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POLICY CONUNDRUMS IN THE NATIONAL PARKS: NATURE, CULTURE, AND THE WOLVES OF ISLE ROYALE

by

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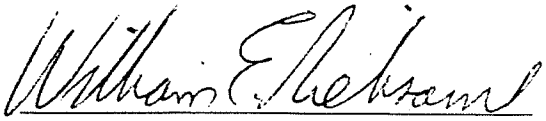

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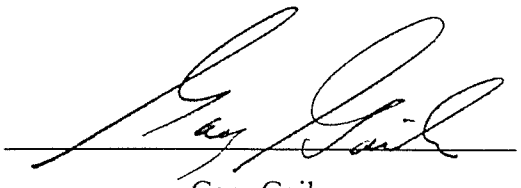

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Policy Conundrums in the National Parks: Nature, Culture, and the Wolves of Isle Royale

Dissertation directed by Associate Professor William E. Riebsame

The problem is that natural resource policy in the national parks is in a state of disarray. The question is "Why?" Drawing on insights of geography's environment-society tradition, this dissertation will hypothesize that this problem exists because national park policy relies on a highly contestable dualism of nature and culture. Specifically, this dualism is under attack by academic environmental historians and cultural theorists as well as non-academic park employees and critics. This dissertation will describe why the nature/culture dualism is a highly contestable ideology for national park management by using the case study of how the Park Service manages the wolves at Isle Royale National Park. The case study uses a historical document review, policy analysis, and key-informant survey as methods of attacking this problem. Results of the case suggest that, using the current ideology, wolf management is a conundrum that will only become more contested. At its extreme, this ideology may require Isle Royale managers to choose between wolves or wilderness. The hypothesis and results of this dissertation have significance not only for the national parks, but for the greater American environmental movement.

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Chapter 1

The Problem: Nature Policy Conundrums in the National Parks

I. Introduction

In his 1992 book *Regreening the National Parks*, Michael Frome develops a well-rounded critique of U.S. national park management in the last thirty years. At the heart of his book is his belief that the national parks, specifically the western U.S. 'crown jewels', should be managed as wilderness enclaves.

> Still, any place, of any size, where human sounds, chemicals and other by-products of civilized life are not dominant -- any area where nature prevails, or might prevail given time -- merits attention and respect. That is wilderness to me; that is what a national park should be (pp.171-2).

In Frome's eyes the managers of the national parks have not met the challenge before them. They have let the parks decay to a state of 'unnaturalness' allowing instead for the parks to be turned into "pleasure parks" suitable for superficial human enjoyment. Frome's foremost management concern is the preservation of the natural resources of the park rather than economics or people pleasures. He concludes his book by saying:

> In the regreening process the administration of every park will focus on the mountain, canyons, glaciers, forests, prairies, songful rivers, and the natural life systems they support. Their welfare will come first, before commerce and crowds (p.224).

While Frome is one of the most well-known of national park critics, similar critiques have come from Joseph Sax (1980) in his book *Mountains Without*

Handrails, Bernard Shanks (1984), Alfred Runte (1987), and many others. Specific parks have also been targeted by critics. Perhaps the most popularized critique of Park Service management of an individual park comes from Alston Chase (1986) in *Playing God in Yellowstone*. Similar critiques have come from Karl Hess (1993) in *Rocky Times in Rocky Mountain National Park*, from Alfred Runte (1990) in *Yosemite: The Embattled Wilderness*, from Carsten Lien's (1991) critique of Olympic National Park in *Olympic Battleground*, and even from Edward Abbey's (1968) polemic about Arches National Monument in *Desert Solitaire*. In each case the Park Service is accused of using "policies [that are] more political than scientific" (Chase: back cover) which are leading to the wholesale destruction of the national parks. While the mission of the Park Service is to preserve our parks "unimpaired for future generations" each critic argues that Park Service policies often do the opposite.

The issue, however, is more complicated than the analysis offered by Frome in *Regreening Our National Parks*. While Frome argues that the parks should be managed to preserve naturalness, he fails to adequately question or answer what 'managing for naturalness' would really mean. He, and others, seem to believe that if we just get the cars and many of the people out of the national parks that nature will somehow 'take its course' and return the park landscape to a primitive pristine wilderness. Referring to one such instance in Grand Teton National Park, Frome says: "I felt a lesson in the experience: a reassurance that all would be well if only we were patient, allowing nature and time the chances to heal" (p.170). In fact his regreening of the national parks merely involves eradicating much of the human

element from the parks. He says:

> I propose to close Yellowstone National Park for five years to automobile traffic. . . . I propose to eliminate half the overnight facilities in Yosemite Valley, and all automobiles. . . . I propose to close the transmountain road across the Great Smoky Mountains and by so doing make the wonderful wilderness of southern Appalachia whole again (p.224).

The classic debate in Park Service policy is one of preservation versus use. But the more intricate and complicated questions that individual national parks are also facing are: 'What does preservation really mean?', and if this question is answered, 'What policies and management strategies are needed to ensure preservation?' Where Frome fails to open the Pandora's Box of 'naturalness', Chase (1986) and Hess (1993) take a somewhat more critical and realistic approach toward Park Service natural resource management options. In fact, where Frome calls for a 'hands off' management policy which will let parks return to a primitive pristine wilderness, Chase and Hess call for just the opposite. Further, it is just this 'hands off' policy of the Park Service over the last twenty-three years -- more formally known as "natural regulation" -- that Chase and others would like to see changed. Granted, Chase might also agree to curb cars and visitation, but when it comes to human management of the park landscape, specifically its flora and fauna, they are calling for more human involvement, not less. In his "Epilogue", Chase states:

> And once an ecosystem had been truncated and thrown out of balance, it no longer has the capacity to cure itself. Like a seriously ill person whose vital organs are no longer functioning, these places, if left alone, will die. A policy of protection, therefore, will neither arrest further change nor ensure that all that happens is "natural" (Chase:382).

Nearly every U.S. national park stirs up very similar controversies concerning

the management of natural resources. Can nature be preserved by being left alone, or should managers try to 'manage' nature? Debate rages about issues such as the relative worth of native versus exotic species of flora and fauna, about the use of fire as a management tool, and about the 'baseline' of "prior to European contact" as the goal for the restoration of park landscapes. Chase's and Hess' books depict the degree of animosity that certain groups of conservationists are hurling toward the National Park Service. While conservationists and the Park Service are the major players in the controversies, at selected parks, local land-owners and city and county governments are also mixed into the fray due to the migration of park natural resources (like elk) and due to the role of the parks as tourist-attractions. Whether it is the management of wild pigs, mountain goats, feral horses, elk, moose, wolves, feral donkeys, or bighorn sheep the old Park Service question of "What is a national park for?" is being usurped by a grander question, "How do we preserve nature in the national parks?", or more specific yet, "What does it mean to 'preserve nature' in a national park?" Often -- for example at Isle Royale National Park -- these issues are referred to as a "policy conundrum" (Peterson and Krumenaker 1989). It is this conundrum that will be investigated here.

In the case study of this dissertation, managers at Isle Royale National Park are wrestling with how to manage the wolves in the Park. Like the wildlife at other parks, the wolves and moose provide a major tourist attraction. Yet wolf numbers have waxed and waned -- recently approaching extirpation -- leaving managers with complicated questions that yield few if any solid answers. Examples of these

questions are: What is the appropriate or natural number of wolves in the Park? Should there be, or is there, a balance between wolves and moose that managers should try to maintain? What will happen if we manage Isle Royale wolves from the "prior to European contact" perspective? And more generally, what would it mean to manage the Park and its wolves for naturalness? As will be discussed later, Isle Royale and its wolves will provide an excellent case study to get at the true complications of trying to answer these and other important questions.

II. The Goal of this Dissertation

The problem is that natural resource policy in the U.S. national parks is highly contested and in a state of disarray. The question is "why?" Chase and Hess have argued that it is because of wrong-headed thinking by stumbling bureaucrats. They want ecologists and scientists who have a deeper understanding of ecological needs to be in on policy-making. I agree with Chase and Hess when they say that bureaucrats often block change and wield power that defines policy and park landscapes. However, more importantly, I disagree that these institutional politics are the key to the problem. Rather, I believe that even if there were no institutional impediments to policy change, we would still have an insurmountable problem with nature policy in the national parks. As the questions at the end of last paragraph suggest, I believe this problem is better defined as a "conundrum" -- an unanswerable question -- that rests on a deeper and broader cultural and theoretical framework. I believe the problem of nature policy in the parks is this: *Amidst changing views of nature preservation in the*

parks by the general public over the last eighty years, and amidst severely problematized definitions of 'nature' and 'natural' brought forward by recent environmental historians and cultural theorists, the Park Service's job of finding policies to manage its flora, fauna, and landscapes is truly a conundrum. The goal of this dissertation will be to explain this conundrum, first in theory, and second using a relevant case study.

This dissertation will provide two important advancements. The first will take place in this 'theory' section in which I bring together recent work by landscape geographers, environmental historians, and cultural theorists examining nature and apply it to the U.S. national parks. This needs to be done because this recent work by these scholars has not yet critically nor completely examined the national parks. Because the parks represent such an important cultural role in our society, this analysis will provide key insights towards American conceptions of nature preservation as well as the greater arena of American environmentalism. The second advancement will be to apply this scholarly work to a case study -- wolf policy at Isle Royale National Park. This needs to be done because much of the writing of these scholars remains within theoretical applications rather than concrete, down-to-earth situations. In order to be useful, theory needs to be applied, and this dissertation will do it with the wolves of Isle Royale.

This first theoretical section will house three chapters. Because the problem and the question is one of policy, the first chapter will review the relatively surficial world of policy. The Park Service has natural resource policies both on a nation-wide

and park-by-park basis that originated with the advent of the Service with the Organic Act in 1916 and are updated every few years. Thick books and three-ring binders such as *Management Policies* (1988) and *NPS-77: Natural Resource Management Guidelines* (1991) serve as current intricate descriptors of policy for all of the parks. Park administrators and natural resource specialists use these policies when they approach an issue within their park that needs policy direction. This review will provide important baseline information as a basis for current dilemmas. Further, it will prove that policy has been and continues to be complex and dynamic, and that no sole policy guideline has yet emerged to guide nature management in the parks.

The second chapter focuses on the history of nature preservation ideology in the U.S. national parks and will describe how that policy is driven by deeper and broader cultural attitudes as well as changes in scientific thought towards nature. Work by landscape geographers and environmental historians provides necessary insights into the policy conundrum by placing it within the political-historical-ideological context from which it has arisen. Seeing the parks as 'landscapes' forces an examination of the role of culture in the nature of parks and forces us to see the parks and the nature they preserve as 'cultural constructions'. Essential ideas developed over the last thirty years in landscape geography and environmental history are crucial to understanding how nature preservation through the parks has been a cultural phenomenon. This cultural history of nature in the parks proves that there has not been nor probably will be one objective way to view or manage nature in the parks.

Since Chapter Two opens up the question of cultural constructionism of national parks and nature, Chapter Three is necessary to deal more fully with the issues that arise when we begin to see all phenomenon -- including national parks and the nature they preserve -- as cultural (or social) constructions. Conceiving of 'nature' and 'natural' as social constructions is a concept that has recently been discussed by a cutting-edge school of thought within conservationism known as the 'postmodern school' or the 'nature re-invented school'. Chapter Three will review post-structuralism, postmodernism, and the recent work which calls for a postmodernist approach to nature. Implicit in this approach is the difficulty in defining 'nature' and 'natural' resulting in almost infinitely variable meanings which are the subject of social and cultural contest. I believe this approach offers the key element of the conundrum. What is 'natural' and how should policy reflect it? As the director of natural resource management at Isle Royale National Park recently told me: "That is the key to the whole thing (Oelfke 1995a)."

There are probably as many ways and angles to analyze this problem as there are scholars to address it. Myriad factors could be explored including deeper philosophical issues related to wildlife and ethics, political issues which discuss the power and authority invested in the various positions, and ecological studies which would depict landscape change over time in the parks. However, the 'policy conundrum' and the direction of analysis that I have outlined will yield the best understanding of this problem and provide the best explanation to scholars as well as policy-makers within the Park Service who have to deal with this issue. This

dissertation will focus on a fairly 'ideal' rendering of the conundrum because the problem is one of ideas. Further yet, as will become obvious later, the case study offers a perfect example for this understanding because it masks off many of the conflicting variables that occur in other parks.

This path is not well worn, but it has been crossed before. This connection between ideas of nature and nature policy in the national parks is an overlapping field within geography's sub-discipline of society-environment relations, environmental history, national parks history, and environmental studies in general. It is a growing and fruitful field to which this dissertation will be an important, original, and timely addition. The specific case study in this dissertation -- wolf policy at Isle Royale National Park -- will also be important, original, and timely. In this regard, the dissertation will be about both explaining the conundrum and doing so within the case study -- it is about both the issue and the place. The story of 'ideas of nature' and wolf policy at Isle Royale is especially fruitful, and as will become apparent, the wolves (nature) also have a story to tell. To cut to the conclusion of the first theoretical section of this dissertation: Yes, nature is an 'idea', it is socially constructed, but it is not *only* a social construction. If the wolves didn't howl, we wouldn't hear them, and we wouldn't be so concerned about their future.

III. A History of Natural Resource Policy in the U.S. National Parks

Before the Park Service came into existence through the Organic Act of 1916, and throughout the eighty years of the existence of the officially designated national

parks, the Park Service has been intimately engaged in the controversy of how to preserve the parks. While the 'preservation versus use' debate was the primary controversy that defined the early Park Service years, it has always attempted to grapple with 'managing nature' with some sort of coherent policy whether stated or not. In recent years, as the above discussion suggests, the Park Service has been pulled more headlong into deciding and defining exactly what 'preservation' means. Policies have ranged over a broad ideological framework and have reflected concerns and complications raised by various critics both inside and outside the Park Service.

Several texts provide a history of natural resource policy in the parks including *National Parks for a New Generation* (Conservation Foundation 1985), *Wildlife Policies in the U.S. National Parks* (Wagner et al. 1995), and *Man and Nature in the National Parks: Reflections on Policy* (Darling and Eichhorn 1969). The initial act establishing Yellowstone in 1872 sets the parameters of this debate wherein it instructs the Secretary to "provide for the preservation, from injury or spoilation, of all timber, mineral deposits, natural curiosities, or wonders within said park, and their retention in their natural condition (Mackintosh 1991:11)." The ambiguity here left the door open and through that door roamed a host of management techniques which included exterminating some wildlife and coddling others. It is within these boundaries that "preservation" and "natural conditions" were defined for the future of the parks.

The Organic Act of 1916 provided additional yet also ambiguous mandates by stating that "The fundamental purpose of said parks is to conserve the scenery and the

natural and historic objects and the wildlife therein. . ." The authors of *National Parks for a New Generation* (Conservation Foundation 1985) discuss how this policy directive was implemented in the early years of Yellowstone and the Park Service:

> In the early days of national parks, deciding what to do with a grizzly bear that mauled a visitor, a raging fire caused by lightning, or a rotting 75-year-old building was easy. The superintendent and park staff quickly killed the bear, suppressed the fire, razed the building. Similar decisions today become the subject of consultations with regional directors and Washington staff, organized interest, and outside experts. New knowledge and changing values and conditions mean these decisions are no longer "simple" (pp.104-5).

In the beginning of the Park Service, individual superintendents were primarily in charge of natural resource decisions in their park, and secondarily the director of the Park Service also made decisions. As such, policy sometimes changed as often as did superintendents and directors. Policies, however, reflected overriding cultural values projected onto the parks at that time. 'Bad' animals like wolves, mountain lions, and tree-eating insects were killed expediently either by gun or poison; 'good' animals were encouraged to stay around by feeding and other means.

Changes in and needed additions to these policies began to show up in the late 1920s and early 1930s in conjunction with a new director, Horace Albright, and a pioneering (and independently wealthy) biologist he hired, George M. Wright. Through Wright (and using Wright's money), Albright attempted to define and use 'biological' guidance in natural resource policy instead of the tradition of benevolent scenery that permeated prior policies. In a 1933 paper Wright authored titled, "A Preliminary Survey of Faunal Relations in the National Parks", he promoted an idea he called "biological management". Under Wright's tutelage, natural predators like

wolves and mountain lions were encouraged rather than killed in order to provide a biological control or a predator/prey relationship that would foster natural resource health. Wagner et. al (1995) provide a summary of 20 mandates that Wright believed were central to "preserving the flora and fauna in the primitive state (p.23)". Restating those mandates below will provide a needed historical context for later stages and ideas in natural resource management.

> Relative to areas and boundaries --
> 1. That each park shall contain within itself the year-round habitats of all species belonging to the native resident fauna.
> 2. That each park shall include sufficient areas in all these required habitats to maintain at least the minimum population of each species necessary to insure its perpetuation.
> 3. That park boundaries shall be drafted to follow natural faunal barriers, the limiting faunal zone, where possible.
> 4. That a complete report upon a new park project shall include a survey of the fauna as a critical factor in determining area and boundaries.
> Relative to management --
> 5. That no management measure or other interference with biotic relationships shall be undertaken prior to a properly conducted investigation.
> 6. That every species shall be left to carry on its struggle for existence unaided, as being to its greatest ultimate good, unless there is real cause to believe that it will perish if unassisted.
> 7. That, where artificial feeding, control of natural enemies, or other protective measures are necessary to save a species that is unable to cope with civilization's influences, every effort shall be made to place that species on a self-sustaining basis once more; whence these artificial aides, which themselves have unfortunate consequences, will no longer be needed.
> 8. That the rare predators shall be considered special charges of the national parks in proportion that they are persecuted everywhere else.
> 9. That non-native predator shall be destroyed on account of its normal utilization of any other park animal, excepting if that animal is in immediate danger of extermination, and then only if the predator is not itself a vanishing form.
> 10. That species predatory upon fish shall be allowed to continue in normal numbers and to share normally in the benefits of fish culture.
> 11. That the numbers of native ungulates occupying a deteriorated range shall not be permitted to exceed its reduced carrying capacity and, preferably, shall

be kept below the carrying capacity at every step until the range can be brought back to original productiveness.
12. That any native species which has been exterminated from the park area shall be brought back if this can be done, but if said species has become extinct no related form shall be considered as a candidate for reintroduction in its place.
13. That any exotic species which has already become established in a park shall be either eliminated or held to a minimum provided complete eradication is not feasible.
14. That the threatening invasion of the parks by other exotics shall be anticipated; and to this end, since it is more than a local problem, encouragement shall be given for National and State cooperation in the creation of a board which will regulate the transplanting of all wild species.
Relative to relations between animals and visitors --
15. That presentation of the animal life of the parks to the public shall be a wholly natural one.
16. That no animal shall be encouraged to become dependent upon man for its support.
17. That problems of injury to the persons of visitors or to their property or to the special interests of man in the park shall be solved by methods other than those involving the killing of the animals or interfering with their normal relationships, where this is at all practicable.
Relative to faunal investigations --
18. That a complete faunal investigation, including the four steps of determining the primitive faunal picture, tracing the history of human influences, making a thorough zoological survey and formulating a wild-life administrative plan, shall be made in each park at the earliest possible date.
19. That the local park museum in each case shall be repository for a complete study skin collection of the area and for accumulated evidence attesting to original wild-life conditions.
20. That each park shall develop within the ranger department a personnel of one or more men trained in the handling wild-life problems, and who will be assisted by the field staff appointed to carry out the faunal program of the Service. (Wagner 1995:23-25)

Wright's early death, however, put an end to his guidance of natural resource policy and thus his policy ideas and techniques were left unimplemented and policy in general was left unattended for another twenty years. After Wright's death, the intervention of World War II left little time, energy, or money for the national parks in

the public's or Congressional attention.

In the 1950s attention once again was given to management issues. As the 1960s came into focus accompanied by a new administration in Washington, park issues came to the forefront of national concern. Newly appointed Secretary of Interior Morris Udall funded a report which Park Service critics and supporters both claim is the most influential since the Park Service inception (Sellars 1989). In 1963 a report titled, "Wildlife Management in the National Parks", but more commonly referred to as "The Leopold Report" appeared. It's principal author, A. Starker Leopold, a zoologist and son of famed author Aldo Leopold, chaired an advisory board charged with investigating recent problems associated with natural resource policy. While Wright desired 'natural predator control' and where necessary the reintroduction of these predators, this was often politically unfeasible. In Yellowstone National Park for example, rather than reintroduce wolves, the Park Service relied on trapping and/or killing to thin down the elk population. Public outcry to the killing of thousands of elk prompted the Leopold-chaired advisory board's existence.

The Leopold Report turned to the increasingly popular classical ecological paradigm, strictly interpreting its understanding of terms like 'natural', 'carrying capacity', the 'balance of nature', and 'climax species'. Humans were clearly seen as 'disturbances' in the park ecosystem, and the goal was to return parks to the ecological state present in pre-Columbian times.

> As a primary goal, we would recommend that the biotic associations within each park be maintained, or where necessary recreated, as nearly as possible in the condition that prevailed when the area was first visited by the white man. A national park should represent a vignette of primitive America (p.534-5).

Because many parks had been disturbed by human endeavors leading to a state of 'unnaturalness', ironically the Leopold Report encouraged human manipulation to bring the parks back to their original primitive state. As such, "Management may at times call for the use of the tractor, chain-saw, rifle, or flame-thrower. . ." (p.536). Although the advisory board was convened as a result of the elk-killings in Yellowstone, the report called for the continuation of that policy throughout all national parks when the 'natural' predator/prey control mechanism was politically unfeasible. Much has been made of the implications of the Leopold Report. Significant scholarly attention has focused on its definitions of 'natural' and 'preservation' and its mandate of returning park landscapes to a "vignette of primitive America". Scholars such as Sellars (1989), Wagner and Kay (1993), Wright (1988), Keiter (1989), Risser et al. (1992), Bishop et al. (1989), and Craighead (1991) have all commented at length on both the language in the Leopold Report and its implications for park management. The Report thus stands as the most commented upon and read of all NPS documents for better or worse.

A similar report by the Robbins Committee also appeared in 1963 and both reports, according to Darling and Eichhorn (1969), "have only restated, 30 years later, the conclusions of Wright . . ." (p.67). While the Leopold and Robbins Committee reports served primarily as recommendations for policy, one of the first formal

changes to policy came in 1964 when director George Hartzog established a three-tier system of park terminology: natural areas, recreation areas, and historical areas. Under this system, individual parks were designated one of the three and then supposedly managed using that terminology as the guiding principle. However, in practice, management changed little; but the terminology did move policy in the general direction of acknowledging that different parks were for different purposes. Also in 1964, the Wilderness Act was passed which had the potential to influence park policy in tantamount ways. In practice, wilderness designation for a specific piece of land required congressional approval and as such it took several years before areas in national parks became wilderness.

Policy and management did change in 1968. In response to the reports and growing public concern over park management, Hartzog administered and oversaw the first policy manual for natural areas titled *Compilation of the Administrative Policies for the National Parks and National Monuments of Scientific Significance (Natural Area Category)*. Under the section "Fish and Wildlife Management Policy" the Hartzog commission wrote:

> [P]rotection, though it is important, is not in itself a substitute for adequate habitat. . . . Wildlife populations will be controlled when necessary to maintain the health of the species, the native environment and scenic landscape and to safeguard public health and safety. Ungulate populations will be maintained at the level that the range will carry in good health and without impairment to the soil, the vegetation, or to habitats of the several species in an area. . . . Insofar as possible, control through natural predation will be encouraged. Public hunting outside of the area is recognized as the next most desirable means of controlling wildlife populations. . . . Other control measures, as necessary, shall be undertaken as follows: (1) Live-trapping in the areas for transplanting elsewhere; (2) research specimens for

> National Park Service and cooperating scientists; and (3) direct reduction by National Park Service personnel (Wagner et al. 1995:31).

Not long after, in 1969, the National Environmental Policy Act was passed which also potentially had policy implications for the parks. The critical element in NEPA was its requirement that public agencies prepare environmental impact statements when any of its activities were likely to affect the environment.

Along with this flurry of action was the short book funded by the Conservation Foundation, *Man and Nature in the National Parks*, by ecologist Fraser Darling and geographer Noel Eichhorn (1969). While Darling and Eichhorn are generally in agreement with the Leopold and Robbins Reports, they began to second-guess some of the ecological mandates of the previous two reports. Rather than the static preserved landscape sought by Leopold, Darling and Eichhorn suggested that:

> There is a danger that [Leopold's] phrases might be misinterpreted as meaning that the change and progression which are basic natural conditions must be checked and the parks maintained as static museum exhibits. We should prefer to say that the wilderness character of the parks should be preserved by permitting natural processes to continue. In some cases re-creation of an earlier, more primitive, scene may be desirable, but the opportunity for new landscapes and habitats to develop should not be proscribed (p.58).

Fraser and Eichhorn go on to discuss several issues relevant to managing the various complexities of fire, fisheries, flora, and fauna of the parks and unlike earlier policies, they seem more aware of the intractability of the management problems. For instance with respect to exotics, they say: "At this point we should like to comment on the general problem of exotics without suggesting that we presume to offer solutions" (p.65). However, it was due to the criticism of Darling and Eichhorn in combination

with a renewed interest in the earlier reports calling for 'ecological management techniques' which caused the Park Service to change some policies. Specifically, in 1968 the Park Service revised its policy on using fire as management tool and for the first time in 1970 fire was used in Sequoia National Park reversing the long-held policy of fire suppression.

Following the growing environmentalist critique of the 1960s and the recommendations of the reports by Leopold, Robbins, and *Man and Nature in the National Parks* the Park Service made some major changes in park selection criteria in 1972. A report titled the *National Park System Plan* established entirely new criteria for new parks that included specific and sweeping movements to the idea of 'parks as ecosystems' rather than 'parks as scenery'. The Park Service, from there on out, would try to buy land that would protect "ecological diversity" by preserving "biotic areas" in addition to its previous role as a protector of scenery. Reflecting this new "ecosystem approach" the 1972 *National Park System Plan* sought to include new parks that represented all the various ecosystems in the United States. Foresta (1984) summarized the selection guidelines for the new parks:

> - Exceptionally high ecological diversity, e.g., species, biotic communities, habitats
> - Biotic species or communities whose natural distribution at that location makes them of unusual biogeographic significance
> - A concentrated population of rare plant or animal species
> - A critical refuge necessary for the continued survival of either common or uncommon wildlife species
> - An invaluable ecological benchmark
> - An outstanding example of biotic area
> - A rare extant biotic area (p.115)

Soon thereafter, in 1973, Congress passed the Endangered Species Act which potentially had far-reaching implications for all public land management agencies including the Park Service. Through its designation of "endangered" and "threatened" species the Act required all public agencies to take part in a host of administrative, policy, and management strategies that would lead to the protection and recovery of the threatened and endangered species. Over the twenty-three year life of the Act, several parks throughout the U.S. have had to adjust policy and management practices to accommodate this higher-level mandate including such activities as closing areas to the public and manipulating numbers of floral and faunal species. For instance, a recent policy statement by the Park Service states:

> Consistent with the purposes of the Endangered Species Act, the National Park Service will identify and promote the conservation of all federally listed, threatened, endangered, or candidate species within park boundaries and their critical habitats. . . . Active management programs will be conducted as necessary to perpetuate the natural distribution and abundance of threatened or endangered species and the ecosystems on which they depend (*Management Policies* 1989:p.4:11).

Influenced by the "Leopold Report", *Man and Nature*, and other reports, *Compilation of Administrative Policies. . .* and the *National Park System Plan* remained the primary policy guidelines that defined Park Service natural resource policy throughout the 1970s and 1980s and to some degree through the present. It is one of the primary guidelines offered by Leopold of 'letting nature manage nature' which resulted in the policy of "natural regulation" which stimulated the critiques offered by Chase and Hess. However, more recent policy guidelines have also appeared. In 1978 and 1988, a document, *Management Policies*, authored by the top

administrative levels within the Park Service, attempted to bring together many of the loose ends of management issues. Several sections in these two books are identical with the exception of the later 1988 document providing greater detail. Under the section "Natural Resource Management", the 1988 document presents a plethora of mandates which attempt to cover many of the possible resource management quagmires within individual parks. Three examples of these guidelines suggests the level at which the Park Service is trying to grapple with myriad factors and particular cases:

> Natural resources will be managed with a concern for fundamental ecological processes as well as for individual species and features. Managers and resource specialists will not attempt solely to preserve individual species (except threatened or endangered species) or individual natural processes; rather, they will try to maintain all the components and processes of naturally evolving park ecosystems, including the natural abundance, diversity, and ecological integrity of the plants and animals (p.4:1).
>
> The National Park Service will seek to perpetuate the native animal life . . . as part of the natural ecosystems of parks. Management emphasis will be on minimizing human impacts on natural animal population dynamics. . . . Any species that have moved onto park lands directly or indirectly as the result of human activities are not considered native (p.4:5).
>
> Terrain and plants may be manipulated where necessary to restore natural conditions on lands altered by human activities (p.4:9)

While such passages clearly harken back to Leopold's *The Sand County Almanac* and classical ecology, never in this document is there any attempt to define what 'natural', 'diversity', or 'integrity' means. Such details, the document explains, are passed on to the individual parks to decipher.

Much of this deciphering was attempted in a later document titled *NPS-77:*

Natural Resource Management Guideline (1991). This bulky, 677 page document is in three-ring binder format and provides clarification beyond the 1988 *Management Policies*. Containing dozens of sections and sub-sections, *NPS-77* defines terms, discusses policy and program objectives, gives program guidance, and tells under whose authority each role and responsibility resides. For instance, in the section titled "Native Animal Management", we find definitions for the terms "native animal species", "demographic characteristics", "species of concern", "population", "unnatural concentrations", "control", and "historic conditions". After the definitions program objectives and guidance provide a somewhat clear path through the potential policy issues that might lay ahead. For example, in a situation involving decline of native animal species the text reads:

> Where limited genetic variation is detected and the cause is human-related, population augmentation may be justified to increase the viability and the security of a population. No action should be taken where there is no evidence of inbreeding or limited genetic variation or where the cause is determined to be natural. Maintenance of overall ecosystem stability and evolutionary processes should take precedence over individual species (p.27).

While the terms in this passage still leave considerable room for interpretation, such policy mandates have come along way from the directives of even thirty years ago. It is in this climate of increasing details and scrutiny that Park Service writes and adheres to policies.

While broader Park Service guidelines have attempted to address the question "How to preserve and manage nature?" in somewhat specific terms, the policies and actions of the individual parks -- the deciphering -- would tell the particular story of

how "natural", "diversity", and "integrity" get defined on the ground level. The deciphering done by Rocky Mountain National Park and Yellowstone are what inspired the trenchant critiques offered by Hess, Chase, and others. Once preservation is chosen over use, how is preservation defined? What is natural? Clearly in 1988 and 1991, the Park Service is calling for the "integrity" of Park lands to be maintained, but what does integrity mean? How do managers manage for the integrity of the land? There are no easy answers to these questions and the controversy they have spawned. It is in this spirit of policy conundrums that the book *Wildlife Policies in the U.S. National Parks* (Wagner et al. 1995) has attempted to tease out the complications and offer some suggestions.

According to the authors of *Wildlife Policies in the U.S. National Parks*, the mere existence of the book and the prescriptions it makes was a highly political and contested affair. Apparently, the authors were hired by the Park Service and supporters of the parks to come up with a discussion of problems and solutions to the kinds of problems discussed by Chase. Also apparently the solutions offered by the authors did not meet muster; the result being that the authors decided to 'go public' with the report in the form of a book instead of the more closeted path through the government publications office. The chief reason for the dissent, apparently, involves the inability of the book to make many policy decisions. Over and over in the book's concluding chapter the authors lay out the questions put to them by the Service, and over and over the authors claim they cannot make those decisions. The Park Service wanted answers to questions involving threatened and endangered species, native

species, biodiversity, re-introductions, and fire management and over and over the authors refused to make the decisions, deferring that role back to the Park Service itself and the trustees of the parks.

Why? The authors felt that they themselves represented policy analysts and scientists, and the Park Service was asking them to make decisions that were based in *cultural values*. Analysts can describe the various ins and outs of policy options, as can scientists. Scientists can also advise on the likelihood of the repercussions of various policy options. But neither can solely make values decisions, and it is values decisions that mire the parks. For example, the minutiae of deciding what is natural, what is a native species, and what represents diversity hinge on values rather than surficial policy. And thus, the policy conundrums that envelop Park Service natural resource management hinge on the discussion of values associated with the parks. There are ways to look at this controversy and the values that lay behind the questions which will help us understand the intractability of the problem and view it in the broader societal/cultural context in which it has evolved and will continually reside. It is to those more complex values issues that this discussion now turns.

Chapter 2

The Cultural Landscape of the National Parks

I. Introduction

> But like suburban lawns and gardens or scenic roads, parks of all kinds are cultural landscapes. The history of their creation and policy is rife with contradictions and compromise, for parks are the site of struggles over conservation, preservation, profit, and development, the site of shifts in the value and meaning of natural areas and animal collections (Wilson 1992:223).

As the previous chapter exemplifies, natural resource management policy in the U.S. national parks is both changing and controversial. Part of the goal of this dissertation will be to begin to understand and analyze the depths of that change and controversy. While the previous chapter reviewed park policy over the last eighty years, it did so in a naked framework. Policy does not come out of nowhere; it is always deeply rooted in greater issues and understandings about the places it hopes to manage. Policy in the parks is rooted in a significantly greater understanding of the role that nature preservation has played in U.S. history. Nature was not always preserved and it was not always cordoned off in parks. The transition from Manifest Destiny ideologies, that permeated the first few centuries of European contact with North America, to that of nature preservation, which permeates the last century, involves a historical-ideological understanding of the role that nature and parks play in American culture. Wagner et al. (1995) claimed that "values" drive policy and

policy decisions. Thus in order to thoroughly examine current policy conundrums, they must be situated amidst this history of values in relation to parks and nature preservation. These values provide the ideological 'framework' for policy.

The above statement by Alexander Wilson and the frame of thought in which he and other landscape geographers work will offer a partial means of pulling the policy conundrum apart. Wilson claims that parks (including national parks) are cultural landscapes. What does he mean by this? Further, he says that parks are sites of "value and meaning". What types of value and meaning can be deciphered from a national park? And, how would this relate to natural resource policy? This chapter will lay out the position that underlying the surficial issues surrounding policy is a deeper level that requires us to see the national parks in their true historical-ideological context. The idea of 'landscape' is crucial to this understanding. Landscape geographers have argued that American nature preservation in the form of national parks has evolved from 'old world' ideas, values, and political and economic systems. This chapter will both review those arguments and then put them to greater use in understanding current difficulties surrounding nature management in the parks.

Throughout American history, different and sometimes conflicting ideas of what nature is, how nature should be preserved, and what preservation would mean have permeated and driven natural resource policy in the parks. Park historian Ronald Foresta (1985) offers a piece of the puzzle:

> Through its management of the National Park System, the Park Service has considerable responsibility for the preservation of nature in America, yet the past two decades have seen a large change in the way Americans view the

> natural world around them. With the increased environmental awareness of the 1960s and 1970s has come a view of nature as the fragile base on which our civilizations rests. The idea that civilization would, of its own accord, come to a comfortable equilibrium with nature has given way to a view of American material culture as a juggernaut which is greatly damaging the natural world in many obvious ways as well as subtle ways. These changes in attitude, which have occurred on both the popular and scientific level, have raised new questions about park management (p.2).

Foresta says that the cultural change towards "increased environmental awareness" has required park policies to change. What were the cultural directives prior to the 1960s and how did they affect park policy? What other cultural issues have arisen both before and after the 1960s that have affected natural resource policy in the parks? Another park historian, Alfred Runte (1987) says: The second edition [of the book], like the first, concentrates on the meaning of the national parks, their place in the origins and evolution of underlying perceptions of the American land (p.xii).

And the question is: what are the underlying perceptions of the American land that gave meaning to the parks?, and how did those affect natural resource management? Surveying various texts written by park historians, geographers, and environmental thinkers that have pieced together national park natural resource management history has yielded a coherent picture of the relatively distinct but also overlapping types of "values and meaning" that have been projected onto national park landscapes and allows for more understanding of natural resource management conundrums. The first two of these 'ways of seeing' the parks correspond with the birth of the park system and as such are 'pre-ecology'. First, is the requirement for monumental scenery that was engendered by the English "landscape way of seeing"

and continued as a form of American nation-building. Second, and associated with the first, is the landscape ideal promoted by the romantic movement of transcendentalism which projected religious values onto nature.

After the growth of ecology in the U.S., park values moved in three interconnected directions reflecting different responses to ecology. Thus the third way park landscapes were construed corresponds to the position associated with the mainstream environmental movement and shares much with the 'deep ecology' movement, both of which accept the 'equilibrium thesis' of undisturbed nature and deny a possible human role in ecosystems. The fourth way of seeing park landscapes, called the 'classical paradigm of ecology', also shares a version of the 'equilibrium thesis' but instead claims that humans have always and should continue to be a part of the ecosystem in order to bring about equilibrium. The final post-ecology approach reflects the requirements of what is becoming known as 'new ecology' which does not accept the 'equilibrium theses' and relies on metaphors like 'flux' and 'change'. I will now consider each of these value systems, their cultural history, and their relation to natural resource policy in the national parks.

II. National Parks and the Pre-Ecology Years: The "Landscape Way of Seeing"

Of the five intertwined cultural values and meanings affecting natural resource management in U.S. national parks, the first two deal with the origin and history of the reasons why parks were established in the first place. The argument, as told by geographers and park history scholars, connects U.S. national parks to a distinct view

of nature that was first established in the English cultural and economic system from which the American system originated. As Smith (1990) says, "From the very beginning, certainly from Shakespeare's time, the American image of nature was in part a European artifact" (p.8). American parks grew out of this view of nature as did the first imprint on the natural resources the parks contained. What was the English conception of nature? and how does it relate to the American view and ultimately the national park system?

Geographers Cosgrove (1984) and Daniels and Cosgrove (1988) refer to an English view of nature as a "landscape way of seeing". This 'landscape way of seeing' originated in England during the transition from the feudal to capitalist economic system in the seventeenth and eighteenth centuries. Critics such as Raymond Williams (1973) in *The Country and the City* have fully developed the argument that the English idea of 'landscape' is a product of the unchecked capitalist economic system that began in England beginning in the late eighteenth century and then flourished in the late nineteenth and early twentieth centuries. The city became juxtaposed to the country: the former the site of commerce, labor, and people; the latter the site of nature in repose untouched by humans. But it was the activity of capitalists in the city -- the accumulation of huge sums of money by utilizing cheap human labor -- that allowed for large tracts of land to be bought up in the country and be 'set aside' as 'landscapes'. Geographer Roderick Neumann (1995) sums up the entire process below:

> The argument, briefly, is that landscape parks and paintings in England developed as a unique artistic form in the early eighteenth century, based on traditions borrowed from Dutch and the Italians. The emergence of the landscape aesthetic, then, coincided with the capitalist transition in England. In his analysis of symbolic landscape, Denis Cosgrove demonstrates that the historical changes in the economic role of land from use value to exchange value in the course of the capitalist transition is reflected in the development (*sic*) a landscape way of seeing. That is, there emerged among the new capitalist class of land owners a way of seeing the land which split the world spatially into two spheres -- land that was for practical (productive) uses and practices and land that was for aesthetic (consumptive) observations and practices. The landscape way of seeing entails a separation of observer from the land, implying both a sense of ownership and control.
>
> The great landscape parks of England were, in essence, idealized representations of nature, based on the paintings, of most notable, Claude Lorrain and Gaspoussin. In these idealized representations, all signs of human labour in rural landscape were strikingly absent. Combining their wealth with new technologies, the new land owners were able 'to make Nature move to an arranged design' and 'produce a rural landscape emptied or rural labor'. In short, the privatization of land ownership and the enclosure of common lands, so prevalent in rural England during the transition to capitalism were implemented not only to facilitate capitalist production, but to create private landscape parks as well. Whole villages were sometimes razed for purely aesthetic reasons, to produce a nature without humans and human labour. By the end of the nineteenth century, this landscape aesthetic became synonymous with nature in England (p.152).

Further, as Williams goes on to discuss, the state of 'natural repose' so cherished in the country landscape required immense human labor to bring about. Stately homes were constructed which provided the best 'view' of the country landscape. That best view often included flourishing agricultural fields and scenes of animals contentedly grazing in boundless pastures. However, the laborers used to farm the fields were often hidden away from the views of weekend visitors, and the fences used to keep the animals nearby were also hidden in ravines or behind constructed mounds of earth. As such the obvious signs required to build the

landscape were not an accepted part of the country scene; thus the aim of the 'built environment' of the country was to not look built at all. Williams calls this duplicity "the Cheat" (p.32) wherein the country scene became naturalized; nature became scenery, isolated from people and therefore pure.

The landscapes emptied of human labor implied a distanced observational quality to nature as opposed to the previous more intimate connections between nature and culture that comprised former rural agrarian landscapes. As such the appreciation of landscapes became an aesthetic activity and a step towards a distanced control over nature.

> To speak of landscape beauty or quality is to adopt the role of observer rather than participant . . . Another way of putting this is that in landscape we are offered an important element of personal control over the external world (Cosgrove 1984:18).

As Williams states, "a working country is hardly ever a landscape. The very idea of landscape implies separation and observation" (p.120). Such places incorporated as 'landscapes' often represented the Arcadian myth -- gently rolling hills and pastures completely devoid of any human disturbance that might pollute the natural scene. And this process of pastoral Arcadian mythmaking is complexly intertwined in U.S. national park history. There are two intertwined threads to this 'landscape way of seeing' that apply to the formation of the U.S. national parks: the first is the more simple appreciation of 'scenery', the second is the way the scenery was produced or made to look which is associated with the transcendentalist movement.

Way of Seeing I: National Parks as Scenery

English imperialist efforts often led to cultural as well as economic colonization and this 'landscape aesthetic' was a prominent export to colonies throughout the world. Studies of the origin of national parks in Africa have been significantly affected by English landscape aesthetics (Neumann 1995) as have various other means of preserving nature in Australia (Anderson 1995). The exportation of the landscape way of seeing to the United States is the critical subject of a few important works in landscape geography. Of primary importance is Denis Cosgrove's *Social Formation and Symbolic Landscape* (1984) in which he discusses how the 'landscape way of seeing' was the driving force behind how the American landscape was transformed from 'wilderness' to 'civilization'. This included the ways that land was divided up for agricultural use and the way that urban areas and parks were designed. In more subtle ways representing the landscape aesthetic, Daniels (1993) says that the "codes of landscape representation developed in England were deployed in an American setting" (p.8).

The specific way this landscape aesthetic was employed in the American setting was, ironically, to juxtapose and separate America from its English heritage. Americans appeared to have a national identity crises concerning the lack of cultural heritage of their newly developed land. Landscapes could be called upon to serve in the task of nation-building (Olwig 1993, 1984, 1995) and national identities could be constructed. Daniels (1988) says:

> National identities are co-ordinated, often largely defined, by 'legends and landscape', by stories of golden ages, enduring traditions, heroic deeds and dramatic destinies located in ancient or promised home-lands with hallowed sites and scenery (p.17).

Although America did not have a cultural history, it did have an enormous amount of land and some of it contained monumental scenery. As such, "Where the dominant social symbols of the Old World drew their strength and legitimacy from history, New World symbols were more likely to invest in nature" (Smith 1990:7). As a substitute for a renowned cultural history, America substituted 'landscape'.

> The agelessness of monumental scenery instead of the past accomplishments of Western Civilization was to become the visible symbol of continuity and stability in the new nation (Runte:12)

> Landscapes, whether focusing on single monuments or framing stretches of scenery, provide visible shape; they picture the nation. As exemplars of moral order and aesthetic harmony, particular landscapes achieve the status of national icons (Daniels 1988:5).

In this game of 'Which country is greater: England or America?', while England had a decided edge in economics and cultural history, America soon discovered that its western landscapes were extraordinarily more profound than anything England had to offer. Comparing this western scenery to Old World landscapes became a national preoccupation for a country with an identity crises, and preserving those landscapes as American cultural icons followed soon after. As Runte explains:

> The common practice of not merely describing each wonder but in the same breath depreciating its counterparts abroad, confirms how pervasive cultural anxiety was in the United Sates during this period. . . . Thus the natural marvels of the West compensated for America's lack of old cities, aristocratic traditions, and similar reminders of Old World accomplishments. . . .

> America's landscapes, shorn of all links with the past, only dramatized the nation's cultural deficiencies. Not until the discovery of landmarks of unquestionable uniqueness did nationalists fell confident in urging Europeans to heed Thomas Jefferson's advice and cross the Atlantic to visit the wonders of the New World. Such were the reassuring magnets of the American West, the cornerstones of a nationalistic park idea (pp.20-32).

A unique American school of landscape painting also grew out of the 'landscape way of seeing' and was soon employed in the busy work of publicizing the various scenic monuments of the U.S. in national and international publications. First the "Hudson River School" of landscape painting was formed, and later came the "Rocky Mountain School" to celebrate the monuments of the west. National identity building was thus a project of artistic as well as political ideology.

> Late in 1825 an Address to the American Academy of Art in the city called upon landscape painters to 'adorn houses with American prospects': 'the Genius of your country points you to its stupendous cataracts, its highlands intersected with the majestic river, its ranging mountains, its softer and enchanting scenery' (Daniels 1988:151).

Painters such as Thomas Cole, Frances Palmer, Albert Bierstadt, and Thomas Moran busily engaged themselves in promoting America's monumental scenery. Their depictions often represented the power of the American landscape as both a symbol of the American form of Manifest Destiny as well as the monuments to be preserved. Runte claims that,

> . . . landscape painters and photographers were equally important in furthering the spirited concern that led to the national park idea. Foremost among artists to portray the region were Albert Bierstadt and Thomas Moran, whose works gave impetus to the establishment of Yosemite and Yellowstone respectively (p.14).

The requirement of monumental scenery which spearheaded the national park

movement is still one of the primary roles that national parks play in American culture. Throughout the history of the Park Service, the inclusion of additional parks and the commercial promotion of parks has always relied heavily on the 'parks as scenery' thesis to legitimate its bureaucratic position. From the first two parks, Yosemite and Yellowstone, to many of the later acquisitions such as The Grand Canyon, Sequoia, Redwoods, and Acadia, monumental scenery has been the primary reason for inclusion as a national park. Both Runte (1987) and Foresta (1984) cite many congressional debates about whether a particular park should be included on its merits of 'monumental scenery'. Both historians also argue that Congress and the American people still believe that providing monumental scenery is the greatest role of the national parks.

'Scenery' and natural resources

The 'monumental scenery' argument has provided, and still provides, some very obvious consequences for natural resource management. If the parks were primarily established for scenery, then management issues that did not relate to the public's enjoyment of the scenery were of little consequence. As stated in the previous quote from the Conservation Foundation, individual superintendents simply made whatever decisions they thought were appropriate about flora and fauna management. Visitors primarily came to see the mountains, canyons, geysers, waterfalls, or in some cases, sequoia and redwood. When the scenery was thought to include things like elk and grizzly, the general management philosophy was, and often

still is, to provide as much access to the animals as possible. This is the policy behind the former 'grizzly feedings' at the dump in Yellowstone and the more recent efforts to protect the numbers of elk in Yellowstone and Rocky Mountain National Park. Natural resource management, as it is now discussed in the U.S., had very little to do with the formation of the national parks. As Runte says,

> But in fact, the national park idea evolved to fulfill cultural rather than environmental needs. The search for a distinct national identity, more than what have come to be called "the rights of rocks", was the initial impetus behind scenic preservation (p.xx).

