Grassland Project Protocol Workgroup Meeting 5

February 4, 2015

CLIMATE ACTION RESERVE

Roll call

- Reserve staff
- Contractors

- Workgroup members
  - Joel Brown
  - Adam Chambers
  - Richard Conant
  - Joe Fargione
  - Billy Gascoigne
  - Teresa Koper
  - Robert Parkhurst
  - Richard Scharf
  - Patrick Splichal
  - Peter Weisberg

Agenda

Item #	Expected time (PST)	Description
1	9:00 – 9:10	Introduction and review of agenda
2	9:10 – 9:20	Process update
3	9:20 – 11:10	Protocol review & discussion
4	11:10 – 11:25	Calculation tool
5	11:25 – 11:30	Next steps
	11:30	Adjourn

Process update

- Workgroup reviewing draft protocol
- Technical contractor deliverables completed
- Reserve staff preparing to develop public comment draft
- Board adoption date moved from June to July

Protocol review & discussion

- Project definition
  - Ownership & terminology
- Eligibility
  - Location
  - Project Start Date
  - Additionality: Performance Standard Test
  - Additionality: Legal Requirement Test
  - Additionality: Ecosystem Services Credit & Payment Stacking
  - Crediting Period
  - Permanence
- Quantification
- Monitoring
- Reporting & verification

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PROJECT DEFINITION

Project definition

- A planned set of activities designed to prevent emissions of GHGs to the atmosphere through conserving grassland carbon stocks and avoiding cultivation activities on an eligible project area
- Project area must be grassland that is suitable for conversion
- “Grassland”
  - An area of land dominated by native 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.

Project management activities

- Prevent conversion of grassland to cropland through permanent conservation (easement or public ownership)
- Must meet eligibility requirements
- May not employ synthetic fertilizer amendments
- May not irrigate
- May involve seeding, organic fertilizer, or grazing
- No liquid manure management for grazing animals
- Other compatible recreational and economic activities may be permissible.

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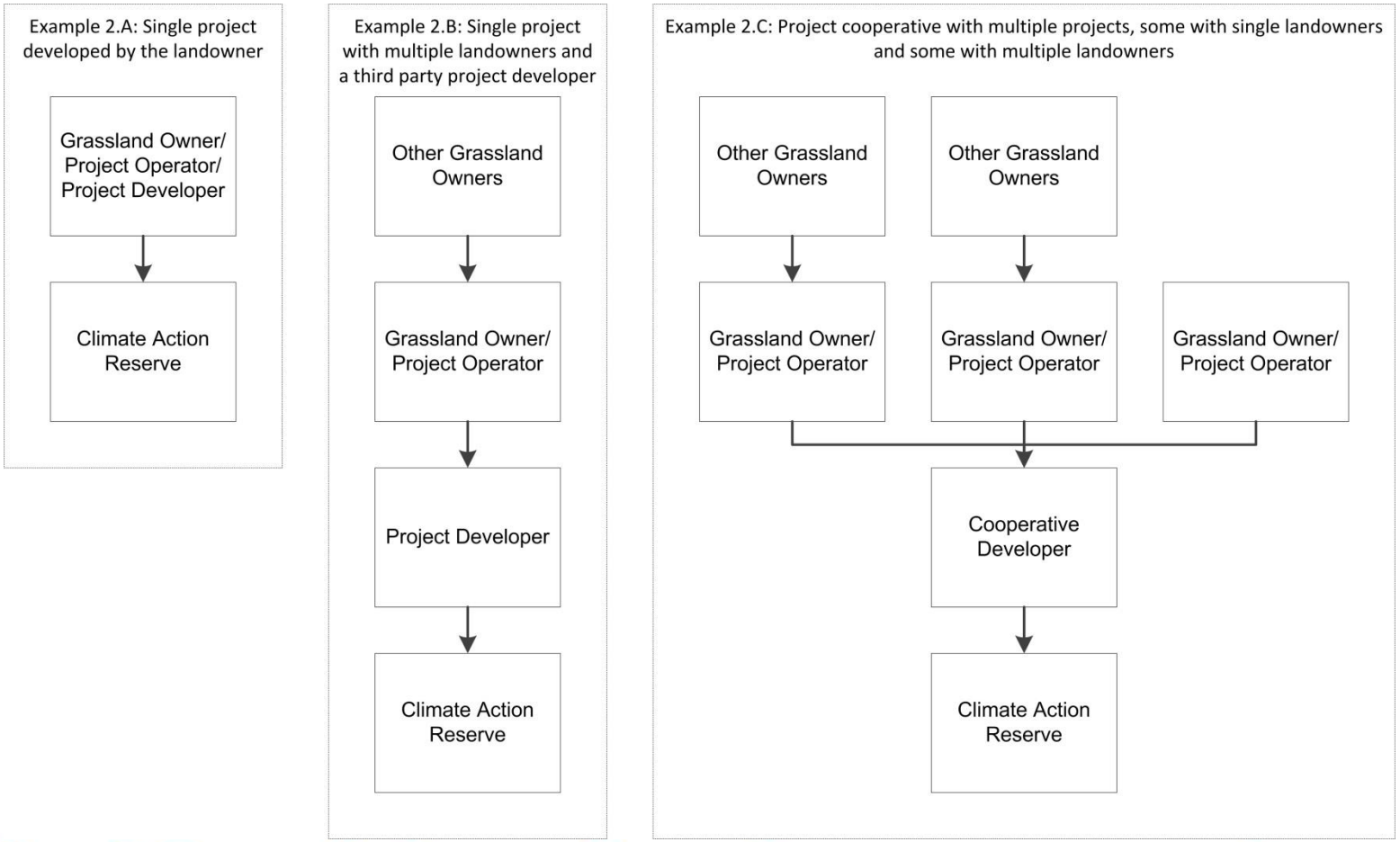
OWNERSHIP & TERMINOLOGY

