



Fall Crew, pictured left to right: Jacob Churulo, Kelly Popper, Molly Duncan, James Johnston, Riley Berner

PLANTING #138

2023 Planting History

JUANITA WILLIAMS
TRACT WETLAND

Prepared by Jacob Churulo

Table of Contents

<i>Introduction</i>	2
<i>Site Conditions</i>	2
<i>Soil Types</i>	2
Map A	2
Table 1	3
<i>Topography</i>	3
<i>Site History</i>	3
<i>Site Preparations</i>	3
<i>Seed Mixes</i>	3
Table 2	4
Table 3	4
Map B	5
<i>Seed Planting</i>	5
<i>Lessons Learned</i>	6
<i>Seed Species List</i>	7
Table 4	12
<i>Maps and Photos</i>	12
Map C	12

Introduction

In the late Fall of 2023, Nachusa Grasslands' seasonal created planting #138 in the Juanita and Homer Williams tract on Carthage Rd. Our 6-person summer crew and 5-person fall crew collected 1500 lbs. of seed from May to November, from around 240 different species of plants. After hammer-milling and hand-milling, and mixing the seed in the Morton building, the seed was planted over three days in late November.

Summer Crew: Clara Barton, Jacob Churulo, Amber Denker, Molly Duncan, Noah Reynolds, Zach Skubizewski

Fall Crew: Riley Berner, Jacob Churulo, Molly Duncan, James Johnston, Kelly Popper

Site Conditions

General location: S. Carthage Rd.; south of Stone Barn Rd. and immediately north of Thelma Carpenter Prairie

GPS coordinates: 41.891931, -89.322088

Acreage: ~24 acres

County: Ogle (borders Lee County)

Soil Types



Map A: Map of different soil types in planting 138 AOI. Green border represents planting boundary, orange borders represent different soil types. See Table 1 for key of soil types.

Map Unit Symbol	Map Unit Soil Type	Acres in AOI	% of AOI
102A	La Hogue loam, 0-2% slopes	12.5	60.7
440B	Jasper loam, 2-5% slopes	3.5	17.2
727A	Waukee loam, 0-2% slopes	2.2	10.5
3776A	Comfrey loam, 0-2% slopes	2.1	10.4
939D	Rodman-Warsar complex, 6-12% slopes	0.2	1.2
622C2	Wyanet silt loam, 5-10% slopes, eroded	< 0.1	0.1
Totals in AOI		20.6	100

Table 1: Key of Map 1, showing different soil types present in planting 138 AOI.

Topography

The topography was mostly flat before dikes were constructed. The two man-made dikes created small patches of standing water immediately south of them. These are the only notable topographical features in the unit, aside from a very small incline leading into the 2022 planting unit.

Site History

The planting site at Juanita Williams sits on the ancestral land of several indigenous communities. These include the Potawatomi, Sauk & Fox, Ojibwe Šakówin, Kickapoo, Ho-Chunk, Myaamia, and Peoria. Around the 1830s, these tribes were forcibly removed by the US government as a result of westward colonization. The land eventually became a row crop field, which it has remained as until 2022, when the upland areas of this unit were planted by the crew. The ground laid fallow the summer of 2023 to allow us to clear brush and do wetland creations. In October of 2023, the fall crew planted 17 plugs of *Filipendula rubra* (Queen of the prairie) in a wet section of the planting site (**Map C**) which we marked in Field Maps.

Site Preparations

The site was pre-treated with glyphosate on two separate occasions prior to the planting. On June 30, 520 gallons were applied using the boom sprayer, and 460 gallons were applied on August 25. Nachusa staff performed this spraying to prevent the current flush of weeds from competing with the future seed we would plant.

Nordman Excavating was hired out of Oregon to construct the two dikes which create wetland habitat. First, the drainage tile had to be dug up and removed to restore the hydrology at the site. Once this was complete, construction on the dikes began and was completed by late July—early August. The site did not have any crops that needed harvesting this year, since it laid fallow from the 2022 crew planting, so the site was essentially ready for planting once the dikes were completed.

