INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.
Intrinsic value of species

Avantaggio, Frank Glen, Ph.D.

University of Hawaii, 1993
INTRINSIC VALUE OF SPECIES

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

IN

PHILOSOPHY

AUGUST 1993

BY

F. Glen Avantaggio

Dissertation Committee:

Lenn E. Goodman, Chairperson
Richard Farr
Steve Odin
Mary Tiles
Sheila Conant
# Table of Contents

Abstract ................................................................. iv  
Preface ................................................................. v  
Chapter 1: Ecology and Ethics .............................................. 1  
  environmental decisions are moral decisions ...................... 1  
  iconography and environmentalism ................................. 12  
  anthropocentrism and the interests of other kinds ............. 17  
  estimating interests ................................................ 21  
  arguments for value in nature .................................... 31  
Chapter 2: Intrinsic Value: The Assumption of Goodness ........... 41  
  what is intrinsic value? ........................................... 41  
  objections .......................................................... 56  
  assumption of goodness .......................................... 64  
  natural equity ...................................................... 74  
Chapter 3: What Are Species? ............................................ 79  
  moral imagination ............................................... 79  
  evolution ............................................................ 82  
  community .......................................................... 99  
  moral ecology and the considerability of species ............. 106  
  extinction .......................................................... 111  
Chapter 4: Moral Responsibility for Species ........................ 126  
  moral responsibility as ecological niche ......................... 127  
  the case of the animals .......................................... 140  
  environmental gardening ......................................... 159  
Bibliography ............................................................ 165
Abstract

This is an essay about ethics and environmental responsibility. The thesis is that biologic species qua species—not only as collections of individuals or as elements of ecosystems—deserve moral regard. The argument establishes moral considerability on powers and freedoms of relative self-determination and autonomy. It is argued that species are living beings in their own right with their own projects and interests which deserve special regard. The essay draws from the arguments of Plato, Aristotle, Plotinus, Boethius, Avicenna, Maimonides, Leibniz, Spinoza, Kant, and others, concerning the moral value of natural beings, but situates itself in the contemporary dialogue of environmental ethics. Lengthy consideration is given to species concepts defended by evolution theorists, biological systematists, and ecologists.

The argument claims that natural beings, including species, have moral value because they have projects and interests which make a legitimate, but not universal, claim on the moral agent. Beings make moral claims when they are integral and integrating, individual, and concreative—conditions comparable to those with which we describe the moral status of a person. We may call such beings rational by analogy to the integration and singularity of intellect, and confer upon them analogous moral consideration. They are due regard in proportion to their projects in the same sense that moral subjects are due regard for having the projects of moral subjects.
Preface

This is an essay about ethics and environmental responsibility. I do not propose in this essay to establish a moral theory in anything like the complete and programmatic sense attempted by the Kants and Mills of my philosophical tradition. Neither is it my primary intention to displace the work of these thinkers. However, I am convinced that moral questions are not the sort of questions which can be answered a priori, or which can be adjudicated by means of some mechanism or calculus. Moral questions are formed, reformed, tentatively answered, and then perhaps wholly reconsidered, as part of a many faceted moral conversation. This dialogue is an achievement which pulls its threads from the semiotic and axiological fabric of language and culture, exploring and establishing an elaborate interweave of representation, meaning, and value. The elements which the dialogue considers, and the manner in which questions are framed, give direction, scope, and urgency to the moral conversation. If the assumptions, commitments, cultural and intellectual history of the conversants are similar, it may be possible to forge a mutually agreeable resolution. But disagreement or ambivalence about the framing of the moral conversation, or elusiveness of resolution is also a possibility. It is a conversation, after all, not an equation. Often a great deal of compromise is necessary just to get a conversation off the ground.

In this essay I do not provide a mechanism, calculus, or final set of principles for adjudicating any and all moral environmental concerns. What I attempt is not a resolution of the moral conversation, but, in effect, its widening. I argue that the moral dialogue rightfully considers the interests of creatures, species, and natural systems, as well as those of human individuals and their communities. I do not believe that if my
argument is successful moral environmental decision making will necessarily become easier. In fact, given the greater number and wider variety of interests to be considered, moral questions may become more complicated, their settlement more difficult. If expedience and simplicity in generating answers were the first tests of a moral position, then mine would probably fail. But expedience is not the sole, or even the best criterion for evaluating moral claims. If it were, then the theory which asked the most direct and uncontroversial questions would be indicated. It is not expedience but "goodness" or "rightness" which are the adjudicating concepts of the moral conversation. Paradoxically the moral conversation is itself the attempt to explain these ideas. Some people are dismayed by this, others are amused. How can the concepts of the "good" and the "right" be the foundation of the moral dialogue when their definition and illumination is in fact the purpose of the dialogue? Where is the moral conversation to begin? It must begin at the place where all conversations originate, here, with a little of this and a little of that; with ideas and an openness to their reevaluation; with people who think that they don't understand each other when they do, and others who think they are of one mind when they are worlds apart. Dialogue, like biological evolution, is tentative, built on defeats, as well as achievements. Moral conversation cannot begin from nowhere and neither can the conceptual justification with which we bolster our positions. The first principles of moral positions are always assumptions, premises which are not irrefutably demonstrable, such as, "Happiness is good," "Life is good," "Freedom is good," "Beauty is good," etc. These are not the sorts of things which are easily demonstrated. The possibility of convincing a listener that x rather than y is the correct place to found an ethic depends on the conversants sharing enough culture that their axiological and
semiotic imaginations are able to engage and respond. I have tried to keep this in mind in the following pages as I have carried on my part of the conversation.

This essay claims to be about environmental ethics, but it takes almost no stand on particular issues. It claims to be about why this world is good and worth saving, but it does not offer the reader '100 easy things that you can do to save the planet.' Perhaps a moral position is better judged by the questions it asks, by the elements it introduces to the conversation than by the answers it defends. Of course, quantity alone is no measure of these questions, as if more questions were necessarily better. Nor is complexity an obvious plus, as if complex questions were preferable, unanswerable ones ideal. I mean only that a moral position should not be dismissed merely because it introduces considerations which complicate rather than simplify the moral conversation. Whether or not the complicating considerations are an improvement or a detriment to the moral enterprise must be determined as the dialogue unfolds.

The basis of my position that creatures, species, and natural systems deserve moral consideration is ontological in two aspects: I argue that humans are a kind of creature for which moral consideration is an issue; and I argue that beings deserve moral consideration based on the kind of thing that they are. Humans evaluate beings and actions with respect to their goodness and rightness, not only in terms of their legality, efficiency, return. It is true that "good" and "right" have senses applicable to many different considerations. They also have uniquely moral senses which it is the task of moral discussion to establish. When I say that moral consideration is an issue for humans beings, I mean that as rational reflective beings they are conversants in the moral dialogue.
This essay is titled Intrinsic Value of Species, but my argument is actually somewhat wider than this. I argue that creatures and natural systems, as well as species, have intrinsic value. When I say that a thing has intrinsic value I do not mean that it has some property whose name is "intrinsic value." The term "intrinsic value" is a way of referring to the judgement that a thing deserves some measure of regard for what it is in itself. I highlight the case for the intrinsic value of species because I believe that the moral status of species has not received adequate treatment—either for or against—in the environmental ethics literature, and because it broaches the topic of the nature and existence of biological species which may be philosophically engaging to a wider audience.

I would like to give a brief synopsis of the argument. My overall scheme is uncomplicated; I make three basic claims: that any being with a project deserves moral regard in accordance with its project, that species are beings with projects, and that the privileges and responsibilities of humans, like those of other creatures, derive from their being the kind of creatures that they are.

In the first chapter I approach my basic claims tangentially as I argue that a theory of environmental ethics is necessary given human ecological involvement, and that a theory of intrinsic value is necessary as a basis for any moral position, including an environmental ethics. Some might claim that the technological achievements of science are the answer to our environmental problems. I argue that environmental problems are not primarily technological problems; they are moral ones. For, insofar as humans are part of the cause, part of the solution, or deny that they are either, environmental problems demand individual and social decisions which involve moral responsibilities. I
discuss some possible hindrances to the recognition and acceptance of these responsibilities: the iconography of environmentalism which can gather its own momentum, direction, and meaning; the alleged inevitability of a myopic anthropocentrism; the perceived difficulty of simultaneously handling moral regard and scientific understanding. Chapter 1 closes with a look at kinds of arguments which are used by environmental ethicists: instrumentalist, respect for sentience, and reverence for life. I show that each of these depends on the assumption that there is something which deserves moral consideration for itself, something which has intrinsic value. Even if the term "intrinsic value" is not a common one, the concept clearly is.

In Chapter 2 I deal directly with the concept of intrinsic value. I argue that the possibility of the moral life requires that there must be something which is recognized as deserving regard for what it is in itself, something which has intrinsic value. I argue that this fundamental moral value belongs to beings insofar as they are integral, integrating, and creative. Beings deserve regard insofar as they are organized, individual, inceptive beings with projects and interests. I take the assumption that having a project is the basis of moral worth to be a legitimate starting point for my wider claims about the moral considerability of natural beings. I legitimize this assumption for the reader by tracing the argument for the moral dignity of the rational individual back to Kant and showing that premises by which Kant imputed moral worth to the rational subject are the same by which I wish to grant considerability to any being with a project. I argue that Kant was incorrect in attributing moral worth exclusively to rational subjects. By his premise, any achievement of freedom and autonomy deserves regard, even if they are not the freedom and autonomy of a person. Living beings exist not statically, but dynamically; a living being is, on the whole, what it does. Things with projects do not so
much have their projects as they are their projects. The degree and kind of freedom and autonomy which a being has, and the appropriate regard which it is due, vary with the project which it has. In clarifying and defending my use of the terms "interests" and "projects," I answer a number of possible objections.

The assumption of intrinsic value, I argue, is akin to the assumption of the goodness, a theme in neoplatonic and medieval philosophy. Both are assumptions about the existence of basic moral value in beings. The argument in defense of the assumption of goodness parallels and complements that already offered in defense of the assumption of intrinsic value. I treat the assumption of goodness separately because its history, idiom, and problems are somewhat different. It is often confused, for example, with universal support of the status quo, or with the denial that pain and hardship are realities. The assumption of goodness, I argue, is a moral assumption which affirms that proper and improper behavior make a difference in the world. It proposes that beings have moral and material deserts simply because they are the kind of thing that they are.

I call natural beings "rational" (following Plotinus and Boethius) by analogy to the integration and singularity of intellect, and confer upon them an analogous moral consideration. Are all such beings then persons? No, but we might call them "virtual subjects." For such beings are due regard for having their projects in the same sense that moral subjects are due regard for having the projects of moral subjects.

In Chapter 3, having argued that beings with projects deserve regard, I move on to argue that species are beings with projects. Surveying species concepts proposed by biologists and ecologists I conclude that the scientific views on species are compatible with, in fact are rather similar to, my claim that species have projects. The projects of species are described by their adaptivity, evolution, and ecological dove-tailing. As part
of this discussion I entertain the notion that given certain kinds of questions—those a biologist, ecologist, or environmental ethicist might be asking—the interests of species might be considered to compete with those of individual creatures, in certain cases even to over-ride them. Finally I consider the subject of extinction. I argue that extinction is an event of moral as well as ecological significance. Posing the question 'What is lost when a species is lost?,' I argue that species are beings whose goodness is unique and irreplaceable, whose claims have a prima facie authority, whose dynamic existence and agency have been part of the creation of the only living world that we know. I offer an ancient and medieval argument for understanding species and other living beings as immanently rational and creative, beings with projects, and therefore due appropriate regard. What kind of things are living beings? They are beings which change, but with a curious change which seems at once to exemplify order, continuity, and appropriateness on the one hand, impermanence on the other. They are moved by the unpredictable contingencies of history, but also by integrating and creative principles, forces, and energies which the medievals in their idiom called "souls" and "angels." This language may seem odd. Am I asking the reader to forsake his modern vision? Not at all. But perhaps to augment it with a moral vision which perceives in the world some basis for moral value. The "souls" and "angels" of medieval philosophy are rational and natural principles or forces, but they are also beings in their own right, beings with dignity, power, and a claim on the moral agent.

In Chapter 4 I turn the discussion to focus on the privileges and responsibilities of the moral agent rather than the general moral considerability of beings with projects. The argument amounts to a metaphysical justification of the moral conversation. This chapter is therefore working somewhat different ground than the previous three which
take the moral dialogue as given and seek only to establish the legitimacy of a certain moral problematic. Why is there a moral project? Because we are rational and reflective. Moral responsibility, I suggest, is akin to an ecological role. It is a role for which we are particularly suited because we are the kind of beings that we are; the ecological niche of humans includes our existence as self-conscious, moral beings. If what beings deserve is based on the kinds of beings they are—the kinds of values they conceive and project—then rational subjects must also have appropriate deserts. As reflective beings we have responsibilities to goodness on earth, obligations to act as stewards and cultivators of the garden earth. The basis of moral responsibility, I argue, is reflective self-consciousness, the fact that we live with our actions in a way which gives them a special kind of meaning and significance. We live not only with the material consequences of our action, but with the moral consequences as well. We act impeccably or reprehensibly, thoughtlessly or with exemplary wisdom and insight.

A number of different arguments have been proposed which maintain that if one claims that the intellectual life makes humans different from other creatures, one has made a move which is either pathological or indefensible, or both. In defending my position that moral responsibility begins with reflective rationality (rather than ends with it), I rebut arguments that science, Christianity, and "subject-object" thinking are responsible for the environmental crisis.

Finally, I consider the medieval fable, The Case of the Animals vs Man. This entertaining and philosophically sophisticated work gives a delicate and penetrating treatment of my two central themes—that beings deserve respect for what they are, and that intellect implies moral responsibility—giving me the opportunity to discuss them
further and providing the reader with an alternate formulation of the problematic I am endeavoring to introduce to the contemporary dialogue.

Thank you to the members of my thesis committee. It has been an honor to work with them. A special thank you to Lenn Goodman who has been a steady source of friendship and sound advice.
Environmental Decisions are Moral Decisions

At 6:00 a.m. Diamond Head is still a silhouette. Waikiki beach looks clean and white before the crowd of high-rise hotels. On most mornings, there are a handful of surfers floating in the water, waiting for a wave at Queen's break. As the sun comes up, they see honu, green sea turtles. Turtles are not rare in the waters off Honolulu and their numbers are increasing. Perhaps it is only a matter of time before one of these turtles pulls herself onto the beach and, despite the lights and noise and passersby, deposits her eggs. When she does, there will be an uproar. Waikiki Beach in Honolulu is one of the most visited beaches in the world. Every year millions of people arrive there to sun, swim, and stroll the boardwalk from Kapi'olani Park to Fort DeRussey. The people of Hawai'i have vital economic interests in maintaining Waikiki beach and they do so assiduously. But it is not inconceivable that the tons of sand which have been brought for vacationers will some day become a nesting site for the federally protected honu. If this happens some difficult decisions may need to be made.

Biologists will be undoubtedly be consulted. Ecologists and environmentalists will make studies and write reports. Committees of scientific experts will debate the consequences of continued, unregulated use of the beach, or restricted use, or the
creation of "turtle zones." The aura of the project may even create the illusion that the
gathering of scientists should be able to provide a solution to this inconvenient turn of
events. But predicaments like this do not have a scientific resolution. Although it is
often deemed necessary to summon delegations of authorities to debate the
environmental effects of our social projects, it is a mistake to believe that determinations
concerning the exploitation, conservation, or preservation of our environments are
principally matters of technical knowledge or abilities. In the first case it is necessary to
know what kind of knowledge is called for, and to what end technologies should be
applied. These judgements require the measure and evaluation of individual and
community interests, as well as interests of creatures and natural systems which may be
affected. They are not primarily decisions of efficiency or productivity, choices among
means. Environmental policies and attitudes begin with choices among ends. Decisions
pertaining to the exploitation or conservation of the natural world are therefore in a
primary sense moral rather than technical or scientific. They are moral because they are
decisions which favor, celebrate, or honor beings which are assumed to have value in
themselves. One of the reasons that issues like water and air pollution, deforestation, or
species extinction can degenerate into conceptual quagmires is that these concerns tend
to turn on assumptions of natural and intrinsic value with which many people feel a
grave discomfort. Air and water pollution corrupt, interrupt and offend the lives of
creatures, species, and natural systems, lives, it is tacitly assumed, which would be better
unpolluted. I do not intend this observation to beg the question of whether these other
beings have any value, only to point out that the concept of pollution is not value free. It
already contains the notions of degradation and corruption.
In this chapter I make two basic claims: first, that given the fact of human ecological involvement, a theory of environmental ethics is necessary; second, that the assumption of intrinsic value—that some beings are worthy of moral regard in themselves—is necessary for all moral thinking, including environmental ethics. I will argue in Chapter Two that human beings are not the only beings deserving this basic moral consideration, that other creatures, species, and natural systems deserve consideration commensurate with their attainments and their potential for future attainments.

The resolutions of environmental problems do not reside principally in the simple increase of scientific knowledge or technological innovation, but in the conscientious and effective implementation (or abandonment!) of these devices in chosen ways. Insofar as ecological problems result from individual and collective human actions they reflect individual and communal commitments on many levels: political, economic, cultural, and moral. John Passmore has made a similar case with respect to over-population and to pollution.¹ The rate of population growth, he argues, is not determined solely by the availability of birth control education and technologies. Nor is the effect of increasing populations on the standard of living determined solely by the rate or extent of increase. Economic decisions directing the production and distribution of goods are also relevant to the effect an increased population will have in a community. When people are told that a burgeoning population represents a grave danger, they may weigh the arguments for the unspecified general benefit of a smaller rate of population growth against their

loyalties to family, class, religion, and nation. Changes in the rate of population increase may also precipitate demographic transformations in the work force, or in the education and health care systems. For all of these reasons, population management involves complicated social decision making. It is never simply a decision to implement this or that technology in order to spare the environment or avert Malthusian catastrophe.

Species extinction, too, if it is a problem, is a social problem at least as complex as over-population. There is no merely technological solution for the causes of extinction, as if it were a predicament which required only an apparatus or a technique. Even if a technique were developed today for synthetically reconstituting representatives of an extinct species, it might still be true that the land encroachment, pollution, or over-harvesting which originally expedited the extinction would again leave no place for these new beings to live. Until decisions which we have made actively or passively as a social body have been amended there would be no way for even this fantastic scientific accomplishment to reverse the damage. There are value judgements which precede and guide the employment of technical judgements.

When the Tucurui dam was completed in Brazil in the late 1980s, thousands of hectares of habitat were flooded. The building of such a dam, I maintain, is an act of moral as well as technological consequence. It is to act in favor of electrical power and its associated human goods: sanitation, communication, economic impetus etc. At the same time, it is to act against the individual plants and animals which inhabited the flooded area, against any species whose existence depended on that particular habitat, and against the dignity and right to self-determination of peoples who have been displaced from the land. I do not believe that it is possible to say a priori which way decisions like this should go. But it is important in these cases, to make informed,
exemplary decisions, that are clear about what is decided for and what is decided against. If we are going to choose the many benefits of electricity over the existence of unique and irreplaceable habitat, species or communities, then let us do so candidly. The cost of such a project, I argue, is greater than that measured in terms of human interests.

In addition to the widely (but still not adequately) defended moral value imputed to the ends of individual persons and communities, I argue that there are values in nature which do not depend upon use or appreciation by humankind. There are values intrinsic to, or localizable to, individuals, systems, and species. Many thinkers have argued that the moral realm rightly includes other kinds of creatures. I agree, but I also maintain that not all value in the natural world is reducible to the dignity or inviolability of particular creatures. Neither is all value in nature accounted for by the integrity and global balance of natural systems. In addition to the value of the particular beings and those values associated with ecosystems I will argue that there are certain values operative at the species level which cannot be reduced to these other two and which deserve moral recognition, as well as the scientific recognition they already enjoy. I do not argue that the value of species is ultimate or that it should determine every environmental decision, only that species are the locus of recognizable worth and are, therefore, legitimate objects of moral consideration. Species as species have intrinsic value.

In 1958 Charles Elton published *The Ecology of Invasions by Plants and Animals*, which explored the causes, circumstances, and consequences of the rapid expansion which sometimes occurs when a non-native species is introduced into an ecosystem. The isolated island systems of the Mid- and South Pacific exhibit some of the most striking
cases of system wide degradation which followed the introduction of alien species.\(^2\) The primary modern cause of these invasions, Elton argued, is world-wide trade in plants, animals, and their products. In the geological past, the movement of species between continents was made possible by land bridges. But such movement was slow and piecemeal compared to the moving 'bridges' of modern transport. Since many of the modern invasions could not have occurred without introductions (both intentional and accidental) by humans, Elton's work suggests that human beings are responsible for the rapid and often irreversible degradation of many ecosystems. Again, I do not intend to beg the question of whether a given system deserves any regard. I have yet to make this argument. The concept of degradation operative here is an ecological one rather than a moral one. The concept of ecological degradation depends on a given frame of reference. For what is the degradation of one ecosystem may mark the development of another. But if we find merit in the new ecosystem for being an ecosystem, rather than for merely being new, then we must acknowledge that the previous ecosystem may also have had its merits.

Elton's account of the modern invasions illustrates clearly one sort of effect which human choices and actions have had upon natural environments. In terms of certain ecological values (e.g., the diversity, stability, and maturity of systems), there may be grounds for determining specific actions to be either culpable or praiseworthy. But, Elton is to be commended for perceiving that values which pertain to the function of systems as such are not the only values pertinent to decisions about environmental exploitation and modification. There are also human values to consider. However,

neither human values nor values associated with the existence of non-human beings can be said out of hand to deserve priority universally. Elton brings out some of the complexity of the environmental issues when he argues that all of these values deserve ethical consideration as we try to knit human moral and biological deserts into a greater fabric:

People do have to grow things in order to live and make a living, they need land and good crops. It is no use pretending that conservation for pleasure or instruction, or the assigning of superior rights to animals will ever take precedence over human survival. Nor should it.

But suppose the conflict between these interests is not quite so great as it seems at first sight. Suppose one could make out a good case for conserving the variety of nature on all three grounds—because it is a right relation between man and nature, because it gives opportunities for richer experience, and because it tends to promote ecological stability.... Unless one merely thinks that man was intended to be an all-conquering and sterilizing power in the world, there must be some general basis for understanding what is best to do (my Ital.).

I will be trying to make explicit what is still suppressed in Elton's argument, that our environmental responsibilities are not only a question of ecological stability but also of moral integrity.

In a manner of speaking, there are two aspects to the discipline pursued by ecologists. In one role the ecologist-as-scientist describes the relations of living beings and their environment. This includes accounts of the members of the biological kingdoms, their behaviors, relations within and between communities, effects of climate, 

---

3 Elton does not use this term, but it seems to be his intention. For an explication of the concept of "deserts" and its preferability to "natural rights" see Lenn E. Goodman, On Justice. (New Haven: Yale University Press, 1991) 23-34.

4 Elton, Ecology of Invasions 145.
geological influences, and other factors involved in the subtle mechanics of ecological systems. Wearing a second hat, the ecologist-as-philosopher must clarify and prioritize the values, both cognitive and moral, which his or her study assumes, and which delineate the purpose of ecology as a discipline. The ecologist-as-scientist might provide extremely complex accounts of the interdependencies of the moist tropical forests, or the grassland prairie. But we still must account for the roles and responsibilities of humanity in these webs.

It is seductively self-effacing to take the radical position that humanity is a blight upon the earth which should be eradicated. But the thought experiment which ensues ignores the fundamental question: On what basis are human interests either championed or impugned? Assuming that the value of other life forms does not depend on the value of human life, but that other kinds have value and are due consideration simply because they are what they are, then humankind must also have this sort of value. Even if one were to study ecology solely to understand the value of a rapidly disappearing nature, one still needs to know how much and what kind of emphasis to place on human interests.

If the role of the ecologist-as-scientist demands an appreciation of the biological complexity of nature, the role of the ecologist-as-philosopher requires a sensitivity to the complexity of values. I am referring here specifically to moral values rather than cognitive or epistemological ones, the value of ends rather than means. It is not enough to describe the biological world as having been diminished under the influence of humanity without also explaining why it deserves not to suffer as it has. One might argue that by the rules of evolution the human species has occupied its natural place. That some other species have been unable to compete successfully with humankind visits
no blame upon us. But we should not let our descriptions screen out the values they convey. It is not enough to justify humanity’s hegemony as an outcome of evolution without explaining why the interests of dominant species should take precedence over those of a species whose existence may become threatened. Is biological prevalence and power, and the biological imperative implied by evolutionary theory, enough to justify all human action with respect to other creatures and kinds? The relevant moral question with respect to species is not ‘Has extinction ever occurred?’, but ‘Why is extinction something which we should choose? or promote? Or why not?’.

The modern ecological movement cannot justify drastic changes in our attitudes and practices of environmental exploitation simply by appealing to descriptions of the environment. In fairness, it does not try. For even the most uncontroversial nature documentary argues with its monologue, visual composition, and soundtrack that the living world is a place of beauty and value which deserves to be preserved. One of the things a philosopher can do that the scientist or documentary film maker may not choose to do is to make these arguments explicit and to identify and explore their premises and assumptions. Why do creatures deserve to live and breed? Why and when is extinction a tragedy? Why might evolutionary adaptation be thought to be beautiful? The scientist as scientist may describe the life cycle of some creature. The documentary film maker may express an appreciation of this creature in color, music, and well-crafted words. I see a role for the moral philosopher alongside the other members of this community of inquirers which strengthens the vocabulary and concepts necessary for comparing and estimating varied interests—weighing, for example, the interests of an urban community against the interests of the last pair of pileated woodpeckers whose nesting site is threatened by a municipal project. I want to argue that the discussion of such a project
should rightly consider not only the interests of the human community, but also the
interests of these particular birds, their species, and the ecosystem within which they live.
It seems to me that this philosophical task is central in the work for a responsible
environmentalism.

In the branches of philosophy and ecology becoming known as "Environmental
Ethics" there has been confusion and disagreement as to the appropriate scale on which
to conduct discussion of human responsibilities toward nature. Tom Regan\(^5\) and Peter
Singer\(^6\) have argued that our primary responsibility is to single animals. J. E. Lovelock\(^7\)
and Lynn Margulis\(^8\) urge that we think on a global scale, suggesting that we have
responsibilities directly to Gaia, the Earth considered as organism. On the other hand,
ecoLOGY as a modern discipline developed as the study of populations and communities.
Thus ecological ethics focused on the values, interests, and relations which operate at an
inter-species level. Aldo Leopold, for example, argued that individual members of
species are of secondary importance in ecosystems. His primary concern was with the
integrity of the large web of ecological relations. Each of these positions has its merits,
but I believe that my position makes a more comprehensive case for the moral
considerability of beings at these different levels of organization. I will argue the case
for concerning ourselves at the scale of species, but I do not maintain that the integrity
of species has universal priority over that of ecosystems or individuals, only that species

\(^5\) Tom Regan, *The Case for Animal Rights* (Berkeley: University of California Press,
1983).


\(^7\) J. E. Lovelock, *Gaia: A New Look at Life on Earth* (Oxford: Oxford University
Press, 1987).

are natural beings with moral and ecological value which is not reducible to that of individuals or ecosystems.

If current environmental awareness is able to make a lasting change in the way that Americans act toward nature, it will be because we have compelled some real and deep reevaluations of the things that we consider to have value. It will be part of a profound change in culture and perhaps in what is considered to be the good life for human beings. But significant changes in culture are generally slow and resistant to manipulation. Culture is not like clothing, a commodity which can be selectively appropriated. Sophisticated ecological attitudes cannot always be borrowed successfully. Ideals, especially ideals imported from other historical, cultural, and geographic bases cannot be promoted into our own mores by simple decree, or by flashing them as community service spots on MTV. Highly developed ecological attitudes which are able skillfully to situate cultural values with respect to value in nature are forged within a culture and an environment. They settle in with specific cultural values and are geographically situated with respect to nature.

The traditional Hawaiian attitude of mālama ʻāina, reciprocal caring for the land, for example, is an ideal which, it might be argued, mainstream American culture would do well to adopt. But "caring for the land" is not foremost an abstract principle for Hawaiians. It is an attitude of responsibility or continuity with this land, these plants, these people. The legitimacy of such a principle for traditional Hawaiian culture, or any other culture which has an analogous sense of familial responsibility to the environment, does not depend upon establishing the principle on philosophical or scientific grounds. The argument for the legitimacy of such an ethic, among Hawaiians, is made by its being
woven into custom, history, folklore, and language. The resistance, apathy, and lack of
fit which can be encountered when an ideal like *malama 'aina* is plucked from one
culture and deposited into another can signify the absence of just these conditions of
social embeddedness. Ideals cannot precipitate significant changes in widespread cultural
attitudes simply by being mentioned. They must be integrated into the culture. In a
culture as literate and conservative as our own they must be explained. In a society as
litigious and legislative as ours they must be legitimated. In contemporary American
culture new ideals can and do become integrated by being promoted and defended
philosophically or scientifically, but they may also require ethnic or ethological rooting.
For these reasons this essay appeals, in the context of a philosophical argument, to
modern and historical notions latent in the American ethos.

