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# Values and Economics in Environmental Management: A Perspective and Critique

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Several categories of non-market value have been identified for forests and other natural environments: use value, option value, altruism, bequest value, existence value and intrinsic value. In this paper, we view these values from a psychological perspective. Non-market values arise because natural resources play important roles in furthering human goals. This goal perspective contrasts with intrinsic value—the idea that natural objects have value as ends in themselves regardless of their relationship to man. Because of the lack of precise definitions, elements of intrinsic value are often mixed with existence value, creating confusion in the literature. These resource values need to be examined on a logical as well as an empirical basis. We argue that careful scrutiny reveals problems with both existence value and intrinsic value so that it is important to question their role in policy formation and analysis.

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## 1. Introduction

Values occupy a central place in natural resources management. Although forests and other natural environments are capable of producing benefits for society, not all such benefits can be maximized concurrently. When trade-offs involve difficult choices, public policy presupposes that these choices will be made in a principled fashion. But which principles, and based upon whose values? Traditionally, economic efficiency has been the primary principle applied to forest commodities such as timber or grazing. In the market context in which these commodities are traded, economic value (what an individual is willing and able to sacrifice in order to obtain a good or service) is clearly appropriate. Yet economists have recognized that many aspects of forest resources—wilderness, wildlife, recreation, natural beauty, spiritual values—are not readily amenable to traditional economic analysis. At the same time, however, the rapid growth in demand for those non-market resources and the experiences associated with them that followed World War II necessitated that they be included in forest management

decision-making. Initial studies examined people's direct use of natural environments for purposes such as recreation. Then, in 1967, John Krutilla published an article entitled "Conservation reconsidered" which is generally considered to be the original expression of existence value. Krutilla's paper, together with Weisbrod's (1964) development of the concept of option value, suggested that many natural resources produce benefits that extend well beyond their simple, direct use. The result has been a creative extension of both economic concepts and measurement.

Conceptually, two categories of non-market economic values have been developed: use values (including option value as a form of possible future use) apply to the benefits a resource produces for those who actually use it, while non-use values concern benefits received by those who do not use it. The distinction between use and non-use values is not well defined and may not always be clear. Use values might include recreation, aesthetic appreciation, and spiritual values. Non-use benefits have been subdivided into existence value (the value people receive from simply knowing a resource exists), altruism (the value derived from having other contemporaries use a resource) and bequest value (preserving a resource for future generations). Use values have typically been measured with travel-cost or hedonic models, recognizing that, although many of these resources may be unpriced, they still have economic value because people make sacrifices (the cost of travel) in order to use them. Non-use values are generally assessed via contingent valuation.

Despite the conceptual growth, non-market values and valuation remain controversial. Questions remain about the validity of their use in benefit-cost analysis (Milgrom, 1993), the degree to which they can be measured accurately, the meaning of an individual expression of willingness to pay (Stevens *et al.*, 1994), and their comparability with other measures of value. In this paper, we appraise these resource values from a psychological perspective. We begin with a discussion of value as a concept in social science, arguing that the various conceptions of value share the common idea that values are guides to decision-making. We then present a model of the person as a hierarchically ordered amalgam of biological, psychological and social factors and locate values within this framework. This is followed by a discussion of the functional nature of resource values. Finally, we raise questions about the validity of the concepts of existence value and intrinsic value, both of great concern in contemporary environmental ethics, and close with a general critique of the role of economics in resource policy and analysis.

## **2. What is value?**

"What is value?" is a deceptively simple question. Philosophers from Plato onward have discussed various issues under headings such as the good, the right, the ultimate end, obligation, virtue, morality, truth, aesthetics, etc. (Frankena, 1967). Although Plato believed that all of these stemmed from the same root, over time they came to be discussed separately, and the term "value" was restricted to mean the worth of something (usually in an economic or quasi-economic sense), while "valuation" meant an estimate of its worth. In the 19th century, however, philosophers such as Lotze and Nietzsche returned to the Platonic tradition arguing for a general theory of value and valuation that included economics, ethics, aesthetics, jurisprudence, education, and perhaps even logic and epistemology (Frankena, 1967).

