1 -	1
	swamp minkweed			1 1		0.0			1 1			7.0	' (		1 1	1 1	1 1	1 1	J., (	
													0:1							

Here are some heatmaps for density of species planted with transects on the columns and species on the rows sorting transects by average density and sorting species by average presence.

Table 6: 2016 Nectar plant species density: average density (count / m2) across all rounds

Nectar Plant Species t	tall1a t	tall2a ta	ppla t	tappla tarmlb tarm2a	arm2a t	bcr1a	tbcr2a t	tberla t	tber3a tl	tbydla t	tbyd2a t	tcrala t	tcrela td	tdavla to	tdun2a t	tdun3a t	tfisla tg	tgrola t	tgro2a
alfalfa	1	-	-	1	0.08	1	1	1	-	3.79	1.29	1	1	-	'	'	1	4.53	0.34
birdsfoot trefoil	ı	1	1	0.31	1	1	ı	1	1	1	ı	1	0.10	1	ı	1	ı	1	1
black eyed susan	1	1	1	•	1	•	1	1	•	1	1	1	,	1	1	•	1	1	1
black medic	1	0.17	1	ı	1	1	ı	1	1	1	0.34	ı	ı	ı	1	ı	ı	1	ı
bladder campion	0.03	1	1	ı	1	1	1	1	1	1	ı	1	1	1	1	1	ı	1	1
blue vervain	1	1	ı	1	1	1	1	1	1	1	1	1	1	1	1	1	ı	1	ı
blue wild indigo	ı	1	1	ı	1	1	ı	ı	1	1	ı	1	ı	ı	1	1	ı	ı	ı
brown eyed susan	1	1	1	1	1	1	ı	1	1	1	1	1	1	ı	1	1	1	1	ı
canada goldenrod	1	•	1	•	1	•	1	1	•	•	1	•	•	1	1	•	1	1	1
canada thistle	1	0.04	1	1	1	•	ı	1	1	•	1	1	1	ı	0.01	1	ı	1.56	0.76
carolina horsenettle	ı	•	1	ı	•	•	ı	0.15	0.05	•	1	1	0.03	1	0.33	0.10	•	1	0.19
chicory	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
common cinquefoil	1	1	1	1	1	•	1	1	90.0	1	1	0.12	ı	1	1	1	1	1	1
common dandelion	0.03	0.02	1	1	1	1	1	1	0.01	1	0.02	0.02	1	1	1	1	1	1	1
common evening primrose	ı	1	1	ı	1	1	ı	1	1	1	1	1	ı	ı	1	1	ı	1	1
common mallow	1	0.04	1	1	1	1	1	1	1	1	1	1	ı	1	1	1	ı	1	ı
common milkweed	1	1	1	1	1	1	1	1	1	1	1	1	ı	1	1	1	1	0.01	0.02
common mullein	0.03	0.05	1	1	1	1	1	1	1	1	1	1	1	1	0.00	1	1	1	1
common yarrow	1	1	1	ı	1	ı	1	1	1	1	ı	1	ı	1	1	1	ı	1	1
compass plant	0.02	0.07	1	ı	1	1	ı	1	1	1	1	ı	ı	ı	1	1	ı	1	1
eastern daisy fleabane	1	1	1	ı	1	1	ı	0.01	1	1	1	0.02	0.03	ı	0.12	ı	ı	1	1
flowering spurge	ı	1	1	0.05	1	1	ı	ı	1	1	1	1	1	1	1	1	1	1	1
golden alexanders	ı	1	1	ı	1	•	1	0.07	1	1	1	ı	ı	ı	1	1	ı	1	1
hoary vervain	ı	•	1	1	•	1	1	ı	•	•	1	•	ı	1	•	•	ı	1	1
lanceleaf fogfruit	ı	1	1	ı	1	•	ı	ı	1	1	1	1	ı	ı	1	0.17	ı	1	1
morning glory	4.63	1	1	1	1	1	1	0.01	1	1	1	ı	ı	1	1	ı	1	0.43	0.18
musk thistle	1	1	1	1	1	1	ı	1	•	1	ı	1	ı	1	1	1	ı	1	1
ox eye sunflower	ı	•	1	ı	1	•	ı	1	•	•	1	•	ı	ı	0.04	1	ı	1	ı
plantain	1	1	1	ı	1	1	ı	1	1	1	ı	1	ı	1	1	1	ı	ı	1
prickly lettuce	1	1	1	ı	1	1	ı	1	1	1	ı	1	1	1	1	1	ı	ı	1
purple prairie clover	ı	ı	1	ı	1	1	ı	ı	1	1	1	1	ı	ı	1	ı	ı	1	I
queen annes lace	1		1	1.73	1		1	1	1	•	1	•	0.86	ı	•	•	1	1	1
red clover	80.0	•	0.33	0.04	3.77	•	ı	0.01	2.48	0.58	0.70	2.30	1.38	ı	1	1	ı	1.37	6.93
sawtooth sunflower	ı	ı	ı	ı	1	•	ı	ı	1	1	1	1	ı	ı	1	1	ı	ı	ı
smartweed	0.03	0.03	1	1	1	1	ı	0.23	1	1	1	ı	ı	ı	1	1	ı	1	ı
stinging nettle	1	1	1	1	1	1	ı	1	•	1	ı	1	ı	1	1	0.02	ı	1	1
velvetleaf	1	1	1	ı	1	1	ı	0.01	1	1	1	1	ı	ı	1	1	ı	ı	ı
white clover	7.77	9.47	0.07	1	0.08	0.84	ı	ı	0.32	6.45	7.57	1.92	0.18	1	0.02	•	1	1	ı
white sweet clover	ı	•	1	1	1	•	1	ı	•	0.03	1	0.02	ı	1	1	1	ı	1	ı
whitestar	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
whorled milkweed	ı	1	1	1	1	1	1	ı	1	1	1	1	1	1	1	1	1	1	1
wild bergamot	ı	1	1	ı	1	1	ı	ı	•	1	1	1	ı	1	1	1	ı	1	1
wild mustard	ı	ı	1	ı	1	1	ı	ı	0.22	1	1	ı	ı	ı	1	1	ı	1	ı
wild parsnip	1	1	1	1	1	1	1	1	1	0.00	1	1	1	0.01	1	1	1	1	1
yellow sweet clover	1	1	1	1	1	1	1	1	1	1	0.01	0.03	1	1	1	1	1	1	ı

