PLANTING # 97
2010 PLANTING HISTORY
Tellabs Prairie/Savanna Plantings
Prepared by Cody Considine 12/06/10
Updated:

~16 Acres
East planting: 4 acres
West planting: 12 acres

Site Conditions:

Location: T22N R10E Section 17
North Planting GPS: 41°53'41.62"N 89° 22'39.64"W, elevation 689ft.
South Planting GPS: 41°53'37.28"N 89° 22'28.09"W, elevation 702ft.

Lee County IL

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

North Planting:

570A Martinsville silt loam 0-2% slopes. Well drained. Parent material: Thin mantle of loess or other silty material and in the underlying outwash. 99% of the planting is composed of this soil type.

761 Eleva fine sandy loam. Well drained. Parent Material: Residuum weathered from sandstone. Planting is located at the bottom of the slope which is comprised of this soil type. Less than 1% of this soil type is located in the planting.

South Planting:

570 B Martinsville silt loam 2-5% slopes. Well drained. Parent material: Thin mantle of loess or other silty material and in the underlying outwash.

397 F Boone loamy find sand, 15-35% slopes. Excessively drained. Siliceous sandy residuum weathered from sandstone.

*All of the soils have been under intensive agriculture. Above are basic descriptions, a complete soil test is needed to determine specific soil characteristics. For more additional information see Soil Web Survey website: http://websoilsurvey.nrcs.usda.gov/app/

Topography:
The Tellabs Prairie plantings are relatively flat with very slight topographic variances.

Agricultural History:
The planting site has been intensively row cropped for many decades. Corn and soy bean the main crop. No drainage tiles exist in the planting. The two plantings were hay fields for five years from 2000-2005. The hay fields were converted back to round up ready corn in 2006 for the preparation of turning them back into prairie/savanna habitat.

Site Preparations:
Corn harvested in early October.
1. Burned corn stubble, which burned very well.
2. Harrowed unit (Jeff Benninghoven) same day as planting. Cold, but soil was not frozen. Harrow did a nice job at "opening the soil".
3. Planted using two drop seeders on the north planting and three drop seeders on the south planting.

Seed Planting:
The planting was planted with one mix calculated by Cody with advice from Swink and Wilhelm *Plants of the Chicago Region* and Jay Stacey and Bill Kleiman.

Weather conditions:
Day 1 Drop seeders: partially cloudy; rain at 3:30PM. After we finished seeding, the rain came which made it possible for the seeds to stick to the ground.
Day 2 Hand "step in": hand planted acorns, hickory nuts, hazelnuts, American plum and violet mix in light flurries. High near 28F. Flurries started around 9:30AM and continued into the night. No snow actually stuck, but the dropping temperatures caused the ground to freeze.
Day 3 Hand "step in": "step in" buckets with butterfly milkweed and rough lettuce was planted during light flurries.

Planting Rate (lbs/acre): 50lbs/acre See seed list for specific rates of species planted.

16 acres planted November 29, 2010 *–prepared by Kimberly Schmidt*

DAY ONE:
The north planting was 4 acres and was bordered almost exclusively on all sides by the oak woodland. Heather Baker and Kimberly Schmidt planted the north planting with the 10-foot and 12-foot antique seed spreaders, pulled by the Green Truck and Little Red. Two hundred pounds of seeds were allocated for the first planting.

We matched the 10-foot and 12-foot spreaders to the same seed rate and did both passes on "full" (all the way open).

Using the rows of corn stubble as their guide and communicating with hand held two-way radios, Heather and Kim made 2 complete passes. For the first pass, the protocol Heather and Kim employed planting in concentric circles, where there was a leader truck followed on the inside by a second truck. At each corner, the two trucks completed the turn and then the inside truck's back right seeder tire was marked with an orange cone. On the next circle, the lead truck would take the turn so that the outside left tire of the seed spreader "hit" the cone to ensure even coverage. The inner truck again marked the inside back right wheel of the seed spreader with an orange cone. This continued until the planting was covered.

