Conservation Innovation Grant FINAL REPORT Submitted January 2020 Grant # 69-3A75-16-032



Principal investigator: Ducks Unlimited, Inc.

Co-investigators: <u>American Carbon Registry, The Nature Conservancy, Inc</u>.



Project leader: Billy Gascoigne bgascoigne@ducks.org

Funding provided by USDA Natural Resources Conservation Service, Conservation Innovation Grant.



Natural Resources Conservation Service

EXECUTIVE SUMMARY

This project aimed to expand grassland carbon market opportunities by leveraging the experience of the project partners and focusing on three main objectives:

- (1) Enroll additional acres into carbon offset agreements with new investment
- (2) Model existing acres in Ducks Unlimited's (DU) current portfolio to generate marketable offsets, thereby spurring new demand; and
- (3) Revise the Avoided Conversion of Grasslands and Shrublands(ACoGS) methodology (developing v2.0), held by the American Carbon Registry (ACR)

Significant accomplishments were achieved on all three objectives. With respect to Objective 1, DU was able to execute greenhouse gas agreements with nine new landowners totaling 3,064 acres of atrisk grasslands. Unexpected socioeconomic hurdles were experienced in engaging eligible landowners, keeping us from attaining our original 10,000-acre goal. Landowners expressed consequential unease with the relative uncertainty around carbon market opportunities now and in the future. Our previously tested financial model with proportional option payments to landowners proved insufficient in persuading additional landowners to enroll in the program.

Similarly, our accomplishments were mirrored with challenges regarding Objective 2. An extensive modeling effort was completed and third-party verified, resulting in the issuance of 37,238 grassland carbon credits by the ACR. This represents 22% of all grassland credits generated in the marketplace to date. However, voluntary market demand for these credits proved to be fickle and deficient. Exhaustive sales efforts were made directly to potential end- buyers and industry-leading offset brokers. A small fraction of the total credits was transacted on the voluntary market through private sales. A collective decision was made to retire 18,235 credits on behalf of the Conservation Innovation Grant Program in partnership with the U.S. Department of Agriculture. The lack of private sales, however, limited our ability to funnel new investment into expanding carbon program opportunities for eligible landowners.

As for Objective 3, the project team was successful completing a comprehensive revision of version 1.0 of the ACoGS methodology. The effort focused on improving eligibility criteria, scientific robustness, and lowering transaction costs to further potential uptake of projects. After a thorough public- and peer-review process, the protocol was formally posted by ACR for available use in October of 2019 (<u>https://americancarbonregistry.org/carbon- accounting/standards-</u>methodology-for-avoided-conversion-of-grasslands-and- shrublands-to-crop-production).

BACKGROUND

Over the last century the landscape of the Northern Great Plains (NGP) has seen significant change. Economic incentives and advancements in crop genetics have resulted in record-high plantings of corn and soybeans in the last decade (Gascoigne et al. 2013)¹, corresponding with the decline of native prairie and restored [e.g. Conservation Reserve Program (CRP)] grasslands. This has resulted in the decline of some valuable ecosystem services as well as the available forage base for area ranchers. One of those services, carbon sequestration and retention, is typically surrendered when cultivation occurs due to soil organic carbon becoming oxidized. Innovative ecosystem service markets, such as expanding carbon markets, may provide additional economic opportunities for grassland-based producers to be compensated for the provision of ecosystem services from their operations.

Emerging carbon markets have the potential to provide an additional revenue source to grassland-based producers looking to keep property in grass long-term and subsequently retain important carbon pools. Carbon accounting methodologies based on the avoided conversion of forests were widely adopted by carbon registries in the U.S nearly a decade ago. Following this concept, Ducks Unlimited Inc. (DU), with the support of various partners and a FY2011 Conservation Innovation Grant (CIG) (ID number: 69-3A75-11-138), led the development of the first-ever Avoided Conversion of Grassland and Shrublands (ACoGS) methodology, successfully completing the CIG project. The methodology was formally adopted by the American Carbon Registry (ACR) in the fall of 2013. Concurrent with developing the methodology, DU engaged with landowners in at-risk areas regarding carbon payments and the long-term protection of their working grasslands.

