

Managing Natural Resources as Social Value⁽¹⁾

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" 'Everything is' is one extreme. 'Nothing is' is the other. Between these two I teach the truth of interdependent origination." --The Buddha

Young natural resources or environmental managers are usually attracted to their professions to be outdoors, away from the maddening crowd and its socio political problems, working with physical and biological resources (1). Yet these new foresters, wildlife biologists, or ecologists often find themselves immersed in less tangible, more ambiguous social value issues as much as the natural resources they love and want to manage (e.g., owls vs. jobs vs. biological diversity values). This is especially true of those professionals employed by public agencies. Many young natural resource graduates are disappointed and frustrated to discover that being an effective professional and public servant is ultimately a social endeavor (2). Our essay presents natural resource or environmental professionals' primary role as managing for social value. If natural resource managers were role-modeled and taught this social value perspective in college, they might not be so shocked and frustrated with their entry into the "real world" of being state or federal public servants. Although not a detailed operational model, our social value perspective addresses how and where natural resource values originate and how they are expressed to natural resource managers and the rest of society. We argue also that a professional orientation of managing natural resources or the environment as social value is not inconsistent with a biocentric perspective and is a more valid, comprehensive, and evolutionary management paradigm than focusing primarily on the physical or biological resources--as much as we cherish them.

Origin and Expression of Social Values in Natural Resources Management

Our conceptual model places natural resource values in an interrelated set of four systems: (1) the natural environmental system of biosphere elements, such as human and wildlife populations, natural resources, or ecosystems; (2) the social system of human attitudes, values, behavior, institutions, and technology; (3) the economic system that focuses on human attitudes, institutions, and behavior related to the allocation of land, labor and capital; and (4) the political system of policy, laws, courts, and public agencies. Note that system interrelationship and interdependency is the norm in this conceptual model, with the natural environment and resources (in the environmental system) providing and receiving impacts from the other three systems. Natural resource (or environmental) social values originate or are endorsed in one system only: the social system. They are expressed to natural resource managers (and the rest of society) through three systems: the economic, social, and political. In this model, the environmental

system itself neither originates nor expresses natural resource or environmental social value. Only human interaction with the natural environment originates social values (be they utilitarian or biocentric), which are expressed in various ways--by laws, bounties, socio political action, TV nature programs governmental budgets, or wildlife pictures and messages on T-shirts. Below, we explore these concepts in more detail.

The Origin or Endorsement of Natural Resource Social Values

Our conceptual model is anthropocentric and holds that (1) all human value orientations toward nature are ultimately devices of the mind, (2) shaped by interactions among self-culture and environment, and (3) originate in the social system. But this perspective accommodates both ends of the anthropocentric natural resources or environmental value spectrum, from (what we will call) "human-dominant" to "human-mutual" nature values. The Judeo-Christian and Greek heritage of Western culture tends to view few things (such as human life or soul) as having intrinsic value that is independent of human endorsement. From such a human-dominant anthropocentric perspective, nature and its natural resources are valued only as they fulfill human needs -- be these needs material, recreational, or spiritual (4). Verbs used to describe relationships between humans and nature at this pole of the spectrum would be humans "create", "establish" or "endow" nature with value by use, ownership, or institutions. Utilitarian values and human-dominant relationships usually prevail here; where humans often must devour and digest all stuff (the "source") to give it value (i.e., to transform nature "sources" of value into natural "resources"). There usually is little tolerance for intrinsic, spiritual, non-use, or non-ownership values at this human-dominant pole of the nature value spectrum. During European settlement in North America, natural resources had utilitarian value primarily for subsistence, economic development, and sport.

