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## **Integrating Conservation Programs into Rangeland Management**

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### **INTRODUCTION**

Al and Simone Wind purchased the ranch in April of 2007. At that time the area was suffering from 7 years of persistent drought. The previous owners had purchased the ranch in 2001 and had been operating it as a cow/calf operation running about 150 pairs more or less. Prior to 2001 the ranch had been in the same ownership for approximately 45 years and had started out as a sheep operation and eventually had become a combination sheep and cow operation.

#### **Description of Environmental Setting**

The Wind Ranch is located in the southeast corner of Butte County, South Dakota. This area is generally characterized by heavy clay soils and gently rolling terrain broken by shallow draws. Elevations at the ranch range from 2750 to 2900 feet. The ranch consists of 2736 deeded acres with a 640 acre state lease adjoining it for a total of 3376 acres under management. Approximately 550 acres are riparian in nature, laying in the flood plains of Jug and Butte Creeks and an unnamed tributary.

Approximately 200 acres of these riparian lands have been historically used as hay production ground, with the balance of the riparian land part of the grazing units. The remaining 2826 acres (approx.) are native range, except for a 35 acre pasture of mixed grass and dry land alfalfa that is also hayed every year.

The predominant grass on both the upland and riparian ground is native western wheatgrass. Other grasses include, green needle, needle and thread, blue grama, buffalograss, annual brome, smooth brome, prairie cordgrass, and crested wheat. Other plants include, forbs, sedges, cactus, broom snakeweed, dry land alfalfa, willow, elm and cottonwood.

Wildlife on the ranch includes; antelope, mule deer, whitetail deer, fox, coyote, bald eagles, golden eagles, various hawks, burrowing owls, tree owls, sharptail grouse, various ducks, loggerhead shrike, blackbilled cuckoo, Wilson's phalarope, grasshopper sparrow, lark bunting, chestnut collared longspur, and other birds. Muskrat, mink, raccoon, and badger are also present. Beaver activity is evident in the past, but currently there are no beavers. Frogs, turtles, rattlesnakes and bullsnakes are seen on the ranch.

### **Description of livestock and grazing operation**

The ranch had long been managed with 7 pastures, and a (semi) deferred seasonal grazing system. The same pastures seem to have been utilized at the same time, year after year, i.e. spring pasture, summer pasture, fall pasture, winter/feeding/calving pasture. Three of the 7 pastures (488 acres, 423 acres, and 368 acres) are entirely upland pasture units. The remaining 4 pastures (972 acres, 604 acres, 315 acres, 310 acres) are combinations of riparian and upland units. Some of the riparian land is utilized as hay ground (approx. 200 acres) with the balance being used as grazed range.

Ground water in the area is generally quite deep. Prior to 2007, stock water was entirely dependent on available surface water supplies, i.e. a series of stock dams and seasonal creeks. Beginning in 2007 a pvc pipeline and six rubber tire tanks were installed, with water being delivered by the local municipal water system.

Hay ground is irrigated by the natural flooding of the creek bottoms. The riparian areas can flood at any time of the year when adequate precipitation falls on the surrounding upland drainages. At some point in the past, (possibly in the 50's or 60's) a series of dikes were built along the riparian hay ground to deflect and move the floodwaters through the hay production area. Many of these dikes and projections remain, but no maintenance has been done in decades.

### **Description of livestock and grazing problems**

In the summer of 2007 a range inventory was taken with the help of Matt Stoltenberg, a range specialist. Baseline data was established on productivity and plant diversity in the range and riparian pastures.

Measurements showed moderate to severe overgrazing on approximately 60% of the range pastures, and below average production on 100% of the hay pastures. Diversity of the plant community was minimally impacted with practically all plant species present, but the proportion of increasers and decreasers confirmed the effects of overgrazing and long term drought conditions. Plant density was well below normal but invasive species were minimal.

