

**PROJECT REPORT**  
**ON**  
**GRASSLAND ECOSYSTEM**



SUBMITTED BY:

**D-11 ETRX**

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## Introduction

Grasslands are often associated with Canada's prairie provinces, Manitoba, Saskatchewan and Alberta, but they also occur right here in southern Ontario.

Historically, these ecosystems existed in large patches from the southernmost tip of Ontario to as far north as Georgian Bay and as far east as Kingston. Today, they exist only in small, scattered remnants across this range.

Grasslands can be defined as grass-dominated areas where few or no trees grow and include prairies and savannas. They are one of the most endangered ecosystems in the world, even more so than tropical rainforests; less than three percent of the original tall grass prairie in Ontario remains today.

Grasslands are important habitats for over 200 plant and animal species, including many that have become rare or extinct because of loss of this habitat type.

## Grassland Types

There are many types of grasslands, from the great savannas of the African continent to the short grass prairies of western North America.

In southern Ontario, two types of grasslands predominate: tall grass prairie and oak savanna, which are both tallgrass communities. Meadows are not true grasslands because they are not grass dominated and are not long-lived ecosystems like prairie and savanna. They are described in this section because they superficially resemble grasslands and so this is a good place to describe and compare them.

### Tall Grass Prairie



Tall grass prairies are named for the very tall grasses that grow there, some of which are over two metres high, such as Big Bluestem (*Andropogon gerardii*). Tall grass prairie occurs where there is more rainfall than other prairie types allowing the plants that grow there to get taller than in drier areas.

## Oak Savanna

Savannas are grasslands which feature scattered trees that are few enough in number not to affect light penetration to the ground. In the case of the oak savannas, the main tree present is oak, typically *Quercus alba* (White Oak), *Q. velutina* (Black Oak) and *Q. macrocarpa* (Bur Oak).

## Meadow

Meadows are ecosystems in transition from an open, disturbed condition to a forested state. Typically meadows are present on roadsides, abandoned agricultural fields and in other areas where land has been cleared and is regenerating. The mix of plant species found there is more varied than in true grasslands, having some grasses, but not being dominated by them. Instead there is a variable mixture of grasses and herbaceous plants.



Meadow.

## Plants found in grassland ecosystem

The dominant and characteristic plant type in grassland ecosystems is grass!



Grasses are adapted to hot, dry areas: they have long, narrow leaves that lose less water than larger leaves do and their root systems are extensive and deep so that they can acquire water even during drought conditions.

Most grasses are in the family Poaceae and share the grass characteristics of narrow, linear leaves. They often have inconspicuous flowers and rhizomes or stolons (creeping roots or stems) and many have silica throughout their tissue. Silica is what sand is mainly composed of and it makes grass strong and hard to chew and digest. They are very strong growers, accumulating a large amount of biomass each growing season, and their seeds are dispersed by wind or animals.



Andropogon.

Typically, fifty percent of the plants in any grassland will be grasses, making them the most common type of plant present. The other fifty percent is made up of what are often collectively called 'forbs'. 'Forbs' are what many people think of as 'wildflowers', such as coneflowers (e.g. *Ratibida pinnata*: Grey-headed Coneflower), lupines (*Lupinus perennis*) and milkweed (*Asclepias tuberosa*).

## Animals found in grassland ecosystem

Grasslands are full of life, with many animals that rely upon the abundant resources of grasslands to provide them with food, shelter and a place to reproduce.

The diversity of plant species allows a wide variety of plant-eating insects to thrive there and the fact that most of the plants are grasses means that grass-eating herbivores in particular can be found in this kind of habitat.

**Herbivore:** an animal for which plants make up its primary food source.

Deer, for example, are frequently found grazing on grasses and they are one of the few mammals that has the ability to digest grass leaves. There are also many small mammals that specialize in eating grass seeds, especially mice and voles (voles resemble mice but do not have a long tail).

