



CLIMATE
ACTION
RESERVE

Reserve CIG Updates:

- Grassland Carbon Protocol
- Forest Carbon Inventory Tool

C-AGG DC

November 30, 2017

Climate Action Reserve CI&G participation



Lead Grantee

R228: Stimulating Grassland Conservation Through GHG Emissions Markets (2015-2018)

R237: Standardized Inventory Methodology and Analytical and Reporting Tools for Forest Carbon Projects (2015-2017)

Sub-Grantee

R169 (EDF): Demonstration of a Scalable Nutrient Management Project to Reduce Nitrous Oxide Emissions and Generate Voluntary or Compliance Greenhouse Gas Credits (2015-2018)

R237 (Terra Global Capital): Creating Value for Producers and Impact Investors through Marketable GHG/Environmental Credits on Range and Pasture Lands (2015-2018)

(Encourage Capital): Jumpstarting Large-Scale Carbon Offset Markets for Working Lands Conservation (2016-2019)



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R228 (2015-2018)

STIMULATING **GRASSLAND** CONSERVATION THROUGH GHG EMISSIONS MARKETS

GRASSLAND: Goals

- Reduce barriers to implementation
- Conduct outreach
- Develop and verify pilot projects
- Update the offset project protocol

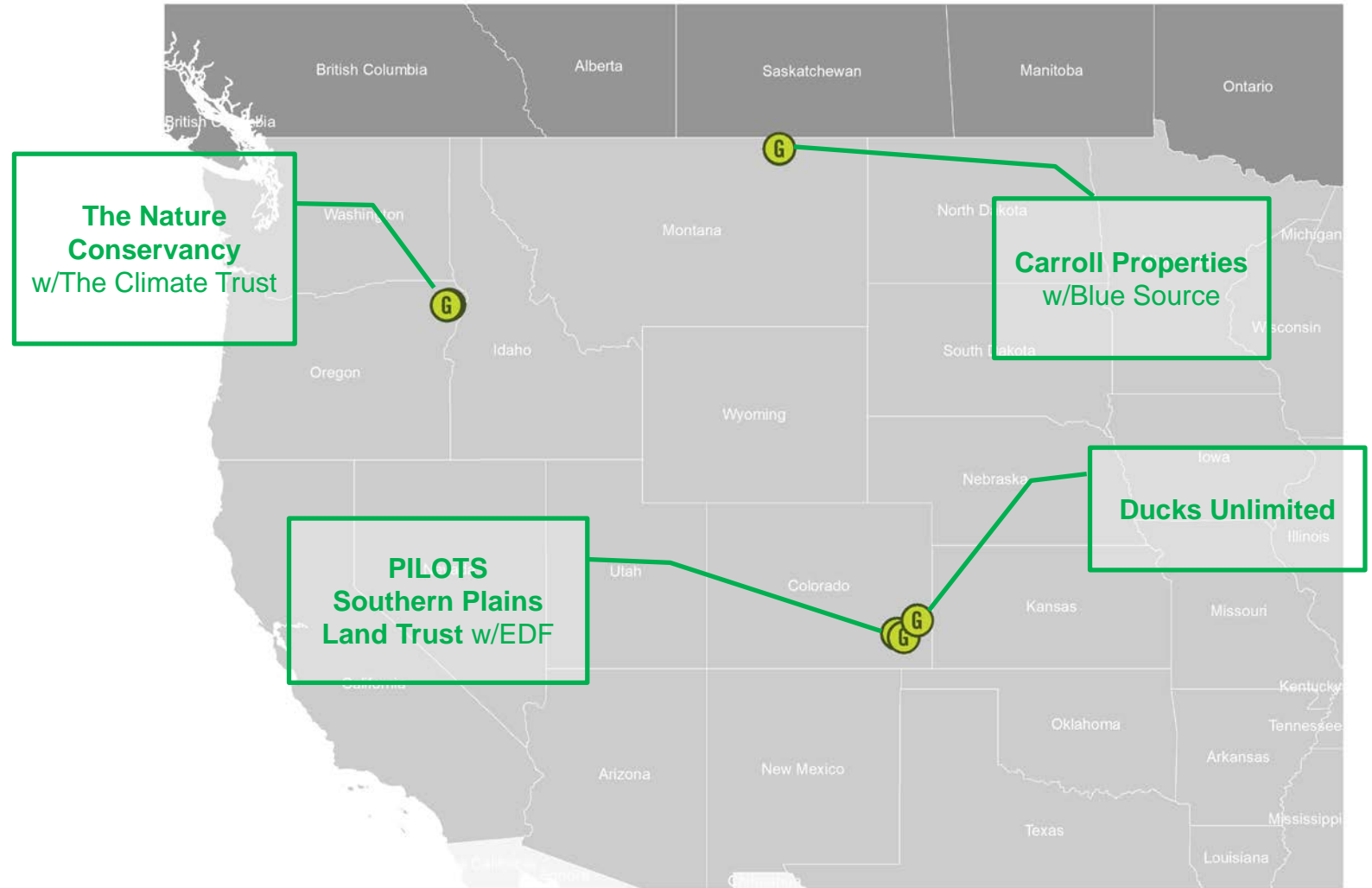


GRASSLAND: Successes

- Project development handbook
- Updated calculation tool
- 4 outreach workshops
 - Nebraska, Oregon, California (x2)
- Two lead verifier trainings
 - Three approved verification bodies now available
- Listed pilot cooperative with 2 projects
 - Verification almost complete
- Adopted Grassland Project Protocol v2.0 (Jan 2017)

Current grassland project activity

- Listed 7 projects
 - Colorado (3)
 - Montana (1)
 - Oregon (3)
- 2 Cooperatives
 - SPLT in CO
 - TNC in OR
- Approximately 42,000 acres enrolled so far



GRASSLAND: Challenges

- Identifying eligible properties
 - Not already protected
 - Decent baseline emission factors
 - Land suitable for crop cultivation
- Slow timeline and complex legal questions related to conservation easements
- Learning curve for initial verification
 - Novel verification questions and situations
 - Documenting prior land use
 - Documenting access to irrigation