Today's more prevalent notions associated with wildlife management such as the amount of range, migration routes, and predator/prey relationships had little to do with determining park boundaries until the 1970s. "Because the parks were meant to take in only scenic wonders, such as mountain or canyon, they failed to include enough habitat to give sanctuary to all resident species of plants and animals" (Runte 1987:112).

Way of Seeing II: Parks as Religious Monuments

While the exportation of English landscape values to the U.S. played a large part in the ways that Americans understood nature, American culture also adapted and changed those values in important ways in relation to the national park movement. A primary difference existed between English and U.S. landscapes in the form of the democratic character that Thomas Jefferson was hoping to inscribe on the U.S. landscape as opposed to the highly class-based system inscribed on the English

landscape. Where the English country landscape contained fewer numbers of large farms that befitted the pastoral scene, the Jeffersonian agrarian ideal hoped to inscribe a larger number of smaller farms that would serve as the basis for communities, land-holding citizens, and thus a truly democratic society. Cosgrove (1984) describes this American version of landscape transformation in a chapter titled "America as Landscape".

However, while democracy may have flourished, the landscape took on a decidedly more human-interfered look. Americans were conquering the wilderness frontier in ever-increasing amounts throughout the eighteenth and nineteenth centuries, resulting in the famous pronouncement of Frederick Jackson Turner that the "frontier" was closed. It is not coincidental that the rough dates of the closing of the frontier coincided with the rough dates of the beginning of the national park system in the U.S. (Cronon 1995). Democratic Americans were destroying the pastoral scene prescribed by the 'landscape way of seeing', and the national park system represented a way to save some of Arcadia before it was all destroyed. While the pastoral scene was intimately associated with English-style capitalism, it was further complicated through the American agrarian (and still capitalist) democracy. Nature was constructed as separate from culture, and the distance between the two was alternatively cherished and derided by differing ebbs and flows of cultural fancy. While Americans to some degree fought the notion of English-style landscape-as-scenery, desiring instead, to farm landscapes and conceive of them as units of production, Americans soon chided themselves for their overconsumptive habits and

chose later to worship a golden age of natural landscapes. Nature preservation movements started soon thereafter.

These nature-preservation movements in the U.S. at the end of the nineteenth and beginning of the twentieth centuries were associated with the 'transcendentalist' movement.

> In Europe, and later the United States, with the rapid spread of cities, factories, and their attendant social dislocations, people came to question whether the Industrial Revolution really represented progress. Locked into the drudgery and grime of manufacturing communities, more and more people followed poets and philosophers in embracing nature as the avenue of escape. The Romantic Movement, for example, in its praise for the strange and mysterious in nature, by definition preferred landscapes only suggestive of human occupation. . . . Others held that the ultimate state of nature might be the absence of civilization altogether (Runte 1987:2-3).

Beginning on the eastern seaboard, this movement formed a type of primitivism that worshipped nature and conversely decried any human alteration of the natural landscape. Painters as well as writers championed the ideals it represented.

> To take just one example, it was conventional among landscape painters by the middle of the nineteenth century that there was a 'fundamental opposition of nature to civilization, with the assumption that all virtue, repose, dignity are on the side of "Nature" -- spelled with a capital and referred to as feminine -- against the ugliness, squalor and confusion of civilization for which the pronoun was simply "it" (Smith 1984:10).

Its chief adherents were Thoreau and Emerson who used nature-writing to champion ritual communes with the natural world as a way to escape the unnatural madness of the cities. Connection between east and west coast, and in between, soon brought this romantic nature preservationism to the entire U.S.. While it took many forms in many places, another chief adherent was Californian John Muir. Recounted in hundreds of

books dealing with conservation history is the story of how Muir championed nature preservationist ideals to form the Sierra Club, save Hetch Hetchy in Yosemite Valley, and ultimately to include Yosemite in the national park system. Similar circumstances were used to gain the acceptance of the first official national park, Yellowstone, in 1872.

"Religious Monuments" and natural resources

Similar to the requirements on natural resources by the 'scenery thesis', the 'parks as church' thesis also required certain kinds of natural resource management to bring about the cherished religious landscapes parks were supposed to represent. In picking apart the transcendentalist mythology, critics such as Smith (1990) noted:

> First, the romanticization of nature was not even possible until nature had already been substantially subdued, for as long as most American were fighting nature as a means of survival, romanticism would have been insane, even suicidal. One does not pet a rattlesnake until it has been defanged; only then does one take it on the road so that one and all can marvel at its natural beauty (p.13).

The primitivism which began in the east was only possible because the entire eastern seaboard had been 'cleansed' of any malevolent nature. Predators such as grizzly, wolves, and mountain lions were exterminated and thus the American wilderness became a benevolent pastoral scene instead of the despicable wilderness it was one hundred years earlier (Denevan 1992). It was much easier to worship something that could cause no harm; it was much easier to juxtapose a harmful city against a beneficent nature. Nature was thus 'produced' as much as 'preserved', and this type of

nature production carried over into the beginning of the national parks and the place nature would play in them.

To bring about the benevolent Arcadian scene, the first parks were also 'cleansed' of any malevolent nature, and ironically in order to bring about that benevolent scene, a variety of malevolent actions had to occur. First and foremost, the parks had to be free from Indians so that Americans could enjoy the parks without fear of being killed (Runte 1987). It was for this reason that the U.S. Army became the first guardians of Yellowstone National Park. President Roosevelt had to insure that wealthy eastern Americans -- whose financial beneficence and ideological benevolence had created the parks -- could enjoy the parks they had established. Indians were killed, rounded up, or encouraged to leave the park by a variety of means. Likewise, predators were also killed in the parks, including wolves, bears, and mountain lions. It was Steven Mather, the first Director of the National Park Service, who referred to wolves and bears as "killers" and it was he who thus endorsed killing the killers.

Combining the requirements of natural resource management of 'parks as scenery' and 'parks as church', it becomes obvious that the parks represented an American cultural value system rather than any sort of primeval wilderness. They were intricate landscape productions in which nature was created, mythologized, and produced, but then they were promoted and commercialized as primeval wilderness to the uncritical American public. These two separate but overlapping value systems that were projected onto national park landscapes set the groundwork for much of

natural resource controversy as we now know it today. And it was the collision of these values with the ecology movement beginning in the 1930s and reaching its climax in the 1960s which forms part of the conundrum which surrounds policy today.

III. National Parks in the Post-Ecology Years: The "Equilibrium Thesis"

While the origination of the National Park Service and the land which it administered was clearly instigated by the previous two views of nature and the national parks, another way of viewing the landscape also soon had an enormous impact. In *Playing God in Yellowstone*, Chase traces the word 'ecology' to the German biologist, Ernst Haeckel, who in 1866 defined it as "the whole science of the relations of the organism to the environment including, in the broad sense, all the 'conditions of existence'" (p.312). The study of these "relations" slowly trickled throughout the scientific community and the non-scientific community as well. It was further developed in the late 1800s by Frederic Clements who began to see the interconnections between species on a landscape. Clements saw the landscape as a "complex organism" or a system which functioned together as a single being. Chase traces the word 'ecosystem' to botanist A.G. Tansley who in 1935 roughly defined it as all the factors, organic and inorganic, that determine the biotic make-up of any one place. Tansley also suggested that "nature too was a system that maintained specific internal conditions . . . An ecosystem tended toward equilibrium: it was self-regulating" (Chase:313). Chase regards this breakthrough as one of the most

important ideas in the history of national park natural resource management as well as environmental studies in general.

While scientists throughout the 1930s, 40s, and 50s began studying 'ecology' and 'ecosystems' in earnest, it was not until the early 1960s when the ideas permeated the greater public American consciousness. The hundreds of books covering the history of the environmental movement usually attribute the primary force behind this public knowledge to Rachel Carson and her 1962 book *Silent Spring* in which she popularized the ideas of ecology and ecosystems, suggesting further that the whole earth was an ecosystem that was interconnected and therefore mutually dependent. Through her dramatic claims about the effects of the insecticide DDT on insects, then birds, and then finally the whole biotic community including humans, she struck a powerful chord in the American consciousness. Many issues came together fifteen years after the end of the second world war -- the specter of atomic warfare foremost -- which made Americans ready and willing to second-guess and even dismiss much of the zealotry associated with the prior post-WWII era of 'progress.' Using the metaphors of the study of ecology, as most of the new environmentalists did, the human population seemed perilously close to upsetting the delicate biotic 'equilibrium' which served as the basis of life on the planet -- an issue significantly more important than the economic progress America was then enjoying.

Other prominent figures emerged in this new way of looking at the environment. Though *The Sand County Almanac* was published in 1947, it rose to popularity in the beginning years of the 1960s as a landmark book of the newly

emerging ecology-based environmental movement. Leopold's call for a "land ethic" that used the metaphor of the "round river" -- the idea that the whole earth was a round river in which water, air, and life circulated continuously -- reaffirmed the interconnectedness of all living things and supported the ecosystem theory which argued for the 'equilibrium thesis'. Newly elected politicians also grasped this environmental mindset and public policy began to respond to the American public's interests. Various Acts and laws were passed which affected land preservation throughout the U.S., chief among them the 1964 Wilderness Act, and the Park Service found itself, for better and worse, right in the center of the controversies surrounding this new way of looking at the landscape. As Runte says, "No institution is more symbolic of the conservation movement in the United States than the national parks" (p.xix). Through this difficult political upheaval, what before were called 'park landscapes' begrudgingly became 'ecosystems', and were called upon to serve this emerging ecological awareness and help bring the country and the earth back to ecological equilibrium. How should the Park Service respond to these cultural changes?

> The new, more embattled, view of nature has also raised the issue of the criteria for selecting parks. Traditional criteria emphasized human appeal; a national park should be sublime above all. Nature in the national parks was anthropocentric; it was scenery and its value was based on direct human appreciation. The new view of nature has forced the Park Service to ask about the value of natural areas with less direct human appeal. Should endangered ecosystems be preserved in the National Park System even if their aesthetic appeal is minimal? (Foresta 1985:3)

The answer was yes. As early as the 1930s the park Service criteria for

selecting new parks started to reflect 'biological values' as well as scenic ones. When the Great Smokies was authorized in 1934, it was argued before Congress that the park would represent a 'botanical refuge' as well as a scenic resource. Later in 1934 when Everglades National Park was authorized, the Bill stipulated that the park would be protected as a biological preserve: "The said area or areas [Everglades] shall be permanently reserved as a wilderness . . . must not interfere with the preservation intact of the unique flora and fauna and the essential primitive conditions" (Runte:136). Isle Royale, authorized in 1931, saw the same arguments used for its inclusion. However, it was not until the 1960s when management policies as well as selection criteria were primarily oriented towards the 'ecosystem' approach. Foresta documents much of this change:

> The documents and actions of the National Park Service from the mid-1960s onward reflected the increasing influence of the environmental movement and its world view of the agency. Perhaps the first change in policy caused by the ascendancy of environmental values came in 1964, the year of the Wilderness Act, when George Hartzog, newly installed as Park Service director, established a three-part classification system for the national parks. Henceforth, all units in the System would be categorized as either recreation, historical or natural areas, "so that resources may appropriately identified and managed in terms of their inherent values and appropriate uses". Fifteen years later Nienaber would judge this step a milestone in park management policy because it prompted the Park Service to adopt a preservationist orientation in a large number of parks (p.107).

The second big jump in selection policy that reflected the 'ecosystem approach' came with the 1972 *National Park System Plan* (as discussed in Chapter 1) which sought to include new parks that represented all the various ecosystems in the United States. Obviously the difference between these criteria and the previous desire

to include 'monumental scenery' represents a vast change in ideology concerning the role the national parks should play in American culture. Monumentalism was still the focus, but it was now defined very differently by an ecology-minded public -- biologically intact ecosystems was the new nature monument of this generation. These new criteria saw the Park Service become more biological refuge managers and much less recreation and scenery managers.

> With increasing environmental awareness in the 1960s and 1970s, and a shift in ecological thought among environmentalists and the public at large, the major national parks came to be valued both as important parts of the global ecosystem and as unique, distinct areas where nature-altering human activities must not be allowed to take place. Simmons wrote of the national parks as important regulators of global atmospheric systems, such as the carbon dioxide and oxygen cycles. He also saw them as important biotic reserves, genetic storehouses, and natural laboratories. When the Sierra Club fought for an expanded Redwood National Park, their aims were to include in the park boundaries the greatest possible species diversity and complete biological communities. Other environmentalists stressed the importance of national parks as bellwethers, i.e., as early indicators of any change in national or even global environmental conditions. (Foresta:97).

The Alaska Lands Act signed by President Carter in 1980 reflected the ultimate goal of the ecosystem management concept. As Runte summarizes:

> Born of romanticism and cultural nationalism, the first great national parks of the United States were clearly the result of nineteenth-century perceptions of the American landscape. Outside of the continental Untied States, only Alaska offered preservationists of the twentieth century one final opportunity to have national parks in keeping with the principle of biological management. In preservationists own words, Alaska was "our last chance to do it right", to design national parks around entire watersheds, animal migrations routes, and similar ecological rather than political boundaries (p.236).

It was the combination of this goal of selecting new parks with ecological

management in the old parks that represented the effect of ecology on the Park Service. Foresta summarizes:

> Given that nature was under assault, the Park System had to be pressed into duty as a giant ecological lifeboat. Preservation of biotic assemblages or representatives of physiographic regions, rather than popular appeal or conformity to traditional landscape aesthetics, had to be the most important criterion for selection (p.99).

It would be presumed that the major area of confrontation in natural resource management would be between the old view (scenery or church) and with this new view (ecology). With all the new policies and the new ecological mindset, a major management concern would be how to manage areas as ecosystems that were previously designed for scenery. However, the history of management in the post-ecology years yields as much conflict as resolution. It turned out that ecology provided only very slippery management requirements that few could agree on. Old systems of landscape perception now combined with these new ones, and altogether newer systems were created that further placed national park resource management into its current state of controversy. While the old ways of seeing the park landscapes still persisted -- especially by the uncritical American public -- the new ecological way of seeing turned plural. Ecology could be interpreted in different ways; there were conflicting ecological 'ways of seeing' the park landscape.

Three different approaches to interpreting the science of ecology and turning it into mandates for park policy have emerged. While overlap exists and distinctions are sometimes hazy, these three ways of seeing yield very different management requirements. The first is closely connected with the previous view of 'parks as

church'. Generally called the mainstream environmental movement and associated with 'deep ecology' and various derivatives thereof, it interprets ecological metaphors in often non-scientific ways. Its primary position is that it accepts the 'equilibrium thesis' of undisturbed nature and claims that the only way equilibrium will be achieved is if humans do not intervene in nature. The second way of seeing claims to remain truer to its scientific rather than religious origins. Generally called the 'classical paradigm of ecology' this paradigm also accepts a version of the 'equilibrium thesis' but believes that humans always have and should continue to play an active role in managing nature to meet equilibrium goals. The last way of seeing park landscapes is called 'new ecology' and it does not accept any version of the equilibrium thesis of undisturbed nature. Further, it also makes very few claims about the right and wrong of nature management.

Way of Seeing III: National Parks and Mainstream Environmentalism

As the ecology movement percolated through American culture, preservation enthusiasts quickly grasped onto the various metaphors and mandates that it appeared to hold. Of the two original ways of seeing park landscapes -- scenery and/or church -- the preservationists connected with nature-worshipping quickly saw in ecology that a variety of their previously held ideas could find further support. The transcendentalist movement, led by Muir, Thoreau, and Emerson preached a 'return to nature' to cure the ills and depravation that existed in cities and civilized life. In the strict dualism transcendentalists had produced, any and all nature was better than any

and all culture. Only by returning to nature could the real, the pure, and the 'natural' be found. When Aldo Leopold came along and argued for a "land ethic" and Rachel Carson discussed the hazards of pesticides, the 'new' transcendentalists found that ecology -- whatever it meant -- must be agreeable. The ideologies of the original nature enthusiasts -- those who first promoted the national park system -- were once again supported.

Questioning the 'dominant paradigm' and a 'loss of faith in progress' became the primary concerns of the emerging movement -- after all, the dominant paradigm and progress are what brought The Bomb and DDT. As such, the questioning continued to encompass most of society's important issues including religions and economics. Metaphors borrowed from eastern religion that emphasized 'oneness with nature' and the 'interconnectedness of all things' combined with other metaphors found in Marxist thought that sought to bring the masses together to build egalitarian societies. The metaphors of the 'ecosystem' and the 'round river' that seemed implicit in ecology became mantras for the emerging environmental movement due to the inherent wholeness, interconnectedness, and egalitarianism they espoused. Further, the metaphor of 'equilibrium' provided a powerful way of comparing the ills of society against the purification offered by the natural world. If nature tended towards equilibrium, then it was humans who were throwing nature out of balance. And now since everything was connected, the imbalance bled over into human society and would ultimately bring the demise of humankind.

A new group of nature-writers emerged including Carson and Leopold along

with Gary Snyder, David Brower, Edward Abbey, and Wendell Berry. Their back-to-nature, nature-worshipping, and nature-preservation polemics inspired the masses of young Americans who were eager to hear their stories. More formal academic and non-academic writers and hundreds of books began to emerge from the universities by scholars such as Theodore Rosak, Bill Devall, George Sessions, Roderick Nash, and Carolyn Merchant. Eloquent pleas came from foundations and environmental groups.

> There in the backcountry of our natural area parks, the wilderness persists, little changed in a century. There man can find and be a partner once again in the elementary process of an undisturbed ecosystem and recapture the awe, the spiritual exaltation, the acute awareness of the very roots of life from which he sprang (Conservation Foundation 1972:32).

Although the specifics of the various interpretations of the ecological mandate often differed depending on the version of ecology that was preferred, the general arguments always held up the 'equilibrium thesis' as the 'natural' state of nature and insisted that it was humans who were responsible for putting nature out of balance. The conclusion was also the same: when an equilibrium was wanted, human activities must be either radically altered or better yet completely removed from the ecosystem. Instead of the 'imbalance' caused by humans, 'balance' and 'stability' were needed.

The calls for changes in policies of the Park Service and other public lands management bureaucracies came from many directions. Environmentalists formed strong coalitions through the Sierra Club and other organizations reflecting the pessimism the public had about the role humans were playing in the environment. The earth was dying, and Park Service director George Hartzog echoed environmentalist concern and claimed that the parks could help solve the problem:

> Our national parks are comparable to the canary in the miner's cap; a stilled voice signaling the presence of death in the mine shaft air. Parks are our early warning system. The pressures on them are the same pressures that threaten our overall environment (Darling and Eichhorn 1969:11).

Foresta claims that: "The [wilderness] act was also a definitive legal expression of the pessimism which had come to dominate much of the thinking about the relationship of modern material culture to the natural world" (p.96). Humans, and their inability to live sustainably, were the cause; removing humans was the solution. The words of long-deceased writers such as George Perkins Marsh were called to action: "Wherever he [man] plants his foot, the harmonies of nature are turned to discords" (1894:146). Runte summed up the change in mood in reference to the role of humans in the environment, "Human beings, including Indians, could no longer be recognized as agents of 'natural' change" (p.206). Further, in their policy recommendations to the Park Service, Darling and Eichhorn stated that, "the human animal is, in a sense, an intruder in the national parks which must be protected from him" (p.57).

The pessimism of Americans concerning their position in the ecosystem ignited the environmental movement in the 1960s and still often serves as the basis for the large environmental organizations that exist today. Literature from every organization still overwhelmingly reflects the assumptions and conclusions of their transcendentalist ancestors. The equilibrium thesis is often still pervasive and the removal of humans is often still the answer. This way of seeing the relationship between nature and culture places nature as 'good' and culture as 'evil'. It was the fundamental position offered by Rachel Carson in 1962, and it is the fundamental

position offered by Michael Frome in *Regreening the National Parks* in 1992.

> Nature, alas, is perceived as requiring guidance, correction, and control, without recognizing that forces like blizzard, cold, drought, earthquake, fire, flood, heat, hurricane, storm, and volcano are both beneficial and inevitable, and all predate human existence (Frome 1992:171).

Oppositely, let alone, nature will heal itself; people just need to get out of the way. This is also the primary position embraced by Karl Hess in a similar debate in Rocky Mountain National Park. Hess's book, *Rocky Times in Rocky Mountain National Park* uses this 'balance of nature' thesis as the backbone of its critique. In fact, Hess's dedicating quote for the book is an often-quoted passage from Leopold: "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (Leopold 1947:262).

Way of Seeing IV: National Parks and Classical Ecology

While the side of ecology embraced by the mainstream environmental movement may seem fairly transparent, a closely related but more human-centered view has been embraced by a number of scientists who call themselves conservation biologists. The primary position held by this group is that the stability of the earth's biosphere depends on biodiversity, or, as previously stated, diversity leads to equilibrium. The 'balance of nature' thesis also partially lies at the heart of the 'classical paradigm of ecology'. This ecological paradigm also focuses on words like 'equilibrium', 'disturbance', 'stability', and 'carrying capacity'. However, it believes that humans have played a prime part in nature and natural processes throughout

history which, prior to European contact in many places, actually led to the balance between predator and prey, between flora and fauna, and ultimately the highest level of biodiversity. In this way it might be better termed the 'balance of culture/nature'.

While this thesis is still hotly debated by scientists, conservation biologists have started their own scholarly society and journal and promote the restoration of biodiversity as a means of subverting the imminent biospheric collapse. International conferences, forums, treaties, and laws have been enacted to attempt to stop the depletion of biodiversity and ultimately restore biodiversity on the planet. Contrary to the former mandates of mainstream environmentalists, conservation biologists often call for active human intervention in natural landscapes to bring about equilibrium. Further, their claims that biodiversity loss will lead to biospheric collapse, lead them to pursue 'restoration ecology' which attempts to restore a landscape to its state before European contact. The 'biodiversity thesis' lies at the heart of the designation of many U.S. national parks as 'U.N. Biosphere Preserves'. Such parks include Yellowstone, Rocky Mountain, and Isle Royale among others.

The controversy that Chase illustrates serves as a small sample of many similar controversies surrounding many of the national parks today. In *Playing God in Yellowstone*, Chase puts much of the blame for the sad shape of the natural resources in Yellowstone onto the backs of the traditional environmental movement and its nature-worshipping origins. He calls them "California Cosmologists" and "Hubris Commandos". In Yellowstone a coalition of environmental groups are calling for (and have gotten) the return of wolves to Yellowstone, and a stabilization

of the grizzly population. Strict preservationists, deep ecologists, and conservation biologists all agree that predators must be re-introduced to "restore the balance" (Sinapu 1994) of the Yellowstone 'ecosystem' as a means of restoring biodiversity which will lead to greater ecosystemic health. Thus, the equilibrium thesis (balance of nature) is being used as a metaphor for what is 'natural' and 'healthy.' Grizzly populations, it is argued by the conservationists, also need to be 'stabilized' or forced to a state of 'equilibrium' with the ecosystem.

However, the conflict between mainstream environmentalism and classical ecology arises around the question of what role humans should play in this re-introduction and stabilization. The way to assure both the return of the wolf and the stabilization of grizzlies, according to mainstream environmentalists, is to remove people from the parks and/or expand park boundaries which will create an even larger tract of people-less land. Conversely, people like Chase claim that humans always have and should continue to play an active role in managing wildlife. "The eviction of the Indians, elimination of predators, introduction of exotic species of plants and animals, and a century of fire control have thrown even the 'wildest' parks into ecologic disequilibrium" (Chase 1986:382). Equilibrium came about only because of human management, and human management is required to bring it about again (Lewis:1991).

Chase spends three chapters of his book lambasting the traditional environmental approach. He attacks the 'spiritual' side of the nature/culture dynamic they pursue: "Wilderness was the last refuge of religion and humanities against dread

positivism and technology" (p.324). He accuses them of co-opting ecology with religion:

> For their part, loving the idea of ecosystem, most environmentalists even so remained woefully ignorant about it. They had no desire to believe that this science, bringing us insights about "the balance of nature" and "self-regulating ecosystems", was the product of mathematicians' bias. Instead they began to turn science into religion (p.323).

He attacks the lack of scientific proof for their antihumanist position:

> Self-regulation, in fact, was the whole idea of natural regulation or ecosystems management in Yellowstone: If left alone, nature could take care of itself. But why, many scientists began to wonder, should we believe in this theory? Why should we believe that some invisible hand always guarantees that natural systems, if left undisturbed, will, despite continual fluctuation, remain roughly stable? Why should we believe that nature always knows best?
>
> The assumption, it turned out, was just that -- an assumption. It came, Wiens wrote, "in part from a world view derived from Greek metaphysics, which proposed that nature must, ultimately, express an orderly reality, and in part from our theory, which largely founded upon equilibrium or near-equilibrium mathematics". In fact, empirical studies by Wiens and others found that nature did not always do so. Wiens found that "the bird communities we have studied in grassland and shrubsteppe habitats are non-equilibrial (p.318-9).

And finally he attacks Leopold, their father figure: "Although few were aware, Leopold's land ethic -- now part of the creed of contemporary environmentalism -- rested on no foundation at all" (p.325).

Chase and other conservation biologists find support for their position and their critique of traditional environmentalism from other scholars such as environmental historian William Cronon:

> But admitting that ecosystems have histories of their own still leaves us with the problem of how to view the people who inhabit them. Are human beings inside or outside their systems? In trying to answer this question, appeal is too

> often made to the myth of a golden age, as Thoreau sometimes seemed inclined to do. If the nature of Concord in the 1850s -- a nature which many Americans now romanticize as the idyllic world of Thoreau's own Walden -- was as "maimed" and "imperfect" as he said, what are we to make of the wholeness and perfection which he thought preceded it? It is tempting to believe that when the Europeans arrived in the New World they confronted Virgin Land, the Forest Primeval, as wilderness which had existed for eons uninfluenced by human hands. Nothing could be further from the truth. In Francis Jennings's telling phrase, the land was less virgin than it was widowed. Indians had lived on the continent for thousands of years, and had to a significant extent modified its environment to their purposes. The destruction of Indian communities in fact brought some of the most important ecological changes which followed Europeans' arrival in America. The choice is not between two landscapes, one with and one without human influence; it is between two human ways of living, two ways of belonging to an ecosystem. . . . Such a view would describe precolonial New England not as a virgin landscape of natural harmony but as a landscape whose essential characteristics were kept in equilibrium by the cultural practices of its human community (1983:12).

Categorizing and dealing with the role that Indians played in the American environment continues to be a trouble-spot for traditional environmentalism. Environmentalist's version of 'preservation', "meant to protect landscapes, not to preserve the historical relationship between landscapes and people" (Runte:238). The classical ecological paradigm approach received further support from the laws associated with the Alaska Lands Act of 1980 in which rights to remain in Alaska national parks and continue traditional lifestyles were granted to Indians. As Runte summarizes:

> Biologists at last fully acknowledged the role of Native Americans in changing park landscapes through the use of fire. The Alaska lands issue also drew attention to the fact that native peoples throughout North America had long exerted a great influence on the biological composition of the continent (p.239)

Way of Seeing V: National Parks and New Ecology

The management requirements on the parks imposed by the mainstream environmental movement was and continues to be destabilizing for the prior position based primarily on the parks as monumental scenery and primitivist escapes. Further destabilization has resulted from the challenge that the classical paradigm of ecology offers to the mainstream environmental movement. Further yet is a position which Chase alludes to and flirts with but backs off from in the end. While he frequently discusses that equilibrium does not exist, in the end of the book he calls for human intervention to bring Yellowstone back to a state of equilibrium. Having less interest in changing public policy and more interest in objective scientific research, the adherents of 'new ecology' generally reject any sort of 'balance of nature' thesis whether of human design or not. Its adherents claim that "the balance of nature is a poorly articulated idea that is a cultural metaphor rather than an exact scientific concept" (Pickett and Ostfield 1995:265). This more guarded form of ecology relies on a completely different set of metaphors such as "flux", "nonequilibrium", "chaos" (Zimmerer 1994). According to Pickett and Ostfield (1995):

> The term flux highlights variation, fluidity, and change in natural systems, rather than stasis, which is implied by the term balance. Although this metaphor does not deny the existence of stable points in nature, it focuses our attention on the fact that natural systems, which certainly do persist, do so as a result of a variety of fluxes (p.267).

Further, new ecology contradicts the six background assumptions of the classical paradigm. For instance,

> Ecological systems are never closed . . . Stable point equilibria are rare . . . Successions are rarely deterministic . . . Disturbance is a common component of ecological systems . . . And finally, landscapes that have not experienced important human influences have been the exception for hundreds if not thousands of years (p.267).

Although still a minor player in management debates, new ecology challenges many of the assumptions of old ecology and thus fundamentally questions the policies and management techniques that the Park Service has used since the Leopold Report in the late 1960s.

> Rather, fluctuations in the form of physical disturbances, climate shifts, population cycles, range shifts and the like are significant normal parts of the real world. Management cannons proceed as though such fluctuations did not occur or were not important. Managers must proceed as though fluctuations mattered (Pickett and Ostfield:264).

In this paradigm, predator and prey have not and should not exist in equilibrium; rather, large fluctuations in the population of each would characterize their 'natural' symbiosis. This paradigm would probably erode the critiques offered from Chase and Hess because both, for instance, call for some form of intervention to ensure that elk numbers stay near 'equilibrium' and do not grow beyond 'carrying capacity' for the range. A 'new ecologist' might alternatively allow elk numbers to grow to a point where a massive die-off occurred, and then a gradual increase in elk numbers could begin again. Such 'flux' and 'nonequilibrium' is 'natural' in the new ecological paradigm. Biologist Daniel Botkin (1991) refers to this as "discordant harmonies" and claims that this discordancy requires that older versions of ecology have to be abandoned.

The old idea of a static landscape, like a single musical chord sounded forever,

> must be abandoned, for such a landscape never existed except in our imagination. Nature undisturbed by human influence seems more like a symphony whose harmonies arise from variation and change over every interval of time. We see a landscape that is always in flux, changing over many scales of time and space, changing with individual births and deaths, local disruptions and recoveries, larger scale responses to climate from one glacial age to another, and to the slower alterations of soils, and yet larger variations between glacial ages (p.62).
>
> New ecological ideas also erode classical ecological thought on every scale.

While Chase is concerned with one piece of land -- Yellowstone -- the arguments of conservation biologists and the "biodiversity thesis" generalize classical ecology to a global scale. New ecological ideas, according to Botkin, that take a less political look at biological change, find that "nature changes at many scales of time and space, that we cannot expect nature to remain in a constant conditions and thus provide us with a simple solution to the questions of what is 'natural' and what is desirable" (p.181). Pickett and Ostfield further say:

> Most spasms of nature become opportunities, and if the accidents of evolution and history have made organisms available, then they will appear to fill the stage. Subsequent changes in the environment, the species pool, or the nature of interactions may occur. They are all part of the flux of nature, none more intrinsically desirable than another. This is the shifting stage and shifting play that ecologists must understand and managers must deal with (p.273).

Both Botkin and Pickett and Ostfield agree that new ecology complicates environmental issues. While Pickett and Ostfield say that "the flux of nature is a dangerous metaphor" (p.273), Botkin says:

> The idea that change is natural has created problems in natural-resource management. How do you manage something that is always changing? And of even more concern is the possibility that by admitting to some kinds of change, we may have open a Pandora's box of problems for environmentalists (p.11).

Given new ecology, the management of parks might more fully represent anthropocentric needs and desires as opposed to some objective scientific truth. Botkin, who did some of his research on moose/wolf relationships on Isle Royale National Park, claims that "Under the new management, our role in conservation is active; for example, harvesting may serve the interests of conservation as well as utilization, and the goals of utilization and conservation can be part of one approach" (p.156). Management in new ecological times would attempt to differentiate 'bad' from 'good' change and decide which is best suited for human beings.

> The task before us is to understand the biological world to the point that we can learn how to live within the discordant harmonies of our biological surroundings, so that they function not only to promote the continuation of life but also to benefit ourselves: our aesthetics, morality, philosophies, and material needs (Botkin:191).

As such, it becomes obvious why new ecology will have a difficult time making definitive management decisions in national parks. New ecology may be able to tell us a whole host of facts about how a park landscape operates, but it will never be able to tell us how to manage them better. Botkin suggests that we must admit that 'right' and 'wrong' ideas about how nature should exist are relative to our anthropocentric value systems. Further, the conflict that would exist between the management mandates of new ecologists versus old ecologists and mainstream environmentalists would be extensive and virulent. As the case study will describe, much of this conflict exists with the wolves of Isle Royale.

Chapter 3

Postmodernism, Landscapes, and Nature: Between Nature and Culture

I. Introduction

> It is largely because of their ambiguities that mere words are capable of independent action as forces in history. A term, a phrase, a formula, which gains currency or acceptance because one of its meanings, or of the thoughts which it suggests, is congenial to the prevalent beliefs, the standards of value, the tastes of a certain age, may help to alter beliefs, standards of value, and tastes, because other meanings or suggested implications, not clearly distinguished by those who employ it, gradually become the dominant elements of signification. The word "nature," it need hardly be said, is the most extraordinary example of this. (Lovejoy 1964:7-14)

Chapter 1 laid out the initial issue that this dissertation tackles -- the conundrum of nature-policy in the national parks -- and then reviewed Park Service policies over the years. Chapter 2 then argued and developed the idea that policy is the surface manifestation of broader and deeper issues within the U.S. national parks. Park landscapes and park policy sit ensconced amidst American cultural history, ideological-environmental changes, and views of the national parks to the American people. Thus in Chapter 2, policy was somewhat problematized and theorized reflecting its role in more general and sweeping cultural changes. In this chapter, this problematization and theorization will go a step further by digging deeper yet into the policy conundrum by exposing some more intricate and difficult-to-answer questions.

In the previous chapter, five 'ways of seeing' were developed that linked the

history of Park Service policy with its cultural connections. But, as descriptors of national park culture, these ways of seeing raise important and deeper questions about the role and place of park landscapes and the 'nature' they preserve. For example with respect to the parks as cultural landscapes, these ways of seeing seem to insinuate that the parks are infinitely interpretable and ideologically malleable. Do not the parks have any intrinsic status beyond the ways of seeing that the public brings to them? And if they do have intrinsic status, what is it? Are each of these ways of seeing equally valid? Is there not some historical or material basis from which to argue that one way of seeing is better than another? And once these questions are brought up, similar yet broader questions arise concerning the 'nature' these parks claim to preserve, because after all, nature preservation has been one of the primary roles the parks have played in American public life. So likewise, these conflicting views of nature seem to insinuate that nature is infinitely interpretable and ideologically malleable. Is nature nothing other than a cultural manifestation? Does not nature have some intrinsic status that negates or upholds some interpretations more than others?

It is of utmost importance to deal with these questions. Why? Because if the parks and the nature they preserve do or should have any intrinsic meaning, then the role of research should be to attempt to find out that intrinsic meaning and the role of policy should be to support that meaning with laws and management guidelines. However, the history of the parks as landscapes -- as discussed in Chapter 2 -- suggests that finding any intrinsic meaning is very difficult if at all possible. Rather,

the parks and the nature they preserve may have been and continue to be repositories of numerous and sometimes conflicting projected human values. Therefore the overall framework within which this dissertation operates chooses to problematize this intrinsic meaning and see this problem as an essential issue underlying the policy conundrum. This problematization of intrinsic meaning and material status of landscapes and nature has been a subject within the recent and still emerging scholarly field of postmodernism and it is within the framework of postmodern theory that these issues are best understood.

This chapter will do several things. First, it will provide a brief summary of the history of the post-structuralist movement (from which postmodernism has emerged) within literary and social theory. This summary will help situate some of the discussion of postmodernism and the criticisms of it. Second this chapter will define and discuss postmodernism and its emergence within geography. As many scholars have remarked, the word 'postmodernism' seems to have multiple meanings; clearly defining the meanings used in this dissertation will help keep this study, as well as the term, on track. Third, this chapter will then discuss the postmodernist approach to landscapes as outlined and practiced by a few geographers in recent years. Fourth, this chapter will discuss the postmodernist approach to nature that has emerged in the last five years along with considerable controversy. Finally, amidst several critiques of postmodernism, a compromise 'in-between' approach will be developed that fits into the overall needs of this dissertation and its case study.

II. Post-structuralism and Deconstruction

> Post-structuralism, says Eagleton (1983),
>
> > is a shift from seeing the poem or novel as a closed entity, equipped with definite meanings which it is the critic's task to decipher, to seeing it as irreducibly plural, an endless play of signifiers which can never be finally nailed down to a single centre, essence or meaning (p.138).

In the post-structural world, while literary texts are initially authored with generally knowing intent and meaning, that intent and meaning can be knowingly or unknowingly subverted by any potential number of readers. Because each reader brings his or her own cultural baggage and meanings to the text, and because each reader relies on perhaps different meanings of the various words and metaphors a text holds, meaning and intent is open to interpretation. Duncan and Duncan (1988), Eagleton (1990), and a host of other social theorists trace the origination of this post-structuralist paradigm back to Saussure (1959).

> Under Saussure, and later among linguistic structuralists and poststructuralists, the idea that meaning is referential, that it is derived from some one-to-one correspondence with its objects of reference in the 'real world', has succumbed to a more relational concept of meaning, by which signs depend directly upon conventional systems of relations among signs, rather than upon any inherent, eternal, or essential features of concrete objects (Duncan and Duncan 1988:118).

Based in "antifoundationalism" which negates the "futile search for a 'transcendental signifier'" (Duncan and Duncan 1988:118), poststructuralism reifies the role of language in defining meaning. A cavern of metaphors and infinite individual experiences opens up between signifier and signified causing 'interpretation' to be elevated atop the epistemological puzzle.

While it focuses on writing and texts, its implication that meaning can 'never be nailed down' raises its metaphors of 'interpretation' and 'intertextuality' to significantly higher levels. It somewhat reifies language and it raises grave epistemological and ontological questions. Drawing on the initial work of Saussure, other french theorists like Derrida (1976, 1978, 1981) more fully developed the 'intertextuality' and the 'web of meaning' involved in interpreting texts which are "characterized by a ceaseless play of infinitely unstable meanings" (Duncan and Duncan 1988:118).

> The work of Derrida and others had cast grave doubt upon the classical notions of truth, reality, meaning and knowledge, all of which could be exposed as resting on a naively representational theory of language. If meaning, the signified, was a passing product of words or signifiers, always shifting and unstable, part-present and part-absent, how could there be any determinate truth or meaning at all? If reality was constructed by our discourse rather than reflected by it, how could we ever know reality itself, rather than merely knowing our own discourse? (Eagleton p. 143-4)

Such a reconceptualization emphasizes the "centrality of rhetoric" (Barnes and Duncan 1992) and also often is referred to as the "linguistic turn" (Demeritt 1994a).

New terms are raised or re-defined by post-structuralism including text, metaphor, signifier, signified, discourse, and discursive field. 'Text' is elevated above the older definition of being a collection of written words or lines. In this new field, 'text' carries greater metaphorical weight as being a key element in knowledge creation and dissemination. Likewise, 'metaphor' comes to stand for the whole overlapping 'web-like' nature of language. That a word is also a metaphor speaks to the possible distance between signifier and signified; a word never actually reflects an

object, it merely serves as a metaphor with multiple meanings. Words become 'signifiers' that hold meaning and may or may not bear striking resemblance to the objects they hope to represent, the 'signified'. In the post-structuralist world, the signified is perhaps beyond language and is hardly concrete. A 'discourse' is deemed an acceptable interpretation of a text which may be held singularly by an individual or by many individuals. The 'discursive field' includes all the individual discourses that attempt to explain any one text. Unknowingly alluding to the subject of this dissertation (wolves), Eagleton (1983) says, "But even when it just means a furry four-legged animal, this meaning will never quite stay the same from context to context: the signified will be altered by the various chains of signifiers in which it is entangled (p.129).

Along with this new paradigm of thinking, also comes a tool to aid in the search for multiple meanings -- deconstruction. If a person breaks down a text into all of its possible meanings, or more simply suggests that different meanings exist together, then the text is said to be deconstructed. Introduced by Derrida in the 1967 book, *Of Grammatology*, deconstruction implies that texts "may always be 'deconstructed'; they can be shown to be products of a particular system of meaning, rather than what props it up from the outside" (Eagleton 1983:132.). As Poole (1988) explains:

> Derrida showed that, by taking the unspoken or unformulated propositions of a text literally, by showing the gaps and supplements, the subtle internal self-contradictions, the text can be shown to be saying something quite other than what it appears to be saying. In fact, in a certain sense, the text can be shown not to be 'saying anything' at all, but many different things, some of which

subtly subvert the conscious intentions of the writer (p.206).

Deconstruction will yield the 'system of meaning' behind any one text rather than taking for face-value the ability of the text to reflect an object or an idea. It will yield the afore-mentioned situation of multiple and conflicted meaning and intent. As Cloke, Philo, and Sadler (1991) summarize:

> This technique for teasing out the incoherences, limits and unintentioned effects of a text [is] an exercise that thereby scuppers any simple notion of being able to discern the real 'meaning' of a text (a notion that privileges the author over the reader)(p.192).

Eagleton summarizes several strands or avenues that deconstruction has taken after its initial impulse within French theory in the late 1950s. One particular path that is often caricatured as being symbolic of the whole is the "so-called Yale school of deconstruction -- Paul de Man, J. Hillis Miller, Geoffre Hartman and in some respect Harold Bloom" (p.145). In this particular school, the end-point of deconstruction is called a 'linguistic abyss' of emptiness or nihilism where meaning resides completely within the individual and language is completely non-referential to an outside reality. This form of philosophical 'idealism' that potentially destroys any political or ideological dogma comes at a certain price:

> One advantage of the dogma that we are prisoners of our own discourse, unable to advance reasonably certain truth-claims because such claims are merely relative to our language is that it allows you to drive a coach and horses through everybody else's beliefs while not saddling you with the inconvenience of having to adopt any yourself. It is, in effect, an invulnerable position, and the fact that it is also purely empty is simply the price one has to pay for this. (Eagleton p. 144)

While the end-point of the Yale school of deconstruction may be seen as

empty, apolitical, or as neo-conservative, the original intention and the direction of deconstruction in Europe was different. Eagleton summarizes:

> Post-structuralism was product of that blend of euphoria and disillusionment, liberation and dissipation, carnival and catastrophe, which was 1968. Unable to break the structures of state power, post-structuralism found it possible instead to subvert the structures of language. Nobody, at least, was likely to beat you over the head for doing so. The student movement was flushed off the streets and driven underground into discourse. Its enemies, as for the later Barthes, became coherent belief-systems of any kind -- in particular all forms of political theory and organization which sought to analyze, and act upon, the structures of society as a whole. For it was precisely such politics which seemed to have failed: the system had proved too powerful for them, and the 'total' critique offered of it by a heavily Stalinized Marxism had been exposed as part of the problem, not as the solution. All such total systematic thought was now suspect as terroristic: conceptual meaning itself, as opposed to libidinal gesture and anarchist spontaneity, was feared as repressive. . . . Power was everywhere, a fluid, quicksilver force which seeped through every pore of society, but it did not have a centre any more than did the literary text (p.142-3).

In this passage Eagleton historically situates the beginnings of post-structuralism and deconstruction in a way that challenges the nihilistic stereotypes attributed to the Yale school. The key issue here is that post-structuralism, in its initial forms, was radically political; its primary impulse was as a means of subverting power. Current stereotypes of post-structuralism, postmodernism, and deconstruction as being unconcerned with power and being ill-equipped to offer methods of subverting power fail to understand the historical context in which post-structuralism and deconstruction have emerged. For instance, Palmer's (1990) popular anti-deconstruction polemic *Descent into Discourse* fails to account for the position and target of post-structuralism and deconstruction.

Derrida is clearly out to do more than develop new techniques of reading:

> deconstruction is for him an ultimately *political* practice, an attempt to dismantle the logic by which a particular system of thought, and behind that a whole system of political structures and social institutions, maintains its force. . . . But the widespread opinion that deconstruction denies the existence of anything but discourse, or affirms a realm of pure difference in which all meaning and identity dissolves, is a travesty of Derrida's own work and of the most productive work which has followed from it (Eagleton 148).

As will become evident in the later discussion, the tool of deconstruction may be used for a variety of political purposes (or no purpose at all). The number and strength of post-structuralist political positions that currently use some form of deconstruction attests to it usefulness as a tool rather than a dogmatic and solely destructive idea.

III. Postmodernism and Geography

Two developments have arisen since the emergence of post-structuralism from within literary theory in the late 1950s and 1960s. The first is the fracturing of post-structuralism into several strands of political thought. Among others, those include feminism, pragmatism, and postmodernism. While each of these movements heads off on its own political or analytic direction, each also draws from the general tenets of post-structuralism and deconstruction. A second development has seen the filtering-out of post-structuralist thought, including its various emergent strands, into the greater sphere of the academic social sciences. The metaphors and methods of post-structuralism provided useful tools for analyzing other types of cultural productions beyond written language. Anthropologists like James Clifford (1986) began to think of culture itself as a text. Likewise sociologists, historians, and geographers have also made productive use of the ideas of post-structuralism.

Of the many strands of post-structuralist thought in the social sciences, the focus here will be on postmodernism, its role in the social sciences in general, and its role within geography in specific. Dear (1986, 1988, 1994a, 1994b) has written four articles that outline the terrain of postmodernism in geography (and more generally in the social sciences). Harvey's book, *The Condition of Postmodernity* (1989) also outlined the term as did a chapter in Cloke, Philo, and Sadler (1991), and others (Berg 1993, Curry 1991, Jameson 1991). Dear's article-sized syntheses really get to the point, thus his terminological outline will be used here. Dear refers to postmodernism as epoch, method, and style. Implicit in these definitions is 'postmodernism as politics' that will also be defined. Internal to many of the issues postmodernism raises is a 'crisis of representation' which will be discussed in the last part of this section.

"Postmodernism as epoch" refers to the time period and the cultural occurrences following WW-II through the present -- the exact dates are a matter of debate (Harvey 1989). Dear claims that the epoch includes "the sum of self-awareness, of a shared culture, of a niche in time-space" (1986:373). Jameson (1991) refers to the epoch as a "new type of social life and a new economic order" (p.113) that comprised a "radical break" from the past. Several things brought about this epoch including flirtations with deconstruction in the late 1950s by French philosophers; the Cold War and the 'arms race'; demographic changes in America and western culture; clashes in values systems in America and Western Europe; the globalizing of capitalism; the internationalizing of media; and many others. Of special importance was the philosophical notion that 'reality was socially constructed'.

Thus, the stereotypic epoch of postmodernism is characterized by a 'pastiche' of values, styles, norms, and above all, irreverence for singular metanarratives as solely constituting reality.

