

## **Environmental Ethics, Economics, and Property Law**

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### **Abstract**

There are substantial conflicts between the standard methods of economists and the thinking of environmental ethicists which result in divergent policy proposals and concerns. We argue in this paper that economists can gain from a thoughtful consideration of two of the key insights of environmental ethics: inherent value and ecological context. Taking this ethical approach seriously, however, challenges some fundamental components of economic thought. Specifically, the dominant concept of property in economic and legal thinking supports an overly anthropocentric view of the economy, giving rights only to humans and requiring duties only to other humans, often ignoring the ecological context. We examine divergent approaches to environmental protection within the dominant property paradigm and find them lacking. We show how a modified property concept can accommodate some significant environmental concerns and can help resolve some of the common conflicts between economic and environmental interests. Moreover, this change can set the stage for a legal standing for animals and the environment that are not based on arbitrary political preferences.

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Conflicts between economic and environmental concerns are numerous, and occur at the highest level of academic methods and in many specific policy applications. Sometimes these conflicts are the inevitable result of trade-offs and differing priorities. Often, though, the conflict runs deeper, to the differences between the worldview of economists and public policy practitioners on the one hand, and environmental scholars and activists on the other. To overcome these policy-related conflicts, we are convinced that we must work to bridge the conceptual gap between these schools of thought, by identifying the roots of the conflicts and re-thinking the institutions that shape our economic life.

One of the pivotal institutions that is at the center of many economic-environmental debates is the legal, economic, and ethical conception of property and ownership. Property rights are usually conceived as a bundle of rights to control part of the material world by a human, with corresponding duties to non-interference on the part of other humans (Hohfeld, 1917). The owner, in turn, has a well-defined sets of use-limits designed to protect the rights of other humans. Though there are some critics of the “bundle of rights” analogy, this view remains the dominant paradigm (Merrill & Smith, 2011). Moreover, this view undergirds economic analysis, which usually places weight only the preference-based welfare of humans, and assumes that exchanges and actions by humans take place in the context of a particular, anthropocentric, property rights framework. The assumed property regime determines which goods are exchanged, the type of exchange that occurs, and the resulting economic values that are placed on things.

We argue here that an alternate property regime would be more consistent with the inherent value of environmental goods and the ecological context of those goods. Such a regime creates an alternate legal context for more ecologically-friendly economic analysis. Specifically,

we argue that economic thinking has, unnecessarily, adopted an anthropocentric, simplistic view of the environment which inevitably places the discipline at odds with other environmental scholars. Moreover, property rights play an important role in economic thought about the environment. The alternate property regime which we propose would retain this importance, while also bringing economic thought in line with the philosophical literature on environmental ethics. The key requirement of this alternative property regime is that ownership of environmental goods must include a duty to make decisions about the property in such a way that the interests of the creatures (in the case of animals) and/or ecosystem (in the case of land & plants) are pursued.

The first section of this paper summarizes some of the key insights that environmental ethicists offer to economic thinking. Section two examines the elements of current economic thought that are central to the conflict. Section three focuses on the definition of property rights. Section four considers some alternative property concepts. Section five proposes a modified conception of property. Section six considers implications for public policy, section seven considers some implications for the practice of economics, and section eight concludes.

## 1. The Environmental Ethics Critique

The field of environmental ethics is young, but is now well established enough that scholars in other fields can draw upon major themes in this literature. Two such themes animate our discussion of property and economics: (i) that environmental “goods,” variously defined, have some intrinsic value apart from the preferences of humans; and (ii) that environmental

goods ought to be conceived of as uniquely situated in a particular ecological context, and are thus often not substitutable or separable. Both of these ethical claims conflict with dominant property conceptions in law, economics, and policy, and thus present a challenge to practitioners in these fields.

