



Canadian Forage & Grassland Association  
*Association Canadienne pour les Plantes Fourragères*

# The Canada Grassland Protocol: A Backgrounder

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*This document was developed by the CFGA  
as a supporting document for CAR's Canada Grassland Protocol*



*Photo by Leta Pezderic*



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### Pilot Project Partners



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## Contributions

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# The Canada Grassland Protocol: A Background

Although Canadian grasslands provide many ecological, economic and societal benefits, their continued protection is not ensured.<sup>1</sup> Canadian grasslands are one of the world's most endangered biomes, with only 20 per cent of native grassland remaining.<sup>2, 3</sup> The main driver of grassland loss is economic as landowners can often generate more income from annual row crops than from grazing livestock.

Grassland conversion to row crops drives species endangerment through habitat loss and is responsible for greenhouse gas (GHG) emissions.<sup>4, 5, 6</sup> Temperate grasslands store large quantities of carbon in their soil, averaging around 236 tonnes per hectare.<sup>7, 8</sup> When grasslands are tilled for row crop production, almost two-



not compensated for this societal benefit their land provides.<sup>12</sup>

## Canada Grassland Protocol

Adopted by the United States-based Climate Action Reserve (CAR) in 2019, the Canada Grassland Protocol (CGP) aims to protect Canadian grasslands and support producers by providing a new economic product for the

These verified offset credits can then be sold to individuals or organizations to help them meet their emissions-reduction goals. In exchange, landowners need to sign an agreement on land use principles that aims to preserve their grassland's natural integrity by limiting the amount and type of development that can occur on their property.

By these means, the CGP hopes to improve producers' financial cashflow by providing a new revenue system that can both support their family's livelihood and disincentivize the conversion of at-risk grasslands.

## The Canada Grassland Protocol: A Background

This document provides background information on the Canada Grassland Protocol and aims to inform landowners and land trusts about the goals of the CGP and the opportunities it represents as well as to provide key information about project implementation to help landowners decide if the project is right for them.

**Between 2016 and 2021, approximately 1.31-million acres of grassland were lost across Canada...**

thirds of their carbon is lost to the atmosphere as carbon dioxide (CO<sub>2</sub>), a prevalent GHG.<sup>9</sup> Between 2016 and 2021, approximately 1.31-million acres of grassland were lost across Canada, resulting in approximately 1.92-million tonnes of emissions into the atmosphere<sup>10, 11</sup> Due to the speed of grassland loss, the avoided conversion of grasslands has become the most significant nature-based climate change mitigation opportunity in Canada, but Canadian producers are currently

preservation of their grasslands by monetizing the avoided emission of GHGs produced when converted to row crops or urban development. This is done through the production of carbon offset credits (offset credits), which are tradable units that represent a set amount of GHGs sequestered or prevented from entering the atmosphere.<sup>13</sup>

The CGP provides a standardized approach to quantify, monitor and verify GHG reductions used to produce offset credits.

# The Canada Grassland Protocol: A Backgrounder continued...

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# Why Grasslands Matter

Grasslands store greenhouse gases (GHGs), serve as a home for numerous plants and animals and provide numerous other social, economic and environmental benefits.

## Disappearing Grasslands

Temperate grasslands are the world's most endangered terrestrial biome, with over 45 per cent of global grassland ecosystems

1.8-million acres of grassland were lost across North America's Great Plains, more than two football fields per minute.<sup>3</sup> The Nature Conservancy of Canada estimates that less than 20 per cent of Canada's grasslands remain intact today.<sup>4,5</sup>

Canadian grasslands continue to be lost, primarily due to conversion to annual row crops. The main driver of land conversion is

from cash crops than from grazing livestock. This causes producers to make tough economic choices about their land.<sup>6</sup>

Recent developments in commercial crop varieties that enable crops to be grown in marginal soils and climates compound the issue by increasing the area over which producers can plant row crops. Between 2011 and 2016, Statistics Canada reported a six-million-acre increase in cropland and a 2.2-million acre decrease in agricultural grasslands.<sup>7</sup>

Protecting Canadian grasslands helps support producers and has many benefits, including atmospheric GHG reduction, habitat protection and numerous other ecosystem services.

**Protecting Canadian grasslands helps support producers and has many benefits, including atmospheric GHG reduction, habitat protection and numerous other ecosystem services.**

lost and less than five per cent protected.<sup>1,2</sup> In 2020 alone almost

economic because landowners can often generate more income

**Table 1.** Grassland loss and resulting estimated carbon dioxide emissions by province from 2016 to 2021

Province / Territory	Native Range in 2016 (Acres)	Native Range in 2021 (Acres)	Change in Acres	Emissions (Tonnes)*
Alberta	15,861,059	15,126,085	-734,974	1,099,783
British Columbia	3,541,519	3,079,037	-462,482	692,038
Manitoba	3,377,043	3,266,366	-110,677	165,612
Ontario	783,566	626,366	-157,200	235,227
Quebec	280,782	199,209	-81,573	122,062
Saskatchewan	11,269,803	11,545,345	275,542	-412,309
Yukon	8,552	6,461	-2,091	3,129
Rest of Canada	118,200	81,456	-36,744	54,982

\* Assumes all native range losses are caused by conversion to annual crop use. Some may be urban conversion.

Source: Data from Statistics Canada Census of Agriculture 2016<sup>8</sup> and 2021<sup>9</sup>

### Climate Change Mitigation

Canadian grasslands are increasingly being recognized for their climate change mitigation potential. This is due to their importance as a carbon pool, meaning their ability to store carbon dioxide (CO<sub>2</sub>), a prevalent GHG. Grasslands' substantial carbon storage potential is primarily due to their rich, deep soils.

Soils are the world's largest terrestrial carbon pool, globally storing almost twice as much carbon as the atmosphere, plants and animals combined.<sup>10, 11</sup> Temperate grassland ecosystems are tied with tropical forests for having the

third greatest terrestrial carbon storage potential, after wetlands and boreal forests (see table below).<sup>10</sup> However, most of their carbon storage capacity is lost when grasslands are converted to row crops because plowing releases soil carbon stores, decreasing their carbon-storage capacity by almost two-thirds. When soil carbon stocks are lost, they are usually emitted into the atmosphere as CO<sub>2</sub>, contributing to climate change. Between 2016 and 2021, approximately 1.31-million acres of grassland were lost across Canada, releasing 1.961-million tonnes of emissions into the atmosphere.<sup>12, 13</sup> On top of this, ni-

trogen fertilizer used in row-crop production can form nitrous oxide (N<sub>2</sub>O), a potent GHG that is 298 times stronger than CO<sub>2</sub>.<sup>14</sup>

Due to the speed of grassland loss, the avoided conversion of grasslands to row crops has become the most significant nature-based climate change-mitigation opportunity in Canada.<sup>15</sup> By preventing 6.2 million acres of native prairie and managed pasture from being lost to conversion, we could prevent between 2.2 to 41.3 million tonnes of CO<sub>2</sub> equivalents\* from entering the atmosphere each year.