A more biocentric world view (6) accepts intrinsic values in the natural world, independent of utilitarian or direct human value endowment. Such beliefs are increasingly embraced by post-industrial, urbanizing Western society. Our model accommodates this human-mutual pole of nature values and relationships. But the model remains anthropocentric in holding that human minds and society are still involved with this more humble and sophisticated recognition of mutuality and interdependence of humans with other species and our shared, complex, diverse global environment. Spiritual, aesthetic, and non-consumptive nature values are important at this (more biocentric) end of the value spectrum. This can evolve to a recognition and celebration that other species and our shared habitats have intrinsic worth or value similar to humans (7). Our model maintains that biocentric value frameworks still require human recognition and endorsement--as indicated by often associating such biocentric values with Buddhist or Native American cultures and social value systems. At this human-mutual pole of the nature value spectrum, the social system merely endorses (vs. creates or endows) complex, diverse, and inherent nature values that could exist independent of our human use and appreciation-- even if humans no longer existed. Our conceptual

model suggests that, from a professional perspective, there are no universal laws or principles of ecology that mystically establish natural resource values or guide their management on some obvious, preordained path. Natural resource management is a very human and social endeavor that has changed greatly in the minds and lifetimes of professional pioneers such as Aldo Leopold (8).

With the environmental movement, conservation biology, animal rights, biological diversity concerns, and other current social awareness and movements, natural resource or environmental social values have changed greatly in the last part of this century. Yet a wide spectrum of utilitarian to biocentric nature social values have existed and functioned on this planet thousands of years before the development of any natural resource management professions. The disciplines of forestry, wildlife, or watershed management primarily offer: 1) concepts and information to change social awareness or behavior, 2) ability to predict and monitor the consequences of management options, and 3) ability to implement management processes in pursuit of natural resource social values-- values that originate in the social system. Of course, natural resource values are not formed in isolation within the social system, but as that system interacts with the environmental and other systems. Natural resource values also evolve, as do most social values. For example, agricultural societies tend to have different interactions with nature than do urban societies, often resulting in different natural resource perceptions, values, and uses (9). Many modern controversies over natural resource or environmental issues are conflicts of agricultural (human-dominant) and urban (more human-mutual) values about human relationships with and the use of nature (e.g., 1080 poisoning of predators; managing wild horses; harvesting old-growth forests). None of these nature value perspectives fall from heaven, nor do they have different origins. They are part of a continuum of nature values that originate in the minds of individuals and groups as their changing perceptions and human needs interact with the environmental and the other three systems.

America became an industrial society in the last part of the 19th century, with increasing socio-political concern for predictable, long-term flows of natural resource goods and services. The American conservation movement (1880-1969), with its sustained-yield philosophies of timber and forage flows or harvest able game surpluses, accommodated this socio-political need. Natural resource agencies and forest or game management professions were created (10). Recreational, aesthetic, and biocentric values were an important component of some early conservation visionaries, centered largely in urban areas and championed by people such as John Muir. Yet these values did not become a dominant force in natural resource management until the 1960s--with the advent of the environmental movement. America was then beginning its post-industrial stage of socioeconomic development. Many of its citizens offered a formidable challenge to the view that utilitarian and economic values were the most legitimate indicator of forest or wildlife worth. Legislation was passed to express these values (e.g., National Environmental Policy Act of 1969, or Wild Horse and Burros Protection Act of 1971). Recently there has even been a basic management paradigm shift in such powerful and

traditional agencies as the USDA Forest Service, where an industrial era, output-focused, sustained-yield orientation has evolved to the sustainable system focus of "ecosystem management" (11). But this expression of social value is the subject of the next section.

