# Canada Grassland Protocol
# Version 1.0
## ERRATA AND CLARIFICATIONS

The Climate Action Reserve (Reserve) published its Canada Grassland Protocol Version 1.0 (CGP V1.0) on October 16, 2019. While the Reserve intends for the CGP V1.0 to be a complete, transparent document, it recognizes that correction of errors and clarifications will be necessary as the protocol is implemented and issues are identified. This document is an official record of all errata and clarifications applicable to the CGP V1.0.[1]

Per the Reserve Offset Program Manual, both errata and clarifications are considered effective on the date they are first posted on the Reserve website. The effective date of each erratum or clarification is clearly designated below. All listed and registered Canada Grassland projects must incorporate and adhere to these errata and clarifications when they undergo verification.

All errata and clarifications identified in this document are also reflected in the copy of the CGP V1.0 available on the Reserve website as of the effective date of the most recent errata and clarifications.

If you have any questions about the updates or clarifications in this document, please contact Policy at policy@climateactionreserve.org.

[1] See Section 4.3.4 of the Reserve Offset Program Manual for an explanation of the Reserve's policies on protocol errata and clarifications. "Errata" are issued to correct typographical errors. "Clarifications" are issued to ensure consistent interpretation and application of the protocol. For document management and program implementation purposes, both errata and clarifications are contained in this single document.

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# Section 3

## 1. Location – Indigenous Lands (CLARIFICATION – October 22, 2026)

**Section:** 3.1 Location

**Context:** The protocol requires that grassland projects in tribal areas must demonstrate that the land within the project area is owned by a tribe or private entities. Such land use structures are relatively rare in Canada. The Reserve has received feedback that First Nation reserve lands are eligible to be leased for agricultural use despite title to the land being held by the Crown, and that the baseline cropland conversion scenario may still take place on such First Nation reserve lands.

**Correction:** The new applicable text for the first paragraph of Section 3.1 is as follows:

Only projects located on privately controlled lands in Canada are eligible to register reductions with the Reserve under this protocol. All sources within the project boundary (Figure 4.1) must be located within Canada. Grassland projects on the lands of Indigenous peoples must demonstrate that the land within the project area is owned by an Indigenous people or private entities, or is on provincial or federal Crown lands where a First Nation has exclusive use and occupation. Projects are not eligible on organic soils (histosols),[12] including areas identified as wetlands or peatlands.

## 2. Performance Standard Test – Option 2 to Assess the Financial Pressure to Convert Grassland (CLARIFICATION – February 14, 2022)

**Section:** 3.3.1.1 Financial Threshold

**Context:** The protocol requires that the financial pressure to convert from grassland to cropland be assessed by a Certified Real Estate Appraisal. The Reserve has received feedback that Certified Real Estate Appraisals can only be made when the highest and best use is cropland. There is a gap in options to assess land value for projects where the land could be converted to cropland but the best use of the land is not cropland. A second approach to estimate the financial threshold has been added to the protocol to cover that gap. Instead of using a certified land appraisal, project owners may use a land value assessment endorsed by a certified land appraiser.

**Correction:** The new applicable text for Section 3.3.1.1 is the following:

There is a financial barrier to project activities due to the economic incentives to convert grassland to cropland in specific regions for high quality soil. This protocol will use a threshold for financial additionality, referred to as the cropland premium. The cropland premium (CP) is determined as the percentage difference in the net present value of cropland over grassland for the project area. Depending on the resulting cropland premium value, the project must include a discount ($DF_{conv}$) of baseline emissions. Project eligibility is based on the cropland premium, based on the conditions below:

1. Projects with a cropland premium greater than 100% are eligible without any discount for uncertainty;
2. Projects with a cropland premium greater than 40% but less than 100% are eligible, but must apply a discount to their baseline emissions (see Section 5.2.4 for a description of $DF_{conv}$);
3. Projects with a cropland premium less than 40% are not eligible.

Projects have two options to identify the financial pressure to convert from grassland to cropland. The first option is a certified real estate appraisal and is expected to be used when the best and highest land value is cropland. Option two is an appraiser endorsed land value assessment.