**Table 2.** Global carbon storage by ecosystem, showing carbon stored in soils and vegetation both individually and together. Units are in tonnes of carbon dioxide equivalents per hectare.\* Soil carbon storage is estimated to a depth of one metre.

Ecosystem	Vegetation (Tonnes of carbon per hectare*)	Soil (Tonnes of carbon per hectare*)	Total (Tonnes of carbon per hectare*)
Wetlands	43	643	686
Boreal forests	64	344	408
<b>Temperate grasslands</b>	<b>7</b>	<b>236</b>	<b>243</b>
Tropical forests	120	123	243
Temperate forests	57	96	153
Tropical savannas	29	117	146
Tundra	6	127	133
<b>Croplands</b>	<b>2</b>	<b>80</b>	<b>82</b>
Deserts and semideserts	2	42	44

Source: Data from Intergovernmental Panel on Climate Change<sup>10</sup> and table adapted from Visual Capitalist<sup>16</sup>

\* **Note:** Carbon dioxide equivalents are a unit used to measure GHGs' atmospheric warming potential in terms of carbon dioxide. This unit is used to measure atmospheric warming from multiple types of GHG emissions on the same scale.

## Why Grasslands Matter continued...

### Habitat Loss

Canadian grasslands are diverse ecosystems filled with numerous plants and animals that call them home. Unfortunately, over 60 species are at risk due to grassland habitat loss, including iconic species such as the swift fox, pronghorn, and sharp-tailed grouse (see below).<sup>17</sup> Canada's grassland bird populations have rapidly declined by an average of 57 per

cent since 1970.<sup>18</sup> Birds that depend exclusively on native prairie are experiencing even steeper declines, averaging around 87 per cent.<sup>18</sup>

Globally, habitat change is one of the principal causes of biodiversity loss, with agricultural production cited as the primary driver.<sup>19, 20</sup> In Canada, grassland conversion to row crops is the main cause of grassland biodiversity loss. The

International Union for Conservation of Nature (IUNC) Red List cites 15 different Canadian grassland species directly threatened by habitat loss due to grassland conversion.<sup>21</sup> Preserving grassland habitat is the most important thing we can do to protect these species and give them a chance to recover.

### Ecosystem Services

Grassland loss harms Canadian society as a whole since grasslands provide people with numerous and diverse benefits that either directly or indirectly improve their well-being. These benefits are called ecosystem services and include:<sup>28</sup>

- ➞ Livestock production
- ➞ Dairy production
- ➞ Wool production
- ➞ Water purification
- ➞ Flood and drought mitigation
- ➞ Soil formation and stabilization
- ➞ Air quality improvement
- ➞ Public health benefits
- ➞ Pollination services
- ➞ Aesthetic appreciation experience
- ➞ Recreational, cultural, therapeutic and heritage benefits
- ➞ Micro-climate management
- ➞ Climate and environmental resilience

By protecting Canadian grasslands, we preserve these ecological, economic and societal benefits for future generations to come.



The swift fox (*Vulpes velox*) was extirpated from Canada in the 1930s and reintroduced in 1983.<sup>22</sup> Today they occupy only three per cent of their historic Canadian range, with grassland habitat loss being the main barrier to expanding their distribution.<sup>22, 23</sup>



Pronghorn (*Antilocapra americana*) seasonally migrate hundreds of miles each year to avoid deep snow, but grassland habitat loss can threaten their migration routes.<sup>26, 27</sup>



The sharp-tailed grouse (*Tympanuchus phasianellus*) is a game animal that is hunted across most of the northern great plains.<sup>24</sup> Unfortunately, their nesting success is negatively impacted by grassland habitat fragmentation, causing their populations to decline in parts of Alberta and to disappear altogether in some of their southern range.<sup>24, 25</sup>

## Why Grasslands Matter continued...

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## Why Grasslands Matter continued...

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Photo by Leta Pezderic

# Retaining Grasslands with Carbon Markets

Carbon markets are a cost-effective way to mitigate climate change and protect at-risk ecosystems by creating economic incentives to reduce greenhouse gas (GHG) emissions, including those that are released during landscape conversion.

## What Are Carbon Offset Credits?

A carbon offset credit (offset credit) is a tradable unit that represents one tonne of carbon dioxide (CO<sub>2</sub>) or carbon dioxide equivalent (CO<sub>2e</sub>) (See box below) that is either reduced, sequestered or prevented from entering the atmosphere.<sup>1</sup> Ownership of an offset credit can be transferred from one individual or organization to another via a carbon market.

As GHG's GWP vary, their impact can't be directly compared using weight alone. Instead, emissions are measured by their GWP using a standard unit called carbon dioxide equivalents (CO<sub>2e</sub>), which can be calculated by multiplying the weight of a gas by its GWP. For example, methane has a GWP of 25, so one tonne of methane would be equivalent to 25 tonnes CO<sub>2e</sub> (1 tonne CH<sub>4</sub> \* 25 = 25 tonnes CO<sub>2e</sub>).<sup>5</sup>

## Standardizing Greenhouse Gases (GHGs) Warming Potential

Greenhouse gases (GHGs) are atmospheric gases that trap the sun's heat, leading to rising global temperatures known as climate change.<sup>1,2</sup> Some GHG molecules are capable of trapping more heat in the atmosphere than others, causing them to have differ-

ent global warming potentials (GWPs).<sup>3</sup> Since carbon dioxide is the most abundant GHG emitted from human activities,<sup>2</sup> it is used as the standard unit of measurement. This means each GHG's GWP is measured by how much energy one tonne of said gas will absorb, compared to one tonne of CO<sub>2</sub>.<sup>2,3</sup> For instance, nitrous oxide (N<sub>2</sub>O) has a GWP 298 times higher than CO<sub>2</sub>.<sup>4</sup>

