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To the Graduate Council:

I am submitting herewith a dissertation written by Joel P. MacClellan entitled "Minding Nature: A Defense of a Sentiocentric Approach to Environmental Ethics." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Philosophy.

John Nolt, Major Professor

We have read this dissertation and recommend its acceptance:

Jon Garthoff, David Reidy, Dan Simberloff

Accepted for the Council:

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Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

MINDING NATURE:
A DEFENSE OF A SENTIOCENTRIC APPROACH TO ENVIRONMENTAL ETHICS

A Dissertation Presented for
the Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Joel Patrick MacClellan
August 2012

The sedge is wither'd from the lake,
And no birds sing.

– John Keats
La Belle Dame Sans Merci,
1819

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DEDICATION

This work is dedicated to
my mother, Judith Ann Ohlinger, for her unconditional love and for teaching me most things worth knowing and giving me the tools and space to pursue the rest;
my wife, Stephanie Ivis MacClellan, for her love, support, and sacrifice; and
my nephew, Michael Ryan Tople (January 18 - May 17, 2011), who left us far too soon.

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ABSTRACT

Environmental philosophers allege that philosophical views supporting the animal liberation movement are theoretically and pragmatically inconsistent with environmentalism. While some animal ethicists argue that we ought to intervene extensively in nature such as the prevention of predation, these views take controversial positions in value theory and normative theory: (i) hedonism as a value theory, and (ii) a view of normativity which places the good before the right, e.g. maximizing utilitarianism, or a rights theory that includes strong positive rights, i.e. animals are entitled to a certain level of welfare or protection from harm. Importantly, environmental philosophers' critiques mistakenly assume that sentience-based ethics *must* take these forms. I argue that there are least two angles for progress and reconciliation: (i) countenance values other than pleasure and the absence of pain, such as the value of "free" beings, come what may, or (ii) embrace a view of normativity where, unlike utilitarianism, the right is prior to the good, constraining the scope of obligation from the outset. Together or individually, these angles give shape to a workspace of animal ethical theories amenable to environmentalism.

In short, I argue that a sentience-centered notion of moral considerability is correct, that several plausible views about the good and its relation to the right compatible with sentiocentrism can reconcile animal ethics with environmental ethics, and that a sentiocentric ethic constitutes an adequate environmental ethic. If this argumentative arc is on track, it provides a broad justification for the core goals of environmentalism and promises greater consilience between considered judgments about the value of wild animals and the rest of nature.

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INTRODUCTION

The one point on which environmental philosophers reached a general consensus during the field's first decade was that both the theoretical foundations and practical implications of animal rights views were inconsistent with environmentalism.

– Gary Varner, 1998

Going green is in. What are the possible philosophical foundations of environmentalism? How, if at all, do animals fit into this picture? The human population and its global footprint are growing, with deleterious environmental effects such as the ongoing anthropogenic mass extinction event and global climate change.[1] These questions are more pressing now than ever.[2]

In the field's early development, many prominent American environmental ethicists, including J.B. Callicott (1980), Brian Norton (1982), Erik Katz (1983), and Mark Sagoff (1984), argued that the animal liberation ethic is incompatible with environmentalism. Also in the early 80's, Michael E. Soulé introduced the world to Conservation Biology, a new "crisis discipline". There, Soulé had already distanced conservation biology from animal welfare: "Conservation and animal welfare… are conceptually distinct, and they should remain politically separate" (Soulé 1985, 371). Note that all these articles were published in a span of only five years. This theme of the incompatibility of sentience-based ethics with environmentalism propagated in the literature and became all but canonical, leading Gary Varner to call it one of the "the two dogmas of environmentalism" (Varner 1998, 142). This dogma has remained more assumed than proven ever since. Is it true?

---

[1] Using species area theory, the present rate of extinction may be as high as 140,000 species annually (Pimm 1995, 347-350). More recently, E.O. Wilson estimated that half of the earth's species will be extinct in 100 years based on the current rate of extinction (Wilson 2002).

[2] Scholars increasingly view the Holocene geological epoch as having ended, and a new epoch, the Anthropocene (new-human), as having started, due to the enormity of human-caused environmental change (Crutzen and Stoermer, 2000).

I challenge the common view that an animal-respecting ethic is incompatible with environmental ethics. I will defend a sentiocentric approach[3] to environmental ethics which seeks to account for our obligations with respect to the environment in terms of its significance for sentient beings such as humans and other animals. That is, I will argue that sentiocentrism is amenable to environmental ethics in theory and in practice. This approach is moderate, pitted between the extremes of anthropocentrism on the one hand, and biocentrism and ecocentrism on the other.

This is not only to say that a sentiocentric ethics is consistent with environmentalism, but also that the former serves as a basis for the latter. More precisely, I'll argue that the commonly cited objections claiming that sentiocentrism is inconsistent with environmentalism are unsound, and furthermore, sentiocentrism offers a unique, powerful, and under considered account of our environment-regarding obligations. In short, it is a legitimate environmental ethic.

There are two separate issues at play here. The first issue concerns whether or not animal ethics and environmental ethics are *compatible* or consistent. As Mark Sagoff has famously said:

> Environmentalists cannot be animal liberationists. Animal liberationists cannot be environmentalists. … Moral obligations to nature cannot be enlightened or explained - one cannot take the first step - by appealing to the rights of animals. (Sagoff 1984, 304-306)

Eric Katz echoes Sagoff's assessment:

> But an animal liberation ethic holds that the death and suffering of animals is a moral

[3] I'll use the term "sentiocentrism", "sentience-based ethic", "animal ethics", "animal protectionism", "animal defense movement", and "animal liberationism" interchangeably. The idea is the school of philosophical thought and its activist/advocacy manifestation which grants moral status to animals and regards many current uses of domesticated animals as wrong. This is discussed further below (1.5).

> evil, because it violates the moral worth of individual animals. When this death and suffering is a result of human action, even for the sake of eco-systemic well-being, it is a direct violation of the principles of an animal liberation ethic. Thus… an animal liberation ethic and an environmental ethic will tend to be incompatible. (Katz 2003, 92)[4]

I take these claim to mean that the moral prescriptions of animal ethics are inconsistent with those of environmentalism, and I argue that this claim is false.

The second issue is one of adequacy. It may be that, while animal ethics and environmental ethics are consistent in terms of the policies each recommends, there remain moral prescriptions which follow from one that cannot be accounted for by the other, i.e. while not inconsistent, an animal ethic cannot do all of what it needs to in order to satisfy what an environmental ethics can reasonably ask of it. I argue that sentiocentrism is also adequate in this sense.

I won't defend any particular sentiocentric theory, just a sentiocentric *approach* to environmental ethics. To chart a way forward in constructing the bounds of sentiocentric ethics compatible with environmentalism, we should seek to account for two intuitions:

> **Welfarist Intuition:** Pain – whether that of rational creatures or nonrational ones – is something we have prima facie reason to prevent, and stronger reason not to cause. (Scanlon 1998, 181).
>
> **Laissez-Faire Intuition:** [W]hile we should care for and assist domesticated animals, we should just leave wild animals alone. (Palmer 2010, 2)[5]

---

[4] Eric Katz paints an even more ominous portrait of the dichotomy. He apparently advocates a whitewashing public relations strategy for private enterprise: "I suggest that the adoption by business of a more conscious environmentalism can serve as a defense against the animal liberation movement. This strategy may seem paradoxical: how can business defend its use of animals by advocating the protection of the environment? But the paradox disappears once we see that animal liberation and environmentalism are incompatible practical moral doctrines" (Katz 1990, 224).

[5] The "Laissez-Faire Intuition" is Palmer's own coinage, however I've ascribed the term "Welfarist Intuition" to Scanlon's idea. Much of his *What Do We Owe Each Other*, from which this quote is drawn, is a critique of theories of well-being, which is a bit odd considering that he also develops a view about well-being therein.

There is something right about both of these intuitions, yet there is also *tension* between them. They are not both maximally realizable. Furthermore, these intuitions are inchoate, and it is not immediately obvious where each will give and why. They require further articulation and consideration in response to real cases and argumentation to achieve reflective equilibrium if both are to be consistently maintained.