Large tree species were virtually decimated. The surviving population of mature trees and saplings (elm, ash, cottonwood, willow) were less than 10% of previous densities. Woody species (trees and shrubs) were nonexistent in most areas where they had previously flourished. Evidence of past beaver activity was visible on old stumps, but no habitat exists at present and evidence of muskrat, mink, raccoon and other riparian species are minimal.

Severe changes in the shape and size of the stream channel in both the Butte and Jug Creek drainages are evident. When healthy, these creeks tend to be shallow and meandering in nature. Optimally, the riparian bottoms function best as flood plains (rather than conduits). By allowing the flood waters to leave the creek channel and spread out across the meadows, instead of concentrating the velocity and flow through the highly erodible clay of the creek channel, water is distributed throughout the riparian plain. Over the years, sections of Butte and Jug Creek have become very deep and steep sided. As the banks have gotten more vertical, less vegetation is growing in the creek bed. Excessive bank erosion, and continued down cutting of the channel, become worse with each flood. Although erosion is a natural process, the reduced riparian plant vigor and health has exacerbated this natural process. As the creek channel has changed to an eroded gully, the water table has dropped lower in the sub irrigated bottoms. As the water table drops, there is less water available for the grass, as well as the trees and shrubs, during the dryer months. This impacts the survival of cottonwood, elm, ash and willow. The lack of large woody species further weakens the ability to hold the banks together allowing further deterioration of the creek channel.

### **Management measures and practices**

A management plan drafted in 2009 included practices intended to achieve the previously discussed goals, recognizing practices may need to be altered over time if the desired effect of the practice is not realized.

1. Install approximately 12 miles of 2 wire electric fence to separate the riparian pastures from the range pastures. Further division of riparian pasture between grazing cells and hay production cells will be accomplished with temporary electric fence divisions.

2. Install approximately 7 miles of additional 2 wire electric fence to reduce range pastures to approximately 200 to 250 acres each. This should limit selective grazing and more evenly distribute both grazing pressure and manure distribution.

3. Improve stockwater distribution by installing an additional 36000 feet of PVC pipeline and 15 additional stock tanks. This will bring the total number of range tanks to 21. This will limit the distance cattle need to travel to water while also allowing us to control the distribution of grazing pressure by controlling the distribution of water.

4. Fence the perimeter of the stock dams and plant shrubs and saplings where additional cover would be a benefit. Install wind or solar powered pumps at those dams that would still be beneficial sources of stockwater or drip irrigation. We can then move the water to temporary watering facilities or shelter belts. Without cattle intrusion, the area around the dams would have a better opportunity to become wildlife sanctuaries, yet cattle would still have access to water when needed.

5. Plant shrubs and saplings in draws to manage water runoff and provide wildlife habitat.

6. Plant trees and shrubs along Butte and Jug Creeks to stabilize the banks, and encourage beaver and muskrat inhabitation.
7. Utilize a management intensive grazing system to control grazing pressure and monitor pasture usage.
8. Implement mineral “sleds” to move salt and mineral around and “bait” livestock to underutilized areas.
9. Utilize annual rest or partial deferment of some pastures to encourage improvement in range condition.
10. Delay haying when possible until after July 15 to allow birds to complete the nesting season.

### **Conservation Partnerships**

In order to implement management practices, the ranch developed a strong partnership with local and national conservation programs. Advisors from these organizations provided technical know-how, advise on accessing program funding and encouragement as the ranch developed management plans and implemented practices. Partners included Belle Fourche River Watershed Partnership, Natural Resources Conservation Service, US Fish and Wildlife Service and South Dakota Game, Fish and Parks.

#### **Belle Fourche River Watershed Partnership**

The Belle Fourche River Watershed Partnership grew out of a local response of producers when water quality of the river was identified as impaired. The mission of the partnership is to “Coordinate available resources to address concerns associated with the Belle Fourche River Watershed and the riparian areas within.

The Partnership's goal is to provide a voluntary management approach to the Belle Fourche River Watershed to conserve its natural resources, foster a long term economic stability of its communities, maintain the social and cultural values of those communities, and ensure the sustainability of the primary aquifer basin's safe yield. The Partnership's success has been through forming a strong relationship that communicates ideas between private agricultural producers and local, state, federal agencies and the general public.

