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THE TRUMPETER

*Voices From the
Canadian Ecophilosophy Net Work*



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FOCUS ON WILDERNESS

THE TRUMPETER

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The Aims of the Trumpeter

One of the basic aims of this journal is to provide a diversity of perspectives on our environmental relationships and on Nature. By "diversity of perspectives" we mean not only cross disciplinary and interdisciplinary reflections, but also with respect to nonscholarly sources. Seeking a variety of perspectives involves eclectic synthesis and synotic vision. Our aim is to investigate ecophilosophy as this shows up in the work and lives of people working in different ways to come to a deeper and more harmonious understanding and relationship to Nature and the Earth. **The Trumpeter** is dedicated to exploration of and contributions to a new ecological consciousness and sensibilities and the practice of forms of life imbued with ecosophy (ecological wisdom). **Published quarterly by LightStar Press.**

FUTURE AND BACK ISSUES: The Fall issue of **The Trumpeter** will feature a discussion of deep ecology and more on extended identity. In 1987 we will have features on community, technology, green politics, ecofeminism and love. **Back Issues** of Vols. 1 & 2 are still available. They are now \$8 per set, includes postage. We ran out of several numbers and have had to have them photocopied, which raised the price.

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INTRODUCTION TO THE LAST WILDERNESS ISSUE

By Alan R. Drengson

Since this is the last in our series of wilderness issues, it is time to look back over the route we have taken, and to look ahead at what lies on this leg of our journey. We also will say how this journey will affect future travels. Our broad and deep look at the philosophical ecology of wilderness has led us to see that other areas need deep exploration as well. A complete philosophy of wilderness must minimally contain the kinds of elements that have been set forth by the authors in these three issues. These elements include a whole host of multidisciplinary and artful dimensions, prehistorical, grammatical, historical, logical, scientific, experiential, sociological, psychological, spiritual, and so on. We see ecological philosophy as the unifying transdisciplinary activity that makes our journey possible.

We have surveyed the various conceptions of wilderness, and we have delved into what wilderness means to us in a larger sense, in terms of our experience of it. We have explored wilderness as a place and as an expression of nature's intentions. It has provided us with a way of seeing the world from the context of the oral, hunting and gathering traditions, the old ways of very ancient origins, as well as a way of gaining perspective on how human technology of a certain order of development can alienate, or separate us from the wildness of nature, and from our own wild nature, or natural Self. We have seen that no sharp boundary can be drawn between the natural and the artificial, but it is possible nevertheless to discern them both. A manufactured environment still has something of its creator's nature in it, for even a space craft contains emulated portions of Earth's atmosphere, and other life support elements. It is fashioned from the Earth, even though all of its alloys and plastics might not be of the Earth.

We have also noted that the printed word carries both opportunities and hazards for a living philosophy of nature. The most ancient Earth wisdom was (and is) preserved in traditions of orality. The sophia of the non-literate (or the transliterate) is a wisdom that can be completely internalized and called upon at need. It harmonizes with its place, its ecos, hence ecosophy. Literate print culture tends to technologize culture and learning, and it thereby creates a large body of fact and data that cannot be assimilated in the body-mind of a single person, unless it be organized via secondary orality, i.e., via a linguistic mastery that builds on the literate, but that transcends it to develop a new, higher order of orality. Philosophically this involves conceptual and artistic synthesis, along with the creation of ritual and systematic forms

that can be embodied in movement and practice, i.e. that are freed from a text. (Here Wilderness Travel as described in the last issue, and Aikido as a martial art are examples of such embodied practices with ancient roots and processes of apprenticeship.) The capacity to possess such a body of information and turn it into readily usable knowledge and distill that further into practical wisdom can only come through the development of such a secondary level of orality (in our context) that runs through and emerges beyond the processes of literacy and systematic collection of information. Such an undertaking of synthesis is extremely difficult because it requires that we learn to look at the world from many perspectives, that we be able to shift our paradigms, shift our organizing metaphors and open our experiences to the world in a much larger way. It requires that we not only conceptualize but perceptualize and actualize an ecological wisdom, an ecosophy of harmony. It implies transcending our judgmental mind.

The tendency of technological processes such as printing and information processing is to increase options for power, but they can also decrease options for their use. They can diminish our personal development, as e.g., when power tools replace hand tools we sacrifice some of our own personal skills. Modern war technology is a very good example of this on many levels, but especially of the limits of machine power, since the use of its most highly developed instruments of destruction would destroy the fabric and web of living world relationships; it would poison the common atmosphere. Its great power in this respect turns in on itself to reflect negative forces of self-destruction.

The modern technological state has greater need for wilderness than the ancient city state. The ancient city state, such as an Athens, was set in the wilderness, surrounded by it. The forests and mountains were inhabited by wild animals of diverse kinds. Large predators and wild persons roamed freely about. The city was a sanctuary. To be sure, the cities of the ancient world had a profound impact on their surrounding environment, but their technological processes and their numbers were such that they could not alter the global biological communities. The technological urban cities of today are a different story. Many of their features give rise to a need for sanctuary, for places natural enough to soothe the tensions brought on by urban life and by its regulation of the natural self. We know well the consequences of both oppression and repression.

Let us consider our situation in North America today. The paradox of management (i.e. the old philosophies of control) is that as our technology has grown, and our capacities for intervention have increased, we have had less control as persons;

instead of more freedom, we have less. (E.g., a large tractor does not necessarily give one greater freedom than a scythe, and in fact one's self subsistence might be endangered by it.) We plan not only to manage the wilderness (consider the paradoxes), but also the human person in the name of democracy (consider the conflicts). Paradoxically, the value we place on the economic myths of the market place and free enterprise have given rise to the strange situation where regulation is removed from the economic sphere to encourage freedom and corporate self-regulation, while at the same time increasing regulation on personal freedom. Corporations are fictional persons incapable of true responsibility, while human persons are real persons only insofar as they have full responsibility and freedom to assume it. Responsibility is not the result of external regulation, but requires maturation through choice. Yet policies encourage the collective irresponsibility of laissez faire for corporate action (and huge deficits are examples of this), while they impose controls on individual persons, who are not allowed the same freedom. Examples of these paradoxes abound. In farming, e.g., the force of collective policies, laws and corporate management practices are driving small family farmers off of the land, while they promote degradation of the farm land base. They are decreasing the amount of local and regional business, while they promote concentration of wealth and corporate oligarchy. At the same time, petrochemical farming erodes the soil and contaminates food and water. Another example is the use of modern technologies connected with computers which have given large organizations tremendous advantages over the individual, and yet the individual is regulated for the machines' convenience. The improvements of technological processes for testing and timing have given rise to more rigid controls over workers.

Government and other organizations are set now to begin a period of rigid control over what people read, consume, watch as entertainment, how they recreate, and even how they relate to one another. And how we relate to one another, treat one another, has profound implications for how we treat wild and domestic animals and the wilderness. Along with these control oriented attitudes and techniques goes a drive toward uniformity and ideological purity. The development of biogenetic technology, it is said, will give us the power to control and direct evolution, and this is rationalized as our evolutionary destiny by the fallacious argument that since we are products of evolution ourselves, everything that we do must be consistent with the direction of the universe. This is the modern eschatology. To design new types of plants and animals, to engineer food plants that are best suited to artificially created

petrochemical mediums under corporate patents, to even engineer human persons, is all thought by some to represent progress, our human destiny. But other dissenting voices are heard, and one of those heard is the voice of wilderness and of wild nature itself. Some hail these sorts of advances as good and others see them as evil, as a form of fascism on a large scale. Few understand in a deep way what their implications are. The paradoxes and contradictions in our various approaches are not readily apparent, but they come out clearly when we consider wilderness, its management and the management of people in wilderness and even the programming of "wilderness experience."

Consider the inconsistencies in management of persons: Our cultural traditions of Western democracy place great value on freedom for individual persons to act according to the dictates of their consciences, provided they do not interfere with other persons' rights in this regard. We each are responsible to choose our path and a way of life that leads to Self-realization. This is part of our secular religion. However, at the same time we indulge a paternalistic state that encourages politicians to play to the fears some have of true freedom. We see this in the recent efforts to impose censorship, to criminalize the possession of certain sorts of literature, and to outlaw the consumption of certain natural substances that are deemed to be "bad for us." Authorities try to manage what information they will allow us to have, even though it has been paid for by tax dollars. They try to impose "lie detector" tests, punish whistle blowers, impose random testing of bodily fluids, and then attempt to limit people's right to redress in the courts. They denigrate the civil service at the same time as they play the old game of spoils. They try to sell ideologies the way soup is marketed. They condemn human sexuality as a fit topic for discussion and exploration and celebrate forms of entertainment that are filled with gratuitous violence. They dote on image and public relations, rather than substance, integrity and respect for the wisdom of persons' to decide how to conduct their own lives. They propose regulating voluntary consumption of certain substances, while at the same time allowing corporate entities to dump huge quantities of petrochemicals, biocides, and pollutants, into the life stream of us all. The development and dispersal of nuclear technology is subsidized to the hilt, while incentives for the development of alternative, ecologically sound technologies are curtailed.

In the drive to control and manage is hidden a deep fear of what we are as natural beings. There also lurks here degenerate forms of religious taboos whose original sense has been lost. The meaning of true purity and spirituality has been forgotten. Wilderness represents to this whole panoply of

negative forces something to be overcome precisely because in this non-ecological dicotomous thinking (which we all fall into in one way or another) the world is seen as falling into rigid categories of things, good and evil. Wilderness is free. It is wild. It is uncontrolled by us, and to the mind of control this is threatening, partly because within our larger minds there is also the wild, free mind. As we attempt to control human persons more and more, uncontrolled nature becomes more and more threatening. The natural person becomes a "savage," and subliminally reminds us of our own crippled natural selves, hence is hated for his/her spontaneity and freedom.

Of course, I am not suggesting here that those who pursue control (in this sense) over others are intrinsically evil. The world is not divided into good and evil in this way. A person might do something evil, but there is still good in this person. There is evil that we have done or of which we are capable. There are evil states of which we can be victims. Pride is not a sin inherent in the Self. It is a defiled state to be in, but we can remove such defilements. The wilderness represents to us a state of pristine wholeness. Undefined wilderness represents the kind of innocence we can be reborn to, or that is within us. One form of defilement begins when the metaphors of spiritual teachers are literalized and misconstrued to have only one meaning. Literalizing metaphor is not a bad thing, and can be useful, but it becomes dissociation from the richer meanings of natural languages, when metaphors are reduced to one literal dimension. This leads to forms of confusion in which mind is abstracted from life, and our concepts are reified so that our experience is intellectualized and is almost all in the head, removed from our deeper embodiment as ecological, as related embodied beings. This is evident in our treatment of animals both domestic and wild. Many of us will think here of the culture of our youth.

The culture of my boyhood was one that loved animals. It was first a farm and then in part a hunting-gathering culture. Dogs, cats, horses, pigs, cows, chickens, birds, sheep, angleworms, deer, bear, racoons, snails, fox, hawks, etc., were not feared, hated or thought of only as "cute" toys. Dogs, e.g., were members of the family. They went with the kids wherever they played. They went on vacation. They went on hikes. They roamed the city streets without encumbrance. Today, most urban dwellers have very little deep personal contact with animals. If they see wild animals at all, it is in a zoo. They have not developed the ability to cultivate a deep rapport and reciprocal awareness with animals. They might gain some knowledge of "animal behaviour" by watching television wildlife programs, but this is no substitute for nursing a small animal back to

health, raising it, living with it, naming it and so on, nor for hours spent in the field observing wild animals in all of their many moods and activities. It is not surprising, given this separation from animals, that leading theorists in academic circles would think that animals are not conscious beings. (Some, ironically, even doubt that humans are conscious, or they think that certain machines are conscious in much the same way humans are.) Given these thoughts, it is not surprising that they should try to reduce the "behaviour" of animals to various simplistic mathematical models. They leave out far more than is there. The richness of the wild kingdom transcends anything our literate tradition, our texts and computers, could ever encircle and hold. (Only love enables a person to "hold" them all.) And with this separation goes a technology by means of which we manipulate through intermediaries, through programs and variables. The wilderness is not known in its deep particularity.

Economic and political forces have driven large numbers of people off the farm and into the cities. Large political and economic forces have turned the cities into areas where almost all animals are excluded. Under such abstracted conditions the idea of "designing" new life forms to be released in nature is no longer understood for what it implies. It is only an abstract thought, even though at a deeper level there is an unarticulated fear which comes out in our art. We have the sense that we are losing touch with something of profound importance to us in terms of our health and destiny, and we struggle to verbalise this, for as products of a literate culture, unless it be verbalized we feel we do not know it, and can neither prove nor make it respectable. It takes a writer as sensitive and skilled as Holmes Rolston to bring some of what we know at a deep level into the open.



In this issue of **The Trumpeter** we explore the paradoxes and dilemmas involved in trying to save enough wilderness to ensure our survival and also to preserve its values. And as is clear, this will require that we are disciplined and mature enough to have the courage, strength and good heart to let the wild animals be their wild selves. As Muir pointed out, they exist first and foremost for themselves, just as each of us exists first and foremost for ourselves. This does not mean, in our case, that we should pursue self-centeredness, but instead that we realize that we are not just ego-self, but also a larger, wilder Self that has the capacity to reach a level of identification and moral understanding that cares for and does not interfere with other beings, but which helps them to realize their good--when they want help. In this caring and understanding we come to appreciate the diversity of person-kinds and the need for such diversity, within ourselves, our communities and our world. Wilderness offers to us the chance to regain our sense of sanity, balance, health, and wholeness. This is why it is so vitally important for us to know wilderness as it is in itself, for this is our clearest view of nature as it is in itself. How we define wilderness helps to determine how our culture defines itself. To create new cultural elements and preserve older traditions with sustainable relationships to nature---this is our major challenge today. Culture and character in turn define one another in relation to nature and other cultures.

The common threads that run through this issue, then, are the problems inherent in wilderness preservation and management. Most of the authors stress the importance in assessing, taking account of, understanding, and ultimately in controlling the role that technology plays in the preservation or destruction of wilderness, and this applies not only to wilderness places, but also to the small wilderness of natural self that is the unique quality of each person. Children are not wild beasts to be tamed, their spirit imprisoned by control, but as natural beings come with their own needs and capacities for spontaneous, creative action. Education for full responsibility is education that does not pound certain values into persons, but involves helping persons to realize their own inherent goodness, their capacities for creativity, community, communion and unity with nature and Self. Wilderness means all of these things to us and more.

The papers in this edition complete our look at wilderness. We have attempted to provide a diversity of viewpoints and angles of perception in order to aid the development of a sound philosophy of wilderness. This issue completes our survey with a sufficiently wide panorama to enable us to see the areas that need exploration in the future. William Grey's paper gives us a good, basic, and

very clear statement of the philosophical issues connected with getting a sense of the various dimensions of value connected with wilderness. John C. Miles explores the paradoxes inherent in wilderness management and in the management of persons in wilderness. (And in wilderness self-discipline and responsibility must in large measure take the place of law.) The necessity of management for preservation, as he points out, creates various tensions and conflicts that require a great deal of work to resolve. Morgan Sherwood surveys the major forms of intrusion on wilderness that create situations which diminish wilderness. He brings into sharp focus the role that technology plays in all of this. John Livingston explores the problems inherent in developing a coherent philosophy of wilderness management, and also exposes the fallacies and short-comings in the agricultural metaphors used in wilderness management theory and rationale. The "cultivation" of wilderness goes against the grain. One wonders to what extent this applies as well to the "cultivation" of persons, and, as we have seen, the violence and force of bad agriculture is related to the desire to totally control nature, whereas natural farming lets nature work in its way and harmonizes the raising of food with it. Holmes Rolston, as we have noted above, gives us a deep and moving meditation on what it is to be a wild animal, wherein their beauty and importance for us lie, and the implications that follow from this aesthetic. Alan Wittbecker gives us a broad overview of the place of human society in wilderness and the necessity of wilderness to our health as a culture and as persons. He also has much to say on wilderness as a value in itself. Rick Searle presents an overview of the opportunities and problems for big wilderness in Canada. Finally, Jeff Cox suggests how we can find elements of the wild in our own urban gardens, and how these discoveries can lead us to a deeper sense of our own connections with nature. His reflections remind us that we need to make more room for the wild within our cities, and more opportunities for making connections with the natural world. We need more opportunity to make contact with the contemplative, nonaggressive Self within each of us, which is in harmony with the flow of natural change. All of these authors bring out important elements that must figure in a new philosophy of wilderness "management."

Looking back and then ahead we can see from our look at agriculture and wilderness that we now need to consider technology in relation to ecological modes of perception, thought and action. We also need to focus on community--biological and human, on processes of political action, and on a new philosophy of wildlife management and ecoforestry. Further, the emergence of the feminine is another consideration that must be addressed, as well as

the current state of deep ecology. Finally, a deeper look needs to be taken of a new ecological ethic involving the revitalization of the ethic of love. These subjects will be the focus of future issues of **The Trumpeter**. The fall issue will address current debates about deep ecology, and the Winter 87 issue will have a focus on green politics and deep ecology. The other subjects mentioned will be in various issues in 1987.

A final comment: With respect to booknotes, films, organizations, conferences, and the like, we have been selective in these wilderness issues of **The Trumpeter** simply because we do not have the resources to list everything. We have tried instead to list major resources and cite representative examples in order to illustrate philosophically relevant detail and fact. The work of producing and distributing this journal falls primarily on me and my wife, Victoria Stevens. The financial support for its publication and distribution comes almost solely from network subscriptions. We currently have about 90 subscribers who have not renewed for 1986. We hope that those of you who have not renewed will do so, using the enclosed form. We hope that those of you who have renewed will get libraries to subscribe and also will give gift subscriptions. If we get a paid subscription list of 250-300 we will be able to meet all production costs. We would like to be able to hire someone to do some of the word processing, so that our weekends are freed for other things. We would also like to be able to afford to further improve the print format of the journal. Our current mailing list now totals 250, and is made up of individuals, libraries, organizations, and agencies. We thank all you networkers for your support of our efforts, your letters of encouragement, your financial support and for your submissions of material. Your help has kept us going, inspired us and made us hopeful about the future.

Thanks to you all,

Alan

THE VALUE OF WILDERNESS

By William Grey*

"Wilderness is the raw material out of which man has hammered the artifact called civilization."

--Aldo Leopold¹

The framework which I examine is the framework of **Western** attitudes toward our natural environment, and wilderness in particular. The philosophical task to which I shall address myself is an exploration of attitudes toward wilderness, especially the sorts of justification to which we might legitimately appeal for the preservation of

wilderness: what grounds can we advance in support of the claim that wilderness is something which we should **value**?

There are two different ways of appraising something as valuable. It may be that the thing in question is good or valuable **for the sake** of something which we hold to be valuable. In this case the thing is not considered to be good in itself; value in this sense is ascribed in virtue of the thing's being a **means** to some valued end, and not as an **end in itself**. Such values are standardly designated **instrumental** values. Not everything which we hold to be good or valuable can be good for the sake of something else: our values must ultimately be **grounded** in something which is held to be good or valuable in itself. Such things are said to be **intrinsically** valuable. As a matter of historical fact, those things which have been held to be intrinsically valuable, within our Western traditions of thought, have nearly always been taken to be states or conditions of **persons**, e.g., happiness, pleasure, knowledge, or self-realization, to name but a few.

It follows from this that a very central assumption of Western moral thought is that value can be ascribed to the nonhuman world only insofar as it is good for the sake of the well-being of human beings.² Our entire attitude toward the natural environment, therefore, has a decidedly anthropocentric bias, and this fact is reflected in the sorts of justification which are standardly provided for the preservation of the natural environment.

A number of thinkers, however, are becoming increasingly persuaded that our anthropocentric morality is in fact inadequate to provide a satisfactory basis for a moral philosophy of ecological obligation. It is for this reason that we hear not infrequently the claim that we need a "new morality." A new moral framework--that is, a network of recognized obligations and duties--is not, however, something that can be casually conjured up in order to satisfy some vaguely felt need. The task of developing a sound biologically based moral philosophy, a philosophy which is not anthropocentrically based, and which provides a satisfactory justification for ecological obligation and concern is, I think, one of the most urgent tasks confronting moral philosophers at the present. It will entail a radical reworking of accepted attitudes--attitudes which we currently accept as "self-evident" --and this is not something which can emerge suddenly. Indeed, I think the seminal work remains to be done, though I suggest below the broad outline which an environmentally sound moral philosophy is likely to take.

In the absence of a comprehensive and convincing ecologically based morality we naturally fall back on **instrumental** justifications for concern for our

natural surroundings, and for preserving wilderness areas and animal species. We can, I think, detect at least four main lines of instrumental justification for the preservation of wilderness. By **wilderness** I understand any reasonably large tract of Earth, together with its plant and animal communities, which is substantially unmodified by humans and in particular by human technology. The natural contrast to **wilderness** and **nature** is an **artificial** or **domesticated** environment. The fact that there are boarderline cases which are difficult to classify does not, of course, vitiate this distinction.

