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How Much Is Enough? *The Limits of Interdisciplinary Openness in Environmental Ethics*

by
Martin Schönfeld

Department of Philosophy
University of South Florida

Abstract: One of the most interdisciplinary and integrative branches of philosophy is environmental ethics. It is closely associated with the movement that has arguably been the most transformative public phenomenon in the past three decades, and during its brief history, it has experienced dramatic transformations of its own. Originally an interdisciplinary effort at the unlikely juncture of forestry and philosophy, it has grown into an applied branch of moral philosophy that is situated in the context of ecology, environmental economics, and public policy. I argue that environmental ethics is in need of another transformation: its long-term viability requires the consolidation of its basis—that is, the justification of its core claims. The current conception of environmental ethics as an applied approach suffers from the absence of a coherent foundation. In the short run, the attention to this foundational, disciplinary labor would limit the interdisciplinary openness of environmental ethics; in the long run, however, these very limitations will ensure the worth of environmental ethics as an integrative approach that can fruitfully interact with other disciplines.

We usually think that the cooperation of researchers with different backgrounds has synergetic effects and results in heuristic pay-offs. In other words,

we like to believe that interdisciplinary research is always a good thing. Thus, asking the question of the *limits* of interdisciplinary openness seems odd. Can there be too much of a good thing? This question is relevant for environmental ethics. Ethics (or moral philosophy) concerns the interactions of humans with humans. Environmental ethics concerns the interactions of humans with nature. It integrates ethics and ecology, and it expands the use of ethical concepts beyond the traditional confines of moral philosophy. Environmental ethics is rooted deeper in interdisciplinary research than most other branches of academic philosophy. But although the discipline at present would not have been possible without its interdisciplinary past, I think that its long-term viability as a research program will require a transformation that involves limiting the interdisciplinary openness of the discipline.

The other essays collected here explore transformations in epistemic values and research methodologies (Bell), in moral values and oral history (Bergerson), in Buddhist values and philosophical pedagogy (Handelman), and in aesthetic values and print-making (Wood). I would like to explore the transformations that concern the value of nature and environmental ethics. The interaction with other disciplines has always been extraordinarily important for environmental ethics, but the specific character of its interdisciplinary context has changed over time. Originally, environmental ethics emerged from an interdisciplinary context involving forestry and wildlife management (section I). Nowadays, environmental ethics is intimately connected with ecology and the other environmental sciences, as well as with public policy and environmental economics (section II). For the future, I propose that environmental ethics should focus less on other disciplines and more on itself. In part because of its interdisciplinary past, environmental ethics lacks a coherent theoretical core. The organization of such a core is desirable, for it would allow environmental ethics to transform from an interdisciplinary sponge to a coherent research program. Some philosophers have argued that environmental ethics is, and ought to be, an interdisciplinary black box that processes foreign data for the sake of supplying policy makers with scientifically informed moral advice (section III). Against this, I maintain that environmental ethics should not cater to other disciplines but rather pursue its own tasks. These tasks, I argue, concern the organization of a theoretical core that is non-anthropocentric, allows of moral hierarchies, and unifies existing approaches (section IV).

“Transformation”—the key word of this volume—best describes my own encounter with environmental ethics. I love doing philosophy and being in nature but, for the longest time, these two loves remained separate passions

for me. During high school and college, the encounters with the forests and mountains of Bavaria translated into political energy but not philosophical effort. I helped out at political campaigns for *die Grünen*, co-organized a grassroots movement against a planned nuclear reprocessing plant, and ridiculed polluters and developers in comic strips drawn for a local paper.

The transformative encounter that led to the union of the two loves occurred in graduate school. I had taken up kayaking and was preparing a journey along an old route of the Hudson Bay Company. Trappers took this route in order to get from the Great Lakes to Ontario's northern coast. They started at the northeastern shore of Lake Superior, at the mouth of the Michipicoten river. Paddling upstream on the Michipicoten, they headed eastwards and inland until they arrived at the arctic watershed. A short portage brought them to a labyrinth of lakes, which is the source of the Missinaibi river. They traversed these lakes and continued downstream on the northward-flowing Missinaibi. The Missinaibi descends from the Canadian Shield to the subarctic lowlands and eventually merges with the Mattagami river to form the Moose river. The Moose river brought the northbound trappers to James Bay, the cold, maritime endpoint of the journey.

The Missinaibi descends from the Canadian Shield through a roaring staircase of waterfalls. The native Cree Indians used to gather at the most dramatic point of this staircase, the aptly named Thunderhouse Falls, to worship the spirit of the Missinaibi. I chuckled when I read this in a history book. The notion of praying to a river struck me as funny. I had grown up in Regensburg and, although I am certainly grateful that the river Danube creates a lovely setting for the *cafés* and beer gardens there, it had never occurred to me to thank the Danube in prayers for this.