altalta				'		<u> </u>	16 U	.33	-			1.13	0.54	0.10	'	-	'	'	ı	0.34	
bedstraw	M:	1	ı	1		ı	ı	,	ı	ı	ı	ı	ı	ı	1	ı	ı	ı	ı	1	
birdsfoc	birdsfoot trefoil	1	1	1	0.18		1	1	1	1	1	1	1	1	1	1	1	1	1	1	
black ey	black eyed susan	0.02	1	0.21		- 0.	0.01				ı	0.05	0.00	0.01	0.02	0.03	0.01	1	ı	0.02	0.0
black medic	nedic	0.03	ı	0.02		1	- 2	2.04 0	0.03	0.01	0.01	0.52	3.77	1	1	0.22	2.98	1.64	ı	1	
bladder	bladder campion	0.68	ı	1		ı	ı	ı	ı	ı	ı	ı	ı	1	1	ı	ı	ı	ı	1	
blue vervain	rvain	1	1	0.02			0.00	ı	ı	ı	ı	ı	1	1	1	1	1	1	ı	1	
brown 6	brown eyed susan	1	0.01	1	0.01	_	,	ı	ı	ı	ı	ı	1	0.01	1	1	0.01	0.02	ı	1	
buffalok	buffalobur nightshade	1	0.03	1		ı	1	ı	ı	ı	ı	ı	ı	1	1	ı	ı	ı	ı	1	
canada thistle	thistle	1	1	1		1	1	1	ı	1	ı	i	1	1	i	0.03	1	1	1	1	0.0
chicory		1	1	1			1	ı	ı	ı	ı	ı	1	ı	1	1	1	1	ı	1	
clasping	clasping venus looking glass	1	ı	1		ı	1	ı	ı	ı	1	1	ı	1	1	1	ı	ı	ı	ı	
commo	common cinquefoil	•	ı	1					ı	ı	0.01	ı	1	0.14	1	1	ı	ı	ı	1	
commo	common dandelion	1	ı	0.06	0.01		0.11 0	0.111 0	0.03	ı	0.12	0.27	0.55	1	ı	ı	0.02	ı	ı	0.02	0.0
commo	common evening primrose	1	1	1			,	1	,	,	1	1	1	0.17	1	1	1	1	1	1	
commoi	common mallow	1	1	1	•	,	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
commo	common milkweed	1	1	1	-		1	1	1	1	1	1	1	1	1	1	1	1	1	1	
commoı	common mullein	1	1	1	-		,	ı	ı	,	,	1	1	1	1	1	0.00	0.00	1	1	
commoı	common purslane	1	1	1			1		,	,	1	1	1	1	1	1	1	1	1	1	
commoı	common yarrow	1	1	1			1		,	,	1	1	1	1	1	1	1	1	1	1	
compass plant	s plant	1	ı	0.01	-		1	1	ı	1	1	1	1	1	1	1	ı	0.01	ı	1	
culvers root	root	1	ı	1	-		ı	,	,	1	ı	ı	ı	ı	1	ı	ı	ı	ı	ı	0.0
eastern	eastern black nightshade	1	1	1		- 0.	0.02	1	ı	1	ı	ı	1	1	ı	ı	0.02	ı	ı	1	
eastern	eastern daisv fleabane	1	ı	1			1	ı	1	0.23	0.26	ı	1	0.35	0.50	ı	0.00	0.74	1	1	
field per	field pennycress	1	1	1			1	,	,		1	1	1	1		1	1	1	1	0.33	0.0
yolaxof	foxglove beardtongue	1	1	1			ı	1	ı	1	1	1	ı	1	1	1	ı	ı	ı	1	0.0
groundcherry	herry	'	,	'			,	1	1	,	,	,	,	1	1	1	,	0.00	1	1	
hawkweed	, ed	'	1	'			1	1	,	,	,	1	1	1	1	1	1		1	1	
