

CHAPTER 7

Two Views of Animals in Environmental Ethics

Gary Comstock

*Professor, Department of Philosophy & Religious Studies
North Carolina State University, Raleigh*

This chapter concerns the role accorded to animals in the theories of the English-speaking philosophers who created the field of environmental ethics in the latter half of the twentieth century. The value of animals differs widely depending upon whether one adopts some version of Holism (value resides in ecosystems) or some version of Animal Individualism (value resides in human and nonhuman animals). I examine this debate and, along the way, highlight better and worse ways to conduct ethical arguments. I explain that two kinds of appeals (which I call *intuition* and *reductio*) are questionable foundations for environmental ethics and that representatives of both schools occasionally appeal unhelpfully to intuition or caricature the commitments of the other side. I review two stronger arguments for Ecoholism (*inference* and *eco-organisms*) and show that they have performed a useful function in environmental ethics. Ultimately, however, both arguments fail because their proponents are unable to answer four critical objections: *weakness of will*, *no eco-organisms*, *no teleology*, and *is/ought*. I then show that Animal Individualism operates on more secure footing when it comes to philosophical and scientific assumptions. I also propose that Animal Individualism is more likely to prove effective in establishing progressive environmental policies insofar as it builds on existing legal concepts, especially the concept of moral rights, and political institutions, such as democratic states. I note that wild animals are not inherently more valuable than domestic animals and, finally, offer a brief outline of an animal rights environmental ethic.

Farmers and ranchers are itching for a fight. It's the barn-raising scene of the musical, *Oklahoma!*, a state where ranchers have for years driven cattle to market over ground they consider theirs. Meanwhile farmers, protecting pastures they consider *theirs*, are stretching barbed wire across the land. Result? Dustup at the dance as the boys go at it. Aunt Eller frantically tries to restore peace, but she cannot prevent fisticuffs. This being Broadway, the scene resolves harmoniously. Everyone together now: "there's no reason why we can't be friends." But the grounds of the imagined accord are unclear to anyone. And whereas territory folks should stick together, yes, nonetheless a dark cloud of uncertainty hangs in the air.

A DEBATE ABOUT ANIMALS

A similar feud marks the first act of environmental ethics. In this chapter, I identify the issues that divide the antagonists. But I do not remain neutral, because I am convinced that one side of the debate is more defensible than the other.

Here are the two groups. *Holists* believe value originates with wholes, such as ecosystems. The term *holism* (or *wholism*) comes from the word *whole*, and from the commitment that the forest is more important than the trees. *Individualists* believe value originates with individuals, such as specific animals. The term is used in this context not to pick out a political position, such as libertarianism, but a philosophical view, that the trees (the individuals) are more important than the forest. Representatives of each position recognize the value of individuals and wholes—Holists do not deny that individuals have value—but they differ in their assessment of which of the two entities is the ultimate origin, the primary “locus” or source, of value.

HOLISTS VERSUS ANIMAL INDIVIDUALISTS

Defenders of each approach also differ in their motivations and goals. Holists, concerned with predictions of catastrophic losses of wild animal and plant species, are convinced that moral philosophy must be rebuilt from the ground up. No tinkering here. To address the environmental crisis, Holists believe we must have a new theory of value.

On the other hand, Animal Individualists, motivated by what they regard as the abuse of food animals in modern industrial agriculture (compare with Clare Palmer’s chapter, “Animal Ethics,” in this volume) are not convinced a new theory is needed. Individualists understand that starting afresh has the potential to yield an elegant and creative new theory, but they think elegance and creativity are not everything. There is something to be said for using tools with which we have some experience. What is needed is for people to act on the practical implications of the old theory and to understand that the old theory protects *all* mammals and birds—not just human beings. The old theory is worth saving, if Individualists are correct, not only because it is justifiable on philosophical grounds but also because it is the basis of important legal concepts on which have been built institutions that enforce policies to protect people. In other words, the old theory brings with it the weight of the law and formidable enforcement mechanisms of the state. Because democratic cultures have already established rights and institutions to protect individual humans, argue the Animal Individualists, those interested in protecting ecosystems and animals should not lightly abandon received philosophical theories. Rather, we should reinterpret the old theory and recognize that properly interpreted it protects all subjects-of-a-life: human, bovine, and porcine. And, once we come to understand the true scope of the old theory, we will have all the philosophical resources needed—or possible—to protect ecosystems because we will recognize that individual elk, raccoons, and squirrels have a basic moral right not to have their habitats destroyed. Or so allege the Animal Individualists.

DO WE NEED A NEW ETHIC?

The battle is joined. On one side is (what I shall call) *Ecoholism* and its drive for a new ethic. On the other side is *Animal Individualism* (henceforth, “*Individualism*”) and its efforts to redefine the scope of existing theory. *Ecoholists* suspect that animal lovers are anthropomorphic anthropocentrists in new disguise. This will take some explaining. Anthropocentrism is the illegitimate assumption that only human beings have moral value. *Ecoholists* decry anthropocentrism as the primary cause of the environmental crisis, and they fear that Animal Individualists are anthropocentrists-in-disguise. *Ecoholists* think Individualists have not overcome the problem because Individualists make a basic conceptual mistake called *anthropomorphism*. Anthropomorphism is the illegitimate

ascription of human psychological capacities to nonhuman animals. You are guilty of anthropomorphism, for example, if you believe your dog worries about the loss of Arctic ice and the rise of sea levels caused by global warming trends, for such thoughts are beyond the scope of canine cognitive powers. Ecologists fear we are all doomed if Individualists succeed in distracting us from the bigger picture with their anthropomorphic concerns about domesticated pigs and cows. It is not enough simply to extend moral concern to some nonhuman animal species. No, we must change, and change radically, and at the most fundamental philosophical level, according to Holists.

Individualists, to the contrary, think Ecologists make dangerous philosophical and scientific mistakes, even as they pursue well-intentioned policies. Individualists are convinced that traditional ethical theories may be up to the environmental challenge once they are properly understood to protect the rights of *all* sentient animals. In sum, Holists want to change partners, and Individualists want to dance with the folk that brung 'em.

NAME CALLING

Things do get nasty. A circle forms in the middle of the fray around the two primary opponents. The Ecologist is accusing the animal rightist of misunderstanding the nature of nature, of caring more for tamed food animals and pets than for rare, endangered wildlife. Claiming Aldo Leopold (1887–1948) as hero, Ecologists (e.g., Callicott 1980) revel in Leopold's defense of the hunter who, running risks to life and limb, kills and barbecues game on the open range. Nature red in tooth and claw. Claiming Mahatma Gandhi (1869–1948) as their hero, Individualists (e.g., Regan 1975) embrace small-scale vegetable farmers who do no harm to sentient beings. The two sides never come to blows, but there are fighting words. The Ecologists, according to J. Baird Callicott in "Animal Liberation: A Triangular Affair" (1980), mock Animal Individualists as vegetable-loving, life-denying sissies who follow a cowardly prophylactic ethic. A prophylactic ethic interferes with the pursuit of desire in an overly protective, cautious way. By protecting bears from hunters—and hunters from bears—Individualists are thought, by Ecologists, to be afraid of nature and its cycles of life. The, Individualists, however, who find hunting barbaric, think Holists harbor views that threaten to undermine the rights of minorities. They think Holists are ready to sacrifice the interests of individuals whenever the good of the whole seems to call for it. Individualists engage in some name-calling of their own, accusing their opponents of being fascists, according to Tom Regan in *The Case for Animal Rights* (1983, 362). Attempts are made Aunt Eller-like to declare peace, and some of the reconcilers' proposals seem promising. Yet none succeeds in putting the issue to rest. (For a list of reconciliatory attempts, see the works listed as part of the bibliography for this chapter.)

ECOLOGISTS CLAIM THE MANTLE

Had a trial been held with Ecologists in the jury, Animal Individualists would surely have been found guilty of unenvironmental activity. Indeed, a quick scan of representative journals, such as *Environmental Ethics*, suggests that Ecologists triumphed. Their clan is more inclined than others to claim the mantle of "environmental ethicist." Indeed, if you fancy yourself an environmental ethicist, you may wonder how an animal rights essay weaseled its way into this handbook. I will argue, as I did in my 1994 Presidential Address to the Agricultural, Food, and Human Values Society, "Do Agriculturalists Need a New, an Ecocentric, Ethic?" that the debate has neither been settled nor rendered peripheral, and that animal defenders have the weight of reason and science on their side.

ROAD MAP

Let us look ahead. First we will sharpen and deepen the contrast between the two approaches to the value of animals. In the next sections, we will note two weak forms of argumentation and acquaint ourselves with some conceptual tools useful in the analysis of any argument. Then we explore two respectable arguments for Ecoholism and note four problems with them. Following that is a brief sketch of the Animal Individualist view. The next section concerns the distinction between wild and domestic animals, and finally, a snapshot is offered of environmental ethics from an Individualist point of view.

INTRODUCTION: TWO VIEWS

Ecoholism comes in various forms and includes movements known as deep ecology, ecofeminism, ecocentrism, and various forms of ecotheologies. As a first rough pass at a definition, let us call Ecoholism the nonanthropocentric normative view that the locus of all value resides in relationships. Arne Naess (1973) calls these “gestalt principles,” in which a figure in the foreground receives its definition only because of the background context, the “ground,” that highlights it. Naess focuses attention away from individuals to what he calls the “total-field image.” On this view, value derives, not from the individual animals, plants, and organisms that we tend to place in the foreground, but from the background context of ecological harmony and equilibrium. In these arenas, moral guidance will be found, to take an example from another writer, from what Aldo Leopold called the “integrity, stability, and beauty” of the land (1949). (For more on nature’s beauty, see the chapter by Ned Hettinger, “Defending Aesthetic Protectionism,” in this volume.) These wholes are ancient, creative, and resilient, and we have obligations toward them not primarily because we or future generations need their resources but simply because they are the source of value. “I am part of the rainforest protecting myself,” writes Ecoholist John Seed (1988, 36), emphasizing the point that the whole is even the source of my value. We are each valuable insofar as, and only insofar as, we contribute to the proper functioning of our ecosystems.

ANIMAL INDIVIDUALISM IS ALSO A NONANTHROPOCENTRIC THEORY

Individualism, in contrast, is the nonanthropocentric view that intrinsic value, if there is such a thing, derives from the capacities of sentient desiring beings—beings, that is, who have the capacity to experience pain and pleasure and who have things they want to do in the future. Individualists hold that the value of ecosystems derives from sentient beings needing them to survive and flourish. If humans have a “right” that others not degrade our living spaces to such an extent that we are unable to get the things we need to flourish—open spaces in which to move around, nutritious food to eat, clean water to drink, and the ability to seek places of protection from those who would do us harm—then animals have the same rights. Or so argue the Animal Individualists.

Just how we should understand such “rights” is a matter we will have to discuss. The important point here is that Animal Individualists base their environmental ethic not on properties of any “whole” but, rather, on the premise that, until proven otherwise, all individual sentient animals have rights like ours. The animals deserve open spaces in which to exercise their capacities for unconstrained movement, to obtain food and water, and to seek ways to flee predators. To the extent that human policies and practices degrade ecosystems and make it impossible for animals to exercise these “rights,” then we do the animals wrong. Moral wrong. And, to underscore the difference between the positions,

notice that because Animal Individualists think having rights requires one to have certain psychological capacities, such as sentience and desires for the future, Animal Individualists deny that wholes or ecosystems have rights.

THE DIFFERENCES

Now that we have introduced the two positions briefly, let us explore their differences in more detail. Ecoholists believe that all value is relational and that it most clearly resides in and derives from natural ecosystems. Against the Individualist tendency, John Muir (1838–1914) expressed the Holist attitude when he wrote that “When we try to pick out anything by itself, we find it hitched to everything else in the Universe” (1911, 211). On a view such as Leopold’s or Muir’s, all individuals in ecosystems—including humans—are valuable only insofar as they contribute to the proper functioning of the whole ecosystem. “One fancies a heart like our own must be beating in every crystal and cell,” writes Muir (211), “and we feel like stopping to speak to the plants and animals as friendly fellow-mountainers.” The value of a beaver, then, is not found in the satisfaction of *its* desires but in the way it is hitched to and helps everything else in its environs perform *their* respective functions. Beavers help to create and preserve the complexity, integrity, and beauty of the pond, what is both upstream and downstream of it. And in these upstream-downstream, top-to-bottom, beginning-to-ending relationships are where you should look for the beaver’s value.