*Iconography and Environmentalism*

The arguments of environmentalism can become implicated and hidden in the
vehicles of their transmission. Consider, for example, the rhetorical use of the images of
circles and cycles. The symbolic authority of the circle as a mark of what is unfailing and
just appeals to the human imagination. The image of the circle, as in ouroboros, the
snake consuming its own tail, represents an impression of the complementarity of
beginnings and endings. Because circular motion has no determinate ending point, the
circle is a fitting portrayal of movement which seems to contain a propensity for
continuation or regeneration. When we refer to the life cycle of stars, the hydrologic
cycle, and especially to the reproductive cycles of living beings we speak and think with
reference to this elemental image. Portrayal of cycles iconographically as circles can
suggest a participation in the power of the symbol which is not always warranted.
Circles in nature, cycles of generation and corruption which Aristotle argued were earthly emulations of the divine actions of the celestial spheres, remain a significant part of the iconography of ecology. It is easy to be amused with Aristotle for thinking that biological species had the same degree of permanence as the physical laws of nature. But there is an interesting lesson to be learned from Aristotle's ignorance of extinction. The images we employ in our descriptions of nature can become formative in our science and philosophy. At least part of the reason that Aristotle believed species to be eternal can be traced to his identification of the cycles of nature with the revolutions of the heavenly spheres. The circle represented for Aristotle, as it can today, something unchanging and divine. Since motion cannot be originated from non-motion, Aristotle reasoned, motion must be eternal. Circular motion alone, because it has no contrary, is capable of sustaining itself infinitely. Because the heavenly bodies move in circles, they must move eternally. If species regenerate cyclically, they too must have an eternal nature. Focusing on the form of living things, rather than their individuality, Aristotle represented the generation of living things as cyclical rather than linear. The basic image of the circle had been tightly linked with a sophisticated set of metaphysical commitments which were drawn into the description of biological generation. Cyclical coming-to-be was identified with circular movement, circular movement with the "absolutely necessary." The image, the metaphor of the circle with which Aristotle

---


understood the persistence of species, had become a structural factor in his understanding of species. In spite of his own observations that the species do not breed perfectly true he still maintained that, overall, the essence of species was not subject to change.

The science of ecology was founded on ideas like succession, cycle, and interdependence which were for Aristotle the very signs of a divine aspect of the natural world. These same ideas, employed much more loosely and suggestively, represent a significant part of the popular environmental literature. The images of the balance of nature, cyclicity, and succession still evoke religious and soteriological values, because they appeal to a vision of nature as eternal and trans-individual, nature as greater than personhood and greater than humanity. These images are pantheistic or panentheistic in their overtones. They are often part of an effort to express admiration and appreciation for the natural world. But there is an element of paradox in any attempt to elicit more ecological responsibility from humankind using these sorts of images to reduce humanity's status and significance in nature. When nature is represented first as a cyclical, self-contained whole which has neither need nor notice for humanity, and then as a fragile object which could benefit from the attention of humanity, the disjointedness of our natural visions is revealed. There are good reasons for considering nature under both of these aspects, but we can explore these attitudes toward nature in their full complexity and complementarity only if we are not bound to one or another of our effigies of nature. We can be deceived and even coerced by the images we apply. Whether we describe nature as machine, organism, or self-regulating economy we are using images which are neither simple nor merely descriptive. They are interwoven with basic value assumptions and commitments.
An untutored intuition of the holistic character of nature is difficult either to shake off or to live by. The moral considerability of the whole in the neo-pagan iconography of Gaiaism rests upon intimations of divinity, transcendence, mother, and the (unrecognized and under-celebrated) wonderfulness of it all. Yet, generic intuitions of the inherent goodness and self-completeness of the world cannot provide definitive guidance about being a good person or developing sound, or even sane, environmental practices. As these images are made more determinate, they voice a variety of commitments. The manner in which the image is determined is reciprocally related to the recognition of value in nature. Paul Sears has argued that the balance of nature is best understood as a principle of the mechanical economy of the energy in living systems. More than just a tool for describing natural systems, argues Sears, this principle can be used as the basis for making valuative judgements of the health and propriety of ecosystems.

The balance of Nature really has to do with the way in which natural processes relate to their environments: namely, through the efficient recycling of energy.... The concept of the balance of Nature, so conceived, therefore becomes a normative concept for the life of natural communities. Of the many things a natural community must accomplish, it cannot fail to achieve balance in the pattern of its energy utilization. This is the first law of the morality of nature.13

The balance of nature did not suddenly become an axiological concept when it was first reduced to a mechanical principle, as if there were something about being mechanical which is required for being normative. It has always acted as a normative idea, shaping and limiting our picture of the world, but it has not always been normative

13 Paul B. Sears, "Utopia and the Living Landscape," Daedalus, 94, No. 2 (Spring, 1965) 485.
in the same way. The balance of nature is an image which has been given physical, moral, and spiritual translations. Because the notion of balance in nature can indicate justice, appropriateness, harmony, and proportionality, Anaxagoras, developing a similar image, determined that the balance of nature must be the product of intelligence.\textsuperscript{14} His argument contained the seeds of teleological science, rational mysticism, and the rational-empirical method, all of which express similar claims; that human, cognitive rationality is an aspect of an immanent rationality in nature, and that the rationality of particulars in nature is itself an indication of a more general rationality which is not derivable from the particular. The power of a root metaphor should not be underestimated.

The Gaia image and a great part of the argument which goes along with Gaia is reminiscent of Anaxagoras and his intuitions of the organismic rationality of nature. Whether the image of Gaia is meant to represent the earth as "a super-being with rights primary to those of the lesser beings"\textsuperscript{15} or as "the sum total of all the individual modifications and... the fact that all species are connected, for the production of gases, food and waste removal, however circuitously, to all others,"\textsuperscript{16} there is in either case a play on the image by which the conceptual and causal unity of the "living earth" is taken to imply moral unity, so that Gaia, herself, is confirmed to be a subject with an estimable moral worth.


It is a working assumption of all science, including ecology, that nature is a causal unity. But all understanding of unities is relative to specific centers and limiting horizons. The necessary unity of the entirety of nature is not the only intellectually or morally estimable unity in nature. Among these unities is the organization of species.

*Anthropocentrism and the Interests of Other Kinds*

It might be argued that because we look at nature from our specifically human perspective we inevitably see in nature only values similar to or analogous with human values. For example, it might be maintained that we happen to attribute value to mobility, sentience, even consciousness, only because these modes are integral to our own interests as individuals and as humans. As a result of this inevitable anthropocentrism we are bound always to value human life most highly, precisely because we are the only life form that lives the kind of life we value most! Our inability to evaluate objectively imposes a false hierarchy onto natural kinds, systems, and relations in nature, in which human values are systematically prioritized.

The Achilles' heel of this argument is the claim that there are no grounds for evaluating the interests of other living beings in other than human terms. In a limited sense, this is of course true. Preconception and prejudice do compromise the objectivity of any assertion, and biological investigations and descriptions are influenced by personal experience and preference. But these blinders are conceptual, not genetic. As one becomes aware of operating within a conceptual framework, one is often able, with

---

17 "Ecology concerns itself with the interrelationships of living organisms, plant or animal, and their environments; these are studied with a view to discovering the principles which govern the relationships. That such principles exist is a basic assumption... of the ecologist." A. Macfadyen, *Animal Ecology: Aims and Methods*. (New York: Pitman Publishing Corp, 1963).
varying degrees of skill and accomplishment, to stretch and test such frameworks for their limitations. The ability to understand the limitations of a perspective is the very ground from which it can be criticized as limited. We understand in a certain way what it is to be a fish or a turtle, and therefore can project such a creature's interests, in part empathetically, by imagining ourselves to be that fish or this turtle, and in part intellectually and conceptually, by understanding how the thing lives and why it has the specific form and behavior which it has. It is only by understanding these that one could even begin to play the potentially revealing moral game, 'Is that what you would want if you were that animal?'.

We now know that the lateral line of fishes is a sensory organ. This discovery stretched the scientific imagination because it did not mesh well with our mammalian notions of five senses. As one philosopher of biology observed, "The fact that man does not have this sense organ himself, and had not perfected artificial receptors in a way analogous, was a handicap in the attempt to understand the organ." It was a handicap, but not insurmountable. We now know that the lateral line senses movement and vibration by monitoring local changes in water pressure. Understanding the lateral line gives us a better idea of 'what it is to be a fish'. It is not at all just an abbreviated version of what it is to be a human.

We converse and conceive to a significant degree metaphorically, so our descriptions of nature are often phrased in human terms. Yet when we speak of a river following its course we do not imply intentionality on the river's part, despite the purposive language. Anthropomorphic language does not necessarily convey an incorrigibly anthropocentric world view. Similar phrasings might originate from an

---

animism or pantheism, but they convey no genetic inability to distinguish the animate from the inanimate. The metaphorically expressive use of language is not strictly determinative. We do not recognize only those interests in nature which are strictly analogous to human interests. We are limited in our human understanding by the metaphors available to us, but even those limits are a matter of negotiation. My point is only this, the fact that we understand as humans, and not absolutely, does not mean that we do not understand at all.

Peter Singer's arguments for the moral consideration of animals challenges humanity to overcome the epistemological and moral limitations of anthropocentrism. Singer argues that it is "speciesist" to give more importance to suffering in humans than to an equivalent suffering in animals because the decision to prefer human comfort can, in the end, be no more than arbitrary. He argues, in effect, that because it is impossible to be objective about the character and position of our role as humans in the natural world, we should treat all living kinds as if they were, on all significant moral levels, on a par with humans.19

I agree that decisions to prioritize human concerns can be made arbitrarily, but that does not mean that such decisions are necessarily arbitrary. If we are to consider all decisions which prioritize the interests of one species over another to be inherently and necessarily arbitrary, it must be true that there are no defensible grounds for comparing the interests of species and choosing one over the other. Even if I were to argue that humanity is right always to choose its own interests over those of other animals solely because they are humanity's interests, we could say that this was a rash choice, or an underinformed choice, but we could not call it arbitrary.

Decisions involving non-reflective animals and humans are not necessarily arbitrary simply because one interest is chosen over another, as if it were already established that all interests are manifestly equivalent in all ways. Humans suffer in ways that non-reflective animals cannot because humans can achieve in ways that non-reflective animals cannot. These sufferings are not merely added one to another. There are qualitative differences in the sufferings of different creatures because there are differences in their strivings, accomplishments, and possibilities. In addition to suffering a lack of resources for physical health and prosperity, individuals as well as communities can be thwarted in spiritual, moral, and intellectual growth. These categories cannot be generically applied to all creatures, even to all sentient creatures.

It may equally be true that animals can suffer in ways that humans cannot. Because their interests are not identical to ours it follows that their sufferings also would be different. I would argue that it is anthropocentric, and unjust to animals, to require animals to suffer in ways which humans can before they become due for moral consideration. The decision to exploit natural resources to serve individual and community interests may need to be made, and Singer is correct that it need not be made callously or arbitrarily. If we are to act other than arbitrarily it will be necessary to develop concepts and vocabulary with which we can entertain the nature of non-human interests, growth, and attainment. For suffering is the negation of an existential affirmation. It is a negation of the positive claims of a being.

Estimating Interests

Moral decisions depend on an ability to discriminate values and interests which may be in competition or contradiction with one another. Decisions about the use and preservation of the natural world require the evaluation of the interests of other natural beings in addition to a comprehension of relevant human interests. Because description and evaluation of the natural world are mutually generative processes, the conceptual framework of the ecologist or biologist can influence the sorts of things which in the end we are given to evaluate. A reductionism which aspires to reduce biology to genetics or physics will elicit from nature certain kinds of value. An abridgment of the relations of ecology to the principles of supply and demand economics will invoke other values. The inevitable shaping of natural description is an inherent limitation of any conceptual base, but a limitation which can be understood and worked with. Because theories are designed to answer this or that kind of question they elicit particular sorts of informative values from their subjects. A theory, for example, designed to explain genetic replication and mutation mechanically cannot offer reasons for or against the claim that species deserve moral consideration, even if it is a very good genetic theory. The physical and causal assumptions of the theory are unable to entertain the notion of moral value, or to give any account of morals whatever. This is not to claim that physical assumptions are incompatible with moral ones, only that there can be no physical account of moral goodness.

A reductive biologist might argue that biological form, growth, and heredity can be adequately accounted for by the laws of physics and chemistry. Because it has been shown that organic development is determined by the arrangement of DNA molecules it might seem that in order for biological knowledge to be completed we have only to fill
out this account of the physical basis of genetic causation. Everyone agrees that living
and non-living systems are made of the same kind of matter, which obeys the same
physical laws; but physical laws alone cannot state all of the sufficient as well as
necessary conditions essential to the description and explanation of biological
phenomena. But, as Marjorie Grene and Michael Polanyi\(^\text{21}\) have argued, even if organic
development could be shown to depend exclusively upon the physical arrangement of
DNA molecules, still, specific genetic arrangement cannot be explained physically or
chemically. Biological organization is sui generis. Although material laws determine the
possible arrangements of the molecules in a DNA sequence, the laws which govern
molecular formation cannot determine which sequence will operate as a biological code.
The laws of physics and chemistry only determine which combinations are chemically
possible, not which ones are biologically feasible. One cannot explain the difference
between health and illness, or entertain the ecological appropriateness of an individual or
a species, or discern between a zygote and an adult, by referring only to genetic
structure. Biological feasibility cannot be understood without reference to biological
form and function. If the moral considerability of creatures and species is to be
defended or denied it must be in terms of what they achieve \textit{qua} creatures and species,
not just in terms of what they are chemically, or the nature of their parts. A bird, for
example, is elements, chemicals, tissues, organs, etc. We cannot ignore the physics or the
engineering. But it is also an organism, a whole, living bird. Physical principles are not
sufficient for a full understanding of biological phenomena. Neither should they be the
grounds for the treatment of biological beings. If we are going to either grant or deny

\(^{21}\) Marjorie Grene, "Reducibility: Another Side Issue?" 53-73, \textit{The Understanding of
that this being deserves some measure of regard it should be in terms of the most this being achieves, rather than some lowest common denominator.

The biologist D'Arcy Thompson made a similar point when he argued for the irreducibility of biological principles to physical ones. "Matter as such," he writes, "produces nothing, changes nothing, does nothing; and however convenient it may be afterwards to abbreviate our nomenclature and our descriptions, we must most carefully realize in the outset that the spermatozoon, the nucleus, the chromosomes or the germ-plasma can never act as matter alone, but only as the seats of energy and as centers of force. This is an important insight for the moral as well as the biological thinker. Natural beings are organizing centers of activity and not merely material compilations. And the fact that they are organizing centers of activity deserves its own scientific, and perhaps moral, consideration. It should not be surprising that health and normality of biological form cannot always be evaluated simply on the basis of physical or chemical principles. For life processes at the organismic, specific, or ecosystemic scale are of their own kind, not merely the same processes writ larger or smaller.

One way of considering the health of a living being or system is to make an analogy between living beings and many objects manufactured by human beings; living beings, like the objects of human artifice, seem to have a form appropriate to a specific function. There is an acute appropriateness of the form of living things to the life they

---

22 D'Arcy Thompson, *On Growth and Form* abridged edition J. T. Bonner ed. (New York: Cambridge University Press, 1969) 14. If matter produces anything, as vitalism, and evolution, assume that it does, then it is not matter as such, for it is already directed by formal principles. Thompson is probably assuming an Aristotelian notion of matter; matter as pure potentiality, without form, without any actuality whatsoever. Matter as such can produce nothing because it is nothing. His argument, however, does not depend on the sufficiency of the Aristotelian notion of matter. It depends only on the assumption that the principles which make a body material are not the same as those which make it alive.
lead which resembles the appropriateness of a uniquely designed tool to its intended use. It is a foundational assumption of biology and ecology that to understand a living thing means to understand how it lives and what it does, as well as what it is made of. There is no way around this. To know the hand is to know how it grasps, to understand the earthworm is to know that it performs as a recycler of organic material. Even to understand as generic an ecological topic as pollution means to discover just how a certain pollutant functions to disrupt a nutrient cycle or interfere with reproduction. Both Plato and Aristotle found this analogy—i.e., considering objects as if they had been designed for a purpose—to be revealing of the relationship between matter, form, and function living things. Aristotle argued that scientific knowledge of causes includes the knowledge of a thing’s *telos* or end because this reveals why the form a thing has is the most appropriate for it (or why it is not). Aristotle’s teleological approach to science assumed that *everything*, not only the biological things, had a natural (or artificial) form, place, and function, which were co-extensive with what he called the “what-it-is-to-be-that-thing.”

I would like to discuss this Aristotelian idea insofar as it pertains to the relation of matter, form, and function in biological species and systems. There are two persistent stumbling blocks to a discussion of these ideas. First, because of the historical synthesis of Aristotle’s concept of *nous*, the rational principle behind the appropriateness of viable combinations of form and niche, with the medieval concept of the Wisdom of God, any inference of “teleology” is taken to assume a model of nature as something which exists in an a priori and necessary manner. Since we now understand the extent to which nature is a product of historical contingency, it is argued, teleological models have been uniformly discredited.
Second, because the ancients and medievals were insistent that the things which are most real and of most value are eternal and incorruptible, the concept of teleology has been linked with a strong form of essentialism which seems to deny the interconnectedness and changeability of the objects of knowledge. Both of these objections are based upon reasonable doubts as to the applicability of a priori and eternal categories to descriptions of the natural world.

Yet the conception of the necessary interdependence of the formal, functional, and material actuality of a thing does not depend on the premise that the world exists in an a priori and necessary fashion. It remains a penetrating model with which to approach biology and ecology. Without a basic appreciation of the multidimensional integrity of an object we are unable repeatedly and rationally to circumscribe it as the same object, and are therefore without grounds for determining when we have gathered enough efficient causes to account for it. ‘What a thing is’ is not merely an epiphenomenon of randomly conjoined material causes. This is evident in the case of biological individuals and species. The causes of speciation, the evolution of diverse species from a single stock, are many. But they are not all material causes external to the species. It cannot be maintained that form, insofar as it represents the appropriateness of a species to its environment, is merely an effect and never acts as a cause in the speciation process. Although they are not the sole determinants of selection, suitability and function can be important elements of selection. Species are integral processes of form and function. By the fact of their being specified in this or that manner they become causes in the process of natural selection and participate in the determination of their own existence.
Progress, like teleology, is a term which has become a bellringer to biologists, ecologists, and environmentalists. The general notion that there has been progress in history has been often, and heatedly, disputed on the evidence of human atrocities. As the argument might be rhetorically phrased, ‘If this is the progress of history then I’ll have none of it!’ But ‘having none of it’ on these grounds might be to confuse moral with biological progress. If the notion of biological progress is to be disputed it will have to be done on biological terms, not merely on the evidence of human moral weakness.

In *Wonderful Life* Stephen Gould argues that the diversity of life forms following the cambrian explosion, exemplified by the fossils of the Burgess fauna, is evidence against "our most precious hope for the history of life," that view which would make progress and predictability an inevitable part of the evolution of humanity. He writes, "the greatest threat [to the view that evolution is progressive and predictable] lies in the history of numerous possibilities, each sensible in itself after the fact, but each utterly unpredictable at the outset—and only one (or very few) leading to anything like our exalted state." The fossil evidence of the Burgess shale suggests that there was an abundant proliferation of animal kinds followed by seemingly random decimation. Gould argues that if his interpretation of the evidence is correct, the contingency of which humankind is a product looms enormous and should dispel any lingering hopes of finding anything like biological progress. But notice of the various and profound contingencies of historical existence does not in itself eliminate the appropriateness of the concept of progress, even if it does remind us that selection and evolution within a biota are in important ways unpredictable. One of reasons that selection and adaptation are not

---

wholly predictable is that at any given time the causes which together will direct these processes do not yet all exist.

Gould writes, ". . our origin is the product of massive historical contingency, and we would probably never arise again even if life's tape could be replayed a thousand times." It is an interesting phenomenon of human psychology that we venerate the rare and unexplained and are less reverent of the common and predictable. One might counter Gould's conclusion that the evolutionary evidence suggests a decentralizing of the human by noticing an antithetical sense in which the less predictable and explainable the appearance of humans on earth becomes, the more (rather than less) "exalted" becomes our position, the more fragile and precious our self opinion. Similarly, a displaced anthropocentrism, which some read as an ember of the hope that we might be the best history could offer, might easily and predictably be replaced by the correlate of consuming self-love, consuming self-condemnation. As if either the goodness or the depravity of a world could result from the existence of a single sort of being like humans.

That humanity was not a pre-established end of earth history seems evident. If we were the purpose of history, in that sense, we would have been made necessary by history. That is, the long and difficult struggle of evolution could not have occurred without producing humankind. As Gould repeatedly argues, it seems very possible that the history of the earth could indeed have passed without composing humanity. Evolution could not have been predictable, Gould argues, and therefore we are unwarranted in claiming that there has been progress. But, if predictability is not the only grounds for determining a process to be progressive, then the scope of Gould's conclusions narrows considerably. Progress and predictability are sometimes but not

---

24 Gould, Wonderful Life. 233-4
always logically dependent concepts. When a process is largely determined by established causes, or when activity is toward a chosen end, we call that process both progressive and predictable. Predictable progress toward pre-established ends is present in artifice, and it is present in nature in biological reproduction. It is not present in evolution. There the ends are not pre-established. When a banker writes a loan for a new house it is common to request that the builder supply progress reports. The banker has approved plans and paid for a virtual house which exists only in design and wants assurance that progress toward an actual house is being made. The construction is progressive because, as the work is carried out, it results in a more and more complete house. The work is predictable in some measure because the plan filed with the loan officer is more or less duplicated on the dashboard of the general contractor and in the activity of the builders. Progress is made, and verified by the bank, according to those plans. But the progress might also be recognized by neighbors and passersby who do not know the final plans, because there is a logic to being a house. A house offers protection from weather. It generally has ease of access and egress, so that when the front steps are finally installed the passersby can say confidently, "They are making good progress on this house!"

In a similar way, there is a logic to living things. All living things display an adjustment of form to skills, habits, functions, and behaviors. In each kind the integrity of these aspects is unique, but for each kind we believe that the complexity of the present integrity began as something far simpler. It is on the basis of this, rather than on the existence or knowledge of a preestablished evolutionary plan, that we can notice and describe evolutionary progress. The principles by which increased complexity, simplicity, or specialization are called progress are those recognized as principles of life,
not only those of human life. The notion of progress does not contain the guarantee, or even the promise of universal success. It is an acknowledgement that life is an achievement, and that new lives, and new forms of life, are new achievements, not merely the same thing again. The beauty and value of uni-cellular life is not diminished when it begins to share its world with multicellular life. But the value in the world has changed, and the second sort of world has more potential and diversity of goodness.

Doing away with the mention of teleology and progress has been intended to act as a panacea or cure of an unjust hegemony of humankind over nature by displacing the idea of humanity as the biological and moral culmination of the living world and establishing for it a less monarchical role as plain member of the biota. But an appreciation of the naturalness of humanity may not in itself be sufficient to counter tendencies toward tyrannical hierarchy. Soon after the start of the present century biologist and paleontologist Ernst Haeckel commented on a comparable theoretical reintroduction of humanity into nature which seemed to him to follow from the acceptance of evolutionary theory. The revelation of life's common heritage did not have the humbling effect one might have expected. "We are now accustomed to regard man as a natural being," wrote Haeckel, "the most highly developed natural being that we know."25

The backlash against this interpretation of humanity's biological and ecological status—the best and brightest star in the sky of life—has been motivated in part by a desire to respond to the uncritical introduction of misplaced evolutionary assumptions and principles into political and economic spheres. We can see an example of the mixing of the biological and the political in the inferences Haeckel draw's from his initial

---

position that each kind has its own value. He writes first, in an extension of the moral metaphysic of Kant, "Every living being is an end in itself," which he explains to mean that every being has an entelechy or a project of self-maintenance. When Haeckel later maintains that, "In regard to their intrinsic aim, self-maintenance, it is true that all organisms are on a level, but in their relations to other living things and as a whole they are of very unequal value," he has already begun a furtive mixing of the logic of his position concerning the integrity of biological values with his own preferences concerning political and social organization. Having established legitimate differences in kinds Haeckel concludes, "These lower races (such as the Veddahs or Australian negroes) are psychologically nearer to the mammals (apes and dogs) than to civilized Europeans; we must, therefore, assign a totally different value to their lives."

Haeckel's conclusions depend both upon an underestimation of the humanity of non-European races and a confutation of his own term "value." Every living thing has value, Haeckel first argues, means that each thing has its own aim which he describes generically as "self-maintenance." It is correct to infer that specific activities and strategies necessary for self-maintenance are not all the same and therefore that they are not equivalent. In fact, given Haeckel's definitions it is tautological. But, when he claims that the "lower races" and "mammals" have lives with "a totally different value" from those of "civilized Europeans," Haeckel is appealing to something else. He has abandoned his generous biological standard of value and replaced it with one which too obviously depends upon his historicist and autocentric preferences.

---

26 Haeckel, Wonders 387.

27 Haeckel, Wonders 389-90.
To deny that evolution can be described in terms of achieving or failing to achieve "progress" is meant to claim that humanity has no distinctive privilege. But it has the added consequence of rejecting the possibility that we own some uncommon responsibilities. For by denying that humans have special capacities for achievement one is also removing the ground of particularly human accountabilities.

*Arguments for Value in Nature*

Decisions concerning the use and treatment of nature are informed by conceptions of the ways in which nature is good, beautiful, and worthy. There are a number of different kinds of arguments concerning human responsibility for nature which offer varying reasons for duties with respect to nature depending on where value is finally located. Arguments which base responsibility for the environment on the enlightened self-interest of the human race locate the determining values primarily in the sphere of human interests. Arguments for moral responsibility which are based upon a respect for sentience assume a set and scale of values in which the capacity to experience pain is maintained to be a sufficient condition for moral considerability and the locus of determining value. Other arguments make the case that a reverence for life demands that equal consideration be afforded all living beings, that "life-itself" is a source of final value. Each of these positions has strengths and also limitations. But each of them is based on the assumption that something exists whose value must be considered to be primary and irreducible, something which has intrinsic value. Before I survey the environmentalist arguments for the moral value of non-human beings, I should say a bit more about the notion of intrinsic value. When I say that a thing has intrinsic value I do not mean to refer to some physical property which it has, as if a wallaby, for example,
has a weight value, a value in its ecosystem in terms of measurable energy flow, and an intrinsic value. If I say that a thing has intrinsic value I mean that it deserves consideration for what it is in itself. Perhaps wallabies deserve moral consideration for being wallabies. They may also demand some attention as agricultural pests, road hazards, etc. None of this is necessarily precluded if they also deserve moral regard. It is my position that intrinsic value in this sense of deserving fundamental moral consideration must belong to beings. It cannot belong to brain states, psychological conditions, states of affairs, goals or anything else except beings. If states of affairs are morally preferable it is because they are preferable for some being. Art, honesty, or particular environmental practices cannot be morally preferable in themselves, on my view. Their goodness or rightness must be determined with respect to some being. I do not see that it is necessary to define "being" in order to set the problematic of the moral discussion. It should be a start to answer the question, 'What kinds of beings are rightly included in judgements of moral preferability?' I will give my own view on this in the next chapter. First I would like to look at some of the answers which are discussed in the environmental literature.

The largest and most popular group of arguments concerning environmental decision making are instrumentalist. These arguments appeal to the enlightened self-interest of the human community and treat the natural world as the potential instrument of those interests. Instrumental arguments can be made for the preservation of wilderness and species, and for their systematic exploitation. In either case, the argument hinges finally on a commitment to human-centered values rather than a recognition of value in the natural being or beings which might be preserved or utilized.
The notion of enlightened self-interest acknowledges that there can be a discrepancy between perceived interests and actual interests (that is, that what we think is best for us is not necessarily what is actually best for us). The coherence of the notion of enlightened self-interest depends on the fact that the term "interest" has an ontological as well as psychological usage. Individuals, cultures, and nations, the arguments from enlightened self-interest assume, all have objective interests which may or may not be in line with current appetites for resources. The utilitarian arguments do not, and cannot, defend their preference of existential interests of human individuals and communities over the interests of other natural entities.

Instrumental arguments can be persuasive in establishing the need for preservation. For example, it has been argued that it is in our interest to preserve the genetic diversity represented by species against possibilities of undiscovered genetic potential. Nearly all of our food and drink comes from wild stock or domesticated varieties of once wild stock. New disease- and insect-resistant strains of rice, wheat, corn, and potatoes are continually being developed by exploiting an influx of genetic material from the wild relatives of these staple crops. Biological diversity provides stock for medicine and experimentation, recreation activities like hunting and bird watching, sources of fuel, clothing, and materials for manufacture.28

If arguments like these, which maintain the practical necessity of protecting a broad base of natural resources are combined with demonstrations that the current rate

---

of resource use cannot be maintained indefinitely, they can make a strong case for the preservation of nature. By leaning heavily on the possibility of discovering new uses for known species, and especially by making magical hand motions toward the potentially unlimited possibilities of as yet undiscovered species, the case for preservation is made to extend beyond just those kinds now known to be necessary for the comfortable maintenance of human life.

