Planting #86
2008 PLANTING HISTORY
Dewitt Holland Prairie 2008
Prepared by Cody Considine
Updated 3/18/09

20 Acres

Site Conditions:

Location:

Lee County – Nachusa Township T22N R10E Section 17 in the northeast corner of the northwest corner of section 17; south flank of the planting touches north flank of the Bennett savanna, west flank touches east flank of John Senger tract, and southeast flank touching northwest flank of Hook Larson Prairie.

Soil Types:

According to the Soil Survey for Lee County, IL soils include:

#509D Whalan loam (6% of planting) – well drained, side of slopes along upland drainage ways. Parent material: Till over residuum weathered from limestone. Profile: 1st 0-4" loam, 2nd 4-7" loam, 3rd 7-17" loam, 4th 17-23" clay, and 5th 23-60" bedrock.

#397D Boone loamy fine sand (.8% of planting) – Excessively drained. Parent material: Siliceous sandy residuum weathered from sandstone. Profile: 1st 0-2" loamy fine sand, 2nd 2-9" loamy fine sand, 3rd 9-34" find sand, 34-60" bed rock.

#727A Waukee loam (72% of planting) – Well drained. Parent Material: Outwash. Profile: 1st 0-14" Loam, 2nd 14-34" loam, and 3rd 34-60" Coarse Sand.

#761D Eleva fine sand loam (13.5% of planting) – Well drained. Parent Material: Residuum weathered from sandstone. Profile: 1st 0-8" fine sandy loam, 2nd 8-32" fine sand loam, and 3rd 32-60" bedrock.

Topography:

The planting consists of flat and rolling topography. Slopes are not steep. See photo for best illustration.

Agricultural History:

I think it is safe to assume the planting site has been intensively row cropped for many decades. At least for the last five decades the ground was in continuous row crops, mostly corn and soybean. No drainage tiles. June 1958 shows the planting as tilled row crops.

Site Preparations:

Corn was harvested in late November. Soon after the harvest, the weather was rainy and cold. This made it very difficult for the corn stubble to burn. The southern half of the planting, next to the tree line of Bennett Savanna stayed very wet since it is mostly shaded the entire day (north facing slope). The corn stubble was burned on a sunnier day with temps in the high 40's to mid 50's. However, there were too few of they days to dry out the corn stubble. The planting burned ok, mostly the top layer, and the southern areas did not burn at all. There was a lot of corn stubble debris after the burn. Keith Anderson and Ian Kenney harrowed the field on a cold Saturday, the soil was somewhat frozen. This worked well, but I did note there were some piles of corn stalks in some areas. Since the southern portion did not burn, we used the hay rake to rake the corn stalks into rows. Then, Jared Considine made piles out of the rows with the bobcat. He said the bobcat was not able to get all the debris and thought it was not the correct tool for piling stalks. We piled the stalks in hopes to burn them soon, but the snow came with very cold weather. Bill Kleiman tried to move the piles out of the planting, but confirmed that the bobcat was not the correct tool for the job. So, we left the piles (~12) and will burn them in the spring when it dries up. Then we will sow seeds into the ash. Bill and I were both unhappy in having to leave the piles there, but the winter weather leaves us no choice.

Close to 100 trees were removed along the old fence line of Bennett Savanna. Trees removed mostly included mesophitic species such as black cherry, Siberian elm, hackberry, and box elder. Two large piles were created at the east and west end. West end pile was located in the corner next to Brandt 2 tract and east pile was located in a brome field on the Bennett tract. Many oaks and hickories remain along the old fence line.

Seed Planting

The planting was separated into two planting mixes, based on soil type and topography.

Dry
The dry portion of the planting located mostly on the northern flank of the planting was planted by Ian Kenney on the Kubota/Vicon pendulum seed broadcaster. To plant the 5 acres, it took approximately 1 ½ days. Ian planted in a clockwise direction, starting on the outside and working towards the middle. Started planting dry area at 10:00 on 12/16/08 and finished at 12:00 on 12/18/08, planted in snow approximately 4". Snow made it very easy and reassuring that the seed was sown in evenly. The planter was at 26 for the first pass, 36 for the 2nd pass, and 38 for the 3rd and 4th passes. Ian was able to seed 4 complete passes. Ian Kenney operated the planting with lead from Cody. A large snow storm came through and deposited approximately 9" of snow later Thursday night (12/18/08).

