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A Framework for Natural Resource Management

ABSTRACT

The actual practice of setting up multiple-use natural resource management on federal lands has been a case of "muddling through." No overall theoretical rationale exists on a nationwide basis. However, it is possible to envision a theoretical framework for managing natural resources based on a political economy paradigm of market failure/government failure. This paper proposes such a framework involving three parts. The first identifies resources and areas best served by private ownership or by public ownership. The second identifies principles and standards which would guide management. The third develops the bureaucracy needed to set up and manage the identified areas. The paper also looks at theoretical requirements for effective implementation of the proposed framework.

INTRODUCTION

This paper is an exercise in applied planning theory which uses various elements of theory to critique the current rationale supporting natural resource management on the public lands. The question presented is whether planning theory can be applied in the real world to design a framework for natural resource management.

Although the paper often refers to public lands administered by the United States Department of the Interior's Bureau of Land Management, the references are intended as examples to better illustrate the argument presented. The theory proposed could also apply to lands administered by other federal agencies, such as the Forest Service or the National Park Service. In fact, its purpose is to provide a logical rationale for identifying lands anywhere in the United States that should be considered for management by government agencies. Conversely, the proposed theory also provides similar rationale for identifying federal lands that should be considered for non-government management.

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PART I—RATIONAL PLANNING

The Bureau of Land Management (BLM) administers over 270 million acres of federal lands.¹ These lands are generally the leftover public domain never transferred to the private sector or to some other government agency's jurisdiction. While many forests were reserved for the national forest system, and many scenic, historical, and recreational lands were reserved for the national park system, the prairie and other lands suitable for cultivation were transferred to private ownership. Management of the remaining lands, which are mostly arid and semi-arid, was left to the BLM. The BLM, therefore, has jurisdiction over the *residual* public domain, and derives its mission from that historical situation.² The situation came first and the agency based its mission on a rationalization of the existing situation.

Management planners today must deal with the outcome of this ad hoc selection method, which resulted from conflicting ideologies and political influence instead of rational choice.³ The lack of effective theoretical criteria for the selection of public lands led to a haphazard jurisdictional division of lands. For example, not all forests ended up in the national forest system. The tall-grass prairie continues as one of the missing links in the national park system. Many of the wetlands and riparian areas escaped inclusion in any of the national systems. In addition, there have been calls to privatize portions of the grazing lands now administered by the BLM.⁴ The question, then, is whether a more rational approach could be taken to natural resource management—one which considers whether specific lands and resources are best managed by the public or by the private sector.⁵

Various approaches have addressed the question of the federal government's jurisdiction and mission in natural resource management. One example is the now outdated Classification and Multiple Use Act,⁶ passed in 1964 with only temporary authority while Congress studied the public land laws.⁷ The act provided for identification of public lands which should be retained in federal ownership and recognized that those lands should be managed for multiple uses.⁸ However, the act addressed only the leftover public domain.

1. Bureau of Land Management, 1988 Public Land Statistics 1 (1989).

2. J. Muhn & H. Stuart, *Opportunity and Challenge: The Story of BLM 111* (1988).

3. Nelson, *The Public Lands*, in *Current Issues in Natural Resource Policy* 14 (P. Portney ed. 1982).

4. R. Stroup & J. Baden, *Natural Resources: Bureaucratic Myths and Environmental Management* (1983).

5. The rational planning model used in this paper is a common but not unique model for environmental intervention. Other models and criticisms are discussed in Andreas Faludi's book, *A Decision-Centred View of Environmental Planning* (1987).

6. 43 U.S.C. § 1131 (1964) (expired six months after enactment).

7. J. Muhn & H. Stuart, *supra* note 2, at 111.

8. O'Callaghan, *The Mining Law and Multiple Use*, 7 Nat. Res. J. 242 (1967).

Another example is the national wilderness preservation system. Congress passed a statute with specific land classification criteria for wilderness areas and directed concerned federal agencies to identify lands that met the criteria.⁹ In this case, the theory of wilderness preservation came first and served as a guide to locate lands appropriate for wilderness management. However, potential wilderness areas were only selected from existing public sector lands.

