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Natural Resources, Contending Theoretical Perspectives, and the Problem of Prescription: An Essay

ABSTRACT

Natural resource studies have gained increasing scholarly attention, yet these studies have remained outside the mainstream of political science inquiry. This essay explores why it is that natural resources political studies have failed to attain greater prominence, reviews the strong prescriptive tradition characterizing these studies, and offers a critique of the major theoretical constructs used to explain natural resource policy. It is argued that explanation can best be advanced by developing greater interconnections between theory and observation.

Today should be the golden age of natural resources political studies. Many of the traditions of inquiry that have characterized natural resources policy analysis during this century are now finding increasing favor in the general field of political inquiry. There has been increased interest in qualitative analysis, along with an increased willingness to assign central importance to the role of values in political inquiry and to rely on the use of narrative in policy analysis.¹ These strategies of inquiry have long characterized much of the work in natural resources studies. The explanation for these new approaches may be that during the past decade a number of the conventions governing political inquiry have come under increasing criticism within the discipline of political science and its related policy science fields. Criticisms have been directed at the assumption of objectivity in social scientific inquiry. Doubts have been raised about reliance on multivariate statistical techniques and the use of large scale samples. Correspondingly increasing interest has been given to qualitative analyses.

Yet today is not the golden age of natural resources political studies. A review of the major disciplinary journals reveals relatively few articles containing natural resources subject matter. This fact is all the more striking given the significant increase in natural resources studies over

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1. For a discussion of new perspectives in public policy analysis, see Kaplan, *The Narrative Structure of Policy Analysis*, 5 J. Pol'y Analysis & Mgm't 761 (1986); Krieger, *Big Decisions and a Culture of Decisionmaking*, 5 J. Pol'y Analysis & Mgm't 779 (1986); Doran, *A Comment: Telling the Big Stories—Policy Responses to Analytical Complexity*, 5 J. Pol'y Analysis & Mgm't 798 (1986).

the past fifteen years. The field's weakness in contributing to the mainstream of political inquiry is sometimes attributed to the fact that much of the work in the field occurs in the west, the nation's periphery, rather than at the nation's center.² Others would argue that much of the research in the field is expressed in a narrative tradition lacking in theoretical interest. The argument advanced in this essay is that much of the apparent trendiness and the marginal position of the field may in large measure be attributed to the same factor: the central importance of the prescriptive tradition in natural resources studies.

INTRODUCTION

The natural resources field has embraced a remarkable range of methodologies and perspectives. This diversity in approaches to investigation obviously makes it difficult to characterize the field as possessing either a distinctive theoretical or a distinctive methodological perspective. Indeed, this range may be the field's strength, given contemporary concern in the scholarly literature to approach inquiry with multiple methodologies. A review of the literature in the journals and books that emphasize natural resources studies suggests no lack of scholarly exchange. In some other policy fields there appears much more in the way of consensus on the principal points of interpretation. In contrast, students of natural resources politics relish lively debate and the clash of contending perspectives. The field is not conducted in a passive or a distant voice. Yet this changing climate of inquiry has not, at least to date, generated a reputation for natural resources as a field on the frontier of political inquiry.

This paper offers a critique of some of the theoretical constructs employed in the field of natural resources in order to assess the relationship between natural resources studies and the general discipline of political inquiry. In general, the questions that have been raised about inquiry in natural resources studies are applicable to other field studies. A common criticism of area studies, such as natural resources or health care, is that the subject overwhelms the purported objective of policy analysis. A hazard of both biographies and field studies is the risk of heliocentrism: key events and issues of considerable importance are said to revolve around the subject of the biography or the field inquiry. The field's importance is stressed to the point of obscuring its place in the larger context of political inquiry. Obviously the importance assigned by the investigator to the field is the reason why he or she decided to write in the area. Nonetheless, securing a broader audience for the researcher's findings

2. For example, all but four of the twelve authors anthologized in Foss's recent anthology on public lands policy are from the west. P. Foss, *Federal Lands Policy* 1 (1987).

requires that he or she reflect persuasively on how the field relates to the general discipline of political inquiry rather than treat the field as insulated from other currents of inquiry.

The objective of political inquiry, presumably, is to offer an explanatory account, not simply a descriptive account. Some critics have charged that natural resources studies, like many policy area studies, are too descriptive and correspondingly insufficiently attentive to paradigmatic or comparative theoretical treatment. Such descriptive efforts are said to be unguided by an explicit theoretical agenda. Therefore, while they may provide a sense of what is important about a specific event or series of events pertinent to a specific natural resources issue, they fail to produce persuasive explanations. Indeed, broadly based strategies of observation and data collection do not appear to be an important component of the field's research tradition. Findings and conclusions are often based upon fairly specifically defined case studies. Many studies in natural resources politics, notably policy studies, are limited in time and in place. Environmental attitudinal surveys are often based on local populations and only occasionally employ national samples. Even the biological and economic data employed for political analysis come from data sets applicable to quite specific populations located in limited geographical areas. This strongly localist research strategy can present problems in generating bases for generalization. There appear to be a relatively small number of what may be described as major studies in the field that are based on broadly conceived strategies of investigation. The consequence of the relatively small number of major studies is that many of the published studies in natural resources politics are elaborations or reassessments of existing arguments and data. In short, there is a good deal of reconsideration of existing but limited observations rather than a concerted effort to build new, more inclusive observational bases.