6 hoary alyssum	.lyssum	1	1	1			,	,	,	,	,	1	1	1	1	1	1	1	1	1	
hoary vervain	ervain	1	1	1			1	1	1	,	1	0.00	1	1	1	1	1	1	1	1	
ironweed	þ	1	ı	1	-		,	,	,	,	1	ı	1	ı	0.01	ı	1	1	1	1	
marestail	vil	1	1	0.41	•	,	1	1	,	1	1	ı	1	1	1	ı	ı	ı	ı	1	
morning glory	g glory	0.05	1	1	•	,	1	1	1	1	1	1	1	1	1	ı	1	1	1	1	
musk thistle	nistle	1	1	1	•	.0 -	0.02	1			1	ı	1	1	1	ı	0.13	0.00	1	1	
ox eye s	ox eye sunflower	1	ı	1	٠	ı	1	ı			1	1	1	1	1	ı	ı	ı	ı	0.01	0.0
partridge pea	ge pea	1	ı	0.05	0.03		0.02 0	0.10 0	0.08	,	ı	80.0	0.02	0.15	1	1	0.03	0.00	ı	1	
pineapt	pineapple weed	0.27	1	1			,	,			1	1	1	1	1	1	0.03	0.01	1	1	
prairie	prairie cinquefoil	1	1	1		1	1	1	1		1	1	1	1	1	1	1	ı	1	1	
prickly	prickly sowthistle	1	1	1			1	1			ı	0.04	0.05	1	1	1	1	1	ı	1	
prostra	þe	1 (	0.02	ı		ı	ı	1 (	ı		ı	ı	ı	1 (	1	1	ı	ı	ı	1	
prostra		240.00	ı	ı			-	.40	1	1	ı	1	ı	0.05	1	1	ı	ı	ı	1	
purple j	purple prairie clover	1	ı	1	•	. 1	ı	ı	ı	ı	ı	ı	ı	ı	1 	ı	1 0	1 0	ı	ı	
queen a	queen annes lace	L	ı	' <del>-</del>	4.49		١ (	ı			1	' 0	' <u>1</u>	' 6	0.97	ı	0.02	0.08	ı	1 4	o
red clover	/er	0.05	ı	2.11	0.49		1.30	ı	ı		7.13	0.08	0.15	2.60	0.12	1	0.08	0.09	ı	8.44	×.
rougn avens	wens	1	ı	1	č		١ ج	ı	ı	ı	ı	٠ .	' -	ı	ı	ı	ı	ı	ı	1 6	0
snepner	snepneras purse	1	ı	ı	0.02		60.0	ı	ı	ı	ı	0.23	0.41	ı	ı	ı	ı		ı	0.04	 
SHOLUSUAIK	aik ciiickweeu aad	- 00	- 060	- 68	- 000		0 03 0	0.35	- 02 0	- 437	. oo		1 1	. Z	- 0 0		- 600	0.15	- 80 20	800	0
yelyetleaf	of f	0.0		0.0										5.0	5.		0.0	7 '	, i	0.0	
verveuear venice mallow	nallow			10.0		, ,		, ,				1 1				1 1					
white clover	lover	' '		4 98	0.04		0 87 0	- 0			- 29 0	4.50	4 03	. 28	0.01		0.75	909	' '	0.03	
whites	white sweet clover	1	0.05	;				. '	,	1	. '	)	'			ı	:	)	1	)	
whorled	whorled milkweed	١	) I	'		,	,	,	,	,	,	1	,	1	١	1	1	,	1	1	
wild bergamot	rgamot	1	ı	1	-		ı	,	,	1	ı	ı	ı	ı	1	ı	ı	ı	ı	ı	
wild mustard	ıstard	1	ı	1			ı	1	1	1	ı	ı	0.07	1	1	ı	ı	ı	ı	0.31	0.1
wild parsnip	rsnip	1	1	1			1	,	,	,	1	1	. 1	1	1	1	1	ı	1	1	
1	1																				