As shown by these examples, alternatives to the ad hoc land selection approach do exist for examining the potential jurisdiction and role of government in natural resource management. Another alternative, proposed in this paper, suggests beginning with a theoretical management concept and then locating appropriate lands and resources to administer. This approach is similar to that taken to establish the national wilderness system discussed above, except that in the proposed approach, non-federal lands and resources would be examined in conjunction with those in federal ownership.

In the proposed approach, development of theoretical criteria would help identify the federal government's proper jurisdiction by eliciting answers to such questions as:

1. Which lands and resources need special management?
2. Why should such management be done by the public sector?

The criteria would come first and serve as a guide for identifying lands appropriate for federal jurisdiction as well as for non-federal jurisdiction.

Once lands suitable for federal management were identified, the development of principles and standards to aid in management of the lands would be considered. The standards currently in effect for federal resource management are a collection of statutes and concepts developed over the years in an incremental fashion.¹⁰ The only major statute integrating all BLM-administered resources is the Federal Land Policy and Management Act of 1976 (FLPMA),¹¹ which requires land use plans which consider all resources.

However, FLPMA is not the basic resource management principle and standard for individual resources. Frequently, individual resources are governed by distinct and separate management statutes, only minimally coordinated or synchronized.¹² A true multiple resource/multiple use management statute does not currently exist.

Once management standards for individual resources are developed, the geographic and administrative structure of the government agency which will manage the identified lands by implementing the principles

9. 16 U.S.C. § 1131 (1964).

10. J. Muhn & H. Stuart, *supra* note 2; C. Mayer & G. Riley, *Public Domain, Private Dominion: A History of Public Mineral Policy in America* (1985).

11. 43 U.S.C. § 1701 (1982).

12. J. Muhn & H. Stuart, *supra* note 2, at 275-92.

and standards must be designed. The BLM's existing organization was shaped episodically by events over its history. In particular, the administrative structure used by the BLM today evolved from grazing districts set up by the Grazing Service in the 1930s.¹³ It includes elements traceable to features of the General Land Office and the Geological Survey's Conservation Division.¹⁴ Other elements resulted from an effort to coordinate with the Forest Service.¹⁵ Using theoretical concepts from the beginning should result in a more effective geographic and administrative design than that existing today.

PART II—FRAMEWORK DESIGN

A rational plan for a natural resource management framework would have to provide, at the outset, these points:

1. Criteria for identifying lands needing multiple resource management by the public sector;
2. Generic principles and standards for such management; and,
3. A geographic and administrative structure for such management.

The framework developed here will address each of these points. It will employ the "market failure/government failure" paradigm used in examining issues of political economy.¹⁶ The debate over nationalization versus privatization is a central topic in political economy and scholars are increasingly using the paradigm as a basis for analysis.¹⁷ The paradigm thus lends itself to the examination of the continued controversy over ownership and control of natural resources.¹⁸

The Market Failure/Government Failure Paradigm

The concept of market failure explains cases where the ordinary exchange of goods and services in the marketplace does not provide an adequate solution to the question of how to allocate resources.¹⁹ Several types of cases where this problem may occur are:

13. *Id.* at 56.

14. *Id.* at 56, 228.

15. J. Clarke & D. McCool, *Staking Out the Terrain* 111-15 (1985).

16. *The Land Use Policy Debate in the United States* (J. de Neufville ed. 1981); C. Lindblom, *Politics and Markets* (1977).

17. See, for example, W. Nothdurft, *Renewing America* (1984); J. Stiglitz, *Economics of the Public Sector* (1986).

18. Other paradigms might be used for analysis. For example, John Dryzek claims that the dichotomy between government and market choice is highly oversimplified. J. Dryzek, *Rational Ecology: Environment and Political Economy* 63 (1987). He proposes a set of nine modes of coordination which he calls "social choice mechanisms." *Id.* at 64. He concludes, however, that "as far as *what actually exists* is concerned, markets and administered systems probably have the strongest presence in today's world." *Id.* at 65.