This conception of value matured in philosophy during the 1890s and subsequently

spread to psychology, the social sciences, the humanities and even to ordinary conversation. Each discipline interpreted value within its own metatheoretical structure, heightening differences in meaning. This was paralleled by differences in measurement techniques and methodologies which, in turn, derive their meaning from the meta-theories. The result is almost certain confusion when one attempts to discuss value in an interdisciplinary context. This confusion is exacerbated by a haze of closely related concepts—how does a value differ from a preference, a motive, a goal, a policy, a want, a desire, or an aspiration? There is much about this highly important concept that remains unclear.

Brown (1984) has provided one of the best conceptual expositions of value as it applies to resource management. He begins by distinguishing preference-based uses of the term from non-preference related uses (the value of nitrogen in corn production, the value of  $n$  in  $n^2=4$ ). Economic values are clearly preference related, as are other social values. Brown defines a held value as an enduring conception of the preferable and differentiates held values (honesty, freedom, beauty) from assigned values in which the importance or worth of an object is expressed by implicit or explicit comparison with other objects rather than by some absolute standard. Held values influence the preference relationships that determine assigned values. Economic values are thus a “species” within the “genus” of assigned value.

In this paper we take a slightly different approach. We define a value as a criterion by which a state of affairs (an object or situation) is judged to have or afford the property  $x$ , where  $x$  is instantiated by a pro or con predicate (e.g. good or bad, beautiful or ugly) as opposed to a predicate that describes matters of fact (e.g. “green” or “large”). Implicit in this definition is the notion of a valuer, the person according to whom the state of affairs is good or bad, beautiful or ugly. In addition, the definition embodies two other important elements. First, values serve as criteria that people use to make judgments; that is, values specify the relationship between one thing and another (as in Brown’s preference relationship). Second, values are differentiated from facts. Both of these elements are important in the consideration of values and merit further discussion.

### **3. Facts and values**

During the 20th century, most natural resource management professions have prided themselves on being scientifically based. That is, they have sought an objective basis for management that is grounded in scientific fact. Values, for the most part, have been left to shift for themselves, receiving implicit rather than explicit consideration in many management actions, a situation that can become quickly problematic during the public review process (Decker *et al.*, 1991). Both facts and values are important in the decision-making process, so that we need to consider both values and the value/fact relationship explicitly.

The relationship between facts and values has a venerable history stretching back to the ancient Greeks. In modern (i.e. post-Renaissance) philosophy, however, it was the Scottish philosopher David Hume who pointed out that, under standard systems of logic, you cannot derive “ought” statements (values) from “is” statements (facts). That is, facts (a description of “what is”) can never fully tell us what we ought to do; sound decision-making requires a thorough knowledge of both the relevant facts and values.

Although Hume’s point of logic still stands, it set off a controversy that has lasted

over 200 years. Today, it is virtually impossible to make any statement about the fact/value relationship that is not controversial. Positions range from an extreme subjectivism which insists that all observation is theory-laden and therefore cannot be divorced from a human subjective element (a position that makes nearly everything a value) to an extreme objectivism which holds that there is an objective truth to values which does not depend upon our personal, idiosyncratic preferences but is objectively knowable by all people across all cultures (a position that makes nearly everything a fact). It is well beyond the scope of this paper to adjudicate among these positions. For our purpose, we are adopting a rather traditional, middle-of-the-road position on the fact/value relationship. That is, facts are objective—they refer to the object and are considered to be independent of any particular observer. Values, conversely, are subjective in that they specify unique relationships between a particular person or group (the subject) and a particular object. For example, the desk at which you work can be described objectively with certain facts—length, width, height, number of drawers, and so forth. Assuming we can agree on measurement, etc. these facts remain unchanged no matter who is sitting at it. But whether or not it is a good desk depends upon its relationship to you. That is, the value relationship is unique to the subject and can change across individuals; the desk may be judged to be good or bad depending on the requirements of the person sitting it. In this way, our value relationships link each of us as unique individuals to the world in ways that are good or bad, right or wrong.