	canada thistle	ŀ	0.23	0.17	1	0.03	1	,	ı	,	'	0.03	'	ı	0.39	ı			CT.U	70.0
	carolina horsenettle	1	1	1	1	1	1	1	0.11	0.02	ı	ı	1	ı	1	0.00	0.05	1	1	0.04
	catnip	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.16	1	1	0.33	1
	chicory	1	1	•	1	•	•	1	1	•	1	1	1	1	1	1	1	ı	1	ı
	common cinquefoil	2.53	0.42	0.06	0.01	•	0.46	1	0.01	1	1	1	1.64	0.01	1	1	0.01	1	1	1
	common dandelion	0.01	0.01	•	1	1	0.10	0.05	1	0.01	0.01	0.01	1	1	1	0.00	0.01	1	1	1
	common evening primrose	1	1	1	1	1	0.05	1	1	0.02	1	1	1	1	0.08	1	1	1	1	1
	common mullein	1	1	1	1	1	1	ı	0.01	ı	ı	0.00	ı	1	1	0.18	0.19	1	1	1
	common selfheal	1	ı	•	1	1	1	ı	1	ı	ı	ı	1	1	1	1	1	1	1	ı
	common sneezeweed	1	1	1	1	1	1	1	1	ı	1	ı	1	1	1	1	1	1	1	1
	common yarrow	1	ı	1	1	1	1	1	1	1	1	ı	1	0.03	1	1	1	1	1	1
	compass plant	1	1	1	0.03	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	cup plant	1	ı	1	1	1	1	1.30	1	ı	ı	ı	1	1	1	1	1	1	1	ı
	deptford pink	ı	ı	1	•	1	1	ı	ı	ı	ı	ı	1	0.80	1	1	1	1	1	ı
	eastern daisy fleabane	1	1	1	3.26	1	1	1	1.87	3.95	1	1	0.34	9.28	1	0.52	3.02	1	1	1
	field pennycress	1	1	1	1	1	0.27	2.02	1	1	1	1	1	1	1	0.04	1	1	1	1
	field thistle	ı	1	1	1	1	1	ı	1	1	ı	ı	1	1	1	1	1	1	1	1
	flowering spurge	1	ı	1	90.0	1	1	ı	1	ı	1	1	ı	ı	ı	ı	1	1	1	ı
	foxglove beardtongue	1	1	1	0.08	0.00	1	ı	1	0.01	90.0	0.09	1	ı	0.47	ı	İ	1	1	ı
	golden alexanders	1	ı	1	0.01	0.02	ı	i	1	1	0.00	1	ı	ı	0.13	ı	1	1	0.01	İ
	great blue lobelia	1	1	'		'	1	1		,		1		1		'	'			-
	groundcherry	ı	ı	1	1	1	1	ı	ı	ı	ı	ı	1	ı	0.00	ı	1	1	1	ı
	hoarv alvssum	1	1	'		'	1	1	1	1	1	1	1	1	1	1	'	1	1	-
	hoarv vervain	0.01	1	0.08		'	0.03	0.01	1	1	0.00	0.01	0.03	1	1	0.10	1.28	1	0.17	-
	ironweed	1	ı	0.01	1	1	1	0.03	1	1	1	1	1	ı	1	1	0.01	1	1	1
	lanceleaf fogfruit	ı	ı	'	1	1	1	1	1	ı	ı	ı	1	ı	ı	ı	0.04	1	1	ı
	leadplant	1	i	1	1	1	1	1	ı	ı	1	1	1	ı	i	i	1	1	ı	i
	lesser burdock	1	1	'		'	1	1	1	1	1	1	1	1	1	1	'	1	1	0.01