Rabbits are also common in grasslands and this abundance of rabbits, mice and voles makes grasslands ideal hunting grounds for birds of prey, also known as 'raptors', that patrol these habitats for signs and sounds of small mammals.



Other grassland predators include foxes, coyotes, weasels and snakes.



Eastern Cottontail (Rabbit).

**Predators:** are animals whose primary food source are other animals, which they catch live and kill.

Mammals are not the only animals that eat plants. Many insects are also herbivores: some eat leaves, some eat seeds, others eat flowers and some eat roots.



Monarch larva pupating.



Monarch adult on *Liatris*.

The best-known example of a herbivorous grassland insect is the Monarch Butterfly (*Danaus plexippus*), which feeds on plant leaves as a larva and plant nectar as an adult, particularly that of milkweeds (*Asclepias sp.*). Grasslands and meadows are very important Monarch habitats because these feeding grounds help them build up energy for their long journey south to Mexico, which is their primary winter home.

Grasslands are also home to many other butterflies as well as grasshoppers, crickets, ants, lady beetles, dragonflies, damselflies, and many fly and beetle species.

Milkweed Leaf Beetle.



Insects are not the only invertebrates found in grasslands...

## **IS the Ecosystem Artificial or Natural?**

Grassland ecosystems can natural as well can be created artificially.

### **Endurance Grass**



**Before**



**After**

High quality and hard-wearing, Endurance grass looks just like the real thing, but needs no looking after.

With each individual fibre as close to natural-looking grass as possible, this lawn is soft to the touch. Manufactured to strict EU regulations, it is made from 60 per cent polyurethane and 40 per cent polyamide and is guaranteed to look perfect year-on-year.

Ideal for the gardener who seeks perfection, the 37mm pile comprises three different greens and a brown or green incurl to produce a natural looking lawn. It comes in 2m and 4m rolls and is latex-backed and pre-punched for drainage.

## **Artificial grassland according to their purpose and use of time length**



The rotation of the short grass. Can use 2 to 3 years old, 5 years, to the production of hay and cool season forage.

The permanent [Grazing land](#) . Can also be appropriate to grazing, mowing, mowing and grazing, grassland for.

The permanent mowing grassland. To mow the lawn, also suitable for grazing, mowing, grazing and grassland.

## **The effect of artificial grassland**

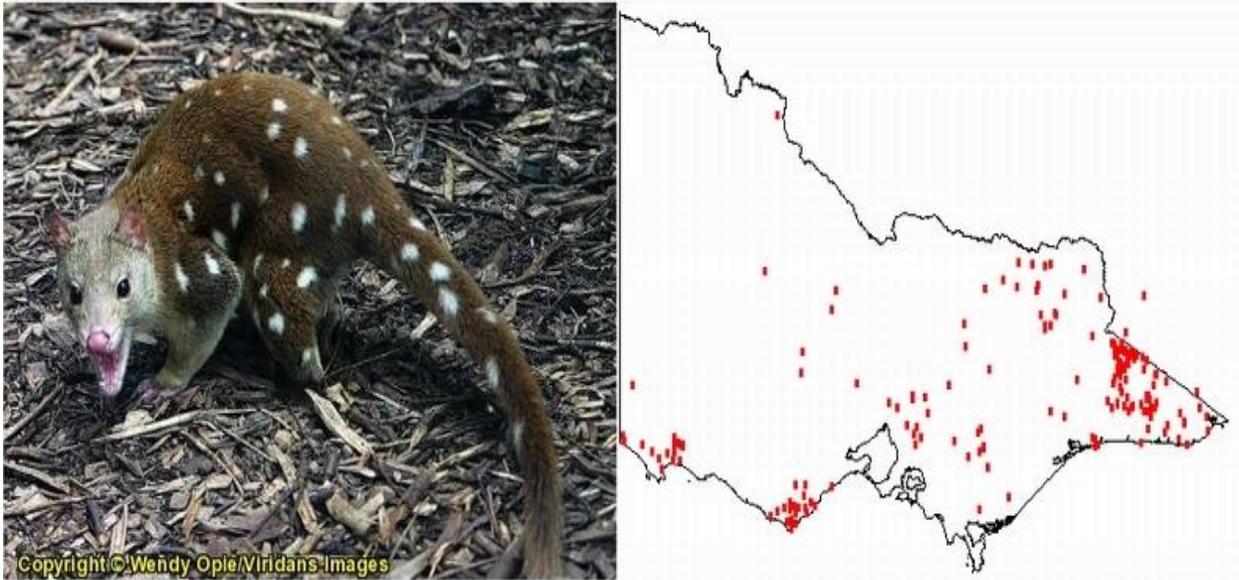
Artificial pasture can improve the economical benefits of grassland, increase the capacity, increase agricultural production potential, promoting forest, promoting fruit growth, water and soil conservation, change the ecological environment effect.

