

Canadian Grasslands Protocol

*Voluntary Carbon Market Opportunity
under US Climate Action Reserve*

Canadian Forage Seed Conference
Edmonton, Alberta
February 26, 2020



Organizational History

- Created to address the need for a national voice on forage related issues and opportunities
- Incorporated in 2008
- Funded entirely through memberships and project administration
- Driven by *Passion for Grassland Systems*



Forage Industry Scope

- Canada's cultivated forages for pasture, feed and seed production account for 33.8 million acres
 - 39% of Canadian agriculture production
 - The next largest crop - wheat - accounts for 20.4 million acres or 23% of cropland acres
- Over 36 million acres of land devoted to native or unimproved rangelands
- ~70 million acres of influence



Forage Industry Value

- The economic value of the Canadian forage industry is \$5.09 billion, third largest crop after wheat and canola.
- A foundation of the dairy and beef industries, creating over \$11 billion in direct value to Canadian farmers
 - *National Forage and Grassland Assessment. 2012. Douglas Yungblut, Ph.D., P.Ag., Yungblut & Associates Inc*



Forage Industry Environmental Impact

- Canadian forage sector provides an indirect value of \$894.5 million - \$1.9 billion annually in Saskatchewan alone
 - *National Forage and Grassland Assessment. 2012. Douglas Yungblut, Ph.D., P.Ag., Yungblut & Associates Inc*



WHY a Grassland Conversion Protocol?

**Between 2006-2011 Census
Years, 6-Million Acres of
Grasslands Were Converted
to Annual Crop Acres**

Carbon Market Context

- In Alberta - carbon offset opportunities for cropland have existed since 2007
- Despite grasslands being a significant carbon store - No Credit Opportunity
- CFGA and Viresco, in partnership with the Climate Action Reserve in the US have successfully established the Canadian Grasslands Protocol for voluntary carbon market opportunities
- Modeled after the US version which has facilitated a number of projects in the US



Major Project Deliverables

1. Complete current state of science literature review (2017-2018)
2. Develop carbon sequestration protocol for Canadian forage production systems (2018-2019)
3. Develop Best Management Practices guide for enhancing carbon storage in forage systems (2018-2020)
4. Pilot protocol deployment on Canadian farms (2018-2021)



A Road Less Travelled...

- Intent was to assign soil carbon sequestration rates to forage management practice
- $\text{BMP } A * \text{Carbon Storage } B * \text{Acres} = \text{Carbon Offset}$
- Nature of the background science was too course – inconclusive on BMP storage rates
- BUT – Science Is Clear – *Grasslands Store Carbon*
- Focus on Protection and Maintenance
 - Avoided Conversion Protocol



2018 CFGA Workshop

Get the Protocol Approved!

CLIMATE
ACTION
RESERVE

CALIFORNIA
OFFSET PROJECT
REGISTRY

VOLUNTARY
OFFSET PROJECT
REGISTRY

CLIMATE
FORWARD▶

CLIMATE
IMPACT
SCORE

NACW
NORTH AMERICAN
CARBON WORLD

RESOURCES

ABOUT US

CANADA GRASSLAND PROJECT PROTOCOL

PROGRAM

PROJECTS

PROTOCOLS

[Adipic Acid Production](#)

[Canada Grassland](#)

[Canada Grassland
Development](#)

[Coal Mine Methane](#)

[Forest](#)

[Grassland](#)

[Mexico Boilers](#)

[Mexico Forest](#)

[Mexico Landfill](#)

[Mexico Livestock](#)

Canada Grassland Project Protocol

The Reserve partnered with Viresco Solutions to develop a Grassland Project Protocol for eligible projects in Canada. The protocol provides guidance on how to quantify, monitor, report, and verify GHG emission reductions associated with the avoided conversion of grassland to cropland. This protocol development effort has been funded in part by the Canadian Forage and Grassland Association. The protocol was adopted by the Reserve Board in October 2019.