19. L. Wingo & A. Evans, *Public Economics and the Quality of Life* (1977).

1. Natural monopoly, such as the local distribution of electricity or water;
2. Externality, such as putting smoke in the air or dumping waste in the river;
3. Collective consumption goods, such as providing for national defense or public health; and
4. Common resource pools, such as fish in the ocean.

In these cases, the marketplace is not apt to provide an effective or efficient allocation.²⁰

On the other hand, turning the problem over to the government has its own difficulties. Areas of government failure can include:

1. Bureaucracy, where the bureaucrats look out for their own interests rather than the public interest;
2. Special interest influence, where logrolling and pork barrel politics tend to determine resource allocation;
3. Lack of information provided by prices, which becomes a more acute defect as the size of the organization increases; and
4. Gerrymandering, corruption, and egomania. Who will guard the guardians?

The concept of government failure is intuitively obvious, but not as well represented in the literature. For example, William Nothdurft discusses many of the problems identified as government failures in this paper, but refers to them as defects leading to market failure.²¹ Thus, if the government does not set the proper rules for the market to operate effectively, Nothdurft classifies it as market failure rather than government failure. This is understandable when writing from an economist's perspective. Presumably an author addressing the issue from the political science perspective would concentrate on government failure, although the term itself would probably not be used.

From the perspective of political economy, a dual failure approach clarifies and focuses the various concepts of both economics and politics. The interesting thing about dual failure is that economists generally approach the market failure side first. If evidence of market failure exists, the tendency is to imply that government should do something. This implicit assumption is usually not subjected to rigorous analysis. The economists may feel that such analysis is the proper province of political scientists.

From a policy standpoint, however, the implicit assumption that a

20. The concept of market failure has been applied to natural resource management. W. Nothdurft, *supra* note 17. It is not without controversy, however. For a critique of the "conventional wisdom notions of market failure," see Randall, *The Problem of Market Failure*, 23 Nat. Res. J. 131-48 (1983).

21. W. Nothdurft, *supra* note 17, at 103.

government mechanism should replace the market is not enough. Policy analysis examines the various alternatives or options for dealing with an issue and determines which are better or worse (or at least predicts the impacts of each). For example, the options for natural resource management include various combinations of market and government mechanisms. A policy study should investigate these combinations to determine the relative feasibility and effectiveness of each. Results would be presented in terms of the type and degree of market failure along with the type and degree of government failure. Logic disallows the assumption that because some market failure exists one should turn to the option of government ownership (or vice versa). The potential for government failure may be equally great. It requires a more sophisticated balancing of failures to select the appropriate course of action. Perhaps this is the role of planning.

Designing Jurisdictional Criteria

The market failure/government failure paradigm provides a theoretical basis for identifying lands and resources needing public sector management. In general, these constitute lands and resources where the degree of market failure is greater than the degree of government failure. For example, most western coal underlies public lands, while most eastern coal is located on private lands.²² If coal is subject to significant market failure, but less government failure, it should be identified for public sector management. Therefore, we might plan to retain western coal in government ownership, while seeking to transfer some eastern coal from the private sector to the government. Of course, analysis might show the reverse to be the case—that the private sector could manage better. If so, western coal would be transferred from government ownership to private ownership.

A second, related step to identifying those resources best managed by the public sector would be to identify interactions among resources. In some cases, no feasible way exists to have separate private and government management of resources in the same location. One example might be a forest that provides both a critical habitat for an endangered species and an important mineral deposit which could be strip-mined. These situations would need to be analyzed to determine the feasibility of multiple use management by a single public or private entity.

Designing Principles and Standards

The same rational process would identify principles and standards to use in managing the natural resources. General principles and standards

22. Department of the Interior, Fiscal Year 1988 Federal Coal Management Report 1 (1989).

could be logically derived from the theoretical management concept used to develop criteria for identifying lands and resources, but could also include additional concepts.

