# **Grassland Protocol Public Comment Workshop**

Los Angeles, CA - 4/28/15



Time (PST)	Description
1:00 – 1:10	Introduction and review of agenda
1:10 – 1:30	Project Definition & Ownership
1:30 – 2:00	Eligibility & Permanence
2:00 - 2:45	Quantification
2:45 – 3:15	Monitoring
3:15 – 3:30	Reporting & Verification
3:30 - 4:00	Questions & Discussion
4:00	Adjourn

### **Expectations**



- Staff will summarize key points of the protocol
- Stakeholders are encouraged to ask clarifying questions and provide feedback
- For in-depth comments, please submit in writing
  - Public comments are due May 18<sup>th</sup>
- Please ask questions as we go along if you need us to clarify something
- The presentation will be posted online
- We have a LOT of information to cover!

### Stakeholder Workgroup



- The Climate Trust
- Colorado State University
- Ducks Unlimited
- Environmental Defense Fund
- ESI Inc.
- Independent
- The Nature Conservancy
- SES Inc.
- USDA Natural Resources Conservation Service

#### Staff & contractors



#### Climate Action Reserve

- Derik Broekhoff
- Max DuBuisson
- Teresa Lang
- Sami Osman
- Heather Raven
- Anna Schmitz
- Rachel Tornek

#### **WSP**

- Tim Kidman
- **Colorado State University**
- Dr. Keith Paustian



#### **Process overview**



- May 2014: workgroup formation
- June 2014 April 2015:
  - protocol drafting
  - contractor effort
  - workgroup meetings and reviews
- April May 2015: public comment period
- July 2015: Board adoption of final protocol

# **Protocol organization**

CLIMATE ACTION PESERVE

- Section 1: Introduction
- Section 2: Project Definition
- Section 3: Eligibility
- Section 4: GHG Assessment Boundary
- Section 5: Quantification
- Section 6: Monitoring
- Section 7: Reporting
- Section 8: Verification
- Section 9: Glossary of Terms
- Appendices



# **PROJECT DEFINITION**

# **Project definition**



#### Avoided conversion of grassland to cropland

- Perpetual protection through either a conservation easement or transfer to the federal government
- "Grassland"
  - An area of land dominated by native or introduced grass species with little to no tree canopy. Other plant species may include legumes, forbs, and other non-woody vegetation. Tree canopy may not exceed 10% of the land area on a per-acre basis. Grassland may include managed rangeland or pastureland, but not cultivated cropland.
- Allow grazing, haying, recreation, organic fertilizers
- Prohibit irrigation, artificial drainage, and synthetic fertilizer

### **Project area**



- Only includes land that passes all eligibility screens
- Common ownership for the entire area
  - Single deed
  - Multiple parcels can be protected by the recording of a single conservation easement
- Pre-project ownership:
  - Private lands; or,
  - Non-federal public lands managed for profit and able to be converted

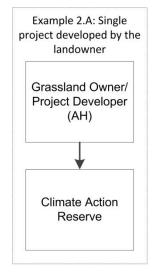
# **Ownership terminology**

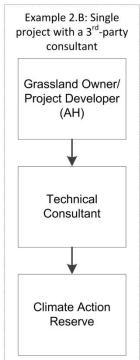


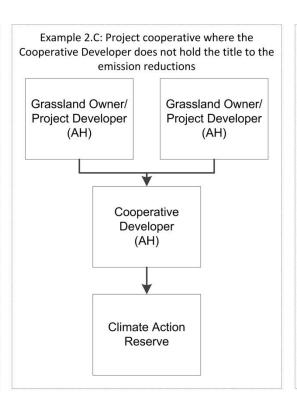
- Grassland Owner (GO): an individual or entity with fee ownership of the project area
- <u>Project Developer (PD)</u>: an individual or entity with ownership of the emission reductions, and that undertakes a GHG project. The project developer may be a GO, the easement holder, or a 3<sup>rd</sup> party; *must have a Reserve account*
- <u>Cooperative Developer (CD)</u>: an individual or entity which submits and manages a cooperative (may be one of the GOs of the project cooperative or may be a 3<sup>rd</sup> party); *must have a Reserve account*