Ownership terminology

- Grassland Owner (GO): an individual or entity with an ownership interest in the project area (there may be one or many)
- Project Operator (PO): a GO who bears the legal and reporting responsibilities of the offset project; *must have a Reserve account*
- Project Developer (PD): an individual or entity that undertakes a GHG project. The project developer may be a PO or a 3rd party
- Cooperative Developer (CD): the PD for a cooperative (may be one of the POs of the project cooperative or may be a 3rd party); *must have a Reserve account*

Ownership structures



Ownership

- Grassland Owner: an entity with ownership rights to the project area, especially the soil carbon
  - Single project may have multiple owners
- Entities which do not own the land, but who may own development rights which could impact the soil carbon may be included as “Grassland Owners”
  - E.g. mining, drilling, wind power

Cooperatives

- Each individual project will be associated with the PO's account
- 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)
  - Reduced site visit burden
- However, it must be possible to trace specific CRTs to specific projects

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ELIGIBILITY

Eligibility Requirements

1. Location
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

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ELIGIBILITY: LOCATION AND START DATE

Location

- Conterminous United States and tribal lands contained therein
- Land must be privately owned prior to start date
  - We have already received the suggestion to attempt to include non-Federal public lands, and we are evaluating that possibility

Start date

- Action of committing project area to perpetual conservation by recording a qualified conservation easement, or transfer to public ownership
  - Easements are not explicitly required for publicly-owned projects, but we are considering making them required
- Easement requirements:
  - Must refer to and incorporate PIA
  - Must make all future encumbrances and deeds subject to PIA
  - Must make the Climate Action Reserve a third party beneficiary for duration of the PIA
- Sample language on clear title to carbon offset credits

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ADDITIONALITY:
PERFORMANCE STANDARD TEST

Performance standard test (PST)

- Four aspects to determining eligibility
  1. Emission reduction threshold
  2. Financial threshold
  3. Suitability threshold
  4. Existing baseline practice threshold

PST: emission reductions

- Project must generate organic carbon emission reductions
- Determined using the emission factor tables
  - Strata with emission factors that would generate a net gain of soil carbon due to conversion are not eligible
  - Companion tables list all strata and identify them as eligible or ineligible for first emission factor period

