Project Title: Is Conservation Banking a Feasible Tool for Rehabilitating Threatened Species?
Analysis of Conservation Banking and Creation of a Banking Model to Conserve the Greater Sage-Grouse in Montana.

Student Proposer: Bradley Bowers, MESM 2017
Client: American Prairie Reserve (APR), Bozeman MT
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Proposed Project:

a. Objectives
1) Identify common practices of successful conservation banks in the western U.S., with special focus on a review of the conservation banking model for sage-grouse established in Wyoming in 2014. Perform relevant economic analyses of all data.
2) Perform spatial analysis of the American Prairie Reserve’s current properties to identify potential areas to apply conservation credits, and analyze current and future land practices within Montana in order to assess and project demand for conservation credits.
3) Develop recommendations, based on economic, spatial, and ecological analyses for the American Prairie Reserve on the feasibility of conservation banking as a tool for them to conserve the greater sage-grouse. Create a model bank that implements “best practice” findings applied specifically to their current and projected-future situations.

b. Significance:
The greater sage-grouse (Centrocercus urophasianus), is an iconic species of the American prairie. These upland birds are entirely dependent on vast expanses of healthy, contiguous sagebrush habitat for their survival. Males are known for elaborate mating dances on breeding grounds called “leks”. Due to their dependence on sagebrush for food, shelter, and nesting sites; a healthy grouse population is an indication of the health of the entire sagebrush ecosystem. This ecosystem also supports mule deer, elk, pronghorn antelope, golden eagles and hundreds of other mammals, birds, reptiles and amphibians.¹ Sagebrush ecosystems have been greatly impacted by development during the 20th century, with a 50 percent reduction in area since 1800.² Due to habitat disturbance and declining bird populations, the U.S. Fish and Wildlife Service (USFWS) undertook a review to see if the grouse warranted federal protection under the Endangered Species Act (ESA).

Due to collaborative conservation efforts of state governments, environmental groups, and private landowners, in 2015 the USFWS declined to list the grouse as endangered. This decision marks a different approach to managing threatened species in the U.S.: namely an expansion of local efforts in lieu of federal action under the ESA. The success of local conservation efforts is critical for both the sage-grouse and the future of state-led conservation plans.

¹ http://www.fws.gov/greaterSageGrouse/PDFs/GrSG_Finding_FINAL.pdf
Conservation banking is a free-market approach to conservation intended to increase the populations of threatened species while simultaneously fostering land development. Land uses requiring a state or federal permit, such as grazing, mining, and oil and gas extraction that cannot avoid disrupting sage-grouse habitat would be required to purchase credits from a conservation bank. The conservation bank would then use these credits to mitigate the buyer’s impacts by protecting the species at another location. This approach seeks to incentivize and reward landowners of critical habitat instead of making them bear the costs of conservation.

Background:

Since the 19th century, sagebrush ecosystems have suffered fragmentation and degradation due to resource mining and energy development. Conversion of sagebrush to cropland, the spread of invasive grasses (specifically cheatgrass which results in more frequent and intense fires), and nest predation have also contributed to the grouse’s decline. Sage-grouse require large swaths of sagebrush with annual ranges encompassing more than 2,700 km². Movement within breeding habitat can exceed 25 km, and seasonal ranges can be over 80 km apart (Garton et al). Due to these requirements, fragmentation and destruction of sagebrush habitat from development and wildfire are critical drivers of population decline.

In 2015 the State of Montana issued an executive order to implement the Montana sage-grouse Habitat Conservation Program. Their plan includes new restrictions on density of development, seasonal and noise controlled surface use restrictions, prohibitions on sagebrush eradication, and lek buffers. Mitigation banking has been proposed and approved as a method of conservation under the executive order. This would be the first conservation banking system established in Montana, and only the second created for the greater sage-grouse nationally.

The American Prairie Reserve was created with the goal of becoming the largest wildlife reserve in the lower forty-eight states. It currently spans 305,000 acres of deeded private and leased public land. The APR intends to eventually acquire and manage a further 500,000 private acres which, when joined with existing public lands, will total approximately 3.5 million acres of unfragmented prairie grassland. The APR’s current holdings overlap with designated core sage-grouse habitat, and creating contiguous prairie landscape aligns perfectly with APR’s other conservation efforts. The Reserve, it seems, is in a unique position to take advantage of a conservation banking system which could financially bolster its conservation efforts.

Prior to pursuing this opportunity, the feasibility, and profitability of successful banking must be thoroughly vetted. California was the first state to implement conservation banking, and experiences there have varied widely. According to a Stanford University study, a vast majority (91%) of California conservation banks were created with money as the main driver, not conservation. These banks were split between both nonprofit (38%) and for-profit (62%) organizations. Profitability of these banks

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4 http://www.americanprairie.org/aboutapf/faqs/
5 http://teebforbusiness.earthmind.net/files/Status_of_Species_Conservation_Banking_in_the_United_States.pdf
varied, although the likelihood of breaking even on funds initially invested was much higher for banks owned by for-profit groups. Only 8% of financially driven, nonprofit banks reported breaking even. Costs, time to establish the bank, and internal expertise may all be factors which favored for-profit entities, however there has been limited analyses of underlying reasons for these trends. These findings should not, however, automatically preclude nonprofit organizations like the APR from conservation banking. Instead they should be used as guidance. Sociopolitical environments are unique in each state, and conservation of different species can present vastly different challenges. Although unprofitable for some, conservation of habitat through banking has been successful in California, with an estimated 27,000 acres of land likely destroyed or degraded by competing land uses if banking had not been an option.⁶

Although only recently established, the Wyoming greater sage-grouse conservation banking model may serve as a direct template for Montana and the American Prairie Reserve. The Sweetwater River Conservancy owns a property of approximately 245,000 acres which includes 55,000 acres of designated core sage-grouse habitat.⁶ Given these species and habitat similarities, Sweetwater Conservancy’s approach to conservation banking should be analyzed for its applicability to the American Prairie Reserve.

