

EXTENSION NOTES

PLANNING YOUR PROJECT

Many people think that planting is the first step in their restoration project, but in fact many activities must take place before this can happen. The key to a successful prairie restoration project depends on proper planning. It is important to realize that it is a long-term commitment of time and resources. In most cases, it will take a minimum of two years to complete the project with the first year dedicated to planning and site preparation, and the actual planting done in the second year. After the planting is completed, and with proper maintenance, it is realistic to expect the prairie not to reach its intended appearance for 3-5 years. To help you in planning for your project, the following areas have been outlined for you to consider.



- **Site Characteristics**

Knowing your soil type and surface drainage is important when selecting appropriate species for your prairie. The type and condition of the soil on your site will determine the type of prairie community you can establish. Soils ideal for prairie establishment vary greatly in composition from dry, gravelly, sandy soils which hold little moisture to silty or heavy clay soils that have a high water retention capability. Once you determine your soil type and surface drainage the plant species best suited for your site can be chosen.

- **Open Spaces**

Prairie plants grow best in full sun and in open spaces. When selecting a site, look for areas with the maximum sun exposure with minimal root competition from trees. Savannas are similar to prairies in that they are grass and forb dominated communities, with scattered 10% to 35% tree cover. Oak and hickory are the commonly associated savanna tree species in Ontario.

- **Past Uses**

Previous land use practices can play a role in the timing schedule of your project. You need to ensure that previous activities are not detrimental to your future planting. For example, some herbicides used on agricultural fields can have residual effects and prevent the growth of tallgrass prairie. Also, if there has been a history of heavy soil disturbance or there is a lack of vegetation on the site, soil testing should be done to determine if any site modifications need to be completed. Previous activities can also benefit your planting. A history of no tillage would increase the organics in the soil and therefore provide better growing conditions for your planting.



PLANNING YOUR PROJECT

This chart outlines some general method of site preparation that should be done based on existing site conditions. Often more details are required and can be discussed with an RLSN representative.

Existing Conditions	Method of Preparation
Soybean residue - provides the ideal conditions for tallgrass prairie planting	<ul style="list-style-type: none"> • If you are planning on preceding your tallgrass prairie planting with an agricultural crop, Roundup Ready® soybeans create the ideal site conditions for planting prairie with no-till. In this situation, a flat, firm weed-free, moisture rich seedbed is created and ready for your spring tallgrass prairie planting
Corn residue	<ul style="list-style-type: none"> • Should be disced/disturbed to promote stalk decomposition during the fall or burned during the spring to remove corn residue • An application of Roundup® @ 1L/acre should be completed before the tallgrass prairie planting to suppress weed competition
Abandoned field and pasture -site conditions are dominated by early successional weeds and/or cool season grasses	<ul style="list-style-type: none"> • Project sites in this condition require at least a full year of preparation to ensure all cool season grasses and weed seed banks are eliminated. • Start by burning the area to remove debris • Throughout the year, continue to spray weeds as they appear using Roundup® @ 1L/acre. A minimum of two applications, one in the fall and then repeated in the spring are necessary to eliminate the weed source. • NOTE: areas dominated by cool season grasses will require a higher rate application rate of Roundup® @ 2L/acre.
Wheat residue And other allelopathic plants including quackgrass, annual rye, oats, alfalfa, sunflowers, red clover, sorghum, barley and hairy vetch	<ul style="list-style-type: none"> • Wheat is allelopathic and therefore, prevents the germination of tallgrass prairie seeds. • If the field to be planted is covered with 50% or more of any of these plants, it is best to burn the plant residue, then moldboard plough in the fall. If the field is highly erodible-burn the area or thoroughly disc-cultipack in the spring and wait two weeks to plant prairie in the spring. • If the field is covered with less than 50% or less of any of these plants, you can apply herbicide, preferably in the fall. Check the effectiveness of herbicide application and apply a second time in the spring if kill was not complete and wait three weeks before planting.
Hawthorn pasture	<ul style="list-style-type: none"> • Hawthorns can be eliminated using different pieces of machinery including a Meri Crusher, six-way blade, or a root rake. The Meri Crusher eliminates hawthorn by cutting, chopping and mulching the brush back into the soil thereby preparing it for planting. Six-way blade, which is attached to a bulldozer, causes little disturbance to the soil subsurface when grubbing out unwanted hawthorns. Root raking is the least desirable method since it causes the most soil disturbance by removing the entire shrub and its roots. • The removed hawthorns should be used to create brush piles for wildlife • When the area is sufficiently cleared, use the same preparation method as for an abandoned field. • Prescribed burns or a chemical herbicide can be used to eliminate any re-growth of hawthorns

Photo credits: P.A. Woodliffe, District Ecologist, Ministry of Natural Resources and Rural Lambton Stewardship Network