PST: emission reductions

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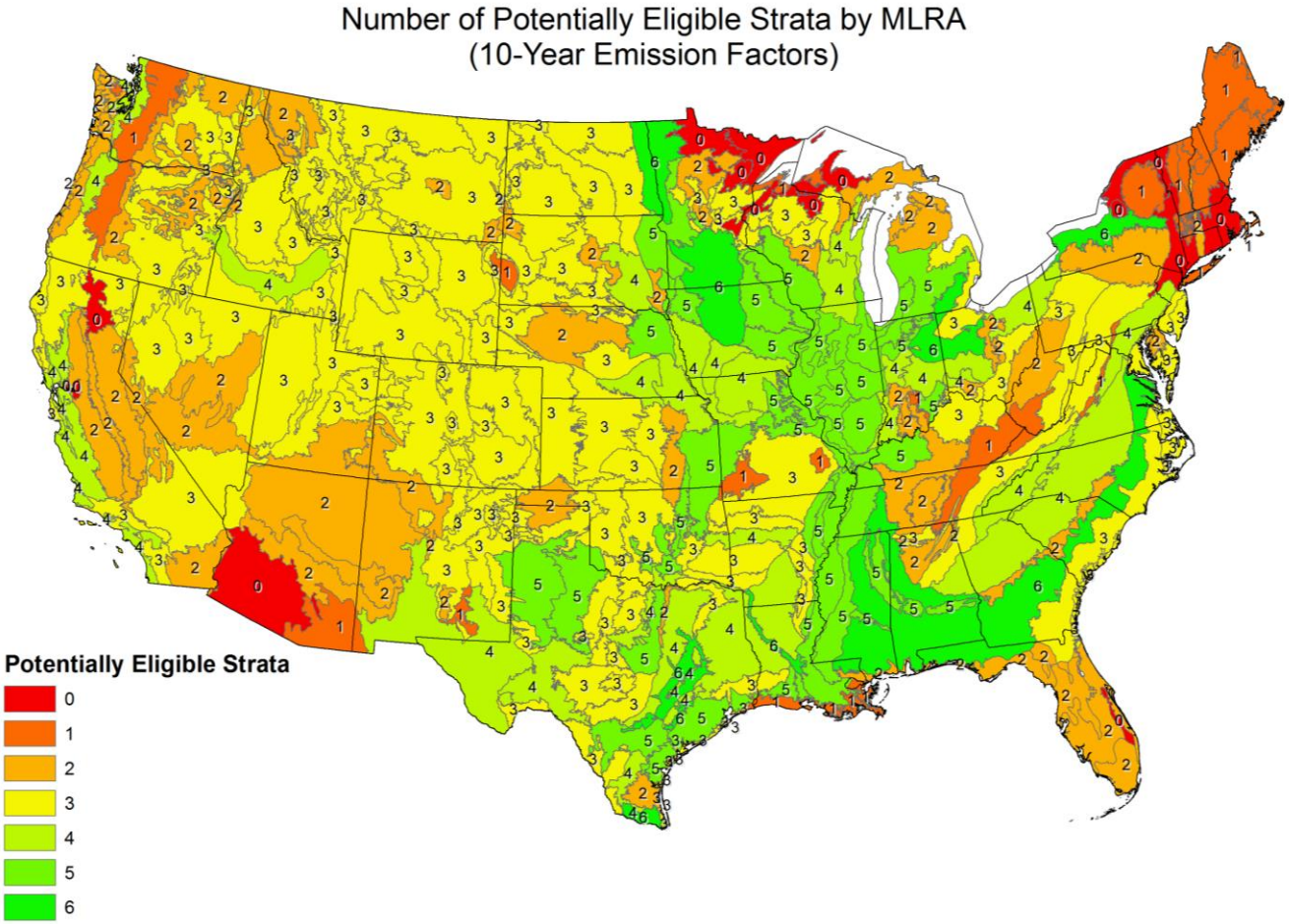

PST: financial

- WG comment draft contains two options, we'd like your feedback
- Both options use the difference in county-level cropland and pastureland rental rates as a proxy for the financial pressure to convert grassland to cropland
- Option 1: percentage-based premium with thresholds from ACR ACoGS methodology
- Option 2: dollar-based premium with thresholds based on conversion rate trend
- Appraisal option remains in either case, applying the relevant thresholds

PST: financial option 1

- 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%**
- Appraisal option remains as an alternative if can't meet standard

PST: financial option 1

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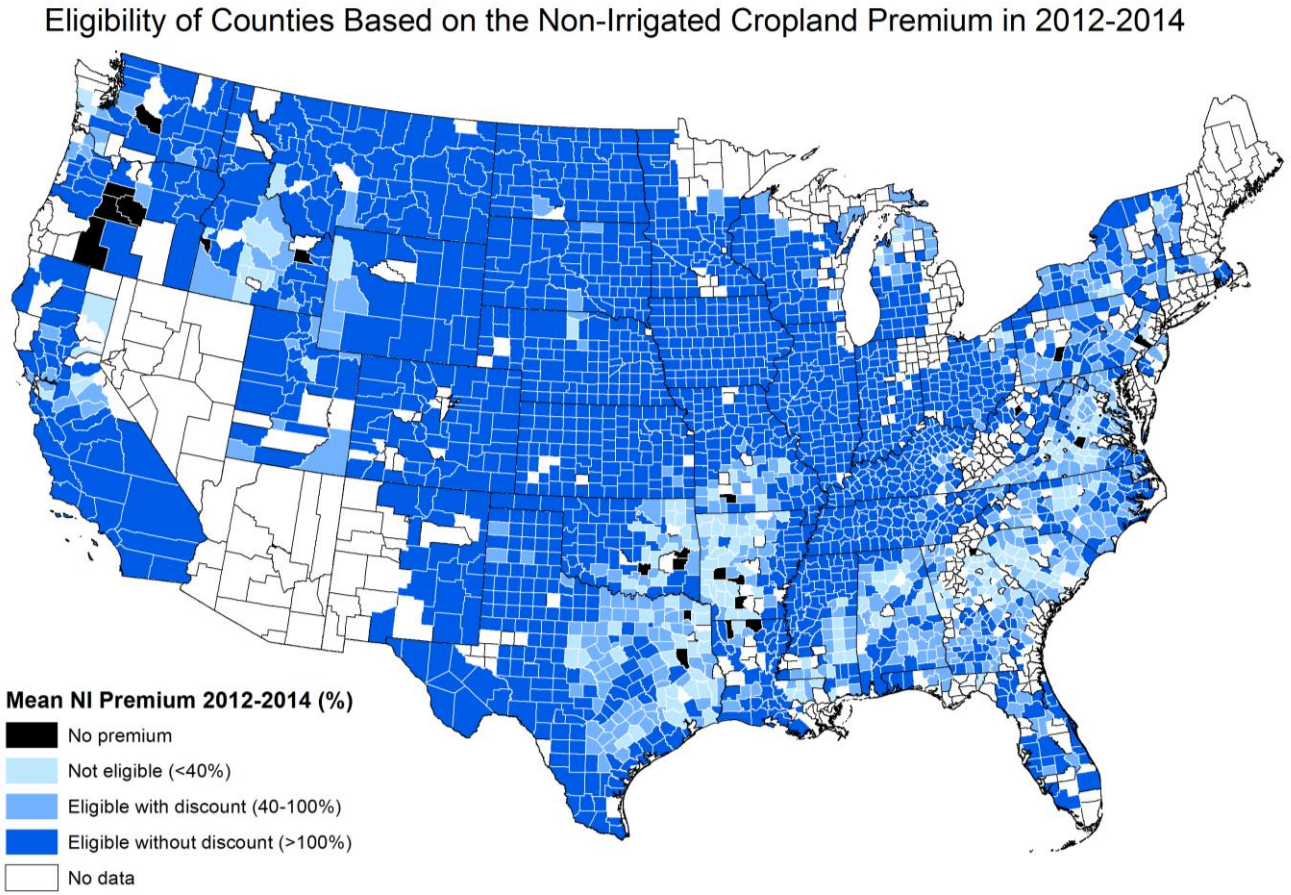