Some animal ethical theories imply that we ought to intervene extensively in nature by, for example, domesticating wild animals or eliminating predation. Such implications seem not only absurd, but incompatible with the environmentalists' goals of preserving wilderness and biodiversity, and are rightly criticized by environmental ethicists primary concerned with their preservation. Such animal ethical theories are typically utilitarian in spirit and focus on the Welfarist Intuition at the expense of the Laissez-Faire Intuition. One lesson is that such theories are incompatible with environmentalism in principle if not in practice; they overcommit on our obligations to wild animals.

Yet I will also argue that there are at least *prima facie* duties to assist wild animals in limited circumstances, such as injured wildlife and in case of disasters. These implications do not seem absurd nor incompatible with the environmentalist goals of preserving wilderness and biodiversity. Furthermore, many environmental organizations advocate these very same interventions on conservationist grounds. Some animal ethical theories imply that we have no such duty to assist. Such theories are typically deontological in spirit and focus on the Laissez-Faire Intuition at the expense of the Welfarist Intuition. If moral agents have duties to assist and if animals are morally considerable, then a second lesson is that theories of animal ethics which cannot account for duties to assistance are implausible; they under commit on our obligations to

wild animals. The hope is to weave a middle path, to account for both the Welfarist and Laissez-Faire Intuitions yet avoid the absurd and anti-environmental conclusions that we should eliminate or prevent predation and domesticate wilderness areas in order to more humanely manage them.

In the course of arguing for the adequacy of a sentiocentric approach to environmental ethics, I make progress on several issues in the foundations and applications of animal ethics and environmental ethics. Among other things, I analyze the meaning of "environmental ethics" and "animal ethics", arguing that we must define these fields in relation to consensus at the level of practice and in terms of a thin normative commitment of each. Doing so avoids the common errors of defining these fields too narrowly or broadly at theoretical and pragmatic levels.

I show that biocentrism suffers serious metaethical liabilities through a detailed analysis of three prominent versions of the view, that a sentiocentric notion of moral considerability avoids these problems and not only survives a recent anthropocentric objection, but is reinforced by it. I also clarify some claims in environmental ethics about the "intrinsic value" of biodiversity and wilderness, tracing the outlines of this axiological scheme to John Stuart Mill, and deploy it to defend the sentiocentric approach to environmental ethics in response to some common objections.

I give an analogical argument which supports the sentience of some nonhuman animals and which takes into account the latest available empirical studies. Particularly noteworthy are my defense of fish sentience in response to misguided skepticism and my systematic investigation of the possibilities of sentience in invertebrates. These issues are typically treated

as secondary in investigations of sentience in the animal ethics literature, but the real, forward-looking debate concerns invertebrates and non-tetrapod vertebrates.

I then tackle the alleged inconsistency of sentiocentrism with environmental ethics by developing a new analogy between the theological problem of evil and the moral problem of wild animal suffering. This allows us to clearly see three distinct classes sentiocentric theories (i) those which endorse "heretical", anti-environmental implications, (ii) those which avoid anti-environmental implications on the basis of pragmatic considerations, and (iii) those which avoid anti-environmental implications in principle. I analyze the shortcomings of the first class of views and then critique the latter two views in order to push them beyond the laissez-faire platitude and develop the beginnings of a schema of *prima facie* positive obligations to wildlife which are not only consistent with, but supportive of the core goals of environmentalism. In short, I give shape to a sentiocentric ethics which is both "environmentally friendly" and sensitive to the interests or rights of all sentient beings.

1 - LAY OF THE LAND: CONTEXT, CONTROVERSY, AND CONSISTENCY

The theoretical foundations of the animal liberation movement and those of the Leopold land ethic may even turn out not to be companionable, complementary, or mutually consistent. The animal liberationists may thus find themselves not only engaged in controversy with the many conservative philosophers upholding apartheid between man and "beast," but also faced with an unexpected dissent from another, very different, system of ethics. Animal liberation and animal rights may well prove to be a triangular rather than, as it has so far been represented in the philosophical community, a polar controversy.

– J.B. Callicott, 1980

Environmentalists cannot be animal liberationists. Animal liberationists cannot be environmentalists. Moral obligations to nature cannot be enlightened or explained - one cannot take the first step - by appealing to the rights of animals.

– Mark Sagoff, 1984

Where Callicott saw a "triangular affair" and Sagoff saw "divorce", I see the potential for Hollywood romance.

– Dale Jamieson, 1998

Abstract

In this chapter, I begin by tracing the origins of the alleged inconsistency between animal ethics and environmental ethics in late 20th century philosophical discourse. I then clarify the debate in two ways. First, I discuss the structure of consistency arguments and argumentative strategies for responding to allegations of inconsistency. This is important in that it defines the task: what, exactly, does it mean to say that animal ethics and environmental ethics are incompatible or inconsistent? How might one go about responding to such an allegation? Second, it is unclear what defines the fields of "animal ethics" and "environmental ethics." I argue that we must avoid a pair of errors: all-encompassingness and narrowness. We must not define these fields too broadly, lest every ethic become an environmental or animal ethic, or define them too narrowly, because such conceptions assume controversial theses, begging live philosophical questions. Instead, I argue that these fields should be understood by reference to (i) certain core pragmatic implications supported by intra-field consensus, and (ii) a thinly normative commitment of each: environmental ethics accounts for environmental value which transcends the environment's use-value for humans, and animal ethics accounts for the direct moral standing of (some) animals. I end by defining a few key terms and distinctions used throughout this work.

1.1 - Introduction

In this chapter, I give some background material to frame the research problem addressed in subsequent chapters. I begin by giving some historical context about how the schism emerged between moral philosophy about animals and about the environment. Next, I discuss the nature of consistency, arguments from consistency and inconsistency, and how allegations of inconsistency are best addressed, as these aspects of consistency are context for the framing consistency argument of this work. I then discuss just what is and is not meant by "animal ethics" and "environmental ethics", and finally, I introduce a few key terms.

1.2 - The Speciation of Animal and Environmental Ethics

Over the course of the 20th century, moral concern about our treatment of the nonhuman world has transitioned from a fringe concern into the social, political, legal, and philosophical mainstream. As fields of applied ethics, animal ethics and environmental ethics arose in response to different, historically situated moral problems concerning the nonhuman world.

Animal ethics discourse arose out of moral concern with *domesticated animals directly under human control*, particularly the use of animals in agriculture, research, and entertainment. Before Congress signed the U.S. Animal Welfare Act into law in 1966, the treatment of animals in research, exhibition, transportation, and by dealers was federally unregulated in the United States. Also, before the publication of popular books such as Ruth Harrison's *Animal Machines: The New Factory Farming Industry* (1966) and Peter Singer's *Animal Liberation* (1975), the "animal question" was of marginal interest in academic philosophy.

In environmental ethics, discussion has largely emerged from the *unintended consequences of human action on the natural environment*, such as the loss of biodiversity, the compromise of natural systems and processes, and the appropriation of wild areas for human development. The Clean Air Act (1963) and Clean Water Act (1972) were the first significant environmental regulations[1] in the United States. They arose in response to a public galvanized over environmental pollution, such as a series of fires on the Cuyahoga River in the 1950's and 1960's, leading to national media attention in *Time Magazine* on June 22, 1969. There was little consideration of environmental issues in academic philosophy before the publication of Rachel Carson's *Silent Spring* (1962), Paul Ehlrich's *The Population Bomb* (1968), and two seminal articles in *Science*, Lynn White's "The Historical Roots of our Ecologic Crisis" (1967) and Garrett Hardin's "The Tragedy of the Commons" (1968).[2]

Another piece of this puzzle is that animal ethics and environmental ethics latched on to different cultural currents in professional philosophy in their early years. This point is nicely articulated by Dale Jamieson:

> Part of the explanation for the comparative conceptual conservatism of animal liberationist philosophers is that, for the most part, they have been educated in the mainstream traditions of Anglo-American philosophy, while environmental ethicists often have been educated outside the mainstream and are influenced by continental philosophers, 'process' philosophers, or theologians. The split between environmental ethics and animal liberation is as much cultural and sociological as philosophical. (Jamieson 1998, 44)

---

[1] There were some precedents, such as the creation of the National Forest Service in 1905, the creation of the National Park Service in 1916, and the Federal Water Pollution Control Amendments of 1948, but these were much less systematic.

