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RH: Grassbanks: Institutional Analysis • Gripne

**AN INSTITUTIONAL ANALYSIS OF GRASSBANKING: A COLLABORATIVE
CONSERVATION INITIATIVE**

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Abstract: Grassbanking is an innovative tool that trades forage for conservation. At this time, at least 6 grassbanks have been established and many more are planned throughout the western United States. The following paper defines grassbanks, provides a brief history of the concept and application, offers short descriptions of the existing grassbanks, and lays out some of the economic, ecological, social, and policy challenges that people face when using grassbanks. Innovative tools bring new challenges and opportunities. This paper explores some of these challenges and opportunities associated with grassbanking.

Grassbanks are new tool that provides management flexibility by exchanging forage for conservation benefits. Broadly defined grassbank refers to the “value for value exchange of forage for conservation benefit”. The conservation benefit can take many forms. Forage can be traded for anything from prescribed fire, to sage grouse, to invasive weed control. Because there is a perceived potential of grassbanks to overcome numerous ecological problems in the

western U.S., substantial funds have been committed to developing several grassbanks (Valle Grande Grassbank – New Mexico; Malpai Grassbank – Arizona; Vina Plains Grassbank – California; Rocky Mountain Grassbank – Montana; Heart Mountain Grassbank – Wyoming; Matador Grassbank– Montana). However, despite overwhelming support for this new conservation tool, the assertion that grassbanks result in cost-effective conservation benefits remains an untested assumption. Because all grassbanks employ the same strategy of trading forage for conservation benefits, grassbanks provide a good model for evaluating collaborative resource management processes. We evaluate the ability of the five existing grassbanks to achieve conservation goals across multiple states in the western U.S. using multiple methods.

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INTRODUCTION

-ecosystem management
-current conservation strategies limiting (scale, cost)

There is a clear link between property ownership, institutions, and ecosystem management. Property ownership fundamentally influences how ecosystem management is implemented because the institutions affiliated with the owner will dictate what form ecosystem management will take. Here I discuss definitions of institution, characteristics of institutions of the past, and the imperative for these institutions to change in order for ecosystem management to be successful. I conclude by using grassbanks to illustrate institutional influence on ecosystem management collaboratives and discuss the future of ecosystem management research.

Institutional Definitions

Grijalva, T., and R.P. Berrens. 2003. A question of standing: Institutional change and rock climbing in wilderness areas. *Society and Natural Resources* 16:239-47.

Following Kiser and Ostrom (1982, 179), institutional arrangements are rules used by individuals for determining who and what are included in decision situations, how information is structures, what actions can be taken and how actions will be aggregated into collective decisions.

Institutions can be both formal (e.g. property rights and entitlements) and informal (e.g. social norms and traditions) and can both liberate and constrain behavior (Bromely 1989)

Defining, much less researching institutions is complicated, because institutional arrangements are difficult to categorize (Schlager and Ostrom 1992) and occur across social levels and formal (e.g., federal agency) and informal arrangements (e.g., customs like a handshake) (Ostrom 1986). There has been little agreement on the definition of an institution and how to go about studying them (Ostrom 1986). The broadest definitions include both formal and information institutions and emphasize social aspects (Cortner et al. 1996). Ostrom (1986) defined institutions as a set of rules, as standards of behavior, or in terms of political structure (Ostrom 1986).

Regardless of specific definition, institutions have clear characteristics related to ecosystem management. That is, “It is through institutions that humans search for the means to solve social problems.” (Cortner et al. 1996, p. 8). Institutions are expressions of society and “reflect the way that people interact with one another and the ways they interact with their environment” (Cortner et al. 1996, p. 1).

Institutions of the Past- Institutions of the Future

Formal institutions, such as federal land management agencies, have traditionally relied on scientific management, centralized planning, and governmental authority in managing the Nation's lands; authority has been centralized in arenas often closed to the full participation of citizens. Resource institutions in particular have been characterized as insular, hierarchical, output oriented, and protective of turf. In many cases these institutions appear to have outlived their intended missions, objectives, and usefulness, and will not work for ecosystem management, which is characterized by holism, complexity, and uncertainty (Wilkinson 1992; Cortner 1994; Kessler 1994). Caldwell (1970) asserts that fundamental change, requiring the creation, reform or even dismantling of institutions may be necessary. This proclamation was made over 30 years ago, it is still unclear, however, exactly how our institutions need to change to achieve the sustainability of natural resources under an ecosystem approach (Cortner et al. 1996, p. 2).

More recently, policies (e.g., NEPA) associated with federal land management were implemented that guaranteed all individuals the opportunity to comment on federal management policies; an unintended result has been the delay or dismantling of many federal actions on public land. Some western citizens think this is a travesty, while others applaud the ability of groups to have an impact on public lands management. Regardless of one's view, hostile standoffs between citizens and/or federal agencies are becoming more common, and indicate that community members' values are in conflict with institutions responsible for management.

Hence, it appears that effectively implemented ecosystem management will necessarily be dependent on institutional change (Cortner 1994; Sirmon et al. 1993).

Ecosystem Management and Institutional Change

The question is not really whether there is a need for change in institutions but what kind of change is needed and how it can be achieved. The exact requirements for institutional change are unclear, however. In part this is because of the subject's complexity, but it is also because we have failed to recognize the links in the way people relate to nature, to each other, and the character of our institutions (Cortner et al. 1996). Exploring different place-based grassbank collaborations as well as their relationship to the more formal Grassbank, Inc., which I will do in my dissertation, will allow me to explore the complexities of different institutional arrangements and scale of centralized and decentralized ecosystem management initiatives.