Seed Mixes

The two crews together, summer and fall, picked 1,276 lbs. of seed from around 240 different species, plus 247 lbs. of combine mix, totaling at 1,523 lbs. Seed was classified as

combine mix if it was collected with the seed stripper (the combine was not used this year) or if multiple related species were indistinguishable and collected together. An example of this was the crew collecting *Symphyotrichum laeve* and *S. oolentangiense* (smooth blue and sky blue aster, respectively) together, as it was not worthwhile to try to ID them separately. We made 6 mixes in total from this year’s harvested seed, as well as from a handful of barrels of leftover seed and mixes from previous years. Additionally, barrels of a “dike mix” from the 2020 planting were used to seed the two dikes.

Mix	Species Diversity	Total Weight (lbs.)
Dry	41	77.93
Dry Mesic	99	563.49
Mesic	57	869.64
Wet	63	227.86
Wet Emergent	12	24.1
Woodland	27	40.22

Table 2: Summary of seed mixes made in 2023 and total weight

Mix	Acres in Planting	Total Weight (lbs.)	Lbs./acre
Dry Mesic	4.5	214	47.56
Mesic	12	718	59.83
Wet	4.5	227	50.44
Wet Emergent	1	37	37
Dike Mix	1.5	92	61.33
Total	24	1196	NA

Table 3: Summary of seed mixes used in planting 138. Table 4 provides a list of all species by weight in each mix.

- ❖ Dry Mesic (4.5 acres, 214 lbs.)
Dry Mesic conditions primarily occurred as part of a gradient leading up slope to the drier 2022 planting site, as well as a small corner in the West that leads into more upland. This was seeded at a rate of about 48 lbs./acre, leaving nearly 350 lbs. leftover for overseeding needs.
- ❖ Mesic (12 acres, 718 lbs.)
Mesic made the bulk of the planting soil conditions. 2 large areas—1 in the southwest corner and 1 wrapping around 2022’s planting—and 1 small rectangle were seeded at an average rate of around 60 lbs./acre. This left us with ~150 lbs. to use in overseeding. Some of this is specifically for the large brush pile in the southwest corner.
- ❖ Wet (4.5 acres, 227 lbs.)
Wet areas were the most awkwardly shaped because there used to be a small waterway that moved north-south through the site. This channel and the area leading into the dikes created wet soil conditions, which we seeded at our target rate of 50 lbs./acre. This used all of the wet seed mix that we made.

- ❖ Wet Emergent (1 acre, 37 lbs.)
We created a new wet emergent mix of species that can germinate in and tolerate shallow standing water that occasionally accumulates around the dikes. This was all hand seeded because the soil was too wet to drive trucks with seeders through. We hand seeded the 3 small areas at an average rate of 37 lbs./acre, using all of our wet emergent mix.
- ❖ 2020 Dike Mix (1.5 acres, 92 lbs.)
The 2020 planting report describes this mix as “1-part dry mesic seed mix, 4-parts 2009 Holland prairie combine mix, and 1-part tallgrass combine mix.”



Map B: Color coded map of different planting areas' boundaries within planting 138 site. Legend describes where different mixes were planted.

Seed Planting

The planting occurred on November 29 and 30. Both days were moderately cold (30-40° F) with low winds. In the beginning, the ground was covered with snow, but by the end of day 2 this snow was starting to melt and make the ground very soft.

The wet and dry mesic mixes were planted on day 1. Wire flags were placed to mark the boundaries where different mixes were to be planted. All of the boundaries were entered into Field Maps and refined on-site according to soil conditions. For instance, the wet-wet emergent

boundary was determined by where the soil became too mucky to be driven in. We followed the same process that the past year's seedings have used—two trucks each pulled a drop seeder, with the trucks staggered and seeder ends overlapping to prevent leaving behind large gaps (see **Photo A**). The seeder openings were set to about 50% on initial transects and opened to 75-90% when doing the resweeps. We drove in transects, going back and forth one direction and then going over again perpendicular to that. To track our coverage, we used the location streaming feature in Field Maps, which drew our transect lines as we drove. In some oddly shaped areas, it was more productive to follow the boundary in concentric passes. While planting the seed, the snow helped us a lot because we were able to see where the seed was falling and evaluate how accurately we were driving the trucks.