On the second pass, Heather and Kim drove lengthwise down the field in a grid-like fashion rather than concentric circles. Initially they had the impression that the seed would be more evenly distributed since they would have driven a different route, but this is probably not the case. They would not recommend driving in grids in the future because as you approach the other end of the field, you need to allow a greater turning radius to align yourself with the other vehicle which changes how equally you are spreading seed. Seed is not likely spread to the end of each line because this technique requires you to turn earlier in the planting, or outside the planting's borders. This may waste seed by creating overseeded deposits in the arc where you would turn at the end of each line in the grid. The girls drove ~10mph.

The south planting is approximately 12 acres. The remaining 600 lbs was planted on the 12 acres. Cody Considine, Jeffrey Benninghoven and Trent DeBaere planted the area using the 10-foot and 12-foot antique gravity box seeders, pulled by the

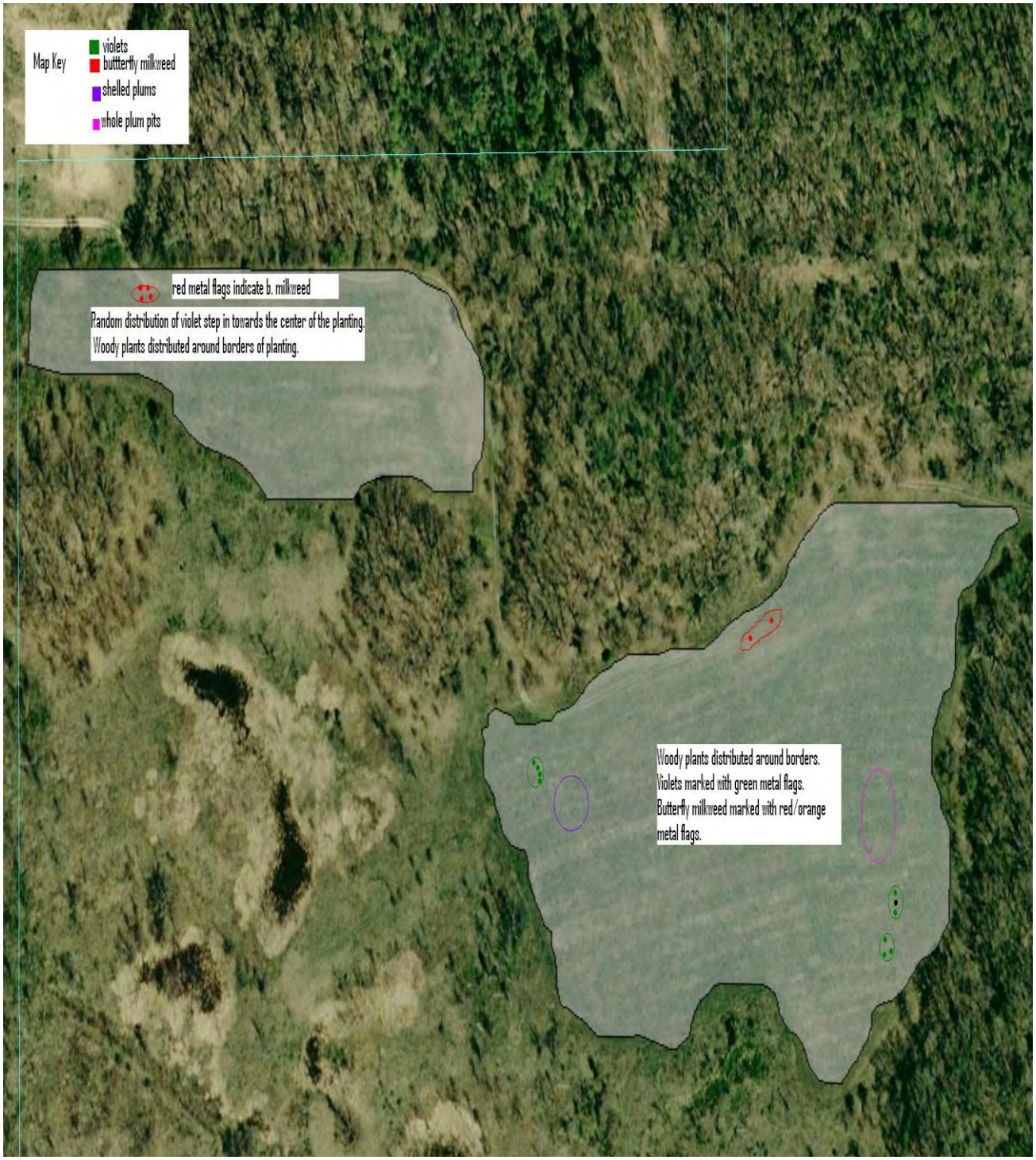
Big Red Truck, Green Truck, and Little Red. We planted in concentric circles, starting clockwise with the first pass and counterclockwise with the second pass. Some seed still remained and a random cross stitching pattern was used. The seeders were set all the way open.