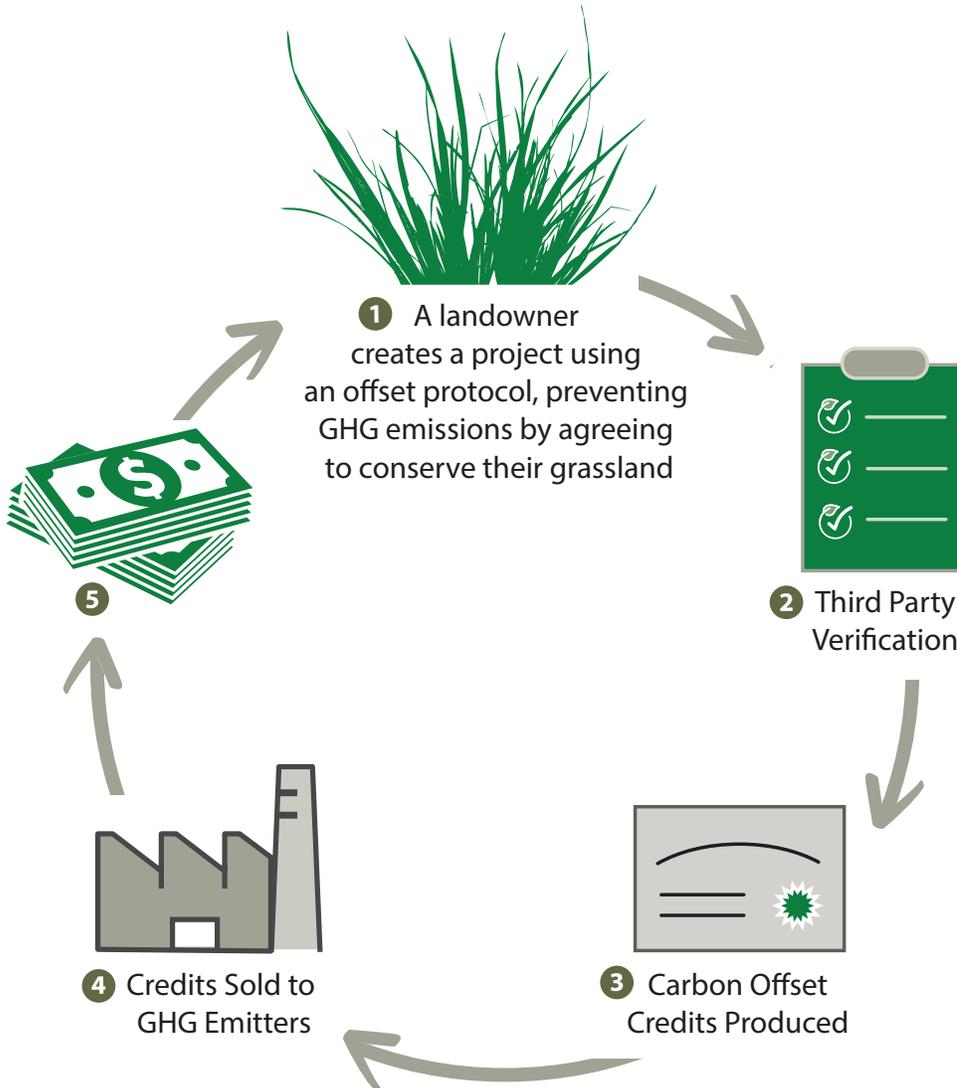
ent global warming potentials (GWPs).<sup>3</sup> Since carbon dioxide is the most abundant GHG emitted from human activities,<sup>2</sup> it is used as the standard unit of measurement. This means each GHG's GWP is measured by how much energy one tonne of said gas will absorb, compared to one tonne of CO<sub>2</sub>.<sup>2,3</sup> For instance, nitrous oxide (N<sub>2</sub>O) has a GWP 298 times higher than CO<sub>2</sub>.<sup>4</sup>

**Methane | CH<sub>4</sub>**  
1 tonne = **25** tonnes of CO<sub>2</sub>

**Carbon Dioxide | CO<sub>2</sub>**  
1 tonne = 1 tonne of CO<sub>2</sub>

**Nitrous Oxide | N<sub>2</sub>O**  
1 tonne = **298** tonnes of CO<sub>2</sub>

### What is a Carbon Market



**Note:** Figure adapted from the Environment and Climate Change Canada's Greenhouse Gas Offset Toolkit, *The Essentials: Carbon Markets 101*<sup>1</sup>

**Carbon markets** are systems where offset credits are bought and sold. **Market regulators** are organizations or government bodies that are responsible for setting protocol and verification standards for carbon markets. **Offset protocols** are procedures outlining how to quantify GHG sequestration or emissions reductions from a carbon offset project.

Protocols can take many forms, ranging from improved methane management in landfills to improving forests' carbon sequestration.<sup>6</sup> **Registries** act like bulletin boards where buyers can see carbon projects and review verification reports.

In Canada, there are no market transaction regulators. Any and all transaction risks are bilateral and

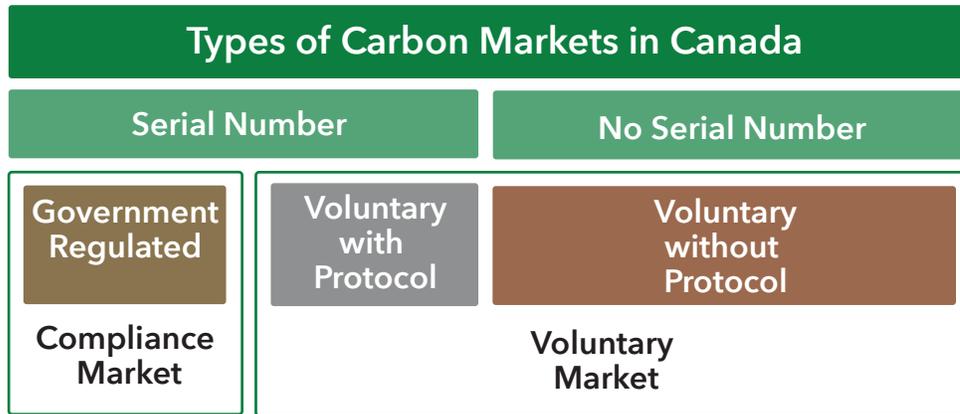
ultimately borne by the project developer. Buyers are subject to rules on truthful financial disclosures to security regulators and investors.

There are three main kinds of carbon markets. They are:

- 1 Compliance
- 2 Voluntary with a protocol
- 3 Voluntary non-protocol

**Compliance markets** are driven by government regulations that set limits on the amount of GHG emissions a company or organization can produce. If they go over that limit, they have to pay a levy. The carbon market can act as a safety valve, letting companies choose between paying the levy or buying offset credits. Offset credits, which are usually referred to as **carbon credits** when produced in this market, generally sell for less than the levy, with the levy acting as a price ceiling. Compliance markets are regulated by government administrators and, as such, serve as a sort of gold standard. Carbon credits are normally generated with a protocol and are technically certificates with a serial number.

In both **voluntary markets**, individuals or organizations drive sales by purchasing offset credits to help meet their emissions-reduction goals, usually by compensating for emissions they already produced.<sup>1</sup> Offset credits produced in the voluntary market are generally referred to as **carbon offsets**.