Institutions and Grassbanks

In addition to the five established grassbanks that I described earlier, dozens more are forming throughout the West, including some that will be completely public in ownership. There is a definite movement to develop tools like grassbanks that allow land managers to manage landscapes across political boundaries. My initial pilot work has already revealed that property and institutional involvement greatly affect the operations and challenges of grassbanking. For example, one of the primary challenges for grassbanks that operate on public land, such as the Valle Grande Grassbank, which purchased a base property that had federal grazing allotments associated with it, is obtaining a grazing permit from the U.S. Forest Service and placing it in 'non-use'. Technically, the grassbank owners are not using the permit because they are not

running their own cattle on the allotment. In February 2001, an interim directive (Interim Direction Number 2230-2001-1) was approved by the U.S. Forest Service office to officially grant an exception to the permit requirements as long as the allotment is operated as a “grassbank”. The Interim Directive has since expired, and the Valle Grande and a few USDA Forest Service officials are working to make the Directive permanent. The unofficial word from the Washington Office is that there are no immediate plans to make a permanent regulation, but there are also no plans to enforce existing regulations (pers. com. Ralph Giffen, USDA Forest Service, 2/2/03).

Future Ecosystem Management Research

The following five problem areas were identified in an institutional problem analysis workshop in 1994, which focused on the implementation of ecosystem management (Cortner et al. 1996).

- *Problem one:* The extent to which existing laws; policies, and regulations may constrain or aid the development and implementation of ecosystem management policies, programs, and practices is unknown. The economic dimensions of ecosystem management also are unknown.
- *Problem two:* Under an ecosystem approach, institutional mechanisms for managing across jurisdictions are mostly unknown and have uncertain effects.
- *Problem three:* Adopting the ecosystem approach as a management philosophy may require both internal organizational change and the formation of new relations between resource management agencies and the public. The level of public support for ecosystem management is unknown, however.
- *Problem four:* Ecosystem management requires examination of the theories guiding resource management.
- *Problem five:* Current methodologies for researching institutional questions are insufficient to address the goals of ecosystem management.

COLLABORATIVE CONSERVATION

There has been a dramatic increase in collaborative conservation (cc) initiatives in recent years (Dagget 1995; Gray 1989; Cestero 1999; Cortner and Moote 1999; Kenney 2000; Wondolleck and Yaffee 2000; Brick et al. 2001). Many of these initiatives have emerged in response to frustration with traditional natural resource decision-making efforts, which often have been expensive, time-consuming, and resulted in gridlock (Kenny 2000; Wondolleck and Yaffee 2000). Although these cc initiatives are highly variable in organizational structure, they tend to take the form of a working group that includes local individuals, natural resource agency personnel, commodity representatives, and environmentalists. Generally, these initiatives tend to develop both economic and environmental objectives, work for on-the-ground conservation benefits, and operate at some ecological unit of scale like a watershed (McCloskey 1996; Kenney 2000; Brick et al. 2001).

While there has been enormous growth in cc initiatives in the United States during the past decade as alternatives or supplements to traditional natural resource decision-making efforts, evaluations of these efforts are only just emerging (Benson 1996; Kenney 1999, 2000; Wondolleck and Yaffee 2000; Brunner et al. 2002).

Evaluations of this kind are important because they can provide models for other initiatives to learn from, assist policy makers, and advance the state of knowledge of cc initiatives (Brunner et al. 2002). A comparative case-study that is restricted to a single conservation strategy, like

grassbanking, is a powerful way to conduct such an evaluation. By restricting the case-study comparison in this manner, the variability associated with different types of conservation strategies (e.g. watershed partnerships vs. forest planning teams vs. recovery teams) is eliminated. Eliminating this variance allows me to focus on how other variables, like institution and region, affect the outcomes of cc initiatives. Further, a comparative case-study allows for the flexibility to conduct analyses at multiple scales using multiple approaches. At a macro scale, I can compare numerous cases and seek generalizations using a reductionistic approach. While at the micro-scale I am able to focus on a particular case in-depth using an inductive approach to retain important contextual information that leads to a deeper understanding of cc initiatives. Critical evaluations of cc initiatives like this proposed study are needed to justify the investment of additional significant levels of resources in the United States by federal agencies, nonprofits, foundations, and individuals in this approach.

Grassbanking

One of the more recent cc initiatives is grassbanking. Grassbanks are an innovative new tool that exchanges forage for conservation (Mahler 2001). This definition of grassbanking is necessarily broad, because the types of conservation benefits that can be traded for forage are many.

Benefits may include conservation easements, rest from grazing, prescribed burns, invasive species management, or combinations of the above.

Most often, grassbanks are used to abate two of the most pervasive threats to western United States ecosystems and surrounding human communities, which are altered fire regimes of fire dependent ecosystems (Arno and Brown 1991; Mutch 1994; Czech et al. 2000) and the rapid

subdivision of rural lands (Czech et al. 2000; Maestas et al. 2001; Theobald and Hobbs 2002). Because of their location, large ranches often play an important role in minimizing both threats. In addition to being located on relatively highly productive land, many western ranches are adjacent to public lands such as national forests and rangelands that typically include federal grazing allotments. Their proximity and contribution to large tracts of relatively undeveloped landscapes make them important for maintaining ecosystem function (e.g., historic fire regime) and biodiversity (e.g., intact habitat) (Gripne and Thomas 2002; Thomas and Gripne 2002).

However, many ranchers interested in restoration activities avoid participation because of the associated economic costs related to herd displacement from the rangeland being restored (McNutt 2001). In some cases, this same obstacle exists for public land managers who want to ecologically restore (e.g., fuels reduction; prescribed burning) land involved in federal grazing allotments that ranchers may depend on for their livelihood (Bell 2001; Edwards 2002; Harper 2002). Thus, both public land managers and private ranchers are faced with this dilemma: if ecological restoration activities place the economic viability of private ranches at risk, there may be an associated increased rate of subdivision and habitat fragmentation related to sale of large ranches (Maestas et al. 2001). Grassbanks have been proposed as a cc strategy to simultaneously address this problem and promote restoration activities on both private and public lands.