By day 2 we had only the mesic and wet emergent seed left to plant. There was a large brush pile in the southwest corner of a mesic patch, so we seeded as closely around it as the trucks allowed. Once this pile is burned, there is mesic seed set aside to complete this little area of the planting. By the afternoon, the snow started melting and the ground was becoming more saturated. This made it slightly more difficult to navigate the trucks, but ultimately the rest of the planting went smoothly. We had some time left in the day when we finished with mesic seed, so we ended by hand seeding the wet emergent. With a bucket of seed in hand, we each walked around casting seed on the ground. This was less strategic than the driving, but we were able to seed a good amount of seed on the ground to spot and fill gaps.

All that was remaining of the planting was overseeding the dikes. We waited for a good weather day with low wind to accommodate the pendulum seeder, which was more appropriate for the tops of the dikes than the wide drop seeders. The slopes of the dikes were too steep to drive a tractor, so we hand seeded these, completing the last part of the 2023 crew planting (except for the burn pile scar).

Lessons Learned

- Snow on the ground is a favorable condition. The visibility of the seed on the ground was helpful many times throughout the planting, and it made for a cool picture for Dee (**Photo E**). But watch for snow melting, as this led to a couple spots of soft mud that the trucks risked getting stuck in.
- Field Maps location streaming, or a similar feature, is pretty much essential to the job. Especially without the added help of snow, we could easily see if and where gaps occurred and fill them right away (**Photo D**).
- Having radios on day 2 made communication easier and faster than with cell phones.
- Wire flags marking boundaries in real life made orienting the trucks easier.

Seed Species List

SCIENTIFIC NAME	COMMON NAME	Dry Mesic	Mesic	Wet	Wet Emergent	Total Lbs.
<i>Agalinis tenuifolia</i>	Slender False foxglove			1.45		1.45
<i>Agrimonia parviflora</i>	Swamp Agrimony			0.037		0.037
<i>Alisma subcordatum</i>	Water Plantain			0.92	3.2	4.12
<i>Allium cernuum</i>	Nodding Wild Onion	0.139				0.139
<i>Amorpha canescens</i>	Leadplant	33.1				33.1
<i>Anemone canadensis</i>	Meadow Anemone			0.34		0.34
<i>Anemone cylindrica</i>	Thimbleweed	0.798				0.798
<i>Angelica atropurpurea</i>	Great Angelica			9.3		9.3
<i>Antennaria neglecta</i>	Field Cat's Foot	0.51				0.51
<i>Antennaria plantaginifolia</i>	Pussy Toes (Everlasting)	1.7				1.7
<i>Apocynum androsaemifolium</i>	Spreading Dogbane			0.9		0.9
<i>Arnoglossum atriplicifolia</i>	Pale Indian Plantain	4	6.3			10.3
<i>Arnoglossum plantaginea</i>	Indian Plantain		1.5			1.5
<i>Artemisia campestris caudata</i>	Beach Wormwood	20.8				20.8
<i>Artemisia ludovicina</i>	White sage	0.071				0.071
<i>Asclepias amlexicaulis</i>	Sand Milkweed	0.062				0.062
<i>Asclepias incarnata</i>	Swamp Milkweed			0.112		0.112
<i>Asclepias syriaca</i>	Common Milkweed	0.55	1			1.55
<i>Asclepias tuberosa interior</i>	Butterfly Weed	0.019				0.019
<i>Asclepias verticillata</i>	Whorled Milkweed	0.135				0.135
<i>Astragalus canadensis</i>	Canadian Milk Vetch	3.4	3			6.4
<i>Baptisia alba</i>	White Wild Indigo	15	50.9			65.9
<i>Baptisia bracteata</i>	Cream Wild Indigo	3				3
<i>Besseyia bullii</i>	Kittentails	0.03				0.03
<i>Boltonia asteroides</i>	False Aster			4.95		4.95
<i>Bouteloua curtipendula</i>	Side-Oats Grama	1.6				1.6
<i>Brickellia eupatoroides</i>	False Boneset	3	2.4			5.4
<i>Bromus kalmii</i>	Prairie brome	20.4	56			76.4
<i>Calamagrostis canadensis</i>	Blue Joint Grass		3.65	10		13.65
<i>Caltha palustris</i>	Marsh Marigold			0.16		0.16
<i>Carex cristastella</i>	Crested oval sedge			0.009		0.009
<i>Carex hystericina</i>	Porcupine sedge			1		1
<i>Carex lacustris</i>	Lake sedge			0.6		0.6
<i>Carex pellita</i>	Broad-leaved Woolly Sedge			0.012		0.012