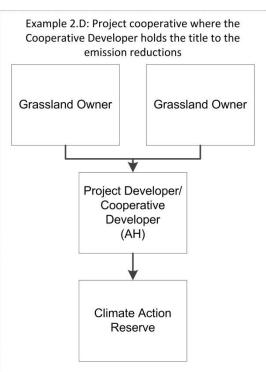
# **Ownership structures**











(AH) denotes an entity which must have an account with the Climate Action Reserve

# **Project cooperatives**



- Multiple projects managed together as a cooperative
- Each individual project will be submitted through the PD's account, which is where CRTs will be issued
  - Will have unique project IDs
- The CD may combine effort and processes related to monitoring, reporting, and verification
- Single verification process and report that covers the entire cooperative (i.e. similar to joint reporting under a single multi-project OPDR, as in ARB Rice Protocol)
- It will be possible to trace specific CRTs to specific projects

# Required legal instruments



- Carbon rights contract (determines PD)
- Indemnification agreement (multiple Grassland Owners)
- Cooperative contract (where applicable)
- Qualified Conservation Easement
- Project Implementation Agreement
- Reserve attestations (signed by PD)
- Other (e.g. contracts for other programs, where relevant)



# **ELIGIBILITY**

# **Eligibility Requirements**



- 1. Location (conterminous U.S., incl. tribal lands)
- 2. Project Start Date
- 3. Additionality
  - a. Performance Standard Test
  - b. Legal Requirements Test
  - c. Ecosystem Services Credit and Payment Stacking
- 4. Project Crediting Period
- 5. Requirements for Permanence
- 6. Regulatory Compliance

#### **Start date**



#### Options for determining start date:

- 1. Date of recordation of a qualified conservation easement (discussed later); or,
- 2. Date of transfer to federal government ownership; or,
- 3. Alternatives for projects in a cooperative:
  - a) Date of notarized execution of cooperative contract; or,
  - Date of notarized execution of carbon rights contract (for projects where the Cooperative Developer is the Project Developer)

# **Performance standard test (PST)**



- Two parts:
  - 1. Financial threshold

Proxy for financial pressure to convert to cropland

2. Suitability threshold

Evidence that land is able to be used for cultivation

#### **PST:** financial threshold

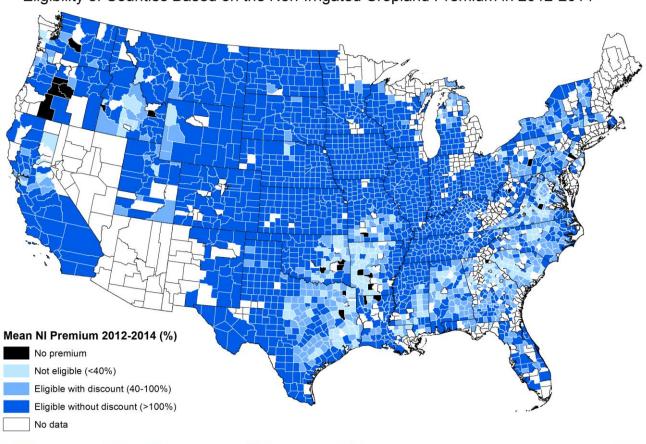


- Apply the difference in county-level cropland and pastureland rental rates as a proxy for the financial pressure to convert grassland to cropland
  - National Agricultural Statistics Service (NASS)
- Eligible without discount if cropland premium >100%
- Eligible with sliding scale discount (0-50%) if cropland premium is between 40% and 100%
- Ineligible if cropland premium is <40%</li>
- Appraisal option remains as an alternative if can't meet standard, or if no data were available

#### **PST:** financial threshold



Eligibility of Counties Based on the Non-Irrigated Cropland Premium in 2012-2014



# **PST: Updates to financial threshold**



- Updated county rent rate data are issued by the NASS every September
- Average three years of data at a time to develop each new threshold map
- New maps/tables issued by the Reserve every October and apply to projects in the following calendar year
  - Example: October 2015 the Reserve issues a list of eligible counties based on the average rent rates for 2014 and 2015.
     This list applies to projects with start dates on or after January 1, 2016.