But the consequences of allowing human comfort and utility to become the measure of value in nature should not be ignored. For example, it might conceivably be determined that cattle produce more comfort and utility than wolves. By this line of thinking we may be justified in multiplying the cattle and reducing the wolves. For if utility for humans is assumed to be an adequate measure of value, then it is not unreasonable that thoughtful people might choose the food and commercial value of cattle over the educational, or aesthetic, or ecological value of a predator. Even if someone were to object that the wolf should be preserved against the possibility of the breakthrough discovery of some miracle cure derived from this genetic resource, in this particular hypothetical situation it is doubtful that such an indefinite possibility would be enough to save the wolf. Even in communities where people thoughtfully seek and commit themselves to what they believe are their real interests, it is extremely difficult to support something as nebulous and undefined as "genetic possibilities" when immediate material concerns become pressing.

The instrumentalist approach to preservation has been unabashedly anthropocentric. This in itself does not indicate that the arguments are either invalid or unsound. It does however confine the possibilities of developing an ethical theory with regard to nature by prematurely limiting the variety of interests to be considered. The
problem of characterizing the nature and extent of human responsibilities with respect to
nature cannot be resolved without struggling with the presence of primary and intrinsic
values in nature.

A second type of argument for human responsibility to other beings focuses
especially on the treatment of animals. The "respect for sentience" arguments may be
generally characterized as defending the intrinsic value of the "advantage, pleasure, good,
or happiness" of creatures with relatively developed nervous systems. These
arguments, which maintain that the capacity to experience pain marks entry into the
realm of moral estimability, often take their start from Bentham's famous response to
those who would make self-consciousness, rather than mere sentience the criterion for
membership into the moral community. Bentham contended, in reference to his animal
brothers, "The question is not, Can they reason? nor Can they talk? but, Can they
suffer?" Bentham's position, as elaborated in *Introduction to the Principles of Morals
and Legislation* and *Principles of Penal Law*, seems to be a synthesis of two separate
arguments. First, Bentham is obviously maintaining, contrary to Descartes, that animals
are not automata, biological machines which exhibit behaviors but do not experience
pleasure or pain. Descartes argued that because animals cannot speak or perform any
feat which shows that they act on the basis of reason rather than solely from physical
(i.e., mechanical) drives there are not sufficient grounds to determine that animals are

29 Bentham's phrase, of which he says "all this . . .comes to the same thing". Jeremy
Bentham, *Introduction to the Principles of Morals and Legislation* 1, III. *The Works of

30 see Peter Singer, "All Animals are Equal" in T. Regan and P. Singer eds. *Animal

not machines. Descartes maintained that we have no reason to think of animals as anything other than mere things.\textsuperscript{32}

Bentham did not agree that linguistic ability or rational capacity were necessary conditions of moral respect. Although animals cannot understand and communicate their interests to the same degree as humans, they nonetheless have interests (advantage, pleasure, good, or happiness) and can be made to suffer. They are members of the moral community not by virtue of their being able to reciprocate moral consideration but by their having projects and interests. One important aspect, then, of Bentham's argument for the ethical treatment of animals is based on the benefit of creatures.

Elsewhere, Bentham reasons that the objective of including animals in the realm of moral estimability is not so much the encouragement of respect for the interests of animals as the cultivation of benevolence among human citizens. The bloody spectacles of the Roman gladiatorial games, Bentham argues, were certainly a factor in the ferocity of their civil wars. "A people accustomed to despise human life in their games, could not be expected to respect it amid the fury of their passions," Bentham wrote. "It is proper, for the same reason, to forbid every kind of cruelty exercised towards animals.... It ought to be lawful to kill animals, but not to torment them."\textsuperscript{33}

So Bentham's respect for sentience argument is in fact two arguments. An attitude of respect for sentience may be based on the recognition of the morally estimable interests of all sentient creatures, or it may be intended to increase the habits of benevolence in human society and to serve finally human interests. In either case the

\textsuperscript{32} see René Descartes, \textit{Discourse on Method} Part V.

argument depends on an assumption of intrinsic and irreducible value. In the first case the interests of all sentient creatures and in the second case the interests of human beings are supposed to be worthy of regard.

The reverence for life ethic moves beyond the classes of conscious and sentient beings to include in the scope of moral consideration any being which has a project for life. "Reverence for life," Albert Schweitzer wrote, "is a universal ethic. We do not say this because of its absolute nature, but because of the boundlessness of its domain. Ordinary ethics seeks to find limits within the sphere of human life and relationships. But the absolute ethics of the will-to-live must reverence every form of life, seeking so far as possible to refrain from destroying any life, regardless of its particular type. It says of no life, 'this has no value'. Though a reverence for life ethic may be boundless with respect to living beings it is not boundless with respect to nature. Reverence for life, for example, does not necessitate respect for mountains or rivers or any other geographical features. Schweitzer calls this a universal ethic because it is universal with respect to the things which he recognizes as having intrinsic value, living biological entities.

Living a life in which one conscientiously and universally promotes both one's own life and that of all other living beings can be inspiring and rewarding in many ways. It can also be frustrating. Schweitzer once remarked, "It remains a painful enigma how I am to live by the rule of reverence for life in a world ruled by creative will which is at the same time destructive will." Kenneth Goodpaster has summarized the view against


an ethic based on a reverence for life which tries to exploit this apparent contradiction. It might be proposed, Goodpaster writes, that "the clearest refutation of the principle of respect for life is that one cannot live according to it.... we must eat, experiment to gain knowledge, protect ourselves from predation... to take seriously the criterion of considerability being defended, all these things must be seen as somehow morally wrong."36

It may seem at first that if the implications of Schweitzer's predicament were extended to their logical conclusion the adoption of a position of reverence for life would be self-defeating. If one were wholly reverent, considering each plant and animal to have full and absolute rights to existence and expression, we ourselves would be unable to survive. The requirements of food, clothing, and space upon this earth cannot be met without either claiming or preempting some of the lives we are supposed to revere. It seems we would need to end our own life in order to avoid harming another. Although contemplative individuals can become confounded by their own creaturely existence, an attitude of reverence for life is not necessarily self-negating. As Goodpaster argues, any degree of moral considerability does not necessarily equate to incontrovertible moral claim. As if by our living we were usurping lives which had been guaranteed to those other beings. If one takes a more comprehensive view of life processes it is clear that any claims that individual lives have intrinsic worth necessarily validate the demands which that life makes upon other beings and upon the environment in order to sustain itself. It is absurd to maintain that the value of life is negated by inevitable and ecologically necessary death which accompanies it.

The confusion here may be one of mistaking the creative and the destructive to be contradictory natural principles rather than two ways of characterizing the same process. The situation is similar to that which Aristotle noticed in Empedocles. Empedocles had maintained that change can be explained by the operation of two eternal principles, Love, by which things are drawn together and compounded, and Strife, by which they are dissolved. Aristotle responded by pointing out that to say that there are two principles, Love and Strife, is to give two names for the same occurrence. Dissolution is merely the resource's view of composition. It is nonsensical to say that there is value in generation and to despise disintegration, unless one has adopted a specific viewpoint and is looking at a process in terms of an identifiable entity. Schweitzer's reverence for life is belied by his sadness that the same conatus which is a unifying and self-directing principle on the one hand necessarily acts as a principle of exclusion and negation on the other. As Aristotle pointed out for Empedocles, to assume that Love, his semi-poetic principle of creation and generation, was good was at the same time for him to assume that Strife also was necessary, and therefore good. Empedocles was mistaken; the idea that the achievements of life are worthy does not entail that the contradictions which are its fuel deserve our scorn.

I have argued that the basic idea of intrinsic value is common; it is assumed by the arguments from enlightened self-interest, respect for sentience, and reverence for life. Each of these positions defines certain limits within which beings are recognized as deserving moral respect. It is a less common idea that many other natural beings have intrinsic value, that plants, animals, species, and ecosystems each have interests and make claims to existence which are legitimate in themselves and not only because human
beings agree to recognize them. In the next chapter I will argue that the assumption of intrinsic value is not only common, but the necessary ground of any moral project. I will also argue that it is not sentience, self-consciousness, or bare existence that makes a beings worthy of moral regard, but having interests and making claims, which I call "having a project."
Chapter 2: *Intrinsic Value: The Assumption of Goodness*

What is intrinsic value?—objections—assumption of goodness—natural equity

**What is Intrinsic Value?**

For an idea which so many would agree is patently incorrect, the belief that all of nature exists finally for the benefit of humankind has had an enigmatically long and in other ways respectable list of proponents. Aristotle reasoned that, if he is correct in thinking that nature makes nothing incomplete and nothing in vain, "the inference must be made that she has made all animals for the sake of man." Kant leaves little room for gracious interpretation when he writes, "Without men the whole creation would be a mere waste, in vain, and without final purpose." Kant seems to concur with Francis Bacon, who wrote, "Man, if we look to final causes, may be regarded as the center of the world, insomuch that if man were taken away from the world, the rest would seem to go astray, without aim or purpose." But the tradition of philosophy to which Aristotle, Bacon, and Kant contributed is rich and complex, not monolithic; it is by no means captured in these passages. The thesis that humanity is an end of nature, perhaps the end, is a prevalent theme in this tradition, and it has enjoyed all the benefits of

---


harmonizing with common sense attitudes of the general population. It has also sustained a fervent humanism that has enhanced the human condition, albeit often at the expense of nature. But it is not the only position which is argued concerning the existence and status of human and non-human beings, projects, and ends.

In this chapter I argue that natural things have intrinsic value, that is, that they deserve respect for what they are themselves, not only for their usefulness or pleasantness for humanity. Bacon is incorrect; if humanity were taken from the world, the world would not "go astray." The principles, forces, and energies that create and sustain the world do not begin and end with the cognitive rationality which humanity enjoys and suffers. Humans are not the only natural beings which have interests, make claims, and in a sense pursue projects. I say 'in a sense' because it is obvious that not all creatures conceive and execute their projects in the same conscious and purposeful sense that is possible for human beings. Beings which are not self-conscious cannot scheme, design, and devise in the cognitive senses which these terms have. Nonetheless, many non-human beings are active, dynamic, inceptive beings which project, extend, and contend in their own interests. If I say that living beings have projects, I mean that their existence is never finally given. It is always a process of striving, reaching, and claiming. Such beings must achieve their own existence, they must participate in the conduct and execution of their own being. In what follows I explain why I believe that having interests and making claims should be of moral consequence. I make this argument not by uprooting and replacing, but by pruning and cultivating a number of somewhat ignored, yet viable lines of ancient and medieval argument. I find a scientistic and instrumentalist problematic for environmental concerns unsatisfying and conceptually inadequate to deal with even the question of moral responsibilities. Alternate
approaches like Gaiaism or the animal rights arguments which aim to elicit moral commitments toward non-human beings are engaging, but I do not always find philosophical grounds in their arguments adequate to establish their proposals. In many cases I agree with their objectives, but am dissatisfied with the rationale which is offered. Therefore I have attempted to redefine the problematic, to reconceptualize the current conversation about responsibilities to non-human beings. I am not proposing that we start this conversation again from the beginning, only that we introduce some different considerations.

John Passmore, making his own attempt to establish a certain problematic for the discussion of environmental issues, has argued that it is wrongheaded to construe the ecological community as a moral community because humans, plants, animals, and soil do not have common projects and do not recognize reciprocal moral responsibility. "Bacteria and men do not recognize mutual obligation, nor do they have common interests. In the only sense in which belonging to a community generates ethical obligation, they do not belong to the same community." The ethical obligation I am referring to with the notion of intrinsic value is not generated by membership in a community in the sense which Passmore acknowledges. Like the respect which is due to the stranger, it is not premised on an agreement, or a promise of reciprocity. The ecological community is a moral community, I argue, not because it is contractual (implicitly or explicitly), but because it is a community of beings with integral projects of their own and roles in a mutually sustaining system.

Respect for intrinsic value represents a moral attitude, and never in the first instance an economic or juridical one. Guarantees of reciprocity, which may be

---

necessary for establishing conditions of contract and exchange, are not required for the existence or the recognition of intrinsic value. As I will argue below, a being does not itself need to be a moral agent in order to deserve a degree of recognition for whatever dignity it achieves. When I argue that objects have intrinsic value I mean that it is correct to regard them as making a positive and legitimate claim to exist and to contend for the projects and interests associated with the fullest expression of their particular existence.

I begin by arguing for the necessity of the notion of intrinsic value, relating the idea to Spinoza's argument for dynamic essences. Recalling Kant's arguments for the moral primacy of the rational individual, I argue against his conclusion that only the cognitive and subjective rationality of the rational individual deserves moral respect and the immanent, existential rationality of other natural beings does not. Briefly, the notion of immanent rationality is the idea that the organization, procreation, proportion, formation, etc. of creatures and species, for example, is not random but guided by principles which are comparable in their function to intellect. I try to give a bit more depth to the concept of intrinsic value by discussing some ancient and medieval argument for the goodness of creation. I argue that the assumption of intrinsic value and the assumption of goodness are of a kind; moral assumptions about the value of beings and their projects. The chapter ends with a reiteration of my claim that the notion of intrinsic value is basic to moral judgement.

Instrumentalist attitudes toward ecology, like scientific ecological findings, are insufficient to warrant the values they invoke. Instrumentalist arguments can maintain
that a certain species or ecosystem should be preserved for the benefit of humankind, some creature, or some species, but they are unable, on strictly instrumentalist grounds, to explain why benefit to humans (or any other being) is the proper measure of utility. For there is no instrumentalist argument for the intrinsic value of persons, humanity as a species, or anything else. Along similar lines, one might argue that it is important to preserve species or natural systems because they play a critical role in the lives of other kinds or in larger systems. But if we respect the existence of bees because they pollinate flowers, flowers because they provide nectar for butterflies, and butterflies because they feed the birds, we must still have some reason to value the birds. I am not presenting an argument for the recognition of intrinsic values in nature in order to undermine the many good arguments for the respect of natural beings based upon their utility to humanity or to other beings. On the contrary, it is evident that the arguments from utility depend necessarily upon an ascription of intrinsic value to something.

Instrumentalist arguments can be accepted by those who do not share the assumption of the universal priority of human interests, and they can be used dialectically to engage others who have been habituated to think in terms of investment and return. To those who might contend that an ethicist need consider only the instrumental value of beings, that value can be assessed only in terms of benefit for some other being, I respond that precisely because instrumental value is conceivable only in terms of the interests of beings, the concept of instrumental value is logically dependent upon the existence of something intrinsically valuable, something which makes a legitimate, although not necessarily absolute, claim which the instrument serves. There can be no grounding of extrinsic, relational good or virtue in the absence of something assume to have value in itself.
Where do we begin looking for these beings which must have intrinsic value? Do we begin with matter or with the universe? With physical objects, or with ideas? I propose that the tasks of environmentalism suggest we proceed as naturalists, concerning ourselves with organisms as beings and parts of beings. It is true that all natural beings are parts of a single system, but the relationality of natural beings does not preclude their being also individual, and therefore a possible locus of intrinsic value. Nor is the claim that beings deserve regard meant to disavow their interdependencies. But there is a focus, a power, and a coherency to life that is not reducible to one kind or degree of relation. Life is an ambitious proposition, an affirmative and exigent undertaking. Living activity has a coherence which drives its rhythms and its innovations. Living things participate in the daily creation of the world; they are actors, operators, and messengers, not only products. When Spinoza observes that, "Each thing, as far as it can by its power, strives to persevere in its being" he is observing a marked internality or immanence among the causes which determine a thing to be what it is. Spinoza defended this position by arguing, in effect, that the fact that a being's life is a process of becoming does not undermine the claim that it exists. On the contrary, the existence of a living thing cannot be separated from that process and change. Spinoza's real insight was not in noticing that living things seek life, but in resisting the separation of the formal from the historical as an artificial and affected distinction. To be a creature, or a species, is not to be something static, final, and complete. Rather, it is actively to pursue and project specific existential interests. It is to strive to be. Spinoza seems to be alive here to something Aristotle suggested when, in preparation for a discussion of the

---

peculiarities of each biological kind, he argued "There are four causes underlying everything: first, the final cause, that for the sake of which a thing exists; secondly, the formal cause, the definition of its existence (and these two we may regard pretty much as one and the same)." A thing is, for the most part, what it does. Natural beings do not exist statically. If they deserve consideration it will mean taking account of what they do.

Spinoza's dialectical argument for the logical and biological necessity of an organizing principle appreciates that the contingency of natural objects entails that their existence has, necessarily, elements of both determinacy and of fluidity. Referring to the immanent and distinct reality which is a living thing, Spinoza speaks of each as having an essence which is at once determinate, dynamic, and interactive. Essence argues Spinoza, is "the striving by which each thing strives to persevere in its being." The essence of a thing is not an atom, a separate something, which strives; it is the very striving. Neither is essence the goal of the striving in any sense which might be taken to mean that a being's project could be finally completed. When Spinoza speaks of things as having essences he is maintaining that they exist as organized processes, that the organization is conducive to certain ends. In a sense living things are purposive, and that the purpose is a striving to exist.

Spinoza's equation of a thing's essence with its striving is based on the premise that a thing's existence must be made determinate in order for it to exist at all. He argues, "From the given essence of each thing some things necessarily follow (by IP36) and things are able [to produce] nothing but what follows necessarily from their

---


determinate nature (by IP29). So the power of each thing, or the striving by which it
(either alone or with others) does anything, or strives to do anything—i.e., (by P6), the
power, or striving, by which it strives to persevere in its being, is nothing but the given,
or actual, essence of the thing itself.6 The essence of natural objects is not something
separate and isolated from the rest of the world. Creatures, species, and persons never
exist, actually or potentially, in a state of completion or utter self-sufficiency. On the
contrary, as Spinoza’s equation of essence with striving admirably appreciates, flexibility
and mutuality are also constitutive of being for finite things.

Self-determinacy and mutuality, however, do not have complete conceptual parity.
Living beings are immanently directed, and they are steered by daily confrontations. But
even their confrontations are defined and worked through in terms of their integrity as a
certain sort of being. As Spinoza succinctly argues, “No virtue can be conceived prior to
this [striving to preserve oneself]. The striving to preserve itself is the very essence of a
thing (by IIIP7). Therefore if some virtue could be conceived prior to this . . . striving,
the very essence of the thing would conceived prior to itself (by D8), which is absurd.”9
Living beings do not so much have projects as they are projects. To say that a being has
a project is to say that it is a process, and that it exists with enough coherency,
distinction, and efficacy to be a factor in its own existence.

I am going to argue that having a project (in the sense described above and filled
in below) is ground for deserving moral consideration. This is not recognized as a
standard philosophical position, but in fact I find that it has very deep roots. If there is


9 Spinoza, Ethics IV, P22. Curley, 558.
any moral theory which is accepted as a standard and legitimate starting place for a
moral investigation, perhaps it is Kant's argument for the dignity of the subject. The
argument that the self-sufficiency of the rational is grounds for claiming exclusive moral
relevance for the rational did not originate with Kant, but his arguments for the moral
dignity of the rational individual crystallized a tradition of thinking about ethics and
rationality to become one of the most influential modern sources of a powerful
consensus on the ethical primacy of the rational subject. Arguing from the logical and
moral necessity of there being some ends which are objective, not only subjective, Kant
reasoned that there must be something which exists as an end in itself rather that merely
as a means to some external end. Kant realized that to assume that everything which
exists has value only because it serves the existence of some other thing involves the
moral thinker in an endless, and muddled, circle. A world in which all value is
understood to be value for another is a world without basis for moral discrimination. If
all value were instrumental it would be impossible to determine that any action or state
of affairs was preferable to any other. If we are to be able to support the proposition
that some choices, actions, or ideas are preferable, we will need to connect these ideas to
something which both does exist and deserves to exist. In *Groundwork of the Metaphysic
of Morals* Kant argues that persons, or rational individuals, have such self-established
value. They may also have an instrumental value to other persons, but their value as a
subject can never be overridden by these other considerations.

Suppose...that there were something whose existence has in itself an absolute
value, something which as an end in itself could be the ground of determinate
laws; then in it alone would there be the ground of...a practical law. Now I say
that man, and in general every rational being, exists as an end in himself, not
merely as means for arbitrary use by this or that will.... Persons, therefore, are
not merely subjective ends whose existence as an object of our actions has a value for us: they are objective ends—that is, things whose existence is in itself an end, and indeed an end such that in its place we could put no other end to which they should serve simply as means; for unless this is so, nothing at all of absolute value would be found anywhere. But if all value were conditioned—that is, contingent—then no supreme principle could be found for reason at all.¹⁰

Kant's premise, that the possibility of judgement requires the existence of some standard against which comparison may be made, is reasonable. If we are to make choices which are defensible and not merely capricious, they must be based upon generally acceptable concepts. The proper standard of moral evaluation, Kant contends, is the integrity of the rational individual. On the premise that there are only two ways a being may have value—it may have instrumental value as a means to some other's ends, or it may have the intrinsic value of an end in itself—Kant argues that rational individuals are the only sort of being whose intrinsic value can never be superseded by instrumental considerations. The moral integrity and sufficiency of a rational individual cannot be assessed in terms of that individual's benefit to other individuals or the community. The intrinsic worth of a person is the unique and irreducible value of a subject.

Kant deems rational subjects ends in themselves because they are autonomous authors of their own moral projects.¹¹ Being a subject is not something which is chosen or which can be relinquished; for, even in choosing self-degradation or denying moral responsibility, one is initiating one's life. Subjecthood is the condition of existence for rational individuals as rational individuals; it is what they do and what they are as


¹¹ Kant, *Groundwork* 103 [79].
persons. The dignity of the subject is based upon the moral recognition of the probity and prima facie legitimacy of the project of each rational individual. Recognizing the prima facie legitimacy of the project of the subject means that one assumes that a subject acts and chooses in accordance with what is right for it. Moreover, it means that by virtue of its capacity to have a project, whatever that project is, the subject is acknowledged prima facie to make a legitimate claim to the pursuit of that project.

The moral exclusivity attributed to cognition in Kant's argument judges all non-cognitive entities, animate as well as inanimate, to be mere things. Because they are not self-conscious, animals (and presumably other natural objects) cannot be ends in themselves. Therefore, Kant concludes they are not due moral consideration. But, even if Kant might like to maintain that rational subjects are the only type of being whose value as ends in themselves cannot be outweighed by any instrumental value, his argument for the ethical primacy of rational individuals does not depend on, nor does it imply, that that non-thinking or inanimate objects are utterly lacking any value in themselves. Beings other than subjects can be due something like the considerability of personhood, as Kant tacitly concedes when he refers to the integrity of the political body as corresponding to that of the rational subject. When Kant refers to the state as a moral person, writing, "A state is not... a piece of property.... But to incorporate it into another state, like a graft, is to destroy its existence as a moral person, reducing it to a thing...." he acknowledges at least that something like the dignity of the rational individual might accrue to the assembly of such individuals. This might be one route for

---


arguing the moral value of any species of rational individuals. But I make the case for
the dignity of non-human beings to be considerably stronger than Kant does. I argue
that any manner of self-determination entails at least the prima facie legitimacy of the
interests and claims of the being conducting the generative enterprise.

The self-consciousness of the subject per se is not the source of the moral value of
the subject. Rather moral considerability by Kant’s account, and I believe he is correct,
derives from the power of self-origination within contingency. The rational subject is
paradigmatic of a being which deserves moral consideration because the element of
autonomy and self-direction is explicit, vigorous, and highly refined. It is therefore
natural for an argument which seeks to extend the scope of the notion of intrinsic value
to refer to the rational individual, not necessarily as Kant suggested, as the single case,
but certainly as an exemplary and figurative instance of a being with moral dignity. Lenn
Goodman, for example, has defended the use of the term "virtual subjecthood" as a way
of speaking, by analogy to the integrity of the rational subject, of the interests of non-
rational and inanimate beings. Goodman intends the notion of virtual subjecthood to
"assign to creatures the empathy of personality"14 and to "refer to the possibility of
human subjects projecting themselves into any creature’s position,"15 but by no means to
suggest that the interests of creatures are merely the products of human compassion.

...in point of objective fact (as sharply distinguished from metaphorical and
other poetical usages) the virtual subjecthood of animals is a surrogate for their
teleological standpoint, which does not depend objectively upon the projection of
any human motives but is derivable wholly from the universal tendency of things
to preserve and promote their own being, a tendency which in all organisms


requires the subordination of means to ends, that is, of organs to the "interests" of the organism and of resources of the environment to its "needs," and thus cannot be described objectively without resort to teleology.¹⁶

Rational persons are considered to have intrinsic and not merely instrumental value because they are the authors of projects, choosers of ends, experiential and phenomenological occasions of intellectual and moral integrity. On these grounds, the project of being a person was considered by Kant to be self-legitimating in a way that the existence of a mere thing is not. Being able to project and achieve certain ends in the face of competition and material adversity is a freedom which is fairly well developed in rational subjects, but certainly not excluded from the rest of nature. Creatures, natural systems, and species have an existence which is analogously self-conducting and which deserves to be recognized as having its own morally estimable, intrinsic value. Individual plants and animals, for example, have discernible life projects whose fulfillment does not depend upon their use by humankind. These beings are self-establishing ontologically, therefore self-legitimating morally. They are, as human beings are, concreative, creative at the same time as other causes. These are beings which are self-realizing; they are not the shadows but the light, not only effects but causes, too. If the moral justification of the projects of rational subjects is in their undertaking, then the life of the particular plant or animal does not need to be authorized by humankind; it is already justified by its self-definition and ecological delimitation. Because species have projects and exist on the merits of their own deserts, they also have intrinsic value and are due corresponding ethical consideration.

¹⁶ Goodman, Case of the Animals 16.
Not all creatures have the project of the moral subject, but all are due regard in proportion to the project they have and the claims they make. Being a moral subject is not the only grounds for being due moral regard. Even on Kant's formulation, it is not being a moral subject, but having the freedom to choose to be one that is the determining factor. It is evident that for Kant being a moral subject (being able to choose in accordance with universal principles) is not the sole criteria for moral consideration because other persons are not considered only in terms of that freedom, but in terms of all of their freedoms. It is an offense to wantonly cause bodily injury to a person even if it does no harm to their ability to formulate moral imperatives. The freedom to think universals and act according to them is one kind of freedom, it is not the only kind. The self-conscious projects of the rational individual are one kind of project, but there are other kinds of projects also: those of the newborn, the plover, the tulip.

The paradigmatic attribution of intrinsic value to persons by Kant is based on an ideal of self-determination which even persons rarely—if ever—in fact achieve. Kant argues that rational individuals escape their material contingency and achieve the freedom of self-determination because they are able to will, which means for Kant being able to choose in accordance with universal principles rather than historical contingencies. There is a sense in which rational ability can be said to represent freedom from historical vicissitudes. Kant's basis for imputing freedom to rational individuals is their ability to conceive universal ideas like end-in-itself. Kant calls this ability "the supreme limiting condition of every man's freedom of action."17 Rational

17 Kant *Groundwork*, 98 [70].
beings alone determine themselves to act "in accordance with the idea of certain laws."\textsuperscript{18} Universal ideas cannot be derived from experience; therefore their existence in the mind represents a certain kind of intellectual independence from particular conditions. But even so, the intellectual act of willing does not lift the \textit{personality} from the contingencies of history. Persons are, in a primary sense, natural, historical beings which exist interdependently and conditionally. There is no complete self-determination for any natural being. Although it is true that relative to less reflective sorts of beings subjects have an exemplary kind of freedom, if the ideal of freedom and the standard for beings which deserve moral consideration is radical self-determination, then humans—indeed any natural beings—will necessarily be inadequate. If, however, rational individuals are the standard because they have an unmatched kind of self-determinacy, then it is reasonable to conclude that other living things deserve similar consideration with respect to the degree and kind of self-determinacy with which they pursue and project their own ends. Neither the ability to formulate universal statements nor the power to choose in accordance with them constitutes absolute autonomy. If rational subjects have intrinsic value because they are relatively self-determinative, it follows that the attribution of intrinsic value should be extended to other kinds of beings in accordance with their own autonomy, self-determination, and interests. This applies to creatures, species, and natural systems. \textit{Insofar as a being has a project, insofar as it constitutes or is concreative of its own existence, it deserves moral consideration.}\textsuperscript{19}

\textsuperscript{18} Kant, \textit{Groundwork}, 95 [63].

\textsuperscript{19} For the argument that the nature of beings can be the basis of a general system of justice see, Lenn Goodman, \textit{On Justice} (New Haven: Yale University Press). For more argument that value coincides with being, see 27.

55
It might be objected that even if it is granted that the freedom of persons is relative, still there is something about being self-conscious which is necessary for being the object of moral consideration. On this view, if a being is not self-conscious then it does not merit moral regard. I believe I have already dealt with the possible grounds for this position—that self-conscious beings can be moral subjects, and that self-conscious beings can have consciously formulated projects.

I want to claim that not only creatures, but also species have projects. It might be objected that species are ephemeral, too temporary to be the locus of morally credible value. But the assumption of intrinsic value does not depend upon either the bearer or the value being absolute or eternal. It is true that the projects of species (which correspond to their ecological niches) are historically contingent, but persons share the same condition. By the criteria which allow us to consider persons to have intrinsic value—e.g., being an intelligible locus of growth and projection, having an integrity of enterprise—creatures, species, and systems may also be said to have a self-generated value. This is not to claim that all creatures have the value of subjects, but that subjects are not the only beings which contribute to their own constitution.