The Expression of Natural Resource Social Value

Historically, public natural resource managers have been conditioned to respond to values expressed by political and social systems that were very sensitive to the economic values derived from resource use and development. Laws or budgets are political system expressions of natural resource values. Wildland use, license sales, effectiveness of non-game wildlife contributions on state tax forms, or newspaper editorials are primarily social system expressions of natural resource values. Of course these values are rarely expressed solely through one system. For example, an Audubon chapter (in the social system) may lobby a state legislature (political system), obtain financial endorsement of corporations (economic system), and encourage its members to write legislators (social and political systems) to increase a state's non-game management budget. We continue this explanation of expressions of natural resource social values with a focus on wildlife. In the first half of this century, game managers and their legislative supporters were major forces in communicating new wildlife and natural resource social values (of an emerging American industrial society) by debating, passing, and enforcing game related laws. Aldo Leopold's campaign for Wisconsin antlerless deer hunting is a good example of a professional participating in socio political changes of wildlife attitudes and public policy(12) In the last few years, antihunting and animal rights groups are involved in similar social and political systems to express their values by restricting use of steel traps or attempting to ban hunting of moose in Maine (13). An indication of the amount, intensity, and marketability of substantive or symbolic wildlife social values is the frequency that wildlife issues are featured in newspaper headlines, in news broadcasts, on T-shirts or TV shows. Wildlife managers seem to have a curious, often antagonistic, attitude toward understanding and responding to social values expressed by the economic system. With the prodding of Leopold and others, the 1930 American Game Policy had a section on "Inducements for Landowners" (14). It supported economic subsidies to rural landowners to provide wildlife habitat and hunting access. Midwestern farmers, for example, allocate land, labor, and capital to the production of corn and pork because people express their social value for these commodities through the economic system. Leopold and others wanted similar economic expressions of game values (via payments, damage insurance, or tax incentives) to better compete with agricultural commodities. The American heritage of relatively abundant, cheap, and state-owned wildlife populations, the mobility of some wildlife species, and the Great Depression operated against wildlife values being adequately expressed by hunter payments or government subsidies as the 1930 American Game Policy proposed.

Yet today, the economic system is of increasing importance in expressing wildlife values. This is reflected in the rental of goose hunting blinds on the Atlantic flyway, wildlife

viewing tours or safaris, or interstate hunting rights franchises (e.g., the American Sportsman Assoc.). A half century after Leopold and others proposed economic inducements for landowners, their profession and state agencies increasingly are supporting this policy. As in the past, most American wildlife values are still expressed socially and politically (e.g., in state and federal laws guiding game and non-game management, in stream channelization or wetland drainage projects that diminish wildlife values to enhance others). Although passage of wildlife legislation or changes in government policy are usually the focus of much public attention, it is often in budget allocation that the relative political values of wildlife (vs. other programs) are most clearly expressed. For example, Alston (15) studied the relative values Congress placed on national forest wildlife management versus timber sale or range programs. Between 1955 and 1972, Congress gave the USDA Forest Service 97 percent (mean) of its budget requests for timber sales and 90 percent for range management. Yet it only approved 79 percent of its (much lower) wildlife habitat budget requests in that period. This has changed dramatically in the last decade, as wildlife and fisheries budgets and biologist have been the fastest growing segment of the agency. For example there were 275 Forest Service wildlife and fisheries biologists in 1979; 10 years later there were about 850, a rise from 3 to 10 percent of their professional work force (16). Congress also provided the agency 20 percent more wildlife and fisheries dollars than requested in its FY 1991 budget. In as many diverse and intricate ways a nitrogen is exchanged in complex ecosystems, our post-industrial American society is communicating increasing amounts and types of wildlife or other natural resource/environmental social values to us managers and to the rest of society.

Closing Comment

If one accepts that natural resource professionals manage to accommodate immediate and long-term social values in the environmental system, then natural resource management can be viewed as social value management -- just as validly as forest, fisheries, or recreation management. This new management paradigm encourages natural resource professionals to focus beyond the important physical and biological strata of their traditional forest, water, or wildlife management models, and to define our central role and social responsibility anew. Namely, that natural resource or environmental management professions strive to accommodate a mix of social values for current society, while maintaining viable, sustainable, natural resource values and options for future generations. If one acknowledges that many natural resource social values conflict with one another or with other social or political systems, then natural resource management also can be viewed as social conflict management. In what we natural resource professionals do (and do not do), we can intensify or dampen such value conflicts. How many natural resource managers were attracted to their professions or educated in college to understand and manage social value conflict? College students with the desire and temperament to deal with social conflict usually major in social work, labor management, or law. These students accept few values as intrinsic and are educated and role-modeled by their pro- professors to identify, engage in, and resolve social value

conflicts. In contrast, natural resource students are drawn to their profession by love of nature, a desire to manage or protect intrinsically valuable wildland or environmental resources, and an attraction to work away from the problems of a complex urban society. Their education generally focuses on manipulation of physical and biological variables. Few economics, sociology, or political science courses are required or elected (17), and many natural resource professors may not project a respect or tolerance for these social science disciplines.