10	marestail	1	1	0.27	1	0.31	0.03	0.01	1	1	1	1	3.65	0.07	0.01	1	1	1	1	1
	morning glory	0.01	1	1	1	1	0.03	1	0.08	0.04	1	1	1	1	1	1	1	1	0.03	0.03
	musk thistle	0.03	0.22	1	0.05	1	1	1	1	ı	1	1	1	ı	ı	0.41	0.18	1	1	ı
	new england aster	1	0.03	1	1	1	1	1	1	ı	ı	1	1	ı	ı	ı	1	1	1	ı
	nodding stickseed	ı	1	1	1	1	1	ı	1	ı	ı	ı	1	ı	1	ı	1	1	1	ı
	ox eye daisy	1	0.01	1	1	1	1	1	1	1	1	1	1	0.07	1	1	1	1	1	1
	ox eye sunflower	0.10	0.02	1.25	0.10	0.66	1.42	0.00	0.14	0.09	2.36	1.44	0.69	0.15	0.95	0.83	0.49	1	1.28	0.20
	pale purple coneflower	1	ı	1	1	1	ı	0.03	1	ı	0.01	0.01	1	1	1	İ	1	1	ı	Ì
	panicledleaf tick trefoil	1	1	1	1	1	1	1	1	ı	1	ı	1	1	1	1	1	1	1	1
	partridge pea	1	İ	1	1	1	1	1	1	İ	1	1	1	1	İ	0.01	1	1	İ	Ì
	pineapple weed	1 (	1	1	1	1 1	1	ı	ı	1	ı	ı	1	ı	1	1	1 ,	1	ı	1
	plantain	0.03	ı	1	1	0.17	ı	ı	1	ı	ı	ı	ı	ı	ı	ı	0.01	1	ı	I
	prairie blazing star	ı	ı	ı	ı	ı	ı	- 10	ı	ı	ı	' 0	ı	ı	ı	ı	1 6	ı	ı	I
	prante cinqueion prickly lettuce	- 100					0 13	0.01				0.00	0.05	, <u>x</u>		0 17	0.01		- 10	1
	prickly sowthistle	70.0	- 60 0	' '			01.0						50.0	01:1		7.7	60.0	' '	61.0	1 1
	prostrate vervain	1	<b>1</b> '	'	1	1	0.01	1	1	ı	ı	1	1	1	ı	1	1	1	1	-
	purple prairie clover	1	1	'		1	'	1	1	1	1	1	0.00	1	1	1	'	1	1	-
	queen annes lace	1	1	'	5.84	•	1	1	1	•	,	1	)	9.43	•	0.00	0.37		1	0.01
	red clover	1.37	0.57	5.81	17.38	32.44	3.53	1	3.95	17.79	2.06	1.11	9.45	10.56	1	0.54	1.03	1	13.05	51.36
	rough avens	1	ı	1	1	1	1	ı	ı	ı	ı	1	1	ı	ı	ı	1	1	1	ı
	rough cinquefoil	1	1	1	1	•	1	1	1	•	•	1	1	1	•	•	1	1	1	-
	shepherds purse	1	1	1	1	1	0.00	1.37	1	1	1	1	1	1	1	1	1	1	1	-
	smartweed	1.17	0.19	0.37	1	1	1	1	3.40	0.40	1	1	1	1	0.33	0.02	0.10	1	3.17	0.49
	stiff goldenrod	1	ı	1	1	1	ı	1	1	ı	1	1	1	1	1	İ	1	1	ı	Ì
	stinging nettle	1	ı	1	1	1	1	ı	0.10	ı	1	1	1	ı	ı	0.23	0.02	1	1	ı
	swamp milkweed	1	ı	ı	1	0.08	ı	ı	ı	ı	ı	0.01	1 ,	ı	1	ı	ı	1	0.03	I
	tall boneset	'	'	'	'	'	'	'	٠	'	'	'	0.01	'	<u>'</u>	'	1	1	1	1