As the last seed hit the ground it started to rain. The rain was a perfect way to end the day. It was steady but not overpowering. The precipitation was not fast enough to wash the seed away or cause uneven seed distribution instead it cemented the seed to the ground. The soil condition changed from dry and loose to be moist and firm, locking our precious payload in the ground.

DAY TWO:
Heather and Kim hand planted acorns, hazelnuts, hickory nuts and plum pits in both plantings. Violet mixes were "stepped in" during this time and will be mentioned later under the heading "Step In". Plums were placed toward the center of the plantings while the other woody plants were placed on the edge of the planting (see map). The north planting had random distribution of plums towards the center of the planting. The plums were separated and planted in two groups in the south planting as an experiment to see whether shelling the plums would increase germination for plum thickets. Shelled pits were planted on the East side of the planting while the West side of the planting contained the entire pit.

All woody species were planted with the same methodology. Metal pipes about 1-2 inches in diameter were used to pound holes about 1-2 inches in the ground. Seeds were dropped in and covered. Soil was scuffed up to make the caches look inconspicuous to thieving wildlife. In the afternoon, the ground began to freeze making it difficult to pound holes. Seeds were placed into animal tracks and covered. As the day waned, we wanted to beat the full freeze and some woody seeds were scattered and stepped on to push them into the ground. Loose soil was scraped over the top so they would be covered.

Map created by Kim



DAY THREE:
Heather and Kim marked the violet step in with green metal flags (n=9, see above map). Since the ground had completely frozen, they used warm water to thaw the ground to place the metal flags securely. Butterfly milkweed was marked with red or orange metal flags (n=6, see map). Four isolated pockets were marked in the north planting near west side. These seeds were scattered in deer tracks to keep them from blowing to different parts of the planting. In the south planting, the butterfly milkweed was planted on the North middle edge in line with an oak just across the two track. Since the ground was frozen and it was windy, Heather and Kim poured water on the areas where they wanted the milkweed to stay. The seeds were sprinkled and pressed into the moistened ground.

Heather and Kim also spread rough white lettuce *Prenanthes aspera* in both Tellabs plantings. We walked from the east side of the planting towards the center, allowing the wind to carry the seeds west. When possible, seed was placed into animal tracks, cracks, and corn stubble.

Woodland "edge" species
Cody planted this mix along each of the woodland edges in the snow on 12/6/10. The pendulum Vicon seeder was used to make 4 passes in the planting along the woodland edge.

Buffer
Cody did 2 passes of Canada Rye along the edge of both plantings to thwart the advancement of Canada Goldenrod into the planting.

STEP IN
The "step in" method was created by Jay Stacey. The very conservative or species in low abundance on the preserve were planted using this technique. On day two Heather stepped in a violet mix. In the north planting we randomly distributed the seed in sandy soil around the center of planting, more towards the Northwest corner. In the south planting, violets were "stepped in" in two main areas. On the west side, 4 small patches were marked with green flags. On the southeast side, 2 larger patches were marked with green flags. One patch has 2 flags on either side of a rebar. The seeds radiate from the center of the rebar. The second patch is inside a triangular set of flags.

Seed Species List: The planting included 134 species. This is the first year I calculated the species seed rate lbs/acre to go into the mix. The proportion of

certain species and the rate to plant them has always been a topic discussed between stewards. However, we have never recorded the rate of each species planted in the planting histories. This information can still be calculated in past plantings if the amount of each species was recorded. The species planting rate should help determine future specific rates of species and how much we time we need to focus on that particular species during the collecting season. Overtime, we should have a better understanding of the amount at which to plant certain species.