The fact/value dichotomy is particularly important because of the emphasis the various natural resource professions have placed on fact-based problem solutions during the 20th century. That is, when problems have arisen, the professions have generally looked to scientific research (i.e. “factual” research in one or more of the sciences) to supply the solution. We believe that this is no longer sufficient; many problems are as much value-based as they are fact-based and we can no longer afford to ignore the value dimensions of decision-making. Moreover, these value dimensions incorporate more than economic values, so that we must attempt a more detailed explanation of the role of value in behavior.

#### **4. Behavior, systems, and value**

Behavior can be construed in many ways. We prefer to think of behavior in a systems context as co-ordinated patterns of responses “designed” to achieve some goal or fulfill some function (Averill, 1992; Averill and More, 1993). What is important for our present purpose is this notion of a goal or function. Small actions derive meaning because they fulfill a function or functions within a larger system. Thus, a student may tie her shoes in the morning because she wants to go to class. She wants to go to class because she wants to pass her exam. She wants to pass her exam because she wants to graduate. She wants to graduate because she wants to go to medical school to become a doctor, and so on. In this way, the act of tying a shoe can be linked (at least partially) to the distant goal of becoming a physician.

This example illustrates what we mean by systems of behavior. Such systems are hierarchically organized from the simple to the complex and may also be distinguished on the basis of the goals they serve: biological, psychological, or social. In fact, most complex behavior is shaped by an amalgam of hierarchically arranged biological, social, and psychological influences (Figure 1). Each of these systems is organized around an ultimate goal or function within the individual. Within the individual, the ultimate

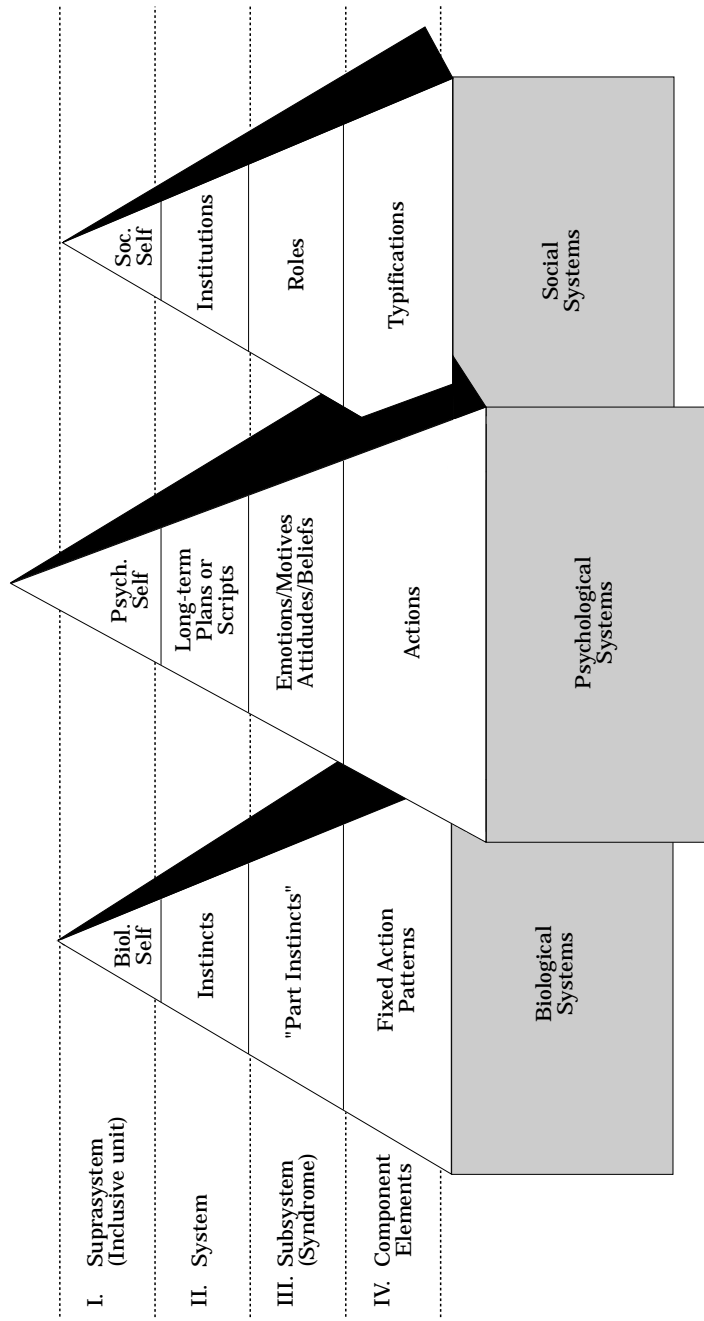


Figure 1. Levels of organization.