#### 3.3.1.1.1. Option 1 – Real Estate Appraisal

The certified real estate appraisal must show:

1. *The project area is suitable for conversion to cropland*. The appraisal must clearly indicate how the physical characteristics of the project area are suitable for crop cultivation, including the particular crops expected to be grown.
2. *The appraisal must conform with the following minimum standards*[2]:
    a. Appraisal reports shall include a description of the subject property and any market data relied upon, including the relationship between the location of the subject property and the market data. The appraisal must specify and quantify the areas of the project area that are suitable for crop production. (For example, an appraisal that identified corn production as an alternative land use must specify the approximate acres suitable for both the crops and any related roads, buildings, or other infrastructure.)
    b. Appraisal reports shall include a complete description of the subject property land, site characteristics and improvements. Valuations based on a property's cropland potential shall include:
        i. A description of what would be required for a conversion to cropland to proceed (e.g., legal entitlements, infrastructure).
        ii. Presentation of evidence that sufficient demand exists, or is likely to exist in the future, to provide market support for the conversion to cropland.
        iii. The appraisal must also provide:
            1. Evidence of soil suitability for the type of expected agricultural land use.
            2. Evidence of water availability for the type of expected agricultural land use.
            3. Evidence of no limitations to crop production due to slope or other physical characteristics of the land.
    c. Appraisal reports shall include a statement by the appraiser indicating to what extent land title conditions were investigated and considered in the analysis and value conclusion.
    d. Appraisal reports shall include a discussion of implied dedication, prescriptive rights or other unrecorded rights that may affect value, indicating the extent of investigation, knowledge, or observation of conditions that might indicate evidence of public use.

[2] Adapted from Sections 5096.501 and 5096.517, Public Resources Code, State of California.

e. Appraisal reports shall include a separate valuation for ongoing grassland management. The valuation must identify and incorporate all legal constraints that could affect the valuation of the ongoing grassland management.

3. *The cropland land use for the project area has a higher market value than maintaining the project area for sustainable grassland management, such that it meets the financial additionality threshold.* The appraisal for the property must provide an estimated fair market value for the rental rate (in CAD$ per acre per month) for the current grassland use condition of the project area (considering the land to be encumbered and thus unable to be converted to cropland) and an estimated fair market value of the rental rate for the anticipated use the project area as cropland. The appraisal must identify whether or not irrigation is considered in the valuation (or, alternatively, may provide estimations both with and without irrigation). The difference between the rental rate for cropland and the rental rate for grassland, divided by the rental rate for grassland, is the cropland premium for the project area. Eligibility is then determined according to the thresholds as outlined in the beginning of Section 3.3.1.1.

Appraisals submitted and favorably reviewed by an expert panel for EcoGift program participation which include a cropland appraisal shall be deemed sufficient to meet the requirements of this option.

#### 3.3.1.1.2 Option 2 – Land Value Assessment

The second option to determine the financial pressure to convert grassland is a land value assessment that includes the following:

1. *Narrative that explains that the project area is suitable for conversion to cropland*. The narrative must clearly indicate how the physical characteristics of the project area are suitable for crop cultivation, including the particular crops expected to be grown.
2. *Map of project area* indicating the eligible and ineligible soil classes, slopes, open water, wetlands and forested areas. The valuation should only be performed on the eligible project area.
3. *Cropland rental rate for the project area (CAD$/acre)*
    a. Estimated based on crop rental rates in the region using public data, appraiser proprietary rental rate information and/or information from comparable properties as needed.
    b. The appropriate region for the assessment is to be defined by the qualified land appraiser in their expert judgement and justified in the valuation report.
    c. The assessment must identify whether or not irrigation is considered in the valuation (or, alternatively, may provide estimations both with and without irrigation).
4. *Grassland rental rate for the project area (CAD$/acre)*
    a. Estimated based on grassland productivity rates for pasture, haying or other uses. Datasets that can be used to estimate productivity are the Grassland Vegetation Inventory, landowner grazing records, and/or information from the Ecosystem Health Assessment.
    b. Productivity rates should be converted to CAD$/acre by using regional pasture lease and rental rates (which can be proprietary or custom rate survey data).
    c. The grassland rental rate shall be validated by the appraiser through photographs taken by the landowner or project developer, through the ecosystem health assessment or by site visits as determined by the appraiser.

d. The grassland rental rate must consider the land to be encumbered and thus unable to be converted to cropland.

5. *Cropland premium*
   a. The difference between the rental rate for cropland and the rental rate for grassland, divided by the rental rate for grassland, is the cropland premium for the project area.

The land assessment must demonstrate that converting the project area to cropland has a higher market value than maintaining the project area for sustainable grassland management, such that it meets the financial additionality threshold. Eligibility is then determined according to the thresholds as outlined in the beginning of Section 3.3.1.1.

