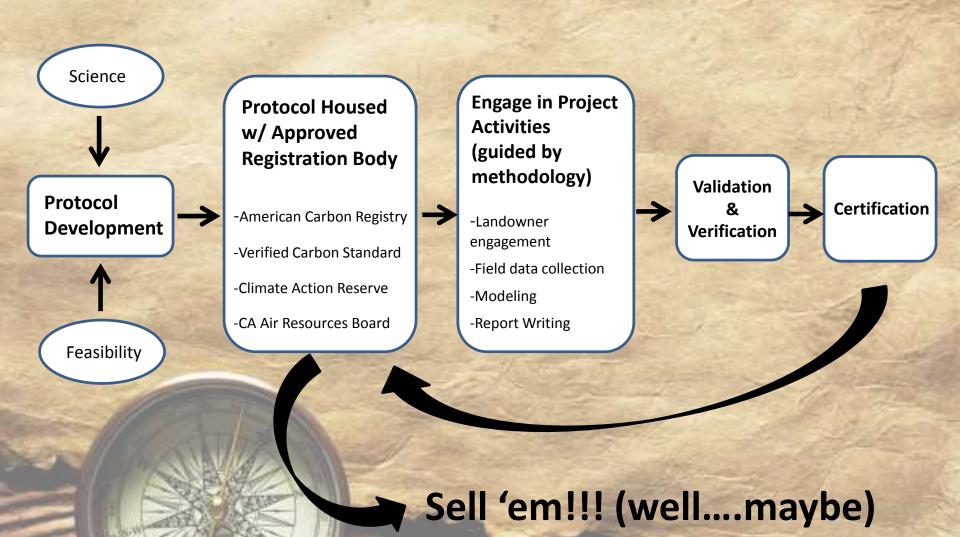
GENERATING GRASSLAND CARBON OFFSETS:

OVERVIEW, REALITIES, AND RECOMMENDATIONS



Navigating the Carbon Markets



DU's Carbon Program—Background

Waterfowl depend on healthy and abundant grasslands for breading and raising young



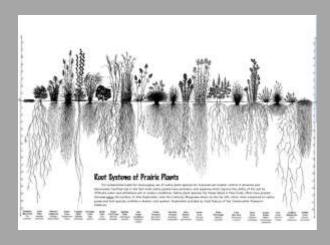
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Program Background

Grassland and intermixed wetlands provide a myriad of benefits beyond waterfowl.....other wildlife, water quality, flood mitigation, economic base (e.g. ranching & recreation), & CARBON!









Project Region

The Prairie Pothole Region... "The Duck Factory"

Also the most Endangered Ecosystem in North



DU's Carbon Program—Avoided Conversion of Working Rangelands









DU's Grassland Carbon Program—Overview

- Landowner engagement started back in 2008 & 2009
 - 6 counties in central/south-central ND
 - > 29,000 grassland acres (78 different landowners)
- ACoGS methodology development, formally adopted by ACR in fall of 2013
- Verified and certified 40,000 carbon offsets in 2014—the first and only certified avoided grassland conversion credits in the world.





Challenges

- Economics
 - HIGH transaction costs, inconsistent demand, upfront investment, scale, NPV, etc.
- Demands of protocols—required expertise in real estate, law, economics, biology, biogeochemistry, soil physiology, and remote sensing...
- Unknowns—science (e.g. land mgmt. practices), tools, land economics, markets…..equates to risk.
- Scalability of grassland offsets—restored grasslands excluded from marketplace,
 predicting the alternative scenario, cost of conservation agreements
- Stagnant voluntary market—credit volumes steady, but limited buyer entry





Overcoming Challenges

■ Transaction Costs:

- Revising protocols: utilizing public data (assessing suitability), condensed modeling platforms, spatial imagery (verification), ease of aggregation
- ➤ Bolstering the market itself and true value of benefits (revenue side)

Risk:

- Financial/Market—Altered landowner contract structures (pros/cons), forward contracting with buyers
- Internal/Crediting—Internal insurance policies (e.g. reserve accounts at registries), diversified beyond carbon markets





Key Takeaways

- Land-based agricultural offset projects have been proven beyond pilot project phase
- Making large improvements, many more needed
- Landowner participation not major constraint if incentives are realized early on and burdens remain with PDs.
- Double edge sword-----If we don't get a handle on transaction costs and risk, we not only will struggle to get project developers to enter the market, but will inevitably limit landowner participation as well.

Thank You.

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