- [Canada Grassland Project Protocol Version 1.0](#) (October 16, 2019)
- [Canada Grassland Project Protocol Version 1.0 Summary](#) (Coming Soon)

Protocol Revisions

The Canada Grassland Project Protocol is not undergoing revision at this time.

Protocol Development

The protocol development process for the Canada Grassland Project Protocol involved a multi-stakeholder workgroup, public comments, and responses to public comments. For more information, please visit:

- [Canada Grassland Project Protocol Version 1.0 Development](#)

Canadian Grasslands Protocol

- Estimated Credit Generation
 - On average, one tonne (credit) per hectare
- Revenue will vary with:
 - Location
 - Project setup and activities
 - Risk of conversion to cropping
 - Contracts with project developers
 - Carbon offset sale price



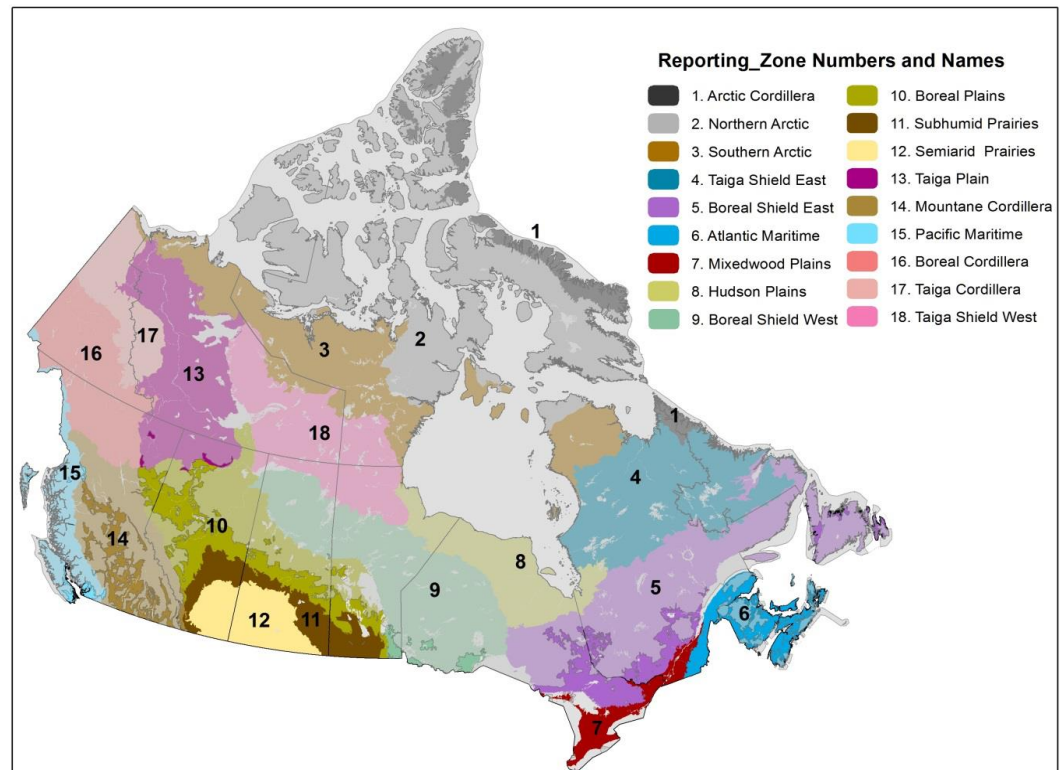
Reporting Zones Map

- Three steps to identify strata:

1. Geography & climate (Reporting Zones)
2. Soil texture (using government soil survey data)
 - Coarse
 - Medium
 - Fine

1. Zone 5: Boreal Shield East
2. Zone 6: Atlantic Maritime
3. Zone 7: Mixedwood
Plains
4. Zone 9: Boreal Shield
West
5. Zone 10: Boreal Plains
6. Zone 11: Subhumid
Prairies
7. Zone 12: Semiarid
Prairies
8. Zone 14: Mountane
Cordillera
9. Zone 15: Pacific Maritime