Carex scoparia	Broom Oval Sedge			6		6
Carex stipata	Common Fox Sedge			1.3		1.3
Carex stricta	Tussock Sedge			0.003		0.003
Carex vulpinoides	Brown Fox Sedge			7.2		7.2
Ceanothus americanus	New Jersey Tea	1				1
Cephalanthus occidentalis	Buttonbush			0.92		0.92
Chamecrista fasciculata	Partridge Pea		4.9			4.9
Chelone glabra	Turtlehead			0.722		0.722
Cirsium muticum	Swamp Thistle			0.032		0.032
Coreopsis lanceolata	Sand Coreopsis	0.5				0.5
Coreopsis palmata	Prairie Coreopsis	0.924				0.924
Coreopsis tripteris	Tall Coreopsis		11.7			11.7
Cyperus strigosus	False Nutsedge		0.037			0.037
Dalea candidum	White Prairie Clover	2.891				2.891
Dalea purpureum	Purple Prairie Clover	6	4.6			10.6
Danthonia spicata	Poverty Oat Grass	0.05				0.05
Dichanthelium scribnerium	Scribner's Panic Grass	0.4				0.4
Dodecatheon meadia	Shooting Star	8.6				8.6
Doellingeria umbellata	Flat-topped Aster			1		1
Drymocallis arguta	Prairie Cinquefoil	3	34.7			37.7
Echinacea pallida	Pale Purple Coneflower	38	84.3			122.3
Elymus canadensis	Prairie Wild Rye	13.4				13.4
Erigeron pulchellus	Robins plantain	0.01				0.01
Erigeron strigosus	Daisy Fleabane	0.144				0.144
Eryngium yuccifolium	Rattlesnake Master		20.5			20.5
Eupatorium perfoliatum	Boneset		2	2.75		4.75
Euphorbia corollata	Flowering Spurge	3.824				3.824
Euthamia graminifolia	Smooth Grass-leaved Goldenrod	3	11			14
Euthamia gymnospermoides	Viscid Grass-leaved Goldenrod	0.65				0.65
Eutrochium maculatum	Spotted Joe Pye Weed			28.3		28.3
Filipendula rubra	Queen-of-the-Prairie			0.448		0.448
Gaura biennis (longiflora)	Common Gaura	0.017				0.017
Gentiana alba	Cream Gentian	3.15	20			23.15
Gentiana andrewsii	Bottle Gentian		0.126			0.126
Gentiana purberulenta	Prairie Gentian	0.07				0.07
Gentianopsis crinita	Fringed Gentian				0.04	0.04
Geum triflorum	Prairie Smoke	0.02				0.02
Hasteola suaveolens	Sweet-scented Indian Plantain			9.05		9.05