To understand the first part of this critique, it is helpful to categorize the different types of value that can be attributed to a part of the environment. First, there is an anthropocentric instrumental value, which is the use-value that humans are willing to ascribe. This value is measured well by the market price. Second, there is an anthropocentric non-use value, which is the value that humans attribute to the mere existence of the element of the environment. There is a real debate about the best way to measure and include non-use values in environmental policy-making, or even whether existence value should be considered at all when making policy (Boudreaux & Meiners, 1998). Third, there is non-anthropocentric instrumental value, which includes the value of an element of the environment to all other parts of the environment, human and nonhuman. Finally there is non-anthropocentric non-use value, which we refer to as “intrinsic value.” The consensus in the environmental ethics literature is that most human ethical obligations toward the nonhuman natural world stem from some intrinsic value, which is variously described at the level of an organism (bio-centric) or ecosystem (eco-centric) (Nash, 1989). This intrinsic value need not be infinite, as some claim (McCauley, 2006), or even equal to the intrinsic value of a human life, in order to motivate a substantive critique of many social-scientific approaches to environmental valuation. If one recognizes the existence of environmental intrinsic value, it becomes clear why current conceptions of property rights and standard methods of environmental valuation have frequently been criticized. Property rights, as they are normally understood by policy-makers, lawyers, and economists, are by nature

anthropocentric and may cause the wellbeing of the natural non-human environment to be undervalued or ignored completely.

The anthropocentric criticism is typically given voice by environmental ethicists, although some ethicists, following Norton (1984), have argued that anthropocentrism is not inconsistent with strong environmental protection. This argument relies in the idea that a diverse and well preserved natural environment is beneficial to human beings and that these benefits will be more widely recognized in the future. Norton has suggested that there are two main varieties of anthropocentrism: Weak and strong. Strong anthropocentrism suggests that all value lies in the felt preferences of human beings, whereas weak anthropocentrism is the view that value lies in the considered preferences of human beings. The difference is that considered preferences can only be expressed after careful deliberation and rational thought, while felt preferences can simply be a momentary whim or unreasonable desire. Norton argues that after careful thought and with good information, people would make choices that would preserve the natural environment and the result would be little different from operating under a non-anthropocentric ethic that attempts to assign intrinsic value to non-humans creatures.

As indicated previously, other environmental ethicists disagree with these claims (Callicott, 1984; McCauley, 2006; Westra, 2008). Critics argue that economic thought and policy based on anthropocentric principles will lead to environmental decay regardless of how enlightened the policy makers are since there will always be situations in which human interests and the well-being of the natural environment may be directly opposed.

A common critique of anthropocentric approaches is that they rely on the preferences of humans, but these preferences are subject to change and not consistent across all people and thus are insufficient for environmental protection. For example, Tribe (1974) speculates that it could

be possible to replace trees with plastic trees, serving a human desire for shade just as well as their natural counterparts. A clever marketing campaign could even be sufficient to convince people in the area that the plastic trees are just as good and have a similar aesthetic appeal. Even so, Tribe argues, fleeting human preferences should not be placed above more important values like respect for nature and respect for life. Sagoff (1974) echoes Tribe's argument, again emphasizing that protection of the environment should not be contingent on human preferences and that nature should be preserved "for its own sake".

A non-anthropocentric ethic, which recognizes intrinsic value in the environment, need not assert equality between the value of human well-being and the value of environmental goods. On the contrary, it is still possible to hold that human well-being is more valuable, but that intrinsic value should be counted and weighed in any environmental cost-benefit analysis. One example of an economic study which exemplifies this approach is Blackorby and Donaldson's (1992) study of the valuation of animal well-being. They use a "critical-level" utilitarian approach which gives some weight to animal welfare. Similarly, as we will argue here, non-anthropocentric policy regimes need not assert a political equality between human well-being and environmental goals.

The second major theme from environmental ethics comes from the observation that every organism is ecologically embedded and interconnected to a high degree (see Norton 1988 for a collection of these arguments). As a result, it is difficult to do any analysis well if we assume that different parts of the environment are substitutable or separable, as economists often do. This has been a criticism of standard environmental valuation as well from within the economics profession. Ecological economists in particular have argued that many economists implicitly or explicitly assume that natural capital can be easily substituted for manufactured and

human capital, leading them to undervalue natural capital (Gowdy, 2000). As a result, ecological economists argue for pursuing “strong sustainability”, which includes a preservation of natural capital in addition to human and manufactured capital, as opposed to “weak sustainability” that only requires that economic output be non-decreasing over time.