By contrast, Animal Individualists hold that the desires and interests of integrated single agents are the source of value. Individuals lend value to environmental entities and not the other way around. A beaver’s value, on this view, resides in its capacity to be happy, to form and satisfy desires, and to feel the satisfaction of achieving things in the future—specific things that only this or that beaver can hope to achieve for itself.

ANIMAL INDIVIDUALISM COMES IN TWO VARIETIES: UTILITARIANISM AND MORAL RIGHTS

Those acquainted with human ethics will find the themes of Animal Individualism familiar because they echo the themes of two main theories: utilitarianism and human rights. For utilitarians, value is found in the satisfaction of our desires, our ability to become happy and to spread happiness around to as many humans as possible. For human rights theorists, value is found in the pursuit of one’s long-term “categorical” interest, that is, one’s interest in forming oneself into a person that matches one’s conception of a good person. Animal Individualists accept such theories but reject the restriction of them to humans. For all mammals at least (and potentially all vertebrates) are sentient and have interests. As such, they are individuals whose pains and pleasures matter to utilitarians. And insofar as mammals have memories, preferences, and desires about what they would like to do in the future, they are individuals whose interests matter to rights theorists.

SUMMING UP

In sum, Animal Individualists think humans are not the only animals with moral standing. (If you have moral standing, then others must take your welfare into account when deciding whether to treat you as a means to their ends.) To this extent, they consider their ethic an environmental ethic. But notice again that, for Individualists, value is not found in one’s ability to contribute to the good of the whole. It is found in an individual’s own properties—in the individual’s welfare, its own good. If some ecosystem is valuable, it is

valuable according to Individualists only insofar as it provides resources for individuals to flourish.

I turn now to a more general concern, the evaluation of arguments. The next two sections concern better and worse ways to defend one's views.

ONE WAY NOT TO ARGUE ABOUT THE ENVIRONMENT: *INTUITION*

If my daughter comes home from third grade and tells me she had *an argument* with someone, I will feel bad for her and assume that someone is mad at her. If she said, however, that her teacher had presented some *philosophical arguments*, I would not be concerned with her emotional state because the latter kind of arguments are not fights. They are simply series of claims, or premises, in which the final claim, the conclusion, is supposed to follow logically from the prior premises.

When we evaluate arguments, we are not trying to get two people to set aside their animosity for each other but, instead, to find out whether the premises support the conclusion. When we think critically about matters in environmental ethics, as all authors in this volume are doing, we are attempting to discover which conclusions we have the best reasons to believe. And there are better and worse ways to build ethical arguments. To this topic I now turn.

SHOULD WE TRUST OUR INTUITIONS?

Sometimes we are tempted in arguments to do little more than appeal to our own inherited beliefs. While adherents of our two camps have good arguments available to them—and we will look in detail at them, below—they sometimes resort to bad arguments to emphasize their points. Let's consider examples from both sides. Here, first, is an Ecoholist complaining about Animal Individualists:

From the perspective of environmental ethics, a rights approach focused exclusively on animals is too narrow to cover all the entities living and nonliving that members of the environmental movement *feel* ought to be considered morally. (Hargrove 1992, xxii, emphasis added)

There's a lot going on in this sentence, but the first thing to note is that the author simply assumes that nonliving entities ought to be covered from "the perspective of environmental ethics." However, that is precisely the issue that is being debated by people with "a rights approach." Whether rocks and streams have moral standing is the question. It is not legitimate to think we can resolve the debate simply by saying how we feel.

The role of feelings and emotions in ethical reasoning is a complicated issue, and we will return to it. Here we should note, in advance of that discussion, that people have different feelings, and many times they conflict. Sometimes those feelings are deep, so deep that one's political as well as personal identity are wrapped up in them.

THE PROBLEM

Notice the troubling circular structure of the argument. The question is, which things have moral standing? Animal defenders argue that individual animals have moral standing because they are either sentient or subjects-of-a-life. The Holist objects that this focus is too narrow. Why? Because it does not cover all the entities that Holists "feel ought to be

considered morally.” But the scope of the entities that have moral standing is exactly what we set out to determine originally. We cannot settle the question that divides Holists and Individualists on the basis of the feelings of one of the two groups.

Many ethicists share the Holists’ suspicion that something is troubling about the way we think and act. But to base our moral judgments on such uncriticized intuitions, even if the intuitions are universally shared or “part of human nature,” is illegitimate. For intuitions are notoriously unstable, variable, and untrustworthy. Often, they turn out upon examination to be little more than prejudices.

HOW WOULD A HOLIST RESPOND?

In response to the criticism that we should trust reason rather than intuition, Holists might say that the charge is unfair. Those who do not share the Holist’s view of nature probably do not understand the severity of the environmental crisis, they might say. They might add that their opponents probably cannot be rationally persuaded to accept it, are unlikely to change their minds, and are part of the problem. The Holist’s opponents are on a slippery slope that will end in eradication of global life.

A PROBLEM WITH THE HOLIST’S RESPONSE

However, this rebuttal fails to explain why we may cite preferences and intuitions as grounds for our judgments. Holists are entitled to their feelings, for sure. But insofar as they claim to be making a moral judgment—a judgment presumably about what it is right or wrong for *any* of us to do—they cannot rest content with statements of preference or expressions of emotions.

What if someone truly thinks that he’d rather kill a man than a snake, as Edward Abbey writes, seemingly not entirely in jest, in “The Serpents of Paradise,” a chapter in his 1968 book *Desert Solitaire*? What if someone really believes there may be occasions when we should save an endangered plant at the expense of saving a healthy child? Knee-jerk reactions are notorious reflections of the opinions of authority figures in our lives, figures whose own opinions may be prejudiced or worse. For this reason, and on the basis of the superiority of *reason*-giving to *instinct*-giving, *intuition* fails to justify Ecoholism.

Holists do not mean their claims to be understood as mere rhetorical flourishes meant to provoke. They mean their claims to be taken seriously. However, if we want our claims to be taken seriously, we must cite something other than our instinctive reactions. And this is as true for the Individualist as it is for the Holist. Now, as we shall see, Individualists may be as guilty on this count as Holists may be.

HOLISTS ARE NOT ALONE

The mistake is made on the other side, too. Suppose an Animal Individualist said this:

We had a dog who was hit by a car and died because of someone’s irresponsibility. It just awoke in my heart in a sense that I thought that if any other dog was in my life as this dog had been I would have felt just as bad, just as hurt, just as sorrowful. It was a short step for me to say but by golly, if I knew a pig as well, or a cow as well, or a chicken as well, *I would have felt the same way* at the loss of this creature. (Hartglass 2012, emphasis added)

We can sympathize with the pet owner who loses his dog in a tragic accident. The pain and sense of bereavement in these times of stress can be profound. The problem is not in the

emotion but in the use we try to make of our emotion when we offer it as the only grounds for telling others what they ought to feel or, even more troublesome, which of their favorite foods should be taken away from them. What if the man who mourns his dog expects *us* to stop eating meat for no reason other than this, that he felt awful upon losing his companion? This is admirable compassion but flimsy argumentation. The reason is that the man may easily have had the opposite reaction. Many dog owners do (“Man, I’m glad I don’t have to feed that old hound anymore”). But the mere fact that some people hate their pets is no reason at all to think that killing animals is justifiable. The fact that some people do not have any affection for nonhuman species is no more of an argument *for* meat eating than that some people have deep bonds with nonhuman animals is an argument *against* meat eating. And the problem is the same no matter which side you are on. Whether we are Holists or Individualists, we do not want to appeal merely to intuition when trying to persuade others to join our camp.

ANOTHER BAD WAY TO ARGUE: *REDUCTIO*

A *reductio* is an argument that purports to show that adopting its opponent’s assumptions leads to results no one would accept. In this vein, Holists contend that Individualist views entail that we do such silly things as not engage in subsistence hunting, protect mice from cats, and, should we find in the field a wild turkey with a broken leg, deliver the bird to a veterinarian who can set its leg in a cast. In “Animal Liberation and Environmental Ethics: Bad Marriage, Quick Divorce” (1984), Mark Sagoff asks:

What is the practical course society should take once it climbs the spiral of moral evolution high enough to recognize its obligation to value the basic rights of animals equally with that of human beings? ... One may modestly propose the conversion of national wilderness areas, especially national parks into farms in order to replace violent wild areas with more humane and managed environments. Starving deer in the woods might be adopted as pets. They might be fed in kennels; animals that once wandered the wilds in misery might get fat in feedlots instead. Birds that now kill earthworms may repair instead to birdhouses stocked with food, including textured soybean protein that looks and smells like worms. And to protect the brutes from cold, their dens could be heated. (Sagoff 1984, 303–304)

Holists think they can show the absurdity of the animal rights view simply by pointing to its counterintuitive results when it comes to hunting. Animal rightists must not only oppose this ancient practice but also be willing furthermore to disrupt predation, “the quintessential natural process,” as Ned Hettinger calls it in his “Valuing Predation in Rolston’s Environmental Ethics: Bambi Lovers versus Tree Huggers” (1994).

Formally, *reductio* goes like this:

- (1) Animal rights arguments lead to environmental policies that require us, negatively, not to hunt and, positively, to interfere in predation and provide space heaters for bears.
- (2) Environmental policies that require us not to hunt, to interfere in predation, and provide space heaters for bears, are anti-common sense.
- (3) Any argument that is anti-common sense is unsound.
- (4) Therefore, animal rights arguments are unsound.

If you think opposition to hunting is absurd, that it is laughable to hold that one should protect mice from cats and that bears’ lives would be improved with the provision of space



Predation in the wild. *Holists and Animal Individualists have different ideas regarding human interference in predation in the wild.* JURGEN & CHRISTINE SOHNS.

heaters, then *reductio* will buttress your view. This argument, however, has little more going for it than arguments based on intuition.

OBJECTION: UN-COMMON SENSE

There are three problems. First, (1) is false if the pro-Individualistic animal arguments don't lead to the policy implications asserted. Now, one group of Individualists believe (1) and are willing to bite that bullet. However, a second group thinks hunting is permissible in some situations and that we almost always do more harm than good when we try to prevent predation or relieve the suffering of wild animals. If the second group is correct, (1) is not true, a point to which we'll return in the "Animal Individualism" section later in this chapter. Second, (2) is false if one allows a range of views to count as commonsensical. It is common sense to most Jains, vegans, and others that we should not hunt and should interfere in predation when it is possible to do so without causing more harm than good. These ideas may represent *un-common sense* when viewed from a Holist's perspective, but this does not mean the ideas are wrong.

Third, (3) is false because many sound arguments have anti-commonsensical results. When Charles Darwin (1809–1882) presented his argument that human life evolved from simple life-forms, most who heard of the idea found it anti-commonsensical. The fact that more than 40 percent of Americans think evolution is false is no reason at all to conclude it is false (Newport 2014).

A HOLIST REBUTTAL

Holists might be tempted to respond by specifying the kind of commonsensical results they have in mind. Thus, they might seek to substitute (5) for (3).

(5) Any argument that is anti-commonsensual on Ecoholist grounds is unsound.

However, this rebuttal fails to explain why Ecoholists have a corner on common sense. And if we substitute (5) for (3), we have done so on grounds that remind us of the first argument. We are simply assuming that the Holists' intuitions and sensibilities are the correct ones. But this matter is the matter at issue and begs the question against animal rightists.

Objection: Biting the Bullet. Animal rightists can also respond to *reductio* by biting the bullet. To bite the bullet of an argument is to accept its consequences, absurd as they may seem. Such a response might proceed in two steps.

Step One. First, Individualists may point out that some of the examples are not serious because they could not possibly lead to a better life for animals. The notion that we ought to provide space-age technologies for wild animals is a nonstarter insofar as it is impossible to imagine conditions in which, say, space heaters would benefit bears rather than undermine their chances and their offsprings' chances for survival. In this way, Individualists would clear away some of the absurd conclusions their opponents attribute to them.

Step Two. Second, Individualists may affirm some of the allegedly absurd conclusions. Animal defenders might agree that one should stop hunting except under the most extreme circumstances. They might agree that we should interfere with predation on occasion. The occasions, no doubt few in number given the near impossibility of fulfilling the next clause, would only be when doing so would improve the world overall. In these two steps—clearing away empirically false conclusions and biting the bullet on the remaining ones—Individualists can effectively rebut *reductio*.