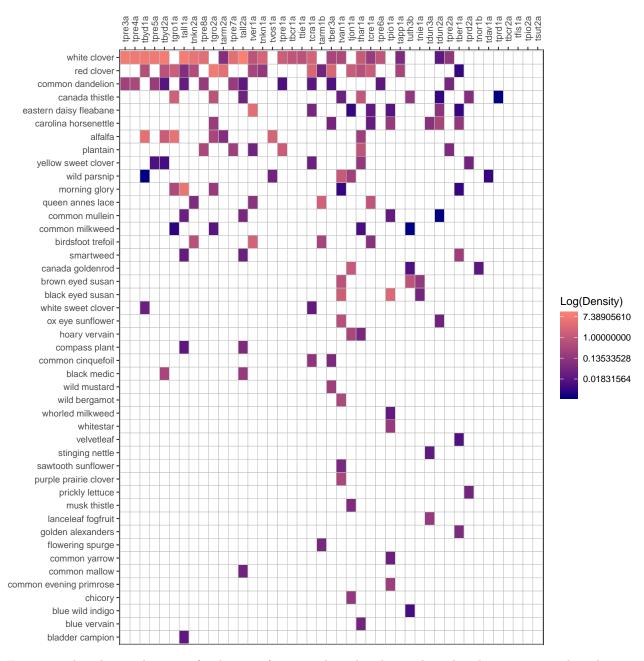


Figure 1: This plot is a heatmap for density of species planted and non-planted with transects on the columns and species on the rows sorting transects by average density and sorting species by avg presence for year 2016.

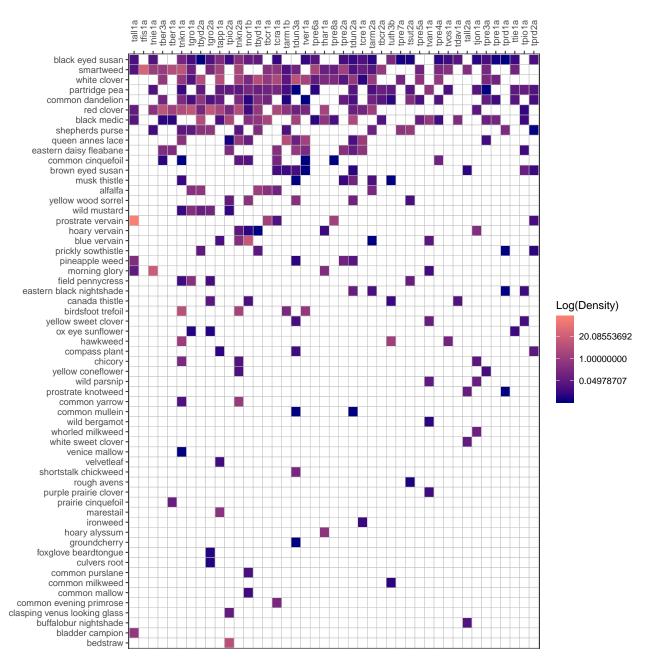


Figure 2: This plot is a heatmap for density of species planted and non-planted with transects on the columns and species on the rows sorting transects by average density and sorting species by avg presence for year 2017.

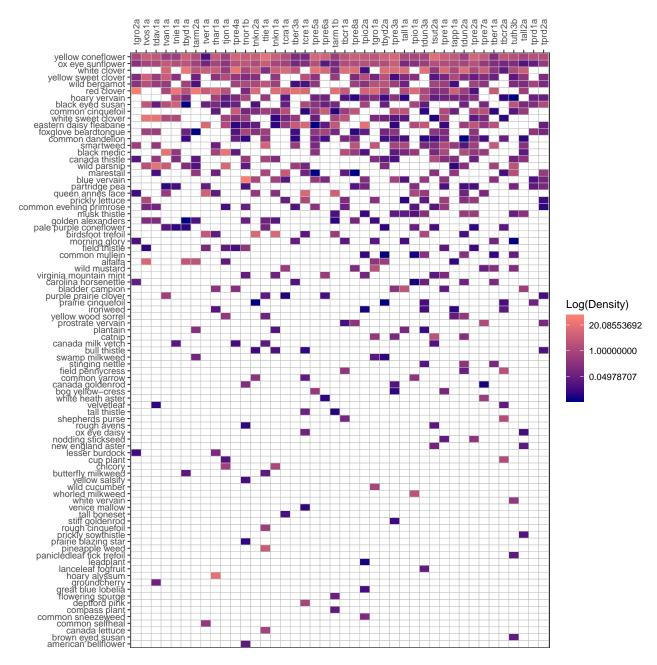


Figure 3: This plot is a heatmap for density of species planted and non-planted with transects on the columns and species on the rows sorting transects by average density and sorting species by avg presence for year 2018.

