

PLANTING INVENTORY

Date 7-30-2009

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Planting Name CCK Crew 2005

Planting Number 63

Where is the planting? CCK - Surrounds dropseed hills.

Approximate # acres 26 Hours in field w inventory 1.5

Recorders' names Bill Kleiman Scanned?     

Total species observed? 69

Include a typed narrative done same day as inventory. Save both inventory and narrative as .pdf After the species name check off about how many plants you walked by. Not how many you could see in the distance. Note small plants too. This gives a rough sense of abundance.

Species Name (scientific name best)	1-5	6-24	25-50	51-100	100-1k	Comments
<i>Rudbeckia hirta</i>					✓	Too many.
<i>Aster pilosus</i>		✓				
<i>Monarda fistulosa</i>					✓	
<i>Koeleria macrantha</i>					✓	
<i>Potentilla arguta</i>					✓	Decreasing
<i>Carex bicknellii</i>			✓			
<i>Solidago speciosa</i>					✓	
<i>Aster ericoides</i>					✓	Great. Many patches.
<i>Anemone cylindrica</i>			✓			
<i>Silphium integrifolium</i>			✓			
<i>Helianthus grosseratus</i>		✓				
<i>Solidago rigida</i>			✓			
<i>Verbena stricta</i>			✓			
<i>Coreopsis tripteris</i>				✓		
<i>Solidago altissima</i>			✓			Invasive?
<i>Penstemon digitalis</i>					✓	
<i>Medicago lupulina</i>			✓			
<i>Ambrosia psilostachya</i>			✓			
<i>Elymus canadensis</i>		✓				
<i>Astragalus canadensis</i>				✓		
<i>Sorghastrum nutans</i>			✓			

Planting Name or area CCK Crew 05 Planting Number 63 Date 7-30-09

Species Name (scientific name best)	1-5	6-24	25-50	51-100	100-1k	Comments
<i>Desmodium canadense</i>		✓				
<i>Andropogon gerardii</i>			✓			
<i>Heliopsis helianthoides</i>			✓			
<i>Rattibida pinnata</i>					✓	
<i>Silphium perfoliatum</i>				✓		
<i>Echinacea pallida</i>					✓	
<i>Erigeron strigosus</i>	✓					
<i>Monarda punctata</i>	✓					
<i>Andropogon scoparius</i>					✓	Suggest we need more
<i>Sisyrinchium albidum</i>	✓					
<i>Equisetum hyemale</i>	✓					
<i>Senecio pauperulus</i>		✓				
<i>Solidago</i> g		✓				grass leaved but which?
<i>Liatris pycnostachya</i>		✓				
<i>Achillea millefolium</i>	✓					
<i>Aster azureus</i>	✓					
<i>Liatris asper</i>		✓				
<i>Solidago nemoralis</i>			✓			
<i>Aster linatifolius</i>	✓					
<i>Trifolium repens</i>		✓				
<i>Baptisia leucantha</i>		✓				
<i>Zizia aurea</i>	✓					
<i>Rubus occidentalis</i>	✓					
<i>Aster sericeus</i>		✓				
<i>Trifolium pratense</i>		✓				
<i>Silphium laciniatum</i>		✓				
<i>Prunus serotina</i>	✓					
<i>Aster lateriflorus</i>	✓					
<i>Coreopsis palmata</i>	✓					



NARRATIVE COMMENTS for planting 63 at Clear Creek Knolls Crew 2005 planting.  
July 30, 2009 By Bill Kleiman

This planting looks great overall. I just read the 2005 planting history. We planted about 31 pounds per acre of a rich mix of seed. Then we added 10 more pounds per acre of a rich mix of seed on November 20, 2007. See the planting history document for these mixes.

The planting needs more grass, especially little bluestem. If our history is correct, we planted 9.6 pounds per acre on this planting, but it looks like we needed twice this amount. There was a reasonable showing of June grass, Indian grass, and big bluestem. The Canada rye has done its usual increase and now is much reduced to just a scattering. Bicknell's sedge was seen often. But still we need more grass. Every time Susan K sees it she comments it needs more grass. I say this because the remnants we see have more grass, and I think I have seen cool season exotic grasses fill the niche if we don't plant enough grass. The planting looks like a wildflower garden. A bison herd would starve.

Loved seeing all the heath aster. That was only 6 pounds over 26 acres but it is all over. Clonal composites are your friend.

I am surprised not to see one plant of the following heavily planted species. I list the plant name followed by what appears to be the pounds we planted on this 15 acres of dry mesic portion:

Lead plant 16, *Aristida purpurascens* (arrow feather) 5, cream indigo 5, side oats grama 7, golden aster 1, poverty oats 0.5, shooting star 0.5, flowering spurge 7, frostweed 1, hairy hawkweed 0.35, *Kuhnia eupatoides* 5 (I did not see it. Had to be there. I see *Eupatorium altissum*), pinweeds 2, round headed bushclover 6, *Panicum liebergii* (panic grass) 2.

On the mesic 10 acres areas there was no *Actinomeris* 1, indigo bush 2.

I did not see beach wormwood, even though, on year two it was super abundant.

