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Canada Grassland Project Protocol v1.0

Public Webinar

November 7, 2019

Agenda

1. Background
2. Protocol overview
3. Audience questions

Housekeeping:

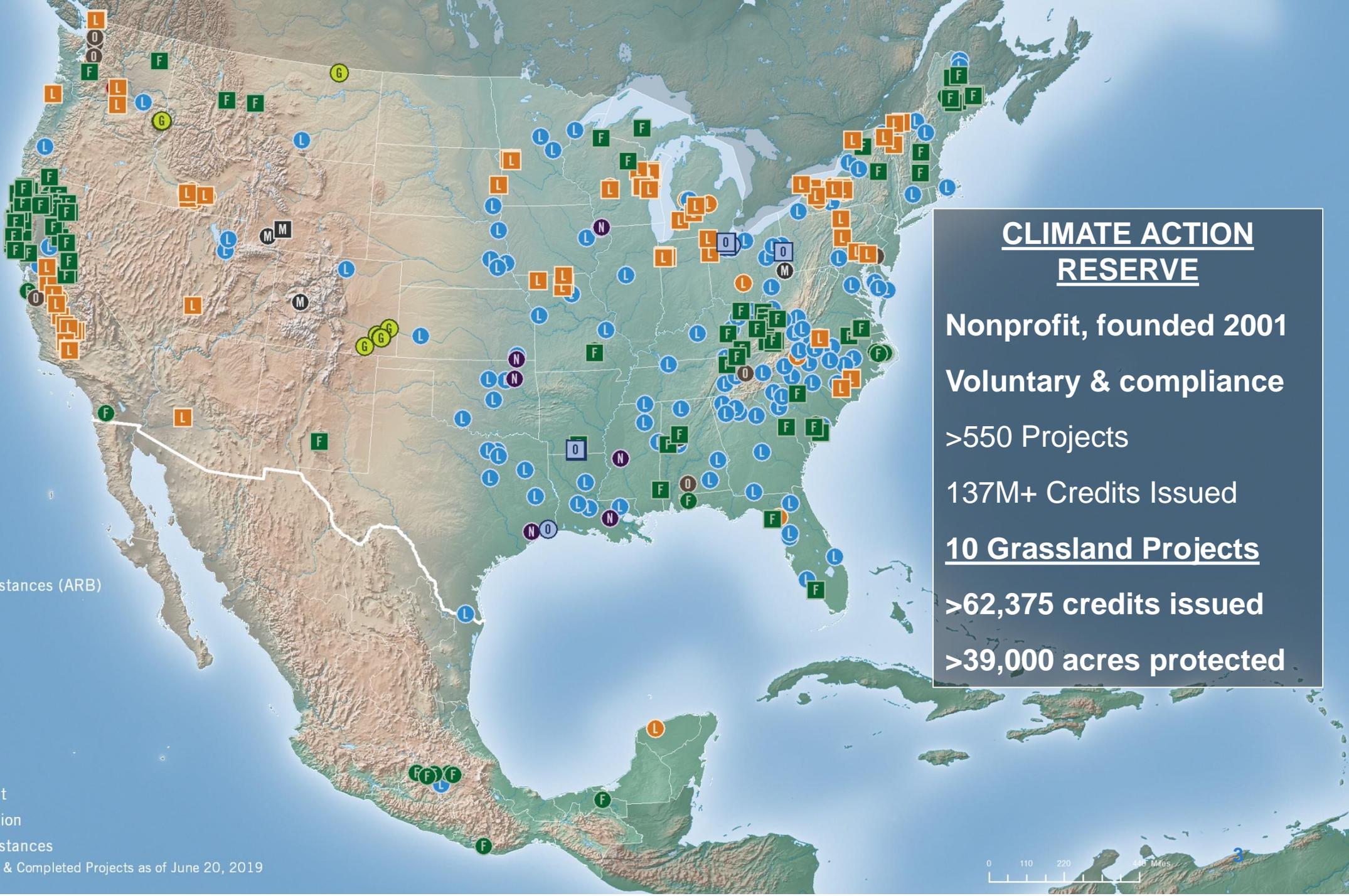
- *Please use the question panel to communicate*
- *This webinar will be recorded*
- *Please email bzavariz@climateactionreserve.org if you need assistance*