A decade ago "grassbank" was a term that was virtually unknown. In recent years the grassbank concept has gained momentum and received attention through dozens of popular articles and in gray literature (Page 1997; White 1999; Goldman 1999; Jensen 2001; Christensen 2002; Kappel 2002). Because of the perceived potential of grassbanks to overcome numerous ecological

problems in the western United States, millions of dollars have been invested thus far by several organizations and individuals thus far to develop five grassbanks (Valle Grande Grassbank – New Mexico; Malpai Grassbank – Arizona; Vina Plains Grassbank – California; Rocky Mountain Grassbank – Montana; Heart Mountain Grassbank – Wyoming). Over 17 additional potential grassbank initiatives have been documented as of 2001 (Harper 2001). However, at this time no peer-reviewed literature exists on grassbanks (Gripne, in prep). Because the concept is relatively new, I briefly describe the development of the grassbank idea and its application throughout the west.

Grassbanking is a relatively new conservation strategy that provides a unique opportunity to explore how centralized and decentralized initiatives are attempting to achieve their respective ecosystem management goals. Grassbanks were launched into the national spotlight when Drum Hadley of the Animas Foundation and Malpai Borderlands Group, which is located along the border of Arizona and New Mexico, coined and registered the term ‘grassbank’ in the early 1990s. Both the Malpai Borderlands Group and the idea of grassbanking emerged out of an effort by local ranchers to proactively seek common ground among diverse stakeholders, including ranchers, environmentalists, managers, and agency personnel (Harper 2001, 2002; Edwards 2002). They developed the grassbank concept out of the idea that if a rancher needed alternative forage because of drought or to engage in restoration activities, the rancher could graze their cattle at the Gray Ranch. In exchange for the forage the rancher would place a conservation easement on their property, held by the Malpai Borderlands Group, equal to the value of the amount of forage used on Gray Ranch (Harper 2001).

The Gray Ranch Grassbank has served as a model for other communities throughout the West seeking conservation strategies that appeal to diverse stakeholders. In 1998, the Valle Grande Grassbank in New Mexico was formed. The purpose of the Valle Grande Grassbank, which includes a base property and U.S. Forest Service grazing allotments, has been to exchange forage for restoration commitments (e.g., riparian restoration, upland fire restoration, removal of small diameter timber, etc.) by the U.S. Forest Service on federal grazing allotments (deBuys 1999). Another recent grassbank project is the Vina Plains Grassbank. In response to the local communities' interest in the use of prescribed burning to control invasive weeds, the California Chapter of The Nature Conservancy converted their 4,600-acre Vina Plains Preserve into a grassbank to enable local ranchers to undertake conservation practices on their ranches in exchange for reduced grazing fees at the Preserve (McNutt 2001). The Rocky Mountain Front Grassbank in Montana has developed a private grassbank model that included a 320-acre pilot project. While the committee was enthusiastic about the Gray Ranch Grassbank model, obtaining a three hundred thousand-acre private ranch for the purpose of a grassbank was not feasible for them. Hence, they are working to develop a collection of small private ranches to serve as a collective grassbank for local area ranches (Bay 2001). Finally, the Heart Mountain Grassbank, located near Cody, Wyoming is owned by The Nature Conservancy and is a low-elevation irrigated pasture. Ranchers are using the grassbank because their federal grazing allotments are unavailable to them due to local U.S. Forest Service forest restoration activities (e.g., rest from grazing, prescribed burning) (Bell 2001).

It is important to note that grassbanking in and of itself is not the ecosystem management objective. The objective is to manage ecosystems more effectively across political boundaries, a

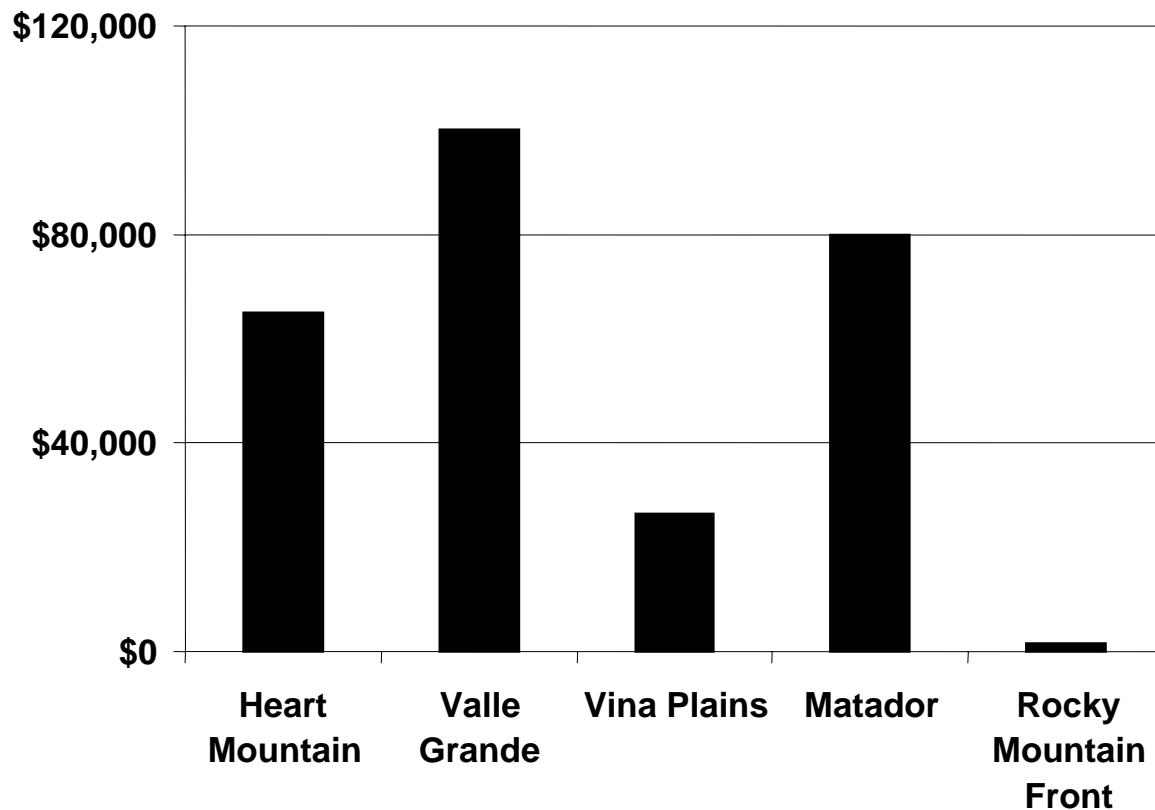
fundamental premise of ecosystem management (Gripne and Thomas 2002). Grassbanking is simply a tool that enables both public and private land managers to work towards this goal and experiment with restoration at a scale that was not considered prior to the paradigm shift of ecosystem management.

