

Wild Things Workshop for Stewards and Monitors
February 7, 2010
 Notes By Karen Tharp and Lisa Culp

Session I:

Prairies and Savannas

Resource People:

Bill Kleiman, Steward of Nachusa Grassland

Stephen Packard, Steward of Somme Prairie Grove and editor of the Tallgrass Restoration Handbook

Tom Vanderpoel, Citizens for Conservation, 25 years of prairie restoration work on multiple sites

Restored prairies often are dominated by a few species, especially tall grasses such as big bluestem and Indian grass. What is the best technique to establish a high diversity restored prairie?

Tom: Do not sow too much big blue and Indian grass seed. When you are beginning to plan your restoration you will need to locate a seed source. CFC has some railroad prairie remnants nearby where we collect seed. We use very small amount of native grasses and most mixtures we don't use any at all, but we have smaller areas to work on. Working with the landowner, we come up with a formula on how to get enough seed for the site, and may need 100 – 150 species. Also, you are not going to get the results you want in 1 – 2 years, it can take decades and you need to slowly add seed. Have templates on how you are going to restore. What should be growing in your area? Check out resources, such as Wilhelm and other books.

Q: Why doesn't anything grow after I've planted 40 lbs of seed?

A: It will come, but it takes time.

Q: I've drilled seed in, and raked seed in, and have not had good results with either method. I went from tall grasses to just about another monoculture of tall goldenrod and woodland sunflower.

A: Steward from Bluff Spring Fen has had good results overseeding in dry and mesic areas with a "forb enrichment mixture." Again, patience is the key.

Bill: Over the last 25 years, Nachusa has experienced 90 prairie plantings, and they have made mistakes. From these experiences and learning from the Network, Bill has developed a list of "10 steps to plant a diverse prairie".

Bill Kleiman's 10 steps To Plant a Diverse Prairie:

1. Make diverse prairie restoration a known priority
2. Plant a large weight of seed
3. Plant a high diversity of seed by starting early
4. Plant all species you want on year 100 on year 1
5. Better to have 5 fabulous acres than a 50 acre weed patch
6. Over seed successful planting with more success
7. Gather the space and tools to hold, process, and plant a big seed harvest
8. Treat each planting as an experiment

9. Choose, or prepare, a site that has no weed problems.
10. Starting over is ok

Bill was in agreement with Tom, don't plant grasses. Pick at least 50, if not 150 species. At Nachusa, they harvest 200 species a year from the preserve, from May to November. Stewards adopt areas and they also have a seasonal crew to help with the harvest. The result is a lot of diverse seed, including large weights of each species...large numbers with weight and diversity are key.

Q: If you have a mixture of open woodland that is now prairie due to a tornado, do you recommend planting woodland and/or prairie species?

You may want to plant prairie species if all or most of the trees are gone, woodland species would not survive. Add in some hardwood saplings as well to start that reforestation of the savanna.

Bill: With savanna species you may need to over-seed, and at Nachusa these species usually take longer sometimes several years before you start to see a result.

What if you already have large amounts of grasses established? We have tried inter-seeding and drill seeding to increase diversity. We have also been raking in seeds for 15 years and the result has not been good. The fields used to be big bluestem and now they are goldenrod and yellow coneflower, so just another monoculture. How can you inter-seed and rake to get a more successful result?

Doug Taron from Bluff Spring Fen has had some good experiences with over-seeding. They do not include any tall grasses in their mixtures and have been successful in especially dryer areas, such as gravel hill prairies. Forbs such as coneflowers, lead plants, and others have also been successfully reintroduced in more mesic areas as well. They have also been successful adding shorter grasses, such as porcupine grass and dropseed which are not so aggressive and provide a shorter matrix.

If you are doing extensive seeding with no success, maybe there is a hydrology problem on the site.

Stephen P: Take the time to figure out which conservative species are right for your site. Diverse conservative species are hardest to get, but that is what you need for the long run. These species are extremely resilient to seasonal weather. Remember, that prairies may look different each year because of weather. Stephen has done some experiments at Somme Prairie Grove where he located an area with bluegrass, hard-leaved goldenrod and other common species and marked six circles in that area with a steel post in the middle of each circle. He used the radius of one rake length for each circle. In the fall he raked seed in three of them randomly. The other three, he threw seed down and didn't rake. All circles were given the same seed mix. Four years later, he saw nothing, however nine years later he saw six perfectly round patches of rattlesnake masters, prairie clover, little bluestem, etc.. So we sometimes need to be more patient with our restorations. The conservative species did well when you throw in lots of seed from each, for example, shooting star, quinine, prairie violet, etc. We used to spend a lot of time raking seed in, but realized that for about ½ the species it make no difference and the other ½ we could get the same result by throwing in twice as much seed, so maybe just gather more seed, and don't rake.

There was a question about the importance of moisture in seeding with cold stratification and is it important to have the seed under the snow.

Tom V: CFC gets all their seed on the ground, except legumes and porcupine grass BEFORE Thanksgiving. This is because some of these species do not have a great need for stratification, but some need double stratification. If they need double, then get them in early, so November is a good time. Grasses, composites and legumes don't need stratification, but getting them in early may help them work

down in the soil. So maybe change the time of year that you are seeding. Plant/seed in the fall except spring ephemerals and legumes, and put an inoculant in with the legumes.