# **PST: Suitability threshold**



- Must be able to show that the project area is suitable for conversion to cropland
- Using the Land Capability Classification (LCC) identified in the SSURGO database
- At least 75% of area must be LCC I-IV (non-irrigated)
  - May have minor components of Class V or VI
  - There is a typo in this section of the draft ("90%")
- If project wants to apply the irrigated LCC, they must prove that the baseline conversion scenario would be able to include irrigation

# Legal requirement test



- Legal Requirement Test:
  - No pre-existing or subsequent legal requirement to maintain Project Area as grassland, and
  - No legal obstacle to convert Project Area to cropland.
- Concurrent agreements may be permitted under LRT (Section 3.3.2.1):
  - HCPs and SHAs up to 6 months prior to the start date
  - Easements, subject to start date requirements
  - Other ecosystem services payment or credit programs, subject also to Section 3.3.3

# LRT: concurrent legal agreements



- Concurrent agreements and their underlying legal documents must sufficiently demonstrate additionality:
  - Explicit language that Grassland Owner has right to participate in carbon offset project
  - A conservation easement or deed restriction executed under another program or for purpose, other than the carbon offset project, whether or not a payment or credit is received, is subject also to the start date requirements
    - Must be a qualified conservation easement
    - Must express clear title to soil carbon, right to carbon offset credits
- The terms contained in the recorded legal documents are presumed to be comprehensive

# LRT: multiple easements under one agreement



- Some agreements require at least one easement, and allow for multiple subsequent easements for separate parts of the land, e.g., conservation bank agreements.
- Each portion of land covered by a separate easement would be considered a separate project area



# ADDITIONALITY: CREDIT & PAYMENT STACKING

# **Credit & payment stacking**



- Opportunities for landowners to receive multiple payments for ecosystem services that grasslands provide
- Protocol addresses specific opportunities:
  - Credit stacking: Endangered species habitat credits and wetland credits
  - Payment stacking: USDA NRCS and Farm Service Agency conservation programs, NGO payments
- Policies driven by key questions:
  - 1. Which program was entered first?
  - 2. Is stacking allowed by both programs? If yes, then...
  - 3. Can you maintain additionality while providing multiple payments?

# Concurrent credit stacking



- Can concurrently seek to establish a conservation bank or a wetland mitigation bank on the project area
- Grassland owner must ensure documentation (bank agreement and perpetual easement) provides clear language to demonstrate additionality
  - Must show that the potential revenues from the grassland carbon project were considered during negotiation of agreement
- Easement recordation will support both bank and grassland project
  - Date of recordation is subject to start date requirements
  - Easement is subject to protocol requirements
- Conservation/wetland bank agreement will not be considered a preexisting legal requirement
  - Agreement must specify that the Grassland Owner has the right to use land covered by agreement for carbon project

# Subsequent credit stacking



- Can land in a conservation/wetland bank seek carbon credits?
  - Only if it was recent enough to meet the requirements for concurrent stacking
  - One year window for pre-existing projects with easement recordation dates back to July 22, 2013 if easement qualifies (or can be amended) (Section 3.2)
  - Otherwise, since both banks require protecting land in perpetuity, project area would fail Legal Requirement Test
  - After July 2016, adding carbon credit to species/wetland credit not allowed
- Can land in a carbon project seek species/wetland credits?
  - Land used to establish conservation/mitigation banks must not be previously designated for conservation purposes
  - Adding species/wetland credit to carbon credit does not appear to be allowed by the federal agency

# Payment stacking



# Two categories:

- 1. Landscape-scale programs
- 2. Enhancement programs

# Landscape-scale payment stacking



- Prevent grasslands from being converted through long-term contract or easements; payments made based on land value
- Participation in landscape-scale payment program does not automatically preclude a grassland project
- Can concurrently seek conservation easement support from NGOs and can initiate grassland project on enrolled lands
  - Any easement/agreement on the project area is subject to start date requirements and other protocol requirements
- Recordation of a conservation easement to support grassland project apparently disqualifies the land from participation in government payment program, so no opportunity to stack
- Must disclose any payments on an ongoing basis

# **Enhancement payment stacking**



- Short-term contracts that provide cost-share payments for discrete conservation activities
- Enhancement payments do not incentivize permanent conservation of grassland
- Can seek enhancement payments without restriction
- Recordation of a conservation easement to support grassland project apparently disqualifies the land from participation in government payment program, so no opportunity to stack
- Must disclose any payments on an ongoing basis