[2] It is also worth noting that Aldo Leopold's *A Sand County Almanac*, which contains his defense of the land ethic, was posthumously published in 1949 to little fanfare. It was not until the environmental movement in the 1970's that the book became a best-seller.

It's worth noting a few examples. Peter Singer, a prominent animal ethicist, received his education at the University of Oxford. His mentor, R.M. Hare, was a famous 20th century analytic moral philosopher and one of Singer's biggest influences. The late great Joel Feinberg studied at Michigan under Charles Stevenson.

Early environmental ethics began from a rather different starting point. Aldo Leopold worked for the U.S. Forest Service, was a farmer and writer, not a professional philosopher. Arne Næss, a prominent environmental ethicist, was influenced by the views of Mahatma Ghandi and Hinduism. Another prominent figure in the early development of environmental ethics, Holmes Rolston III, was a Christian theologian before he became an environmental philosopher, and his theology informs his environmental ethics to some extent.[3]

In recent years, more analytically-minded and secular Western philosophers such as Andrew Light, John O'Neill, Gary Varner, Bryan Norton amongst many others, have invaded the field.[4] However the separate lines of inquiry were already set and the trenches dug. The combined effect of these factors is that there are two largely distinct intellectual traditions with different core concerns and proposed solutions to these concerns.

Accordingly, it is no surprise that the central concerns of each field are dealt with largely as afterthoughts if they are dealt with at all by the other field. Furthermore, when the other field is dealt with in passing, it is often done poorly, the end result of which is mutual dissatisfaction. Almost invariably, the canonical monographs of animal ethics have a few passages towards the

---

[3] See, for example, Holmes Rolston III's *Genes Genesis and God: Values and Their Origins in Natural and Human History*, New York: Cambridge University Press (1999).
[4] See, for example, John' O'Neill, Alan Holland, Andrew Light's, *Environmental Values*, New York: Routledge (2008) for a good example of this more recent trend.

end about the environment and whether their view is at odds with its protection. With good reason, environmental ethicists find such treatments wanting.

In environmental ethics, treatment of animals in agriculture and research are similarly thin and generally poor. Consider, for example, J.B. Callicott's claims that the moral wrongness of factory farming consists solely in the commodification of life, not animal suffering or the frustration of desires (Callicott 1992, 249-261). A similar example is Holmes Rolston III's homologous principle:

> The strong ethical role is this: Do not cause inordinate suffering, beyond those orders of nature from which the animals were taken…. Going further can be commended but not required. Culturally imposed suffering must be comparable to ecologically functional suffering, but we have no obligation to reduce suffering below levels found independently of human presence. (Rolston 1989, 60-61).

On this view, it would be morally permissible to eviscerate a deer without anesthesia if one liked the color red because such suffering is comparable to what animals in the order *Cervidae* experience in the wild! Such accounts are hardly satisfactory, and it is unsurprising that such accounts rile animal ethicists.

It is said that where there's smoke there's fire. Tom Regan referred to holistic environmental ethicists' views as "environmental fascism" (Regan, 2004, 361-362) and Peter Singer referred to the Sierra Club, Wilderness Society, and the World Wildlife Fund as "environmentalist" organizations in scare quotes for supporting or not opposing hunting (Singer 1979, 201). Environmental ethicist Mark Sagoff thought that our obligations towards animals "cannot take the first step" in understanding our obligations concerning nature (Sagoff 1984). There is certainly a lot of smoke.

Early on in the development of animal ethics and environmental ethics, each side was entrenched and deeply committed to defending the values and perspective which they rightly regarded as important, and which they perceived as threatened by the other side. As Angus Taylor puts it:

> The last few years have seen a good deal of debate about whether animal liberation is compatible with environmental ethics. "Debate" is perhaps not the best word, since most of the running has been made by those who either hold the two positions to be incompatible or reconcile them in such a way as to deny rights of any real substance to (nonhuman) animals. (Taylor 1996, 249)

To be sure, high rhetoric garners a lot of attention and press, yet the view that animal ethics and environmental ethics are mutually exclusive does not seem representative of the majority view on either side. Many environmental ethicists are sympathetic with animal ethics and vice versa. Indeed, an animal rights section is often included in survey courses on environmental ethics.

This duality is reflected in the literature as well. For example, textbooks on environmental ethics, such as Joseph Des Jardins' *Environmental Ethics: An Introduction to Environmental Philosophy* (2006), include a generally fair and sympathetic section on animal ethics, yet reiterate the standard objections about inconsistency with environmental ethics. Major works in environmental ethics, such as Sahotra Sarkar's *Biodiversity and Environmental Philosophy: An Introduction*, are often sympathetic with animal welfare, yet stress its incompatibility with biodiversity conservation, ultimately prioritizing the latter (2005, 71-ff). Similarly, the first animal ethics textbook, Angus Taylor's *Animals and Ethics: An Overview of the Philosophical Debate*, includes a lucid albeit short chapter on potential tension and synergy between animal ethics and environmental ethics (2003, 145-172). So too for Lori Gruen's recently released *Ethics and Animals: An Introduction*, which is even more brief than Taylor's

treatment (Gruen 2011). More scholarly monographs in animal ethics often include some discussion of the implications of their view for environmental ethics, but its often little and always late. See, for example, S.F. Sapontzis's *Morals, Reasons, and Animals* (1987, 229-272) and Clare Palmer's *Animal Ethics in Context* (2010, 127-128; 162-165).

That said, behind the smoke, there is some fire as well. The debate is not about nothing. But the source of this fire and whether and how it can be extinguished has not received adequate attention considering the gravity of the issues involved. It is therefore curious that, aside from a chapter here and there in animal ethics and environmental ethics textbooks and monographs, and a handful of conciliatory articles[5], the "majority view" that exists across these two fields of applied ethics has not received a sustained treatment in the literature.[6]

1.3 - On Aims and the Idea of a "Workspace"

This work provides such an account, filling the gap in two ways. The first way is to clear the ground, so to speak, by separating substance from rhetoric. I'll carefully analyze the claims of environmental ethicists against animal ethical approaches and show what they really amount to. I'll also do some careful exegesis and analysis on how *not* to do animal ethics, i.e. by identifying those features of some animal ethical theories which have implausible implications

[5] See Marti Kheel's "The Liberation of Nature: A Circular Affair" (1985), Bernard Rollin's "Environmental Ethics and International Justice" (1988), Dale Jamieson's "Animal Liberation is an Environmental Ethic" (1998), Gary Varner's "Can Animal Rights Activists be Environmentalists?" (1998), and Rick O'Neil's "Animal Liberation versus Environmentalism: The Care Solution" (2000).

[6] It has recently come to my attention that Rod Bennison's dissertation (2007) addresses this issue, but it more of an intellectual history of attitudes towards animals and nature than a defense of sentiocentrism. His own view, "ecological inclusion", is more concerned with avoiding the exclusion of nonhuman animals in theory or practice, and is biocentric and ecocentric in revering all living things and ecosystems, rather than sentiocentric in restricting moral status to conscious entities.

for wild animals. The second way is to say something constructive about how *to* do animal ethics in a way that is at minimum not anti-environmental, but which also offers support for environmentalism.

Of course, articulating a complete theory is beyond my present ambition and scope. For now, it is sufficient to articulate the parameters of a workspace within which such theories can exist. By "workspace" I mean to play off of the literal sense of a space in which to work. But I also intend the term as used in business development: economic development agencies provide the requisite space, infrastructure, and resources for new business to establish themselves. In this sense, I wish to establish the space and lines of thought for sentiocentric theories compatible with environmentalism. To invoke a metaphor, I don't wish to articulate *the* particular path, but rather cordon off those trails which lead us astray, and at least orient us towards the right direction moving forward. The reason for this is that, by not appealing to a specific moral theory, this work as the potential to engage a wider audience than would be the case if I required a specific moral theory in order to reach my conclusions. These are still early days for animal ethics and environmental ethics.