Charles Howe, for example, provides a list of "guidelines for a responsible natural resource policy":²³

1. The avoidance of irreversibilities in all renewable resource systems;
2. The avoidance of irreversibilities in local ambient environmental conditions;
3. The avoidance of irreversibilities in the condition of global environmental systems;
4. A clear determination of the role of free markets and prices;
5. Undertaking a program of resource planning at the federal level for nonrenewable resources, aimed at the perpetuation of a "constant effective natural resource base"; and
6. Increased long-term support of social and technological research and development.

In addition to the above, the standards or governing statute ought to be self-contained and integrated. Ideally, it should not have to be implemented in conjunction with resource-specific statutes written at different times and with different philosophies in mind. Instead, the governing statute should incorporate the useful material from such statutes and then repeal them. Another tactic for preparing standards would eliminate provisions not directly relevant to natural resource management in order to reduce the number of exceptions and conflicts in policy. For example, concepts such as special assistance for interest groups would be clearly separated and described. Perhaps an economic impact statement could be required which would identify hidden subsidies, or subsidies which have the greatest potential for assisting relevant groups.

Various agencies' mission statements, resource management statutes, and academic studies can serve as sources of material to include in the principles and standards. The experience of the BLM and other similar agencies can be a source of information about what really works in practice. In addition, the designers should consider the following desirable characteristics of standards as they assemble the framework:

1. Neutrality and lack of bias among resources;
2. Comprehensiveness of resource coverage;
3. Timelessness;
4. General applicability to all resources;
5. Comprehensiveness of issue coverage; and

23. C. Howe, *Natural Resources Economics: Issues, Analysis, and Policy* 335-37 (1979). By "irreversibilities" Howe means that natural areas frequently cannot be recreated once disturbed by development. *Id.* at 316.

6. Ability to supersede the older individual resource management statutes.

These characteristics lead to the design of the geographic and administrative organization—the natural resource management bureaucracy.

Designing the Geographic and Administrative Structure

Among geographic and administrative issues to consider when designing a bureaucracy to manage resources placed under public ownership are:

1. The choice of department or independent agency;
2. The choice of having a single agency or dividing the land areas among two or more;
3. The organization of the land areas into one or more systems;
4. The implication for budgeting; and
5. The organization of personnel.

Currently the management of natural resources is spread among a number of federal agencies including the Departments of Agriculture, Commerce, and Interior. Some resources are under the control of the Tennessee Valley Authority (TVA), an independent agency. This variety could allow for indirect competition among the agencies to see which can do the best job of managing. For example, competition might promote a certain amount of good-natured rivalry in areas such as discovering and instituting new techniques, and installing modern automated systems and other equipment.

Another issue for consideration in designing an administrative structure is whether to organize the land area according to what will be termed in this paper as the "reservation scenario" or the "wide-open-space scenario." The reservation scenario corresponds to military bases, national parks, and other discreet areas that have easily identified boundaries, gates and/or guards, and numerous signs. The wide-open-space scenario corresponds to the public lands administered by the BLM, and the offshore resources. Under this scenario, the BLM operated for many years more like a civilian landlord. Most of the actual activities on the BLM lands, such as oil drilling, mining, and ranching, were carried out by lessees or permittees. The BLM mainly checked on compliance with lease terms and collected rents and royalties. More recently, though, as the BLM has moved into operating activities such as wild horse management and recreation, and into law enforcement, more personnel have begun wearing uniforms, more signs have been erected, and other modifications have been adopted.²⁴ These indications of the reservation scenario are also evident in the spread of distinct national conservation areas, national

24. J. Muhn & H. Stuart, *supra* note 2, at 243-54.

recreation areas, and areas of critical environmental concern (ACECs).²⁵ A geographic design should consider the advantages and disadvantages of each scenario.

Budget and organization issues concern both the internal arrangement and the geographical scope of the agency. Various organization methods are possible. One is organizational division by resource with separate programs and budgets for coal, oil, wildlife, wilderness, and other resources. Another is division by geographic area, such as Alaska, national conservation areas, ACECs, districts, or ecosystems. A third possibility is division by function or goal, such as economic development, biological diversity, revenue enhancement, or historic preservation. Analysis of these various alternatives would help determine the most appropriate structure for the overall natural resource management bureaucracy. The analysis might also indicate a way to arrange budget line items and administrative programs so that they could be keyed to counteract any tendencies toward government failure on the part of the managing agency.