Dry Mesic
The dry mesic portion of the planting was approximately 15 acres. Ian Kenney operated the New Idea gravity box spreader. The weather was a mild on the first day (12/30) of planting, temps were below freezing for the 2nd (12/31) and 3rd days (1/02). The first day Ian planted from 8:30 to 3:15 with the seeder set in the middle. The second day the seeder was set at ¾ open and the last day the seeder was set to 7 which took 3 ½ hours to complete 15 acres. The planting took approximately 5-6 passes. We decided this was necessary to maximize our chances, ensuring us that the planting area was covered entirely. Each pass was different than previous passes. We did not have any snow to use as a reference.

Mesic

Buffer
Cody Considine planted the buffer. I made 5-6 passes surrounding the entire planting. I used ¾ of a barrel. Mix was Can Rye with some tall grasses.

Focus
Cody Considine implemented the "focus seed" planting technique while Ian planted. The "focus seed" technique consists of hand planting purple prairie clover in the rocky/gravelly areas of the unit. This is not the step in method.

Step IN
The step in method was created by Jay Stacey and consists of scuffing the ground and "stepping in" the seed with your foot. The very conservative or species in low abundance on the preserve were planted using this technique. See plant list for a complete list of "step in" species. Step in was done the first week of March. The step in method did not consist

of actually stepping in seed, but due to time constraints, was simply spread by driving up and down the planting throwing seed into the wind. *Stipa spartea* was planted by the same method.

Seed List:

The planting included 155 species that were separated into 3 mixes: dry, dry mesic, and a small portion of mesic mix. The dry mix contains 118 species and dry mesic mix has 115 species. Obviously, there is quite a bit of overlap of species in the mixes. Some of the mesic mix which contained 46 species will also be planted. See seed list for a complete break down of percentages composed in each mix.

Tall grass was intentionally omitted from the designated dry planting area. Little blue stem was planted in both dry and dry mesic portions. Little blue was supposed to be planted at 5 lbs/acre in the dry planting, however only 2.35 lbs/acre rate was planted. We decided to leave this rate and did not want to add more. In the dry mesic area, little blue was planted at 5lbs/acre and tallgrass at 2.83 lbs/acre. In the previous 3 (2005, 06, 07) crew plantings, there is not much grass. If we plan to incorporate grazing, we will need adequate grass for grazers. The question is however, how much grass should be planted initially for future grazers while not inhibiting forb growth and establishment?

**Also saved in Excel located in CCK Drop Seed Hills South Crew 2008 of planting histories or seed harvest 2008.

Big 6 Mixes for Both CCK and Dewitt Holland

Species	**Dry** (10acres)	**Dry Mesic** (30 acres)
Les Cap -	2.4/acre = 24lbs	6.6/acre = 198.62
Ech pal -	6/acre = 60lbs	5.7/acre = 173.5
Bap leu -	3.89/acre = 38.9lbs	4.31/acre = 129.37
Pot arg -	.3/acre = 3lbs	.23/acre = 7
Ely can -	1.5/acre = 15lbs	2.33/acre = 70
Art cau -	.24/acre = 2.4 lbs	.18/acre = 5.6

Big Six species were the species we collected that had the largest weights; special attention was taken into calculating the mixes (lbs/acre). All other species were separated into mixes according to their designated %'s (chosen by Bill K. initially from years past, but some %'s were tweaked by Cody C.), then the mixes were further separated for the two plantings (CCK, Dewitt).