The Partnership has successfully competed for federal funding which has been used to support range/riparian improvement practices affecting over 200,000 acres. Projects have included: developing livestock watering system (pipeline and tanks), cross fencing for better distribution of livestock, and stream bank stabilization

#### **US Fish and Wildlife Service Partners for Fish and Wildlife Program**

The US Fish and Wildlife Service encourages habitat conservation on privately managed lands through the “Partners” program. The mission is to “efficiently achieve voluntary habitat restoration on private lands, through financial and technical assistance, for the benefit of Federal Trust Species.” Trust species include migratory birds; threatened and endangered species; inter-jurisdictional fish; certain marine mammals; and species of international

concern. Field biologists work one-on-one with landowners and partners to plan, implement and monitor activities. Working together with more than 45,000 landowners and 3,000 conservation partners nationwide, the Program has successfully restored over 1,000,000 acres of wetland habitat; 3,000,000 acres of upland habitat and 11,000 miles of streams.

### **South Dakota Department of Game, Fish and Parks**

Habitat and Access Programs for Landowners operate with two major goals: (1) In cooperation with private landowners, manage, conserve, and restore habitat to sustain diverse wildlife populations. (2) Provide the public with high quality opportunities to access fish and wildlife resources on private land.

Habitat Management - Habitat management is crucial for increasing desired wildlife species on your property. GFP private lands habitat biologists can take landowners who want to support wildlife through a series of steps to determine what will work for their specific situation.

Wildlife Partnership Program - offers a number of cost share programs assisting private landowners develop upland game bird habitat. These habitat projects are aimed to increase nesting, escape, and severe winter cover on private lands.

Wetland and Grassland Habitat Program - works with landowners and our conservation partners to implement wetland and grassland conservation practices that will benefit wildlife while meeting the needs of landowners. In addition to technical assistance, the Wetland & Grassland Habitat Program offers a variety of cost share options for private landowners.

Walk-in Area Program - works to maintain South Dakota's rich hunting heritage by providing access on privately owned lands through contracts with landowners who have CRP or other valuable wildlife habitat. The landowner opens the land to free public hunting, (foot-traffic only), in exchange for a small payment and immunity from non-negligent liability.

Controlled Hunting Access Program (CHAP) - In 2008, GFP initiated a new big game hunting access program - CHAP. CHAP is a cooperative effort between private landowners and Game, Fish and Parks. Landowners who enroll in CHAP will have more control over hunter activities on their land, including controlling the amount of hunter use at a given time, setting special provisions for use, placing restrictions on big game species allowed to be harvested, and game retrieval. For more information or assistance, go to the Fact Sheet.

Conservation Reserve Enhancement Program (C.R.E.P.) - Administered by the USDA's Farm Service Agency, CREP is a "state-sponsored" Conservation Reserve Program designed for a specific geographic area that will address resource concerns identified by state partners. In South Dakota, the focus will be on creating additional pheasant nesting habitat. Federal Farm Bill Conservation Programs - The Farm Bill offers a variety of opportunities to support conservation on your land.

SD GFP understands that these goals cannot be achieved alone, and that this endeavor will require strong partnerships with other local, state, federal and non-governmental organizations. But most importantly, support and cooperation of South Dakota's landowners and a general public that is informed of the importance and value of South Dakota's diverse native habitats and those wildlife species that depend upon them.

### **Natural Resources Conservation Service**

Several programs, authorized through the Farm Bill and administered by the NRCS have been used to enhance grazinglands:

The Environmental Quality Incentives Program (EQIP) is a voluntary program that provides financial and technical assistance to agricultural producers through contracts up to a maximum term of ten years in length. These contracts provide financial assistance to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. In addition, a purpose of EQIP is to help producers meet Federal, State, Tribal and local environmental regulations.