However, even “strong sustainability,” which works as a rule for policy, does not encompass the concern of environmental ethicists. What is needed, is an individual recognition of the connections between different parts of the natural world, and the corresponding respect for those connections which sustain communities of organisms. This, in fact, is the main reason why an “animal rights” perspective is incomplete: one can recognize the individual dignity of non-human animals but ignore the embeddedness of those animals in a particular ecosystem (Holmes, 2011). The reverse is also true in that recognizing the embeddedness of organisms in an ecosystem is not enough to prevent some of the abuses of animals that the “animal rights” perspective is concerned with.

## 2. The economic approach

The practice of economics and public policy has yet to take into account these insights from environmental ethicists, and so the two major themes outlined above constitute a dual critique of economic and public policy analysis. It is not always recognized how fundamental these criticisms of the standard economic tool set really are. Taking the two elements of this critique in turn, we will argue here that these elements constitute an ethical critique of standard economic models, of economic valuations, and of current models of exchange, all of which are at the core of the discipline.

First, the discipline of economics, and much of the resulting public policy analysis, is decidedly anthropocentric. Standard models assign values to environmental goods based on the revealed preferences of human actors. That is, values are assigned based on the trade-offs that humans are willing to make, on the margin, in favor of particular environmental goods. The preferences and welfare of non-human creatures are given weight only indirectly, when humans gain utility from their welfare. Similarly the value attached to ecosystems and species is conceived only in terms of their long-term value to humans.

If one accepts that non-human creatures, species, and ecosystems have some inherent value, this anthropocentric approach leads to some ethically unacceptable outcomes. For example, there are cases in which non-human animals have relatively well-defined, known preferences, but because human preferences are at odds with non-human animal preferences, these non-human preferences are ignored in economic analysis.

With some notable exceptions (Blackorby & Donaldson, 1992; Norwood & Lusk, 2011) non-human animal preferences are usually ignored, even when modeling the value of environmental goods or the animals themselves. Moreover assigning market values to environmental goods is an ethically problematic process. For example, it is not uncommon to assign zero value, or near zero value to ecosystems or species, either because they have little use value to humans, or because of a relative abundance. This is not because market actors are taking a particular ethical position regarding the inherent worth of these animals or ecosystems, but because we have established a set of theory and a set of practices which cannot easily account for these types of value.

Economic approaches to valuing environmental goods are often lauded for this very reason: they do not attempt to delve into the world of non-use value, and thus avoid the ethical



dilemmas that might accompany such an effort. This is done by limiting the set of environmental concerns that are considered to those about which people have preferences. In doing so, this approach defines all environmental concerns as preferences that people hold about the environment, thus staking out a supposedly value-free approach to adjudicating environmental conflict.

Such an approach works well for goods which function well as commodities - those goods about which different people have different values and which have little or no non-use intrinsic value. Unfortunately, these same methods are problematic when used to make decisions about the fate and welfare of creatures and ecosystems which have intrinsic value outside of human preferences (Sagoff 1981). The exchange value is well defined by these methods, but to use an anthropocentric exchange value as a decision rule for whether a creature should be allowed to continue to exist is difficult to defend. In these cases, the supposedly neutral economist is actually taking a very strong ethical position when they make decisions about environmental goods by assigning market values to them. The market valuation is only ethically defensible if (a) the entirety of the intrinsic value of the environmental good is accurately reflected in human preferences for the good, which is unlikely, or (b) the environmental good does not have any intrinsic value. When these conditions are not satisfied, the exchange value is only measuring a small part of the ethically relevant values needed to make a good decision.