• Ongoing Management



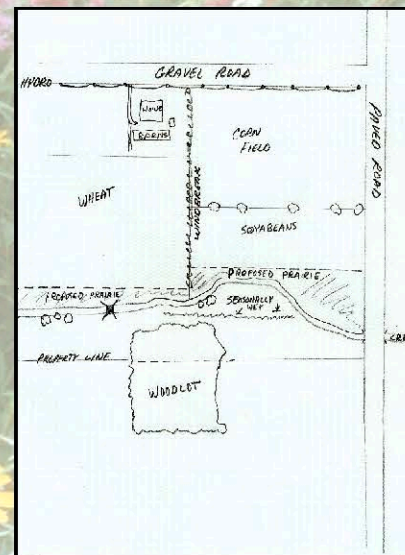
You cannot just walk away from a restoration project and expect it to succeed. Just like any other planting, continual maintenance is required, so be prepared to put in a fair amount of effort, especially in the first few years. During the first year, tallgrass prairie seedlings are mainly producing root growth and do not grow very tall. Most annual weeds do the opposite. They must grow fast to produce seed each year. Therefore, the biggest problem caused by weeds is shading. Mowing and possibly selective spraying of a glyphosate-based herbicide will need to be done to help your planting get established. In projects where only grasses have been planted, the use of a broad-leaved herbicide can be used after the grass is to the 3rd leaflet stage of development. Access to equipment and the materials needed to carry out these activities will be required.



Long-term maintenance may or will ideally include using fire as a tool to keep your prairie healthy and thriving. Fire is used to suppress unwanted woody species and cool season grasses from establishing. It also removes dead plant material (thatch) and blackens the soil creating ideal conditions for new plant recruitment. Consideration as to whether this can be carried out successfully should be done.

• Adjacent Land Uses

You need to evaluate potential problems by looking at how neighbouring land uses will affect your project, as well as, how your project will affect your neighbours. Note any potential problems such as: possible weed sources, adjacent herbicide use, and very importantly determine if any flammable objects or vegetation types near your project site will have to be protected during a prescribed burn. Conversely, adjacent land uses can benefit your future planting. Perhaps there are existing conditions like a roadway that can serve as a natural firebreak for a prescribed burn. Or possibly your planting can have a larger impact on the landscape by connecting to existing features, like an adjacent woodlot, windbreak or wetland. It is important to look at not only what potential problems may arise from your planting but how adjacent land uses and features can enhance your project.



Sketching a site plan will help you plan for your prairie planting

• Size

Knowing the size of the project will help determine the amount of plant material necessary, type of equipment and labour required and the time and costs involved.

• Existing Conditions

The existing vegetation or current soil condition will determine the type of site preparation required. For example, the existing vegetation could be allelopathic, which means the existing plants produce and release a germination inhibitor or toxin (pathogens) into the soil space that surrounds them. These toxins released into the soil inhibit the establishment and subsequent development of new plants. Quackgrass, annual rye, oats, alfalfa, sunflowers, red clover, wheat, sorghum, barley and hairy vetch can all cause allelopathic effects. If any of these conditions are present, a lengthier period of site preparation will have to occur. *Please refer to the chart on the back page for more information.*

PREPARING THE SITE

Preparation of the seedbed is one of the most important steps in prairie restoration. Proper preparation will reduce the amount of weeds, facilitate planting, and provide a suitable bed for seed germination. It may take a couple of years to create a flat, firm, weed-free seedbed, but these conditions are absolutely necessary to establishing a successful, viable prairie.

The method and length of time required to prepare the site will depend on the type of existing vegetation. There are many different methods to prepare a site for planting. The ideal site preparation is to plant Roundup Ready® soybeans a year before your scheduled tallgrass prairie planting. The soybean residue left after harvesting will create a flat, firm moisture rich seedbed compatible with no-till planting while the Roundup® will reduce the weed competition. In the spring another application of Roundup® may be required before the tallgrass prairie is no-till drill seeded. *Please refer to the chart on the back page for more site preparation recommendations.*

For more information on tallgrass prairie restoration contact Ontario NativeScape a division of the Rural Lambton Stewardship Network (RLSN). The RLSN is a grassroots, communication and partnership organization dedicated to the care of Lambton County's varied natural resources.

As one of the pilot projects for the Ontario Ministry of Natural Resources' Ontario Stewardship Program, the RLSN has been involved in numerous comprehensive, multi-partner, stewardship projects. The focus of these projects is habitat restoration, conservation, and enhancement. To date, RLSN has over 18 years of experience protecting, establishing and managing tallgrass prairie habitat.

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This fact sheet is one in a series about Tallgrass Prairie restoration. Others included are:

- What is Tallgrass Prairie?
- Maintaining Your Tallgrass Prairie
- Tallgrass Prairie and Agricultural Practices