**Objections**

The position that natural beings have intrinsic value entails that particular creatures, species, and natural systems are distinguishable as things with their own projects and interests. There are a number of possible arguments which aim to disprove this thesis by demonstrating that creatures, species, and natural systems do not have discernible projects and interests.
First, it might be contended that it is not coherent to speak of the interests or project of anything except a rational individual, that it makes no sense to speak of the interests of non-reflective creatures, and surely not of species or natural systems. A great deal of unnecessary confusion stems from the equivocity of the term "interest." When I speak of the interests of natural beings I am referring to whatever is ontologically beneficial to the present and future flourishing of those beings. Psychological desires and intellectual preferences are not the only kind of interests. They are a special case of the striving expressed in the life of every animate being. Anything which has enough self-definition to be considered an actual (not merely conventional) entity might be said to have interests in this ontological sense. In fact, even some entities whose existence is indisputably conventional have certain interests connected to their continued existence. The game of baseball, for example, now that it exists, must be said to have goods which are objectively conducive to its integrity and continued existence. Consistency within the rules at any given time, an impartial umpire, and sufficient open space are all necessary if the game of baseball is to have a complete rather than merely formal existence. Does this mean that the game of baseball then deserves moral regard? On my argument, that anything which is a concreative participant in its own existence is due moral regard with respect to the claims it makes for the fulfillment of its project, it does not. It seems to me that a game is not something which contributes to its own existence as an integrated and integrating being; it does not have a project. Games, like businesses, economies, statistics, and political boundaries are artifacts, products of human living. Even if baseball can be said in some sense to have interests, I do not believe that games, teams, computer programs, etc. deserve moral consideration on this formulation. (But I stand ready to be convinced.) The important question which
now arises is ‘Is a species more like a creature or an artifact?’ I believe a species is more like a creature, and I will argue this in the next chapter.

Second, one might object that the differentiation of the living world as represented to ourselves is determined in the end not by biological principles which direct generation and growth, but by intellectual and psychological principles which are individual, cultural, genetic, or determined by some combination of these factors. Because nature-as-understood is resolved entirely according to determinations on the part of the observer, claims about the natural world should be understood as statements of our overall epistemological attitude toward the world, not as statements about the world itself at all. William James, for example, argued that the conscious individual is not merely the focus of value bestowed by the world, but the very creator of that value. He suggests that all differentiation and significance in the experienced world is of subjective origin. On the necessity of human consciousness for the existence of value, James writes,

Conceive yourself, if possible, suddenly stripped of all the emotions with which your world now inspires you, and try to imagine it as it exists, purely by itself, without your favorable or unfavorable, hopeful or apprehensive comment. It will be almost impossible for you to realize such a condition of negativity and deadness. No one portion of the universe would then have importance beyond another; and the whole collection of its things and series of its events would be without significance, character, expression, or perspective. Whatever of value, interest, or meaning our respective world’s may appear imbued with are the pure gift’s of the spectator’s mind.²²

²² William James, Varieties of Religious Experience quoted from Holmes Rolston, Philosophy Gone Wild 91.
But the human estimation of the natural world cannot be explained entirely by reference only to human sensibilities, because the principles of human physiology and psychology are not sufficient to account for all differentiation of human experience. James is correct to assume that the differentiation of nature is the basis for the attribution of value. For if there were no differentiation at all there could be no basis for evaluation of any sort; there could exist no things, no life, and no systems as objects of knowledge for us. But human sensibility is not the only cause of the theoretical and biological differentiation of living things into species, species into individuals, and organisms into organ systems and organs. It is true enough that we paste labels on the world, creating artifactual entities and the possibility of infinite categories. But no amount of creative linguistics or radical taxonomy can ever make an orange tree grow from an apple seed. There is an order to the generation of the world which is not the product of commitments on the part of the observer. The appearance of beings and projects cannot be entirely explained away as shadows of the process of human understanding.

There is a third possible type of objection which claims that natural things cannot have intrinsic value because there are no things, only the One Process. This position depends on the premise that a thing does not exist unless it exists eternally. Because all natural objects exist interdependently, it might be claimed, it is impossible to locate any discrete entities in the world. And if a thing is not discrete it cannot have intrinsic value, for any supposed value could not be said to belong to one thing any more than to the other things with which it is necessarily related. I grant that natural objects exist within networks of relations which are both obligatory and fecund. In fact, I am arguing that much of the essence and value of natural objects lies in the enterprise of actualizing
these relations. But the distinctive relations with the rest of world which characterize what it is to be a certain creature, species, or system are made determinate (both cognitively and actually) by the fact that they are the relations of this creature, species, or system. It makes sense to think of relations in terms of their focus for the same reason that it makes sense to ground the instrumental in the intrinsic: we cannot specify relations unless they are the relations of something. An appeal to the endless becoming of the world does not prove that natural objects do not exist, it merely points out that they are mortal. Holism does not show that particulars are unreal, but that they are related. It does not simply reverse the explanatory and ontological directions as much as it introduces the pluralities of varying scale and hierarchical function.

Even if the history of the earth has been a single, seamless process, neither the continuity of the natural world nor the lack of any radical self-sufficiency in its parts entails that the particular and the whole should be considered to be identical, materially or morally. It is as extreme and untenable to claim that there is only one natural object as to argue that there are none. The fact that species are parts of a single process—the evolution of life on earth—does nothing to eliminate their uniqueness of form, adaptation, and behavior, which together describe what it is to be a species. All natural objects arise in process, but process must be made determinate if it is to produce the things it does produce rather than some others. In living beings especially it is evident that maturation and regeneration occur in a coherent and regulated manner.

Janna Thompson has recently argued that assigning value to any part of nature logically results in assigning value to all parts, and that the recognition of value in nature
is therefore an inherently vacuous position. But the recognition of value in each natural being is not the source of some contradiction by which the value of each thing can then be dialectically negated. Recognition of value in the world at the atomic, genetic, specific, and planetary scale is grounded in an assumption that all being has a certain goodness, that prima facie, existence is better than non-existence. Therefore, the position that everything has value is not an unwanted consequence of attributing intrinsic value to nature; it is the basis for it. Vacuity is avoided because the assumption that every being has value is explicated in terms of specific and differentiated value rather than of a generic and equal value. The values, for example, of cell, tissue, and organ relative to one another (or of elements of any organic system) are not ignored, but are elaborated. Though it is true that tissue cannot exist without cells, tissue is the locus of value not present in cells, which is revealed in the fact that tissue plays a role in the world that cells individually cannot. When I say that the value of cells is different from the value of tissue because of the different functions they perform, it may sound as if the value I am speaking of is really just a matter of utility. But this is not the case. Because natural things exist interdependently, it is epistemologically fruitful to speak of their existence in terms of their formative webs of interaction. A thing's functions may sketch out its actuality, but they are never identical to the thing. For the order which is a being includes what that being can be, not only what it is at the moment.

The claim that many different beings deserve consideration is not the claim that they all deserve the same consideration. The moral, biological, and ecological values which belong to individuals, populations, species, and eco-systems—even nature

---

21 Janna Thompson, "A Refutation of Environmental Ethics" (Environmental Ethics Vol 12. 2; 147-160)
considered globally—are not convertible. These diverse beings have diverse projects. Insofar as a species is both the occasion and the generative source of unique ecological connections, the intrinsic value of a species can be considered to be a localization of value connected with wider ecological projects. Calling these values intrinsic rather than relational emphasizes the singularity of the project of each species. It is possible to assert that there are no "things" in nature, that is, that there is nothing which is essentially, undeniably, and eternally "this" thing and not something else. But the high degree of abstraction necessary to maintain such a claim in a thorough going way has already made ecology irrelevant. Ecology is a discipline concerned with the relations among things. If there are no things, the project is inconsequential.

A fifth possible objection to a naturalism which joins moral considerability to ontology is that theories which ground value in nature commit the fallacy of believing that what is should be and deserves to continue to be. It is true that the ecological naturalism I am defending recognizes particular values in the claims and strivings of living beings. But these claims are all rendered conditional and contextual by the contingencies of their environment. Ecological naturalism, which understands species in terms of the ecosphere in which they interact, is not a position which holds as an a priori metaphysical tenet that the natural world could not ever be better than it is.

It is not true that because every project deserves prima facie consideration every project must succeed. Conflict between projects is not only inevitable, it is essential. It represents the fecundity of possibility, and renders each life an achievement rather than a fate. It means that history is not predetermined, that growth, life, or novelty is not given until it is actually accomplished. Not every project can succeed. Some will be self-destructive, some will be unlucky, some will prove unable to bear the competition. All
projects are, to some degree or another, parasitic, destructive, or invasive. There is an aura of magnanimity in the way the world makes a place for such variety and fecundity, but that magnanimity is not absolute. Some projects claim too much; they kill the host, or incur a retribution. When I argue that each being prima facie deserves to pursue its project, I mean that, as a basic starting point, we do not judge beings to be in principle reprobate or corrupt. I do not mean that, given actual circumstances, every being will be able, or should be encouraged, to persevere in its project. Some projects claim too much of their fellow beings. What is too much? These are matters of proportion and allotment. When a parasite kills its host, and therefore itself, that is too much. But the environmental judgments facing us are seldom as clear as that. What is abundance from one point of view is pestilence from another. Pestilence—biological or political—is rightfully combatted because the destruction which is wrought is disproportionate to the achievements which are made. The judgement of proportionality cannot be made a priori because projects and interests are by nature contextual. A case by case consideration will always be necessary. And as with any conclusion which is based on premises which are disputable, there will be disagreement, reconsideration, reappraisal. It is not a simple case of mechanically evaluating relative degrees of moral, economic, cultural, or aesthetic value. Many different considerations must be made at once and many different points of view considered. Moral decision making is much more like a conversation than a numerical calculation.

Perhaps it will be helpful to consider a concrete situation. In the case of the feral pigs on Mauna Kea and Mauna Loa, or the feral goats on Haleakala, I would argue that the destruction by rooting, close cropping of plants, and disturbance of ground nesting birds and other avifauna is too great to be justified by the fact that these animals seem
to flourish in these environments. The destruction to creatures, species, and small, unique ecosystems is severe, in many cases irreversible. These introduced animals may also be committing a certain offense against practitioners of Hawaiian culture by destroying native flora and fauna which are an integral part of that culture. In my opinion, these animals are a pestilence, not simply because they exist—they are not intrinsically lacking in value—but because their numbers and their range either threaten to destroy, or already have destroyed, a large variety of natural beings at a number of significant scales. These feral animals have been fenced out of areas, and they have been hunted to reduce their numbers. Both actions seem justifiable in this situation. But, I can offer no method for pinpointing exactly how far this kind of control program should go, or to what lengths it should be pursued. It is a judgement and open to reevaluation.

Among those who voice their opposition to a full-on extermination are two groups who generally make unwilling partners, the hunters and the animal rightists. Dealing judiciously with problems like this may require reframing the problem so that all parties—human as well as non-human—get their hearing. Perhaps the hunters could be enlisted to control the animals in the most important areas, and the animal rightists could be convinced that the goats and pigs are not the only creatures on these mountainsides with worthy projects and interests.

The Assumption of Goodness

When I went looking for something akin to the assumption of intrinsic value in the history of philosophy I found the assumption of goodness. The phrase "assumption of goodness," like many phrases in philosophy, doesn't mean much until it is put into
historical and argumentative context. The concepts "being" and "goodness" are complex and stubbornly ambiguous. The conceptual pluralities to which the terms refer can be frustratingly difficult to pin down. When Aristotle argued that the terms "being" and "goodness" are equivocal along the same lines, (since the different senses in which a thing can be said to be are the very senses in which it can be good), he was not indicating that the term "goodness" therefore lacked the clarity to be significant. Multivocity in a term is not necessarily the equivalent of conceptual obscurity. The fact that a single term has multiple meanings does not, in itself, indicate that any of the concepts which it represents are inadequate. The concept of goodness to which I am referring when I speak of the assumption of goodness is not the goodness of means for achieving an end, but the goodness of ends. It is the goodness recognized in the intuitions that it is better that something exist than that there be only void (but does not take this to imply that everything that does exist should exist), and that it is clearly preferable to be a person than a plant (but does not mean by this that plants do not have their own goodness). It is an intuition of goodness which says, with the scholastics, that a universe which contains angels and stones is better than one which contains only angels, but does not seek diversity for diversity's sake. All of these assumptions express the determination that positive moral value comes from beings. If one does not wish to make that assumption I believe it will be a Sysyphean undertaking to get any moral conversation firmly established.


22 Thomas, I Sent., dist. XLIV, q. 1, a. 2 quoted in A. O. Lovejoy, The Great Chain of Being (Cambridge, MA: Harvard University Press, 1936) 77. There are problems with making diversity a value unto itself. See the discussion in Chapter 3, Community.
The goodness of a diverse and living world is positive and actual, expressed in specificity and particularity. The moral goodness of living beings is not merely a reification of the "good" which is predicated of particulars, as if the instrumental sense was basic, and the moral sense was just a trumped up version of the same thing. The goodness of the world cannot be just an artifact of language and contextuality, for it is logically prior to the predicative use of the concept. Intrinsic value, the moral goodness associated with definite existence, is not a product of the predicative use of the term "good," it is a necessary basis for the coherent use of the term. Intrinsic value or intrinsic goodness is a fundamental concept. I believe that it can be defended as a necessary assumption, but in the end it must be recognized as an assumption.

The assumption of goodness that I am talking about is a moral assumption. It affirms, despite the testimonies of death, doubt, and confusion, that proper or improper behavior makes a difference in the world. Not only to the agent, or to the human community, but to other beings as well. The assumption of goodness proposes that beings have certain moral and material deserts simply because they have the projects which they have. Because the claims which beings conceive are manifest in their forms, behaviors, and native potentialities, there are objective grounds for estimating the kind of recognition they deserve. Therefore, moral behavior is not only a conventional matter of maintaining order within the human community, or within the ecological community. This goodness or value in beings is what moral responsibility is responsibility to.

The radical claim that everything is unqualifiedly good, that everything which is should be as it is, and that everything which has been should have occurred exactly as it did, is one of those sayisms which is put into the mouths of philosophers in order to
depict comically their alleged disregard for common experience. Only a philosopher
could fail to notice the self-evident falsehood of such a claim! The supposition that
everything which exists is good is tenuous, not only because it threatens to obviate moral
philosophy (which it does), but because it is incoherent. It makes as little sense to say
that everything is good, without some specification, as to say that everything is up, or
everything is one. Goodness is always specified. What is good for the trout is not
necessarily good for the tilapia. The projects of trout and tilapia are not the same.

The claim I am making, that living beings have an intrinsic goodness, that they
deserve regard for existing with projects and interests, is rather different. What does it
mean to assume that things are good? The endeavor to understand the connection
between the necessities of being and the ubiquity of goodness has been an enduring
focus of the Platonic tradition. One of the initiating texts for the 2500 year dialogue
which has struggled to develop and make coherent the assumption of goodness is
Timaeus. In the following selection, we find Plato examining the conceptual
interdependencies of being and goodness. He expresses his thoughts indirectly in the
language and grammar of myth.

Let me tell you then why the creator made this world of generation. He was
good, and the good can never have any jealousy of anything. And being free
from jealousy, he desired that all things should be as like himself as they could
be. This is in the truest sense the origin of creation and of the world, as we
should do well in believing on the testimony of wise men. God desired that all
things should be good and nothing bad, so far as this was attainable. Wherefore
also finding the whole visible sphere not at rest, but moving in an irregular and
disorderly fashion, out of disorder he brought order, considering that this was in
every way better than the other. Now the deeds of the best could never be nor
have been other than the fairest, and the creator, reflecting on the things which
are by nature visible, found that no unintelligent creature taken as a whole could
ever be fairer than the intelligent taken as a whole, and again that intelligence
could not be present in anything which was devoid of soul. For which reason,
when framing the universe, he put intelligence in soul, and soul in body, that he
might be the creator of a work which was by nature fairest and best. On this
wise, using the language of probability, we may say that the world came into
being—a living creature truly endowed with soul and intelligence by the
providence of God.َ

Plato assumes, but does not argue in this passage, the necessary existence of a
cause of the processes of the natural world. The world of becoming could not have
causd itself. But he does not describe the creation of the generative world as a wholly
physical process. Judging that the concept of goodness contains more than a restatement
of the simple fact of existence, Plato analogizes his first cause as a moral being,
responsible for an act of magnanimity, rather than one of physical necessity. The
goodness of the world, according to Timaeus, does not proceed mechanically from the
goodness of God. For, it is not by reason of their bare existence that beings are good,
nor even by reason of their necessity given their causes. Goodness, Plato argues, can be
seen in the ability to effect one's own ends. "For the Creator conceived that a being
which was self-sufficient would be far more excellent than one which lacked
anything...,ََ Plato writes, animating the ideal case to which he had appealed in
Philebus in order to exemplify the coordination of goodness and self-sufficiency in the
particular; "A creature that possesses [the good] permanently, completely, and absolutely,
has never need of anything else; its satisfaction is complete.ََ

---

*Plato, Timaeus 29e-30c, B. Jowett trans. in Edith Hamilton and Huntington Cairns

* Plato, Timaeus 33d; Jowett trans.

* Plato, Philebus 60c; Jowett trans.
Both Plato and Aristotle found an illustrative analogy for the kind of good that they were trying to describe in nature in the necessary unity of skill, knowledge, and end in the crafts. They characterize nature as revealing its own order and having its own ends, using one of the most natural and influential tropes in the history of literature: it is, they say, as if the natural world were the product of intelligence. Aristotle argues, for example, that "just as human creations are the products of art, so are living objects manifestly the products of an analogous cause or principle, not external but internal, derived like the hot and the cold from the environing universe."27

Because the projects of beings are not coincident, there is no single scale, no single project appropriate to all natural beings.28 Instrumental value is the measure of efficiency in facilitating the existence of something which has intrinsic value, but intrinsic value is not the measure of anything. When we consider individuals, kinds, and processes in terms of their integrity, differences in value or goodness are not a matter of degree. Values in nature are not derived from a single good; each kind is good in its own fashion, the good of each individual a specification of the good of the kind. The intuition of a unity of goodness does not imply that all goodness is of one type or that difference is foremost a matter of degree. Value and goodness need to be rendered in specific, as opposed to general terms. Aristotle used the example of a physician to

---

27 Aristotle, De Partibus Animalium 1.1 639b 15-34, 641b 12-16; McKeon edition. See also Plato, Philebus 30a, Phaedo 97c, Cratylus 400a.

28 Lawrence E. Johnson writes that interests are a "matter of degrees," yet I believe we are in agreement that there is no single scale of interests. A mouse does not need to have a human's interests in order to have it's own. Johnson writes, "Normally, a human has more interests than does a mouse. Moreover, the interest of a mouse in continuing to live is not the same as the interest of a human in continuing to live. A mouse has only an interest in continuing a mouse life. That interest counts for what it is, but only for what it is." A Morally Deep World (Cambridge: Cambridge University Press, 1991) 7.
illustrate this differentiation of goodness. The physician *qua* physician does not act for the absolute good, but for good health. And not for good health generally, but for the good health of a certain patient at a certain time.\(^2\) One cannot compare the goodness of a physician with the goodness of a navigator, or a legislator, except to say that for a physician to be a good physician is the same as for a navigator to be a good navigator. "Goodness" is not a univocal standard against which different types of beings may be measured. If we are to think and speak about intrinsic value of living things it cannot be simply in terms of some static and external basis of comparison. It must be in terms of the specificity of living beings, that is, in terms of their projects.

The difference between whether a thing is good to the extent that it *exists* or to the extent that it is *sufficient* for its own existence is a subtle but important difference. The strict identification of goodness with existence can lead to the sort of absurdities that Voltaire satirized, while the correlation of goodness with sufficiency for being does not. In some neo-platonists we find that the themes of goodness as existence and goodness as sufficiency are distinguished, but enfolded. Boethius, for example, seems to maintain both positions. On the one hand, perhaps because his thinking is influenced by the Plotinian image of the fountain, Boethius speaks of worldly value as if it proceeded mechanically, even materially, from the first cause. "The First Good, that is God, is good just insofar as He is because he is goodness itself essentially; but a second good, which is

---

created, is good because it flows from the first.... it follows that the existence of created things is good and that each created thing is good insofar as it is.\textsuperscript{30}

On the other hand Boethius expresses an appreciation for the dynamic specificity of goodness in nature, and of the immanence of something like intellect which guides natural processes. We find some of the deep background of Spinoza's panentheism\textsuperscript{31} in the neoplatonic explication of the universality of intelligence typified by Boethius. "We are not dealing with willed motions of the conscious mind," Boethius writes, "but with instinctual motions, like the way we digest food we have taken up without thinking about it, and the way we breathe in our sleep without being conscious of it. Not even in living things is the love of self-preservation due to the wishes of the mind, but to the principles of their nature.\textsuperscript{32} Boethius does not overtly speak of value or goodness in this passage, but the designation of value is present, attached to the immanent, non-cognitive intelligence. That living things persevere in their lives, that they pursue and cling to self-preservation, indicated to thinkers like Boethius that something like intellect must be present. If something like intellect is present, then something like the respect we have for intellect is appropriate.

Boethius may have learned from Plotinus that to regard beings as if they had specific motions and projects of self-preservation does not commit one to defending the

\begin{flushright}

\textsuperscript{31} Pantheism is the belief that everything is divine, panentheism the belief that everything is in or part of the divine.

\end{flushright}
universality of cognitive intellect. Plotinus de-mythified the assignment of purpose and intelligence to nature by pointing out that ontic rationality is called rationality by analogy to cognitive rationality, not because it is cognitive itself. "Therefore neither forethought of a living thing nor forethought for this universe in general is derived from a plan; since there is no planning there at all, but it is called planning so that all things there are as they would be as a result of planning at a later stage, and foresight because it is as a wise man would see it."\(^3\)

By the time the discussion of the relation of the ethical to the ontological had emerged from the middle ages, it had become entangled in the trappings of theological discussion. Arguments concerning the will of God, the knowledge of God, and the relation between these two and the actuality of the world were central. Modern minds found medieval moral metaphysics arcane and unwieldy. But some, like Leibniz, were able to treat the anthropomorphical expressions as figure, and to reveal argument hidden in the flourish of expression. In *Discourse on Metaphysics* Leibniz argues against contenders who held that the principle of goodness (in all its medieval trappings) was too obviously attached to the notion of the will of a creator to be of any value. Leibniz cuts deftly to the main issue, goodness and being are not the same concept. Leibniz accepts the idiom of his contemporaries, but his argument holds against any position which tries to reduce the concept of goodness to that of being. God, being omnipotent, could have created any world, his interlocutors maintained. If this world is good because God created it, and he could have just as well have created some different world, then the idea of goodness is arbitrary. Leibniz responds echoing Plato's theme that, although the idea of goodness is related to the notion of causal sufficiency, to be is not the strict

equivalent of to be good. Leibniz argued, "[Some people] say that the works of God are
good only through the formal reason that he made them. If this position were true, God,
knowing that he is the author of things, would not have to regard them afterward and
find them good.... Such anthropomorphical expressions are used only to let us know that
excellence is recognized in regarding the works themselves, even if we do not consider
their evident dependence on their author." Goodness and value in the world are
recognized in the specificity and particularity of things, not in their mere existence.

What a thing is and what it does are inseparable. If we have moral
responsibilities to living things based upon what they are, and if living things
communicate their projects in biological and ecological terms, then ecological and
biological values related to form and function will indicate and specify when claims and
interests conflict, when there have been transgressions, when there have been
achievements. It will not tell you whether the claims are proportional to the project,
whether the project of protecting ocean-going swimmers and surfers, for example,
justifies a program of shark irradiation, selected removal, or whether no actions against
the sharks are justified. The judgement that any particular human transgressions against
any particular creature or species is necessary, culpable, or justifiable is not contained in
the basic position that each project deserves consideration prime facie. It is only
established that human actions which infringe upon the claims and interests of other
living beings have moral consequences, not only economic, or ecological ones.

---

34 G. W. F. Leibniz, *Discourse on Metaphysics* II, trans. George Montgomery and
Natural Equity

To understand that natural beings have intrinsic value is to admit the prima facie legitimacy of the claims which beings make for the continuance of their existence in its fullest expression; it is to agree that material needs can entail moral claims. Moral consideration, respect for the creative project which is a natural being, is respect for the integrity of that being. Moral consideration can therefore necessitate material consideration. Existential deserts are not associated with being per se, but with specific kinds of being. Animate beings make legitimate claims upon their environment which express the types of beings they are. These claims correspond to the relations implied by their existence.

If there is some sense in which it is coherent to regard all living beings as equal it is perhaps in the perception that all have interests which, if we abstract from the contingencies in which they are expressed, deserve equally to be fulfilled.³⁵ Humans deserve consideration for having interests which pertain to their being human, just as other creatures have interests which recapitulate both the kind and the particular creature which they are. The claims made by plants, animals, and species have a prima facie legitimacy equal to the claims made by rational creatures, but that is not to say that all creatures make equal claims. Non-cognitive beings do not deserve to be treated as moral agents, while cognitive beings do. Every being which strives by this argument prima facie deserves to flourish. But flourishing for different kinds requires different conditions. The different and competing claims which creatures make must be arbitrated, for the legitimacy of a claim is not a guarantee, nor even a promise, of its

³⁵ I believe this is what Singer is trying to get at in when he makes his claims for universal biotic equality. Peter Singer, Animal Liberation (New York: Avon, 1975) 2-6.
satisfaction. Natural arbitration is systematic according to conditions, favoring sometimes the swift, sometimes the slow. In many cases some sort of final arbitration cannot be avoided; the fulfillment of the claims of some living beings requires that the claims of some others be denied. The owl denies the claims of his rodent prey; the rabbit snubs the growth of clover; even the relatively innocuous methanogenic bacterium claims a portion of formate and methanol which, were the bacterium not to exist, would be available to its clones. Understanding that natural beings deserve moral consideration is not the same as knowing a priori which interests to endorse in every situation. There is no calculus of moral consideration by which, if one could clearly spell out all of the interests of grizzly bears and ranchers, or white-tailed deer and coyotes, one might determine by tally which claims should have priority.

The positive claims which beings make are the source of their material existence and of their moral considerability. The possibilities of human excellence are considerably more open-ended than those of non-rational creatures. By language and culture humanity has moved beyond a condition in which the goodness of individual lives is necessarily determined by specific nature. The claims which humans make on their environment are biological and ecological, but more characteristic of their being human are the emotional, artistic, moral, and spiritual claims. Each of these sorts of claim has its own legitimate deserts. Each may also be proposed inappropriately or disproportionately.

Humans make existential claims very different from those of other types of creatures. There are human goods which have no equivalent in non-rational beings. The achievement of the marathon runner is not a biological or evolutionary achievement in the way that the final achievement of traversing a series of waterfalls is for the salmon.
Excellent physical condition and ability are not the same sorts of goods for humans that they are for many other creatures. In a very straightforward way, the ability to run a marathon is as much an intellectual and moral good as a physical one.

Simply having a greater range of capacities does not mean that a thing has more intrinsic value. However, the range of capacities which follow from cognition do seem to constitute a set of interests which set cognitively rational creatures apart from those whose rationality is immanent. The rational individual, in addition to the interests it may have by virtue of its being a certain kind of thing, has goods, powers, and creative potentialities which are generated by the individual, and are not only a rendering of a species nature. Natural beings which are not reflective—natural systems, species, and non-rational particular creatures—carry out their projects with an immanent intelligence. Non-reflective beings, however, are not just the mechanical instantiation of fully pre-determined projects. They perform actions, exert powers to produce effects in their lives. They can be the agents, in simple and startling ways, of genuine novelty. They participate in making the world what it was not before.

The projects of beings do not unfold in isolation. The biosphere is variegated by horizons of relevance within a network of ecological roles. If ecological roles are an expression of the projects of beings which are played out in terms of their ecological relations, then we must say that the ecological role of rational creatures includes moral as well as material responsibilities. Because humans, as rational individuals, are not just another in a series of identical cogs in an environmental machine, we will not discover our distinctively human responsibilities simply by mimicking the ecological relations of other beings. The human form and intellect has no model elsewhere in nature to which one can appeal for full examples of appropriate human behavior. Other animals, for
example, do not select and engineer rates of population growth. They do not decide which of their neighbor creatures or ecosystems will be the subject of intense media campaigns in the way that we have chosen the Manatee, but not the Florida Panther, or choose mammals over birds, or birds over insects. As humans we are related to the world by symbol, language, history, culture, and ethics. Humans engage the world not only biologically and ecologically, but morally and intellectually as well. Our biological and ecological interests are vital, but their achievement is not sufficient for the fulfillment of the projects of individual human beings, or of cultures or communities. A strictly biological model for relating to the environment—one which argues simply that we should live more like the animals—may be based ostensibly upon a reverence for nature, but it is tacitly misanthropic because it involves at once an unspoken assessment, condemnation, and dismissal of human history and its unique part in nature.

Sociobiologists36 who seek to describe normalizing and explanatory principles for social organization in terms of inclusive fitness (overall ability to pass on the "best" genes), who would make insects and baboons paradigm cases for evaluating human behavior, fail to recognize that reproduction, or even life, is not the summum bonum for every human individual. Humans have standards other than gene transfer for evaluating the good life. Human projects are not reductively biological. They are emotional, intellectual, spiritual, and self-consciously historical. It is as important for environmental ethics to understand and respect the variety and extent of the good life for humanity as that it recognize and honor the integrity of the projects of other beings.