The second conflict between economics and environmental ethics rests on the observation of environmental theorists that environmental goods are ecologically embedded and connected in ways that are rarely reflected in economic analysis. When a plot of land is sold, the market price will depend on the value placed on the land by the seller and the marginal buyer. This price accurately reflects the value of the land, inherent value aside, only if the sale/use of

the land has no positive or negative impact on the surrounding ecosystem. Ecological economists and ecologists have convincingly argued that this no-externality case is the exception to the rule. In order to do economics well, then, we have to understand the underlying natural relationships that characterize the environment we inhabit. Without this knowledge, economic valuation, by assuming that environmental goods are separable and substitutable, will generally understate the environmental externalities imposed not just on surrounding landowners. Moreover, market values will systematically ignore externalities imposed on the surrounding ecosystem which do not impact other land-owners.

### 3) The dominant conception of property and the environment

In legal scholarship, the dominant conception of a property right stems from the work of Wesley Hohfeld (1913, 1917). In two essays, Hohfeld lays out the idea that any right also has a corresponding duty or duties in other people and differentiates rights from privileges or mere powers. For example, a person's right to life includes the duty of all other people not to commit any action that would take that life. A property right to a piece of land could include a duty for all other people not to trespass on that land. In law, these rights are always stated as being between people, with any subsequent duties relating to people or groups of people only.

Moreover, in economics, as in law, ownership consists of a bundle of rights (Coase, 1960; Demsetz, 2009), where the owner usually has the right to use, sell, modify, and exclude others from the property in question. Each of these individual "rights" in the bundle can, in theory, be restricted or limited separately, though there are those who argue that the rights in a "bundle" are actually more unified than the bundle of rights theory suggests and should be

preserved as a unit (Merrill & Smith, 2011). Environmental restrictions which restrict the use of property in some way, then, generally will limit one or more of these property rights. Some argue that these restrictions constitute a “taking” of value by the government, requiring compensation and justification (Epstein, 1993; Meyer, 2009).

In fact, property rights have long been at the center of debates about environmental protection, where the conflict usually centers around conflicts between owners’ economic interests and the economic and ecological interests of other owners or the local ecosystem. Resolutions to these conflicts can take a couple of forms, depending on the nature of the conflict. In some cases, the conflict takes the form of a “commons problem” (Hardin, 1968) where multiple agents have the right to use an environmental resource, and each user has an incentive to overuse the resource. In these, and other more general negative externality situations, assigning exclusive property rights over the resource can provide people with the proper incentive to conserve the resource (Hill & Meinert, 1998).

This is the primary contribution of the “Free Market Environmentalist” movement, which has argued, following Coase, that “there are no environmental problems if property rights are fully private and transaction costs are zero. Of course, some people might still wish for more pristine streams or cleaner air, but then people always want more of all things” (De Alessi, 1998). By paying attention only to the exchange value of environmental goods based on the preferences of individual humans, the free-market environmentalists, and many environmental economists, rule out the possibility that markets, with properly defined property rights and the right conditions for Coasian bargaining, could ever fail to protect the environment properly.

If environmental goods are understood to have intrinsic value, however, then there will be cases in which assigning anthropocentric property rights will not be enough. In fact, there are

a number of cases where property arrangements that give a person the right to the long-run market value of the property can even be the impetus for its destruction. McCauley (2006) gives the example of a native bee population that was estimated to provide \$60,000 in “pollination services” to the surrounding coffee farms, until those coffee farms were converted to other crops that did not need pollination, effectively eliminating the economic use value of the local bees. Even more dramatically, Terborgh (2004) argues that in many cases, tropical rain forests really are more valuable dead than alive, and that even responsible cost-benefit analysis can conclude that the forests should be destroyed. Finally Wilson (2010) documents how the stocking of commercially valuable fish in Lake Victoria has been commercially successful, but devastating for the native species in the lake. It is not necessarily the case that stocking a lake with fish or cutting down part of a rainforest is unethical, but each of these examples shows how the limited type of value taken into account by commercial incentives will often result in undervaluing parts of the natural world.