"Postmodernism as style" refers generally to the things people did and the things they created during this epoch. Harvey (1990) discusses this in terms of architecture, as does Mills (1988), and Ley and Olds (1988). Cloke, Philo, and Sadler (1991) see this more as a personal style and they use the rock star Prince as example. In terms of architecture, modernist buildings focused in efficiency, orderliness, and one-size-fits-all bunker-like style and shape. Conversely, postmodernism architecture as discussed by Harvey and Mills was characterized by a pastiche of styles that freely selected items from various historic periods and by attention to individual tastes rather than society-wide norms. Modernist buildings were demolished on a wide scale (one in particular occurred in 1972 that Harvey claims symbolized the passage from modernity to postmodernity); postmodernist buildings replaced them. The 'pastiche' effect also showed up in music and other postmodern 'objects'. The popstar Prince,

> provides a highly textured 'collage' of music and spectacle in which the audience encounters an assortment of motifs from a variety of different musical and showbiz genres: . . . the resulting cultural product 'defies categorization', [and represents a] postmodern attitude (Cloke Philo and Sadler 1991:172-3).

Individual lifestyles, architecture, urban planning models, and relationships with nature reflected postmodern styles which were first and foremost about 'difference'.

"Postmodernism as method" refers to deconstruction and its theoretical implications. Also, when the idea of 'postmodern theory' is invoked, it refers to the

role of deconstruction in knowledge creation. As previously discussed, literary deconstruction is a technique originally employed by French philosophers and literary scholars which involved breaking down a text into all of its possible interpretations. Among other things, the 'death of the author' and the relativism of textual meaning result from this formal deconstruction. It leaves society "lost in the reflexive funhouse" (quoted in Castree 1994), a funhouse in which language creates reality rather than mirrors it, where 'mimetic representation' no longer exists. A "postmodern challenge" (Dear 1988) or the "postmodern problematic" (Dear 1994b) ensues wherein meaning is always 'contextualized', non-foundational, and never all-encompassing. In a non-literary way, social scientists took the general ideas put forth by literary deconstruction and used them to analyze all manner of 'texts' including culture and landscapes.

> [Deconstruction has] had an enormous influence, notable upon North American literary theorists, but what has also happened is that the principle of deconstruction has been extended to the analysis of the incoherences lying at the intersections of all manner of texts, cultural products, social settings or whatever. As a result numerous researchers, human geographers included (see Dear, 1986, 1988), now talk about 'deconstructing this, that or the other' when they are not so much pursuing a line of inquiry inspired by Derrida as simply highlighting aspects of a given theory or real-world situation that do not seem to 'add up' or 'fit together' all that well. (Cloke, Philo, and Sadler, p. 192)

Deconstructing a cultural production (like a landscape) would involve showing how its various meanings are rooted in cultural values and biases. Thus 'materiality' becomes only one piece of the deconstructed landscape; values, biases, and human cultural ideas both produce and interpret material objects.

"Postmodernism as politics" (Dear 1994a, Zimmerman 1994) takes many of

these previous ideas and advances them as a political position, the sole aim of which is to undermine all meta-narratives like patriarchy, capitalism, Marxism, science, religion, etc and describe how each relies on metaphoric and thus purely relative knowledge constructions. Then, since these meta-narratives have no foundational basis other than metaphors, alternative narratives -- local, different -- that have been squelched and silenced by these meta-narratives are described as just as factual, relevant, and useful as any other. These alternatives can then be lifted up and seen as equal to the oppressive meta-narratives, and at least in a philosophical way, the alternative narratives are thus liberated out from under the oppressive meta-narratives. While the vagaries of postmodernism in general have taken many directions, this political stance runs true to the original post-structuralist aims put forth by Saussure and Derrida nearly thirty years ago.

More generally, the 'problematic' and 'challenge' of postmodernism and deconstruction have caused a 'crisis' eliciting the concern of several social scientists and geographers including Haraway (1991), Harvey (1989) Cosgrove and Domosh (1993), Duncan and Sharp (1993), and Jackson (1991). What is called a "crisis of representation" has emanated from this postmodern political situation because each political position is seen as simply one representation of the 'truth'; no position is any longer solely true. Cloke, Philo, and Sadler (1991) develop this point:

> It is vital to grasp the further point that Lyotard is not only suggesting that the sheer diversity of messages and languages currently bombarding us militates against any possibility of thinking in terms of metanarratives, but he is also suggesting that we encounter in this diversity the *real* 'truth' of the human world -- the only 'ontological' claim of any generality to be made about this

> world -- that it is constituted of nothing but fragmented clouds of communication bound together by nothing but garbled dialogues between people who do not (who cannot) properly understand one another. Any theoretical account seeking to impose an order on this chaotic reality, whether it be a Marxist account talking about the universality of class interests or a humanist account talking about the universality of human nature, is hence viewed by Lyotard as a modernist endeavor sadly out of step with the reality of the *postmodern condition* (p.194)

One of the increasingly accepted ways out of this morass is put forth by Haraway (1991), and further developed by Cosgrove and Domosh (1993). Briefly, each individual truth-claim is now seen as one "partial truth"; the sum total of truth claims is seen as the total truth. Likewise each writer now has to put forth their "politics of position" (Jackson 1991), that is, tell the particular personal, ideological, and institutional biases which drive their philosophy and worldview. Thus having recognized your own politics of position you avert a crisis of representation by not claiming a foundational truth-claim, merely a partial truth that relies solely on your metaphoric, linguistic, social construction of reality.

IV. Postmodernism and Landscapes

While such broad ideas make for heady theorizing, applications to individual cultural productions within geography 'ground' these ideas somewhat. In the previous chapter, several 'ways of seeing' nature within national park landscapes were discussed along with a stance that overtly accepted some of the postmodern problematic. An overall assumption of this 'way of seeing' metaphor is that the landscape itself -- the material ground, rocks, flora, and fauna -- was to some extent

malleable and adaptable to several different human cultural ideas and values. It could then be said that the national park landscape was somewhat of a 'text' that afforded a breadth of meaning and thwarted singular meanings. That many different people, groups, and institutions could look at national parks over a 100 year history and interpret them differently, and could claim that the parks represented a host of different values and ideas that changed over time and place speaks to the postmodern concepts of 'difference', 'pastiche', 'polyvocality', and the 'relativism of meaning'. Below, I will review this postmodern approach to landscape along with its criticisms.

The seeds of the postmodernist approach in geography's landscape studies show up in a 1979 edited volume by geographer Donald Meinig titled, *Interpreting Ordinary Landscapes: Geographic Essays*. In this volume the metaphor of the landscape as a "text" which can be "read" is utilized. As the title of the text depicts and as several of its articles also exemplify, it accepts that landscapes can be 'interpreted,' and much like written texts, interpretation is not fixed. Articles in the book by Lewis (1979) titled, "Axioms for reading the landscape", and by Meinig (1979) titled, "Reading the landscape" set the stage upon which later work rests. However, it was not until 1988 when an article appeared titled "(Re)reading the landscape" (Duncan and Duncan) that post-structuralist theory was advanced in a concrete way in geography. Duncan and Duncan claim that this position "provides us with theories of reading and authorship which we can adapt to explain how landscapes are incorporated into social process" (p.117).

Using the language of literary 'discourse theory', the Duncans argue that, like a

literary text, a landscape can also be 'deconstructed', which involves breaking it down into all of its possible 'discourses', all of which together comprise its 'discursive field'. Following reader-response theory, it is implied that although a particular landscape (text) may have been produced (authored) with one intention in mind, successive people may interpret (read) the landscape in entirely different ways than its producers (authors) intended. Deconstructing a particular landscape would involve identifying and discussing all the various ways that people give and get value and meaning from the landscape. The Duncans also suggest that one of the main functions landscape has in societies is to "naturalize" societal organization. Their deconstructive approach could then "denaturalize" the often-times hidden agenda which underlies landscape production. In this respect they align their work with that of a Marxist agenda which might "challenge local exclusionary practices" (p.125). They think that landscape deconstruction and "denaturalization in this and other realms is an important task of the academic as critical theorists" (p.125).

Another 1988 book by geographers Stephen Daniels and Denis Cosgrove, *The Iconography of Landscape*, is pivotal in establishing the deconstructionist/postmodernist position. The "Introduction" to this book also more fully develops the implications of this position and rewords the assumptions stated earlier:

> A landscape is a cultural image, a pictorial way of representing, structuring or symbolizing surroundings. This is not to say that landscapes are immaterial. They may be represented in a variety of materials and on many surfaces -- in paint on canvas, in writing on paper, in earth, stone, water and vegetation on the ground. A landscape park is more palpable but no more real, no less

> imaginary, than a landscape painting or poem. Indeed the meanings of verbal, visual and built landscapes have a complex interwoven history. To understand a built landscape, say an eighteenth-century English park, it is usually necessary to understand written and verbal representations of it, not as 'illustrations', images standing outside it, but as constituent images of its meaning or meanings. And of course, every study of a landscape further transforms its meaning, depositing yet another layer of cultural representation (p.1)

The deconstructionist apprehension of landscape, according to Daniels and Cosgrove:

> seems less like a palimpsest whose 'real' or 'authentic' meanings can somehow be recovered with the correct techniques, theories or ideologies, than a flickering text displayed on the word-processor screen whose meaning can be created, extended, altered, elaborated and finally obliterated by the merest touch of a button (p.8).

Thus there now exists the "inherent instability of meaning" (Daniels and Cosgrove p.9), and further as interpreted by Peter Jackson (1989): "For if, as Cosgrove insists, landscape is a 'way of seeing', then there are potentially as many ways of seeing as there are eyes to see" (p.177). Duncan (1990) further develops the postmodernist landscape approach in *The City as Text* by grounding the ideas in a detailed discussion of Sri Lankan landscape and society.

Two additional books that both reiterate previous ideas and strike off into many new directions include the collections of articles in the volumes *Writing Worlds: Discourse, text, and metaphor in the representation of landscape* (Barnes and Duncan 1992) and *Place/Culture/Representation* (Duncan and Ley 1993). Reiterating Daniels and Cosgrove, (1988) Barnes and Duncan (1992) claim the postmodernist approach to landscapes conveys an "inherent instability of meaning, fragmentation or absence of integrity, lack of authorial control, polyvocality and unresolvable social

contradictions" (p.7).

Criticism of the postmodernist challenge to landscape studies has primarily come from the historical-materialist paradigm. In a book review of Duncan's *The City as Text*, Peet (1992) accuses Duncan of "elitist idealism" (p.187) for continuing to hide rather than unmask material social processes. Peet claims that "'Reading the landscape' makes the world sound like one big library inhabited by bookish intellectuals who know little and care less about base material processes!" (p.186). Demeritt's (1994b) review of postmodernist landscape metaphors seems to agree somewhat with Peet's critique of Duncan's analysis of Sri Lankan society. Similarly, in a book review of *Writing Worlds*, historical-materialist Mitchell (1993) accuses Barnes and Duncan of creating "two parallel universes" with "brute reality" on one side and "text, discourse, metaphor, and language" (p.474) on the other. The essence of this rift lies an age-old conflict between the philosophical paradigms of 'materialism' and 'idealism'. However, as Walton (1995) claims, the extreme relativism that often is (incorrectly) stereotypically associated with the post-structuralist impulse and the idealist paradigm is only marginally embraced in this new work in geography.

For example, Barnes and Duncan go to pains to reel in the extreme relativism of postmodernism when they claim that the discursive field is not infinite; the different meanings of a landscape are not totally subjective and they do not exist outside materiality. Each discourse must be "implicated in the very fabric of society and social processes; if they are to work they must resonate against an existing set of

social and cultural representations (Barnes and Duncan 1992:12)." A discourse must stand some sort of public test and thus reflect people's interest and desire in using it. Walton claims that the 'text' metaphor helps us understand the links "between ideas and materiality" (p. 63). Likewise, in the initial article by Duncan and Duncan, they go to great lengths to suggest a similar constrained in-betweenness of the ideal and material, of the modern and postmodern:

> Although it is important to recognize the instability of meaning, it is equally important to realize that this plurality is finite. It is related to actual empirical differences in interpretations. These differences are neither merely individual constructions nor autonomously generated by signifiers. Interpretations are the product of social contexts of historically and culturally specific discourses: they are constructed by interpretative communities and they frequently but not always, reflect hegemonic value systems. However, although they are conventional and necessarily ideological, not based on a one-to-one correspondence with an independent 'real world', neither are they "observation independent" . . . That is, most interpretations will be constrained to some degree by their relation to that which is interpreted. The variability among interpretations can be explained as a structured and structuring product of a social process. (p.120)

It is in this "in between" compromise that both Berg (1993), Demeritt (1995), and ultimately Walton (1994) seek haven, and it is also in this harbor that this dissertation is firmly anchored. Berg says his interests lie in "reconcile[ing] my own beliefs in material reality with my beliefs about the power of discourse in structuring that 'reality'" (p.492). The ideas discussed in the previous chapter of this dissertation fit nicely in this reconciliation. The 'ways of seeing' the national parks are firmly rooted in the materiality of the park landscape. No discourse even suggests that the park is solely an 'idealist' expression. Also, the historic context in which each of the discourses sits exemplifies the level of concern with history, with political institutions

and individuals in structuring that history, and ultimately with the interplay between ideas about nature and the parks in congruence with the 'brute reality' of the land.

V. Postmodernism and Nature

There are many types of landscapes -- urban, suburban, agricultural, park, and wilderness -- and the previous discussion deals with them in a rather generic fashion. Beyond the generalized view of each plot of land being a 'landscape', each type of landscape will have its own separate and additional issues associated with a critical inquiry. National park landscapes likewise offer a breadth of experiences in which several competing interests often vie for recognition. But the overwhelming role that national parks play in American culture is as nature preserves, or as Foresta (1985:2) states, the Park Service has "considerable responsibility for the preservation of nature in America". Thus "nature" is the next issue that must be dealt with and problematized. And, to be sure, "nature" is a problem. We know this because in any critical account that discusses "nature" we nearly always find the word in "quotation marks". This was true in 1958 at Isle Royale National Park (Cole 1958), and it is still true today. Whenever we see those quotation marks, we should know that things are going to get tricky and slippery. Postmodernism has been leading the way in this slippery enterprise. Dear (1994a) introduces the issue thus:

> postmodernists are at the forefront of a reconceptualization of the relationship between people and the natural world. Among other things, this involves dismissal of the Man-Nature dualism and an ecology-based emphasis on the essential unity of the natural world (p.297).

There has been an explosion of interest in the subject of postmodernism, deconstruction, and nature in the last few years. In 1993 and 1995, for example, three important books were published which grapple with these issues, two of which represented the output of two long conferences in the University of California system. *In the Nature of Things: Language, Politics, and the Environment* (Bennett and Chaloupka eds. 1993), *Reinventing Nature: Responses to Postmodern Deconstruction* (Soule and Lease eds. 1995), and *Uncommon Ground: Toward Reinventing Nature* (Cronon ed. 1995) all stand as 'new directions' in the interdisciplinary area of environment-society relations. These books represent the culmination of several years of thinking and scholarship which perhaps began, along with the rise of post-structuralism, in the late 1950s and 1960s. For instance, although the terms and ideas of the debates have now gotten more difficult and complex, an initial exchange between Lowenthal (1964) and Shephard (1965) could easily mark the beginnings of this "postmodern divide" in nature Borgmann (1995:35) and the current 'reinventions' that it has spawned. Although the argument that nature is 'socially constructed' is by now an accepted truism in many academic circles, a brief re-telling of this argument is warranted here.

The key to understanding and perhaps accepting the need for postmodernism to wander into 'nature' lies in accepting the social constructedness of nature. A vast array of scholarly literature has emerged in the last thirty years which studies the history of nature and its connections to -- indeed its subsumation within -- culture. A few of the classic texts of this kind include Glacken's (1967) *Traces on the Rhodian*

Shore, Worster's (1977) *Nature's Economy*, and Nash's (1973) *Wilderness and the American Mind*. More recent works include Evernden's (1992) *The Social Creation of Nature* and work from feminists such as Haraway's (1987) *Primate Visions* and Merchant's *(1980) The Death of Nature*. Perhaps hundreds of books and articles could be cited that carry similar arguments. The essential message of this body of work is that the nature/culture dualism as we now think of it in Western societies is a device of our making often carefully constructed to meet specific ideological and political needs (Lowenthal 1992). The title of Wilson's (1991) previously mentioned book, *The Culture of Nature*, aptly sums up this constructedness.

Two interweaving issues permeate this constructedness: first, nature has been defined as something 'other' than human or culture. It is 'out there' and it is not us. Second, after we place it 'out there' we also still spend considerable time trying to decide what it is, what it should do or should not do, what it means to us, where it should be and should not be, and what we should do with it. The argument that nature is something 'other' has been linked to various issues arising in the history of Western culture (Lease 1995). Glacken (1967) points to the Greeks and the Romans and the very beginnings of Western thought as the source for the idea that the human mind was something superior than any other in nature and was therefore different in important ways. Given this classically based difference, other scholars like Merchant (1980) discuss how Enlightenment thinking further imposed the rational mind above the irrationality of nature thereby further distancing nature from culture. White (1973) further explored this distance and domination in terms of the role Christian

thought played in the nature-culture dualism. What emerged were two poles: nature on one side, culture on the other. It is in this first regard that we can say that nature is socially constructed -- people created the hierarchy, the dualism, and gave nature its status as something 'other' than culture.

Different Meanings of Nature

The second issue -- what then is nature, what should we do with it -- requires significantly more elaboration. It builds upon the first and makes nature even further subsumed within the domain of social constructedness. What is nature? Smith (1990) lays out some of the ambiguity that more generally surrounds nature in Western societies and suggests many of nature's different and conflicting values and meanings.

> Much as a tree in growth adds a new ring each year, the social concept of nature has accumulated innumerable layers of meaning in the course of history. . . . Thus despite the common grounding in the experience of nature, the concept of nature is extremely complex and often contradictory. Nature is material and it is spiritual, it is given and made, pure and undefiled; nature is order and it is disorder, sublime and secular, dominated and victorious; it is a totality and a series of parts, woman and object, organism and machine. Nature is the gift of God and it is a product of its own evolution; it is a universal outside history and also the product of history, accidental and designed, wilderness and garden. In our range of conceptions of nature, all of these meanings survive today (p.1).

Fitzsimmons (1989) uses the term "social nature" to refer to this cultural construct. More recently, this 'social nature' has been more fully developed among a group of scholars within the interdisciplinary environment-society field who have, to varying degrees, accepted the challenge of postmodernism. For example, Dear (1994a),

Demeritt (1994a, 1994b), Worster (1993), and several of the contributors to the three previously mentioned books (Bennett and Chaloupka eds. 1993, Soule and Lease eds. 1995, Cronon ed. 1995) all discuss the degree to which nature has partly been a projection of cultural values and biases.

> Part of the ideological power of nature flows from the word's implication that it describes a universal quality: nature is something, surely, that is common to us all, that all of us share. And yet reality is rarely so simple. When we look closely at ideas of nature, we almost always find competing notions of the good, the true, and the beautiful disguised as singular, monolithic nature. The question we need always to ask of such competing notions is "Whose nature?" What looks natural to one person may look all to unnatural to another. As soon as we recognize disagreements of this sort, we face the difficult challenge of adjudicating between them. If nature is partly in the eyes of the beholder, whose eyes should we trust to see it clearly? (Cronon 1995:367).

Like the post-structuralist position on other issues, nature also partly falls within the linguistic trap. In the above quote, Cronon accepts a 'partial' constructivist approach so that nature becomes part material and part cultural. Smith's "range of conceptions of nature" implies that nature is not a singular unity and is also partly a cultural conception rather than a material object. Harvey further elaborates about the 'metaphoric' properties of nature:

> We see, in short, only those values which our value-loaded metaphors allow us to see in our studies of the natural world. Harmony, and equilibrium; beauty, integrity and stability; cooperation and mutual aid; ugliness and violence; hierarchy and order; competition and the struggle for existence; turbulence and unpredictable dynamic change ;atomistic causation; dialectic and principle of complementarity; chaos and disorder; fractals and strange attractors; all of them can be identified as 'natural values' not because they are arbitrarily assigned to nature, but because no matter how ruthless, pristine and rigorously 'objective' our method of enquiry may be, the framework of interpretation is given in the metaphor rather than in the evidence. (Harvey 1993:14-15)

Within this paradigm, perceiving and defining nature becomes partly a reflection of our collective cultural selves which waxes and wanes with cultural fads and follies. Ideas of nature are partly human values projected onto 'natural' landscapes. Nature becomes part idea, part material reality.

Like the application of post-structuralism to landscapes, we could also use the 'text' metaphor on nature. Nature becomes a book that human readers read meaning into and onto. Our conceptions of nature are partial 'representations' that may not ever aspire to mimetic proportions. Bennett and Chaloupka (1993) suggest that given the linguistic turn in environmental studies "nature, wild lands, animals -- begin to lose its status as an object, already set thing to which we can refer as if we were not involved in its construction" (p.xvi). Jameson (1991) suggests that "Postmodernism is what you have when the modernization process is complete and nature is gone for good" (p.ix). Several scholars have used the term "simulacra" to describe this text-like cultural construction (Shephard 1995, Hayles 1995a, 1995b, Katz and Kirby 1991). In this context, nature becomes something that we created to mimic a landscape that may have never or only partially historically existed. Evernden, referring to the work of Barthes, calls nature a "semiological system" (p.23). Botkin (1991) and Harvey (1993) say that "nature is our mirror". Instead of explaining nature, all we can try to do is 'represent' it and accept that our representations are politically biased and culturally influenced. Cronon (1995) further elaborates:

> The work of literary scholars, anthropologists, cultural historians, and critical theorists over the past several decades has yielded abundant evidence that "nature" is not nearly so natural as it seems. Instead, it is a profoundly human

> construction. That is not to say that the nonhuman world is somehow unreal or a mere figment of our imaginations -- far from it. But the way we describe and understand that world is so entangled with our own values and assumptions that the two can never be fully separated. What we mean when we use the word "nature" ways as much about ourselves as about the things we label with that word. As the British literary critic Raymond Williams once famously remarked, "The idea of nature contains, though often unnoticed, an extraordinary amount of human history." (p.25).

What about "ecology" -- the study of nature?

While a definitive critique of the science of ecology is beyond the scope of this dissertation, a brief summary is appropriate. As discussed in the previous chapter, the mainstream view of 'ecology' is also a convoluted concept perhaps brought into action to defend a similarly convoluted 'nature'. It partially grew out of political circumstances and was brought to bear in the political context of the environmental movement of the last thirty-five years. Many of the ideas commonly associated with nature are claimed to be discovered through ecology, and thus ecology is often seen as providing the scientific justification behind nature preservation. But as discussed in the 'new ecology' section of Chapter 2, the cultural construction of ecology is now equally as troubling as the subject of its study (Worster 1977). Old ideas of 'harmony' and 'equilibrium' are highly contested as are the new ideas that replace them (Barbour 1995); the common thread running through it all is culture. Worster (1993) best sums this up when he says: "[Ecological] ideas have been reflections of ourselves as much as objective apprehensions of nature" (p.40). Worster further suggests that the "harmony and stability" perception of "ecosystems"

which emerged with Leopold (1947) and continued through the 1960s and 1970s reflects the greater interest of society in moving towards communitarian goals with nature and with each other during that time period. Likewise, the "ecology of chaos" and its negation of the idea of an "ecosystem" and focus on individual ecological chaotic events that emerged in the 1980s reflected the rampant "individualism" and chaotic mindset that swept American culture during that time period.

In this context, the meaning of nature as defined by ecology seems to be mired in the metaphors chosen by the particular ecologist. Feminists have offered a particularly stringent critique of the role of metaphors in scientific pursuits. The culture behind science is so troubling that many feminists question any and all of its conclusions (Merchant 1980, Haraway 1991, Martin 1991). The application of science to nature -- the result being 'ecology' -- should not provide a safe or comfortable harbor for any critical investigation. Harvey (1993) further elaborates:

> All versions of revealed values in nature rely heavily upon particular human capacities and particular mediations. . . . thus producing distinctively human *discourses* about intrinsic values. The conclusion, it seems to me, is inescapable. If values reside in nature we have no scientific way of knowing what they are independently of the values implicit in the metaphors deployed in mounting specific lines of scientific enquiry. . . . Rousseau (1973:65), interestingly, spotted the ruse long ago when he wrote of 'the blunder made by those who, in reasoning on the state of nature, always import into it ideas gathered in a state of society.' Ecologists concerned, for example, to articulate conceptions of equilibrium, plant succession and climax vegetation as properties of the natural world, have reflected as much about the human search for permanence and security as the quest for an accurate and neutral description or theorisation of ecological processes. And the idea of harmony with nature not as a human desire but as a nature-imposed necessity likewise smacks of the view that to be natural is to be harmonious rather than conflictual and contradictory both of which are quickly dubbed as artificial, the result of 'disturbance' and the like.(p.10-14).

Such critiques are now as common as they are stringent. The science of nature -- ecology -- seems to provide only a marginal, metaphorical basis for understanding nature (Demeritt 1994a, 1994b, LaTour 1987)

What about wilderness?

Accepting this postmodernist challenge of nature, we can then start to look at and analyze actual places that try to preserve nature. "Wilderness" (another word-place-idea that now requires quotation marks) is perhaps the best example of this trouble with nature. Equally, wilderness has had many meanings and rhetorical convulsions. It is perhaps the most 'natural' of all 'nature' and because of this it is loaded with even more symbolic value which corrodes its brute material reality. It is both a place and a mental state; both material and ideal. Nash (1973) calls it a "state of mind", for Muir it was 'church', for Edward Abbey it was 'freedom', Oeschlager (1991) calls it an "idea". Cronon (1995) says it is just plain "trouble" because it is so "constructed":

> The removal of Indians to create an "uninhabited wilderness"--uninhabited as never before in the human history of the place--reminds us just how invented, just how constructed, the American wilderness really is. . . . there is nothing natural about the concept of wilderness. It is entirely a creation of the culture that holds it dear, a product of the very history it seeks to deny. Indeed, one of the most striking proofs of the cultural invention of wilderness is its thoroughgoing erasure of the history from which it sprang (p.79).

Cosgrove has taken a similar approach in analyzing wilderness which, because of the 1964 Wilderness Act, now comprises hundreds of thousands of acres in the U.S. national parks. In response to the Fifth World Wilderness Conference in Tromso

Norway, October 1993, Cosgrove (1994) wrote a summary that appeared in the journal *Ecumene*, titled "Translating Wilderness". In that summary, Cosgrove refers to wilderness as "discursive expressions, as a culturally and historically produced language like any other, and sought to contextualize it" (pp.301-2).

What about national parks?

If there is one definitive place in America where Americans have attempted to define nature it is in the U.S. national parks. Through that attempt at definition we can see the "layers of meaning" that Smith speaks of; we can see the social construction of ideas about nature and then the production of nature in the parks. We can perhaps see that national parks may not hold any intrinsic meaning or value other than what we ascribe to them and that that meaning is not fixed, it varies over time and place. Not only are national parks constructed, but according to Smith (1990), Olwig (1995), Spirn (1995), Graber (1995), and many others, they are also produced; they have been consciously made to look a certain way, reflecting the varying constructions of nature held by Americans over the history of the national parks. Through the careful dualisms applied over centuries of Western thought, we have somewhat come to agree not only on what is and is not nature but also on how nature should look. And one of the main places American culture comes to its agreements, disagreements and conclusions about the role of nature in culture is in the national parks.

Over a hundred years of manipulation of park landscapes through direct

conscious efforts like kicking off or killing native Americans; killing predators such as wolves, mountain, lions, and grizzlies; and allowing only minor amounts of human presence within park boundaries have resulted in the 'production' of national park landscapes. Other less conscious efforts like suppressing wildfires and attempting to control exotic species of flora and fauna have also been landscape productions. In this regard the reference to parks as "simulacra" (Katz and Kirby 1991, Hayles 1995a, 1995b) appears especially relevant. In relation to projections of human cultural values onto the parks and then the reflection back thereof, Katz and Kirby say, "As Taussig points out, there is an almost 'universal tendency whereby any culture externalizes its social categories onto nature, and then turns to nature in order to validates its social norms as natural (p.262). Referring to the highly produced version of nature that parks project, they claim that "Yosemite, to take one example, is as much a construction as Disneyland" (p.266), and "Parks are simulacra, copies without an original" (p.266). In this deconstructionist vein, park landscapes become "a culturally and historically produced language like any other" which first, foremost, reflect cultural values rather any ontological meaning of nature. The role of the deconstructionist -- echoing Duncan and Duncan (1988) -- would be to denaturalize the park, to show how the landscape has been made to look natural and thus first and foremost, cultural.

> When "nature" becomes an object of visual consumption, to be appreciated by the connoisseur's eye sweeping over an expanse of landscape, there is a good chance it has already left the realm of firsthand experience and entered the category of constructed experience that we can appropriately call simulation. Ironically, then, many of the experiences that contemporary Americans most

> readily identify with nature--mountain views seen from conveniently located lookouts, graded trails traversed along gurgling streams, great national parks like Yosemite visited with reservations made months in advance--could equally well be considered simulation. Thus the distinction between simulation and nature with which we began is a crumbling dike, springing leaks everywhere we press upon it. (Hayles 1995:411)

Criticism of "Postmodern Nature"

> What happens to environmental politics, environmental ethics, and environmentalism in general once we acknowledge the deeply troubling truth that we can never know at first hand the world "out there" -- the "nature" we seek to understand and protect -- but instead must always encounter that world through the lens or our own ideas and imaginings (Bennett and Chaloupka 1993:25)?

The previous review of the criticism of postmodernism applied to landscapes yielded a caricatured but unsubstantiated dualism between the material and the ideal, between brute reality and the mental construct. Similarly, criticism of postmodernism applied to nature has provided the same caricatured but unsubstantiated dualism. While marxists claim to be the main enemy of postmodernist landscape geographers, the postmodernist analyst of nature has encountered enemies around every corner. In the academic setting, many environmental scientists, ecologists, biologists, etc. have all reacted vehemently against the critique of a sole material nature offered by postmodernism. Outside of the academy, everyday run-of-the-mill environmentalists believe that postmodernism and deconstruction offer a true anti-environmental stance.

For instance, in the academic literature, 'objectivist', 'realist', or 'materialist' positions (they go by many names) come from Symanski (1994), Lewis (1994), Soule (1995), Shephard (1995), and they are the guiding framework of *Reinventing Nature*.

The foundation of this objectivist position believes there is an objective truth in nature and they believe that given enough time and money they can find it. For them, nature is only real; it is not a social construct. Further, they believe that if that objective truth and reality is not accepted, apprehended, and dealt with, the Earth is in dire trouble. Martin Lewis sums up this position:

> Try to imagine constructing a political agenda for preserving species or reducing pollution against such a backdrop, one in which the natural environment is viewed as a human construct that has no logic of its own, only "'rhetorics" (p.xii)', and in which the distinctions we commonly make between humans, other species, and machines betoken only a totalizing, boundary-policing reactionary rationality. More fundamentally, consider the implication for environmental politics of an intellectual system that rejects conventional science as a mere word-game of patriarchal domination, a discourse that "'reveal[s] nothing because [it is] connected to nothing" (p. 28)' (p.515).

The very recent field of conservation biology is the center-point of this objectivist position. The field's founder, Michael E. Soule, also does a good job of summarizing this viewpoint and outlining the lines of battle with deconstructionists:

> Living nature -- the native species of plants and animals in their native settings -- is under two kinds of siege; one is overt, the other covert. The overt siege is physical; it is carried out by increasing multitudes of human beings equipped and accompanied by bulldozers, chainsaws, plows, and livestock. The covert assault is ideological and therefore social; it serves to justify, where useful, the physical assault. A principal tool of the social assault is deconstruction (p.137).

Environmental philosopher J. Baird Callicott (1995) refers to the postmodern turn in environmental studies as an act of the "Deconstructive Devil". Soule says it is "sophomoric" (p.154). Symanski (1994b) says postmodernism contributes to the fact that "the world's native nonhuman species are going extinct at a frightening rate" (p.303). It appears here that postmodernism has trespassed into some rocky, pot-hole

stricken terrain with snipers all around. That nature could be partially a social construct rather than solely a brute reality, that nature could partially be culture, that nature is not purely first and foremost a material entity to which we owe ethical as well as life-sustaining reverence is seen as reprehensible by these out-spoken scholars. The postmodern divide here seems like more of a canyon. But there are bridges across and tunnels under this canyon that can bring the sides together.

VI. Resolution: In-Between Nature and Culture

Cronon (1992) discusses this postmodernist challenge in relation to "stories" about the great plains and concludes that the best we can do is tell stories about the issues we are interested in, rather than place those stories within a foundational, epistemological Mount Sanai. He finds a level of comfort in a position in-between the material and the ideal. At one point he asks: "How, for instance, are we to choose among the infinite stories that our different values seem capable of generating?" (p.1411). At another point, (borrowing from Patricia Limerick) he asserts that nature exists, or we would not be talking about it in the first place. Other environmental historians also find comfort in the in-between stance.

Mapping out this terrain, Worster (1992) describes this approach as the combination of three overlapping directions of analysis: 1) what nature does and has done, 2) how we physically and materially produce nature, and 3) how we think about nature. The first accepts that nature does things on its own, outside of human influence, that "nature, like society, has a story to tell" (p.1090). The second more

obviously describes the ways people have altered, used, and adapted nature to fit their needs. The third contains the 'ideal':

> Finally, forming a third level for the environmental historian is that more intangible, purely mental type of encounter in which perceptions, ideologies, ethics, laws, and myths have become part of an individual's or group's dialogue with nature. People are continually constructing cognitive maps of the world around them, defining what a resource is, determining which sorts of behavior may be environmentally degrading and ought to be prohibited, and generally choosing the ends to which nature is put. Such patterns of human perception, ideology, and value have often been highly consequential, moving with all the power of great sheets of glacial ice, grinding and pushing, reorganizing and recreating the surface of the planet (p.1091)

Cronon (1992) describes that as an "interactionist" or "possibilist" stance "between materialist and idealist forces" (p.1144), or put another way, between nature and culture. Worster replies that "No landscape is completely cultural; all landscapes are the result of *interactions* between nature and culture" (p.1144). Worster still seems to rely on a dualism of nature and culture, but the interactionist approach also allows for the dissolution of that dualism.

The acceptance of both the materiality of nature -- that it exists and does things beyond human production, construction, or thought -- and the ability of humans to 'socially construct' nature is what is being called this "in between" stance (Berg 1992, Whatmore and Boucher 1993, Benton 1989). In a review of the postmodern chasm and the "nature metaphor", Demeritt (1994b) concludes that the postmodernists within cultural geography and the materialists within environmental history need a new "metaphor" for nature to bring together the material and ideal. He looks to Latour and Haraway to:

> provide metaphoric tools that make it possible to imagine nature as both a real material actor and a socially constructed object without reducing it, ultimately, to a single pole of the nature/culture dualism. Their metaphors for nature can provide environmental historians and cultural geographers with corrective lenses for the dizzying double vision produced by the nature/culture dualism that fixes nature and landscape as either autonomous natural actors or absolute social productions (p.163)

Latour's (1988) "quasi-objects" and Haraway's (1991) "cyborg" provide the metaphors that Demeritt finds comfort in. These metaphors allow for a part-nature/part-culture object that is both ideal and material, one that is a part of our story and also tells its own story. Matless (1992) suggests that the roots of this in-betweenness have been around since the beginning of 'postmodern thought'. Drawing from Foucault's *History of Sexuality*, Matless says:

> One might suggest 'nature' could be seen as lying in an analogous position, less a biological arena set apart from human activity than a mythic figure of human imagination. So we might no longer have Nature on the one hand, and 'ideas' of nature on the other (p.49).

If we look closely at the scholars who have been specifically interested in the postmodernism debate with respect to nature and environmental studies, we find the exact same movement towards this in-between stance. In fact, in the last three years we can see a definitive time-line provided by the three previously mentioned books as excellent examples of this movement. *In the Nature of Things* (1993) is, for the most part, a heady post-structuralist account of nature as a 'discursive expression'. In *Reinventing Nature*, on the other hand, while still flying in a bit of heady post-structuralist metaphysics, we find several of its contributors seeking 'common ground'. Borgmann's (1995) "The Nature of Reality and the Reality of Nature",

Hayles' (1995a) "Searching for Common Ground", and Worster's (1995) "Nature and the Disorder of History" all seek and to some degree find this in-between stance that is needed to push the issues into a new stage of criticism. Hayles specifically brings up the "interactivity" of these two realms as a place of crossroads for the two poles, nature and culture.

And in *Uncommon Ground: Toward Reinventing Nature*, we find this in-betweenness nearly complete. Deeply unsettled by the implication that postmodernism can lead to even more destruction of the environment, the authors of the articles in this volume go to great pleading lengths to distance themselves from environmental destruction, and position themselves between the poles of nature/culture. A host of quotes will exemplify this:

> All landscapes are constructed. Garden, forest, city, and wilderness are shaped by rivers, and ran, plants and animals, human hands and minds. They are phenomena of nature *and* products of culture. There is always tension in landscape between the reality and autonomy of the nonhuman and its cultural construction, between the human impulse to wonder at the wild and the compulsion to use, manage, and control. Landscapes of city and wilderness represent poles of a continuum in the history and intensity of human intervention. . . . For the world is not infinitely malleable; nature may be constructed, but it is not only a construction (Spirn p.113).

> Nature is real, or course, but we can experience and relate to others only a filtered, personalized version of nature. The filter exists alike for farmer, poet, scientist, and public policy maker; one consequence is that none of them can claim to speak for nature. (Barbour p.457)

> If there is a more to this book, it is that we need to think much harder than we usually do about what we mean when we use the word "nature," and about how we should and should not draw boundaries between the things we call "human" and the things we call "natural." . . . On the one hand, we need somehow to persuade scientists and environmentalists who assume "nature" to be natural, wholly external to human culture, that there is something

> profoundly important and useful in recognizing its cultural constructedness. On the other had, we need no less to persuade humanists and postmodernists that although ideas of nature may be projected ideas of men and women, the world onto which we project those ideas is by no means entirely of our own making: there is more to the world than just words. . . . Nature is a mirror onto which we project our own ideas and values; but it is also a material reality that sets limits (never completely clear but no less definite for being uncertain) on the possibilities of human ingenuity and storytelling (Cronon p.458)

The position of 'reinventing nature' runs through much of this thinking. These authors believe that in order to combine the theses of 'nature is real and material' with "We can never speak about nature, without, at the same time, speaking about ourselves" (Capra 1975:77), we need to reinvent what nature is and what it means to us, perhaps by doing away with its "out there" status and bringing it "in here" (Haraway 1995). Under this rubric is the idea that nature has been invented, and that it needs to be re-invented. This re-invention seems to refer to first, the desire to deconstruct the previous ill-fated invention of nature, and second, the idea that nature needs to be re-invented in a different way which could lead toward a better relationship between the human and non-human world. This re-invented nature would include less of a dualism between nature and culture, less of a hierarchy, and less oppression of the non-human world -- ideas that both camps in this argument share. In this re-invented, in-between nature/culture, the question becomes: "What kind of world do we want to live in? What kind of social and natural landscape would describe this world? (Proctor 1995:297)"

Concluding Remarks

> National parks would seem to be as much about the nature of national identity as about physical nature. If this is so, they should be able to tell us a lot about ourselves as Americans, a lot about the way we interact with each other and our environment. When seen in this light, parks become places where we "reinvent nature" in our own image, and hence good places to study the reflections of that image. (Olwig 1995:380)

By now it should be apparent that the Park Service policy of 'managing for naturalness' has become significantly more problematized. Chapter 1 suggests that nature policy in the parks is fluid and changing; Chapter 2 suggests that the American conception of the national parks are likewise fluid and changing; and this chapter suggests that, quite simply, 'nature' is a problem. Let me restate the goal of this dissertation, define what has been done, and what needs to be done. The main thesis of this dissertation is that policy conundrums are surface manifestations of different underlying ideological 'ideas about nature'. *Amidst changing views of the role of the park landscapes in American culture, and amidst severely problematized definitions of 'nature' and 'natural', the Park Service's job of finding policies to manage its flora, fauna, and landscapes is truly a conundrum.* Chapters 1 through 3 theoretically connect the two of the spheres that Worster summarized -- ideas about nature, and policies dealing with nature. Thus the needed framework is in place to move ahead.

What is needed now is to get this discussion out of unspecified theory and move it onto a plot of land where these issues are relevant. Isle Royale National Park provides an ideal and truly unique place to look at the policies of the Park Service from within this problematized lens. For forty years, scientists have been following

the wolves of Isle Royale around the island; for forty years the scientists have been telling stories about what nature is doing; for forty years the Park Service has been enacting policies that reflect stories (sometimes the same, sometimes different than the scientists) about what is going on there; and most importantly, nature and wolves have been telling their own story often to the astonishment of scientists and policy-makers alike. Let's now go there and dig into those stories.

Chapter 4

An Introduction to the Case Study and Methods

I. The Case Study: The Wolves of Isle Royale

> ". . . there are some parks, like **Isle Royale**, which are nearly pure wilderness" (Darling and Eichhorn 1969:18).
>
> So far **Isle Royale National Park**, in Lake Superior, had come closest to the ideal ecological preserve by virtue of its island status, isolation, and nearly complete ownership by the federal government. But Isle Royale was to remain the classic exception (Runte:147).
>
> The classical areas of wilderness, those last outposts of nature undisturbed -- the forest of **Isle Royale**, the grasslands and savannas of East Africa, the mountains of New Guinea, the marshes of Australia . . . (Botkin:66).

What is most notable about these three quotes is the source of each. Darling and Eichhorn, Runte, and Botkin should know better -- they are seasoned national park historians and scientists. As previously discussed, Botkin has new ecological and postmodernist leanings, and yet the Isle Royale "wilderness" and the half-myth of "undisturbed" nature prevails. Such an uncritical appraisal of a nature/park would perhaps be expected from the Park Service, nature-writers, or the boosterism promoted by the North Woods tourist industry. Indeed, this is exactly what we also see. The first sentence of the Park Service's Isle Royale brochure reads, "In Lake Superior's northwest corner sits a wilderness archipelago, a roadless land of wild creatures, unspoiled forests, refreshing lakes, and rugged, scenic shores . . ." The

brochure from the Isle Royale Nature Association is titled: "Isle Royale: An Island Wilderness". Guidebook writer Jim DuFresne (1984) titles a section of his Isle Royale guidebook, "Isle Royale: History of a Wilderness", and then he inexplicably writes about Indians, mining, and fishing villages which all had a hand in producing this wilderness. The National Parks and Conservation Association states that "Isle Royale, in Lake Superior is unique in the region and in North America. Its most significant feature is the opportunity to study and make intelligible the operation of an isolated and truly primitive life community" (1971:37). What is it about Isle Royale that causes even scientists to sound like they work for the chamber of commerce? Why is it such an "exception" in North America? What is the wolf management issue? How will the previous theoretical discussion be an appropriate analytical tool for that issue?

Why is Isle Royale an "exception"?

Isle Royale National Park sits isolated in the northwestern corner of Lake Superior roughly twenty miles from the Minnesota/Canada border and about seventy miles from the Park Service headquarters in Houghton, Michigan (see maps on pages 100 and 101). The Park consists of the main island (which is roughly forty-five miles long and two to ten miles wide), about 200 much smaller islands, and water in Lake Superior reaching 7.2 kilometers beyond the circumference of the islands. Altogether the Park comprises roughly 540,000 acres, about one-fourth of which is land area. (For comparison, Rocky Mountain N.P. is 265,000 acres, Great Smoky Mountains

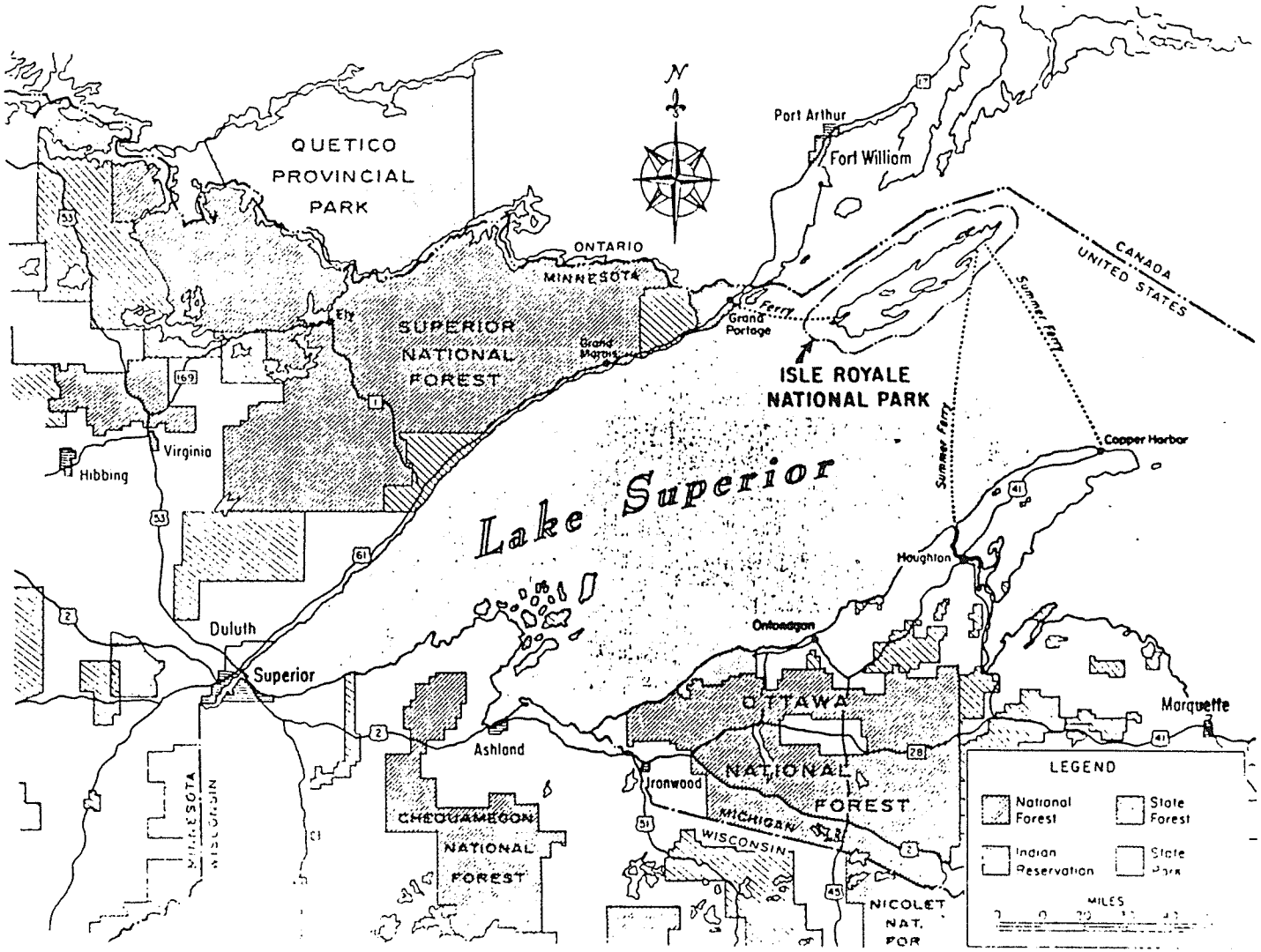

Figure 1. Isle Royale National Park Recreation Region

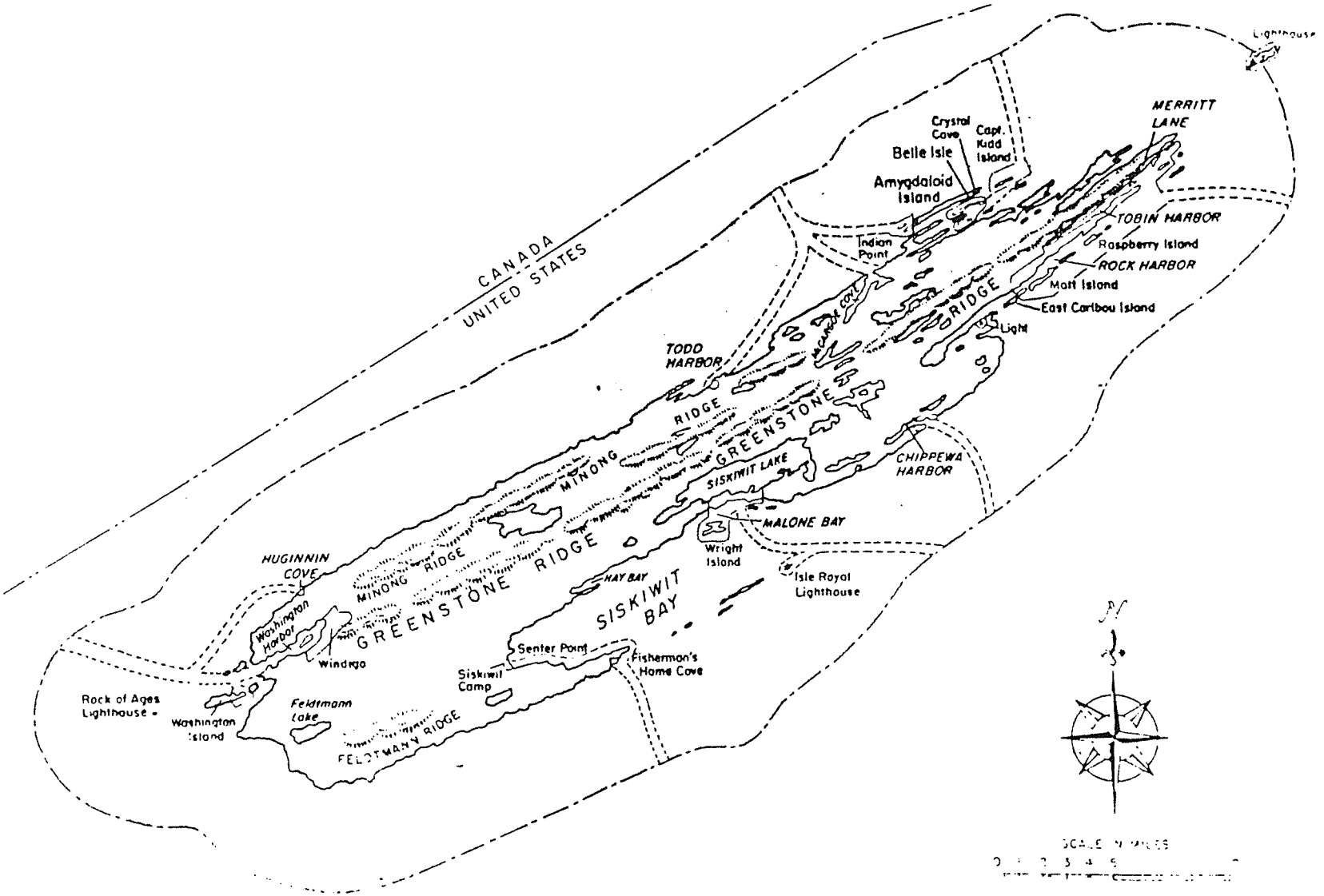

Figure 2. Wilderness Plan for Isle Royale National Park

N.P. is 520,000 acres, Yosemite is 760,000 acres, Yellowstone is 2.2 million acres.) The Park is only open to visitors six months per year -- May through October -- and commercial boat and airplane transportation to the Park only occurs four months per year -- June through September. Visitation per year is thus exponentially lower in comparison to other U.S. National Parks of similar type. For example, in 1983 Isle Royale received roughly 13,000 visitors, Rocky Mountain received 2.6 million, Great Smokies 8.4 million, Yosemite 2.5 million, and Yellowstone 2.4 million. Also juxtaposed to other parks, concessions on Isle Royale are kept to a minimum, existing in only two of the islands' many harbors.