Beings vary in their awareness of transgressions of their interests; very few, if any, other kinds of creatures are aware cognitively and reflectively in the way that humans can be. Nonetheless, the fact that a being is not consciously aware when its interests have been denied does not mitigate any actual curtailment of its project. It has been argued that nature as a whole will survive any conceivable disruption, starting over at the microbial level if necessary.\(^\text{37}\) What does it mean to be responsible for something that cannot be destroyed? Isn't it another example of human hubris and inflated self-importance, it is urged, to assume the role of caretaker when, from the point of view of "nature," human actions are irrelevant? But the planetary scale is not the only significant scale in nature. "Life Itself" is not the single defining value, such that if even cockroaches survive a human induced holocaust "Life Itself" will have been victorious.

The tolerances of species and the affronts against them are rightly measured against the projects of the species. On the scale of species, destruction is possible. Because the interests of species are unique, their despoliation is irrevocable. Even the replacement of an extinct species by a re-evolved double would not erase the violation of the original’s singular enterprise. The past occurrence of mass extinctions, an estimated 96% of all species during the Permo-Triassic extinction, does not mitigate either actual loss in the past or human responsibility in the present. It shows that extinction is a natural process, not that it is an insignificant one. To say that death is natural, even necessary, does nothing to erase the distinctions of timeliness, appropriateness, and culpability which we make with respect to death.

Chapter 3: What Are Species?

*moral imagination—evolution—community—moral ecology and the
considerability of species—extinction

*Moral Imagination*

Moral conversation is open ended. It is never finally complete, but always alive to the influx of additional considerations, the reappraisal of old positions and the hashing out of new ones. But the fact that there is not an obvious, or even hypothetical, end to the moral conversation should not be confused with the claim that there is no need for the dialogue to have some logical ground. Moral conversation must have some stable, fundamental referent if it is not to concern itself only with an endless series of means—*a* is good because *b* is good because *c* is good, ad infinitum. I have argued above that if there is something which deserves fundamental moral consideration—something which has intrinsic value—it must be beings (not states of affairs, not "beauty" etc.). If it is true that any kind of existent can be called a being, as our language allows, then it may seem that I am, in effect, allowing the possibility that numbers, histories, concepts, instructions etc., deserve moral consideration. The intellectual, historical, cultural, linguistic landscape which gives rise to moral dialogue seems so littered with beings that the claim that beings are the ground of *anything* might seem to be wholly vacuous and uninteresting. However, the primary moral consideration as I have described it is not just a question of bare existence, but one of powers of freedom, self-determination, and concreativity. In this essay I have argued for the value of self-determinative power
dialectically by showing, for example, that this is the basis for our attribution of dignity to persons. Beings, I maintain, should be treated with a regard appropriate to their interests, the claims which they make, the inceptive powers and concreative projects which they have, the qualities and degrees of their self-sufficiency. It is my opinion that these criteria constitute a fair description of living beings. I therefore sometimes substitute the term "living beings" for "beings with projects." The claim I make in this chapter is controversial and difficult to substantiate. It is that biological species are living beings in their own right. Species as species therefore deserve regard because they are beings with projects and interests.

I am sensitive to the fact that environmentalist rhetoric can be persuasive by the power of its imagery without being biologically and ecologically sound. The Ehrlichs' metaphorical depiction of species as rivets in an airplane, for example, which implicitly claims that there are a crucial number of species without which this "spaceship" the biosphere will not hold together,¹ is appealing for its simplicity and directness. It is difficult to disagree with an image; it must first be disclosed as an argument. The image of the airplane with popping rivets conveys an argument whose logic is undermined by the fact that the ecological claims upon which it is premised—that there are certain key species responsible for the integrity of ecosystems, or that there is a given amount of diversity below which any food web begins to fall apart—are contested.² I can think of


² For the view that ecosystem stability is not necessarily a function of diversity, see R. M. May, Stability and Complexity in Model Ecosystems (Princeton: Princeton University Press, 1975); for the view that predicting the effect of the removal of a species from a system is not at all straightforward, see Stuart Pimm, The Balance of Nature?: Ecological
no objection in principle to the use of metaphor to convey concept or argument. As a discipline, environmental ethics must coordinate diverse anthropological, ethical, biological and ecological assumptions. In fact, the complexity of the project, and the passionate response which it often receives can make the use of well-chosen images expedient. But, if the image communicates a claim which is not biologically and ecologically sound, then the object of concern may be chimerical, and the rhetoric risk being discredited and discrediting the cause for which it is deployed.

With these considerations in mind, I am going to argue for an image of biological species which I consider to be appropriate to questions about moral behavior with respect to non-human beings. I will begin with a consideration of the ways in which biologists and ecologists regard species in terms of the ideas of evolution and community respectively. This survey is intended to provide the reader with up-to-date, expert opinions about the kinds of things which biological species are considered to be. It cannot, however, answer all of our ethical and meta-ethical questions. When petitioning scientists for justification of their case, environmental ethicists should remember that the axiological questions with which they grapple—What is value? Which things have value? What sort of value do they have?—have not already been answered by biology and ecology. There is no biological definition of species which is sufficient to determine whether or not species deserve moral regard. For moral regard is not the sort of thing which is part of biological knowledge. Biology, as the science of life, cannot establish in

strictly biological terms either that the living world has moral value or that it does not.\textsuperscript{3} But, even if moral claims regarding species cannot be established or disproved by biology, they must harmonize with biology. If I were to claim, for example, that species are valuable because they are eternal and divine beings, my claim would be subject to nearly universal doubt. Based on scientific evidence, species are evidently not those sorts of beings. Because species are the limit of biology and a topic of ecology, biologists and ecologists have developed a quite sophisticated vocabulary and conversation around the conceptual definition of biological species. Assessing the literature in which this conversation has been conducted, I conclude that the scientific evidence supports my view that species are their own kind of beings with their own kind of projects and interests which are not derivable from the projects and interests of their members. Moral regard should therefore be accorded to species themselves.

\textit{Evolution}

The conceptual division of the living world into species is fundamental to the disciplines of biology and ecology; these sciences define themselves in a context of the recognition of the relative integrity of species. There is general agreement among biologists that species have some sort of actuality which is not merely conceptual. Biological science, after all, is not just a logic of life. Biological concepts (e.g., the concepts of species, organism, gender) are not valid a priori (although they must be internally consistent). They are conceived in a process which includes steady petition by external actualities.

\textsuperscript{3} It is at least arguable that life, let alone the value of life, cannot be defined in strictly biological terms. For my argument suggests that life might be considered to be as much a moral category as a biological one.
Biologists use the term "species" to refer to a) biological species (the living kinds); b) species taxa (the names or definitions of particular biological species); and c) species concepts (definitions of the category to which the names and/or kinds belong). The thesis that species have morally estimable value refers to biological species. These, I maintain, make claims and have projects. The names of species do not make claims, nor does the species category. However, most of the theoretical work I discuss in this section deals with concepts of the species category. A definition of the species category will not be able to specify the good of any particular species (as the definition of the rational individual cannot tell us the good of any particular person). Nonetheless, it is important to understand the kind of things which biologists consider species to be. I will address possible definitions under five headings: nominalist, typological, biological, evolutionary, and pluralistic.

The nominalist argues that biological species have no reality in nature, that species taxa are observer dependent creations, mental constructs which group together organisms under one name based on subjective criteria. Nominalists may want to assume that nature consists of utterly unique individuals, but they cannot do so consistently. For individuals are recognized as individuals by applying criteria of sameness and difference which the nominalist has assumed to be subjective. If the idea of formal likenesses among individuals is an epiphenomenon of predication, then so is the idea of individuals. The argument of the thirteenth century nominalist, William of Ockham, did not have such anti-realist implications. Ockham argued that universals like "human nature" do not have an actual existence which is separate and distinct from particular human beings, and therefore, generally, that there is no separate entity, the

83
"species," to which particular organisms belong (or in which they participate).

Universals, Ockham argued, are abstractions, produced during the process of intellectually grasping the phenomenal world. Ockham wrote,

I maintain that the universal is not something real that exists in a subject [of inherence] either inside or outside of the mind, but that it has being only as a thought-object of the mind. It is a kind of mental picture which as a thought-object has a being similar to that which the thing outside the mind has in its real existence. What I mean is this: The intellect, seeing a thing outside the mind, forms in the mind a picture resembling it... The case would be similar, analogously speaking, to the activity of an artist. For just as the artist who sees a house or building outside the mind first pictures in the mind a similar house and later produces a similar house in reality..., so in our case the picture in the mind that we get from seeing something outside would act as a pattern.... And this can be called a universal because it is a pattern and relates indifferently to all the singular objects outside the mind. Because of the similarity between its being as a thought-object and the being of like objects outside the mind, it can stand for such objects. And in this way a universal is not the result of generation, but of abstraction, which is only a kind of mental picturing.

Ockham's argument found its target in the unnecessary reification of general predicates. But Ockham's account of concept formation does not preclude the actual differentiation of the biological world. On the contrary, a definite and discernible organization in the world is necessary if the mind is to be able to sketch a picture which resembles any object, especially if it is to abstract a pattern which is consistently appropriate for multiple objects. The patterns which are abstracted and grasped by the

---

4 For a number of contradictions ostensively result from this hypothesis. Ockham objections rest on the assumption that it is absurd to claim that a thing (such as form) is both common and individual. See Summa totius logicae, I, c. xvi. Philotheus Boehner ed. Ockham: A Selection of Philosophical Writings (Indianapolis: Hackett, 1990) 37-40.

5 Ockham, Ordinatio, D. II, Q. viii, prima redactio, in Boehner ed. Selections, 41.
mind do not necessarily represent some separately existing thing, as Ockham rightly
argues, but they do not therefore exist completely without grounds for their evaluation
and arbitration. The patterns which one might abstract from nature are not of equal
epistemological significance—"striped," it turns out, is a much less significant pattern
biologically than "having a backbone." The abstracting of appropriate patterns is a skill
informed by an established and dynamic world, as well as a curious and creative intellect.

Modern nominalists argue (or assume, see Allen and Starr, and Sokol and
Crovello below) that the classification of nature into species is more a product of our
sensory-theoretical perception of nature than of any actual differentiation of nature, that
the inescapable theory-dependence of objects finally renders all scientific divisions of
nature arbitrary. Species, according to this view, are not real things, but only scientific
classifications, defined entirely on the basis of the subjective prejudices, assumptions, and
question shaping opinions of the observer. But such a view does not take seriously the
extent to which theory is informed, contradicted, and rectified by experience. There are
necessarily assumptions built into and directing inquiry, but nature does not fall into
place for every premise that is adopted. In the mind of the self-critical scientist, where
assumptions are recognized to be assumptions and have not become dogmas, there is an
expectation that descriptions of nature will face two sorts of tests; they will be tested for
conceptual coherence, and they will be tested against the experience of the observer and
other informed and interested parties.

Species concepts and systems of biological classification, it is true, reflect the
contingencies of language and culture. Therefore, they may reasonably be considered

\[ 85 \]

\[ 85 \] For more on these contingencies and some argument that they imply nominalism
see, Richard Rorty, *Contingency, Irony, and Solidarity* (New York: Cambridge University
Press, 1989) esp. chapters one and two.
to be theory-dependent entities. I do not mean to imply that our ideas about species are presently, or even potentially indefeasible. But the concepts of biological species must be considered to be objectively constrained even if they are not objectively determined.

Taxonomists and philosophers did not entirely invent the differentiation of nature, even if they did help to generate the terms with which we speak about it, and the concepts to which these terms refer. The classifications with which biological systematists overlay the natural world can be arbitrary—as when disparate creatures are grouped together by color, taste, or proximity—but they are not necessarily so. In order to maintain the extreme position that all such groupings are equally arbitrary, one must hold a position that no scientist could hold: that there is nothing about the object of inquiry which determines any classificatory system to be more appropriate to its subject matter and use than any other.

There are natural divisions which mark off genera among families and species among genera. Although the divisions among species do not occur with a uniform degree of distinctness, the overall division of living creatures into populations of related individuals is self-evident. The biological and taxonomical questions about the nature and history of these divisions assume this.

Typological species concepts admit that biological species exist and that the members of a species are alike in a non-trivial respect. Typologists define a species as a group of biological organisms which share essential characteristics at the genetic or organismic scale (or a combination of essential traits at varying scales), necessarily and exclusively. Members of a species individually represent a form or type which all members have in common. Some typologists call their systems "phenetic" in order to
declare, first, that they have no commitments to essentialism (that is, they do not believe
that the "pattern" exists separately from the historical population), and second, that they
believe that phenotypic, rather than genotypic, traits deserve taxonomic priority.

Typological species concepts are not uniform in their theoretical commitments. The belief in the perpetual existence of specific forms is the basis for one kind of
typology which has been wholly discredited. A genetic or phenetic typology on the other
hand requires only that the biologist believe that there is some actual difference between,
say, Bald Eagles and Golden Eagles, and that this difference is demonstrable by
representing the essential genetic or phenetic traits of each species. When Vernon Pratt
argues against what he calls "the archetype theory" he is not (as he believes he is)
indicting any and all typological species concepts. "It is assumed by the theory of
archetypes," Pratt writes, "that we have to regard the living organism as constructed, or
derived from ancestors which were constructed, according to a 'blueprint' or plan. . . ; and it
holds accordingly, that we ought, in classifying organisms, to form our groups according
to the similarities the blueprints associated with the organisms bear to each other."
Pratt alludes to the a priori essentialism with which the typological species concept had
been associated during the development of evolutionary biology and counts on this to
carry rhetorical weight against the "archetype theory." Pratt is able to argue rhetorically
because the argument against the existence of pre-existent essences has been made
elsewhere. The pattern of species, as Ockham for example argued against Duns Scotus,
does not exist separately from biological species and therefore cannot pre-exist them.
Biology is not an a priori science; the assumption of pre-existent essences is

7 Vernon Pratt, "Biological Classification" in Marjorie Grene and Everett Mendelsohn
inappropriate to biological science because it tries to provide an ahistorical, final account of a historical and ongoing process.

Yet, there are additional problems with typological species concepts. When species are defined typologically, the members are considered in the first instance to be related to the type or form of their species, and only secondarily to each other. For the evolutionary biologist this is to put the cart before the horse. The primary relation among members of a species, the evolutionary biologist assumes, is one of common ancestry, a historical and genealogical relation to each other member of the species. The fact that creatures share a similar physical appearance is the result of their belonging to the same species, not in the first instance the cause of it.

There are also practical difficulties. There is the problem of sibling species which share enough phenotypic characteristics to be classed as one physical type, but which so differ genetically or behaviorally that they resist being classed together. Also, some species exhibit dramatic sexual dimorphisms, others bewildering polymorphism. Gender, itself, is a difference which seems to preclude the existence of a single type which can be definitive of a species. Differences of phenotype which accompany developmental transformations add further difficulties to "typing" a species. Relying on the mature adult to be typical of a species is unsatisfactory for practical reasons, but it also falsely restricts the actuality of a species to a static form. Part of what it means to say that a species has a project is that its actuality is revealed in the details of the life cycle, not only in the formal appropriateness of the mature, generative, adult.

*Biological, evolutionary, and pluralistic* species concepts propose that species can be delimited on the basis of non-arbitrary biological and historical criteria. Ernst Mayr
has defended a biological species concept. Mayr was not the first biologist to suggest that reproductive criteria be used in the definition of species—Mark Ereshevsky cites John Ray (1686), Buffon (1749), Cuvier (1815), Poulton (1903), and Jordon (1905)—but Mayr did pen the most widely accepted contemporary formulation, "species are groups of actually or potentially interbreeding populations which are reproductively isolated from other such groups." The biological species concept does not consider creatures to be instantiations of a species-type (as the typologist might argue), nor fundamentally unique individuals which are regarded as members of a group only arbitrarily (as the nominalist might argue). The biological species concept considers individual creatures to be members of temporally and geographically located, reproductively isolated populations. Adherents of the biological species concept sometimes use the term "species-population" rather than "species." This is meant to diffuse any lingering connotations of essentialism or a priorism which the term "species" may still elicit.

The biological species concept argues that there are biological grounds for the conceptual division of the biological field into species. Some individuals are naturally bound together as members of the same potentially or actually interbreeding population. This focus on reproduction and gene transfer allows that species may be represented by polytypic individuals, the queen bee and the worker bee, for example, or the red female

---


and green male Eclectus Parrot, thereby avoiding some of the insufficiencies of the typological species concepts.

In an early defense of the viability of the biological species concept, Mayr acknowledges that the multidimensionality of the concept, which is intended to take account of the extension of natural populations in space and over time, results in the biologist's assuming the difficult, perhaps impossible, task of clearly demarcating these populations. Mayr reasonably suggests that some amount of ambiguity or fuzziness can be expected in the process of describing the limits of actual species populations, inasmuch as the object to be described is not static and complete, but rather an active, historical, and changing entity.10

Sokol and Crovello deny the sufficiency of the biological species concept. Granting that the concept is not intended to apply to non-sexually reproducing species, they argue that 1) the biological species concept is not operational because it is extremely difficult to determine that a population is actually interbreeding; 2) it is not necessary for the advancement of evolutionary theory (for more resolution can be gained by the study of localized biological populations); and 3) the use of the concept, in the end, falls back on phenetics, because local populations will naturally be considered to be candidates for membership in the same interbreeding species-population based upon similarity of appearance.11 Mayr implicitly assumes that members of a species have a similar form, Sokol and Crovello argue. Since the use of the biological species concept

---

10 Ernst Mayr, "Species Concepts and Definitions" in Ernst Mayr ed., The Species Problem Publication No. 50 of the American Association for the Advancement of Science (Wash. DC: AAAS, 1957) 16.

depends on this assumption, the biological species concept is not sufficient. But Mayr's assumption is not so problematic. Evolutionary theory in general assumes that members of a species have a similar physical appearance, and attempts to explain this. Granting that appearance alone is not enough to demarcate species boundaries, this is not sufficient reason to dismiss commonality of form within a species as a legitimate working assumption.

Sokol and Crovello are frank as they describe their own theoretical approach to the species problem:

Although our philosophical attitude in systematics is that of empiricism and consequently we are not committed to the existence of biological species, we have approached our task with as open minds as has been possible. We recognize, as must any observer of nature, that there are discontinuities in the spectrum of phenetic variation. The question we have asked ourselves, one which we believe must be asked by every biologist concerned with problems of systematics and of evolution, is whether there is a special class of these discontinuities that delimits units (the biological species) whose definition and description should be attempted because they play an especially significant role in the process of evolution or help in understanding it.¹²

Sokol and Crovello suggest that the existence of species is still a matter of speculation among biologists, rather than a foundational assumption, as if their own concept of "the process of evolution" did not assume the existence of biological species. Physically apparent biological difference, "discontinuities in the spectrum of phenetic variation," is an appropriate subject for someone whose avowed philosophical attitude is empirical. The conceptual definition of biological units which are assumed to play an important part in the process of evolution is not, and surely evolution itself cannot be

¹² Sokol and Crovello, "Biological Species Concept" in Ereshevsky, 29.
directly observed. In spite of this, Sokol and Crovello suggest that the "process of evolution" is self-evident enough that it can function as a standard and stable measure of species concepts. In fact, as the authors acknowledge, evolutionary theory and species concepts are two sides of the same coin. They stand in a reciprocal relationship, both of them at once the thing to be explained and part of the explanation.

Because the process of evolution is agreed to be a primary cause of the existence of biological species, some theorists maintain that the definition of the species category should refer explicitly to evolution. Wiley has attempted to define an evolutionary species concept as follows, "an evolutionary species is a single lineage of ancestor-descendent populations, which maintains its identity from other lineages and which has its own evolutionary tendencies and historical fate."\(^{13}\) As Mayr points out, in its very attempt to introduce historicality to the concept of species, Wiley's evolutionary species concept fails to give enough credence to actual historical contingencies. On this score it shares a fault with the typological species concepts. Mayr asks Wiley, "What population in nature can we ever classify by its 'historical fate' when this is entirely in the future?"\(^{14}\) Biological evolution is ongoing. The causes (whatever they are) that make a certain population this kind of creature instead of that kind are also in a continual process of change. Wiley's definition includes some central elements of evolution theory, but they appear misplaced in a definition of species, not only because the definition makes the fact of evolution tautological, but also because the definition is not applicable to living species. Wiley's is

---


a paleontologist's definition of species, too narrow in scope to be immediately adaptable to the concerns of biology, ecology, and environmental ethics.

Van Valen, arguing against Mayr, proposes another evolutionary definition of species which he calls an "ecological" species concept. Van Valen writes, "A species is a lineage (or closely related set of lineages) which occupies an adaptive zone minimally different from that of any other lineage in its range and which evolves separately from all lineages outside its range." Citing Simpson\(^\text{15}\), Van Valen argues that, "separate evolution is the underlying reason for the importance of reproductive isolation. It therefore seems appropriate to use it [evolution] directly [in the definition of the species category]."\(^\text{16}\) Van Valen maintains that a species concept which combines the criteria of adaptation, cladistics (phylogenetic histories), and resemblance "makes classification closer to the actual process of evolution."\(^\text{17}\) Genetic, phenetic and historical actualities of species should be considered together when species taxa are being delimited. His disagreement with Mayr may be one of definitions; Van Valen believes that speciation is the cause of reproductive isolation, Mayr that reproductive isolation is the cause of speciation. It is probable that both of these positions are correct while neither is the whole story.

Mishler and Donoghue also criticize the biological species concept for its inability to account for the process of evolution. They argue that the biological species concept is inadequate because reproductive isolation is neither a necessary nor a sufficient


\(^{16}\) Leigh Van Valen, "Ecological Species, Multispecies, and Oaks" in M. Ereshevsky ed. Units of Evolution 69-77, 71.

\(^{17}\) Van Valen, "Ecological Species...", in Ereshevsky, Units of Evolution 73.
condition for a speciation event. The authors admit that, on first accounting, it might seem that discontinuities in breeding should be more clear cut than morphological discontinuities. However, groups of organisms, especially plants, have been documented which run the gamut from completely interfertile to complete reproductive isolation. How is the degree of discontinuity which signifies species to be chosen, or measured? Mishler and Donoghue agree with Van Valen that morphological divergence (i.e., the possible speciation event) is not necessarily linked to reproductive isolation. They argue that if gene flow within an actually interbreeding population prevented significant divergence within that population, then the existence of reproductive barriers between breeding populations would be an important aspect in maintaining the integrity of a species population. But studies suggest, according to the authors, that "if the population is subjected to disruptive selection, there can be divergence even in the face of gene flow."

Mishler and Donoghue propose a pluralistic species concept. They argue that species are more like genera than like individuals, "they are assemblages of populations united by descent just as genera are assemblages of species united by descent, etc.... Theoretical significance does not reside solely in the basal taxonomic units or in units that are 'fully individuals'." The "species" which Mishler and Donoghue are trying to


19 Mishler and Donoghue, 495, cite R. Ordnuff, "Reproductive Biology in Relation to Plants," Taxon, 18 (1969): 121-133


21 Mishler and Donoghue, "Species Concepts...", 499.
define are the "fundamental, cohesive evolutionary entities." These authors are wholly in agreement with their colleagues when they assume that the definition of the species category should describe the cause of the existence of species. However, it may be that the causes of speciation are not properly described in generic terms. If the factors which are most important in the evolution of different groups are not necessarily the same, then there may be different categories of species which have different definitions. In this case, they argue, species are not strictly comparable, standardized, biological units; "species are only equivalent by designation, and not by virtue of the nature or extent of their evolutionary differentiation."

The move which Ghiselin has named the "radical solution to the species problem"—considering species to be individuals rather than classes—is perhaps not so radical as the titles of his articles suggest; for it is implied by every attempt to introduce historicality into the concept of species. Ghiselin and Hull have argued that species cannot be a class or a type, because classes and types cannot evolve: biological species are historical individuals. "Species names," argues Ghiselin, "are proper names—

22 Mishler and Donoghue, "Species Concepts..", 495.

23 The assumption that the definition of a thing will encompass its causes is a premiss of science argued by Aristotle. For example, Posterior Analytics I, 2: 71b 10; and II, 10: 93b 38.


like American Motors. It is not only difficult, but logically impossible to list the attributes necessary and sufficient to define their names. If individual species names are proper names of historical entities, then individual species may have a description, but not a definition. Indeed, if we push the historical contingency of species to its limit, it seems likely that inasmuch as species are continually evolving they cannot even be described completely. Ghiselin's point is well taken with regard to particular species, but it does not demonstrate that there can be no definition of the species category. We can define "rational individual," but only describe a particular person. Likewise, we may be able to define the category "species," but only describe each one.

The argument by Hull and Ghiselin that species are best understood as individuals explicates the observation that species are discrete biological and historical entities. It therefore contradicts only those species concepts which define species in terms of an ahistorical type or essence. It is compatible with Mayr's, Wiley's and Van Valen's concepts (as well as with the ecological concepts discussed below) because these concepts share its basic premise of formative contingency, that species form as dynamic elements of their environment.

The agreement among biological theorists that the definition of the species category should reflect "the actual process of evolution" tells the environmental ethicist that, if they are to be consonant with conventional biological theory, moral concepts of the existence and value of species must understand species to be historically indicated in terms of evolution and environmental process. In order to understand what a species is, one must look at its formative history, as well as its present actualities. Species are real

in the sense that history is real. They are real, but not eternal. Species exist contextually, but each has had a given evolution. The negotiable boundaries between species proclaim the reality of evolution, not the unreality of species. The biologists also suggest that the projects of species considered across genera may not be strictly comparable, for the differentiation of species within varying genera may be drawn along quite different lines. Although there has been considerable resistance to the argument that species be considered as individuals rather than classes or types, the agreement that species are distinct historical entities would seem to capture what is credible in the "radical" and realist views.

But for my thesis, establishing that species are distinct historical entities is not enough. By the grounds for moral considerability which I set out in the previous chapter, I need to show that species are not only historical entities, but living beings, beings with projects. I take the argument that species are individuals to be strong. But if species are individual beings rather than classes of beings, they are not the same sort of individuals that particular creatures are. Species are not just "super-organisms" whose principles of integration are the same as those of an avian or mammalian organism writ large. Natural beings are bundles of information as much as they are accumulations of matter, and the information which is a species is not captured in the organization of any individual creature. It may be technically correct to describe a species or ecosystem as an organism insofar as they have an inherent, systematic, constitutional structure, but species do not therefore live and die in the precise sense that individual creatures do. Nor do they have projects in the same sense.

Particular creatures have powers of growth, degrees of health, kinds of attainment and failure which cannot be understood in terms of any average, sum, or
epitome derived from its parts. This is the reason that we treat creatures as individual beings rather than merely a circumstance which arises from the concatenation of its members. Similar reasoning can be applied to species, and similar difficulties apply. We should remember that the same concepts and explanatory principles do not always apply over significant changes in scale. For example, one cannot explain the function of running in terms of muscle movement. An exact formulation of the biochemical processes of muscle contraction and relaxation might help in explaining how running is possible, but if one desires to understand the how, why, when, and where of a particular creature’s behavior, a different level of information is necessary. One might consider the creature’s overall physiology, daily and life behaviors, morphology, and ecological relationships to the other living and non-living elements of its environment.

There is also a significant change of scale in the conceptual move from creature to species, and similar pitfalls to beware of. Deciding that certain concepts are not applicable to discussion of species is relatively straightforward. Proposing new ones can be sticky. The concepts of maturity, gender, and intelligence pertain to the form and function of creatures, but not to species. Adaptation of form, ecological niche, speciation, and extinction on the other hand are concepts which apply to species, but not to creatures. What about the concepts I have been proposing, having interests, having a project? How will these apply differently to a species than to a creature? The activity of species will not be that of the individual creature because they are different kinds of beings. But what is the activity of species? It might be claimed that species qua species do not do anything. Genes randomly re-mix, weather patterns change, forests become desert, this group of creatures is buried in a mudslide, that one is stranded on an island. These sorts of things cause the changes of species, not the species themselves. Species
are strictly effects. But the adaptation or lack of adaptation, the behavioral or
morphological changes, the survival or extinction of a species is not entirely a matter of
forces external to the scale of organization which constitutes the species. The particular
scale of organization of forces which is the species is also a player in the unfolding
process, as are the particular organizations of forces which are genes, and those which
are the topic of global climatology. My claim is not that species are entirely self-causing.
I maintain only that among the causes of each species are the species themselves. The
organization of forces which is a species is not only a product, it is also one of the agents
responsible for the direction which evolution has taken and might take in the future.

Evolutionary biologists are primarily concerned with formation of species.
Ecologists, on the other hand are more interested in what species do with the forms
which they have. The ecological interest is with species as active and interactive entities.
Therefore, if there is already a working image of species as beings with projects it may
be found more in the ecological than the biological imagination.

Community

Ecologists share many general assumptions with biologists about the genetic and
environmental contingencies of species. Ecologists agree that these contingencies are
formative, not merely coincidental. They agree that species are separable conceptually, if
not actually, from their environment. But the primary concerns of the discipline of
ecology lie in the interdependences of species rather than in their formation, and the
species concepts advanced by ecologists reflect these interests.