As Meyer (2009) has already argued, a conception of property that, legally and ethically, places the environment under the absolute control of individual property owners will not be able to adequately preserve the environment. It is possible for the government to protect the environment under such a property regime, but only by repeatedly violating owners’ property rights or compensating owners for any lost exchange value. Moreover, the practice of environmental economics is so thoroughly dependent on anthropocentric assumptions that even a reformed economic theory would conflict with a property concept that gives owners complete economic control of the environment. It is for this reason that altering the economic approach to the environment must start with altering the legal and moral conception of property that underlies these conflicts.

#### 4) Alternative Property Concepts

In recognition of the many property disputes that arise in debates about the environmental protection, a number of scholars have proposed alternative property concepts that might be more environmentally friendly. Because our current property regime inhabits both ethical and legal space, rethinking property and ownership is no simple task. A suitably non-anthropocentric property concept must accomplish three tasks. First, it must recognize the intrinsic value of non-human elements of the environment. Second, it should preserve, in a non-arbitrary way, the moral content of human ownership. This means that theft ought to still be a moral as well as a legal wrong that even the government must respect. Finally, the new property regime must fit practically into a set of social institutions in which humans are in a position of authority. In this section we will consider a pair of such proposals, arguing that none meet these criteria for an environmentally-friendly property ethic. In the following section we will propose a preferable solution.

Given the argument for elements of the environment having intrinsic value, it is first worth justifying human ownership of the environment at all. Animal rights scholars have made sophisticated arguments for abolition of human ownership (Francione, 2006; Regan, 2005). They argue that in light of human abuse of animals and key ecosystems, the best way forward is to abolish ownership and pursue a policy of minimal human intervention. Though these arguments may not apply to plants or ecosystems, this position is a common one among animal advocates.

While it is possible to make some headway by transitioning some animals from being property to being free-living, in two important ways, this solution only sidesteps the problem. First, and most importantly, abolishing the ownership of some animals or ecosystems can only be

a solution on the margin. It is likely not feasible to limit human ownership to only human artifacts without also significantly worsening the overall human treatment of the environment. Abolition without a strong policy of human non-intervention will only result in creating a large number of “commons” problems, where human interaction with the environment is plagued with incentives to exploit rather than to preserve. Moreover, the number of species and ecosystems that could plausibly flourish without human intervention is quite small given the current distribution of humans on the planet.

The second reason that abolition side-steps the problem rather than solving it, is because abolition, in our legal tradition, is really just a transfer of ownership from individuals to the state (Goldstein, 1998). The government is the de facto protector and manager of all environmental goods, and has ultimate ownership authority where individual ownership does not apply. White-tailed deer populations in the U.S. are thus mostly free-living, but in many ways their population is tightly controlled by state governments. The same is true of any land that is not privately owned in the U.S. -- by default it is under the control of the federal or state government. Government ownership of this type, then, is only preferable to private ownership if the government is more likely to place an appropriate value on environmental goods, and protect the functioning of ecosystems. In practice, however, according to the “public trust doctrine” government bodies are mandated to use a “natural resource management” approach which is based on the same anthropocentric economic logic that drives private ownership decision-making (Goldstein, 1998). Moreover, adding more ecosystems and species to de facto government control would likely only decrease the quality of government protection.

Another alternative property concept, proposed by Meyer (2009), is re-define property as a “discovered” social consensus that is responsive to ecological constraints. This revision

contains two key points. First, he argues that property cannot be defined prior to realization of a particular social consensus about ownership. That is, social organization, conventions, and government come prior to property, and these need not answer to some prior moral law. The language of property “rights” can be problematic for this formulation. Second, Meyer argues that property must be re-conceived as a social consensus that manages a web of relations between people and between people and ecosystems. This, he argues, is much more consistent with actual property law, and prevents total commodification (Polyani, 1957) of the environment.

While Meyer’s re-definition of ownership could improve the standing of the environment in property law and policy, it does so at a high cost. By defining a weaker property concept, Meyer frees policy-makers from the obligations of an absolutist individual property “rights” framework, but creates very little in its place. There is no moral content defining the obligations of individuals to the environment, or defining the obligations of the government to individuals in this framework - that is, the social consensus that results is arbitrary in nature, constrained only by ecological necessity and political forces. It is just this fact about government action to protect the environment - that it can appear arbitrary and politically motivated - that undermines the moral obligations that individuals and governments do have to the environment.