This isolation gives Isle Royale unique qualities. Many of the previously discussed studies of the U.S. National Parks often contain a section titled "Threats to the Parks". These threats are usually divided into external and internal threats. External threats often include boundary issues important for wildlife migration, and problems associated with how neighboring lands are managed whether for residential or commercial use. Mining, grazing, oil and geothermal drilling, and air quality are all external threats often discussed for Yellowstone, Grand Canyon, Glacier, and Rocky Mountain National Parks. Internal threats are separated into those related to visitors and those related to managing natural resources. Visitor issue relate to roads and automobiles, trail use, camping impacts, concessions, and law enforcement; natural resource issues relate to fire, floral, and faunal management. Isle Royale's isolated status negates nearly all of the external threats. There are no obvious boundary issues -- it is an island. The only other external threats are from air quality

and water quality in Lake Superior -- both of which are minimal.

Internal threats from visitor use are also minimal. No roads or automobiles exist on the island. The negative issues relating to trail use, camping impacts, concessions, and law enforcement are held to a minimum due to the small number of visitors. Isle Royale is known and promoted as a wilderness park and draws visitors who have a desire for a wilderness retreat often with the accompanying low-impact, wilderness camping ethic in mind. Further, getting to Isle Royale is neither simple nor cheap. In order to get there, visitors (who do not own a boat) must either take a two-hour boat ride from Grand Portage, MN, a four or six-hour boat ride from either Copper Harbor or Houghton, MI, or a thirty-minute sea-plane ride from Houghton, MI all of which are expensive ranging from $85 to $195 round-trip. The average length of visit to Isle Royale National Park is four days. (For comparison, the average visit to the Western U.S. "crown jewels" like Yellowstone is roughly four hours.) Thus not only do few visit, but many visitors are looking for a more adventurous wilderness experience that expects fewer services.

This leaves the second type of internal threats -- those relating to natural resource management issues -- as the primary factor in the production of the Isle Royale landscape. In this regard Isle Royale is also a haven of pure preservation in the Park Service's repertoire of parks. Ninety-nine percent of Isle Royale is managed as designated wilderness. This management goes further than official wilderness because it does not allow horses in the Park while most wilderness areas and national parks do; visitors are not allowed to bring dogs to the islands (dogs cannot even be on

the boats within the Park boundaries); fires are not permitted except in fire rings in approved campsites; and hiking, canoeing, and kayaking are the only allowed means of transportation within the Park. Additionally, in the early 1980s, Isle Royale was named a U.N. Biosphere Preserve (Bick 1985). While no concrete management regulations accompany this, such status often increases the attention of the role of nature preservation. Inholdings with cabins exist within Isle Royale, but again they are small and only occupied a few months a year if at all and they are slowly being turned over to the Park Service.

Using the metaphors of experimental design research, Isle Royale could serve as a perfect 'control group' for studying controversies surrounding natural resource management **because natural resource management is nearly the only activity happening there**. For instance, much of the criticism of Park policy by Hess, Chase, Frome, Sax, and others is that it always puts visitor needs and interests ahead of natural resource issues. Both Hess and Chase argue that 'boundary issues' lie at the heart of the problems of elk, grizzlies, and wolves in their respective parks. Because 'natural' migration boundaries are cut off by residential and commercial development, the parks become unnaturally bounded areas into which humans must then intervene to correct for these problems. Elk need to be fed in the winter or shot in the summer to make up for a lack of natural migration or predation. Grizzlies and wolves must be both fed and/or corralled to correct for limited range and habitat. However, Isle Royale has seen very little historical human activity, and current human activity is kept to a minimum. Given these traits, Isle Royale clearly provides an exception to

other U.S. national parks in the lower forty-eight states. According to the Isle Royale *Statement for Management* (1989) states:

> The relatively unspoiled wilderness nature of the area, protected by the Island's enforced isolation, is undoubtedly the most significant feature of the park. The term wilderness, in this instance, combines a total interaction of the Island's ecology. Plant succession, protected from most outside influences, is an important part of the ecology. Animal succession, especially the world-famous predator/prey (wolf/moose) relationship, is the most outstanding example. The Island is large enough to provide a working ecological unit. Its significance as a scientific study unit cannot be overstressed. Dr. Durward Allen states, "Isle Royale is probably the most ideal outdoor laboratory in the world. It is of general value to science and of specific value to the National Park Service (p.3).

Isle Royale is a place primarily preserved for nature. It is a place where a study of how and why humans manage nature can be discerned with few other conflicting variables.

The Wolves of Isle Royale

A wide variety of current and historic management questions and debates at Isle Royale relate to fire, fish, birds, plants, trees, and animals. Each could serve as a needed laboratory for the study of how humans view and manage nature. However, one specific issue, the world-renowned and highly studied relationship between moose and wolf, will yield the most debate, posturing, and the greatest insight into the broader questions of this dissertation. Shelton (1975) and Botkin (1990) review the history of moose and wolves on Isle Royale. Sometime around the year 1900, moose swam the 17 miles to Isle Royale, found abundant food, no predators, and therefore flourished. Their numbers grew to nearly 3000 until the early 1930s when they finally

outpaced their food supply and experienced a massive die-off. In 1936 a large fire burned one-quarter of the island and in the next few years these burned areas became revegetated with shrubs -- often called "moose salad" -- which again fueled a growing moose population. Realizing that another die-off was imminent, the Park Service introduced four timber wolves to the island hoping that the natural predator/prey relationship between moose and wolf would limit moose numbers. However, the wolves were brought from zoos and did not know how to hunt moose or anything else. Botkin (1990) reports that the wolves hung around the visitor center looking for handouts and then died with the next winter.

Sometime thereafter (various documents place the date between 1947 and 1948), a cold winter caused the Lake to freeze solid between the island and Canada. A pack of timber wolves apparently walked over on the ice, found abundant food (moose, hare, beaver), and also flourished. This predator/prey relationship between moose and wolves on the island is the most commented-upon, highly studied, and longest running wildlife study in the U.S. Various commenters over the years -- scientific and non-scientific -- have often used this relationship as an example of the classic "balance of nature" thesis whereby the numbers of predator and prey will be kept in check. Further, the relationship extends to the complete ecosystemic interaction of moose, wolf, and the other flora and fauna on the island including beaver, aspen, paper birch, mountain ash, balsam fir, and ground hemlock. Currently researchers place the wolf population at around twenty-two and believe that due to various "natural" or human-induced factors wolves may be extirpated from the island.

This looming extinction, the conjectured reasons for it, its effects on the ecology of the island, and Park Service policy reactions to it, offers, I believe, a preeminent and exciting opportunity to examine how nature preservation and natural resource management are construed in the late 20th century Park Service. The 1993 *Statement for Management* at Isle Royale states:

> The wolf population has varied dramatically in recent years from a high of 50 in 1980 to a low of 12 in 1989. The wolf, an endangered species, is profoundly important to the ecology of the island. Consequently, much effort is directed toward monitoring the size, health, and vitality of the wolf population. The current declining trend, probable extinction from the park, and the NPS response to it has major local, regional, and national significance (pp.23-24).

Intense interest in the moose and wolves on Isle Royale, the relationship between them, and the general ecological situation and information to be learned from the island has existed for many years. As early as 1963, the Leopold Report, a benchmark document on NPS wildlife policy, argued for using fire to ensure enough shrub for the continued existence of moose at Isle Royale:

> On Isle Royale, moose range is created by periodic holocausts that open the forest canopy. Maintenance of the moose population is surely one goal of management on Isle Royale (p.538).

Later in 1969, Darling and Eichhorn directly argued for the "balance of nature" thesis:

> Only two national parks consistently hold wolves, namely, McKinley in Alaska and Isle Royale in Lake Superior. . . . The wolves in Isle Royale came across the ice one winter and stayed. Their prey is the moose population and Durward Allen has directed a most enlightening protracted study of the relationship of the two species. Six hundred moose and 20 wolves appear to live in balance and we can say that by these two populations being together, the vegetational habitat is conserved. This in itself must mean the conservation of insect communities and other invertebrate relationships. In short, the National Park Service as managers are being saved a lot of trouble,

work and thinking (p.57).

Botkin (1990), who has been a member of the Isle Royale wolf study for many years, questions some of the previous thinking:

> The national park was supposed to be natural. Was it natural to have the moose dying in large numbers? If so, should this really be allowed to happen when the moose were one of the park's main attractions? Indeed, one could ask whether the presence of the moose was natural at all, since they had not been on Isle Royale, as far as was known, prior to European settlement of North America (p.29).

Further yet, he directly questions the "balance of nature" thesis as commonly accepted on Isle Royale. He says that these studies "show a temporal mutability that we cannot ignore" (p.66).

How will the previous theoretical discussion be appropriate for this issue?

In Chapter 1 I discussed the different policies that have driven wildlife management over the history of the Park Service. In the Isle Royale wolf controversy, I will be able to look at each management action of an individual animal species rather than the very generic outline provided in Chapter 1. These actions tell how a single Park and its managers interpreted and implemented policy over the years. Policy has changed and management actions have reacted to policy and to other internal and external stimuli. Using the previous theoretical discussion, I will argue that each change represents another interpretation of the nature/culture dynamic. For example, key informants have spent an enormous amount of time discussing the issue of whether or not wolf population decline is "natural" or "human-caused". Such a

policy discussion falls into a certain rubric of nature/culture interpretations which place humans outside of nature.

I will use the different "ways of seeing" outlined in Chapter 2 as the basic analytical tool throughout the case study. These will be critically useful to pull apart the various sides of the controversy. The previous chapters have problematized the "natural" in "natural resource management". This wolf issue offers an ideal opportunity to look at an actual, *material* natural resource and see where this theory leads. However, as the next few chapters will describe, people in and around this issue have also placed a tremendous amount of cultural baggage on the wolves Isle Royale. The previous theory tells us that this cultural baggage will serve as the backbone for critiquing analyzing the paradigm under which each action falls.
Is the decline of wolves natural? Runte says that "Only a few national parks, most notable Isle Royale in Lake Superior, can be considered integral biological units" (p.172). If this is true, then should the Park Service let the wolves become extinct? The theory I have outlined which problematizes "natural" and argues for multiple interpretations of "naturalness" will help pull the whole debate apart and see it as a bigger theoretical and policy conundrum rather than any simplistic management concern.

II. Methods

This dissertation will examine questions about the controversy surrounding wolf policy at Isle Royale. Public controversy exists where people actively disagree

with and contest the management practices of the Park Service as well as argue for alternative practices. In the "theoretical perspective" section, I hypothesized that management debate rests on underlying cultural understandings of the nature/culture dualism and nature production in the U.S. as played out in the national parks. To get at this controversy and to expose the policy conundrum, this dissertation applies a qualitative approach to the Isle Royale case study via "key informant" interviews and surveys of informants identified through a "snowball" approach. Second, an extensive document search is conducted to corroborate the interviews and establish a historical paper-trail of natural resource management dealing with the wolves. The information gathered will be deemed "trustworthy" using a variety of accepted techniques. Finally, the information gathered from informants and documents is interpreted and analyzed in four chapters, all of which to some degree use the theory-driven categorization scheme discussed in Chapter 2 and 3.

The case study approach allows for the generalized theories developed from the total sum of national park controversies to be tested in a unique situation. Erlandson et. al (1992) claim that a good case study "provides the 'thick description' necessary for judgements of transferability" and "provides a grounded assessment of context by communicating contextual information that is grounded in the particular setting being studied" (p.164). In this case, the question is whether the generalized theories previously developed can be transferred to the wolf issue at Isle Royale National Park. The beginning of this dissertation outlined a theoretical framework within which to understand and interpret these controversies; the case study will test

and refine this outline. The research insights come from the "grounded assessment" gained from the interviews with key informants.

Gilchrist (1992) describes key informants as "individuals who possess special knowledge, status, or communication skills, who are willing to share their knowledge and skills with the researcher" (p.75). "Special knowledge, status" in this situation is the sum total of people who were and are actively involved in the wolf management controversy on Isle Royale National Park. Such persons included past and present Park Service personnel (including administrators, scientists, and rangers), scientists from public and private universities and organizations, and other persons who have involved themselves in the debate by any means. Thirty-one such people were identified; a list of these informants is included in Appendix A. As a form of "purposive sampling" (Erlandson et. al. 1992) the key informant survey provides direct, relatively inexpensive, and timely access to the persons who are most likely to inform the research and make decisions about the controversy.

Key informants were identified through a "snowball" approach established through the literature review and the interview/survey process. The snowball approach simply involves asking interviewees for the names of other useful informants. Initially, a literature review yielded several names of scientists and non-scientists who have published articles dealing with natural resources on Isle Royale. An initial query with the Park Service on Isle Royale also yielded names as has a query with certain faculty at Michigan Technological University in Houghton, MI. Using these interviewees as a base, further key informants were established, yielding

further interviews/surveys. The process was considered complete when inquiries no longer yielded new names, e.g., the snowball stopped expanding.

My initial intention was to rely solely on interviews of key informants as the primary first-hand "data" for this dissertation. However, as the interview process began, three situations arose which necessitated an adjustment in the data-collection method. During the winter and spring of 1996 at the Park headquarters in Houghton, MI, I conducted six interviews of key persons. A draft survey instrument was drawn up, which I used as a rough base of questions for the interview. The interviews were tape-recorded and lasted from one hour to three hours in length. Of the first six interviews, four were with persons who had the longest-running experience with the wolf issue. Thus, the core "story" of the wolves of Isle Royale and how they have been managed, quickly took shape from the first interviews. Consequently, each interview thereafter yielded less new information and significant overlap of the history of the wolves. Thus I was spending a lot of time hearing the same story over and over.

Moreover, I was sharpening what I was looking for in the interview/survey process. The initial interviews sought out the history of the various situations involving wolves over the last fifty years. Later I became focused on finding out what role the informant played in wolf policy over the years, what positions they took in the debates over the years, and why they took that position. In other words, I needed to change the questions I was asking. A third challenge to the survey approach also quickly emerged. The Park Service has a very high turnover rate of employees in

each Park, and Isle Royale has one of the highest. For example, over the last 25 years, Isle Royale has had 11 different superintendents. Therefore, my key informants were strewn all over North America, either in employed or retired positions. Thus, no easy interview process was feasible.

Due to these three situations, a more useful and realistic "survey" was undertaken throughout the summer and fall of 1996. Of the identified key informants, I contacted each briefly via mail, email, or phone and asked them if they wanted to participate in the survey. The mail version of that contact letter is included in Appendix B. A more useful and somewhat more formal survey instrument was prepared to get directly at the questions needed to establish the positions that each of these people took in the debate over the years. This survey instrument is included in Appendix C. The survey was either mailed or emailed to the informant; return postage was included in the mailing. **Of the twenty five surveys mailed out, all twenty five were returned**; two declined to participate.

An extensive document search carried out throughout 1996 in several locations also provided much needed information for this dissertation. Documents were procured from several sources including the Park headquarters in Houghton, the Park library on Mott Island, the library at Michigan Technological University in Houghton, many of the key informants, the Denver Service Center of the National Park Service, and the University of Colorado Library. A wide variety of documents were found including academic books, popular books, popular magazine articles, academic articles, newspaper articles, reports from meetings, unpublished reports,

internal and external Park Service memorandums, official and unofficial policy documents, newsletters, and even scraps of paper with scribbled notes. I have several books and one complete file drawer full of Isle Royale wolf documents. To the best of my ability and knowledge, **this is everything of consequence that has been written about the issue**. These documents played a crucial role in writing the history of the wolves (Chapter 5) and in defining the policy conundrum (Chapter 6).

Trustworthiness of the research

Questions often arise about the "trustworthiness" of this type of qualitative research. To answer these questions, researchers have established a series of authentication checks to validate this research approach. Erlandson et. al. (1992), Creswell (1994), and Gilchrist (1992) suggest a number of methods for assuring the trustworthiness of qualitative research. Those employed in this dissertation will include:

1. "Prolonged engagement provides a foundation for credibility by enabling the researcher to learn the culture of an organization or other social setting over an extended time period that tempers distortions introduced by particular events or by the newness of researchers and respondents to each other's presence" (Erlandson:133). The fieldwork portion of this dissertation took place over a nine-month period, during five of which I was living near the Park headquarters in Houghton and interacting with the key informants on a weekly and sometimes daily basis.

2. Persistent observation involves "actively seeking out sources of data

(Erlandson:136) and requires that the researcher "seize the moment" and be "assertive". When possible, the fieldwork took place in the workplace of the informants, on or off the island and allowed for persistence in data gathering.

3. "Triangulation leads to credibility by using different or multiple sources of data [and] methods" (Erlandson:137). This research was based on interviews, surveys, and documents triangulating the wolf policy issues with the various informants. Further, after some period of time following the initial interview, interviewees was later contacted to see if they wished to add anything to their statements.

4. Referential adequacy materials includes things such as "brochures, catalogs, newspapers, photographs" (Erlandson:139). These were collected during the document search and continually throughout the fieldwork.

5. Peer debriefing is a process in which trustworthiness is elevated when a peer "asks probing questions, plays devil's advocate, and provides alternative explanations" (p.140). In this study, I periodically debriefed with my faculty advisor and other peers as needed.

6. Purposive sampling encompasses a variety of non-random sampling methods. The method employed in this study is a key informant survey.

Analyzing the information

The "results" of the research are divided into the three subsequent chapters. Chapter five writes a complete history of the wolves and of wolf management at Isle Royale. It draws both from the interviews and surveys, and from the documents.

Chapter six lays out the "policy conundrum" in detail, again drawing from the interviews, surveys, and documents. It draws heavily from the NPS policy documents. Chapter seven will more broadly explain and analyze the key-informant interviews and surveys by fitting their responses into the categories or "ways of seeing" I developed in Chapter 2. Research methodologists such as Creswell (1994) and Erlandson et. al. (1993) refer to this as a "categorization scheme" whereby the information is disaggregated and then placed into categories which characterizes it. "They seek to identify and describe patterns and themes from the perspective of the participant(s), then attempt to understand and explain these patterns and themes" (Creswell:167).

Beyond analysis, a shorter, more general but deeper type of interpretation will be undertaken in the concluding chapter (8). This interpretation will attempt to tie the analysis back together with the theoretical paradigm laid out in the beginning and thus draw some grander conclusions. This interpretation and these conclusions will deal with the broader issues brought forth by the challenge from environmental history and postmodernism. Analysis offered by the Isle Royale wolf case study will allow for the generalized discussion of theory to become more specific and thus more pointedly discuss these recent challenges. Questions about what the social constructionist perspective means to Isle Royale and its wolf policy decisions will emerge. Answers should be equally forthcoming.

Chapter 5

A Management History of the Wolves of Isle Royale

> "The coming of wolves to Isle Royale was the fulfillment of a dream for many wildlife researchers" (Allen 1974:3).

I. Introduction

A conundrum faces the managers of Isle Royale National Park. They have wolves on their island and they have policy documents that tell them how to manage those wolves. But the wolves do not fit neatly into any of the guidelines offered by the documents. Nevertheless, they have managed the wolves over the last fifty years using various and sometimes conflicting methods and ideas. This chapter tells the history of these methods and policies and serves two goals. First, as Wright (1996) has noted, Isle Royale management is quite transient. For example, over the last twenty-five years the Park has seen eleven different superintendents. Furthermore, of the current management team, the Director of Natural Resources -- Jack Oelfke -- has been at his post the longest, and that is only six years. Managers are often extremely busy with various day-to-day tasks and are unable to adequately look into management history. This chapter's management history will help inform current and future managers by revealing ideas and trends that guided managers in the past.

Second, wolf management history will make explicit the *ideas* that managers

have used to make decisions. These ideas are rooted in specific policies and various interpretations of those policies, all of which more generally place wolves and humans into a framework of a construction(s) of nature and culture. By using permutations on the "ways of seeing" developed in Chapter 2, I will place the management actions into a paradigm of nature/culture understanding. This will provide one layer which describes how the "truth" of nature and the wolves is subject to interpretation over time and through various interpreters. Subsequent chapters will provide additional layers. Individuals and groups of managers are reading the wolves and the landscape at Isle Royale and ascribing different human cultural values to them. The wolves remain solid, material, bedrock reality; people's perceptions change and are still changing.

Specifically, three different stages, or "ways of seeing", have marked Isle Royale wolf manage history. At first, managers thought human interference was needed to maintain a balance of nature. Moose numbers were cycling dramatically and managers wanted wolves to impose a balance on moose and therefore on the flora of the island. Second, managers accepted a version of 'old ecology' which claimed that nature would run its course, achieve a dynamic equilibrium, and all would be well. Human interference was the problem, not the solution. As I will discuss in this Chapter and the next, this paradigm took a minor theoretical shift with the Endangered Species Act in 1973 but still retains 'old ecology' principles. Third and last, 'new ecology' is accepted but with an emphasis on maintaining a wilderness hands-off condition. Each of these will be briefly discussed throughout the Chapter

and will be referred to as Stages I, II, and III.

While a few other authors and researchers have written bits and pieces of this management history, none has put together the whole story. Within the overarching structure of the three stages discussed above, this chapter is organized along a time-line from roughly the 1930s to the present. It includes: 1. Isle Royale pre-wolf (1930-1948), 2. wolf on Isle Royale! (1948-1951), 3. wolf introduction (1952), 4. recommendations by biologists and naturalists (1952-1957), 5. the wolf research project (1958), 6. Research Plan (1966), 7. the Endangered Species Act (1973), 8. trail-building decision (1975-6), 9. Wilderness Act (1976), 10. summer backcountry zone closures (1979), 11. pet exclusion (1980), 12. winter closure (1981), 13. International Biosphere Preserve (1981), 14. moose trapping and collaring (1982), 15. wolf trapping and radio-collaring (1987-88), 16. wolf decline meeting, and extinction decision (1989), 17. reject Peterson's recommendations (1994), 18. Peterson's book (1995), 19. continue trapping (1996 through present), 20. "delisting" the eastern timber wolf (present/future), and 21. additional discussions at the time of this writing.

II. The Management History

(1) Isle Royale Pre-Wolf

The early history of Isle Royale, its wildlife, and wolves has been eloquently written by Allen (1979), Mech (1966), Hakala (1953) and others. Early written and oral accounts (Allen 1979) are unable to place either moose or wolves on Isle Royale until the twentieth century. While most commentators believe that it is likely that

either species could have arrived and left the island several times in pre-twentieth century history, no researchers, archeologists, or historians can find evidence of the animals on the island. Records of other animals now extirpated from the island do exist, including caribou, lynx, marten, and coyote. All of these animals existed throughout the 1800s and some into the 1900s.

Moose arrived around 1906 (Allen 1979). Allen suggests that human activity (hunting, logging, and urban development) caused moose migration to the areas of Ontario around Isle Royale, and that it was also human activity that 'drove' moose to the island. In any event, finding plenty of food and no predators, moose quickly increased in number. The population was estimated at around 200 in 1915-16, 1000 in 1921-22, and 2000 in 1925-26 (Allen 1979). All parties believed 2000 was an unsustainable number of moose. In fact, moose control on Isle Royale soon became one of the major concerns of the Park Service (Peterson 1996a). For example, in 1934, renowned Park Service biologist Adolph Murie wrote that "it would seem highly advisable . . . to reduce the moose population (p.41). Wolf introduction was one of his suggested methods. In 1935, Staff Mammologist Paul Hickie recommended similar action to control the "moose situation" (p.25). As expected, throughout 1934 - 1936, a massive moose die-off occurred because the vegetation could not support the high numbers. After the die-off in 1936, moose numbers were estimated at 200.

Events conspired to start the cycle over again. In the fall of 1936 a fire raged over one-fifth of the island, and in the spring of 1937 new grass and shrubs shot

through the blackened ground to provide ideal food for the small moose population. Eight years later in 1945, the moose population was again estimated at 500. Moose management again rose to the forefront of Park administration. In 1946, a series of memos between the Park Service Director, the Regional Director, the Superintendent of Isle Royale, and the Park Biologist began outlining a plan to introduce wolves to the island as a control mechanism for moose numbers. In one memo, Park Biologist Cahalane (1946) quoted then-current (1933) wildlife policy which stated that:

> Every species shall be left to carry on its struggle for existence unaided, as being to its greatest ultimate good, unless there is real cause to believe that it will perish if unaided. The number of native ungulates occupying a deteriorated range shall not be permitted to exceed its carrying capacity and, preferably, shall be kept below the carrying capacity at every step until the range can be brought back to original productiveness (p.1).

These memos and the meetings thereafter were the beginning of the process which ultimately led to the human introduction of wolves to Isle Royale. Other methods of moose control were also entertained including shooting and trapping, but were considered logistically unfeasible for the remote island. A shooting-and-meat-salvage operation was considered too politically unacceptable for the public. Introducing a "native predator" (Hickie 1935) was considered the best solution "if, as has been strongly advocated, the island be allowed to continue as an untouched wilderness area (p.25)". Also of significance during this period were additional Park Service policy guidelines written into the 1933 recommendations by Wright, Dixon, and Thompson which reversed earlier predator extermination policies (Allen 1979:12-13). Of added interest is the wording in the enabling Act (1940) for the Park which

states it is intended: "for wilderness and preserving the wildlife, flora, and the basic resource in a primeval manner".

Stage I

Theoretically, this marks the beginning of the "way of seeing" which believes in the equilibrium thesis and believes that humans are needed to impose a balance on nature. Left alone to itself, nature -- in this case moose and vegetation -- would not be sustainable. This stage seems to be tied to two of the ways of seeing discussed in Chapter 2. First, as discussed the "parks as scenery" way of seeing, the 'scenery' of the park should have a certain look to it. Pre-wolf Isle Royale needed balance and serenity. Moose were ravaging the vegetation, overpopulating dramatically, and then dying off in huge numbers. The stench of dying moose was intolerable during some summers. Wolves would impose a 'natural' check on this unbalanced system and give the landscape the 'look' that 1930s managers felt the public wanted in a national park.

Second, this stage is a precursor of the Hess and Chase argument which argued that nature has not ever nor would not achieve a balance by itself. Using basic knowledge of 'classical ecology', the 1930s managers at Isle Royale believed they could see and measure an 'imbalance' and believed there could and should be a balance on the island. This type of management had been the human role throughout history and humans should continue to impose a balance on nature. Some of the irony in the above quotes jumps off the page. Hickie (1935) argued that shooting excess moose would not be conducive to 'wilderness', yet introducing wolves would retain

the character of an "untouched wilderness". By this line of reasoning, not only could humans impose a balance on nature, humans could also create wilderness. This stage is marked by a complete dualism of humans and nature, and by overriding sense of control over nature by humans.

(2) Wolf on Isle Royale!

Even in these early days of federal bureaucracy, policy development was slow. It took six years for wolf introduction to come to fruition. In the meantime, "nature solved the situation for us" (NPS N2623 1956). As early as 1948 rangers and fisherman on Isle Royale reported seeing tracks and animals too large to be a coyote (Allen 1979, Mech 1966, NPS N2623 1956). It was assumed by all parties that wolves had migrated from the Ontario or Minnesota mainland over to the island of their own accord. Sparse track sightings continued throughout 1949 and 1950. The definitive sighting was made by Park biologist Bob Hakala. In our correspondence, he wrote:

> As you probably are aware, the presence of wolves was first noted by my wife and me in November 1950. Subsequent to that, through collection of droppings and plaster casts of tracks, followed by the first actual sighting of a pair of wolves by myself, followed by the first filming of a wolf family by myself (1996:pers. comm.).

Hakala's definitive proof was published in Nature Magazine (1954) under the title, "Wolf on Isle Royale!". Hakala also states that: "Probably an opportunity unduplicated in the world is unfolding at Isle Royale to learn much about both wolf and moose" (1954:37). As will become apparent, that wolves initially came by

themselves -- rather than being introduced by the Park Service -- played and continues to play a profound role in policy decisions and personal interpretations by various key informants. Also of importance, similar to Allen's speculation about the cause of moose migration, most people involved in this issue still feel that wolf migration was probably due to human 'push' factors rather than island 'pull' factors. Theoretically, this migration fell quietly in line with the nature/culture mindset managers had in mind. Although humans could impose a balance, if nature does it 'naturally', all the better. In either case, a balance is still needed.

(3) Wolf Introduction: Isle Royale as a Sanctuary for Wolves

Wolf introduction as a means to control moose numbers was still on the policy table despite proof of a "native" population (Krefting 1951). From 1946 through 1952 the wheels of wolf introduction were still rolling through various memos, correspondences, and meetings in the Park Service among the Park staff, Superintendent, Director of the Park Service, and the Secretary of the Interior. Many of these documents are collected into a bound volume titled, "Correspondence on Isle Royale as Sanctuary for Wolves", found in the Park library on Mott Island. Many of the details of this attempt at introduction are written into a full story by Allen (1979) and Mech (1966). Much debate went into this plan. Congressmen from around Michigan weighed in as did other bureaucrats at higher and lower levels. In one memo dated Feb. 4, 1952, Park Service Director Conrad Wirth gave the final approval: "Accordingly, permission is hereby given to carry out the release of about

five wolves on Isle Royale" (Wirth 1956). Interestingly, one of the various reasons used in arguing for the introduction is restated here by Wirth: "The late Aldo Leopold urged that it be carried out."

Briefly, the Park hoped to receive five wild wolves that had been trapped specifically for the purpose of introduction to Isle Royale. The primary person pushing for the introduction -- and the person who paid for it -- was Detroit newspaperman Lee Smits. However, rather than using wild wolves, Smits sent the Park four zoo-bred wolves from the Detroit Zoo. Included in the four was an animal named "Big Jim" that Smits' family had bottle-raised since birth. In exchange, the Park was supposed to send several moose to the Zoo for exhibit. For various reasons, the "tame" wolves did not work out in the Park and three of the four were eventually shot. Big Jim, however, went "wild" and several staff members and researchers claimed to see him among the Park's wild packs for several years afterward (Allen and Mech 1963, Allen 1979). It is unknown whether or not Big Jim ever bred with another wolf and produced offspring. Allen (1979) speculates that he did not. As will be seen later, attempts to ascertain the genetic history of the Isle Royale wolves will become important in policy decisions. Again, theoretically, this action continues the nature/culture interpretation that humans should impose a balance.

(4) Recommendations by Biologists and Naturalists

Soon after wild wolves were discovered on the island they immediately drew the attention of the Park's scientists. During the years 1952 through 1957 Park

scientists James Cole, Robert Linn, and Laurits Krefting made several wildlife investigations and management recommendations. It is apparent from these initial studies that, as Hakala predicted, this "unduplicated opportunity" was subject to various interpretations. For instance, in 1952, Cole seems sure that wolves will overpopulate the island, kill off all of the moose, and then starve to death, all the while creating a political nightmare for the Park Service. His field report from 1952 makes several recommendations including "live-trapping" and/or "wolf control" by "shooting from airplane" (p.55). Later in March, (1956b) in a memo to the Superintendent, Cole writes:

> The reduced moose population and increased number of wolves indicates that both moose and wolves in Isle Royale will shortly be extirpated. . . . The writer believes they [moose] will not survive another winter with increased predation. Since moose furnish the only supply of large quantities of food required by the Isle Royale wolves, they will die of starvation when the moose are gone.
>
> This is a wholly natural process except that Isle Royale is a restricted range for both moose and wolves. The question to be decided is whether natural processes are to be allowed to prevail or whether the populations of these animals are to be managed so that both will persist. Wildlife management in areas administered by the National Park Service is frowned upon by some influential individuals and groups. The writer anticipates opposition to artificial control of wolves on Isle Royale National Park. On the other hand, you and the Service will be severely criticised if both moose and wolves disappear from Isle Royale.
>
> With these considerations in mind and fully aware of the consequences, the writer recommends wolf control on Isle Royale. Live-trapping, if successful, may alleviate criticism from some quarters providing an outlet may be found for the captured animals (p.3-4).

However, in July 1956, Krefting disagrees with Cole and does not see the wolves as a serious threat to moose numbers. He writes, "Milt Stenlund and I both feel that unless the predator-prey relationship on the island follows a different pattern

than elsewhere, the wolves will not take enough moose to alter the serious overbrowsed condition of the range" (p.4). Likewise, in July of 1956, Linn also disagrees with Cole. The lengthy quote below also depicts the degree to which today's questions were initially pondered forty years ago. Note also the first use of that pesky word in quotation marks, "natural".

> In the long scheme of things, the moose on Isle Royale may be far better off with a little predation, and while the two species are considered by some to be in a state of unbalance, such situations have a habit of balancing themselves as time goes on -- such is the phenomenon of dynamic equilibrium.
>
> An attempt to control either population so as to retain both on the island would be an ever-reoccurring problem; I seriously doubt if we currently know enough about either species to maintain the delicate balance needed. The whole situation, however, is an excellent opportunity to observe just what does happen -- the final complete story would be invaluable for areas which have a managed wildlife population.
>
> Persons who visit Isle Royale do expect to see moose and hear about the wolves. If the moose disappear, there will be some disappointment on the part of the public. To manipulate the population in such a way as to preserve the moose, however, would not be fair to the public -- this would be a presentation of an unnatural situation under the disguising name "natural". Such unnatural situations should be labeled as such and called zoos or museums like they really are.
>
> The original -- and current -- intention of the National Park Service is to maintain its areas in as nearly a "natural" condition as possible. Man has created great imbalances wherever he has tried in any numbers -- eradicated the "natural" scene to make way for cities and towns, factories and farms. The plant and animal communities which preceded man were in accord with the prevailing climate and topography. Each species population was in dynamic equilibrium with the other populations -- that is, each population would vary in its numbers and create a cyclic pattern of "ups and downs". Occasionally a species would die out altogether because of disease, an overpowering competitor, or an overpowering predator. This was -- and is -- "natural", as evidenced by the record of plants and animals which have arisen, reached a peak of perfection, grown old and outdated, and finally perished from the Earth leaving behind it a community made only slightly different by its absence and composed of species more capable of competing with their neighbors in their habitat. This is natural evolution and progression. And so,

> we have set aside our National Parks, so that all generations of man can view the natural world in an untampered condition. These areas should be free from the ephemeral whims of man to unnaturally preserve or destroy or alter or manipulate any of the living or non-living pieces of our world herein.
>
> Increasing or decreasing the wolf population or the moose population would be in direct conflict with this theory (pp.3-4).

A year later after another winter's field investigations, Cole changes his mind about immediate wolf control. "Recommendations include no wolf control at present, but continued studies to determine population trends of both moose and wolves (p.4)". The superintendent forwarded this report to the Director of the Park Service along with a special request for funds to study the wildlife situation at Isle Royale. The longest-running wildlife study in the world was begun the next year, 1958.

Stage II

Krefting's and Linn's disagreements with Cole mark a new stage in interpreting nature through the wolf/moose dynamic at Isle Royale. Cole has gone a step further and recommended perpetual control of both moose and wolves to achieve a balance. Krefting and Linn argue that it is time to step out of the mindset of 'controlling nature' because nature can control itself and achieve a balance on its own. Linn argues that a "dynamic equilibrium" will be achieved and the situation will balance itself out. More importantly, he says that "man has created great imbalances wherever he has tried . . ." This marks a critical step in which humans are seen as the problem rather than the solution. The Park represents an "untampered" natural world, one that humans have not yet spoiled.

The transition here is to a stage that accepts 'old ecology' and reads similar to that of the mainstream environmental movement of the 1960s, '70s, and to some degree is still present. This is the way of seeing which I called "National Parks and Mainstream Environmentalism" in Chapter 2. The balance of nature thesis is still accepted, but humans are no longer able to bring about this balance. Rather, it is humans who have thrown nature out of balance. The only way to fix a problem is to get humans out of the picture and let nature heal itself. Still, the strict dualism of nature and culture is maintained and perhaps strengthened. In this stage, managers are told to keep complete "hands-off" nature whereas in the previous stage, managers were allowed to control nature. However in this new stage, nature is elevated to a higher status either equal to or above humans. More deeply, this describes how nature is elastic. It is interpreted differently than before, given different status, and as exemplars the wolves are now untampered, untouched, preserved.

(5) The Wolf Research Project

The research project was started from the relatively uncomplicated objectives outlined in the field reports by Cole, Linn, and Krefting. Cole recommends that "Minimal biological studies of Isle Royale moose and wolves should consist of aerial investigations each winter followed by browse studies conducted on the ground in early spring (1956a:39a)". Working from within the U.S. Fish and Wildlife Service and later from the Purdue campus, Durward Allen had an interest in the situation since wolves were confirmed on the island in 1952 (Allen 1979). He formally took

over the winter census and spring and summer browse studies in 1957. In keeping with the earlier aerial studies of wolves and moose, Allen's studies also used this unobtrusive method. Thus the precedent set for future researchers and Park managers was a 'hands off', minimal research project grounded in the idea that on Isle Royale "The moose and wolf need no one to lead them, but only a place to be left alone (Allen 1979:vii)". Theoretically, this quote and the research methods fit perfectly with the second stage of nature/culture understanding.

(6) *Isle Royale National Park Natural Sciences Research Plan*

In 1966, the Park wrote a *Research Plan* which for the first time formally outlined management objectives as well as needed research by issue and method. Written by Linn, Sumner, and Sprugel, the plan initially states that:

> The primary purpose of Isle Royale National Park is the preservation of an undisturbed northwoods, northern lake, island wilderness, isolated from mainland influences by the waters of Lake Superior. The major resource management objective is to maintain ecological conditions as nearly as possible like those that would prevail if man were not, and had not previously been, present (p.v).

Of specific additional interest to the current issue are these management objectives:

> 3. To maintain NEC [Natural Ecological Conditions] of animal populations, including the moose and wolf populations and their dynamic equilibrium, in such a way as to allow little or no interference from man, except, perhaps:
>
> a. if the north shore of lake Superior should become hostile to wolf and moose populations and/or for their free immigration-emigration potential to and from Isle Royale, and
>
> b. if the entire wolf population of Isle Royale should, by circumstances or combination or circumstances, be threatened, by an emigration that would, because of (a) above, not have reasonable chances of eventual correction by reverse

emigration, then:

c. management techniques to retain the wolf population upon Isle Royale, with least artificial appearances and results should be employed.

4. To reintroduce extirpated species when it can be definitely established that the species disappeared because of man and/or man's activities, when it can be determined that the ecosystem from which the species disappeared has not sufficiently changed to preclude successful reintroduction, when it can be determined that the species being introduced will not adversely affect the ecosystems which have developed differently because of their extirpation, and, when it can be determined that species newly arrived by natural means will not be adversely affected (pp.3-4).

While the exact interpretation of these passages could be contested, it is clear that as early as 1966 many Park managers had given the problem careful and intensive consideration. No other passage in the *Research Plan* is so well-developed or bares the mark of such scrutiny. Of further note, Allen's minimal, hands-off wolf/moose research project is praised and supported as a continuing need. Theoretically, these recommendations fit the old ecological paradigm and further develop the nature/culture interpretation which alienates humans from nature and elevates nature above humans. Humans are now allowed to fix a problem only if humans caused the problem; otherwise nature should take its course. Interestingly, while newer documents place the baseline at "prior to European contact", this *Plan* uses a generic 'presence of man'. Humans are clearly a disturbance or interference in nature.

(7) Endangered Species Act

With the passage of the Endangered Species Act (ESA) in 1973, Isle Royale wolves took on a greater legal burden. Officially considered to be "eastern timber

wolves", Isle Royale wolves were listed under the ESA as "endangered" both federally and in the state of Michigan. This added pressure for protection and preservation played an important role in subsequent management decisions. However, not until 1978 did the "Eastern Timber Wolf Recovery Team" officially meet and put together a "recovery plan" for the species. In this document, and in the revised plan of 1992, Isle Royale is listed as "critical habitat" for the eastern timber wolf. This document also recommended that Isle Royale "permit natural fires to run their course", and this exact wording is included in the latest (1992) Fire Management Plan. The theory behind this fire recommendation is that moose prosper in newly burned areas, and where moose prosper so do wolves. However, exactly what role the ESA does and should play in Isle Royale wolf management is subject to interpretation; some of that interpretation comes out in the subsequent management actions.

Theoretically, it is debatable whether the ESA represents another "way of seeing" nature. The ESA does not differentiate between a species that goes extinct due to human causes versus one that goes extinct 'naturally'. For example, if a species was going extinct due to human interference and the ESA required mitigation action, my typology would keep that action within the 'old ecology' paradigm. It would be a case where human's fouled things up and were required to fix the problem. On the other hand, if a species was going extinct naturally and the ESA required action, this would represent an anthropocentric desire to bring a balance back to nature. Nature would be imperfect without human interference. In the case of the Eastern Timber

Wolf in the U.S., extinction is due solely to humans. Likewise, I would argue that the main aim of ESA authors was to curb human-caused extinction. Therefore I argue that in the case of the wolves of Isle Royale, ESA guidance falls into the currently discussed paradigm of 'old ecology'.

(8) Trail Building Decision

One of the first tests of the interpretation of the ESA as applied to the wolves of Isle Royale came one year later in 1974. Park management was speculating about building new trails in the southern portion of the Park and an immediate concern arose about the effect of the trails on the wolves. Peterson (1974) wrote an extensive proposal to trap and radio-collar the wolves as a means of understanding whether they were using or inhabiting the area of proposed trail-building. The proposal went beyond the short-term trail issue, however, and proposed to use radio-telemetry to study wolf movements over a longer (undefined) term as a tool for the ongoing wolf research project. Management was faced with a double dilemma: first, was the problem of the effect of the trails on the wolves; second, was the effect of trapping and radio-collaring on the wolves.

The proposal was "thoroughly discussed" (Beattie 1975) because of its "high potential for adverse effects". The proposal was reviewed by a few persons outside the Service as well as at the regional level within the Service. The verdict was not to build the trails and not to trap and collar the wolves. Acting Regional Director Beal wrote to Superintendent Beattie (1974):

> First of all as the Eastern timber wolf is an endangered species we are obliged to give it our full and concentrated protection. To this end, we are not convinced that the knowledge to be gained from the proposed research warrants the methods required to attain it. Second, we look on the wolf of Isle Royale as a free and untouched wolf population and we believe this will prove to be a most valuable asset to future wolf researchers. We also feel that if part of this population is forced to wear radio collars that the whole symbol of the wolf in the wilderness on Isle Royale will be altered.

This verdict is seen as an important precedent to future management and managers. Peterson (1996b), Croll (1996), and Krumenaker (1996) all stated that the principal decisions in this 1974 issue set the tone for the future of the wolf management. This decision fits in with the 'old ecology' theory typology because wolves, and thus nature, are seen as free, untouched, and able to achieve a dynamic balance outside of human interference.

(9) The Wilderness Act

Although the Wilderness Act became law in 1964, it was not until 1976 that legislation made it through Congress designating nearly all of Isle Royale as official wilderness (P.L. 94-567). The reasons for this delay and the story of the legislation are recounted in Little (1978) and in Allen (1979). Through various documents and discussions (Peterson 1977, 1985; Peterson and Morehead 1980; Krumenaker 1996; Oelfke 1996), wilderness designation is generally construed as a mandate to provide further protection for the wolves. Documents after 1976 refer to BOTH the ESA and the Wilderness Act as providing a mandate for wolf protection. Specifically, a "hands off" requirement seems to be construed from the Act both in terms of management as

well as research. Wilderness management requires a "minimum tool" to achieve research and management objectives (USDI 1988). As will be discussed later, this minimum tool requirement has played a large role in determining whether trapping and collaring is/was used on the wolves. As I discussed in Chapter 2 and further in Chapter 3, "wilderness" celebrates and enshrines the nature/culture dualism and the role of nature in American culture. Wilderness represents the ultimate manifestation of the 'old ecology' paradigm where nature left alone will regulate itself and maintain a balance.