# ELIGIBILITY: CREDITING PERIOD & PERMANENCE

# **Crediting Period**



- Maximum of 50 years from project start date
- Modeled emission factors are in 10-year increments
- Crediting period ends if no baseline soil carbon emission reductions
- May be ended early as long as permanence is maintained
- Example: Stratum A has 50-yr crediting period, B has 30-yr period

<b>Emission Factor Table</b>	Stratum A	Stratum B
Years 1-10	1.0	0.8
Years 11-20	1.0	0.7
Years 21-30	0.8	0.5
Years 31-40	0.6	0
Years 41-50	0.4	0

#### **Permanence**



- CRTs related to carbon that must be stored in the project area ("reversible emission reductions") are subject to permanence requirements
- Release of stored carbon less than 100 years following CRT issuance is considered a reversal
- Significant reversals lead to project termination
- Ongoing monitoring required for 100 years following credit issuance for carbon stored in soil or biomass
  - E.g. credit issued in year 10 is not "permanent" until year 110

#### Reversals



- The main threat to a grassland project is land use change, which is mitigated by a conservation easement with ongoing monitoring and enforcement
- Avoidable reversals: those due to human actions or reasonably avoidable natural events
  - Project Developer must compensate the Reserve
- Unavoidable reversals: those due to uncontrollable natural forces
  - Compensation comes from the shared risk buffer pool
  - All projects contribute to the buffer pool (discussed later)

#### **Qualified Conservation Easement**



- Required for all projects except those owned by the federal government
- Must be perpetual
- The easement terms must prevent the conversion of the project area from grassland
- Protocol includes additional recommended provisions:
  - Make carbon rights explicit
  - Make future encumbrances subject to the PIA

### **Project Implementation Agreement**



- An agreement between the Project Developer and the Reserve to maintain the permanence of the Grassland project
- Covers entire project area
- Two options:
  - 1. Contract PIA: a contract with the Reserve; subject to additional buffer pool contribution related to the risk of financial failure
  - 2. Recorded PIA: when the Grassland Owner is the Project Developer, they may elect to record the PIA on the land. If this PIA is not subordinated to subsequent contracts, there is no additional buffer pool contribution

### Regulatory compliance



- Projects must be in compliance with applicable regulatory requirements
  - Water quality
  - Livestock management
- Project operator signs Attestation of Regulatory Compliance



# **QUANTIFICATION**



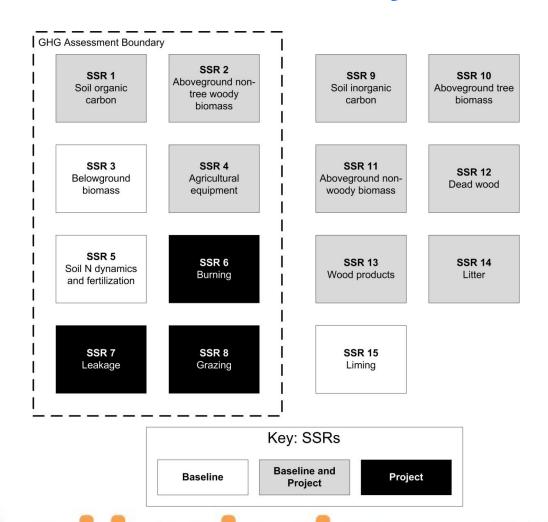
### Quantification



- Emission reductions are equal to the avoided soil carbon emissions that would have occurred in that year, plus the avoided N<sub>2</sub>O and CO<sub>2</sub> emissions that would have occurred in that year, minus the project emissions that actually occurred in that year.
  - Optional accounting for avoided loss of non-tree woody biomass
- Discounts
  - Uncertainty of baseline conversion (DF<sub>conv</sub>)
  - Uncertainty of modeling future practices and climate ( $DF_{\sigma}$ )
- Buffer pool contribution for reversal risk