After the spring melt had passed and the blackfly season was mostly over, I embarked on the voyage. A month into the trip, I made a navigation error just upstream of the Thunderhouse Falls and was sucked into the current. The Missinaibi swept me over the waterfall, and I survived only through a miracle. The narrow escape from death jolted my awareness. I had been brutally humbled, and what had begun as a macho adventure turned into a journey that became more "spiritual" in kind (although I'm somewhat embarrassed about using this word!). The Cree conception of the Missinaibi as a power did not sound funny anymore. I was awed by seeing this power grow, from a pretty, little creek barely deep enough for paddling, to a fierce, white-water river with rapids and falls, to finally a majestic, mile-wide stream harboring sturgeons.

While slowly making my way toward James Bay, I felt at peace in this pristine wilderness. I cherished the fact that this pure, quiet land is free of roads and settlements. It is one of the few remaining undefiled territories on earth but, like all of them, it is a wilderness under siege. Will I be able to see the same beauty if I decide to return to the Missinaibi, say, twenty years from now? Year after year, road builders, construction crews, and timber harvesters creep further north. Environmental degradation, economic growth, and population increases threaten this virgin expanse. Global warming, acid rain, and the ozone hole may endanger species in areas that are untouched by developers. Considering present trends and available data, it is reasonable to expect that this expanse will not remain as it is and that Northern Ontario will be subjected to an environmental transformation. Such a transformation amounts to the loss of biodiversity and beauty. In my view, this would be a change for the worse.

Some of my older colleagues frown when I advance such claims. Reminding me of the so-called “fact-value distinction,” a dogma of analytic philosophy, they reply that only the environmental transformations themselves qualify as facts, whereas the values involved in assessing them do not. An environmental transformation is a physical occurrence; it is “out there” as part of the external world and thus a fact. On the other hand, a value is within me; it is part of my internal belief-system. According to these colleagues, the negative value that I perceive such a transformation to have is not really a part of the transformation itself. For me, the loss of biodiversity and beauty resulting from the transformation is depressing. I evaluate the loss and the transformation that caused it negatively. Does this negative evaluation say more about me than about the environmental transformation? Is it only a sign of my subjective preferences, without factual relevance, as my analytic and pragmatist colleagues insist? The Scottish skeptic David Hume argued:

The vice entirely escapes you, as long as you consider the object. You never can find it, till you turn your reflexion into your own breast, and find a sentiment of disapprobation, which arises in you, towards this action. ... It lies in yourself, not in the object. So that when you pronounce any action or character to be vicious, you mean nothing, but that from the constitution of your nature you have a feeling or sentiment of blame from the contemplation of it. (Hume, 1740/1985: 520)

I suspect that Hume went wrong and that the value of wilderness is not a subjective feeling riding on the objective fact of wilderness. That the ethical value of life and the aesthetic value of ecological integrity boil down to sheer

emotion strikes me as absurd. Even if one granted that values are not facts, it would not follow that they must be feelings. Perhaps values belong to a third category beyond facts and feelings, such as truths of reason. Even if Hume was right in claiming that values are to be found only in subjects who perform acts of evaluation, his conclusion, that values are only sentiments, would not follow from this claim. It is simply not true that a “subjective” value must be *subjective*. Something that is subjective in the sense of being internal to a subject does not have to be subjective in the sense of being arbitrary (like a feeling). Take mathematical formulas. They do not exist as objects in the external world and yet can be perfectly well-founded.

Moreover, maybe we should not even concede Hume’s initial claim, that values are not facts. Perhaps they are facts of some kind. Perhaps the positive value of life is an intrinsic feature of life itself. A living being is a goal-directed system, as it were, operates according to its own aims, such as survival, reproduction, and health. For the organism, these aims are goods, and the activities furthering the aims possess positive value. Curiously, these aims and acts possess positive value for the organism regardless of what we think about them. Is it not the case that living organisms deserve our respect because they are beings that have their own inner purpose? If this is true, then such beings are valuable in their own right, and their value depends on their existence and not on our act of valuing. When I returned from James Bay, all I brought with me were questions and puzzles of this sort. This was my transformation. These questions brought nature and philosophy together for me and inexorably drew me into the challenges of environmental ethics.

I. The Interdisciplinary Origins of Environmental Ethics

Aldo Leopold (1887-1947) was probably the most important pioneer of environmental ethics in the United States. He worked for the U.S. Forest Service before becoming the first professor of Wildlife Management at the University of Wisconsin. The thoughts that made him famous — the principle of integrity, for instance — derive from his 1933 publication, “The Conservation Ethic,” in a forestry journal, and his 1940’s collection of essays, *A Sand County Almanac*. The principle of integrity states, “A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise” (Leopold, 1949/1989:224-5).

Leopold’s ethic of conservation, or the Land Ethic as it has eventually become known, had little to do with forestry as such. Leopold inspired a new way of looking at the land that transgressed the boundaries of his home

discipline. He did so because he wanted to investigate an issue that could not be accounted for with the established methodologies of forestry and wildlife management.