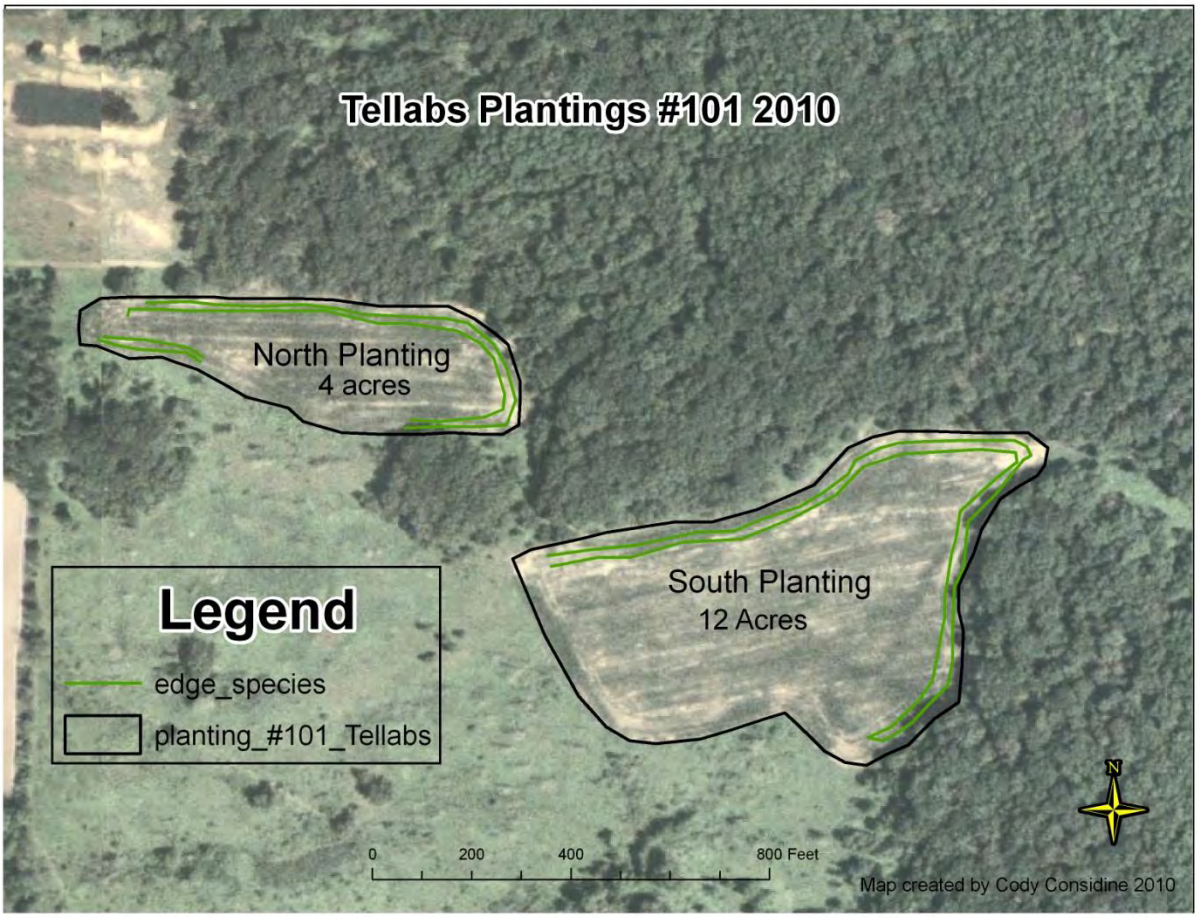
SCIENTIFIC NAME	COMMON NAME	Tellabs Savanna Mix 16 Acres lbs/acre	"Edge" species Total lbs
Agastache scrophulariaefolia	Purple Giant Hyssop	0.000	0.4
Allium cernuum	Nodding Wild Onion	0.099	
Amorpha canescens	Leadplant	1.071	
Amorpha fruticosa	Indigo Bush	0.136	
Andropogon (Schizachyrium) scoparium	Little Bluestem	4.762	
Anemone cylindrica	Thimbleweed	0.420	
Antennaria plantaginifolia	Pussy Toes (Everlasting)	0.233	
Apocynum cannabinum (X medium)	Dogbane (Indian Hemp)	0.014	
Arisaema triphyllum (atrorubens)	Jack-in-the-Pulpit	0.000	0.16
Aristida purpurascens	Arrow Feather	0.002	
Artemisia caudata (campestris)	Beach Wormwood	0.670	
Asclepias verticillata	Whorled Milkweed	0.167	
Aster azureus (oolentangiensis)	Sky-blue Aster	0.229	
Aster ericoides (prostratus)	Heath Aster	0.376	
Aster laevis	Smooth (Blue) Aster	0.236	
Aster linariifolius	Stiff Aster (Flax-Leaved)	0.010	
Aster novae-angliae	New England Aster	0.062	
Aster oblongifolius	Aromatic Aster	0.005	
Aster sericeus	Silky Aster	0.065	
Astragalus canadensis	Canadian Milk Vetch	0.357	
Baptisia leucantha	White Wild Indigo	5.575	
Baptisia leucophaea	Cream Wild Indigo	1.027	
Bouteloua curtipendula	Side-Oats Grama	0.480	
Bromus kalmii	Prairie brome	0.001	
Cacalia atriplicifolia	Pale Indian Plantain	1.238	
Cacalia plantaginea (tuberosa)	Indian Plantain	0.052	
Callirhoe triangulata	Clustered Poppy Mallow	0.049	
Carex bicknellii	Copper-shouldered oval Sedge	0.215	
Cassia fasciculata	Partridge Pea	0.081	
Castilleja sessiliflora **	Downy Yellow Painted Cup	0.019	
Chrysopsis camporum (Heterotheca)	Golden Prairie Aster	0.048	
Comandra umbellata (richardsiana)	False Toadflax	0.001	
Coreopsis lanceolata	Sand Coreopsis	0.013	