Helenium autumnale	Sneezeweed			8.25		8.25
Helianthus pauciflorus	Prairie Sunflower		0.14			0.14
Heliopsis helianthoides	False Sunflower; " Ox-eye "	0.027				0.027
Heuchera richardsonii	Prairie Alum root	1.38				1.38
Hibiscus laevis	Halberd-Leaved Rose Mallow			1.786		1.786
Hypericum ascyron	Great St. Johnswort		0.273			0.273
Hypericum sphaerocarpum	Round-fruited St. Johnswort			0.046		0.046
Hypericum virginianum	Marsh St Jonnswort			0.195		0.195
Ionactis linariifolia	Stiff Aster (Flax-Leaved)	0.5				0.5
Iris virginica shrevei	Blue Flag			0.08		0.08
Juncus canadensis	Canadaian Rush			3.05		3.05
Juncus dudleyi	Dudley's Rush			0.14		0.14
Juncus marginatus	Grass-leaved rush				0.001	0.001
Juncus torreyi	Torrey's Rush			0.137		0.137
Koeleria macrantha	Prairie June Grass	9.5				9.5
Lespedeza capitata	Round-headed Bush Clover	2	6.05			8.05
Lespedeza virginica	Slender bush clover	0.25				0.25
Liatris aspera	Rough Blazing-star	1.35				1.35
Liatris pycnostachya	Gayfeather; Prairie Blazing Star		16.45			16.45
Lilium michiganense	Turk's Cap lily			0.078		0.078
Lithospermum canescens	Hoary Puccoon	0.009				0.009
Lithospermum croceum	Hairy Puccoon	0.07				0.07
Lithospermum incisum	fringed puccoon	0.05				0.05
Lobelia cardinalis	Cardinal Flower			0.373		0.373
Lobelia inflata	Indian Tobacco		0.008			0.008
Lobelia siphilitica	Great Lobelia			2		2
Lobelia spicata	Pale-spiked Lobelia	0.09				0.09
Ludwigia alternifolia	Seed Box			0.109		0.109
Lupinus perennis	Wild Lupine	20				20
Lycopus unifloris	Northern Bugleweed			0.55		0.55
Lysimachia quadriflora	Narrow-Leaved Loosestrife			4.55		4.55
Lythrum alatum	Winged Loosestrife			0.25		0.25
Micranthes pensylvanicus	Swamp Saxifrage				0.008	0.008
Mimulus ringens	Monkey Flower			0.048		0.048
Monarda fistulosa	Wild Bergamot	3	7.619			10.62
Monarda punctata villicualis	Horse Mint	2.95				2.95

Oligoneuron album	White Flat Topped Aster	0.002				0.002
Oligoneuron riddellii	Riddell's goldenrod			0.221		0.22
Oligoneuron rigidum	Stiff Goldenrod	6.85	16.5			23.35
Onoclea sensibilis	Sensitive Fern			4.2		4.2
Onosmodium molle	Marbleseed	0.4				0.4
Oxalis violacea	Violet Wood-sorrel	0.011				0.011
Packera plattensis	Prairie Ragwort	1.9				1.9
Panicum capillare	Old Witch Grass	0.1				0.1
Parnassia glauca	Grass of parnassus				0.001	0.001
Parthenium integrifolium	Wild Quinine (Feverfew)	3.1	45.2			48.3
Pedicularis canadensis	Wood Betony	2	4.7			6.7
Pedicularis lanceolata	Swamp Betony			2.65		2.65
Penstemon digitalis	Foxglove Beardtongue	3	15.2			18.2
Penstemon grandiflorus	Large Flowered Beardtongue	0.004				0.004
Penstemon hirsutus	Hairy Beard tongue	0.67				0.67
Penthorum sedoides	Ditch Stone crop				1.459	1.459
Phlox maculata	Sweet William Phlox		0.01			0.01
Phlox pilosa	Prairie phlox	0.083				0.083
Physostegia parviflora	Obedient plant		0.25			0.25
Platanthera leucophaea	Eastern Prairie Fringed Orchid			0.001		0.001
Polygala polygama obtusata	Purple Milkwort	0.001				0.001
Polygala sanguinea	Field Milkwort		0.011			0.011
Polytaenia nuttallii	Prairie Parsley	1.7	1			2.7
Pontederica canaliculatum	Pickerel weed				18.2	18.2
Pseudognaphalium obtusifolium	Sweet Everlasting	0.8				0.8
Pulsatilla patens	Pasque Flower	0.02				0.02
Pycnanthemum virginianum	Mountain mint		8	2.35		10.35
Ratibida pinnata	Yellow Coneflower	2.816	13			15.816
Rhexia virginica	Meadow Beauty			0.35		0.35
Rosa carolina	Pasture Rose	0.278				0.278
Rudbeckia hirta	Black-eyed Susan	6.35	2			8.35
Rudbeckia subtomentosa	Sweet Blackeyed Susan		7.55			7.55
Ruellia humilis	Wild Petunia	0.067				0.067
Sagittaria latifolia	Arrowhead				0.52	0.52
Schoenoplectus tabernaemontani	Softstem bulrush			3	3.158	6.158
Scirpus atrovirens	Dark Green Rush			35	11.18	46.18