HOLISTS ARE, ONCE MORE, NOT ALONE

Animal Individualists can resort to *reductio*s too. Imagine someone asserting that if Ecoholism is true then the best thing we could do would be to kill lots of human beings. It would be our duty, for example, "to eliminate 90 per cent of our numbers" and literally "anything we could do to exterminate excess people—would be morally 'right!'" The exclamation point would underscore the ridiculousness and offensiveness of the conclusion to which Ecoholism (allegedly) leads: "To refrain from such extermination would be 'wrong!'" (Aiken quoted in Regan 1983, 262). And yet, as suggested by the discussion above, Ecoholism has the ability to answer such *reductio*s, either by denying that their presuppositions lead to such conclusions or by biting the bullet and explaining why we ought to accept the conclusions.

Now that we have set aside two disappointing ways to argue in environmental ethics, let us examine two more promising approaches, *inference* and *eco-organisms*. These arguments, deployed extensively by Ecoholists, deserve careful evaluation.

A RESPECTABLE ARGUMENT FOR ECOHOLISM: *INFERENCE*

The next argument leans heavily on an assumption about the future, the *hypothesis of impending environmental catastrophe*:

Collapse = Modern global forces of urbanization, production of energy emitting carbon dioxide and other greenhouse gases, cultural forces alienating billions of urban dwellers from nature, and demands for beef and cheap food have led to global warming, climate change, and plant and animal wildlife species loss.

The idea that humans are a cancer on the face of the earth and may be destroying nature as we know it is an alarming idea. The plausibility of the idea arises from observing a wide variety of troubling phenomena, including rising temperatures and ocean levels; increased periods of severe drought; violent storms, floods, and wildfires; and disruptions in the availability of potable water. By compromising existing food-production systems, environmental collapse will increase migration and lead to massive political upheaval. Holists and Animal Individualists tend not to disagree about *collapse* and, for the purposes of this chapter, I shall assume it is true. (We will look in more detail at *collapse* when we examine the *inference* argument. For the record, I do not find it implausible.) Taking the form of an inference to the best explanation, the second Ecoholist argument runs roughly as follows:

- (6) It is highly likely that our individual behaviors and collective practices will lead to environmental catastrophe.

The next claim holds, not implausibly, that individualistic moral philosophy is and has been the dominant form of thinking in Western industrialized nations.

- (7) Individualism is the reigning moral philosophy.

Now, assume,

- (8) The reigning moral philosophy is causally responsible for the results of our individual behaviors and collective practices respecting the environment.

Then we have a good argument to believe,

- (9) Individualism is causally responsible for *collapse*.

Setting aside metaphysical problems about the identities and rights of future generations, it seems unarguable that,

- (10) *Collapse* must be averted.

Any ethical theory worth our allegiance must be capable of saving us from catastrophe, and Individualism is incapable of doing so, and:

- (11) By abandoning Individualism, we can avert *collapse*.

So, given (6) through (8), and by inference to the best explanation found in the intermediate premise (9), we come to the conclusion:

- (12) We must abandon Individualism.

Notice the argument has the following form. Given all the available evidence, there are only a few rival explanations that are candidates to explain the evidence. Of those candidates, infer the truth of that explanation that best explains the evidence. In arguments of this sort, the conclusion does not follow deductively from the premises, and so one can question the inference on which the argument is based.

OBJECTION: WEAKNESS OF WILL

The problem with this argument is that (8) seems dubious at best. Some agents' choices may be caused by the ethical theory they hold, but the neurological evidence suggests that our emotional dispositions are more potent causes of action than our rational deliberations (Haidt 2001). If our desires and motivations are the primary causes of our actions, then to avert *collapse* we should concentrate more on educating our emotions than our intellects. For even those who sincerely assent to an animal rights theory may be constitutionally incapable of carrying through on the environmental policies to which the theory logically commits them.

If the foregoing analysis is correct, it is weakness of will, not Individualism, that explains the damage we have done to the environment. Individualism, according to this view, is the correct ethical theory, but our inability to live by its principles—our slothfulness, greed, and insincerity—explains the environmental mess we have gotten ourselves into. The conjunction of Individualism and *collapse* are correlatively rather than causally related. The impending catastrophic loss of animal species is a phenomenon due not to failures of any traditional ethical theory but to failures in the character of those who ascribe to the theory. What we need is not a new ethic but “a new moral rearmament, a revival of moral dedication” (Frankena 1979, 4).

Weakness suggests that the environmental problem stems not from our ethical theories but, rather, from deficits in our willingness and ability to live by them. It suggests that we should be skeptical at best about the idea that if enough people abandoned Individualism for Ecoholism, *collapse* would be averted. Individualists doubt that *any* ethical theory by itself can save us. If they are right, (12) does not follow, even inductively, even if we take them all together, from any statistical data, political interpretations, scientific commitments, or philosophical theories. The Ecoholists’ desire to lay the blame for environmental degradation at the feet of Individualism is unwarranted.

A HOLIST REBUTTAL

Holists need not take this objection sitting down. They may argue in response that ecosystem science provides the reasons to reject Individualism. Because ecosystems are natural wholes with integrity that tend toward a mature state of equilibrium, we can derive the required norms from the equilibrium. A “good” ecosystem is a healthy, complex, and resilient ecosystem, and a “bad” ecosystem is an unhealthy, simple, fragile ecosystem. Acts that contribute to the good of the ecosystem are therefore better than acts that undermine its good. When Individualists allege that a Holist cannot provide a norm for action, they are wrong because ecosystem science provides the required norm. Or so argue the Holists.

To respond to this argument appropriately, let us begin a new section. In this new section, we will take up a powerful idea, that ecosystems are similar to individuals. I will show, however, that this view cannot be defended if we accept, as we should, the conclusions of Darwinism.

A SECOND ARGUMENT FOR ECOHOLISM: *ECO-ORGANISMS*

Some Holists understand ecosystems as maturing organisms that tend toward maturity, adulthood, unless humans intervene and arrest their development. Savannas, oceans, deserts, wetlands, and forests have a narrative structure. They follow a plotline, beginning as newborns who eventually mature into reproductive agents, maintaining their status as characters in a drama. As John Rodman puts it in “Four Forms of Ecological Consciousness” (1983), ecosystems “have their own characteristic structures and potentialities to unfold” (89). This narrative structure of the subject provides the norm by which we can tell whether we are acting appropriately toward the subject. We act rightly if we help the character face its challenges and develop into its “true self.” We act wrongly if we interfere with its development.

If ecosystems are characters developing their own capacities, learning and adapting, moving in a narrative arc toward ends they set for themselves, then environmental ethicists

are in luck. For now we have a standard against which to judge what is right and wrong with respect to the treatment of ecosystems. Right actions are those that help the character achieve its ends. Wrong actions are those that thwart the potentialities and excellences that inhere in the character's development (compare Rolston 1985).

TELEOLOGICAL EXPLANATIONS

On a narrative understanding, ecosystems require teleological explanations. A teleological explanation is one in which a behavior or movement is only explained once its purpose has been revealed. If Erick is walking down a sidewalk heading for the university practice range and he is going there to practice his skeet shooting skills, then we have an explanation of what his movement along the sidewalk means. But we may be wrong. For if he is going to his destination to join a protest against gun ownership, then the correct explanation of his movement down the sidewalk is something other than what we thought it was.

Teleological explanations make it possible for us to see new, higher-order entities on the basis of proper understanding of old, lower-order entities. The higher-order thing is called "the whole," and it gives meaning to the (lower-order) parts. So, in Erick's case, his behavior of walking down a sidewalk is the part that only receives its proper interpretation once we understand his purpose, or the whole, namely, his going to a gun protest. The new entity, the whole, is known as an "emergent" property of the parts. With respect to ecosystems, the biologist Eugene Odum defends the idea that ecosystems are whole individuals in this sense:

As components, or subsets, are combined to produce larger functional wholes, new properties emerge that were not present or not evident at the next level below.... Results at any one level aid the study of the next level in a set but never completely explain the phenomena occurring at that higher level. (Odum 1977, 1289)

Odum gives this example to illustrate his claim that ecosystems are like individuals:

Intensive research at the cell level has established a firm basis for the future cure and prevention of cancer at the organism level.... However, cell-level science will contribute little to the well-being or survival of human civilization if our understanding of supraindividual levels of organization is so inadequate that we can find no solutions to population overgrowth, social disorder, pollution, and other forms of societal and environmental cancer. (Odum 1977, 1289)

Ecologists hold that ecosystems have properties that can only be explained teleologically. If we understand ecosystems only in terms of individual plants or animals or discrete physical processes, we fail to understand the ecosystem. For it can only be understood in terms of the narrative structure it reveals: the future end state toward which it is directed by its past states and its current inherent potentialities that are unfolding.

So argue Ecologists. But are they right? Must we—may we—think of ecosystems as having a narrative structure, with a future that is following a plotline and developing toward a denouement? And, if the science permits us to think in this way, can we then accept the segue from scientific claims about the ecosystem's mature state to normative claims about how humans may and may not act with respect to the ecosystem?

OBJECTION: NO TELEOLOGY

There are two problems here, and they correspond to the scientific interpretation and the moral significance given to the science. The first problem is that Ecologists are attributing purposes, goals, and narrative structures where they are not found. Within any given

ecosystem, there is no single state that corresponds to its “natural” or “wild” state. There is a wide, uneven, and even contradictory range of states, all of which may well have integrity, beauty, and resilience. This range represents the norm of reaction of entities within the ecosystem to external perturbations, including human perturbations. Any one of the multitude of states could be a “good” state of the system depending on how one defines good. But none of the many good states may legitimately be called the state at which any prior state of the system narratively “aims.”

THE PROBLEM: SPECIFYING AN ECOSYSTEM’S “HEALTH”

Consider one example. Suppose we wanted to know how many white-tailed deer would be present in the “mature” ecosystem in Wake County, North Carolina. By the “mature” ecosystem state, we mean the state that Wake County’s ecosystem is in when it has integrity, beauty, and resilience. To find out the answer, we might be tempted to ask, “What number of deer would be compatible with the current number of humans?” But we can see at a glance why this question might not be the right question, because the current number of humans might not be compatible with a mature Wake County ecosystem. So we might ask, instead, what number of deer and humans is consistent with a healthy ecosystem in this county? But again, the answer would be impossible to determine because it would depend on all manner of factors, such as whether or not the human population of the county would be dramatically increasing (or decreasing) in the future, whether the county had experienced drought for the last decade, whether it should expect repeated drenchings from future hurricanes, or blight to infect its trees, or particularly ripe water temperatures to lead to a spike in spring trout. Not only is it impossible to identify the “right” number of deer for Wake County, it is impossible to identify a range too. Any number between *one* and *one million* is conceivably compatible, given changes in other variables, with a “healthy” local ecosystem.

THE DIFFICULTIES ARE EVEN DEEPER

But the prospects for making good on the Ecoholist’s promise of identifying the properties of a “healthy” and “good” state for the Wake County ecosystem are even worse than the previous paragraph lets on. For we have been making a dubious assumption, that deer ought to exist in Wake County if its ecosystem is healthy. But that’s questionable, too, because the number of white-tailed deer in a healthy Wake County ecosystem could be *zero*.

The same problems confront any attempt to define the “good” of any ecosystem. We can take exactly the same patch of “the land” anywhere in the world, on virtually any scale, and get the same result. Under varying environmental conditions, what is “good” for the ecosystem will differ dramatically depending on what is happening with the Gulf Stream ocean currents, sunspots, frequency of hurricanes, severity of droughts, soil acidity, and so on. Ecosystems evolve and change so often that we cannot say what is the “natural” or “mature” state toward which an individual one aims.

THE NUB: THE NATURAL WORLD LACKS TELEOLOGY

Here is the nub of the issue. There is no teleology in ecosystems, because there is no teleology in nature. It is no surprise that we would be inclined to think that ecosystems are directed toward some end because, as Alex Rosenberg notes in *The Atheist’s Guide to Reality* (2011), we are the story-loving animals who see narratives in everything. Stories have beginnings, middles, and endings, and by providing a narrative for inanimate processes, we

make those processes accessible to the imagination. But are inanimate processes story shaped?