Although the structure (e.g., institutions, property arrangements, and rural socioeconomic dimensions) of the different grassbanks vary, the purpose of these place-based initiatives is the same, the exchange of forage for conservation benefit. This characteristic distinguishes grassbanking from other collaboratives in the west. These other collaboratives often sound like the same strategy (e.g., watershed councils), but in reality they typically have multiple purposes that are quite varied. I contend that the narrow purpose of grassbanks will allow me to make relatively more rigorous comparisons (e.g., institutionally) among grassbanks during my doctoral research, which would not have been as easily accomplished by comparing other types of collaboratives that widely vary by missions and goals.

Institutional Arrangements

We are likely to face “an institutional rather a resource crisis in the years ahead”.

- As Mitchell (1975 [as cited in Cortner et al. 1996])



GRASSBANK CASE-STUDIES

Private Owned Grassbank / Private Land Management Area

- **Capital Investment in Land:** High
- **Annual Operating Costs:** High (to the Nonprofit and Agency)
- **NEPA:** High
- **Political Feasibility:** Low – from anti-grazing on public lands groups
- **Institutional Support:**
- **Social Capital:**

The Rocky Mountain Front (RMF) grassbank is located in Western Montana and was created by the Rocky Mountain Front Grassbank Advisory Group in 2001. The Advisory Group itself consists of 15 local community members and includes private landowners, agency personnel, private ranchers, a non-profit, and professional community members (e.g., local banker). The Advisory Group formed in 1999 and visited the site of the first known grassbank, the Malpai Borderlands/Gray Ranch in southern Arizona. The Malpai Grassbank is a 300,000

acre privately owned ranch and the RMF Advisory Group decided to use this same model. However, purchase of one large ranch in west-central Montana was not monetarily feasible, so the group decided to form a network of small private ranches whose owners are willing to donate their forage, forming a collective grassbank for use by local ranchers (Bay 2001). The grassbank currently consists of one privately owned 380-acre parcel supporting 120 Animal Unit Months (AUMs) and grassbank-supported management activities take place on both private and public land.

The goal of the RMF Grassbank is to promote wide ranging carnivore habitat, invasive weeds management, and to encourage improved stewardship (XXX). Capital land investment costs were zero because a private landowner donated the property. In 2003, the annual operating costs of the grassbank were \$1700, making it the least costly grassbank to operate. Conservation benefits achieved in 2003 included 380 acres of weed control and grassland and riparian vegetation monitoring on 5,140 acres.

The RMF grassbank is a decentralized ecosystem management strategy; the grassbank property and affected management area are primarily private, eliminating both bureaucratic issues and costs associated with public land management (i.e., NEPA, interim directives).

Preliminary data suggests that this grassbank has the most broad-based support and has been most effective at developing a collective strategy. However, even though this model has developed among private individuals, staff from the Montana Chapter of The Nature Conservancy (TNC) provided the catalyst for initially pulling together an Advisory Group, and currently provide support for meetings, contract, grant writing, and monitoring. Montana TNC staff have intentionally had minimal involvement with the RMF grassbank to try to ensure that

the grassbank model developed would not require high levels of NGO or public agency support, and so would encourage other small communities throughout the West to pursue a grassbank.

The RMF Grassbank is currently closest grassbank to a private collaborative model. Perhaps the biggest challenge facing the Rocky Mountain Front Advisory Group is the absence of formal organizational involvement by nonprofits and/or state and federal agencies, followed by the struggled to obtain use of multiple properties to establish a grassbank. The Nature Conservancy of Montana is involved in this project, but not to the degree that the Wyoming Chapter is engaged in the Heart Mountain Grassbank, or the California Chapter in the Vina Plains Grassbank; in both of these cases The Nature Conservancy owns and manages the grassbank property. Hence, much of the motivation to formalize and support the grassbank must come from individuals from the local community, a responsibility they may not want to take on.

Private Owned Grassbank / Public Land Management Area

Also Known As: Grassbank

Examples: Paige and Patee;

- **Capital Investment in Land:** High
- **Annual Operating Costs:** High (to the Nonprofit and Agency)
- **NEPA:** High
- **Political Feasibility:** Low – from anti-grazing on public lands groups
- **Institutional Support:**
- **Social Capital:**

Nonprofit Owned Grassbank / Private Land Management Area

- **Capital Investment in Land:** High
- **Annual Operating Costs:** High (to the Nonprofit and Agency)
- **NEPA:** High
- **Political Feasibility:** Low – from anti-grazing on public lands groups
- **Institutional Support:**
- **Social Capital:**

The Nature Conservancy has been active in this area for 20 years although the Lassen Foothills project began in earnest in 1997. Conservation targets include a mixture of aquatic, riparian and

upland targets in 11 portfolio sites including 4 runs of chinook salmon, steelhead trout, native grassland and vernal pool species as well as blue oak woodland habitat. With over 55,000 acres protected mainly through conservation easements at this time, The Nature Conservancy's plan is to secure key upland and riparian lands by protecting an additional 70,000 mainly through the acquisition of conservation easements, work to restore native grassland and aquatic and riparian habitat through our cooperative land management program and continue to engage with local organizations, public agencies and private landowners to achieve common goals. Habitat fragmentation, development, fire suppression and invasive species are the largest threats to the project area.