Scientific Name	Common Name	2008	----DRY----		--DRY MESIC--	
			% Mix	~lbs	% Mix	~lbs
Asclepias hirtella	Hairy Green Milkweed	0.01	100%	0.01	0%	
Rhus aromatica	fragrant sumac	0.01	50%	0.005	50%	0.005
Asclepias tuberosa interior	Butterfly Weed	0.05	50%	0.025	50%	0.025
Viola fimbriatula	Sand Violet	0.05	0%		0%	
Viola sagittata	Arrow-leaved violet	0.05	10%	0.005	90%	0.045
Anemone canadensis	Meadow Anemone	0.1	0%		0%	
Apocynum sibiricum	Prairie Indian Hemp	0.1	0%		0%	
Asclepias viridiflora	Short Green Milkweed	0.1	100%	0.1	0%	
Cassia hebecarpa	Wild Senna	0.1	0%		0%	
Geum triflorum	Prairie Smoke (Long-plumed Purple Avens)	0.1	100%	0.1	0%	
Hypoxis hirsuta	Yellow Star Grass	0.1	50%	0.05	0%	
Krigia virginica	Dwarf Dandelion	0.1	100%	0.1	0%	
Lithospermum canescens	Hoary Puccoon	0.1	100%	0.1	0%	
Lithospermum incisum	Fringed (Narrow-leaved) Puccoon	0.1	50%	0.05	50%	0.05
Lobelia inflata	Indian Tobacco	0.1	0%		0%	
Monarda fistulosa	Wild Bergamot	0.1	20%	0.02	20%	0.02
Oenothera clelandii (rhombipetala)	Sand Evening Primrose	0.1	60%	0.06	40%	0.04
Pedicularis lancelota	Fen (Swamp) Betony; Lousewort	0.1	0%		0%	
Ratibida pinnata	Yellow Coneflower	0.1	40%	0.04	40%	0.04
Ruellia humilis	Wild Petunia	0.1	50%	0.05	0%	
Cirsium hillii *** (pumilum)	Hill's Thistle	0.15	100%	0.15	0%	
Lupinus perennis	Wild Lupine	0.15	50%	0.075	50%	0.075
Scutellaria parvula leonardi	Small Skullcap	0.15	100%	0.15	0%	
Senecio pauperculus	Balsam Ragwort	0.15	60%	0.09	40%	0.06
Aster laevis	Smooth (Blue)(Silky) Aster	0.2	0%		0%	
Carex pennsylvanica	Common Oak (Penn) Sedge	0.2	30%	0.06	30%	0.06
Festuca obtusa (subverticillata)	Nodding Fescue	0.2	0%		0%	
Leptoloma cognatum	Fall Witch Grass	0.2	40%	0.08	60%	0.12
Phlox maculata	Sweet William Phlox	0.2	0%		10%	0.02
Caltha palustris	Marsh Marigold	0.25	0%		0%	
Juncus tenuis	Path Rush	0.25	20%	0.05	60%	0.15
Zizia aptera	Heart-leaved Meadow Parsnip	0.25	50%	0.125	50%	0.125
Aster novae-angliae	New England Aster	0.3	0%		0%	
Gentiana purberulenta	Prairie Gentian	0.3	100%	0.3	0%	
Hieracium gronovii	Hairy Hawkweed	0.3	50%	0.15	50%	0.15
Silene antirrhina	Sleepy Catchfly	0.3	50%	0.15	0%	
Cacalia plantaginea (tuberosa)	Indian Plantain	0.35	0%		0%	
Castilleja sessiliflora **	Downy Yellow Painted	0.35	100%	0.35	0%	