CLIMATE ACTION RESERVE

- F Forest (ARB)
- L Livestock (ARB)
- M Mine Methane (ARB)
- O Ozone Depleting Substances (ARB)
- O Composting
- F Forest
- G Grassland
- L Landfill
- L Livestock
- M Mine Methane
- N Nitric Acid Plants
- N Nitrogen Management
- O Organic Waste Digestion
- O Ozone Depleting Substances

Listed, Registered, Transitioned, & Completed Projects as of June 20, 2019



CLIMATE ACTION RESERVE

Nonprofit, founded 2001

Voluntary & compliance

>550 Projects

137M+ Credits Issued

10 Grassland Projects

>62,375 credits issued

>39,000 acres protected



Background

- July **2015**: US Grassland Project Protocol (GPP) v1.0 adopted
- **2016**: First US grassland projects submitted
- January **2017**: US GPP v2.0 adopted
- **2017**: First US grassland credits (Climate Reserve Tonnes, or CRTs) issued
- **2017**: Began adaptation of 13 compliance offset protocols for Ontario and Quebec, including avoided grassland conversion
- **2018**: Ontario elections signal the end of the cap and trade program, along with the protocol development contract
- Late **2018**: Canadian Forage and Grassland Association, along with Viresco Solutions, provides funding to work with the Reserve to finish adaptation of the Canadian GPP
- **2019**: Protocol drafting, workgroup meetings, public comment
- **October 16, 2019**: CGPP v1.0 adopted

Protocol adaptation team

Climate Action Reserve

- **Max DuBuisson**, Policy Director
- **Bety Zavariz**, Policy Manager
- **Heather Raven**, Senior Project Coordinator

Viresco Solutions

- **Karen Haugen-Kozyra**, President
- **Jonathon Alcock**, Sustainability Specialist
- **Dr. Brian McConkey**, Chief Scientist

Technical Working Group

- Ecological Gifts Program, Canadian Wildlife Service
- Shell Canada
- Trimble
- Government of Manitoba
- Carbon Credit Solutions Inc.
- The Nature Conservancy Canada
- Alberta Beef
- Canadian Forage and Grassland Association
- Saskatchewan Stock Growers Association
- Saskatchewan Cattlemen's Association
- Applied GeoSolutions
- Brightspot Climate
- Ducks Unlimited Canada
- Southern Alberta Land Trust Society (SALTS)



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THE GHG REDUCTION PROJECT

Project definition

- Prevention of GHG emissions by conserving grasslands, shrublands, rangelands, or pasture land belowground carbon stocks and avoiding crop cultivation activities on the project area
- Project is implemented through the recording of a Qualifying Land Conservation Agreement
- The project area must be grassland, shrubland, rangeland, or pasture land
 - May contain areas of intact wetlands on mineral soils and classified as 1-3 under Stewart & Kantrud Classification System
- Land must be suitable for conversion to crop cultivation
- Project area must have been in continuous grassland cover for at least 10 years prior to the project start date

Activities permitted in project area



- Livestock grazing
- Seeding
- Fertilizer application
- Manure application
- Haying
- Forage harvesting
- Irrigation
- Recreational or economic activities



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OWNERSHIP

Project area

- One grassland owner
- One easement holder (could be multiple easements)
- May be a subset of the area covered by the easement

GHG reduction rights

- GHG rights may be separated from the land
- Rights holder = Project Owner and account holder
- All entities involved must be party to GHG reduction rights agreement

Multiple entities

- Landowner
- Easement holder
- Project Developer
- Cooperative Developer

Cooperative structure

- Joint monitoring, reporting, and verification
- Project data remain independent, and CRTs are issued to individual projects
- Projects may join or leave at any time

- Collections of two or more individual grassland projects managed by a common entity (Cooperative Developer)
 - **Joint monitoring, reporting and verification**
- No comingling of project data or codependence of eligibility
- Projects may join or leave at any time
- Cooperatives must:
 - Use a single verification body projects
 - Coordinate submittal, monitoring, and reporting for all projects
 - Coordinate a verification schedule that maintains appropriate verification status for all projects
 - **Maintain traceability of credits to individual projects**



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ELIGIBILITY & ADDITIONALITY SCREENS

Project start date

- No more than 12 months prior to project submission
- Events that mark project start date
 - Project submittal to the Reserve
 - Recordation of a Land Conservation Agreement (LCA)
 - Transfer or sale of property
- Start dates back to October 2017 will be accepted if submitted before October 2020

- **Legal Requirement Test**

- Is the land legally able to be converted to cropland on the project start date?