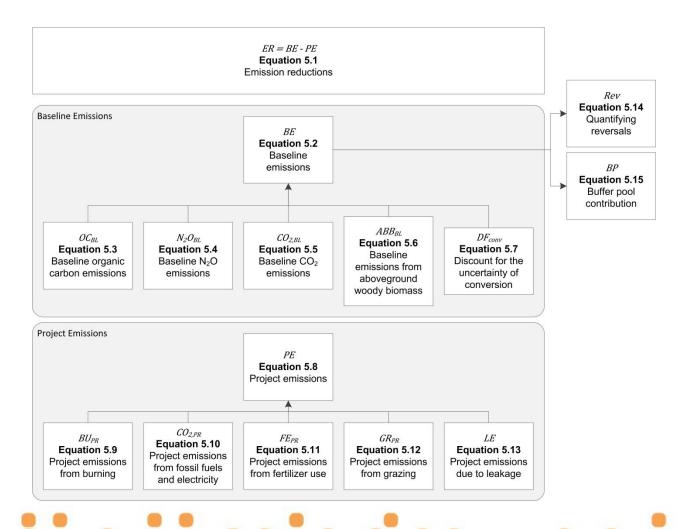
## **GHG** assessment boundary





### **Equations**





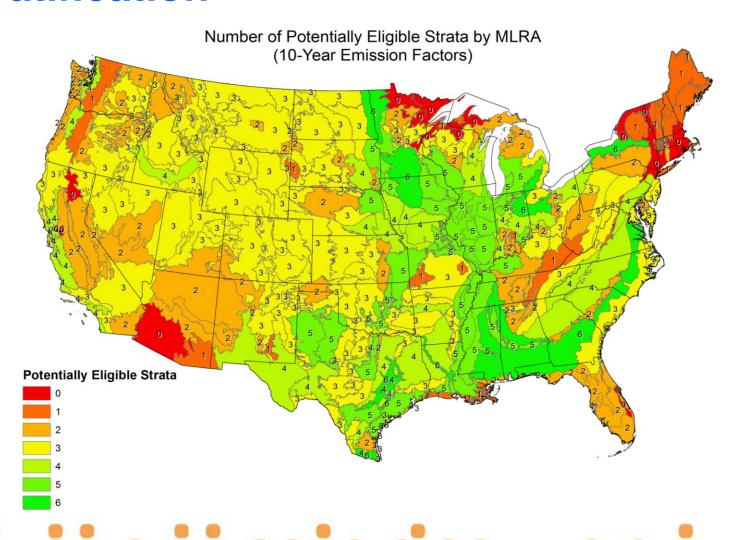
### **Stratification**



- Quantification is carried out by stratum
- Three steps to identify stratum:
  - 1. Geography & climate (Major Land Resource Area, MLRA)
  - 2. Soil texture
    - Sand
    - Loam
    - Clay
  - 3. Prior land use
    - 10-30 year grassland
    - 30+ year grassland
- Example = 1\_Loam\_10

### **Stratification**





### Demonstrating pre-project land use



- To justify the stratification as either 10-30 year grassland or 30+ year grassland
- If Cropland Data Layer is available, use that to identify annual land use
- If CDL unavailable, use one or more of these options:

Contract(s)	Affidavits from unaffiliated parties
Time-stamped photos	Records generated or accepted by a regulatory body
Time-stamped aerial photos	Some combination of these or other options
Tax records	

 We are flexible with these options, but the evidence must cover the relevant time period

### **Baseline emissions**



- Most baseline emission equations rely on default, areabased emission factors (by stratum)
  - Organic carbon loss
  - Avoided N<sub>2</sub>O from fertilizer use
  - Avoided CO<sub>2</sub> from fossil fuels used for cultivation
- Determine acreage in each stratum and use lookup tables to identify appropriate emission factors
- SOC and N<sub>2</sub>O factors are calculated in 10-year blocks
- Fossil fuel use rate is constant
- Non-tree woody biomass has a separate approach

### Protocol companion tables



- Separate Excel spreadsheet available online
  - Paper copy available upon request
- Parameters by stratum
  - Baseline soil organic carbon (10-year factors)
  - Baseline N<sub>2</sub>O (10-year factors)
  - Baseline fuel use
  - Project dry matter (10-year factors)
- Parameters by county
  - Financial threshold eligibility (updated annually)
  - Value for DF<sub>conv</sub> (updated annually)
  - N<sub>2</sub>O leaching status