Description of Grassbank®

After a visit to the Malpai Borderlands Group, we began thinking of how to adapt the grassbank concept for the Lassen Foothills project. After speaking with ranchers and watching landowner interest grow in prescribed burning to control invasive weeds, we decided to transition our 4,600-acre Vina Plains Preserve into a Grassbank® so that local ranchers could undertake conservation practices, including prescribed burns, on their ranches in exchange for a reduced rent at the Preserve. We established an advisory committee with representatives from a local landowner conservancy, the county cattlemen's organization, NRCS and the Extension Service to work through issues, establish criteria and help select participants in the Grassbank®.

The Nature Conservancy owns the Preserve which has been leased out for grazing for several years. We waited until the current grazing leases expired and plan to do annual leases now with approved applicants to the Grassbank®. We have been conducting monitoring on the Preserve for years and that will continue. For conservation actions undertaken on private lands, monitoring will also be a part of the action. For instance, pre- and post-burn monitoring would occur for prescribed fires.

Our first exchange was to occur last Spring but weather prevented prescribed fires from being lit. We expect the entire bank to be operating this Spring.

Lessons learned to date

While we are still fairly early in our implementation, we already know that no matter how much we think we thought through all the issues, there are always more and that others are not only happy to help you come up with additional issues but help you resolve them as well. In other words, we are grateful we put an advisory board together.

Direct Benefits

Because of the large difference in value between conservation easements and land values, the Vina Plains grassbank will not require that the acquisition of a conservation easement be part of the grassbank exchange. However, because The Vina Plains Preserve easily splits into two sections that can be grazed by different participants, we are reserving one side of the grassbank for applicants that have conservation easements. This provision may result in a small increase in acres in conservation easements.

We believe one of the most direct benefits is our ability to increase the number of acres under fire or other conservation management for invasive weeds. We have over 200,000 acres of annual grasslands that are threatened by medusahead and yellow starthistle, which are disliked by ranchers and conservationists alike. Some ranchers are unable to participate in a prescribed burn or other conservation practices because of the resulting loss of forage for the next grazing season. Participation in the grassbank allows ranchers to maintain their herd while improving their rangeland. With some additional support from the California Department of Forestry we hope to increase the acres burned in the project area by 5,000 to 10,000, possibly even 15,000 acres a year with the grassbank helping support some of the participating landowners.

Some landowners have expressed interest in using the bank for other conservation practices, including the need to reduce grazing to plant blue oaks or increase riparian habitat. In addition, by working together with several local partners from the beginning, we hope the Grassbank® will eventually become a community project that grows to include other bank properties and more conservation practices. Some of the local advisors already have ideas of other grasslands that could be included as bank lands once we are sure the “kinks” are worked out.

Nonprofit Owned Grassbank / Public Land Management Area

Also Known As: Grassbank

Examples: Heart Mountain Grassbank; Matador Grassbank; Malpai Borderlands

- **Capital Investment in Land:** High
- **Annual Operating Costs:** High (to the Nonprofit and Agency)
- **NEPA:** High
- **Political Feasibility:** Low – from anti-grazing on public lands groups
- **Institutional Support:**
- **Social Capital:**

Over the next ten years, the Shoshone National Forest (SNF) in northwestern Wyoming has fuel-reduction burns planned on approximately ten allotments which affect at least 13 local ranching families. Land managers, including private landowners, the U.S. Bureau of Land Management (BLM), and SNF have described the need for an alternate forage base that would support and encourage these types of restoration projects on both federal and private ranges. Lack of forage options is a serious obstacle to performing ecological range restoration work that requires livestock to be removed from their ranges for an extended period. If local families are displaced from their grazing allotments there is a high likelihood that their ranches would not remain

sustainable. If the ranches (often large, intact tracts of land adjacent to National Forest) were sold, there would likely be an increased rate of subdivision, contributing to the loss of wildlife habitat and degradation of dynamic forest ecosystem processes that historically have occurred at large scales (i.e., fire). The Absaroka Program of The Nature Conservancy (TNC) has proposed to use the lower elevation irrigated pasture of TNC's Heart Mountain Ranch as a grass bank which will provide forage for permittees whose grazing allotments are unavailable due to the restoration activities of the SNF.

Heart Mountain Grassbank is part of the Greater Yellowstone Ecosystem located just outside of Cody, Wyoming.

The objective of this grassbank is maintaining open space, wildlife species, their habitats, natural communities and ecological processes that includes flexibility and economic opportunity. The grassbank is owned by the Nature Conservancy and is our only example of a grassbank that uses irrigated pasture.

The annual operating costs are approximately \$80,000 and last year, the grassbank supported 3 projects on public land that included 400 acres of mechanical treatment and prescribed burn, 5,516 acres of rest, and the protection of 180 acres of prairie dogs and 2 sage grouse leks.

- **Capital Investment in Land:** High
- **Annual Operating Costs:** High (to the Nonprofit and Agency)
- **NEPA:** High
- **Political Feasibility:** Low – from anti-grazing on public lands groups
- **Institutional Support:**
- **Social Capital:**

Nonprofit Owned Grassbank / Public Land Management Area

Also Known As: Grassbank

Examples: Heart Mountain Grassbank;

- **Capital Investment in Land:** High
- **Annual Operating Costs:** High (to the Nonprofit and Agency)
- **NEPA:** High
- **Political Feasibility:** Low – from anti-grazing on public lands groups
- **Institutional Support:**
- **Social Capital:**

The Heart Mountain Grassbank, located near Cody, Wyoming is owned by The Nature Conservancy and is XXX acres of low-elevation irrigated pasture. Ranchers are using the grassbank because their federal grazing allotments are unavailable to them due to local U.S. Forest Service forest restoration activities (e.g., rest from grazing, prescribed burning) (Bell 2001).