The possibility of understanding ecosystems narratively faces two problems. First, the discoveries of the scientific revolution and its successor theories make it possible to explain the origins and movements of inanimate matter without appealing to teleology. Second, the discoveries of the biological revolution and its successor theories seem to make it possible to explain the origins and behaviors of animals, perhaps even humans, without appealing to teleology.

Let us look at the first claim. In the seventeenth century, Isaac Newton's (1642–1727) formulations of the theory of universal gravitation and laws of motion formed the basis for the development of increasingly powerful explanations of the motions of nonliving matter. Earlier thinkers, including Aristotle (384–322 BCE) and others, believed that the movements of the winds, pollen, water, and rocks were caused by the “natural ends,” which drew objects to themselves. The scientific theories developed before and after Newton and the scientific revolution made it possible, however, to explain events not as the actions of animating spirits but rather as the blind results of impersonal causes. Applied to ecosystems, the upshot is that one need not appeal to a Creator or a Design to explain the origin of trees and rivers, or even mountain formations. For, given sufficient geological time, one can explain how rocks came to be in their current alignment by appealing only to prior material states—the initial conditions—plus the external forces acting on them.

The relevance of this discussion for our understanding of ecosystems is that the physical sciences have come to rival “Nature” and “God” as an account of the origins of things. *More* than rival them, for the explanatory power and predictive accuracy of the modern nonteleological sciences vastly exceeds the power and accuracy of predictions based on teleological theories. If so, if teleological approaches to ecosystems have been surpassed by other explanatory paradigms, perhaps that is because there is no teleology in ecosystems. And if there is no teleology in ecosystems, it is difficult to see how there could be any narrative structure in them either.

THE SCIENTIFIC REVOLUTION AND THE END OF TELEOLOGY IN NONLIVING THINGS

No teleology in nature? No mature end states or narrative structure in ecosystems? What is the argument for such assertions?

Let us begin with an example: the motions of the stars. Many people think that the constellations (e.g., Pisces or Aquarius) affect our lives (e.g., good time to start a new job; bad time to start dating again). The scientific revolution set the table for the emergence of what we now call common sense about the stars. Astrology, you see, is based on the teleological idea that the stars are guided in their movements by things in the future that attract each star to its natural destination. That is, if I come to understand what the future holds for the heavens, I'll come to understand what the future holds for me. Should it turn out, however, that the motions of the stars are not narratively structured in this way, then the deliverances of the astrological charts will turn out to be unreliable at best.

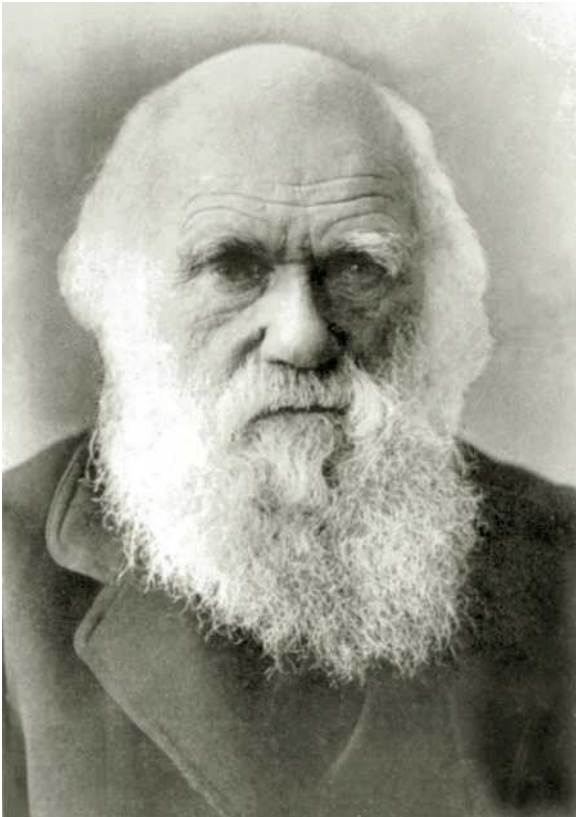
And that is just how it turns out. Astrology has no basis in fact and consequently no ability to predict the future. Some people find it dispiriting to learn that their personal fate is not intimately intertwined with the fabric of the universe. But any loss in this area is more than compensated for by modern physics and astronomy's offer of precise predictions for

the future positions of the stars. And, more than that, these sciences offer powerful explanations of the movements of all material things. In sum, whereas an earlier age explained events supernaturally, modern science explains them naturally.

In the age of the sciences, we have become more discerning in our views about what needs explanation and what does not. And yet we remain attracted to the idea that the universe has a story in which each of us plays a significant role. Perhaps the reason is that we are story-loving animals disposed to see narratives everywhere. Everywhere including, incredibly, in the constellations. For a constellation is the arrangement of a minute subset of stars as seen by humans from the earth. Our perspective from the earth is, however, only one among billions of perspectives of the same subset of stars. So it is a perspective that is at once subjective and idiosyncratic. As a perspective confined, for all we know, to humans, it is also short-lived, for the temporal duration of the human species on the earth is, compared to the age of the universe, vanishingly small. By comparison, the properties of the subset of stars in a constellation is objective—not influenced by human beings—and as eternal in duration as you can get. So how could *my* perspective determine, or even influence, any story the

universe may be telling? Such a fiction, however pleasant and reassuring, is unwarranted from a scientific point of view.

The same lesson applies to ecosystems. To think ecosystems are narratively structured is unwarranted from many plausible scientific points of view.



Charles Darwin (1809–1882). Darwin presented the argument that human life evolved from simple life-forms, undermining the idea that God is the only possible explanation for design in living things. EVERETT HISTORICAL/SHUTTERSTOCK.COM.

THE BIOLOGICAL REVOLUTION AND THE END OF TELEOLOGY IN LIVING THINGS

Darwin did for animate nature what Newton did for inanimate nature. Darwin provided nonteleological explanations of life. Darwin's theory gives us a much more sensitive instrument than does a narrative understanding of an ecosystem with which to make predictions about the dietary, wake/sleep, and reproductive life cycles of individual wildlife. The main explanatory forces in Darwin's theory are well known: random mutation (the unpredictable appearance of novel organisms in one's offspring) and environmental filtration (the passive selection by the environment of organisms most fit to flourish and reproduce). These forces are blind and undirected: they proceed without aiming at some end state.

If Newton pulled the rug out from under the religious idea that God is the only possible explanation of Design in nonliving things, Darwin undermined the idea that God is the only possible explanation of Design in living things. For Darwin was, and the evolutionary theorists who succeeded him are, committed to natural, causal explanations of all traits found in plants and animals. On this view, all traits are the result of mutations occurring spontaneously in accord

with physical laws, organisms surviving until sexual maturity, and traits being heritable. In turn, individuals in the next generation successfully reproduce only if they too have advantageous traits that fit the changing template of the environment. After the biological revolution, biologists assume that the physical features of plants and animals have natural explanations. And many believe, further, that the behaviors of animals are to be explained in the same way. Animal behaviors are traits resulting from the blind, causal forces of random mutation, heritability, and environmental filtration. Because ecosystems change, each individual's chance of reproducing is always at risk. This is as true for the seemingly most fit individuals as it is for the seemingly least fit. For one's chance of reproducing always depends not only on whether one has, by sheer luck, inherited the "right" traits but also whether one has, also by sheer luck, found the "right" local ecosystem.

Darwin's idea is dangerous not simply because it provides an alternative, nonnarrative, nonsupernatural explanation of nature. It also seems to provide a nonnarrative explanation of persons, and if it does, teleological explanations of our behaviors may no longer satisfy us. We may be forgiven if we think such explanations are essential to us, because we naturally think of ourselves as narratives, as linguistically shaped creatures with temporal beginnings, middles, and endings. We write about ourselves this way too. Consider this statement by one of my students.

I suppose I first began to know who I really was when I faced a difficult decision. I discovered that I had to control my short-term instincts if I was to accomplish my long-term goal of becoming a veterinarian. What I learned was that if I am to achieve my deepest desires I must be realistic and intentional about achieving them.

In this paragraph we see the telltale marks of the teleological conception of human life. The student thinks of her life as having a plot-like structure in which the hero of her story (herself) confronts a challenge that must be overcome if the author's goals are to be met and the story is to have a happy ending. Darwin, however, makes it possible—at least in theory—to give our lives nonteleological explanations. Consider this kind of account.

My desire to become a veterinarian was produced by neural networks in my brain, which were themselves formed in accord with law-like processes. My brain evolved as the result of random genetic mutations, which caused my phenotype. I believe that my phenotype includes not only my physical characteristics but my psychological dispositions too. One of my dispositions is that I want to become a veterinarian. Others in my class share this phenotype with me. Those of us with this "veterinarian phenotype" have traits that are advantageous for our survival insofar as we exist in an environment that needs veterinarians. If we pass along our traits to future generations, and if those future generations are in turn competitive in their environments, it will not be because our children have been designed for their environments but only because they will have been lucky enough to be born into an environment that also needs veterinarians. Their successful reproduction will not be a result of *our* design. No, it will simply be the result of their having been lucky enough to be born into an environment for which they are well suited. Who knows? The future may not need veterinarians, in which case our phenotype will likely disappear.

Now, we would have to laugh if someone thought the second paragraph offered a remotely satisfactory explanation of a particular student's decision to become a veterinarian. There would be several reasons for our skepticism. First, the explanation simply does not have the kind of fine-grained analysis that would be necessary to give a complete explanation of the student's nuanced choices. Second, to give the fine-grained analysis necessary, we would need to supplement the evolutionary explanation with explanations of the neural

events and information processing and integration occurring in the student's brain. Third, even if we had a well-developed evolutionary/neural account of an individual student's life, we could not admit the Lamarckian move found in the paragraph, a paragraph that assumes that learned traits (such as the skills needed to perform surgery) are heritable. The biological community tends to agree that, speaking generally, the kinds of capacities individuals learn during their lifetime (such as the sum of $2 + 2$ or the meaning of the word *Internet*) are not traits one can pass on to one's offspring. Lamarckian biology holds that learned traits are heritable; modern evolutionary Darwinian biology holds that such traits are not heritable. Assuming modern evolutionary biology, we do not have a scientific explanation of complex human behavior.

That said, we can imagine that in the future a mature physical science might be able to provide the kind of nonteleological explanation only hinted at above. And if a future integration of biological, chemical, and physical sciences can eventually offer genuinely evolutionary explanations of human behavior, emotional intelligence, and corporate decision making, then Darwin's theory will have banished purpose not only from the heavens above but from the human heart below. For humans, like genes and viruses, will best be understood not as things that aim at any purpose or good. Humans, like ecosystems, will not have a "mature" state, a good, or a welfare. Rather, we, like nature, will be entities that, properly understood, are moved by forces without purpose, acted upon by causes that do not have ends in sight.

ECOSYSTEMS HAVE NONTELEOLOGICAL EXPLANATIONS

On this conception of the Darwinian revolution, how should we explain ecosystems? Not by invoking the designs of Mother Nature or "mature" end states, but by invoking blind physical forces governed by the second law of thermodynamics. Entropy, the general decline in isolated systems of ordered things into disorder, is the basis for explaining ecosystems because it is the basis for explaining everything. For certain lengths of time, a certain set of complex relationships may appear as an ordered state in nature. But such ordered complexes are attained at a price of disorder elsewhere, and they last only briefly when considered in geological time.

So it is, first off, a mistake to say ecosystems have the narrative structure necessary to have a welfare and to have things that are good for them. But even if that were not a problem, we would still run into one of the twentieth century's most notorious philosophical puzzles.

OBJECTION: IS/UGHT

The possibly fatal mistake in Ecoholism is illegitimately to infer an "ought" statement from an "is" statement. The problem, noticed famously by the Scottish philosopher David Hume (1711–1776), occurs when a speaker makes an empirical claim and follows it with a normative claim. Because this issue is critical for the argument of this paper, I pause to quote Hume's *Treatise of Human Nature* (1739) at some length.