The overarching objective of this project was to continue to improve carbon offset opportunities for grassland-based producers and, through innovation, ensure the provision of important ecosystem services. This project looked to leverage recent successes and lessons learned in developing the first-ever ACoGS issued grassland credits, at the same time furthering overall demand in the marketplace. Specifically, this project identified three main objectives:

- (1) Enroll additional acres into carbon offset agreements with new investment
- (2) Model existing acres in DU's current portfolio to generate marketable offsets, thereby spurring new demand; and
- (3) Revise the v1.0 of the ACoGS methodology, held by the ACR

This report summarizes the successes, challenges, and lessons learned of each.

¹ Gascoigne, W.R., Hoag, D.L.K., Johnson, R.R., and Koontz, L.M. eds., 2013, Dynamics of land-use change and conservation in the Prairie Pohole Region of the United States—Environmental and economic implications with linkages to rural community well-being: U.S. Geological Survey Professional Pater 1800, 65p.

OBJECTIVE 1: Enroll additional acres into carbon offset program

DU was the first-ever entity to develop, be issued, and sell a grassland-based carbon credit in the voluntary marketplace. This was the culmination of years of work engaging landowners, coauthoring a new carbon offset protocol, and facilitating buyer agreements. From 2008-2010, DU was able to enroll 53 landowners spanning roughly 27,000 acres of at-risk grassland in North Dakota. In garnering landowner interest, DU used an option/conveyance payment structure by which landowners were paid a small percentage upfront and then the remainder within a certain time period, proportional to the acres enrolled. This allowed for project managers to aggregate enough project acres prior to committing to various fixed costs to register the project, as well as facilitating buyer interest while limiting financial exposure.

Through this grant and using that same financial structure, DU's carbon team began engaging additional landowners in the same project region of North Dakota with a goal of signing up 10,000 additional acres in the three-year grant period. In total, we were able to sign up nine new landowners with 3,064 acres of at-risk grasslands. In comparison to the original effort, landowners were much less interested in the carbon program opportunity. Landowner consensus was that the marginal, upfront option payment was not enough to warrant them signing up. This was compounded by overall confusion regarding the status of carbon markets and potential opportunities in the future.

The major lesson learned under this objective is that a majority of landowners were not willing to sign up for the carbon program under a two-prong payment scheme with no assurances. This indicates that future carbon project endeavors will require upfront financing to attract participation. This condition could be met from private capital sources, but could also mean added costs (of capital) for project developers. Furthermore, voluntary markets with stable offset demand will be required for project developers and financiers to take on that risk and meet the needs of potential landowners. The limited landowner interest and volatility in the marketplace does not warrant pursing additional signups at this time.

OBJECTIVE 2: Model existing acres in Ducks Unlimited's current portfolio to generate marketable offsets, thereby spurring new demand

As noted, DU's carbon offset portfolio consisted of roughly 53 landowners and 27,000 at-risk acres. For a host of reasons, only 11,000 of those acres have been modelled and verified to date. Under this effort, we parameterized the DayCent biogeochemical model and ran the carbon accounting on the remaining 16,000 acres in DU's portfolio. This work was third-party verified and reviewed by the ACR, resulting in the issuance of 37,238 new grassland carbon credits. This is quite an accomplishment, representing 22% of all grassland carbon credits generated across all approved grassland protocols to date.

The objective of this effort was to spur new demand in land-based carbon credits and deploy any revenue generated into more landowner carbon payments. Being that grassland credits are only eligible for the voluntary market, a marketing and engagement strategy was devised and deployed. This included both business-to-business interaction with potential offset buyers, as well as propositions made to over a dozen of the leading offset brokers (domestic and even international). After exhaustive efforts, 1,920 offsets were sold through private transactions.

Rather than attempting to sell the remaining volume at highly discounted prices into the flat market, DU and the U.S. Department of Agriculture (USDA) collaborated on retiring 18,235 offsets on behalf of the CIG program².

The major lesson learned was that voluntary buyer demand is still very fickle and nuanced. Geography, the year the credit was issued (i.e. vintage), turnaround time for delivery, amongst a host of other variables crippled deals. While bringing credits to market takes time and money, few buyers wanted to wait and/or provide upfront financing. Over the course of the grant, numerous organizations (buyers and brokers) shifted their internal programs and demand stalled. Our experience highlighted a need for the buyer community to better ascertain the difficulty in developing grassland carbon credits and the fact that many vintages are often lumped into one verification to spread out costs. Similarly, buyers commonly are seeking carbon projects "in

their backyard," while seemingly disregarding the fact that greenhouse gases are balanced on a global scale. If public and private institutions are going to further these innovative market mechanisms to the benefit of agricultural producers and private land conservation at scale, offset buyers must expand their understanding of project demands and the larger objectives at hand.