- **Performance Standard Test**

- Part 1: Financial additionality screen

- A proxy for the financial pressure to convert the project area to cropland

- Part 2: Land suitability screen

- Confirmation that the project area is suitable for annual crop cultivation

Default financial test

- “How much more is the land worth as cropland vs grassland?”

CROPLAND PREMIUM = (cropland value – grassland value) ÷ grassland value

Cropland Premium	Eligibility	Baseline Discount
>100%	Yes	0%
40% - 100%	Yes	Sliding scale, 0% - 50%
<40%	No	N/A

- All projects must obtain a certified real estate appraisal to identify the financial pressure to convert
- Appraisals reviewed by an expert panel for ECOGift program participation are sufficient for this performance standard test

Certified real estate appraisal must show

- 1. The project area is suitable for conversion to cropland**
- 2. Conformance with a set of minimum standards, including**
 - Prepared and signed by a third-party, licensed Real Estate Appraiser
 - Specification and quantification of areas that are suitable for crop production
 - Inclusion of a complete description of the property land, site characteristics and improvements
 - Description of what would be required for a conversion to cropland
 - Presentation of evidence that demand exists for the conversion to cropland
 - Demonstration of soil suitability, water availability and absence of limitations for crop productions
- 3. The cropland land use has a higher market value than maintaining the project area for sustainable grassland management, such that it meets the financial additionality threshold**

Suitability threshold

- Suitability for conversion to cropland can be demonstrated by:
 - Determining the specific suitability classification for the project soils, according to the Land Suitability Rating System (LSRS) or,
 - Canada’s Land Inventory (CLI) data can be used when LSRS data are not available or,
 - Site-specific soil classification assessment by an independent expert

Suitability: Land Suitability Rating System

Class Soil Description

1	Soils in this class have no significant limitations in use for crops.
2	Soils in this class have moderate limitations that restrict the range of crops or require moderate conservation practices.
3	Soils in this class have moderately severe limitations that restrict the range of crops or require special conservation practices.
4	Soils in this class have severe limitations that restrict the range of crops or require special conservation practices.
5	Soils in this class have very severe limitations that restrict their capability in producing perennial forage crops, and improvement practices are feasible.
6	Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible.
7	Soils in this class have no capacity for arable culture or permanent pasture.
8	Organic Soils (not placed in capability classes).

Land suitability screen

- Must be able to show that the project area is suitable for conversion to cropland
 - Class 1-4 soils are most suitable for cultivation
 - Evidence of existing crop cultivation and recent conversion on Class 5-6 soils
 - Class 7-8 soils are ineligible
- Each Ecoregion has its own threshold for the minimum amount of Class 1-4 soils
- *Option 2: Local Cropland Assessment:*
 - Allow for assessment of local cropland to determine appropriate LSRS threshold
 - Must include at least three actively-cultivated farms in the same ecoregion, no more than 200 km from the project area
 - Farms must be at least as large as the project area, and must assess entire farm property (no cherry-picking)

Concurrent legally binding agreements & credit stacking

- A Grassland Owner may **concurrently** enter into a legally binding agreement related to ecosystem services or protection on the project area
 - Must be approved no more than 6 months prior to the project start date
- Credit and payment stacking must not violate the Legal Requirement Test
 - Agreement or program must demonstrate legal additionality of the grassland project
- Any agreements must be disclosed to the verification body and the Reserve on an ongoing basis
- The Reserve will evaluate the additionality of agreements on a case by case basis



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CREDITING PERIODS

Crediting periods

- Maximum of 30 years from project start date, based on emission factors
- Modeled emission factors are in 10-year increments
- **May voluntarily be ended early as long as permanence is maintained**
- Cooperatives do not have common crediting periods



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PERMANENCE

Permanence

- A CRT is ultimately retired (“used”) as an offset, allowing the emission of a tonne of CO₂e elsewhere
 - E.g., direct CO₂ emissions from air travel
- The “allowed” emission is effectively in the atmosphere forever
- The international community has defined “forever” as 100 years in order to make offsets practical
- Offsets must represent a “permanent” reduction in order to be credible

THEREFORE...