function of biological systems is the maintenance of long-term health which is instantiated within the biological self as a set of subsidiary goals related to biological functioning (e.g. sex, harm avoidance, attachment, etc.). For social systems, the ultimate goal is the preservation of society, instantiated within the individual as a set of moral precepts about right and wrong (something nearly equivalent to the Kantian concept of duty). The well-socialized individual will share the dominant values of the culture, defining behaviors that enhance the culture as good and those that detract from the culture as bad. For psychological systems, the ultimate goal is the actualization of the self—the reaching of one’s fullest potential as an individual.

These ultimate goals are broken down into subsidiary goals associated with sub-systems of behavior, so that finishing a project at the office, running four miles without stopping, or completing a high school degree can all be legitimate goals for an individual. Within this framework, specific actions are linked to higher order goals through these subsidiary goals and systems. Tying knots, unfurling sails, packing picnic lunches, etc. may all be part of a day’s sailing activity—actions associated with (and partially defining) the behavior of sailing. This day’s outing will be linked to a series of sailing occasions, which is linked in turn to long-term plans regarding sailing (owning a bigger boat, winning a particular race, retiring near a large lake, etc.). Finally, these long-term plans become part of a person’s definition of self—that she is a sailor!

Value as a concept plays several roles within this context. First, tangible goods and services have value, in the sense of worth, because they enable us to fulfill functions, because they contribute in some way to human flourishing (the optimal functioning of the systems described above). In general, the more functions a particular item or service fulfills, the more valuable it will be, and the more we will be willing to pay for it (though not all functions are equal and some may be more inherently valuable than others). The objective facts about a hammer, for instance, are attributes that are valued because they are instrumental in helping the builder attain his goal. A jacket is valued because it provides warmth (reflecting a goal in the biological hierarchy) and style (potentially reflecting goals in both the social and psychological hierarchies).

Second, the market value of these tangibles, a form of assigned value, helps to facilitate choice by establishing the standing of a particular object relative to others (Brown, 1984; Brown and Peterson, 1993). We know the price of the jacket and the hammer and we know how much we are willing to pay for each, given our goals and priorities. Often, however, we are called upon to judge intangibles or semi-tangibles. We may willingly pay higher prices for goods produced in our own country because we are patriotic, or for grapes picked by union-workers because we believe migrant farm-workers should not be exploited. At the higher levels of Figure 1’s hierarchies, we are dealing almost exclusively with intangibles. We must often make decisions about means and ends, about the validity or non-validity of an idea, about the beauty of a painting or a landscape. Values such as honesty, integrity, aesthetic sensitivity and the like—held values in Brown’s (1984) terminology—provide the standards by which we make such decisions. One classification of such values might include rational, moral, aesthetic, economic and spiritual values. Put most simply, rational values involve standards for truth; moral values, standards for conduct; aesthetic values, standards for appreciation; economic values, standards for choice among goods and services; and spiritual values, standards for meaning. Values like these form the social self, the apex of the social hierarchy in Figure 1. The self at this level is represented by a set of propositions about who we are and how we relate to the world. As noted, the well-socialized individual will have acquired the dominant values of the culture and will

tend to judge situations, events, goods and services, aesthetic objects and the like in a way consistent with the values of the culture. However, these values may intersect in multiple ways; a truth may be judged on aesthetic as well as rational grounds; aesthetic values may be subordinated to moral ends, etc. Thus, when making decisions, we may construct a value hierarchy to suit the individual situation (Brown and Peterson, 1993).