A review of contemporary scholarly publication in the field of natural resources suggests, however, that the criticism of natural resources as overly descriptive is neither an accurate depiction nor the most distinctive dimension of studies found in the natural resources field. It is central to understanding political inquiry in natural resources to recognize that it has long been guided by a strong commitment to policy prescription. The published natural resources research often claims a clear linkage between research findings presented and specific prescriptive policies. Yet there is a paradox in the field of natural resources studies. On the one hand, the force behind the elan among students of natural resources is the prescriptive tradition. On the other hand, what is argued below is that the limitations in the field, notably in studies with limited empirical bases and expansive conclusions, may be attributed to the same strong prescriptive tradition.

THE PRESCRIPTIVE TRADITION IN NATURAL RESOURCES STUDIES

Three principal themes are pertinent to understanding the strong prescriptive context in which natural resource studies have evolved. The first is the question of state interest in the control and development of natural resources judged critical to the security of the state. The second is the belief that there is a strong connection between the pattern of control and allocation of natural resources and the shape and stability of political institutions. The final theme is the tradition that the state needs to preserve and to protect the natural environment as a fundamental source of values for human communities. These three traditions are interwoven into natural resources political inquiry in many nations, particularly the United States.

The security of the state as defined in protecting and managing critical natural resources is intimately a part of all national and imperial traditions. The state protection of stands of pines and deposits of saltpeter are, historically, two common examples of state security interests. Protection of resources was apparent in legislation even during the Articles of Confederation.³ Most recently, it became an issue in the 1970s and 1980s in the debate over whether to engage in exploratory mapping and drilling for strategic minerals on the public lands in the western states. In a variation on this theme, the connection between national security and natural resources is now reflected in the demands for empty space either to dispose of high level hazardous wastes or to locate defense systems.⁴

The relationship between natural resources and state autonomy is related to the enduring question of the bases for democratic political institutions. It is not a long public policy journey from concern over the external security of the state to the question of the consequences of natural resource management for internal political stability. Issues of institutional stability and the nature of political institutions have been long associated with the use and control of natural resources. Institutional stability is usually manifested in debates over land tenure and land reallocation. Hobbes encouraged the sovereign to consider periodic reallocation of resources on prudential grounds, if in his judgment great concentration of resources in the hands of the few could invite challenges to political stability.⁵ A separate, but clearly related, argument connects the distri-

3. Treat, *Origins of the National Land System Under the Confederation*, in *The Public Lands: Studies in the History of the Public Domain* 7 (V. Carstensen ed. 1968).

4. C. Davis & J. Lester, *Dimensions of Hazardous Waste Politics and Policy* (1988); L. Holland & R. Hoover, *The MX Decision: A New Direction in U.S. Weapons Procurement Policy?* (1985).

5. T. Hobbes, *Leviathan* (W. Molesworth ed. 1839). For a discussion of the relationship between distributive justice and political stability in Hobbes, see D. Gauthier, *The Logic of Leviathan* 144 (1969).

bution of natural resources not just to the stability of political institutions but to the type of political institutions found in a community.

An important theme in Congressional debates during the nineteenth century over how to dispose of the nation's natural resources was the avoidance of great estates and the affirmation of small farms as appropriate for a property owning democracy.⁶ Lord Durham, writing in the 1830s on behalf of the British Government concerning what should be the shape of Canadian political institutions, dismissed the seeming success of American political institutions as untested, given that the vast unclaimed lands and resources substantially reduced demands on American political institutions for the politics of redistribution.⁷ The remarkable ease with which mid nineteenth century miners secured mineral rights on the public domain seems to have supported Durham's contention that resources were so abundant that the federal government could with relative ease—that is without challenge from other groups—grant the miners their claims.

The American reformist movements, notably the Progressive movement, reflect in their critique of natural resources control and development both the concern over how natural resources use and control relate to the practice of political institutions and how such issues pertain to the security of the state. The Progressives at the turn of the century argued for a conception of popular democracy that could transcend what was viewed as corrupt local administration. Reformers in the Progressive tradition argued for administration of natural resources by experts employed by upper levels of government, notably the federal government. The Progressives saw serious shortcomings in private ownership of natural resources. In their view, preoccupation with short term exploitation of natural resources sought quick profit rather than a prudential longer term strategy for resource development. Rapid depletion of natural resources threatened the security of the state by raising the spectre of insufficient reserves of such resources as timber and coal.⁸

By the mid-twentieth century, it was apparent that many Americans had fully reversed the arrow of causality and believed that democracy in some very real fashion produced abundance in natural resources rather than that the existence of natural abundance was a factor in promoting democratic institutions. In David Potter's judgment, democracy for many Americans became coterminous with economic growth.⁹ There is little

6. P. Gates, *History of Public Land Law Development* (1968).

7. G. Craig, *An Abridgement of the Report on the Affairs of British North America* by Lord Durham (1963).

8. See S. Dana & S. Fairfax, *Forest and Range Policy: Its Development in the United States* (2d ed. 1980); S. Hays, *Conservation and the Gospel of Efficiency* (1960).

9. D. Potter, *People of Plenty, Economic Abundance and the American Character* (1954).

question that for students of politics there is a long tradition of viewing natural resource issues as fundamentally shaping political institutions and political stability.

The claim that the relationship between nature and mankind is morally instructive is of considerable antiquity. It reflects traditions of prudential use of nature's resources as well as traditions that find in undisturbed nature a profound source of moral regeneration. Both traditions stress the importance of nature and the moral hazard of human communities that distance themselves from nature. The two traditions converge in what is often a harsh critique of urban life which is removed from either the moral discipline of conservation or the morally generative power of nature.