There are some limits to the approach taken herein. There may be considerations not taken into account by present scholarship in animal ethics and environmental ethics that render the union of these two fields inconsistent after all. Unforeseeable allegations of inconsistency unforeseeable cannot be addressed. Alas, we must press on with what we know, and this work aims to push the conversation forward.

In that sense, the first aspect of this project – that animal ethics and environmental ethics are consistent – can be seen as akin to a punt in American football. Those claiming that animal

ethics and environmental ethics are at odds advanced their objections of inconsistency. I'll systematically respond to these objections, holding that their claims are mistaken, thus punting the ball back. If I am erroneous in my arguments or if there are issues which I have failed to consider, the ball is on the objectors' side of the field.

1.4 - CONSISTENCY

Since one of the framing arguments of this work is a consistency argument, some discussion of what this means is important. If a set of propositions is consistent then it implies no contradictions.[7] Taking this into account, the question thus becomes whether the set of claims comprised of the subset of claims made in animal ethics and the subset of claims made by animal ethics is consistent.

A few things about consistency can already be noted. It is possible, but not necessary, that every proposition in a consistent set of propositions is true. That said, consistency is not truth, for it is also possible that some or all of the members of a consistent set of propositions are, in fact, false. It should also be noted that when two or more propositions are inconsistent, this fact does nothing to inform us as to which of the claim or claims is false, it merely shows that not all of them are true.

This latter point is particularly relevant because, if there are inconsistencies between animal ethics and environmental ethics, this does not, of itself, tell us which 'side' has to give.

[7] More formally, a set of formulas is consistent if and only if there is no formula Φ such that from that set one can derive both Φ and $\sim\Phi$. A set of formulas is consistent if and only if there is one formula Φ such that from that set one can derive both Φ and $\sim\Phi$.

Whether and to what extent theories of environmental ethics are consistent with animal ethics is beyond my present concern. Almost exclusively, I will be assessing whether there are theories of animal ethics consistent with environmental ethics, and if so, which ones and why. However, I will argue that, while there are a multitude of reasons to think that several theories of animal ethics are compatible with environmental ethics, the most plausible animal ethical theories require or permit some interventions in the wild for reasons of animal welfare. If such interventions are impermissible by theories of environmental ethics, then so much the worse for such theories of environmental ethics.

(In)consistency Arguments

The above general comments on consistency should suffice for present purposes. What about *arguments* concerning consistency or inconsistency? How does one go about demonstrating consistency? Assuming that there are internally consistent theories of animal ethics and environmental ethics, the ultimate question is whether there are moral prescriptions made in animal ethics that environmental ethics proscribes, or moral prescriptions made in environmental ethics that animal ethics proscribes.[8] If the answer to this question is affirmative, then animal ethics and environmental ethics are inconsistent. If the answer to this question is negative, then animal ethics and environmental ethics are consistent.

[8] The idea here is an informal version of Robinson's Second Consistency Theorem: "Let T1 and T2 be first-order theories. If T1 and T2 are consistent and if there is no formula φ in the common language of T1 and T2 such that $T1 \vdash \varphi$ and $T2 \vdash \sim\varphi$, then the union $T1 \cup T2$ is consistent" (Boolos 2002, 264). Robinson's First Consistency Theorem is inapplicable to the present inquiry.

What is more important is that it is has been alleged by some of the most prominent environmental ethicists in the field, including J.B. Callicott, Mark Sagoff, Bryan Norton, and Laura Westra that *there are* such inconsistencies. To give an example, there are some theories of animal ethics which entail that we are morally obligated to prevent predation, yet every theory of environmental ethics entails that we are not morally obligated to prevent predation. Insofar as this project goes against that grain, it is novel and philosophically interesting. The central task, then, is to carefully evaluate these alleged inconsistencies and see which, if any, survive critical reflection or fall like so many houses of cards.

More will be said in due course about the *content* of arguments to the effect that animal ethics and environmental ethics are inconsistent. For now, I am concerned solely with the *form* of such arguments. The structure of inconsistency arguments goes like this: first, show that two claims or principles are inconsistent, and then conclude that both cannot be true at the same time. Typically, this is followed by the affirmation of one of the two sides. After airing his various objections to 'animal liberationism' (which are discussed below), Mark Sagoff concludes:

> Now, whether you believe that this harangue is a reductio of Singer's position… or whether you think that it should be taken seriously as an ideal is of no concern to me. I merely wish to point out that an environmentalist must take what I have said as a reductio, whereas an animal liberationist must regard it as stating a serious position… (Sagoff 1984)

Clearly, Sagoff is following the form of the inconsistency argument just discussed, and as an environmentalist, it's clear which side of the fence he is on.

Allegations of Inconsistency

As is the case with responding to objections generally, there are many avenues of response to an allegation of inconsistency. The first available line of response is immediately obvious. If there is a set of claims that, upon reflection, is inconsistent, jettisoning one or more of them is a fitting response, and the inconsistency is averted. A second way of responding to an allegation of inconsistency is to show that the inconsistency is only apparent. In other words, show that two claims are not ultimately inconsistent after all.

At minimum, the charge of inconsistency provides opportunity for reflection about the plausibility of the claims which generate the inconsistency. Is there a way to reformulate the claim(s) which keeps its (their) essence, yet which avoids the inconsistency? If so, then this is an appropriate response to the allegation of inconsistency.

There is little doubt that many of the alleged inconsistencies between animal ethics and environmental ethics are of this sort. This is because, out of concern over the exploitation of animals in domestic contexts, animal ethicists often formulate principles that provide plausible enough accounts for these contexts. However, animal ethicists do not necessarily have other contexts in mind, and because the principles are not explicitly restricted to these contexts and are rather implausible in other contexts, such as those contexts which concern environmental ethicists.

This will be discussed at length in Chapter 5 below, but I will discuss one such example now by way of introduction. At a conference titled "Animal Ethics: Ignored Perspectives" at Colorado State University on April 9, 2011, Alastair Norcross spoke on the moral wrongness of eating meat from caged animal feeding operations (CAFOs), essentially rehashing the argument from analogy with the moral wrongness of torturing puppies for pleasure in one's basement from

his “Puppies, Pigs, and People: Eating Meat and Marginal Cases” (2004). The moral principle which Norcross, a self-identifying advocate of Peter Singer’s preference utilitarianism, stated was: “we are morally obligated to eliminate all unnecessary suffering.” This line garnered a round of applause from the audience, which is not surprising because such a claim is common in the animal liberation movement as well: “The humane cause is about preventing suffering. A species does not suffer; individual animals suffer" (Animal People, 2010). Norcross’ moral principle pretty clearly covers caged puppies and pigs, but does much else besides, such as seeming to require widespread interventions in nature, insofar as doing so eliminates unnecessary suffering, and this is precisely what environmental ethicists find objectionable about animal ethics.

The principle is implausible – save for certain interpretations of hedonistic utilitarianism – for it neither acknowledges the possibility of moral values other than the binary gradient of pleasure and pain nor allows for the moral relevance of the cause of suffering. Surely there is a moral principle or set of principles which is more plausible, and which can cover cases like puppies and pigs, yet does not require actions proscribed by environmental ethics.

1.5 - On the Meaning of “Animal Ethics” and “Environmental Ethics”

One of the main claims advanced in this work is that animal ethics and environmental ethics are consistent. Much has now been said about the relationship of consistency, how consistency can be shown, and how allegations of inconsistency can be addressed. It remains to be discussed just what is meant by “environmental ethics” and “animal ethics”. Above, I merely asserted that I take this to mean that the moral prescriptions of animal ethics and environmental

ethics about which there is widespread agreement are consistent. I now need to justify this assertion.

There are two potential problems that must be avoided in defining these ideas. The first is providing an overly narrow conception of the term. The second is providing an overly broad conception. Both of these mistakes are often made, even simultaneously, in different respects. I will discuss environmental ethics first, and then follow with a discussion of animal ethics, which tracks the same argumentative arc as the discussion of environmental ethics.