In every system of morality, which I have hitherto met with, I have always remarked, that the author proceeds for some time in the ordinary ways of reasoning, and establishes the being of a God, or makes observations concerning human affairs; when all of a sudden I am surprised to find, that instead of the usual copulations of propositions, is, and is not, I meet with no proposition that is not connected with an ought, or an ought not. This change is imperceptible; but is however, of the last consequence. For as this ought, or ought not, expresses some new relation or

affirmation, 'tis necessary that it should be observed and explained; and at the same time that a reason should be given, for what seems altogether inconceivable, how this new relation can be a deduction from others, which are entirely different from it. But as authors do not commonly use this precaution, I shall presume to recommend it to the readers; and am persuaded, that this small attention would subvert all the vulgar systems of morality, and let us see, that the distinction of vice and virtue is not founded merely on the relations of objects, nor is perceived by reason. (Hume 1739, 335)

Here is an example of the problem Hume has in mind. "Erick's vision is 20/20 so he ought to be a skeet shooter." If someone notices Erick's excellent eyesight and suggests that he might want to try shooting a rifle, that is one thing. It is another thing to say that he *ought* to shoot rifles. But why should Erick, much less everyone with 20/20 vision, be *required* to be a skeet shooter? Perhaps Erick dislikes loud noises. Perhaps he has moral objections to recreational gun use. Perhaps he has four children and is so devoted to them that he has no time for a hobby. For every fact that can be enlisted to shore up a moral claim ("Erick should be a shooter"), other facts can be enlisted to shore up the opposite claim ("No, he shouldn't"). But even this kind of response of listing facts for ("has 20/20 vision") and against ("dislikes loud noises") a moral conclusion ("should be a shooter") is guilty of the is/ought fallacy. For the response treats an initial set of facts as having weight in one direction, and tries to rebut it by listing a set of facts that weigh in the opposite direction.

Is it impossible to escape the is/ought fallacy? Perhaps. But it will suffice for our purposes to point out that whereas we could go on forever listing facts that are as relevant as facts can be to what a person should do, we still wouldn't be saying anything that *entails* a conclusion about what that person should do.

MOVING ILLEGITIMATELY FROM IS TO OUGHT

Here is another example. "Chimpanzees eat fish and wild pigs in the wild; therefore, chimps kept in zoos ought to be fed meat." Notice that the first clause is, again, descriptive. It asserts a fact. But the second clause is different; it tells us rather what we should do. It is a prescription rather than a description. Why should a chimp's diet in the wild determine what it is fed in captivity? Chimps are omnivores, and yes, they are known to eat pigs in the wild. But perhaps they do so only because they cannot find nuts, insects, leaves, bananas, mushrooms, or other preferred foods. And if a zoo can provide a better diet, a healthier diet, without serving pork, why shouldn't it do so? I do not mean to call attention to the facts of chimpanzee diets or the behavior of zookeepers. The point is logical, not ethical. Unless speakers provide reasons when they move from "is" claims to "ought" claims, they commit a logical fallacy, making prescriptions without justification.

How does the is/ought problem relate to the Ecoholism debate? If Hume is right, the distinction between good actions and bad actions cannot be found by examining any empirical description of an ecosystem, however sensitive and comprehensive. It can only be found by examining the contents of the feelings of individuals, our "sentiments" or "affections." The point here is this: without an answer to the is/ought objection, Ecoholism is not able to defend its ethical judgments about the value of ecosystems, no matter how accurate and nuanced its understanding of the system may be.

AN ECOHOLIST REBUTTAL

Holists have a response to this objection. They can caution the Individualists to tread lightly around the is/ought problem. For the knife cuts both ways. If the Ecoholist cannot derive an

ought from an is, neither can the Individualist. If Darwinism is, in Daniel Dennett's phrase, a universal acid that eats through all teleological explanations not only of religious belief but also of morality, personal identity, and purposiveness in nature, then Individualists are in as bad a shape as Ecologists (Dennett 1995). Individualists can no more base their ethical views on science than Ecologists can base their ethical views on science. Individualists cannot protect humans, much less animals, if neither humans nor animals have a narrative structure, a "healthy" state toward which they are tending, a meaning in life, a mature equilibrium state. If Darwin is right, individual humans do not have a good, and so no moral conclusions can be derived from descriptions of facts about humans.

The Holists' rebuttal is this: sauce for the goose is sauce for the gander. The Individualist's appeal to the is/ought problem proves too much, say the Ecologists, because it proves that there is no basis for ethics at all.

INDIVIDUALISTS MUST HAVE AN ANSWER TO THE IS/UGHT PROBLEM

Let us press the Ecologist's rebuttal further because it presents a difficult problem, a problem that animal defenders must solve. The challenge is this. Take the is/ought problem seriously. Combine it with Darwin's nonteleological explanation of plant, animal, and human life. Well, the result is not simply that we have made it impossible to explain ecosystems teleologically. We have also made it impossible to explain human life teleologically. And, to the extent that human life no longer has purpose or meaning, the realist assumption in ethics that "right" and "wrong" and "good" and "bad" name objective properties of the world also no longer has meaning. If the human species did not evolve for some purpose—and, after Darwin, we must assume that it did not—and if this or that individual human did not come into existence for some reason, for some predetermined end—and we are assuming that they did not—then none of us has any "inherent" normative state or "intrinsic" value. As with ecosystems, the welfare or "good" of an individual must be determined by the purposes to which it is directed. But to the extent that humans have no purposes, goes the Ecologist response, we have no good, either, and any ethical claims about what is good or bad for us are also vacuous.

The Ecologists need not stop here. They may continue to push their point to its logical conclusion. If there is no good for individual humans, there can be no natural human rights either. For all moral traits are evolutionary adaptations, and all adaptations are random occurrences. If traits persist in a population, as moral traits have among humans, they persist only to the extent that a current environment blindly filters for them. If the environment changes—if, for example, *collapse* occurs—the moral traits might quickly change. If conditions for survival on Earth were suddenly so brutal that it was every man for himself, the idea of universal human rights could disappear as quickly as it came. This, at least, is the challenge Ecologists could now make to animal defenders: defend the idea of an objective morality of natural rights attaching to every subject-of-a-life in a post-Darwinian account of life.

Yes, Ecologists commit is/ought mistakes. But Ecologists will allege that animal defenders do too, especially if Darwinian theory eats completely through all teleological explanations of animate, including human, life. For in doing so it must eat through ethics as well. If we must treat moral beliefs as adaptive traits, as we must after Darwin, traits that could have been different and may be different in the future, then how can Individualists defend animal rights construed as natural, objective properties? If one accepts the full nihilistic implications of Darwinian biology, how can anyone make any ethical claims at all?

AN INDIVIDUALIST APPROACH: SENTIMENTALISM

Here's a possible solution to the is/ought problem open to the Individualist. It is known as *sentimentalism* because it begins with our sentiments, our feelings. Take pain and frustration, for example. I know I don't like others hurting me or standing in the way as I pursue my desires. I don't want others to cause me pain, and I think they ought not to act in hurtful ways. By parity of reasoning, I assume that others feel as I do, that they don't want others hurting them either, and that they think I ought not to act in hurtful ways toward them. To capture these sentiments, we say hurting and enslaving others, all else equal, is *bad*. That word expresses our deep disapproval of such actions.

I know that others hurt in the same way that I do when they experience pain, and saying hurting people is *wrong* is a way of acknowledging that they are like me. Similarly, I like it when others help me to satisfy my desires, and I say it is *good*, all else equal, to help others experience pleasure and happiness just because I know that these things feel good to me and to those I know and love. Again, I know it causes me frustration and suffering when other people try to control me, bind me against my will, or tell me what to do without offering me a good reason for their action. I feel bad when others constrain my freedom without reason, so I say it is wrong to violate someone's freedom without having a decent explanation of why it should be violated.

I FEEL YOUR PAIN

Because I have these feelings, and I know that you are like me, I ought not to cause you pain, deprive you of the ability to satisfy your desires, or constrain your freedom without offering you a reason. When you deprive me of freedom, I think you violate my right to liberty. Similarly, if others deprive you of your freedom, they violate your right. We have little reason not to think that something that is good for us is, all else the same, good for others. We have no more right to deprive others of goods than others have the right to deprive us of those goods. In short, we are *wrong* to act in these ways. On this analysis, "ought" statements may follow "is" statements if, and only if, the normative claim is justified by observing what sort of feeling the act would evoke in us, whether the act would evoke the same feeling in others, and whether we can give others good reasons for evoking that feeling in others. Do unto others as you would have others do to you.

Here is the important point: Individualists need not try to solve the is/ought problem by appealing to nonexistent norms of ecosystems. Rather, they may draw directly on sentiments: phenomenological states more or less immediately known to each of us because we feel them from the inside, as it were. For Individualists, ought claims will be justified on the basis of what we know about ourselves, about others, and about how each of us want, upon reflection, to be treated.

VALUE EVOLVES

The proposed answer to the is/ought problem provides an account in which value and freedom evolve out of the processes of random mutation and environmental filtration. And yet Individualists do not claim to have definitively solved the problem, which is one of the most difficult problems facing moral philosophers. If the final answer has not been found, Individualists nevertheless stand a better chance at finding it than do Ecologists.

ECOHOLISTS CAN BE SENTIMENTALISTS

The resources of sentimentalism are open to Ecologists, as Callicott's work makes clear:

The nonutilitarian value of other forms of life is ultimately *emotional*, ... it rests upon *feeling*, ... species are valuable and we ought to save them *simply because we have an affection* for them. (Callicott 1986, 153, emphasis added)

Callicott's Holism is based on the idea that nonutilitarian values are not objective metaphysical properties of inanimate nature, but arise rather when humans and other animals recognize the beauty, the utility, the grandeur of inanimate nature. Ecologists and Individualists alike may be able to enlist feelings to license the move from nonteleological explanations of ecosystems to normative claims about how we ought to treat them. By specifying which natural properties we want to preserve, we have at least begun to offer a reason for the universalizing claim that others ought to preserve them, too.

You may be wondering if we are going in circles. Are we back to where we started, appealing to (mere) intuitions and (nothing more than bare) feelings? No. Earlier, we looked at illegitimate appeals to personal intuitions where intuition was being used to try to settle a specific disagreement. We are not now in that arena. Rather, we are looking for the metaphysical origins of value. It is one thing to grab an intuition willy-nilly when trying to defeat someone in a dispute. It is a different thing altogether to develop a metaphysical view in which moral values can be shown to arise from valueless natural processes. And it is the latter task in which Callicott is engaged in the passage cited above.

FEELINGS ARE NOT THE END OF THE MATTER

Sentimentalism begins with feelings but does not end there. It requires that we assess sentiments, winnowing and sifting them to find those with the most generalizability and communal acceptance. Subjected to rational scrutiny and public assessment, sentiments can be ranked as better or worse. Those that rise to the top are likely to be those generally found in ethical discourse: the feelings that we ought to be fair, compassionate, nurturing, and so on. Here, in the satisfaction of desires of sentient beings, we have the best hope of finding the answer, if there is one, to the is/ought question. As noted, Ecologists may avail themselves of the resources of sentimentalism, but as they do so, they will be appealing to teleological, narrative characteristics possessed only by individuals. For, as Callicott seems to acknowledge, the ultimate source of value of a species or ecosystem is the sentiment of individuals.

THE EVOLUTIONARY EMERGENCE OF THE SELF

How does this view of ethics apply to animals? Well, notice that moral valuers appear on the evolutionary scene only when organisms have become sufficiently cognitively complex to support feelings of pain. Prior to this point in time, no valuers. Now, it is another question whether *value* emerges at the same time as sentient beings with desires. This question is, as David Schmidtz notes in the introduction to this volume, a critical question. It's the question, in fact, that gave rise to the field of environmental ethics when Richard Routley (he later adopted the name Sylvan) asked in "Is There a Need for a New, an Environmental, Ethic?" in 1973 whether the existence of value presupposes the existence of valuers. I do not mean here to suggest that the debate has been settled. Far from it. Valuing is an activity that presupposes a valuer, but the thing we value need not itself be a valuer. This debate, like so many others discussed in this volume, has not been resolved, and intelligent people may be found on both sides of the issue. The only point I want to make here is that sentimentalism

as a theory is consistent with the nonanthropocentric claim that valuing is not an activity restricted to humans. For nonhuman animals can be valuers, too—and sentient animals are by definition valuers. The reason is that pain is (by definition and all else equal) something the one experiencing pain does not value, whereas pleasure, including the satisfaction of a preference, is (by definition and all else equal) something the one experiencing pleasure values.