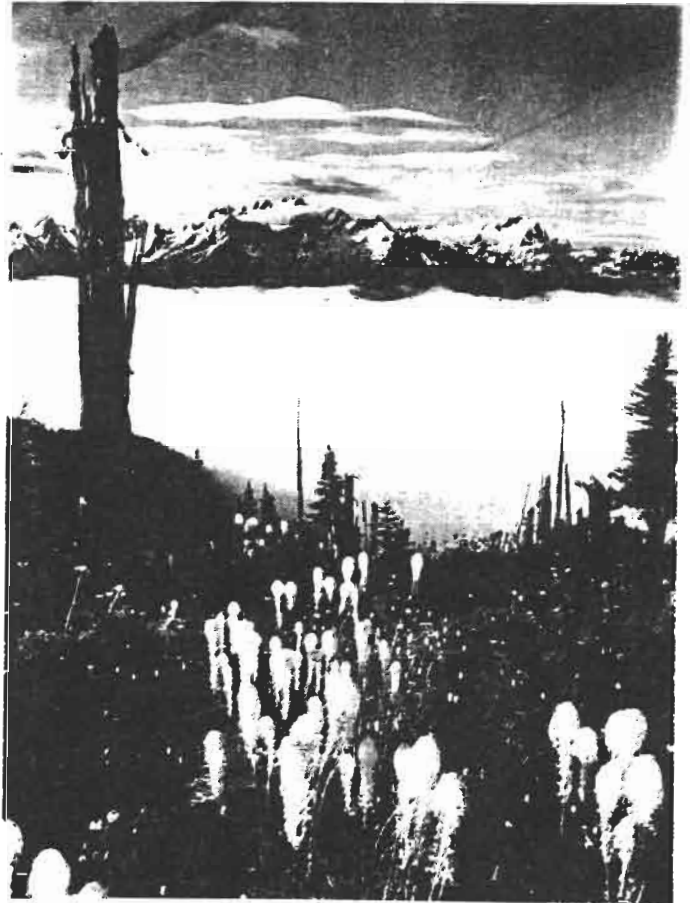
The first attitude toward wilderness espoused by conservationists to which I wish to draw attention is what I shall call the "cathedral" view. This is the view that wilderness areas provide a vital opportunity for spiritual revival, moral regeneration, and aesthetic delight. The enjoyment of wilderness is often compared in this respect with religious or mystical experience. Preservation of magnificent wilderness areas for those who subscribe to this view is essential for human well-being, and its destruction is conceived as something akin to an act of vandalism, perhaps comparable to--some may regard it as more serious than³--the destruction of a magnificent and moving human edifice, such as the Parthenon, the Taj Mahal, or the Palace of Versailles.

Insofar as the "cathedral" view holds that value derives solely from human satisfactions gained from its contemplation it is clearly an instrumentalist attitude. It does, however, frequently approach an **intrinsic value** attitude, insofar as the feeling arises that there is importance in the fact that it is there to be contemplated, whether or not anyone actually takes advantage of this fact. Suppose for example, that some wilderness was so precariously balanced that **any** human intervention or contact would inevitably bring about its destruction. Those who maintained that the area should, nevertheless, be preserved, unexperienced and unenjoyed, would certainly be ascribing to it an intrinsic value.

The "cathedral" view with respect to wilderness in fact is a fairly recent innovation in Western thought. The predominant Graeco-Christian attitude, which generally speaking was the predominant Western attitude prior to eighteenth- and nineteenth-century romanticism, had been to view wilderness as threatening or alarming, an attitude still reflected in the figurative uses of the expression **wilderness**, clearly connoting a degenerate state to be avoided. Christianity, in general, has enjoined "the transformation of wilderness, those dreaded haunts of demons, the ancient nature-gods, into farm and pasture,"⁴ that is, to a domesticated environment.

The second instrumental justification of the value of wilderness is what we might call the

"laboratory" argument. This is the argument that wilderness areas provide vital subject matter for scientific inquiry which provides us with an understanding of the intricate interdependencies of biological systems, their modes of change and development, their energy cycles, and the source of their stabilities. If we are to understand our own biological dependencies, we require natural systems as a norm, to inform us of the biological laws which we transgress at our peril.



The third instrumentalist justification is the "silo" argument which points out that one excellent reason for preserving reasonable areas of the natural environment intact is that we thereby preserve a stockpile of genetic diversity, which it is certainly prudent to maintain as a backup in case something should suddenly go wrong with the simplified biological systems which, in general, constitute agriculture. Further, there is the related point that there is no way of anticipating our future needs, or the undiscovered applications of apparently useless plants, which might turn out to be, for example, the source of some pharmacologically valuable drug--a cure, say, for leukemia. This might be called, perhaps, the "rare herb" argument, and it provides another persuasive instrumental justification for the preservation of wilderness.

The final instrumental justification which I think should be mentioned is the "gymnasium" argument, which regards the preservation of wilderness as important for athletic or recreational activities.

An obvious problem which arises from these instrumental arguments is that the various activities which they seek to justify are not always possible to reconcile with one another. The interests of the wilderness lover who subscribes to the "cathedral" view are not always reconcilable with those of the ordinary vacationist. Still more obvious is the conflict between the recreational use of wilderness and the interests of the miner, the farmer, and the timber merchant.

The conflict of interest which we encounter here is one which it is natural to try and settle through the economic calculus of cost-benefit considerations. So long as the worth of natural systems is believed to depend entirely on instrumental values, it is natural to suppose that we can sort out the conflict of interests within an objective frame of reference, by estimating the human satisfactions to be gained from the preservation of wilderness, and by weighing these against the satisfactions where are to be gained from those activities which may lead to its substantial modification, domestication, and possibly even, destruction.

Many thinkers are liable to encounter here a feeling of resistance to the suggestion that we can apply purely economic considerations to settle such conflicts of interest. The assumption behind economic patterns of thought, which underlie policy formulation and planning, is that the values which we attach to natural systems and to productive activities are commensurable; and this is an assumption which may be called into question. It is not simply a question of the difficulty of quantifying what value should be attached to the preservation of the natural environment. The feeling is more that economic considerations are simply out of place. This feeling is one which is often too lightly dismissed by tough-minded economists as being obscurely mystical or superstitious; but it is a view worth examining. What it amounts to, I suggest, is the belief that there is something **morally** objectionable in the destruction of natural systems, or at least in their wholesale elimination, and this is precisely the belief that natural systems, or economically "useless" species do possess an **intrinsic** value. That is, it is an attempt to articulate the rejection of the anthropocentric view that all value, ultimately, resides in **human** interests and concerns. But it is a difficult matter to try to provide justification for such attitudes, and this is, for reasons which are deeply bound up with the problems of resolving basic value conflict, a problem which I have discussed elsewhere.⁵

The belief that all values are commensurable, so that there is no problem in **principle** in providing a satisfactory resolution of value conflict, involves the assumption that the quantitative social sciences, in particular economics, can provide an **objective** frame of reference within which all conflicts of interest can be satisfactorily resolved. We should, however, note that in the application of cost-benefit analyses there is an inevitable bias in the sorts of values that figure in the calculation, viz., a bias toward those considerations which are readily quantifiable, and toward those interest which will be staunchly defended. This is a fairly trivial point, but it is one which has substantial consequences, for there are at least three categories of values and interests which are liable to be inadequately considered, or discounted altogether.⁶ First, there are the interests of those who are too widely distributed spatially, or too incrementally affected over time, to be strongly supported by any single advocate. Second, there are the interests of persons not yet existing, viz., future generations, who are clearly liable to be affected by present policy, but who are clearly not in a position to press any claims. Third, there are interests not associated with humans at all, such as the "rights" of wild animals.⁷

This last consideration, in particular, is apt to impress many as ludicrous, as quite simply "unthinkable." It is an unquestioned axiom of our present code of ethics that the class of individuals to which we have obligations is the class of humans. The whole apparatus of rights and duties is in fact based on an ideal of reciprocal contractual obligations, and in terms of this model the class of individuals to whom we may stand in moral relations--i.e., those with whom we recognize a network of rights, duties, and obligations--is the class of humans. A major aspect of a satisfactory ethic of ecological obligation and concern will be to challenge this central anthropocentric assumption. I return to this point below.

Even restricting our attention to the class of human preference havers, however, we should be wary of dismissing as simply inadmissible the interests of future generations. The claims of posterity tend to be excluded from our policy deliberations not, I suspect, because we believe that future generations will be unaffected by our policies, but because we lack any clear idea as to how to set about attaching weight to their interests. This is an instance of the familiar problem of "the dwarfing of soft variables." In settling conflicts of interest, any consideration which cannot be precisely quantified tends to be given little weight, or more likely, left out of the equation altogether: "If you can't measure it, it doesn't

exist."⁸ The result of ignoring soft variables is a spurious appearance of completeness and precision, but in eliminating all soft variables from our cost-benefit calculations, the conclusion is decidedly biased. If, as seems plausible, it is in principle impossible to do justice to soft variables, such as the interests of posterity, it may be that we have to abandon the idea that the economic models employed in cost-benefit calculations are universally applicable for sorting out all conflicts of interest. It may be necessary to abandon the economic calculus as the universal model for rational deliberation.⁹

Another category of soft variable which tends to be discounted from policy deliberations is that which concerns economically unimportant species of animals and plants. A familiar subterfuge which we frequently encounter is the attempt to invest such species with spurious economic value, as illustrated in the rare herb argument. A typical example of this, cited by Leopold, is the reaction of ornithologists to the threatened disappearance of certain species of songbirds: they at once came forward with some distinctly shaky evidence that they played an essential role in the control of insects.¹⁰ The dominance of economic modes of thinking is again obvious: the evidence has to be economic in order to be acceptable. This exemplifies the way in which we turn to instrumentalist justifications for the maintenance of biotic diversity.

The alternative to such instrumentalist justifications, the alternative which Leopold advocated with great insight and eloquence, is to widen the boundary of the moral community to include animals, plants, the soil, or collectively **the land**.¹¹ This involves a radical shift in our conception of nature, so that land is recognized not simply as property, to be dealt with or disposed of as a matter of expediency: land in Leopold's view is not a commodity which belongs to us, but a community to which we belong. This change in conception is far-reaching and profound. It involves a shift in our metaphysical conception of nature--that is, a change in what sort of thing we take our natural surroundings to be. This is a point which I would like to elaborate, albeit sketchily.

The predominant Western conception of nature is exemplified in--and to no small extent is a consequence of--the philosophy of Descartes, in which nature is viewed as something separate and apart, to be transformed and controlled at will. Descartes divided the world into conscious thinking substances--minds--and extended, mechanically arranged substances--the rest of nature. It is true that we find in Western thought alternatives to the Cartesian metaphysical conception of nature--the views of Spinoza and Hegel might be mentioned in particular¹²--but the predominant spirit,

especially among scientists, has been Cartesian. These metaphysical views have become deeply embedded in Western thought, which has induced us to view the world through Cartesian spectacles. One of the triumphs of Descartes' mechanistic view of nature has been the elimination of occult qualities and forces from the explanation of natural events. The natural world is to be understood, in the Cartesian model, in purely mechanistic terms. An unfortunate consequence of the triumph, nevertheless, has been a persistent fear among some thinkers that the rejection of Cartesian metaphysics may lead to the reinstatement of occult and mystical views of nature.

An important result of Descartes' sharp ontological division of the world into active mental substances and inert material substances, has been the alienation of man from the natural world. Although protests have been raised against Cartesian metaphysics ever since its inception, it has exercised a deep influence on our attitudes toward nature. Descartes' mechanistic conception of nature naturally leads to the view that it is possible in principle to obtain complete mastery and technical control over the natural world. It is significant to recall that for Descartes the paradigm instance of a natural object was a lump of wax, the perfect exemplification of malleability. This conception of natural objects as wholly pliable and passive is clearly one which leaves no room for anything like a network of obligations.

A natural corollary of the mechanistic conception of nature, and integral to the Cartesian method of inquiry, is the role played by reductive thinking. In order to understand a complex system one should on this view, break it into its component parts and examine them. The Cartesian method of inquiry is a natural correlate of Cartesian metaphysics, and is a leitmotif of our science-based technology.

It should be stressed that a rejection of the Cartesian attitude and its method of inquiry need **not** involve a regression to occult and mystical views about the "sacredness" of the natural world, and the abandoning of systematic rational inquiry. It must be conceded, however, that the rejection of the view that nature is an exploitable commodity has, unfortunately, frequently taken this form. This sort of romantic nature mysticism **does** provide a powerful exhortation for exercising restraint in our behavior to the natural world, but it carries with it a very clear danger. This is that while prohibiting destructive acts toward the natural world, it equally prohibits constructive acts: we surely cannot rationally adopt a complete "hands off" policy with respect to nature, on the basis of what looks like the extremely implausible--and highly cynical--a priori assumption that any attempt to modify our surroundings is bound to be for the worse.

It may, however, be that advocates of the "sacredness" of nature are attempting to do no more than articulate the idea that natural systems have their own intrinsic value, and adopt this manner of speaking as a convenient way of rejecting the dominant anthropocentric morality. If this is all that is being claimed, then I have no quarrel with it. And it may be inevitable that this mode of expression is adopted in the absence of a developed ecologically sound alternative morality. But I think we should be wary of this style of justification; what is needed, as Passmore has nicely expressed it, is not the spiritualizing of nature, but the naturalizing of man.¹³ This involves a shift from the piecemeal reductive conception of natural items to a holistic or systemic view in which we come to appreciate the symbiotic interdependencies of the natural world. On the holistic or total-field view, organisms -- including man -- are conceived as nodes in a biotic web of intrinsically related parts.¹⁴ That is, our understanding of biological organisms requires more than just an understanding of their structure and properties; we also have to attend seriously to their interrelations. Holistic or systemic thinking does not deny that organisms are complex physicochemical systems, but it affirms that the methods employed in establishing the high-level functional relationships expressed by physical laws are often of very limited importance in understanding the nature of biological systems. We may now be facing, in the terminology of Thomas Kuhn,¹⁵ a shift from a physical to a biological paradigm in our understanding of nature. This seems to me to be an important aspect of the rejection of Cartesian metaphysics.

The limitations of the physical paradigm have long been accepted in the study of human society, but the tendency has been to treat social behavior and human action as quite distinct from the operations of our natural surroundings. The inappropriateness of the physical paradigm for understanding human society seems to me to be quite correct; what is comparatively new is the post-Cartesian realization that the physical paradigm is of more limited application for our understanding of nature than was previously supposed.

The holistic conception of the natural world contains, in my view, the possibility of extending the idea of community beyond human society. And in this way biological wisdom does, I think, carry implications for ethics. Just as Copernicus showed us that man does not occupy the physical center of the universe, Darwin and his successors have shown us that man occupies no biologically privileged position. We still have to assimilate the implications which this biological knowledge has for morality.

Can we regard man and the natural environment as constituting a community in any morally

significant sense? Passmore, in particular, has claimed that this extended sense of community is entirely spurious.¹⁶ Leopold, on the other hand, found the biological extension of community entirely natural.¹⁷ If we regard a community as a collection of individuals who engage in cooperative behavior, Leopold's extension seems to me entirely legitimate. An ethic is no more than a code of conduct designed to ensure cooperative behavior among the members of a community. Such cooperative behavior is required to underpin the health of the community, in this biologically extended sense, health being understood as the biological capacity for self-renewal,¹⁸ and illhealth as the degeneration or loss of this capacity.

Man, of course, cannot be placed on "all fours" with his biologically fellow creatures in all respects. In particular, man is the only creature who can act as a full-fledged moral agent, i.e., an individual capable of exercising reflective rational choice on the basis of principles. What distinguishes man from his fellow creatures is not the capacity to act, but the fact that his actions are, to a great extent, free from programming. This capacity to modify our own behavior is closely bound up with the capacity to acquire knowledge of the natural world, a capacity which has enabled us, to an unprecedented extent, to manipulate the environment, and -- especially in the recent past -- to alter it rapidly, violently, and globally. Our hope must be that the capacity for knowledge, which has made ecologically hazardous activities possible, will lead to a more profound understanding of the delicate biological interdependencies which some of these actions now threaten, and thereby generate the wisdom for restraint.

To those who are skeptical of the possibility of extending moral principles, in the manner of Leopold, to include items treated heretofore as matters of expediency, it can be pointed out that extensions have, to a limited extent, already taken place. One clear -- if partial -- instance, is in the treatment of animals. It is now generally accepted, and this is a comparatively recent innovation,¹⁹ that we have at least a *prima facie* obligation not to treat animals cruelly or sadistically. And this certainly constitutes a shift in moral attitudes. If -- as seems to be the case -- cruelty to animals is accepted as intrinsically wrong, then there is at least one instance in which it is not a matter of moral indifference how we behave toward the nonhuman world.

More familiar perhaps are the moral revolutions which have occurred within the specific domain of human society -- witness the progressive elimination of the "right" to racial, class, and sex exploitation. Each of these shifts involves the acceptance, on the part of some individuals, of new

obligations, rights, and values which, to a previous generation, would have been considered unthinkable.²⁰ The essential step in recognizing an enlarged community involves coming to see, feel, and understand what was previously perceived as alien and apart: it is the evolution of the capacity of **empathy**.

I have digressed a little into the history of ideas, stressing in particular the importance of the influences of Descartes.²¹ My justification for this excursion is that our present attitudes toward nature, and toward wilderness, are very largely the result of Descartes' metaphysical conception of what nature is, and the concomitant conception which man has of himself. Our metaphysical assumptions are frequently extremely influential invisible persuaders; they determine the boundaries of what is thinkable. In rejecting the Cartesian conception the following related shifts in attitudes can, I think, be discerned.

(1) A change from reductive convergent patterns of thought to divergent holistic patterns.

(2) A shift from man's conception of himself as the center of the biological world, to one in which he is conceived of as a component in a network of biological relations, a shift comparable to the Copernican discovery that man does not occupy the **physical** center of the universe.

(3) An appreciation of the fact that in modifying biological systems we do not simply modify the properties of a substance, but alter a network of relations. This rejection of the Cartesian conception of nature as a collection of independent physical parts is summed up in the popular ecological maxim "it is impossible to do only one thing."

(4) A recognition that the processes of nature are independent and indifferent to human interests and concerns.

(5) A recognition that biological systems are items which possess intrinsic value, in Kant's terminology, that they are "ends in themselves."

We can, however, provide -- and it is important that we can provide -- an answer to the question: "What is the **use** of wilderness?" We certainly ought to preserve and protect wilderness areas as gymnasiums, as laboratories, as stockpiles of genetic diversity, and as cathedrals. Each of these reasons provides a powerful and sufficient instrumental justification for their preservation. But note how the very posing of this question about the **utility** of wilderness reflects an anthropocentric system of values. From a genuinely ecocentric point of view the question "What is the **use** of wilderness?" would be as absurd as the question "What is the **use** of happiness?"

The philosophical task is to try to provide adequate justification, or at least clear the way for a scheme of values according to which concern

and sympathy for our environment is immediate and natural, and the desirability of protecting and preserving wilderness self-evident. When once controversial propositions become platitudes, the philosophical task will have been successful.

I will conclude, nevertheless, on a deflationary note. It seems to me (at least much of the time) that the shift in attitudes which I think is required for promoting genuinely harmonious relations with nature is too drastic, too "unthinkable," to be very persuasive for most people. If this is so, then it will be more expedient to justify the preservation of wilderness in terms of instrumentalist considerations; and I have argued that there **are** powerful arguments for preservation which can be derived from the purely anthropocentric considerations of human self-interest. I hope, however, that there will be some who feel that such anthropocentric considerations are not wholly satisfying, i.e., that they do not really do justice to our intuitions. But at a time when **human** rights are being treated in some quarters with a great deal of skepticism it is perhaps unrealistic to expect the rights of nonhumans to receive sympathetic attention. Perhaps, though, we should not be too abashed by this: extensions in ethics have seldom followed the path of political expediency.

Notes

1. Aldo Leopold, *A Sand County Almanac* (New York: Oxford University Press, 1949), p. 188.
2. Other cultures have certainly included the idea that nature should be valued for its own sake in their moral codes, e.g., the American Indians (cf. Chief Seattle's letter to President Franklin Pierce of 1854, reprinted in *The Canberra Times*, 5 July 1966, p. 9), the Chinese (cf. Joseph Needham, "History and Human Values," in H. and S. Rose, eds. *The Radicalisation of Science* [London: Macmillan, 1976], pp. 90-117), and the Australian Aborigines (cf. W. E. H. Stanner, *Aboriginal Man in Australia* [Sydney: Angus and Robertson, 1965], pp. 207-237).
3. We can after all **replace** human artifacts such as buildings with something closely similar, but the destruction of a wilderness or a biological species is irreversible.
4. John Passmore, *Man's Responsibility for Nature* (London: Duckworth, 1974; New York: Charles Scribner's Sons, 1974), p.17; cf. chap. 5.
5. In "The Rights of Non-humans and Intrinsic Values," in D. Mannison, M. A. McRobbie, and R. Routley, eds. *Environmental Philosophy* (Canberra: Australian National University Research School of Social Sciences, 1980).
6. Cf. Laurence H. Tribe, "Policy Science: Analysis or Ideology?" *Philosophy and Public Affairs* 2 (1972-3):66-110.
7. I should mention that I am a skeptic about "rights": it seems to me that talk about rights is

always eliminable in favor of talk about legitimate claims for considerations, and obligations to respect those claims. Rights-talk does, however, have useful rhetorical effect in exhorting people to recognize claims. The reason for this is that claims pressed in these terms perform the crucial trick of shifting the onus of proof. This is accomplished by the fact that a denial of a right appears to be a more positive and deliberate act than merely refusing to acknowledge an obligation.

8. Laurence H. Tribe, "Trial by Mathematics: Precision and Ritual in Legal Process," *Harvard Law Review* 84 (1971):1361.

9. Of course, in practice cost-benefit considerations do operate within deontic constraints, and we do not accept economics unrestrictedly as providing the model for rational deliberation. We would not accept exploitative child labor, for example, as a legitimate mode of production, no matter how favorable the economics. This is not just because we attach too high a cost to this form of labor: it is just unthinkable.

10 Aldo Leopold, "The Land Ethic," in *Sand County Almanac*, p. 210.

11. Cf. Aldo Leopold, "The Conservation Ethic," *Journal of Forestry* 31 (1933): 634-43, and "The Land Ethic," *Sand County Almanac*.

12 Cf. John Passmore, "Attitudes to Nature," in R. S. Peters, ed. *Nature and Conduct* (London: Macmillan, 1975), pp. 251-64.

13. *Ibid.*, p.260

14. Cf. Arne Naess, "The Shallow and the Deep, Long-Range Ecology Movement," *Inquiry* 16 (1973): 95-100.

15. T. S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962).

16. Passmore, *Man's Responsibility for Nature*, chap. 6; "Attitudes to Nature," p. 262.

17. Leopold, "The Land Ethic."

18. *Ibid.*, p. 221.