Before WWII, national forests were viewed almost exclusively as economic resources, and wildlife management, adopting and implementing this view, proceeded accordingly. The federal and state management of forests at that time consisted mostly in the systematic exploitation of timber, an exploitation in which the notion of sustainability was unheard of. Over-harvesting and clear-cutting resulted in the rapid elimination of old growth forest ecosystems. The inevitable mechanism of unsustainable development unfolded; overexploitation of the resource led to the dwindling of the resource. The growing visibility of the degradation of forests raised the issue of how to evaluate and address this environmental deterioration.

Leopold's research suggested that the unsustainability of the exploitative practices required a fundamental revision of the policies of wildlife management. But Leopold's reasons for the suggested policy changes were beyond the scope of the discipline of forestry. His reasons were not reducible to quantifiable and empirical matters and instead concerned the qualitative and rational questions of right and wrong. Of course, it is the task of moral philosophy to examine these questions. But before WWII (and for a considerable time afterwards), the application of ethical concepts to environmental issues was considered curious and beyond the scope of moral philosophy. Ethics was anthropocentric; it dealt with the issues arising from the interactions of humans with other humans, not with issues generated by the human interaction with nature.

Environmental ethics, as Leopold's trail-blazing work compellingly illustrated, started in the void between two disciplines. Considering their traditional boundaries, questions of moral relevance had nothing to do with wilderness as the subject-matter of forestry, and states-of-affairs in wilderness had nothing to do with questions of right and wrong as the subject-matter of ethics. The new issue, the ethical assessment of resource overexploitation, was consequently neither a problem of forestry nor a concern of philosophy. By exploring this issue, Leopold constructed the conceptual framework of what would later become environmental ethics. His reflections on natural beauty, ecological integrity, and ecosystemic health generated a substantial part of the basic vocabulary of modern environmental ethics. They also defined its agenda: as influential as the principle of integrity has been, it is a programmatic declaration rather than an inference from well-established premises. It raises questions that have guided subsequent research: what is the connection between doing what is right and the preservation of biotic com-

munities? How can one explicate and justify the seemingly plausible connection between what is ethically good and what benefits life? Is it possible to apply the traditionally human-centered notions of right and wrong to non-human entities and communities?

In the decades after Leopold's pioneering efforts, the problems of overexploited natural resources did not go away but worsened instead into the global environmental crisis. Stimulated by a growing body of troubling data, environmental ethics was emerging as a field of inquiry. Increasing numbers of philosophers began worrying about the possible immoral aspects of ecological degradations. Ethics tells us that an act is wrong if it adversely affects people. Clearly, destroying the environment is wrong if it makes people sick. But what about cases of environmental degradation that do not harm any existing human beings? Traditional ethics dismisses such cases. But environmental ethics takes them seriously and regards them as involving genuine philosophical questions. What exactly is wrong with damaging the environment if the only likely victims are future human generations (who do not exist yet) or existing organisms (who are not human)? Are there compelling reasons for including future human generations, or existing nonhuman organisms, in our moral considerations? In 1970, the first professional meeting concerned with these questions was organized at the University of Georgia on the topic, "Philosophy and Environmental Crisis." The papers of this conference (see Blackstone, 1971) marked the shift from the interdisciplinary research of the past to the discipline of the present. Moral philosophers systematically began to investigate the normative dimension of the human interaction with nature. In this way, environmental ethics became part of the philosophical canon.

II. Interdisciplinary Features of Environmental Ethics Today

The environmental crisis affects our biosphere in a myriad of different ways. Because of its multi-faceted character, the environmental crisis cannot be the topic of a single academic field. Instead, it is relevant for a broad range of research programs. "Environmental science" is the general label of all natural sciences that are concerned with aspects of the human impact on nature. Environmental science is a multi-disciplinary effort. Nuclear waste concerns geology, statistics, and physics; CFCs and greenhouse gases concern chemistry, meteorology, computer science, and planetary astronomy; and species loss concerns biology, ecology, paleontology, pharmacy, and genetics.

Whereas the environmental sciences investigate all empirical and quantifiable aspects of the environmental crisis, environmental ethics concerns a specific and qualitative facet of this crisis, the moral relevance of ecological degradations. Because of the well-defined boundaries of its domain, it is possible for environmental ethics, at least in theory, to exist as a discipline. In practice, it is not quite there yet, but it has already moved beyond its interdisciplinary beginnings to the point that it exhibits now the *external* traits of a unified research program: one can enroll in college courses in environmental ethics and study it; one can do research in environmental ethics and publicize one's results in conferences papers and journal articles; and one can find gainful employment as an environmental ethicist because the field has become an acknowledged specialization on the academic job market.