Unlike compliance markets, voluntary markets are typically regulated by non-government organizations (i.e. registries). As such, organizations with government-enforced emissions regulations cannot purchase offset credits produced for the voluntary market. However, other individuals or organizations choosing to purchase offset credits for their own purposes can purchase from either the voluntary or compliance market. Thus, carbon offsets ordinarily sell for less than carbon credits produced in the compliance market.<sup>1</sup>

In the voluntary market, carbon offsets can be generated either with or without a protocol. **Voluntary markets with a protocol** (such as the Canada Grassland Protocol (CGP)) go through public third party protocol reviews and produce carbon offsets that are technically certificates with a serial number, similar to the compliance market. While **voluntary non-protocol** markets create carbon offsets that are still certificates, they are less transparent, don't have a serial number and may be simply data purchases. While offset credits with a protocol are comparable to carbon credits produced in the

compliance market, offset credits produced without a protocol should be purchased with a buyer-beware mentality.

### How can Grasslands be Retained using Carbon Offset Credits?

Canadian grasslands are increasingly being recognised as globally important carbon sinks and as one of the world's most endangered biomes. Only 20 per cent of native grasslands remain intact in Canada and they continue to be lost primarily due to conversion to cultivation for annual crops.<sup>7</sup> In Alberta alone, the estimated annual loss of over 125,000 ha of perennial grasslands leads to the loss of soil carbon stocks equivalent to burning 1.2 million barrels of oil.<sup>8</sup> The main driver of land conversion is economic; landowners can often generate more income from cash crops than from grazing livestock.

The CGP is an offset credit protocol that aims to protect Canadian grasslands and support producers by providing an economic counterpoint. It enables landowners to produce offset credits for retain-

ing their grasslands and thereby preventing GHG emissions from being released due to grassland conversion to annual crops or urban development.

The CGP meets the International Organization for Standardization (ISO) standards<sup>9</sup> and is approved for use in the Climate Action Reserve (CAR) Voluntary Market for Canada. CAR is a non-government organization that is both a protocol developer and registry. The CGP is the first carbon offset opportunity for Canadian grassland managers and the first avoided conversion opportunity in Canada. Currently, the CGP is only eligible in the voluntary carbon market. However, project partners are working to demonstrate how the protocol could function in both the Alberta and Canadian compliance markets.

Landowners who are interested in the CGP can estimate the expected value of offset credits they could receive using the following equation:

$$\begin{aligned}
 & \left( \begin{aligned} & \text{Acres of land in the CGP} \\ & \times \\ & \text{GHG outputs per acre} \\ & \times \\ & \text{Gross market price} \end{aligned} \right) \\
 & - \text{Project cost} \\
 & = \text{Net value}
 \end{aligned}$$

The [Canada Grassland Protocol Version 1.0](#) found on the CAR website explains how GHG outputs per acre are estimated.

## Retaining Grasslands with Carbon Markets continued...

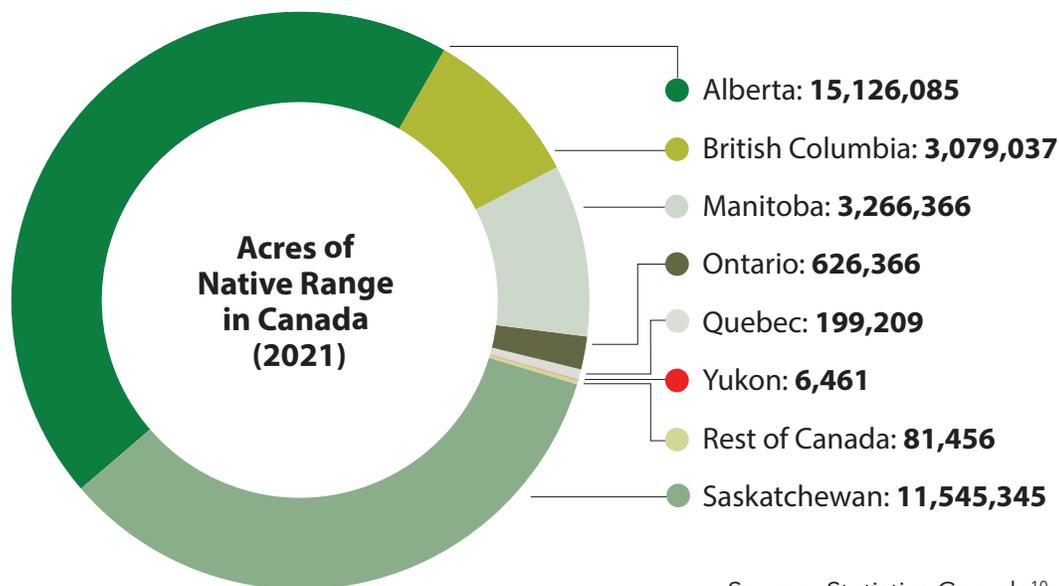
The farm net sale price of the offset credits produced with the CGP is subject to several factors including:

- ➔ Protocol output
- ➔ Supply and demand
- ➔ Quality and risk
- ➔ Registry fees
- ➔ Project costs
- ➔ Professional services purchased

Unfortunately, we cannot provide specific numbers until offset credits have been developed. However, regard-

less of the initial prices, many expect the sale price of offset credits to increase in the coming years

due to corporate net-zero commitments.



Source: Statistics Canada<sup>10</sup>

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# Quality Control

As with any other product, quality control is fundamental to the production of carbon offset credits and maintaining buyer's trust.

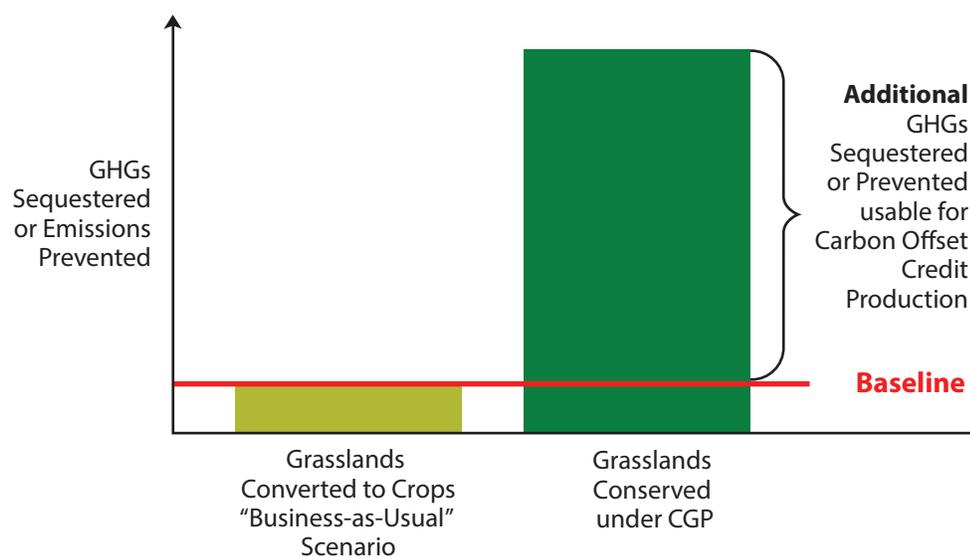
## Principles of Quality Assurance and Quality Control