## **5. The functional nature of resource values**

Since Weisbrod (1964) first introduced the concept of option value, the non-market values associated with natural resources have received considerable attention. As noted these may be divided into two broad categories: use values, in which the benefits of a non-marketed resource accrue directly to those who use it, and non-use values, in which people who do not use the resource directly still derive some benefit from it and, consequently, are willing to pay for its preservation. Non-use values include option value, existence value, altruism and bequest value. These concepts are not well-defined. For example, economic benefits might occur in any of the three hierarchies, depending on the resource in question (Daum, 1993). Altruism and bequest value (which we consider to be a specific form of altruism) are more specifically centred in the social hierarchy. Altruism, kindness and generosity are all values encouraged in Western cultures and, consequently, form the basis of social goals. A payment to ensure access to the resource for others (either now or in the future) helps to fulfill these goals; it enables the person to define herself as generous and caring.

The functions of existence value are less obvious. Most probably these functions are multiple and related to a person's self-concept. Recall that the self—the apex of the three hierarchies in Figure 1—consists of a set of propositions about who we are and our relationship to the world. In the psychological hierarchy, these propositions are based upon knowledge structures acquired through past experience and unique to the individual. In the social hierarchy, however, they consist primarily of held values. I am honest; I am loyal; I am friendly, etc. When confronted with a question like "How much would you be willing to protect Alaskan wolves?" a person's answer may well reflect this kind of proposition about the self: "I am willing to pay because I am the kind of person who values nature and I have a moral commitment to do so", etc.

Ultimately, then, all the foregoing values are based upon some notion of human use in relation to human goals. These goals are many and varied and may be tied to the resource in various ways. Even existence value can be construed as a form of use. Therefore, a major conclusion we wish to draw is that the distinction between use and non-use is not valid and has been responsible for great confusion in the literature. A more appropriate distinction would be between on-site benefits (those a person receives from being in close physical proximity to a resource) and off-site benefits. The key point is that all these values are human use values and reflect human benefits and costs regardless of where those benefits and costs are applied.

The distinction between use vs. non-use and on-site vs. off-site may seem a small point to argue over, but it is crucial because it begins to raise doubts about the logical foundations of existence value and intrinsic value. Specifically, when existence value is divorced from the concept of non-use, its meaning changes. It may be that its meaning is expanded to that everything a person knows of (including things she uses) has existence value, or it may be contracted so that nothing has it. In either case, the concept will have a far different meaning than we currently accord to it. This is even more true of intrinsic value.



## 6. Intrinsic value

As concepts, non-market values certainly have face validity—they seem intuitively obvious, and there are many examples of people's concern for people, places, plants and animals that they have neither seen nor ever expect to see. Many humanitarian efforts are examples, as are efforts to save a wildlife species or to preserve a symbol such as the Statue of Liberty. At a deeper level, however, it is possible to question the construct validity of these values and hence their logical foundations. This is particularly true for existence value and its first cousin, intrinsic value.

Intrinsic value, like the other resource values, has not been defined precisely. In its most extreme and perhaps most common form, intrinsic value is the idea that objects (things, species, individuals) have an inherent worth that makes them valuable in and of themselves, regardless of any human benefit or cost they may generate. This is, of course, quite close to the concept of existence value; the key difference is the emphasis on human satisfaction that is tied to existence value. Proponents of intrinsic value believe in the inherent worth of things, be they individuals, species or even non-biological entities. This view is quite commonly held by environmental ethicists and deep ecologists. Callicott (1992, p. 132), for example, proposes what he terms a "truncated intrinsic value": "What is worth arguing . . . is the proposition that non-human natural entities and nature as a whole may be valued not only for what they do for us, but . . . also for their own sakes as well." These writers consider a notion of value founded in human preference to be anthropocentric rather than biocentric or ecocentric. Some even go so far as to assert that all living things are of equal value, and the notion of intrinsic value may provide a basis for assigning rights to non-human entities (cf. Stone, 1974; Nash, 1989).