The scope of ecology is in some ways narrower and in some ways wider than that
of evolutionary biology. The evolutionist is interested primarily in the speciation process,
and only incidentally with the extinction of any genetic line. The ecologist operates on a smaller temporal and spatial scale than this when he studies the introduction, resistance, or resilience of populations within a community. He operates on a larger scale when he studies the resilience of the community as a whole which experiences the disappearance of a certain population. While evolutionary biologists emphasize the contingent existence of species by focusing on the continuity of phylogenetic histories, ecologists describe the contingency of species in terms of their present ecological connectedness. The fact that species are always located in an environment is of primary importance. For species are given their biological and their conceptual definition by their ecological interaction and interdependence. Every species has characteristic relationships to its environment which, taking the perspective of the ecosystem, can be understood functionally. Ramón Margalef has argued for the closest identification of a species with these functions, defending, as Aristotle did, a conceptual correlation of form, function, and definition. Margalef writes, "As the term is used commonly, a niche lumps together several species that behave in a similar way in the system. Such similarity should be deduced from the values of the coefficients of interaction of the species in question with other elements of the system. If values are identical, no ecological distinction can be made between groups, all belonging to the same species." Margalef puts more stake in the possibilities of quantifying the boundaries of particular species than Aristotle did, but the basic premise is recognizably Aristotelian; a thing is, more or less, what it does.

Ecology sheds light on the roles and functions of species by determining their operation within ecosystems. But ecology is not only interested in species. The

\[\text{\textsuperscript{28}}\text{ Ramón Margalef, Perspectives in Ecological Theory (Chicago: University of Chicago Press, 1968) 7.}\]
discipline also seeks to understand the integration of ecosystems in order that the health or illness of systems can be recognized, predicted, and affected. Ecologists must choose a scale appropriate to the questions they are asking, for there is no single temporal or spatial scale at which the integration of ecosystems occurs. Environmental ethicists have a corresponding task. For the goodness of the world is not generic, but always specified. And the specification of nature corresponds to the differing scales of relevant integration from which the ecologist must choose. Environmental ethicists must also choose a scale appropriate to the questions they are asking.

Attempting to systematize the notion that there is no principle scale of ecological integration, Allen and Starr propose a hierarchical systems approach for ecological modeling which is meant to extend a general systems strategy outlined by Arthur Koestler. Koestler argues that systematists—whether they are linguists, psychologists, social scientists, or biologists—do disservice to their inquiry, and injury to their subject matter, when they disregard either the continuity or the discontinuity of the elements of their subject in favor of the other. The things which we call "parts" and "wholes" are not determinate enough to be definitive, either structurally or conceptually. The terms "part" and "whole," when applied to hierarchies, are relative and ambiguous; an organelle, cell, tissue, organ etc. is both an integrated part of a larger system and "a quasi-autonomous whole" with "self-assertive tendencies." Allen and Star adopt Koestler's term "holon"

---


(in preference to the more awkward "part/whole," or "sub-whole") to refer to elements of a hierarchy which, when considered internally appear to be whole and sufficient, when considered externally appear to function as parts of a larger integration. Considered as itself a whole, any element, a cell for example, determines the limit and proper functioning of its parts. The functions of the various parts of a cell are governed and regulated by information flowing at a rate and volume which is relevant at the cellular scale. The cell is the whole in relation to which its parts—the organelles, cytoplasm, and cell wall—perform their functions. Cells themselves perform certain functions as parts of tissues, but this does not negate the existence of cells as individual entities. A similar argument could be made for the elements of any structural or organizational hierarchy. The ecologist, by parity of reasoning, can treat species as discrete entities with individualized roles and functions, and also as beings which function as parts of larger systems of biological integration, local and global ecosystems.

Allen and Starr believe incorrectly that this hierarchical systems model supports their denial of the biological reality of any and all levels of biological organization. They argue that species are "only a phenomenon of classification," and "arbitrarily anthropocentric ecological entities." They warn against the "reification" of species claiming that it is only because species are operationally recognizable that they "become endowed, in error, with some sort of observer independent realness." Allen and Starr acknowledge that they disagree with Koestler on this point. They argue that Koestler's insight into the hierarchical organization of biological entities was blinded by a prejudice for "things" already familiar to him. So that, for example, when Koestler affirms that elements of the biological hierarchy include cells, organs, and organisms, it is more an

32 Allen and Starr, *Hierarchy* 149.

102
expression of his habitual commitment to the existence of these entities than anything else. In fact, Allen and Starr argue, the scale of holons from minute to universal is absolutely continuous. They claim that entities can legitimately be acknowledged at any level of hierarchy. However, it may be true that entities can be recognized at every level of a hierarchy and still be false that the levels are continuous in all respects, or that there are an infinite number of levels. The claim that nature is continuous may be true in certain senses, (e.g., spatially and temporally) but this does not establish the observer dependence of all biological variation and differentiation, because nature is not absolutely continuous in these aspects. Allen and Starr should acknowledge that biological differentiation is not absolutely continuous inasmuch as they agree that not all possible classifications share the same degree of legitimacy. Within an organism, biological differentiation is definite. There are differentiable systems operating hierarchically in any properly functioning organism. The differentiation between individual organisms is also definite, although admittedly biological individuality spans the widest spectrum of system-stumping cases. Even so, it must be admitted that the conceptual line dividing the organization of an organism from its environment is not drawn upon an utterly uniform field.

Plato made a penetrating diagnosis of the kind of relativism which Allen and Starr propose, referring to it as an inability (or lack of desire) to grasp the intermediates, to demand brashly either final order or chaos without considering the nature of the case at hand; "contemporary wiseacres come up with unity and plurality too quickly or too slowly; there's no system to their procedure. They make the unit indeterminate straight through.

---

away, and fail to demarcate the intermediates. It is an asset for the scientist, artist, or ethicist to have an encompassing vision of the actualities and the possibilities of the world, but to cling to the particular, or the absolute, is to abandon the very possibility of a discipline. The intermediates cannot be ignored or disregarded for their not being absolute. They are the specification which makes existence possible. One type of intermediate in the historical continuum of nature is the species. An understanding of biology or ecology must include a comprehension of species because it is according to their species that individual creatures become placed (biologically and conceptually) in the historical continuum.

I have been arguing that the fundamental values of the moral conversation are those surrounding the positive freedoms of beings with projects. I have been imagining existence as something positive, particular existence as a particular triumph. I find this image compelling, but I am unable to completely shake the suspicion that I am just a dreamer. Why must the forces of creation be blooming and urgent? Perhaps it is not life but death, the powers of negation and annulment which define the characteristics of nature. Why not say that this world differs from all others known only in its elaborate and relentless mechanisms of disintegration? Why not say, rather simply but not without some truth, that Earth is the planet of death? Death, it might be argued, is the unwitting crafter of species; only by the sheer enormity of the task do those few creatures—those too low or swift for the scythe—continue their lives another hour. These remainders, the progeny not just of chaos but of destruction and failure, if they have merits, have merits appropriate to their genealogy. They come ultimately from nothing.

the causes of their being are the forces of nothingness, they are therefore nothing and worth nothing. Life, on this view, is not some positive and venerable achievement, but wasteful and profligate, the meaningless slaughter of myriad beings. For each animate being, there is a mountain of death. If nature is fecund, it might be said, it is with a superfluity of death. The existence of creatures, of species, of the whole biota, might be described as only a shadow, a ripple of a passing and greater reality, death, close and machine-like, which chooses and deals like a madman with whom there can be no conversation.

I cannot disprove such a vision. I can only point out that it represents an unwillingness to engage in moral conversation, not a refutation of the possibility. I appeal to a different kind of worldly imagination because I believe that the moral conversation is worth pursuing, and that one of the bases for this dialogue is the agreement that certain beings have a positive and actual "goodness." Because I explain the presence of moral value in terms of a being's attainments and possibilities, I resist the reduction of a being's project to its most basic causes and seek the most developed, intricate, integrating causes which are indicated. When I look at species I see them along the lines that ecologists do, as dynamic and interactive beings. I do not think that it is always most useful to think of species in terms of the death (natural selection) which shaped them because death is not a positive concept. I do not mean by this that death is never welcome or preferable, but that even when it is preferable it is the negation of some being and some project.

The evolution of species is not just the paring away of the inviable, it is also the creation, building and specification of a new and self-preserving entity, the species. I believe that these accomplishments of constitution and preservation make some claims
on the moral subject to be allowed to play themselves out, not to be unthinkingly or crassly aborted. It is no secret that the ultimate fate of every species will be extinction—this world is not a place where things last for very long—but this does not mean that things are already over before they have begun.

Moral Ecology and the Considerability of Species

When environmental gardeners on the Natural Area Reserves System staff collected seed from the Hawaiian dryland shrub *Sesbania tomentosa* ('ohai) on arid Kaena Point on the island of O'ahu, and then returned to plant the hardy seedlings, they were cultivating more than just a few individual plants. They were assisting the redevelopment of an ecosystem which has reached stark levels of degradation, and acting to ensure the survival of the species. Individual plants are not necessarily benefitted by this type of activity, in fact each is put at risk by the shock of transportation and transplanting. But in cases like this it might be judged that the risk is justified by the intended service to the species and to the ecosystem. This and other similar programs which are conceived as having the special purpose of preventing a predicted extinction suppose that species, as well as individuals and ecosystems can be the objects and beneficiaries of cultivation. In two local cases, the captive breeding and release programs for the *nēnē*, the Hawaiian goose, and the *ʻalalā*, the Hawaiian crow, it is clear that the people involved intend that the programs save the species, not only individual creatures.

It is true that programs executed to insure the survival, health, or distribution of a species can have beneficiaries in addition to the target species. In fact, it is probable that service to a species is never the sole reason, and sometimes not even the main
reason, that such a program is finally implemented. The relation between a species chosen for these programs and the human community agreeing to such a decision is never one of merely ecological, or moral, connections. Perhaps the creature is an element of ritual or myth, as the bald eagle in America is a symbol of dignity, singularity of purpose, and potency. Perhaps the creature is elusive, or nocturnal, and therefore embodies the mysterious. Maybe it is difficult to cultivate, and therefore taken to reiterate an attitude that some would raise to the status of a cosmic imperative, that ‘nature be left to nature.’ Alternatively, as in the case of *S. tomentosa*, the cultivation and reintroduction of a species may be understood to be part of a program of generalized ecosystem revitalization, in which each plant and each species is intended to contribute to the vitality of the ecosystem. There are innumerable other reasons that programs which support the existence of a species may be deemed reasonable. The possibilities are limited only by the necessity that there be some perceived good associated with the continued existence of the kind. But, even if these other considerations happen to be applicable, breeding, cultivation, and reintroduction programs also provide a service to the species. I could argue dialectically at this point, from the definitions which such programs give themselves, that species can be benefitted, and therefore must have interests. But my thesis is that it is appropriate to consider species in this way, not only that it is common to do so.

What does it mean to say that a species has interests which can be served? I argued in Chapter Two that "having interests," "making claims," and "having a project" mean pretty much the same thing. A being's interests describe the limits of what it has already been determined to be, as well the grounds of its potentiality, adaptability, and creativity. "Having interests" means having enough integrity to be a being rather than
just a proximal and accidental association of elements. It means having needs which
must be met in order to maintain existence and suitable growth. If the integrity of a
being is considered analogous to the integrity of the rational subject, then we may refer
to that being as a virtual subject. Likewise, we may refer to it analogously as "making
claims" upon its environment for its preservation and realization. Species, as integrated
and integrating beings, are also virtual subjects. They have projects, make claims, and
have interests pertaining to their adaptability, evolution, and ecological dovetailing.
These interests are much less definite than the need for $x$ amount of sunlight, oxygen, or
water (which are clear and measurable interests of particular creatures), because they
pertain to conditions which may not yet obtain. They are nonetheless real interests
which deserve appropriate consideration.

Living beings—creatures, communities, species—have to exist in a certain way, or
they would not exist at all. But the hypothetical necessity implied by the fact of having a
history is not absolute necessity. At the same time that living beings are pushed along by
the finality and completeness of their existence, they glide elusively in front of it. They
are never captured by the pursuing necessity of their environmental relations. Their
possibilities are not exhausted until they die. Living beings organize and orchestrate the
causes of their existence. We can refer to this capacity by saying that living beings are
directed, or more correctly, that they direct themselves, with an immanent, inceptive,
concreative organization without which they would not exist as the beings that they are.
This self-directedness is explicit for cognitive beings, implicit for non-cognitive beings.
But all living beings, including species, carry out their projects according to principles,
forces, or energies which have an integrity, individuality, and creativity which we might
call rational, as Plotinus and Boethius suggest, by analogy to intellect.
Ecosystems are labyrinthine webs of interdependencies. They are not only webs in which selection is constantly occurring, although the interests of biologists justify the emphasis which they place on this process. They are not only webs of energy flow among parts, although the quantification of the balance of nature in this way has led to new understanding for ecologists. Ecosystems are also elaborate webs of connected lives of creatures and intricate histories of species. The epistemological and moral values which are of consequence at these levels are not merely those of selection and energy flow. The particular enterprise of a species *in principle* cannot be accounted for by the selection mechanisms which may figure among its causes, or by the quantification of the biomass and energy consumption of its members. Species represent a higher order of organization. Physical or chemical principles, or the primitive biological principles of the cell, are not adequate terms of description and explanation at this order.

If my arguments that species are real beings with projects and interests are granted, and if it is granted that species have their own ecological and ethical significance, it might still be objected that species are never part of ecosystems in a more significant way than individual creatures are, and that therefore individual creatures should always be given priority with respect to environmental responsibility. The balance of ecosystems, it might be argued, is maintained by the particular plants and animals which co-exist in them. Species may exist, but they are not the operants of ecosystems, individuals are. But, species are deep structural components of ecosystems; they are elements of integration at an ecological scale in a way that individual creatures are not. The order and synthesis of an ecosystem, or its disintegration, describe relations among the component species, not the individual members. In terms of the functions they
perform in an ecosystem, individual members of species are generally replaceable and interchangeable with other members of the same species in a way that species are not replaceable by other species. Species have an epistemic priority for the ecologist because they have this ecological priority. This is not to claim that species deserve moral priority in all cases, or in all respects, but that if one is concerned with determining environmental and ecological responsibilities, the interests and claims of species deserve fundamental consideration.

Different species are sometimes said by ecologists to fill the same niche in different ecosystems. One might infer from this that species are interchangeable after all. But that is not true. When ecologists talk about species filling the "same" niche they are speaking with inexact terms about generic types like "predator," "herbivore," "nectar gatherer" etc. They are considering species which in this or that respect perform an analogous function. Working ecologists necessarily define a niche in terms of some parameter, or group of parameters, which they have some purpose to measure. The environmental relations of real species are extremely complex. These relations will vary with morphology and behavior, and with changing environmental conditions. The exact role of any one species in an ecosystem can never be duplicated by a different species. It is unique, as the species is unique. James Haefner argues that, "In its simplest form the definition of a niche is a description of the life cycle of a species." As Mayr argued above, to say that two species fill exactly the same niches is to say that they are not two, but one.

Species have a certain priority for the biologist who seeks to define processes of generation in the living world, because they are the limit of generation; for the ecologist

---

who is interested in environmental communities and relations, because the form of the relations is given by the species rather than the particulars; and for the environmental ethicist who would determine the form and extent of responsibilities which cognitive beings may have to the non-cognitive living world, because even if one admits only responsibilities to particular creatures, the projects of most creatures are markedly specific rather than individual. In these cases, the project of the species must be understood before one can know what is due the creature.

When species are maintained in zoos or private collections they no longer carry out their formative and constitutive projects. If species are only genes, they can be preserved "on ice." If they are interbreeding populations, then zoos may preserve them if they can maintain enough specimens. If, as I argue, species are dynamic and interactive beings whose existence records a behavioral, genetic, and functional response to an environmental history, then two pairs in a zoo does not constitute the saving of a species. These specimens cannot carry out the behavioral and functional projects which indicate their specific form.

**Extinction**

Extinction is an event of moral as well as ecological significance. The extinction of a species and the death of an individual are importantly different, because the death of a species removes the practical possibility that there will ever be another of that kind. Extinction marks the end of a history and a striving of which the individual creature is only a part. This is true whether the cause of extinction is the destructiveness of humankind or meteorological catastrophe. It is true whether the extinction marks the abrupt and final end of a lineage, or whether it is due to speciation, the divergence of a
lineage with the extinction of ancestor species. It does not mean that extinction is not a necessarily recurring process, only that its significance is not that of the individual death.

What is lost when a species is lost? According to my argument, a being whose goodness is unique and irreplaceable, whose claims have the prima facie authority of its history, evolution, and ecological role, and whose dynamic existence and agency have taken part in the creation of the only living world we know. The idea that species are immanently organized, innovative entities has a long philosophical history. There is an ancient and medieval argument which makes the case that the relationship between creature and species is analogous to that between rational individual and "soul." A species is a kind of agent, not conscious and personal, but dynamic and creative, nonetheless. I will sketch out the development of this idea by Aristotle, Avicenna, Maimonides, and Spinoza. This argument is intriguing—some might say bewildering—for as the argument is cultivated over centuries its proponents remain committed to ascribing not only intelligibility but intent to species. This may seem at first to be a bizarre and indefensible claim, but I maintain that there is more to this than naive anthropomorphic projection which is easily and appropriately displaced by better science. By defining and defending the goodness of the world in terms of its creative rather than its mechanical aspects, the argument pursues a certain continuity and interdependency between axiological and physical assumptions about nature which allows the moral conversation to consider humans to be one kind of being among many, rather than one forever separate. It is necessary to recognize a kind of creativity in nature, the argument goes, if moral life is to be possible.

25 Holmes Rolston once suggested that to cause species extinction is "to kill the 'soul' as well as the 'body'." He may or may not have intended something along these lines. *Environmental Ethics* (Philadelphia: Temple, 1988) 144.
Cybernetics is a term which refers to the consideration of self-regulating systems, among which must be numbered living organisms and ecosystems. The word was coined from the Greek word *kybernetes* meaning helmsman. The image of the helmsman suggests the intuition that nature is not a pilotless ship whose motions are accidental and without purpose. Living beings are evidently self-directing (though not self-creating). Aristotle believed that the existence of a "helmsman," or immanent directing principle in living beings, was among the basic axioms of natural science. For Aristotle, the existence of the animating principle he referred to as soul was not a matter of faith, mysticism, or sentimentality. It was a demonstrable premise of a rational naturalism. Aristotle's demonstration of the existence of a non-physical, animating force in living beings went like this: Living beings are bodies capable of self-nutrition, growth, and decay. Matter *qua* matter has no biological form. For not all bodies are animate. But there are living bodies. Therefore, there must exist something which determines living activity which is different from the principles which determine bodies to have the characteristics of bodies. Aristotle identifies this formal actuality as soul.

I have rendered Aristotle's premise as "matter *qua* matter has no biological form," but Aristotle would insist on the stronger claim; that matter as such has no form whatsoever. Aristotle's notion of matter was not as physical "stuff," but as pure potentiality. It is a reasonable approach for the naturalist to take; for matter, in the generic sense meaning "what a thing is made of," is potentiality. The very same soil, water, and sunlight can be transformed into bananas, papayas, or guavas. The form

growth takes is not due to these material resources, but to the form a seed contains within it.

If matter is potentiality, Aristotle argues, then form is actuality, the source of determinacy. Actuality is of two grades, which are related to each other, Aristotle argues by analogy, as knowledge is related to the exercise of knowledge.\textsuperscript{38} The soul is the first grade of actuality, because there is a sense in which it must be present and complete before it is revealed in the growth and directed activities of an organism. The life-cycle of the oak is present in the acorn as knowledge must be present and complete before it is employed. The soul, then, is "the first grade of actuality [entelechy] of a natural body having life potentially in it."\textsuperscript{39} It is the principle of an immanent organization which guides the activities and development of the living body.

Marjorie Grene points out the ecological ramifications of Aristotle's concept of soul when she writes, "In general [for Aristotle] the 'soul' of any living thing is its style of operating on and in its environment, no more, but also no less."\textsuperscript{40} This "style," which orders and directs the development of the individual insofar as it is one type of thing rather than another, is for most kinds of living beings markedly specific rather than individual; individual style defines itself in terms of the life style of the kind. In effect, for Aristotle, saying "the soul" is a short-hand way of referring at once to a creature's functional purpose, its blueprint or morphological plan, and the organic processes of matter's generation into that living being. That process, argues Aristotle, by which the

\textsuperscript{38} Aristotle, \textit{De Anima} II 412a, 11, 22; Richard McKeon trans. (New York: Random House, 1941).

\textsuperscript{39} Aristotle, \textit{De Anima} II 412a, 30; McKeon edition.

\textsuperscript{40} Marjorie Grene, "Aristotle and Modern Biology" in \textit{The Understanding of Nature} (Dordrecht: Reidel, 1974) 74-107, 94.
individual strives and which the soul directs, is not only the maturation of the individual creature or the generation of another, but the continuation of the species. With the same reverence for the cyclical and eternal which we noted earlier, Aristotle writes, "Since then no living thing is able to partake in what is eternal and divine by uninterrupted continuance (for nothing perishable can ever remain one and the same), it tries to achieve that end in the only way possible to it, and success is possible in varying degrees; so it remains not indeed as the self-same individual but continues its existence in something like itself—not numerically but specifically the same."

Aristotle's belief that the world and species are eternal is conspicuously incongruent with our own belief in evolution, but this does not interfere with the logic of his biological observation; particular creatures are individuals, but with a curious individuality which, in creating itself, reiterates and details its kind.

In the eleventh century, Avicenna picks up Aristotle's argument that the existence of a specific organizing principle which is the cause of the activities of living bodies is a necessary hypothesis. His reasoning closely follows that of Aristotle, but Avicenna's argument especially brings out the point that to call a thing a cause and to call it an intelligent, creative cause are not equivalent; soul must be considered a creative cause. Avicenna writes,

We reason thus: we observe that certain bodies sense and move voluntarily. We observe, in fact, that some bodies feed, and grow and reproduce their like. This does not happen on account of their being bodies. There must be something to them to cause these things apart from their physicality. Whatever it is that gives rise to these things (and, in general, whatever acts as an initiating source of

---

41 Aristotle De Anima II 415a, 22-415b 7; McKeon edition.
action) cannot be wholly devoid of will. That is why we call it 'soul'. This name is applied to things not because of what they are but because of what they do.\(^2\)

The soul, the "source of the activities" in living things, cannot itself be a body, for the activities of a body are not a function of the body \textit{per se}, but of its form. Therefore, Avicenna concludes, "the soul is not a body, but a constituent part of plants and animals, either a form or something like one, or a 'principle of realization', an entelechy.\(^3\)

This might seem to imply that everything which has a form has a soul, that every inorganic lump, every artifact—anything, in fact, which has a characteristic mode of action or inaction—has a soul, by definition, is a living thing. If this is true, then the distinction on which the concept of soul was founded vanishes. If there is no distinction between the animate and the inanimate, there is no need to propose a cause of this distinction. But having a form and having a soul are not the same, even if forms are more like souls then they are like bodies. The soul is the first entelechy of a living body, which is not the same as its form. Entelechies and form are not identical concepts, argues Avicenna; for, all forms are entelechies, but not all entelechies are forms. A pilot, for example, is the entelechy of a ship, but not the form of the ship. The soul however is both form and entelechy, "a spring of action and motive force, a form as regards matter, but an entelechy \textit{vis-à-vis} the whole." Avicenna's argument defends a degree of autopoietic freedom which makes moral responsibility and moral considerability possible. Living beings are not eternal (what would be the sense of freedom?); they become what they


are in a world, guided by individual and specific entelechies. His defense of the soul implies not the superfluity of history but its significance.

There are two kinds of entelechies, argues Avicenna, and following Aristotle he ranks them as primary and secondary. Avicenna parses Aristotle's analogical definition of the two grades of actuality—that the first is related to the second as knowledge to the exercise of knowledge—in terms of the sufficiency of knowledge to a situation. Knowledge (in contrast to the facility of familiarity—having a "knack") is sufficient to a situation without being exhausted by it. Knowledge adequate to certain conditions is related to a greater body of knowledge, as organ is related to the body, or the body to the species. "Primary entelechy is what makes things actually members of their species," Avicenna argues, "shape, for example, in the case of swords. Secondary entelechy is some activity or disposition attendant on the members of species. Examples include cutting in the case of swords, or discrimination or vision... in the case of men." Secondary entelechies belong actually to the species, but need not be exhibited actually in the individual. The secondary entelechies, together directed by the soul, "issue through the organs." The organs have an order of their own which is the principle of their generation and operation. But none of these constitutive principles is sufficient to the organization of the body proper. This is the charge of the first entelechy.

Avicenna's definition of the soul therefore (quoting Aristotle's words, but having clarified their meaning) is, "the primary entelechy of a natural body organized so as to carry out the functions of life." Avicenna's commentary brings out Aristotle's naturalistic intentions. By "soul" Aristotle and Avicenna intend a principle of biological organization which is specific rather than uniquely individual, an energy or force that we would call

---

the species. Their argument claims not only that species exist, but that they are integrated, integrating, concreative beings, by my argument above, worthy of moral regard.

Why all this talk about "soul"? Why not say, more simply and directly, that the animate differs from the inanimate by the presence of life? Avicenna responds that, if, having acknowledged that there must be some cause of the behavior of living bodies, someone wishes to call that cause "life," he has no quarrel. However, this is not what is commonly meant by "life." The term "life" is commonly understood to mean either the state of exhibiting the behaviors of a living being, or the fitness of a body to carry out life functions. However, if by "life" is meant the cause of the aptitudes of a living body, then this is the same as what he means by the first entelechy, and there is no disagreement.45

The first entelechy of living beings is termed "soul" by Avicenna by drawing an analogy between its ability to regulate activity and the will of the rational soul. The analogy between creative, organizing, immanent principles and cognitive intellect might be drawn even further, to include natural systems as well as species, as it was in the twelfth century by Maimonides. For Maimonides, the significance of motion and order did not end with the biological. His vision of an active, living universe resonates with some of the writings of contemporary Deep Ecology. Speaking of the regularity of the motions of the heavenly spheres, Maimonides writes,

That the sphere has a soul is obvious upon reflection. This will sound difficult or improbable only to one who takes 'having a soul' in the sense that a man, an ass, or an ox has a soul; but this is not what is meant by the claim. Rather, what is

meant is that the sphere's motion is surely evidence of the presence in it of a principle that moves it.46

Maimonides agreed that the activity of natural beings was self-directed to the degree that it could be compared to will, but he drew the analogy in much broader strokes, in which the rational will is not the model of natural creative order so much as a specification of it. Maimonides developed a new manner of speaking of natural forms and principles. He spoke of them as angels, giving a clear logic to otherwise confusing scriptural references, and insisting that nature is not only mechanical, but also living and responsive.

Maimonides' argument articulates some of the central theses of the Greek tradition of natural philosophy. Behind the self-evident growth and decay of the single organism, Plato and Aristotle had recognized a specific, and non-random continuity. Avicenna had conceptualized this directedness of organic activity, both individual and specific, as an immanent striving, an entelechy. But, principles of change, motion, and organization do not belong only to biological beings, but also to the heavenly spheres. These principles, Anaxagoras intuited, and Aristotle argued, are also like intellects, but disembodied intellects. Maimonides organized, and naturalized, these premises: if disembodied intellects direct nature, then they are natural forces. They are causes of natural phenomena, not self-caused, but limited, more like messengers. "Aristotle says... 'disembodied intellects'," Maimonides writes, "we say 'angels'."47


Maimonides’ argument that natural forces and principles are equivalent to the biblical angels is not intended to prove that angels exist. He accepts this as scripturally established. His argument is rather for the philosophical defensibility of a naturalistic interpretation of the scriptural angels, and for the recognition of originality in nature and in history. The term "angels" refers to principles, actualities which mediate between chaos and order. They make the world possible by making it determinate. In this sense, they are messengers and agents of creation; messengers because they are not entirely self-creative, agents of creation because the world is not determined until they make it so. Species are angels, as are each of the many principles which govern the hierarchical organization of a living body, an ecosystem, or a world.

The real import [of the scriptural texts which Maimonides has cited] is to proclaim that being, including particular individuals and even the formation of parts of individuals such as they are, is brought about entirely through the mediation of angels. For all forces are angels. How blind, how perniciously blind are the naive! If you told someone who purports to be a sage of Israel that the Deity sends an angel who enters a woman’s womb and there forms the embryo, he would think this a miracle and accept it as a mark of the majesty and power of the Deity.... But if you tell him that God placed in the sperm the power of forming and demarcating these organs and that this is the angel...he will recoil; for he does not understand that true majesty and power are in the bringing into being of forces which are active in a thing although they cannot be perceived by the senses.\(^48\)

Maimonides is not doing bad science here, he is doing creative and careful thinking about the relation of the realm of values to the physical. Maimonides begins from the axiological assumption that the world is good, and the corollary that mechanical

principles alone cannot explain why it is good. "Angels" is not just an obtuse rendering of "mechanical laws" in the sense of observed order. Just as for Avicenna to say that a thing had a soul was not just another way of pointing out that it was alive. Maimonides' natural angels are not mechanical, he argues, because they have, in a sense, volition. The angels are not just a description of ordered change, they are the causes of it. Their existence and action is decisive, not redundant. The existence of a dynamic natural order does not render the world necessary in all respects. Maimonidean angels do not contravene physical laws; they are the hypothesized causes of which natural laws are the description. They organize, arrange and coordinate in such a way that they compose living, inanimate, even non-material beings. The difference angels make is akin to the difference that minds make. The freedom and creativity which they exhibit is analogous to the freedom and creativity of intellect. It is a difference and a freedom which makes the moral and scientific hypothesis of their existence reasonable.