19. Cf. Passmore, "The Treatment of Animals," *Journal of the History of Ideas* 36 (1975): 195-218.

20. Cf. Christopher D. Stone, "Should Trees Have Standing? Toward Legal Rights for Natural Objects," *Southern California Law Review* 45 (1972): 450-501.

21. Here I differ from the well-known claim of Lynn White ("The Historical Roots of Our Ecological Crisis." *Science* 155 [1967]: 1203-7) that the Judeo-Christian tradition is predominantly responsible for the development of Western attitudes toward nature.

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WILDERNESS: DILEMMAS AND PARADOX

By John C. Miles *

We have defined wilderness in terms of our experiences there in earlier articles in *The Trumpeter*. We have found wilderness to be a place where nature is relatively free from the sometimes destructive and always powerful effect of human enterprise. We go there for solitude, to hear the silence and confront the reality and mystery of uncontrolled nature in its myriad forms. We need to consider now the paradoxical problem of trying to preserve the wild places so that humans may enjoy them in a world of rapidly expanding human population and of ever growing human demand for all natural resources. With world population approaching 5 billion late in the 20th century, we have awakened worldwide to the realization that if any pristine natural environments are to escape the transforming influence of human activity, action for preservation must be taken now, and to a certain extent it has been. Yet setting land aside and ordering it to remain unaltered is only the first step. Now we must "manage" wilderness to keep it wild in the face of many threats to its wildness, and therein lies the paradox.

The United States Congress, in 1964, established a National Wilderness Preservation System climaxing, as we noted earlier, a forty-year effort to protect wild portions of America. The lawmakers defined wilderness as "an area where the Earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain." They went on:

An area of wilderness is further defined to mean in this Act an area of Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and

managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the focus of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land. . .; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.¹

Congress, in writing this definition, was looking ahead to the struggle over what Federal land should be included in the system. It knew that many interests would contend for the limited resource of public land. A definition must be written that would give direction but not be overly limiting. The definition they wrote begins almost poetically, but rapidly gets down to specification of certain criteria like Federal ownership, no noticeable human imprint, opportunities for primitive recreation, and a minimum size. The drafters of the bill knew that interpretation and judgement would ultimately be involved in selection of land for the system, that too tight a concept of wilderness might prove unworkable, so they threw in such open-ended words as "generally" and "substantially" to allow flexibility.

The drafters of the Act saw too that passing a law defining wilderness, establishing a system for preservation, and defining procedures to designate units for the system were only the beginning. There would be need to "protect and manage." In one sense wilderness was to be a place free of human impact. Yet the very concept "wilderness" was a human creation, and a controversial one, and it would need human enterprise to maintain it on the landscape. So, with the Act, the paradoxical endeavor known as "wilderness management" rose to significance in the lexicon of resource management.

Before we review some of the paradoxical issues of wilderness management we should stop and assess the wilderness resource in the United States. How much wilderness is there? What might be the scale of the wilderness management endeavor? As of January 1, 1985 the National Wilderness System in total was comprised of 89,033,462 acres.² This is 3.78% of approximately 2.3 billion acres that comprise the United States land area. Congress has decided that this acreage should be managed for its wilderness values. There is more de facto wilderness than this remaining in the United States, but no legislative decisions for protection of this additional wilderness have been made. In Washington state, for instance, there is wilderness in the North Cascades, Olympic and Mount Rainier National Parks (which is for the most part being managed for wilderness values) that has not been officially added to the National Wilderness Preservation System.

While four agencies manage the NWPS, the U.S. Forest Service has been the most involved in wilderness issues since that first wilderness, the Gila, was administratively established by Chief William B. Greeley in 1924. As of 1985, the Forest Service administered 339 wilderness units comprising 32,568,123 acres or 17.06% of the public land under its jurisdiction. The agency with the largest acreage of wilderness in its control is the National Park Service. Its thirty-six units contain 36,759,412 acres of wilderness, or 41.29% of the entire National Wilderness Preservation System. Much of this wilderness acreage was designated as such in 1980 in the Alaska National Interest Land and Conservation Act. This legislation established 32,350,000 acres of Alaska wilderness to be administered by the National Park Service. The NPS is thus a relatively recent player in the NWPS management game, but its role will undoubtedly increase in importance, particularly if more units in national parks are added to the NWPS.

The U.S. Fish and Wildlife Service is the third agency involved with the NWPS. Sixty-five units of the system are its purview, comprising 19,337,188 acres. As with the Park Service, most of its wilderness acreage is in Alaska (18,676,302), and much of that became part of the system in 1980. Back in 1964 the Wilderness Act directed the Secretary of Interior to review every roadless area of more than 5000 contiguous acres in the refuge system and to recommend which should become part of the NWPS. Many of the agencies recommendations still await congressional action after more than a decade. It seems safe to say that, as with national parks, there will be additional wilderness designated in the National Wildlife Refuge System.

The fourth, final and so far least significant agency involved in wilderness management is the Bureau of Land Management. It only received its mandate to review its land for possible inclusion in the NWPS in 1976 when Congress passed the Federal Land Policy and Management Act. As of January 1, 1985, its thirteen wilderness units contained 368,739 acres, one-tenth of one percent of the land area under its control and less than one-half of one percent of the acreage in the NWPS.

While we are immersing ourselves in statistics about the NWPS in order to acquire a feel for the scale of the wilderness management enterprise, there are several more points to consider. The largest unit in the system, established in 1980, is in the Wrangell-St. Elias National Park and Preserve in Alaska which includes 8,700,000 acres. The smallest, placed in the system in 1970, is Pelican Island in Florida with its six acres. The total number of wilderness units in the system is 453. Some states, like Connecticut, Delaware, Maryland, Iowa, Kansas and Rhode Island contain no designated wilderness. Others have large wilderness acreage. California with nearly six million acres,

Idaho with four million and Montana with three and a half million. The state of Washington contains 2,591,818 acres of designated wilderness, nearly all of it administered by the Forest Service. The majority of National Wilderness Preservation System acres are to be found in the West for two principle reasons: the West is where most public land is found, and congressionally established wilderness must come from public land; secondly, the West has been more recently settled than other parts of the country, and since more of its rugged landscape has remained unchanged by human enterprise than elsewhere in the country, it qualified for inclusion in the system.

How much additional acreage might be added in future to the NWPS? There is no way to tell. When Congress passed the Federal Land Policy and Management Act in 1976, it ordered the BLM to study all roadless areas under its jurisdiction for their wilderness values and to report to Congress by 1991 which areas should be added to the NWPS. About 24 million acres are being studied. There will surely be a great debate over what portion of the area studied should be added to the system. It seems safe to say, early in 1986, that millions of additional acres will be protected as wilderness. Many of these may come from Forest Service lands, National Parks, wildlife refuges and BLM lands will yield most of the additional wilderness acreage.

All of these figures indicate beyond doubt that wilderness management will be a large and demanding task. How do we manage the wilderness resource and the people who use it so as to retain the values that Congress identified when it set up the NWPS? How do we do this on more than 90 million acres of diverse landscapes including mountains, deserts, swamps and other natural communities? And how do we manage for wilderness in areas close to urban populations, in those dedicated to other uses like wildlife management, mass public recreation and livestock management? Could we coordinate a wilderness preservation system managed by four separate government agencies which have not, because of their differing responsibilities, always worked cooperatively? These and other questions pose challenges to wilderness managers and indicate the scale and extent of the task we face.

The size of the system is one part of the challenge, the paradoxical nature of the resource is quite another. The basic wilderness paradox is that the land in the NWPS is to retain its "primeval character and influence," yet it is to be "managed" for a host of human values. Definitions of the verb "manage" point up the difficulties. To manage is to "control," "to make and keep submissive," to "alter by manipulation." Common usage of the word embraces this meaning. "Forest management," for instance, involves manipulation of variables in forest communities to attain certain

human ends. When we speak of management, we generally mean the use of some activity to achieve goals that we set for ourselves. The problem for us in "wilderness management" is that wilderness is a natural condition that would, it seems, be rendered less natural by human efforts to control or alter it.

There is another meaning of "manage" and that is "to treat with care." This definition may not be precisely what the drafters of the Wilderness Act had in mind, but softens the paradox when applied to this case. Caring for wilderness need involve no control, submission or even manipulation. It could mean simply letting it be. Some might argue that the semantic game we are playing here is a meaningless exercise, but we must do this exercise regularly. Words are loaded with connotations, with particular meanings. The verb "manage" is one of the most important words in our contemporary cultural lexicon. We are a control oriented society, wishing to believe that we can, if we will, control most of the vagaries of life. We try to manage everything. We have earlier established that one of the principal values of wilderness is that it is a place where we can go beyond managing, where we can feel the power of nature, where we can be humbled by its unmanageability. So we must be careful to think through what we mean to do when we set out to manage the wilderness, so as not to sacrifice some of its most significant values in the process.

Another element in the paradox is that we **must** manage wilderness, in the caring sense, for not to do so will inevitably lead to a lessening of wilderness values. The problem is not **whether** to manage, but **to what ends and how**. This problem of ends has led to a prolonged debate among wilderness enthusiasts and managers over "biocentric" versus "anthropocentric" orientations to management. Hende, Stankey and Lucas have described these orientations:

On the one hand there is the **anthropocentric** position that takes the "use and enjoyment" phrase of the Wilderness Act quite literally. Under this philosophy, programs to facilitate man's direct use of wilderness are paramount. Wilderness is viewed from primarily a sociological or man-oriented perspective; the naturalness of the wilderness is less important than its maximum direct use in ways pleasing to man. . . . Contrasted with the anthropocentric perspective is one that places emphasis on the maintenance of the natural systems at the expense of recreational and other human uses if necessary. The goal of this "biocentric" philosophy is to permit the natural ecological processes to operate as freely as possible because wilderness values for

society ultimately depend on the retention of naturalness. . . .³

Debate over these orientations, over the ends to which the NWPS is dedicated, have raged since the idea of such a system was born. Some argue today, for instance, that wilderness should be like it was before humans entered the scene, and that this should involve active efforts to reestablish the vegetative conditions present before white men arrived. At Horseshoe Basin in the Pasayten Wilderness this would mean concentrated revegetation efforts to reestablish plant communities damaged by decades of sheep grazing and by overuse of campsites in fragile vegetative areas. In other wild areas the debate involves wildlife. Should fires be set to enhance elk habitat because natural vegetative succession is slowly reducing the elk carrying capacity of some wilderness ranges? Should wilderness lakes be stocked with fish? Should wolves, GRIZ and other predators be reintroduced into wild areas like the North Cascades? Should we work toward an idealized conception of wilderness as it once was, or simply maintain it as it is now?

William Worf has recently reaffirmed the biocentric orientation:

In wilderness we allow nature to be itself. There are no "good" or "bad" species or changes in nature, only by human standards related to particular uses. . . . There will often be better places than wilderness to catch fish or see elk, where management is directed to maintain these opportunities. There is no intent to make wilderness unappealing. For the uses dependent on wilderness, letting nature operate freely is really the way to make a wilderness as appealing as possible.⁴

If wilderness is defined by the naturalness of its ecological conditions and established to provide solitude and primitive and unconfined types of recreation, as the law stipulates, than biocentrism must, argue Worf and others, be the guiding management philosophy.

The contention is not that wilderness should not be managed for its own sake, as some critics of biocentrism interpret that orientation. Rather, it is that while wilderness is managed for human ends, naturalness should be the guide as far as possible. Hendee, Stankey and Lucas summarize a tempered biocentrism, which they call "common sense philosophy."

We emphasize, . . . that wilderness management should not mold nature to suit people. Rather, it should manage human use and influences so that natural processes are not

altered. Managers should do only what is necessary to meet wilderness objectives, and use only the minimum tools, force, and regulation required to meet those objectives.⁵

The main virtue of biocentrism seems to be that it offers opportunity for more consistent and concrete management guidelines than the anthropocentric approach. It is based primarily on natural values which can be described and measured with greater objectivity than human values. Thus the values guiding management will be less subject to interpretation and change under the biocentric orientation.

The argument over these orientations is a complex one which we can only summarize here, but the clash of philosophies it involves underlies many of the dilemmas faced by wilderness managers and is at the core of the management paradox. Take the problem of trails, for instance. Should trails be built and maintained in wilderness? A pure biocentric approach would argue: "No, let those that are present deteriorate and the wilds return to their natural condition." The anthropocentric extremist would respond, "Build trails wherever feasible so that people can enjoy all corners of this wild and beautiful place." The manager has a dilemma. He knows that trails alter naturalness, yet they serve to protect wilderness resources in several ways. They control, to some extent, the travel patterns of users. The choice may be one maintained trail around or across a fragile alpine meadow, or a network of impromptu paths scarring the area. Trail systems allow dispersal of users throughout an area, whereas in an entirely trailless area the most accessible places would be the most heavily used and the wilderness resources there rather heavily affected. The "common sense philosophy," aiming to preserve natural values like the fragile vegetation of alpine meadows while still allowing for primitive recreation, might involve maintaining most existing trails, perhaps rerouting some around areas suffering damage, and revegetation work in places where paths have proliferated uncontrollably. The manager would have to judge what was "necessary" to achieve wilderness objectives.

The trail location problem provides illustration of another aspect of the management paradox, to manage for quality of the wilderness ecosystem or for the experience of the visitor. There can sometimes be conflict between these two objectives. Conventional wisdom has been that trails should be routed in forest rather than through meadows, since trails do less damage to forests. Recent studies, however, indicate that in many places there is less vegetation alteration when trails are in meadows than in forests.⁶ The impact on vegetation in meadows is, though, much more visually evident for

the visitor. So before the ecological studies were done there was a perceived correspondence between what is visually and ecologically desirable. The research now raises the possibility that managers will be forced to weigh ecological versus visual impacts in order to determine where a trail might be routed.

Clearly the location of a trail is a complex management problem driven by sometimes conflicting values of naturalness and human needs and wants. Many trails in the NWPS were originally built early in the 20th century as part of an administrative transportation system used principally for fire control. There was often little or no thought given either to ecological impact or to recreational experience. Many of these trails have seriously deteriorated and can and should be reconstructed and relocated. Now, guided by the "common sense" approach to management, decisions can be directed by both recreational and ecological considerations. Cole argues that we should research the changes in each major ecosystem (meadow, open forest, dense forest) associated with trail construction, considering vegetative cover, species composition, wildlife populations, soil compaction, texture and depth. Having done this we will at least know what is at stake in the trail routing decision, although we must still make a decision between ecological and human values.

We have established, hopefully beyond doubt, that we must manage and that the ends toward which we direct that effort are human ends. Further, to attain those human ends, we may occasionally have to control ourselves, to let nature take a course which seems counter to some of our whims and fancies. We may have to admit that our self interest is served by not exercising our power and control, as uncharacteristic and difficult as that may be for us to do. After millennia of achieving our ends by exercising ourselves upon nature, we must step back and let it be. We find that difficult.

As with ends, the means of wilderness management poses dilemmas, the most basic of which is how to control human impact upon wild places without interfering with the "unconfined" recreation of the wilderness traveler. People go to the wild places to escape the pressures and constraints of their daily lives, to enjoy solitude and freedom and tranquility that are denied them elsewhere. Yet they are not free to go anywhere and do anything they want in wilderness, because in so doing they may crowd an area and destroy solitude and the opportunity for tranquility. Or, they may make camp in a fragile alpine meadow, destroy vegetation and start a process of deterioration that blights the beauty of the place and imposes a scar upon the esthetic sensibilities of people who come to the place later. Or again, they may come into conflict

in an ecological sense with a population of wildlife, endangering the viability of the wildlife in some way.

Ideally, guided by a wilderness use ethic, wilderness travelers realize that freedom is the recognition of necessity and control their own behavior with the welfare of wilderness resources and other users in mind. In reality, some do the right thing and some do not, so management of their behavior by someone else is often necessary. This is "people management," which is the main element of wilderness management, and the problem is to confine the people, to control their behavior, without destroying their opportunity for primitive and "unconfined" recreation.

Once a person hoists a pack onto his back and sets out, affecting his behavior without reducing the quality of his experience is difficult, but sometimes it must be done. When a wilderness traveler camps next to a lake on fragile ground, washes his dishes in a stream, and tears firewood off of living trees, he must be told the error of his ways by a wilderness ranger who intrudes upon his solitude in defense of the resource. This ranger must explain the reasons for his interference, pointing out proper behavior and how the offender can learn other elements of responsible wilderness camping technique. But he or she has no alternative but to intrude on the villain's primitive and unconfined recreation. The damage must be minimized.

Wilderness managers have found many ways to avoid this direct confrontation. One of them is education. If the people using wilderness know the nature of the damage they may do, and know how to avoid doing it, then they may act responsibly. There are no guarantees, but the likelihood of good wilderness behavior increases with knowledge of that behavior. Another indirect type of management involves altering physical factors such as access roads, campsites and trails. If road access is difficult, fewer people will visit an area than otherwise. The more difficult the trail, the fewer people will use it. No trail access at all will definitely limit numbers visiting some areas, while good trails may direct use to places able to sustain the pressure.

Direct people management may also be unobtrusively used before the pack is hoisted at trailheads. Requiring a permit brings a wilderness traveler into the ranger station where she can be informed of how many people are in specific areas and where the greatest chance for solitude may be found. Visitors may be told where problems will be encountered and, in areas of intense pressure, which campsites they may use. Rules on party size and length of stay can be explained. The important thing is that all of this is being done before the visitor sets foot in the wilderness. Although he may grouse about the rules, the negative impact

upon his wilderness experience is usually much less when he encounters them in the ranger station and there makes his decisions as to route and other factors.

When I climb atop a peak in the North Cascades, especially a high one like Glacier Peak or Mount Baker, I look out over the vast landscape and wonder how we humans can really damage anything so vast. I wonder the same thing when I fly over the mountainous west in a jet. The landscape below seems so big and empty. From these high vantage points I can often see few marks of humans, yet I know they are always there. Traveling the wilderness I may see few people, yet the marks of their numbers are everywhere. The fact is that it often does not take many people to damage a wilderness place. And sometimes the damage is not obvious. Effects on wildlife populations, or disease-producing microorganisms in lakes and streams are hidden problems, yet they are serious. In addition, even problems of small scale, like a tree hacked up here or three fire rings there can significantly intrude upon the quality of wilderness experience.

Damage in wilderness is also incremental. Coveting a view, I may camp in a mountain meadow. All that reveals my presence when I leave may be broken and compressed vegetation, yet perhaps one more party happening along, noting the view, spotting my tent site and following my example, will damage the vegetation enough to leave a scar. People like to follow the lead of others, and it seems that once a place is established as a campsite, so it will be, and the impact will grow.

The prospect in the near-term future is for increasing demand for wilderness resources and consequently increasing need for management. No one knows how great the increase will be, but most forecasters expect the trends of the recent past to continue, and they have been toward increasing demand. Margaret Petersen studied trends in the use of national forest wilderness and found that visitor use of wilderness areas established in 1965 had increased over 82% over fifteen years.⁷ User data from the Pasayten and Glacier Peak Wilderness areas for the period 1974-81 indicate steadily increasing use of these areas during that period. In the Pasayten, the Forest Service recorded 62.1 thousand visitor days of use in 1985 (a visitor day is an aggregate of 12 visitor hours). Pasayten managers project a growth to 68.5 thousand visitor days by 1990, 76.4 thousand by 2000 and 85.2 thousand by 2010.⁸

Hendee, Stankey and Lucas note that as far back as statistics on wilderness use go, the trend has been strongly upward. Between 1946 and 1964, wilderness use overall increased almost seven times. Between 1965 and 1974 visits almost doubled.⁹ Projecting trends into the future is a risky business, but various indicators point toward

continued growth in use and demand for wilderness resources. This suggests a growing wilderness management challenge. And even if growth in wilderness use and demand slows down the challenge will be great.

Wilderness use has not spurted recently as part of an environmental fad. In fact, the most rapid recorded growth was in the late 40's and 50's. But, if growth slows down or stops entirely, this does not necessarily imply a decline in the value of wilderness. . . Stable use would not reduce the need for professional wilderness management. It would only make the challenge a little less overwhelming.¹⁰

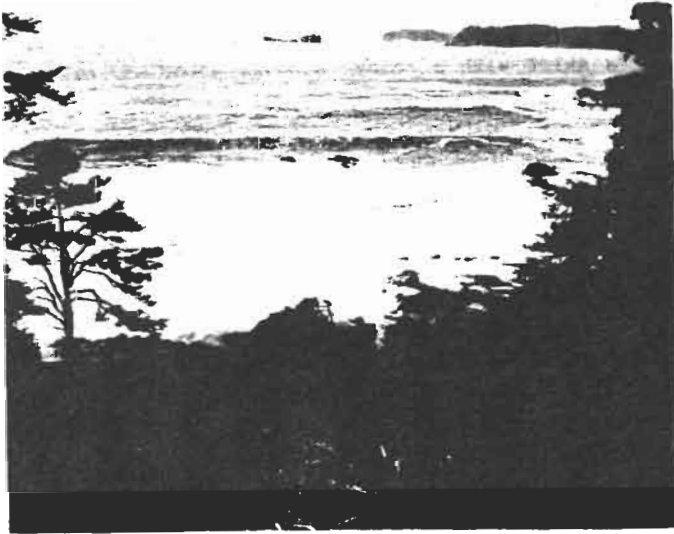
The ultimate irony of all of this is that wilderness management may well be doomed to ultimate failure. We try to protect pristine nature in a world approaching five billion people, in a nation of 230 million, and the population is growing. We love our wilderness, and that is probably what dooms it to destruction. Hendee, Stankey and Lucas recognized this when they pointed out that to manage the wilderness so as to retain such values as naturalness, solitude and primitive and unconfined types of recreation, we must try to "humanize the places we work and live." They quote Sebastian de Grazia to the effect that ". . . only if you give the city a pleasant and healthful outdoor environment, can you slacken the expensive, wasteful and self-destroying drive to the wilderness. Only the city can save the wilderness."¹¹ This is a fundamental point not often recognized. Little islands of beauty and naturalness surrounded by degraded and blighted environments cannot endure. Even as I write we worry about acid precipitation in alpine lakes and the fate of Yellowstone's grizzlies. The fate of wilderness lies in the fate of the Earth generally. If we maintain a healthful outdoor environment all across the landscape in cities, suburbs and farmlands, then we may have wilderness forever, but the paradoxical nature of modern wilderness makes that outcome very uncertain.