Coreopsis palmata	Prairie Coreopsis	0.476	
Coreopsis tripteris	Tall Coreopsis	0.349	
Corylus americana	American Hazelnut	0.076	
Danthonia spictata	Poverty Oat Grass	0.031	
Desmodium canadense	Showy Tick Trefoil	0.001	
Desmodium illinoense	Ill. Tick Trefoil	0.447	
Dodecatheon meadia	Shooting Star	0.204	
Echinacea pallida	Pale Purple Coneflower	7.848	
Echinocystis lobata	Wild Cucumber	0.000	0.2
Elymus villosus	Silky Wild Rye	0.031	
Elymus canadensis	Prairie Wild Rye	0.000	
Eragrostis spectabilis	Purple Love Grass	0.006	
Erigeron strigosus	Daisy Fleabane	0.208	
Eryngium yuccifolium	Rattlesnake Master	0.808	
Eupatorium perfoliatum	Boneset	0.135	
Eupatorium purpureum	Purple Joe-Pye Weed	0.177	
Euphorbia corollata	Flowering Spurge	0.695	
Festuca obtusa (subverticillata)	Nodding Fescue	0.000	0.45
Gaura biennis pitcheri (longiflora)	Common Gaura	0.000	
Gentiana (alba) flavida	Cream Gentian	0.016	
Gentiana purberulenta	Prairie Gentian	0.007	
Gnaphalium obtusifolium	Sweet Everlasting	0.038	
Helianthemum canadense	Common Rockrose (Frostweed)	0.140	
Helianthus occidentalis	Western Sunflower	0.525	
Helianthus rigidus (laetiflorus)	Prairie Sunflower	0.025	
Heliopsis helianthoides	False Sunflower	0.076	
Heuchera richardsonii grayana	Alum root	0.006	
Hieracium gronovii	Hairy Hawkweed	0.004	
Hypoxis hirsuta	Yellow Star Grass	0.000	
Hystrix patula (Elymus hystrix)	Bottlebrush Grass	0.000	3
Juncus interior	Inland Rush	0.035	
Koeleria cristata (macrantha)	Prairie June Grass	1.483	
Kuhnia (Brickellia) eupatoroides corymbulosa	False Boneset	0.307	
Leachea minor		0.011	
Lechea stricta	Bushy Pinweed	0.010	
Lechea tenuifolia	Slender-Leaved Pinweed	0.054	
Lechea villosa (mucronata)	Hairy Pinweed	0.064	
Lespedeza capitata --	Round-headed Bush Clover	3.874	
Liatris aspera	Rough Blazing-star	3.485	
Liatris pycnostachya	Gayfeather	0.974	
Linum sulcatum	Groved Yellow Flax	0.001	
Lithospermum canescens	Hoary Puccoon	0.001	
Lithospermum incisum	Fringed Puccoon	0.001	
Little blue mixed with thimble		1.571	
Lupinus perennis	Wild Lupine	0.141	
Monarda punctata villicualis	Horse Mint	0.042	
Oenothera biennis canescens	Common Evening Primrose	0.039	
Oenothera clelandii (rhombipetala)	Sand Evening Primrose	0.000	
Onosmodium hispidissimum	Marbleseed	0.274	

