PHEASANTS FOREVER

Miami Valley Chapter

Dedicated to Returning the Ring-necked Pheasant to the Miami Valley

Quick Guide to Establishing Native Grassland Habitat

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Step 1: Eliminate Existing Vegetation

One essential task in any grassland establishment project is to ***completely*** eradicate existing vegetation. Doing so improves visibility (hence planting accuracy) and seed-to-soil contact. It also reduces seedling competition for moisture, nutrients, and sunlight. Clearing or burning down the vegetation will make it easier to see the emerging seedlings and evaluate planting success.

It is critical that all "problem" vegetation be eradicated because it can be difficult or impossible to control these species after the grass seedlings have emerged. Common "problem" species include sod-forming or dense perennial grasses (e.g., fescue, brome, orchardgrass), rank and aggressive broadleaves (e.g., some clovers, alfalfa), and noxious weeds (e.g., johnsongrass, Canada thistle). Generally, it is well worth the extra effort and expense to apply herbicide to the area in the fall and again the following spring. Do not cut corners on this step; many projects fail because seed is planted before the seedbed is properly prepared.

Existing vegetation can be eradicated using chemical and/or mechanical methods. Commonly the chemical method involves a pre-planting application of broad-spectrum herbicide such as glyphosate (Round-up®, Cornerstone®, etc.). A selective herbicide with residual soil activity (imazapic; Plateau®, Journey®) was can be applied simultaneously in order to improve the burn-down of existing vegetation and to inhibit germination of weeds after planting. Imazapic is effective in low doses and must be used carefully, or else stunting or death of wildflowers and some grasses may result. Imazapic can be used to eradicate weeds after prairie plants are growing, but many desirable plants will be lost and this technique should be used only for rescue. Mechanical methods of vegetation eradication include grazing, mowing, and burning. If rank vegetation is mowed, burn or rake afterwards so that the heavy thatch will not inhibit planting or smother seedlings.

Any woody vegetation must be removed from the site, either by manual cutting or with a machine. Wherever possible, treat the cut stumps of suckering species (e.g., black locust, osage orange, bush honeysuckle, mulberry, etc.) with herbicide (Round-up®, Tordon®, etc.) to prevent resprouting. Dense growths of blackberry, rose, and other brambles should be eliminated by treatment with an appropriate herbicide (e.g., Crossbow®) the year before planting. If heavy equipment is used to clear the site, back-drag to smooth out the seedbed and make planting easier.

Step 2: Plant Grass and Forb Seed

For larger projects (over 2 acres), the best method of planting native grass and forb (wildflower) seed is to use a no-till rangeland drill designed specifically for the purpose. Because of the unusually fluffy and fibrous quality of many warm-season grass seeds, conventional grain drills and grass seeding equipment will not do the job. Fortunately, the ODNR-Division of Wildlife owns several of the drills and will make them available for use in habitat projects on private lands. The drills, which are either 6' or 7' wide, can be operated by a tractor equipped with a 40+ hp engine and rear hydraulics. It is not difficult to operate the drill, but be aware that the best results are achieved when the drill is operated slowly. Aside from achieving precise placement of the seed, using the no-till rangeland drill allows one to plant directly into a killed sod, which will serve as mulch, retaining soil moisture and reducing erosion.

Grass seed is loaded into the "fluffy seed box" of the drill. Forb seeds are thrown on top and manually mixed in with the grass seed. Special agitators in the box help keep the seeds mixed while the drill is running. It is critical that these seeds be planted no deeper than 1/4" because seed placed deeper than this will not germinate. During planting, check the seed box frequently and, as needed, redistribute the seed across the box partitions. Do not let the seed volume fall appreciably below the agitator axel. Periodically examine the soil furrows to be certain that seed is flowing and is being placed at the correct depth. Some seed will be found on the ground surface but this is common and not usually a problem. ***Use no fertilizer***, which will primarily benefit competing weeds.

The rangeland drill also has boxes that will accommodate seeds of more conventional crops, such as legumes (alfalfa, lespedeza, clovers, etc.) and cool-season grasses (Timothy, orchard grass, smooth brome, etc.). This is handy because the same machine can be used to plant a strip of cool-season vegetation along the perimeter of the field. These 12-20' wide strips, or "firebreaks," should be installed if prescribed fire is to be used as a tool to manage the grassland, or even if the area is prone to accidental fires.

The broadcast method of planting native grass seeds can be used, if necessary, but generally yields inferior results. The seedbed should be disked fine and then made firm by cultipacking. Seed (mixed with sawdust, kitty litter, vermiculite, etc. to give it body) is then broadcast over the seedbed and pressed into the soil with a cultipacker. Seeding rate should be increased 20-30% to account for the higher loss of seed using this method.

Step 3: Nurture Seedling Growth and Manage the Grassland

Now that the seed has been properly planted into a properly prepared seedbed, there may be nothing more to do than to hope for good weather. If imazapic (Plateau®, Journey®) was applied at the time of planting, competing vegetation should remain sparse through perhaps the entire first growing season. The seedlings of imazapic-resistant grasses and forbs may appear several weeks after planting, if soil temperature and moisture are conducive to germination, and should be visible in the conspicuous

"drill rows" which will harbor very few weeds. Some species of forbs do not tolerate this chemical and may be absent from the young stand. However, because the seeds of many forbs do not germinate until after they experience frost, some of the seed will lie dormant until the following spring. By this time, the imazapic has decomposed and the forbs can quickly establish themselves.

If imazapic was not used at planting time, soon there will be a flush of annual weed growth. Some of these "weeds," such as foxtails and ragweeds, provide cover and food for wildlife, shelter the seedlings, and (unless extremely dense) do not threaten the long-term viability of the stand. Some tall, leafy annuals, particularly the goldenrods and horsetail (marestale), can become very dense and easily out-compete the seedlings for sunlight and moisture. This problem can be reduced (though not eliminated) by mowing the rapidly-growing annuals several times during the planting year, each time raising the mower deck high enough to avoid clipping the grass and forb seedlings. If you find problem species, such as tall fescue, johnsongrass, and Canada thistle, it is best to remove these immediately by either mechanical or chemical control methods. If the plants are clustered, they can be treated by spot-spraying with an appropriate herbicide. Do not be overly concerned if some of the seedlings are killed by overspray as new grasses eventually will fill the void. Do make the most of the present opportunity to kill the problem vegetation before it goes to seed.

In the growing seasons following the planting year, be vigilant for invading brush, vines, and tree saplings. If these are properly managed the grassland will thrive for many years and will not require reseeding or other inputs. Small colonies of unwanted vegetation can be removed by spot-spraying with herbicide or by mechanical methods. Regular mowing of the stand should be avoided, as it interferes with the plant's reproduction and also is detrimental to wildlife. Mowing may be used periodically (every several years), as needed, to remove woody vegetation that may become established over time. Prescribed burning is an excellent tool in the control the invasion of woody plants, but it is potentially dangerous and is not always practical to use. Fall burning tends to favor forb proliferation, but eliminates winter cover important to local wildlife. Spring burning is effective in killing woody species, but may diminish the forb component of the stand and make the grasses too dense. Strict laws regulating open burning are now in effect in Ohio, so be certain to consult them before beginning any burn project.