Jefferson believed "cultivators of the earth are the most valuable citizens. They are the most vigorous, the most independent, the most virtuous, & they are tied to the country and wedded to its liberty and interest by the most lasting bonds."¹⁰ For Jefferson, farming was far more conducive to morality than was urban life. Tocqueville likewise regarded the size of certain American cities "as a real danger which threatens the future security of the democratic republics in the new world."¹¹ This celebration of the virtues of agriculture is still apparent nearly two centuries later in American films and novels.¹²

Jefferson and Tocqueville celebrated agricultural pursuits as generating moral obligations as well as producing an appreciation of liberty and democratic values. This celebration is transformed in the perspective of Thoreau. In *Walden*, Thoreau advocated withdrawal from society and life close to nature in order to achieve fresh moral awareness and a clear sense of what is important and what is trivial in social life.¹³ Thoreau's appreciation of the moral strength of nature, particularly the beauty of nature, is found in such writers as John Muir.¹⁴ Such writings contributed toward what has become a powerful movement for interpreting undisturbed nature as the principal source of health, beauty and moral force, as Hays has described the environmentalist movement in his recent study.¹⁵ Another variation on this theme is reading into nature the political world as the observer would want it to be, as some may read into nature desirable forms of relationships between the sexes.¹⁶

Goethe argued that people should live close to nature.¹⁷ Jefferson and

10. T. Jefferson, *Writings* 818 (1984).

11. A. de Tocqueville, *Democracy in America* 370 (F. Bowen trans. & ed. 1862).

12. Examples of recent films celebrating agrarian life include *The River* and *Places in the Heart*.

13. H. Thoreau, *Walden and Other Writings* 165-78 (J. Krutch ed. 1971).

14. J. Muir, *John of the Mountains: The Unpublished Journals of John Muir* (L. Wolfe ed. 1938);

J. Muir, *The Wilderness World of John Muir* (E. Teale ed. 1954).

15. S. Hays, *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955-1985* (1987).

16. C. Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution* (1980).

17. J. Goethe, *Italian Journey* 320 (W. Auden & E. Mayer trans. 1962).

Tocqueville took this judgment down the specific political path that urban life was a threat to the moral basis of republican institutions and agrarian life its corresponding salvation. The political burden for some commentators is designing political institutions that will realize the goal of defending nature's delicate balance rather than seeking in nature a defense of the constitutional delicate balance. Garrett Hardin, in his often quoted metaphor of the tragedy of the commons, conveys the message that poorly designed institutions will inevitably lead to the depredation of nature's resources.¹⁸ Indeed, questions in political institutional design have preoccupied political scientists who have debated whether appropriate public policies for natural resources can be separated from fundamental questions of institutional structure.

EXPLANATORY MODELS AND NATURAL RESOURCES STUDIES

Students of natural resources are highly likely to come to the field with a strong connection between natural resources policies and core political values. Writers in the field have a strong sense of stake in policy outcomes. It is apparent to readers of popular analyses of natural resources politics, such as *Cadillac Desert*,¹⁹ *A River No More*,²⁰ and *Westward in Eden*,²¹ that such works are strongly informed by prescriptive policy agendas. The judgment of this essay is that both popular accounts of natural resources politics and scholarly inquiries are separated by the conceptual frameworks employed and the methodologies utilized, but are united in being driven by this pervasive prescriptive tradition.

At least four theoretical constructs have enjoyed widespread application in natural resources political studies: group theory, the rational choice paradigm, social psychological constructs of attitude formation, and elite/conflict models. It is argued below that the applications of these constructs in the field of natural resources are informed by the prescriptive tradition discussed in the preceding section. A caveat is needed, however, for these four constructs by no means exhaust the range of inquiry, nor are all natural resources studies prescriptively written. Clearly, for example, studies of bureaucratic power have found fertile ground in the natural resources field. Often, however, these studies concentrate much more on organizational behavior, such as the ability of organizations to ensure that their staffs remain loyal to the organization's goals. Studies from Herbert Kaufman's classic work on the Forest Service²² to Clarke and McCool's studies of natural resources agencies²³ reflect the use of the bureaucratic

18. Hardin, *The Tragedy of the Commons*, 162 *Sci.* 1243 (1968).

19. M. Reisner, *Cadillac Desert: The American West and Its Disappearing Water* (1986).

20. P. Fradkin, *A River No More: The Colorado River and the West* (1981).

21. W. Wyant, *Westward in Eden* (1982).

22. H. Kaufman, *The Forest Ranger: A Study in Administrative Behavior* (1960).

23. J. Clarke & D. McCool, *Staking Out the Terrain: Power Differentials Among Natural Resource Management Agencies* (1985).

power paradigm. Kaufman sought to insulate his study from any judgment about the value of the tasks performed by the rangers.²⁴ Clarke and McCool, in sharp contrast, have sought to place organizational behavior in the broader prescriptive framework of the public trust. The bureaucratic power studies, however, have a very limited explanatory range, whereas the models explored in this essay have sought to encompass a wider range of political relationships. The argument of this essay is that without understanding the prescriptive tradition it is difficult to understand how conceptual frameworks have been employed in many natural resources studies. The focus in this essay is the particular analytical challenge provided by the interplay of theory and observation guided by the prescriptive tradition.