Most economists probably would find the idea of value originating outside a human context troubling, and we agree. Even so eminent a philosopher as Thomas Nagel (who has a strong impulse to believe) has problems. "I don't know how to establish whether there are any such values. . . . The problem is to account for external values in a way which avoids the implausible consequence that they retain their practical importance even if no one will ever be able to respond to them. (So that if all sentient life is destroyed, it will still be a good thing if the Frick Collection survives.)" (Nagel, 1986, p. 153). Randall and Stoll (1983) attempt to bridge the gap between existence and intrinsic values by defining what they term Q-altruism—the satisfaction derived from knowing that the resource itself benefits from being preserved. However, the operative term here is "satisfaction", which keeps Q-altruism as a thoroughly anthropocentric human value.

In our opinion, both existence value and intrinsic value suffer from serious difficulties that become apparent upon close scrutiny. First, there is the problem of just what, exactly, is being valued. As an example, consider Krutilla's original statement about existence value: "There are many people who obtain satisfaction from mere knowledge that part of wilderness North America remains even though they would be appalled by being exposed to it." (Krutilla, 1967, p. 781). This really devolves into three components: the thing itself (wilderness in this case), knowledge of the thing and the satisfaction that people derive from the thing. We need to be quite clear about just what is being valued here. Most economists would like to know the value of the thing itself, and this may be where existence value can become confused with intrinsic value. Knowledge of the thing is a separate issue. There are some people, for example, who would argue that knowledge is good in and of itself. Clearly there are cases where the

thing itself may be bad (the smallpox virus, for example), but where knowledge about the thing may be good. Finally, there is the problem of satisfaction. Satisfaction—we would prefer the term pleasure—is an emotion. Pleasure (or satisfaction) is a state that does not exist in isolation but, rather, comes with the fulfillment of some function or the achievement of some goal. If a person is willing to pay to preserve a resource she has never seen nor ever expects to see, and if she derives pleasure from that payment, this pleasure occurs because a function has been fulfilled for her. By our own previous definition, then, this places existence value squarely within the same category as use values; it is simply a different form of use. This is quite different from the notion of intrinsic value as described above. Moreover, the absence of a clear definition of existence value enables it to be easily confused with intrinsic value, a confusion which is, at least in our opinion, pervasive in the literature.

A more serious objection to existence and intrinsic values is that they are essentially static concepts of value—they value the world the way the world is now. This is especially true of intrinsic value. If everything living (and perhaps non-living things as well) has value and a moral worth of its own, then it must be wrong to allow such things to go out of existence.<sup>1</sup> But this allows no room for a concept of competition, either in a biological or an economic sense, or for growth, change or development. There also may be little room for creativity. To create is also to destroy (or, to use a less dramatic word, to transform). The potter who creates a magnificent vase from a lump of clay does so only by destroying the lump; the carpenter who builds a house does so at the expense of the original trees. To imbue the lump or the trees with value and, subsequently, with rights could preclude their transformation into vases or houses. To be fair, it might be argued that the vase or the house simply have greater value than the lump or the trees, but this can only be true given anthropocentric human goals. The relationship also holds within the biological and social orders: mammals could not flourish until dinosaurs became extinct; and democracies could not emerge except at the expense of feudalism. On a more individual level, when Beethoven wrote *Eroica* he did so at the expense of the old aesthetic; when Lord Keynes wrote “The General Theory of Employment, Interest, and Money”, he transformed economics. But suppose the old aesthetic or the old economics was valuable in and of itself? What then? Indeed, the relationship between creativity and transformation is consistent with our best scientific laws: matter is neither created nor destroyed, it is only transformed. While we could provide a much more detailed argument, the point is clear: a static conception of value conflicts with our valuing transformation, growth, and creativity.

But the absence of a logical foundation for existence and intrinsic values presents a further puzzle. Why, in the late 20th century, has it become so important to believe in them, to believe in the inherent worth of wilderness, wild land, plants, or animals? The seeds of these ideas are present in the writings of John Muir, and they received their most elegant expression in Leopold’s (1953) classic essay “The Land Ethic” in