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Potential Annual Offset Generation for Reporting Zones 11 and 12

Reporting Zone	Acres	160	800	1,600	16,000	80,000
		Potential Offset Credits Generated per Year				
	Soil Texture	(tCO ₂ e/yr)				
11 - Subhumid Prairies	Coarse	49	246	492	4,921	24,605
11 - Subhumid Prairies	Medium	67	337	673	6,734	33,671
11 - Subhumid Prairies	Fine	64	321	641	6,410	32,052
12 - Semi-arid Prairies	Coarse	43	217	434	4,338	21,692
12 - Semi-arid Prairies	Medium	62	311	622	6,216	31,081
12 - Semi-arid Prairies	Fine	76	379	758	7,576	37,879



Eligibility and Additionality Assessment

- Grassland for **10 years** with no current legal protection
- Financially viable for crop production - Land Appraisal
- Land must be **suitable for crop cultivation**
 - LSRS or CLI soil rating: 1-4
 - Slope
 - Water availability and resources
- Minimum total project size: ~ **1 section** (640 acres)
- Can be **multiple discrete parcels**
- Can include Class 1-3 intact **wetlands**



Participation Requirements

- Signing of a **Qualified Land Conservation Agreement**: Easement, Agreement, Servitude or Covenant
 - No breaking of ground
 - Moderate grazing allowed: No Confinement Operations
 - Moderate forage harvest allowed
- Commitment to allow monitoring for full permanence period (to ensure ground is not broken or developed)