GRASSLAND: Lessons learned & next steps

LESSONS LEARNED

- Communication materials are worth the effort
- Tools and assistance are worth the effort
- Targeted outreach is more effective
 - Land trusts
 - Conservation-minded ranchers

NEXT STEPS

- Finalizing pilot verification, expect CRTs in December
- Additional projects are heading toward verification
- Would like to add interactive maps to the website



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R237 (2015-2017)

STANDARDIZED INVENTORY METHODOLOGY AND ANALYTICAL AND REPORTING TOOLS FOR **FOREST** CARBON PROJECTS

FOREST: Goals

- Increase participation in carbon offset market by small- to medium-size forest landowners via cost reduction measures
- Develop standardized inventory methodology
- Create computer application to analyze and report carbon inventory

- Standardized inventory methodology in final edits
- Fully operational version of computer application developed
 - Climate Action Reserve Inventory Tool (CARIT)
 - CO₂ calculations being validated by accredited verification firm
- User guide to CARIT in final edits
- Promotional events held with live demonstration of CARIT
 - Navigating the American Carbon World conference, April 2017
 - 4 outreach workshops in Northern California, October 2017

CARIT The CO2 Calculator

The Climate Action Reserve Inventory Tool: October 27th, 2017

Project: North Coast Example
Description: CARIT Project

Summary Reports: Project CO2, Strata CO2, CO2 Stats, Species Divs

Select a Stratum: High C - Redwood, Medium C - Oak, Medium C - Redwood

Plot Year: 2017

Mng Years: Del Year, New Year, Copy Plot, Grow Plots, Setup FVS

Plot #s: 1, 3, 4, 5, 8, 9, 10, 15, 17, 18, 19, 20

Data Reports: Plot CO2, Tree CO2

Data Tasks: New/Manage Project, Import From Tables, Delete Project, Exp->Xls, Exp->Tbl, View and Manage Strata/Plots, View and Manage Plots/Trees, Compute CO2!, Tree Data Limits, Reassign Plots, View Omitted Plots

CARIT goals:

- Increase access by small and medium landowners
- Reduce costs of:
 - Project development and verification
 - Forest inventory maintenance