Quality Assurance (QA) and Quality Control (QC) are fundamental to producing carbon offset credits (offset credits), tradable units representing a set amount of greenhouse gas (GHG) emissions reduced or sequestered from the atmosphere.<sup>1</sup> The goal of QA is to improve development and test processes so that defects do not arise when a product is being developed. QC aims to identify (and correct) defects in a finished product. To ensure trust in offset credit generation, offsets must be designed with six core principles at heart, including:

- ➔ **Additional:** Offset credits can only be produced from GHG sequestration or emissions reductions that would **not** have already been made without involvement from a carbon offset project.<sup>1</sup> In other words, offset credits can only be generated from activities that are additional to the business-as-usual scenario (baseline).
- ➔ **Real:** There must be verifiable evidence that GHG sequestration or emissions reductions have taken place.<sup>1</sup>
- ➔ **Permanent:** GHGs sequestered or emissions prevented

ed must be maintained for a significant period (often at least 100 years). For example, forests planted to sequester GHGs cannot be cut down after the payment period.

- ➔ **Unique:** A plot of land can only be registered in one carbon offset system at a time to prevent double-counting.



- ➔ **Quantifiable:** GHGs sequestered or emissions prevented must be carefully measured using the methods outlined in the [protocol](#).
- ➔ **Verifiable:** GHG sequestered or emissions prevented must be carefully recorded.

The Canada Grassland Protocol (CGP) works to ensure that offset credits produced from avoided grassland conversion to row crops adhere to these standards. However, it is the landowner's responsibility to make sure they're meeting the CGP's requirements.

## Additionality

To ensure that only GHG emissions reductions that are additional to the baseline scenario are used to produce offset credits, there must be evidence that grasslands included in the CGP are at risk of conversion to row crops. Three standard tests are

used to assess conversion risk and project eligibility:

- ➔ Legal
- ➔ Physical suitability
- ➔ Cropland Premium

### Legal

Grasslands included in the CGP must not be under any legal protection. Only private property, where grassland conversion is legal, qualifies for the project. For example, land that has a species-at-risk designation is considered to have legal protection and is not eligible for the CGP.

**Physical Suitability**

Land must be classified as grassland and be physically capable of supporting crops. This excludes all areas with over a 10 per cent forest cover, open water and grasslands with soils that are unsuitable for crop production. The CGP uses the Land Suitability Rating System (LSRS) and Canada’s Land Inventory (CLI) to determine whether soils are capable of crop production. To qualify for the project, a minimum percentage of a property’s soil must be suitable for row crops.

**Cropland Premium**

Grassland preservation must not be the most financially viable solution (without revenue from the sale of offset credits) or else there is no financial incentive for conversion. Financial viability is assessed via a metric called the Cropland Premium (CP), which considers the real estate value of the land as a grassland and as a cropland. CP is calculated using the equation below, where both

er values indicating lower incentives. Grasslands with a CP of over 100 per cent have a high incentive to convert, but as CP drops below 100 per cent the likelihood that grasslands would actually be converted in a business-as-usual scenario begins to decrease. To account for this uncertainty, land with a CP under 40 per cent is not eligible for the CGP as it is considered non-additional. Land with a CP from 40 to 100 per cent can be included in the project but with a discount factor, or price deduction, to account for the uncertainty of baseline conversion. CPs and their associated discount factors can be found in the table below.

Cropland Premium	Discount Factor
<40%	Ineligible
40%	50%
40-100%	0-50% sliding scale
>100%	No discount

ed conversion of grasslands in the project area, there is still a concern that leakage could be taking place. Leakage happens when a project’s avoided emissions are simply shifted elsewhere. For example, the preservation of grasslands in one area could cause another grassland or forested area to be converted to annual cropping instead. The extent to which this occurs depends on the economics of crop production.

The CGP assumes a 20 per cent leakage effect from all avoided grassland conversion projects and applies a 20 per cent leakage discount factor to all of its grassland projects to account for these potential emissions. This estimate was determined by consulting studies conducted on similar projects in the United States, examining leakage caused by the U.S. Federal Conservation Reserve Program’s (CRP) conservation of arable land.

**Permanent**

To ensure GHG emissions are maintained, the CGP has a permanence period of 20 to 130 years over which a landowner must maintain land in the project area as a grassland. However, full value of the offset credits will only be provided for land that has a 130-year permanence period.

Additionally, to safeguard against the possibility of unavoidable reversals, such as a flood or tornado that could damage the grassland and release GHG emissions, some offset credits are set aside in a

$$CP = \frac{(Cropland\ value - Pasture\ value)}{Pasture\ value} \times 100\%$$

cropland and grassland units are in Canadian dollars and CP is a percentage.

CP represents the financial incentive to convert grassland into row crops, with higher CP values indicating higher incentives and low-

**Real**

When producing offset credits, there must be verifiable evidence to ensure that the project is sequestering GHGs or reducing emissions. Even if carbon offsets can be confirmed from the avoid-

## Quality Control continued...

buffer pool. Offset credits stored in the buffer pool are not sold and act as product insurance in the case of unavoidable reversals. If an unavoidable emission occurs, causing offset credits generated from a particular parcel of land to be compromised, damaged credits can be replaced with credits from the buffer pool.

### Unique

To prevent double-counting a plot of land can only be regis-

tered in one carbon offset system at a time. Further, GHG reductions or emissions prevented can only be credited once. After offset credits are purchased, they are retired and cannot be sold again. However, the CGP does allow stacking, or placing multiple ecological goods and services (EG&S) credits on a single activity or plot of land, so long as the second project is 100 per cent unique from the CGP. For example, through a second EG&S, a landowner could make capital

from water purification on their property. For more information on stacking, please refer to section 3.3.3 of the [Canada Grassland Protocol Version 1.0](#).

### Quantifiable and Verifiable

Offset credits must be quantified and verified by a qualified independent third party to ensure that all GHGs sequestered or emissions prevented are properly measured and recorded according to the methods outlined in the CGP.



### References:

1. "Greenhouse Gas Offset Toolkit: The Essentials: Carbon Markets 101 and Greenhouse Gas Offset Projects", Environment and Climate Change Canada Government of Canada, 3 May 2022, <https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/output-based-pricing-system/federal-greenhouse-gas-offset-system/toolkit.html>.