#### 3.3.1.1.3 Qualifications Required of Land Appraisers

Appraisal reports shall be prepared and signed by a third-party, Licensed or Certified Real Estate Appraiser in good standing. Land value assessments must be endorsed by a third-party, Licensed or Certified Real Estate Appraiser in good standing. For option 1 and 2 the appraiser must hold a professional designation from one of the associations listed in Table 3.1:

**Table 3.1.** Eligible Professional Associations and Designations for Real Estate Appraisers

| Professional Association | Eligible Appraiser Designations |
|---|---|
| Appraisal Institute of Canada (AIC) | Accreditor Appraiser Canadian Institute (AACI) or, Canadian Residential Appraiser (CRA) |
| Canadian National Association of Real Estate Appraisers | Designated Appraiser Residential (DAR) or, Designated Appraiser Commercial (DAC) |
| Ordre des évaluateurs agréés du Québec (OEAQ) | Chartered Appraiser (C.App./EA) |
| American Society of Appraisers | Accredited Senior member (ASA) – Rural Property Appraisal option |
| American Society of Farm Managers and Rural Appraisers | Accredited Rural Appraiser (ARA) |
| American Appraisal Institute | Member Appraisal Institute (MAI) or, Senior Residential Appraiser (SRA) |
| Royal Institution of Chartered Surveyors | Member Royal Institution of Chartered Surveyors (MRICS) Chartered Valuation Surveyor or, Fellow Royal Institution of Chartered Surveyors (FRICS) Chartered Valuation Surveyor |

If a project later applies to expand the project area, they must first consult with Reserve staff to determine if a new appraisal or land value assessment is needed for the expanded project area.

## 3. Suitability Threshold – (CLARIFICATION – February 14, 2022)

**Section:** 3.3.1.2 Suitability Threshold

**Context:** The protocol requires that project areas contain a minimum percentage of land classes 1-4 based on the ecoregion where they are located. The protocol misses to clarify

that minimum percentage applies to the *dominant* class only. The Land Suitability Rating System is presented in the following format:

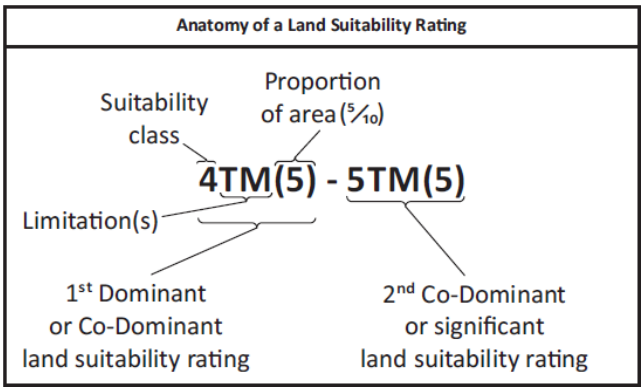


**Figure 1**. Example of a Land Suitability Rating[3]

The eligibility thresholds in section 3.3.1.2 should be applied to the first dominant land suitability rating.

**Correction:** The new applicable text for that section is the following:

The Reserve has developed a table of default, Ecoregion-specific soil suitability thresholds. The specific default value for each Ecoregion is contained in Table 3.3, below. For any Ecoregion not listed, the default threshold is 100%. The percentage of cultivated land that is classified as Dominant Class 1-4 (rounded to the nearest whole number) represents the minimum required percentage of the project area for those land classes. For example, if the default value is 80%, the threshold for eligibility for that Ecoregion is 80% Dominant Class 1-4, allowing for up to 20% Dominant Class 5-6. Please see Appendix A for a description of how these thresholds were derived.

*[Figure 3.1. will be present between these two paragraphs in the protocol]*

If the project area includes more than one Ecoregion, the appropriate threshold for Dominant Class 1-4 soils shall be an area-weighted average of the Ecoregion-specific thresholds (e.g., if half of the project area is in an Ecoregion with a threshold of 80%, and the other half is in an Ecoregion with a threshold of 70%, the overall threshold for the project area will be 75%).

## 4. Suitability Threshold – (ERRATUM – February 14, 2022)

**Section:** 3.3.1.2 Suitability Threshold

**Context:** The last paragraph on page 17 provides guidance on how to define the threshold for a project based on the Reporting Zone (RP) or Major Land Resource Area (MLRA) where its located. The use of the term Reporting Zone or MLRA is incorrect, the correct term that should be used is Ecoregion.