We planted 1 pound *Coreopsis tripteris* in the dry mesic areas and it is now a dotting across the area. We planted 3 pounds *C. palmata* and I saw only one plant (but they are shorter so maybe there are more).

We did boldly add sawtooth sunflower to the mix and I saw a scattering of small patches in the upland areas.

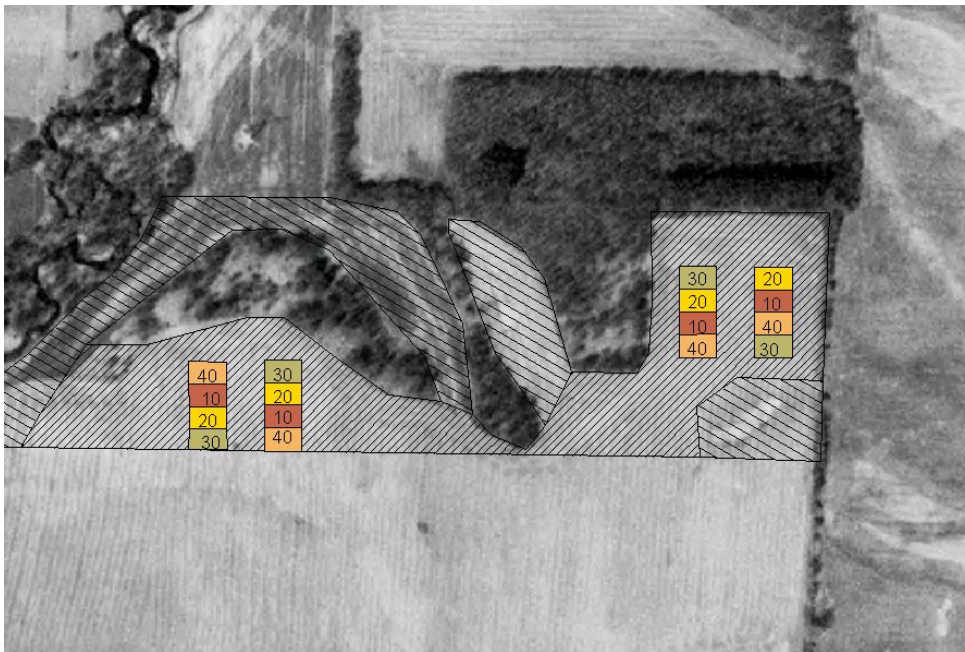
In this planting we set up and executed a seed rate study whereby the Airmax fertilizer truck was to blow in 10, 20, 30, and 40 pounds per acre in certain test areas. You can see these areas on the map below. But...the operator could not get the machine to turn off and on quick enough as he approached the flagged areas at 16 mph, and they forgot parts of a cell or two. So I would call that experiment not worth pursuing. I have not tried to go out and look for those areas but casual hiking through does not show differences.

We did do a nice seed rate study nearby and that worked very well. It suggested 50 pounds bulk weight seed per acre produces good results. We think we have about 40% weight of the mix is chaff.

Mary Vieregg gave great detailed feedback on this narrative. I save them to folder.

Suggested actions:

- Consider over-seeding with little bluestem, side oats, panicums, dropseed.
- No sweet clover seen, nor queen anne's lace. Saw a few yarrow. A few red clover but overall looks good. Keep up the red clover work as Mary V suggests.
- On this planting we "threw in the kitchen sink" of seed. Meaning, if we had a lot of black eyed susan, it went in the mix. Even though it was too much per acre and there are places where black eyed susans look to dominate. And just maybe they inhibit some of the finer plants we want to see growing. Too much also for false sunflower, and Penstemon digitalis. We did wisely hold back on yellow coneflower and bee balm and perhaps a few others. It would be better to get the proportions right and just plant less acres if we don't have the right weights of various species.



Map of the planting 63. The right leaning hash marks is the dry-mesic seed mix. The left leaning heavier hash marks is the mesic seed mix. The colored blocks was the seed rate experiment that did not work out.



A photo of planting 63 on July 30, 2009. Photos looks SSW towards Scherger farm. I am standing just south and near the east end of the dropseed hills remnant.

### **A few more thoughts about Planting 63:**

**By Mary Vieregg, steward of Dropseed Hills.**

I've obviously thought about the Dropseed Hills degraded remnant plant communities and the crew planting around them (Planting 63) a lot as I've worked out there the last four years. The area south of Dropseed Hills is really quite different than the areas east, north, and west of the Hills as you know. The south community is generally less dense with more open soil space. You can walk through it and easily take note of individual plants. It's lower in stature, too, especially as midsummer rolls along into fall. The plant community to the east, north, and west of the Hills is intimidatingly lush and robust. Now in late summer, the plant height is almost head high, and it's difficult to walk through without tripping in the dense growth. As many people have noted, the plant communities on Dropseed Hills are different from either portion of Planting 63.