(10) Summer Backcountry Zone Closures

Under further stewardship advocated by the Endangered Species Act, the Park also closes certain areas to summer camping. In 1979 the island was administratively divided up into 46 travel zones, and since 1979 summer zone closures have been used every year. The zones are closed where there are "known wolf denning activities, active rendezvous areas, or other intensive wolf activity (Peterson and Morehead 1980:5)". Visitor impacts on wolves and wolf activity have been an important concern since the ESA. The precedent set by the trail-building decision in 1974 increased concern over visitor impacts. An internal document written by Peterson (1977), "Management Implication of Wolf-Moose Research", recommended several policy changes. Summer backcountry camping zone closures policy rose amidst this general atmosphere.

(11) Pet Exclusion

A simple statement in a paper written by Peterson and Morehead (1980) reads, "All mammalian pets are now prohibited from the island, primarily to protect wolves and other wildlife from introduced parasites and disease organisms (p.5)". This policy also arose out of Peterson's 1977 paper and recommendations in which he wrote to the Superintendent outlining the reasons why pets should be excluded. Peterson's recommendations proved omniscient. Disease -- primarily canine parvovirus -- played some role in the wolf decline over the next few years. Over the years since 1980, a few reports each year were made by rangers concerning pets in the Park. This policy is still strictly enforced.

(12) Winter Closure

The policy of complete closure of the Park during the winter also arose out of concerns by Peterson and other managers at that time. Several documents (Peterson and Morehead 1980, Peterson 1977, McNamee 1982, Peterson 1985) discuss this matter thoroughly. Other internal memorandums between Park staff, the Superintendent, Secretary of the Interior, Regional Director, and the Chairman of the Advisory Board on National Parks, Historic Sites, Buildings and Monuments all well document the reasons and purposes of winter closure. To a person and document these state: "The need for winter closure is based upon data which indicate undesirable disturbance of wildlife populations resulting from repeated contacts between humans and the Eastern timber wolf (Croll 1981)". The same policy in

unofficial form was enacted five years earlier for the same reasons; the 1981 policy merely officialized the closure. Two specific instances of wolf harassment also led to the closure -- one involving winter snowshoers and one involving an airplane. Except for the limited activities of the winter wolf researchers, the Park is now closed from November 1 through April 15.

(13) International Biosphere Preserve

It is not at all clear what role, if any, "biosphere status" plays in the management of Isle Royale National Park. In several of my discussions with managers and others, no one knew specifically what Preserve status implied or required. The documents surrounding the program provide little assistance. While its mandates remain unclear, the status is openly advertised by the Park on their large plaques at the entrance to the Park and on all of the official stamps and documents. Interpretation of the status usually came in the form of "more protection" of the resource. Of the managers at the Park at the time the status was conveyed, it seemed that wolf protection was also a factor implied by the status. In 1981 Superintendent Brown stated:

> We've also been designated an international biosphere reserve by he United Nations, which gives us a further mandate for preservation. Isle Royale's single most precious resource is an endangered species, the eastern timber wolf, and the isolated and pristine habitat that it finds here (McNamee 1982:90)".

Further yet, in 1982 an anonymous internal "Wolf-Moose Monitoring and Research Paper" states: "The long-term data on wolf and moose populations was one of the

primary reasons for the establishment of Isle Royale National Park as an International Biosphere Preserve in 1981 (p.2)".

(14) Moose Trapping and Collaring

In 1983 Peterson and Risenhoover wrote a proposal to anesthetize and collar several moose on the island to study their winter survival strategies. Their primary concern was to study moose feeding patterns and movements. The proposal was sent out for peer review to several other Park Service scientists. Relevant issues arise in two of the questions Regional Chief Scientist Larson (1983) asked in the memo accompanying the proposal.

> 1) Do you think that the interaction between the wolves and the researchers will be detrimental to the wolf population?
> 2) The wildlife on Isle Royale have never been tagged or collared. We are concerned that the proposed study will set a precedent for manipulating wildlife. How do you feel about our concerns? (Larson 1983:memo).

Two important issues exist related to this proposal and its acceptance. First, although there was no plan to handle wolves then or in the future, concern arose over their protection during the moose collaring process. Second, moose collaring may set a precedent. Interestingly, the moose population was in no danger of extinction, was not experiencing any significant decline, and was not experiencing distress. Yet, the collaring proposal was accepted for rather mundane research needs. Reviewers agreed that nothing was wrong with collaring moose and that it should have no effect on the wolf population. Thus, a double standard was set for the plentiful, unendangered moose and the scarce, endangered wolf.

(15) Wolf Trapping and Radio-Collaring

By far the most noteworthy, precedent-setting event in Isle Royale's wolf management history occurred in 1987 and 1988 when trapping and collaring was proposed and implemented. The basic problem was that a federally listed endangered species appeared to be dying out at Isle Royale. Annual aerial surveys in 1988 reported wolf numbers to be at their lowest level ever, 12 (Peterson 1988). Furthermore, pup production was low or nonexistent in that and the preceding few years. The initial research proposal was requested by the Superintendent, discussed by the staff, and submitted by Peterson in 1987 (Peterson 1996b). The "Justification" section stated:

> It is believed that Isle Royale National Park contains one of two viable populations of Eastern Timber Wolves in the United States: the wolf is federally listed as an endangered species in the State of Michigan. . . . Declining numbers of wolves . . . threaten the persistence of this endangered species, perhaps within the next several years (Peterson 1987:1-2).

The proposal went through the regional office and was sent to twenty peer reviewers in and out of the Park Service. In the proposal, Peterson and others had developed three hypotheses for the decline of the wolves: disease, food shortage, and genetic decline. The primary purpose of the research was to test the three hypotheses and pin down the cause of the decline. The questions sent along with the proposal to the reviewers are of relevance here. They are:

> **1**. Are there other methods available that would allow adequate testing of the hypotheses, with less or no manipulation of the animal population?
> **2**. Will (or how will) the interaction between researchers and wolves be

detrimental to wolves?

3. At least two major National Park Service policy issues apply to this proposal.

a. Are the proposed studies and actions relative to the parvovirus hypothesis consistent with policy (to eradicate exotic species, especially when they threaten endangered species)?

b. Will testing the hypotheses regarding nutrition and genetics help us better manage the wolf population in light of policy (to maintain natural integrity)?

4. Do you believe that this proposal represents the minimum manipulative research necessary to ensure continued survival of the wolf population at Isle Royale? (Ruggiero 1988)

These questions represent a new level of concern over the wolves and the proposed trapping and collaring. They also attempt to interpret Park policy and appropriate research method in a variety of uncertain ways. The last question particularly suggests that "survival of the wolf population" is a crucial policy agenda.

Briefly stated, after many pages of memos and many hours of discussions, the proposal was accepted with slight modification. Of the twenty peer reviewers, only one dissented and that was former Superintendent Jack Morehead. His reasons for dissention and the paradigm in which his critique exists will be covered later in this dissertation. Dozens of magazine and newspaper articles cover this period of wolf history. The Director of Natural Resources at that time, Bob Krumenaker, purposely tried to put the issue out in front of the public, referring to it as a "crisis" upon which "future management action will depend" (Krumenaker 1988:30). He also stated another often-held position generalizing wolf predicaments to greater wildlife cataclysms: "Wolves of Isle Royale might be a microcosm for what is happening all over the world in terms of species decline" (Krumenaker 1989a:video). Peterson

often stated another argument for trapping and collaring: "The greatest tragedy would be if they disappeared and we didn't even know why (Nash 1989:22)". In the spring of 1988, wolves were trapped and collared for the time ever at Isle Royale, data was gathered, and then management had to decide what to do with the new information.

(16) Wolf Decline Meeting

The 1988-89 winter study revealed that zero pups had survived from the following spring, and worse yet, that only eleven wolves were on the island (Peterson 1989). The combination of these two facts racheted the issue to a higher level of urgency. Armed with the new genetic blood sampling data that gathered from the spring 1988 trapping, management decided to convene a meeting of the nation's top wolf scientists to interpret the data and chart a course for future research and management. The two-day session was tape-recorded by Peterson and summarized in notes by Peterson and Krumenaker. Several important conclusions came out of this meeting including:

- another hypothesis for decline was added to the previous three -- stochastic events, or 'randomness'.
- Parvovirus "may" have been involved in the crash of 1980-82, but it "probably" was not the cause of the current decline.
- Parvo inoculation would probably not work.
- Lyme's disease is a possible contributor.
- Genetic lose is approximately 50% if the population was founded from a single pair of wolves.
- Isle Royale wolves are probably not genetically unique, so there is no imperative to save this gene pool.
- The objective of intensified wolf studies at Isle Royale is not to save this population, but rather to gain new knowledge applicable to problems involving small population viability. (Krumenaker 1989b, Peterson 1989a)

Krumenaker added another important piece of policy directive. In his notes he wrote:

> *Per Jim Engle. USFWS Regional Endangered Species Coordinator: The Endangered Species Act recovery efforts and requirements for FWS consultation do not require the NPS to take any actions to prevent wolf extirpation at Isle Royale, nor would they require reintroduction in the event of extirpation (Krumenaker 1989b:3).

It was roughly at this point and through the following spring and summer when the tentative decision was made by management to "let the wolves die out". The justification went something like this:

> 1. No conclusive reason had yet been discovered for the decline and lack of recovery.
> 2. Therefore, it could not be conclusively decided if the decline was "natural" or human-caused.
> 3. The data gathered during this 'local extinction' would be invaluable to the growing body of work on island biogeography and minimum viable populations.
> 4. The ESA does not apply.
> 5. Unless further data or discussion can change any of these conclusions, let the wolves die out.

My discussions with the people involved in this decision yield a cloudy path towards this conclusion, rather than a clear meeting resulting in a concrete decision. Peterson and Krumenaker (1989) outline what they call "A Biological and Policy Conundrum" and end with the line, "Let the experiment continue! (p.15)". Various other newspaper and magazine articles find Krumenaker repeating the 'let extinction happen' policy, while Peterson appeared much less certain, or at times disagreed with the policy.

Stage III

In items 10 - 14 above, the 'old ecology' paradigm was the guiding management paradigm. In items 15 and 16, a shift begins to occur which moves wolf management into a new "way of seeing", a pro-wilderness 'new ecology' paradigm. In item 15, while there is strong concern over the future of the wolves, Ruggiero's letter raises the policy of "maintain[ing] natural integrity". This wording hints at the idea that nature's integrity may involve extirpating wolves from Isle Royale and have little interest in the balance of nature. Further in item 16, the policy decision to let the wolves die reflects a new understanding of the role of nature. Yes, there is still concern over human or natural cause, but the weight of a 'new ecology' is starting to take hold. While the above quotes do not reflect it, the notes and tapes on the wolf decline meeting depict a forum in which new ecology and its metaphors were discussed. The results of this meeting suggest new ecology was accepted.

The version of new ecology that Isle Royale practices is what I would call a pro-wilderness new ecology. In other words, as discussed in Chapter 2, while new ecology cannot legitimately mandate a management action, it also cannot de-legitimize actions. Since nature is in constant flux, managers do not know where it is going or what human actions could or should be taken to change its direction. A non-action stance which is also pro-wilderness may yield the best scientific data while also being acceptable to what the public expects of a wilderness national park. This (non)management says to keep "hands-off" and let nature take its course, but do not be surprised if nature surprises us. Wolves may be extirpated, moose may be

extirpated; we simply do not know. This wilderness new ecology may be in balance, but may not.

(17) Reject Peterson's Recommendations

Wolf trapping, blood-sampling, collaring, and radio-tracking continued from 1988 onward. Data gathered by Peterson and the other scientists involved in the project were published in various scholarly scientific journals from approximately 1989 through 1994. All of these articles along with an introduction and conclusion were submitted by Peterson to the Park management in 1994 as the conclusion of the five-year $250,000 "Study of Wolf Decline". While the specific genetic and biological information gathered and concluded is still subject to interpretation, a rough summary by Peterson says that: ". . . the available evidence points to inbreeding depression caused by loss of genetic variability in this small, isolated population" (p.iv). While this report's conclusions seem solid, more recently I found Peterson to be significantly less sure in various other statements both written and spoken. The recent upsurge in wolf numbers has clouded the "genetic problem" hypothesis and left confusion in its wake. In one of our discussions he stated: "The Park Service spent a quarter of a million dollars trying to find out why the wolves are dying and we still don't know" (Peterson 1996b: pers. comm). At another discussion he told me, "Much of the decline may have been due to social issues among the wolves. The whole population is contingent on the social behavior of three or four individuals. It's just a big soap opera" (1996b:pers. comm.). Another top wolf biologist, Dave Mech, has all

along believed that food shortage was the reason for the decline (Peterson 1995). I found Park management to be inconclusive about the cause of the decline.

Nevertheless, in Chapter 11, "Management Recommendations", of the "Study of Wolf Decline", Peterson recommends that the Park "Maintain a wolf population in dynamic equilibrium with moose, thus providing a key natural process that helps maintain ecosystem integrity (p.216)". Recommendation 3 specifically states:

> Intervene in the wolf decline, by introducing mainland wolves, if either of two conditions is met: reproduction ceases (no pups are seen for one full year), or reproduction fails to improve in the next generation of wolves (litter size is < 3 pups for any daughters of the current breeding female) (p.218).

Peterson (1996b:pers. comm.) has stated that the Park "basically ignored" his report and recommendations. A discussion with Oelfke (the Director of Natural Resources) yielded a similar conclusion. Again, a clear meeting with a clear decision was not made; rather an indecisive ignoring-of-the-report seems to be what happened. However, both parties do agree that the recommendations were not followed. Statements by Croll (the Director of Resources) and Barnard (the Superintendent) corroborate that the recommendations were not followed. Of further interest yet, pup reproduction as reported by Peterson (1994, 1995, 1996) in 1993 through 1996 never did fall to zero. Thus it is uncertain whether Peterson's criteria were ever met, and whether his recommendations were rejected. At a later date, Peterson (1996b) has verbally rescinded these recommendations until the "genetic" question is fully answered. Theoretically, the decision to ignore Peterson's recommendation to "maintain ecosystem integrity" reflects this move to a pro-wilderness new ecology.

Whatever the answer to the genetic question, 'no action' might also be the appropriate response under this theoretical paradigm.

(18) *The Wolves of Isle Royale, A Broken Balance*

In the fall of 1995, Peterson's book *The Wolves of Isle Royale: A Broken Balance* was published. In the last chapter of this non-academic book, Peterson puts together his personal argument for why wolves should be on Isle Royale. His argument is basically two-pronged. The first is an appeal to scientific usefulness: the most unique, longest-running wildlife study in the history of the world should simply be allowed to continue because of the scientific insight it yields. "I believe we stand to gain more, scientifically, by furthering the existence of wolves on Isle Royale, and by propping them up when necessary (p.181)".

His second argument is primarily aesthetic. "Scientific value aside, however, the most influential arguments regarding the future of any national park will be spiritual, or inspirational (p.182)". He further flirts with a notion of 'ecological wholeness' that the wolves provide to the Park. In the last line of the book he states, "But this time around, at the dawn of a new millennium, I must vote for the wolves" (p.188). A few months after the book came out, Peterson and his field crew went to the island for the annual winter survey. Wolf numbers were up to 22; several new pups had survived from the following spring and the future of wolves on Isle Royale looked optimistic for the first time in fifteen years. Things had changed and new questions had emerged. It appeared, for the time being, that 'flux' was the perfect

metaphor and the new ecological paradigm might be a good fit.

(19) Continue Trapping

In the winter of 1996 wolf numbers were at a ten year high and several new pups were present. In my discussions with park staff and Peterson, the question of whether, given these new wolf numbers, to continue trapping and collaring was hanging in the air. The whole trapping and collaring justification was based on the probable extinction of an endangered species. Now it appears that wolves would not die out for at least the next few decades (Peterson 1996b). Several Park staff suggested that the matter needed to be looked into. Natural Resource Director Jack Oelfke (1996) relied on the 1988 document *Management Policies* which describes research methods and policies appropriate in a wilderness area, specifically the idea that the "minimum tool" should be used to achieve research results. Is trapping and collaring the "minimum tool" to learn what is now needed about the wolves?

This raises a further question: what research is now needed? Peterson believes the current program should include collaring at least one animal per pack (Peterson 1996b: pers. comm.) so that "we can get in there as fast as possible if anything goes wrong". Further he stated, "We are always just one year from catastrophe with this population". Wolves are trapped and collared in the late spring after the snow melts but before visitors arrive. Due to the late snowmelt, the spring 1996 trapping was canceled. Summer research partially consists of flying over the island collecting radio-telemetry from the collared wolves. Due to a heavy death toll of moose the

previous winter, researchers were too busy collecting moose carcasses to spend much time tracking wolves in the summer of 1996. What information will be gathered and needs to be gathered in the near future is still a matter of debate.

(20) Delisting the Eastern Timber Wolf

"Delisting" the Eastern timber wolf may prove to be a very significant issue in Isle Royale wolf management. The 1992 version of the Eastern Timber Wolf Recovery Plan created threshold requirements for numbers of wolves outside of Minnesota. Those thresholds were met over the 1995-1996 winter and the delisting process began. Peterson is chairing the Eastern Timber Wolf Recovery Team committee which may convene in late 1996 or early 1997. As previously stated, the current Plan names Isle Royale as "critical habitat" giving those wolves special protection. Peterson has said (1996b) that he hopes that "critical habitat" designation will remain for Isle Royale.

As several of the previous sections explained, the designation of Isle Royale wolves as officially endangered has been the primary force behind many of the management decisions made since 1973. What will delisting mean to Isle Royale wolves? Will trapping and collaring be considered acceptable or maybe completely unneeded? What about summer camping zone closures, winter visitation, and further trail and campground expansion? Will those policies be rescinded? Will more invasive research techniques be accommodated? Might wildlife managers be allowed to enter dens and handle pups as they do with many other types of wildlife? These

research procedures are used in many other units of the National Park Service including for the wolves of Yellowstone National Park. Other more invasive techniques are used with the moose and other fauna of Isle Royale. Why would wolves enjoy any special status? The answers to these questions are uncertain. Because of the management relativism imposed by new ecology and because new ecology may be taking hold at Isle Royale, further uncertainty exists. However, each question touches on the fundamental issues of this dissertation: What is nature? What is wilderness? And what is the correct human role in intervening in naturalness?

(21) Additional Discussions

The wolf policy issue is enjoying a fair amount of debate at Isle Royale and it may receive increased attention in the very near future. The Park is currently revising its General Management Plan (GMP) during which many issues are being discussed. Although it was previously stated by Oelfke (1996) that any wolf decisions would not be made through the GMP, that may be changing. Superintendent Bernard (1995) has expressed an interest in looking into the issue more formally perhaps by requesting assistance from a blue-ribbon committee appointed through the Ecological Society of America. Other documents (Jarvis 1995) also discuss forming a committee to examine the wolf question. Of further importance, Peterson was invited to give a talk about Isle Royale wolves at the recent Ecological Society of America meetings in August, 1996 in Rhode Island. This special session was formed to examine the questions raised by the 1996 book by Wagner et. al. Through other discussions,

Regional Chief Scientist Hiebert has recently informed Peterson that the wolf issue might be examined in the GMP process. The exact method, level of concern, type of decisions that will be entertained, and timeline are uncertain. However, at present, no examination has taken place.

III. Conclusions

While the fate of the wolves is still uncertain on Isle Royale, one thing is for certain: they do not suffer from a lack of attention. Dozens of people have had a hand in determining the policies, management, and research procedures for wolves over the last fifty years and all of them have taken the task very seriously. This interest is not completely one of protection and preservation. Indeed, the tentative decisions to 'let nature take its course' and let the wolves die out would not be construed as preservation. "Concern" for the wolves is probably a better choice of word. While the fate of wolf policy is contested, "concern" for them is not.

The most significant issue dealt with over the fifty-year span was the trapping and collaring decision along with the decision to let extinction happen. As will be explained in the next chapter, much hand-wringing and stomach-wrenching went into this decision, the result being a decision to stick to the hard and fast dualism of nature versus culture, but yet also accept the consequences should they emerge. There are always many variables in the policy and management of public lands and in the Park Service. Precedent is often a powerful idea. In the case of the wolves, the precedent set by this history of wolf management suggests that they will be first, insulated from

people; and second, generally left alone. Whether that will change in the future is uncertain.

This chapter has argued that concern for the wolves has been in the form of three different paradigmatic stages over the last 50 years. In Stage I, the first managers held the idea that nature on Isle Royale needed to be in balance and that humans had the capacity and the historical precedent to create that balance. This idea was used to justify wolf introduction to the island. That paradigm gave way to Stage II and the idea that nature left alone would achieve a balance on its own without human intervention. This idea was used to justify "hands-off" policies. Finally in Stage III, the new ecological approach suggests that balance is a cultural metaphor rather than a natural imperative. Nature undisturbed may go any direction and for the time being, Isle Royale managers seem to accept this ambiguity. This idea is used to justify the possible extirpation of wolves.

The management history told here offers one layer of the total sum of this dissertation's arguments. That the wolves and their population dynamics have been used to exemplify each paradigm shift with relative ease speaks to the elastic nature of nature. The definitions of "nature" and "natural" have changed over time, and the correct role of humans in managing nature has also changed. Balance at one period in time became imbalance at another. Wolves retain their bedrock material status, but also carry extraordinary cultural baggage. They remain in between; part material, part cultural. However, the Park's managers have also walked a delicate balancing act that has protected and preserved the idea of "nature" and "naturalness". The Park has been

constructed as a "natural" entity, above and apart from humans; wolves have been constructed likewise as "natural" entities apart from the "artificial" hands of humans. Park staff have done their best to preserve the nature/culture dichotomy. In the future this balancing act may become unhinged by the acceptance of the flux of new ecology. The death of the wolves may be a fluctuation that will test the public's buy-in to the new, rather than the old, ecology.

Chapter 6

Policy and the Wolf Conundrum

I. Introduction

When I inquired about "why things were done a certain way" or "why a decision was made a certain way" with both the current and previous directors of natural resources at Isle Royale, both looked to the official policy documents written by the Park Service. Several times during various discussions, the current director of natural resources -- Jack Oelfke -- would pull the policy documents off the shelf behind his desk, read to me the passages that applied, *interpret them*, and give me an answer to the question I was asking about wolf management. Those two policy documents -- *Management Policies* (1988) and *NPS-77: Natural Resource Management Guideline* (1991) -- served as the backbone or the guidebooks of his decision-making.

Similarly, the previous director -- who now is the "director of resources" (both natural and cultural) at Shenandoah National Park -- also used the policy documents as his guide. Both in our interview and in a written paper co-authored with Rolf Peterson (1989), Krumanaker drew directly from the policies written in *Management Policies*. In the paper, Peterson and Krumanaker write:

Whatever decision is taken, it is critical that we consider the policy mandates

> that are supposed to drive all NPS decision-making. These are statutory (e.g. the Organic Act), regulatory (e.g., Code of Federal Regulations), and administrative (e.g., NPS Management Policies Book) mandates (p.13).

And then they proceed to quote several sections from *Management Policies* that apply to the wolf-extinction scenario. But again, they also interpret those lines as soon as they quote them. In his 1995 book, Peterson also again quotes from *Management Policies* and interprets its message.

How is it that policies can be "interpreted" by various people and yield various readings and mandates? The goal of this chapter is to apply, on a line by line basis, the policies written in the two documents to the wolf scenario. This is necessary because this is the exact procedure that current and past managers use to make decisions. What will come out of this reading is the nearly infinite "interpretation" open in the documents. On a more theoretical scale, this dissertation argues that managers and other persons use the wolves and Isle Royale as a canvas on which they project their own social constructions of a nature. Going through the policies in this way will lay out the raw canvas being painted, and sets the groundwork for the next chapter which categorizes the interpretations of the key informants.

This chapter will roughly apply a simple 'decision tree' scheme to the policy documents. *NPS-77* was written in 1991 and was meant to supplant *Management Policies* (1988). Where *NPS-77* draws from *Management Policies*, it quotes directly the applicable passages, therefore *NPS-77* will be the only document analyzed here. *NPS-77* describes itself as the "first comprehensive guideline on natural resource management (p.4)". *NPS-77* roughly follows what looks like a series of "if/then"

statements. For instance, 'if the species is native, then do this', or, 'if the species is exotic, then do this'. The decision tree scheme will reveal the latitude of "interpretation". Each time an if/then statement is found, the reader/resource manager is required to make a decision and follow further along the tree until a full management decision is reached. Throughout this process in this chapter, two extremely important points will be highlighted. First, it is very difficult to make the if/then decisions; and second, once a decision is made the mandates for action are rather weak. The mandates are 'suggestions' rather than requirements and are full of words like "may" and "could" rather than "do", "should", or "must". The result is that considerably different interpretations can lead to policy conundrums, potential management confusion, and a canvas upon which nearly anyone can paint a different picture.

Two main issues are at stake with the wolves. The first is that simple determinations about whether they are 'native' or 'exotic' sit at the core of these management choices. The Park Service has different policies depending on these primary questions. The second is more complicated and it comprises the decisions that faced managers throughout the 1980s and continues today. When it was suspected that wolves were dying out, managers had to decide why wolves were dying before they could decide what, if anything, to do about it. Were they dying naturally, or at the hands of people? These questions have not been answered.

For example, Peterson (1996b) argues that managers need to nail down wolf policy right now while the heat is off the decision. That way, when a situation arises

in the future, the various choices will have been made in advance and a huge political nightmare may be avoided. What should be the management response to disease, genetic inbreeding, food shortages, etc.? The question that is driving the whole issue is: "What should the Park Service do if the wolves of Isle Royale are dying out or die out?". After discussing the "Introduction" to *NPS-77*, the two main questions will be dealt with in four sections analogous to the pertinent sections of Chapter 2: 1) the question of native versus exotic, 2) "Native Animal Management", 3) "Exotic Species Management", and 4) "Endangered, Threatened, and Rare Species Management". At the end of this chapter I will place policy's guidelines into the framework given in Chapter 2 by describing policy's "way of seeing".

Wolves: A Natural or Cultural Resource?

Before the *NPS-77* can even be consulted, an initial decision must be made. Should wolves be managed as a natural or cultural resource? This is an issue that will be discussed in greater detail in the last chapter of this dissertation; here the problem will be briefly summarized. Two chapters in *Management Policies* must be consulted. Chapter 4 is titled "Natural Resource Management" and it defines 'natural resources' this way, "These resources and values include plants, animals, water, air, soils, topographic features, geologic features, paleontologic resources, and aesthetic values, such as scenic vistas, natural quiet, and clear night skies" (p.4:1). Chapter 5 is titled "Cultural Resource Management" and although it does not directly define what constitutes a cultural resource, it does say that:

> The following cultural resource inventories will be maintained for the national park system: (1) a List of Classified Structures encompassing historic and prehistoric structures; (2) a Cultural Sites Inventory consisting of both prehistoric/historic archeological resources and ethnographic resources (cultural and natural) associated with contemporary native Americans and other ethnic groups; and (3) a National Catalog of Museum Objects encompassing all cultural and natural history objects in NPS collections (p.5:1).

If we pick 'natural resource' we are directed to *NPS-77: Natural Resource Management Guidelines*; if we pick 'cultural resource' we are directed to *NPS-28: Cultural Resource Management Guidelines*. Obviously wolves are animals and, by this definition, a natural resource. However, as will be shown, the line of separation between nature and culture is not as distinct as these two books imply. We find many instances in *NPS-77* where cultural and political decisions can be made. Further yet, in the Park Service distinctions, there exist 'cultural landscapes', 'historic sites', and 'museum objects'. In the next chapter, several of the key informants will find a hazy difference between an Isle Royale with human-introduced wolves and a zoo or museum. But for now, we consult *NPS-77*.

II. The "Introduction" to *NPS-77*

The first paragraph in *NPS-77* quotes that ever-quotable line from the Organic Act with the bold emphasized words included:

> Under the 1916 NPS Organic Act, the NPS is charged with management of the parks to '...**conserve the scenery and the natural** and historic **objects and the wild life therein** and to provide for the enjoyment of the same in such manner and **by such means as will leave them unimpaired** for the enjoyment of future generations.' (emphasis added) (p.1)

Nearly every writer who has penned a word about the Park Service has had a slightly different interpretation of this line. Recognizing the complication of the task immediately, the next few paragraphs in *NPS-77* are somewhat of a 'disclaimer'. The heading "Purpose and Objectives of the NPS Natural Resource Management Program (p.1)" begins with the sentence "Natural resources are composed of inherently complex organisms, processes, and systems (p.1)". The end of the paragraph reads, "Natural processes and systems are dynamic, are often beyond immediate human control, and are affected by activities both within and outside the NPS units (p.1)". The next paragraph starts: "Understanding of these processes and systems is far from complete, yet the NPS is charged with management and protection of the natural resources of NPS areas in to the future (p.1)".

After the initial disclaimers, the document begins separating nature and culture, casting humans not only outside of nature, but also as nature's enemy. The next sentence reads:

> The fundamental objectives of NPS natural resource management, as prescribed in policy, are to manage the natural resources of the National Park System to maintain, restore, and perpetuate their inherent integrity and, **when consistent with the foregoing**, to provide opportunities for visitors to benefit from and enjoy environments which are evolving through natural processes minimally influenced by human action (my emphasis added) (p.1-2).

This conflicted dualism finds support and entrenchment in the next several paragraphs. Through a series of definitions of terms, we find that:

> In **natural zones**, the primary objective of management is to protect the natural resources and values in as natural a condition as possible, while allowing for their enjoyment by current generations and ensuring their availability for future generations.

> **Natural resource management** is the function by which the NPS strives to understand natural process and human induced effects; mitigate the potential and realized effects; monitor for ongoing and future trends; protect existing natural organisms, species, populations, communities, systems, and processes; . . .
>
> **Mitigation** is the maintenance of the existing form and integrity of natural systems or system components, consistent with park management objectives, in the face of harm or potential harm from human activities within or outside the park. Mitigation is also the conversion of a resource, altered by human activity, to a more functional or natural state consistent with management objectives.
>
> **Protection** is the prevention of overuse, vandalism, or destruction of natural resources by man-made causes and the enforcement of laws and regulations affecting natural resource management (p.1-2).

The root of the dualism appears in the wording under the term "natural resources" where it is stated: "As a point of reference, **natural conditions** are defined as those that would have existed today in the absence of the effects of European man (p.2)".

What does this say about nature at Isle Royale? First, the NPS does not completely understand nature and its system, but they have to manage nature without complete understanding. What the NPS does know is that people are the enemy of nature. The NPS will "maintain, restore, and perpetuate their [nature's] inherent integrity" and let humans visit as long as their influence is "minimal". If humans influence too much, that effect will be "mitigated" to a more "functional or natural state". Nature is "functional"; people are dysfunctional. Nature has "integrity"; people do not. Of course, not all people are dysfunctional and lack integrity. The people here before Europeans apparently lived in "natural conditions". And what about the wolves of Isle Royale?

III. Wolves: Native or Exotic?

NPS-77 is divided into five chapters. Chapter 2, titled "Natural Resources Management" is where animal-specific direction is found, and is also divided into several sections. The pertinent sections are titled, "Native Animal Management", "Endangered, Threatened, and Rare Species Management", and "Exotic Species Management". It is in these sections where directives specific to the wolves and their conundrum are found. The very first "if" question to be answered is the toughest of all. Are wolves native or exotic? Depending on the answer, management is sent down entirely different "then" lines of policy directive in response to the extirpation question. The section begins with the needed definitions to answer the question. It states:

> **Native animal species** -- Those animal species that occur, have occurred, or may occur in a park as a result of natural processes. Species that have moved into park environments directly or indirectly as a result of human activities are not considered native except in cases where human activities accelerated native animal movements that would have occurred without human influence (p.20).

What about the wolves? We know that they showed up on Isle Royale around 1948-1949. But we do not know where they came from, why they came, or how they got there. As for the where and how, the assumption is that they loped across the ice from nearby Ontario during the winter of '48-'49. But the "why" question is taken very seriously by the Service. Was it a "natural process" or was it "directly or indirectly as a result of human activities"? Both Peterson and Allen have written that they believe wolves were "driven" to Isle Royale by development, logging, and

hunting on the mainland. Wolves were and still are hunted in Ontario. But is this enough to assume humans caused the migration? If that was the case, then the Park Service would call them "exotic".

But would they have gotten there eventually on their own? Did humans merely "accelerate" the process? Or can we presume at all that wolves were driven to Isle Royale by humans? The section on Exotic Species Management" defines exotic species as "A species occurring in a given place as result of direct or indirect, deliberate or accidental actions by humans (p.284)". "Accidental actions" provides more ammunition for defining wolves as exotic. But is there any way that we can really know why the wolves came to Isle Royale? Allen (1979) claims that he had discussions with people who saw wolves heading to the island in the 1940s and 1950s, and also saw the wolves turn back to the mainland. It is possible and probable that wolves attempted the crossing many times. It is also possible that wolves crossed many times but came back the same or the next day. Any number of possibilities can be identified.

Another certainty is that an additional pack of four wolves crossed over in 1968. Both Allen (1979) and Peterson (1995) discuss a group of black wolves that first appeared on the island in 1968 and interspersed with the other packs. It was presumed that the pack ran across the ice during that winter. Since none of the witnesses discuss the issue, it is also presumed the pack ran across on its own accord with no help from humans. As discussed previously, Allen believes that the four black wolves did not produce any offspring and thus that their genes no longer remain

on the island. More recent evidence derived from the blood sampling program supports this belief and further supports a claim that the current population of wolves are all derived from the same female (Peterson 1995). Does the existence of the black pack have significance for the native versus exotic issue? It may support the "native" argument by proving that wolf introduction was not limited to a one-time event, that it may have occurred several times, and that it may continue to do so.

Wolves can cover great distances in one day. The 17-mile lope across the ice from Ontario to Isle Royale is but a relatively short romp for a healthy wolf pack. But can it be determined if this lope happened on other occasions? Very little information is available about the individual make-up of wolf packs to determine if new animals either came or went over the frozen winters. Peterson (1996b) claims that his knowledge of the wolves is solely at the "population" level. In other words, information about the comings and goings (birthing and dying, or crossing to or leaving the island) of individual wolves is not part of the research program. While this was true in past years, it seems less true since the 1989 trapping and blood-sampling program started. Throughout the "Ecological Studies of Wolves of Isle Royale" series published yearly, a clear distinction is seen between pre-trapping and post-trapping research. In post-trapping years, information about individual wolves including their reproductive success, territories, and demeanors is discussed. In other words, the wolves are watched more closely now than they used to be, and thus, Peterson would probably know if other individuals or packs made the crossing.

The primary determining factor in the probability of a crossing is not so much

the wolves but the ice. Peterson (1996b) and Krumanaker (1996b) and others discuss this issue. While ice is seen on the Lake every year, rarely does it make a continual "bridge" for any length of time. Less than five complete ice bridges have been recorded in the past fifty years. It is unclear what generalization can be derived from the two known crossings in those fifty years. Is it easy to cross? Is it common? The ice must be there, the wolves must be waiting, there must be reason, and then they cross. Perhaps humans had or have little to do with it, in which case the "native" argument starts to make as much if not more sense. The only certainty is that we do not clearly know.

What is of considerable interest throughout the debate is the amount of discussion it generates. The Park Service is very serious about the "why?" question. Maintaining the distinction between native and exotic is a major management concern of the Service throughout most parks. Millions and millions of dollars are spent trying to make the determinations, trying to police the boundary, and trying to eliminate exotics and maintain natives. Plants are as much of a concern as animals. If the Service could answer the question with respect to the wolves, it might make all further questions and management concerns easier. As it is, the Isle Royale wolves exist in a cloudy typological realm and thus are subject to some complicating conditions. Without a clear ideological framework in which to exist, the wolves are more susceptible to the various interpretations and social constructions that managers and the public impose upon them. Not falling into any one specific policy category, they can co-exist in nearly every policy category. Given this, what should be done if

they are dying out?

IV. Native Animal Management

The figure on page 165 depicts the wolf population trend over the last forty years. A dramatic 'crash' occurred in the early 1980s followed by a short rebound and then a continued slump throughout the 1980s and early 1990s. Management was very concerned by the 'crash' in the early 1980s. Concern intensified in 1989 and 1990 when wolves hit their two lowest points -- 12 and 11 -- resulting in the intensive trapping study. Throughout the '80s and culminating in the "wolf decline meeting" in 1989, four explanations were proposed for the wolf decline. Those were 1) food shortage, 2) disease, 3) genetics, and 4) stochastics (or randomness). Park policy in response to each of these explanations differs dramatically depending on how "natural" or "artificial" the event is construed to be.

The four comprehensive explanations can be briefly described as follows: Food shortage is a possibility because it has been determined through long-term research that wolves primarily eat very young and very old or diseased moose. If the age structure of the moose population is such that few young and old moose exist, then wolf food supply is in jeopardy and could lead to high wolf mortality or low reproductive rates. Disease is considered because it was theorized (and later proved) that the wolves were subjected to both canine parvovirus (CPV) and Lyme disease. Genetics is considered because it was theorized (and later proved) that the population is highly inbred. Other studies have proved that inbreeding will lead to population

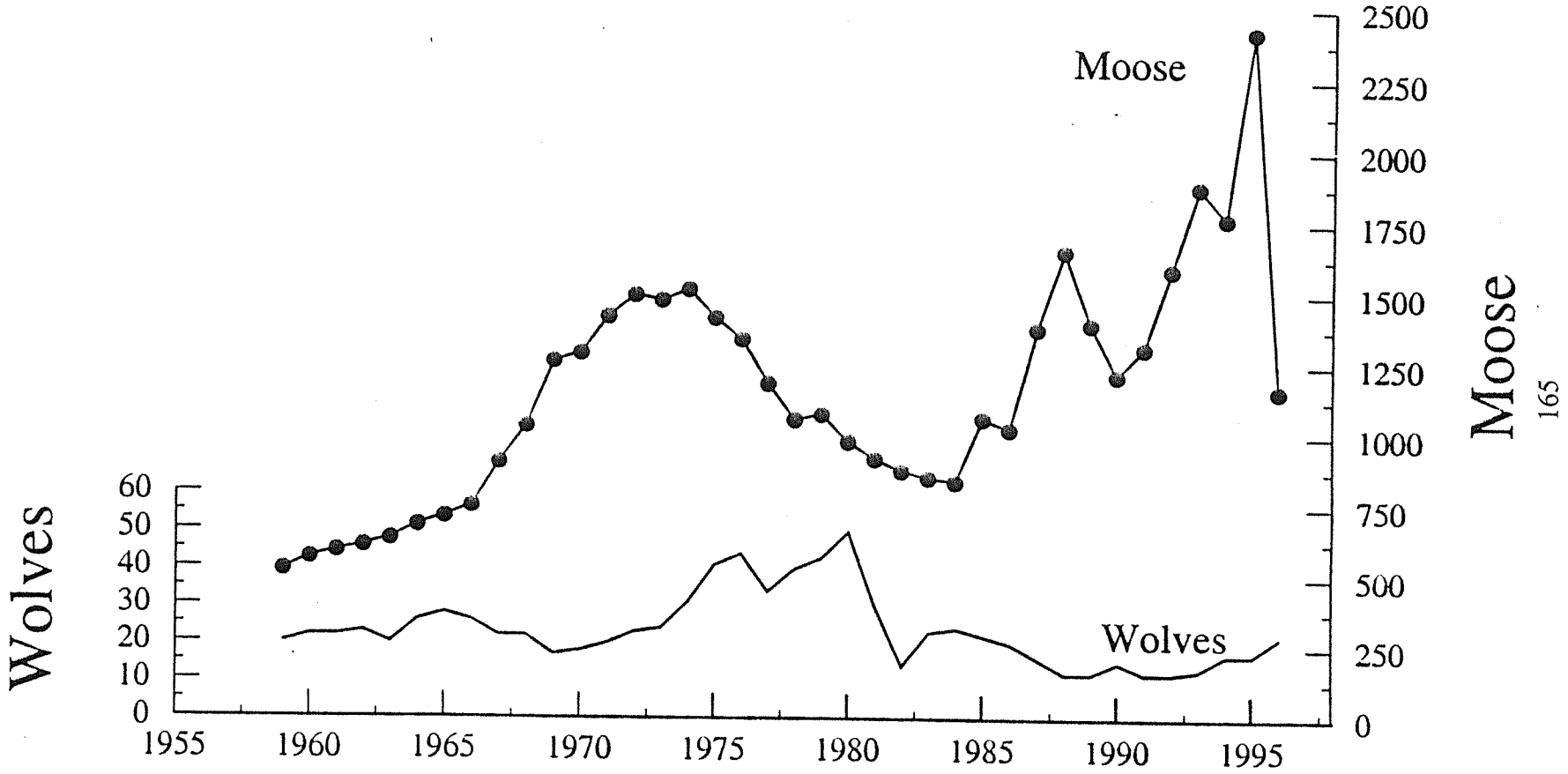

Figure 3. Wolf and Moose Numbers

decline for various reasons. Stochastic events could encompass a variety of explanations all revolving around the random possibilities of disruptive events associated with a small population of animals.

NPS-77, Chapter 2, "Native Animal Management", begins with a section titled "Policy and Program Objectives" in which several policies are quoted and summarized from the previous document, *Management Policies*. The two that apply to the wolf situation are:

> The National Park Service will seek to perpetuate the native animal life as part of the natural ecosystem of parks.
>
> Natural processes will be relied on to control populations of native species to the greatest extent possible. Unnatural concentrations of native species caused by human activities may be controlled if the activities causing the concentrations cannot be controlled (p.21).

As discussed in the first chapter of this dissertation, these two directives are nebulous enough to allow for considerable latitude. *NPS-77* adds to this abstractness with the following additional lines:

> Management strives to perpetuate natural ecosystems through maintaining or restoring natural processes to the extent practically feasible. In most parks, maintaining, restoring, or simulating natural processes is a more realistic goal than is the pursuit of a hypothetical static situation that is unachievable and may even be undesirable. Examples of natural processes are natural selection, wildland fire, predation, and succession. . . . Managers must give primary consideration to the welfare of native animals, but must also provide for public enjoyment (p.23).

Fortunately, after this brief introduction, the details provided in Chapter 2 begin to decrease some of the ambiguity. The details in *NPS-77* allows us to follow along this if/then path of thinking in a relatively straightforward manner. Each of the

explanations offered above are given some degree of consideration by the document and will be discussed in the order presented above. My method of analysis in this section will read like this: "If the wolves are native, and the problem is 'food shortage', then [policy directive]." We will see where each decision-tree leads management. Two ideas will be dealt with. First I will review past issues, specifically as played out in the 1989 wolf decline meeting; and second I will discuss the possibility of additional future issues. While the four explanations were compiled in response to the past and present problem, I believe they encompass the reasonable range of possibilities affecting the wolves now or in the future.

1. Food Shortage

First, it would have to be decided if food shortage was natural or human-caused. Studies have shown that the diet of Isle Royale wolves is roughly 85% moose and 15% beaver and hare. Since the moose make up the bulk of the diet, their availability represents the bulk of the concern. In the terms of the situation, a natural food shortage would probably be the result of a predicament that caused a decline in the numbers of moose, and specifically a decline in the numbers of old and young moose. A severe winter or a series of severe winters (a stochastic event) might do this over some period of time. This is one of the theorized explanations for the decline in the early 1980s and it is still upheld by some of the experts. Potentially in the future, a similar natural food shortage for the moose might also lead to a decline in moose numbers. For example, if the moose run out of the right kinds of food (which has

happened in the past), such a cascade would eventually reach the wolves. A natural disease could also affect moose numbers. So too could a natural genetic predicament affect moose and thus wolves.

An unnatural or human-induced food shortage could occur for two reasons. A first possibility is human fire suppression. Since moose eat the types of plants that thrive in recently burned areas, fire suppression would lead to less moose food, less moose, and thus less wolf food. Fire suppression was quite active in the past at Isle Royale. However, currently, wild fires are allowed to burn unless they will harm human life or property. Another human-induced change could involve the introduction of a disease which caused a decline in moose numbers and thus a food shortage for wolves. In either case, what should management do?

The only action that makes sense to combat food shortage is supplemental feeding. But can it be done? *NPS-77* says that: "Supplemental feeding may take place only if all these conditions are met: . . . 2. An animal's predicament is human-induced" (Chapter 2, p. 42). A few sentences later, it says "Supplemental feeding should not be allowed where an animal population is stressed because of climatic shifts or other natural processes." Therefore unless some other more powerful directive took over, the Service should not provide food for wolves unless the moose decline was human-induced. And even in that case, the policy is a suggestion, "may", not a mandate. Natural food shortages "should" be ignored.

2. Disease

Again, disease can either be native or exotic. Of the two diseases thought to affect the wolves in the past -- CPV and Lyme -- CPV was definitely thought to be exotic while Lyme was less clearly categorized. CPV is carried in domestic dogs and, probably, could only have gotten to the island via transport aboard a dog and its feces or the soil on the shoe of a human visitor. Lyme, on the other hand, could have gotten to the island various ways. It could have been carried by flying birds or swimming moose; or it could have been carried by a dog or a person. Because Lyme primarily inhabits wild animals, it is thought to be a native or naturally occurring disease. After the 1989 trapping and blood-sampling was completed, many Isle Royale wolves tested positive for both diseases. The threat of CPV was and continues to be the rationale for pet prohibition from the island. Beyond CPV and Lyme, a host of other native or exotic diseases could also affect the wolves. What is the policy response?

> *NPS-77* states:
>
> Parks may control diseases in native animal populations under any of the following conditions:
>
> 1. The disease is an exotic organism.
> 5. The disease threatens to extirpate a relict population from the park.
> 7. The disease threatens a threatened or endangered species.
>
> Parks should **not** control diseases when the pathogen is native and its effects on animal populations are natural; . . .; when control of the disease is impractical . . . (Chapter 2, p. 38).

Of first note, is that the word "may" implies a suggestion rather than a mandate. Again, the dualism of native versus exotic is held strictly to the plants and animals as well as the diseases they might carry. Condition 5 is important. Although "relict" is

not clearly defined, a few pages back it is suggested that a relict population is one that has "originated from a small gene pool". Wolves fit that category. As will be discussed in a subsequent section, wolves are also a T&E species and Condition 7 applies. The last sentence, however, introduces severe ambiguity in this policy. It is unclear whether "should not control" would override native diseases in relict or T&E species. Further yet, the line "when control of the disease is impractical" introduces even further ambiguity. What is impractical?

Before and during the "wolf decline meeting" of 1989, inoculation of wolves for CPV was considered. However during the meeting, several experts expressed doubt about its success and its practicability. Doubts involved the fact that all wolves would have to be inoculated several times and pups would have to be inoculated soon after birth. The level of intrusion would be very high and the possibility of failure would also be high. There was further suggestion -- that has since borne out -- that CPV generally runs its course and would not kill the entire population. The potential and possible effects of other diseases were also discussed. The future could hold various possibilities surrounding both native and exotic diseases and the wolves. Distinctions would need to be tightly drawn -- something that is not easy to do -- and "naturalness" will always be contentious.