PST: financial option 2

- Eligible without discount if cropland premium **>$11.50**
- Eligible with sliding scale discount (0-50%) if cropland premium is between **$8.50** and **$11.50**
- Ineligible if cropland premium is **<$8.50**
- Appraisal option remains as an alternative if can't meet standard

PST: financial option 2

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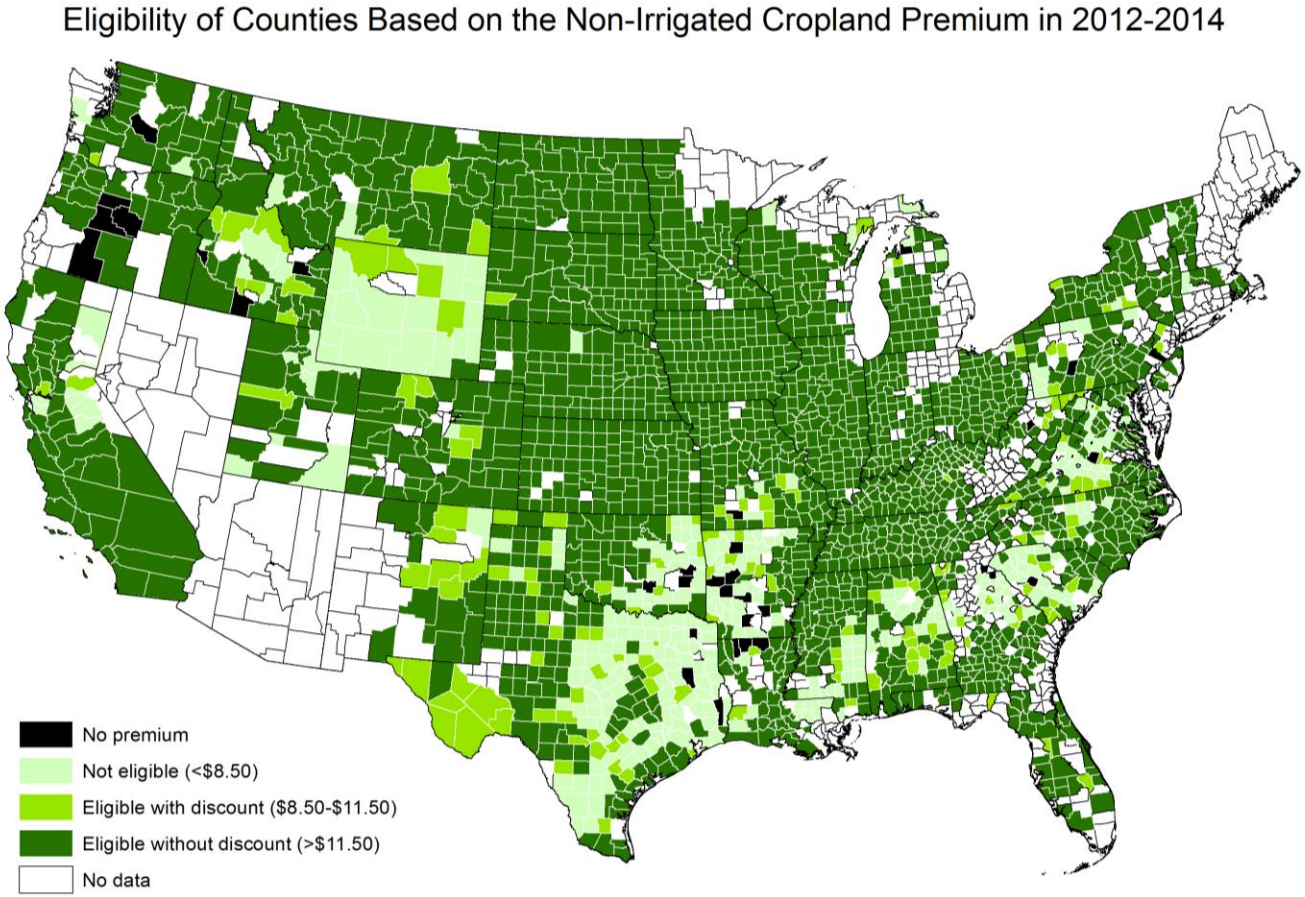