- ***Stored carbon must remain stored for 100 years to achieve equivalence***

Reversibility of emission reductions

Non-reversible

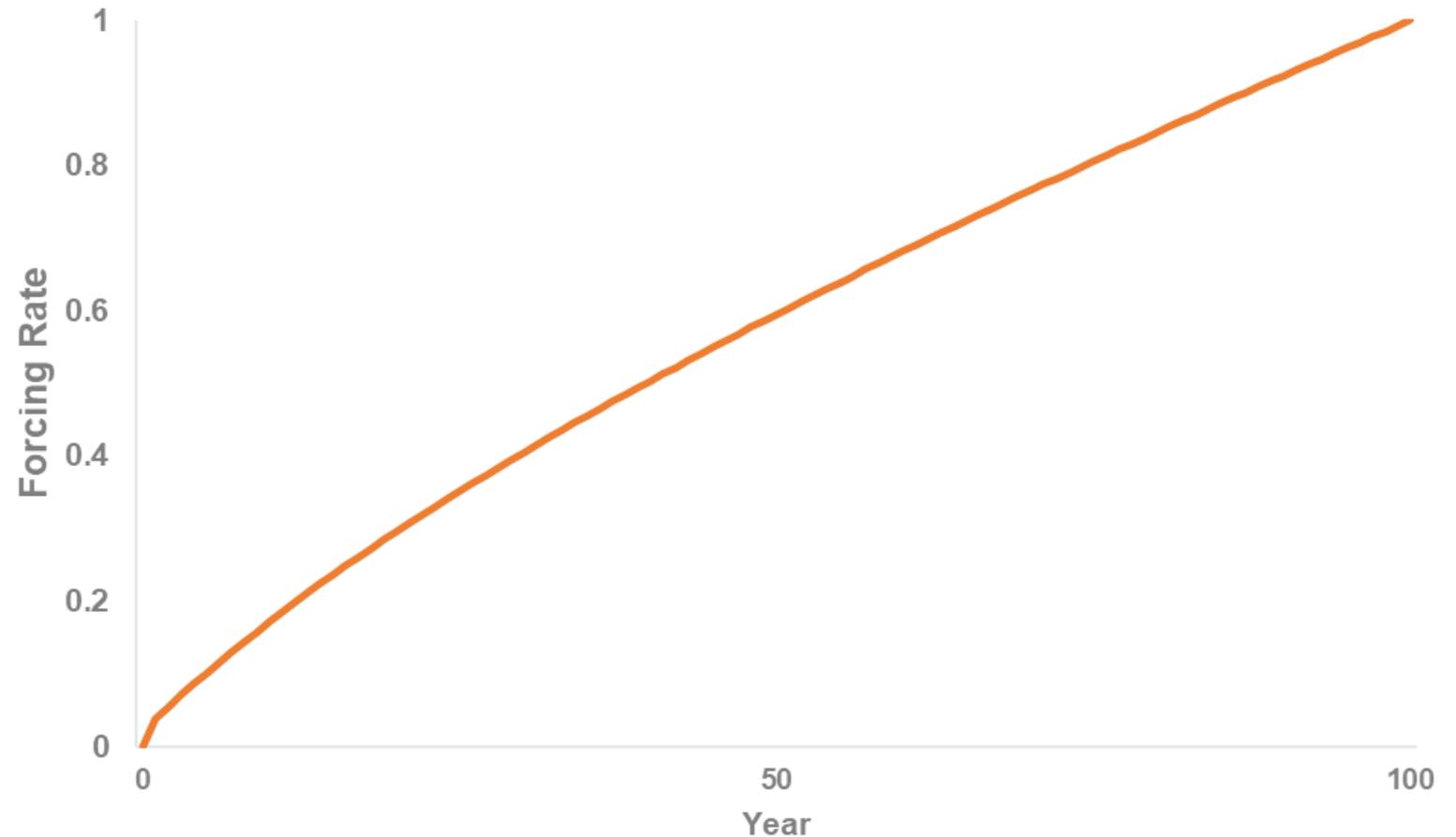
- Projects which capture, destroy, or avoid GHG emissions
- No long-term storage of the captured/avoided GHGs
- An emission avoided or destroyed is eliminated forever
- E.g., avoided fertilizer use

Reversible

- Land use projects (grassland and forestry)
- The carbon contained in biomass can be released at any time
- Needs special measures to be comparable to non-reversible ERs
- E.g., avoided soil carbon emissions