Oxalis violacea	Violet Wood-sorrel	0.001	
Panicum leibergii	Prairie Panic Grass	0.046	
Panicum oligosanthes scribneria	Scribner's Panic Grass	0.057	
Panicum villosissimum	White-Haired Panic Grass	0.000	
Panicum virgatum	Prairie Switch Grass	0.000	
Parthenium integrifolium	Wild Quinine (Feverfew)	2.452	
Penstemon digitalis	Foxglove Beardtongue	0.130	
Penstemon hirsutus	Hairy Beard tongue	0.015	
Petalostemum (Dalea) candidum	White Prairie Clover	0.763	
Petalostemum (Dalea) purpureum	Purple Prairie Clover	2.948	
Phlox pilosa	Prairie phlox	0.008	
Physocarpus opulifolius	Ninebark	0.096	
Physostegia virginiana arenaria	Prairie Obedient Plant	0.013	
Polygala sanguinea	Field Milkwort	0.001	
Polygonatum canaliculatum (commutatum)	Smooth Solomon's Seal	0.000	2.2
Potentilla arguta	Prairie Cinquefoil	0.238	
Prenanthes aspera	rough white lettuce	0.000	
Prunus americana	Wild Plum	0.025	
Pycnanthemum virginianum	Mountain mint	0.782	
Quercus alba	White Oak	0.127	
Ratibida pinnata	Yellow Coneflower	0.048	
Rhus aromatica	fragrant sumac	0.015	
Rosa carolina	Pasture Rose	0.407	
Rudbeckia hirta	Black-eyed Susan	0.206	
Rudbeckia subtomentosa	Sweet Blackeyed Susan	0.083	
Ruellia humilis	Wild Petunia	0.043	
Scrophularia lanceolata	Early figwort	0.341	
Senecio plattensis	Prairie Ragwort	0.036	
Silphium integrifolium	Rosinweed	0.518	
Silphium laciniatum	Compass plant	1.679	
Silphium perfoliatum	Cup-plant	0.178	
Silphium terebinthaceum	Prairie Dock	1.136	
Sisyrinchium albidum	Common Blue-eyed Grass	0.012	
Smilacina racemosa	Solomons Plume	0.000	0.8
Solidago (Euthamia) graminifolia nuttallii	Grass-leaved Goldenrod	1.173	
Solidago missouriensis fasciculata	Missouri Goldenrod	0.350	
Solidago nemoralis	Gray Goldenrod; Oldfield	0.593	
Solidago rigida	Stiff Goldenrod	0.048	
Solidago speciosa	Showy Goldenrod	0.426	
Sporobolus heterolepis	Prairie Dropseed	0.370	
Stipa spartea	Porcupine Grass	0.011	
Tephrosia virginiana	Goat's Rue	0.702	
Tradescantia ohiensis	Ohio Spiderwort	2.875	
Triosteum perfoliatum	Horse Gentian	0.271	
Verbena stricta	Hoary Vervain	0.335	
Verbena urticifolia	Hairy White Vervain	0.112	
Veronicastrum virginicum	Culver's Root	0.014	
Viola fimbriatula	Sand Violet	0.000	
Viola pedata lineariloba	Birdsfoot Violet	0.000	
Viola sagittata	Arrow-leaved violet	0.000	

Wulfenia bullii *** (Besseya)	Kittentails	0.034
Zizia aurea & aptera	Both Golden Alexanders	0.476

Map:



Kim Schmidt and Heather Baker planting “step in” mix and acorns and hazel nuts at Tellabs plantings in 20 degree weather.

Lessons Learned

Try to plant before Thanksgiving. The soil was starting to freeze, rain at times and very cold weather. This planting had two fields, label barrels at barn for each field prior to moving all barrels to planting site.