In the resulting framework, something like a "National Natural Resources System" would be authorized to function under the jurisdiction of one or more agencies. Its governing statute would contain criteria and tests for including lands in the system, principles and standards for managing the lands once they were included, and geographic and administrative specifications.

PART III—IMPLEMENTATION

The proposed natural resource management framework must address effective implementation by incorporating provisions in the enabling legislation which assure the framework's successful construction and operation. In their book, *Implementation and Public Policy*,²⁶ Daniel Mazmanian and Paul Sabatier point out that a variety of factors can either assure or impede successful implementation. They developed a list of crucial conditions needed for a statute to achieve its desired goals. Comparing FLPMA²⁷ with this checklist illustrates how an existing statute coped with effective implementation.

Condition 1: The enabling legislation or other legal directive mandates policy objectives which are clear and consistent or at least provides substantive criteria for resolving goal conflicts.

FLPMA has a clear statement of policy and provides criteria for resolving goal conflicts.²⁸ Nevertheless, conflicts are often resolved in favor

25. *Id.* at 255-57.

26. D. Mazmanian & P. Sabatier, *Implementation and Public Policy* 41-42 (1983).

27. See *infra*, note 11.

28. *Id.*

of previous statutes and contrary to the FLPMA declaration of policy. For example, section 302²⁹ directs BLM to manage the public lands under principles of multiple use and sustained yield, but then limits the application in the areas of hunting and fishing and mining claims. Section 102³⁰ mandates that the United States receive fair market value for use of public lands and resources unless otherwise provided by statute. Numerous statutes do provide otherwise, often making it difficult to keep track of what is due the government. Section 401,³¹ for example, requires that grazing fees be set according to what is "equitable" to the United States and the holders of the grazing permits. The result was that exceptions to the declaration of policy in FLPMA made implementation more complex and difficult.

Condition 2: The enabling legislation incorporates a sound theory identifying the principal factors and causal linkages affecting policy objectives, and gives implementing officials sufficient jurisdiction over target groups and other points of leverage to attain, at least potentially, the desired goals.

Section 102³² states that it is the policy of the United States that the public lands be retained in federal ownership. Thus, right at the start, FLPMA runs into a problem with incorporating a "sound theory." No study or theoretical reason explains why all the leftover public domain as of 1976 should stay in federal ownership. What rationale exists for having most of the coal west of the Mississippi under federal ownership, while most of the coal east of the Mississippi is under private ownership?³³ What rationale supports federal ownership of most grazing land in Nevada, while most grazing land in Texas is privately owned?³⁴ FLPMA provides no rationale. No sound theory was incorporated into FLPMA for deciding whether lands and resources should be nationalized or privatized. Consequently, placement of natural resources in either form of ownership appears to be arbitrary and capricious.

Condition 3: The enabling legislation structures the implementation process so as to maximize the probability that implementing officials and target groups will perform as desired. . . .

Effective implementation of FLPMA was addressed right at the start in the case of enforcement. The act required the issuance of regulations to protect the public lands.³⁵ It also provided several methods of enforce-

29. 43 U.S.C. § 1732(b) (1982).

30. *Id.* § 1701(a)(9).

31. *Id.* § 1751(a).

32. *Id.* § 1701(a)(1).

33. Department of the Interior, *supra* note 22.

34. Bureau of Land Management, *supra* note 1, at 22-23.

35. 43 U.S.C. § 1733(a) (1982).

ment including civil litigation to prevent any person from violating the regulations and contracts with local authorities for assistance.³⁶ In fact, FLPMA gave the BLM its first general law enforcement authority covering all public lands.³⁷ This was a major step forward in terms of implementation.

Condition 4: The leaders of the implementing agency possess substantial managerial and political skill and are committed to statutory goals.

Before FLPMA, the Director of the BLM was a career civil servant. The Director's superior, the Assistant Secretary, was a political appointee. FLPMA not only made the position of Director a political appointment, but also made it subject to Senate confirmation.³⁸ This provided the opportunity to obtain a high degree of political skill in top management.