# Qualified Land Conservation Agreements and the Canada Grassland Protocol

A Qualified Land Conservation Agreement (QLCA) is one of the best ways for a landowner to preserve their land, as they envision it, for generations to come. The following information can help landowners decide if forming a QLCA for the Canada Grassland Protocol (CGP) is the right choice for them and their families.

## What is a Qualified Land Conservation Agreement?

A QLCA is a voluntary legal agreement between a landowner and a government or qualified conservation organization (i.e., a land trust), that aims to preserve the land's natural integrity by limiting the amount and type of development that can occur on a property. A QLCA enables both partners to protect their shared vision for the land for a predetermined period, while still allowing the landowner to keep the legal title to their property. The landowner(s) may pass down or sell their land, while still retaining the land's legal protection through the QLCA.

For example, if a QLCA is created with the aim of protecting a forest, both parties may mutually decide to restrict logging and housing development for the next 150 years, while still permitting hunting and collection of wood for the landowner's personal use, such as carpentry or firewood. If the landowner then sells the land after 50 years, the next owner must abide by the land-use restrictions of the

QLCA for the next 100 years, ensuring the original owner's hopes for their property are maintained.

## General Information About the Canada Grassland Protocol QLCA

⇒ The CGP requires landowners to sign a QLCA to receive financial benefits for the avoided loss of soil carbon stores.

⇒ The CGP allows landowners to choose a QLCA time period ranging from 20 to 130 years. However, maximum financial benefits will only be provided for land that has protection under a QLCA for the full 130-year period.

⇒ Landowners can choose which land trust they would like to work with.

⇒ The CGP does not have a pre-designed QLCA. Instead, landowners can work with a land trust to design a QLCA adjusted for their needs, so long as it contains the core land use requirements listed below.

- Under the CGP land must NOT be:
  - ⊗ Converted to row crops such as grain or oilseed
  - ⊗ Broken
  - ⊗ Cleared of brush
  - ⊗ Drained
  - ⊗ Developed for commercial or residential property

⊗ Used for confined feeding operations

- landowners could continue to make revenue on their land through:

✓ Moderate grazing

✓ Moderate haying

⇒ Land will need to be inspected once for an initial land appraisal and once every six years to monitor for compliance. Inspections can be virtual or in person; however, full financial benefits are only provided for land that has undergone an in-person inspection.

⇒ Landowners maintain legal ownership of their property, remain responsible for and have sole discretion over management decisions on their land.

⇒ The QLCA does not need to cover an entire property. It can be applied to any eligible pre-determined parcel of land that a landowner and land trust agree upon.

⇒ Landowners maintain control of public access to their property.

⇒ Due to the financial benefits received through the CGP, land would NOT be eligible for tax benefits through the Ecological Gifts Program.

⇒ If a landowner wants, they are able to sign a second QLCA to make capital from other ecological goods and services

## Qualified Land Conservation Agreements and the Canada Grassland Protocol continued...

(EG&S), such as water purification on their property, so long as the second project is 100 per cent unique from the CGP. When multiple EG&S credits or payments are sought after a single activity, it is referred to as stacking.

### Potential Benefits of a QLCA on Land

- ➞ A long-term QLCA can allow landowners to preserve the land they care about for generations to come, enabling landowners to retain the land's natural heritage and begin a legacy of conservation, especially if they want to keep the land in the family.
- ➞ A QLCA can be used to help look after the family business or means of life, by ensuring the land isn't converted for other purposes.
- ➞ A QLCA allows landowners to retain all rights and privileges not specified in the agreement.
- ➞ A QLCA preserves ecosystems that provide a variety of ecosystem services for humans such as:
  - Water purification
  - Mitigate flooding
  - Improving air quality
  - Soil formation and retention
  - Nutrient cycling
  - Climate regulation

➞ If landowners choose to, they can later amend a QLCA agreement by mutual consent of both parties.

### Factors to Consider When Placing a QLCA on Land

- ➞ Land under a QLCA is subject to the set of restrictions outlined in the agreement. These restrictions are attached to the land's title and are applicable for the full duration of the pre-determined period, applying to all future landowners. Thus, if a landowner plans to keep the land in their family, it is important to discuss the decision with their successors.
- ➞ If landowners plan to sell their land, they must give notice of the QLCA to purchasers. This may decrease the number of interested buyers.

➞ The land needs to be inspected by the land trust or organization that partnered with the landowner to confirm compliance with the QLCA. It is important to discuss physical inspections upfront to avoid confusion.

- ➞ Landowners continue to be responsible for all taxes and obligations associated with ownership.
- ➞ If any third-party activity affected the terms of the QLCA, landowners would be responsible for reimbursing the holder of the QLCA (either a government or land trust).

More information is available from local land trusts. Landowners should consult their legal and financial advisors prior to entering into any legal agreement.



# What are the Attributes of an Ideal Land Parcel?

A landowner may be an ideal participant if they are interested in diversifying their farm's income, their property meets the project's baseline requirements and they are willing to sign a Qualified Land Conservation Agreement (QLCA) to preserve their grassland's natural integrity.



## What are the Baseline Requirements?

The baseline requirements to participate in the CGP are:

- ⌚ Land has been managed as a grassland for at least 10 years (both native and tame grasslands are included)
- ⌚ The land must be at risk of conversion to cropland
  - Must demonstrate physical suitability for row crop cultivation (based on soil quality, moisture and slope)
  - There must be no existing legal restriction on conversion to cropland
  - A real estate land appraisal must prove that annual cropland value is higher than pasture, hay or rangeland