The Wildlife Habitat Incentive Program (WHIP) is a voluntary program for conservation-minded landowners who want to develop and improve wildlife habitat on agricultural land, nonindustrial private forest land, and Indian land. NRCS administers WHIP to provide both technical assistance and up to 75 percent cost-share assistance to establish and improve fish and wildlife habitat. WHIP cost-share agreements between NRCS and the participant generally last from one year after the last conservation practice is implemented but not more than 10 years from the date the agreement is signed.

The Conservation Stewardship Program (CSP) is a voluntary conservation program that encourages producers to address resource concerns in a comprehensive manner by: Undertaking additional conservation activities; and Improving, maintaining, and managing existing conservation activities. CSP participants receive an annual land use payment for operation-level environmental benefits they produce. Under CSP, participants are paid for conservation performance: the higher the operational performance, the higher their payment.

The Grassland Reserve Program (GRP) is a voluntary conservation program that emphasizes support for working grazing operations, enhancement of plant and animal biodiversity, and protection of grassland under threat of conversion to other uses. Participants voluntarily limit future development and cropping uses of the land while retaining the right to conduct common grazing practices and operations related to the production of forage and seeding, subject to certain restrictions during nesting seasons of bird species that are in significant decline or are protected under Federal or State law. A grazing management plan is required for participants.

## Monitoring and evaluation techniques

Wind Ranch has actively monitored its land base in order to document the outcomes resulting from implementation of conservation practices.

The following techniques will be utilized to monitor changes in range conditions:

1. Photo points. These will be taken using a yard square PVC frame. One to two photo points per pasture, depending on pasture size and diversity of range sites. Additional photo points will be taken at selected riparian sites where the goal of increasing woody plants or improving stream channel characteristics have been identified. By monitoring areas that are susceptible to overuse, as well as areas likely to be underused, we will be able to document changes in plant diversity and vigor that may be occurring with our new system. Both vertical and landscape angles will be taken 3 times a year; late spring, mid-summer and at the end of the grazing season. This protocol follows established standards covered in Range Monitoring with Photo Points, Allan McGinty and Larry D. White, 1998; and Photo points as a Monitoring Tool, USDA/SCS, 1992.
2. Transects. We will establish 3 primary transects scattered throughout the ranch to represent a variety of range sites: 1) a control area that best represents the best diversity and range condition under the old system; 2) an area that was over utilized under the old system to monitor any improvement with the new system; 3) an area in which may be subject to over utilization with the new system. Once established, transects can be checked every two years to establish data on changes taking place on the range sites. This protocol follows the system described in; Monitoring Manual for Grasslands, Shrubland and Savanna Ecosystems, USDA 2005
3. Bird surveys. Scheduled to be taken between 7am and 10am every Sunday from mid-May until the end of June. The route covers multiple stops at three types of sites within the ranch: stock dams, riparian areas and range areas. The survey follows protocols explained in the Rocky Mountain Bird Observatory, Ranch Survey Guidelines. [www.rmbo.org](http://www.rmbo.org)
4. Range Production Measurements. Annual sampling of forage production will be done using guidelines established in the Estimating Range Production Handbook, Montana State University Extension Service 2003.
5. Rainfall Data. Rainfall will be monitored throughout the grazing season utilizing a rain gauge at the headquarters. Data will be recorded and charted.

*“This range inventory was conducted after several years of drought and represents a conservative estimate of AUM available on the Wind Ranch. It reflects current pasture sizes and a once-through cattle grazing rotation system. It has been used in planning the management intensive grazing system (MIG), but it is important to note after cross fencing and watering facilities are developed, and a three time through rotation is implemented, it is highly recommended to critically review the range inventory. Implementing a MIG system will change the grazing dynamics on the ranch and require accurate monitoring of the system. In addition to a change in grazing dynamics, precipitation events have been plentiful, impacting the vegetation community. Taking vegetation measurements after 2 years of*

*normal or above normal precipitation events will assist in giving a more precise depiction of the system. Accurate forage production and health estimates are of vital importance in maximizing conservation and economic efforts on the ranch. Along with revisiting the initial grazing plan, cages will be set up to monitor livestock utilization for each grazing rotation.”*  
- Matt Stoltenberg, January 2009