

## Nisku Prairie Report for 2024

Six visits were made by volunteers to Nisku Prairie in 2024, on May 19, July 1, July 5, September 4, September 18, and November 2 involving four volunteers for approximately 27 hours of work. This relatively small number of visits this year was mainly due to personal circumstances, although very hot weather in July limited opportunities for outdoor work. Field activities consisted of general assessment of the Prairie, updating the species list, hand-pulling of weeds (subsequently removed in garbage bags by Leduc County), and supervising a Leduc County herbiciding crew.

In addition, on January 11, 2025, Ryan James and Patsy Cotterill met (for a total of six hours) to discuss an upcoming program of management of the Prairie.

Generally, seasonal conditions promoted the flourishing and flowering of grasses. Ryan noted lush growth of Kentucky bluegrass on July 1, but also flowering of plains rough fescue (last flowering in 2022) and a good population of the rare Canada ricegrass. Flowering of forbs seemed correspondingly reduced.

On September 4, two employees of Leduc County sprayed patches of smooth brome and creeping meadow foxtail in areas that had been previously sprayed (2023) with glyphosate, and broad-leaf weeds (mostly thistle) with a broad-leaf herbicide. Most of this was done in the Middle Field and the mid portion of the South Field.

Failure to implement any weed control in the early part of the season meant that there was rampant growth (to seed-setting stage) of annual weeds in the highly disturbed, planted area adjacent to the tarpaulin in the southeast corner of the South Field. It has proved impossible to reduce the seed bank of annuals of this area despite more than 30 years of effort. Adjacent areas in this eastern portion are heavily colonized by smooth brome and Canada goldenrod (likely *Solidago altissima*), with the brome seeming to get the upper hand this year. If these areas were cleared no doubt there would be similar growth of annual weeds.

High grass growth throughout the Prairie likely means that there will be a heavy build-up of litter requiring removal in 2025.

An examination of areas where brome had been killed by herbiciding in previous years showed that natural regeneration with native species was occurring. See the attached file for photos showing regeneration.

In November Ryan noticed new Common Tansy seedlings migrating from the north field through the aspen towards the middle field. Tansy management will need to be determined.

### **Proposed Management Plan for 2025 and 2026**

We are proposing the following management activities for the next two years (2025 and 2026), and seeking the assistance and cooperation of Leduc County's team in carrying them out.

#### **2025.**

Mid-May. Spot-spraying or other means of herbicide application of brome tillers, creeping meadow foxtail and possibly of annual weeds, with particular reference to previously cleared areas undergoing restoration, using glyphosate (and broad-leaf herbicide). The columnar poplar encroaching on the Prairie from the acreage to the south also needs to be sprayed (Garlon?)?

Early- to mid-July. Spot-spraying of Canada thistle with a broad-leaf herbicide.

Early August. Mowing of South and Middle Fields. (Access to Middle Field might present some problems. Could the field be accessed from the road allowance alongside the Gwynne Channels or the field to the north?)

Mid-August. Completion of removal of hay. Preferably this would be done mechanically, but if this is not feasible, we will need to marshal a team of volunteers to do this by hand. (See discussion below.)

September. Herbiciding of new brome growth.

#### **2026**

Mid-May. Herbiciding of smooth brome and creeping meadow foxtail, follow-up with control of thistle if necessary.

August. Mowing of both fields.

September. Follow-up herbiciding of brome and perennial weeds as necessary.

### **Other Considerations**

If the hay is to be removed manually, this will require volunteers. At this point, the number of volunteers that can be called on is relatively few. Further efforts can be made in this direction, especially for a short-term operation such as haying, but we are wondering if it would be possible to engage a local (Leduc) company, who could provide workers for a “work day” (or two) of community service. We would rely on Leduc County to have/make the appropriate contacts.

If the County is not able to provide the herbiciding requirements, we could look at hiring a private licensed herbicide applicator. However, we note that in the Memorandum of Agreement between Leduc County and the Alberta Native Plant Council (ANPC), the County supplies this service (as they have done in the past.)

**Planting.** We are proposing minimal planting of plugs in 2025. This is because despite intensive planting efforts over the last few years in areas cleared of brome a significant proportion of transplants has not persisted. Nor have we kept good records. We have noted, however, that where smooth brome has been removed natural colonization with native species often occurs without planting. This is particularly true of the Middle Field where the native community is more intact. Hence we will likely concentrate our efforts on maintaining the trajectory of these areas by keeping them free of weeds. However, we are considering sowing native seeds into some of the regenerating areas in an effort to increase biodiversity. We intend also to monitor resilience and succession in these areas with appropriately placed transects and quadrats.

Further planting will be confined to the tarpaulin area where the tarpaulin (installed in August 2021) will be removed and this small area will be sown with native seeds. (Species sown will be recorded.) The area is generally too stony to be satisfactorily planted with plugs.

**Monitoring of the Prairie as a whole** is important and we propose to establish transects and sample plots in several areas of the Prairie. (The overall objective of management is to maintain and improve the native biodiversity of the Prairie.) Ryan will be the lead in designing and implementing a monitoring system, likely

with reference to the Rangeland Health Assessment guidelines, but to maintain monitoring over time we propose to engage the help of the ANPC, the academic community and citizen scientists among the public.

### **Outstanding business**

The most recent MOU between co-signees Leduc County and the ANPC we have access to is dated 2011, though I seem to recall that a later one was signed in 2015. In any case, it is time for review and updating

We welcome discussions with the County regarding other methods of weed control (e.g., goats) and the possibility of prescribed burns.

### **Assistance from ANPC**

We note that the ANPC has budgeted \$500 this year for expenses. We anticipate this should be adequate for monitoring equipment expenses and if we need to employ a private herbicide technician with the appropriate licensing, which will entail travel and herbicide expenses and the provision of at least an honorarium. No unnecessary expenditures will be made and unspent funds could be rolled over into succeeding years.

In general, we are looking to expand our volunteer base considerably. We would welcome ANPC assistance with this, including outreach and publicity. Perhaps Nisku could become a citizen science project under the auspices of the Citizen Science Community of Practice, particularly with regard to ensuring continuity of monitoring in the long-term.

Also, with respect to selection of monitoring plots, we think it might be useful to have Ed Karpuk's soil analysis of Nisku, if these records are still accessible.

So far, we have learned some hard lessons about the difficulty of maintaining biodiversity in a remnant grassland prairie in Central Parkland. We should have established a careful management plan, overseen by a committee of practitioners, and instituted a monitoring protocol many years ago. However, we believe it is not too late to realize the value of Nisku as a reserve for providing long-term information on vegetation progression and change and for experimenting with restoration processes.

Patsy Cotterill, Ryan James