Tryon Farm Prairie Rehabilitation and Management Plan
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Introduction

The Tryon Farm prairie/wetland field, like any natural area, requires periodic maintenance and management. This plan addresses hydrological considerations, supplemental enhancement plantings, burning, mowing, and control of exotic species. Each plan feature has been addressed to fit the needs of Tryon Farm in their stewardship role.

Hydrological Control

The water level of the restored wetland has stabilized at a level higher than originally envisioned. At its current level it is having a negative impact on the adjacent settlement development and, to a lesser degree, on the prairie. We recommend lowering the outlet of the wetland four to six inches.

This can be achieved by installing an adjustable water control structure within the existing berm. The installation of a water control device will provide a more reliable and consistent means of maintaining the water table at a desired level over time than would a simple spillway. The adjustable system would also allow the Tryon Farm land steward to raise or lower the water level in the future should the site's hydrology change due to changes in its watershed. Information on this type of water control structure is attached. We recommend using the 6" inline water level control structure constructed by AgriDrain Corporation. This structure is lockable to reduce the likelihood of unauthorized tampering.

Alternatively, the existing spillway could be lowered allowing water to be discharged at a lower elevation. While less expensive, this alternative requires more maintenance to ensure that the spillway elevation is not raised over time by vegetation growth, vandalism, or simply kids playing at dam building.

The hydrology of the Tryon Farm Prairie has evolved as the site has matured. The tile system that kept the site drained and farmable prior to restoration was partially disabled with the construction of the wetland. Several years later, construction of some of the homesteads on the site also interrupted some of the tile system as well. And finally, remaining tiles can be expected to function more poorly over time due to the lack of maintenance. Consequently, we have seen the establishment of several wet spots and swales within the prairie and adjacent to some of the homesteads. Where possible, we recommend leaving these areas as is and letting "nature take its course." Were this is not desirable it may be necessary to provide drainage to one or more of these areas by installing new drainage tiles. Where the mortality of landscaping trees is an issue it should be able to plant water tolerant trees such as green ash *(Fraxinus pennsylvanica), pin* oak *(Quercus palustris),* swamp white oak *(Q. bicolor),* river birch *(Betula nigra),* or bald cypress *(Taxodium distichum).* Bald cypress is native to southern Indiana but is hardy in northern Indiana.

Seeding and Plugging

After the hydrology has been adjusted to a suitable level, the prairie rehabilitation can begin by means of supplemental seeding and plug installation (see attached suggested species

The timing of a burn is likewise influenced by the desired objectives. A late fall burn with ample amounts of dry fuel, when implemented correctly, will provide an extremely hot fire that will aid in the control of woody plants invading the prairie. However, we suggest a controlled burn in mid- to late spring of 2001 to help the native plant community out-compete the exotic, cool season herbaceous invasives since a woody invasive control effort has been or will be made this season. Spring burns also leave winter cover in place for wildlife and may be more aesthetically acceptable to the residents since the prairie will green up sooner.

The maintenance of fire lanes will be fundamental in ensuring the safety of Tryon Farm and its residents. These fire lanes should be maintained around the entire perimeter of the prairie. A permanent fire lane could be combined with a path bordered by non-aggressive cool season grass. The fire lanes can be maintained by mowing paths eight feet wide along the perimeter of the prairie.

Nonnative Species

The prairie's establishment, and ultimately its ability to naturally regenerate itself, will in part depend upon a concentrated effort by the Tryon Farm land steward to extirpate exotic species from the site. There are many control techniques that may provide useful to prairie restoration and maintenance efforts. The primary and most versatile technique for exotic control is the use of chemical herbicides.

A quality backpack sprayer, such a Solo's model 425 chemical backpack sprayer, filled with two-percent mixture of RoundUP, or Rodeo plus recommended surfactant if applying near water, is essential equipment for the maintenance of Tryon Farm. Plants, both exotic and native, should be positively identified before any chemical treatment. Complete coverage, though not to the point of runoff, will ensure the highest level of chemical translocation to the plant roots. The applicator must also pay attention to wind speed and direction, due to the risk of herbicide drift. The chemical mist that is released from the nozzle of the backpack can drift several feet away from the intended target on breezy days. As a result, non-target, native plants may be unintentionally killed.

Currently the wetland and prairie have several areas where woody species are colonizing. Mechanical control, such as using a chainsaw to cut down and remove the trees, is necessary to release suppressed, understory vegetation. Colonization is particularly evident on the west side (see attached aerial photograph). This release will promote fuel build-up that is essential for burning. After the initial removal of the woody component, controlled burning should deter the establishment of trees and shrubs from within the prairie. Problematic species, such as black locust *(Robinia pseudoacacia),* may require chemical treatment since it grows vegetatively, forming dense stands that will suppress fire. Common reed *(Phragmites communis)* has also become established in some of the wetter areas of the site and should be aggressively controlled before the stands become large and difficult to manage. Common reed is easily identified as a tall grass (5-7 feet) that spreads aggressively by rhizomes.