[3] Land Suitability Rating System for Agricultural Crops, 1995. Agriculture and Agri-Food Canada. Available at: https://sis.agr.gc.ca/cansis/publications/manuals/1995-lsrs/lsrs.pdf

**Correction:** The new applicable text for that paragraph is the following:

If the project area includes more than one Ecoregion the appropriate threshold for Class 1-4 soils shall be an area-weighted average of the Ecoregion-specific thresholds (e.g., if half of the project area is in an Ecoregion with a threshold of 80 percent, and the other half is in an Ecoregion with a threshold of 70 percent, the overall threshold for the project area will be 75 percent).

# Section 5

## 5. Conversion Factor for $CH_4$ Emissions from Manure Deposited by Grazing Animals (ERRATUM – December 18, 2019)

**Section:** Project Emissions from Grazing, Equation 5.15

**Context:** On page 49, Equation 5.15 is used to calculate project emissions from livestock grazing. Three values integrate the sum of livestock grazing emissions: $N_2O$ emissions from manure deposited by grazing animals ($N_2O_{MN}$), $CH_4$ emissions from manure deposited by grazing animals ($CH_{4,MN}$), and $CH_4$ emissions from enteric fermentation in grazing animals ($CH_{4,ENT}$). The factor used to convert from grams to tonnes in the $CH_{4,MN}$ equation is incorrectly stated as 1,000 while it should be 1,000,000. As written, Equation 5.15 reads as follows:

$$CH_{4,MN} = \sum_{L} \left( \frac{AGD_l \times PEF_{mn,l} \times GWP_{CH_4}}{1000} \right)$$

**Correction:** The corrected equation reads as follows:

$$CH_{4,MN} = \sum_{L} \left( \frac{AGD_l \times PEF_{mn,l} \times GWP_{CH_4}}{1000000} \right)$$

# Section 6

## 6. Period to Submit Ecosystem Health Assessments (ERRATUM – February 14, 2022)

**Section:** 6.4 Monitoring Ecosystem Health

**Context:** The first paragraph in section 6.4 states that “An ecosystem health assessment must be submitted for review during one of the first two project verifications.” The text is incorrect as an ecosystem health assessment must be submitted during one of the first two *reporting periods*.

**Correction:** The sentence should be substituted with:

An ecosystem health assessment must be submitted during one of the first two reporting periods.

## 7. Incorrect link to the Rangeland Health Assessment Protocol by Alberta Environment and Parks (ERRATUM – February 14, 2022, amended October 22, 2026)

**Section:** Footnote number 39

**Context:** An incorrect link is given to the Rangeland Health Assessment Protocol by Alberta Environment and Parks

**Correction:** The correct link should be https://open.alberta.ca/dataset/51cad211-09f6-49bd-86ef-ca3162f2ea7a/resource/2cadf8f4-ef65-4e48-812e10f8daf027a8/download/rangelandhealthassessment-2017.pdf

# Appendix B

## 8. Baseline Emission Factors (ERRATUM – December 18, 2019)

**Section:** B.5 Results, Table B.1

**Context:** On page 99, Table B.1 lists the baseline emission factors for grassland projects per acre per year. The values were incorrectly converted to kg of $N_2O$ or $CO_2$/acre/year from kg of $N_2O$ or $CO_2$/hectare/year by multiplying by 2.47 instead of dividing by 2.47. The values have been recalculated to correctly state kg of $N_2O$ or $CO_2$/acre/year.