Time value of carbon storage

- Based on the 100 year scale, there is approximately 1% of the total radiative forcing benefit for each year that the carbon remains stored
- This allows for alternative crediting approaches to avoid 100-year commitments
- It also means reversals are less significant over time





Two options for permanence: TTA & TYA

Tonne-tonne accounting (TTA)

- 100-year legal commitment to monitoring and reporting
- Full credit value issued upon successful verification
- Higher cost & reversal risk = higher reward
- Higher risk of reversals and buffer pool contribution
- Reversals are discounted over time based on atmospheric benefits achieved

Tonne-year accounting (TYA)

- 20-year minimum commitment
- No obligation beyond 20 years
- Project Owner may decide on any length of commitment beyond 20 years (0-100)
- Credit issuance is severely limited if no additional commitment is made
- Lower cost and reversal risk = lower/delayed reward
- In-built incentive to stay in the program and continue monitoring/verification in order to eventually receive all CRTs

Compensating for reversals

- Avoidable reversals
 - Due to intent (e.g., plowing for crops) or negligence (e.g., allowing activities which disturb soil carbon)
 - Project Owner pays back CRTs equivalent to the reversal
- Unavoidable reversals
 - Acts of nature, etc.
 - CRTs are paid out of a shared risk buffer pool
 - Projects deposit into the buffer pool between 2% - 16.8% of baseline emissions based on standardized risk factors



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LEGAL INSTRUMENTS

1. Qualified Land Conservation Agreement (QLCA)

- The mechanism by which conversion is avoided and permanence is maintained

2. GHG Reduction Rights Contract

- Involves landowner & QLCA holder (and maybe a 3rd party)
- Establishes identity of Project Owner

3. Project Implementation Agreement

- Contract between Project Owner and registry
- Ensures ongoing monitoring and reporting

Qualified land conservation agreements

- Required for all projects
- The easement terms must prevent the conversion of the project area from grassland
- Perpetual for TTA
- Minimum term of 20 years for TYA
- Protocol includes additional *recommended* provisions:
 - Make ownership of GHG reduction rights explicit
 - Make future encumbrances subject to the PIA

GHG reduction rights contract

- Legally establishes ownership of GHG emission reductions, thereby defining the Project Owner
- May be in the form of easement language
 - Easement holder may take, or explicitly not take, ownership
- May be a separate contract
- May be a combination of contracts
- We have template language in the exhibits to the PIA
- A third party (not the landowner or easement holder) may own the GHG rights

Project Implementation Agreement (PIA)