##### 5) An Environmentally-Conscious Property Ethic

In order to shape an economic theory and practice which is not subject to the dual environmental ethics critique, it is important to frame a property concept that incorporates both intrinsic value and ecological inter-connection. Once such a moral and legal property regime is established, economic practice can proceed in a way that is consistent with real respect for the

environment. The shape of the resulting economics, however, depends heavily on the re-definition of property. A weak property concept that leaves individuals with little political or moral claim to the natural world might free up the state to more heavily regulate environmental exploitation, but it could also undermine the moral and legal obligations individuals have to protect the environment under their control. Consequently, one key element of property law ought to be to locate the responsibilities associated with ownership clearly in the hands of the owners, and not with the state.

Additionally, since the failings of modern environmental economics are primarily ethical in nature, we argue that the best way to alleviate this harm is to more firmly establish moral obligations into the economic relations and economic analysis that we critique. This, however requires a stronger, not weaker, property concept, in which the human-environmental relationships characterized by “ownership” include real rights on the part of the human and also duties that the human has toward their property. These rights and duties, then, would provide the moral framework from which government action could proceed in a principled fashion.

The best metaphor for this revised conception of property is to think about ownership as an “office” that the owner holds. This office grants the owner real power, but also contains a well-defined set of responsibilities and a built-in accountability to other actors in society (Katz 2012; Essert 2012). Included among these responsibilities is the duty to maintain the care and order of the property itself. That is, a concept of ownership as an office has already, built-in, the possibility of duties on the part of the owner, not merely rights over and against other owners.

The duties that human owners should have toward their property should depend heavily on the nature of the thing that is owned - its intrinsic value - and the ecological relationships that the property participates in. For example, there are different duties associated with the ownership



of a toaster compared to owning a dog, and dog owners are typically understood (at least in the United States) to have a duty to provide some minimal level of care for the animal that they own. Indeed, there are in many cases formal laws protecting many kinds of companion animals and (more rarely) farmed animals from poor treatment. The existence of this type of law may be an indication of a perceived moral obligation of animal owners to not unnecessarily cause harm to animals. These laws hold the owner of the animal responsible for harm done, rather than the community at large, reflecting the fact that ownership creates unique responsibilities to living creatures that are owned even if an owner's mistreatment of an animal has no effect on other humans.

Furthermore, even if a person stops enjoying his or her ownership of a dog, their moral obligation to care for their dog does not disappear, as long as they retain the office of owner, suggesting that it is not only human utility that is a primary concern. This widely recognized moral obligation often seems to be premised (implicitly if not explicitly) on a concept of intrinsic value of certain types of animals. Importantly, these obligations are not exceptions to or restrictions on property rights; they are central to the concept of ownership itself. What we argue for, then, in this paper is for more widespread and less arbitrary recognition of moral responsibility to living creatures that is created when one takes on ownership of living creatures or ownership of land or other natural capital important to an ecosystem.

The duties that attend ownership also might originate from ecological relationships. Meyer (2009) and Goldstein (1998) both argue that we can use lessons from the science of ecology to better understand connections between living creatures and the impact of property use. For example, there may be uses of property upstream that do not directly harm the property, but do harm ecosystems downstream, as with fertilizer use in suburban or agricultural areas. In

these cases, recognition of the connections between different parts of the environment is essential for ethical action.

This type of concern is easily modeled as economic externalities: where an action by one party has a positive or negative impact on another party. The recognition of environmental intrinsic value, however, expands the set of ecological externalities that are ethically significant. In normal property law, and in standard environmental economic work, a person is responsible for the market value of damages that they cause to another human person. A consistent environmental ethic demands that we also consider the impacts of property use on the well-being and functioning of the larger eco-system even if it does not change the market value of someone's property.