3. Genetics

It was suspected and borne out by research that, due to inbreeding, low genetic diversity was a possible contributor to the decline of the wolves. The results are not

conclusive, but of the wolves trapped and tested, all were derived from the same female some generations ago. The effect of inbreeding on animal populations within parks is a serious concern for the Park Service as well as the larger wildlife conservation movement. As more animal populations are confined to enclosed areas, inbreeding is certain. Many experts believe that Isle Royale wolves will serve as an important test-case for various other future events that will occur in and out of the national parks. *NPS-77*'s relevant paragraph states:

> Small populations are subject to risk of extinction and extirpation due to population instability, isolation, erosion of genetic variability, and inbreeding. Populations with reduced genetic variation often demonstrate lowered fecundity and survival of young. This has been documented in inbred zoo and fish hatchery populations and is suspected in some wild populations. It may have a long-term effect on the continual survival of a population. The question of limited genetic variation remains largely untested for most wild populations but must be addressed as a potential threat where native animal populations exist, or where the reproductive capacity of a population is deemed low enough to inhibit its genetic diversity (Chapter 2, p. 25).

Below this paragraph are several options for the "testing" of the genetic variation of a population. Wolves fit several of those options, and they were and are tested for genetic diversity.

If it can be determined that inbreeding is causing wolf decline, what should be done about it? Although inbreeding is certain, resulting wolf decline is not certain in the Isle Royale setting. However, most experts agree that it is merely a matter of time. Additionally, *NPS-77* states:

> Where limited genetic variation is detected and the cause is human-related, population augmentation may be justified to increase the viability and the security of a population. No actions should be taken where there is no evidence of inbreeding or limited genetic variation or where the cause is

> determined to be natural. Maintenance of overall ecosystem stability and evolutionary processes should take precedence over individual species (Chapter 2, p. 27).

The first two sentences are fairly straightforward. If the wolves are a native species, there is no reason to suggest that their inbreeding is human-caused. Rather, it is natural, and "no actions should be taken". However, the last sentence states that "ecosystem stability" should be maintained. As will be shown in the next chapter, several key informants believe that wolf demise will result in a very unstable Isle Royale ecosystem. Moose numbers will cycle dramatically as will the entire landscape they feed upon. On the other hand, the words "evolutionary processes" suggest that wolf demise and moose cycling may fit some grand evolutionary design and thus also be maintained. Also of note in the last sentence is the notion of ecosystem-wide management as opposed to managing individual species. The dangers of trying to manage a single species instead of a whole system will be brought out in the key-informant surveys. In summary, it is unclear exactly what the response to genetic decline should be. Further, the words "may be justified" offer ample maneuvering and interpretation.

Because it applies to the last three of these explanations -- disease, genetics, and stochastics -- a quick discussion of the idea of "augmentation" is needed. *NPS-77* states:

> Augmentation of existing but diminished populations may occur when one or more of the following conditions are met:
>
> 1. Changes in demographic characteristics, reduced genetic variability, or the associated influence of reduced fecundity are verified.

2. The diminished population is seriously threatened with extirpation.
3. The augmentation is essential to the species' recovery, and the diminished status was the result of human influence.

Augmentation of a diminished population may **not** take place . . . where natural recovery without augmentation is likely; . . . (Chapter 2, p. 36).

This section appears to open the door for augmentation with fairly liberal interpretations of the necessary conditions into which the wolves easily fit. However, given the last line in the quote, how will it be determined when natural recovery is likely? Obviously if all females have died, natural recovery is unlikely. However, what if all females have died, but natural recolonization from the mainland is still possible? Peterson wrote his book in 1994-5 when the two alpha females on the island had not reproduced for a few years and were not expected to. Thus Peterson supported augmentation because natural recovery was not likely. The wolves did otherwise. If the leading expert of Isle Royale wolves can miss such a call, how will it be determined when they are "seriously threatened" in the future? And, with the suggestion of "may occur" and "may not take place" rather than a mandate, how will such an action be decided upon?

4. Stochastics

Random events could easily wipe out a small number of wolves. On average over the last fifty years, there have only been two to three breeding packs on the island at one time. With such a small number of packs, random pup production decline could be devastating. For example, the simple relationship between the

number of males and females of breeding age, or the possibility of a non-reproductive genetic problem in a pack could cause a decline in total wolf numbers. Another important example of random events would involve the social behavior of the wolves. Although it may sound unscientific, wolves are known to have very complicated social lives and with such a small number of animals, pairing and breeding could easily be stymied. As Peterson has said, "It's just one big soap opera." At any one time, the wolves on the island are all related as close as brothers and sisters and aunts and uncles, and rarely as far apart as cousins. Much could happen to jeopardize reproduction.

The Park Service response to such stochastic events would probably vary dramatically depending on the exact event that occurred. In general however, the same scrutiny of determining whether the event is natural or human-caused would occur. Given that determination, population augmentation is a possibility using the same criteria described in the previous section. While the principle experts had various opinions as to why the die-off occurred in the early 1980s, one of those opinions involved a behavioral explanation. At the height of wolf numbers, there were five packs on the island and due to the small size of the island they had severely restricted territory. It is possible that packs fought each other or that breeding was restricted due to the cramped conditions. Future stochastic events are difficult to predict. Any number of possible events could occur. Policy response could also be as variable.

Other Policy Guidance for Native Animals

Biodiversity

The section of *NPS-77* that issues policies for native animals also raises several other issues that are relevant here. For example, under the heading "Biological Diversity" it is written, "Most parks may be too small to protect biological diversity on their own, but through steps listed below parks can influence biodiversity and, when possible, contribute to the understanding of its importance" (p.25). The steps listed are used to identify and protect biodiversity. Obviously the wolves represent significant biodiversity to Isle Royale. However, below the steps, it is written:

> The goal of maintaining natural biological diversity does not supersede other NPS policies and guidelines or the purposes for which the park was established. Biological diversity programs may not be used to support introduction or retention of an exotic species because it enhances biological diversity (p.25).

Given biodiversity's relegation to the bottom of the policy pile, it can be written off as a useful plank in wolf policy. Several other policy directives would probably kick in before the biodiversity clause could have any effect.

Maintaining the Moose Population

Another important matter is the relationship between wolf and moose, and thus the role that wolves play as a predator to the moose population by regulating their numbers and the health of the moose herd. Several of the key informants mention this "natural process" as an important ecological role for the wolves.

Specifically, the line is often quoted, "Natural processes will be relied on to control populations of native species to the greatest extent possible (p.21)." Without it, moose have and will overpopulate, exhaust their food supply, and starve. In a section titled, "Control of Unnatural Concentrations or Abundances of Animals" it is stated that "Control of native animals [moose] may be justified under the following conditions . . . (p.32)" and one of those conditions is "2. When an unnatural concentration of the species occurs because of loss of one or more significant natural predators due to human-induced change." Further along, one of the options for controlling overabundance is "Restore populations of native predators." So, if people caused the decline of wolves and thus the overabundance of moose, then wolf restoration could be justified. Enough ambiguity exists in these policy lines to allow considerable interpretation.

Other Documents

Throughout the policy guidelines, directives are given with the caveat that they can be superseded by two other documents: the first is the Park's enabling legislation, the second is the current Resource Plan for the Park. In other words, national-level policies should serve in the absence of the Park-level policies as spelled out in those two documents. Isle Royale's enabling legislation included very little policy direction, and what direction was given appeared in generic form. The 1989 "Statement for Management" summarizes the enabling legislation (H.R. 17005):

> This report clearly indicates that the primary purpose of the land portion of the park is for wilderness and preserving the wildlife, flora, and basic resource in a primeval manner. The committee report states 'complete protection, of course, is the prime object aimed at' (p.1)."

Although moose were on Isle Royale at the time of this legislation, wolves were not. Given the ambiguity in this statement and the lack of the presence of wolves, it provides little or no guidance in wolf matters.

Written in 1981, the "Natural and Cultural Resources Management Plan and Environmental Assessment" is the most current document of its type at Isle Royale. It discusses the wolf situation in several areas. However, the scope of those discussions are limited to the boundaries drawn around wolves by the Endangered Species Act. It summarizes many of the management policies discussed in the previous chapter of this dissertation. As a brief summary, it states: "Therefore, regulations will be promulgated to protect the species and maintain the natural system (p.13)." The document does not discuss anything to do with wolves as native or exotic, nor anything beyond the ESA mandate. Without the ESA, this document would have little to say about wolves beyond what could be deciphered from lines such as 'protecting wilderness quality' and 'preserving natural processes'. Since the last section of this chapter will discuss the ESA, there is no need for further discussion here. In summary, because the "Plan" is outdated and defers to the ESA, it provides little help in the current and future debates about the question of wolves as native animals.

Wolf Restoration

If wolves are extirpated from Isle Royale, the prospect of reintroduction has been given considerable thought. As one of the questions posed to the key informants, those thoughts will be vented in the next chapter. Here, it will serve to briefly discuss what *NPS-77* has to say about reintroduction. The pertinent lines are:

> Restoration (re-establishment) of a native species may occur after the following determinations or preparations are made:
>
> 1. Adequate proof exists that the species occurred in the area and that its absence is human caused. A habitat analysis should be conducted to verify that enough land and water area exists to support a viable population of the species. All other essential elements, including water, forage, nest or den sites, cover, and others should exist.
> 2. A review concludes that the extirpation was human caused.
> 3. A review indicates that the prospects for natural re-establishment are minimal, but that restoration has a good chance for success (Chapter 2, p. 35).

Three issues are important here. First, the extirpation must be caused by humans. Second, the "habitat analysis" is a question at Isle Royale because of its limited size. For e++(+178it is possible that the island is too small to accommodate a self-sustaining wolf population, and therefore that reintroduction would have to be a continual situation reoccurring every several decades. Third, natural re-establishment must be highly unlikely. In other words, if wolves can make the run across the ice by themselves, then human restoration is not mandated. And again, that suggestion "may occur" leaves latitude for interpretation.

Myriad factors could complicate the decision-making about reintroduction in the Isle Royale wolf situation. Determining if the extirpation is human caused would probably be very difficult. The examples involving the arrival of exotic diseases

reveal this difficulty. Further, determining if the island is adequate for a self-sustaining wolf population will also be very complicated. Although wolves have lived there now for 50 years, their brush with extirpation in the 1980s suggests that this question will be difficult to answer. The likelihood of natural re-establishment is another infinitely complicated matter. Key informants have conjectured factors such as global warming -- and the likelihood of ice on the Lake -- as having a role in this possibility. Also, if wolves are extirpated, the Park Service will have to choose between a host of other extirpated species -- caribou, lynx, marten -- for reintroduction. Choosing only wolves would involve tricky political/scientific reasoning.

In summary, the if/then scenarios offered by the "Native Animal Management" section add a number of details to the generalized policies that existed earlier. However, they also still leave considerable latitude for interpretation and provide no direct mandate for any action. With respect to the wolf situation at Isle Royale, no clear path through this section of *NPS-77* is warranted. Any reader would be required to make complicated assumptions based on their own ideological or scientific biases. What would come out of such a process would be a mix of personal decision-making weighed by personal ideological bias. The next chapter will further support that this is exactly what has happened at Isle Royale.

V. Exotic Species Management

The most telling quality in this section of *NPS-77* is its sheer lack of detail

and policy guidance. It yields very little direction when applied to the wolves of Isle Royale. Nevertheless since several of the experts believe that wolves could be described as exotics -- the current director of natural resources told me that, by his reading of *NPS-77*, wolves could be exotic -- it is useful to see what the document offers in terms of guidance. After the initial definitions already described in the previous section, several very general "Policy and Program Objectives" are defined. Two are relevant to the wolves:

> Management of populations of exotic plant and animal species, up to and including eradication, will be undertaken wherever such species threaten park resources or public health. High priority will be given to management of exotic species that have a substantial impact on park resources and that can reasonably be expected to be successfully controlled.
>
> Nonnative [exotic] plants and animals will not be introduced into natural zones except in rare cases where they are the nearest living relatives of extirpated native species, where they are nearest living relatives of extirpated native species, where they are improved varieties of native species that cannot survive current environmental conditions, where they may be used to control established exotic species, or when directed by law or expressed legislative intent (p.285-6).

Two issues here are applicable to the wolves. First, "management of populations" will only occur if they "threaten park resources or public health". The primary way that wolves could threaten park resources would be through predation or taking a niche already occupied. Further definition in the chapter may clarify this somewhat. The second point is that exotic animals could be introduced if "directed by law". Although improbable, reintroduction could take place through the ESA and fit into this category.

After this initial general discussion, only slightly more detailed policy

directives are offered. Of relevance, under the title "Management of Established Exotic Species" we find useful details: "A minimum of two categories of exotic species -- innocuous species and disruptive species -- helps to determine action priorities" (p.287). Under the title "Innocuous Species" it is written:

> These exotic species do not significantly harm park resources and do not require management. . . . Populations may be widely scattered in a park, but there is no evidence they are extinguishing native species populations, threatening human health, or damaging historic resources. Management efforts should not be squandered on innocuous species (p.288).

The only new piece of information here is the call for no "management efforts" as long as the species is innocuous. Again, unless wolves are seen as a threat, they would probably fit this category. Under the title "Disruptive Species" it is written: "These exotic species have species, community-level, or ecosystem-level effects, significantly altering natural processes such as: . . . species composition and reducing populations of native species (p.288)". This passage seems to offer further clarification of the "threats to park resources". They would include "altering species composition and reducing populations of native species".

Isle Royale wolves prey on moose, beaver, and hare. It would probably be argued that such predation does not "significantly alter natural processes" since predation is usually seen as a natural process. Over the fifty years that wolves have been on the island, they have not significantly altered the abundance of either of the three species. However, of interest is the historical fact that wolves were exterminated from all national parks because they were seen to "threaten park resources or public health". Wolves ate moose, elk, and deer which were gentle

grazers and very appealing to visitors. The perception was also that wolves were a threat to humans. Times have changed, as have wolf perceptions. While some U.S. citizens still might regard wolves as a threat to parks or people, that number is probably small and shrinking. Isle Royale visitors would probably find wolves to be no threat to park resources or public health.

Of related importance, moose arrival to Isle Royale is only slightly less peculiar than wolf arrival. Moose no doubt swam to the island and have continued to do so since their arrival in the early 1900s. However, like wolves, there is no historical or archeological evidence to suggests that moose were on the island previously to the early 1900s. Under these terms, moose could be seen as an exotic species as easily as could wolves. In such a situation, the infinite variables involved in these distinctions and the policy directives derived from them could conceivably unravel into a ludicrous mix of Park Service animal exterminations and introductions until some pre-European mix was present (if that could be defined).

Of more relevance is the fact that coyotes existed on the island as far back as biologists and archeologists decipher. When wolves arrived, a bitter territorial dispute resulted in complete extirpation of coyotes. It is assumed that wolves killed all the coyotes. By any definition, coyotes were native animals, and by some definitions, wolves are an exotic animal. Thus, it could be argued that exotic wolves "significantly altered the species composition and population" of native coyotes. Thus, by the bare definitions in *NPS-77*, the Park Service could find justification to eradicate wolves from the Park and reintroduce coyotes. That absolutely no

discussion of this possibility exists in Isle Royale history speaks volumes to the precarious position that wolves hold in the eyes of the Park Service and the American public.

While the bare definitions offered in *NPS-77* could be quite contentious, the most likely scenario to come out of a discussion which seriously accepts wolves as exotics on Isle Royale would be to define them as "innocuous" and thus require no management. If it were not for the ESA in 1973, this may well be the path the Park Service took with the wolves of Isle Royale. The extreme attention they received due to their decline was all predicated on the possible extirpation of an official "endangered species". The development of all the decline explanations, the management history, and the trapping and collaring all were based on endangered status. If they are defined as exotic, management would not care if they were short of food, had diseases, were inbred, or anything else. The only concern would be that they not interfere with other native species or the public. *NPS-77* policy pays very little attention to exotic species. Their possible decline or extirpation is seen as innocuous as the species itself, if not outright beneficial. While science may have found considerable interest in the wolves, Park policy would not. They would merely be another animal running around in the Park. Although precedent would now weigh in favor of keeping the wolves and continuing to protect them, the policy document does not offer much support for such a strong position.

VI. Endangered, Threatened, and Rare Species Management

Chapter 2 in *NPS-77* defers throughout to the Endangered Species Act. All the directives given in "Native Animal Management" and "Exotic Species Management" were prefaced with the clause 'unless it is a T&E species'. If it is a T&E species, then the reader is directed to a different section of Chapter 2 and a higher authority takes over. That authority is the Endangered Species Act, passed in 1973 and administered by the United States Fish and Wildlife Service. The Park Service does not write its own policies for T&E species, it just quotes from the directives of the Act and requires individual parks to follow the path outlined by the Act.

The eastern timber wolf is currently listed as an endangered species in the state of Michigan and Wisconsin, and it is listed as a threatened species in the state of Minnesota. When the listing was passed in the mid-1970s, about 400 wolves inhabited Northern Minnesota and that was seen as adequate to thwart federal endangerment. That Isle Royale wolves are endangered versus threatened is somewhat peculiar. It did not matter that the Isle Royale wolves were many miles from the Michigan mainland and could never get there by any chance. It did not matter that they came from the Ontario-Minnesota area originally and that their gene-pool was linked only to Ontario-Minnesota wolves. If Isle Royale were in the state of Minnesota -- which it is much closer to -- the wolves would have been threatened rather than listed. It is unclear what difference may have resulted from the typological change.

Isle Royale is defined as "critical habitat" by the Eastern Timber Wolf Recovery Plan (1978, 1992). In *NPS-77*, the definition of critical habitat is quoted from the ESA:

> "(i) the specific areas within the geographical area occupied by the species...on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; . . . (p.269)

The "special management considerations" are developed on the next few pages under the general title "Policy and Program Objectives" and a number of points beneath it. The pertinent issues are:

> The National Park Service will identify and promote the conservation of all federally listed threatened, endangered, or candidate species within park boundaries and their critical habitats.
>
> 2. Manage endangered, threatened, and candidate species, and their critical habitats, in conformance with the Endangered Species Act, recovery plans, and other appurtenant documents.
> 3. Ensure that park operations do not adversely impact endangered, threatened, candidate, or sensitive species and their critical habitats, within or outside the park (p.270-1).

The strength of the ESA is developed on the next few pages where it becomes apparent that endangered species rank at the very top of the management hierarchy. The pertinent passages are:

> Endangered and threatened species, therefore, cannot simply be preserved through general habitat protection; they must be actively managed for recovery.
>
> Management affects the distribution, abundance, and ecological relationships of and among species. Whereas preservation can be accomplished by a zoo, botanical garden, or other non-natural refugium, the NPS's goal is the long-term preservation of species and their ecological role and function as part of a "natural ecosystem."

> Management options must place highest priority on identifying and removing the threat of extinction.
>
> Once a park or region enters into a recovery program for a threatened or endangered species, a judgement concerning that species has already been made--that the species' recovery is of great enough value to warrant exceptional actions in the management of that species, of certain areas, and other associated species.
>
> Manipulative activities such as habitat or species restoration or population augmentation are encouraged if identified as appropriate in the recovery plan and if such activities wold result in a more representative distribution of the species within the park (p. 272-4).

In these passages the weight of the ESA gets thrown around. The Park Service must take "exceptional actions" to protect wolves in their "natural ecosystem". These passages were used to justify the strict policies of the 1980s, including the trail-building decision, pet prohibition, winter closure, and others.

Since the threat of extinction is guarded at all costs, the ESA also usurps general Park policy in another way:

> Note that the Endangered Species Act makes no distinction between natural and human causes of a species' status. If a species is endangered or threatened through natural processes the law still applies (p.272).

Throughout the section on "Native Animal Management", primary consideration was given to the issue of natural versus human-caused events. The ESA does not care. Natural extinction is the same as human-caused extinction; it must be thwarted at all costs. Thus, the whole discussion in 1989-90 about whether the various causes of wolf decline were natural or human were pointless.

However, again, the wolves of Isle Royale did not exactly fit into the category of "endangered". As Krumanaker noted in the wolf decline meeting, the regional

ESA coordinator thought that the ESA did not really apply to the declining wolves at Isle Royale. From my discussions with Krumanaker and other key informants, it becomes clear that the Isle Royale wolves could realistically offer little assistance to recovery efforts. For all practical purposes the animals are trapped on an island in Lake Superior, their numbers could only get so high, and they are not likely to naturally repopulate Wisconsin or Michigan. The wolves in Minnesota -- which numbered 400 in the 1970s and now number 2000 -- were and are seen as the only useful packs to aid natural recovery. And they have done so. By the time of the crisis in 1989-90 on Isle Royale, wolves had already naturally migrated through northern Wisconsin and the U.P. of Michigan. Recovery was well on its way and the goals of the recovery plan were being met. So the regional ESA coordinator said, in a sense, 'let the wolves of Isle Royale die, the ESA does not care'. Perhaps in hindsight, it could also be surmised that the whole realm of policy directives throughout the 1970s and 1980s -- pet prohibition, trail building, winter closure, etc... -- were also for naught.

The wolves of Isle Royale sit in ESA limbo. As discussed in the last chapter, the Recovery Team is planning to meet soon to either "delist" or "downlist" the eastern timber wolf. Whether Isle Royale will remain critical habitat is uncertain. Whether it should remain so is politically contested. If delisting takes place and critical habitat designation is removed, then the Isle Royale wolves will revert back to simply being either native or exotic Park Service animals and only the Park policy documents will officially apply. It is uncertain what will happen. What is for certain

is that for the past twenty-five years the Isle Royale wolves have held a murky hold on endangered status. In the '70s and '80s it appeared that wolves really were "endangered", but at the critical moment in 1989, they really were not. Rather, policy interpretation, personal ideology, and cloudy rhetoric continued to typify wolf status.

VII. Conclusions - Policy's Way of Seeing

The official wildlife policy documents for the Park Service do several things. First, they entrench a dualism between culture and nature by relegating all but pre-European humans as outside of nature. Any influence that humans have on nature is seen as an unnatural disturbance that must be mitigated and corrected. The policy documents imply that nature has integrity and humans do not. Some animals are native, others exotic. That determination is based upon the degree to which humans had a part in animal introductions. Second, while policy accepts these dualistic tenets associated with older ecological ideas, it also accepts "change" -- roughly the paradigm of new ecology. Landscapes change and wildlife changes; the role of humans is not to try and maintain a static scene. And third, a designation of "T&E species" requires action. In this situation, people are mandated to step in and correct previous foul-ups by any means necessary.

These policies fit into a mix of an old and new ecology paradigm of nature/culture interpretation. The main underlying assumption is that nature is separate from culture and humans. As discussed in Chapter 2, the nature/culture dualism drew heavily on armageddon theories which painted humans as the enemy of

nature. The Park Service turned these ideas into doctrine and the land which they managed became 'wilderness'. The wildlife on that land embodied the ideal; the wax and wane in wildlife numbers seemed to symbolize the degree to which humans had fouled the nest. Like at other Parks, the Park Service at Isle Royale is allowed (but not always mandated) to step in and fix the mistakes of humans. Using newer ideas developed in the 1980s, policy now also accepts much (but not all) of the new ecology. Humans are still outside of nature, but nature itself is in constant flux rather than in equilibrium. Unlike the management history, which resulted in a hands-off pro-wilderness stance, policy might allow for considerable animal manipulation depending on prior human interference.

The official position of the wolf at Isle Royale is quite murky. Are they native? Are they exotic? Are they "endangered"? Given each of these choices the decisions afterward are no less clear. If wolves are starving and they are native, then what, if anything should be done about it? I am not sure that even that simple question could be answered by relying on *NPS-77* as policy directive. There are several reasons for this. First, although *NPS-77* is the "first comprehensive" document of its type, it is still somewhat ambiguous. It needs further clarification and definition to be useful for managers. Second, after a typological decision is made, the directives are not mandates, but rather just suggestions. Only in dealing with endangered species does *NPS-77* have any real teeth to it. Third, the wolves remain unclassifiable. Their introduction to the island offers enough confusion to keep them without a definite label in Park Service typology and without a policy path to guide

their management. And finally as developed in Chapter 3, the definitions of "nature" and "natural" -- used throughout NPS-77 -- are open to considerable interpretation.

Since they do not reside in a firm category, the wolves remain "interpretable". Managers can interpret the wolves' position as they see fit. Further, since their status is so murky, wolves can and have been turned into something quite beyond any definition the Park Service could place on them. Through policy, the wolves and the Isle Royale wilderness are thus burdened with the representation of a pristine pre-European state of naturalness. Even though the "Introduction" of *NPS-77* creates a dualism that makes humans the enemy of nature and of the wolf, that does not stop humans from venerating the wolf. Wolves have become symbols, totems, and icons for people and movements to use for various purposes. In this regard, Isle Royale wolves are quite fortunate. If the island were much closer to Ontario and wolves crossed often and at will, their position in terms of policy would be firmer and more simplified. As it is they enjoy phenomenal attention, ambiguity, and deliberation about their plight. In the next chapter, I will investigate how the various key informants have interpreted the position of the wolf and more fully investigate the social side of the nature that wolves represent.

Chapter 7

"Ways of Seeing" Isle Royale and its Wolves: The Key Informant Survey

I. Introduction

In Chapter 2 I developed a categorization scheme for the development of management philosophy and tactics within the National Park Service. Briefly, those five categories were: a) parks as monumental scenery, b) parks as religious monuments to nature, c) parks as examples of primitive nature in equilibrium (old ecology), d) parks as examples of primitive nature in need of human-induced equilibrium, and e) parks as examples of nature in constant flux (new ecology). Using the metaphor of "ways of seeing", I argued that each of these categories revealed the inherent values that successive generations of Americans heaped upon the parks and their wildlife. As I argued in Chapter 1, 2, and 3, these differing ways of seeing also reveal the deeply rooted values which underlie policy controversies about how to manage nature in the parks. This chapter will draw heavily from those ideas, expanding them to fit the specific situation offered by the key informants.

At Isle Royale there is not yet an overheated controversy. This is probably because, as Peterson said, "We haven't screwed up in any major way yet (1996b)." But the conflict is simmering and has been for at least fifteen years, when the drop in wolf numbers was first noticed and management reaction was first considered. Since the conflict is at the incubating stage and has not yet reached the point where heated

personal and political conflict can overwhelm it, now is a good time to take a more discerning look at the policy issue from a more theoretical perspective (Bernard 1996a), using the hypotheses developed in Chapter 2. Through either a conversation or a written survey, I let each informant tell their version of the issue. They told me what they thought about Isle Royale as wilderness; they told me how the Service should manage the wolves; and they told me what should be done if wolves were extirpated from the island.

From these statements I pieced together an overall picture, or a "way of seeing", that each informant painted of the wolves and their predicament. And the results were startling! Patterns and categories jumped off the page with little or no manipulation. I will develop those categories further in the following sections, but briefly the three categories are:

1) Isle Royale as 'true wilderness' with a 'hands-off' approach to wildlife management. The only exception to the hands-off approach comes when humans have upset the balance, and humans should fix the mistake. New ecology with its ecosystem flux is the accepted scientific paradigm rather than previous equilibrium models. Science is useful to study the naturally changing system. This category roughly corresponds to way of seeing "c" above with the addition of a 'new ecological' approach.

2) Isle Royale as an isolated island that requires human manipulation of wildlife. In this category, humans have the responsibility to manage wildlife to keep biodiversity and keep it in dynamic balance with the vegetation

whether change is human-induced or not. Science is also useful to study the system. This category roughly corresponds with way of seeing "d" above.

3) Isle Royale and the nature it envelops are to some degree cultural constructions. As such, the island and its wildlife should be managed by public consensus and public desire. New ecology is accepted as is a constantly changing landscape, including wildlife change. Science is the valorized tool of study, and can be an end in itself. This roughly corresponds to the combination of way of seeing "e" above with the addition of the postmodern theory developed in Chapter 3.

Although these three categories were clearly evident in the surveys, the analysis was somewhat complicated by the fact that many informants were able to espouse more than one category at the same time. Further, the longer the person talked or wrote, often the more meandering became their position. While some of the informants were able to just put their foot down and say 'completely hands-off all the time', any other viewpoint did not offer such a simple solution. Therefore rather complicated scenarios for management action or inaction were developed that were sometimes complementary but other times contradictory. For this reason, the discussion below will use the names and quotes of some informants as examples in more than one category.

My analytical purpose was not to categorize key informants, but rather to categorize ideas. For example, a few key informants spent a lot of time summarizing several conflicting ideas. They would develop one approach, and then say, "But

another way of looking at it would be . . .", and then develop another approach. Informants also tended to separate their personal opinion from their obligation as a public servant. For example, an informant might personally support wilderness, but support a public process to reach a decision because they believed that was the appropriate role of a public servant. Due to this maneuvering, it took awhile to develop some of the complexity involved in the ideas. Informants were very willing to talk and write about the issue. I had a 100% response rate from informants and had to glean quotes from seventy-five single-space pages. The issue elicited a lively and excited response. I have used some longer quotes to represent the complexity of the ideas being developed and the liveliness of the exchange.

II. Wilderness and Hands-off Management

The first way of seeing to come out of the surveys and interviews was the most predominate and easily deciphered. The rough outlines of that story involve several things. First, for the most part the informant believed in the idea and existence of wilderness. They may not have thought Isle Royale was wilderness, but they believed it existed and often believed Isle Royale was moving closer to it. Second, they believed that wilderness meant "hands-off" management of wildlife. When answering 'the' question about wolf management, they roughly said that "Isle Royale is wilderness, and wilderness means hands-off". Many of the informants launched into lengthy discussions about how nature will determine its own destiny and will change in unknown ways under its own power, and that this is perfectly

natural and acceptable. As such, humans have no right to experiment with nature.

But, they believed that humans could mess up wilderness, and that the Park Service should fix these "mistakes". Intervening in the wolf decline, manipulating wolf numbers, or reintroducing wolves was all OK *only if* humans were the cause of wolf decline. Of related interest was the complicated scenario posed by the possible "natural" recolonization of wolves from the mainland. Many of the informants in this category painted opposing scenes of the likelihood of natural wolf recolonization. Some said there were many ice bridges to the mainland and many wolves on the mainland near the shore; other said there were few ice bridges and few wolves. If there were many ice bridges and wolves, then natural recolonization could take place and thus humans should not intervene. Conversely, if there were few ice bridges and few wolves, then natural recolonization could not take place and since humans killed the wolves on Isle Royale (CPV) and in Ontario (hunting) and ended the ice bridges (greenhouse effect), then humans should intervene to fix this mistake by introducing wolves.

Three brief quotes below quickly portray this approach to wolf management. World renowned wolf biologist David Mech states, "It is natural and wilderness. [I'm for] complete hands off. [Manipulation or Reintroduction] depends on whether extinction is based on human influences (parvo) or not (inbreeding)" (Mech 1996). In this quote, Mech concisely supports the belief in wilderness, the desire for a hands-off approach, and then qualifies that desire to account for human interference. Former Superintendent Bill Fink also supports the qualification based on human interference:

> It seems fairly obvious that the major die-off was cause by inadvertent human activity by introducing CPV however it got there. So we screwed with it, and that means to me it was proper to start handling the wolves. If the decision would have came while I was there I would have supported it (Fink 1996).

Likewise, current Superintendent Doug Bernard states a belief in wilderness, a belief that humans can "scar" nature, and supports the hands-off approach:

> Wilderness, yes. The island has essentially healed itself from man's scars. There is a real opportunity for solitude -- my definition of wilderness. [We should] continue current policy of essentially keeping "hands off" and allow research and natural processes to continue. It's fits policy and is the moderate approach (Bernard 1996a).

In the longer quote below, former Superintendent Jack Morehead provides more context and argues the same point. Morehead brings out some of the emotional intensity and hand-wringing associated with this issue. Even though Morehead was the only dissenting voice in 1988 trapping and collaring decision, he still supports the same management approach as many other key informants.

> [Isle Royale is] an excellent example of a park wilderness in the lower 48 states. Yes, I think the park is in a fairly natural state. I felt that Isle Royale was something special. It would be wonderful if there were only someplace in the world where wolves were not collared and physically manipulated so intensely.
>
> So if the die-off was natural (for example, caused by a diminished gene pool caused by inbreeding), the very premise of managing a natural, wilderness park demands that the natural process be allowed to continue. After working 41 years in the National Park Service, I am totally convinced that we should be managing wilderness to preserve ecosystems and habitats rather than species. We should maintain Isle Royale in the best wilderness condition that we can, and allow natural processes to continue to fluctuate and change. If done well, wolves may, or may not, maintain their presence on the island but, if they don't we should accept this as a natural process. How can we ignore that even in our brief history wolves were not "natural" on Isle Royale? How can we make the decision to try to freeze a particular date in time? Let's try to allow the natural process to continue.
>
> As Superintendent of Yosemite N.P. in 1986, I strongly supported and

> helped fund the effort to re-introduce mountain sheep to the park. They had clearly been eliminated from the area by man, and this was well documented. I also strongly support the more recent program to re-introduce wolves into Yellowstone, again an area where the species had clearly been eliminated by man's work.
>
> I'm for as complete hands-off as possible. The only manipulation of the wolf population should be that which would insure that human factors do not adversely affect survival of the wolf population. If they all die out due to natural causes, I favor letting it happen. If they are all killed off by a human-introduced cause, re-introduction should be considered. If, however, ISRO wolves were introduced, or a man-maintained population, I would consider ISRO to be closer to a zoo, not a park (Morehead 1996).

Two additional longer quotes will fill-out this approach to wolf management and provide more of the "story" unavailable in short quips and quotes. Bob Krumenaker was the Director of Natural Resources at the time of the trapping and collaring decision. Of all the informants, he had spent the most time with the issue, and potentially had the most to lose should an ugly political situation emerge. Below, he states his belief in wilderness, his desire for "hands-off" management, and his qualification on human interference. In addition, the discussion with Krumenaker also brought out the hand-wringing emotions, ethical dilemmas, and political consequences that truly accompany this issue.

> Isle Royale is a combination of a park and a wilderness. I am very much an advocate of wilderness preservation and I love places that embody that. Law has told us that the preservation of the resource has to take priority over recreation for the public.
>
> As an island ecosystem it is very vulnerable to change, both artificial and natural. And so today it's wolves and moose; 100 years ago it was those other animals. What's it going to be 100 years from now? Wolves are not in the enabling legislation; it's not the purpose of the park. It's a dynamic system that's sometimes in temporary balance. And yet that balance gets thrown out of wack periodically. And if we really want the value this place for what it is, we have to be willing to accept some of that change even though we don't always like it. And maybe there's going to be a completely different biota on

this Park 100 years from now. We shouldn't be trying to create that. If we're screwing it up, we should stop -- that is my view. But if these are changes are happening because of climate and other things, we gotta let that happen, because we can't control it. And if we want a wilderness environment, and I believe we do up here, then we have to take a little bit of the attitude that we can't control it.

I think we have to be very careful about where we choose to manipulate. I'm not saying we shouldn't manipulate. But I think one of the greatest values until 1988 is that we had never handled them. It was sort of an internal folklore and thought that that was Park Service policy by people in this Park including me when I got here. I believe we have to manipulate very conservatively here, and only to restore things that have been extirpated and could be restored without adverse impact on existing systems, or to prevent damage caused by humans. So the whole debate leading up to '88 and our decision to trap wolves was framed in my mind at least in terms of what was the cause of the decline and depending on what the causes are should tell us what the responses are. And if it's a natural cause -- and of course we have trouble defining that -- but in my view genetic isolation is a natural thing that comes from the geography of this place. I was not willing to go that far with wilderness values to let 'em die and never know why. Because it was a legitimate possibility that we had caused it. I hated to do it.

Many of us felt that Isle Royale would lose something "wild" if we manipulated the wildlife beyond an unspecified threshold, that we might be a little more than a big zoo if we introduced wolves. It was just about the only place on earth that we could get away with the strategy [hands off] and let nature "takes its course". That has an aesthetic soul-stirring value in itself. Wolves are not in the enabling legislation; it's not the purpose of the park. And one of the problems we faced is that we have emphasized wolves and moose so much is that people come for that sole reason and that makes the decision harder to allow them to die (Krumenaker 1995, 1996).

The final longer quote supporting this management approach comes from the current Director of Natural Resources, Jack Oelfke. Like Krumenaker, should any decision emerge in the near future, Oelfke will be the person at the center of attention and controversy. Again, like Krumenaker, Oelfke's words have a hand-wringing political weight to them representing the weight on his shoulders. His words are measured and careful, yet in this quote he generally accepts wilderness, the "hands-

off" approach, and the qualification on human interference. He also discusses additional complications raised by the native/exotic controversy.

> It's a natural-appearing landscape, a relatively limited and managed landscape. And I think of it as wilderness, but I think that the external things are having serious impacts and diminish naturalness on the island. Aircraft noise, propeller-boat noise diminish the feelings the wilderness out there. And certainly the Park Service contributes to that. It's not just sport-fisherman and power-boaters, it's Park Service noise as well. To me the landscape itself is a landscape of naturalness. There's limited development, there's minor pockets of it.
>
> I buy off on the policy definitions of what native species are. I know there's a big movement now to say that humans are integral to the ecosystem and we've been wrong in separating humans out of the ecosystem. But nonetheless, to me there's been a definite philosophy that when Europeans arrived on the scene, that seems to be the point where the Park Service has said that those influences we are trying to reverse or limit or whatever, and that all applies to exotic species. There's a strong case to be made that the wolves are an exotic species at Isle Royale. I don't think it's worth basing a decision on ultimately, if we had to reintroduce. It's not worth basing it on that, because we would just get crucified in the press, perhaps justifiably so, but it certainly is justified with other species. I'm not real comfortable with it, but I believe it's a valid argument.
>
> I agree with the decisions that have been made which says we will watch what this population does and we won't mess with it -- until we know it's on its way out and it's not going to survive. If it gets down to the same sex, or if there's one individual left -- we will not do anything until there is absolutely no doubt the population is going extinct. If we get down to the point where there's still a male and a female together, I think it's worth still staying back and not intervening. The only if or but I would put in there is if we clearly know it's an outbreak of parvo that we know we brought over. Then I could see it and I'd say , yeah, we caused this, and we should intervene. If we don't know that or we suspect it's just inbreeding or something, then I say we just stay back. If they all die out, then I'm not ready to say what we should do. I say that because of the implications of what it means to go back in and throw wolves back in there. That means we are clearly deciding what species are going to be out there, what is going to be the major predator out there. That is a major decision of long-lasting effects, for another fifty years or more.
>
> I wish, and maybe this is just pure personal desires, I wish there could be a place where could just allow things to come and go. Isle Royale certainly could be a place like that potentially. The opportunity potentially still is there.

> Two of the three last winters there still has been briefly an ice bridge to Canada.
>
> I'm very protection oriented, protection oriented in terms of limiting human access. I favor standing back until all the ways are gone, unless we clearly know there was a disease or something that was the cause. The more we interfere, the less clear the conclusions will be. It just becomes more artificial if we start putting wolves back in or have to keep doing that every x-number of years. Once we do that we are setting the future of that island. Wolves have a big influence on vegetation, so its not just wolves, its wolves and moose and vegetation. There's a profound influence by those species on the island ecosystem. It's a pretty profound decision. But we haven't come to that decision yet.
>
> I still think there's a legitimate place in today's world for non-manipulation and non-intervention of the landscape, and Isle Royale makes a good place for that to happen. It gives people a place where generally they know the population isn't harassed by humans. One of the neat things about the wolf population is that it's never been harassed by humans (Oelfke 1996).

All of the additional quotes which support this approach to wolf management are in the first section of Appendix D. More people supported this approach than any other. Of the informants who had ideas ranging over two or more approaches, this approach garnered the most words and support. The quotes in Appendix D will fill out the context of this approach, assign ideas to informants, and bring out some of the complications and ambiguity inherent in this category.

III. Keeping the Balance and Keeping Biodiversity -- Hands-on Management

The second way of seeing that came out of the interviews and surveys corresponds to version "d" above and as developed in Chapter 2. This category valorizes two separate but intertwined issues. First and foremost, many of the key informants were concerned about the effect of moose on the vegetation of the island if wolves were extirpated. This concern is one posed by Peterson to argue for a

continued wolf population. Pointing to his knowledge of the people involved in the pre-wolf days, Peterson (1996b) claims that moose overabundance on Isle Royale was one of the pre-eminent Park Service concerns in the 1930s and 1940s. The literature I reviewed in Chapter 5 supports this argument. Back in the early 1950s, the wolf-introduction movement was fueled by concern over the overabundance of moose and their effect on the vegetation. The general argument is that prey need predators to keep prey healthy and to keep vegetation healthy. Thus if Isle Royale contains moose, it needs wolves to maintain the dynamic equilibrium between wolves, moose, and vegetation.

The second piece of this argument concerns biodiversity. It was only minimally an issue for the key-informants, but did arise occasionally. Although Alston Chase was not a key-informant for this study, he wrote an article about the wolf dilemma at Isle Royale in which he pursued the biodiversity argument. He summarized this viewpoint:

> Such craziness has nothing to do with preservation. The government should abandon the arbitrary distinction between exotic and natives. Rather, it should work to control any invasive species (those threatening to diminish biodiversity), whether they are "native" or "exotic", while allowing resource managers to decide for themselves how to preserve benign flora and fauna (Chase 1990).

Although most of the informants did not use the word 'biodiversity', there was some mention of the idea of maintaining a "complete" wildlife package, and keeping the "whole system" intact. As developed in Chapter 2, this biodiversity argument comes mainly from conservation biologists and restoration ecologists. Some of the

backgrounds of the informants were in these fields and their views corresponded.

Although in the quotes below the informants do not develop this way of seeing very deeply, as I discussed in Chapter 2 it does have fairly firm backing. There is an implication of 'balance' and 'health' in this category. Both of these terms are objectively defined by humans -- it is possible to look at a landscape and measure whether it is healthy or not. A healthy system is one in which one species is not changing the system so dramatically as to overwhelm and extirpate other species or itself. A system in a dynamic equilibrium will contain all the parts to keep the equilibrium intact. Humans are capable of measuring health and are responsible for maintaining health. While the statements below do not overtly make these assertions, the implication is always present. In terms of perception of or belief in wilderness, the informants who made the statements in the category below tend to sway dramatically. For instance, while one informant may have claimed an adherence to wilderness and hands-off, that person may have stated a desire to directly control moose with wolves. Although there may be emotional cohesion in these two beliefs, there is little logical cohesion.

In the two quotes below, current Superintendent Bernard and former Park biologist Bob Linn briefly support the human-induced balance approach:

> [If wolves go extinct, would you favor reintroduction?] Probably! They are a mechanism to control moose. Wolves represent a sense of a complete animal community (Bernard 1996a).

> [reintroduction?] Yes, however, it could depend upon the circumstances. A prey species without a predator is not a pretty sight, and in the cases of the moose the forests would have a very difficult time. Perhaps this is more of an

aesthetic notion, but it seems legitimate to me (Linn 1996).

Former Director of Natural Resources, Craig Axtell, provides a little more context while still supporting the same fundamental approach:

> My gut feeling is that they are NATIVE. I just have to believe that they were there historically and frequented the Island. They should be managed to the degree necessary for their continued existence on the Island. I take this position because as alluded to above, I don't believe that the wolves would now naturally move off the North Shore to the Island.
>
> I suppose if I had to vote now, it would be to do the manipulation, regardless of whether or not they are listed under the ESA. I take this position once again because I believe that the probability of moving between the north shore and the island, if it was historically low, is now almost non-existent. Since I believe the wolf on the island is a fundamental part of its ecosystem, we must take those actions necessary to keep the ecosystem as intact as possible (Axtell 1996).

No one would argue with the fact that wolf biologist Rolf Peterson is closer to this issue and has been with this issue the longer than anyone. Through several discussions and through reading all of Peterson's written material on the subject, I found his position to be no more or no less easy to pin down than anyone else's. As I mentioned before, only the purist 'wilderness hands-off' stance is easy and complete. Also as I discussed before Peterson developed two general arguments in his 1995 book. In the quotes below, Peterson develops the position that a wolf/moose/vegetation interaction is the healthiest and most aesthetically appealing for Isle Royale. Although all of his statements do not concur, Peterson supports allowing humans to intervene and keep wolves on the island even if extinction is "natural".

> In terms of wilderness, it's always struck me as a bit too busy. Isle Royale has always had a lot of boats run around making noise. I guess it's the

noise more than anything else.

In terms of management priorities you have to always start with what you've got, not be looking back to some earlier period and thinking that we should start with that because that is a different period. Ecological reality is that this is the system we have right now, and it's probably going to change, and we don't know the time-scale or the extent of the change in the future. That has to be part of the plan. I wouldn't say that forever and forever that Isle Royale should have wolves. But I think for the immediate future when wolves are a part of the system we get the greatest gain in many spheres of concern that wolves are there. Given moose, then wolves.

We still need a question to the answer of genetic integrity. If they're endangered by genetic decay and genetic decay is a problem then yes I would favor intervening to reverse that in a creative way. But, it's never been black and white and probably never will be.

The answer to that question [letting the wolves go extinct and see what happens] is important and we already know it. We have Isle Royale before wolves, and then there's several other systems of ungulates that don't have carnivores. We have seen this typical overshoot. What we've just seen in the last fifteen years is a hint of exactly what to expect in the total absence of wolves. In the last fifteen years wolves have been inexplicably low and moose have been creeping up and up and up and up and up to the point where they have largely exhausted their winter forage supply and they did. So that without wolves completely, moose would just increase faster. The outcome looks like catastrophic mortality (Peterson 1996b).

Someday, when I am long gone, animal and plant life on Isle Royale may be so changed that wisdom will call for a different approach. But this time around, at the dawn of a new millennium, I must vote for the wolves (Peterson 1995).

In Chapter 2, I summarized how both Alston Chase and Karl Hess argued for the maintenance of biodiversity and ecosystem balance through human-induced change in Yellowstone National Park and Rocky Mountain National Park respectively. No one has taken such a hard-line stance in the Isle Royale debate. This is probably true for two reasons: first, the Isle Royale issue is much cloudier in terms of what would constitute "native biodiversity, and second, none of the key-informants at Isle Royale have either Chase's or Hess' 'maverick' personality. However, several

of the informants, most importantly Peterson and Superintendent Bernard, have taken softer versions of this stance, and thus this wolf management approach remains a viable option which is political feasible. Additional quotes from additional informants which support this approach are in the second section of Appendix D.

IV. A Socially Constructed Landscape

Two critical points required that informants' ideas be placed into the category of social constructionism. First, the word "natural" becomes quite problematized. Some have stated that it is meaningless; others see it ambiguous. In addition, the word "wilderness" may also be problematized. Paradoxically, some informants accepted "natural" but not "wilderness" or visa versa; and some did not accept either. In all cases, the informant displayed a more problematized understanding of the way that humans develop and use knowledge about the world around them. Some discussed, and others hinted at, how their years as a manager with the Park Service taught them to think of the national parks -- even the "wilderness" parks -- as principally cultural constructions that were developed and operated to provide the American public with a certain type of experience. That that experience was "nature" or "wilderness" rather than a Disney-type park meant no less that it was not a socially produced experience.