Public Owned Grassbank / Private Land Management Area

- **Capital Investment in Land:** High
- **Annual Operating Costs:** High (to the Nonprofit and Agency)
- **NEPA:** High
- **Political Feasibility:** Low – from anti-grazing on public lands groups
- **Institutional Support:**
- **Social Capital:**

At this time, there is no example of a public land grassbank that supports management activities on private land. That is not to say, such a grassbank would not emerge. One of the fundamental concepts of ecosystem management is managing systems holistically instead of by political boundaries. Experiments such as the Wyden Amendment Authority have allowed public land agencies to support restoration activities on private land when there is a clear public benefit.

Public Land Grassbank / Public Grazing Allotment Management Area

Also Known As: Swing Allotment; Common Forage Allotment; Forage Reserve

Examples: South Dakota, BLM project

- **Capital Investment in Land:** High
- **Annual Operating Costs:** High (to the Agency)
- **NEPA:** High
- **Political Feasibility:** Low – from anti-grazing on public lands groups
- **Institutional Support:**
- **Social Capital:**

The Valle Grande Grassbank is located in Northern New Mexico. The grassbank includes 240 base acres in addition to a 36,000-acre USDA Forest Service grazing allotment that supports up to 3900 AUMs annually. In 1996 the Fund, with the assistance of the Forest Service, undertook to study the feasibility of establishing a public land grass bank in northern New Mexico. That study led, in 1997, to formation of the four-party partnership described above. Meanwhile, real estate negotiation and fundraising for acquisition of a suitable ranch advanced. The Fund closed on purchase of the Triple S ranch in August 1997, renaming it the Valle Grande Ranch. The ranch consists of 240 acres of fee land on Rowe Mesa, south of the town of Pecos in San Miguel County. Purchase of the fee land qualified the Fund to become the sole grazing permittee of the adjacent 36,000-acre Valle Grande grazing allotment within Santa Fe National Forest. The permit has been quantified at 325 cow-calf pairs yearlong. The Valle Grande Grassbank is a partnership includes the Northern New Mexico Stockman's Association, the USDA Forest Service, the New Mexico State University Cooperative Extension Service, and The Conservation Fund. The partners share equal representation on the Valle Grande Grass Bank Steering Committee. A memorandum of understanding, which incorporates additional documents outlining operation of both the grass bank and the steering committee, defines the partnership. Also included among the core partnership agreements is a Right of First Refusal that guarantees the Stockman's Association the right to buy the real estate assets of the grassbank at such time as the Fund elects to sell them.

The steering committee reviews applications for grass bank participation from allotments throughout the Santa Fe and Carson National Forests. Based on the committee's recommendation, the supervisor of the Santa Fe National Forest then selects participants. Cattle from those allotments are delivered to the Valle Grande allotment at the appropriate time and placed in the care of a full-time cowboy and range rider provided by The Conservation Fund. By placing their cattle on the grass bank, participating permittees rest their "home" allotments, allowing their pastures, for instance, to grow a crop of grass that will fuel a prescribed fire. In some cases, small-diameter thinning operations precede the needed fires. Participation in the grassbank usually lasts several growing seasons, allowing desired vegetation to become resilient following restoration treatments.

The first cattle arrived on the Valle Grande Grass Bank in March 1998. By mid-summer, the ranch held 264 cows from three allotments. Elements of the winter herd, drawn from two more allotments, began arriving in August. Gradually the reputation of the grass bank grew. By January 1999, the steering committee had received applications from seven allotments requesting three times the amount of grazing that was actually available.

The objectives of the Valle Grande Grassbank include promoting ecological health, economic and cultural landscape of northern New Mexico, and demonstration of the value of partnerships. The base property is owned by the Conservation Fund. Most of the conservation work occurs on public land. Last year the annual operating costs were around \$100,000, which covered Rx fire = 1200 acres thin = 388 acres, mechanical = 300 acres (deBuys 1999). \$480,000

The Valle Grande Grass Bank² is the second application of the grassbank concept. Unlike the Malpai Borderlands Group, however, the Valle Grande Grass Bank applies the concept to public land. The Valle Grande Grass Bank program focuses on rehabilitating forests and grasslands in the Santa Fe and Carson National Forests of northern New Mexico.

Like numerous national forests throughout the West, the Santa Fe and Carson National Forests have experienced ecological decline due to fire suppression and overgrazing. Ecological health can be restored through mechanical and fire treatments. However, the Forest Service has been unable to complete sufficient treatments because the forests are stocked with cattle under existing grazing leases “owned” by private parties. Throughout the West, ranchers graze cattle and other livestock on Forest Service and BLM land. Each rancher is entitled to the use of a specific portion of federal land (the grazing “lease” or grazing “allotment”) under the terms of a grazing permit. The permit specifies the number of livestock permitted for the area; and the federal government collects a grazing fee for each AUM (animal unit month). The grazing permit can be held by an individual or by a livestock association (a group of ranchers). Typically, a rancher (or association) is eligible for a grazing permit if he/she owns a “base ranch,” a private piece of property near or adjacent to the allotment. (Davis, 2001b). These grazing leases inhibit the ability of the Forest Service to conduct restoration treatments. Prescribed fire treatments are only successful if cattle are removed for several years (both prior and after the burn.) The Forest Service, though, has been unable to move the cattle due to bureaucratic and political constraints. These constraints limit the agency’s ability to establish an alternate location for the cattle or force ranchers to move their cattle.

The Valle Grande Grass Bank program helps the Forest Service overcome these constraints, allowing the agency to conduct restoration treatments. The program was initiated by an environmental non-profit, The Conservation Fund (TCF), which has served as an Invested Partner. TCF purchased a 36,000-acre ranch/grazing allotment for \$480,000.