OBJECTIVE 3: Revise the Avoided Conversion of Grasslands and Shrublands (ACoGS) methodology

The third and final objective of this project was to collaborate with key partners on revising the ACoGS methodology held by the ACR. In addition to DU and ACR, expert opinion was elicited from The Nature Conservancy; one of the original authors of ACoGS v1.0. The collective team focused on the following: filling in remaining instruction gaps for project developers, adding clarity to terms and definitions, improving eligibility criteria along with scientific robustness, and lowering potential transaction costs.

Of these focus areas, addressing eligibility criteria was the team's highest priority and the most demanding. Eligibility thresholds in version 1.0 were determined through an appraisal process comparing grassland and cropland values. Not only was this costly and did not provide any upfront assurances for project developers, the team determined that the actual product was not the best indicator of grassland conversion risk. For instance, it was originally conceived that a large gap between grassland cropland values represented a large economic incentive to convert

 $[\]overline{}^{2}$ This retirement also fulfilled the match obligations per the awarded grant.

grassland to cropland; where in fact grasslands that were conducive for crop production would often fetch sales prices closer to cropland and thereby have a smaller sales gap.

To address this, the team focused on actual conversion data and not the drivers themselves. We contracted Dr. Tyler Lark and his modeling team from the University of Wisconsin-Madison to complete a geospatial analysis based on changes in land-cover data. His work followed the approach taken in Lark et al. (2015)³ and relied on USDA Cropland Data Layer (CDL) and the USGS-led National Land Cover Database, along with supplemental data to improve land-change mapping. It was determined that the top 50% of U.S. counties experiencing actual grassland conversion would be eligible for offsets per the protocol. As such, the following map was produced:



Figure 1. Eligible counties (yellow) for ACoGS projects following a detailed geospatial analysis.

Eligibility thresholds are obviously critical, as they determine where projects can be developed and are the vary basis of additionality.

³ Lark, T.J., Salmon, J.M., Gibbs, H.K., 2015. Cropland expansion outpaces agricultural and biofuel policies in the United States. Environ. Res. Lett. 10, 044003. https://doi.org/10.1088/1748-9326/10/4/044003

A summary of all the changes from v1.0 to 2.0 can be found at:

https://americancarbonregistry.org/carbon-accounting/standards-methodologies/methodology-for- avoidedconversion-of-grasslands-and-shrublands-to-crop-production/acr-acogs-2-0-summary-of- changes-publiccomment_posted-20180913.pdf

After a thorough public and peer-review process, v2.0 was published for use in the fall of 2019. It can be found at: <u>https://americancarbonregistry.org/carbon-accounting/standards-</u> methodologies/methodology-for-avoided-conversion-of-grasslands-and-shrublands-to-crop- production/acracog-2-0 2019-10.pdf

IN SUMMARY

This project was successful on many fronts. A new, vastly improved grassland protocol is now available for use by project developers. The new protocol incorporates processes that will greatly lower transaction costs and improve scientific rigor. Over 37,000 new grassland carbon credits were verified and issued, representing 22% of all grassland carbon offsets issued in the marketplace to date. And, lastly, over 3,000 new acres were enrolled into a carbon program, and numerous other landowners provided feedback on what was not palatable to them.

Significant challenges were also endured. Our experience engaging the marketplace for carbon sales revealed an unstable and/or very particular buyer sector. Buyer/broker demands around variables such as vintage, geography, and timing of credit delivery prohibited numerous sales from taking place. Without the anticipated revenue from private sales, we were unable to funnel new investment into at-risk landscapes and sign up additional landowners. Furthermore, landowners were not interested in our original two-prong payment framework that had proved successful in years prior, hindering our ability to reach 10,000 new acres. In order to expand these opportunities for producers in the future at the required scale, stable demand must be restored in the voluntary market and recognition needs to be given to the scale at which greenhouse gases are balanced.

The project team is very grateful for this opportunity provided by the CIG program at USDA. We applaud the innovative charge of the program and devotion to furthering private lands conservation in conjunction with production agriculture. The program's leadership in this space was exemplified by the partnership with DU to retire over 18,000 certified grassland offsets. We are also thankful to the numerous individuals that aided our collective efforts seeking to improve environmental market opportunities through this grant.