Notes

1. Wilderness Act, Public Law 88-577, 88th Congress, S.4, Sept. 3, 1964.
2. Sierra Club, "National Wilderness Preservation System" (San Francisco, January 1, 1985), p. 2.
3. John C. Hendee, George H. Stankey and Robert C. Lucas, **Wilderness Management**, U.S. Dept. of Agriculture, Forest Service, Misc. Publication No. 1365 (Washington, D.C.: Supt. of Documents, October 1978), p. 16.
4. William A. Worf, "Fire and the Wilderness Purpose," in Michael Frome, ed., **Issues in Wilderness Management**, (Boulder, Co.: Westview Press, 1985), p. 107.

5. Hendee, et al., op. cit., p. 21.
6. David N. Cole, "Reducing the Impact of Hikers on Vegetation," in Ruth Ittner, et al., eds., **Recreational Impacts on Wildlands** (Seattle, Wa: Forest Service, USDA; National Park Service, 1978), p. 75.
7. Margaret Petersen, "Trends in Recreational Use of National Forest Wilderness," USDA Forest Service, Research Note INT-319 (Ogden, Utah: August 1981), p. 2.
8. Personal communication from Okanogan National Forest, January 1986.
9. Hendee, et al., op. cit., p. 307.
10. Ibid., p. 309.
11. Ibid., p. 20.

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THE END OF AMERICAN WILDERNESS

By Morgan Sherwood*

Environmental historians should face the problem of wilderness, which is a problem of definition, or of the failure to frame our analysis of wilderness precisely. If historians continue to treat wilderness only as an idea, the meaning of which has changed over time, they will have little to contribute to the preservation of natural environments and, **reductio ad absurdum**, "wilderness" will become a city park or perhaps a suburban lawn.¹ Historiographically, wilderness

will cease to be a place or even an idea and become only a word. Maybe it already has.

My thesis may be stated simply: We are in the wilderness about wilderness. The central reason for the confusion is our inability or reluctance to treat technology as a crucial factor. To argue the case, I will assay a number of definitions of wilderness, and indicate the failure of these definitions to define what is called wilderness in Alaska (not always officially designated wilderness units), given the availability of certain technologies. In the conclusion, I will deal briefly with policy for existing natural environments.

But first, if you do not think that the meaning of wilderness has become too vague, your attention is called to the title of a recent television documentary about Alaska, narrated by Lorne Green and entitled "New Wilderness," as though our lawmakers can declare an area "wilderness" and make it so, as though wilderness can be "new." The Kachemak Bay Wilderness Lodge, a few miles across the bay from the town of Homer, has been listed as America's best wilderness lodge in Sterling Publications' "America's Best 100"; apparently, the trail to wilderness lodges is brightly blazed by their own version of the Michelin guidebook. Still another example of confusion over the meaning of wilderness comes from a summer issue of the **Homer News**.³

An Alaska Wilderness Marathon was planned for the Kenai Peninsula last summer. It would cross fifty miles of the Kenai National Moose Range, through which motorized access was requested to set up a check point. Runners could carry portable rafts, tents and other modern accoutrements needed to "rough it" outdoors. Michael Hedrick, manager of the refuge, denied a permit, saying, "There have to be places where some species of wildlife have top billing." The organizer of the race was a biologist with the Alaska State Fish and Game Department; he responded: "I deal with environmental issues every day and this just isn't an environmental issue." He said that a dog sled race was held in the Gates of the Arctic National Wildlife Refuge last year, and argued: Why not a marathon through the Kenai Moose Range? Ted Stevens, one of Alaska's U.S. Senators, persuaded the federal agency to reverse Hedrick's decision. Stevens told a newspaper reporter: "The agency implied that the traffic of 50 to 75 pairs of feet, running over the Resurrection Trail is too much. I couldn't buy that. If people can't walk or run in the Alaska wilderness, what can be in it?"

Evidence from the wilderness marathon controversy supports the notion that citizens who wish to protect the natural environment may sometimes have reasons to fear public employees charged with its protection as much as exploitative entrepreneurs. Another example of this problem,

and also of the strange ways in which the word "wilderness" is used, appears in a questionnaire distributed by the Alaska Division of Parks. Respondents were asked whether they favored development of recreational facilities in Kachemak Bay State Wilderness Park. The developments included boat-launch facilities, lodges, shelter cabins, and landing strips for airplanes.⁴ (The response for both the Wilderness Park and neighboring State Park was overwhelmingly for low or no development.)

If you still do not think that "wilderness" is a vague concept, so vague that it may not really be a place anymore, read the third part of John McPhee's *Coming Into the Country*, in which the Yukon River people are forever proclaiming themselves to be genuine frontiersmen and frontier women while they criticize their neighbors for the lack of ennobling frontier virtues. One of them characterizes another as more frontiersmanlike because he hand loads his ammunition.⁵ The hand-loader thinks that **how much** technology is the issue. He is correct but the insight dissolves when he says: "people who have tried to get away from technology completely have always failed. Meanwhile, what this place has to offer is wilderness that is nowhere else." One may read that part of McPhee's book as an attempt to determine how much technology is permissible in a wilderness, and to measure it by the amount of technology available where civilization ends, which supports my thesis that technology is the crucial variable.

Sadly, however, McPhee concludes that he must carry a gun out of fear of bears, which brings us to solitude, one quality invoked to identify wilderness. According to this definition, wilderness provides solitude that inspires a kind of subtle unease and quiet wonder. The definition is one of a large category that dwells on the literary and psychological effects of wilderness on the individual. Wilderness (or a natural environment where one is alone) inspires poetry, impresses one philosophically with, for example, man's insignificance, tempering his destructive impulses, or inspires a kind of delicious fear. McPhee's fear of bears brings home to him a deep philosophical contradiction. He writes: "If bears were no longer in the country, I would not have come. I am here, . . . because they survive. So I am sorry --truly rueful and perplexed -- that without the means of killing them I cannot be at ease."⁶ McPhee thought he needed a gun to travel alone in a natural environment relatively unpopulated by other humans. He might have carried a toy cap pistol to frighten the animal, or more mundanely, a couple of saucepans to rattle the bears. Better still, using no technology whatever, he might have done what a Swedish-American pioneer in Alaska once recommended: "Sing loudly on the trail." (I know of no case of an experienced outdoorsman being

attacked without provocation by a bear, although I admit the point hangs on the definition of provocation.)⁷

In his firearm, McPhee had the power of industrial technology to help him appreciate the wilderness. There was more than a gun in his wilderness. He was carried there in airplanes and in boats propelled by outboard motors. There is a road to Eagle; it is gravel, narrow, tortuous and not maintained from October to April, but for half of the year it will take you 160 miles to the Alaska Highway, which will in turn get you by auto to Chicago (if the urban wilderness happens to be your cup of tea). All-terrain vehicles and snowmobiles penetrate McPhee's country, along with airplanes equipped with "tundra tires" and skis to reduce the need for cleared landing strips. Bulldozers tear up the country looking for gold, chainsaws reduce the spare forests for fuel, just as axes and saws --even power saws at an early date -- did to feed steamboats from the late nineteenth century to quite recent times. Voices fill the radio waves to reduce still further the isolation from urban environments. Probably, like many rural Alaskans, some of McPhee's people have erected satellite antennae for television reception of the same adolescent inanities that are inflicted on the remainder of American society.

There is no solitude (read "wilderness") if an aircraft may thunder overhead at any time and land, if a skiff with a noisy outboard motor may splash by your "wilderness" beach at any time, if jet boats ignore low water to crunch over sandbars on their way up a remote stream, if a snowmobile marathon can scatter wildlife, if a bear's misunderstood ferocity can be silenced by a bullet before the animal's intentions are determined. So much for solitude as a sign of wilderness, given the widespread use of modern technology in Alaska.

In one sense, solitude is only a variation of Frederick Jackson Turner's famous criterion. According to him, the frontier disappears, and by implication wilderness too, when a certain man-land ratio changes. Turner and the Superintendent of the Census of 1890 "regarded as unsettled" any area with less than two inhabitants in a square mile.⁸ (Table I.)



Table 1

Date	Population	Sq. Miles Per/person
1880	33,400.....	17.5
1890	32,000.....	18.3
1900	63,600.....	9.2
1910	64,400.....	9.1
Jan. 1 1920	55,000.....	10.65
Oct. 1 1929	59,300.....	9.9
Oct. 1 1939	72,500.....	8.1
Apr. 1 1950	128,600.....	4.6
Apr. 1. 1960	226,200.....	2.6
1970	300,400.....	1.95
1980	401,800.....	1.45

The figures are rounded, and 586,000 square miles is divided by the population. Source: A, M, Rollins, comp. **Census of Alaska: Numbers of Inhabitants, 1792-1970** (Anchorage: University of Alaska Anchorage Library, 1978). U.S. Bureau of the Census, **General Social and Economic Characteristics: United States Summary, 1980**.

The number of square miles per person in Alaska dropped, between 1880 and 1980, from a high of 18.3 square miles in 1890 to 1.45 in 1980. By this measure, Alaska, as a whole, is still a frontier region. But that conclusion is unsatisfactory for a couple of reasons. First, the method is arbitrary, and fails to account for the distribution of population. As recently as 1950, the population of Alaska was only 27% urban; now the population is about 50-50, urban-rural. Most of the urbanites and suburbanites live in an area embracing Anchorage, part of the Kenai Peninsula, and the lower Matanuska and Susitna river valleys near the big city. The concentration of population means that large areas of Alaska are sparsely settled; with a low man-land ratio, they may qualify as wilderness. However, such areas are **accessible** with modern transportation technologies, and **vulnerable** if other technologies employed in the war against nature are introduced. One person (it does not require two) could make a mess of his one square mile even in 1890. Imagine what a bulldozer operator can do to a square mile quickly, nowadays. Instead of counting people in rural areas, machines should be counted in the entire area which they may affect.

Scrappy data on airplanes will illustrate the importance of counting machines that permit access to what people call wilderness. As early as 1944, sixty-two airplanes were used by hunting parties flying out of Anchorage, a city of perhaps six or seven thousand people then.⁹ In one month of the following year, Merrill Field, the town's airstrip, had 10,000 landings and take-offs, more than LaGuardia Field in New York City.¹⁰ There were twenty-nine "air carriers" operating out of Anchorage in 1947, or about one air service for every 325 people in town.¹¹ These were mainly bush

pilots, taking people to and from natural environments. In 1956, 77% of the hunters who traveled by air were successful in attempting to kill caribou from the Nelchina herd; only 20% of the hunters traveling on foot were successful, although they came a long part of the way by auto. Later regulations prohibited aircraft from driving animals to exhaust them and make them easier to kill, and also prohibited herding animals to landing places, shooting from the air, and spotting (locating) animals from the air.¹² Spotting is still common. In 1960 there was one aircraft for every 194 Alaskans, including children, and in 1967 there was one for every 100 persons. That year, one in fifty residents had a pilot's license, and Lake Hood in Anchorage was the largest seaplane base in the United States. A federal Aviation Administration pamphlet describing all of this is entitled **The Alaskan Region: A Family Affair**.¹³

Counting machines is not the most dramatic way to argue that accessibility made possible by modern technology is the important determinant of wilderness status. Instead, consider a place which would, at first thought, be chosen by many people as the least accessible spot in Alaska: the slopes of Mt. McKinley, the tallest mountain in North America. Surely, "Denali" (as romantics prefer to call the mountain) can be "regarded as unsettled" and offers the psychological rewards of solitude. Not necessarily true, during the summer months. In 1970, 124 people were on the mountain, in 1976 nearly 600, a number topped in each of the next four years.¹⁴ During early May of 1983, perhaps 200 people were already on the mountain or waiting for an air taxi to fly them from Talkeetna to Kahiltna Glacier, elevation 7,000-8,000 feet. This year one pilot told a reporter: Packing the plane is like loading a sports car for a two-week vacation.¹⁵ Size and distance is difficult to estimate from Kahiltna Glacier except during climbing season, when perspective is provided by other mountaineers; in the words of the pilot, "you can see people coming into view...and you can see them all day long." From Kahiltna Glacier, climbing parties may be guided as high as 14,000 feet.¹⁶ The mountain is 20,300 feet in elevation. One guide climbed it twenty-five times.¹⁷ If you do not have the physical stamina, the sense of adventure, or the suicidal drive it takes to ascend Mount McKinley, you can sightsee around the mountain by airplane, or fly to a camp on Ruth Glacier that offers sled dog tours.

A third definition of wilderness refers to the biological integrity of an area and the absence of man and his works. In the Wilderness Act of 1964 that means an area "where the earth and its community of life are untrammelled by man..." an area which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable."¹⁸ How noticeable are the works of man, his technology, in

remote areas of Alaska? In answer to that question, this paper should, but will not, discuss the greenhouse effect on the earth's climate, or "Arctic haze," or the sight and the sound of airliners flying the Great Circle Route between Europe and Asia. Instead, a single example will suffice here to demonstrate that man's work is ubiquitous.

The example is Anaktuvuk Pass, in the Brooks Range, and its residents in 1963, including a five-year-old Eskimo girl named Dorothy Ahgook. In that year the **Tundra Times** reported unhappily that Dorothy had "the highest or one of the highest radiation counts of any person in the United States."¹⁹ Her sister Vera, one year older, had a high count too. The village council was told by a representative of the Atomic Energy Commission that "whole body counts" of radiation -- strontium 90 and cesium 137 -- had increased substantially in Anaktuvuk. A reporter for the **Tundra Times** claimed that residents had "about forty times the amount of radiation absorbed by the average U.S. Citizen," another record for Anaktuvuk.

The problem was ecological. Radioactive debris from the atmospheric testing of nuclear bombs had been carried by air currents over the Arctic. Common plants of the tundra, lichens and sedges, got their nutrients from dust in the air as it fell with rain and snow, not from the soil, and stored what they absorbed. Migrating caribou had several times as much strontium 90 as the flesh of cattle elsewhere in the U.S. The Eskimos of Anaktuvuk relied heavily on caribou for food. Among some Alaskan Natives, the marrow of caribou bone is especially favored.

What the long-range effects are of overdosing radiation by the people of Anaktuvuk is not clear. Events there did help to cancel the Atomic Energy Commission's Project Chariot, to blow a hole on the Arctic coast east of Anaktuvuk. Opposition to Project Chariot united northern Alaskan Eskimos politically for the first time and led to publication of the **Tundra Times**, which became an influential voice for Eskimo causes. (Physicist Edward Teller, in promoting Chariot, told an Anchorage audience jokingly: "If your mountain is not in the right place, just drop us a card.")²⁰ Anaktuvuk Pass is now the principal village in Gates of the Arctic National Park and Preserve, though not in an area designated wilderness. The village is just north of Mt. Doonerak, made famous by Robert Marshall, founder of the Wilderness Society.²¹ Residents still hunt, fish and gather in the region. The **Alaska Geographic** reported in 1981: "A desire to maintain cultural integrity for Native communities and rural life styles within the newly created national parks generated provisions [in the Alaska National Interest Lands Conservation Act of 1980] to continue subsistence activities including hunting, fishing and trapping using motorized vehicles such as snow machines and motorboats where

traditionally practiced."²² And so much for the natural biological integrity of wilderness areas, where man's technology is unnoticeable.

The fourth and final characteristic of wilderness considered here is the oldest, in many ways the most attractive and, at first glance, the easiest way to identify wilderness. In this scheme, wilderness is measured by the presence of wildlife, especially the large animals, living more or less as they did before the appearance of mechanized man. The abundance and variety of wild creatures in a natural environment defines the wilderness condition.

Most of the wild species that were in Alaska when the Russians came in 1741 are still there, though certain species have been threatened over time, for example, the whales, fur seals and otter at sea, and large mammals on land during the gold rushes. One may still see the giant Kenai moose going its own way, and the formidable Kodiak brown bear still ranges the island after which it was named. But "things are not what they seem." The presence of wildlife in Alaska is due to the rise of conservation as a potent political movement, and a social institution -- wildlife management -- created to achieve the goals of conservationists has itself become heavily dependent on technology. Not even the brown bear, once called by DeWitt Clinton, "the ferocious tyrant of the American Woods,"²³ can count on roaming freely in his territory without being shot with a tranquilizer, tagged and equipped with a radio transmitter.

Management of Alaska's wild animals began long before such high technology was available, and predates wildlife management as a profession. In the 1830's, the Russians introduced conservation practices to the Pribilof Island fur seal rookeries.²⁴ The United States, after 1870, also regulated the killing of fur seals on land. The decisions of both governments followed periods of indiscriminate slaughter. Alaska's first game laws were a response to wholesale destruction of edible wildlife during the gold rushes northward in the late nineteenth century and early in the twentieth. A decision made late in the nineteenth century to import reindeer from Siberia for the relief of Eskimos suffering from the commercial depletion of marine mammals contributed to a little-publicized ecological disaster. The reindeer competed with the native caribou for browse, overgrazing the range. Both populations crashed dramatically in the 1930's and 1940's. Meantime, the federal Alaska Game Commission policed the health of other wildlife, a job made easier by the low human population.²⁵

Major demographic, economic, political and technological changes occurred during and after World War II. "Traditional" uses of aircraft, snowmobiles and motorboats became common after the war. The population tripled, federal spending for defence boomed the economy, and the new state of

Alaska assumed management of its resources in 1959, when public support of science was more generous than it had been before the war. High-tech wildlife biology came to Alaska with these changes. The Eskimos were not uniformly delighted.

The *Tundra Times*, in 1966, reported that two investigators from eastern universities had killed several polar bears while conducting a scientific experiment. The *Times* did not have all of its facts straight, but using other sources as well, a rough picture of what happened can be sketched. The two biologists came to Alaska to develop methods of immobilizing the bears in order to tag them and, eventually, attach radio transmitters which would be monitored by satellite and thus track the animal around its frigid habitat. Two airplanes were used, one to spot the bear; when spotted, another airplane would deposit the scientists someplace ahead and return to help the first aircraft herd the bear toward the waiting savants, who were armed with a rifle and tranquilizing dart, or syringe. The syringe was loaded with succinylcholine chloride; the size of the dose was determined by an estimate of the bear's size, made by the pilot of the spotter airplane. When the bear was chased, perhaps exhausted, within range, it was shot with the dart, then marked with a long-lasting red dye. Splattered would be a better word than marked; the dye could not be sprayed on because of low temperatures so it was dumped on the animal's backside.

The first polar bear to be anaesthetized stirred during the handling and was given another dose of succinylcholine chloride; it died. The second bear was "marked recovered," the scientists reported; it may be the bear that was shot soon thereafter by a hunter who easily could have spotted its red posterior on the white landscape. (The hunter was distressed because the fur was spoiled.) A third bear was not immobilized. The fourth bear that was hit died in five minutes; the fifth in ten minutes; the sixth in twenty-five minutes. Succinylcholine chloride had no effect on the next two bears coming within range, according to the two investigators. They also anaesthetized two other polar bears, but their data about these animals are incomplete. The score: four bears killed and three immobilized and marked, one of which was shot by a hunter shortly thereafter. The experiment was reported at a national conference and in *Scientific American*. Newspaper reports emphasized the derring-do. Whether any science needed to protect the polar bears emerged from the carnage (as both biologists firmly believe) is moot because the effect of the drug on large animals apparently was known before the episode.²⁶

More than 3,000 polar bears have been immobilized, marked and studied worldwide since then, out of a total population estimated at 20,000-25,000, or 12% to 15%. Alaska's polar bears

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number either 6,000 to 9,000 animals, or 3,000 to 5,000, depending upon the expert you consult. The discrepancies suggest that all of the capturing and tracking can only have been partially successful. The presence of scientists in the polar bear's Alaskan wilderness has not even resulted in a wildlife management program for the animal. The Marine Mammal Protection Act of 1972 gave supervision of polar bears to the federal government. Sport hunting was prohibited but Congress allowed Natives the right to hunt the animal using "traditional" methods at any time, without bag limits and with no protection for females and cubs. Products made from the bear's skin may be sold, reviving the specter of market hunting which wildlife protectionists thought they had banished decades ago. Clearly, the polar bear is not "master of the northern ice," as the federal biologist titled his article about Nanook.²⁷ Man and his technology are.

Biologists continue to drug and tag Alaska's wild animals and to equip them with radios. An article in *Alaska* magazine by a state biologist entitled, "Wildlife That Goes Beep-Beep," describes how transmitters have been attached to brown bears, black bears, polar bears, caribou, moose, wolves, walrus, and geese.²⁸ Another article in the same magazine reports how the Forest Service and the State Department of Fish and Game moved mountain goats by helicopter to a place where they could be seen by tourists from the highway. The reclusive animals were tranquilized with a dart shot from a helicopter, examined, tagged and then carried in a net by helicopter to a place where motorists could better appreciate the Kenai "wilderness."