Condition 5: The program is actively supported by organized constituency groups and by a few key legislators (or a chief executive) throughout the implementation process, with the courts being neutral or supportive.

The political and ideological change from the Carter Administration to the Reagan Administration generated significant controversy over the management of natural resources.³⁹ Some groups actively supported retention of public lands, but these were initially the environmental groups and their allies, including a few key legislators. The changes to public lands policy after 1976 were viewed negatively by many commodity groups who had allies and key legislators on their side. After 1980, many FLPMA supporters were in the uncomfortable position of opposing policies of the agency charged with implementing FLPMA.⁴⁰ This turmoil probably slowed the implementation of some aspects of FLPMA, such as land use planning.

Condition 6: The relative priority of statutory objectives is not undermined over time by the emergence of conflicting public policies or by changes in relevant socio-economic conditions which weaken the statute's causal theory or political support.

Conflicts, as discussed in the analysis of Condition 5, tended to undermine some of the political support for FLPMA. By 1980, the so-called Sagebrush Rebellion was in progress.⁴¹ This was a campaign in parts of

36. *Id.* § 1733(b), (c).

37. J. Muhn & H. Stuart, *supra* note 2, at 195.

38. 43 U.S.C. § 1731(a) (1982).

39. Barton, *Bureau of Land Management*, in Audubon Wildlife Report 8-9 (1987).

40. *Western Public Lands: The Management of Natural Resources in a Time of Declining Federalism* (J. Francis & R. Ganzel eds. 1984).

41. J. Muhn & H. Stuart, *supra* note 2, at 221.

the western United States to either turn public lands over to state governments or sell them to private parties. At the same time, the federal government began an asset management campaign to sell some public land to help pay the national debt.⁴² These initiatives conflicted with the retention policy of FLPMA. Eventually, both the Sagebrush Rebellion and the asset management program lost support and were abandoned. As the official BLM history points out:

Many agencies argued that excess properties identified under the program might be needed under federal ownership in the future. Conservation groups distrusted the Interior Department's motives in disposing of federal lands and criticized what they perceived as the program's broad scope. Most BLM land users, when confronted with the prospect of purchasing land at fair market value, found they preferred that the lands remain in public ownership.⁴³

The sharp declines in commodity prices (oil, coal, beef) caused political pressure to swing from capturing revenue for the United States treasury to finding ways of providing government relief. This further undermined the fair market value policy stated in FLPMA.⁴⁴

All of these problems in implementation are not surprising, however, for FLPMA was a product of controversy and compromise. The statute was not a fresh start with a clean slate. Still, it is worthwhile contemplating what benefits a fresh start might offer. A theoretical design can often provide hints for future reform.

PART IV—ILLUSTRATIONS

One of the most basic natural resources is the soil. Cities and civilization depend on cultivation of the soil for food and fiber. The United States is blessed with a vast expanse of land suitable for cultivation. Some of this land, however, is subject to severe erosion by wind and water. The dust bowl of the 1930s is an important indication of what can happen, and there have been more instances of severe erosion since then.⁴⁵ One case study concludes that "soil conservation efforts, therefore, undertake many individual projects but fail to protect the nation's soil resources."⁴⁶ Thus, soil furnishes a good example for illustrating features of the proposed management framework.

42. *Id.* at 221-22.

43. *Id.* at 222.

44. See *supra* note 30 and accompanying text.

45. S. Batie, *Soil Erosion* xiii (1983).

46. Browne & Meier, *Choosing Depletion: Soil Conservation and Agricultural Lobbying*, in Scarce Natural Resources 273 (S. Welch & R. Miewald eds. 1983).