Scirpus cyperinus	Wool Grass			5.1		5.1
Scleria triglomerata	Whip Nutrush	0.29				0.29
Scutellaria parvula leonardi	Small Skullcap	0.01				0.01
Silphium integrifolium	Rosinweed		14.75			14.75
Silphium laciniatum	Compass plant	10	14.7			24.7
Silphium perfoliatum	Cup plant		13.6			13.6
Silphium terebinthaceum	Prairie Dock	10	15.05			25.05
Sisyrinchium albidum	Common Blue-eyed grass	0.21				0.21
Sium suave	Water parsnip			1.248		1.248
Solidago missouriensis	Missouri Goldenrod	2.85				2.85
Solidago nemoralis	Gray Goldenrod; Oldfield	3.95				3.95
Solidago patula	Swamp Goldenrod			1.3		1.3
Solidago speciosa	Showy Goldenrod	10.45	4			14.45
Solidago uliginosa	Bog Goldenrod			0.261		0.261
Sparganium eurycarpum	Giant Burr reed				1.5	1.5
Spartina pectinata	Prairie Cord Grass			0.04		0.04
Spiraea alba	Meadowsweet		0.53			0.53
Stachys palustris homotricha	Woundwort		0.79			0.79
Symphyotrichum ericoides	Heath Aster	14.1				14.1
Symphyotrichum firmum	Shining Aster		0.993			0.993
Symphyotrichum novae-angliae	New England Aster		6.15			6.15
Symphyotrichum oblongifolius	Aromatic Aster	3.4				3.4
Symphyotrichum pilosum	Hairy Aster		0.45			0.45
Symphyotrichum sericeum	Silky Aster	2.75				2.75
Tephrosia virginiana	Goat's Rue	3.2				3.2
Thalictrum dasycarpum	Purple Meadow Rue			0.003		0.003
Thelypteris palustris	Marsh fern			0.122		0.122
Tradescantia ohiensis	Ohio Spiderwort	2	5.6			7.6
Verbena hastata	Blue Vervain		4	5.3		9.3
Verbena stricta	Hoary Vervain	2.2				2.2
Vernonia fasciculata	Common Ironweed			7.85		7.85
Veronicastrum virginicum	Culver's Root		17.55			17.55
Viola pedata lineariloba	Birdsfoot Violet	0.08				0.08
Viola pedatifida	Prairie Violet	0.02				0.02
Zizia aptera	Heart-leaved Meadow Parsnip	0.09				0.09
Zizia aurea	Golden Alexander	5.5	8			13.5
Subtotal		336	569	178	39	1123

2022 Dry Mesic mix	Leftover	77				77
2022 Mesic mix	Leftover		155			155
2022 Wet mix	Leftover			44.5		44.5
Aster Mix; Sky Blue & Smooth Blue	Handpicked	3.4	13			16.4
Bidens sp. Mix	Handpicked			3.1		3.1
Broadleaf arrowhead & pickerel weed	Handpicked				0.95	0.95
CCK/NNK Seed Stripper mix	Combine	14	65.9			79.9
Dropseed Garden	Combine	45.5	60.5			106
Dry sedges (Bicknelli and Muhlenbergii)	Handpicked	1.8				1.8
Jays 2021 Upland mix	Leftover	72.6				72.6
Juncus sp. (misc. rush)	Handpicked			0.011		0.011
Little bluestem	Combine	10.8				10.8
Tall grasses; big blue and indian	Handpicked	2	4.7			6.7
Wet sedge mix	Handpicked			2.1		2.1
Wet sunflower mix	Handpicked		1.8			1.8
<i>Subtotal</i>		227	301	50	1	579
Total		563	870	228	40	1701

Table 4: List of all planted species and mixes, and their weight distribution in each seed mix. Weights are in pounds (lbs.). Totals and subtotals are rounded to the nearest whole number.

Maps and Photos



Map C: *Filipendula rubra* plugs location in planting 138 entered in Field Maps, represented by the gray diamond.



Photo A: Trucks in staggered formation with seeders



Photo B: Dry mesic seed before mixing



Photo C: Crew mixing seed



Photo D: Example of location stream showing our transects



Photo E: Seed on the snow showed us where we had been



Photo F: Summer crew, pictured left to right: Noah Reynolds, Amber Denker, Molly Duncan, Clara Barton, Jacob Churulo, Zach Skubizewski