"Darting wildlife from the air is tricky," said one biologist. "A goat can travel some distance in the seven to eight minutes it takes the drug to work. . . If a goat reaches a steep slope before going down, chances of retrieving it are slim."²⁹

The state undertook a large investigation during the 1970s to explain the disappearance of moose from an area in the interior that is not officially a wildlife unit. Moose is a favorite game meat of Alaskans. The wolves were blamed by hunters, and when the state decided to shoot some wolves, the national news media triggered a popular uproar. In the experiment, more than 100 adult moose were tranquilized and fitted with radio collars or other identification devices. One hundred twenty calves were also equipped with radios; this was accomplished by chasing the cow away with the helicopter. One hundred wolves were killed, sixty wolves were removed from the area, another 150 wolves were given radio collars. Twenty-three adult brown bears were also equipped with radios, and forty-seven were drugged and taken miles away by helicopter, airplane and truck; 70% returned in sixty days. The main culprit was the brown bear, who feasted on baby moose and cut the calf survival rate which eventually reduced the population of moose.³⁰

Did this massive intrusion of technology into a natural environment end the wolf controversy? No. It and other studies have led to specific population goals for moose, caribou and wolves in several areas. Statistics on the effects of these management practices on the individual animals are not readily available. One hopes that mortality rates are lower than they were in the polar bear experiment, or in the record of management in Yellowstone Park, where eighty-six grizzlies have been killed by wildlife professionals since 1970, most by drug overdoses.³¹

The public is apparently not alarmed by the adventures of its wildlife managers. Perhaps people have become accustomed to such activities by watching Marlin Perkins, Jacques Cousteau and William Conrad tinker with wild animals weekly on television. In outdoor magazines, thrilling stories by biologists confronting dangerous beasts often replace the bear stories of hunters. Frequently the articles feature cute pictures of, for example, a tranquilized brown bear embracing a biologist, or a giant sedated polar bear resting on the lap of a scientist, or a wildlife expert with his arm around the neck of a cow moose. Such photographs are becoming as common in outdoor magazines as pictures of big game hunters posing with rifle and kill were in former times.

So, if you spot a mountain goat while visiting Alaska, remember that it may have been placed there for you to see, and to provide "photo opportunities" (a term wildlife managers have borrowed from the public relations industry). If you agree with Aldo Leopold that knowledge alone of the presence of wildlife certifies an area's classification as wilderness, remember that the biggest game animal out there may have tattooed gums, a tag on its ear, and go beep-beep. Even the fish in your Alaskan wilderness may have been put there by humans. In Kachemak Bay, state biologists have planted thousands of your salmon where they cannot reproduce. The fish return at the end of their cycle to mill around, vainly searching for a fresh-water stream with gravel in which to spawn, turning red and black and decaying. Fishermen are invited to catch them by net or snag in an orgy of unsportsmanlike "taking" that would chill the spirit of Izaak Walton. The other rotting salmon are left for the eagles, raven, and bears.

Is all of this wildlife management -- or farming, or ranching, or zookeeping? Sam White was a veteran warden who pioneered the use of airplanes when he worked for the Alaska Game Commission. In the late 1970s I asked him what he considered the gravest threat to Alaskan big game. He answered in one word: "Biology." His judgement was too severe. Some reductionist science and high-tech game management may be necessary to the animals survival. But modern technology has made "wildlife" management a contradiction in terms, and

these days, the presence of indigenous animals does not necessarily identify wilderness.

In 1967 Robert Heilbroner published his controversial article which asked: "Do Machines Make History?" The answer sounded too much like technological determinism.³² But if machines do not always make history, machines do unmake wilderness. The lesson for policy makers is fairly clear. Just as early conservationists leaned heavily on technological obsolescence and outright prohibition of certain technologies to protect wildlife, the fisheries and national parklands, society should now move with deliberate speed to restrict the use of destructive technologies in relatively untouched natural environments. Congress should legislate off-road vehicles, all-terrain vehicles, airplanes, helicopters, snowmobiles and motor boats out of such areas, except when the machines are on rescue missions. Purchase anywhere of an off-road vehicle for recreational purposes should be considered *prima facie* evidence of intention to engage in destructive trespass, and the sale of these vehicles should be prohibited except for occupational purposes. This action would be a major step forward to environmental sanity, in town as well as in the woods (and, incidently, improve America's balance of payments with Japan).

What about policy for high-tech wildlife management? The wolf-moose-bear study concluded with the statement: "Unfortunately, the answers we have found, although they provide valuable clues and good basic information for other parts of Alaska, apply only to the Nelchina Basin and our study area, and for the years 1975 through 1985."³³ In other words, the study was inconclusive for Alaska as a whole and will have to be repeated again and again in the Nelchina Basin and all other places where the moose population declines. The scientific caution is admirable in principle, consistent with ecological theory, and promotes full employment of wildlife technicians. It also raises an economic question: Has the cost of management been translated into dollars-per-pound of moosemeat? Political and ethical questions arise too. The Alaska State Department of Fish and Game defers to wildlife advisory boards for policy based on such experiments, and these advisors encourage the management of animals for use by people, either to kill and eat, for "photo opportunities," or to protect people from wild creatures. In addition to these concerns, which will not disappear from Alaska in the foreseeable future, the beasts should not be managed and studied with the welfare of the animals themselves a consideration. The ethical issues associated with animal science are almost never addressed in print by the biologists involved. Meanwhile, in response to pressure from animal rights organizations, the federal government and

universities in the contiguous United States have created institutions to oversee the ethical use of animals in research. University committees, consisting of scientists mainly but also with public representatives and representatives from the humanities, now appraise an experiment with the animal's welfare in mind. Does it suffer unalleviated pain or distress and if so, is the distress justified, given the significance of the experiment? Perhaps similar institutions are needed to evaluate wildlife studies.

To conclude: existing definitions of wilderness as a place where there is solitude, a low man-land ratio, biological integrity, and wildlife, do not work because disruptive modern technologies are not taken into account. Technologies that provide easy access have threatened Alaskan natural environments increasingly since the end of World War II. Between then and the 1960s, Alaska lost its frontier innocence and wilderness became only a word, not a place. Ironically, wilderness in America may have ended at the same time that society, by passage of the Wilderness Act of 1964, decided it was worth saving. There are still ways, however, to reverse or at least to ameliorate the damage.

Notes

1. The tendency to view the history of wilderness as the history of an idea comes, of course, from the well-deserved success of Roderick Nash's *Wilderness and the American Mind* (New Haven: Yale University Press, 1967).
2. Reported in a brochure for the Lodge, 1984.
3. July 12, 1984.
4. Alaska Division of Parks, 1982.
5. John McPhee *Coming into the Country* (New York: Bantam Books, 1981; originally published 1977) 195.
6. Page 339.
7. The issue is discussed in M. Sherwood, *Big Game in Alaska: A History of Wildlife and People* (New Haven: Yale University Press, 1981) 36-38.
8. Frederick Jackson Turner, "The Significance of the Frontier in American History," in Turner, *The Frontier in American History* (New York: Henry Holt, 1950; originally published 1920. The paper was read in 1893) p. 3. U.S. Census Office. *Compendium of the Eleventh Census, 1890, Part I* (Washington: GPO, 1892)p. xiv.
9. Annual Report, Alaska Game Commission, 1944. A. G. C. Records, Alaska State Library, Juneau.
10. Jean Potter, *The Flying North* (New York: Macmillan, 1965; originally published 1945) 7.
11. Tewkesbury's *Who's Who in Alaska and Alaska Business Index* (Juneau: Tewkesbury Publishers, 1947).
12. Annual Report, Alaska Game Commission, 1956, A. G. C. Records, Alaska State Library, Juneau.
13. (Washington: GPO, 1967). U.S. Federal Aviation Agency, *General Aviation in Alaska* (Washington: GPO, 1960).

14. *Alaska*, 49 (May 1983) 27.
15. C. Swaney, "Air Taxi Owner Picks High Life in Talkeetna," *Anchorage Times*, July 1, 1983, Business section, p. 1.
16. National Public Radio, "Alaska," cassette ME-82-08-23.
17. *The Milepost, 1983* (Anchorage; Alaska Northwest, 1983) 231.
18. The law is reprinted in C. W. Allin, *The Politics of Wilderness Preservation* (Westport, Connecticut: Greenwood Press, 1982) Appendix A.
19. *Tundra Times*, Sept. 3, 1963. Information about Anaktuvuk, and background, is drawn from this issue and from: *Tundra Times*, Dec 23, 1966; P. Brooks and J. Poote, "The Disturbing Story of Project Chariot," *Harper's*, 224 (Apr 1962) 60-67; R. D. Arnold, et al, *Alaska Native Land Claims* (Anchorage: Alaska Native Foundation, 1976) 94, 95.
20. Quoted in Brooks and Poote, "Disturbing Story," 67.
21. Marshall, *Alaska Wilderness* (Berkeley: University of California Press, 1970; originally published 1956).
22. *Alaska National Interest Lands* (Anchorage: Alaska Geographic Society, 1981) 12. Italics added. See U.S. Statutes at Large, 94 State. 2371 passim, especially 2423, 2428, 2430.
23. Quoted in J. M. Holzworth, *The Wild Grizzlies of Alaska* (New York: G. P. Putnam's Sons, 1930) 232.
24. C. L. Andrews, *The Story of Alaska* (Caldwell, Idaho: Caxton Printers, 1947) 147.
25. Sherwood, *Big Game in Alaska*, 27, 84, 85, passim.
26. The incident can be documented from periodicals, a paper by the biologists, and correspondence with one of them and with Alaska officials, but names are not important. The episode is included here to demonstrate further that high-tech science can be dangerous to wildlife. Specific documentation will be provided upon request, if needed for scholarly purposes.
27. P. Bruemmer, "Nanook Bears Watching," *National Wildlife*, 21 (Dec - Jan 1983) 38-42. S. C. Amstrup, "Masters of the Northern Ice," *Alaska*, 50 (Nov 1984) 35, 36. J. Rearden, "Alaska's Unmanaged Polar Bears," *Alaska*, 50 (Nov 1984) 36.
28. By Sterling Miller. *Alaska*, 50 (June 1984).
29. D. Allen, "Moven' Goats," *Alaska*, 50 (Oct 1983) 71.
30. W. G. Ballard, "The Case of the Disappearing Moose," *Alaska*, 49 (Jan 1983) 22-25, (Feb 1983) 36-39, (March 1983) 38-41.
31. Bil Gilbert, "Can We Live in Peace with the Grizzly?" *Sports Illustrated*, 61 (July 1983) 72.
32. *Technology and Culture* 8 (July 1967) 335-345.
33. Ballard, "Disappearing Moose," 42.

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People (Yale University Press, 1981). This paper was presented as a presidential address to the American Society of Environmental History at its annual meeting, on December 28, 1984, in Chicago. It was printed in *Environmental Review*, Fall 1985 pp. 197 - 209. It is reprinted here with permission of the author and *Environmental Review*.

"We need another and wiser and perhaps more mystical concept of animals. . . We patronize them for their incompleteness, for their tragic fate of having taken form so far below ourselves. And therein we err, and greatly err. For the animal shall not be measured by man. In a world older and more complete than ours they move finished and complete, gifted extensions of the senses we have lost or never attained, living by voices we shall never hear. They are not brethren, they are not underlings, they are other nations, caught with ourselves in the net of life and time, fellow prisoners of the splendor and travail of the Earth." Henry Beston, *The Outermost House*.

SOME REFLECTIONS ON INTEGRATED WILDLIFE AND FOREST MANAGEMENT
by John A. Livingston *

Abstract

Any review of resource management questions must address itself to the conceptual under-pinnings of the manager's attitudes. Our societies' perceptions of resources and their management, its definitions of problems, and its array of solutions all flow from its attitudes and predispositions. Attitudes and predispositions flow from the greater "paradigm" (worldview, or consensus of reality) which commands the thinking of a particular society or culture at a particular time. Paradigms whose time has passed are seen, in hindsight, as historical curiosities. Since evolutionary change appears to occur not only in species and communities but also in societies and their ideas, I assume that "paradigm variation" is in constant process. An examination of prevailing and alternative concepts sheds light on our perceptions of our activities and of our problems in respect to them. Conventional solutions may or may not be appropriate to a differently perceived set of questions. The immediate priority, it is suggested, is problem definition.

Why, you might well ask, was a person who is not a forest or wildlife manager asked to give the keynote address to this conference? Why too, you might ask, did he accept? Well, even in this sophisticated age the world is still full of mysteries, not the least of which involve human behavior. In any case, whatever happens now is not Dave Euler's fault. His responsibility ends here.

It's no news to anyone that many aspects of renewable resource management have been and are being discussed these days, perhaps more widely and intensively--and especially more publicly--than ever before. As always, much of the discussion concerns the nitty-gritty of technique, policy, administration, economics, and so forth. As long as renewable resources are as important in Canada as they are, that discussion and refinement of policy and technique will continue. Much of this conference will be devoted to those sorts of considerations, which are always necessary and always will be.

But there's an additional dimension to our contemporary reflections on renewable resource management that has begun to emerge in public discussion, and because I am to some extent involved in this other dimension, I expect that is the answer to the question of why I was invited here today.

A clue to my interests may be found in certain key words that appear in the short summary of this address in our program. The key words are "assumptions," "concepts," "evaluation," and "integration." Integration is the theme of this conference. There are a (still relatively small but growing) number of people, of whom I am one, who have become interested in resource management not as a professional activity or as a body of skills and knowledge, but rather as a historical, cultural, and social phenomenon. These people are examining resource management as an expression, a manifestation, and an example of the structure of ideas and beliefs that constitutes the cultural environment in which we live. Resource management as an ideology, you might say.

I hasten to say that "ideology" is not a dirty word, not a pejorative. I simply refers to a body of ideas that reflect the social needs and aspirations of both individuals and societies. We have to remember, of course, that all systems and ideas and beliefs come from somewhere; they evolve. They don't spring forth full-blown from some philosopher's forehead. They are conceived, they gestate, they cross-pollinate, and they intermingle and change and evolve. And at any particular instant each of us lives in and tends to be governed by whatever system of beliefs happens to be in place.

Seen from the vantage point of our contemporary sophistication, there have been some pretty funny belief systems over human history. We've had the flat earth; we've had the earth as the centre of the universe; we've had the clockwork solar system. These have become mere historical curiosities. Today, the clockwork solar system is viewed as an amusing archaism. Now that we know better, this planet is viewed as either a spaceship or as a giant information network--depending on your preference. In the days of the clockwork planet and solar system, God was still keeping the pendulum

moving. Today, guess who is at the controls of the spaceship and programming the great computer. God was relieved of command by the philosophers back in the 19th century.

Now, it doesn't particularly matter whether you choose the spaceship or the computer metaphor, because both are simply illustrations of what is called "the social construction of reality" (Berger and Luckmann 1966). The "reality" is that modern technological/industrial man is in charge here, and that high technique must be brought to bear in maintaining and extending the human control over the planet--in the human interest. The contemporary consensus of reality allows no equivocation here--the planet was meant to be the human vehicle; the planet is dedicated to the human enterprise.

Not too long ago, there were enormous differences in the "realities" (meaning the belief systems) of human societies and cultures. These differences are quickly evaporating. Today, the urban-technological-industrial religion of human advancement is shared across all industrial nations regardless of historic cultural positions and regardless of contemporary political ideology. The "realities" of the relationship between technological man and the rest of the planet are identical in Vancouver and Tokyo, Washington and Moscow, Paris and Peking, Caracas and Colombo. Never before, I suspect, has an ideology been so widely shared internationally as the ideology of technological/industrial progress.

There are any number of socially-constructed realities at work here, but basically the most important are two: first, that man has the unchallengeable right to proprietorship over the nonhuman elements of the planet; second, that these nonhuman elements were set in place as a warehouse of goods and commodities (resources) exclusively for human use and benefit. Nations may squabble over details of access to resources, but nobody ever argues about what resources are for.

Now these notions are not particularly modern; they have been around, in one form or another, for a long time. A newer and more current "reality" concerns the management of resources. Obviously if you're at the controls of either the spaceship or the great computer you've got to keep your fingers on those buttons. You've got to be in control. Management thus becomes a "must," and when this idea is combined with the fundamental social assumptions about the relationship between man and the rest of the planet, resource management, through some mysterious ideological alchemy, becomes a mission. We seem to live in an age, and within a social paradigm, in which resource management has become a sort of imperative, perpetuating itself in some strange way as though independent of each of us as individuals. It seems that management has got the bit in its front teeth and is running away with the wagon. Many people are wondering seriously whether anyone can ever get

hold of the reins again and get runaway management under control.

I don't know about you, but when faced with this kind of monumental problem, it helps me to try to understand the origins and evolution of the problem as best I can. Perhaps if I understand the background a little better, I can feel my way around looking for answers.

We've all been brought up on the "wise use of resources." That concept is a lot older than anyone here. Wise use of resources means conservation of resources. (No, I'm not going to get into the conservation/preservation debate, which in the technocratic age no longer has the meaning it once did.) But of course "wise use" is the parent of management. Where did the whole wise use/conservation/management phenomenon come from in the first place?

The injunction to "use wisely" is more recent than the simple injunction to **use**, which goes back to the Renaissance. **Wise** use seems to have been an agricultural notion originally, that was picked up by foresters and wildlifers. This helps to explain the otherwise inexplicable euphemism "harvest" as applied to elements of nature. How we "harvest" a forest we did not plant, or a shoal of fish we did not propagate, or a trophy buck we did not raise, has always been a mystery to me, but maybe that's just my Calvinist background showing. I was always taught there's no free lunch. There's no free harvest either, if you didn't plant and cultivate and feed and water, by the sweat of your brow. Harvest applies to domesticated stocks. (I will come back to domestication.)

Back in March, Professor Henry Sharp (1984) of the Anthropology Department of Simon Fraser University wrote a very perceptive and useful letter to the editor of the Vancouver Sun. It was about the public debate over the wolf kill program here in British Columbia--which I'm not going to comment on. But I do want to quote one or two things he said:

Deeply rooted in the history of game management in North America is the adoption of an agricultural metaphor in the approach to wildlife. That metaphor is widely spread through the wildlife management system, is a fundamental part of the belief system of the institution and of obvious utility as a means of explaining and justifying their actions to other agencies and funding sources. Unfortunately the metaphor has unpleasant consequences. Agriculturalists must have 'crops' to 'harvest' (read 'good animals') that serve some 'utilitarian' purpose. Agriculturalists must protect their crops from 'weeds' (read 'bad animals'). Indeed, the genesis of wildlife management is in the protection of 'good' (useful) animals from 'bad' (predator) animals.

I am not going to pursue the wolf and grizzly bear scandals here, but I do want to underline the good/bad dicotomy, which is one of the most radically important aspects of our Judaeo-Christian tradition. Absolute good and absolute evil compete for the world--including the souls of men. To be understood, our heritage instructs us, the world must be evaluated in terms of good and evil. The binary nature of things is not new.

Resources are good; weeds are terrible. Management is good; laissez faire is immoral. I am collapsing it, but that is the way it comes out. Use of resources is imperative; no use is idleness--the work of the Devil. The apogee of this mode of thinking is familiar to all of us; it goes like this, "No use is a legitimate use." That shows us the rules under which many conservationists force themselves to play. In order to be socially and scientifically respectable, the conservationist uses a utilitarian argument with which to oppose utilitarianism.

The utilitarian imperative is a sort of secularized religion that in the olden days seems to have been uniquely North American. But with the increasing dominance across the northern hemisphere of science, technology, and industry, the religion came to be shared by all technologically and industrially oriented societies. The reality shared across technologically oriented societies is that technological development is progressive; its opposite is primitive and destructive of the human purpose--which by extension is God's purpose. This shared reality turns out to be an ideology.

I would like to turn for a moment to a document that all of you will know about, and which most if not all of you will have read. The World Conservation Strategy (WCS) was prepared by the international Union for Conservation of Nature and Natural Resources (IUCN) (1980), aided by the United Nations Environment Programme (UNEP) and the World Wildlife Fund, with additional involvement of the Food and Agriculture Organization of the United Nations and the United Nations Educational, Scientific and Cultural Organization.

As this conference proposes the integration of forest and wildlife management, the WCS proposes the integration of conservation and development. Indeed, if I read it correctly, the WCS sees conservation and development, as it were, as the two sides of the same coin. If conservation means wise use of resources, which it usually means, and if development means resource management, then the two are not merely the two sides of a coin, but the same thing. In these terms, conservation is development.

This is not new. As one might perhaps expect, Gifford Pinchot (1947) said it first. "The great fact about conservation is that it stands for development. . . . The first principle of conservation is the use of the natural resources

now existing on this continent for the benefit of the people who live here now."

Here is the "use" imperative loud and clear. There are of course other definitions of conservation that do not mesh with concepts of use and development. But that's not part of the mandate here; I raise the point just as a reminder.

I am not sure that I can perceive quite so close a relationship (virtually a mirror image) between forest and wildlife management, as Pinchot and the WCS have seen between conservation and development. But let's have a try. If, as I have suggested, both forest and wildlife management have their roots in an earlier (agricultural) worldview, and if they still function within that "reality," then in some ultimate sense, both would be dealing with domesticated stocks. Clearly the total and final extension of the agricultural paradigm would mean farming the planet.

If the total domestication of the planet in the human interest is seen as a desirable goal, then let us acknowledge the goal, and get on with working toward it. Certainly we have the means. But I am not at all sure that everyone gathered here--or even anyone here--would see that goal as entirely desirable. So then we must ask ourselves, "What would be a desirable goal?" How far short of planetary domestication should we stop? How could we know where, or when or how to stop? What might our actual goal turn out to be?

I cannot find much help in the WCS, even with the best of intentions, because the WCS does not address human population. It acknowledges the problem in a few places, but suggests that population should be the subject of a separate study and future strategy. When you consider that population is growing in a country such as Kenya at a rate that will see it double in less than an generation, you must recognize the formidable implications this will have for a conservation program whose stated goal is "the integration of conservation and development to ensure that modifications to the planet do indeed secure the survival and wellbeing of all people." That is a tall order.

The WCS seems to be not so much a world conservation strategy but rather a set of environmentally-oriented development principles, especially for the Third World. I think that is a fair characterization. And we can readily understand why, given the cultural, social, economic, and especially political and geopolitical "realities" by which IUCN and UNEP are enveloped. Given those constraints, the finished product could not have been other than it is. It went as far as it could.