One helpful way for this kind of property ethic to be integrated into property law is to apply the concept of "equitable self-ownership" (Favre, 2004) to animals and possibly to land. In this framework, the owner takes on the role of a trustee, where their legal power must be exercised for the benefit of the equitable owner. The equitable owner does not have the same legal agency or power, but does have some recognized rights regarding the property arrangement. A movement toward redefining ownership of the natural world to reflect this arrangement would open the door for obligations to be defined, on the part of owners, toward the state, fellow humans, and the property itself.

#### 6) The role of government and environmental regulation

At first glance, this way of thinking about ownership might seem to leave a large role for government regulation and a relatively small role for traditional environmental economic

analysis. These impressions would both be mistaken. Despite the fact that these duties which attend ownership do constrain the owners of property in some significant ways, we still would like to articulate a “strong” individual property concept, for a few reasons. First, property owners, in our view, still have a unique claim on the use of, and fruits of, the environmental goods that they own. As a moral claim, we are articulating property rights that the government and other people have a duty to respect. In fact, the moral basis for a person’s claim to the fruits of their property is more easily defensible if those owners also have duties to maintain the well-being of the environment that they own. Second, outside of broad abuses which must be regulated by government, specific decisions about environmental stewardship ought to be subject primarily to the prudential judgment of the owner. It is possible to envision a property regime based on strong respect for the environment that still leaves considerable room for the aims and vision of the owner of property.

How then, would government policy be impacted by this vision of property? The idea of having duties to one’s property might imply that the state should formalize these duties into law. In many cases, such regulations could be improvements over the status quo. Moreover, despite the strong moral claim that it establishes for owners, this formulation also establishes a particular type of regulation as legitimate and necessary. For example, it is often argued that regulation designed to protect the environment infringes on property rights (Meyer 2009, Epstein, 2011). Even those who would argue that environmental protections should be built into law often argue against strong conceptions of property rights that are inconsistent with government action. Alternatively, environmentalists sometimes argue that while environmental regulation is a “taking” of property, it is justified because of the benefits of environmental protection (see Meyer 2009).

However, both these arguments implicitly deny a person's duties to their property. In our formulation, government regulation that protects living creatures could be seen as an upholding of property rights and the responsibilities that come with property rights, and thus do not constitute a "taking" that requires compensation, or a violation of owners' rights. This is not to say that government regulation should never be seen as a taking, as there are significant costs to many types of regulation including environmental regulation (Joshi et. al 2001), but when the government is simply upholding a property owner's moral responsibilities to their property, the label of "taking" can be misleading.

A second way in which government policy might change as a result of this property concept is in the underlying criteria used to justify policies. Current utilitarian justifications for environmental law depend on the long term and short term well-being of humans that are impacted by the environment, and by current measurable human preferences. Human economic interests, however, can be both arbitrary and variable, and our knowledge of the ecosystem is too limited to forecast long-run ecological outcomes from policy changes. Property law that establishes some basic legal rights for the natural world, predicated on real intrinsic value, can make for a more stable and predictable metric for environmental protection.

## 7) A New Environmentalist Economics?

There are two main ways in which economic thought and economic ethics will have to change to account for the dual environmental ethics critique. First, the task of doing environmental analysis to shape regulation may not change substantially with this new property concept. The primary change that has to occur is that economists will need to develop ways to

account for the interests of non-human animals and eco-systems apart from their anthropocentric use or non-use value. Including consideration of the welfare of the environment to cost-benefit analyses, in addition to the human welfare considerations, will only make the process of economic analysis more important. While there are significant theoretical barriers that need to be overcome before we can integrate non-human interests with any precision, there are likely a number of places where even an imprecise consideration of the interests of animals or ecosystems will yield obvious and significant changes in policy. The case of animal agriculture is one place where animals' interests could significantly sway cost benefit analyses (Norwood and Lusk, 2011).