	Cup					
Helianthus hirsutus	Hispid sunflower	0.35	0%		70%	0.245
Oenothera biennis canescens	Common Evening Primrose	0.35	30%	0.105	60%	0.21
Panicum villosissimum	White-Haired Panic Grass	0.35	100%	0.35	0%	
Asclepias verticillata	Whorled Milkweed	0.4	25%	0.1	70%	0.28
Linum sulcatum	Groved Yellow Flax	0.4	70%	0.28	30%	0.12
Onosmodium hispidissimum	Marbleseed	0.4	50%	0.2	50%	0.2
Polygala sanguinea	Field Milkwort	0.4	50%	0.2	50%	0.2
Aster oblongifolius	Aromatic Aster	0.45	50%	0.225	50%	0.225
Aster umbellatus	Flat-topped Aster	0.45	0%		0%	
Eupatorium maculatum	Spotted Joe Pye Weed	0.45	0%		0%	
Lysimachia lanceolata	Lance-Leaved Loosestrife	0.45	50%	0.225	50%	0.225
Opuntia humifusa (compressa)	Prickly Pear Cactus	0.45	100%	0.45	0%	
Gnaphalium obtusifolium	Sweet Everlasting (Old-Field Balsam)	0.5	50%	0.25	50%	0.25
Panicum virgatum	Prairie Switch Grass	0.5	30%	0.15	50%	0.25
Paspalum ciliatifolium muhlenbergii	Hairy Lens Grass	0.5	40%	0.2	50%	0.25
Amorpha fruticosa	Indigo Bush	0.55	0%		70%	0.385
Houstonia (Hedyotis) longifolia (canadense)	Long-Leaved Bluets	0.55	50%	0.275	50%	0.275
Viola pedata lineariloba	Birdsfoot Violet	0.55	50%	0.275	50%	0.275
Aronia (Pyrus) prunifolia (melanocarpa)	Black Chokeberry	0.6	60%	0.36	20%	0.12
Bouteloua hirsuta	Hairy Grama	0.6	100%	0.6	0%	
Callirhoe triangulata	Clustered Poppy Mallow	0.6	100%	0.6	0%	
Helianthemum bicknellii	Rock Rose	0.6	30%	0.18	70%	0.42
Lechea stricta	Bushy Pinweed	0.6	60%	0.36	40%	0.24
Cyperus filiculmis	Slender Sand Sedge	0.65	70%	0.455	30%	0.195
Scrophularia marilandica	Late Figwort	0.65	0%		5%	0.0325
Wulfenia bullii *** (Besseya)	Kittentails	0.65	10%	0.065	0%	
Lechea villosa (mucronata)	Hairy Pinweed	0.7	40%	0.28	40%	0.28
Solidago rigida	Stiff Goldenrod	0.7	30%	0.21	60%	0.42
Aster ptarmicoides	White Aster (Stiff Aster)	0.75	60%	0.45	40%	0.3
Polytaenia nuttallii	Prairie Parsley	0.75	50%	0.375	50%	0.375
Panicum leibergii	Prairie Panic Grass	0.8	60%	0.48	40%	0.32
Liatris cylindracea	Dwarf Blazingstar	0.85	100%	0.85	0%	
Hystrix patula (Elymus hystrix)	Bottlebrush Grass	0.9	0%		0%	
Sisyrinchium albidum	Common Blue-eyed Grass	0.9	40%	0.36	60%	0.54
Gentiana (alba) flavida	Cream Gentian	0.95	0%		30%	0.285
Lechea tenuifolia	Slender-Leaved Pinweed	0.95	70%	0.665	30%	0.285
Sporobolus heterolepis	Prairie Dropseed	0.95	10%	0.095	10%	0.095
Angelica grandifoilia	Great Angelica	1	0%		0%	
Angelica atropurpurea	Alexander's Angelica; Great Angelica	1	0%		0%	
Heuchera richardsonii	Rough Heuchera; Alum	1	45%	0.45	50%	0.5