At the same time, the fruitful pursuit of the questions of environmental ethics requires an interdisciplinary openness to an extraordinary degree. Since it is essentially the investigation of normative aspects of the environmental crisis, environmental ethics involves knowledge of the environmental crisis and of normative theories. It receives the data of the environmental crisis from the environmental sciences, and it appropriates the normative theories from ethics. The research within environmental ethics remains greatly dependent on the research that is done outside the field.

Just as environmental ethics imports information from some disciplines, so it exports information to others. The research done in environmental ethics can affect other fields. The business of environmental ethics is to identify the existence of environmental wrongs. Some of these human-made wrongs affect other people, as in the case of the disproportionate exposure of non-white social groups to pollutants and contaminants. Other wrongs affect nonhuman beings, as in the case of the questionable treatment of animals in laboratory experiments and factory farming. If environmental ethics succeeds in demonstrating the existence of such wrongs (that is, if it can show that these phenomena exist, that they are justifiably wrong, and that they can be eliminated), then such demonstrations will amount to a normative proposal requiring implementation. After all, if you realize that you do something wrong and that you can act differently, then you should act differently. When environmental ethics has explained why a certain environmental harm is morally wrong, then it becomes the responsibility of environmental legislation, industry regulations, and public policies to address this harm. And sometimes things do get done: the research on the maltreatment of animals in laboratories and factory farms has led to stricter industry regulations in Europe and Australia, and the research on environmental racism, the dispro-

portionate exposure of minorities to environmental toxins, has prompted policy initiatives in the United States (such as the Brownsfield project initiative that concerns the restoration of contaminated and economically depressed urban areas).

In short, present-day environmental ethics thrives in the interdisciplinary arena. Its historical roots lie in interdisciplinary research; it depends on foreign data supplied by a multi-disciplinary scientific research program; and its results are relevant to the wide field of public policy. Considering that environmental ethics benefits so evidently from cross-disciplinary exchange and interdisciplinary openness, why should one consider imposing limits on this beneficial openness? Let us take a closer look at what environmental ethics is about.

As a bridge between philosophy and environmental policy, environmental ethics has the peculiar feature of being integrated in a twofold context: philosophically, environmental ethics is a branch of moral philosophy and metaphysics; politically, environmental ethics is a node in the causal network surrounding public policy. In the political context, in other words, the interdisciplinary openness of present-day environmental ethics manifests itself in the fact that environmental ethics is an applied ethics. Its role is to examine human-made transformations of the natural environment, and to advance proposals, based on these examinations, for the legal regulation of these transformations.

When we look at the interdisciplinary openness of environmental ethics in terms of its outputs (the export of its research results to public policy), then the interdisciplinary openness makes environmental ethics appear as an applied discipline. In contrast to a “theoretical” or “pure” discipline, an applied discipline neither searches for knowledge for knowledge’s sake nor sets its own agenda. An applied discipline has a practical purpose. It caters to external needs. It investigates problems which are brought to its attention from the outside and whose solutions will facilitate external activities. Bio-medical ethics, for instance, is an applied discipline in this sense. It is the application of philosophical ethics to moral complexities arising in medicine. On the basis of continuous innovations in medical science, therapies and technologies become available whose implementation can pose new ethical problems, such as the question of whether one should keep an irreversibly comatose patient hooked on life support. Biomedical ethics, analyzing such questions, benefits medicine: the moral problems of medicine set the agenda for biomedical ethics, and the suggestions of biomedical ethics guide medical therapies.

If viewed as an applied discipline, environmental ethics is a veritable ‘black box,’ receiving input from the environmental sciences on the one end, and producing output for public policy on the other end. If there were *no* limits on its interdisciplinary openness, in the sense that the export of its result was not just a byproduct but the actual purpose of the discipline, then environmental ethics would be nothing but an applied discipline. In that case, environmental ethics would be a maidservant of public policy, just as biomedical ethics happens to be a maidservant of medicine. It would process foreign data for the sake of supplying policy makers with scientifically informed moral advice. Some philosophers (e.g., Shrader-Frechette, 1995) have insisted that this is where environmental ethics should be heading: environmental ethics should be a casuistry of generally established moral principles implemented in the ecological context and tailored to the needs of environmental attorneys and ecological field workers. According to this view, environmental ethics should now become more concrete, more empirical, and more practical than it currently is. This is the view that I challenge in the remainder of the paper.

III. Problems With the Interdisciplinary Black Box: A Purely Applied Ethics?

In principle, there is nothing wrong with the idea that environmental ethics should yield to the demands of other disciplines and become a purely applied ethics. In fact, one can plausibly argue that this is the ultimate rationale of environmental ethics. Given that the environmental crisis is eminently a practical problem which concerns the survival and the well-being of humans and other life-forms, an appropriate contribution of environmental ethics toward solving the problem would consist of giving practical advice to policy makers, specifically in terms of the explication of a viable casuistry. Eventually, this is what environmental ethics needs to do. Then it will become the green twin of biomedical ethics.