The primary difficulty that arises when doing cost-benefit analysis in the presence of intrinsic value, however, is that such comparisons inevitably lead to situations in which different kinds of values, that are incommensurable, need to be weighed against each other. For example, when deciding how to control water drainage from a suburban neighborhood, the low cost option for the human residents might involve a traditional storm sewer system. Such a setup can often overwhelm local watersheds during periods of high precipitation, however, and wreak havoc on local water ecosystems. The ecologically friendly option is to include many natural areas that will absorb water runoff from buildings and yards rather than channeling it all to local rivers and streams. Even in this small scale policy decision, however, incommensurable value comparisons arise. The ecologically friendly option requires significant restrictions on land use by humans, and requires care of, and creation of, local wetland areas. A standard anthropocentric cost-benefit analysis could be used to compare the ecological benefits, to humans, of a healthy watershed to the costs associated with more sustainable development. Such an approach, however, might ignore the well-being of the animals that depend on the ecosystems in the local

rivers and streams, and focus instead on public health concerns and the impact on local fishing industries.

Moreover, recognizing the interests of other animals and ecosystems, even if they could be converted into comparable units, does not solve the dilemma, unless a strong assumption is made about the relative weight of different types of concerns. Any utilitarian calculation of this sort depends on some deontological propositions that dictate who is in the community of beings that deserve moral consideration. While these questions are not easily answered, in a policy-making framework, some decision needs to be made regarding which beings have interests that will be considered and weighed.

One way to approach this type of conceptual problem is to set some rules outlining clear bounds within which policies can be formulated on prudential grounds, even if precise comparisons of value are difficult. Our argument is that property rights play a key role in delineating some of these foundational rules within which policy analysis and exchange can proceed. In fact there are at least three different functions of this type served by property law. First, the holder of property rights will be able to extract the fruits of their property and any rents from coasian bargaining. Thus property laws define the distribution of benefits from economic exchange. Second, property law dictates the types of goods and the types of uses for goods that can be exchanged and thus valued. Currently, for example, in most places, humans are not the sort of beings that can be owned, exchanged, or easily valued in the marketplace. Third, property law dictates the obligations that accompany ownership, especially regarding the proper use of, or care of, the property. For each of these functions, a small change in property law can dramatically alter the nature of exchange in markets for these types of goods.

By altering the property status of environmental goods, then, we are not committing ourselves to a final positional ranking of values between these goods, nor claiming that all creatures have some moral status. Instead, such a move redefines the limits within which the utilitarian logic of the market and public policy can proceed, while protecting ourselves from the utter dismissal of the ethical value of environmental goods and their interconnections.

## 8) Conclusions

We have argued here that two fundamental insights of the environmental ethics field are largely at odds with modern environmental economic practice. Moreover, the conflict between economic thought and environmental thought often rests in the underlying concept of property, which grants power and obligations only to humans and the state. We propose a change in the concept of property, and in property laws, so that animals and other parts of the natural environment can be granted legal recognition. This would clarify the moral and legal obligations that humans have as a result of claiming political and economic control (ownership) over the natural world. This legal and moral change in the concept of ownership, in turn, sets the stage for the field of economics to develop analysis that recognizes necessary ecological relationships and the inherent value of animals and ecosystems.

The changes we suggest are not trivial. There would be real changes in wealth that would result from such a legal move. Some people would be significantly worse off, economically, if the law required some basic recognition of the interests of ecosystems and animals. This alone is enough to warrant a thoughtful, deliberate, and gradual change that different actors can predict and plan for. That said, after the adjustment costs have been borne, changes in economic practice

will probably yield a new equilibrium in short order, which more accurately reflects the true value of the natural world.

It is worth noting that only a subset of environmental concerns can be addressed using this approach. In the case of global environmental problems, such as climate change, our approach will help, by establishing individual moral obligations for the care of ecosystems. This approach will not resolve the global commons problems, however, or significantly alter our energy technologies. As such, a distinction should be made between micro-environmental issues and macro-environmental issues. This approach is explicitly meant to address the former.

Finally, it is worth noting that the fundamental conflict between environmental ethics and economic thought is an important one. Unless a resolution is attempted, we will never move past the political adjudication of two very different rationalities. The result of using the political system to resolve this conflict is that the solution is inevitably inconsistent, arbitrary, and unacceptable to both sides. An intellectually consistent approach that takes cost-benefit analysis seriously, and also recognizes a broader set of environmental values, might be the only way to make real environmental progress.

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