The second key point was that once "natural" became a problem, then the informant had to find answers outside of formal policy to the wolf conundrum at Isle Royale. Since the policy documents rely so heavily on these unstable ideas --

"natural", "ecosystem integrity", "natural processes" -- they could no longer be relied on to offer a solution to the problem. Chapter 6 proved this, and more briefly, Peterson and Krumenaker (1995) and Peterson (1995) discussed the same thing in papers and books. Informants provided two distinct but overlapping resolutions. First, the informant asked the public or some larger and more enlightened body of people to make the decision. The implication here is that there is no right or wrong solution; rather that truth is a social construct and in this matter we must defer to the social body -- the people of America -- to find the solution. Some informants were less inclusive in the quantity or type of decision-makers. Rather than the whole American populace, they sought an enlightened body of scientists, committee-members, Park Service policy-makers, or some other educated group. Other informants were considerably less serious about the decision. They simply said that the answer to whether Isle Royale should have wolves is simply whether "we" want wolves -- any answer was considered fine.

The second resolution is somewhat more complicated, but I firmly believe it fits in this category. Rather than defer to a social body, some informants deferred to the tool of science. That is, they believed that there was no intrinsic right or wrong to the question, and thus Isle Royale should be turned over to scientists as a "natural laboratory". The scientists would determine which solution -- whether to have wolves or not -- would yield the best science. Furthermore, not exactly stated but definitely implied, is that this science will not determine the truth about whether Isle Royale is better with or without wolves, it will merely study Isle Royale and its animal life. If

the best science involves wolves, then wolves it is; if the best science involves wolf extirpation, then let them die. Science will not be used to arrive at the truth, it will merely be the method of inquiry which will drive Park management. Additionally, some informants looked to multiple groups to provide a solution -- stating that the answer may be found by entertaining both science and philosophy.

This way of seeing is a combination of some of the previous ideas developed in this dissertation. In the last section of Chapter 2, I discussed the "new ecology" approach which emphasized a constant changing nature and the role of science in studying that nature. Highly respected scientists like Daniel Botkin (1991) claimed that 'studying nature' is the only recommendation our society can make, rather than any definitive direction our actions should take in managing nature. Furthermore, Peterson (1995), in his book on Isle Royale wolves, quotes Botkin and vehemently argues this same point. Additional background is developed in Chapter 3 which discussed postmodernism and its resultant 'social constructionist' perspective. This perspective leans heavily on relativism rather than truth; it defers to social knowledge rather than epistemological foundations; and it makes few, if any, mandates about how nature should be managed beyond the social mandates derived from social interaction.

These two key points are developed either minimally or substantially by the key informants in the quotes below. They make general statements about the problem of "nature", "natural", or "wilderness" and then defer to either science or the public (or both) to provide a resolution to the problem. Not all informants fully develop this

way of seeing; some hint at it, some seemed to accept parts of it but not all of it, and some meandered through and around it. Furthermore, some individual informants held highly conflicting viewpoints. For example, some names in this section also appeared in the previous two sections. This supports the need of this analysis not to categorize each informant, but to categorize the full range of ideas.

Like the decisions that have been made about the wolves of Isle Royale, many decisions of political importance are made at the Regional level within the Park Service. Currently, at regional headquarters in Omaha, NE, those responsibilities fall on Ron Hiebert. In the quote below, Hiebert first problematizes "natural" and then defers to a decision-making advisory-board process which takes into account an array of values.

> Natural is a hard term to define. No place on the globe has escaped the influence of man. NPS policy will not give us an easy fix on this issue. What I suggest is that we develop as objective as process as possible to make the decision. NPS policy, scientific, spiritual, etc. issues should all be part of the decision (Hiebert 1996).

Biologist Bob Linn hits on two of the main points of this approach in the quote below. He first problematizes "natural" and then supports the research from a "contributions to science" standpoint:

> Natural has become a meaningless word -- it has assumed that anything modified by humans is unnatural, when in fact humans are a "natural" product of evolution, and, for better-or-worse, anything humans do is "natural.
>
> I supported the decision to radio collar wolves so we could learn as much as possible about the cause of decline and to test theory concerning what happens to small populations. I supported the "hands off" approach based upon the possible contributions to science studies could make (Linn 1996).

Peterson develops the same position in his book. In the two quotes below, he takes Linn's position a step further by advocating wolf introductions for the 'gain of science':

> However, leaving humanity out of nature is simply naive. Absolute wilderness (where the effects of humans ((absent) is a myth; human influence pervades every corner of the earth. . . . But in fact, we are natural creatures rooted in the earth, and it is by our unique mental capacities that "nature" and "natural" are defined. . . . The more one is drawn into this question, the more convoluted the answers become. . . . I believe we stand to gain more, scientifically, by furthering the existence of wolves on Isle Royale, and by propping them up when necessary (Peterson 1995:171-186).

> About "natural" -- there's no solution to that. My recommendations now are that in the time scale of a few decades at most even then the crystal ball gets pretty cloudy. Part of the scientific interest in maintaining wolves there is that the fluctuation and dynamics we've seen in the last 38 years -- we've only seen one and half major fluctuation s and a few more decades would help illustrate the kinds of long term pattern that we can really say is there. Things are happening so slowly that decades are required to figure it out. So just a few more decades is all the farther I'd care to project any kind of management recommendation. Reality in nature tends to be more complex that we first anticipated, and that may be where we are headed (Peterson 1996).

Biologist and former Isle Royale wolf scientist Peter Jordan concisely supports the same approach:

> Natural" is a vague term. Isle Royale is as "natural" a setting in the mid-lower 48 [states] as one can find. The term "natural" leads mainly to semantic and even philosophical confusion. All aspects must be reviewed carefully, according to a number of criteria, and the actual decision should reflect expert and public inputs from many levels (Jordan 1996).

The story and the context develops with the length of the quote -- this is not a sound bite issue and cannot be made into one. For example, in the quote below, Oelfke develops some of the issues that go along with problematizing "nature" and with seeking outside assistance in decision-making. He also touches on the idea of

the cultural basis underlying some of the metaphors which have been used to describe the island's ecology:

> There's nothing black and white with this wolf issue, it's all just shades of grey. Our use of "naturalness" and "natural processes" is becoming greyer and greyer all the time. It's probably relevant across the board on wildlife issues as well. It's just getting harder and harder to think that you can separate human influence with these things. The native species thing I think is real interesting about the wolves.
>
> I had pushed with the Superintendent to get a national panel to look into this situation and offer a recommendation. So I would raise that again and say that we need to go to the experts, and get the decision away from the park level. It would be precedent setting. I think it should be standard policy for anything of importance to defer to the regional level or to a panel of experts. It's not necessarily covering your butt, it's just seeking the best knowledge.
>
> I don't buy into the argument that people say that if the wolves are gone, the moose are going to reek havoc on the landscape. Because that's human value we putting on the landscape. So saying good or bad or saying one landscape is right or wrong doesn't sit will with me (Oelfke 1996).

Supporting the same line of reasoning and wolf management approach, Krumenaker also touches on how his role as a public resource manager requires a separation from his personal opinion. In the first approach described above, Krumenaker told how he personally felt about wolf management. Below, he suggests why, in his job, he accepts more of a public-oriented decision-making process:

> Isle Royale is not a pristine wilderness. There's certainly been a lot of human activity here. I have a little bit of reservation about the word pristine. Wilderness is a cultural construct. One of the things that I realize with wildlife stuff is that wolves and moose both came from Canada. And they both came because of human influences. So you can't ignore the human influences on the Park.
>
> I think we have a tremendous opportunity to science and to the public to educate them, because there's so much about wolf biology that has been learned in this park that has been used worldwide. I think this park should have a research mandate to do intensive science because you can do it here better than anywhere else. My feeling at that point and to a large extent still is

that we should study the hell out of it learn as much as we can, apply that knowledge to populations of predators or other animals that are truly critically endangered like the Florida panther, and let these die.

Trapping and collaring was justified because all the scientific minds said it was justified. I think it's for the sake of one part of science. If you want to study predator/prey relationships, yeah, you gotta restore wolves here. But my argument all along has been that the scientific value of no wolves in this park may not be as attractive but it's every bit as interesting. I mean have we ever really studied a population that has predators and lost them and see how it reacts? I don't think so.

I think it would be very appropriate to have a stuffed wolf there [in the visitor's center] to talk about biodiversity, to talk about the symbol of wilderness, and then you have a display about the dilemma of wolf decline and have people recognize that the population is on the edge and while they're coming back right now, we don't know their future and you leave them with the question 'what would you do, what do you think?' I don't think there's a single answer and I don't think there's a right answer. But there are legitimate logical arguments to cover a variety of versions. I happen to believe that some are better than others, but I see the legitimacy of the others and provided that you have logical consistency there, this is the public's park and they have a right to know. There's are fascinating issues that don't have answers and scientific thinking changes over time and is still changing. Here's what we should be interpreting [to the public] (Krumenaker 1996).

The final piece of evidence for this "way of seeing" comes from former Superintendent Bill Fink. Fink fully develops a social constructionist perspective for the national parks, for wilderness, and for Isle Royale. Then he candidly tells why he supports the role of the Park as a scientific laboratory, supports the role of wolf/moose research, and supports the continuation of wolves on the island:

To me, Isle Royale was a complex landscape, complex collection of lake and land that has been heavily influenced by humans essentially since the ice melted. There's a wilderness myth about Isle Royale. I like to tell people Isle Royale's been wilderness only since '74 when they passed the law and said it was wilderness. What we see on the island is irretrievably shaped, dictated, directed by humans and human activity, and it has been in the last 7000 years. Wolves came to the island after the Park was established. Wolves use our paths and bridges as a main form of mass transit. Moose came to the island presumable somewhat in response to European settlement pressures allowing

white-tail deer to come farther north and drove moose farther north, and whole bunch of complex stuff. So I don't really buy Isle Royale as this tremendous untouched wilderness.

The national parks are very special expressions of American culture, very highly valued, and its ironic with Isle Royale for people to say its this tremendous untouched wilderness when national parks or wilderness designation themselves are a statement of cultural value, so they really get mixed up. But what I came to realize as the manager, was that the role of the wolf/moose study, the role of the island as one of the greatest outdoor laboratories in the world is a critical role that the Park has to embrace and promote in order to insure the survival of the Park. It becomes from a business sense as a loss leader that we have to put time and resources into making sure that the study goes on. Because it's the very fact of being able to tell people here's the home of the longest running predator/prey study of any place in the world. Here's a place where we can dabble scientifically, we can play as if these are the last wolves in the world and wonder what's going to happen. If these wolves die off it's of no consequence to canus lupus. Yet we have the luxury with the relatively closed system of trying play like it would to ask those questions. That becomes to me a key thing to insuring the continuation of the park. Because people in New York City, people sitting in the halls of Congress, people who write to people who sit in the halls of congress, they can say you know it's important to me that wolves and moose and their study on Isle Royale goes ahead even if I never, never make it to Isle Royale.

Here's where we start getting into the really mixed up ideas on how pure a wilderness Isle Royale is. There are a number of Park Service people who have this wilderness mythology of Isle Royale who then say OK because its the pure untrammeled wilderness, first was the big decision on whether we should handle wolves and trap them, then would come the question Ok if they die off should we put them back if it gets to where we're in an extinction vortex, should we bring new animals in. I think what I have resolved in my own mind was to say with the role of Isle Royale being so critical as the natural laboratory what is the best scientific use of the laboratory. To allow the wolves die off, if there are lessons we could learn on extinction by watching the die-off go to completion, that's fine. If there are other lessons we could learn on conservation biology to say, OK we think we're to the point of no return, now let's investigate what happens if we introduce new animals into the fold. Are the old ones going to kill the new ones or vice versa? Again if that benefits science most then I'd be comfortable with that. If I'm going to advocate this as the best outdoor laboratory in the world, it doesn't make much sense to let the laboratory sit empty hoping that nature is going to start some other phase (Fink 1996).

Additional quotes which support this wolf management approach appear in the third section of Appendix D. The additional quotes reveal both the number of informants and the weight of social constructionist understanding. These quotes also fully support the contention that the key informants at Isle Royale have opened the "Pandora's box of naturalness (Chase 1986)". I do not think that box can now be shut.

V. Conclusions

While all the key informants do not agree on what action should take place, they all do agree on the value of Isle Royale and its animal and plant populations as a scientific laboratory. As I discussed in Chapter 5, this scientific interest was postulated as long ago as the 1930s and 1940s -- the ensuing sixty years have only enhanced this role. There is disagreement about the type of science and the degree to which it should manipulate animals, but a base-level of science is considered important and necessary by all informants. There is disagreement about whether wolf extirpation will increase or decrease the value of the island to science. Many informants argued that a wolf die-off would be all-the-more scientifically interesting, while Peterson specifically argues that a wolf die-off would yield less valuable scientific information.

Several informants, including previous Superintendent Fink and previous Natural Resource Specialist Krumenaker, thought Isle Royale should have a specific scientific mandate. This would be a 'first' in Park Service history and it reflects the knowledge gained from the wolf/moose study as well as the greater role that science

could and has played there. Because it is an isolated island with a simplified ecosystem that is minimally disturbed by humans, things can be learned there about island biogeography and minimum viable populations of species which could not be learned elsewhere in the lower 48 states. Every key informant recognized this to one degree or another. So, while the possibility of wolf extirpation poses a threat to the wolf/moose scientific study, it is no threat to the role that scientists will play in the future of the Park. While policy decisions may end up dictating a different mix of plants and animals, they will not change the need and desire to study the plants and animals that come and go.

Second, I did not aim to determine a winner among the categories, however it is useful to know that a clear majority of informants accept a "wilderness hands-off" position on wolf matters at Isle Royale. Further, while some of the informants deferred to a public decision-making role as necessary, at the personal level they championed the "wilderness hands-off" position. During the interviews I often had a difficult time pushing the informant to offer a personal opinion. I believe this was because, as public servants, Park Service managers are keenly aware that their personal opinion must be secondary to public goals. So when I prepared the broader mail survey, I specifically wrote a question that probed personal rather than generic opinion. It yielded the same dualistic results. Even the informants who offered a social constructionist agenda felt the need for some place in the U.S. (or the world) where the animals could do as they please and not be harassed by humans.

Third, informants had a tendency to let the greater ideological weight of their

argument overwhelm various facts. The greatest example involved the issue of whether wolves could naturally recolonize Isle Royale. All of the informants had worked at Isle Royale sometime in the last twenty-five years and thus all were apparently working with the same sets of facts. However, opinions differed drastically on how many wolves were on the north shore in Canada, how close to the shore they were, or what the likelihood of an ice bridge was. The informants seemed to have made up their mind about what wolf policy they wanted, and then developed a recolonization scenario to fit their mindset. A few of the informants suggested that a serious study needed to be done which ascertained these facts. Furthermore I ran across no definitive facts on any of these questions. Nevertheless, informants had starkly differing opinions that mirrored the ideological argument they had developed.

Similar opinions arose pertaining to the role that genetics and CPV played or will play in wolf decline. I have thoroughly read the studies performed and written by Peterson and the other scientists who analyzed the blood samples and performed the autopsies. In terms of why the wolves declined throughout the 1980s, Peterson told me point-blank that "The Park Service has spent a quarter of a million dollars, and we still don't know (Peterson 1996b)." Correlational data are all that exist. Furthermore, no study exists to estimate future wolf numbers due to the likelihood of genetic decay. Nevertheless, many of the informants had strong opinions about why wolves had declined and what their future held. These opinions were strongly linked to the desired policy outcome of the informant.

Isle Royale wolves are a difficult problem for the Park Service. As I discussed

in the policy analysis in Chapter 6, there is little, if any, clear footing to stand upon in this debate. The precarious way in which wolves arrived, the lack of resolution as to their downturn, and the specific role of the policy documents is quite unclear. Former Director of Resources Croll (1996) summed this up the best:

> I felt comfortable putting my foot down some places like that, but every time I put my foot down, I would disturb something else that would make me start thinking a little bit. It's not a black and white thing; and you gotta go through all those various scenes to make a determination.

The interviews were marked by a hand-wringing, gut-wrenching response to the questions. Although less obvious, answers to the mail survey displayed the same angst. People talked and wrote around and around the issue knowing full well that any place they landed offered little security. They seemed to be aware that as soon as this 'Pandora's box of naturalness' was opened at Isle Royale, the Park Service could easily be consumed by the repercussions at many other Parks.

The differing perceptions of nature are starkly contrasted in the quotes. This speaks to the elasticity of nature and offers yet another layer which supports the general thesis of this dissertation. Each informant had a somewhat different way of seeing Isle Royale and a different way of seeing the wolves. Balance to one person was imbalance to another, yet to another, both balance and imbalance were cultural metaphors. Is wilderness a material reality or a cultural construct? What is natural? What role should humans have in managing nature and the wolves at Isle Royale? The informants offered different answers to these questions -- different ways of seeing -- based on different nature/culture paradigms. All were ideas. Yet, to answer the

material/social constructionist debate of Chapter 3, all were grounded in a material reality. The informants did not come up with infinite ideas; rather there were three relatively closely bound ideas all based in the same material world. The wolves, moose, and the island ecosystem are material, but they are also part cultural.

Chapter 8

Wolves versus Wilderness?

> "There is no land management agency in the United States that more earnestly seeks to preserve nature than the National Park Service" (Peterson 1995:167).

I. Introduction

Chapter 7 provided critical insight into the management conundrum facing Isle Royale National Park. As several of the informants told me, most management decisions are made at the park level by either the staff or the Superintendent. Unfortunately, managers at Isle Royale have considerably different opinions based on different understandings of nature and culture. This places the wolves in a precarious position: should they be managed to indicate wilderness, balance, or cultural constructions? In the first section of this chapter, I offer solidifying evidence for the primary conclusion of the case study. To the question, "What do the wolves mean to you?" the informants gave deeply felt answers. Although opinions differed about the future of the wolves, nearly all of the informants endowed the wolves with heavy personal and cultural symbolism. I conclude this section with the argument that wolves are part natural, part cultural; they are "hybrids" that lie on, around, and in between the nature/culture schism.

This chapter also reviews the argument from start to finish. I will summarize the conclusions of each chapter and review how the evidence supports the argument and the conclusion. The argument is that policy is in a state of disarray due to

changing cultural values about nature. The wolf management conundrum at Isle Royale exists because the policies rely on older, modernistic dualisms of nature and culture, and newer ways of thinking are encroaching into that territory. Are humans a part of the ecosystem or not? Moreover, at the heart of this debate is 'wilderness' because wilderness is considered to be the purest, most natural form of nature. The threat of having to choose between wolves and wilderness at Isle Royale is a choice between two highly symbolic things constructed as totally non-human. After reviewing how each chapter builds this argument, I will then offer my perspective on what should be done at Isle Royale.

II. Wolves: Hybrids of Nature and Culture

In several places in the preceding chapters I suggested that one of the primary problems with wolf management is that the National Park Service wildlife policies just do not fit the wolf situation. Further, these policies reify a dualism of natural and cultural resources. Wolves exist in the nebulous middle ground that is part nature and part culture, or more theoretically, wolves are part material object and part socially constructed idea. Back in Chapter 3, Demeritt (1994b) opted for the new metaphors of "cyborg" or "quasi-objects" as useful descriptors. Deloria (1997) has suggested the metaphor, "hybrid", as best describing this part nature, part culture placement. Using any of these new metaphors, the point is that wolves are material objects, but they also carry intense socially constructed symbolism in American culture.

The last question of the key informant survey brought out this social

constructionism quite clearly. Many of the informants had strong emotions for wolves, for being around wolves, and for working in an environment where wolves lived. More importantly, many of the informants who chose wilderness over wolves -- who voted to let the wolves die out -- still had paradoxically strong emotions for wolves or more simply expressed happiness to see them persisting on the island. Responding to the question "What does it mean to you to have wolves on the island?", only a few of the informants restrained their emotions. The four quotes below depict this restrained support:

> We are extremely encouraged by this news [increase in wolf numbers]. Nature has a way of surprising us, and this is certainly a welcome surprise (Bernard 1996c).

> To me they represent an indicator of wilderness and natural process. Having them in the park at ISRO illustrates to me that these parks are at least close to being wilderness areas (Morehead 1996).

> Wolves, along with loons, dress-up my notion of "wilderness". It is hard me to think of Isle Royale without thinking about wolves and moose. For me, they are a very important part of the story (Linn 1996).

> Wolves present in any area represent to me a willingness by humans to give up some of their complete control of a natural system, to share it with an often competing predator. They represent to me an area that is still wild (Wright 1996).

While some of the informants expressed restrained support, most did not. With this question I hoped to probe some of the deeper feelings elicited for wolves. Many respondents offered these stronger feelings:

> At Isle Royale, there can be no denying that we love wolves. We can't imagine Isle Royale without them, physically or spiritually. This is completely understandable, but it clouds our otherwise good judgement. I would love to believe that these wolves will continue to defy our best logic

and science, that they will continue to teach us and inspire us as they have for decades. I hope that we will have the wisdom and humility to act with restraint, if we act at all (Armington 1996).

They seemed to belong, to fit in, to fill the woods with life and drama, to make humans seem clumsy and intrusive--a healthy, humbling experience. So their value to me was strongly aesthetic and emotional (Jean Cochrane 1996).

From my personal selfish standpoint, I'm grateful that this wolf on Isle Royale saga occurred during my lifetime and that I had the unique opportunity to be part of the story from the very beginning (Hakala 1996).

Wolves are a spiritual force; a presence in the forest, but rarely seen. Wolves are part of the diversity of nature, that reminds us man is not always 'king of the mountain". Wolves are a symbol of wildness, or our prehistoric heritage, a force to be felt and dealt with. To have them at Isle Royale is almost a religious experience for me and visitors (Weber 1996).

I love having wolves on the island, even though I rarely see them. It is an indictor of the systemic health of not only the island but us. The wolves represent to me a test by nature. Here is a natural being in at least a relatively natural area. Can we resist the onus to arrogantly change or manipulate it? To have them in the park is a chance to experience part of the full cycle of nature (Whaley 1996).

The wolf characterizes wilderness. Their presence here adds mystery and wildness (Lindsay 1996).

Personally the wolves have been very important to me (Jordan 1996).

I wondered when I came, "is my legacy that I would be the superintendent when the wolves died?" fortunately that hasn't happened. Why are they coming back? Just their way of getting back at us -- reinforcing the need that the more we know the more we know we don't. We should be humble. And who knows if it will last, but it's a neat ride. Wolves represent to me a marker of places I want to live (Fink 1996).

Wolves are incredibly important to me (Krumenaker 1996).

The Isle Royale wolf story is well known. I don't care where I go -- if I go back to Maryland, back to Florida, back to California -- as soon as people find out I'm from Isle Royale they want to know "how many wolves do you have, how are the wolves doing?" I'm an animal lover; they're a wonderful creature.

> I was skiing one day at Windigo, came around a corner and there was a wolf and there I was, and it looked at me. My heart went bump, bump, bump and finally it got a whiff of me and it barrelled off. All animals just fascinate me (Croll 1996).
>
> I think it's very real that the wolf is a symbol of wilderness to the public. Whether we agree with that or not doesn't matter. The fact is that wolves are a symbol of wilderness. I was at the wilderness conference in Santa Fe a year and a half ago and the single most prominent graphic there of wilderness had a wolf in it. Nearly every picture had a wolf in it. And the same is with Isle Royale. That could be part of the decision about whether we keep wolves there, because that's how the public sees it.
>
> I get as excited as anybody at the thought of seeing one. When I finally saw them on the ground last summer it was pretty exciting. Those were special events. They're a rare secretive species. A lot of the things that we attribute to them, the symbology and spiritual values, I hold some of those as well. Their just so interesting, partly because of their rarity and the way we persecuted them; it's just kind of rooting for the underdog. The affinity that other people have for them, I feel the same way. It's hard to sometimes separate that from our decision. Isle Royale would be a different place without them. In 20 years if I came back and they weren't there, it would be a different thing. It's just one of those stories that keeps playing out and I don't know what the answers are, and where it's going to go, and that's part of the beauty of it (Oelfke 1996).

Among almost all of the informants -- even those who will let the wolves die out -- there is a mournful feeling about potential wolf demise. If it should happen it will surely be a difficult time for the Service and for Isle Royale employees and researchers. In a previous quote, Former Superintendent Fink reflected on the repercussions wolf demise would have on his career. In the quote below, Peterson generalizes Fink's concern to every Superintendent, and reflects on the emotional and political quagmire of potential wolf demise:

> Every Superintendent has said that: "not on my watch". The idea that they could go extinct and no one would even know why, for scientific and from a public-image perspective is just absolutely unpalatable, completely.
>
> The message I wanted the public to realize is that if we chose not to

> intervene in the event of certain extinction it might be a situation for 10 of 15 years that you've got few individuals that you know are never going to be able to reproduce unless some act of God -- ice and new wolves coming -- and every year you're dealing with this death watch --- that's the headlines 'death watch continues'. Is that what the Park Service wants? Well, I don't think so. That image would be competing with the traditional hands-off image. It would be chance once you got down to that point. And that's certainly a possibility. I'd be tempted to intervene and not wait for every last one of them to die a natural death, because it'd take along time and everybody's sitting around waiting. It'd be a tough image to try and manage in the agency (Peterson 1996b).

One major conclusion can be drawn from these quotes when added to the quotes of the previous chapter. No one can deny that, even for Park Service employees and researchers, the wolves are significantly more than just a material animal. They are symbolic creatures, religious creatures, totems, and indicators. What they represent to people, what people have made them into, is far greater than their role as a predator in the food chain. One of the more cultural-theory-informed informants summed this up well:

> Has there ever been such smoke and fire associated with a creature that 99.99% of Island users never see? We want wolves, or are interested in wolves, because they are "the OTHER." They are not human, they are secretive, they are not like suburbia, not like sitting at a computer screen at work, not like wearing fashionable clothes. I think visitors and arm chair enjoyers of Isle Royale largely want wolves at Isle Royale. In a sense they need them as intriguing, magnetic, and totem-like animals. Wolves give Isle Royale status (Tim Cochrane 1996).

If the last beaver on Isle Royale were about to die, would headlines about a 'death watch' appear? How about for a plant species or a species of bird? Not likely. Given this cultural weight heaped upon wolves by Park Service employees and researchers, and given the similar weight implied from the American public, it cannot be denied

that wolves are cultural resources as well as natural resources. That the policies of the Park Service do not deal with this fact, and that this omission causes policy failure and tension, is one of the major conclusions of the case study.

III. Reviewing the Argument

In Chapter 1, I laid out this problem statement: *Amidst changing views of nature preservation in the parks by the general public over the last eighty years, and amidst severely problematized definitions of 'nature' and 'natural' brought forward by recent environmental historians and cultural theorists, the Park Service's job of finding policies to manage its flora, fauna, and landscapes is truly a conundrum.* Later in Chapter 1, I reviewed wildlife policies and management in the parks over the last eighty years, and indeed, found widely ranging policies and actions. Using the framework of a cultural landscape geographer, in Chapter 2 I theoretically situated these changing policies amidst the cultural-historical ideas that permeated nature-preservation ideology. Americans and the American environmental movement view nature and view natural landscapes in changing ways. As a public institution, the Park Service's policies, and therefore park landscapes, have reflected these changes.

Chapter 3 dug deeper theoretically. The issue is more than just changing ideologies. Some environmental historians and landscape geographers have claimed that the ability of ideologies to change reflects the perpetually shifting cultural ground on which ideology is based. Based on a deeper reading of the history of North America, these historians claim there is little "objective" ground on which to base

nature preservation ideologies. Further, postmodernist cultural-theorists have offered further evidence of the shifting character of human social and linguistic life as applied to nature. These historians and cultural theorists offer a powerful challenge to the American environmental movement. The movement has rested on firm definitions of 'nature' and 'natural'; challenging this definitions severely challenges nature preservation movements in America.

To date, little of this theory has been ground-tested; that is what my case study does. In Chapter 4, I introduced the Isle Royale wolf problem as an example of a piece of 'nature' governed by the 'natural' resource policies of the Park Service. This problem should provide a nice window through which to view this theoretical problem. And indeed it did. In Chapter 5, I described how the wolf management history attempted to keep the strict dualism between nature and culture intact. While the main goal was protection of wolves, the reason for protection varied and shifted over the fifty year period. Cultural values changed and were protected as much as the material animals themselves -- wolves were culturally important, and the management actions shifted as needed. At the end of Chapter 5, I argued that the Park Service had ended up in a "pro-wilderness new ecology" "way of seeing" which supported wilderness values, "hands-off" management, ecosystem change, and minimally intrusive scientific study. Given this new ideological approach, wolf preservation came to an end at Isle Royale. Wolf extirpation, if it happens, will politically test this ideological paradigm.

In Chapter 6, I looked at the official policy documents and tried to fit the

wolves into them. The wolves do not fit well at all. Did they come to Isle Royale on their own, or did humans push them? Are they native or exotic? Do they represent biodiversity? Are they an endangered species? None of these questions could be conclusively answered, and the National Park Service has not answered them consistently. The documents are fraught with ill-defined words and phrases like 'natural', 'ecosystem integrity', and 'healthy ecosystems'. All of these words and phrases imply a strict line between culture and nature, and between European colonization and that which came before. Since the wolves did not fit into any category, each person could put them into whatever category necessary to meet ideological goals. At the end of Chapter 6, I argued that policy's way of seeing is paradoxically part old ecology and part new ecology. In this paradox, some change is accepted, some is not; humans are sometimes a part of nature, but usually not.

In Chapter 7, the key informants told me just what those ideological goals were. For some, it was important to preserve the dualism between nature and culture and therefore to enshrine Isle Royale as 'wilderness'. In this scenario, the wolf -- although a powerful symbol -- ranked second to wilderness. Wolves were big, wilderness was bigger. For another group, the wolf represented a healthy ecosystem that would be out of balance without them. Wolves were needed to eat moose, or moose would eat the island to death. For yet another group, wolves and wilderness were both, to some degree, social constructions that humans should manage as desired. Turn them both over to the best science, or to the American public to decide -- let cultural values determine the fate of cultural resources. These three ideologies

conflict greatly. The first one completely denies the challenge offered by the initial theoretical section of this dissertation; the third one completely accepts it; the second one lies in between.

The wolves have become part natural and part cultural. The management conundrum exists because the "part natural, part cultural" category opens up the "Pandora's Box of naturalness", clouding any stable policy interpretation. Three distinct "ways of seeing" came out of that box at Isle Royale. Each tries to represent the truth about wolves and nature; all stand as three "multiple truths". Due to the "hybrid" status of wolves and nature, there is an "inherent instability of meaning" and a "crisis of representation". Which reading of the wolves and nature is correct? How should policy be changed? What should managers do? Whose ideology should they accept? It is impossible to determine whether wolves are native or exotic, it is uncertain whether they are endangered species, their past management has varied under widely ranging philosophies, and the people who have to make decisions about their future are clearly in disagreement.

Wolf policy rests on ideology, and ideology about nature has been restless at Isle Royale and in America. In the old days of the Park Service, there were 'bad' and 'good' animals. The bad animals -- the predators -- were killed, and the good animals -- the gentle herbivores -- were coddled. This has changed. Now wolves are 'very good' animals. They are coddled, protected, reintroduced, worried over, monitored, studied, wrote about, watched, listened for, photographed, and talked about incessantly. Wolves are cultural representations of a bygone era, representations of a

pristine past that is lamented greatly by the American public and the American environmental movement. Although wolves are a high-profile species, they represent one case amidst thousands for the Park Service and thousands more for other nature-preservation and land-management organizations in the U.S. As Chase (1990) stated in his Isle Royale wolf article, "Yet this national park is not unique. Similar semantic difficulties face federal wildlife officials throughout the country". The problem is not simply semantic, however. This problem cuts to the heart of a huge question: What is the appropriate role of humans in managing nature? I think the question is not going to go away, and is going to get bigger. What should we do at Isle Royale?

IV. Wolves or Wilderness at Isle Royale?

Many of the key informants equated wolves with wilderness; others held wilderness above wolves. But for most, wolves were a symbol of wilderness and an indicator of wilderness. People wanted to believe in both -- they wanted to believe that both were material realities beyond American culture's definition of them. And people want them both. They did not want to have to choose between them because that choice raises an enormous dissonance. Overall, the informants told me this: *We really want wilderness -- to let nature run its course; but we really hope it runs with the wolves and not against them.* The dissonance that a wilderness-without-wolves represents is part of the problem raised by social constructionists such as Cronon. If we have finally allowed for the perfect wilderness to exist at Isle Royale, and if that wilderness is wolfless, then is wilderness a material reality or a social construction

that does not even work? Likewise, and even grander, if Isle Royale is the most natural that nature can be, but yet cannot support wolves without our interference, are "nature" and "natural" material realities or social constructions that do not even work?

Cronon (1996) says, and I agree with him, that this kind of situation at Isle Royale is part of a much bigger issue. Wilderness has been used as the guiding light for the American environmental movement since the days of Thoreau, Muir, and Emerson. As I discussed in Chapters 2 and 3, wilderness was seen as the cure for the disease -- the disease of civilization. The romantics and the transcendentalists were perhaps the first Americans to write about this conclusively. The second wave of American environmentalism, articulated by writers such as Abbey, Brower, and Carson, merely built on those earlier themes. For both, 'wilderness' was and is the complete opposite of civilization and human space. The issues developed in Chapter 3 directly challenge this dualism. At the heart of this conflict is the question of whether humans are a part of nature or not.

The key informants held conflicting viewpoints on this issue. Some believed in wilderness apart from civilization; others did not. I would argue however, that the wolves were cast as symbols that were forced to bear the full weight of this greater nature/culture dualism. But, as was clear in the discussion in Chapter 2 and 3, this conflict rages through the academic journals more deeply than it smolders at Isle Royale. On the academic level, the reconstituted journal *Environmental History* reprinted Cronon's essay from *Uncommon Ground* (Cronon 1995) along with a new batch of critiques and response by Cronon (1996b), Hays (1996), Cohen (1996), and

Dunlap (1996), and made this debate the profiled concern of its inaugural issue. The same thing has happened on the National Park Service level. As discussed in Chapter 1, the conclusions offered by Wagner et. al. (1995) in *Wildlife Policies in the National Parks* to let "human values" determine natural resource policy in the parks sparked the conflict between the Service and the Wagner-led committee. This debate smolders at Isle Royale, it burns in the Park Service, and rages through the academy.

Of course, the problem with wilderness as stated by Cronon and his camp is that it is "in part" a cultural construction. 'Wrong' says the other side -- wilderness is bedrock reality. As discussed in Chapter 3, some reviewers are opting for somewhere in between. As such, like the wolves of Isle Royale, wilderness constitutes a material reality as well as a social construction. And, like the wolves, managing a part nature, part culture quasi-object is politically contested. If we allow human intervention, how do we determine which human intervention, how do we determine how much intervention, and how do we determine who gets to intervene? It is precisely these kinds of concerns that have driven management agencies like the Park Service to opt for 'no intervention' at all. It is precisely this chaos that sits at the fulcrum of any policy decision at Isle Royale.

Resolution

I believe the current unstated "pro-wilderness new ecology" management policy at Isle Royale should and will prevail with regards to wolves and all of nature. A "pro-wilderness new ecology" policy for Isle Royale has four features. First, this policy supports a "wilderness hands-off" strategy in managing wildlife which allows

wildlife to come and go with no human interference. The days are gone when human interference will be easily discerned. Animals in national parks are no longer shot, corralled, or exterminated; rather, disease or fire will be the cause of any future extirpation, and neither will be solely attributable to humans. In all cases, defer to "hands off". Second, this policy supports the insights of 'new ecology' which recognizes that ecosystems change over time, and that any human determination about a "bad" or "good" ecosystem is partial and subjective.

Third and also an insight from new ecology and environmental history, this policy accepts the idea that humans do in part "socially construct" national parks. To the extent that acceptance of "social constructionism" complicates management at Isle Royale, this policy will state that "wilderness" is the "appropriate social construct" for the Park. And finally, this policy accepts that Isle Royale is an ideal laboratory to continue to understand how nature works. A critical insight of new ecology is that we do not know everything about how the world works. Lacking complete understanding, we should continue to investigate. For reasons mentioned in earlier chapters, Isle Royale is an ideal natural laboratory.

I believe this policy will prevail because, first and foremost, it is supported by history and inertia. I concluded in Chapter 5 that this "pro-wilderness new ecology" strategy was the only definitive (but unstated) conclusion to the 1990 wolf-decline meeting, and that this strategy continues to be used (but unstated) today. Second, as I concluded in Chapter 6, although the official policy documents "could" allow for human interference to correct human "mistakes", considerable ambiguity and latitude

exists which would allow for a stricter "pro-wilderness hands-off" stance to supersede. Third, and most importantly, I believe the majority of key informants support this strategy given their answers to my survey. Many informants problematized "wilderness" but still supported its existence. Most informants enjoyed wolves but still supported a policy that might lead to wolf demise. All informants supported the role of Isle Royale as a scientific laboratory.

I do not think the key informants would endorse this policy nation-wide at all U.S. parks, nor would I. Each park may need individual policy direction derived from research appropriate to that setting to fit problems applicable in that setting. The problem we can investigate at Isle Royale is bigger than wolves; it is about the role of humans in nature. Likewise, this policy proposes a bigger role for Isle Royale than as a wolf preserve or as a home for a predator/prey study. Since all the informants supported the role of Isle Royale as a scientific laboratory, seeing the Park in this larger perspective is politically feasible. In the foreword to Peterson's 1995 book, *The Wolves of Isle Royale: A Broken Balance*, Dave Mech alluded to wolf demise and said: "Of course, this grand experiment may be over any year (p.12)". Here I, and the key informants, disagree. If we are able to see a grander role for Isle Royale, the experiment can continue for a long time.

Bibliography

Abbey, Edward 1968: *Desert Solitaire: A Season in the Wilderness*. New York: Ballantine.

Allen, Durward 1979: *Wolves of Minong: Isle Royale's Wild Community*. Ann Arbor: The University of Michigan Press.

Anonymous 1982: Wolf-Moose Monitoring and Research Program, Discussion Paper. Isle Royale National Park, April, 1982.

Anderson, Kay 1995: Culture and nature at the Adelaide Zoo: at the frontiers of 'human' geography. *Transactions of the Institute of British Geographers* 20,275-294.

Armington, Pete 1996: Survey response (October 11, 1996).

Axtell, Craig 1996: Survey response (November 25, 1996).

Barbour, Michael G. 1995: Ecological Fragmentation in the Fifties. in *Cronon, W. (ed) Uncommon Ground: Toward Reinventing Nature*. W. W. Norton and Company: New York, pp.233-255.

Barnes, Trevor J and James S Duncan 1992: *Writing Worlds: Discourse, Text and Metaphor in the Representation of Landscape*. London: Routledge.

Beattie, Hugh P. 1974: Memo to Superintendent. Isle Royale National Park, Dec. 24, 1974.

Beattie, Hugh P. 1975: Memo to Rolf Peterson. Isle Royale National Park, Jan. 7, 1975.

Benton, T. 1989: Marx and natural limits. *New Left Review* 178,51-86.

Bennett J., and W. Chaloupka (eds) 1993: *In the nature of things: language, politics, and the environment*. Minneapolis: University of Minnesota Press.

_____ 1993: Introduction. in Bennett J., and W. Chaloupka (eds) *In the nature of things: language, politics, and the environment*. Minneapolis: University of Minnesota Press. pp.7-23.

Berg, Lawrence D. 1993: Between modernism and postmodernism. *Progress in Human Geography* 17,4,490-507.

Bernard, Doug 1996a: Internal Park Service memo to Oelfke and Armington. (March 17, 1996).

Bernard, Doug 1996b: Survey response (June 24, 1996)

Bernard, Doug 1996c: Isle Royale Wolves make a comeback, but moose suffer heavy losses. *Wolf's Eye: Isle Royale Natural History Association.* Spring 1996.

Bick, Karen et.al. 1985: *Isle Royale Biosphere Reserve Volume I: History of Scientific Studies.* U.S. GPO: Washington, D.C.

Bishop, S. et al. 1989: *National Parks: From vignettes to a global view.* National Parks and Conservation Association: Washington, D.C.

Borgmann, Albert 1995: The Nature of Reality and the Reality of Nature. in Soule, Michael E. and Gary Lease (eds) 1995: *Reinventing Nature?: Responses to Postmodern Deconstruction.* Covelo, California: Island Press, pp.31-46.

Botkin, Daniel B. 1990: *Discordant Harmonies: A New Ecology for the Twenty-First Century.* New York: Oxford University Press.

Cahalane, Bob 1946: Internal Park Service Memo. Isle Royale National Park, June 5, 1946.

Callicott, J. Baird 1995: (review on back cover) in Soule, Michael E. and Gary Lease (eds) 1995: *Reinventing Nature?: Responses to Postmodern Deconstruction.* Covelo, California: Island Press.

Capra, F. 1975: *The tao of physics.* Berkeley: Shambhala.

Carson, Rachel 1962: *Silent Spring.* Boston: Houghton Mifflin.

Chase, Alston 1986: *Playing God in Yellowstone: The Destruction of America's First National Park.* New York: Harcourt Brace and Company.

Chase, Alston 1990: Park's wolf population is tongue-tied. *Orange County Register* (April 22, 1990)

Clifford, J. 1986: On ethnographic allegory. in Clifford, J. and G. Marcus (eds) *Writing Culture: The Poetics of Ethnography*, Berkeley: University of California Press, 98-121.

Cloke, P., C. Philo, and D. Sadler 1991: *Approaching Human Geography: An Introduction to Contemporary Theoretical Debates*. New York: Guilford.

Cochrane, Jean Fitts 1996: Survey response (September 20, 1996).

Cochrane, Tim 1996: Survey response (August 26, 1996).
Cole, James E. 1952: Section I: Presence of timber wolves in Isle Royale National Park. Isle Royale National Park, May 28, 1952.

Cohen, Michael P. 1996: Comment: Resistance to Wilderness. *Environmental History*, 1,1,33-42.

Cole, James E. 1956a: Memo. In field reports by James. E. Cole, covering work on wolves in Isle Royale National Park 1953-57. March 28, 1956.

Cole, James E. 1956b: Isle Royale Wildlife Investigations, Winter of 1956-57. In field reports by James. E. Cole, covering work on wolves in Isle Royale National Park 1953-57.

Cole, James E. 1958: *Reports on Isle Royale*. NPS: Houghton, MI.

Conservation Foundation 1972: *National Parks for the Future*. Washington, D.C.: Conservation Foundation.

Conservation Foundation 1985: *National Parks for a New Generation*. Washington, D.C.:
Conservation Foundation.

Cosgrove, Denis E. 1984: *Social formation and symbolic landscape* (Chapter 6). Totowa, New Jersey: Barnes & Noble Books.

_____ 1990: Environmental thought and action: premodern and post-modern. *Transactions of the Institute of British Geographers* 15,344-358.

_____ 1993: Author and authority: writing the new cultural geography. In Duncan, J. and D. Ley (eds) Place/culture/representation. Routledge:London, 25-38.

_____ 1994a: Contested Global Visions: *One-World, Whole-Earth,* and the Apollo Space Photographs. *Annals of the Association of American Geographers* 84,2,270-294.

_____ 1994b: Translating Wilderness. *Ecumene* 1,3,301-303.

Craighead, J.J. 1991: *Track of the Grizzly.* Sierra Club Books: San Francisco.

Creswell, John W. 1994: *Research Design: Qualitative & Quantitative Approaches.* Thousand Oaks, CA: Sage Publications.

Croll, Stuart 1981: Winter Closing. USDI, National Park Service, 36 CFR Part 7, Isle Royale National Park.

Croll, Stuart 1996: Interview response (April 24, 1996).

Cronon, William 1983: *Changes in the Land* (chapter 1). New York: Hill and Wang.

_____ 1992: A place for stories: nature, history, and narrative. *Journal of American History* 76,1122-31.

_____ 1994: Comment: Cutting loose or running aground? *Journal of Historical Geography* 20,1,38-43.

_____ ed. 1995a: *Uncommon Ground: Toward Reinventing Nature.* W. W. Norton and Company: New York.

_____ 1995b: Introduction. in *Cronon, W. Uncommon Ground: Toward Reinventing Nature.* W. W. Norton and Company: New York, pp.23-56.

_____ 1995c: The Trouble with Wilderness; or, Getting Back to the Wrong Nature. in *Cronon, W. Uncommon Ground: Toward Reinventing Nature.* W. W. Norton and Company: New York, pp.69-90.

_____ 1996: Personal conversation.

_____ 1996b: The Trouble with Wilderness: A Response. *Environmental History*, 1,1,47-55.

Curry, Michael R. 1991: Postmodernism, language, and the strains of modernism. *Annals of the Association of American Geographers* 81,210-228.

Daniels, Stephen and Denis Cosgrove 1988: *The iconography of landscape.* New York: Cambridge University Press.

Daniels, Stephen 1989: Marxism, Culture and the duplicity of landscape in Peet, Richard and Nigel Thrift (eds) *New models in geography* vol. II, London: Unwin Hyman, pp. 196-220.

_____ 1993: *Fields of Vision: landscape imagery and national identity in England and the U.S.*. Princeton: Princeton University Press.

Darling, Fraser F. and Noel D. Eichhorn 1969: *Man and Nature in the National Parks: Reflections on Policy*. Washington, D.C.: Conservation Foundation.

Dear, Michael 1986: Postmodernism and Planning. *Environment and Planning D: Society and Space*

_____ 1988: The postmodern challenge: reconstructing human geography. *Transactions of the Institute of British Geographers* 13,262-274.

_____ 1994a: Who's Afraid of Postmodernism? Reflections on Symanski and Cosgrove. *Annals of the Association of American Geographers* 84,2,295-300.

_____ 1994b: Postmodern Human Geography: A Preliminary Assessment. *Erdkunde* 48,2-13.

Deloria, Phil 1997: Personal communication.

Demeritt, David 1994a: Ecology, objectivity and critique in writings on nature and human societies. *Journal of Historical Geography* 20,1,22-37.

_____ 1994b: The nature of metaphors in cultural geography and environmental history. *Progress in Human Geography* 18,2,163-185.

Denevan, W.M. 1992: The pristine myth: the landscape of the Americas in 1492. *Annals of the Association of American Geographers* 82,3,369-385.

Derrida J. 1976: *Of Grammatology*. John Hopkins University Press: Baltimore, MD.

_____ 1978: *Writing and Difference*. Chicago University Press: Chicago.

_____ 1981: *Positions*. Chicago University Press: Chicago.

Duncan, J and N Duncan 1988: (Re)reading the landscape. *Environment and Planning D: Society and Space* 6,117-126.

Duncan, J 1990: *The city as text: the politics of landscape interpretation in the Kandyan kingdom*. Cambridge: Cambridge University Press.

Duncan, J.S. and D. Ley 1993: Introduction: representing the place of culture. in Duncan, James and David Ley (eds) *Place, Culture, Representation.* Routledge: London, pp.1-21.

Duncan, James and David Ley (eds) 1993b: *Place, Culture, Representation.* London: Routledge.

Duncan, N. and J.P. Sharp 1993: Confronting representation(s). *Environment and Planning D: Society and Space* 6,117,126.

Dunlap, Thomas R. 1996: Comment: But what did you go out into the wilderness to see? *Environmental History*, 1,1,43-46.

Eagleton, Terry 1983: *Literary Theory: An Introduction.* University of Minnesota Press: Minneapolis.