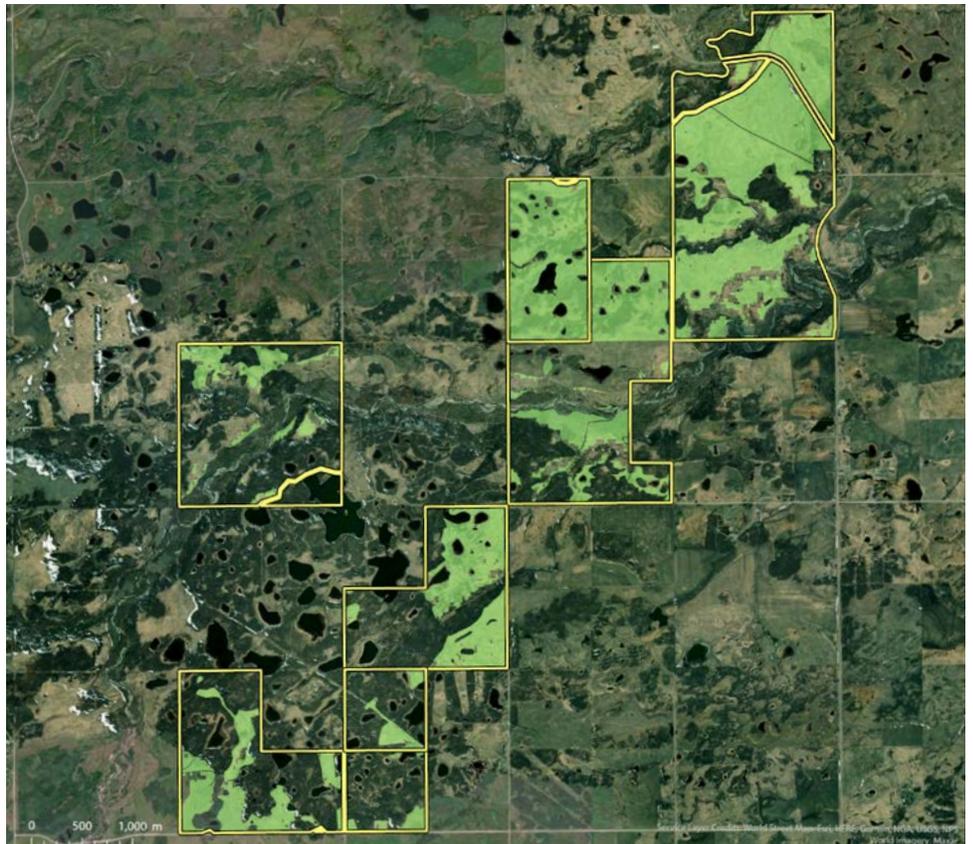
- ⌚ Land may be in multiple discrete parcels (it doesn't need to be continuous)
- ⌚ Tree canopy may not exceed 10 per cent of the land area on a per-acre basis

## What are the Land-use Requirements?

The land-use requirements to participate in the Canada Grassland Protocol (CGP) are:

- ⌚ No conversion to row crops
- ⌚ No breaking ground or significant eradication of vegetation

- ⌚ Intensive rotational grazing is acceptable if plant/soil health is maintained
- ⌚ Livestock cannot be managed in a confined feeding area where plant health is compromised
- ⌚ Moderate haying is allowed
- ⌚ Grassland health should be maintained as much as possible
- ⌚ An ecosystem health assessment must be conducted once within every six years period



An example of a landowner's property and the area within it that meets the CGP's baseline requirements. Thick yellow lines denote the property in several discrete parcels and the light green represents the sections of the property that are eligible for the CGP. Due to development, water and forest cover, 41 per cent of this property was eligible for the CGP.

Map made by the Nature Conservancy of Canada

# How Does a Landowner Participate?

To sell and produce carbon offset credits (offset credits) from the avoided conversion of grasslands, landowners must start a project on their property using the Canada Grassland Protocol (CGP). The following are the six major steps landowners need to take to start a project through the CGP.

Step 1	Understand the protocol
Step 2	Decide if the CGP is a good fit
Step 3	Partner with a land trust
Step 4	Contract with a project developer
Step 5	Assist in the collection of required data and evidence
Step 6	Participate in the carbon market

Although there are some timelines that need to be met to meet the CGP eligibility criteria, the order of these steps can be flexible as landowners' situations vary.

## Step 1 - Understand the protocol

Before making any decisions, landowners should do their best to understand the protocol and its requirements, particularly those related to data and evidence collection. To learn more about the CGP, one should review the *Canada Grassland Protocol Version 1.0* available on the Climate Action Reserve (CAR) [website](#) and its corresponding quick [summary](#).

If part of the project is unclear, landowners should ask questions by reaching out to [CAR](#) or one of the land trusts listed in step three for more information.

## Step 2 - Decide if the CGP is a good fit

Participation in the carbon marketplace is voluntary. Landowners must decide for themselves if the CGP is right for them and their families.

## Step 3 - Partner with a land trust

The CGP requires a qualified land conservation agreement (QLCA) to be signed with a land trust. As such, landowners interested in participating in the CGP should reach out to partner with a land trust familiar with the CGP. Land trusts familiar with the CGP include, but are not exclusive to, the following:

National

- ➞ [Ducks Unlimited Canada](#)
- ➞ [Nature Conservancy of Canada](#)

Provincial

- ➞ Alberta:
  - [Legacy Land Trust Society](#)
  - [Southern Alberta Land Trust Society](#)
- ➞ Manitoba:
  - [Manitoba Habitat Heritage Corporation](#)
- ➞ Saskatchewan:
  - [Saskatchewan Stock Growers Association](#)

➞ Québec:

- [Coop Carbone](#)

To better assist communication, your message should include "Canada Grassland Protocol" in the subject and include the following information:

- ✔ Name
- ✔ Business name (if applicable)
- ✔ Property address
- ✔ Phone number

When discussing the opportunity with a land trust, ensure you ask questions about how an easement needs to be structured to meet the criteria of the CGP.

## Step 4 - Contract with a project developer

Aggregation is necessary because it is difficult for an individual to meet the protocol requirements and manage offset credit sales independently. A project developer can assist with reviewing the project for eligibility, collecting required evidence and connecting landowners with the professionals the protocol requires. The project developer can also register landowners' projects to the official CAR registry. Landowners may choose to work with a project developer to understand the details of the CGP as they could impact the way their projects are set up.

Landowners may wish to seek out and engage a project developer. Their partnering land trust may

## How Does a Landowner Participate continued...

be able to assist with this connection. [BMO Radicle](#) is one example of a project developer who has successfully developed projects using the CGP, and others are currently exploring options for project development.

### Step 5 - Assist in the collection of required data and evidence

The CGP requires certain information about the landowner's property to ensure that it is eligible for the protocol and meets the land management requirements. It is the landowner's responsibility to participate in the project and work with project partners to provide necessary information and ensure they meet all requirements.

Initially, this will focus on ensuring the grassland meets the protocol's baseline requirements, which in-

clude conducting a property appraisal. Partners can assist with assembling the required evidence and hiring contractors to build reports. After confirming the property in question is eligible for the CGP, the land trust and the landowner need to reach an agreement on the QLCA's terms that all parties are comfortable with and which satisfies the CGP requirements. The project developer can outline the costs, commissions and market price opportunities at the time of an agreement. They can also assemble the project and hire a third-party verifier to ensure the project is correct. It should be noted that some of these processes may involve accessing the landowner's property.

After the project is established, an ecosystem health assessment

needs to be conducted once within every six-year period to verify that the landowner is complying with the land management requirements. Partnering organizations can work with the landowner to find a qualified assessor.