PST: financial option 2

Logarithmic trendline, excluding 2.5% tails

Equation	y = 4.8725ln(x) – 9.8992
R^2	0.1831
x intercept	$7.63

Conversion Rate (%)	
0.5%	**$8.45**
1%	$9.36
1.5%	$10.38
2%	**$11.50**
2.5%	$12.74
3%	$14.12
3.5%	$15.64
4%	$17.33
4.5%	$19.21
5%	$21.28
5.5%	$23.58
6%	$26.13
6.5%	$28.95
7%	$32.08
7.5%	$35.55
8%	$39.39
8.5%	$43.65
9%	$48.36
9.5%	$53.59
10%	$59.38

- When this analysis was run on the % premiums, rather than the $ premiums, correlation was weaker
- 0.5% conversion correlated to a cropland premium of 37%
- 2% conversion correlated to a cropland premium of 54%
- The cropland premium of 100% correlated to a conversion rate of about 4.5%

PST: Updates to financial threshold

- New county rent rate data are issued by the NASS every September
- Propose averaging 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

- Must be able to prove that the project area is suitable for conversion
- Using the Land Capability Classification (LCC) identified in the SSURGO database
- Non-irrigated LCC must be at least 90% I – IV
  - May have minor components of Class V or VI
- If project wants to apply the irrigated LCC, they must prove that the baseline conversion scenario would be able to include irrigation

PST: existing baseline practice

- Use the existence of other areas with similar climate and soil type that are already converted as a proxy for the conversion pressure on the project area
- Standardized threshold based on the percentage of the soil map unit that is already cultivated (using the STATSGO2 map units)
- 5% of the map unit must already be under cultivation
- Reserve will provide a shapefile identifying eligible map units

PST: existing baseline practice

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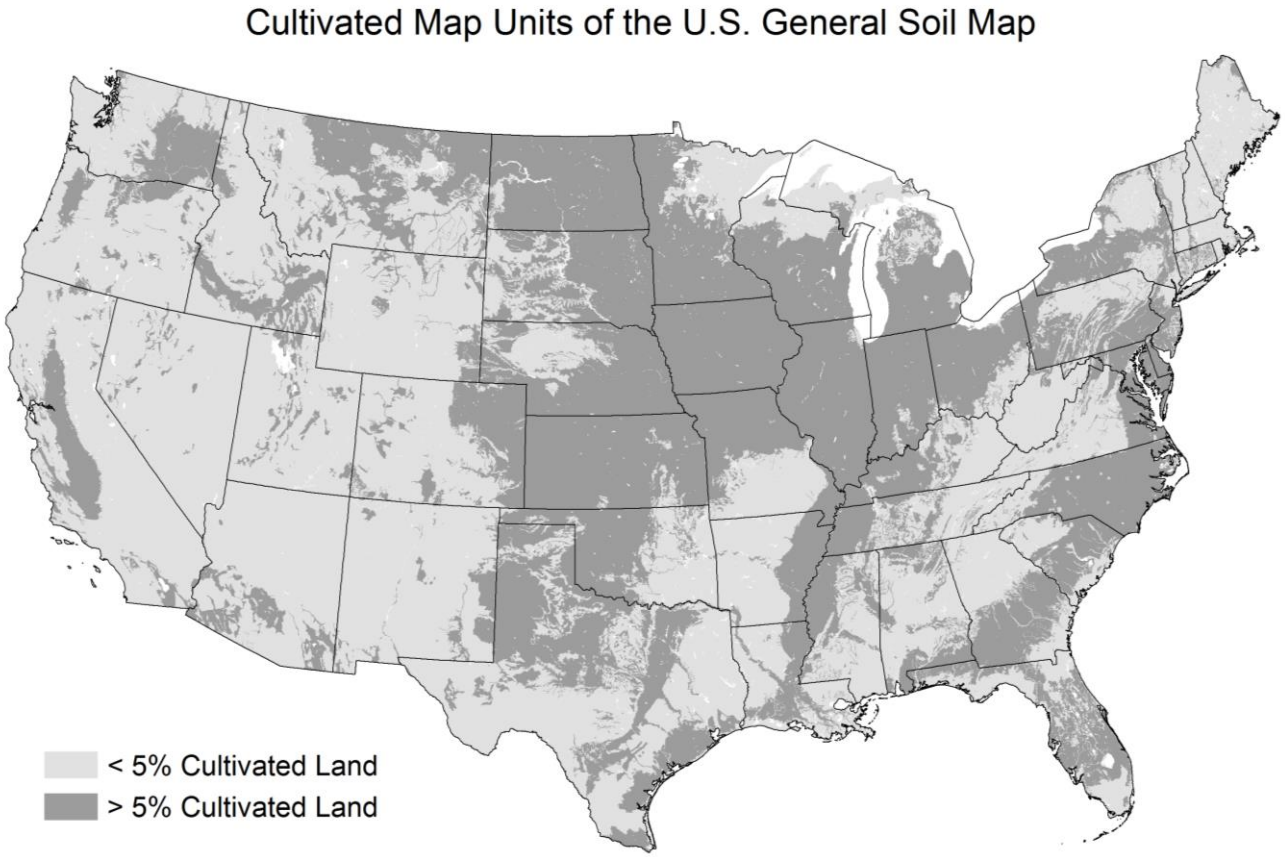