Pathfinder II is a ready-to-use herbicide designed specifically for control of woody species. An effective treatment involves spraying cut stumps with a low-pressure streamlined spray to attain complete coverage and reduce overspray. Pathfinder II is not labeled for use in wetlands, and caution should be taken to avoid any standing water. Follow all label instructions for application, safety, and environmental implications.

list). The seeding and plug installations are rehabilitation activities that should ideally be done in the spring, after the prairie has been burned and while weather conditions are favorable.

Frequent spring rains will help to ensure that there will be ample soil moisture available to these new installations, which will increase their chances of a successful establishment during the first growing season. Performing seeding activities after a burn is also ideal because it provides the direct soil-to-seed contact that is essential for the germination of native seeds. The process of burning also returns nutrients to the soil that are bound up in the dead organic matter from previous growing seasons. Burning also exposes the soil and emerging prairie seedlings and plants to full sunlight allowing them to compete with the weeds more efficiently.

The primary objective of the supplemental seeding is to establish native prairie vegetation in areas that have become bare or exposed (see attached aerial photograph). These areas may be the product of construction activity, large areas of exotic species eradication, and/or the result of lowering the water level of the wetland. Plugging will greatly increase the achievement of such goals. Native plugs could also be used to revegetate small barren patches that may appear throughout the site, while also adding aesthetic value and diversity to some of the high profile areas within the prairie such as along trails and near benches.

We do not recommend attempting to recreate the original vision of the masterplanned prairie with "swaths of contrasting color." This original pattern of color was achieved using primarily native and nonnative annuals. As the site has matured these annuals have naturally declined giving way to the grasses and lower density perennial flowers. Re-establishment and maintenance of this banded coloring of the prairie would require reseeding every couple of years or so. Aside from this cost consideration, when the prairie was originally seeded the site was fairly uniform in terms of moisture regime. As the site has matured and the drainage tiles have continued to break down numerous wet spots and swales have developed spread throughout the prairie. This compounds the difficulty of maintaining uniform color swaths because the wet spots will not support the same species as the upland areas.

Prescribed Burns

The continued health and longevity of the prairie will largely depend upon the utilization and timing of prescribed burns. Historically our prairies have been governed by fire, resulting in an ecosystem that has evolved to benefit from the effects of cyclical burning. Fire is an efficient tool that functions by resetting the balance of environmental factors to favor prairie species while selecting against many undesirable competitors.

The utilization of fire as a tool is the most cost-effective approach to the long-term management of prairies. A well thought-out, ecologically conceived burning regime is pivotal in developing a healthy prairie. Correctly timed burns will greatly aid in the continual control of exotic and woody species that annually invade the prairie by seed dispersal.

We recommend annual burns for at least the next 3 years to bring the prairie to a healthy state. As the prairie develops and evolves so does the fire regime. When the goals of establishment, diversity, and exotic control are met, Tryon Farm may wish to consider burning at 3-year intervals, or annually in one-third increments. This aids in structural diversity in the prairie community, which will ultimately aid in floral and faunal diversity. For example, grassland birds favor both vertical and horizontal diversity for nesting, feeding and shelter. Mosaic burns, typical of natural fire behavior, offer refuse for fauna that complete, one hundred percent burns do not.

Once the woody and exotic species are initially brought under control, maintenance burning should, for the most part, control future colonization. However, due to the constant dispersal of unwanted seeds by wind and wildlife new stands may appear. We recommend that the prairie be inspected periodically to identify new colonizers early so that they may be eliminated. This will be an ongoing maintenance task. The earlier these species are identified and treated the simpler it is to carry out the work.

Time Line

The table below gives a rough timberline for activities for the year 2001. As previously discussed, a water control structure should be installed in the spring of 2001. This will allow Tryon Farm to maintain a steady water level in the prairie area and promote proper conditions for seeding and planting. All herbaceous control should occur during the active growing season. Woody control should take place in the dormant season to avoid injury to non-target plants. We recommend a mid- to late spring burn to control the cool season, invasive herbaceous plants present.

Activity	Jan 01	Feb 01	Spring 01	Summer 01	Fall 01	Winter 01
Woody control	X					X
Herbaceous control			X	X	X	
Mow burn lanes		X				
Burn			X			
Supplemental seeding			X			
Supplemental plugging			X			
Water control structure			X			

For Further Reading

We recommend that the Tryon Farm land steward consult two well-known books that will aid in restoration and management efforts at the Tryon Farm Prairie. *The Tallgrass Restoration Handbook for Prairies, Savannas, and Woodlands is* edited by Stephen Packard and Cornelia F. Mutel, and published by Island Press Washington, D.C.lCovelo, California. Also, *Restoring the Taligrass Prairie, is* written by Shirley Shirley, and published by the University of Iowa Press / Iowa City. Both of these books provide detailed outlines and possible management schemes that may prove useful in ongoing management practices at Tryon Farm.