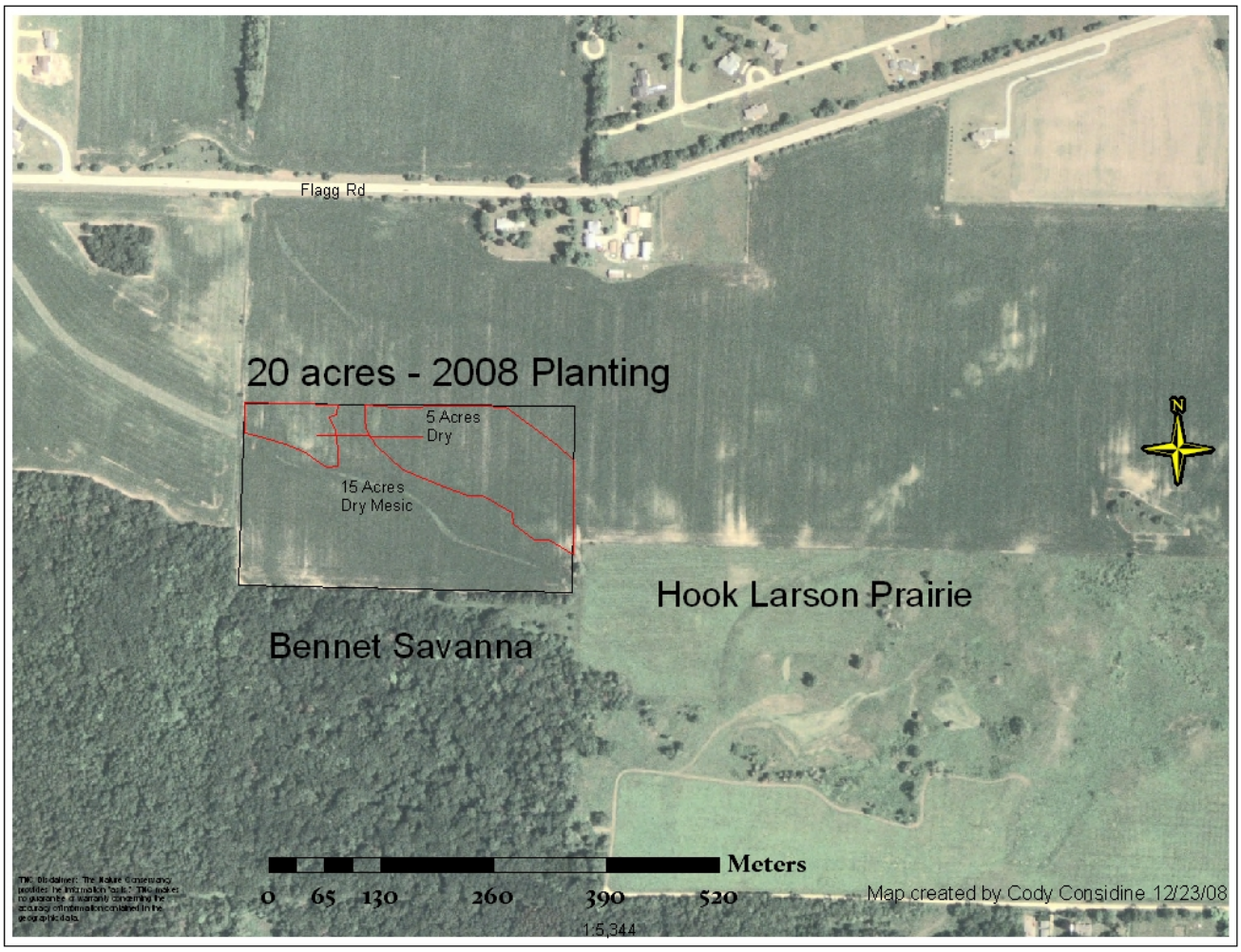
grayana	root					
Lobelia spicata	Pale-spike Lobelia	1	90%	0.9	10%	0.1
Prunus americana	Wild Plum	1	40%	0.4	40%	0.4
Quercus alba	White Oak	1	0%		0%	
Quercus macrocarpa	Bur Oak	1	0%		0%	
Aster azureus (oolentangiensis)	Sky-blue Aster	1.05	50%	0.525	50%	0.525
Salix humilis	Prairie Willow	1.05	50%	0.525	45%	0.4725
Agrostis hymenalis	Tickle Grass	1.15	50%	0.575	50%	0.575
Spiraea alba	Meadowsweet	1.2	0%		0%	
Allium cernuum	Nodding Wild Onion	1.4	0%		60%	0.84
Aster linariifolius	Stiff Aster (Flax-Leaved)	1.55	75%	1.1625	25%	0.3875
Chrysopsis camporum (Heterotheca)	Golden Prairie Aster	1.55	50%	0.775	50%	0.775
Comandra umbellata (richardsiana)	False Toadflax	1.9	100%	1.9	0%	
Scirpus cyperinus	Wool Grass	2	0%		0%	
Aristida purpurascens	Arrow Feather	2.1	60%	1.26	40%	0.84
Coreopsis tripteris	Tall Coreopsis	2.3	10%	0.23	40%	0.92
Cassia fasciculata	Partridge Pea	2.35	40%	0.94	50%	1.175
Monarda punctata villicualis	Horse Mint	2.35	30%	0.705	70%	1.645
Penstemon hirsutus	Hairy Beard tongue	2.35	70%	1.645	30%	0.705
Stipa spartea	Porcupine Grass	2.4	80%	1.92	20%	0.48
Pycnanthemum virginianum	Mountain mint (Prairie Hyssop)	2.55	10%	0.255	20%	0.51
Teucrium canadense	American Germander (Wood Sage)	2.55	0%		0%	
Aster sericeus	Silky Aster	2.6	50%	1.3	50%	1.3
Scrophularia lanceolata	Early figwort	3	0%		0%	
Spartina pectinata	Prairie Cord Grass	3.15	0%		0%	
Verbena urticifolia	Hairy White Vervain	3.15	0%		40%	1.26
Carex muhlenbergii (enervis)	Sand Bracted Sedge (Muhlenberg's)	3.3	60%	1.98	40%	1.32
Solidago speciosa	Showy Goldenrod	3.4	30%	1.02	50%	1.7
Juncus greenei	Greene's Rush	3.5	50%	1.75	50%	1.75
Physocarpus opulifolius	Ninebark	3.5	10%	0.35	30%	1.05
Hypericum pyramidatum	Great St. Johnswort	3.6	0%		0%	
Liatris pycnostachya	Tall Gayfeather; Prairie Blazing Star	3.6	0%		20%	0.72
Danthonia spictata	Poverty Oat Grass	3.65	75%	2.7375	25%	0.9125
Eupatorium perfoliatum	Boneset	3.85	0%		10%	0.385
Helianthus rigidus (laetiflorus)	Prairie Sunflower	4.55	40%	1.82	60%	2.73
Dodecatheon meadia	Shooting Star	4.7	40%	1.88	40%	1.88
Heliopsis helianthoides	False Sunflower; " Ox-eye "	5.25	20%	1.05	60%	3.15
Veronicastrum virginicum	Culver's Root	5.3	0%		0%	
Rudbeckia hirta	Black-eyed Susan	6	15%	0.9	40%	2.4
Rhus glabra	Smooth Sumac	6.05	0%		50%	3.025
Bouteloua curtipendula	Side-Oats Grama	6.9	30%	2.07	70%	4.83