I know these differences reflect the two different seed mixes you used and the varied plant community histories on the individual Dropseed knolls, but I think it's fascinating to think about how it also reflects the differences in soil structure (which is probably why you planted two different mixes). South of Dropseed Hills, the soil is a complex of Rodman and Warsaw soils which are fairly shallow, excessively drained, loamy material over sand and gravel and not considered prime farmland. The soil complex itself is rated unfavorable for subsoil rooting (B810 Productivity Index (PI) = 87). To the north, east, and west of the Hills, though, you find Waukee Loam which is a deep mesic soil with moderate permeability. It is rated favorable for subsoil rooting with a PI = 97.

The soil of Dropseed Hills is Boone loamy fine sand. It's very shallow with sandstone bedrock within 20 inches of the surface. It's fairly acidic, too. Not surprisingly, it's not considered prime farmland (thus its degraded remnant status) with a PI of only 61.

This growing season, it has been interesting to see how the planting and the degraded remnant are interacting. Some species are obviously moving from the surrounding planting into the remnant especially in the swale areas between each knoll. Some species are moving from the remnant into the planting as well, e.g. blue-eyed grass on the west side, panicums in several areas, flowering spurge to the north. It should be fascinating to watch the interaction continue over the years, but I would predict that the approximately 30 acre area will never be a uniform community because of the underlying soil dictates.

Finishing up here, let me raise the red clover flag of warning once again. Most of the red clover I have seen is in the Waukee loam portions of the planting to the west, north, and east of Dropseed Hills. There's not a huge amount, but I strongly encourage you to attack it next year. I will help as I can, but I'm pretty maxed out with Dropseed Hills, the new Dropseed North planting, and all of the other places I work on the preserve.

Thanks for letting me share my wandering thoughts.

Mary

On Sun, Aug 2, 2009 at 9:14 PM, Mary Viereg [mary@viereg.net](mailto:mary@viereg.net) wrote:  
Hi Bill

I just read the narrative you wrote, and I found it pretty interesting especially because I often walk through the planting from different angles to get to Dropseed Hills. I have a few observations and a few more general thoughts to share.

I'm curious about the criteria you use to say the planting looks great (which I agree with). To me, biodiversity and sustainability are the two most important goals in doing a planting. I figure that a large number of plant species early on will support a large number of animal and microbial species, and as time goes by, the community will settle into a sustainable entity maintained by natural processes of fire, rain, freezing, insect pollination, inter- and intra-plant competition, etc. If this assumption of early biodiversity leading to eventual sustainability is correct, then the best way to evaluate an early planting is by measuring its diversity. This gets tricky because some plants show up early and then give way while others take some time to show up at all. For example, prairie gentian didn't show up in the Oak Knoll planting until the 3rd year, and shooting star didn't show up until year 6. There was lots of *Monarda punctata* the first year, but there's not too much now 7 years later. You mentioned the Canada rye and beech wormwood reducing in this planting, too.

It seems to me that seasonality has to be considered, too. Ideally, I think a planting should be evaluated in the spring, midsummer, and then again in the late summer/fall period. Some plantings look really wonderful in the spring but then not so great later on, and others just the opposite.

I think your concern about grass is interesting. I wouldn't worry about it too much. It seems to me that little bluestem finds its way in over time. I've seen it as I walk through the planting, and I think with time it will make more of a statement. Additionally, there's quite a bit of it and sideoats grama in certain parts of the Dropseed Hills remnant which will provide additional seed for the surrounding planting over time. There are also huge populations of the panic grasses on Dropseed Hills that I already see moving into the planting along the edges. It won't take too long for them to make more of a statement in the planting itself.

From a more philosophical point of view, why does there need to be a lot of grass? Why should we suppose that it is (or was) always present in any particular quantity or proportion in sustainable presettlement communities? I think plant communities have always formed largely by random introductory events of seed stock that responded to soil, weather, etc. particular to a given time and place. Surely not all presettlement plant communities had the same proportions of plant species. Perhaps bison might have passed the planting by, but it may be highly appealing to certain bird or small mammal species which might not flourish in a grassier planting. I don't think we know enough about all of these relationships to be able to make hard and fast judgements about what constitutes a "perfect" planting. And isn't it wonderful that Nachusa has enough space to have a broad mosaic of plantings and remnants to provide many different species with many different options?

Observations about a few of the heavily planted species you were surprised you did not see:

- 1) Cream indigo was slow showing up in the Oak Knoll planting and may still appear. It has a lot of competition, though, in a planting full of tall, robust mid-summer species.
- 2) Walking through the planting, I have seen golden aster. It's there but hard to see, again because of all of the tall mid-summer species.
- 3) There is quite a bit of flowering spurge on the Dropseed Hills remnant, and I have noticed it moving into the planting along the edges. I will keep my eyes open for it as I walk through the more central areas.

As for weeds:

- 1) I have found and pulled small amounts of Queen Anne's Lace and yarrow in the planting and not just near the edges of Dropseed Hills (where there was a shocking amount this year that we're diligently working on).
- 2) **Of greater concern is the red clover.** Its frequency merits more sweeping than was done this year. It could easily get away without multiple sweeps next growing season. I see a handful of plants each and every time I walk through the planting from whatever direction I approach, and it has the potential along the creekside two track to move aggressively east.

In summary, I agree that the planting has high native species diversity and low non-native populations. It's a joy to experience it as much as I do.

-Mary Vieregg