What Environmental Ethics is Not

Many proposed conceptions of environmental ethics fall victim to the narrowness or broadness problems. I'll discuss these with examples and critiques in turn, then consider an objection that my own conception is overly narrow, and end with a positive treatment of what environmental ethics is. I will argue that by "environmental ethics" we should understand the core goals of environmentalism – limiting pollution of the air, water, and land; avoiding human overpopulation; conserving biodiversity; and preserving wilderness – which have remained stable over the last several decades.

The problem with an overly narrow conception of environmental ethics is that it all too often begs important and contentious philosophical questions by providing a stipulative conception whereby only the theory or kind of theory one wishes to defend makes the cut. Attempts to define environmental ethics in terms of a particular underlying value theory are examples of this sort of error. Consider, for example, J. Baird Callicott's narrow conception of environmental ethics:

> [Aldo Leopold's] 'land ethic' has become a modern classic and may be treated as the standard example, the paradigm case, as it were, of what an environmental ethic is. *Environmental ethics* then can be defined ostensively by using Leopold's land ethic as the exemplary type. I do not mean to suggest that all environmental ethics should necessarily conform to Leopold's paradigm, but the extent to which an ethical system resembles Leopold's land ethic might be used, for want of anything better, as a criterion to measure the extent to which it is or is not of the environmental sort" (Callicott 1980, 311).

Leopold's land ethic is a holistic environmental ethic, asserting that "a thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (Leopold 1966, 262). In other words, if an ethic does not conceive of right action in terms of ecological holism and beauty, it is to that extent not an environmental ethic.

Similar in its narrowness and not much else is Tom Regan claim that an ethic must meet two conditions to count as being of the environmental kind:

1. There are nonhuman beings which have moral standing.
2. The class of those beings which have moral standing includes but is larger than the class of conscious beings – that is, all conscious beings and some nonconscious beings must be held to have moral standing. (Regan 1981, 19-20)

Here, in one fell swoop, Regan stipulates that an environmental ethic cannot be anthropocentric, or sentiocentric, but rather must grant moral standing to some nonconscious entities. Here, it also bears mentioning that Regan regards an ethic which takes into account the lives and interests of nonhuman animals as "on the way" to being an environmental ethic because it meets the first criterion, but nonetheless falls short because of the second criterion (Regan 1981, 20). Even the animal ethicist Bernard Rollin accepts a conception of "environmental ethics" along the same lines:

> As a bare minimum, environmental ethics comprises two fundamentally divergent concerns – namely, concern with individual nonhuman animals as direct objects of moral concern and concern with species, ecosystems, environments, wilderness areas, forests,

> the biosphere, and other nonsentient natural or even abstract objects as direct objects of moral concern. (Rollin 1988, 125)

To sum up, a widely held but contentious view of environmental ethics boils down to three claims:

1. **Nonsentientism:** nonsentient entities have value.
2. **Collectivism:** collective entities such as ecosystems have value.
3. **Mind Independence:** value is mind-independent; even if there were no conscious beings, aspects of nature would be valuable. (Crisp 1998, 476)

Attempts such as those by Callicott, Crisp, and Regan to narrowly stipulate what is and what is not an environmental ethic reveal more about their own pet theories than what they reveal about the necessary form of an environmental ethic. Given Callicott's conception, it is not at all surprising that he defends Leopold's land ethic, or that Regan thinks that an ethic meeting his two conditions must be cashed out in terms of his preferred moral property: inherent worth.

It is noteworthy that Callicott has moved beyond his original staunch advocacy of the land ethic in his later years of academic activity. In his first collection of essays, *In Defense of the Land Ethic: Essays in Environmental Philosophy*, Callicott sought to defend Leopold's land ethic, yet in his later collection of essays, *Beyond the Land Ethic: More Essays in Environmental Philosophy*, Callicott abandoned some of what he regarded as key to the land ethic, such as the mind-independence of value. Surely he doesn't regard his later work as a lesser contribution to environmental ethics. Also, this conception is wholly arbitrary because it excludes the theories of many environmental ethicists. For example, the view of biocentrist Paul Taylor, who was writing in the early 1980's alongside Callicott, violates the collectivist requirement because, while it does attribute value to nonsentients, it does so individually rather than collectively. It

can't be that Taylor's *Respect for Nature*, a canonical work in environmental ethics, is not a work of environmental ethics.

Whether or not a theory is an environmental ethic isn't to be decided based on historical similitude to the view of one of the field's founding fathers, or by meeting specific and controversial theoretical conditions about the nature of value and the entities of value. We must not stipulate in advance the theoretical form an environmental ethic must take, and ought to be open-minded about the possibility that many theories can provide a satisfactory justification. Gary Varner gets to the root of the matter by asking the philosophical question of whether we ought to think that wholes have intrinsic value[9] in the first place:

> The fundamental philosophical question about environmental ethics should not be 'Do environmentalists *in fact* think that holistic entities have intrinsic value?' but rather '*Should* one think like that?' (Varner 2001, 201-202)

While Varner overstates the point – it is surely one among many fundamental questions for environmental ethics – he is correct that the latter question is properly philosophical whereas the former question is mere "moral anthropology", an interesting topic no doubt, but one better left for anthropologists and sociologists, not moral philosophers.

The second problem is defining "environmental ethics" so broadly that *any* ethical theory is an environmental ethic. While ethical theory is currently undergoing a greening process, I take it for granted that not all theories of ethics are theories of *environmental* ethics. Here, I mean this in both a thin and a thicker sense. The thin sense is simply that not all ethical theories entail those moral prescriptions that are essential to an environmental ethic.

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[9] I'll use this term somewhat loosely for now. It gets tightened up at the beginning of Chapter 2.

The thicker sense, which is more interesting and perhaps more controversial as well, is that these moral prescriptions must be arrived at by valuing the environment "in the right way" for an ethic to be of the *environmental* sort. In other words, the conception of environmental ethics is partly normative. Just about any ethical theory, even a strongly anthropocentric one, will have prudential environmental implications such as talk of renewable resources and maximum sustainable yield of game and seafood motivated by long-term anthropocentric prudence. Not all ethical theories are environmental ones; an ethical theory which views the nonhuman world as a mere storehouse of raw materials is not an environmental ethic. An environmental ethic must regard the environment as having value that is other than, more than, economic value or material human well-being.

This is why it is common to distinguish ethics *of* the environment, or environmental ethics, from an ethic for *the use of* the environment, a managerial ethic (Regan 1981, 20). Arne Næss has essentially the same thing in mind in distinguishing "shallow ecology," a movement which seeks to fight pollution and resource depletion in order to achieve human health and affluence, from "deep ecology," a movement which values nature for its own sake (Næss 1973).

Richard Sylvan and David Bennett's characterization of "deep positions" in environmental ethics is more specific than Næss', and clearly includes animal ethics:

> Deep positions are characterized by the rejection of the notion that humans and human projects are the sole items of value, and further by the rejection of the notion that humans and human projects are always more valuable than all other things in the world. (Sylvan and Bennett 1994, 63)

Sylvan and Bennett's characterization bears mentioning simply to show that not all early attempts to characterize environmental ethics, understood here in the deep sense, necessarily excluded animal ethics approaches.[10]

This contemporary distinction between deep (or dark green) and shallow or (light green) positions is essentially the same as, and contiguous with, the early 20th century political distinction between preservationists and conservationists. It remains as relevant now as it did then, meriting a brief treatment to provide the present discussion with a bit more historical context.

There is no better representation of this distinction than what emerged during the seven-year debate between John Muir and Gifford Pinchot over the proposed damming of the Tuolumne River in Hetch Hetchy Valley, a glacial valley in California's Yosemite Valley National Park, to ensure the water supply of San Francisco and the surrounding area after it was threatened by a major earthquake.[11] The conservationist Gifford Pinchot, the first Chief of the United States Forest Service (1905-1910), favored the dam's construction. Pinchot saw the natural environment solely in terms of natural resources for the fulfillment of the physical needs

[10] Along these lines, it bears noting that "environment" or *milieu* simply means "that which surrounds," it demands that we ask the question: who or what is surrounded? What is the figure and what is the ground? Distinguishing the natural from the built environment, environmental ethics is about the natural environment, the natural surroundings. Animal ethics distinguishes a class of figures from the ground. Also, as Næss reminds us, the etymology of the word "ecology" is telling. Ecology derives from "home" (οἶκος) and "study of" (λογία). Animal ethics asks us to expand the notion of whose home we are studying and seeking to protect. Since nonhuman animals are part of our natural surroundings and because of the importance habitat – sentient animals' homes – an ethic which focuses on our obligations to them is an environmental ethic, at least according to the criteria set out by some deep ecologists like Sylvan.