But at the current stage of research in environmental ethics, this transformation to a purely applied discipline cannot succeed yet. In contrast to biomedical ethics, which concerns the good of humans, environmental ethics concerns the good of humans as well as the good of nature. This dissimilarity between the concerns of biomedical and environmental ethics is crucial for their different potentials as applied disciplines. Moral philosophy, which is the foundation of both disciplines, has an entirely anthropic orientation. Moral philosophy is about humans, and humans only. It has developed a

conceptual apparatus that deals with aspects of right and wrong in the domain of human interaction. Biomedical ethics succeeds as an applied discipline because it rests squarely on this foundation. Like moral philosophy, biomedical ethics is about human interaction. It can therefore fruitfully apply the concepts and theories of moral philosophy to problems arising in medicine. Environmental ethics, on the other hand, goes beyond an anthropic orientation because of its additional concern with the good of nature. At present, environmental ethics cannot function as an applied superstructure of a theoretical foundation, because a foundation as regards the good of humans *and* the good of nature does not exist. Streamlining environmental ethics to an entirely applied discipline is thus premature, for the notions and principles that are to be applied have not been sufficiently worked out. I do not disagree with the view that environmental ethics should have no interdisciplinary limits and should transform into an applied discipline in principle. But I disagree with the time frame: this transformation ought to happen, but not now. Everybody's interests would be served better if the transformation of environmental ethics occurred *after* its theoretical core had been organized.

Probably because of the relative youth of environmental ethics, there is little consensus among its workers. The currently available elements of the theoretical core consist of three points of agreement: (1) the degradation of the biosphere involves a genuine normative dimension; (2) the environmental harms generated by human moral agents are morally relevant in that there are nonhuman moral subjects; and (3) vertebrates such as mammals and birds have moral standing. Their interests in a continued existence and in well-being are morally relevant because these animals are subjects of life capable of experiencing pleasure and pain. As regards this third point, the arguments in support of Jeremy Bentham's query about animals (can they suffer?) have been successful to the level that any further defense of the ethical relevance of sentience — the capacity of experiencing pain and pleasure — would be trivial. Aside from these points of agreement, environmental ethics is a chaotic grab-bag of drastically different approaches. Even though most environmental ethicists agree that sentient vertebrates are deserving of moral consideration, there exists a whole range of divergent positions on moral standing. Humans and sentient animals count, but are these the only members of the set of moral subjects, or should one enlarge this set further? Some argue that the set should not be enlarged (Singer, 1975; Regan, 1985; Rollin, 1994; Sapontzis, 1995); others insist that non-sentient organisms, such as plants, possess moral standing as well (Attfield, 1981, 1995; Rodman, 1983); and

still others contend that moral standing is not only a feature of individuals but also of larger categories, such as populations, species, biotic communities, and ecosystems (Russow, 1981; Taylor, 1981). Finally, there are those who claim that everything natural, the land, the biosphere, the environment as such has moral standing (Goodpaster, 1979; Callicott, 1980; Rolston, 1988). As there is no consensus on the size of and the membership requirements for the set of moral subjects, there is no consensus on similarly basic issues, such as the existence of intrinsic values in nature, or the relation of human exploitation of nature and the male oppression of women.

The cacophony of voices in environmental ethics today is due to the fact that the discipline marks the next step in the evolution of moral philosophy. In contrast to biomedical ethics, environmental ethics involves a genuine further development of moral philosophy. Because environmental ethics goes beyond the anthropocentric boundaries of mainstream ethics, it extends beyond the traditional scope of moral philosophy. This extension needs to be justified in general and clarified in detail.

Within the human circle, ethics draws the justification of its normative principles from contractarian considerations. These considerations presuppose that there is a community of participants in a moral-social contract, and that a breach of the contract will be disadvantageous to the participants. Accordingly, moral principles are needed for the flourishing of a human community. But here, moral principles concern only humans. Nonhuman, non-rational, merely sentient beings are neither actual nor potential signers of the contract. Contractarian considerations ground the relevance of moral principles within the human circle, but not in the environmental extension beyond this domain. In other words, traditional ethics does not contain the conceptual tools for grounding the next evolutionary step that environmental ethics represents.

The consensus among most environmental ethicists regarding the moral standing of sentient animals indicates that certain parts of the theoretical core already exist. But sentient animals constitute only a small segment of the biosphere. As long as we do not know for certain whether plants, other organisms, species, and ecosystems merit moral consideration as well, the theoretical core remains incomplete. The moral principles that would constitute this basis exist to date only in fragmentary form.

IV. The Metaphysical Foundation of Environmental Ethics

The environmental extension of moral philosophy, then, requires a foundation. Without it, environmental ethics could not do its job of identifying its normative roots. Without those, environmental ethicists would remain green preachers who try to float on the quicksand of conventionality, common-sense, and speculation.