While offering great potential for APR, becoming a conservation bank would only be worthwhile if it achieves conservation gains and can generate enough revenue to at least cover its costs. This project intends to discover whether those goals are reasonable, and if so, how to achieve them.

Proposed Approaches and Available Data:

Approaches:

1) **Identify common practices of successful conservation banks in the western U.S:** Conduct statistical analyses of existing conservation banks (focusing on western states) as tools for species conservation. Use analyses to identify common practices of banks that are financially solvent and have achieved positive species conservation. Initial investigation of current conservation banks will be done by reviewing current literature, notably Fox and Nino-Murcia’s “Status of Conservation Banking in the United States.” Although recently established, experiences of the Sweetwater Conservancy in Wyoming will be reviewed and compared to the APR’s setting in Montana. Perform statistical and economic analyses of Wyoming conservation bank from data they have collected since establishment.

2) **Perform spatial analysis of the American Prairie Reserve’s current properties to identify potential areas to apply conservation credits:** Ecological habitat analyses can be performed on APR property using APR’s labor resources and data to determine the optimal population of grouse that the property can support. Land use practices within Montana and state permit records will be analyzed to estimate current and future demand for conservation credits.

Consultation with APR and USFWS biologists will be combined with economic analyses to evaluate credit pricing and the costs of habitat restoration in order to properly value the credits while maximizing conservation benefits. Cost-benefit analyses of different credit price and credit demand scenarios can be achieved using state data.

3) **Create a model bank that implements “best practice” findings:** Using economic, spatial, and ecological analyses, create a model conservation bank. This will include cost-benefit scenarios for different credit demand and price possibilities. Provide recommendations for APR based on model findings. Summarize conservation and financial potential of credit banking and provide scientifically-drive guidance on establishing a successful bank.

**Data:**

Sources of spatial data include the USGS Protected Areas Database (PAD), Montana Department of Natural Resources & Conservation GIS database, U.S. Forest Service Geodata Clearinghouse, U.S. Census Bureau’s TIGER datasets, National Land Cover Database (NLCD), and others.

-Additionally, the following people have agreed to advise our project and share data:


**Deliverables:**

Report of conservation bank analyses and “best practice” consultation

Cost-benefit analyses of different credit demand and credit price scenarios (future projections)

Spatial analysis of potential conservation areas within and around the APR

Conservation banking model utilizing best practices identified above and projections of both profitability and potential species conservation

**Internships:**

The APR is actively seeking funding to support one student intern for the summer of 2016. The intern will be allowed to spend 50% of their time on project-related tasks, with remaining hours directed toward other APR projects. The proposal will be updated and amended when funding is located.

**Resources:**


Dear Bren Project Proposal Committee,

We are writing to express our support and partnership for the proposal “Is Conservation Banking a Feasible Tool for Rehabilitating Threatened Species?”. 

APR is implementing a new model for conserving large, ecologically valuable landscapes and the wildlife that depends on them — one that does not rely on lobbying for government action and funding. It is a hybrid, combining existing public lands with private resources and a businesslike approach to securing land, restoring wildlife and benefiting people.

We are using this model to build our nation’s first large-scale 21st-century park. Rather than seeking government financing, we are raising private funds to purchase approximately 500,000 acres in order to link them with the area’s existing three million acres of public lands.

Increasing wildlife populations is a sociological problem. Ranchers bear costs without realizing economic benefits and hence view wildlife as threatening their economic security. To change this dynamic, we’ve launched a for-profit beef company selling a brand called Wild Sky. The purpose of this effort is to increase the “social carrying capacity” for wildlife around the Reserve. Wild Sky is a business that fits well with the state’s ranching culture— something conservationists often overlook.

Around the world “environmental entrepreneurs” are creating alternatives to the traditional models of nature protection— filling a void left by governments either unwilling or unable to act. Their role is a vital, but often underappreciated, piece of the conservation puzzle, and through those experiences, we now have a model that can be put to use to protect the world’s natural legacy.

Our next entrepreneurial endeavor into this model is to assess the potential of mitigation banking for sage grouse. We are excited to work with BREN whose focus also often looks at entrepreneurial paths to conservation.

This project is important for assessing and directing new conservation tools that are greatly needed for advancing conservation. The old models and approaches are not meeting all the challenges. This work will provide important assessments of mitigation banking as a conservation tool. It will directly assess and develop a new approach for APR and the state of Montana that will be key to securing sage grouse in Montana and in their range in the West.
APR works with all the collaborators including Montana Department of Natural Resources, Montana Fish, Wildlife and Parks and Natural Resources Conservation Service and will collaborate to gather needed data. We have relationships with neighboring ranchers necessary to develop a mitigation network. We also have a field team to help with data collection on the ground.

We will work to secure funds for 1 internship for half of the summer to work on this project and other APR projects.

Sincerely,

Kyran Kunkel
Lead Scientist
Affiliate Professor, University of Montana