Then, TCF helped form a collaborative agreement between the Forest Service, ranchers, and itself. In accordance with the agreement, ranchers with public land grazing leases bring cattle onto the grassbank (TCF's ranch/grazing allotment) while the Forest Service conduct restoration treatments on the ranchers' home allotments. Whereas the Malpai grassbank exchanged grass for conservation easements, here grass on the grassbank is exchanged for restoration treatments on home allotments (TCF, 2001; deBuys, 2002).

For example, the Forest Service has been using swing allotments for decades. More recently, the Forest Service has informally promoted the idea of forage reserves. Both swing allotments and forage reserves are vacant allotments that can be used by permittees in cases of fire, drought, or rangeland activities.

Definition: areas that allow permittees to engage in rangeland restoration by temporarily shifting their livestock to forage reserve areas. Goal: promote range recovery through rest from grazing without jeopardizing personal economic needs.

c) The BLM's supports a similar tool to forage reserves, which are referred to as reserve common allotments. A reserve common allotment refers to forage reserve areas that allow permittees to engage in rangeland restoration by temporarily shifting their livestock to forage reserve areas, providing incentives for conservation without compromising the economic viability of the ranch operation.

These tools, along with grassbanking, promote management flexibility by providing alternative forage to landowners who want to engage in conservation activities.

NEPA is another policy concern for grassbanks. Any grassbanks that support restoration activities on public land have the additional challenge of conducting timely cost-effective NEPA, which has often been expensive and difficult to implement in a timely manner.

Another policy concern that is only relevant to one of the current operating grassbanks, which is developing a grassbank using a Forest Service allotment. Current Forest Service regulations require the owner of the base property to validate their grazing permit using their own cattle. Although the Forest Service issued an interim directive making an exception for this original grassbank, that directive has since expired and it is unclear at this point, what the future holds for this particular model.

Questions:

*Matador; Malpai; Valle Grande; Rocky Mountain Front
Matador Grassbank private or public land and is that property used to do management activities on private or public land or both?*

National Grassbank Network

One approach to dealing with many of these issues is the formation of a National Grassbank Network. The NGN is an informal group of ranchers, conservation organizations, professional associations, researchers, and government agencies. NGN fosters communication, education, and awareness of grassbanking and other emerging rangeland conservation tools to enhance ecologically sustainable, economically efficient, and socially responsible grazing practices on private and public land.

The NGB will be holding a meeting this afternoon upstairs on the 3rd floor, which will be its second meeting since its formation in October 2003. The meeting will provide information about the network, discuss issues and concerns, and identify next steps.

Some of the issues that the National Grassbank Network will address will include trademark and policy issues, as well as providing a resource for different grassbanks.

Trademark Issues
Policy Issues
Resource for Grassbanks

DISCUSSION

Adaptable Proactive Tool

In almost every instance where a grassbank has emerged, it has done so out of a proactive desire to improve ecological conditions, versus a reactive solution to conflict, which is often a characteristic of other cc's. Furthermore, the concept of grassbanking is really one of a third party restoration tool that can take infinite physical forms on the landscape.

Comparison (costs, conservation benefits, social capital, institutional structure)

Costs

Preliminary phone survey and interview data indicate overwhelming support for the grassbank participants to bear the majority of the fixed and variable costs associated with the grassbank.

Most grassbanks are market or quasi-market solutions to conservation. However, these efforts still face the reality of market failure associated with the public good nature of ecosystem goods and services. Because ecosystem goods and services have the public good characteristic of nonexcludability, freeriders, or those individuals who enjoy the benefits of clean water, air, and open space without paying their fair share, tend to be associated with these goods and services. Consequently, the market tends to supply ecosystem goods and services at a socially suboptimal

level. Market or quasi-market conservation strategies like conservation easements, waterbanks, and grassbanks attempt to capture a market consumer surplus to provide a higher level of these goods and services.

Grassbank properties that have multiple purposes and potentially multiple sources of funding

Conservation Benefits

Social Capital

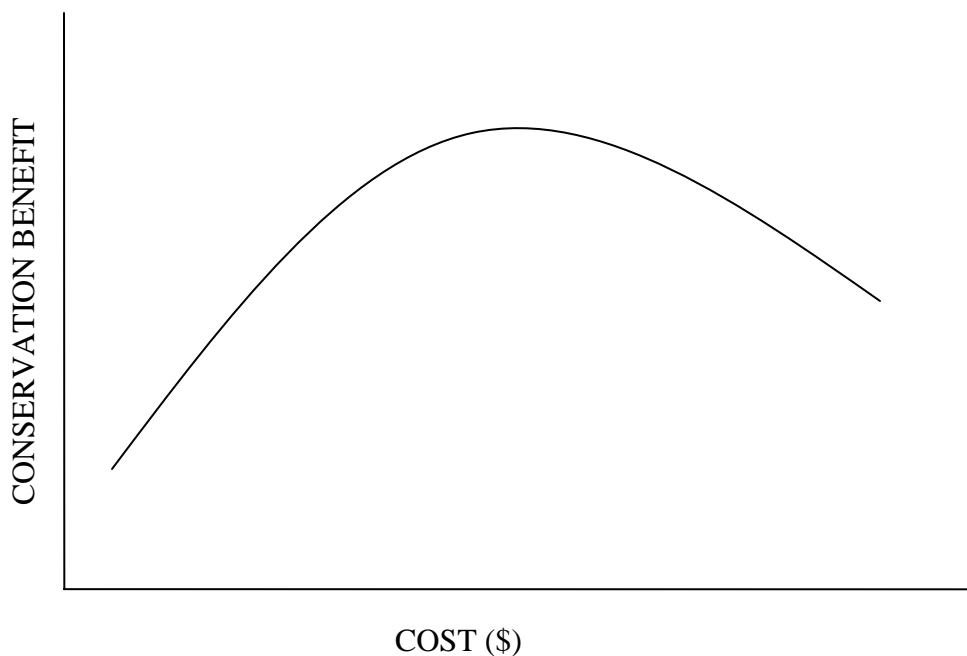
Some proponents of collaboration advocate that learning, trust, and improvement of relationships should be seen as a success of collaboration in and of itself regardless of the conservation benefits. Many other people support the improvement of social capital when it leads to increased conservation benefit. While the first goal of social capital has merit, most conservation organizations and public land agencies, who are often providing significant financial support to cc initiatives specific missions related to specific ecological and ecosystem management goals. Hence, evaluations related to natural resources collaboratives need to address the question of whether increased social capital does lead to increased conservation benefits over the long-term.