When does sentience arise? Perhaps it is when a self appears in an organic system. Even the simplest of animals, including microorganisms, have homeodynamic processes supported by neural networks. That may not be, and probably is not, a self. But more complex animals, with consciousness and feelings, may be selves. On one plausible account, once an animal can integrate a sufficient quantity of information in a sufficiently complex way using a centralized processing unit, the animal may have the wherewithal to feel pain and pleasure (Tononi 2008). If the processing unit required is a brain of a certain complexity, conscious selves may have arisen with birds and nonhuman mammals, and well before the appearance of *Homo sapiens*. If so, then Sylvan's "last man" surely destroys something of value if he decides to destroy the Grand Canyon, for the constituent parts of the Grand Canyon are valued by every sentient animal that depends on them for survival.¹

When things happening in a body are accompanied by feelings about what the body wants to do, pains and desires appear. Once pains and desires appear, value appears because the physical body now understands that pains are bad for it and pleasures good for it. At that point, individuals have evolved more than mere tendencies to move away from aversive stimuli and toward attractive stimuli. More evolved individuals value pleasure and consciously want more of it, and disvalue pain and consciously want less of it. Eventually, animals appear, notably humans, who can infer that other sentient individuals feel the same way they do. We can infer that others want to avoid harms and want to satisfy desires. With the emergence of individuals who care about the feelings of others, ethical sentimentalism is off the ground.

THE EVOLUTIONARY EMERGENCE OF SELVES WHO CAN READ THE MINDS OF OTHER SELVES

As far as we know, only humans can set aside prejudices and interests to consider matters from an objective point of view. This point of view, the ethical point of view, is one that corrects for our tendency to focus narrowly on our own interests, to stack the deck in our favor. Which animals feel pain and have desires? Anatomical structures typically survive because they solve environmental challenges. Insofar as all mammals have neural and brain structures for processing basic pains and pleasures that are similar to ours, and insofar as those animals exhibit affective pain behaviors and pleasurable emotional expressions similar to ours, we may reasonably infer that the animals also *feel* those emotions in a way similar to the way we do. The fact that pain feels bad, and feels bad to whoever feels it, is all that is necessary to secure moral consideration for animal pain.

Philosophers of science refer to this situation as a case of going with the simplest explanation that fits the facts. We cannot, perhaps, provide a deductive argument that nonhuman individuals have feelings much like ours. Nonetheless, it would be unscientific not to take the evidence at face value.

As with pain, so with desire. All mammalian brains have billions of neurons, interconnected mesocorticolimbic systems, and similar reward circuits. All mammals exhibit goal-directed behaviors too. The fact that desire satisfaction feels good, and feels good to

whomever feels it, is all that is necessary to secure moral consideration for an animal's anticipations of its future.

MORAL PATIENTS, MORAL AGENTS

So far, we have seen evolution produce animals who are no more than moral patients, that is, individuals with a welfare that can be promoted or thwarted. However, to get moral agents—individuals with language, theory of mind, and the attendant obligations to promote or, at least, not to thwart, others' welfares—evolution must produce animals something like us, beings with the higher psychological capacities just named. These capacities include the ability to understand oneself as a character in one's own narrative—one's internal autobiography, as it were—to understand others as characters in their own narratives, and at least to feel as if one can control one's actions with respect to the others.

The ability to take the perspective of another is requisite for moral agency. At emotional maturity, I can read the minds of others, I can understand that others suffer just as I do, and I can be held responsible for the things I do. Mind readers understand, or at least have the capacity to understand, that others feel pain. They understand, or at least have the capacity to understand, that other moral agents can have futures of their own, futures they care about. Consequently, moral agents can understand that we must work together to create a future in which unjustified pains and violations of freedoms are minimized. Once proto-hominids appear who are able to understand that other proto-hominids are motivated by desires and interests that matter to them in the same way that their own desires and interests matter, then the way is paved for claims about human rights. Once moral agents come on the scene, Individualistic ethics is not far behind.

ANIMAL INDIVIDUALISM

The most prominent defenders of individual animals are Tom Regan and Peter Singer. Each has a different approach. Singer is a utilitarian, and Regan is a rights theorist. Singer argues (1993) that happiness, understood as the satisfaction of preferences, is intrinsically valuable, and valuable whether it is experienced by humans or by animals. If the world is a better place when value is maximized, we ought to act in ways that minimize unhappiness and maximize happiness for all sentient creatures. On this view, it is conceivable that one could kill an animal to maximize aggregate happiness. Regan, however, argues (1983) that such utilitarian sacrifices are rarely, if ever, justified. On his view, every individual who is the subject-of-a-life has the right not to be used as a means to an end. The reason is that subjects-of-a-life have dignity and are owed respect, whether they are humans with radically limited cognitive capacities or nonhuman animals with similarly limited cognitive capacities (the argument from species overlap; compare Palmer, this volume). You cannot, argues Regan, show respect for an animal subject-of-a-life by taking its life, extraordinary excusing conditions aside. For to kill an animal is generally to treat it as a mere means to your end.

INDIVIDUALS ARE INTEGRATED CENTERS OF CONSCIOUSNESS

Regan and Singer have different theoretical commitments. However, these differences are mostly irrelevant to our topic, the value of animals in environmental ethics (see Singer 1993,

especially chap. 10; and Regan 1983, especially chap. 9). And their differences need not concern us because their conclusions are similar when it comes to environmental matters. Singer (1993) believes that value arises with sentience, so ethical theory must protect all individuals who can feel pain and pleasure. Regan (1983) holds that rights arise with beings with personal identities, that is, temporal horizons established by psychological connections to the past via memory, and to the future via desire. So, on either account, the foundations of ethics will be more individualistic than holistic. Whereas Ecologists hold that we have direct duties to ecosystems, Individualists hold that we have direct duties to sentient, consciously desiring, individuals who can take an egoistic interest in the things they aim to do in the future. Individualists, as noted, are traditionalists when it comes to ethical theory. They believe that we have only indirect duties with respect to ecosystems because the environment has value only insofar as it has utility for sentient creatures and provides resources for the satisfaction of desires.

INDIVIDUALISTS VALUE ECOSYSTEMS, BUT INDIRECTLY

For Individualists, the moral value of ecosystems arises from the contributions systems make to the satisfaction of individuals' sentiments. A healthy ecosystem on this view will be one that produces approbation or pleasure in any animal who considers the candidate ecosystem in a disinterested way. Insofar as only humans are capable of considering matters in a disinterested way, only humans will be capable of making ethical evaluations of ecosystems. However, to the extent that any animal can benefit from an ecosystem by enjoying its resources, or using the ecosystem's offerings to satisfy the animal's desires, those animals will be moral patients whose interests must be taken into account when deciding how humans should act with respect to the ecosystem.

MORAL RIGHTS EMERGE FROM AGREEMENTS

A caveat is required here about how animal rights must be understood. Given the understanding of Darwinism I have defended, rights cannot be understood in the way Regan understands them, as natural objective properties that exist as independent metaphysical realities. Rather, moral rights must be understood closer to the way that the twentieth-century philosopher R. M. Hare (1919–2002) understands them, as important conceptual tools to be employed to maximize the good under actual, less than ideal, conditions of decision making (Hare 1981; Varner 2012). For in the real world, when we make choices affecting the environment, we are prone to think and act egoistically, cooking the books in our favor. We are, as I have said, inclined to make the mistake of generally trusting our prejudices and intuitions. This is not, however, the only mistake we make in ethical reasoning. We miscalculate probabilities, willingly ignore truths, and act hastily, before gathering all relevant facts. We fail to make necessary deductions, generally act selfishly, if not boorishly, much of the time, and tend to give the needs of others short shrift. On an antirealist view, there may be no *natural* rights, rights that exist independent of minds—that possibility is excluded by the Darwinian universal acid eating its way through moral philosophy. However, there clearly are pains and pleasures, human and nonhuman, and there clearly are desires of sentient creatures to increase happiness and decrease suffering. And there clearly are other beings whose preferences and futures matter to them. Under real-life constraints of decision making, then, the best way to achieve good results, according to the Harean “two-levels” version of utilitarianism, is to train ourselves and our children to act on most occasions *as if* individuals have natural rights.

Allow me to say a brief bit about two rival ways of conceiving of rights. On one view, call it *realism*, rights are objective properties that exist whether any beings ever evolve who can recognize them. For realists about rights, rights are not contingent or subjective; they are objective and mind independent. On a second view, call it *antirealism*, rights are subjective entities that exist because humans have created them. How? By speaking with each other, comparing our various interests, negotiating agreements about which of two competing interests should take precedence, and evolving a language and theoretical apparatus for resolving conflicts. For antirealists, “rights” do not refer to a set of properties that exist outside of our sentiments, desires, linguistic practices, evaluative judgments, and ethical theorizing. Rather, for antirealists, rights appear during evolutionary history once individuals come on the scene who can understand that other individuals have minds like theirs. After such minds come to understand the validity of claims about the rights of others, the next step is for them to create institutions and legal systems to protect those rights.

REALISM OR ANTIREALISM?

Which view, realism or antirealism, is correct? An active debate among metaethicists has not settled the issue, and we will not settle it here. However, it is worth noting a widely acknowledged and deep problem for realism. The problem is to explain where rights come from, if not from minds. It seems difficult to give a persuasive argument for the mind independence of rights. For what are rights but ideas, and what are ideas but the conceptual stock in trade of minds? It seems rights cannot exist unless minds create, understand, modify, and enforce them. Antirealists defend this view. Antirealists do not deny that rights are *real*, for psychological states are real—as real, in this case, as barbed wire fences. Rights on this view are not natural or mind independent, but they are nonetheless worthy of our deepest respect. The right of an innocent child that a man not abuse her, for example, may not exist independently of those of us with minds, but it is a *genuine* right for all that.

Let us now put the discussion of rights in the context of scientific explanations of human behavior. Which of the two views is consistent with a nonteleological explanation of our moral institutions? If, as is the case, the realist view requires purposive, mind-independent values and goals, then only the nonrealist view of rights will be consistent with an approach committed to finding nonteleological explanations of human culture. But this is not a reason to worry. Because rights are construed in an antirealistic way does not mean, as we have seen, that rights are insubstantial or “merely” “subjective.” In fact, so long as you understand what I mean when I say that kids have a right not to be abused, then everything is square. We both see that the claim is not merely an expression of a random feeling or a baseless opinion or emotion of mine. Rather, it’s a genuine claim meant to protect children, a claim meant to solicit universal agreement, a claim meant to sanction legitimate enforcement mechanisms by states.

A NONTELEOLOGICAL, ANTIREALIST UNDERSTANDING OF ANIMAL RIGHTS

In sum, a nonteleological view can make sense of rights by appealing to an antirealist metaethic in which all rights are created. On such a view, however, rights are not artificial or illusory. Humans have genuine, enforceable, rights, and as far as Animal Individualists are concerned, so do animals. On this account, rights are important rules of thumb we agree to adopt because we know that in their absence we are likely to act unfairly, to cheat, lie, and

steal, and generally to act in selfish ways. To maximize the happiness of all sentient beings, therefore, we must think of animals as having rights, because without this idea in our heads, we will, no doubt, find ways to disregard the animals.

In conclusion, Animal Individualists, whether utilitarians or rights theorists, enlist the results of behavioral and neuroanatomical science to justify their claims. All animals count, morally speaking, if they exhibit pain and pleasure behaviors and have the kind of hardwiring that supports pain and pleasure feelings in us. In this way, as I argued in *Vexing Nature? On the Ethical Case against Agricultural Biotechnology*, in 2000, the Individualists' view is superior to the Ecoholists' view because Ecoholists cannot point to behavioral or anatomical evidence for the existence of pain or pleasure in ecosystems.

WILD AND DOMESTIC ANIMALS

Recall that *reductio* asked us to believe that predation in the wild was a sacrosanct practice with which we should not interfere, whereas predation in our backyard by our domesticated cats might be a practice we should interrupt. The Ecoholist assumption seems to be that wild animals are more valuable than our pets and so-called food animals, and that a lion hunting gazelle on the Serengeti has greater value than does a domestic cat hunting baby rabbits in a suburban backyard. But do wild animals have this status? Are they morally superior to domesticated animals?