Elymus villosus	Silky Wild Rye	6.9	0%		0%	
Helianthemum canadense	Common Rockrose (Frostweed)	7.35	55%	4.0425	40%	2.94
Verbena stricta	Hoary Vervain	7.45	50%	3.725	50%	3.725
Aster ericoides (prostratus)	Heath Aster	8.4	20%	1.68	70%	5.88
Helianthus occidentalis	Western Sunflower; Naked S.	9.4	40%	3.76	60%	5.64
Kuhnia (Brickellia) eupatoroides corymbulosa	False Boneset	9.55	40%	3.82	60%	5.73
Tephrosia virginiana	Goat's Rue	9.7	50%	4.85	40%	3.88
Triosteum perfoliatum	Horse Gentian (Feverwort)(Tinker's Weed)	9.8	20%	1.96	60%	5.88
Penstemon digitalis	Foxglove Beardtongue	10	0%		10%	1
Solidago missouriensis fasciculata	Missouri Goldenrod	10.5	40%	4.2	60%	6.3
Desmodium illinoense	Ill. Tick Trefoil	11.05	30%	3.315	50%	5.525
Cacalia atriplicifolia	Pale Indian Plantain	11.7	0%		30%	3.51
Silphium perfoliatum	Cup-plant	13.4	0%		10%	1.34
Zizia aurea	Golden Alexanders	14	15%	2.1	40%	5.6
Rudbeckia subtomentosa	Sweet Blackeyed Susan	14.05	0%		10%	1.405
Anemone cylindrica	Thimbleweed	15.7	40%	6.28	50%	7.85
Antennaria plantaginifolia	Pussy Toes (Everlasting)	16.1	50%	8.05	50%	8.05
Silphium terebinthaceum	Prairie Dock	17.2	5%	0.86	45%	7.74
Euphorbia corollata	Flowering Spurge	19.43	30%	5.829	60%	11.658
Baptisia leucophaea	Cream Wild Indigo	19.87	60%	11.922	40%	7.948
Coreopsis palmata	Prairie Coreopsis	19.9	40%	7.96	50%	9.95
Carex bicknellii	Copper-shouldered oval Sedge	20.55	40%	8.22	60%	12.33
Rosa carolina	Pasture Rose	21.55	40%	8.62	60%	12.93
Astragalus canadensis	Canadian Milk Vetch	23.35	20%	4.67	80%	18.68
Solidago nemoralis	Gray Goldenrod; Oldfield	23.89	40%	9.556	60%	14.334
Amorpha canescens	Leadplant	26.35	20%	5.27	70%	18.445
Solidago (Euthamia) graminifolia nuttallii	Grass-leaved Goldenrod	27.6	30%	8.28	70%	19.32
Eryngium yuccifolium	Rattlesnake Master	29.7	0%		20%	5.94
Petalostemum (Dalea) candidum	White Prairie Clover	31.11	0%		40%	12.444
Silphium integrifolium	Rosinweed	35.95	40%	14.38	60%	21.57
Scirpus atrovirens	Dark Green Rush	46.15	0%		0%	
Koeleria cristata (macrantha)	Prairie June Grass - 54.65	58.45	40%	23.38	60%	35.07
Potentilla arguta	Prairie Cinquefoil	59.11	30%	17.733	50%	29.555
Parthenium integrifolium	Wild Quinine (Feverfew)	63.2	30%	18.96	60%	37.92
Tradescantia ohiensis	Ohio Spiderwort	63.2	25%	15.8	65%	41.08
Silphium laciniatum	Compass plant	70.02	30%	21.006	60%	42.012
Liatris aspera	Rough Blazing-star (Rough Gayfeather)	81.45	40%	32.58	55%	44.7975
Artemisia caudata (campestris)	Beach Wormwood	101	30%	30.3	70%	70.7
Petalostemum (Dalea)	Purple Prairie Clover	127.08	30%	38.124	70%	88.956