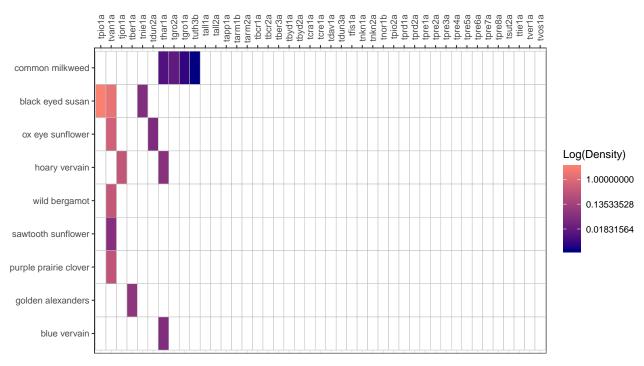


Figure 4: This plot is a heatmap for density of species planted with transects on the columns and species on the rows sorting transects by average density and sorting species by avg presence for year 2016.

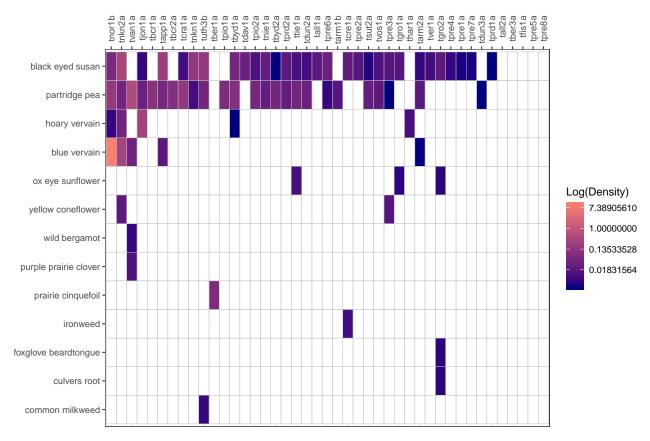


Figure 5: This plot is a heatmap for density of species planted with transects on the columns and species on the rows sorting transects by average density and sorting species by avg presence for year 2017.

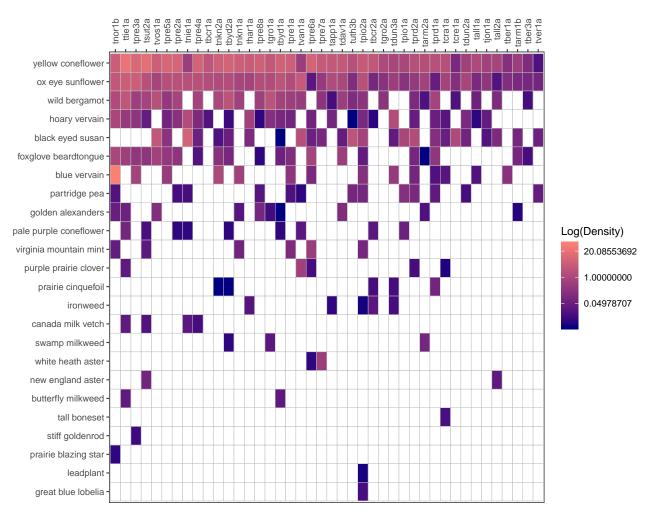


Figure 6: This plot is a heatmap for density of species planted with transects on the columns and species on the rows sorting transects by average density and sorting species by average presence for year 2018.