Upon graduation, natural resource professionals are often confronted with managing moose in Maine, wild horses in Nevada, winter sports or wilderness areas on the Colorado urban fringe. Such management is often the focus of social conflict--where some clients value moose for hunting while others focus on moose symbolic value (18), ranchers battling wild horse advocates, snow-mobilers versus cross-country skiers versus vacation home owners. New professionals expecting to manage natural resource things, in tranquil rural settings, often experience considerable "reality shock" after college (19). They find themselves managing natural resources in the courthouse, the newspaper, or legislative conference rooms as much as in the field. Some USDA Forest Service wildlife professionals have identified themselves as "combat biologists" in what they perceive as an abnormal socio political environment--a management environment that is merely the modern, post-industrial world. It is in these socio political arenas that wildlife or other natural resource social values are often debated and "resolved" today, as much as in lecture halls or the field.

This is not to argue that natural resource managers be primarily educated and competent in the social sciences versus ecology. It's a plea that traditional natural resource education and management be placed in a broader and evolving social value context. Like fresh engineers or science graduates (20), natural resource managers are expected to be, first and foremost, technically competent. However even at the entry level or technical stage of their professional careers, natural resource managers should be better able to understand and cope with the multitude of environmental social values by viewing their role as accommodating and participating in an evolving American value system. As natural resource managers move up career ladders, away from the field and into administrative and political arenas, viewing themselves as social value and conflict managers may have even greater survival and effectiveness advantages (21).

Finally, our social value perspective does not suggest that natural resource managers completely become instrumental public servants and endorse a consumer-is-always-right code. The most valid role of natural resource and environmental professionals is to inform society of the complex, interrelated functions of ecosystems and the sustainability consequences of pursuing certain social value options. In addition, current society are not the major stockholders of natural resource social values--especially on public lands and waters. For all of us living who seek fulfillment of our social values must be accommodated by the ecosystems they will inherit from us. They, too, are an important

public for us professionals and public servants to serve.

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Notes

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1. Source: Kennedy, James J. and Thomas, Jack W. 1995. *Managing Natural Resources as Social Value*. In: *A New Century for Natural Resources Management*. Ed. by Knight, Richard L. and Bates, Sarah F. Island Press, Washington, D.C. (Figure 1 is not included here). This was adapted from a draft distributed with permission on the Human Dimensions of Fisheries Research listserve.

social value an activity creates; helping you target appropriate resources at managing unexpected outcomes, both positive and negative; demonstrating the importance of working with other organisations and people that. The luncheon club is delivered with the same resources as a meals on wheels service, except that residents are transported to meals, rather than the other way round. The service includes provision of hot, nutritious lunches, transport, opportunities to socialise, and mild exercise. The service is available for up to 30 residents, 5 days a week and 50 weeks a year. examines major challenges to natural resource management as well as policy options. Key Words. Natural resources, policy instruments, property rights, environmental regulations, tradable quotas, taxes, voluntary agreements, liability, subsidies, subsidy reduction, deposit-refunds. 1. Economic Growth and Environmental Sustainability. A casual reading of the literature on the resource curse and the connections between (for instance, or habitat to habitat compensation), or based on the social value of the harm (value to value). Clearly, the choice of metric has a clear impact on the cost of remediation and financial liability, especially when the resource damaged is very scarce (for instance, endangered species or rare. Natural resources represent inventories of raw materials that can be consumed (exhausted) through extraction or removal from their natural setting (e.g., removing oil from the ground). On the balance sheet, we classify natural resources as a separate group among noncurrent assets under headings such as "timber stands" and "oil reserves." Typically, we record natural resources at their cost of acquisition plus exploration and development costs; on the balance sheet, we report them at total cost less accumulated depletion. (Accumulated depletion is similar to the accumulated depreciation used in Community-Based Natural Resources Management (CBNRM) is viewed as a decentralized, self-regulated, and localized system that is supposed to address the issues of centralized resource management. Centralized systems are mostly seen as being detached from local or rural life and dominated by elite and bureaucrats operating in a top-down fashion (Musavengane and Simatele 2016). CBNRM may be based on a conservation science or driven by social values. Regardless of the approach, its goal is to achieve both livelihood and conservation goals. It could be framed around a single species of animals or a