Group Theory

Perhaps the most frequently employed theoretical construct in natural resources studies is group theory. Group theory, as employed here, is the analysis of the relationships found among interest groups, legislatures and the executive agencies in the development of resources policy. The nature of the relationships among these three component parts is subject to a good deal of contending interpretation in the general policy literature.²⁵ Much of what has been written during the past generation in the field of natural resources that has employed group theory has been in language that does not require deconstruction to reveal a strong sense of moral judgment. These moral judgments have been expressed through reliance on conceptual frameworks such as triangulation, capture, cooptation and resource distribution. The judgment is often the same: that public goals for resources use have been thwarted.

The prevailing interpretation in American political analysis is that where there is a stable policy relationship it is likely to be based on a close understanding of mutually understood interests that has developed among a specific interest group, the relevant congressional members, and the appropriate federal agency. The persistence of this relationship, even in the face of external threats, is described as an iron triangle. The geometry grows in complexity if different groups and agencies are added so that one might end up with a iron pentangle. The image of welded relationships between groups and governing institutions has long been a compelling one both in American political rhetoric and in American political analysis. In natural resources studies, particularly water project studies, iron triangles have been employed extensively to account for the persistence of funding levels of major projects even in times of budgetary constraint,

24. H. Kaufman, *supra* note 22, at xi.

25. J. Nagel, *Participation* 145-59 (1987).

controversies over market need for the water or the power generation associated with the water project, and serious environmental challenge. The work of Grant McConnell²⁶ and, more recently, of Dan McCool²⁷ are illustrative of efforts to trace these complicated political relationships over time in water project development and management.

Iron triangle investigations concentrate on sustained relations in the allocation of resources among groups, office holders, and bureaucracies. Why do some groups obtain significant benefits and other groups receive relatively fewer benefits? How do such alliances handle external challenges? On the relative success of groups, McCool argues that two sets of triangles have operated in the west. Competing triangles of Indian and non Indian water users yield a clear record of political accomplishment for non Indian interests. This differential record of water development when the presumed controlling court decisions favor Indian interests would appear to be striking support for the strength of the iron triangle model.²⁸ For the exploration of external challenges to the existing water alliances of groups, agencies, and legislators, the notable example is the Carter water project hit list of the 1970s. Miller's assessment of the ability of alliances to secure resources even at the expense of nationally elected executives raises challenging questions concerning accountability and the meaning of democratic responsibility.²⁹ These issues are all the more dramatic against the highly visible physical transformations wrought by water projects.

A review of the research employing iron triangle models would, I contend, reveal a strong judgmental tone. The sense of unjust allocation or the public interest thwarted are important themes in the work. This moral sense may be the result of concerns about how to translate majoritarian will into effective public policy in the face of pluralist challenges and questions over the value of large scale water resource development.

The iron triangle literature implies a mutuality of interests and a rough balance of power among the component interests. Two principal variations of this relationship between groups and governmental power may best be understood as points which would be located on a continuum on either side of iron triangles. The variations are capture and cooptation respectively.

The capture model challenges the conception of policy making as a result of a finely tuned balance of mutual interests among politicians,

26. G. McConnell, *Private Power in American Democracy* (1966).

27. D. McCool, *Command of the Waters: Iron Triangles, Federal Water Development, and Indian Water* (1987).

28. *Id.* at 248-52.

29. Miller, *Recent Trends in Federal Water Resource Management: Are the "Iron Triangles" in Retreat?* 5 *Pol'y Stud. Rev.* 412 (1985).

regulators, and user groups. The capture model's perspective offers an account of the clear domination of an agency by the very user groups which are identified for regulation by the agency. The work of Foss, *The Politics of Grass*, is a classic exposition of the capture thesis.³⁰ Indeed, Foss's study set the terms for the discussion in the literature of natural resources politics for the past thirty years. In the succeeding decades, the debate has been over the extent to which the agency has remained captured by the cattlemen or has been wrested from the cattlemen and is now controlled by environmentalists. In the judgment of some, most notably Culhane, of late the Bureau of Land Management has achieved a measure of autonomy in balancing grazing interests on the one hand and environmentalist interests on the other hand.³¹ There can be little doubt that for the most part researchers writing about the Bureau of Land Management, from Foss to Fairfax³² and, most recently, Coggins,³³ have been strongly influenced by the capture debate. The debate is not simply an exercise in understanding bureaucratic autonomy but an effort to understand the prospects for realizing preferred values in governing the public lands.

At the other end of the continuum is cooptation, the phenomenon of an agency successfully securing the support of an interest group for agency goals. Cooptation is a concept with analytical force in the public administration literature. It first caught attention in Selznick's seminal study of TVA.³⁴ Selznick's study is instructive, for it is surely one of the few studies in the larger field of natural resources which makes a theoretical contribution that both illuminates and transcends the narrow topic at hand. Applications of cooptation models in natural resources studies are clearly found in the literature on water projects, notably in discussions of the relationship between conservancy districts and the Bureau of Reclamation. The Army Corps of Engineers, in the judgment of Mazmanian and Nienaber, is a government agency of considerable political skill.³⁵ Conscious of shifting political currents, during the 1970s the agency has shifted from support for dam building to environmental reconstruction projects.

30. P. Foss, *Politics and Grass* (1960).

31. P. Culhane, *Public Lands Politics* (1981).

32. Fairfax, *Beyond the Sagebrush Rebellion: The BLM as Neighbor and Manager in the Western States*, in *Western Public Lands 79* (J. Francis & R. Ganzel eds. 1984).