But if one takes it literally and projects it sufficiently far into the future, the WCS does point to the management (or the domestication) of the entire planet--at least by implication. There

are many people who like this idea. I would have expected it to appeal to Rene Dubos, who used to talk of the "enhancement" of the planet by way of "humanization." It would also no doubt appeal to the Alvin Tofflers and the Marilyn Fergusons, among others. Not, however, to any foresters or wildlifers whom I know. But given the human population factor, one cannot imagine an alternative. In recommending that population be the subject of a separate strategy, the WCS recommends similar studies of peace strategies, international economics, poverty, food supply, and so on. All would have to be mutually sustaining, mutually supporting, and integrated. The result, as I see it: the final domestication of the Earth.

I would like to go back for a moment to the evolution of forest and wildlife management out of agriculture. Some thousands of years ago, a few plant and animal species became crops. And nothing changed significantly until our own time: now things are changing by orders of magnitude. Very few foresters and biologists, I suspect, find high-tech agriculture ecologically acceptable. There are however those who would say that high-tech agriculture is ecologically irrelevant, and should not be evaluated ecologically. The geopolitics of dollars, to say nothing of other geopolitical factors, transcends ecology. Ecology is nice, but world affairs are "real."

That statement of "reality" is one more insight into the cultural belief systems. But surely, one might say, although high-tech agriculture is more important than environmental concerns and is thus ecologically irrelevant, that does not mean that high-tech agriculture should not be allowed to transcend ethics and morals. The ethics and morals of high-tech animal "factories" are visible for all to see, but I will leave that for another forum. The ethics and morality of high-tech management of cereal crops is relevant here, however, because it leads us immediately to questions of high-tech forestry and perhaps even wildlife practices.

How we evaluate chemical-dependent, genetically manipulated exotic cereal or fruit species must show the way to how we will evaluate chemical-dependent, genetically manipulated indigenous species. When it comes to these, I do not think we can duck the ecological evaluation. Bioengineered poplars or spruces are bound to have ecologic repercussions, especially in single-age monocultures. Here the ecologic evaluation cannot be separated from the ethical evaluation. For me at least, the two become one and the same.

I have no doubt that high-tech wildlife husbandry has a future in the minds of some. Others find this both ecologically and ethically unacceptable. In my worst moments, I find high-tech anything, but especially renewable resource management, downright terrifying. Not for me (I'll be long gone) but for whatever remains after me.

This is why rhetoric calling for intensified managements makes me uneasy, not so much for the statements themselves as for their implications, and of course for the humanistic assumptions that underlie them. It is not at all difficult to see those portions of the planet that remain relatively natural today, gradually brought into the human domesticated orbit, transformed into bioengineered monocultures. At that stage, natural selection will be long since over, and all will be genetic manipulation.

Well, not quite all. We seem to have ample evidence to show that diseases, disease vectors, and so-called "pests" will be able to proliferate in overwhelming profusion. They will be much more successful than they were in the bad old prechemical days. If I were reborn a mosquito or a *Plasmodium* or a corn borer or a birch miner or a boll weevil, I would be looking forward to a new terrestrial paradise.

The ecologic implications of this are obvious. But that is the direction that we can expect if the agricultural tradition is permitted to be carried further forward in forest and wildlife management, and in environmental management generally.

I hope that a good number of you know Rifkin's (1983) book, *Algeny*. Two leading ecophilosophers, Devall and Sessions, (in prep.), have done a better summary of it than I possibly could:

Jeremy Rifkin points out that the Darwinian view of natural evolutionary processes is now being replaced by *Algeny*--the genetic manipulation and development of species to conform to human purposes and desires. The computer/information revolution is a mere prelude to, and has made possible, the genetic transformation of all life on Earth. New Age futurists are now planning for newly contrived biological organisms to provide the energy base for the expanding industrial society as the fossil-fuel era phases out. By redesigning life on Earth, this conveniently eliminates the natural evolutionary process for it was too slow and inefficient anyway. Similarly, natural ecosystems are not geared to the modern pace of industrial production and efficiency, although some representative samples can be preserved in museum-like settings as a luxury item to satisfy the esthetic and recreational tastes of certain elite minorities. Rifkin however does not count himself as a believer in the modern cult of the technological omnipotence and wisdom of mankind. He pleads for us to move instead toward an ecological paradigm.

What would an ecological paradigm look like? Well, I think it's first and foremost about integration. But not technocratic integration. I

think that integration cannot be created on flip charts or flow charts or printouts. I think there are two places where integration occurs. As a thinking activity it takes place inside the individual human cranium--not on paper. What appears on paper is the result of what goes on in the cranium. As a biological activity integration takes place constantly and without interruption, as communities merge and mingle, change and evolve. But there is a difference between the two. Intellectual integration is purposeful; it's about problem-solving. It's about means-towards-ends. Biological integration is an end-in-itself, because it's about continuing coexistence.

Or perhaps more accurately, biological integration is about coexisting through change. It's active, not static. And the forms that coexisting may take would appear to be infinite. Natural communities are, as it were, integrating all the time--with every respiration of every individual organism.

I do not think the analogy would hold with integrated management. Because if integrated management means no more than intensified management, then from the ecological point of view, it's all a mug's game. It's high-tech agriculture. We all claim to have learned about the techno-fix; that more of the same isn't the answer. It might follow that intensified management is no answer to the sorts of management that are already savagely reducing the options of biological integration. Perhaps forest and wildlife managers should be deliberately kept apart, lest the integrated force turn out to be more than the sum of its parts and thus too much for nature. That's one way of looking at it. On the other hand, Devall and Sessions (in prep.) are proposing something they call interim management. They share my view that intensified resource management/conservation/development, if unchecked, will eventually bring down the biosphere, but how to move from today's dilemmas toward the goal I mentioned a moment ago, the goal of an ecological paradigm?

The first step is to understand the existing paradigm, which rests on the materialistic, expansionist ideology of the exploitation of nature in the human self-interest. We already know that nothing grows forever, not a population, not industrial production, not an economy. If we cannot begin to get those simple and obvious facts built into our working paradigm, not merely our theoretical fancies, then there is not much more to say.

But if we agree that human technological expansionism must be stopped, then we have something to talk about. No doubt we shall all agree that the human development holocaust is not going to be stopped without some species of management. But we won't be managing nature; we shall be managing ourselves.

And we can only manage ourselves in an integrated way. It will be difficult, because the industrial-technological society is also the society of humanism, individualism, free-will, unfettered self-interest, and all the rest. The challenges are absolutely enormous. But that is feeble excuse for not starting.

A piecemeal effort will not do--not this time. As the WCS so properly points out, none of its recommended strategies--for development, conservation, food, poverty, economics, peace, whatever--has much of a chance of success unless all of them are mutually reinforcing. Assuming that a mutually reinforcing, integrated effort is possible, or may become possible--we have to assume that--what should be the goal?

You know, goal setting is an unfamiliar enterprise in our society. In spite of the fact that we hear about goals and targets all the time, all are economic, all are short-term. Whether the time horizon is that of the financial statements of the forest industry or the survival kit of the politician, all of our time horizons are remarkably near. We are unfamiliar and a bit uncomfortable with goals and ends, because the technocratic society is preoccupied with means. Our thinking is technique-oriented; our rationality is instrumental. We are incredibly good with tools and devices and tactics, toward goals that are ever more infrequently defined. Most of our stated goals--conservation, development, stability, well-being--are so slippery as to defy close scrutiny.

I have said we must begin to manage ourselves. Managing is of course a means, a tool, not an end. What is the end, or the goal of managing ourselves? I could suggest that the goal might be to manage resource management out of existence. Don't panic; it will take at least a couple of generations, probably a lot more. Now there are two ways of doing this. One is to go on the way we are, by means of which high-tech will undoubtedly manage us out of existence in due course. The goal is to lighten the hands of man in the affairs of natural communities.

Such a goal indicates means that are quite different from those to which we are accustomed. The means will not be more and more sophisticated and costly tools and energy, sources, not ever more Frankensteinian manipulation of life process, not increasingly complicated and suffocating technocratic management, not intensification of government regulation. On the contrary, the means will be the simplest and most basic of all, common sense. I realize that common sense can be made to sound little more than fatuous, but I assure you that this is deadly serious. Surely it is common sense to know that a chemically saturated environment is not a habitable environment, that energy-consumptive heavy industry is self-defeating, that laboratory-manipulated artifacts

are not ecologically self-sustaining beings. It is common sense to know that a change of direction is essential.

It will not be easy. It seems to me that common-sense goals and especially common-sense means, are uncommonly difficult to implement. There are always the vested interests, for whom common sense is a threat of exposure. The political and economic obstacles, and the sociocultural resistance, will be horrendous. But the longer we wait before setting new goals and addressing ourselves to them, the greater those obstacles will be.

So, onward and upward! Integrated management, not of forests and wildlife, but of ourselves, and of the technoculture. The greatest challenge, possibly, any of us has ever faced. Perhaps our descendants, looking back one day, will see the 20th century paradigm for the bizarre archaism human common sense will have revealed it to be.

References

- Berger, P. L. and T. Luckman. 1966. **The Social Construction of Reality**. Doubleday, Garden City.
- Devall, B. and G. Sessions. (In prep.) "The Development of Natural Resources and the Integrity of Nature: Contrasting Views of Management." **Environmental Ethics**.
- International Union for Conservation of Nature and Natural Resources. 1980. World Conservation Strategy. Gland, Switzerland. Portfolio and maps.
- Pinchot, G. 1947. **Breaking New Ground**. Harcourt, Brace, New York.
- Rifkin, J. 1983. **Algeny**. Viking Books, New York.
- Sharp, H. S. 1984. "Science Used to Rationalize Choices Based on Folklore." **Vancouver Sun**, 17 March.

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"What is man without the beasts? If all the beasts were gone, men would die from a great loneliness of spirit. For whatever happens to the beasts, soon happens to man. All things are connected." Chief Seattle (Sealth), from **Chief Seattle's Testimony**, published by Pax Christi, Blackfriars Hall, London, 1976, pp. 14-15.



BEAUTY AND THE BEAST: AESTHETIC EXPERIENCE OF WILDLIFE By Holmes Rolston, III

Abstract

Wild lives are valued aesthetically in diverse ways. (1) Wild lives are spontaneous form in motion, appealing to human emotions. (2) They are kindred yet alien sentient life. (3) They struggle to make the potential actual. (4) Wild lives are taken up as symbols in the culture that humans overlay on the natural world.

When asking about the social and economic values of wildlife, a first point to make is that the values fundamentally involved are neither social nor economic. In wild nature there is neither culture nor economy, not in the senses these words carry for human society. Yet wildlife can provide, derivatively, both social and economic values. The puzzle is to analyze how this is so. One answer lies along an aesthetic route, first leaving society and economy, venturing to appreciate the wild. Subsequently, the route will bring us back home.

1. Spontaneity: Motion and Emotion

Animals can move. Aesthetic experience of wildlife is of spontaneous form in motion. In the art museum nothing moves; in the picturesque scene little moves. Wildflowers sway in the breeze, but **they** do not move; they **are** moved. At the cinema, the play, the symphony, there is movement, but for the most part programmed so that the audience response is carefully controlled. There is nothing of that kind in this field. The wild life is

organic form in locomotion, on the loose, without designs on the beholder, indifferent to if not desiring to avoid persons. The animal cares not to come near, sit still, stay long, or please. It performs best at dawn, or twilight, or in the dark. Yet just that wild autonomy moves us aesthetically.

I catch the animal excitement. Here is prolife motion, and for it I gain an admiring respect, even a reverence. Plants are rooted to the spot, and they too move themselves in autotrophic metabolism, slowly, invisibly to my eye. But the animal must eat and not be eaten; its heterotrophic metabolism forces a never-ceasing hunt through the environment, an ever-alert hiding from its predators. If, as a carnivore one's food moves as well as oneself, so much the more excitement. This requires sometimes stealth and sometimes speed. Unlike plants, the animal resources, though within its habitat, are at a distance and must be sought. That is the survival game, with all animal motions close-coupled to it. The aesthetic delight I, as an observer, take in animal motion reaches to participate in a defended life. In all neural forms, human emotions are attracted by animal bodily motions and drawn through these into the animal emotions. I rejoice in the stimulus of spontaneous life.

There is grace in the overtones. In a strange and fortunate mixing of the aesthetic with the pragmatic for which we have no adequate theory, the solving of these problems of motion routinely yields symmetrical dynamics of rhythmic beauty--the gazelle on the run, the eagle in flight, the slithering blacksnake, the streamlined fish, the nimble chipmunk. Even where this grace seems to fail--in the lumbering moose calf, or the helpless fledgling fallen from the nest--the aesthetic experience remains. Here is motion in the active and not the passive voice, crying out for life. Even the potential for motion, when the animal is motionless, perched, resting, hidden, is of as much aesthetic value as is actual motion. Wild lives move themselves; and they move us.

Excitement lies in surprise, if also in the anticipated. A principle difference between scenery and wildlife lies in how one knows that the mountain or the cascades will be there, but the redtail hawk perched in the cottonwood, the fox running across the meadow, the grouse flushed at the creek? The latter add probability, improbability, contingency. This puts adventurous openness into the scene. One can return to linger over the landscape, but not--with more or less uncertainty--over the bull elk just stepped out from cover. See him now, or perhaps not at all. The scenes are frameless; you can stretch or shrink at option what properties of symmetry, form, color you will savor, now or later. Time counts, not just space; time brings to the animal freedom in space, and aesthetic experience of that freedom must delight in the spontaneity. Through

binoculars, one isolates that redpoll right now--Quick!--picking seed from that dried sunflower, there below the clump of tumbleweed caught in the fence, here on a Nebraska roadside, on this wintery February day. "Did you see him when he turned just before he flew, almost the last of the flock? How the red cap and black chin flashed when the sun broke out! Had we come ten minutes earlier, or later, nothing!"

The creeks and cliffs, the forests and open space, the turns of the trail are on the map, more or less so, although only weakly in that the map never portrays the particularity of a place. But the wildlife encounters are entirely off the map. One needs proper habitat, of course, but habitat is necessary not sufficient for encounter. You have hoped for six days of the Yellowstone trip to see a bear, and on the last day, there one is, only a cub, but a bear nevertheless, feeding in the *Shepherdia* bushes.

You never expected the coyote, and he walked by the car, six feet away, taking you by such surprise that you couldn't get the camera from the back seat. You are likely to highlight the surprises, hoped for or not, and likely to take for granted the certainties of the trip. Even places to which we later return remain haunted with lost events of the past. "Here, at the mouth of this hollow, a decade ago, I met the bobcat, so intent on chasing the ground squirrel that he almost ran over me. Once upon a time, but no more." And if I do find wildlife at all? They do not have to be seen; there is a thrill in knowing they are present and hiding.

This explains why zoos do little to preserve wildlife aesthetically. Their motion has been captured; a caged bobcat is aesthetically a bobcat no more. This explains why domestic pets can never substitute for wild lives aesthetically. The motion has been tamed; no dog is the equal of a coyote; a thousand housecats are less than a cougar. This explains why the rural landscape offers a different and in this respect poorer pleasure than does the wilderness or the wildlife refuge. Whatever its superiority as a food animal, a cow is never as exciting as a deer. The pariah species, which prosper as parasites and outcasts of civilization, lose their glory. We are disappointed when the bird on the telephone wire is a pigeon and not a kestrel, when the flutter in the bush is an English sparrow, not a warbler.

Now we understand why, contrary to otherwise good farming practices, one ought to leave the fencerows overgrown, why, contrary to the economics of agribusiness, there ought to be small fields with woodlots and edging. Those habitats enrich the landscape with action. A walk across the fields is twice as exciting if there are rabbits and bobwhites, ten times as exciting with a fox or a great horned owl. Wild lives raise the excitement level; the untrammelled quality of their lives

raises the quality of human life.

2. Sentience: Kindred and Alien

Not only do they move, but they have eyes. They call. In higher animal life, unlike vegetable life, there is somebody there behind the fur and feathers, a center of experience in the midst of the moved excitement. So we move from locomotion to perception, a necessary connection both biologically and aesthetically. With that comes the appreciation and challenge at once of kindred and alien life. There is intrusion, intimacy, otherness. The mountains and rivers are **objects**, even the pines and oaks live without sentience; but squirrels and the antelope are **subjects**. When experiencing an item in the geomorphology or the flora I see "it." But with the fauna, especially the vertebrate, brained fauna, I meet a "thou." I see them; they also see me. I eavesdrop; they may flee. One may spook a bighorn, but one cannot spook a columbine, and so the aesthetic experience differs because of the reciprocity. There is a "window" into which we can look and from which someone looks out. They have, so to speak, points of view. There is fire in those eyes.

The window is sometimes clear, sometimes translucent, sometimes opaque. Wild lives hunger and thirst. The chipmunk scratches an itch; the mallard pair dozes in the sun; the bull elk scans the meadow, becomes uneasy and edges back toward cover. The jay defends its territory; the plover deceives the predator with its "broken wing," simulates the injury long enough to lead the intruder from its nest, then flies away out of sight and detours back. Humans know analogues of these experiences, and so there is kinship, as there may not be with aesthetic contemplation of flowers or scenery. But there is never identity, and humans can but imagine what it must be like to be a duck, a chipmunk, an elk, a plover. There is alien subjectivity which stands over against human subjectivity, a mysterious other with differences both of degree and kind. The natural kinds provide their own categories, which humans appreciate, now at a further level of uncertainty.

But that again adds to, rather than subtracts from, the excitement. Their lives are indeed wild, not only beyond complete human management in their spontaneity, but beyond complete human sympathy with their sentience. They have subtleties of cognition and decision that humans do not, as when by echolocation a bat recognizes its own sonar and sees a mosquito with it, in a sky filled with others of its kind. But further, humans have ranges of cognition and decision that bats do not, for I can aesthetically enjoy the bats in flight and they cannot enjoy me. This is not a matter of appreciating them by reduction from my own experience to something simpler, but of reaching for competence and virtuosity not my own. One form of life seeks to understand another, and this

transvaluing brings aesthetic richness and creativity.

In the positing of such kinship, should we say that these aesthetic experiences are not only of wildlife, but that there are analogues in wildlife, at least **kinesthetic** precursors of our **aesthetic** experiences? We may be reluctant to suppose that these beasts know their own beauty; humans can admire the coyote's lope, but perhaps coyotes cannot. Humans admire the pheasant's iridescent color; the coyote sees only a meal, yet one with taste. But these wild lives do know preferences satisfied, and are we to suppose no sensuous delight in the coyote warming itself in the spring sun, no plaintive loneliness or affection in the howl? The pups play to learn to kill; their games simulate the survival game. But the pups play because they enjoy it--as surely as does the dog chasing the stick that his master has thrown for him to fetch. The animal is no more guaranteed of success in its hunt than am I in my hunt for it, and when it succeeds, it knows its own form of delight.

Guided by perception and drawn by desire, the wild animal can enjoy its freedom and pleasures. The frustration of the caged racoon is evidence of that. The peahen delights in the tail of the peacock, else the display would have no survival value. A mockingbird sings to defend its territory in a suburban backyard, but the homeowner who has heard it sing all the day and half the night becomes irritated at the song which earlier delighted, and wonders at length if the song is not an end in itself, whatever its instrumentality and function. Perhaps the mockingbird even enjoys what it can do with its tail!

That such subjectivity is inaccessible troubles science but stimulates aesthetic experience. Aesthetic experience runs ahead of cognition. For much of this century psychologists have belittled introspection and inwardness, eliminating these even from human science, much less animal science. So it is not surprising that science is of limited help giving insight into what these kinesthetic, preaesthetic experiences in animal awareness are like. It is hard to admit as real in the brutes what is hardly admitted as real in humans. Still, a richer science ought to complement aesthetics. Experience is as real as taxonomy, as real as behavior. The ewe, who submits to the dominant ram, does perhaps sense the power in his muscle and horn; that she does is quite supported by the natural selection theory that requires survival power in his imposing strength. Her appreciation of this is all the more to her advantage. In her own way, she may catch as much of the "spirit" of the handsome bighorn as does the human admirer. How much of this she can bring explicitly into consciousness and how much she lets lapse into tacit psychology and behavior is a secondary question; aesthetic experiences in humans too are not less real because they are subliminal.

Perhaps lovers of wildlife have long known what wildlife biologists have chosen to ignore--that there is experience in the wild and that experiences of the wild catch enough of that kindred yet alien vitality, consciousness, achievement, and joy to treasure its presence. Could we see the deepest impulses of zoology, these ought to include human aesthetic experiences of wildlife which guide and criticize the human intellectual and empirical experiences of wildlife.

A good deal of argument and even passion has been spent in this century defending sensuous pleasures as a good thing, against a heritage thought too puritan, prudish, too rational, metaphysical, too insistent on the higher pleasures. Even the psychologists, while ignoring experience, have paradoxically defended affect, appetite, desires, and their fulfillment. But if humans value sensuous beauty in their own bodily perceptions, it seems arbitrary to deny feeling and its value in our wild neighbors. What they feel is real and important, and it stretches and enriches the human aesthetic life to contact the animal kinesthetic life. They care, and we should care.

So the social value of wild lives lies in how they help us to leave society, to leave culture, and to return to nature, to "touch base" and feel life at its roots.

3. Struggle: Ideal and Real

Behind the motion and sentience there is struggle. The animal freedom brings with it the possibility of success and failure in transcending its environment. The scenery cannot fail, because nothing is attempted; but living things can be better or worse of their kind, they have prime seasons and plain ones, and we have to evaluate achievement. Looking over the herd of elk, we spot the bull with the biggest rack. An adult bald eagle excites us more than an immature one. The big bull does not have more merit than the yearling, but it does have more strength and wisdom of its kind; the adult eagle better exemplifies the glory of its species. Each is a more commanding token of its type. Each has made the ideal real.