# **Aboveground non-tree woody biomass (optional)**



- Some sites may have significant carbon in woody shrubs
- Determine initial carbon inventory at project start date and then assume baseline decay following conversion
- Based on approach in the Reserve's Quantification Guidance for Urban Forest Management Projects
  - Remote sensing to determine % canopy coverage
  - On-ground survey to identify species
  - Use published studies to identify carbon-to-canopy ratio for each species
  - Credit for carbon contained in initial inventory based on decay over time, then monitoring to identify reversals

### **Discount factors**



DF<sub>conv</sub>: Uncertainty of baseline conversion (lookup table)

$$\begin{array}{l} \textit{DF}_{conv} = \left(1 - \frac{\textit{CP} - 40\%}{100\% - 40\%}\right) \times 50\% \\ \text{\textit{Where,}} & \underline{\text{Units}} \\ \text{DF}_{conv} &= \text{Discount factor for the uncertainty of baseline conversion} & \% \\ \text{CP} &= \text{The cropland premium for the county where the project is located} & \% \\ 40\% &= \text{The lower threshold for financial additionality (Section 3.3.1.2)} & \% \\ 100\% &= \text{The upper threshold for financial additionality (Section 3.3.1.2)} & \% \\ 50\% &= \text{The maximum value of DF}_{conv} \end{array}$$

DF<sub>σ</sub>: Uncertainty of modeling future practices and climate

Reporting Year	2015-2019	2020-2024	2025-2029	2030-2034	:
Discount Factor (DF $_{\sigma}$ )	1%	2%	3%	4%	



#### Quantification:

# **PROJECT EMISSIONS**

### **Project emissions**



- Burning
- Fossil fuel and electricity use
- Organic fertilizer application
- Grazing
- Baseline leakage

### **Project emissions from burning**



- Monitor area burned during each reporting period (acres identified by stratum)
- Estimate of grass dry matter per acre is provided in the stratum lookup tables
- Woody biomass dry matter based on baseline inventory (if applicable)
- Quantification based on IPCC emission factors for N<sub>2</sub>O and CH<sub>4</sub> from savannah burning

# Project emissions from fossil fuels and electricity



- Monitor fossil fuel and electricity sources (e.g. tractors) and usage
- Default emission factors from the EPA
  - National factors for fuels
  - Regional factors for electricity
  - Updated periodically
- Projects may avoid the detailed monitoring requirements and provide a basic estimate if they can show it is reasonable to assume the emissions are de minimis
  - Less than 5% of the total baseline emissions

### Project emissions from fertilizer use



- Monitor the type, N-content, and quantity applied for all fertilizers (other than grazing manure)
- Quantification based on IPCC default factors
- Determine whether to account for leaching by using county lookup tables

### Project emissions from grazing



- CH<sub>4</sub> from manure and enteric fermentation, plus N<sub>2</sub>O from manure
- Monitor the category, population, and grazing days for all livestock
- Quantification for manure CH<sub>4</sub> is based on Reserve Livestock protocol
- Quantification for manure N<sub>2</sub>O is based on fertilizer quantification and nitrogen estimates from EPA
- Quantification for enteric CH<sub>4</sub> uses state-level estimates developed by the EPA

### Leakage



- Default leakage emissions equal to 20% of baseline emissions for all projects
- Composite baseline scenarios do not lend themselves to project-specific determinations of leakage
- Determining leakage for AGC projects is complex and highly uncertain

# Quantifying reversals and buffer pool contribution



- The quantity of baseline organic carbon tonnes already issued to the specific acres that experienced the reversal
- There are deadlines for notifying the Reserve, quantifying the reversal, and surrendering CRTs (if avoidable reversal)
- Unavoidable reversals compensated from the buffer pool
- Buffer pool contribution is a percentage of organic carbon tonnes to be issued in the current period
  - 2% default contribution
  - 10% if no site visit
  - 10% for risk of financial failure
    - Contract PIA
    - If Recorded PIA is subordinated