33. Coggins, *The Law of Public Range Land Management I: The Extent and Distribution of Federal Power*, 12 *Env't'l L.* 535 (1982); *The Law of Public Range Land Management II: The Commons and the Taylor Act*, 13 *Env't'l L.* 1 (1982); *The Law of Public Range Land Management III: A Survey of Creeping Regulation at the Periphery*, 13 *Env't'l L.* 295 (1985); *The Law of Public Range Land Management IV: FLPMA, PRMA and the Multiple Use Mandate*, 14 *Env't'l L.* 497 (1984); *The Law of Public Range Land Management V: Prescriptions for Reform*, 14 *Env't'l L.* 497 (1984).

34. P. Selznick, *TVA and the Grass Roots: A Study in the Sociology of Formal Organizations* (1966).

35. D. Mazmanian & J. Nienaber, *Can Organizations Change?: Environmental Protection, Citizen Participation and the Corps of Engineers* (1979).

An important part of the agency's ability to shift focus was the agency's sensitivity to, if not its deliberate cultivation of, voices of new clientele groups.

Possibly the most frequently cited political scientist in the discipline is Theodore Lowi. His critique of governmental allocation in the 1960s became a powerful tool in the application of group theory.³⁶ Lowi argued governmental decisions concerning distribution and redistribution of resources were in large measure the result of the skilled efforts of organized interests at every stage of policy making. Less well organized interests or any wider conception of the public interest seemed to lose out. Applications of interest group liberalism are clearly apparent in both the work of Dean Mann³⁷ and Helen Ingram³⁸ in their respective studies of politics and water issues in the Southwest. Particular themes in the work of Ingram merit special attention in this discussion of interest group liberalism: the emphasis on fragmentation in decisionmaking and the introduction of new groups into the allocative process. In their study of political representation in the four corners states, Ingram, Laney, and McCain point out that general support for environmental concern is unlikely to be translated into state legislative action unless interest groups exist that can effectively channel this public concern into specific issue areas.³⁹ Ingram and Ullery argue that a fragmented political system facilitates entrepreneurship, for example, there are a multiplicity of different policy settings with widely dispersed resources which increases the motivation for risk taking and innovation.⁴⁰ Godwin and Ingram⁴¹ contend that the decline of parties and declining cost of political action have greatly increased the vulnerability of decisionmakers to a range of new interest groups. Among the prominent examples of single issue groups are anti-nuclear energy groups.

Perhaps a good illustration of the power of the prescriptive tradition

36. T. Lowi, *The End of Liberalism* (1969); *Nationalizing Government* (T. Lowi & A. Stone eds. 1978).

37. D. Mann, *Interbasin Water Transfers: A Political and Institutional Analysis* (1972); D. Mann, G. Weatherford, & P. Nichols, *A Legal-Political History of Water Resource Development: The Upper Colorado River Basin* (1974); Mann, *Institutional Framework for Agricultural Water Conservation and Reallocation in the West: A Policy Analysis*, in *Water and Agriculture in the Western U.S.: Conservation, Reallocation, and Markets I* (G. Weatherford ed. 1982).

38. Ingram, Scaff, & Silko, *Replacing Confusion with Equity: Alternatives for Water Policy in the Colorado River Basin*, in *New Courses for the Colorado River: Major Issues for the Next Century* 177 (G. Weatherford & F. Brown eds. 1986).

39. H. Ingram, N. Laney, & J. McCain, *A Policy Approach to Political Representation: Lessons from the Four Corners States* (1980).

40. Ingram & Ullery, *Political Innovation and Institutional Fragmentation*, 8 *Pol'y Stud. J.* 664 (1980).

41. Godwin & Ingram, *Single Issues: Their Impact on Politics*, in *Why Policies Succeed or Fail* 279 (H. Ingram & D. Mann eds. 1980).

in natural resource studies is Ingram's ability to draw upon the claims described above in her work with Brown on water allocation and the poor in the southwest. Brown and Ingram⁴² accept the judgment that there has been a turning point in western water politics from water development to water management. Implicit in their argument is that under conditions of water development powerful groups tend to prevail at the expense of weaker groups. But they also advance the claims that the politics of water management allocation are increasingly open and that sufficient points of leverage exist for groups representing poor communities of the southwest to defend their interests. It is an appealing hypothesis advanced by the authors that is also quite clearly treated as a recommendation for the Indian communities of the Southwest to take as an opportunity for political participation.

A useful transition from group theory to the public choice perspective is a review of Robert Nelson's thoughtful studies of resources use.⁴³ Nelson offers the consistent judgment that public sector initiatives, if not doomed to failure, are at least plagued by escalating costs for relatively little return. His explanation for the continued reliance on the public sector and its long history of at best uneven performance is found first in the heritage of the Progressives who were pessimistic about the ability of the private sector to conserve natural resources for future generations.⁴⁴ Nelson argues that policies such as the federal coal policy have been fraught with costly confusion. He attributes this confusion to interest group liberalism. Drawing on the work of Lowi,⁴⁵ Nelson contends that the wide range of competing interests have either been able to carve out spheres of influence or, by compromise with other groups, have produced policies that address such diverse sets of concerns that the result is largely ineffective or counterproductive. Nelson's strong preference is for a much reduced federal role. The implication is the near impossibility of designing federal institutional arrangements that will enable the development and implementation of a coherent federal coal policy or, indeed, any energy policy. Nelson writes with a clarity of analysis often found among economists writing about political questions. In his judgment, the welter of competing interests have produced a near-Calhounian veto⁴⁶ on the development of the nation's publicly held coal reserves. It is a reasonable

42. F. Brown & H. Ingram, *Water and Poverty in the Southwest* (1987).

43. R. Nelson, *The Making of Federal Coal Policy* (1983); Nelson, *The Public Lands*, in *Current Issues in Natural Resource Policy* 14 (P. Portney ed. 1982).