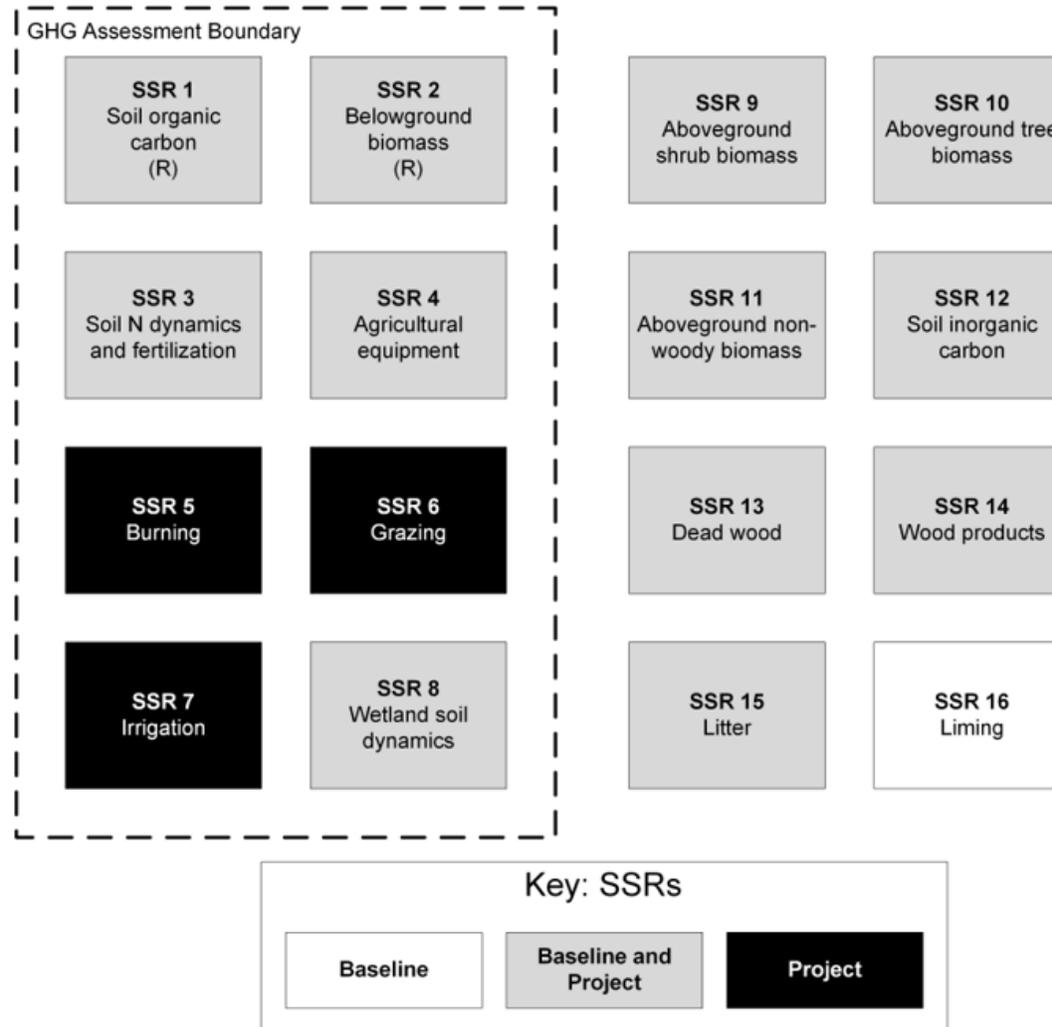
- Contract signed by the Project Owner and registry
- Commits PO to continued monitoring and reporting to avoid reversal determination
- This is the absolute final step during verification before credit issuance
- PIA amendment/extension is how the permanence commitment is extended
- Project Ownership may be transferred, and a new PIA will be executed
- If the PIA is recorded on the property, there is a lower buffer pool contribution
 - For projects under TTA
 - PIA is signed after credit issuance and amended at each subsequent verification
 - For projects under TYA
 - Minimum requirement of one PIA for a term of 20 years after the first reporting period



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QUANTIFICATION

GHG assessment boundary



- Baseline emissions
 - Avoided loss of belowground organic carbon (reversible)
 - Avoided cultivation emissions (N_2O from fertilizer, CO_2 from diesel) (non-reversible)
- Project emissions
 - Grazing (enteric CH_4 , manure CH_4 and N_2O)
 - Electricity & fossil fuels
 - Burning (CH_4 and N_2O)
 - Fertilizer use
 - Leakage (20% for all projects)
 - Wetland mineral soil dynamics
- We are working to adapt our Excel-based GrassTool for use in Canada

Baseline emissions

- Baseline emissions = Reversible + Non-reversible baseline emissions
- Reversible: Organic carbon loss
 - TTA: Credited assuming 100-year permanence
 - TYA: Credited based on length of permanence maintained and committed
- Non-reversible
 - N₂O and CO₂ emissions from use of fertilizers
 - Fossil fuel baseline emissions
- Most baseline emission equations rely on default, area-based emission factors (by stratum)
- Determine acreage in each stratum and use lookup tables to identify appropriate emission factors
- SOC and N₂O factors are provided in 10-year groups

Stratification

- Two steps to identify strata:
 1. Geography & climate (Reporting Zone, RZ)
 2. Soil texture (using FAO Soil Texture Classification)
 - Coarse
 - Medium
 - Fine

- Examples of strata

Stratum	Reporting Zone	Soil Texture
5_Medium	5- Boreal Shield East	Medium
14_Coarse	14 – Mountane Cordille	Coarse

- Standardized emission factors were developed for reporting zones and soil textures across Canada based on Canada's NIR

- Uncertainty of baseline conversion
 - Related to financial additionality test
 - Discount (0-50%) only applied if Cropland Premium is between 40-100%
- Uncertainty of modeling future practices
 - Fixed value, indexed to 2019
 - Currently 1%, increases by 1% every 5 years