Eastern Timber Wolf Recovery Team 1978 and 1992: Eastern Timber Wolf Recovery Plan. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

Erlandson, David A. et.al. 1993: *Doing Naturalistic Inquiry: A Guide to Methods.* Newbury Park, CA: Sage Publications.

Everhart, William C. 1972: *The National Park Service.* New York: Praeger.

Evernden, Neil 1992: *The Social Creation of Nature* (chapter 1&2). Baltimore: The John Hopkins University Press.

Ferranti, Thomas J. 1996: Survey response (June 12, 1996).

Fink, Bill 1996: Interview response (April 19, 1994).

Fire Management Plan 1992, Isle Royale National Park.

Fitzsimmons, M. 1989: The matter of nature. *Antipode* 21,106-120.

Fontana, Andrea and James H. Frey 1994: Interviewing: The Art of Science. In *Handbook of Qualitative Research.* Thousand Oaks, CA: Sage Publications (pp.361-376).

Foresta, Ronald A. 1984: *America's National Parks and Their Keepers.* Washington, D.C.: Resources for the Future.

Frome, Michael 1992: *Regreening the National Parks.* Tucson: The University of Arizona Press.

Gilchrist, J. Valerie 1992: Key Informant Interviews. In Crabtree, Benjamin F. and William L. Miller, *Doing Qualitative Research.* Newbury Park CA: Sage Publications (pp.70-89).

Glacken, Clarence 1967: *Traces on the Rhodean shore: nature and culture in Western thought from ancient times to the end of the eighteenth century.* Berkeley: University of California Press.

Graber, David M. Resolute Biocentrism: The dilemma of wilderness in National parks. in Soule, Michael E. and Gary Lease (eds) 1995: *Reinventing Nature?: Responses to Postmodern Deconstruction.* Covelo, California: Island Press, pp.123-136.

Hakala, D. Robert 1954: Wolf on Isle Royale!. *Nature Magazine*, 47,1,35-37.

_____ 1955: *Isle Royale - Primeval Prince: A History.* National Park Service: U.S. Department of Interior.

_____ 1996: Survey response (July 2, 1996).

Harmon, Dave 1996: Survey response (June 18, 1996).

Haraway, D. 1987: *Primate Visions: gender, race, and nature in the world of modern science.* New York: Routledge.

_____ 1991: *Simians, cyborgs, and women: the reinvention of nature.* Routledge: New York.

_____ 1995: Universal donors in a vampire culture: it's all in the family: biological kinship categories in the twentieth-century united states. in *Cronon, W. (ed) Uncommon Ground: Toward Reinventing Nature.* W. W. Norton and Company: New York, pp.321-366..

Harvey, David 1989: *The Condition of Postmodernity.* Cambridge: Blackwell.

_____ 1993: The nature of environment: The dialectics of social and environmental change. *The Socialist Register*, 1-51.

Hayles, N. Katherine 1995a: Searching for Common Ground. in Soule, Michael E. and Gary Lease (eds) 1995: *Reinventing Nature?: Responses to Postmodern Deconstruction*. Covelo, California: Island Press, pp.47-64.

_____ 1995b: Simulated Nature and Natural Simulations: Rethinking the Relation between the Beholder and the World. in *Cronon, W. (ed) Uncommon Ground: Toward Reinventing Nature*. W. W. Norton and Company: New York, pp.409-425.

Hays, Samuel P. 1996: Comment: The Trouble with Bill Cronon's Wilderness. *Environmental History*, 1,1,29-32.

Hess, Karl Jr. 1993: *Rocky Times in Rocky Mountain National Park*. Niwot, Colorado: University Press of Colorado.

Hickie, Paul 1935: The Moose of Isle Royale. Michigan Department of Conservation, Game Division Report.

Hiebert, Ron 1996: Survey response (September 10, 1996).

Hobbs, Tom 1996: Survey response (October 15, 1996).

Jackson, P. 1989: *Maps of meaning: an introduction to cultural geography*. Unwin Hymin: London.

_____ 1991: The crisis of representation and the politics of position. *Environment and Planning D: Society and Space* 9,131-134.

Jameson, Fredric 1991: *Postmodernism, or, The Cultural Logic of Late Capitalism*. Duke University Press: Durham.

Janke, Bob 1996: Interview response (April 19, 1996).

Jarvis, Jon 1995: Memo. Isle Royale National Park. April 17, 1995.

Jordan, Peter 1996: Survey response (September 4, 1996).

Katz, Cindi and Andrew Kirby 1991: In the nature of things: the environment and everyday life. *Transactions of the Institute of British Geographers* 16,259-271.

Keiter, R.B. 1989: Taking account of the ecosystem on the public domain; Law and ecology in the Greater Yellowstone Region. *University of Colorado Law Review*. 60,923-1007.

Kellert, Stephen 1996: Survey response (September 20, 1996).

Krefting, Laurits W. 1951: What is the future of the Isle Royale moose herd? *Transactions of the North American Wildlife Conference* 16:461-470.

_____ 1956: Memo. In field reports by James. E. Cole, covering work on wolves in Isle Royale National Park 1953-57. July 28, 1956.

Krumenaker, Robert 1988: Isle Royale. *Courier: Newsmagazine of the National Park Service*. 33,9,30.

_____ 1989a: Training Video, Isle Royale Resource Issues. Isle Royale National Park.

_____ 1989b: Notes from Wolf Decline Meeting. Isle Royale National Park

_____ 1995: Comments to Rolf Peterson on Rolf's book (March 31, 1995).

_____ 1996: Interview response (April 13, 1996).

Larson, Gary 1983: Memo to reviewers. Isle Royale National Park, August 18, 1983.

Latour, B. 1987: *Science in Action*. Cambridge: Harvard University Press.

_____ 1988: *The pasteurization of France*. Harvard University Press: Cambridge, MA.

Lease, Gary 1995: Introduction: Nature Under Fire. in Soule, Michael E. and Gary Lease (eds) 1995: *Reinventing Nature?: Responses to Postmodern Deconstruction*. Covelo, California: Island Press, pp.3-16.

Leopold, Aldo 1947: *A Sand County Almanac*. New York: Ballantine.

Leopold, A.S. et al. 1963: *Wildlife Management in the National Parks*, Report of the Advisory Board on Wildlife Management to Secretary of Interior Udall.

Lewis, M.W. 1991: *Green Delusions: An Environmentalist Critique of Radical Environmentalism*. Durham: Duke University Press.

_____ 1994: (book review of) Bennett J., and W. Chaloupka (eds) 1993: *In the nature of things: language, politics, and the environment*. Minneapolis: University of Minnesota Press. in Annals of the Association of American Geographers 84,3,514-516.

Lewis, Pierce F. 1979: Axioms for reading the landscape. in Meinig, Donald (ed.) 1979: *Interpreting Ordinary Landscapes: Geographic Essays*. New York: Oxford University Press, pp.11-32.

Ley, D. and K. Olds 1988: Landscape as spectacle: world's fairs and the culture of heroic consumption. *Environment and Planning D: Society and Space* 6,191-212.

Lien, Carsten 1991: *Olympic Battleground: the power politics of timber preservation.* San Francisco: Sierra Club Books.

Lindsay, Terry 1996: Survey response (August 14, 1996).

Linn, Robert M., Lowell Sumner, and George Sprugel, Jr. 1966: *Isle Royale National Park: Natural Sciences Research Plan.* U.S. Department of the Interior, National Park Service.

Linn, Robert M. 1956: Memo. In field reports by James. E. Cole, covering work on wolves in Isle Royale National Park 1953-57. July 27, 1956.

Linn, Robert M., Lowell Sumner, and George Sprugel, Jr. 1966: Isle Royale National Park. Natural Sciences Research Plan. U.S. Department of Interior, National Park Service.

Linn, Robert 1996: Survey response (June 18, 1996).

Little, John J. 1978: Island Wilderness: A History of Isle Royale National Park. University Microfilms International 7822027, University of Toledo.

Lovejoy, A. 1964: *The great chain of being.* Cambridge: Harvard University Press.

Lowenthal, David 1964: Is wilderness paradise enow? *Columbia University Forum* Spring.

_____ 1992: Awareness of Human Impacts: Changing Attitudes and Emphases. In *The Earth as Transformed by Human Action: global and regional changes in the biosphere over the past 300 years.* New York: Cambridge University Press.

Mackintosh, B. 1991: *The National Parks: Shaping the System.* Division of Publ. and Employees Dev. Dir., Nat. Park Service, U.S. Department of Interior, Washington, D.C.

Marsh, George Perkins 1965: *Man and nature.* Cambridge: Harvard University Press.

Martin, E., 1991: The egg and the sperm: How science has constructed a romance based on stereotypical male-female roles. *Signs* 16,485-501.

Matless, D 1992: An occasion for geography: landscape, representation, and Foucault's corpus. *Environment and Planning D: Society and Space* 10,41-56.
McNamee, Thomas 1982: Trouble in Wolf Heaven. *Audubon*, January 1982.

Mech, L. David 1966: *The Wolves of Isle Royale National Park.* National Park Service Fauna Series No.7, GPO: Washington D.C.

_____ 1995: Foreword. In Rolf Peterson, *The Wolves of Isle Royale: A Broken Balance*, Willow Creek Press, Minocqua, WI.

_____ 1996: Survey response (August 15, 1996).

Meinig, Donald (ed.) 1979: *Interpreting Ordinary Landscapes: Geographic Essays.* New York: Oxford University Press.

_____ 1979b: Reading the Landscape. in Meinig, Donald (ed.) 1979: *Interpreting Ordinary Landscapes: Geographic Essays*. New York: Oxford University Press, pp.195-244.

Merchant, Carolyn 1980: *The Death of Nature: Women, Ecology and the Scientific Revolution.* Harper Collins: San Francisco.

_____ 1992: *Radical Ecology: The Search for a Livable World.* Routledge: New York.

_____ 1995: Reinventing Eden: Western Culture as a Recovery Narrative. in *Cronon, W. Uncommon Ground: Toward Reinventing Nature.* W. W. Norton and Company: New York, pp.91-113.

Mills, C.A. 1988: "Life on the Upslope": the postmodern landscape of gentrification. *Environment and Planning D: Society and Space* 6,2,169-190.

Mitchell, Don 1994: Review of *Writing Worlds: Discourse, Text and Metaphor in the Representation of Landscape*, in *The Professional Geographer* v45,n4,474-5.

Morehead, Jack 1996: Survey response (October 8, 1996).

Murie, Adolph 1934: The Moose of Isle Royale. University of Michigan Museum of Zoology, Miscellaneous Publications No. 25.

Nash, Roderick 1973: *Wilderness and the American Mind.* New Haven: Yale University Press.

Nash, Stephen 1989: Wolves of Isle Royale: Scientists test a dying population. *National Park.* January/February 1989.

National Parks and Conservation Association 1971: *Preserving Wilderness in Our National Parks.* Washington D.C.: National Parks and Conservation Association.

Neumann, Roderick P. 1995: Ways of Seeing Africa: Colonial Recasting of African Society and Landscape in Serengeti National Park. *Ecumene* 2,2,149-169.

NPS N2623 1956: Isle Royale as a Sanctuary for Wolves. Isle Royale National Park, Mott Island Library.

Oelfke, Jack 1996: Various discussions and interview response (April 26, 1996).

Oeschlager, M. 1991: *The idea of wilderness.* New Haven: Yale University Press.

Olwig, Kenneth 1984: *Nature's Ideological Landscape.* London: George Allen and Unwil Publishers.

_____ 1993: Sexual Cosmology: Nation and Landscape at the Conceptual Interstices of Nature and Culture; or, What does Landscape Really Mean? in Bender, Barbara (ed) *Landscape: Politics and Perspectives.* Providence and Oxford: Berg. pp.307-343.

_____ 1995: Reinventing Common Nature: Yosemite and Mount Rushmore -- A Meandering Tale of a Double Nature. in Cronon, W. (ed) *Uncommon Ground: Toward Reinventing Nature.* W.W. Norton and Company: New York, pp.379-408.

Palmer, Bryan D. 1990: *Descent into Discourse: The Reification of Language and the Writing of Social History.* Temple University Press: Philadelphia.

Peet, Richard 1993: Book review of *The City as Text: The Politics of Landscape Interpretation in the Kandyan Kingdom* in Annals of the Association of American Geographers v?n?,184-187.

P.L. 94-567 1976: Wilderness Plan for Isle Royale National Park.

Peterson, Rolf O. 1974: Wolf Research Proposal. Isle Royale National Park.

_____ 1977: Management Implication of Wolf-Moose Research, Isle Royale National Park. Report submitted April 4, 1977. Isle Royale National Park.

_____ 1985: Wolf-Moose Interaction in Isle Royale National Park, Final Report. Report submitted Dec. 20, 1975. Isle Royale National Park.

_____ 1987: Causes of Wolf Decline Proposal. Isle Royale National Park.

_____ 1988: Ecological Studies of Wolves of Isle Royale, Annual Report 1987-88. Isle Royale Natural History Association.

_____ 1989a: Ecological Studies of Wolves of Isle Royale, Annual Report 1988-89. Isle Royale Natural History Association.

_____ 1989b: Notes from Wolf Decline Meeting. Isle Royale National Park.

_____ 1994: Study of Wolf Decline. Isle Royale National Park.

_____ 1995: *The Wolves of Isle Royale: A Broken Balance.* Willow Creek Press: Minocqua, WI.

_____ 1996a: "Wolf-Moose Interaction in Isle Royale National Park: What's "Natural Regulation" got to do with it?". Conference presentation at the Annual meeting of the Ecological Association of America.

_____ 1996b: Various discussions and interview responses (April 22, 1996).

_____ 1997: Personal conversation.

Peterson, Rolf O. and John M. Morehead 1980: Isle Royale Wolves and National Park Management. Proc. 2nd Conf. on Research in National Parks. National Technical Information Service, Washington, D.C.

Peterson, Rolf O. and Robert Krumenaker 1989c: Wolves Approach Extinction on Isle Royale: A biological and policy conundrum. *The George Wright Forum*, 6,1,10-15.

Pickett, S.T.A. and Richard S. Ostfield 1995: The Shifting Paradigm in Ecology. In R.L. Knight and S.F. Bates (eds.) *A New Century for Natural Resources Management.* Washington D.C.: Island Press. pp.261-278.

Poole, 1988: The sign of the times. *Another Journal*, 5,2,12-22.

Pred, Allan 1991: Review of The city as Text: The politics of landscape interpretation in the Kandyan Kingdom. *Journal of Historical Geography* 17,115-17.

Proctor, James D. 1995: Whose Nature: The Contested Moral Terrain of Ancient Forests. in *Cronon, W. (ed) Uncommon Ground: Toward Reinventing Nature.* W. W. Norton and Company: New York, pp.233-255.

Risser, P.G. and J. Lubchenco (eds) 1992: *Report of a workshop for National Park Service ecological research program.* U.S. Department of Interior, National Park Service: Albuquerque.

Robbins Committee 1963: Robbins Committee Report. Washington, D.C.: USGPO.

Ruggiero, Michael 1988: Letter sent to reviewers. Isle Royale National Park.

Runte, Alfred 1987: *National Parks: The American Experience.* Lincoln: University of Nebraska Press.

_____ 1990: Yosemite: *The Embattled Wilderness.*

Sax, Joseph L. 1980: *Mountains without Handrails: Reflections on the National Parks.* Ann Arbor: University of Michigan Press.

Saussure, F de 1959: *Course in General Linguistics.* Philosophical Library: New York.

Sellars, R. W. 1989: Science or Scenery? A conflict of values in the national parks. *Wilderness* 52,29-38.

Shanks, Bernard 1984: *This Land is Your Land: the struggle to save America's public lands.* San Francisco: Sierra Club Books.

Shelton, Napier 1975: *The Life of Isle Royale.* U.S. GPO: Washington, D.C.

Shepard, Paul 1965: The wilderness as nature. *Atlantic Monthly* January-March.

_____ 1995: Virtually Hunting Reality in the Forests of Simulacra. in Soule, Michael E. and Gary Lease (eds) 1995: *Reinventing Nature?: Responses to Postmodern Deconstruction.* Covelo, California: Island Press, pp.17-30.

Sinapu 1994: Bumper Sticker.

Smith, Neil 1984: *Uneven Development: Nature, Capital and the Production of Space.* Oxford: Basil Blackwell.

Soleim, Dave 1996: Survey response (September 20, 1996).

Soule, Michael E. and Gary Lease (eds) 1995a: *Reinventing Nature?: Responses to Postmodern Deconstruction.* Covelo, California: Island Press.

Soule, Michael E. 1995b: The Social Siege of Nature. in Soule, Michael E. and Gary Lease (eds) 1995a: *Reinventing Nature?: Responses to Postmodern Deconstruction.* Covelo, California: Island Press, pp.137-170.

Spirn, Anne Siege 1995: Constructing Nature: The Legacy of Frederick Law Olmstead. in *Cronon, W. Uncommon Ground: Toward Reinventing Nature.* W. W. Norton and Company: New York, pp.91-113.

Stottlemeyer, Robert 1996: Survey response (July 29, 1996).

Symanski, Richard 1994: Contested Realities: Feral Horses in Outback Australia. *Annals of the Association of American Geographers* 84,2,251-269.

_____ 1994: Why We Should Fear Postmodernists. *Annals of the Association of American Geographers* 84,2,301-304.

U.S. Department of the Interior, National Park Service 1968: *Administrative Policies for Natural Areas of the National Park System.* U.S. GPO, Washington D.C.

U.S. Department of the Interior, National Park Service 1972: *Part Two of the National Park System Plan: Nature.* U.S. GPO, Washington D.C.

U.S. Department of the Interior, National Park Service 1978: *Management Policies.* U.S. GPO: Washington, D.C.

U.S. Department of the Interior, National Park Service 1980: *State of the Parks -- 1980: A Report to the Congress.* U.S. GPO: Washington, D.C.

U.S. Department of the Interior, National Park Service 1989: *Management Policies.* U.S. GPO: Washington, D.C.

U.S. Department of the Interior, National Park Service 1989: *Statement for Management: Isle Royale National Park.* U.S. GPO: Washington, D.C.

U.S. Department of the Interior, National Park Service 1991: *NPS-77: Natural Resource Management Guidelines*. U.S. GPO: Washington, D.C.

U.S. Department of Interior, National Park Service 1993: *Isle Royale National Park: Statement for Management*. U.S. GPO: Washington, D.C.

U.S. Department of the Interior, National Park Service 1993: *National Parks for the 21st Century: The Vail Agenda*. U.S. GPO: Washington, D.C.

Wagner, Frederic et al. 1995: *Wildlife Policies in the U.S. National Parks*. Island Press: Washington D.C.

Wagner, F. and C.E. Kay 1993: "Natural" or "healthy" ecosystems? Are U.S. national parks providing them. in M.J. McDonnell and S.T.A. Pickett (eds). *Humans as Components of Ecosystems: The Ecology of Subtle Human Effects and Populated Areas*. Springer-Verlag: New York, pp.251-264.

Walton, Judy 1995: How Real(ist) Can You Get?: realer than thou. *Professional Geographer* 47,1,61-65.

Weber, Bruce 1996: Survey response (June 22, 1996).

Whaley, Robert Keith 1996: Survey response (June 27, 1996).

Whatmore, Sarah and Susan Boucher 1993: Bargaining with nature: the discourse and practice of 'environmental planning gain'. *Transactions of the Institute of British Geographers* 18,166-178.

White, Lynn Jr. 1967: The historical roots of our ecological crisis. *Science* 155,1203-1207.

Williams, Raymond 1973: *The country and the city*. New York: Oxford University Press.

Wilson, Alexander 1992: *The Culture of Nature: North American Landscape from Disney to the Exxon Valdez*. Cambridge: Blackwell.

Wirth, Conrad L. 1952: Internal Park Service Memo. In NPS N2623, Isle Royale as a Sanctuary for Wolves. Feb. 4, 1952.

Worster, Donald 1977: *Nature's Economy: A History of Ecological Ideas*. New York: Cambridge University Press.

_____ 1990a: Seeing Beyond Culture. *Journal of American History* 76,1142-1147.

_____ 1990b: Transformations of the earth: toward and agroecological perspective in history. *Journal of American History* 76,1087-1106.

_____ 1993: The Ecology of Order and Chaos. In Armstrong, Susan J. and Richard G. Botzler (eds) *Environmental Ethics: Divergence and Convergence*, New York: McGraw-Hill.

_____ 1995: Nature and the Disorder of History. in Soule, Michael E. and Gary Lease (eds) 1995: *Reinventing Nature?: Responses to Postmodern Deconstruction.* Covelo, California: Island Press, pp.65-86.

Wright, R. G. 1988: Wildlife issues in national parks. in W.J. Chandler and L. Labate (eds). *Audubon Wildlife Report, 1988/1989.* Academic Press: San Diego.

_____ (forthcoming): Moose and Wolf populations in Isle Royale National Park.

_____ 1996: Survey response (July 5, 1996).

Wright, George M., Joseph S. Dixon and Ben H. Thompson 1933: *A Preliminary Survey of Faunal Relations in National Parks.* Fauna Series No. 1, U.S GPO: Washington D.C.

Zimmerer, Karl S. 1994: Human Geography and the "New Ecology": The Prospect and Promise of Integration. *Annals of the Association of American Geographers* 84,1,108-125.

Zimmerman, Michael 1994: *Contesting Earth's Future: Radical Ecology and Postmodernity.* Berkeley: University of California Press.

Appendix A

INTERVIEW LIST for "Wolf Policy" dissertation at Isle Royale.

1. Rolf Peterson: MTU - Forestry
2. Jack Oelfke: Director of Natural Resources
3. Bob Krumenaker: Former Director of Natural Resources
4. Stuart Croll: Former Chief Ranger
5. Mike Ruggiero: Former Regional Chief Scientist, NPS
6. Dave Harmon: Journalist and with The George Wright Society
7. Bill Fink: Former Superintendent
8. Bob Linn: Former Chief Scientist, NPS. Now with the George Wright Society
9. Dave Mech: International Wolf Center
10. Peter Armington: Chief Ranger
11. Doug Barnard: Superintendent
12. Terry Lindsay: Interpretation Specialist
13. Peter Jordan: Fisheries and Wildlife Scientist - University of Minnesota
14. Bob Janke: Emeritus Biology faculty at MTU
15. Jack Morehead: Former Superintendent
16. Jean Cochrane: "Caribou Re-introduction Plan" author
17. Bob Stottlemeyer: MTU faculty and park researcher
18. Durward Allen: original Purdue University wolf/moose researcher
19. Ron Hiebert: Chief scientist, NPS
20. Craig Axtell: Former Director of Natural Resources
21. Daniel Botkin: Biologist, George Mason University
22. Gerald Wright: Professor of Wildlife Mgmt., U of Idaho
23. Tom Hobbs: Former Superintendent
24. Jeff Rennicke: Journalist
25. Stephen Kellert: Yale University, Environmental Studies
26. Tim Cochrane: Former Director of Cultural Resources
27. Bob Hakala: Former Isle Royale Biologist
28. Bob Whaley: Ranger
29. Dave Soleim: Natural Resources Specialist
30. Thomas Ferranti: Former Assistant Superintendent
31. Bruce Weber: Former Interpretation Specialist

Appendix B

RESEARCH QUESTIONNAIRE

1. Name?

2. Position and years at (or connected with) Isle Royale National Park?

3. How would you describe Isle Royale National Park using words like 'wilderness', 'natural', 'park', 'landscape'? Do you think it is 'natural' and 'wilderness'? Why?

4. Several issues have arisen in the past relating to wolf management at the Park. Could you describe your role in the decision/process, what your position on the issue was, and why you came to the conclusion/position you did:

a) 1975-76: decision not to build trails that might endanger wolf habitat.
b) 1981: decision to close the Park for the winter to protect wolves.
c) 1980s: decision to close den areas to summer camping.
d) 1989-90: decision to trap and radio-collar wolves to study their decline.
e) 1989-90: tentative decision to let wolves become extinct by keeping 'hands off'.
f) 1990: decision not to vaccinate wolves for CPV
g) 1994: decision not to take Rolf Peterson's recommendations which involved introducing new wolves to the Park to insure wolf numbers in the future.
h) 1996: ongoing, current decision to continue trapping and collaring even though wolf numbers have increased.
i) are there any others?

5. Park Service natural resource policy focuses on issues of "native" and "exotic" species determined "prior to European contact" and mandates re-introduction and extermination based on that terminology and guideline. It also focuses on maintaining "natural processes" and "ecosystem integrity". Given these policy guidelines, how do you interpret the position the Park should take on the wolves of Isle Royale in terms of their current status on the island, their management, and their possible extinction?

6. Generally describe your personal opinion/position/policy guidelines on wolf policy and wolf management at Isle Royale. How (if at all) should they be managed? Using the two extreme and simplified poles of 'complete hands off' on one side and 'active management which would insure future numbers' on the other side, where do you fit in? Why?

7. If the wolves of Isle Royale go extinct, would you favor re-introduction? Why?

8. Have you read Rolf Peterson's new book? What do you think of his last chapter?

9. What do the wolves represent to you? What does it mean to you to have them in the Park?

10. Any additional questions? Ask and answer them.

Appendix C

Contact Letter to Key Informant

Jack Morehead
142 Sandpiper Circle
Morro Bay, CA 93442

June 15, 1996

Jack,

As we discussed via email recently, I am writing to request assistance with my Ph.D. dissertation. I am a doctoral student at the University of Colorado-Boulder in geography/environmental policy. My general dissertation topic is a study of the conundrum surrounding natural resource policy in the U.S. National Parks; specifically, I am examining wolf policy and wolf management at Isle Royale National Park. As you well know, the wolves of Isle Royale are truly unique in many ways. In addition to their ecological/scientific importance, they also represent a more generalized predicament for Park Service policy. Although their numbers have recently increased to 22, extinction still possibly looms in their future.

One portion of my dissertation will involve a survey of "key informants" who have had first-hand knowledge of wolf issues at Isle Royale over the years. These key informants are primarily past and present Park employees and past and present scientific researchers. I have spent the past few months in Houghton digging through files and talking with Rolf Peterson, Jack Oelfke, Bob Krumenaker, Stuart Croll, Bill Fink, and others. These men have helped me put together a list of people who have been connected with wolf issues. Given your position as Superintendent with ISRO and the issues that were raised during your tenure at the Park, your opinion/position is crucially important to this research.

Attached is a page of questions that I hope you can find time to answer over the next month or so. Please answer these questions in any format that you find the easiest and most comfortable. Perhaps writing with pen and paper, computer, or email will work best for you. If it is easier, you could speak your responses into a tape recorder. You could send me your responses in any form (paper, disk (IBM or Mac), cassette, or email). I urge you to speak/write as freely as possible and in any manner (formal, informal, at length, or briefly). Although this project is not currently slated for publication, it may eventually be. If your responses are quoted, I will check with you beforehand so you can give or withhold permission as you wish. I have also included the list of key informants. Please look over the list and see if there are any people who should be added.

In my discussions with the current Isle Royale managers -- Superintendent Doug Bernard and Natural Resource Director Jack Oelfke -- and with Park Service managers at higher echelons, there is great interest in wolf matters and the results of this survey. Superintendent Bernard specifically thinks this is a good time to examine

the issue because the recent increase in wolves has taken some of the pressure off of making an immediate and hurried decision. As you know, many people have deeply held beliefs and opinions about the wolves of Isle Royale. Therefore, you would not only be helping me and my academic career but also helping the Park Service think through and hopefully solve one of its long-running resource dilemmas. Your assistance will be greatly appreciated by everyone. I hope to hear your responses soon. If you have any questions, please contact me.

Thank you,

Gary Wockner
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Madison, WI 53705
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Appendix D

Additional Quotes from the Key Informants

I. Additional quotes which support the "hands-off wilderness" approach:

"It's an isolated piece of property that has tremendous natural qualities. Being familiar with Alaska I have a hard time with calling it wilderness. It meets all the definitions. It has the qualities of those far away places. No one goes here for six months a year. It is not untouched by people. It hasn't been for hundreds of years. People have gone over every square inch of the island. Planes fly over it, boats go around it. You can hear them in a lot of places. It's not really untouched. There a lot of quiet areas where you can experience solitude, even though you see these nice flowery words in a lot of our books, it's not primeval. It doesn't make it any less special or any less of a natural place. We have done a lot to remove administrative impacts on the island. We no longer have backcountry ranger stations. We've eliminated every backcountry ranger station in the last twenty years. We have unlimited closed trails. There has been an effort to make it more wilderness.

It'd be a marvelous thing if we could have someplace where we don't do anything. Let em stay if they want to stay. Again, I go back to my stance about management at Isle Royale: We don't really manage wildlife, we just keep track of it. I would not favor reintroduction.

If you look at other wildlife needs and other mandates, then we could talk about, well what about the lynx?, and what about the pine marten?, and what about woodland caribou? Caribou "disappeared", lynx were trapped. What's good for one is not good for another? What about beaver? Beaver weren't here naturally, they were brought in. We had coyotes here, there's another one, what about that the wolves killed off the coyotes?

In Rocky Mountain [National Park], we have killed off all the fish in certain lakes and put back the native fish. We go off and we do these things. See fish are lesser wildlife species. It's almost like we're back in the twenties where we had good animals and bad.

If they [wolves] go, they go. To me they're important because they came there on their own. If they go on their own, then they go on their own (Croll 1996)."

"I think it's a fairly good wilderness. It very definitely has been affected by human activity, but most of that is in the past and I think the effects of that are wearing off. Those [effected] areas are gradually turning back to a normal and natural situation. What's there is still affected by what went on in the 1800s but still its headed in a wilder direction. But I think it's still a good wilderness and will be more and more in the future provided they don't allow too much human activity there.

My opinion is that they [wolves] probably should be managed as little as possible. I think it would be good to have a natural situation -- a natural relationship between wolves, moose, and the vegetation on the island. The problem is that I don't think it can ever be completely natural because ultimately the genetic variability is probably too small and will possibly effect the wolf population in the future. In the past this could be overcome naturally by wolves coming over from the mainland. However, I'm not sure that that is apt to take place anymore because the area along the shore of Lake Superior is getting less and less wild. So the wolf population there is probably declined considerably along the shore. I don't know what the wolf population is there but I suspect that it has declined and wolves have moved northward from the shore in Ontario. So I think it's a very difficult decision to make. You might argue usually that in order to keep the Isle Royale as natural as possible, you need to have wolves, wolves have been there in the past. However, that just may not come about by natural a situation because of the lack of the ability to migrate into the area. In other words, although Isle Royale is itself a wilderness, it is affected by areas around it in terms of trying to maintain a natural situation. So at this point I find it very difficult to make a decision as to whether I would approve of the introduction of wolves or not. We could argue that it would make a more natural situation because they might come on their own. On the other hand you might argue that introducing wolves is not a natural situation. Reintroducing extirpated species is not a bad idea. Although, if there's any possibility they could introduce themselves, then that would be better. The most important factor is to keep it natural (Janke 1996)."

"Isle Royale approaches a representation of a pristine Wilderness area. I strongly believe that the uniqueness of the Isle Royale environs and specifically the wolf population be allowed to fully evolve through natural processes. This relationship should be allowed to fully play out to its natural conclusion (Hobbs 1996)."

"These descriptions [by the Wilderness Act] accurately describe the essence of Isle Royale. The intrusive and destructive activities of man on the Isle Royale between roughly 1830 and 1930 have been reclaimed and enveloped by the forces of nature.

I favor "hands off" to the greatest degree possible. Manipulation begets more manipulation and where do we stop? We humans tend to arrogantly believe that we can improve upon the work of nature. We intervene to craft or perpetuate a scene which pleases us or gives us comfort. We make value judgements that the present, or a selected moment of time in the past, is the ideal and we want to "freeze-frame" our desired state in perpetuity.

I take no pleasure at the thought of Isle Royale as what Rolf calls a "moose warehouse". Without predation, the consequences of an unchecked moose population on Isle Royale vegetation, and on the moose population is itself, is not attractive to consider. Such a situation clearly does not fit with our human preference. Would this

situation be "unnatural" or merely "not desirable". But one has to suspect that such a state of affairs would be transitory too, although perhaps not in the time-terms that we humans like to deal with, namely the span or our own lifetimes.

If they go extinct and we bring them back, why will it not be fair to call Isle Royale a wolf zoo, a huge natural zoo without bars, but a zoo nonetheless? And it will be a zoo, make no mistake, because we will forever then be "managing" the wolf population to keep and maintain it the way we like it (Armington 1996)."

"Isle Royale derived its National Wilderness designation only by statute. The body politic chose to overlook the long period of its extensive occupation and resource exploitation for nearly a century. The development process has been in the direction of preserving and fostering the natural (wilderness), if you will, condition.

Let nature take its course. The policy of re-introducing species that were present "prior to European contact" is not consistent with the concept of preserving 'natural process'. Isle Royale is so situated that migration of species back and forth between the island and the Canadian shore is a relatively common occurrence. The Park Service position should be: let the wolves and other wildlife do their thing with minimum interference from humans. To the benefit of the species and to humankind as well, we have at Isle Royale the unique opportunity to learn, learn, learn about wildlife (not only wolf) ecology.

My position essentially is 'complete hands off', except for preventing artificial altering of habitat and encroachment on habitat. The occurrence of wolves on Isle Royale or in any other sizeable natural area represents but a moment in time as the world turns, climates and habitats change, and plants and animals find new niches (Hakala 1996)."

"It is about as natural a system that can still occur today due to its remoteness. Despite being designated as Wilderness (big W), personally it does not meet my expectation for wilderness.

I was opposed to any intervention. We still don't know and may not the answer if we started importing wolves. I still have some ethical concerns with handling wildlife in a Wilderness Area. Is there anywhere where wildlife can run free without having collars around their necks or tags around their necks? As a visitor in the backcountry, I would much rather see wildlife knowing that it has never been handled.

I would not consider wolves exotic since they are native to surrounding areas and moved to the island on their own. I consider them a native species since they came on their own. Other species have come and gone from the island. Should we intervene for one species? I am not convinced we should. I'm not sure that humans have so altered the environment that we should choose to insure wolf survival on Isle Royale. Why are we freezing things in time and sticking with wolf/moose?

The CPV occurrence does raise questions for reintroduction. If it can be proved that extinction was attributed to humans then I would definitely be in favor of

reintroduction.

Wolves represent a wildness for me. A place is wild if wolves are able to exist there. (this feeling is changing somewhat as wolves move into more urban areas) I hope that wolves are always on Isle Royale without human intervention. I don't think I would have this same feeling of wildness knowing that wolves were here only because humans choose to continue planting them on the island.

I think there is much more to the resource than wolves and moose. The people who had the foresight to set aside Isle Royale as a national park did so without wolves on the island. Bottom line for me is that I feel that the population should be allowed to set it's own destiny (Soleim 1996)."

"Isle Royale is a remote , natural national park. It's hardly "pristine". It's hardly "wilderness" considering one is constantly within sight and sound of other people.

Wolves came by natural means. Natural process should reign in a national park. It's nice to have them as long as they cause no problems. However, we should not turn Isle Royale into a "wolf farm" by deliberately importing wolves to a site where they have such a short-term history. Complete hands off! NPS should be a "good host" to wildlife. Eventually the guest may leave. That may be a sad day. But remember, Isle Royale wasn't created as "Wolf National Park." It wasn't in the original mandate (Weber 1996)."

"Wilderness is pretty much a state of mind; but I accept the Wilderness Act definition. I consider it [ISRO] to be reasonably classified as wilderness, even though it has been somewhat modified by human activity over past years--especially in the 19th century.

I had hoped that Isle Royale wolves could remain one population of wolves untouched by humans; however, the need to determine the reason for the wolf decline was very important. Had the wolves gotten down to just one or two pairs, I would have urged for reintroduction. Moose numbers fluctuate quite wildly without predation, and the incidence of parvovirus was human-caused.

I'd rather see "untouched" wolves as much as possible. Things evolve and succession does take place. There may have been wolves on Isle Royale a number of times during the 10,000 years since deglaciation--we may never know. The increasing human population along the north shore of Lake Superior during the past few decades makes it unlikely that wolves would again cross to Isle Royale during those rare times of ice bridging. Therefore, I would like to see a policy that would not exclude the possibility for reintroducing wolves when and if it becomes evident that the current population cannot make it on its own (Linn 1996)."

"The natural landscape blankets the human aspects of the island, demonstrating how we can only for short periods dominate the environment. Although, not untouched it is as much of a wilderness as I have had the profound

pleasure to see.

It seems that man has claimed the right, by supposedly superior intellect, to adjust the environment to suit the present situation. It is a delightful change to have an area [Isle Royale] set aside as much as possible to be left undisturbed for natural interactions to take place.

There is debate about the amount of human influence over the years and how it has played into changing the wolves and their patterns. This is speculatory, but if introduction of wolves is done then it would be fact. Disease in itself is a natural process regardless of the vehicle of its delivery.

I believe that since we did not introduce them in the first place, we should not reintroduce them since we are not sure if we were causing their demise. I believe that we should study natural processes but not manipulate them.

[reintroduction?] No! They came by themselves as far as we know and they may be leaving in the same manner. I don't believe we should interfere with a natural process and I feel that this is a natural process (Whaley 1996)."

"I have always advocated an enlightened wildlife management approach which leans to a hands-off approach except where obvious anthropomorphic impacts dictate otherwise.

[reintroduction?] Yes. Natural recolonization would be a slow and difficult process given the development along the nearest Canadian shoreline (Wright 1996)."

"I would use the term wilderness park to describe ISRO. I think it is more wilderness than natural but realize that the park had been subjected to the influence of man prior to becoming a park.

My position was not to support trapping and radio collaring the wolves. My position was based upon the fact that since the NPS managed ISRO as a wilderness area, we should maintain a position that man is but a visitor in the wilderness. Capturing and "marking" wolves with mechanical instruments violates the spirit of the wilderness ideal. I was in support of the tentative decision to let wolves become extinct by pursuing a hands-off policy. The wolves arrived at the island without a hands-on policy and if they became extinct, through natural processes, they should be permitted to go the same way. I may have felt differently if there was some man-caused factor influencing wolf decline.

I'd fit on the "complete hands-off" side. My personal position is that it is not worth violating the sanctity of the wilderness ideal to support scientific curiosity. No I wouldn't favor re-introduction since the extinction was caused by natural processes -- this is the precise point of having wilderness. The unexpected happens and man is but an observer in the natural processes. Wolves represent an ecosystem process which was not influenced by man. If their presence is a result of a unique happenstance, then we should appreciate this, learn from it, and permit it to depart in the same manner in which it arrived - without the influence of man (Ferranti 1996)."

"The policy of minimal human influence/intervention is a good one. There are plenty of studies where man has a major influence on wolves. I'm at the end of the spectrum of "hands-off" but with hands-on as needed to learn as much as possible from the system (Hiebert 1996)."

"I do conceive of Isle Royale as a wilderness, despite the constant anthropogenic influences and the long history of human use. NPS ought to unabashedly manage parks, provided that "doing nothing" is always considered as a viable management option in any given situation.

I think the recent NPS turn toward ecosystem management, natural processes, etc., is the only ecologically sustainable path open to us. Certainly these must be the focus of the agency's endeavors, not the maintenance of individual species or the static maintenance of an ecological scene from some particular point in time. Toward that end, I don't favor the artificial perpetuation of ISRO wolf population if the sole purpose is to perpetuate the current wolf-moose matrix (Harmon 1996)."

"Isle Royale is wilderness for those who wish to find it there. Solitude, naturalness, primitiveness, and undeveloped lands all can be found here in abundance as is intended by its wilderness designation. The wolf certainly adds to the wilderness flavor of the place.

There is more to Isle Royale than wolves. Lake Superior and many other important park resources were being over shadowed by the wolf issue, which I became to feel was a non-issue.

Why did we need to interfere? Let's let nature run its course and who knows maybe wolves will surprise us -- and they did. A wilderness is a place where humans do not control the outcomes. Wolves have been on Isle Royale for less than fifty years. Why try to freeze this moment in time? Is Isle Royale only significant because of wolves -- I think not.

The park held its ground on the side of nature -- allowing nature to runs its course. If we'd stepped in and reintroduced wolves, one, I think it would have failed, two, we would have diminished the wilderness character. Park Service policy also mandates that we do not try to isolate nature, that we allow it to be ongoing. If we decide to reintroduce we will always have to manipulate the population to maintain it and we will freeze the evolution of the island based on the past 50 years. I'd rather let nature decide its fate. Wolves arrived on Isle Royale naturally and they should be allowed to live here naturally, even it if means extinction. There is more to be learned from allowing nature free reign than interference.

[Reintroduction?] If there is strong evidence that humans are the cause of extinction I would favor it (Lindsay 1996)."

"Isle Royale today is truly a mini-wilderness. As far as we know, probably no mammals currently present have been introduced by modern man other than possibly the white-footed deer mouse. It is perfectly reasonable to presume the wolf as

essentially a native.

My reaction initially was against collaring. This was not so much a concern about adverse impacts on wolves as it was a question of how telemetry monitoring would impact maintenance of a wilderness setting.

If the best estimate was that extinction resulted from a man-caused factor, then I would have unhesitatingly supported restoration. If, on the other hand, disappearance had most-likely resulted from a "natural" process, such as stochastic events or inbreeding, then my initial reaction would have been against restoration. There is no "completely hands-off" in sound natural-resource management, even though some might claim that hands-off is the only appropriate way to maintain an undisturbed system. As long as human influences can potentially damage natural resources, we must be prepared to take actions to counteract such influences, particularly when policy is committed to complete protection.

If wolves were able to get around Duluth-Superior and colonize northern Wisconsin, then it should be far more easier for them to exist along shorelines facing Isle Royale from which to launch a colonization across the ice (Jordan 1996)."

II. Additional quotes which support the "human-induced balance" approach:

"Their most critical function may be keeping moose numbers lower than they would be otherwise, perhaps mitigating overbrowsing effects on plant communities (Jean Cochrane 1996)."

"[Isle Royale is a] natural, semi-wild park. [The Park Service should] maintain wolves as an important predator and symbol of wilderness. I would however avoid any major habitat modifications or other large-scale manipulations suggesting to the public a park commitment to large-scale artificial management. I support active management to maintain a viable wolf population. I favor re-introduction. [Wolves are an] important predator and cultural symbol (Kellert 1996)."

"Wolves may be the best biological control we have if the moose population gets out-of-control. [reintroduce?] Only if there was no better (more efficient) way to handle a moose crisis (Weber 1996)."

"I categorize it as a natural area park. It could be termed wilderness in terms of its isolation and relatively limited contemporary development but not in terms of the history of human development. ISRO has offered an outstanding laboratory to look at the natural processes of herbivory and predation. Wolves are integral to these processes and the NPS management should be geared to maintain those populations (Wright 1996)."

"[reintroduction?] Yes, but only in conjunction with re-introduction of caribou and other species formerly present. Valuable as the wolf-moose study is, particularly as a "simplified" real-life interaction between a large predator and large prey species, I think the long-term goal at ISRO should be to restore as complete an assemblage as possible of the species known to have inhabited the island (Harmon 1996)."

III. Additional quotes which support the "social constructionist" approach:

"I would like Jack to write a well-reasoned argument for us to approach Region to go up the line to bring this question before the National Science Foundation or similar group to do a "blue-ribbon" examination of this question (Bernard 1996b)."

"We can and should ask the questions now, so we will never act with haste. The discussions will necessarily need to entertain both science and philosophy (Armington 1996)."

"Yes I consider it "natural", but is not synonymous with untouched by humans. It is far too managed and groomed by the NPS and too accessible to be "real wilderness".

The native-exotic dichotomy can be useful for setting conservation priorities, but like any human construct it is ultimately arbitrary. I think it is a mistake to base management decisions solely or even largely on this criteria. So for wolf management I think the park is really not bound at all by the policies you refer to. It would be ridiculous to exterminate wolves as an exotic, but all silly to restore them (if they disappear) only because we hypothesize they could be "native" to the island. A rational decision should be based on careful consideration of their current/potential function within the park ecosystem (system health), their regional population status (system integrity), and public interest including research values. Wolf management should be based on a thoughtful and informed balance between maintaining regional ecosystem processes and biodiversity and providing the resources and experiences the American public wants in a national park.

As British ecologist Graham Caughley elegantly and provocatively argued, conservation biology's theoretical "small population paradigm" is desperately in need of field validation. Isle Royale's wolves provide one of the first and most obvious opportunities for such testing; hence I strongly support genetic screening and monitoring reproductive success and longevity of known individuals provided they are completed under a well-thought-out study design.

Park managers tend to see themselves as not only endowed but competent to make such decisions largely on their own. In contrast, as long as wolves generate such great interest in both professional and lay communities, the park would be wise to establish a much more broadly based decision making system.

I would favor reintroduction if wolves are gone from or even if they are no longer actively breeding on the island. I don't see any reason not to restore wolves, especially since I expect the public would be highly supportive. I think a robust discussion among representatives of all stakeholders is called for and for me, at least, could greatly influence my vote for the most wise strategy (Jean Cochrane 1996)."

"I also believe that the NPS and the public should begin discussing the potential for extinction so a policy is in place if this were to happen (Soleim 1996)."

"In an absolute sense, Isle Royale is not a wilderness. "Natural" is a very subjective and culture-specific term. The archeological record, while again only provisional, suggests that "humans" are more "natural" than wolves on Isle Royale.

I would argue to my death that Isle Royale wolves are as important for symbolic reasons as any "biological reasons." One of the general problems to "wolf management" at Isle Royale has been the park's slavish devotion to wolves as the preeminent "thing" at Isle Royale. In effect, the NPS has pushed wolves and moose as a kind of mono-culture of what is important at Isle Royale. This making of wolves and moose as the defacto totem animals for the park has precluded some rational discussion and raised the decision-making stake. For example, because they are high profile there has been a camouflaging of the issue of whether wolves and moose are "native" or "exotic" species on Isle Royale.

I think most objective observers looking at the evidence (without looking at the potential consequences) would conclude that wolves and moose are "exotic" species as the NPS defines the term. While it appears that wolves are not "native" to Isle Royale in a long term temporal sense, they are native to the biological zones which make up the Island. So they are native to the general biotic community, but likely not to Isle Royale. Or restated, they are regionally native, locally likely not. The park (or better yet an independent group) should formally address the issue of "nativeness" or "exoticness" of wolves and moose.

Personally I don't have any trouble "maintaining" or "introducing" wolves after a full accounting and consideration is made. If the public wants them there, just like they want wilderness to "made" there, then why not? [But] the public needs greater buy into the complexity of the issues so they can participate reasonably. If we want them because we like wolves, fine.

Waiting until they are extirpated before you make a decision on what to do is criminal. A course of action should be discussed and outlined now or in the near future (Tim Cochrane 1996)."

"Isle Royale is a natural area. Wilderness is in the eyes of the beholder. I personally do not consider the park wilderness as defined in the Wilderness Act.

The Park's involvement should be limited to those activities which maximize the value of the long-term research on wolves. [reintroduction?] No. If one believes the hypotheses explaining arrival of wolves on Isle Royale, likely it occurred times

before. If their extirpation would occur, and it can not be clearly documented extirpation was the direct result of human activity, then NPS policy says no reintroduction. From a research perspective, there would likely be more to gain by extirpation than re-introduction also (Stottlemeyer 1996)."