Wild animals are certainly more rare. We in the developed world rarely if ever come into contact with free-roaming individuals of endangered species such as the black rhinoceros, riverine rabbit, New Zealand greater short-tailed bat, or mountain pygmy possum. But the Ecoholist's claim is not that rhinos are fewer in number than border collies, although they are, but that rhinos have more value because they are rare. There are two problems with this argument.

BEING RARE DOES NOT NECESSARILY MAKE YOU VALUABLE

First, scarcity does not in itself confer intrinsic value on something. There are few copies of the H1N1 1918 influenza virus in the world, but that fact does not make the remaining few intrinsically valuable. It only raises their instrumental value, if they are valuable at all, because they could be instrumental in responding to a pandemic should another Spanish flu outbreak occur. By itself, something being *rare* contributes little, if anything, to its intrinsic value. A rare piece of art or music, of course, may have its value increased as other things like it go out of existence. My point is not that rarity can never contribute to value, it is only that a living thing's being rare does not necessarily make it more valuable than other living things.

The lesson applies to wild and domestic animals. A black rhino is no more intrinsically valuable than a border collie. Both have interests they would like to pursue, and each has value equal to the other, assuming all other considerations are the same. True, the rhino is of more interest to us, and we may well want to do more to preserve its habitat, especially if other factors come into play. These factors include the following: the rhino's existence contributes to the maintenance of appropriate population levels of other animals; its existence brings pleasure to photographers who take its pictures and schoolchildren who enjoy the photos; its existence brings tourist dollars into local communities; and so on. But these are external goods brought about by the rhino. They are not intrinsic goods that make it superior to your border collie.

DOMESTICATED ANIMALS MIGHT BE ABLE TO PLAY WILD ANIMAL ROLES

Second, wild animals are not necessarily more valuable than domestic animals because wild animals are uniquely suited to support the proper functioning of their ecosystem. The reason is this. If an animal's value derives from the function it plays in an ecosystem, and if domesticated animals could perform the function of wild animals in the wild animal's ecosystem, then the basis for the wild animal's superior value evaporates. Whenever the ecosystem function of a wild animal could be played by a feral animal—that is, a domesticated animal removed from the sphere of human care—then, given the Ecoholist definition of value, the value of the wild and domestic animals is equal.

Are there reasons for thinking domestic animals could perform the function of wild animals in the wild animal's ecosystem? One might doubt whether Chihuahuas could play the role that wolves play in the Alaska tundra, and one would, of course, be right about that. But the comparison is not fair because the question is not whether *every* dog could play the role of the wolf but whether *any* domesticated dog could do so. And there is ample evidence of ferality in domestic mutts of German shepherd, Doberman pinscher, and pit bull lineage. If these individual animals could recover the hunting behaviors that would allow them to replace the ecosystem functions now provided by wolves in wolf habitats, then the functional role argument for the superior value of the wolf disappears. And, given what we know about the remarkable plasticity and tenacity of feral dogs in urban, suburban, and open-range areas, the prospect of replacing wolves with dogs certainly seems possible.² Finally, according to Maria Gustafsson and colleagues in “Domestication Effects on Foraging Strategies in Pigs (*Sus Scrofa*)” (1999) and “Maternal Behaviour of Domestic Sows and Crosses between Domestic Sows and Wild Boar” (1999), whereas 8,000 years of domestication of the wild boar have produced dramatic differences in the physiology of domesticated (*Sus scrofa domestica*) and wild (*Sus scrofa*) pigs, individuals of the two breeds exhibit negligible behavioral differences, having, for example, the same foraging strategies, pre-parturition nest-building drives, and post-parturition nursing behaviors. In “Effects of Feral Swine (*Sus Scrofa*) on Alligator (*Alligator Mississippiensis*) Nests in Louisiana” (2012), Ruth Elsey and colleagues state that the rooting behaviors of domesticated swine are a threat to habitat diversity wherever feral swine are found, and predation of alligator eggs is perceived as a significant problem in Louisiana. Furthermore, in *Elements of Ethology: A Textbook for Agricultural and Veterinary Students* (1983), D. G. M. Wood-Gush writes that domesticated pigs are fully capable of performing the environmental roles of wild pigs (38).

WILD AND DOMESTIC ANIMALS ARE MORE SIMILAR THAN WE MIGHT THINK

Or consider the physiological analogies of highly domesticated lab rats and wild rats. The neuroanatomy of each is remarkably plastic, that is, adaptable to new environments. At least some strains of lab mice could survive in wild conditions. And, if that is true, those mice would have no less value than their wild cousins because the lab mice could ostensibly perform the appropriate ecosystem functions. The wild/domestic distinction fails for this reason. I grant the obvious point that many lab mice would almost certainly not be able to survive in the wild. This is especially true for many genetically engineered mice; for example, the hairless mouse bred to study alopecia would not survive long in the tundra, nor would the tubby mouse bred to study obesity survive long in eagle territory. My point is not, what is evidently false, that all domesticated animals can survive in the wild. My point is rather that some, perhaps many, individual domesticated animals could play the ecosystem role played by their

wild relatives. If that is true, as I believe it is, then those domesticated animals must, according to Ecoholism value theory, be equal in value to their wild conspecifics.

I have shown that the wild/domestic distinction fails to justify a difference in moral value between an individual wild animal and an individual domestic animal of the same species. This argument undercuts the Ecoholist's basis for valorizing wild over tame animals.

AN ANIMAL RIGHTS ENVIRONMENTAL ETHIC

This section can be brief, for an environmental ethics from the perspective of Animal Individualism must pursue environmental policies that acknowledge the rights of all adult mammals. This means we should adopt policies that will minimize the pain of all mammals and birds, minimize the adoption of policies that deprive animals of the habitat conditions necessary for them to flourish, and maximize adoption of policies that support the flourishing of all subjects-of-a-life. And, to ensure that such policies are adopted, we should train ourselves and our children to think that all mammals and birds have these rights in the same way and to the same extent that we have them.

An environmental ethic built on these commitments would lay out particular types of obligations to animals living in the wild. These obligations would require that any policy with impacts on animal habitat would have to be evaluated in light of their effects on the welfare and lives of all animals in the area. If, for example, a government sought to build solar panels and intersperse them in a protected area, the policy might pass muster according to Ecoholist principles. However, if the policy would result in the killing of wildlife in that area, or even a dramatic diminishment in the quality of their lives, the policy would not be acceptable on animal rights grounds, regardless of what benefits to humans, and even benefits to “the ecosystem,” the policy might produce. In this environmental ethic, as noted, animal rights are not metaphysically real properties but they are useful, even critical, fictions to ensure that we maximize the good under conditions in which we are prone to selfish errors in judgment.

WHICH ANIMALS HAVE A RIGHT TO THEIR HABITATS?

As I say, knowing which animals have rights will require knowing a good deal about their anatomies. But we know already that the brains of all mammals used in agriculture for food—including cattle, pigs, and sheep—have massively similar pain structures and networks. The brain areas in humans that sponsor backward-looking memory are the hippocampus, the parahippocampal region, and parts of the prefrontal cortex. The areas that sponsor forward-looking desires are the limbic system, including the amygdala, hippocampus, dentate, and cingulate gyrus. All mammals possess all of these structures, and it appears that most birds possess functional homologues (parts of the brain that subserve the relevant functions) of all of them. Those who would deny that mammals and birds have feelings similar to humans bear the burden of proving that these common structures are not functioning in other species in the way that they function in us. These empirical claims are the basis of animal rights.

Taking these arguments as evidence that the lives of all mammals matter will lead to strict environmental policies, almost certainly more strict than those required by Ecoholism if, as is possible, all individuals with rights have a *prima facie* right not to have their habitats rendered incapable of supporting them if other suitable habitats are unavailable to them. When will anthropogenic changes to ecosystems be disallowed? Whenever they will so compromise habitats that the lives of individual elk, raccoons, or squirrels are endangered.

For one of the most basic moral rights of individuals is the negative right against others that they not rob us of resources we need to sustain ourselves. An animal rights environmental ethic will entail the most stringent of policies. It requires noninterventionist preservation measures in cases where that course (“leave nature alone, preserving wildness”) will be of most advantage to individual animals. And it requires interventionist measures in cases where that course (“move polar bears to zoos if that is the only way to save their lives from anthropogenic climate change”) is the only way to respect individual mammals’ rights.

Summary

The Holist/Individualist debate, far from being a minor entertainment in the history of environmental ethics, identifies a problem central to the field. Holists complain Individualists want only to protect individual humans and some animals. Individualists complain Holists imagine value in places it does not exist.

In this chapter, we reviewed two bad arguments rolled out by both sides (*intuition* and *reductio*), and two stronger arguments on behalf of Ecoholism (*inference* and *eco-organisms*). Siding with the Individualists, I argued that Ecoholists rely on fallacious biological framing assumptions not supported by contemporary ecological science while failing to recognize the rights of sentient creatures. I presented four objections to Ecoholism (*weakness of will*, *no eco-organisms*, *no teleology*, and *is/ought*), arguing that Individualism stands the best chance of solving the is/ought problem because it holds that value arises only with desiring individual animals. There is little reason to think wild animals superior to domesticated animals because both have similar neural architectures and plastic behavioral repertoires. On these grounds, defenders of animals develop their own environmental ethic. A practical advantage of their view is that it enlists existing legal and political institutions, which themselves make liberal use of the concept of rights, to protect all subjects-of-a-life, both human and nonhuman, and, by extension, the ecosystems on which they depend. If all wild mammals have intuitive-level rights to life and liberty, and if one disrespects these rights by destroying these animals’ habitats, then Animal Individualism will tend to support strenuous preservationist environmental policies.

Animal Individualism retains its edge for environmental ethics even if an attitude of conciliation between feuding cousins has been reached. Yes, both sides are content for the moment to think they can work with the other. But if the arguments presented here are correct, the détente, Aunt Eller’s efforts notwithstanding, cannot hold.³

Endnotes

1. See Brennan and Lo’s chapter “Populations and the Environment” in this volume for more discussion on Sylvan’s “last man” argument.
2. Just to be clear: I neither prefer dogs to wolves nor recommend replacing wolves with dogs. I mean only that no individual wolf has greater intrinsic value than any individual dog—assuming, of course, that the wolf has it in the first place.
3. For helpful comments, I thank Ned Hettinger, Douglas MacLean, Lauren Hartzell-Nichols, Clare Palmer, James Petrik, Danny Shahar, and David Schmidt.

Bibliography

ECOHOLISM

J. Baird Callicott, who calls his theory *eco-centrism*, threw down the gauntlet in 1980 in his manifesto, "Animal Liberation: A Triangular Affair." Mark Sagoff joined the fray in 1984 with "Animal Liberation and Environmental Ethics: Bad Marriage, Quick Divorce." Ned Hettinger lent his weight to the cause in 1994 with his "Valuing Predation in Rolston's Environmental Ethics." Other Ecoholist-friendly authors include Aldo Leopold, Richard (Routley) Sylvan, Vandana Shiva, Holmes Rolston, and John Rodman, "Four Forms of Ecological Consciousness" (1983).

ANIMAL INDIVIDUALISM

Tom Regan threw the first counterpunch in 1981 in "The Nature and Possibility of an Environmental Ethic." In 1983, Regan upped the ante when he used the f-word in *The Case for Animal Rights* (362). Other Animal Individualist-friendly authors include Peter Singer, Bernard Rollin, Evelyn Pluhar, Dale Jamieson, and Colin Allen, as well as Aiken, "Ethical Issues in Agriculture" (1984); Johnson, "Animal Liberation versus the Land Ethic" (1981); Comstock, "How Not to Attack Animal Rights from an Environmental Perspective" (1988); Gendin, "Animal Rights and Ecoholism Are Not Compatible" (1988); Shrader-Frechette, "Individualism, Holism, and Environmental Ethics" (1996); Ferré, "Persons in Nature: Toward an Applicable and Unified Environmental Ethics" (1996); Varner, *In Nature's Interests?* (1998); Hadley, "Critique of Callicott's Biosocial Moral Theory" (2007); and McMahan, *The Ethics of Killing* (2002). For another form of individualism, in which all things with internally directed movement, such as plants, are regarded as having intrinsic value, see Paul Taylor, *Respect for Nature* (1986). The early Gary Varner associated his view with Taylor's "biocentric individualism," but Varner has not subsequently defended the key, and controversial, idea that plants have morally relevant interests. In any case, biocentric individualism, as its name clearly states, is not a form of Holism.