ADDITIONALITY:
LEGAL REQUIREMENT TEST

LRT: permitted concurrent agreements

- 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, subject to 3.3.2.1:
  - HCPs and SHAs up to 6 months prior to the PSD
  - Easements, subject also to PSD requirements
  - Other ecosystem services payment or credit programs, subject also to Section 3.3.3

LRT: requirements for 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 PSD requirements
    - Must be a qualified conservation easement or deed restriction
    - 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.

- Currently each portion of land covered by a separate easement would be considered a separate project area for the purposes of LRT and PSD.

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. Is stacking allowed by both programs? If yes, then...
  2. 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 pre-existing 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?
  - One year window for pre-existing projects with easement recordation dates back to July 22, 2013 if they can amend conservation easement (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; Agency's decision

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 emission reductions go negative
- May be ended early as long as permanence is maintained
- Example: Stratum A has 50-yr crediting period, B has 30-yr period

EF Period	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	**-0.2**
Years 41-50	0.4	**-0.2**

Permanence

- Ongoing monitoring and verification required for 100 years following credit issuance for carbon stored in soil or biomass
  - E.g. credit issued in year 10 is maintained until year 110
- Buffer pool
  - Default contribution of 2% for all projects
  - Additional 10% contribution if the PIA is subordinated to other claims on the deed, e.g., pre-existing mortgages
- “Avoidable” reversals will be repaid by the Project Developer, not a buffer pool
- Reversals on small areas may not require project termination

Project Implementation Agreement

- An agreement between the Project Operator and the Reserve to maintain the permanence of the Grassland project
- Covers entire project area
- Signed by all Grassland Owners
- Recorded with the deed for the property and transfers to subsequent owners