## **The significance of establishing artificial grassland**

Artificial grassland is a key to the modernization of animal husbandry production system in part. On the one hand, it can make up for a lack of natural herbage yield low, effectively alleviate grazing pressure; on the other hand, it can provide everfount quantity, quality forage for livestock. Therefore, artificial grassland animal husbandry production continued to maintain, stable and healthy development, protection of the ecological environment, play an important role in improving the production level of animal husbandry. However, in the vast arid and semi arid area, artificial grassland is vulnerable to natural and human factors of double effect. Drought, sand, salt, barren and other natural factors constitute a direct threat to artificial grassland, and the practice of human beings and understanding level is directly related to whether the normal function of artificial grassland.

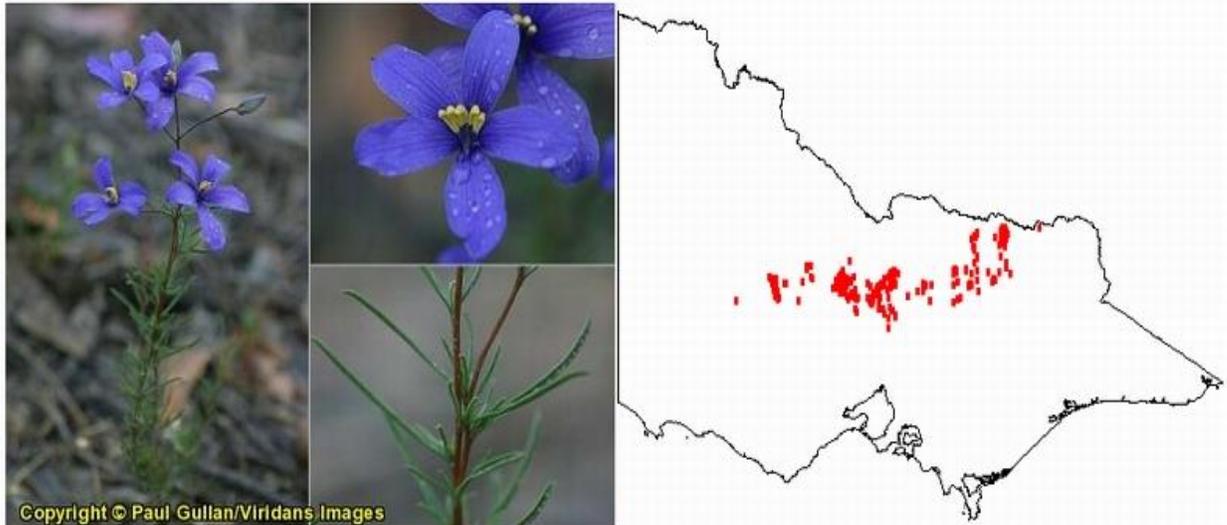
## Animals and Plants found only in Grassland ecosystem