44. See *supra* note 8 and accompanying text.

45. T. Lowi, *The End of Liberalism* (1969); *Nationalizing Government* (T. Lowi & A. Stone eds. 1978).

46. J. Calhoun, *A Disquisition on Government* (1953).

inference that Nelson believes such reserves should be developed and that public sector failure is the reason they have not been developed.

The Public Choice Paradigm

There is some congruence between the work of Nelson about the federal role in coal policy and the second theoretical construct that has become increasingly employed in natural resources policy studies, the rational choice paradigm. The work of John Baden and Richard Stroup is particularly notable for their deductions from theory regarding federal resource ownership and management.⁴⁷ They have frequently employed the analysis of bureaucracy associated with William Niskanen⁴⁸ to advance a general critique of natural resources management in the public sector. The general thrust of this analysis is found in the essay by Fort and Baden,⁴⁹ the lead chapter of the Baden and Stroup collection. The authors contend that the federal treasury is best understood as a common resource and that its conception as such results in the development of predatory bureaucracies staffed with individuals seeking to maximize their share of resources from the federal treasury rather than pursuing publicly desirable goals for public land management. Arguments in the Baden and Stroup collection are similar to those advanced by Dennis and Simmons in *Controversies in Environmental Policy* which offers a sustained critique of the limitations if not the distortions of public management.⁵⁰ In general, students of "the paradigm" regard the logic of individual choice as governing individual members of a bureaucracy as much as it governs members of the larger society. This logic, they claim, presents an enduring challenge to the state's ability to realize public purposes in natural resources management in the United States.

It is not surprising that rational choice models would find broad acceptance in the natural resources field. The paradigm's strength is the simplicity of its assumptions and the breadth of its generalizability. Given that many studies in the natural resources field are limited in data collection, the appeal of the public choice paradigm with its powerful set of assumptions is apparent. The power of the core assumptions in some studies employing a rational choice framework is such that it appears that data are often employed illustratively. A review of many of the studies

47. Bureaucracy vs. Environment (J. Baden & R. Stroup eds. 1981).

48. W. Niskanen, Bureaucracy and Representative Government (1971).

49. Fort & Baden, *The Federal Treasury as a Common Pool Resource and the Development of a Predatory Bureaucracy*, in Bureaucracy vs. Environment 9 (J. Baden & R. Stroup eds. 1981).

50. Dennis & Simmons, *From Illusion to Responsibility: Rethinking Regulation of Federal Public Lands*, in *Controversies in Environmental Policy* 39 (S. Kamieniecki, R. O'Brien & M. Clarke eds. 1986).

using the public choice paradigm reveals a set of clear cut often passionately articulated prescriptive statements. The prescriptive tradition in conjunction with the paradigm may be too strong a combination to withstand a challenging program of empirical testing. But without such an empirical agenda, the risk is that the prescriptive thrust of the paradigm will obscure the scholarship.

Elite/Hierarchical Models of Natural Resources Politics

Both students of rational choice and students of hierarchy focus on the risk of bureaucracy to the achievement of public purposes. The contrasts, however, are far greater than the similarities between the public choice paradigm and what may be reasonably described as the elitist hierarchical model. Investigators writing from the elitist hierarchical perspective take as a working assumption that, in any allocative decision involving natural resources, allocative benefits will principally benefit an elite. A number of partially congruent interpretations operate in this tradition. Certainly Sandbach's neo-Marxist critique of modern capitalist management of environmental resources holds that modern technology in the right hands can produce both a clean environment and ample resources for the world's population.⁵¹ But other commentators writing in this tradition suggest that the dynamics of advanced capitalism have produced a technology of natural resources exploitation which it is difficult to judge as beneficial regardless of one's controlling economic ideology.

Center/periphery studies of resource extractive societies and dependency theory appear to have influenced a number of resources scholars. A notable example is Kahrl's study of Los Angeles's ability to control sources of water hundreds of miles away from its urban center.⁵² The Owens Valley story is often painted in passionate terms describing the sacrifice of the Valley's economic prospects for Los Angeles' continued growth. Richard Bense's revisionist exploration of shifting center-periphery relations throughout the west also establishes the urban centers' economic hegemony over rural areas.⁵³ Such studies stress the economic dependency and the limitations on political autonomy of the natural resources producing region. Writers in this tradition often criticize resources use decisions for being made by groups acting according to preferences and interests that are outside the area in which the resource is geographically located.

Consonant with the remote control of resources development and al-

51. F. Sandbach, *Environment, Ideology and Policy* (1980).

52. W. Kahrl, *Water and Power: The Conflict Over Los Angeles' Water Supply in the Owens Valley* (1982).

53. R. Bense, *Sectionalism in American Political Development, 1880-1980* (1984).

location is the assessment that resources distribution in the mid to long term is rarely of benefit to areal residents. Resources development in the west, most notably large scale water transfer, requires substantial capital formation and considerable organizational efforts. Such enterprises, historian Donald Worster has argued, generate hierarchies in resources decisionmaking that are neither democratically controlled nor given to undertaking egalitarian distributions of the benefits these projects may produce.⁵⁴ Whether it be landholdings in California or urban development in the Rocky Mountains, certain groups, the economic elite, are successful in securing a disproportionate share of the resources for themselves. The emergence of local elites is compounded by the role of more powerful elites in other regions of greater population and wealth, elites which are needed to provide the capital and expertise to operate massive resources transformations. In other words, as Bensel suggests, some areas act as economic centers while other resources-producing areas become dependent peripheries.⁵⁵ Studies drawing from center-periphery dependency theory characteristically seek on one level to place resources rich regions on the periphery in relation to a more populous and wealthy center. They argue in addition that the requirements for funds and expertise to develop regional resources generate hierarchies strongly inclined to provide for the better off at the expense of the less well off. In short, water politics in the west generate elitist politics. The work of Brown and Ingram, discussed earlier, illustrates how the treatment of water as a commodity by Anglo political institutions threatens the cultures of Indian communities of the southwest who had interwoven water into the very core of their cultures. The disruptive power of the water development movement in the 19th and 20th centuries greatly weakened the conception of water as a minority community resource.