Institutional Structure

Institutional Conservation Benefit Hypothesis

Can institutional relationships be used to predict cost effective conservation strategies? In a recent article in the national TNC magazine, TNC president Steve McCormick emphasized the

importance of conservation tools like easements in past and implored that new tools like grassbanking that have yet to be developed are the future of conservation. Certainly, all conservation organizations and public agencies want to know which institutional arrangements offer the best opportunity for maximizing the conservation benefit for the least cost. Using preliminary cost and benefit data from the grassbank research project, I offer the Institutional Conservation Benefit Hypothesis, which proposes that nonprofit entities working on a combination of public and private land are in the best position to obtain cost-effective conservation benefits. Why? This hypothesis can also be used as a heuristic tool for people who engage in conservation tools to evaluate their costs and conservation benefits and work to reduce costs or increase benefits. The ? model is low and the ? model is also low.



Institutional Bricolage

While the research questions posed by this group are almost 10 years old, many of these questions, especially in the area of institutional mechanisms and methodologies for researching institutions, have not been addressed. Mary Douglas (1986) proposed an alternative way to research institutions in the context of collective action (e.g., rational choice theory; Ostrom 1992), by combining symbolic anthropology and rational choice theory to form the idea of *bricolage* (i.e., Levi-Strauss' concept of intellectual bricolage). Douglas (1986) asserted that humans spend their time attempting to make meaningful sense of the world (e.g., cognitive coherency) and coordinating their lives with people around them (e.g., social coordination). Whereas rational choice theory falls short attempting to explain human behavior such as altruism, the combination of symbolic interaction and rational choice theory allows for room for humans to develop their own meanings and provide an alternative to current institutional theory, which fails to capture the diversity, complexity, and *ad hoc* behavior of institutional crafting (Clay 2001; Cleaver 2002). Institutional bricolage contends that people and institutions are constructed through a process of "gathering and applying analogies and styles of thought already part of existing institutions" (Cleaver 2002, p. 15). Such a theory is appropriate for studying the institutions related to ecosystems in that they both embrace social construction, uncertainty, and complexity.

CONCLUSION

"The task of this third era is to move beyond settlement and to achieve resource sustainability, economic stability, and social justice in a great land. To do so, we must cross a new meridian, this time not a geographic marker but a line of intellectual, social and government commitment.

The crossing involves gaining an understanding of the origins and content of old laws and policies and then juxtaposing them with the needs of modern society. That will allow us to sort out those that work and those that do not. We can then move beyond the lords of yesterday toward fundamental but measured and equitable reform.

-Wilkinson

Heart Mountain Grassbank in Cody, Wyoming, captures many of the same challenges discussed in this paper that are associated with implementing effective ecosystem management. The socioeconomic dimensions of Cody, Wyoming, are not that different than Hailey, Idaho is a tourist community with high rates of immigration by people who want to live at the door to Yellowstone and the Absaroka-Beartooth Mountains. Yet, this historical ranching community is fighting to stay viable amidst the increasing pressure to subdivide, failing beef markets, and a push by the USDA Forest Service to restore the historic fire regime back to the landscape, which also happens to occur on their USDA Forest Service allotment, which incidentally may not have had any rest for 50 years. And in the name of “Wild Spaces are Working Places”, the Wyoming Chapter of The Nature Conservancy has been willing to bankroll a capital intensive project with the intent of protecting biodiversity and supporting the local economy. As is the case for most ecosystem management initiatives, a myriad of property arrangements (e.g., private property, private property with easements, public property with cattle allotments, and other public property) are interacting with a variety of institutions (e.g., federal agencies, environmental organizations, cattle industry, etc.) all to restore a system. Like ecosystem management, the concept of Heart Mountain Grassbank is awesome. However, speaking as an advisory group member, the “devil is in the details”. How do you coordinate multiple landowners to introduce fire at a meaningful landscape scale? How do know we have achieved any sort of success and what do we need to measure to get there? Are these results meaningful to justify an investment of \$60,000 a year? Who’s going to pay that bill over the long-term and assuming it’s a good idea, how do we develop the institutional support to ensure it’s longevity? These same challenges exist for almost every ecosystem initiative and the answers seem few and far between.

Despite these overwhelming challenges associated with ecosystem management initiatives, the grand experiment of continues. Both centralized and decentralized ecosystem management initiatives keep forming throughout the U.S. As more and more of these initiatives occur, evaluations of these initiatives are needed. These evaluations are likely to influence how ecosystem based initiatives are perceived by those from within and outside the movement (Lynch 1996; Belsky 1996). It’s only through this cycle of experimentation and evaluation

(a.k.a. adaptive management) that we will be able to address the problems and opportunities associated ecosystem management.

ECOSYSTEM MANAGEMENT

- new paradigm of natural resource management
- challenges traditional institutions

COLLABORATIVE CONSERVATION INITIATIVES

- emerged out of ecosystem management...new way of thinking...across boundaries
- do institutions contribute to the success of collaborative conservation? If so, how can these institutions be characterized?

GRASSBANKS

- one type of collaborative conservation
- use it as a model to evaluate the influence of institutions on grassbank operations
 - economically
 - values