*Dasyurus maculatus* - Spot-tailed Quoll



- **General Appearance:** a medium-sized, sharp-snouted, nocturnal, carnivorous marsupial, fur on head, back, sides and tail brown to dark brown with white spots. Belly off-white. Tail thick, about as long as the head-body.
- **Head-body Length:** 35-37 cm.
- **Breeding:** gives birth to five young ones (May-Aug) which remain in pouch for about seven weeks.
- **Diet:** A range of small to large size vertebrates, larger invertebrates and carrion. The species is good climber and may take birds and arboreal mammals.
- **Environment:** A range of forest (particularly wet forests) of high rainfall area.
- **Other common names:** Spot-tailed Quoll, Tiger Quoll.

Blue Finger-flower



- **General Appearance:** A slender shrub, to 60 cm tall, with narrow leaves. In clusters along erect stems and large blue or purple flowers.
- **Leaves:** Linear, to 6 x 2.5 mm, hairless.
- **Flowers:** Blue or purple, to 40 mm wide, with five obovate petals, with dark veins and large yellow anthers.
- **Fruit:** A flattened, ellipsoid, two-valved capsule, to 25 mm long.
- **Commonly associated Trees:** Eucalyptus polyanthemos, Eucalyptus macrorhyncha, Eucalyptus tricarpa.
- **Annual Rainfall:** 493 to 873 mm.
- **Warmest Temperature:** 228 to 30° c.
- **Coolest Temperature:** 2 to 4° c.
- **Altitude:** 156 to 414 m ASL.
- **Other common names:** Blue Finger-flower.

## **Reasons why such species are found only in this Ecosystem:**

The Flora and Fauna and climatic condition of ecosystem are suitable for the growth of such Species of plants and animals.

Most plants and animals live in areas with very specific climate conditions, such as temperature and rainfall patterns, that enable them to thrive. Any change in the climate of an area can affect the plants and animals living there, as well as the makeup of the entire ecosystem. Some species are already responding to a warmer climate by moving to cooler locations. For example, some North American animals and plants are moving farther north or to higher elevations to find suitable places to live. Climate change also alters the life cycles of plants and animals. For example, as temperatures get warmer, many plants are starting to grow and bloom earlier in the spring and survive longer into the fall. Some animals are waking from hibernation sooner or migrating at different times, too.

Therefore specific conditions are necessary for the survival of these species, thus some plants and animals are found in certain ecosystems.

## **Rainforest**

The climate of a rainforest is usually hot and wet. Heavy rainfall (around 150 cm per year) and year-round warm temperatures make it very humid. Many rainforests are found near the equator. A rainforest is very dense with lots of large trees that block out sunlight. Very little sunlight reaches the rainforest floor.

Rainforests are very hot and wet.

Monkeys, panthers, capybaras, snakes, spiders, tree frogs, ferns, vines, toucans, parrots, and jaguars are some of the organisms that live in rainforests.



## **Deciduous Forest**

The climate of a deciduous forest is temperate with four distinct seasons (spring, summer, fall, and winter). Deciduous forests have warm summers and cold winters. They have moderate precipitation throughout the year. During winter months, however, the precipitation is usually frozen, so the plants that live there cannot use this precipitation as a water source. Trees in a deciduous forest usually lose their leaves during the winter and have thick bark to save water and protect them from the cold.

Deciduous forests have four distinct seasons.

Black bears, deer, red foxes, voles, rabbits, cardinals, squirrels, owls, mice, and raccoons are some of the kinds of animals that live in deciduous forests.

## **Grassland**

Grasslands receive enough rainfall to support grasses, but they get less rainfall than forests receive. There is not enough water to support the growth of many large trees, though a few may be found growing alongside streams or rivers. Drought and wildfire in grassland ecosystems are common. Temperatures in grasslands are often warm in the summer and cold in the winter.

Drought and wildfire are common in grasslands.

Some of the animals that can be found in a grassland ecosystem include grasshoppers, prairie dogs, and bison.



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