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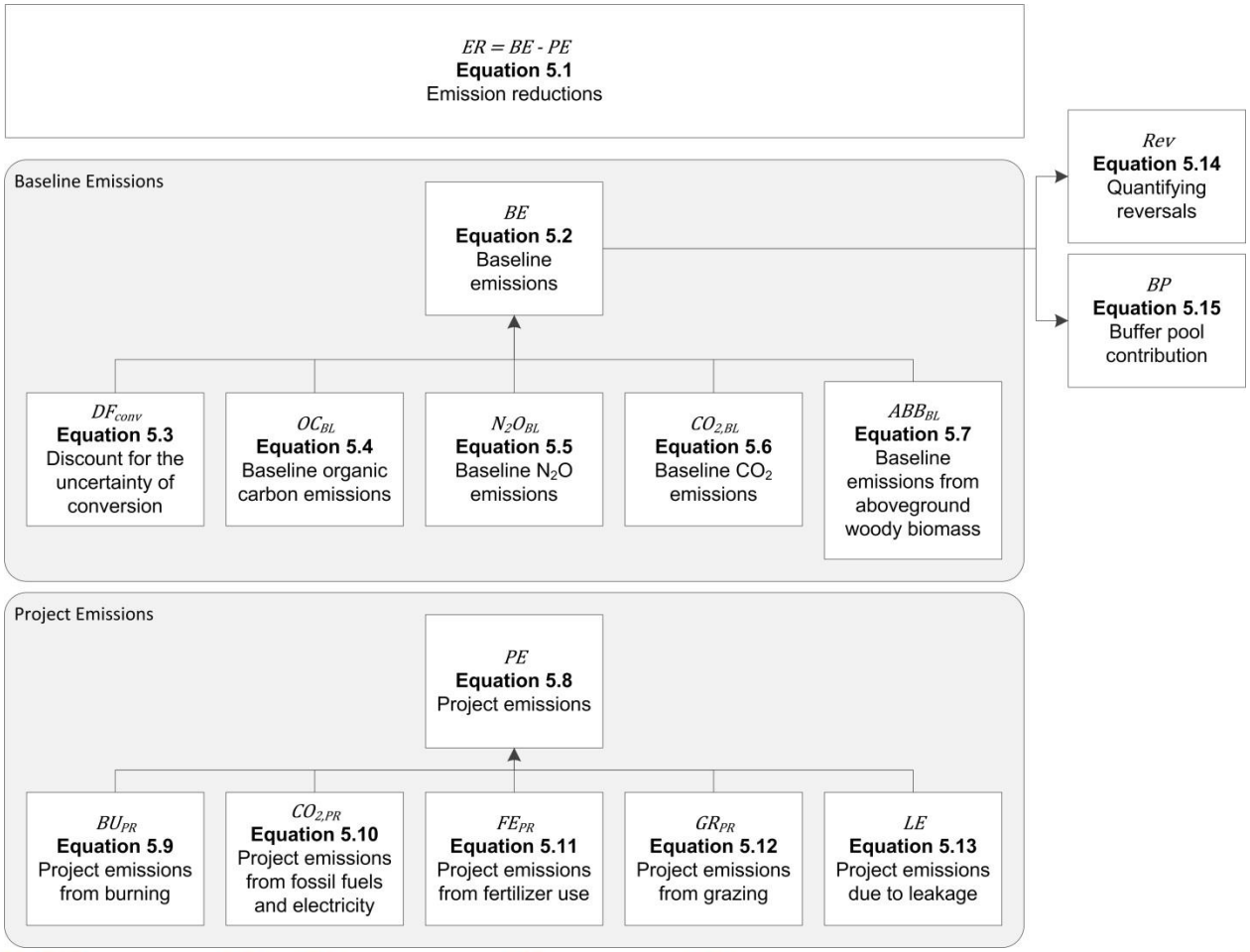
QUANTIFICATION

Quantification

- Emission reductions are equal to the avoided soil carbon emissions that would have occurred in that year, plus the avoided N_2O and CO_2 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_{conv})
  - Uncertainty of modeling future practices and climate (DF_{σ})

Equations


$ER = BE - PE$
Equation 5.1
Emission reductions
Baseline Emissions
BE
Equation 5.2
Baseline emissions
DF_{conv}
Equation 5.3
Discount for the uncertainty of conversion
OC_{BL}
Equation 5.4
Baseline organic carbon emissions
N_2O_{BL}
Equation 5.5
Baseline N_2O emissions
$CO_{2,BL}$
Equation 5.6
Baseline CO_2 emissions
ABB_{BL}
Equation 5.7
Baseline emissions from aboveground woody biomass
Rev
Equation 5.14
Quantifying reversals
BP
Equation 5.15
Buffer pool contribution
Project Emissions
PE
Equation 5.8
Project emissions
BU_{PR}
Equation 5.9
Project emissions from burning
$CO_{2,PR}$
Equation 5.10
Project emissions from fossil fuels and electricity
FE_{PR}
Equation 5.11
Project emissions from fertilizer use
GR_{PR}
Equation 5.12
Project emissions from grazing
LE
Equation 5.13
Project emissions due to leakage

Discount factors

- DF_{conv}: Uncertainty of baseline conversion

$$DF_{conv} = \left(1 - \frac{CP - FT_l}{FT_u - FT_l}\right) \times 50\%$$

Where,

			Units
DF_{conv}	=	Discount factor for the uncertainty of baseline conversion	%
CP	=	The cropland premium for the county where the project is located	($/ac) or (%)
FT_l	=	The lower threshold for financial additionality (Section 3.3.1.2)	($/ac) or (%)
FT_u	=	The upper threshold for financial additionality (Section 3.3.1.2)	($/ac) or (%)
50%	=	The maximum value of DF_{conv}	

- DF_{σ}: Uncertainty of modeling future practices and climate

Reporting Year	2015-2019	2020-2024	2025-2029	2030-2034	2035-2039
Discount Factor (DF_{σ})	1%	2%	3%	4%	5%

Baseline emissions

- Most baseline emission equations rely on default, area-based emission factors (by stratum)
  - Organic carbon loss
  - Avoided N_2O from fertilizer use
  - Avoided CO_2 from fossil fuels used for cultivation
- Woody biomass has a separate approach

Monitoring 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

Woody biomass

- Optional quantification for sites which would have lost a significant amount of non-tree woody biomass due to conversion
- Not accounting for sequestration over time
- Determine canopy coverage (remote sensing)
- Determine the species and the carbon-to-canopy ratio
- Based on initial inventory, credits are issued over time based on decay function (relatively rapid)
- Monitor canopy coverage over time, with periodic updates to carbon-to-canopy ratio, to ensure this pool does not experience a reversal