Maimonides insists that natural forces are non-mechanical, in a sense volitional, because description in terms of choice, or will, is a way of conceptualizing that beings contribute to their own causes and possibilities. As Avicenna argued, the term "will" is used not because of what they are but because of what they do. It is not intended to ascribe self-consciousness or cognition universally. Spinoza retains the rationality and the activity of the Maimonidean messengers in his concept of conatus. His insistence on describing natural processes as if they evidenced a rational (if not cognitive) volition wrote Spinoza out of the book of early modern science, but then it communicates moral rather than epistemological premises. That is, it voices his commitment to the world insofar as it is good, rather than insofar as it is necessary.
Glossing Maimonides' insistence that natural forces be considered as volitional, Lenn Goodman argues that, "To speak of choosing among alternatives is to acknowledge their possibility within a given framework of assumptions and to abstract from the assumptions that exclude or necessitate one alternative or another." Therefore, the assumption that natural beings participate in daily creation is a correlate to the assumption of moral value, or goodness, in nature. Even if choice is arbitrary, by its participation an agent "owns" the repercussions of its actions. It makes a place for the ideas of the moral dialogue. If this world is the only possible world, what could be the significance of regarding it as good? Because we can abstract from the world, imagine that certain causes did not obtain, we can compare different possibilities. In the extreme case, we can measure the existence of this world against its non-existence. To say that something—God, angel, conatus, species, person—directs nature by determining it from among alternatives is a way of acknowledging that specific and individual goodness is not inevitable. If there were no alternatives there could be no moral value. A similar line of reasoning, and a similar moral attribution of determinative power follows from the historical, contextual existence of creatures, species, and other natural beings. From among manifold alternatives made possible, but not necessary, by their past, natural beings carve their place. Natural beings are not just a bundle of causes, they are an organization of causes, specifyable in terms of a unifying project. The striving of the conatus, like the volition of the Maimonidean angels, like the will of the Kantian moral

---

subject, "performs a specifying function that no mere automism, whether mechanistic or intellectual, can achieve."

The synthesis of ideas with which Maimonides details the place of human knowledge and human responsibilities in a world which is both lesser and greater than the human is exemplary in its simultaneous commitment to the assumptions and sensitivities of his culture and to realities which exist in spite of culture. Questions of value cannot be answered simply by ticking off the assumptions of one's community, if only because the requisite homogeneity of value assumptions is not normal (or healthy!) in a community. Neither is science the obvious and unproblematic ground of axiology. Maimonides' characterization of the dignity and value which are to be found in nature is successful because it integrates moral assumptions with scientific ones. It is established in tradition, yet not to the degree that it cannot be innovative in its interpretation and reevaluation. It is a model of moral ecology.

But what would a modern counterpart have to look like? How can moral and scientific assumptions be integrated when science sets its face against teleology? I have tried to show that some teleological assumptions, especially those which recognize a necessary relationship between form and function in living beings are fundamental to the sciences of life. The claim that a species was designed to serve a certain function is quite different from the claim that the design it has does in fact serve some function. The moral element that I would like to add to the basic teleological assumptions of the life sciences is the recognition that forms and functions are not just given, they are achieved, and living beings participate in their achievement.

---

50 Lenn E. Goodman, "Maimonidean Naturalism", in Neoplatonism, 172.
I do not believe it is necessary to "buy into" the world view of medieval rational monotheism in order to recognize that the assumption of freedom and creativity is not only a moral premise. If we are to take evolution seriously, it must also be a biological one, central to the notion of the health of a creature, species or ecosystem. Creativity in species, which appears only against the relatively fixed background of particular creatures, is exhibited in their ability to adapt to new circumstances. The health of a species or an ecosystem is a function of its ability to be creative in this way.

Extinction is therefore an occurrence of moral as well as biological significance. It marks the end of a specific goodness in the world. It is the end of a project and a history of creative interaction and world-building, which it is natural (though not sufficient) to compare to the death of a rational individual.

I have argued that it is cogent to consider species worthy of moral regard. I have argued that ecological responsibility may require, in certain cases giving the interests of a species priority over the interests of individual members. My position however is not an anti-individualism. In the case of rational individuals, it is quite the opposite. A prejudice for the individual can interfere with ecological understanding and environmental responsibility if it acts to obscure other biological and ecological scales and values. Even so, particular creatures, especially rational creatures, may have interests which are not considerable in strictly ecological or specific terms. Kant was not mistaken about the moral importance of rational individuals; the integrity and design of self-consciousness make some very lofty claims, and deserve some special consideration.

Rational individuals have a poignant integrity. The dignity of the self-conscious being, as

we have seen, can be a penetrating model for the integrity of other natural beings. But
different kinds of individuals do not necessarily deserve the same biological, ecological,
or moral regard, because the principles of individuation are not always equivalent. The
self-conscious creativity of subjects allows us to enjoy the freedoms of distinct
individuality. But freedom cuts both ways; the privileges of rational intellect are
accompanied by the responsibilities of the moral conversation. This will be the topic of
chapter 4.
Chapter 4: Moral Responsibility for Species

moral responsibility as ecological niche—the case of the animals—

environmental gardening

My claim that species deserve moral consideration is either established to the reader's satisfaction by now, or it is not. In this final chapter my argument turns to the human side of the question of environmental responsibility. I review the concepts of stewardship and despotism and challenge the view which equates the opinion that humans are cognitive and reflective, and therefore different from other creatures, with the endorsement of a rank human hegemony. Rational self-consciousness grants individuals unique powers and freedoms, but it is also the ontological and phenomenological basis for participation in the moral dialogue and its attendant responsibilities. In effect, I argue that the metaphysical basis for moral responsibility is subjecthood. It has been argued that an attitude of despotism toward nature has been made inevitable by the intellectual and cultural history of "Western" culture. It is "science," "Christianity," or dualistic thinking, this type of argument maintains, which is the cause of our environmental ills. I will try to show that even if these arguments begin with legitimate criticisms of intellectual and cultural trends they tend to overstate the case. My position is that subjectivity marks the beginning, rather than the end, of environmental responsibility, its possibility rather than its a priori defeat. I offer a positive description of stewardship in the sense I have defended by reviewing and discussing the medieval philosophy of ecology of the Ikhwan al-Safâ as it is developed in the philosophical fable, The Case of the Animals vs Man Before the King of the Jinn.
Moral Responsibility as Ecological Niche

Western civilization is anything but monolithic. Claims that our present ecological problems are due to "Western culture," "science," or "Christianity" ignore the multivocity of these projects and often treat ecological ignorance and short-sight on a clinical model, as if it were an affliction, a tumor which might be localized and removed. In fact, our cultural attitudes toward the environment are no less complex than any other cultural phenomena. Disparate ecological attitudes have been fostered in traditions of despotism and of stewardship, which are themselves diverse.

John Passmore argues that the tradition of despotism, marked by the conviction that "all things are made for men," can be traced to what he guardedly refers to as a 'Christian arrogance.' The perspective that nature exists for human benefit developed along two lines, according to Passmore. One position, following Genesis, maintains that "man has dominion over nature in the sense that he has the right to make use of it;" a second, generated by a synthesis of Stoic with biblical thinking, that "nature exists only to serve [human] interests." We have inherited, in cultural and ecological adumbrations, testimony to the wide influence of the "Greco-Christian" despotic view.

Passmore points out that there has also been a dissenting tradition. He mentions two important minority traditions which agree that humans have responsibilities toward nature. The first, which he calls "conservationist," "emphasizes the need to conserve the earth's fertility, by culling, and pruning and good management." The second sees a more active, interventionist role for humans, "it looks to the perfection of nature by man." As

\[1 \text{ John Passmore, } \textit{Man's Responsibility for Nature} \text{ 2nd ed. (London: Duckworth, 1980) 17.}\]

\[2 \text{ Passmore, } \textit{Man's Responsibility} \text{ 39.}\]
an example, Passmore refers to the ideal of the seventeenth-century garden in which "the idea of mastering or conquering nature is pre-eminent. 'Perfecting nature' is understood as imposing form on it."^3

The position I am defending doesn't fit exactly with Passmore's parsing of the tradition. I agree that in a sense nature's existence serves humanity's interests, but find nothing extraordinary about this. For the same might be said of all creatures and species. I maintain that by our actions we may either cultivate goodness or destroy it, but do not premise this on the assumption that nature per se has need of correction or improvement. We are gardeners of the earth, not for having seized the station so much as by default. We occupy a station from which we may choose life: individually, communally, scientifically, technologically, spiritually.

Something like "steward" may be a good description of the ecological and moral role which it is possible for the rational agent to achieve. Whichever terms we use, the distinction of being choice-makers implies a responsibility, to be discharged with more or less excellence, of tending to the world in which we live. The reflectivity of self-consciousness implicates one in a sphere of meaning, selection, and accountability—the sphere of moral responsibility. Because we are able to appraise both our own interests and those of others, we can understand in a way that non-reflective beings cannot that the claims which we make upon the world as individuals and communities may conflict with the claims of other beings. This capacity for reflection is the power of moral consideration.

Self-consciousness confers moral responsibility because it makes one an actor. Insofar as we act, we must choose. That choice is subject to review in terms of the

values of the community. It is subject to our own conscious consideration and subconscious review. We are accountable for our action. This, together with the arguments for intrinsic value, constitutes one naturalistic and humanistic way of explaining the root of moral responsibility. It is naturalistic because it establishes the ground for human responsibility toward nature on projects, interests, and claims of natural beings, and on the objective capacities of human beings; humanistic because human values are neither reduced to, nor subsumed under, the values of other natural beings.

Some organisms exist as clearly discrete bodies, but function in their community more like an organ than a self-sufficient organism. (In fact, as I have argued above, there is not any living thing which is entirely self-sufficient.) Social insects exist—in the most full expression of their bee-ness or ant-ness—as a social body. Humans, on the other hand, although they exist importantly as part of a community, do not exist as the community. Humans, it must be admitted, are in a sense as inseparable from a community as are ants, if only because even the most sincere recluse is dependent materially upon the skills and actions of other humans. Perhaps even more telling is the fact that we abide in the activities of language and culture in such a way that even our most personal existence reflects our constitution in and by a human community. But humans are not insects. Humans are able to remove themselves from the communal body in ways that non-reflective beings are not. We interact with, and become more or less committed to, the cycles and symbols of our culture, building ourselves while shaping the social body. Hence, the constitution of the community and the individual's station are not given biologically for humans in the way that they are for, say, insects.
Humans advance the sophistication of their personal and communal life within the synergetic and elastic confines of language. This may be our greatest difference from the other animals. Our methods and modes of communication represent no pre-established limit of human experience; they are an overflowing resource—a spring of creativity. The pathways of knowledge and culture however do not only chart the striving of the human species, or of particular cultures or communities. They also record the visions, successes, and personalities of individuals. For the information of language and culture does not pass through the individual unchanged. Neither is it changed only in random ways. Individuality is important for humans in ways that would be meaningless for non-cognitive, non-reflective, or non-communicative animals. Individuality of intellect, the ability to intend, speculate, analyze, and analogize, is a privilege and responsibility for human beings. Moral responsibility, however, is an individual project and achievement, not a specific one.

Is it only hubris that might allow one to think it preferable to be a human being than a sedge? I don’t believe so, but my argument concerning stewardship does not depend on that judgement. I am not arguing that there is a definitive degree of goodness in human project’s, but that there is a certain quality of goodness. Humans pursue moral projects, not only biological ones. Reflectivity involves one in a realm of intention, and judgement. The sedge cannot prefer this, the human being cannot disclaim it. Human beings are morally responsible creatures. This does not mean that there is some guarantee that we will always make the best decisions, or even that there will invariably be a preferable road to follow. It means that we are answerable for our actions. Self-consciousness, moral agency, and the semiotic rendering of experience can make every human action meaningful, and therefore disputable. Personal, cultural, and
historical reflectivity present human action for judgement. The inevitability of judgement is evident in the urgent pursuit of meaning with which biography, fiction, historical narrative—and the many other kinds of intellectual and spiritual activity—are produced and digested. It is evident in the universality of interpretation; we incorporate by making meaningful. Humans abide in a life of vigorous interaction, obligated to choice. This is a wellspring of joy and freedom. It represents the possibility of consciously and creatively cultivating goodness in the world, of acting in the interests of other beings. It can also be tragic, for moral certainty is elusive.

Personal and communal human values are not the only measure of environmental action. There is also another authority. The living world, which testifies to our diligence or bares the scars of our negligence, is a credible measure of our action with respect to it. The judgement which human action must meet is not only human judgement.

I am arguing that we are obligated to consider the interests of other beings, that we have a responsibility to care for the world. It might be objected—as Dave Foreman and the Earth First!ers specialize in doing—that the world has no need of being tended; it needs only to be left alone! The best management practices are no management practices! This position has a certain appeal to many who revere wilderness and wildness. A strong case might be made that if there are areas of pristine wilderness which have somehow remained untouched by human activity, they deserve to remain uninvaded. But given the global circulation of pollutants by air and water, and the determined itineracy of individuals seeking the wilderness experience, it is hard to imagine there are many such places. At any rate, anywhere that human activity affects the environment we have need to understood the difference between responsible and irresponsible action. That seems to be practically everywhere. Even where a "hands-off"
policy is an option, it is not always the best option, especially where there is restitution
to be made. Perhaps the island of Kaho'olawe, for example, deserves more than to be
left alone with its tons of unexploded ordnance. Even decisions which seem to epitomize
non-involvement—resolutions to return land to a state of minimal human intrusion, to
preserve and protect forest, mountain, or desert for their own sake—are prompted by
notions of responsible action. Building a protective fence (physical or political) around a
forest is an act of stewardship. Stewardship is not necessarily manipulative and
intervening. For actively promoting the interests of other beings may demand only a
certain amount of self-policing.

I am not proposing that there is one best way to manage the earth. Even among
those who would agree in principle to the objective of stewardship, there will be
disagreements on the case by case handling of species, ecosystems, or nature reserves.
This seems inevitable given the political, economic, and epistemological obstacles to
universal agreement. The details of good stewardship must be worked out in the field.

Which species are in danger? Which are degrading the ecosystem by their presence?

Which ecosystem would be benefitted by the introduction or reintroduction of an absent
species? Which could endure it? Which would suffer for it? The answer to these
questions cannot be answered except in terms of the projects of species, creatures, and
natural systems. The comparative assessment of projects cannot be made entirely a
priori. It must be handled empirically, based on pertinent biological and ecological
information about the creatures, species, or systems under consideration. The concept of
stewardship does not already contain an explicit vision of a state of affairs which is
ultimately preferable ecologically and morally. The expertise of biologists and ecologists,
as well as economists, agriculturalists, and social planners, must be applied to our understanding of the intricacies of interconnected projects.

The use of the notion of stewardship to justify the abuse of the natural world is chronicled in a number of good historical treatments. The authority of stewardship has been directed toward governance, dominion, and hegemony—loaded terms legitimately understood to connote unjust political, racial, and gender relations. The earth is not ours to do with what we will, as if moral and material responsibility were simply a matter of cultural consensus or scriptural decree. The concept of stewardship, the idea that human beings may be qualified and obligated to act as caretakers of the natural world, has been disparaged by being identified with a history of adventitious rationalization and irresponsible action. But the idea of stewardship does not entail the sanctioning of hegemonic human domination of the non-human world; on the contrary, stewardship may be an expression of human moral and ecological responsibilities.

Stewardship is not despotism. Objecting to the idea of stewardship by calling out the environmental degradation perpetrated in the names of "development" and "progress," or by denouncing the patent inability of decision makers to act as if they understand the complexity of issues and responsibilities, may be to mistake the misuse of the idea of stewardship for its incoherence. The United States Bureau of Land Management has systematically exterminated the large predators in order to make their charge more "productive," i.e., safe for cattle. But perhaps this is not an indictment of

---

the possibility of environmentally responsible land management so much as a revelation of the political obligations of some policy makers. Environmentalists have been vocal critics of the notion of stewardship, but the concept of stewardship cannot be totally bankrupt, or the environmentalist would not be able to challenge the Bureau on the grounds of poor management practices. Irresponsible environmental practices cannot be exposed except from some vision of responsible ones. The objection, "This is not how someone who is concerned for the land and knows how to care for it should act," assumes the possibility of a responsible caretaker. The steward I have in mind is not a prudent despot who manages conscientiously for abundant or long term yield, but a person who, *qua* steward, acts with reverence and respect, in the interests of the land and its creatures. Tyrants act in the supposed interests of tyrants, stewards in the interests of their charges.

During its conceptual history, the idea of stewardship has become mingled with assertions and attempted authorizations of human domination of the non-human. This history includes biblical elements and an impetus from the early proponents of modern scientific method. It has become something of a platitude to bundle all of these factors together for convenient dismissal—as if we might cure our ecological alienation by expunging its ostensible causes. For example, in prefatory statements to a recent article Carol Christ writes, "many people uncritically accept the view that "man" is superior to "nature" and has the right to "use" nature in any way "he" sees fit. Although clothed in the garb of modern science, such a view has its root in the theological conceptions that
separate both God and humanity from nature and from finitude, change, and death.⁵

Christ relates two suppositions which have been so repeated that she finds it necessary
only to refer to them: first, that the view that humanity is somehow different or
"separate" from the other creatures is a cause of unrestrained human domination of
nature; second that Christianity and science promulgate this dualism in their
fundamental structure. Michael Zimmerman lists as "the major Western categories that
are apparently responsible for humanity's destruction of the biosphere,"
anthropocentrism, dualism, atomism, hierarchalism, rigid autonomy, and abstract
rationalism.⁶ Carol Whitbeck refers to a similar line of reasoning when she writes, "the
self-other opposition is at the heart of other dualistic oppositions, such as theory-
practice, culture-nature, spirit-matter, mind-body, human-divine, political-personal, public-
private,...knower-known, lover-beloved, that figure prominently in 'western thought.'"⁷

In all of these positions there is something of the view that the acknowledgment
of difference is a first step in establishing a relationship of domination, and a suggestion
that political and ecological harmony will entail the dissolution of these pairings. It
seems to me that some very important historical and cultural analysis is made weaker by
indiscriminately treating all of these pairings as being of the same strength, and the same
sort of opposition. Master-servant, human-natural, and knower-known are each thought

---

⁵ Carol P. Christ, Rethinking theology and nature. in Irene Diamond and Gloria
Feman Orenstein, *Reweaving the World: The Emergence of EcoFeminism.* (San Francisco:

⁶ Michael Zimmerman, "Deep Ecology and Ecofeminism" in Irene Diamond and

⁷ Carol Whitbeck, "A Different Reality: Feminist Ontology" in eds. Ann Geary and
to exemplify a single paradigmatic and pathological opposition. In fact, it is not true that all differentiation is premised on the same kind and degree of opposition.

Whitbeck moves a little in this direction when she maintains that these oppositions become incoherent only when strictly treated. She suggests we think in terms of a self-others relation rather than a self-other opposition. "The self-others relation," Whitbeck writes, "generates a multifactorial interactive model of most, if not all, aspects of reality." It softens the distinction to consider it as relation rather than opposition, but Whitbeck is still working on the assumption that these pairings are all properly considered to be of a single type. In fact, they are comparable, but not strictly, for they are drawn along different lines. For example, consider the pairings of master-servant and knower-known. Only the equivocity of the term "power" allows us to say that knowledge and tyranny are both positions of power. The aspiration for knowledge is not strictly equivalent to the desire for the power of manipulation. It may be true that science, as an instrument of control and domination, has come to be intimately connected with the defense and perpetuation of the human despotism over nature, without necessarily being true that by ignoring or demeaning science we will rectify our ecological negligence. To equate scientific knowledge with a relationship of domination, the practice of science with the enslavement of nature, is to deface the beauty of knowledge by overstating the case.

Lynn White, addressing "The Historical Roots of Our Ecological Crisis," argues that the attitude of despotism with respect to nature which modern environmentalists battle can be traced to Christian dogma which "not only established a dualism of man and nature but also insisted that it is God's will that man exploit nature for his proper

\[\text{Whitbeck, 63.}\]
Because Christianity treated the human spirit as separate from the world, White
argues, it made it possible to exploit nature from a distance, "in a mood of indifference
to the feelings of natural objects." The cause of our present ecological ills, White
maintains, is the view that humankind is separate from nature, over and against nature, a
view evident in Descartes and Bacon, but traceable to its root in Christian doctrine.
"Both our present science and our present technology are so tinctured with orthodox
Christian arrogance toward nature, " he writes, "that no solution for our ecologic crisis
can be expected from them alone." He speculates that the ecologic crisis will continue to
worsen "until we reject the Christian axiom that nature has no reason to exist save to
serve man." If stewardship is taken to be a Christian position, as White seems to take
it, and if the Christian ethos is taken to be inherently environmentally exploitative, as
White argues, then a responsible stewardship may seem an impossible, or a self-
contradictory role. In fact White's argument assumes the intelligibility of such a role as
the measure of our culpability.

Robin Attfield acknowledges that the idea of stewardship received something of a
severe rendering in the history of European culture, but he finds White's conclusions too
heavily drawn. The opinion that the world exists primarily as a human resource is
historically evident, but can it fairly be identified as the "Christian" view? Attfield
questions whether the biblical belief in humankind's dominion is even compatible with
the view of man as despot. "The biblical dominion of man is no despotism," Attfield
argues, "If Genesis authorizes mankind to rule nature, it authorizes only the kind of rule

1967, 1203-7, 1205.

10 Lynn White, Jr. 1207.
compatible with the Hebrew concept of monarchy: and though the Hebrews were aware of other nations having absolute monarchs, their own kings were never so regarded. Rather they were considered to be answerable to God for the well being of the realm, and if they failed in their responsibilities, God would send a Prophet to anoint another.¹¹

John Passmore has also pointed out that White's indictment of Christianity as the primary culprit in the ecological crisis may be overplayed. Nonetheless, Passmore argues that the tradition does have some responsibility to bear. "What can be properly argued... is that Christianity encouraged certain special attitudes to nature: that it exists primarily as a resource rather than as something to be contemplated with enjoyment, that man has the right to use it as he will, that it is not sacred, that man's relationships with it are not governed by moral principles."¹² Citing passages from the Old and New Testaments, Attfield counters that only the third of Passmore's claims—that Christianity regards nature as not sacred—can be maintained. Humanity's "dominion" is not absolute, but responsible to God and to the goodness of all creation, Attfield argues. He adds, "it is entirely mistaken to read into this recognition of the power with which moral agents are entrusted an absence of moral constraints."¹³

My point is not to exonerate Christianity, or science, but to show the difficulty of treating dualism as the ecological bad guy, and then trying to expunge it at its source. The project is misguided. The ecological indictments of Christianity and science are


¹³ Attfield, Ethics 31.
based on the charges that they perpetuate a separation between humanity and the rest of
the world. The proposed response (mentioned above) is "to overturn the major Western
categories that are apparently responsible for humanity's destruction of the biosphere:
*anthropocentrism, dualism, atomism, hierarchicism, rigid autonomy, and abstract
rationalism."14 It would be most convenient if the issues of ecological responsibility
could be resolved simply by determining whether humans are separate from nature or a
part of it, but the case is more complex than this. For "likeness" and "difference" are in
themselves quite empty as moral categories. The application of the categories "likeness"
and "difference" is not a mechanism by which values are generated, as if recognition of
the simple fact of being part of nature could answer even the simplest questions
concerning appropriate diet. "Likeness" and "difference" become significant moral
indicators only after the relevant moral values have been identified. That human beings
are like the rest of the creatures or different from them is morally important only if they
are like or different in morally significant ways. The central question, 'What are the
morally significant characteristics?' deserves to be pointedly considered. To maintain
strictly that humans are in all ways on a par with other creatures is intentionally to
ignore the obvious. But, to claim that because humans think and speak they are as Gods
upon the earth is to exaggerate the case. I have already argued that the morally
significant way in which all creatures are similar is that they have projects, and that the
difference of their projects entails the difference of their due.

Walter O'Briant argues that the view that humanity is apart from nature, "is a
corollary of the belief that man is a unique creature. Historically, those who held this

14 Micheal E. Zimmerman, Deep ecology and ecofeminism. in Diamond and
Orenstein eds, *Reweaving the World: The Emergence of Eco-Feminism.* (San Francisco:
Sierra, 1990) 138-54, 141.
belief have maintained that man possesses a faculty which sets him apart from all other creatures. Man alone has a soul—or, more precisely, a rational soul. Thus, man is different in kind from everything else in creation.\textsuperscript{15} The fact that two beliefs can be simultaneously held does not mean that one is the corollary of the other, only that they are not contradictory. Strictly considered, all species are unique, but it would be absurd to claim that they are all therefore separate from nature. Dialogical rationality (which O'Briant refers to as the rational soul) may be unique for human beings. But the claim that humans are rational is not equivalent to the claim that humans are the ends for which other creatures are only means, as O'Briant wants to read it. Rational individuals are distinct from other kinds of creatures in a way which makes possible the privilege of responsibility. The evolutionary distance—whether or not it is an advance, it is a distance—between human beings and other creatures might be measured as the space which allows reflectivity, a gap in which language and culture can happen, a removal from immediacy in which conscious dreaming becomes possible. Humans have special capacities and make special claims—as every kind does—and some of these special capacities entail special responsibilities.

\textit{The Case of the Animals}

The so-called "Greco-Christian" tradition of philosophy is not the blackened sea of anti-environmentalism that some would make it out to be. \textit{The Case of the Animals Versus Man Before the King of the Jinn} is a treatise in the philosophy of ecology, written as a fable, composed during the tenth century by the \textit{Ikhwān al-Safā} (the Sincere

Brethren), whose title appears on fifty-one essays. It may be surprising to hear that ecological issues were topical in pre-industrial ages. For ecological issues are sometimes perceived as having become matters of concern only in the aftermath of modern technologies. There have been dramatic consequences for the natural world during the industrial centuries, but the question of propriety with respect to the non-human world does not become relevant only with large scale devastations. And large scale devastations are not characteristic only of industrial technologies. There is nothing particularly modern about asking whether creatures, species, and natural systems deserve moral consideration. I have included an analysis of *The Case of the Animals* in this essay for a number of reasons. One finds in this work a delicately executed, but nonetheless comprehensive, refutation of the standard arguments for the moral primacy of humanity, many of the same arguments still encountered by modern environmentalists. But the Ikhwan do not establish the moral value of other natural beings by degrading or humiliating humanity, even though the rhetorical use of this technique may have made the fable appealing to medieval audiences, as it does with modern ones. The systematic derailing of human claims to hegemony are counter-poised with an argument which establishes moral responsibility on the basis of rational capacity. Yes, the tale agrees, humans are one creature among many, and each creature is enabled with distinctive entitlements. But the entitlements of humanity involve some aspects which are not characteristic across the kingdom of creatures; these include the privileged of moral responsibility. These complementary themes should by now be familiar to the reader.

---

16 For the historical placement of the Ikhwan al-Safa see Lenn Goodman's "The Identity of the Ikhwan al-Safa and the Meaning of Their Name," introductory to his translation of *The Case of the Animals.*
We find them in *The Case of the Animals* not as separate arguments, but as a single unified position.

There are two large lines of argument in *The Case of the Animals*, an overt argument rendered by the fictional human litigants, that the proper relationship between humanity and the other creatures is that of master to slave, and a more subtle one made by the authors, that as rational subjects human beings are morally responsible for their ecological activities. The humans’ case, an assembly of typical anthropocentric claims, parodies the familiar human assertions of biological advancement, technological sophistication, and spiritual wisdom. The argument of the Ikhwan al-Safâ, which travels a current below the surface of the narrative, is based on the recognition of a systematic, ecological organization of natural forms, and the reasoning that each creature’s position in that organization grants positive skills and resources, and in the human case also definite obligations. Cognitive rationality and moral responsibility are a condition of being human; they are not creditable to our merit. Nor are they conditions which we may elect to accept or deny. They are, in the framework of the Ikhwan, bestowed by God, givens.

*The Case of the Animals* tests the justifications for two quite different ecological roles which have been confused under the same term "stewardship:" human beings as the most powerful and advanced of the creatures, therefore rightful dominators of the others; and humans as rational and moral creatures, therefore accountable for their treatment of the other creatures. The contrast between these two views of the human role is given striking relief in the surprising incongruity of the final verdict. The Jinni king grants the humans rightful dominion over the animals, in apparent disregard of
excessive testimony which would seem to deny it. The Jinn's final judgement is recast in
the sub-argument of the authors which infers a role not of tyranny, but of stewardship
and moral responsibility from the capacities of the rational soul.

The Case of the Animals is built around a grievance levied against the humans by
animals before the king of the Jinn. In a sort of pre-trial hearing, the domestic animals
successfully maintain that they have been subjected to a rash dominion, unjustly treated
as servants and resources by men "firmly convinced that the animals were their runaway
and recalcitrant slaves." The king of the Jinn summons the most pious and well
spoken from among the animals to present their case. As the testimony proceeds, the
humans offer a series of arguments which they believe justify their treatment of the
animals as slaves. The animals dispute each claim, citing evidence from the human and
the animal world, insisting repeatedly that the humans have "no proof or explanation
beyond main force."18

The humans begin by claiming that scripture grants them rightful dominion over
the animals. The animals concede to being servants, but as the Sun and Moon are
servants, gifts from the creator to guarantee a good life. Humans are entitled to the
proper use, but not the abuse of these gifts.19 The humans have misconstrued the
usefulness of other creatures in making possible many goods of human life—sustenance,
garments, materials for human artifice—to indicate the superiority of humans over the
animals. Rather, it shows human dependency upon them.