The Buffalo Commons

The high rate of soil erosion in conjunction with other physical and economic factors has led two authors to foresee dire consequences for the Great Plains. Deborah and Frank J. Popper predict "that over the next generation the Plains will, as a result of the largest, longest running agricultural and environmental miscalculation in American history, become almost totally depopulated."⁴⁷ Their argument is based on a list of failures:

The Homestead Act and the succeeding federal land subsidies for settlers amounted to attempts to privatize the Plains, to take them out of the federal domain and put them permanently in individual or corporate hands. Today's subsidies for crops, water, and grazing land amount to attempts to buttress the privatization. But private interests have proved unable to last long on the Plains. Responding to nationally based market imperatives, they have overgrazed and overplowed the land and overdrawn the water. Responding to the usually increasing federal subsidies, they have overused the natural resources the subsidies provided. They never created a truly stable agriculture or found reliable conservation devices. In some places, private owners supplemented agriculture with inherently unstable energy and mineral development.⁴⁸

The Poppers claim that drought will inevitably return, that the aquifers are running dry, and that the desertification in many areas is already severe.⁴⁹ They say that agriculture on the Great Plains is often unprofitable and federal subsidies seem inadequate to keep private interests afloat, so that "much of the Plains will inexorably suffer near-total desertion over the next generation."⁵⁰

When the Great Plains reach this stage, the Poppers contend,

the only way to keep the Plains from turning into an utter wasteland, an American Empty Quarter, will be for the federal government to step in and buy the land—in short, to deprivatize it. . . . The federal government's commanding task on the Plains for the next century will be to recreate the nineteenth century, to re-establish what we would call the Buffalo Commons. . . . The Buffalo Commons will become the world's largest historic preservation project, the ultimate national park.⁵¹

47. Popper & Popper, *The Great Plains: From Dust to Dust*, 53 *Plan.* 12 (Dec. 1987).

48. *Id.* at 16.

49. *Id.* at 15.

50. *Id.* at 17.

51. *Id.* at 17-18. Note that the dictionary definition of "commons" is "a piece of land subject to common use: as undivided land used especially for pasture." Webster's Ninth New Collegiate Dictionary 266 (9th ed. 1983). Public land on the Great Plains was a commons prior to the establishment of federal grazing districts. Anderson & Hill, *From Free Grass to Fences: Transforming*

As for effective implementation of such a scheme, the authors suggest an agency like the TVA or the BLM, but with much broader powers.⁵²

The Buffalo Commons is a serendipitous example of using rational planning to solve a natural resource problem. It has some parallels to the framework suggested in this paper, such as the importance of analyzing the reasons for government intervention, and illustrates that others have used a somewhat similar theoretical analysis to identify lands suitable for BLM-type jurisdiction.⁵³

Although the Poppers claim that a number of inappropriate policies by the government have exacerbated the dust bowl problem,⁵⁴ more analysis is needed concerning public sector versus private sector ownership to determine which is best. They argue that on the lands that were privatized by homesteading, private interests only continue by means of federal subsidies.⁵⁵ If subsidies are inappropriate, they appear to result from government failure due, perhaps, to interest group lobbying. The remedy would ordinarily be to stop the subsidies, rather than to change ownership, unless this is a special case where government ownership could counteract government failure.

The Poppers have advanced a scenario based on a theoretical discussion of government intervention. Their proposal offers an opportunity for additional research to develop the actual jurisdiction, standards, and admin-

the Commons of the American West, in *Managing the Commons* 200-16 (G. Hardin & J. Baden eds. 1977). The districts were largely established to remedy the problem of serious overgrazing under the commons arrangement. J. Muhn & H. Stuart, *supra* note 2 at, 35-37. In other words, the original Great Plains commons was unsatisfactory, at least after the arrival of non-Indians. It was partially privatized as a response. The portion not privatized was changed from a commons to a system of leases, licenses, and permits. Anderson & Hill, *supra* at 208. Consequently, the name "Buffalo Commons" is probably not quite appropriate. In a commons any citizen can hunt or fish at pleasure, or can graze animals at will. The envisioned Buffalo Commons might not be an actual commons, but rather a very large range where buffalo could roam under restrictive conditions. In the absence of natural enemies, the buffalo might have their numbers kept in check by man-made methods. In any event, solutions would need to be found for problems similar to those in the national parks. Critics point out that national park status solves some problems, but creates many new ones. The raging controversies over whether to let natural fires burn, whether to bring back wolves, whether to remove excess elk, how to protect grizzly bears, and what to do with automobiles show that government ownership is no panacea. See, *The Yosemite Crush*, *The International Herald Tribune*, Aug. 19-20, 1989, at 14; *For Yellowstone Bears, Nature Works*, *N.Y. Times*, Aug. 20, 1989; *A Wolf's Best Friend May Yet Turn Out to Be Man*, *Washington Post*, Aug. 23, 1989, at A3.