CARIT The CO2 Calculator | **CO2 by Plot && Strata**

CARIT Live, Dead & Total CO2 Per Acre Estimates for Strata

Project 2017 : North Coast Example 11/21/2017 4:12 PM

Plot Number	Data Metric	Below Ground	Above Ground	Total Live CO2	Below Ground	Above Ground	Total Dead CO2	Below Ground	Above Ground	Total CO2
Stratum: Medium C - Oak		AA: Northern California Coast Mixed Oak Woodland								
		4 Plots 100 Acres								
All Plots	Per Acre	9.9	82.0	91.9	0.0	0.0	0.0	9.9	82.0	91.9
All Plots	Thsnds	1.0	8.2	9.2	0.0	0.0	0.0	1.0	8.2	9.2
Stratum: High C - Redwood		AA: Northern California Coast Redwood/Douglas-fir Mixed Conifer								
		12 Plots 200 Acres								
All Plots	Per Acre	17.4	156.4	173.9	0.0	0.0	0.0	17.4	156.4	173.9
All Plots	Thsnds	3.5	31.3	34.8	0.0	0.0	0.0	3.5	31.3	34.8
Stratum: Medium C - Redwood		AA: Northern California Coast Redwood/Douglas-fir Mixed Conifer								
		5 Plots 150 Acres								
All Plots	Per Acre	8.2	66.0	74.2	0.0	0.0	0.0	8.2	66.0	74.2
All Plots	Thsnds	1.2	9.9	11.1	0.0	0.0	0.0	1.2	9.9	11.1
Stratum: All Strata		AA: Northern California Coast Redwood/Douglas-fir Mixed Conifer								
		17 Plots 350 Acres								
All Plots	Per Acre	13.5	117.7	131.2	0.0	0.0	0.0	13.5	117.7	131.2
All Plots	Thsnds	4.7	41.2	45.9	0.0	0.0	0.0	4.7	41.2	45.9
Stratum: All Strata		AA: All AAs								
		21 Plots 450 Acres								
All Plots	Per Acre	12.7	109.8	122.4	0.0	0.0	0.0	12.7	109.8	122.4
All Plots	Thsnds	5.7	49.4	55.1	0.0	0.0	0.0	5.7	49.4	55.1

Export to XLS

CARIT functions:

- Import forest sampling data
- Calculate carbon stocks
- Update forest inventory data over time
- Produce various summary reports

FOREST: Challenges

- Complexity of project quantification requirements
 - Calculations dependent on location, tree species/size/height
- Debugging CARIT
 - Internal coding
 - External software (Forest Vegetation Simulator, Microsoft)
- Confirmation of accuracy of CO₂ calculations
 - Internal and external reviews being conducted
 - Iterative process
 - Nearly 12,000 potential combinations of project location and ranges of individual tree metrics that result in different equations and coefficients being applied

FOREST: Lessons learned & next steps

LESSONS LEARNED

- Process to develop complex computer tools takes a long time but is well worth the effort
 - Great interest among landowners for ways to reduce project costs
- Additional outreach needed for promotion post-launch

NEXT STEPS

- CARIT validation completed and final revisions made December 2017
- Standardized inventory methodology finalized December 2017
- User manual to CARIT finalized December 2017
- CARIT and all documentation posted to Reserve's website January 2018
- Promotion via website, social media, email distribution lists and newsletters

Thanks!

Max DuBuisson

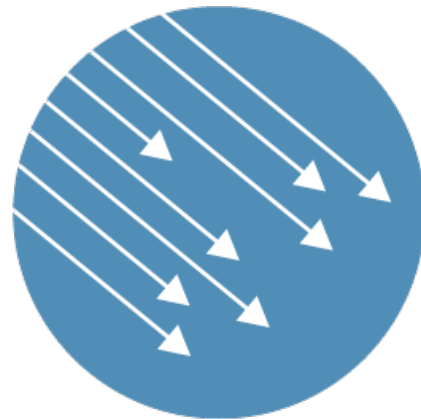
Policy Director

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Join us at North American Carbon World 2018, April 4-6, San Francisco

We are planning two workshops related to agricultural GHG reductions (with EDF and Encourage Capital) on April 4th

www.nacwconference.com



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