## **Buffer pool contribution**



PIA	Site Visit	Default Risk	Risk <sub>FF</sub>	Risk <sub>sv</sub>	Risk <sub>rev</sub>
Contract PIA	Yes	0.02	0.1	0	11.8%
Contract PIA	No	0.02	0.1	0.05	16.2%
Recorded PIA, Subordination Clause Type 1	Yes	0.02	0	0	2.0%
Recorded PIA, Subordination Clause Type 1	No	0.02	0	0.05	6.9%
Recorded PIA, Subordination Clause Type 2	Yes	0.02	0.1	0	11.8%
Recorded PIA, Subordination Clause Type 2	No	0.02	0.1	0.05	16.2%



# **MONITORING**

### Monitoring ongoing eligibility



- Applicable for verifications without site visit
- Two part demonstration that project area remained unconverted during the reporting period
- 1. Review of annual Cropland Data Layer (released every February)
- 2. Supplemental evidence
  - This can include, but is not limited to, the items listed in Section
     5 for demonstration of pre-project land use
  - Rely on professional judgment of verifiers to reach reasonable assurance of current land use without site visit

### **Monitoring grazing**



- Legal limitations on grazing intensity
  - If project easement contains enforceable provisions to limit grazing,
     then not required to have prescribed grazing management plan
- Prescribed grazing management plan
  - Required if no legal limits on grazing intensity
  - Follow NRCS Practice Standard 528: Prescribed Grazing
  - Must identify protection of soil carbon as a management goal
- Monitoring of grazing activities
  - Must document Animal Grazing Days by livestock category
    - AGD = population x grazing days
    - The form of documentation is flexible

# Monitoring woody biomass (optional)



- Only used by projects which elect to quantify emission reductions from baseline loss of woody biomass
- Initial inventory:
  - Use remote sensing to estimate canopy coverage
  - Use ground sampling to develop a ratio of CO<sub>2</sub>e per area
- Ongoing monitoring:
  - Annual remote sensing to confirm canopy coverage

### Monitoring project emissions



- Acres burned
- Animal grazing days by livestock category
- Mass and N-content of fertilizer applied
- Fossil fuel and electricity usage



## **REPORTING & VERIFICATION**

### Reporting & verification cycle



- Reporting period (RP) = the period of time over which emission reductions are quantified
- Verification period (VP) = the period of time over which emission reductions are verified
  - Single VP may cover multiple RPs
- Initial RP may cover up to 24 months
- Subsequent RPs may cover no more than 12 months
- Initial verification period is one reporting period, beginning with the project start date
- Subsequent VPs may cover up to 6 RPs

### Joint reporting of cooperatives



- Cooperative developer shall coordinate monitoring, reporting, and verification activities
- Monitoring and documentation may be combined for efficiency, but must maintain traceability of CRTs to individual projects
- Single verification report for cooperative
- CRTs will be issued to the project developer for each project (which may be the cooperative developer)

### 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

### **Verification activities**



- Site visits are optional, but projects must apply 10% buffer pool contribution until the VP where a site visit occurs
- Verifications without site visits may rely on remote sensing
  - Remote sensing will be used to confirm that the site has not been converted
  - Remote data will confirm maintenance of woody canopy
- Review documentation for project emissions
  - Burning, grazing, fertilizer use

### Monitoring for permanence



- The 100 years following the crediting period is the permanence period
- Monitoring required to identify reversals
  - Periodic monitoring reports to document absence of reversals, status of site activities, and status of ownership relating to the site, the easement, and the soil carbon
- Two options:
  - Monitoring through easement activities where the ongoing monitoring of the conservation easement can be documented. Reports at least every 6 years, verification not required.
  - Monitoring for carbon separately. Reports due at least every 3 years, verification required at least every 15 years.



# **NEXT STEPS**

### **Next steps**



- Submit written comments through the website
  - www.climateactionreserve.org/how/protocols/grassland/
- Reserve staff will prepare the public comment draft
- Public comment period closes Monday, May 18<sup>th</sup>
- Staff will publish and respond to all public comments
- Reserve Board meeting for adoption on July 22<sup>nd</sup>
  - If adopted, we will begin accepting projects immediately

#### **Contact Information**



#### Max DuBuisson

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#### **Reserve Policy Team**

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## **THANK YOU!**

http://www.climateactionreserve.org/how/protocols/grassland/