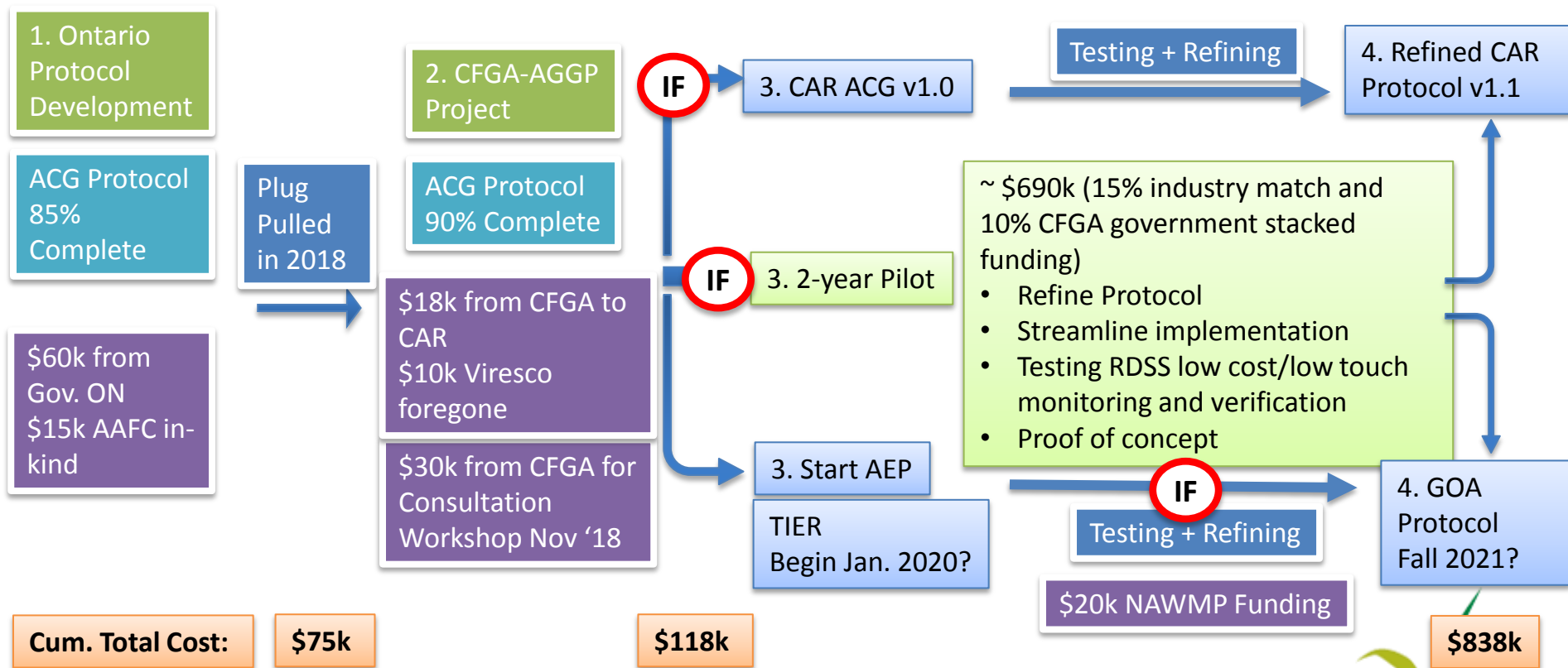


A Series of Firsts

1. First for grasslands and forage lands in Canada
2. First for crediting the carbon from avoided conversion of these lands and retaining the carbon these lands store
3. If approved in Alberta's compliance based market – it is a BIG first!
4. The Regulator in California's Cap and Trade compliance based market will likely approve the US based version



How Did We Get Here & Where Are We Going?



The Pilot Project

- **A two year pilot project targeting 5,000 hectares of grassland across Canada to achieve the following objectives:**
 1. Test and refine the CAR Canada Grassland Project protocol
 2. Learn as a group how to effectively develop projects
 3. Discover options for cost-saving and streamlining
 - Remote sensing
 - Alignment with other programs (e.g. EcoGift)
 - Discover least-cost ways of meeting the protocol's requirements (e.g. Land Appraisal)
 4. Develop a framework for **extension across Canada**
 5. **Proof of concept to help approval of Alberta Grassland Protocol and Environment Canada and Climate Change priority protocol**



Pilot Project Partners



CAR Protocol: Testing how to Streamline and Gain Efficiencies

1. Protocol adaptations

- a. Legal language
- b. Thresholds: Cropland physical and financial suitability, reversal risk

2. Evidence and Contract Requirements

- a. Land Appraisals
- b. Historical and current land use
- c. Qualified Land Conservation Agreement – legal terms and requirements, value, timeframe
- d. Project Implementation Agreement – between CAR and Project Owner for ongoing monitoring

3. Monitoring

- a. Remote sensing options:
 - i. Rangeland Decisions Support System - Low-cost, low-touch
 - ii. Shell Technologies
- b. Alignment with ongoing easement monitoring
- c. Rangeland health assessment streamlining



Landowner Benefits to Joining the Pilot Project

1. Opportunity to generate (approx.) 0.25-0.5 carbon offsets per acre per year for up to 30 years
2. Help shape how this opportunity is developed
3. Significant assistance in developing the project
4. Many upfront costs paid or partly paid
5. Honorarium for participation
6. Learning for all partners



Phase 2:

Towards a Practice Based Protocol

- Implement pilot project
- Refine Avoided Conversion Protocol as necessary
- Establish long-term monitoring methodology, monitoring sites and communications network
- Work towards Phase-2 protocol development to support practice based credit generation



Two Possible Outcomes...

Both Important!

1. Carbon offsets packages created, sold and end up as cash in forage and grassland managers' jeans
2. Support public trust and awareness of the work being done by forage and grassland managers across the country each day to mitigate climate change



So What's In It for the Canadian Forage Seed Industry??



Building a Resilient Cropping System: *Principles*

2. Minimize or eliminate tillage
3. Keep your soils covered
4. Maintain living roots whenever possible
5. Biodiverse cropping systems
6. Integrate livestock
7. Responsible use of fertilizer inputs
8. Responsible use of crop protections



Principle #1

**Continuous Improvement
is the Name of the Game in
Building Resilience...**



Questions, Comments, Ideas?

Cedric MacLeod, MSc, PAg

cedric@canadianfga.ca

506-260-0872

@CFGACPF

@localvalleybeef