52. Popper & Popper, *supra* note 47, at 18.

53. The discussion of the problems of the Great Plains is not merely an academic exercise. The Buffalo Commons has sparked public interest. For example, *The Washington Post* printed a shortened version of the Poppers' article, as well as a rebuttal by a congressman from Kansas. *Saving the Plains: The Bison Gambit*, *Washington Post*, Aug. 6, 1989, at B3; *Buffaloed*, *Washington Post*, Aug. 12, 1989, at A17. This exchange was followed by a front page feature story in the *Wall Street Journal* which makes it clear that numerous areas on the Great Plains are literally going back to nature. *On the Great Plains, Life Becomes a Fight for Water and Survival*, *Wall Street Journal*, Aug. 16, 1989, at 1.

54. Popper & Popper, *supra* note 47, at 14.

55. *Id.* at 16.

istration, perhaps using a rational planning approach like that set forth in this paper. Unfortunately, we are faced with "a choice between imperfect markets and imperfect governments, as well as imperfect combinations between them."⁵⁶

Soil Erosion Management

Although the Poppers' article discussed only the Great Plains, soil erosion plagues many parts of the United States. The Soil Conservation Service (SCS) has identified six serious erosion areas in the United States:⁵⁷

1. The Palouse dryfarming area in Washington, Oregon, and Idaho;
2. The hard red wheat lands in southeastern Idaho;
3. The cotton and grain sorghum lands in the Texas Blackland Prairie;
4. The cropland in the Southern Mississippi Valley;
5. The Corn Belt States; and
6. The potato lands in Aroostook County, Maine.

Unlike the Great Plains, which suffer from severe wind erosion, these areas are primarily threatened by water erosion.⁵⁸ The existing institutional framework has not solved this serious problem after more than 50 years; a new framework is surely needed.

The Conservation Foundation, in a study of soil erosion, identified eight alternatives for action.⁵⁹ These were: education; technical assistance; economic incentives; economic disincentives; regulation; public ownership; demand management; and reduction of exports. Public sector ownership was only one of the eight possible solutions. This emphasizes the need for relatively sophisticated analyses of the erosion issue in order to identify areas where public sector ownership would be the remedy of choice. The same is true of resources other than soil.

In addition to severe soil erosion, the Soil Conservation Service lists other soil and water related problems, including the condition of non-federal forest lands, unreclaimed abandoned coal mines, significant losses of wetlands and bottomland hardwood forests, inadequate surface water supplies, significant groundwater overdrafts, frequent floods, and sediment and salinity pollution.⁶⁰ This paper's approach would pinpoint geographic areas where many of these problems occur together. Then, the institutional framework would be adjusted through market failure/government failure analysis. Other natural resources such as air, vegetation, animals, energy and minerals could be examined in a similar manner, with the goal of more effective management.

56. C. Wolf, Jr., *Markets or Governments* xiii (1988).

57. Soil Conservation Service, *America's Soil and Water: Condition and Trends* 9 (1981).

58. *Id.* at 8.

59. S. Batie, *supra* note 45, at 113.

60. Soil Conservation Service, *supra* note 62, at 11-32.

CONCLUSION

This paper suggests developing a new framework for natural resource management based on the political economy paradigm. Applied research to determine the feasibility of this framework should be undertaken. Although it is not realistic to expect Congress to radically rearrange the ownership patterns of the nation, some readjustments could proceed. Applied research and development projects could provide benefits immediately, even without a large-scale change in ownership. For example, a model statute could be designed and drafted to provide inclusive management principles for areas with multiple resources and resource uses. Even a theoretical fresh start can point the way to future improvement.