Project emissions

- Grazing
 - CH₄ from manure and enteric fermentation, plus N₂O from manure
 - Monitor the category, population, average ambient temperature, and grazing days
- Burning
 - Quantification based on IPCC emission factors for N₂O and CH₄ from savannah burning
- Fossil fuel and electricity use and sources
 - Based on information from Canada's National Inventory Report
- Fertilizer application
 - IPCC default factors
- Wetland CH₄ emissions
 - Default area-based emission factor (80.13 kg CH₄/acre/year)

- **Leakage** = conversion of grassland to cropland outside of the project area
- If there is pressure to convert grassland to cropland, protection of one area could lead to conversion elsewhere
- Upon review of several studies of “slippage” in the US Conservation Reserve Program (10-year contracts to keep cropland out of production), **20%** was chosen as a conservative estimate
 - Assessment of the PFRA Permanent Cover Programs supports the conservativeness of this value (Appendix E)



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ONGOING MONITORING

Annual monitoring

- Overall land use (monitoring for eligibility)
- Soil disturbance (monitoring for reversals)
- Monitoring grazing
 - Highly flexible, allows for conservative estimation without direct data
- Other project emissions sources
 - Farm trucks
 - Pumps
 - Equipment
 - Emissions from recreational activities that wouldn't occur in the baseline

- Project area must be continuous grassland cover for at least 10 years
- Flexible approach to documenting land use history, encouraging multiple forms of evidence, and usually requiring overlap/corroborations between different forms
- GOAL: verifier should be able to reach reasonable assurance of grassland cover for any particular year in the historical period, even if there's not a piece of dated evidence from that period
- The protocol includes a list which is not meant to be exhaustive
- The same mechanism is used for ongoing demonstration of grassland cover

Example forms of historical land use documentation

- Time-stamped aerial photos
- Georeferenced satellite imagery
- Time-stamped historical photographs
- Public records
- Grazing leases
- Haying contracts
- Declarations under oath
- Drone imagery/video

Monitoring ecosystem health

- Projects must undergo periodic assessment of ecosystem health
- Approach must be approved by the Reserve
- First assessment within two first verifications, then at least every 6 years
- Options for complying with this requirement
 - Rangeland Health Assessment Protocol developed by Alberta Environment and Parks
 - An alternative assessment protocol which employs a robust sampling design, assesses widely recognized metrics for ecosystem health, and was developed with input from relevant experts
 - Advanced remote sensing techniques coupled with scientific evidence to support their use for this purpose

Monitoring grazing for quantification of project emissions

- Data to monitor
 - Type(s) of livestock
 - Total animal grazing days per type
- Type of valid documentation
 - Grazing logs
 - Animal purchase and sale records
 - Grazing management plans

Limits on overgrazing

- Must employ a mechanism to safeguard the project against overgrazing
- Reserve approves approach
- Potential mechanisms
 - Presence of terms within the LCA which would be violated in the event of significant overgrazing in the project area
 - Development and adherence to a prescribed grazing management plan, developed to a recognized government or industry standard for long-term grazing management
 - Use of ecosystem health assessments which are frequent and robust enough to identify overgrazing
- All mechanisms should include requirements for monitoring and enforcement, and identify the entity responsible for enforcement



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VERIFICATION

- **Site visits are optional**, but projects must apply a 5% buffer pool contribution until a site visit occurs
 - A single site visit removes the extra buffer contribution
- Verifications without site visits may rely on the documentation options for evidence of land use
 - Land use can be confirmed via remote sensing
- Review documentation for project emissions
 - Burning, grazing, fertilizer use



Reporting & verification cycle

- Reporting period (RP)
 - Initial RP may cover up to 24 months
 - Subsequent RPs may cover no more than 12 months
- Verification period (VP)
 - Initial verification period is one reporting period, beginning with the project start date
 - Subsequent VPs may cover up to 6 RPs, with interim monitoring reports in years without verification activities (similar to forestry)
- Calendar year cycle is recommended, but not required

Cooperative verification cycle

- Single verification period for cooperative
- For a project's first VP with the cooperative, it may start reporting at a date later than the other projects, but all projects end reporting on the same date
- Suggest CD use initial VP to get all projects coordinated on a single schedule for RPs and VPs
- If individual projects cannot meet protocol requirements, they can report zero CRTs and continue to be verified with the cooperative



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AUDIENCE QUESTIONS

Thank you!

<http://www.climateactionreserve.org/how/protocols/canada-grassland/>

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