In general, a foundation should provide a unifying justification of normative proposals, and it should adequately represent the available facts. For environmental ethics in particular, it seems to me that such a foundation must incorporate three components: (1) *Non-anthropocentrism* — the justification of why nonhuman entities can be morally significant; (2) *Non-egalitarianism* — the demonstration that the moral standing of humans counts more than the moral standing of nonhuman entities; and (3) *Intertheoretic Commensurability* — the ethical foundation should be consistent with other salient epistemological approaches.

Non-anthropocentrism. A considerable amount of work has already been done on the justification of the moral standing of nonhumans. (For a bibliography of works in environmental ethics concerning themselves with anthropocentrism and its critique, see Katz and Oechsli, 1993.) Non-anthropocentrism is preferable to anthropocentrism, the view according to which only humans have moral standing, because anthropocentrism ails from serious flaws. The research done in ethology, animal psychology, and socio-biology suggests that mammals and birds have desires, interests, and the capacity for experiencing pleasure and pain. Considering the available evidence, it is sensible to acknowledge that such animals can suffer. A basic moral principle is the prohibition of wantonly inflicting pain. Unless we have a very good reason for doing so, we should not make anyone suffer who has the capacity of suffering. When we combine this moral principle, that we should not make anyone suffer without a very good reason, with the fact that animals can suffer, then it follows that we should not make animals suffer without a very good reason. Anthropocentrism, however, excludes animals from the domain of moral consideration — not because it doubts the sentience of these organisms, but because it dogmatically asserts that anything that is not human cannot be admitted to the club of moral subjects. But given that the animals in question possess the relevant feature that entitles them to admission to this club, their exclusion from moral consideration in spite of it is arbitrary. In this elitist stance, anthropocentrism resembles racism, the deprivation of certain groups from rights on grounds of the arbitrary

stipulation that only a specific type of skin pigmentation entitles one to such legal privileges. Anthropocentrism is an irrational “speciesism,” a vestige of the Judeo-Christian ideologies, and it is essentially unfair. Because of this, it cannot be part of the theoretical core of environmental ethics.

Another difficulty with an anthropocentric foundation is that it underdetermines environmental ethics. An environmental ethic should be capable of showing that standard cases of environmental preservation are morally desirable, and that standard cases of environmental degradation are morally undesirable. In this regard, an anthropocentric foundation does not do the job that it is supposed to do. Human interests in a continued existence and well-being do not suffice because they fail to ground the standard cases of conservation and degradation. In contrast to the majority of animal and plant species, human beings are very adaptable and do not depend on the integrity of a particular habitat in order to survive. We do not *need* wilderness to the extent that other species do. On the contrary, in terms of our interests in well-being and survival, we will be better off if we eliminate wilderness for the sake of fields, houses, and the like. A world depleted of economically insignificant species and devoid of actual wilderness would not necessarily be an unsustainable place to live in. We can imagine transforming the whole planet into an ecologically stable *Kulturlandschaft* that consists of urban zones, agricultural regions, and recreational parks, and that is populated by domesticated and economically valuable animals and plants. This brave new world might even afford us with a considerable amount of entertainment, luxuries, comforts, and amenities, hence satisfy our interests in well-being and survival. Thus, it is impossible to base an ethic of the environment on the basis of sheer human interests alone. Anthropocentrism fails as a foundation.

But non-anthropocentrism alone is not enough. If the foundation of environmental ethics consisted in nothing but the sentientist refutation of anthropocentrism, then it could provide a basis for an animal-rights ethic but not for a full environmental ethic that is both practicable and factually adequate. Admittedly this would still allow the construction of *some kind* of environmental ethic. Suppose that all and only sentient beings are moral subjects and that we, as rational moral agents, owe direct, *prima facie* duties toward them that oblige us to respect their interests in their continued existence and well-being. Given that the continued existence and well-being of sentients depends on the integrity of the ecological niches they occupy, direct duties towards the sentients’ needs translate into indirect duties regarding the non-sentient environment they depend on. Because sentient animals

live almost everywhere in the terrestrial biosphere, our duties toward them would explain that standard cases of environmental protection are morally desirable and that standard cases of degradation are morally undesirable.

A non-anthropocentric, sentientist foundation is nicely parsimonious, but it needs to be supplemented by other elements. It glosses over the question of whether other, non-sentient parts of nature are deserving of moral consideration and are moral subjects as well. So it seems that non-anthropocentrism is a part, but not the whole, of the needed theoretical core.

Non-egalitarianism. If we assume that human beings as well as some other nonhuman beings have moral standing, then this does not logically commit us to the claim that humans and nonhuman beings must possess moral standing equally. The occurrence of “equally” in the second claim is not warranted by the antecedent assumption. Nor does the assumption commit us to the opposite claim, that humans and nonhuman beings must possess moral standing in a non-egalitarian fashion. We have a choice. Which of the two claims, the egalitarian or the non-egalitarian allotment of moral standing, makes more sense?