### Step 6 - Participate in the carbon market

Once a project is fully established on a landowner's property using the CGP, it will begin to generate serialized offset credits, one for each tonne of carbon dioxide (CO<sub>2</sub>) or carbon dioxide equivalent (CO<sub>2e</sub>) reduced or prevented from entering the atmosphere. Project roles and responsibilities, including those associated with offset credit marketing, should be discussed with the project developer and the land trust in advance.



*An Alberta landowner works hand in hand with professionals from the national land trust, the Nature Conservancy of Canada.*

*Photo by Leta Pezderic*

# Glossary

**Additionality:** The principle that only greenhouse gas (GHG) emissions reductions from a property that are above and beyond those that would be predicted under a business-as-usual scenario can be used to create carbon offset credits.

## Canada Grassland Protocol

**(CGP):** A carbon offset protocol that aims to protect Canadian grasslands and support producers by serving as a system in which grassland owners can produce value from the avoided emission of greenhouse gases (GHGs) that are produced when grasslands are converted to row crops or urban development. This protocol outlines how to quantify and verify GHG emission reductions from the avoided conversion of grasslands, for the purpose of generating carbon offset credits (offset credits)

## Carbon Dioxide Equivalent

**(CO<sub>2e</sub>):** A standard unit of global warming potential (GWP). As different greenhouse gases (GHGs) have different GWPs, their impact can't be directly compared using tonnes of emissions alone. Instead, carbon dioxide's (CO<sub>2</sub>) GWP is used as a standard unit to measure global warming impact, with carbon dioxide having a GWP of one per one tonne of gas. A GHG's CO<sub>2e</sub> can be calculated by multiplying the amount of gas by its global warming potential. For example, methane has a GWP of 25,<sup>1</sup> thus one kilogram (kg) of methane (CH<sub>4</sub>) would be 25kg of CO<sub>2e</sub> (1kg CH<sub>4</sub> \* 25 = 25kg = CO<sub>2e</sub>).

**Carbon Market:** A system where carbon offset credits are bought and sold. There are three main kinds of carbon markets: 1) com-

pliance, 2) voluntary with protocol and 3) voluntary without protocol.

## Carbon Offset Credit (Offset Credit)

**(it):** A tradable unit that represents one metric tonne of carbon dioxide (CO<sub>2</sub>) or carbon dioxide equivalent (CO<sub>2e</sub>) that is reduced or removed from the atmosphere.

**Carbon Credit:** A carbon offset credit generated in the compliance carbon market.

**Carbon Offset:** A carbon offset credit that is generated in the voluntary carbon market.

**Carbon Sink:** Something that is able to absorb or store carbon dioxide (CO<sub>2</sub>), a prevalent greenhouse gas (GHG).

**Compliance Markets:** Carbon markets that are driven by government regulations that set limits on the amount of greenhouse gas (GHG) emissions a company or organization can produce. Organizations with government-enforced-emissions regulations can only purchase from a compliance market that is regulated by government administrators. As such, carbon offset credits in the compliance market usually sell for more than credits in the voluntary market.<sup>1</sup>

**Cropland Premium (CP):** A metric representing the financial incentive to convert grassland into row crops, used to determine grassland eligibility for the Canada Grassland Protocol (CGP) and carbon offset credit value.

**Discount Factor:** A carbon offset credit price deduction used when the economic incentive for grassland conversion to row crops is in-

termediate and there is uncertainty if conversion would occur under a business-as-usual scenario.

**Ecosystem Services:** The numerous diverse benefits that ecosystems either directly or indirectly provide humans.

## Global Warming Potential (GWP):

Some greenhouse gases (GHGs) are capable of trapping more heat in the atmosphere than others. GWP is used to measure how much heat each gas can potentially trap.<sup>2</sup> Since carbon dioxide (CO<sub>2</sub>), the most abundant GHG emitted from human activities,<sup>3</sup> is used as the standard unit of measurement, with a GHG's GWP measured by how much energy one tonne of said gas will absorb over a time period, compared to one tonne of CO<sub>2</sub>. For instance, nitrous oxide's (N<sub>2</sub>O) GWP is 298 times higher than that of CO<sub>2</sub>.<sup>4</sup>

**Greenhouse Gas (GHG):** Atmospheric gases that trap the sun's heat. Emissions from human activity have increased the amount of GHGs in our planet's atmosphere leading to rising global temperatures, known as climate change.<sup>1,3</sup> Common GHGs include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O).

**Leakage:** When a project's "avoided" emissions are simply shifted elsewhere. For example, if the preservation of grasslands in one area caused another grassland or forested area to be converted to annual cropping instead.

**Levy:** A fine that organizations with government-enforced regu-

## Glossary continued...

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lations limiting how many greenhouse gases (GHGs) they can produce must pay if they exceed their GHG emission limits.

**Market Regulators:** Organizations or government bodies that are responsible for setting protocol and verification standards for carbon markets.

**Offset:** Greenhouse gases (GHGs) that are either reduced or sequestered from the atmosphere.

**Permanence:** Assurance that greenhouse gases (GHGs) sequestered or emissions prevented will be maintained for a significant period. For example, forests planted to sequester GHGs cannot be cut down after the payment period.

**Permanence Period:** A period of time over which land in the project area must be maintained as grassland.

**Project Developer:** An organization who submits a new offset

project to the Climate Action Reserve (CAR) and ensures that documents and processes are being followed via the Canada Grassland Protocol (CGP) regulations. Project developers can assist with connecting landowners with professionals, data collection and other procedures necessary to meet the requirements of the CGP.

**Protocols:** Procedures outlining how to quantify greenhouse gas (GHG) sequestration or emissions reductions from a carbon offset project. Protocols can take many forms, ranging from improved methane management in landfills to improving forests' carbon sequestration.<sup>5</sup>

**Qualified Land Conservation Agreement (QLCA):** A voluntary legal agreement between a landowner and a government or qualified conservation organization (i.e. a Land Trust) that aims to preserve the natural integrity of a specified parcel of land by limiting the amount and type of develop-

ment that can occur on a property. A QLCA enables both partners to protect their shared vision for the land for a predetermined period, while still allowing the landowner to keep the legal title to their property. The landowner(s) may still pass down or sell their land, while still retaining the land's legal protection through the QLCA.

**Registries:** Organizations that act like bulletin boards where buyers can see carbon projects and review verification reports.

**Voluntary Markets:** Carbon markets are driven by individuals or organizations who choose to purchase carbon offset credits to help meet their emissions-reduction goals, usually by compensating for emissions they have already produced.<sup>1</sup> Voluntary markets are typically regulated by non-government organizations and the price of carbon offset credits is set by market forces.

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Canadian Forage & Grassland Association  
*Association Canadienne pour les Plantes Fourragères*

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