[11] The argument ended by an act of Congress in 1913, which was required because the proposed project was located in Yosemite National Park. The Hetch Hetchy Valley has been submerged from the completion of the dam in 1923 through the present day. It provides water to approximately 2.4 million Californians. Recently, the U.S. Department of the Interior and the State of California have proposed removing the dam and restoring the area, which has been met with opposition, even from some who normally favor environmental responsibility, such as then-mayor of San Francisco, Dianne Feinstein (Hodel 2005).

of humans such as wood for the construction of houses; it's a view which seeks maximum sustainable yield of forest and fauna for human use in perpetuity. In "The Principles of Conservation", Pinchot wrote:

> The first great fact about conservation is that it stands for development. There has been a fundamental misconception that conservation means nothing but the husbanding of resources for future generations. There could be no more serious mistake. Conservation does mean provision for the future, but… The first principle of conservation is the use of the natural resources now existing on this continent for the benefit of the people who live here now. (Pinchot 1910)

Contrastingly, John Muir, a Scottish-born American naturalist, mountaineer, and the founder of the Sierra Club, one of the oldest and most influential environmental organizations, argued the preservationist position against the dam. Muir writes in *The Yosemite*:

> The making of gardens and parks goes on with civilization all over the world, and they increase both in size and number as their value is recognized. Everybody needs beauty as well as bread, places to play in and pray in, where Nature may heal and cheer and give strength to body and soul alike. (Muir 1912, 256)

Here, Muir recognizes the importance of our material needs such as bread, but contends that they are not exhaustive of the value of nature. Environmental ethics, then, contains elements of both conservationism and preservationism. Its central tasks include adjudicating the tension between the two and how we should best understand the latter.

The Academic Neutrality Objection

One potential objection to including this thicker sense in the conception of environmental ethics is that it is overly narrow in the sense objected to above. Rather, we should define an environmental ethic in purely descriptive terms. Just as political philosophy concerns attempts to explain how humans should live in a society, environmental ethics is merely that which attempts

to capture human obligations with respect to their environment. Anything further *is* question begging; akin to demanding that political philosophy be libertarian.[12]

There is some merit to this objection, but it fails all the same. It is true that there is a sense in which environmental ethics, as an academic discipline, is so broad as to encompass *any* view of human obligations with respect to their environment, just as there is a sense in which any theory that attempts to explain how humans should live in a society is political theory. However, this fails to capture how the aim of contemporary political philosophy is to provide a philosophical framework which is adequate to our understanding and which affirms the long trend of liberal democratic political developments. The broad political question is settled to the satisfaction of those in the scholarly conversation; the philosophical debate concerns how we best understand and affirm the value of liberal democracy.

Similarly, defining environmental ethics so thinly fails to capture how the aim of contemporary environmental ethics is to provide a philosophical framework adequate to our understanding and which affirms the historic trend of valuing the natural environment. The broad question is settled; philosophical debate concerns how we best understand and affirm that value. This makes the conception of environmental ethics not just descriptive or historical, but partly normative as well.

Many other fields of inquiry are inherently normative. Feminism comes to mind; it's simply false that *any* view of women counts as feminist. Women's Studies is centrally concerned with defining and defending women's rights. Perhaps there is no better example than medicine, which is inherently oriented towards not simply understanding, but *promoting* human

[12] Thank you to Heather Douglas for bringing this potential objection to my attention.

health. Something would be wrong with medicine if it did not promote health. Environmentalism is similarly oriented, in that it is concerned with the health of environments. In this light, it is altogether unsurprising that conservation biology explicitly understands itself as an advocacy science. Indeed, it *must* be an advocacy science.

The objection is right that the claim that political philosophy must be libertarian *does* beg the live questions in political philosophy, but this is not because it is preoccupied with considering the merits of divine right monarchy, but rather because there are many accounts of liberal democracy other than libertarianism. Just the same, the claim that environmental ethics must be holistic *does* beg the live questions in environmental ethics, which was precisely my point above in articulating the problem of an *overly* narrow conception. It bears stressing just how open environmental ethics is to different axiological and normative theories, from the weakly anthropocentric through the deeply biocentric to the ecocentric/holistic, even with this thickness clause.

In addition to this substantive response, there is another response available. While the present objector need not accept an environmental ethic that meets the thickness clause, all of the environmental ethicists who allege that animal ethics is inconsistent with environmental ethics *do* accept it, and it is their arguments that I'm objecting to. It is standard practice in philosophy to table shared foundations when addressing more specific questions. I trust that this issue is still of philosophical interest, even if one does not accept the framing assumptions within which the debate occurs.

To sum up the developments of this section thus far, I have argued that we should not construe environmental ethics to be overly narrow nor broad. The problem with overly narrow

conceptions is that they assume controversial philosophical theses, defining away disagreement. The problem with overly broad conceptions is that the distinction between environmental ethics and ethics simpliciter is lost. That should be enough for present purposes about what environmental ethics is not.

The main positive claim made thus far is that for an ethic to be an environmental ethic, it must countenance environmental value that transcends economic or material value. The environment is not simply a resource for human use or storehouse of raw materials. I've left the meaning of this idea inchoate on purpose. Again, the reason for doing so is to avoid the problems associated with narrowness. There is a wide variety of theories of environmental ethics, which differ in their underlying value theories, normative principles, and particular moral prescriptions. Instead, I intend to use a fairly minimal, consensus understanding of the moral prescriptions of environmental ethics.

The reason for this is straightforward. Environmentalists disagree, not just on theoretical issues as discussed above, but on practical issues as well. To cite but one prominent example, there are environmentalists who are adamantly in favor of hunting, and there are environmentalists who are adamantly against hunting. In a letter to Henry Fairfield Osborn on July 06, 1906 concerning hunting and the ongoing "war against wildlife", John Muir advocated "refuge and protection" for "our poor horizontal fellow-mortals", and went on to write:

> The murder business and sport by saint and sinner alike has been pushed ruthlessly, merrily on, until at last protective measures are being called for, partly, I suppose, because the pleasure of killing is in danger of being lost from there being little or nothing left to kill, and partly, let us hope, from a dim glimmering recognition of the rights of

animals and their kinship to ourselves. (Muir 1924 Vol. 2, 349-350) [13]

Here, John Muir, an environmentalist if ever there was one, gives a portrayal of hunting that is in stark relief to that of Aldo Leopold, a lifelong hunter who refers to animals with the impersonal and aggregative term "game".[14] In his attempt to drive a wedge between environmental ethics and animal ethics, Leopold's bulldog, Callicott, made much of Leopold's advocacy of hunting and indifference to "the suffering of domestic animals", noting that animal ethicists and environmental ethicists have "not only very different ethical perspectives, but cosmic visions as well" (Callicott, 1980), as if environmental ethics hinged on the commendation of hunting.

To throw another monkey wrench into these gears, Gary Varner argues that animal rights activists can agree with environmentalists on the moral necessity of hunting in the case of obligatory management species, i.e. a species which "has a tendency to overshoot the carrying capacity of its range, to the detriment of future generations of it and other species" such as deer (Varner 2003, 98). If this is the case, then animal ethics does not hinge on an anti-hunting stance either.

The point is that the set of all claims made by all environmental ethics is inconsistent, as is the set of all claims made by all animal ethicists. Asking animal ethics to be consistent with an

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[13] Interestingly, while Muir was decidedly against hunting, the Sierra Club was neutral on the issue from its inception in 1892 until 1996. Then, Ted Williams observed in the *Sierra* that "If only hunters, anglers, and environmentalists would stop taking potshots at each other, they'd be an invincible force for wildlands protection" (Williams, 1996). The Sierra Club began its Hunter and Angler Outreach program, which became known as Natural Allies, and now Sierra Sportsmen. This alliance appears to be essentially political rather than philosophical. In a seeming bit of revisionist history, the Sierra Club's "conservation timeline" now begins with the Boone and Crocket club – a Montana-based hunter-conservationist organization founded by Theodore Roosevelt with Gilford Pinchot as a member – in 1887, and the Sierra Club now claims both Muir and Roosevelt as "natural allies", despite the fact that Roosevelt aligned with Pinchot much more-so than Muir.