Worster in particular—but the tradition is inclusive for such writers as Wyant⁵⁶ and the semipopular literature—offers not only the hierarchical elite critique of natural resources development in the western United States but links this critique to a firm conviction that transformative resources development is unnatural and seriously harmful to the ecology of the west. Although Worster is an historian, his work has occasioned considerable comment throughout natural resources studies. Worster's critique is directed specifically at western water development and the transfer of water from its sources to urban areas and agricultural enterprises. But the comparison does highlight the remarkable clarity of moral judgment found in Worster and others in their analyses of resources development in the west.

54. D. Worster, *Rivers of Empire* (1982).

55. R. Bensel, *supra* note 53.

56. W. Wyant, *supra* note 21.

Social Psychological Models

The theoretical constructs employed in analyses of public opinion survey data reveal the most patently prescriptive dimension in the published research on natural resources politics. Discussions of variations in public attitudes often claim to uncover the values held by the population on the major issues and concerns of the day. In the debate over values and environmental policy, students of public opinion surveys have focussed the discussion of the interpretation of public attitudes on how enduring, how central, and how widespread environmental issues are for the general public.

Students of natural resources politics debate whether the environmental awareness found in opinion surveys is reflective of lightly held popular preferences or grounded in enduring, deeply held values in the population. Do environmental values reflect an evolving fresh perspective on human society or are they simply reactions to fashionable issues? Are they subject to the cycle of rising and falling public interest that Downs attributed to ecology in the early 1970s?⁵⁷ Environmental survey research inquiry has been framed as an agenda that seeks to identify and explain why certain groups hold the environmental attitudes that they do. There is, for example, disagreement over the extent to which the general population shares a common outlook on a key set of natural resources issues. But there is a good deal of agreement among observers that among the well educated, higher income, and younger sectors of the population, environmentalist values prevail at least in greater proportion than among the rest of the population.

The debate becomes prescriptively driven and divisive over the explanation not only of who holds environmental values, but the implications of these values for the larger political community. Some critics have argued, as has Tucker, that the environmentalist movement stems largely from aristocratic values.⁵⁸ By this, Tucker apparently means that the individuals holding such values place the pleasures and aesthetic preferences of a few over the economic interests of the many. The clear, central focus of the debate is whether there is an integrated pattern of attitudes concerning the environment and resources use among people in the United States and other nations. A number of scholars—among them Dunlap,⁵⁹ Buttel and Larson,⁶⁰ and most notably Milbrath⁶¹—claim that

57. Downs, *Up and Down with Ecology—The "Issue-Attention Cycle"*, 1972 *The Public Interest* 38.

58. W. Tucker, *Progress and Privilege: America in the Age of Environmentalism* (1982); Tucker, *The Environmental Era*, 5 *Pub. Opinion* 41 (1982). See also Cosgrove & Duff, *Environmentalism, Middle Class Radicalism and Politics*, 28 *Soc. Rev.* 333 (1980).

59. Ecology and the Social Sciences: An Emerging Paradigm, 24 *American Behavioral Scientist* (R. Dunlap ed. 1980) (special issue).

60. Buttel & Larson, *Whither Environmentalism? The Future Political Path of the Environmental Movement*, 20 *Nat. Res. J.* 323 (1980).

61. L. Milbrath, *Environmentalist Vanguard for a New Society* (1984).

there are two contending sets of values deeply held within the population. These competing sets of values constitute contending world views on what ought to be the relationship between human communities and the use of natural resources. In the terms of Milbrath, the two contending conceptions are dominant paradigms. One stresses the material value of nature's resources for building and maintaining a high standard of living for human communities. The other is the new environmental paradigm, best understood in terms of Aldo Leopold's ethic that individuals are part of a community that not only includes other individuals but extends to other living creatures.⁶² Indeed, the argument requires ethical appreciation of the planet and its atmosphere. Such an ethical perspective presumably urges human communities to devise strategies to live with nature as it is encountered rather than to transform its resources. The supporters of these two contending perspectives hold them to be overarching structures that frame a large number of the fundamental policy issues of the day, from nuclear defense to industrialization.

A substantial variation on the two paradigms presented by Milbrath reflects a quite different assessment of the environmentalist perspective. Douglas and Wildavsky⁶³ claim that many environmentalists fear technological change. Environmentalists, they argue, are risk averse but located in a culture largely dominated by commitment to the perceived benefits of scientific and technological transformation. In the assessment of Douglas and Wildavsky, those who are averse to resource-transforming developments are not at the center of their culture but rather on the periphery. They, the environmentalists, are out of the mainstream of their culture. Indeed, they are in the cultural backwater. In contrast, for Milbrath the holders of the new environmental paradigm are in the vanguard of their society. They are the future of their society, moving towards the new center. The contrasting images of cultural location provided by Milbrath on the one hand and Wildavsky and Douglas on the other hand are a particularly apt illustration of contending prescriptive traditions in the field of natural resource studies.