The critic will say against admirers of wildlife that they overlook as much as they see. The bison are shaggy, shedding, and dirty. That hawk has lost several flight feathers. That marmot is diseased and scarred. The elk look like the tag end of a rough winter. A half dozen juvenile eagles starve for every one that reaches maturity. Every wild life is marred by the rips and tears of time and eventually destroyed by them. But none of the losers and seldom even the blemished show up on the covers of *National Wildlife* or in the Audubon guides. Doesn't the aesthetician repair nature before admiring it? Can we pick the quality out of the quantity, praise the rare ideals and discard the rest, who are statistically more real? Benetto Croce claims "that nature is beautiful only for him who contemplates her with the eye of the artist; .

. . . that a natural beauty which an artist would not to some extent correct, does not exist."¹ Oscar Wilde agrees: "My own experience is that the more we study Art, the less we care for Nature. What Art reveals to us is Nature's lack of design, her curious crudities, her extraordinary monotony, her absolutely unfinished conditions. Nature has good intentions. . . but she cannot carry them out."² Wildlife artists select the accidental best and discard the rest, broken by accidents.

But the matter is not so simple when we couple aesthetics with genetics and evolutionary ecology. The aesthetician sees that ideal toward which a wild life is striving and which is rarely reached in nature. The observer zooms in with her scope on the full-curl ram, or the artist paints warblers ornamented in their breeding prime and perfection. In the language of geneticists, the artist portrays and the admirer enjoys that phenotype producible by the normal genotype in a congenial environment. Or, borrowing from the computer scientists, the artist executes (and the admirer delights in) the program built into a life, although that ideal has only partly been executed in nature, owing to environmental constraints. Such an ideal is, in a way, still nature's project. In a distinction going back to Aristotle, it is true to the poetry of a thing, though not true to its history, and yet the poetry directs its history.³ The form, though not wholly executed, is as natural as is the matter. Some will insist that all this is not true to the plain facts of nature; others will realize that this is not so much fiction as a way of getting at what one might call a natural essence only partly expressed in any individual existence.

Nor is our aesthetic appreciation only of success or ideal. The admirer of wildlife can enjoy the conflict and resolution in the concrete particular expression of an individual life. The weatherbeaten elk are not ugly, not unless endurance is incompetence; nor is the spike ram displeasing, not unless potential is uninspiring. The warblers in spring are indeed in prime dress, but the warblers in fall plumage are equally fitted to their environment, neither less ideal, less real, nor less beautiful, only requiring more subtlety to appreciate, now that the expenditure of energy and motion is not in color and reproduction but in camouflage and survival toward winter. Contra Croce and Wilde, none of this is crudity, monotony, unfinished imperfection, to be rectified by the human artist. Rather, if we take the natural kind on its own terms and in its own ecosystem, "intentions" coded in the animal nature are "carried out" in the struggle for life, and this is heroic and exciting even in its failures. The struggle between ideal and real adds to the aesthetic experience.

4. Symbol; Wildlife in Culture

Aesthetic experience of wildlife begins with what such life is in itself--spontaneous, sentient,

struggling. After this, wild lives can become symbols of characteristics we value in our human lives. They carry associations that enrich the cultures we superimpose on landscapes. The bald eagle perches atop American flagpoles and is portrayed in the seal behind the President, expressing freedom, power, grace, lofty alertness. The British prefer the lion; the Russians the bear, the Canadians the beaver. States have chosen their animals; Colorado has selected the bighorn sheep--stately, powerful, nimble, free, loving the hills. Tennessee has chosen the racoon, Kansas the buffalo, Oregon the beaver. Utah is the beehive state, busy and hard-working. The names of sports teams are often those of animals--the Wolf Pack, Panthers, Falcons, Gators, Razorbacks, Rams. We call our automobiles cougars, skylarks, rabbits. Humans abstract, as in all art, the qualities they wish to express, intensifying (sometimes even imagining) the real to make it an ideal. We elevate into symbolism something of the competence, the integrity, the character of the wild life.

Nor are these simply symbols of masculine strength, agility, cleverness. Wild lives as easily become images of grace and beauty that lighten our homes, of the feminine side of life. So we enjoy an Audubon calendar on the kitchen wall, or we pattern with butterflies the cloth of the curtains, or we steal feathers for fashionable hats. The birds are colorful; they can sing and fly; and would that human life be like that too.

Perhaps at times we are not really using any analogues of these wild lives in our human lives. Even so, such creatures add a freshness and a flash to culture for what they are in themselves, regardless of whether humans in culture are metaphorically similar. Still, this flair, beauty, and activity express qualities that penetrate the background of culture. We want a yard with cardinals and squirrels; we want picnics, hikes, vacations where wild lives play around us; we pause to admire the geese overhead in flight, or welcome the swallows as they return in the spring. We regret that the river through town is polluted and dead; the city is poorer because the fish with their jump and sparkle can be found there no more. Wild lives elevate the quality of human life with the vitality they express; their presence in culture reveals and symbolizes the sensitivity of that culture, even where no particular human virtues correspond to the animal achievements. So the alligator enters the Florida lifestyle, even though Floridians make no anthropomorphic use of its competence in the swamps.

Wild lives diversify cultures. A culture is more aesthetically appealing if it includes not only artifacts but also fauna and flora. A painting on an executive's office wall is as likely to be of a stag or a hunt as of the factory he has built or of his granddaughter. Wild lives are part of our environmental quality, the most threatened

part of it. They are something that our grandchildren will be glad we left them, or complain that we took away. The grizzly in the Yellowstone ecosystem is a challenge to human integrity because it calls us to discipline ourselves for quality over quantity of human society. Our children will be ashamed if we lose the grizzly, just as we are ashamed for what our fathers did to the passenger pigeon. Americans are proud of the Endangered Species Act; DuPont employees feel that what the company has done to Delaware is redeemed somewhat with the company's annual \$50,000 grants to the Pautuxet Wildlife Refuge, which contains some of the few bald eagle nesting sites in the East. What a culture does to its wildlife reveals the character of that culture, as surely as what it does to its blacks, poor, women, handicapped, and powerless.

Wild lives mix with the ethos of a place, when culture is superimposed on nature. In the culture some of the nature that coexists with it shows through. The new, cultured environment is built over the old, spontaneous natural one, and yet the natural world retains enough power to evoke the admiring care of the cultured human world, which values it for its expressive and associative qualities. Wild lives give what our too-readily-mobile, rootless culture especially needs, an attachment to landscape, locale, habitat, place. We name a street Mockingbird Lane, or a summer home is more romantic if it lies up Fox Hollow, and such places even in their culture are more exciting if there are still mockingbirds and foxes round about. Wildlife comes to have its social values, but the social values spin off from, because they make symbolic use of, values intrinsic to the animals themselves.

After seeing the mating dance of the woodcock, Aldo Leopold concluded, "The woodcock is a living refutation of the theory that the utility of a game bird is to serve as a target, or to pose gracefully on a slice of toast. No one would rather hunt woodcock in October than I, but since learning of the sky dance I find myself calling one or two birds enough. I must be sure that, come April, there will be no dearth of dancers in the sunset sky."⁴ Grouse or warblers, buffalo or bear, rabbits or deer--animal lives enrich culture with the age-old dance of life. As much as fine art, theatre, or literature, they are poetry in life. The North American society and economy is surely rich enough that we can afford to keep them; it is not so rich that we can afford to lose them.

Notes

1. Benedetto Croce, *Aesthetic* (London: Vision Press/Peter Own, 1959), p. 99, emphasis in the original.
2. Oscar Wilde, "The Decay of Lying," in *The Prose of Oscar Wilde* (New York: Albert and Charles Boni, 1935), p. 7.

3. Aristotle, *Poetics* 1451b.

4. Aldo Leopold, *A Sand County Almanac* (New York: Oxford University Press, 1969), p. 34.

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The Place of Human Society in Wilderness

By Alan E. Wittbecker*

Abstract

Roadless areas in many states are being considered for wilderness status in bills before Congress. Arguments have been pressed both by those who favor minimum additions and those who urge maximum additions to roadless areas. The arguments, however, deal with economic and aesthetic issues, rarely with ecological ones. Yet, ecological reasons for wilderness are the most neglected and important.

Only two percent of the continental United States has been set aside for wilderness. There has

been no research to determine the minimum wilderness necessary to support human agriculture and civilization. In fact, there have been no studies showing that wilderness is necessary to the health of human interests. This paper offers reasons for preserving as much wilderness as possible. It argues that wilderness is the baseline for the health of agricultural ecosystems, as well as for human civilizations.

The Definition of Wilderness

It is hard to define wilderness exactly or objectively. Any region that can be described is also a state of mind. And because it's a state of mind, it's ambiguous. Consider the biblical attitude toward wilderness, first as a howling wasteland, then (in Revelations) a sublimity greater than the world of "man," that enabled the contemplative prophets to see the Divine more clearly. What originally held the disorder of humans, now holds the order of nature. There is some irony in "creating" or "preserving" a wilderness.

What we are really talking about, though, is four distinct kinds of wilderness: foundation areas, that should be left entirely without any human use or visitation-- these lands contain active communities where the integrity of life is not challenged by human interference; preservation areas, which may be visited for research or inspiration; reservation areas, for nonindustrial native peoples with traditional ways; and conservation areas, for true multiple use, including forestry and grazing-- in short, commons. By just wilderness, I am referring to the first three areas indiscriminately. They all have similar values, as mirrors of existence, examples of natural, complex processes, expressions of love for nature, and wild, ultrahuman places.¹ The popular wilderness definition, where man is only a visitor, is utilitarian; humans visit for recreation and relaxation. But the most important definition is as a vital organ for the life of the earth; the generator of hydrological, geochemical, atmospheric cycles. It is where ultrahuman species live for their own purposes. None of these "definitions" is sufficient to identify wilderness exactly, however. Perhaps we can only surround the concept with words.

Value of Wilderness

The value of wild nature is its independence and wildness. If we can admit the independence of nature, that things continue in their own complex way, we may feel more reverence for them. But as long as nature is regarded as a free storehouse, we will be egoistic and disinterested. Wilderness is wholly other, nonhuman, ultrahuman. And so, it is sacred, in a literal way. It is distant. And that distance allows appreciation of a different kind. It is a baseline to judge the health of domestic lands. Not surprisingly, wild lands are almost

The Minimum Limit of Wilderness

always more productive than farmlands (in terms of gross primary productivity per acre).² Native vegetation in the Palouse region of the United States was more productive than wheat is now. Rarely, and for short times, are crops more productive than the wild lands they replace. Intense rice production in experimental plots in Japan is possibly the only exception. Other species fit in places that humans cannot.

Rich sensory and emotional experience can be derived from contact with the wilds. These values are not often mentioned by economists and planners. But, values usually encode information having survival or prestige importance. Perhaps the most valuable thing is living time, but then experience of life--aesthetics--is also valuable. Aesthetics is from the Greek word meaning perception. This aesthetic and perceptual stimulation might be one of the reasons that humans value walking in the woods or in observing the production of art. Natural processes are their own purpose and constitute their own value. A growing tree is; it does not have to demonstrate or prove.

We will never understand nature unless we dissociate the wild from utility, as John Fowles recognized.³ Our indifference toward nature comes from our judgement of its uselessness. Even many ecologists cannot think of uses for large birds and mammals. This makes a coldness in the heart of our coexistence with other species. Why not place the same value on living nature that is placed on money or children, i.e., the potential for experience.

The Importance of Large Species

Perhaps it would be better to say that all species are necessary but not sufficient to a system. That is, the system can survive as a system without large species, but it is reduced accordingly. The smallest species, the microbes and invertebrates, seem to be the most necessary to an ecosystem. But hippos and crocodiles, e.g., are necessary to theirs. Hippopotami support fish populations in lakes and rivers with the minute animals in their excrement. As hippos are eliminated, the fish population dwindles, and native human populations have less protein. Similarly, alligators play an important role in the equilibrium of the Florida Everglades. The alligator creates pools by digging in damp soil; these pools become lairs of fish that eat mosquito larva. The pool also serves as a refuge to more species, including birds, in times of drought. Eagles and primroses are integral parts of ecological networks. Every species is "useful" in nature: as expressions of variety, niche makers, and feeling beings. By killing off select species, humans are changing the character of ecosystems, possibly reducing stability and diversity.

Every being has an intrinsic value, before any utilitarian value to humanity. It is, it exists in itself, in its own place. Associations of plants and animals are just as unique as their components. All kinds of wilderness are valuable.

Who is wilderness for? Is it for ourselves, or for future generations as well? If the latter, then we ought to plan for it. Sure, we may have enough, now--although I don't think so--but do we have enough for our children or their children? If wilderness is for a maximum human population, then we should be considering the question, what is the maximum human population?

We can calculate a maximum population at our American quality of life. In fact, Eugene Odum and his group at the University of Georgia did just that--for Georgia. They calculated the minimum per person acreage requirements for a quality environment at American standards of living at five acres. This includes one and one-half acres for food-producing land (crop and grazing); one acre for producing fibers; one-half acre for artificial areas like cities and disneylands; and two acres for natural areas. This last figure includes minimum space needs for watersheds and wildlife as estimated by land-use surveys.

These figures can be converted for other states, Idaho for example, by using recent research on ecosystem productivities. For example, Palouse grassland is more productive than eastern forests (multiply by 1.04); coniferous forests, deserts, and rangelands are less productive (multiply by .32, .001, .02, respectively). Knowing the amount of roadless land in Idaho, and multiplying by productivity factors, we can calculate a maximum population for Idaho. That maximum population comes to just over two million people; or, over twice the present population. The wilderness for the present population should be about 6 million acres; it is under four million. To support the larger population, virtually all roadless area (over nine million acres) should be designated wilderness. Instead, the Idaho congressional delegation is arguing for one-half million acres additionally, hoping for short-term economic recovery by the "forest industry."

Furthermore, most wilderness areas are montane forests. Other biomes are ignored. Representatives of all regions should be set aside, starting with the grasslands, like the Palouse, basin and range in Southeast Idaho, Snake river lowland, and Owyhee broken lands. There is roadless land in Owyhee County that is eligible for wilderness classification. The same with lands south of Pocatello. Although there does not seem to be much roadless land around the Palouse, there may be five thousand contiguous acres in partial native vegetation that could be traded. Indigenous vegetation, like fescue or wheatgrass, is not extinct. It might be possible in the case of the Palouse to partially restore the prairie, as is being done with Tall-grass in Illinois, on a small scale.

The Odum method is the easiest to apply, but probably the least accurate--formulas often are.

There are other methods of calculating the optimum amounts of wilderness for the ecological regions of the world that may be more accurate, an island biogeographic method or an additive method based on natural historical observation, for instance. Because scientific research takes so long, and because roadless areas are so valuable to short-term economic interests, as much as possible should be saved, without knowing exactly how much to save. Wilderness is a limiting factor in the health of human civilization. (For it is wilderness that maintains the Earth's ecology, Ed.) It is probably not a precise function, but we may be close to the minimum for the Earth. As Gregory Bateson pointed out, it is not safe to be limited by lethal variables.⁴

As far as wilderness is concerned, let's keep good reserves of every kind of region. It would be wonderful to save the whooping crane, condor, snail darter, or panda, if we could. But these are rare species, now. Most of their habitats have been destroyed or taken over (by humans). If we want to save them, we must save their whole systems. It is necessary to save whole habitats, to save lichens and krill, as well. Perhaps forty or fifty percent of the planet should be set aside in preserves, eventually.

The Benefit of Wilderness

Wilderness is already to everyone's benefit. Just like it is to their benefit to have a heart or kidneys. In fact, the wilderness is like the body of our species. We can do without some of it, but not without all of it. So we can live without one kidney, some of the liver, or arms or legs. Consider, there is a large market for organs to transplant, so everyone could sell a few of their organs if they wanted. To not sell them, in fact, is to not take advantage of the resources of our bodies in an economic sense. Most of us don't sell because feeling whole and healthy is more important than temporary income. That's the way it should be with wilderness.

Wilderness does not have to be destroyed or used to benefit. Or visited. It is valuable as wilderness, because it is there. Aldo Leopold said that "to those devoid of imagination, a blank space on the map is a useless place, while to others, it is the most valuable part."⁵ There should be more blank spaces, that we can just leave alone. There should be wolves and bear and martens and lichen somewhere, without human company.

Many modern societies, like ours, are learning to be dispassionate (uncaring), unattached (placeless), and objective (uninvolved), without really thinking about the effects on society and the environment. Perhaps, it is a result of confusion or fear. We still fear nature because it is uncontrolled and nonhuman. But we could overcome fear with education about human places on Earth.

What is the human relationship to the Earth or wild beings? Pandominant species, lord and master,

good steward, or fully conscious and self-limiting beings? I prefer the last. Decisions on these kinds of questions, combined with common sense and appropriate technology will determine a course of action for wildlife and human populations based on the limits of our knowledge and the limits of the productivity and stability of ecosystems. Perhaps new technologies and new philosophies may permit larger human populations or our expansion to other planets or solar systems, but we ought to be cautious with what we have now. Very Cautious. If we cannot live sensibly on Earth, the stars will not be any improvement.

What are humans without animals? Without plants and flowers? Little more than machines, undoubtedly. Variety is important. Even Aquinas spoke in favor of variety, saying that although one angel is better than a stone, it does not follow that two angels are better than one angel and one stone.

Humans identify greatly with local environments. Maybe this is a function of the limbic system of the brain, a function we share with territorial mammals. In any case, nostalgia can be a fatal disease. Human emotions creates an 'in place.' So far, no psychologists have studied what happens when a person sees her/his place, their very context destroyed. These catastrophes may be the basis for some symptoms, like depression or even cancers. Humans also need horizons, the ideal of wilderness. And plants and animals need places to develop without human interference.

How many humans are necessary? One million, one billion, one trillion? As far as genetic variation, five hundred; creative mass, fifty thousand; or species advantage, perhaps a million. Those are minimum numbers. Do we want a minimum number, an optimum, or maximum? Probably an optimum number. Minimums and maximums in nature are dangerous and unstable. Desired substances have an optimum value, not a maximum one, as we are finding out with our own health. Salt is good, too much is not good. More calcium is not always better. More lemmings result in mass migrations. Using figures from net ecosystem productivities, it is possible to calculate the optimum number for the planet, about five hundred million at a reasonable European standard of living. The current high populations can only be maintained through theft from other species and future generations and through the degradation of billions of humans and the ecosystems they depend on.

The Rights of Wilderness

Humanity has taken its own opportunities. These opportunities have been codified for centuries as rights. Now we must allow other beings equal opportunities. The interrelatedness of life dictates the interrelatedness of rights. And these rights are necessary to the integrity of the whole planet. Humanity developed in a community of animals and plants, as part of a clade on the same

tree of life. The quality of human life has always depended on the quality of animal life. Animals have sensations and feelings, as important to them as ours are to us. The extension of rights to animals and plants does not deny any traditional human rights. Animals should be accorded higher moral regard and legal standing to reflect the intrinsic worth afforded by their existence and sentience. Welfare laws to conserve species and to guarantee humane treatment in research, transportation, and slaughter indicate a growing concern among people. A new ethic can keep animals free from human intervention, prejudice, or overuse. Animals should be preserved because they are as they are; their existence is moral justification. Their intrinsic worth is independent of the instrumental values imposed on them by humanity.

We come together in living places. Symbiosis is a basic attribute of wild communities. Symbiosis means "living together." The word "ethics" is derived from the Sanskrit word meaning "doing together." Life is more than competition; it involves cooperation, play and violence. Rights are simply rules for living together.

The extension of ethics to animals and land is an ecological necessity. Extended ethics defines a social conduct that is a mode of cooperation and, ultimately, symbiosis. Leopold argued that ethics are voluntary limitations of freedom, necessary in a complex world of which we remain incredibly ignorant. Ethics are developed in response to problems that arise from increasing knowledge. Science has phenomenally increased our knowledge of physical and biological processes. It has now become the basis of our moral code, but it cannot very long be a science divorced from feeling and art, if that code is to help us survive. To do this it requires aesthetic perception as well as disciplined thinking and feeling. As there is a rational component to ethical judgements, so there is an intuitive and emotional one, also. An ethics can appeal to religious, philosophical or scientific reasoning; or to all three to form a coherent whole.

Science accepts the sentience of plant life, but does not adjust its methods. Human knowledge grants emotions to animals, but uses them badly anyway. We turn away from the Earth, for human purposes. We distance ourselves from what is uncontrolled or unowned. This detachment is the greatest threat to the welfare of nature. The vivisection of the world depletes our ability to feel compassion for it. We are "destroying the voices of existence," in Neil Evernden's words, without even knowing most of them.⁶

Humans need to recognize that they automatically participate in everything, and that they cannot unparticipate by choice. The disenchantment of the world is only another name for the hushing of mediating voices between nature and human. Without

these resonances, Levy-Brunel's mystical participation in nature is impossible. Many experiments in physics and psychology recognize this in their experimental design. Science can be a way for the visionary intellect to contemplate nature. This is what Theodore Roszak means by a sacramental vision of nature.

The ecological health of civilization depends on an environment that is healthy, that is, has sufficient wilderness to renew air, water, genetic resources. A high civilization has to limit its consumption of natural resources. We should limit our population, limit our impact. We should limit our demands for energy, for new cars and travel, for aluminum cans. We should use substitutes for whale products and furs.

It's a matter of full consciousness. Education could enlarge or alter the perceptions of all human beings on Earth with the selection and presentation of relevant information, to form an ecological consciousness. The basis of an effective participant education could include gestalt psychology, perception research, anthropology, knowledge of ecology. One role of ecology could be to urge the toleration of fluctuation, irregularity, uncertainty, and diversity. Its basic premise is interrelatedness. The interpenetration of boundaries makes humans less discrete, less alone. But the study of "man" is still properly "man," as a focus of the universe, for understanding it. As Paul Shepard has argued, we need wild animals, wild nature, in order to learn to be human at all.⁷

The survival of society now depends on an expanded ecological consciousness, an awareness of the global system in its complexity and connectedness. The spirit of humanity depends on an ecological consciousness that would place humanity in a proper relation to the wild places of the Earth, taking what it needs, but letting the rest be.