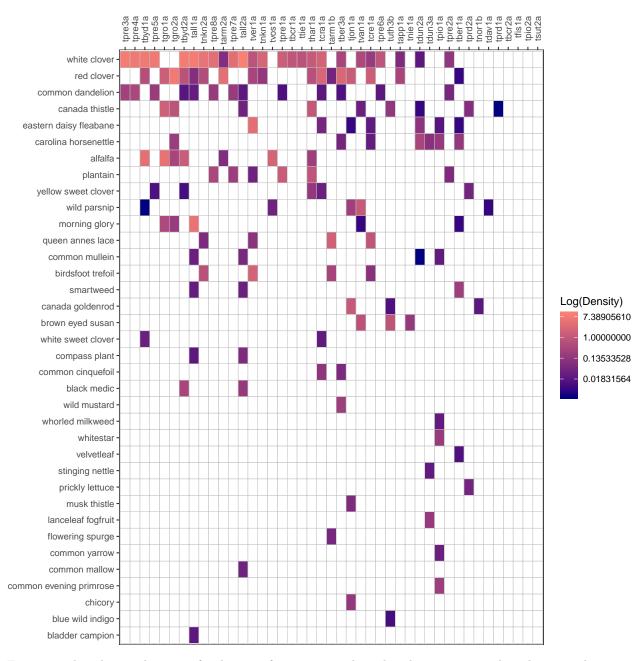


Figure 7: This plot is a heatmap for density of species non planted with transects on the columns and species on the rows sorting transects by average density and sorting species by average presence for year 2016.

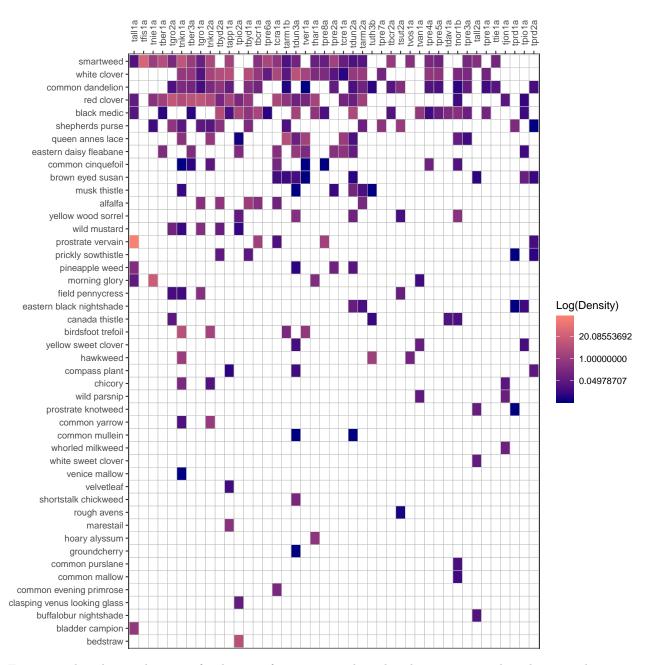


Figure 8: This plot is a heatmap for density of species non planted with transects on the columns and species on the rows sorting transects by average density and sorting species by average presence for year 2017.

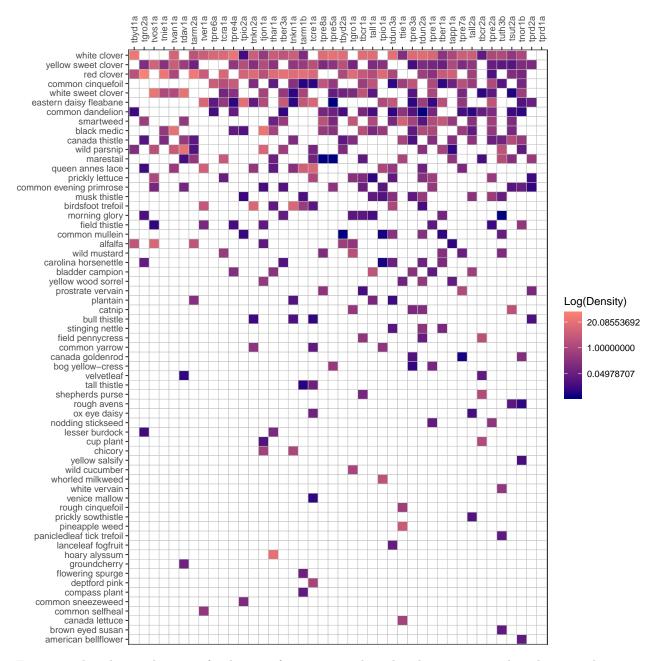


Figure 9: This plot is a heatmap for density of species non planted with transects on the columns and species on the rows sorting transects by average density and sorting species by average presence for year 2018.