17 Case of the Animals 52.
18 Case of the Animals 55
19 Case of the Animals 134.
To the claim that the human form is in all ways exceptional, the animals respond that each creature has the form appropriate to it. There is not one which is misproportioned for its way of living. Human beings stand erect while the beasts face the ground, not as a mark of their relative nobility, but because these postures are suitable to gathering and grazing. The humans argue that their bodies are more beautiful than those of the other creatures. But beauty is no more a sign of masters than an upright posture, according to the animals, nor ugliness a sign of slaves, "For beauty of form is only what is desired in the male and female of each species that attracts them to one another to mate, copulate, and produce offspring and progeny for the survival of the species." The animals reckon that in fact the human form is deficient in sensibilities when compared to the animals. Eagles have better eyesight, the camel better footing. The claims of the superiority of the human form do not establish human supremacy. On the contrary, the animals suggest that they evidence only hubris. For any capacities that humans do have are not of their own doing but are gifts of God. "The intelligent take pride only in the things which are of their own doing," notes the animal speaker, "sound arts and industries, sound views, true sciences, upright conduct.... As far as we can see you have no superiority to boast of, only unfounded claims, unwarranted allegations, and groundless contentiousness."

The humans maintain that they are masters because they buy and sell the animals. The animals answer that this is also how the Persians treat the Greeks; isn't this just a turn of fate? Power, the animals reason, is not its own justification. The

---

20 Case of the Animals 57.
21 Case of the Animals 58.
22 Case of the Animals 59.
humans cannot legitimize the exercise of control over the animals simply by citing cases where they have effectively seized control. The animals refer the accident of human domination to "the turns of human fortune with the changing influence of the stars and conjunctions of the constellations." The philosophy of the Ikhwan al-Safã is neoplatonist, but they are not strict eternalists. The Ikhwan are committed to creationism, so their belief that the organization of the world is an expression of the divine is tempered by an acknowledgement that time and change are real. When the animals call up the inevitable changes of the heavenly cycles, they communicate the contingency and precariousness of absolutist ambitions. They also allude to the observed fact that even periods of legitimate authority will pass in the cycles of astrological, dynastic, and ecological succession. Humans have not always spread across the earth. As the fable relates it, humans inherited global ubiquity, along with its liberties, from the Jinn who "ignored the precepts of their prophets and increased corruption in the earth, until at length the earth and its inhabitants joined in crying out against their iniquity."

The humans claim confirmation of their nobility in the gift of religion. "We have rostrums," they plead, "sermons, and the calls to prayer, meetings for the pilgrimages to Mecca... and all the rest." The animals respond that, properly considered, these things are not rewards but "punishments and retributions, atonements for sins and reparations for misdeeds... all these things count against you rather than in your favor." Charity and alms would not be necessary if surplus wealth were not collected by hook or by

---

23 *Case of the Animals* 60.

24 *Case of the Animals* see note 34, 209.

25 *Case of the Animals* 72.

26 *Case of the Animals* 156
crook. The animals do not collect such excessive stores but “fly out each day hungry and lean, trusting in God and return sated and plump, singing his praise.” The animals perform their daily routines with an instinctual exactness and dependability which the animals analogize to be a purity of faith. I have argued that the projects which creatures pursue can be considered as an immanent rationality. The animals declare this thoughtless purpose to be a sort of natural piety. Without doubt, anxiety, or desire, they receive each day, trusting their needs will be met. The words of the human poets, orators, and theologians are tentative and incomplete when compared to the natural wisdom and piety of the creatures, claims the animal speaker.

But if you understood the discourse of the birds—the praises hummed by the swarming creatures, the glorification of the crawling creatures, the hallelus of the beasts, the meditative murmur of the cricket, the supplication of the frog, the monition of the nightingale, the homilies of the larks, the sandgrouse’s paeans and the dove’s exaltations, the cock’s call to worship and what poetry the doves utter in their cooing and the soothsaying ravens in their croaking, what the swallow describes and what the hoopoe reports, what the ant tells and what the bee relates, what the flies portend and what the owl cautions, and all the other animals with voice or buzz or roar—then you would know, O humans... and you would not boast against us of your orators and the like.28

Are the animals maintaining that rational self-consciousness is an obstacle to ecological and moral righteousness? In a sense they are, and are correct to do so. For as I have argued, self-consciousness introduces the possibility of moral failure as well as moral achievement. But it is not necessary to disparage cognition in order to celebrate the immanent wisdom and piety of other creatures. The position the animals maintain is

27 Case of the Animals 158

28 Case of the Animals 174.
more naturalistic than romantic or primitivist. Each creature achieves what it can as the creature that it is. As the animals put it, they sing, fly, swim, or weave their praises of God. It would be neither wise nor pious for fish to live as birds, or carnivores as grazing animals, or humans as any other creature. The animals do not argue not for a contraction of the human sphere, but an embellishment of the moral one.

In the course of their testimony, the animals make a couple of amusing, yet pointed dialectical arguments. Reiterating the theme that humans are dependent upon the other creatures, they remark that, "You search eagerly for the honey. Why is a king so desirous of the leavings of his slave? We have no need of you, but you have need of us." The numerous claims made by the humans that the animals have the marks of slaves have been individually met, but with this analysis the animals effectively overturn the whole strategy. Ecological utility may describe a real dependence of creatures upon one another, but it is no basis for the application of the political categories of "master" and "slave," as the animals demonstrate by inverting the relation; if the ecological relation suggests political roles, perhaps it is the bees who are kings and the humans their dependents!

The animals are not satisfied to establish the material reliance of humans upon animals. They argue that the humans may also have a moral dependence upon them. For even among humans the ways of animals are known to be better than the ways of human beings, models of purity and piety. "Are not the best of you your ascetics, ...monks [etc.]? Is it not the case that when one of you seeks perfect goodness and self-fulfillment he removes himself from your presence and flees from you? Does he not
come to shelter in the mountaintops and hills... and the haunts of wild beasts? He mingle
des with us predators in our own preserves and lands....

The humans assert their preeminence in the vocations. There are many types of men having skills the animals know nothing of, the humans declare, and they list those human achievements which they assume to have no counterpart in the animal world: kings and princes, orators, poets, geometers, alchemists, etc. Their examples are drawn from the widest field of human accomplishments: political, artistic, spiritual, scientific, technological. The animals concede the impressive diversity of human skills, but add that this noble list does not exhaust the human types. "Against every meritorious and praiseworthy sort you cite there is an opposite kind of human, sordid and unsavory, none of which are found among us." There are profligates and renegades, half-wits, traitors, and tyrants. And the animal world is not without its own skills and crafts. The bees "make their homes and hamlets more cunningly and skillfully than do your own artisans, builders and architects." The spiders and silkworms are the finest weavers, without practice or training, inspired directly by God.

The humans point out that they have a single form, the animals a multiplicity of forms, an argument grounded in the neoplatonic assumptions of the Ikhwan al-Safâ in which unity is a correlate of goodness, and both unity and goodness indicate proximity to the divine. The animals respond that, while it is true that their forms are diverse, the souls of the animals are one, free from dissension and doubt. The souls of humans, on the other hand, vary and conflict. As they put it, "All of us are monotheists... who do not

---

29 Case of the Animals 164.
30 Case of the Animals 167.
31 Case of the Animals 171-2.
assign God's divinity to any other. The humans have so many sects, religions, parties, beliefs, and philosophies that it is difficult to find two that agree. If unity is the mark of superior goodness, it must be granted to the animals.

Playing their trump card, the humans claim to have received the promise of salvation. The animals respond that such an assurance is double-edged, for it also guarantees misery to the impious. But in either case, replies the human spokesman, humans survive eternally either with those who are like angels, or in forgiveness. But when the animals die they are gone. To this the animals finally assent, "Now at last you have come to the truth." The animals ask how it is that one comes to live like an angel, eternally and closer to God. The humans are silent.

Finally a man, "learned, worthy, keen, pious, and insightful," stands and speaks. An everyman representing the breadth of humanity, he is described as "Persian by breeding, Arabian by faith, Hanafite in his Islam, Iraqi in culture, Hebrew in lore, Christian in manner, Damascene in piety, Greek in the sciences, Indian in contemplation, Sufi in intimations, regal in character, masterful in thought, and divine in insight." This man, an epitome of human accomplishment, learning and wisdom, directs his reflections not to the query of the animals, but to the king, portending in his action the anthropomorphism and anthropocentrism which is to be revealed in his summary of the proceedings.

"Now then," he begins, "most just Majesty, since it has been made clear in your presence that what the human party claims is true and it is now plain before this court that among this party there are saints of God, the choice flower of His

---

22 Case of the Animals 193.

23 Case of the Animals 201.
creation, the best, the purest, who are God's elect, and that these folk have noble attributes, loyal traits, just and holy lives, and wondrous ways, which tongues weary to recite and description cannot do justice in their essence, which would take long to describe, and which lengthy sermons cannot adequately reach the core of when seeking to enumerate their ways of life and character, though they went on for ages what does your just majesty command regarding these human strangers and these animals, who are their slaves?  

The discrepancy of the synopsis is arresting. Point by point the animals have rebuffed the human assertions of superiority with full and penetrating refutations. As the animals responded to each successively argued position, the human counsel abandoned the point in question, whether it be the preeminence of human manual skill, human compassion, or human knowledge, and sought new ground on which to establish their dominion. But the king of the Jinn seems not to acknowledge this accomplishment. "The King then ordered that all the animals were to be subject to the commands and prohibitions of the humans and were to be subservient to the humans and accept their direction contentedly and return in peace and security under God's protection."

Is this a case of winning every battle only to lose the war? This cannot be the just decision promised by the king of the Jinn. It seems as if the humans, in the end, merely restate their original claim of mastership and have that claim validated in spite of rather than because of the arguments which have been presented. But the privilege which the humans have been granted is not the one which they had been claiming. They have been awarded the liberties and responsibilities of stewardship, based on their moral and rational capacities.

\footnote{Case of the Animals 202.}

\footnote{Case of the Animals 202.}
The key to the argument of the Ikhwān, after which the decision is drawn, is
rendered by the parrot and by the sage counsel to the king of the Jinn. The discourse of
the parrot, which appears toward the end of the testimony, seems at first only to mimic
and recapitulate points already made more eloquently and in more appropriate context.
However, it turns out to be the legend to the fable. In order to understand the reasons
that the conclusion of the King of the Jinn follows from the premises of the argument
which is this fable it is necessary to amplify some of the understated premises. These
premises provide statements of the metaphysical convictions of the Ikhwān al-Safā. The
discourse of the parrot and the comments by Jinn philosopher provide a cipher for the
integration of these suppressed premises into the general flow of the argument.

The human assertion that their dominion over all other species is just, that they
are the rightful rulers of the natural world, is defended at two levels; the fabled humans
defend a right to tyranny, the Ikhwān al-Safā defend a role of relative monarchy. When
the humans, in an attempt to distinguish their achievements from those of the animals,
list their roll of accomplished types, they include the existence of kings exemplifying their
rightful hegemony. The animals’ response sheds light on the narrow and anthropocentric
vision of their interlocutors. The animals argue, following Plato’s debate with
Thrasymachus36, that kingship is an ontological as well as a political category, and that
the power of the second does not necessarily summon the authority of the first.

In his discussion with Thrasymachus concerning the real interests of a king, Plato
sketches out a picture of the ruler, in what he refers to as "the true and precise sense,"
through analogy with vocational expertise. The ship’s pilot, the physician, and the
shepherd, models of specific excellence recurrent in the Platonic corpus, are brought to

36 Plato, Republic I.
bear on Plato's central claim against Thrasymachus: when the shepherd acts as shepherd, and not butcher, he tends to the interests of the flock; when a physician acts as physician, and not wage-earner, she tends to the interests of the patient; likewise kings, insofar as they are real kings, are concerned not with their own interests but with those of their subjects.

The humans boast of having kings, assuming this to be a noble and worthy accomplishment deserving of privilege. The animals reply that not all human beings are kings, and that even the kings are due some suspicion. The animal kings, on the other hand, are real kings. "The king of the bees," for example, "looks to the affairs of his subjects, troops, and vassals and looks after their interests." The animal kings do not seek reward or recompense but perform their role with compassion and tenderness, in entire imitation of the practice of God who gave without restraint. The inference, suggested but not overtly drawn, is that human kings are both false kings, for seeking their own interests rather than those of their subjects, and impious, for failing to imitate the practice of God. Human kings, the parrot argues, "do not regard the concerns of their subjects, troops, and vassals except insofar as they may derive utility from them for themselves." The animal rulers attend to the good of their subjects. A real king, explains the parrot (alluding to the argument of Plato) is "compassionate and sympathetic toward his flock, kind and concerned toward his troops and supporters, modeling himself on the practice of God, who is the King of kings and Chief of chiefs. For He is most merciful and compassionate, most generous, tender, and beneficent toward His creatures, whoever they may be." According to this argument, the interests

---

37 Case of the Animals 167-8.
of the subjects outline the function of the monarch, hence it is clear that the rulers being spoken of do not hold their position by force.

The curiosity of the King of the Jinn is aroused by the parrot’s speech. The king asks the court philosopher to explain these kings who treat their subjects with such compassion and consideration, and the crux of the Ikhwân’s argument is revealed.

"You must know," begins the philosopher, "that the name of ‘king’ [malîk] derives from that of angel [malak]. And the names of kings are taken from those of angels. For there is no genus of these animals, nor species, nor individual among them, great or small, for which God had not a band of angels, given charge of it, overseeing its development, preservation, and well-being in all its vicissitudes."

It is often necessary to unfold the phraseology of a medieval text in order to reveal the hidden pattern of the cloth. In this case, the image of the king modeling himself on the mercy and kindness of God for his creation has enfolded and obscured a developed naturalism which beholds, in the unfathomable intricacy of the order of the world, each natural kind equipped with unique ends, and with unique talents and abilities for securing those ends. These are the kings of the natural world, the natural principles; Platonic forms become medieval angels.

The angels administer the maturation and perpetuation of the plants and animals, and guide them through changes. Today, we refer to these "angels" generically as natural processes and principles. The specifications of physiology, behavior, morphology and function, the balance of ecosystems, even natural selection would fall under this rubric.

It may seem a mighty leap, from angels to science, and one which attributes too much

---

38 Case of the Animals 169.

sophistication to a fantastic tale. In fact, each of these kinds of natural processes have been advanced by the animals as examples of their sovereignty. The angels—among them, species—are keepers of the world, delegated and relative authorities, natural, active, productive forces. The language, I admit, seems theological, supernatural, altogether too medieval. But our preconceptions are frustrated when the philosophical image turns out to be of a developing naturalism which directs itself to the realities of worldly history and the native forces which have shaped it.

The relative authority of humankind, with respect both to natural processes and to other natural kinds, derives from the scope of human interests and abilities, especially from intellectual ability. The King of the Jinn asks his philosopher about the angel which governs the children of Adam, and the sage replies, "That is the universal human rational Soul. She is God's viceregent on His earth, and she it is who was linked to the body of Adam when he was fashioned from earth. And the angels who all together bowed down to him are the animal soul, which is subordinated to the guidance of the rational soul."

In accordance with the rational soul, humans develop. Through it they are held accountable. Humans differ from the other creatures not by their capacity for wisdom, for all creatures are wise concerning their own lives, but in their capacity for wisdom concerning the ways of other creatures. This is what it means to say that the other principles are subordinate to the rational mind. Whether or not humans are the only reflectively sentient beings is not at issue. The argument concerns the role of any being

---

40 Case of the Animals 170. The division of the soul into vegetative, animal and rational parts is Platonic in origin. It was developed by Aristotle in De Anima, and by Avicenna; see Avicenna's Psychology. Rahman trans. London: Oxford University Press, 1952
capable of considering the interests of other creatures. The sage describes the powers of
discernment and judgement by saying that the rational soul communicates with the
angels, that it takes information and inspiration from them.\textsuperscript{41}

When information has been gathered, taxonomies established, dependencies
acknowledged, capacities for prediction developed, then the scientist-ecologist-
philosophers determine by their actions whether they are monarchs by decree, or real
monarchs. Human beings cannot abide in the non-reflective piety of the animals who
praise God when they rise, sanctify Him when they rest, harboring no malice, content
with their allotment, in the framework of the fable, submissive to His sentence.\textsuperscript{42}
Humans must work and grope for wisdom, learn and imagine their way toward piety.
The myriad creatures live with a subtle and complex regard for their own interests,
because they do not know any others. There is a sense in which what they are as
creatures and their real interests as creatures are not distinguishable. Creatures live a
life which is naturally self-centering and responsive to change. I do not mean to claim
that creatures are therefore able to cope with any degree of environmental disturbance.
That is demonstrably untrue. Beings live within a set of limits broadly outlined as the
niche which provides an appropriate and hospitable environment. An organism's real
interests are reflected in the environment in which it thrives. When the environment
cannot provide for many of the real interests of an organism, its existence becomes
unstable. When it cannot provide for any of them, the existence of the creature becomes
impossible.

\textsuperscript{41} \textit{Case of the Animals} 171.

\textsuperscript{42} \textit{Case of the Animals} 182.
The notion that the life of the animals is simpler and more direct than the human cognitive complex seems to have a perennial appeal. It is steady fare in contemporary environmental literature. Max Oelschlaeger, for example, in *The Idea of Wilderness*, makes a similar argument that the move away from a natural, simple wisdom and piety has imperiled humankind. Oelschlaeger argues (if somewhat obliquely) that, "Hunting-gathering culture was better adapted to the ecological realities of sustainable life on earth—far better adjusted than advanced industrial culture." Paleolithic people, Oelschlaeger suggests, "lived in a reverential and complementary relationship with the environment and believed that Magna Mater would provide for them." "Integrity, stability, and beauty," he writes, "were facts of hunting-gathering culture rather than philosophical ideals." Pollution, war, and the threat of nuclear Armageddon did not exist in the Paleolithic world, Oelschlaeger writes, suggesting a correlation, if not a causal connection, between these facts. But as the immediate wisdom and innate piety of the animals cannot be captured by imitation, so the "integrity and stability" imputed to paleolithic culture cannot be ensured by forsaking the resolutions of modernity.

Admiration for alternate ways of personal and cultural being declares certain ideals to be present and active in the admirer. Perhaps if we recognize these as our own ideals, rather than treating them as artifacts, we may be able to cultivate them as a complement to our other personal and social ideals.

---

44 The nuclear threat is unquestionably modern. The production of wastes and the perpetration of violence however are clearly a question of scale. It seems unlikely that there was no degree of "pollution" or "war" in the Paleolithic world.

Self-consciousness does not make it impossible for beings to live simply and
directly, in balance with their environment. It adds its own kind of simplicity and
directness to life. The impulse of consciousness cannot match the subtle momentum of
stone or rain, or the relentless rhythm of generations, but it has its own gravity.
Consciousness, especially reflective consciousness, is the center of a world.

The arguments of the Ikhwān al-Safā concerning the just relations of the species
take consideration of an aspect of natural history which the theory of evolution of the
species by natural selection reaffirmed in nineteenth century science: the complex
contextuality and interdependence of natural forms. Darwin’s synthesis of biological
teleology with mechanism emphasized genealogy in a way that might not have
occurred to the Ikhwān. But the evolutionary position has an interesting counterpart in
the Ikhwān’s view of the necessary formal relations among the species and their
fittedness with each other. The modern concept of the evolution of the species would
not have been entertained by the authors of *The Case of the Animals*, but an analog to
natural selection, the more general idea that changes in environment can precipitate
changes in life-cycle or behavior, was certainly accepted. The carnivores, by their own
account, gave up scavenging only after the humans had domesticated the stock which had
supplied their carrion. This case admits adaptation without change in phenotype. More
importantly it exhibits an awareness of the fact that creatures are connected
ecosystemically, and of the possibility of ecological disruption. Human action can and
does make a difference in the world. Species and creatures maintain an
interdependence and complementarity in their existence and their goodness which, for

---

46 Etienne Gilson. J. Lyon trans. *From Aristotle to Darwin and Back Again* (Notre
the scientist, is a measure of understanding, and for the ethicist, is a measure of moral consideration. Acknowledgement of the contextuality of the species has more than just epistemological consequences. Affinity and disagreement present in the specific forms will be represented by the particular instantiations of those forms. The similarity of the horse and burro, for example, is not only the basis for knowledge about those kinds. It is also the basis for the existence of mules.

If interests are ontologically grounded, as the Ikhwān al-Safā claim when they represent the abilities and requirements of each animal as determined by its form, this should be as true for humankind as for other types of creature. There is some irony in the fact that the humans appealed to a similar naturalism in defense of their tyranny. They claimed that they were acting as humans naturally and properly act; as choosing, knowing, governing beings pursuing their own interests. But the more intricate argument of the Ikhwān al-Safā counters that they failed to recognize the accountability which is integral to the nature of consciousness. Being conscious, being able to choose and to know, equips one to govern, that is, makes it possible to choose ends and to organize the world in an expedient fashion. It makes it possible, for example, to reduce the relative determinism of biology ultimately to insignificant levels. But it also involves one in the moral sphere.

The impact of the theory of natural selection on the natural sciences was not only to challenge the appropriateness of the concept of immutable natural kinds, but also to claim a reality and dignity for the historical individual. *The Case of the Animals* is a story about kinds rather than individuals partly because that is the technique of fable: its characters are necessarily universalizable. But more significantly, because the neo-platonic metaphysics of the Ikhwān al-Safā attributes at least as much reality to species
as to particulars, evaluation is made in terms of the fundamental characteristics of a thing. Comparison is likewise made in terms of these formal properties. Our modern acknowledgment of the effects of history on the formal reality of the living kinds places us at a distinctly different starting point from that of the Ikhwan al-Safa. However, because the notion of ontological deserts does not depend on the existence of eternal essences, but rather on the recognition that living beings pursue a certain sort of life, have a particular project, it is viable even for post-Darwinians.

*Environmental Gardening*

The hard moral question—what is the value of a human life, or the life of a species, relative to other beings?—cannot be answered with a measure. Moral value refers to the regard a being deserves for having the projects which it has, not to any rigid or final scale of moral commensurability. I have argued that having a project makes a being worthy of moral consideration, but I do not mean that all projects fit squarely into a hierarchy of projects. If this is unacceptable, perhaps it is because the dissenter believes that all "real" value is quantifiable, commodifiable, reducible to a common unit. I know of no such scale for evaluating life. There is something of a natural hierarchy, but this has to do with the scope and nature of varying projects, not with their worth on some absolute scale.

Humans may not be wise in the same way that the owl is wise, the unfolding of an idea may lack the delicate perfection of a sprouting seed, but then humans have their own projects and distinctively human goodness. As I have been arguing, I believe these human projects to include not only the organic biological and ecological functions, but also a moral enterprise according to which we must take certain consideration of the
other beings with whom we share this planet. The role of steward might be described as the balancing of the tendencies of the creator and of the destroyer, acknowledging our possibilities as biological beings, but shaping and tuning these potentialities with the powers of the moral conversation. Aldo Leopold represents human creative and destructive energies as powers of the hand—the shovel and the axe respectively—but they are also powers of the mind. Leopold does not conceive this as an argument, but as an observation. He writes, "The lord giveth and the Lord taketh away, but he is no longer the only one to do so. When some remote ancestor of ours invented the shovel, he became a giver: he could plant a tree. And when the axe was invented, he became a taker: he could chop it down. Whoever owns land has thus assumed, whether he knows it or not, the divine functions of creating and destroying plants." Leopold clearly puts his finger on the bare fact of our ecological involvement. But he alludes to another point which I have been trying to establish, that human beings bring to their biological and ecological roles judgements about creation and destruction. When Leopold refers to the creative and destructive functions as "divine" he indicates that for human beings these functions occur in an axiological as well as ecological framework. We can tell by context that Leopold he does not believe that creation and destruction are other worldly or unnatural. He means they are significant, meaningful, thought-provoking functions which deserve reverent attention.

With just a little poetic license, nearly all human work, but especially those actions which affect the environment, might be described as "cultivation" or "harvest," the work of a gardener. Alone, each can be extreme. The urge to nurture, preserve and protect can become a tendency to wrap nature in plastic, to idolize and to reify.

Unrestrained, harvest becomes plunder, with its disregard and narrowness of vision which screens out all but the most immediate consequences. Together, however, the axe and the shovel make many good things possible: the cultivation of environment and community, the encouragement of ecosystems in which we have chosen to live, and a living regard for creatures who are our intimates, acquaintances, or merely fellow beings. But the power in Leopold’s metaphor is not in my rather tedious claim that having this gardener’s vision "makes many good things possible." The real power of the metaphor lies in the observation that something like the role of gardener is part of the package of being a human being. We are creators and destroyers who are conscious of the fact, and for whom this fact becomes woven into cultural, communal, and individual imaginations.

Frederick Turner has also argued that there are responsibilities which intellectual and technological power bestows on us as individuals and communities. At the extremes, the denial of these responsibilities takes shape in the opposing claims that human beings can do no wrong with respect to nature, and the claim that they can do no right. Turner argues that the unrepentent polluter and the misanthropic ecology freak are two faces of the same coin; both fail to take seriously the extent and the nature of human ecological involvement. Humans are not just biological beings, but also intellectual and moral beings with intellectual and moral capacities. "That ecological modesty which asserts that we are only one species among many, with no special rights, we may now see as an abdication of trust. We are, whether we like it or not, the lords of creation: true humility consists not in pretending that we are not, but in living up to the trust it implies
by service to the greater glory and beauty of the world we have been given to look after. It is a bad shepherd who, on democratic principles, deserts his sheep."

I count myself among those who feel some discomfort with phrases such as "lords of creation," but I feel that Turner is on to something which might be missed in too strong a recoil from his language. The point as I see it is not simply that humans have enough intelligence and technology to seize control of the planet, and therefore have the right to do so. Rather, as reflective, conversant beings humans can be aware of the ecological effects of their actions and are therefore in a position of having to knit the repercussions of their creative and destructive actions in the garden into a more general moral dialogue.

Earth-as-garden is a powerful image, not as a pattern for human affairs, which it cannot be, but because it conveys the ubiquity of human ecological involvement and responsibility. When humans work, they work the earth. They transform it, cultivate it, preserve it. The moral earth gardener qua ethicist cultivates intrinsic value, promotes the projects of natural beings, but also chooses which will receive emphasis. For promoting one thing may mean retarding, relocating, even eliminating another. The activities of gardening, just letting things go, or interceding with the axe or the shovel, reflect the gardener's questioning assumptions about what nature is and what it should be, and importantly, a vision of what it might become. The strict geometry of the seventeenth century gardens reflected a belief in the coarseness and imperfection of "wild" nature. Stewardship, doing the best for nature, was taken in this milieu to mean squaring, restraining, giving nature a "proper" symmetry. The pluralism of contemporary

American culture creates an environment in which it is difficult to maintain the conceit of culture, but it is probable that many views about the environment which are accepted today as self-evident truths will be revealed to be conditional truths, half-truths, or just plain wrong. This is a condition of seeking to act on the basis of knowledge. The hermeneutic circle of revised meanings and renewed interpretation which records changing concepts about nature has an analogue in the organic growth, decay, and change which characterize a garden, and the periodic attention which it requires. The discomfort of uncertainty challenges us to deny these projects, to invent eternal life and final certitude, or the wide-grinned dance of the moral apocalypse. The gardener knows that distress with change because it is change is as misplaced in environmentalism as in most other human projects.

Human moral responsibility for creatures, species, and natural systems need not fetter human accomplishments; this responsibility is the buoyancy of the human spirit, the foundation of human achievement. We should not fear that accepting this responsibility commits us to endless and wearisome moral pondering. It may instead engender a joy and fascination with the fact of our existence and that of our fellow beings. It may recalibrate our vision for goodness so that we are able to see moral importance, and moral achievement, in simple acts. One thing it will not do, however, is generate a definitive program, a plain and obvious human future. We act as we think is good and right, and remain within the picture, responsive and attentive to the change we have engendered. When self-consciousness is ponderous and domineering it can build a ruinous momentum, especially when dealing with things subtle and complex. But, as Frederick Turner reminds us, self-consciousness is also the source of an exceptional spontaneity, a fountain of human creative action, a spark of those things we consider
divine. But then again, it is almost nothing special. "Any gardener will instantly recognize [this] state of mind..." Turner writes, "As one moves about the flower bed's, weeding, propagating, pruning the apple tree, shifting the rock in the rock garden an inch or two to make room for the root of a healthy *eric* 

orca, one becomes a subtle and powerful force of natural selection in that place, placing one's stamp on the future of the biosphere; but it feels like pottering, like a waking dream."

---

48 Frederick Turner, 51.
Bibliography


Mendelsohn, Robert. The benefits of preserving endangered species: with special attention to the humpback whale. Southwest Fisheries Center Administrative Report H-84-14


Thompson, Janna. A refutation of environmental ethics. *Environmental Ethics* Vol 12. 2; 147-60.


World Commission On Environment and Development (Gro Harlem Brundlandt et al.)