**Correction:** The correct baseline emission factors are shown on the next page.

**Table B.1.** Baseline Emission Factors per Acre per Year (erratum 7)

| Reporting Zone | RZ_ID | Soil Texture | Stratum ID | $BEF_{N2O,s}$ Year 1-10 (kg $N_2O$/ac/yr) | $BEF_{N2O,s}$ Year 11-20 (kg $N_2O$/ac/yr) | $BEF_{N2O,s}$ Year 21-30 (kg $N_2O$/ac/yr) | $BEF_{Cfert,s}$ (kg $CO_2$/ac/yr) | $BEF_{OC,s}$ 1-10 yr (kg $CO_2$/ac/yr) | $BEF_{OC,s}$ 11-20 yr (kg $CO_2$/ac/yr) | $BEF_{OC,s}$ 21-30 yr (kg $CO_2$/ac/yr) |
|---|---|---|---|---|---|---|---|---|---|---|
| Atlantic Maritime | 6 | Coarse | 6_Coarse | 1.67 | 1.53 | 1.42 | 61.47 | 1192 | 924 | 717 |
| Boreal Plains | 10 | Coarse | 10_Coarse | 0.90 | 0.84 | 0.80 | 18.99 | 623 | 464 | 345 |
| Boreal Shield East | 5 | Coarse | 5_Coarse | 1.32 | 1.18 | 1.08 | 38.25 | 1083 | 803 | 595 |
| Boreal Shield West | 9 | Coarse | 9_Coarse | 1.16 | 1.07 | 1.00 | 18.87 | 781 | 550 | 388 |
| Mixedwood Plains | 7 | Coarse | 7_Coarse | 1.52 | 1.39 | 1.29 | 25.03 | 1028 | 762 | 565 |
| Montane Cordillera | 14 | Coarse | 14_Coarse | 0.53 | 0.50 | 0.48 | 7.58 | 551 | 453 | 372 |
| Pacific Maritime | 15 | Coarse | 15_Coarse | 0.95 | 0.88 | 0.83 | 5.56 | 653 | 552 | 468 |
| Semiarid prairies | 12 | Coarse | 12_Coarse | 0.41 | 0.38 | 0.36 | 12.55 | 509 | 364 | 260 |
| Subhumid prairies | 11 | Coarse | 11_Coarse | 0.75 | 0.71 | 0.68 | 17.22 | 493 | 366 | 272 |
| Atlantic Maritime | 6 | Medium | 6_Medium | 2.04 | 1.91 | 1.79 | 61.47 | 1179 | 975 | 806 |
| Boreal Plains | 10 | Medium | 10_Medium | 0.96 | 0.90 | 0.86 | 18.99 | 799 | 644 | 519 |
| Boreal Shield East | 5 | Medium | 5_Medium | 1.78 | 1.62 | 1.49 | 38.25 | 1349 | 1088 | 878 |
| Boreal Shield West | 9 | Medium | 9_Medium | 1.21 | 1.13 | 1.07 | 18.87 | 850 | 660 | 512 |
| Mixedwood Plains | 7 | Medium | 7_Medium | 1.89 | 1.75 | 1.64 | 25.03 | 1088 | 855 | 672 |
| Montane Cordillera | 14 | Medium | 14_Medium | 0.61 | 0.57 | 0.54 | 7.58 | 817 | 686 | 577 |
| Pacific Maritime | 15 | Medium | 15_Medium | 1.14 | 1.07 | 1.01 | 5.56 | 961 | 850 | 751 |
| Semiarid prairies | 12 | Medium | 12_Medium | 0.47 | 0.43 | 0.40 | 12.55 | 766 | 574 | 430 |
| Subhumid prairies | 11 | Medium | 11_Medium | 0.82 | 0.77 | 0.73 | 17.22 | 732 | 571 | 445 |
| Atlantic Maritime | 6 | Fine | 6_Fine | 2.66 | 2.42 | 2.23 | 61.47 | 1478 | 1183 | 948 |
| Boreal Plains | 10 | Fine | 10_Fine | 0.99 | 0.94 | 0.90 | 18.99 | 897 | 750 | 627 |
| Boreal Shield East | 5 | Fine | 5_Fine | 2.01 | 1.88 | 1.76 | 38.25 | 1214 | 1029 | 873 |
| Boreal Shield West | 9 | Fine | 9_Fine | 1.28 | 1.20 | 1.13 | 18.87 | 977 | 785 | 632 |
| Mixedwood Plains | 7 | Fine | 7_Fine | 2.41 | 2.22 | 2.06 | 25.03 | 1316 | 1061 | 856 |
| Montane Cordillera | 14 | Fine | 14_Fine | 0.58 | 0.55 | 0.53 | 7.58 | 694 | 623 | 559 |
| Pacific Maritime | 15 | Fine | 15_Fine | 1.01 | 0.96 | 0.92 | 5.56 | 765 | 683 | 610 |
| Semiarid prairies | 12 | Fine | 12_Fine | 0.51 | 0.47 | 0.44 | 12.55 | 957 | 770 | 619 |
| Subhumid prairies | 11 | Fine | 11_Fine | 0.81 | 0.77 | 0.74 | 17.22 | 690 | 572 | 474 |