purpureum						
Lespedeza capitata --	Round-headed Bush Clover	153.37	30%	46.011	60%	92.022
Elymus canadensis	Prairie Wild Rye	203.46	20%	40.692	60%	122.076
Echinacea pallida	Pale Purple Coneflower	233.5	30%	70.05	70%	163.45
Baptisia leucantha	White Wild Indigo	303.77	20%	60.754	60%	182.262

Map:

Map is also saved in planting history folder: planting history #86 as a jpeg or in the MXD files under Arc Gis work folder.



Ian Kenney planting the 5 acres of dry mix, lower left is a photo of the corn piles.

Lessons Learned:

Planting takes time!!

Winter can come fast!!

Burn larger units of potential future plantings!! – Burn 80 acres where you may have only enough seed for 70 acres. Then after you mix and weigh all the seed you will have already prepped the field for ideal planting conditions.

Schedule more help for Step In planting.

Plant large acreages with gravity box spreader, pendulum seeder max acreage: 5 acres!!! NO MORE!

Label all barrels, update barrel tags and running tallies on a clip board of all the barrels used for mixing and planting.

Plant before Thanksgiving if possible!!

Notes:

We had a late December thaw, over 10” of snow, and 1-2” of rain. The dry mix was planted before this weather event; some of the slopes have had some seed washed off? The hand planting was planted after the rain event.

We had 2 additional significant rain events, over 1-2” each. Planting site had indications of channels and runoff.

Next year we plan to get a drag to pull behind a vehicle and sprinkle in “step in” species off the tailgate. The drag will pull soil over the species, essentially stepping them in.