It became apparent to such observers as Watts and Wandesforde-Smith⁶⁴ that there is a close parallel between the claim that survey data support the theoretical construct of a new environmental paradigm and the emergence of the debate in the general political science literature over post industrial politics. Inglehart's pioneering work is the basis for the theoretical construct of a psychological model of stages of preferences.⁶⁵

62. A. Leopold, *A Sand County Almanac* (1949).

63. M. Douglas & A. Wildavsky, *Risk and Culture: An Essay on the Selection of Technical and Environmental Dangers* (1982).

64. Watts & Wandesforde-Smith, *Postmaterial Values and Environmental Policy Change*, in *Environmental Policy Formation* 29 (D. Mann ed. 1981).

65. R. Inglehart, *The Silent Revolution: Changing Values and Political Styles Among Western Publics* (1977).

Inglehart has been the principal analyst of post industrial politics. Once material needs are met, other values emerge, many of which revolve around the quality of public life. The core of the argument is that specific age cohorts experience a disjunction in their political beliefs from not only other age cohorts in their respective advanced industrial societies but from past generations as well. This post industrial generation, shaped by the remarkable prosperity of the decades that followed the Second World War in the North Atlantic community and Japan, discounted needs for physical security and material well being for such values as meaningful employment, plentiful recreation, aesthetic appreciation, and support for peace initiatives. The emergence of the environmentalist movement on a significant scale during the 1960s, and its growing political strength in the 1970s, allowed commentators such as Watts and Wandesford-Smith to point out the resonance between post industrial politics and the environmentalist perspective. The parallel is apparent but the differences are critical. Post industrial values result, in part, from a cohort which has enjoyed a standard of living founded on materialist prosperity. The advocates of the land ethic may be less inclined to accept that material prosperity is requisite for an environmentalist perspective. But the principal contention is how the post materialist interpretation is articulated in research on environmentalist attitudes. It is apparent from a survey of the literature in this subfield of natural resources politics that strong prescriptive language has been used to express the relationship between environmentalist values and cultural analysis.

CONCLUSION

There is every reason to enjoy inquiry so driven by passion. Policy scholars in the natural resources field partake of an ancient tradition: questions concerning natural resources are fundamentally important to understanding the nature of political institutions and political community. Confusion has emerged in the field and presented difficulties for securing greater prominence in the study of politics. The confusion is not the failure to employ contemporary theoretical constructs in natural resources political analyses. It is the reluctance to match the employment of such constructs with comparable methodologies designed to test critically the deeply embedded prescriptive concerns of most scholars writing in the natural resources political tradition. There has been a willingness in natural resources studies to believe that by employing a powerful model one may mitigate the risks of relying on a specific case study or limited time period in offering generalizations about the politics of natural resources. It is difficult to avoid the reality of substantial diversity in experience over time and space in natural resources use and control. In short, what

is needed in the inquiry into natural resources politics, especially when it is based on a fairly limited observational base, is recognition of the limits of generalization regardless of the theoretical construct employed.

It seems a reasonable research strategy to argue that explanation is best served by the interplay of theory and observation. The strong prescriptive tradition in the natural resources field places a particular burden on researchers. In those studies where theory prevails at the expense of sustained observation there is the risk that critics are more likely to believe that the researcher's theory contains within it the seeds of its own prescriptive policy independent of observation. Conversely, studies in the natural resources field that do offer straight observations run the risk that the unstated strategy of determining what is important for the descriptive account begs the theoretical questions and therefore is likely to be prescriptively driven.

The task for the field is, therefore, to develop the interconnections between theory and observation. The strategy of inquiry should be inclusive and aimed to expand the observational base. In large measure because of the prescriptive tradition, it is useful for researchers to seek out contrasting rather than comparable cases, particularly in studies where the researcher appears to be favorably inclined by the prescriptive tradition to the argument advanced for examination. The challenge is to devise methodologies that seek to challenge rather than to confirm arguments in question concerning natural resources issues.

The field of natural resources politics is remarkably rich in subject matter and in tradition. Researchers should not simply take as their collective task the importation of models as explanatory tools for the questions found in the field. This is not to deny that within the larger discipline of political and policy studies scholars may frequently concentrate on a particular set of hypotheses that might be reasonably tested in land use or medical care. Studies of bureaucratic power, as we have seen earlier,⁶⁶ may be employed independently of a specific policy context. Ferejohn's study of pork barrel legislation is a fine example of an explanatory model that can be easily applied in a number of fields.⁶⁷ But perhaps we should want something more out of natural resources studies. The field should clearly be open to the importation of various models and theoretical constructs. If the field has any resonance at all, however, theories employed in natural resources studies should be modified, adapted, and perhaps even transformed by the field's historical depth and prescriptive strength. The measure of the field's strength should be the generation of perspectives that are taken up by researchers from other fields of political

66. See *supra* notes 22-23 and accompanying text.

67. J. Ferejohn, *Pork Barrel Politics: Rivers and Harbors Legislation, 1947-1968* (1974).

inquiry. As Charles Anderson reminds us, in policy studies we should keep in mind Pierce's dictum that one "must always keep the door open for further inquiry."⁶⁸

68. Anderson, *Political Philosophy, Practical Reason, and Policy Analysis*, in *Confronting Values in Policy Analysis: The Politics of Criteria* 22 (F. Fischer & J. Forester ed. 1987).