Project emissions from burning

- Monitor area burned during each reporting period (acres identified by stratum)
- Estimate of dry matter per acre is provided in the stratum lookup tables
- Quantification based on IPCC default emission factors for 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*

Project emissions from fertilizer use

- Monitor the type, N-content, and quantity applied for all fertilizers (other than manure from grazing animals)
- Quantification based on IPCC default emission factors
- Determine whether to account for leaching by using county lookup tables
- The leaching map/tables will be updated for the next draft with more accurate data from the US GHG Inventory team at CSU

Project emissions from grazing

- CH_4 from manure and enteric fermentation, plus N_2O from manure
- Monitor the category, population, and grazing days for all livestock
- Quantification for manure CH_4 is based on Reserve Livestock protocol
- Quantification for manure N_2O is based on fertilizer quantification and nitrogen estimates from EPA
- Quantification for enteric CH_4 uses state-level estimates developed by the EPA

Leakage

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

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 are 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
  - Extra 10% will be required where PIA is subordinated (NOT INCLUDED IN DRAFT PROTOCOL)

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 to prevent overgrazing

- 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
- Legal limitations on grazing intensity
  - If project easement contains language to contractually limit overgrazing, then not required to have prescribed grazing management plan
- Monitoring of grazing activities
  - Must document Animal Grazing Days by livestock category
    - AGD = population x grazing days

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_2e per area
- Ongoing monitoring:
  - Annual remote sensing to confirm canopy coverage
- If we only count non-tree woody biomass, the carbon-to-canopy ratio shouldn't change much over time

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

Verification activities

- Initial verification must include site visit
  - For cooperatives every verification includes site visit to the greater of 3 projects or 10% of projects until all projects have been visited once
- Subsequent verification may rely on remote sensing in lieu of site visits
  - 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

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CALCULATION TOOL

Calculation tool

- Excel-based tool
- All of the equations are included, along with most (if not all) of the default factors
- Each county or stratum is entered in a separate column
- For livestock, currently only supports one animal category per stratum, we will fix this
- ***NOTE**: The leaching lookup is broken in the version we sent to you. You can manually enter the Leach factor based on county lookup table.*

NEXT STEPS

Next steps

- If you want to follow-up on any items from the draft, please get in touch with Max
- Submit any written comments by email to Heather
  - heather@climateactionreserve.org
- Reserve staff will prepare the public comment draft
- Public comment period will begin mid-April
  - Public comment workshop at NACW April 28th, Los Angeles
  - Comment period will be 30 days
  - Staff will publish and respond to all public comments
- Reserve Board meeting for adoption on July 22nd
  - If adopted, we will begin accepting projects immediately

2015 CIG ideas?

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- NRCS has announced they are accepting proposals for 2015 CIGs, focusing on three areas:
  - GHG markets
  - Water markets
  - Green investment products
- The Reserve is interested in partnering on a CIG proposal this year and would welcome suggestions from workgroup members
  - Example: we could develop tools for quantification and MRV for a grassland project
  - Example: we could develop evaluation and quantification criteria for a green investment product

Contact Information

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THANK YOU!

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

ADDITIONAL SLIDES

Defining project area

- Meets eligibility requirements
- Basic (public) map identifies the project boundaries
- Detailed (private) map for quantification must be georeferenced
  - Must exclude areas which do not meet eligibility requirements (e.g. mandatory buffers, easements)
  - Must show roads and watercourses
  - Project area must be divided into polygons by strata

LRT: Renegotiation of Specifically Applicable Requirements

- Reserve may determine, at its discretion, that the terms of an agreement were fairly re-negotiated:
  - Habitat Conservation Plan, Safe Harbor Agreement
  - Deeded encumbrances between unrelated parties

- Original agreement's date must be used for purposes of:
  - Determining PSD (if applicable)
  - Determining whether requirement was "pre-existing".
- New agreement's terms may be used to determine whether the project meets the LRT.

Regulatory Compliance

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

Stratification

- Each project area is stratified based on three aspects:
  - Major Land Resource Area (MLRA)
  - Soil texture (Clayey, Loamy, Sandy)
  - Prior land use (10-30 yrs grassland, or >30 yrs grassland)
- Stratum naming
  - "[MLRA]_[SOIL TEXTURE]_[PRIOR LAND USE]"
  - Example: "1_Loamy_10"
    - MLRA 1 (Northern Pacific Coast Range, Foothills, and Valleys)
    - Soil: Loamy
    - Land use: >10 but <30 years continuous grassland cover

Monitoring project emissions (annual)

- Grazing
  - Animal Grazing Days by livestock category (for the whole reporting period)
    - AGD = population x grazing days
- Fertilizer use
  - Type, amount, and N-content of organic fertilizer applied
  - Excluding manure from grazing animals
- Burning
  - Acres burned by stratum
- Fossil fuels and electricity
  - Sources, types (fuels), and quantity used (e.g. tractor, diesel, 4 gal)