<sup>1</sup>Thomas C. Brown (pers. comm. 1994) has noted that the idea of everything having existence value creates additional confusion. Originally, the idea of existence value was probably meant to apply only to very important things rather than to everything that exists. For example, it might apply to a species, but not to a single member of a species that is not threatened. It seems more plausible, however, that there could be a willingness to pay for every individual member of a species or a category. Brown recognizes that the existence value of a single biological entity is much less than the existence value of a species (i.e. the marginal member is less valuable the more members are there). Thus, Brown does not mind eating a lettuce plant so long as there are many other such plants, but he would not eat the last one. This may be a personal preference, however. By repute, gourmets will often pay substantial sums to be the person to consume the last of something.

which he advocated the extension of rights to elements of the natural environment just as they had been extended to women and minorities. But it has not been until late in the 20th century that ideas about existence value or intrinsic value have become influential in economic and ethical concepts, in policies such as the Endangered Species Act and ecosystem management, and even in the popular mind and press. These ideas may have come to the fore at this time because of a sense of limitation that comes in a world rapidly approaching a population of 10 billion (Kennedy, 1993). People (including intellectuals and economists) are worried. Do we need to apply the brakes to this growth? Do we need additional pressure to regulate ourselves to avoid ecological degradation? Can we avoid spiritual degradation when it is no longer possible to be alone? We submit that these worries affect our concepts and that existence value and intrinsic value are the intellectual manifestation of the web of ideas that surrounds these issues. They may be more signs of the times than “true” scientific concepts.

This is supplemented by the notion that economics can be seen as a rather conservative discipline overall, with concepts set up to find in favor of the status quo. In psychology, it is a common finding that preference depends upon familiarity; that is, we like (prefer, value) people, places, objects and situations with which we are familiar. An even more robust finding, however, is that we dislike (fear, loathe, abhor, disvalue, etc.) states of affairs with which we are unfamiliar. As the previous paragraph suggested, the world is changing rapidly in surprising and often unpredictable ways. Many people will find such change difficult. Is it surprising that, in this situation, concepts such as existence value or intrinsic value, that emphasize the importance of the status quo, should arise? To be sure, such concepts may, in some instances, sound a clarion call to action—to preserve a species, to prevent an oil spill, to save a wilderness—yet all these actions are ultimately in the service of preserving the world as we know it. Surely these values are normative economic concepts that we have treated as positive economics.

If existence and intrinsic values actually function to preserve the status quo, this raises a further question regarding equity: Who do these concepts serve? Who is doing well under the status quo? Studies of wilderness users (cf. Hendee *et al.*, 1968), national park visitors (Bultena and Field, 1978) and the environmental movement as a whole (Harry *et al.*, 1969) suggest that on-site users/organization members are drawn from a social elite. The popular press also frequently portrays environmental regulations as enacted at the expense of working class jobs. And yet, do the poor not benefit from clean air and water? Can they not derive as much pleasure (benefit) as the wealthy from simply knowing the Bengal tiger exists in the wild? Such questions highlight the importance of the off-site benefits in determining equity, and they raise the stakes of the validity issues substantially. The issue of applying income constraints (ability to pay) is equally important. It is evident that we need much more work in this sensitive area.

## **7. Conclusion: economics as the language of default and the Problem of the Flag**

In this paper, we have argued that non-market resource values such as use, option value, altruism and bequest values are legitimate expressions of value. Existence value and intrinsic value seem more tenuous to us. Numerous surveys have demonstrated that people are willing to pay to preserve the existence of a variety of resources from wildlife to wilderness to the Statue of Liberty. Yet such empirical justification is not enough; the concepts we use in science must be subject to logical proof as well as

empirical documentation. It might be argued that over the years people have believed in witches, fairies, phlogiston and many other fanciful concepts. A man who is willing to pay to protect himself from ghosts is a sovereign consumer, and economics has no problem handling his decision. Why then should we not respect the results of surveys of users or the general public with regard to their willingness to pay for existence? The difficulty, of course, comes when we extend these concepts to the formation of public policy. Here we are spending other people's money rather than our own and, as was suggested when it was revealed that astrology played a major role in the Reagan White House, the public expects logical proof of concepts used in policy formation as well as empirical documentation. To this end, we can no longer accept existence and intrinsic values on the basis of face validity or survey results alone; much more work is needed on their construct validity.