Notes

1. From Richard Jefferies. In: John Fowles, "Seeing Nature Whole." *Harper's* 259: 49-56, 1979.
2. Wittbecker, "How many people can a traditional agriculture feed?" *Ecotopias: Making Good Places*. Wilmington: MRW Ltd. (in press).
3. See John Fowles, "Seeing Nature Whole." *Harper's* (Nov. 1979).
4. Gregory Bateson. *Mind and Nature: A Necessary Unity*. Dutton: New York, 1979.
5. Aldo Leopold. *A Sand County Almanac And Sketches Here and There*. Oxford University Press: New York, 1968.
6. *Out of Place*, unpublished manuscript (1981).
7. Paul Shepard. *Thinking Animals*. Viking: New York, 1978.

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holds a doctorate in philosophy with an emphasis on natural philosophy, from International College, L.A., Calif. The Marsh Institute performs a variety of ecologically oriented functions.



"This we know. The Earth does not belong to man; man belongs to the Earth. This we know. All things are connected like the blood which unites one family. All things are connected. Whatever befalls the Earth befalls the sons of the Earth. Man did not weave the web of life, he is merely a strand in it. Whatever he does to the web, he does to himself." Chief Seattle (Sealth), from **Chief Seattle's Testimony**, published by Pax Christi, Blackfriar's Hall, London, 1976, p. 15.

IS THERE HOPE FOR BIG WILDERNESS IN CANADA?

By Rick Searle*

No one likes to admit that they are wrong, and yet far too many Canadians share a perception of themselves and their country which is sadly out-of-date. Dominant in the Canadian identity is the image of vast tracts of enduring wilderness. Equally powerful is the image of Canadians as rough and tumble frontier people ready to subdue the wilderness and extract its wealth. Because of these images and perceptions, Canadians have been slow to preserve wilderness. But between the perceptions and reality, a gap is quickly widening. For contrary to popular perceptions, vast tracts of wilderness, big wilderness, are rapidly disappearing from the Canadian geography.

In Canada, the primary forms of wilderness preservation have been the national and provincial parks. Of Canada's nearly 10 million square kilometers, 3.8% is designated as parkland. In a global perspective of parklands, Canada lags behind many countries, such as Kenya (5.2%), New Zealand (8.1%), and Japan (8.4%). The U.S. has a comparable amount of designated wilderness (3.78%). However, Canada outranks the U.S.S.R. (0.3%), Mexico (0.4%), and Australia (0.4%).¹

Legislation of wilderness areas is a more recent approach to preservation. At present only three provinces have wilderness legislation: Newfoundland, Ontario, and Alberta. In Newfoundland, access and development are controlled, but some consumptive uses, such as hunting, are allowed. Newfoundland has only one provisional wilderness, the Avalon Wilderness Area (850 sq. km.).² Ontario's legislation specifies that resource development can occur in wilderness areas exceeding 260 hectares (or 2.6 sq. km.). Of Ontario's 39 designated wilderness areas, only one is greater than this size. Ontario's legislated wilderness areas amount to 620 sq. km.³

Alberta, in contrast to Newfoundland and Ontario, has emphasized strict preservation and

restricted development and consumptive uses, including horsepacking and fishing. Here preservation appears to be for the purpose of establishing ecological benchmarks.⁴ Three wilderness areas have been designated: Siffleur (9421 sq. km.), Ghost River (153 sq. km.), and White Goat (445 sq. km.). Hanging in legislative limbo is the Willmore Wilderness Area (4597 sq. km.)⁵ In addition to these wilderness areas, the Alberta Forest Service has designated Wildland Recreation Areas. The first of these, announced in April of this year, is the Bighorn Wildland Recreation Area (3966 sq. km. in three parcels of land).⁶

Wilderness contained in either the national or provincial parks is not secure. Canada's parks are managed under a dual mandate of parks for use and enjoyment and parks for preservation and protection. The challenge is to strike a difficult balance which integrates these seemingly conflicting demands. Unfortunately, decision-makers, and to a lesser extent, park managers tend to favour a strong emphasis on use and enjoyment. A case in point was the recent Four Mountain Park (Jasper, Banff, Kootenay, and Yoho National Park) planning process which, from the very beginning, had a strong tourism development orientation. This orientation seriously jeopardized the integrity of park wilderness. After strident protests, Parks Canada softened its pro-development stance, but not enough to alleviate concerns.

Jobs versus wilderness is the classic argument blocking the preservation of new areas. Many political decision-makers, supported by a powerful resource extraction lobby, still view wilderness preservation as "locking up" valuable resources. They further contend that jobs will be lost because the land and its resources have been set aside for preservation. This argument has strong support particularly in the resource-based areas where the recent recession has crippled many communities.

The question of land ownership also complicates the struggle to preserve more wilderness in Canada. Free and unencumbered land that can be quickly designated as wilderness areas is virtually no longer available. Consequently, the process of establishing new parks or wilderness areas has become characterized by protracted negotiations. For example, the establishment of a Grasslands National Park in southern Saskatchewan has had a 20 year history because of negotiations with ranchers who still live and work within the proposed park boundaries.

Indian land claims are a variant of the land ownership question. Land claims are most relevant to the West and North of Canada where few treaties were signed. Generally, the Indians have remained reluctant to discuss specific forms of wilderness preservation until their claims have been settled. Their reluctance stems from concerns about losing their traditional rights, such as hunting and

gathering, in the proposed wilderness area. Increasingly, however, the Indians and environmentalists are joining forces for wilderness preservation.

Despite the difficulties, public support for wilderness preservation is gaining in depth and breadth. The arguments for preservation have tended to be utilitarian and anthropocentric in nature. One of the most common justifications is that wilderness is a place for outdoor recreation. This has been expanded to include an economic component based on tourism. The other major argument for preservation is that wilderness is a place for scientific inquiry and is a reservoir of genetic diversity. This is a strong argument since: ". . .the extinction rate during most of the present century, about one species per year, is to be compared with a rate of possibly one per 1000 years during the 'great dying' of the dinosaurs."⁷ Currently, numerous programs are in place for the capture and relocation of wild species, such as eagles, wolves, and grizzlies, whose survival is threatened. If these efforts are to be anything more than a stopgap measure, then large wilderness areas must be preserved.

To date, deeper, more biocentric arguments have been missing from the wilderness preservation debate. Perhaps, because of the prevalence of the old frontier ethic, the more utilitarian and anthropocentric arguments have seemed to many as the best hope for preservation. But, if the battle for wilderness is to elevate itself above an issue by issue agenda, then a shift in values, attitudes and perceptions is clearly needed.

Canada is caught between two visions. On the one hand, there is the old, fading vision of enduring wilderness to be exploited for immediate economic return. On the other, there is the new, emerging vision of wilderness, big wilderness preserved not because of human wants or needs, but for its own sake. There is much to be done in order to make this emerging vision a reality. Designated wilderness areas must be defended. New wilderness areas must be identified and fought for. Areas discarded by industry need to be rehabilitated and protected. But even more hard work will be required of Canadians to admit that their worldview is outdated. Is there hope for big wilderness in Canada? The vision of it is becoming stronger and so is the willingness to work hard to make it a reality. To paraphrase a well known quote: "There is nothing more powerful than a vision whose time has come."

Notes:

1. **The Wilderness Mosaic**, The Report of the Wilderness Advisory Committee, Queen's Printer, Vancouver, British Columbia, March 1986.
2. Tom Lien, et al, **The Avalon Wilderness Park: News**, Vol. 21 (4), Winter 1985-86.

3. **The Wilderness Mosaic**, op. cit.
4. **Alberta Wilderness Association Newsletter**, Vol 16 (2), Summer 1986.
5. Hornbeck, Gary, **Western Wildlife Environments Consultants**, personal communication, June 1986.
6. "Bighorn Wildland Recreation Area Named," **Alberta Wilderness Association**, Vol. 16 (2), Summer 1986.
7. Meyers, Norman, **The Sinking Ark: A New Look at the Problem of Disappearing Species**, Pergamon Press: Oxford, 1979, p. 307.

Rick Searle recently graduated from the University of Victoria with an M. A. in geography. He is currently self-employed as an environmental consultant and a free-lance writer. He has 10 years of experience in natural and cultural history interpretation gained while employed with Parks Canada and Manitoba Provincial Parks.



WILDERNESS IN THE SPIRIT OF GARDENING

By Jeff Cox

Plants seem to be solely concerned with their personal struggles for sunlight, moisture and nutrients, paying little attention to one another, let alone people.

And yet, who can deny that plants are exquisitely tuned to their environment? They know where the sun is and will grow towards it. Sunflowers will even follow it across the sky. Roots head in the direction of nearby water. Plants will give up trying to force their foliage into the teeth of the wind, being thus sculpted around the wind's invisible force. A tree will flow through a constriction--hard in the moment but liquid and yielding over time. Flowers guide bees to their nectaries with markings visible only in the ultraviolet range that bees see. Where animals make a trail, plants part to give them room, and often make seed that clings to their hair. When

one tree in the forest is attacked by insects, others nearby can become aware of it and manufacture repellent compounds in their leaves.

There is a consciousness that flows through all living things. We are intimately familiar with how it expresses itself as a human being--so familiar, in fact, that we often fail to feel our connection to other living beings. It's not hard to share a conscious moment with a dog. It's less easy to feel the connection with a pack of cawing crows over the hilltop. It takes an immense, open detachment in order to realize that our consciousness does not stop at our foreheads, but continues through the animals and plants that make up life on this planet.

Several times in my garden I have known and felt that life is a unified whole with myriad eyes, two of which I was staring out of.

There are at root in my being the same forces, tendencies and goals that characterize all life. If I would understand my essence, I must look at how the wild creation expresses these forces.

I can't find meaning for my life in human constructs. The things people build are dead. From our machines to our philosophical theories--all are lifeless imitations of living processes. My life flows together with the lives around me, and it is this stream, by one of its quiet pools, that I see myself reflected.

One needn't go to the wilderness to see raw nature at work. The same urges and imperatives that make for a forest are at work in the bean patch. These forces are beyond human command. We may alter and direct them, but we can't change them. We can learn from them, but we may never fully understand them. "In wilderness," said Thoreau, "lies the preservation of the world."

* * * * *

It has always been man's challenge to live by a moral code. Many different codes have been adopted and carried by civilizations, then dropped in favor of new ones. During times when moral codes thaw and change, people find their values challenged. There is a crisis of spirit in the land. People look for things to believe in, but there is no consensus. We are living in such a time. A recent report by five social scientists puts it this way: "Our problems today are not just political. They are moral and have to do with the meaning of life. . . Now that the moral ecology on which we have tacitly depended is in disarray, we are beginning to understand that our common life requires more than an exclusive concern for material accumulation."¹

Meanings are found in the roots and cores of things. At the heart of humanity are the natural processes that all life shares. Here we will find timeless meaning, consistent values, and a true picture of how our inner self functions.

Our scientific understandings have run well beyond the ancient moral codes we inherited. Our civilization is searching now for meanings, values and goals that will incorporate new knowledge and guide us toward a full humanity. To conceive and create a better, more whole expression of what it means to be human, we need the picture of ourselves that can be glimpsed in nature. It is the root image, and a true image, on which to build a sound ethos for the future.

Nature, though red in tooth and claw, is essentially innocent. Since we are part of nature, we must also be essentially innocent. When we regain this innocence, we will have our new moral code.

Notes

1. Bellah, Madsen, Sullivan, Swidler and Tipton. **Habits of the Heart**. University of California Press: Berkeley, 1985.

* Jeff Cox is writing a book entitled **The Spirit of Gardening** which will be published in the spring of 1987 by Rodale Press, Emmaus, Penn. This article is an excerpt from this book, reprinted here with the permission of the author. Jeff lives at 2685 Elizabeth Court, Sebastopol, California, 95472.

BOOKNOTES

The books listed up to the three stars have been suggested by John Miles and Bill Devall. Comments on each are from their remarks.

*Roderick Nash, **Wilderness and the American Mind**, New Haven: Yale University Press, 1982. Finest overview of the history of the wilderness idea so far written. (JM) Classic history of ideas about wilderness. (BD)

*Aldo Leopold, **Sand County Almanac**, New York: Oxford University Press, 1949. This book is about much more than wilderness, but taken as a whole contains several elements of the wilderness idea. (JM) A classic. Read the first two parts. Leave the land ethic to philosophers. Develop your own ethic from experiencing the place, as Leopold did. (BD)

*Edwin Way Teale, ed., **The Wilderness of John Muir**, Boston: Houghton Mifflin, 1954. Muir's eloquent writing on wilderness is scattered through his many books. Teale has compiled the best of it into this volume. (JM)

*Sigurd F. Olson, **The Singing Wilderness**, New York: Alfred Knopf, 1966. Olson's writings describe wilderness values as well as anything written since Muir. **The Singing Wilderness** is one of three Olson books that contain this description. **Listening Point** (1958) and **The Lonely Land** (1961), taken together with **The Singing Wilderness** comprise one of the best contributions to wilderness thought. (JM)

*John C. Hendee, George H. Stanley and Robert C. Lucas, **Wilderness Management**, U.S. Washington, D.C.: USDA, Forest Service, Misc. Publication No. 1365, October, 1978. A comprehensive treatment of topics in wilderness management, ranging from philosophical issues through description of the classification process to planning, carrying capacity, fire in wilderness ecosystems and visitor site management. (JM)

*Dennis M. Roth, **The Wilderness Movement and the National Forests**, Washington, D.C.: USDA, Forest Service, 1984. Excellent historical treatment of the most recent episodes in the wilderness preservation movement in the U.S. Good coverage of the 1964-1984 period. (JM)

*John Muir, **Wilderness Essays**, Salt Lake City: Peregrine Smith Books, 1980; **Mountaineering Essays**, Salt Lake City: Peregrine Smith Books, 1984, both excellent works by Muir. (BD)

*Robert Engberg and Donald Wesling, eds. **John Muir: To Yosemite and Beyond: Writings from the Years 1863-1875**, Madison: University of Wisconsin Press, 1980. Fresh. Essays and journal essays written in the field. Well edited. (BD)

*William Schwartz, ed. **Voices For the Wilderness: From the Sierra Club Wilderness Conferences**, New York: Ballantine, 1969. Some of the best essays from several conferences, William O. Douglas, Sigurd Olson, Wallace Stegner, David Brower, and a host of other eloquent spokespeople for wilderness. (BD)

*Frank Bergson, ed. **The Wilderness Reader**, New York: New American Library, 1980. Excellent anthology. (BD)

*Henry David Thoreau, **The Natural History Essays**, Salt Lake City: Peregrine Smith Books, 1980. (BD)

*John Van Dyke, **The Desert**, Salt Lake City: Peregrine Smith Books, 1980. (BD)

*Loren Eiseley, **The Invisible Pyramid: A Naturalist's Analyses of the Rocket Century**, New York: Charles Scribner, 1970. Read "The Last Magician" if you read no other essay in this collection. Can we reenter the first world of nature? That is the central question which concerns Eiseley and us. (BD)

*The following four books give us insight into how we experience wilderness in the late 20th century and what the impact of mass tourism is on fragile mountain environments. (BD) Galen Rowell, **Many People Come Looking**, Seattle: Mountaineers, 1980; Rob Schultheis, **The Hidden West: Journeys in American Outback**, New York: Random House, 1982; Michael Fromm, **Promised Land: Adventures and Encounters in Wild America**, New York: Morrow, 1985; George Schaller, **Stones of Silence: Journeys in the Himalaya**, New York, Viking, 1985.

*Edward Abbey, **The Journey Home: Some Words in Defense of the American West**, New York: Dutton, 1977. Essays about the damage done to American wilderness caused by big business. Includes

"Freedom and Wilderness: Wilderness and Freedom," Abbey's theory of the relation between wilderness and industrial democracy. (BD)

*David Rains Wallace, **The Klamath Knot**, San Francisco: Sierra Club Books, 1983. The myth of evolution in Bigfoot country of northwestern California. (BD)

*Dave Foreman, ed., **Ecodefense: A Field Guide to Monkeywrenching**, Tucson, Az: Earth First! Books, 1985. Direct action in defense of wilderness. (BD)

* * *

*John A. Livingston, **The Fallacy of Wildlife Conservation**, Toronto: McClelland and Stewart, 1981. This is one of the most penetrating and insightful examinations of wildlife conservation philosophy and the effects of "conservation" philosophy on wildlife and its habitat. But it is more than this; it is also a critical search for an alternative ecophilosophy.

*John A. Livingston, **One Cosmic Instant: A Natural History of Human Arrogance**, Boston: Houghton Mifflin, 1973. A naturalist looks at the history of human impacts on the natural world and suggests that science is not enough to save us from "the total destruction of blue Earth. . ." The environmental crisis is a crisis of values, culture and character. Excellent overview.

*Mary Anglemeyer and Eleanor R. Seagraves, eds. **The Natural Environment: An Annotated Bibliography on Attitudes and Values**, Washington, D.C.: Smithsonian Institution Press, 1984. This bibliography explores human attitudes toward nature and the values we place on the environment. The volume covers materials from 1971 through 1983. The 857 entries concentrate on such readily available publications as books, regular periodicals and government reports. Suggested by Michael Caley.

*Marjorie Hope Nicolson, **Mountain Glory and Mountain Gloom: The Development of the Aesthetics of the Infinite**, New York: Columbia University Press, 1959. A comprehensive look at the literature of mountains and human attitudes and feelings toward them. Considered by many to be one of the most complete books on this topic.

*Daniel J. Decker and Gary R. Goff, eds. **Valuing Wildlife Resources: Economic and Social Perspectives**, Boulder Colorado: Westview Press, 1986, fall. This collection of essays grew out of a symposium sponsored by the New York Chapter of the Wildlife Society, and is "designed to serve as a state-of-the-art guide to the methods of determining the economic and social values of wildlife, the applications for environmental impact assessment and mitigation concepts in wildlife valuation, and strategies in wildlife planning and policy." This according to a release from Westview Press, 5500 Central Ave., Boulder, Co. 80301, USA.

***Island Wildflowers**, illustrations by Carol Martin and text based on field notes by Richard Martin. Available from Images Printing, Gen. Del. Hornby

Island, B.C. VOR 120, \$5. This is an example of an appreciation of wildflowers for the Gulf Islands of B.C. and is an attractive hand illustrated book.

*Steve Van Matre and Bill Weiler, eds. **The Earth Speaks**, is "a collection of images and impressions recorded by those who spent much of their lives in patient and careful observation of the natural world. . . .the book contains the writings of naturalists and natives, poets and philosophers, scientists who went beyond analysis to 'seeing,' and ordinary people who were able to capture on paper the magic and meaning of Earth's marvels." Available from Institute for Earth Education, box 288, Warrenville, Ill. 60555. \$11.95 US, plus \$1.50 postage. Suggested by John Frank.

MUSIC, ART, VIDEO AND FILM

*Bo Martin is a freelance photographer who does custom developing and printing as well as a great deal of wildlife and nature photography. He is an active hiker, climber, kayaker and traveler. Bo's address is 2611 Rosebury, Victoria, B.C. Phone: (604) 595-0655

*Libby Mills is a freelance artist whose works are available as prints and notecards. Samples of her work have appeared in the three wilderness issues of **The Trumpeter**. Her address: Wildlife Art, 7044 50th Ave. N.E., Seattle, Wash. USA 98115.

***Survival Cards** are not books but are artfully done. They are by Lee Nading and feature comprehensive, compact survival guides for most regions of the Earth such as tropics, arctic, desert, & temperate. They picture plants, shelter arrangements, edibles, dangers, first aid, etc. Address: Survival Cards, Box 1805, Bloomington, In. 47402 USA. Phone: (812) 336-8206.

*In **Earth First** for June 21, 1986, Lone Wolf Circles reviews two cassettes which are both songs of and for the Earth. Katie Lee: Fenced (cassette); Katydid Records, POB 395, Jerome, Az., 86331 USA; and Cecelia Ostrow: All Life is Equal (cassette); Cecelia Ostrow, POB 14742, Portland, Ore. 97214 USA. Lone Wolf Circles has high praise for both of these collections. The first is pure country and American Folk. From his descriptions the second must be folk. Musical alternatives to canned and electronically produced sound. Sounds of the Earth and for it.

***Carnivore** sponsors conferences and works to produce **Carnivore Journal** reviewed in an earlier issue of **The Trumpeter**. They produce a series of books which combine art, text and poetry to illuminate our relationships with animals and to celebrate animal life. The editor of the journal is Randall L. Eaton, who has written **Zen and the Art of Hunting: A personal Search for Environmental Values**, all available from Sierra Nevada College Press, 800 College Way, Incline Village, NV. 89450-4269.

***The Institute for Earth Education** is dedicated to helping "people live more harmoniously and joyously with the natural world. Based upon the Acclimatization materials and approach, this new effort offers more tools and greater support for the practitioners of focused, purposeful environmental learning." They are sponsoring a conference to be held Sept. 24-28, 1986, at the McKeever Environmental Learning Center in Sandy Lake, Pennsylvania. Write to them for more information: IFEE, Box 288, Warrenville, Il. 60555 USA. Phone: (312) 393-3096.

***Environmental Education: Transition to an Information Age**, Sept. 11-17, 1986 Conference at the University of Oregon, Eugene, Oregon. Joint conference of the National Association for Environmental Education and the Northwest Association for Environmental Education. For more information on the Northwest Association Conference write to: Jerry Berberet, Dean, College of Liberal Arts, Willamette University, Salem, Oregon 97301; on the NAEE part of it write NAEE Conference, POB 400, Troy, OH 45373. Phone: (513) 698-6493.

***Wilderness University** is dedicated to "an exploration of right relationship to nature and land." Sponsors courses of all sorts. University of Wisconsin Center- Waukesha County, 1500 University Drive, Waukesha, WI 53186-1628, USA.

This list will be completed in the Fall issue.

"The way of Heaven is to diminish the superabundant and to supply the needy. . ." Lao Tzu, **Tao Te Ching**.



The Trumpeter: Dedicated to the exploration of and contributions to a new ecological consciousness and the practice of forms of life imbued with ecosophy.