Bill K: At Nachusa, they do not use inoculants, and they mostly seed in the fall. Maybe the site in question is not getting burned well, some species don't burn well, or maybe the site is not burned regularly and that is why the seed is not taking.

Q: Do you clear out all of the weeds, or do you only clear the area of weeds where you will be able to re-seed?

Bill K: Clear as much as you can, even if you don't have enough seed, especially for invasive species such as bush honeysuckle. This will move you towards a more natural prairie/savanna, with lower humidity and conditions...you can catch up with seeding over time.

Tom V: Every site is different, is it buckthorn in a woodland, that would leave bare soil or Eurasian grasses? Take it out, but remember once you take it out, other non-natives will fill the void, and you don't want to wait too long.

When you do your brush cutting, do a good job and don't depend too much on fire. If you don't properly treat one stem, with one cut, and one herbicide, you will have six stems the next year.

Q: What's the best way to apply Garlon 4?

A: 20% Garlon on stump and at least 1" down sides of stem, depending on size of stem.

Use Garlon 4 in the winter, Garlon 3 in spring.

Stephen P: Use 20% Garlon with a wand. The herbicide sits on top of the stem and doesn't run down into the soil. Use the wand and come back three times to properly treat the invasive. If you are clearing, you must be able to do the follow up with herbiciding for maybe the next two years, and then plant seed. There are sites that had buckthorn resprouts and were not dealt with and now they are a tremendous problem.

Know your plants well. Sowing seed also depends upon the species..for example phlox does not have a seed bank and will not germinate if collected green. Rule of thumb, collect when ripe and plant right away—especially those species you don't know about.

There are some experiments where they are using smoke (bee smoker) to help with germination.

Question from Wolf Road Prairie: We have always relied on our own seeds, should we be worried about diversifying our gene pool? What if a disease comes through?

Bill K: We collect from our site and within a 50 mile radius circle and are content with that gene pool. If you have a quality site, you may not want to mess with it.

Doug Taron: The size of site does matter if it is small and you may have problems with in-breeding.

Stephen P: Beware of anyone who says "x is the answer," because every site is different and the answer will be different for each.

If you clear an area that has buckthorn, should you plant an annual cover crop to hold the area?

Bill K: If you do Canada Rye works well. Bluegrass is okay—it is easy to overseed, and it will be killed by burns.

Stephen P: If you plant a cover crop one year, then what about the next year and the year after that? An annual cover crop only solves the problem for one year. Some weeds you can burn and the native seed will grow well...i.e. bluegrass.

We need to keep an open mind and continue to learn from everything we do, every season. We do not know all the answers by a long shot! Remember that restoration is an imperfect science.

How do we restore prairies that are high quality from both a plant and bird perspective?

Tom V: At Grigsby Prairie we have six species of prairie birds. It is a small prairie and we try to keep it high quality. After 25 years, the plant diversity has grown and the bird populations have only slightly increased, however, there are lots of nearby sites (some much larger) that support bird habitat.

At Fermilab it was noted that the birds are still hanging around parameters of grasslands that are mostly Eurasian grasses. At Springbrook we have been working to get rid of all the brush, and after 16 years of monitoring, bird populations have increased...mostly because of the brush removal. Eurasian grasslands are good for birds. For some reason they like dense, short grasslands. Grassland bird species like shorter structure, side oats, little bluestem, dropseed, etc. So even though you have a high diversity prairie, you may not have an ideal site for birds. For smaller sites, go for diversity of plants, because birds prefer the larger sites and those sites can sustain them

Bill K: From talking with Jim Herkert and studies at Nachusa, grassland birds do not like dense stands of tall grasses such as Indian Grass and Big Bluestem monocultures, but they are ok in cool season grasses. We also keep some patches of native shrubs such as plums, they keep some diversity of bird species around such as the bell's vireo, and are a nice component to prairie.

Doug Taron: Don't forget that other species, such as some species of butterfly, DO like tall grasses. At sites in Kankakee, the regal fritillary prefers areas with tall grasses.

Judy Pollock: "Restoring Large Prairies" document is available on the www.habitatproject.org website. It is a great resource that contains expertise from across the Chicago region. Also in the Kankakee areas on some older restorations they have been experimenting with cattle grazing as a control and are finding that the cattle favor the shorter grasses over the tall ones. At Bartel Grasslands there are lots of bobolinks and with the conversion of Eurasian meadow to prairie, they will need to experiment with what is good for the bobolinks. They seem to be attracted to the Eurasian grasses and alfalfa. So what should they plant... they will not plant Indian Grass or Big Blue Stem, but will plant the shorter grasses in patches with forbs.

What if you have a small area 2-3 acres, that you will unlikely be able to burn...should you convert to prairie? The consensus was no, burning is a critical part of the prairie

How do we get reliable, annual burning of sites?

Bill K: With this question, we should assume that it does not mean to burn every year. Prairies need a more random pattern of burning. The National Wildfire Coordinating Group has set standards, and Illinois has adopted these for training. Also, EPA is tightening its standards on particulates, so that may be a problem in the future.

Stephen P: This is more of a political question. It's of utmost importance to conduct burns. We have to make sure that everyone understands how necessary it is, and try to get everyone on board. Prairies need to burn, or they will be gone.

Final thought—provided by Roger Keller

Realize that restoration ecology is a brand new science and changes to that science are happening rapidly, and you will make mistakes; it is not a perfect science.