RECONCILIATORY EFFORTS

The first attempt at reconciliation came in 1986 with Rollin, "Sentience as the Criterion for Moral Worth" (1998). The first of two conciliatory articles by Callicott was "Animal Liberation and Environmental Ethics: Back Together Again" (1988). In 1992, Mary Anne Warren tried to make peace with her essay "The Rights of the Nonhuman World," and two years later Gary Varner attempted to join hands in "The Prospects for Consensus and Convergence in the Animal Rights Debate." Other notable conciliatory essays include Moriarty and Woods, "Hunting \neq Predation" (1997) and Dale Jamieson's "Animal Liberation Is an Environmental Ethic" (1997). Finally, see Callicott's agreeable response to Jamieson in 1998 in Callicott, "Back Together Again' Again," as well as Everett,

"Environmental Ethics, Animal Welfarism, and the Problem of Predation" (2001).

WORKS CITED

- Abbey, Edward. *Desert Solitaire: A Season in the Wilderness*. New York: McGraw-Hill, 1968.
- Aiken, William. "Ethical Issues in Agriculture." In *Earth-bound: New Introductory Essays in Environmental Ethics*, edited by Tom Regan, 247–288. New York: Random House, 1984.
- Callicott, J. Baird. "Animal Liberation: A Triangular Affair." *Environmental Ethics* 2, no. 4 (1980): 311–338.
- Callicott, J. Baird. "Animal Liberation and Environmental Ethics: Back Together Again." *Between the Species* 4, no. 3 (1988): 163–169.
- Callicott, J. Baird. "'Back Together Again' Again." *Environmental Values* 7, no. 1 (1998): 461–475.
- Callicott, J. Baird. "On the Intrinsic Value of Nonhuman Species." In *The Preservation of Species: The Value of Biological Diversity*, edited by Bryan G. Norton, 138–172. Princeton, NJ: Princeton University Press, 1986.
- Comstock, Gary. "Do Agriculturalists Need a New, an Ecocentric, Ethic? 1994 Presidential Address to the Agriculture, Food, and Human Values Society." *Agriculture and Human Values* 12, no. 1 (1995): 2–16.
- Comstock, Gary. "How Not to Attack Animal Rights from an Environmental Perspective." *Between the Species* 4, no. 3 (1988). doi:10.15368/bts.1988v4n3.5.
- Comstock, Gary. *Vexing Nature? On the Ethical Case against Agricultural Biotechnology*. Dordrecht, Netherlands: Kluwer Academic, 2000.
- Dennett, Daniel Clement. *Darwin's Dangerous Idea: Evolution and the Meanings of Life*. New York: Simon & Schuster, 1995.
- Elsey, Ruth M., Edmond C. Mouton, and Noel Kinler. "Effects of Feral Swine (*Sus Scrofa*) on Alligator (*Alligator Mississippiensis*) Nests in Louisiana." *Southeastern Naturalist* 11, no. 2 (2012): 205–218. doi:10.1656/058.011.0204.
- Everett, Jennifer. "Environmental Ethics, Animal Welfarism, and the Problem of Predation: A Bambi Lover's Respect for Nature." *Ethics & the Environment* 6, no. 1 (2001): 42–67.
- Ferré, Frederick. "Persons in Nature: Toward an Applicable and Unified Environmental Ethics." *Ethics and the Environment* 1, no. 1 (1996): 15–25.
- Frankena, William K. "Ethics and the Environment." In *Ethics and Problems of the 21st Century*, edited by Kenneth E.

- Goodpaster and Kenneth M. Sayre. Notre Dame, IN: University of Notre Dame Press, 1979.
- Gendin, Sidney. "Animal Rights and Ecoholism Are Not Compatible." *Between the Species* 4, no. 1 (1988). doi:10.15368/bts.1988v4n1.5.
- Gustafsson, Maria, Per Jensen, Francien H. de Jonge, Gudrun Illmann, and Marek Spinka. "Maternal Behaviour of Domestic Sows and Crosses between Domestic Sows and Wild Boar." *Applied Animal Behaviour Science* 65, no. 1 (1999): 29–42. doi:10.1016/S0168-1591(99)00048-9.
- Gustafsson, Maria, Per Jensen, Francien H. de Jonge, and Teun Schuurman. "Domestication Effects on Foraging Strategies in Pigs (*Sus Scrofa*)." *Applied Animal Behaviour Science* 62, no. 4 (1999): 305–317. doi:10.1016/S0168-1591(98)00236-6.
- Hadley, John. "Critique of Callicott's Biosocial Moral Theory." *Ethics & the Environment* 12, no. 1 (2007): 67–78.
- Haidt, Jonathan. "The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment." *Psychological Review* 108, no. 4 (2001): 814–834. doi:10.1037//0033-295X.108.4.814.
- Hare, Richard Mervyn. *Moral Thinking: Its Levels, Methods and Point*. New York: Oxford University Press, 1981.
- Hargrove, Eugene C., ed. *The Animal Rights, Environmental Ethics Debate: The Environmental Perspective*. Albany: State University of New York Press, 1992.
- Hartglass, Caryn. "The Case for Animal Rights: A Radio Interview with Tom Regan." *Responsible Eating and Living*. October 23, 2012. <http://responsibleeatingandliving.com/favorites/tom-regan-interview-10232012/>.
- Hettinger, Ned. "Valuing Predation in Rolston's Environmental Ethics: Bambi Lovers versus Tree Huggers." *Environmental Ethics* 16, no. 1 (1994): 3–20.
- Hume, David. *A Treatise of Human Nature*. London: John Noon, 1739.
- Jamieson, Dale. "Animal Liberation Is an Environmental Ethic." *Environmental Values* 7, no. 1 (1997): 41–57.
- Johnson, Edward. "Animal Liberation versus the Land Ethic." *Environmental Ethics* 3, no. 3 (1981): 265–273.
- Leopold, Aldo. *A Sand County Almanac*. New York: Oxford University Press, 1949.
- McMahan, Jeff. *The Ethics of Killing: Problems at the Margins of Life*. Oxford: Oxford University Press, 2002.
- Moriarty, Paul Veatch, and Mark Woods. "Hunting ≠ Predation." *Environmental Ethics* 19, no. 4 (1997): 391–404.
- Muir, John. *My First Summer in the Sierra*. Boston: Houghton Mifflin, 1911.
- Naess, Arne. "The Shallow and the Deep, Long-Range Ecology Movement." *Inquiry: An Interdisciplinary Journal of Philosophy and the Social Sciences* 16, nos. 1–4 (1973): 95–100.
- Newport, Frank. "In U.S., 42% Believe Creationist View of Human Origins." *Gallup.com*, June 2, 2014. <http://www.gallup.com/poll/170822/believe-creationist-view-human-origins.aspx>.
- Odum, Eugene P. "The Emergence of Ecology as a New Integrative Discipline." *Science-AAAS* 195, no. 4284 (1977): 1289.
- Regan, Tom. *The Case for Animal Rights*. Berkeley: University of California Press, 1983.
- Regan, Tom. "The Moral Basis of Vegetarianism." *Canadian Journal of Philosophy* 5, no. 2 (1975): 181–214.
- Regan, Tom. "The Nature and Possibility of an Environmental Ethic." *Environmental Ethics* 3, no. 1 (1981): 19–34.
- Rodman, John. "Four Forms of Ecological Consciousness." In *Ethics and the Environment*, edited by Donald Scherer and Thomas Attig, 82–92. Englewood Cliffs, NJ: Prentice-Hall, 1983.
- Rollin, Bernard. "Sentience as the Criterion for Moral Worth." In *Environmental Ethics: Readings in Theory and Application*, 2nd ed., edited by Louis Pojman, 35–38. Belmont, CA: Wadsworth, 1998.
- Rolston, Holmes, III. "Duties to Endangered Species." *BioScience* 35, no. 11 (1985): 718–726.
- Rosenberg, Alexander. *The Atheist's Guide to Reality: Enjoying Life without Illusions*. New York: Norton, 2011.
- Sagoff, Mark. "Animal Liberation and Environmental Ethics: Bad Marriage, Quick Divorce." *Osgoode Hall Law Journal* 22, no. 2 (1984): 297–307.
- Seed, John. "Beyond Anthropocentrism." In *Thinking Like a Mountain: Towards a Council of All Beings*, edited by John Seed, Joanna Macy, Arne Naess, and Pat Fleming. Philadelphia, PA: New Society, 1988.
- Shrader-Frechette, Kristin S. "Individualism, Holism, and Environmental Ethics." *Ethics and the Environment* 1, no. 1 (1996): 55–69.
- Singer, Peter. *Practical Ethics*. 2nd ed. Cambridge: Cambridge University Press, 1993.
- Sylvan, Richard (Routley). "Is There a Need for a New, an Environmental, Ethic?" In *Proceedings of the XVth World Congress of Philosophy*. Varna, Bulgaria: Sofia Press, 1973.
- Taylor, Paul W. *Respect for Nature?: A Theory of Environmental Ethics*. Princeton, NJ: Princeton University Press, 1986.
- Tononi, Giulio. "Consciousness as Integrated Information: A Provisional Manifesto." *Biological Bulletin* 215, no. 3 (2008): 216–42. doi:10.2307/25470707.

Varner, Gary E. *In Nature's Interests?: Interests, Animal Rights, and Environmental Ethics*. New York: Oxford University Press, 1998.

Varner, Gary E. *Personhood, Ethics, and Animal Cognition: Situating Animals in Hare's Two-Level Utilitarianism*. Oxford: Oxford University Press, 2012.

Varner, Gary E. "The Prospects for Consensus and Convergence in the Animal Rights Debate." *Hastings Center Report* 24, no. 1 (1994): 24–28. doi:10.2307/3562383.

Warren, Mary Anne. "The Rights of the Nonhuman World." In *The Animal Rights, Environmental Ethics Debate: The Environmental Perspective*, edited by Eugene C. Hargrove, 185–210. Albany: State University of New York Press, 1992.

Wood-Gush, D. G. M. *Elements of Ethology: A Textbook for Agricultural and Veterinary Students*. London: Chapman and Hall, 1983.

FILM

Ape Genius. Prod. John Rubin. 2014. Nova and National Geographic Television, 2008, NGHT, Inc. and WGBH Educational Foundation. A one-hour documentary exploring the genetic and behavioral similarities and differences between humans and chimps. <https://www.youtube.com/watch?v=zkiPCKINjX0>.

Blackfish. Dir. Gabriela Cowperthwaite. Manny O. Productions, 2013. A documentary exploring ethical issues involved in holding killer whales captive at SeaWorld, an entertainment park.

Chimp Shows Planning Abilities. 2009. A video of Santino, a chimp in Sweden who displays the apparent ability to plan in the morning for things he will do in the afternoon. <https://www.youtube.com/watch?v=dL5SGe7zSlc>.

Life of Pi. Dir. Ang Lee. 2012. Based on the novel by Yann Martel. A tiger and a boy find themselves sharing a life raft and to survive must learn to accommodate each other. A metaphor of the possibility of human and wildlife relationship that does not ignore the inevitable conflict over territory and food.

NOVELS

Lopez, Barry Holstun. *Of Wolves and Men*. New York: Scribner, 1978. Lopez paints an intimate picture of the wolf's mind and sensory experience by drawing on ethology, wildlife biology, folklore, and personal experience with the animals.

McCarthy, Cormac. *All the Pretty Horses*. New York: Knopf, 1992. The first novel of the Border Trilogy. Few American writers express the relationship between cowboys and the horses they ride as insightfully or efficiently as McCarthy.

PRESENTATIONS

de Waal, Frans. "Moral Behavior in Animals." TED. 2011. http://www.ted.com/talks/frans_de_waal_do_animals_have_morals. A TED talk on the apparent capacity of monkeys to reciprocate, feel empathy, cooperate, and feel that they are being treated fairly or unfairly.

Regan, Tom. "A Case for Animal Rights." Royal Institute of Great Britain, 1989. <https://www.youtube.com/watch?v=Y5RRLBC1S3w>. The author of *The Case for Animal Rights*.

Singer, Peter. "The Ethics of What We Eat." Williams College, 2009. https://www.youtube.com/watch?v=UHzwqf_JkrA. The author of *Animal Liberation* in an hour-long lecture addressing how meat is produced and whether we should eat it.