This concern about construct validity leads to a broader point about the validity of valuing non-market resources in general. Decisions can be made on various grounds: economic, moral, aesthetic or rational. In our society, however, economics has become the language of default. We are unused to dealing with other grounds for decisions so, when confronted with a difficult choice, we turn quite naturally to economics—surely one of the most sophisticated and powerful tools for decision-making ever devised. Yet this may lead us to extend economics to areas where it is ill-suited to serve, a disservice both to the issue at hand and to economics.

To illustrate, let us pose what we have come to think of as the Problem of the Flag. It is widely assumed by economists that the value of a commodity can be derived from data on supply and demand (willingness to pay). Flags are one such commodity—they are bought and sold in a market context and market data should be available if we choose to seek it. Yet the flag is also something that people have died for. They expose themselves to great risks to keep it from touching the ground. They salute or place their hands over their hearts when it passes. In the U.S., when they wish to make an exceptionally strong protest, they burn it—and the case goes almost immediately to the Supreme Court where it is argued passionately by some of the finest lawyers in the land. Given these behaviors and sentiments, is there any way that we can seriously claim that the value of the flag is captured by market data?

“But,” you might object, “that’s because the flag is much more than just a piece of colored bunting! What people are arguing over, dying for, is what the flag represents, not just the piece of cloth.” Agreed. But the same can be said for Alaskan wolves, bald eagles, grizzly bears, wilderness areas, tropical rain forests and the Statue of Liberty. To just what extent can willingness-to-pay surveys capture the value of any of these things? What is it that is actually being valued? Is there any way to know?

In conclusion, it is worth trying to regain a broad perspective. Non-marketed natural resources produce benefits for society that extend well beyond their simple, direct on-site use. In attempting to evaluate these benefits, economists have created a number of value concepts including use, option, existence, altruism and bequest. What we are arguing over is how these concepts should be parsed, and whether or not they are sufficiently valid to be used in benefit/cost analysis. From a psychological perspective, we are able to make a good case for the validity of use, option, altruism and bequest values because, in each of these cases, the concept can be closely linked to the furtherance of human goals. Existence value is more tenuous because of its ties to intrinsic value—value in the absence of any human function. This highlights the definitional problem. Existence value is typically taken to include altruism and bequest values. But if these were subtracted out, and any notion of intrinsic value was deliberately excluded,

would anything be left in the existence value category? This is crucial. We suspect that existence value may include components other than altruism, bequest and intrinsic values. The highest psychological concept is that of the self—a set of interconnected propositions about who we are and our relationship to the world. Someone who defines themselves as the kind of a person who values nature will support this definition with a complex web of actions and beliefs. The components of this web could range from site visits to reading or watching television shows about nature to group membership to payments in support of causes related to nature. Also included may be some sense of a moral duty or commitment which could well form a component of existence value. This possibility deserves further critical evaluation.

The appropriateness of using these concepts in benefit/cost analysis is a separate issue. We have already questioned the validity of existence value because of its ties to intrinsic value. But bequest value may also be suspect, depending upon the way in which it is used. For example, it is perfectly acceptable for an individual to say “I value wilderness and am willing to pay to preserve it for future generations.” This is a clear expression of a personal value relationship and, as such, is quite legitimate. Often, however, bequest value is used to speak on behalf of future generations, as in: “We must save wilderness not for ourselves, but for our children and grandchildren.” Such a statement plays down the personal value and presumes to speak on behalf of future generations and with all their moral authority. It is questionable for three reasons: (1) the probability of future generations being born, while likely, is less than certain; (2) future generations may be born to far greater wealth than the current generation (admittedly this seems unlikely, but look what happened to Malthus’ predictions when he was unable to envision the Industrial Revolution); and (3) it is easy to construct situations in which future generations do not want what we think they ought to have. Given the uncertainty of the future, we would be prudent to apply bequest value cautiously.

In sum, sound decision-making requires a thorough knowledge of both relevant facts and values. During the 20th century, the natural resource professions have emphasized facts; it is now time that we examine the values involved much more carefully and critically. Empirical documentation of these values is not sufficient; they must be proven logically as well. The public has a right to expect that the concepts used in policy formation be as sound as possible.

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