[14] Peter Singer comments on similar language "I cannot resist inviting the reader to think about the assumptions behind the use of such images as the 'cropping' of 'surplus wildlife' or the 'harvesting' of seals" (Singer 1979 201-202).

inconsistent set is asking for an impossibility. The workspace defined herein will not accord with every environmentalist's or environmental philosopher's view, nor with every animal rights advocate's or animal ethicist's view. It cannot, for not all environmentalists and environmental philosophers agree in principle or in practice, nor do all animal rights advocates and animal ethicists agree in principle or in practice. However, if the range of positions held in animal ethics overlaps with the range of views held in environmental ethics, there is consistency within that shared space.

What Environmental Ethics Is

In this regard, Bryan Norton's attempt to define environmental ethics is much more on track. Norton took recognition of the significant and entrenched theoretical disagreement in the field of environmental ethics as his starting point. As an environmental pragmatist, Norton sought to identify points of agreement at the level of moral practice in *Toward Unity Among Environmentalists* to establish a unified front at the level of practice, despite internal theoretical divisions and disagreement over some particular policies (Norton 1991). He continues this thread of argument in later works, where he starts from the near-universal consensus of "environmentally sensitive individuals" that there is set of human behaviors which damage the environment and which we ought not do. These behaviors are:

1. Careless storage of toxic wastes,
2. Grossly overpopulating the world with humans,
3. Wanton destruction of other species,
4. Air and water pollution, and so forth. (Norton 2003, 163)

He regards an environmental ethic as *adequate* if it can proscribe actions in the noncontroversial set, explicitly tabling the truth of particular views which meet these adequacy

conditions as beyond his inquiry (Norton 2003, 164). The "and so forth" part of Norton's description is vague, but perhaps helpfully so if he is suggesting that there is no precise set of necessary and sufficient conditions which an environment ethic must meet in order to be adequate. It might be more of a family resemblance concept (Wittgenstein 1953), and is open to future developments in science and ethics. Any particular behavior is potentially subject to revision to achieve wide reflective equilibrium in the system.

Note that Norton's portrayal of environmental ethics is in the negative. It is all about a proscribed set of behaviors; what we should *not* do. This coheres with the idea that environmental ethics is a response to various environmental crises resulting from the effects of industrialization. One problem is that Norton's view preaches to the choir – what makes an ethic environmental is that it requires that the principles be acceptable to the environmental community, those whom he calls "environmentally sensitive." I hope to produce rational arguments for sentiocentrism capable at least in principle of persuading non-environmentalists.

Nonetheless, Norton's portrayal is still helpful in that it allows for there to be many possible philosophical bases which support the proscription of these activities. Environmental ethics, particularly in its formative decades, largely concerned the extent to which ethical theory needed to be revised in light of the environmental crises which led to the emergence of the modern environmental movement. This is perhaps best expressed simply by noting the title of Richard Sylvan's 1973 article "Is There a Need for a New, an Environmental, Ethic?"[15] Sylvan's own answer, and the answer commonly given by other environmental ethicists, was that

[15] Richard Sylvan was born as Francis Richard Routley, and some of his early work, including this article, was published under this name.

there was a need for a new environmental ethics. Most early environmental ethicists concurred that traditional ethical theories were inadequate because they could not capture what environmentalism was after. Sylvan's own wedge was the "Last Man" thought experiment, which he thought showed that anthropocentric or sentiocentric ethics could not account for the purported wrong:

> "The last man (or person) surviving the collapse of the world system lays about him, eliminating, as far as he can, every living thing, animal or plant (but painless if you like, as at the best abattoirs). (Sylvan 1973, 207)[16]

There was something of an overreaction about the extent to which ethical theory needed revision in order to respond to the environmental crisis and to account for the core goals of the environmental movement. Indeed, that overreaction is what makes this present work possible in that it involves a less radical revision of traditional ethics than many other theories of environmental ethics. Tellingly, Sylvan added that it is "none too clear what is going to count as a new ethic" (1973, 205).

At any rate, it does not seem that ecological holism is required to meet the core goals of environmentalism, and I am inclined to think that at least some versions of anthropocentric ethics could be adequate. Candidates include but are not limited to Bryan Norton's "weak anthropocentric ethics" (2003), Eugene Hargrove's "weak anthropocentrism", Gary Varner's "axiological anthropocentrism" (2002), Sahotra Sarkar's "tempered anthropocentrism" based on a "reverence for nature" (2005), and Sandel's virtue-oriented approach (2007).

Furthermore, it seems entirely reasonable that biocentrism, i.e., any ethic based in the moral considerability of all living things, can account for them as well. I merely wish to add

[16] For critiques of the last man argument, see Sober (1986), O'Neill (1992), and especially Varner (2001).

sentiocentrism, any ethic based on the moral considerability of all sentient beings, to the list of theories which can account for the core goals of the environmental movement, and so constitute an adequate environmental ethics.

This said, Norton seems to violate his own criteria and quest for unity in environmental ethics by claiming that a theory of animal rights or other rights-based approaches like that of Christopher Stone, who argued for the rights of trees (Stone 1972, 1974), could not produce an adequate environmental ethic (Norton 1992, 71-94). Perhaps Norton wished to preclude this possibility in order to make his own weak anthropocentric environmental ethic appear more plausible, or perhaps he was influenced by the early consensus that environmental ethics must be separate from animal liberation. According to his own criterion, the only real question is whether there are accounts of animal rights (or other animal ethical approaches) which can proscribe behaviors in the noncontroversial set. As I aim to show in the following chapters, there are such accounts, and they are therefore adequate environmental ethics, per Norton's criterion.

Gary Varner's approach to pinning down the adequacy of an environmental ethic is essentially the same as Norton's approach, but he puts the points in the positive rather than in the negative. Varner evaluates adequacy in terms of "the extent to which an ethic provides philosophical support for goals commonly espoused in the environmental movement", goals such as:

1. Preservation of species, wilderness, and special habitats such as wetlands, estuaries, rain forests, and deserts;
2. Reintroduction of locally extinct species including large predators, removal of exotic species, and adaption of agricultural and landscaping practices to the local biota;
3. Substantial reduction of the human population; and
4. Reduced reliance on chemicals in agriculture and reduced air and water emissions. (Varner 1998, 5)

Note that goals two through four are really just instrumental goals for achieving the first goal, which is the preservation of wilderness and the preservation of biodiversity, i.e. the preservation of species and ecosystems.

Both Norton and Varner are articulating basically the same overlapping set of core goals of environmentalism: (i) limit pollution of the air, water, and land, and (ii) avoid human overpopulation in order to (iii) conserve biodiversity, and (iv) preserve wilderness. These beliefs have remained stable despite decades of reflection by environmentalists. Furthermore, some of these goals – such as biodiversity conservation and wilderness preservation – appear nigh impossible to support by a narrow resource-conservationism to any real degree because many species and ecosystems aren't important for providing environmental services and resources requisite for human survival. The thicker sense of environmental ethics is needed to account for the core goals of environmentalism.

What Animal Ethics Is Not

Having covered the meaning of environmental ethics, the conception of animal ethics remains to be covered. Here as there, the same two mistakes of conceiving animal ethics overly narrowly and overly broadly need to be avoided. I'll argue for a conception of animal ethics that is in many respects parallel to the understanding of environmental ethics above: animal ethics must value animals "in the right way" and meet pragmatic prescriptions about which there is widespread consensus, i.e. prohibition of some uses of some nonhuman animals for food, clothing, fuel, research, etc.