Suppose that we pursue the egalitarian route. If humans and nonhuman beings, such as sentient vertebrates, possessed moral standing equally, then it would follow that the interests in survival and well-being of both groups are equally important. Human rights and animal rights would be on the same footing. Deliberately killing a rat would then be just as wrong as murdering a human being — a rather dubious consequence. A further problem arises because this kind of egalitarianism generates moral dilemmas that are artificial and absurd. Consider the following (admittedly, rather gruesome) situation: hungry rats start feeding on a newborn child in a house in the slums. The child screams; the alarmed mother hurries to the child’s side, grabs a frying pan, and smashes as many rats with it as she can. Normally, we would think that protecting her baby by killing the rats is not just the mother’s right, but her duty. But the egalitarian view, according to which the baby’s interest in its survival is just as important as the rats’ interests in their survival, would be forced to interpret this situation as a case of conflicting moral obligations. In this view, the mother’s duty to protect her child from injury or death would be as important as her putative duty to refrain from killing the rats. Evidently, an egalitarian environmental ethics of this sort is untenable. It fabricates spurious problems instead of resolving actual difficulties, it imposes unreasonable constraints on human behavior, and it entails types of duties that are at variance with duties identified by moral philosophy. Thus, egalitarianism must be ruled out.

The non-egalitarian allotment of moral standing makes more sense. Rats have moral standing, but humans do, too, and if push comes to shove, the moral standing of humans overrides the moral standing of rats. Some proposals have been made to combine an environmentally sensitive ethic with a moral hierarchy of humans and nonhuman beings, most noteworthy in what has been labeled “Two-Factor Egalitarianism” (Van De Veer, 1979). Despite its name, two-factor egalitarianism is a non-egalitarian strategy for adjudicating between conflicting interests. If the moral subjects involved in a conflict of interest belong to the same species (both are humans), the moral subject wins whose interests are more important (say, by having a serious interest in well-being, as compared to a frivolous interest in entertainment). If the moral subjects belong to different species (one is a human, the other is a sentient animal) and their interests are equal, the human moral subject wins. On the other hand, if their interests are not equal (the human wants to hunt game for sport; the “game” just wants to survive), the nonhuman subject wins. In other words, if all else is equal, the moral hierarchy applies and the human being is entitled to pursue her interest at the expense of the nonhuman being. But if the interests at stake differ significantly such that the nonhuman interest is considerably more serious than the human interest, then the human being is not entitled to pursue her interest. Two-factor egalitarianism produces sensitive and plausible results, but it is explicated only on the practical side of environmental ethics. It is tacitly assumed that humans count more than nonhumans. If we want to avoid sliding back into the anthropocentric dogma, then such non-egalitarian assumptions need to be carefully supported.

How could a moral hierarchy be justified? Different life-forms possess varying degrees of complexity of physiological organization. The complexity of physiological organization is roughly proportional to the complexity of psychological make-up. A canine mammal such as a dog is a more complex organism containing a larger genome than an amphibian such as a frog, and it also possesses a richer life than the frog. The rough proportionality between complexity of physiological organization and complexity of psychological make-up can give us a guideline for differentiating degrees of moral standing in a similar fashion. The more complexly evolved an organism is, the more weight is carried by its interest in the moral sphere. It seems plausible to argue that the richer the life is that the organism is capable of experiencing, the more important are its interests. Accordingly, a dog would have more moral standing than a frog, and a human being, representing the apex of physiological and psychological complexity among terrestrial organisms, would have more moral standing than anything else.

Intertheoretic commensurability. This last component of the theoretical core of environmental ethics brings me back to the beginning of this essay, to my meditations on the intrinsic value of life while I was paddling on the Missinaibi river. It is natural for a foundation of environmental ethics to pursue the ideal of unifying distinct approaches on a common basis. As the work of Taylor (1981 a, 1981 b) and Rodman (1983) has illustrated, teleology might be a tool for a unification.

Teleology is the study of goals and purposes. Formerly a part of speculative metaphysics, teleology survives nowadays in terms of functional explanations in the life-sciences. Although it does not make sense to ask, in physics, about the purpose of a supernova, it has obvious explanatory and predictive pay-offs to inquire, in biology, about the purpose of certain behavioral patterns of an organism. Teleological perspectives can help us to understand what an organism is about, simply because organisms are, in essence, goal-directed systems. Being an organism means having purposes, such as survival and reproduction. Any organism, whether a human or a flatworm, is a directive organized system that strives for certain goal-states (such as life, health, well-being, and others). Evidently, these goal-states are positively valuable for the organism. If they were not, the organism would not expend energy in attaining and preserving them. By performing these activities and striving for these goals, the organism pursues its own purpose. Accordingly, something valuable exists for the organism, and this valuable feature is wholly independent of our evaluation of the organisms's goals. In the sense that these values have nothing to do with our judgments, they are intrinsic to the organism.

If one could transform teleology to a well-founded theory along these lines (that were first explored by Taylor, 1981a), then we would be able to unify distinct approaches in animal rights ethics on a common ground. There is an apparent incommensurability in animal rights ethics between the utilitarian view (Singer, 1975) and the subject-of-life approach (Regan, 1985). Briefly put, according to the former, animals have moral standing because they can feel pain; according to the latter, they have moral standing because they are experiencing subjects of life. Both approaches, it seems to me, are right. Their apparent incommensurability can be overcome by grounding them on the same teleological basis. The goal-directedness of an organism explains the particular behavioral patterns characteristic of sentience (seeking pleasure and avoiding pain) as it explains the behavioral patterns characteristic of the experiencing subject (in Regan's words, "[to] want and prefer things; believe and feel things; recall and expect things").

Moreover, teleology promises to unify animal rights ethics that identify sentient beings as moral subjects with biocentric approaches that identify organisms in general as moral subjects. With teleology, we can account for the independent significance of plants and simple life-forms — something that we are not able to do as long as we stick to the concept of interest. The term “interest” can be applied to plants only in a metaphorical sense. But plants and simple life-forms are still organisms. Thus, although non-sentient and non-experiencing, they are goal-directed systems. Hence their positive value follows according to the same considerations for other goal-directed systems. Lower life-forms do not have the same preferences of more complexly evolved animals, but they possess the primitive equivalents of preferences nonetheless. Their telic correlate consists in the exhibition of persistent and plastic tendencies towards health, nutrients, and factors promoting growth.

Finally, the teleological perspective sheds light on the ethical status of inanimate elements of the environment. Because the land, the air, the water do not strive for goal-states, these entities emerge as being value-neutral. They have instrumental value for living beings, but in contrast to them, they do not possess intrinsic values. What about ecosystems? It certainly looks as if they possess some kind of intrinsic value. The widely discussed notion of an ecosystem’s integrity appears to be comparable to an organism’s health. Just as health is a goal-state of an organism that signals the presence of an intrinsic value, so does integrity appear to be a goal-state of an ecosystem, as some authors have argued (Callicott, 1987; Rolston, 1989; Westra, 1994). But there is a crucial difference between the health of an organism and the integrity of an ecosystem. Whereas health has been defined with reasonable precision, ecosystemic integrity has not. We do not have an unanimously accepted definition of ecosystemic integrity (see Regier, 1992; Kay & Schneider, 1992; Kay, 1993). At best, we can say that an ecosystemic integrity consists of the continuing stability of an ecosystem. But this is not enough to warrant a teleological interpretation. It is characteristic of directly organized systems to have a goal-state that is “preferable,” as it were, to other states. But ecosystems have multiple steady states instead. If an ecosystem consisting of a climax community is extensively changed or damaged, then it will not necessarily “bounce back” to its original state but may settle at a new equilibrium with a decreased level of biodiversity. This new, impoverished state can be just as steady as the original, rich state. (The *karst* landscape of Greece is an example of the balanced result of such an impoverishment.) The fact that ecosystems have multiple steady states means that they have multiple quasi-goal states, and that we cannot determine which steady state is “prefer-

able” to the others. In this sense, an ecosystem is not like an organism. Hence, if we wish to pursue a teleological route, in order to unify various approaches in environmental philosophy and to ground the various classes of moral subjects, as well as their axiological hierarchy, then we must sacrifice, it seems, holistic approaches (such as Callicott’s interpretation of Aldo Leopold’s land ethic) that assert the moral standing and intrinsic value of ecosystems.

Conclusion

Moral concepts such as rights, torts, interest, moral consideration, and justice originate and are well-founded in the anthropic domain. Environmental ethics extends the reference of these concepts. As we have seen, the extension as such is not well-founded, and this signals the need for the organization of a coherent theoretical core of environmental ethics. Because the discipline at present possesses very little in terms of an uncontroversial core and thus lacks a foundation, environmental ethics cannot be an applied discipline just yet. To reach the level of an applied discipline, environmental ethics must come to terms with the challenges that are posed by its characteristic employment of moral concepts. In its present stage, it cannot serve the purpose of being a maidservant to other disciplines. Before it can fully export its research results to other fields of knowledge, it needs to impose limits on its interdisciplinary openness first and focus on the construction of its theoretical foundation instead.

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Biographical Note: Martin Schönfeld is Assistant Professor of Philosophy at the University of South Florida, where he teaches in the Department of Philosophy and in the Environmental Science and Policy Program. He studied at the Universität Regensburg and the Ludwigs-Maximilians-Universität Munich, received an M.A. in philosophy from the University of Georgia, and holds a Ph.D. in philosophy, with a minor in the history and philosophy of science, from Indiana University. He has written various articles on environmental ethics, the history of technology, and the history of philosophy. He is the editor of a volume of the *Electronic Journal of Analytic Philosophy* on values in nature, and he is the author of *The Philosophy of the Young Kant*, forthcoming from Oxford University Press.

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