As with wrongheaded attempts to define environmental ethics, attempts to define animal ethics are often overly narrow as well, either in terms of the required theoretical commitments or their preferred set of proscriptions and prescriptions. At the theoretical level, Mark Sagoff provides an overly narrow conception of animal liberation as the view that "human beings are obligated to prevent and to relieve animal suffering however it is caused" (Sagoff 2001, 39). Callicott paints the same picture in his depiction of animal liberationism: "we are morally obligated to consider [animal] suffering as much an evil to be minimized by conscientious moral agents as human suffering" (Callicott 1980).[17]

On this conception, animal liberation probably is inconsistent with environmentalism. It seems that Sagoff's goal is to distinguish animal liberation as much as possible from environmentalism precisely so as to render the two inconsistent. Sagoff has, in effect, straw-manned animal liberation by building in the claim that we have fairly strong positive obligations to all animals as a necessary condition for the view. This is an extreme position and is explicitly rejected by the two most prominent philosophers of animal liberation, Peter Singer and Tom Regan. This cannot be what "animal liberationism" means. The conception is too narrow.

Some attempt to define animal liberation too narrowly at the level of practice rather than theory. One example is Kim Barlett's "Politics of Animal Liberation". Therein, she articulates the following twelve goals of the animal liberation movement:

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[17] From here, Sagoff argues that the two most prominent theories in animal ethics, Peter Singer's preference utilitarianism in *Animal Liberation* and Tom Regan's rights view in *The Case for Animal Rights* both entail animal liberation as he and Callicott define it, i.e. both views entail the strong claim that we are morally obligated to alleviate the suffering of *all* animals, domesticated or wild, irrespective of the cause of this suffering, up to the point of marginal utility, i.e. the level at which providing more assistance will cause as much harm to society as it would relief to animals. I'll have more to say below and in Chapters 4 & 5 about this conception of animal liberation and the merits of Sagoff's criticisms of it. Here, I am solely concerned with the conception of animal liberation.

1. [T]he eventual abolition by law of animal research, and… immediate prohibition of painful experiments and tests…
2. The use of animals for cosmetics and household product testing, tobacco and alcohol testing, psychological testing, classroom demonstrations and dissection, and in weapons development or other warfare programs must be outlawed immediately.
3. We encourage vegetarianism…
4. Steps should be taken to begin phasing out intensive confinement systems of livestock production… Livestock grazing on US public lands should be immediately prohibited.
5. The use of herbicides, pesticides, and other toxic agricultural chemicals should be phased out. Predator control on public lands should be immediately outlawed and steps should be taken to introduce native predators to areas from which they have been eradicated in order to restore the balance of nature.
6. Responsibility for enforcement of animal welfare legislation must be transferred from the Department of Agriculture to an agency created for the purpose of protecting animals and the environment.
7. Commercial trapping and fur ranching should be eliminated…
8. Hunting, trapping, and fishing for sport should be prohibited. State and federal agencies should focus on preserving and re-establishing habitat for wild animals instead of practicing game species management for maximum sustainable yield.
9. Internationally, steps should be taken by the US government to prevent further destruction of rain forests. Additionally, we call on the US government to act aggressively to end international trade in wildlife and goods produced from exotic an/or endangered fauna or flora.
10. We strongly discourage any further breeding of companion animals, including pedigreed or purebred dogs and cats… Commerce in domestic and exotic animals for the pet trade should be abolished.
11. We call for an end to the use of animals in entertainment and sports such as dog racing, dog and cock fighting, fox hunting, hare coursing, rodeos, circuses, and other spectacles and a critical reappraisal of the use of animals in quasi-educational institutions such as zoos and aquariums…
12. …Genetic manipulation of species to produce transgenic animals must be prohibited. (Bartlett 1987)

While there is surely widespread agreement amongst animal ethicists on many of these points, some are controversial, such as abolishing animal research and rearing companion animals. It is certainly *a* version of animal ethics, but not *the sole* version of animal ethics.

Just as for environmental ethics, there is considerable diversity amongst and disagreement between philosophers and their arguments in support of sentiocentrism and its pragmatic implications. For example, Tom Regan opposes all use of animals in research and for

food whereas consequentialists like Peter Singer and Dale Jamieson argue that the use of some animals in scientific research is sometimes permissible, yet that "at least much of the scientific use of animals is morally wrong and ought to be stopped" (Jamieson 2002, 141).[18] Surely sentiocentrism does not hinge on the moral theory in question or on whether animal experimentation is ever morally permissible. These two views – sometimes called abolitionism and animal protectionism – both fall under the umbrella of animal ethics.

On the other hand, sentiocentrism should not be defined too broadly either. Not just any view of human obligations with respect to animals is an *animal liberationist* view. For example, the problems with indirect duty views of animals, are widely acknowledged in animal ethics.[19] Immanuel Kant is perhaps the most famous advocate of the indirect duty view:

> Our duties towards animals are merely indirect duties towards humanity. Animal nature has analogies to human nature, and by doing our duties to animals in respect of manifestations which correspond to manifestations of human nature, we indirectly do our duty towards humanity. Thus, if a dog has served his master long and faithfully, his service, on the analogy of human service, deserves reward.[20] (Kant 1963, 239-240)

The problem with this line of thought is that there should be no "moral spillover" from cruelty to animals to cruelty to humans if we are really are morally different. This point is well-put by Robert Nozick:

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[18] Note that Regan's view of animal research in *The Case for Animal Rights* is more radical than the more moderate view he defended in the earlier paper co-authored with Dale Jamieson "On the Ethics of the Use of Animals in Science" in Tom Regan and D. VanDeVeer, eds., *And Justice For All* (1982).

[19] Peter Carruthers also espouses anti-cruelty as an indirect duty view: Acts [such as torturing cats for fun] are wrong because they are cruel. They betray an indifference to suffering that may manifest itself… with that person's dealings with other rational agents. So although the action may not infringe any rights… it remains wrong… independently of its effect on any animal lover" (Carruthers 1992, 153-54).

[20] Kant uses this example again in *The Doctrine of Virtue*: "Even gratitude for the long service of an old horse or dog (just as if they were members of the household) belongs indirectly to man's duty with regard to these animals" (Kant 1964, 109). Note the "just as if" clause, which references the amphiboly that Kant thought was present in our obligations regarding animals: they appear to be obligations to animals, but are actually obligations to ourselves.

> Why should there be such a spillover? If it is, in itself, perfectly all right to do anything at all to animals for any reason whatsoever, then provided a person realizes the clear line between animals and persons and keeps it in mind as he acts, why should killing animals brutalize him and make him more likely to harm or kill persons?[21] (Nozick 1974, 36)

The core normative claim common to animal ethics is not merely the minimal idea that "animals must no longer be treated essentially as resources for human use" (Taylor 2003, 18).

What Animal Ethics Is

Instead, we should think of the central normative claim of animal ethics is that *some nonhuman animals have moral status*.[22] Note that there is a lack of parity here between animal ethics and environmental ethics. This normative claim, while still relatively thin, is comparatively thicker than the normative claim made about environmental ethics, i.e., the environment must not be treated as a mere resource for human use precisely because the axiological claims are much more up in the air in environmental ethics than in animal ethics. Note too that, just as for environmental ethics, there are several plausible candidate ethical theories that can accommodate this moderately normative conception of animal ethics.

Beyond this, we should also conceive of animal ethics in terms of widespread agreement at the level of practice, not theory, just as for environmental ethics. Like Norton's portrayal of agreement in environmental ethics, agreement in animal ethics concerns not so much what it is for as what it is against. This opposition is to some or all uses of, animals for food, clothing, entertainment, research, etc.

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[21] For an extended critique of indirect duty views, see Regan's The Case for Animal Rights (Regan 2004, 150-194).
[22] The meaning of "moral status" and related terms is discussed in Chapter Two.

Per the objection to giving a partly normative conception of environmental ethics above, there is also a broader and more neutral way of understanding the term "animal ethics" as simply any attempt to capture human obligations with respect to nonhuman animals. Here as there, this will not do. Studying the moral obligations regarding animals considered as automata, indirect duty views, etc. fall under this broader sense of animal ethics. But such views are of historic interest and little else. We now live in a post-Darwinian world informed by decades of behavioral and cognitive ethology. Animal ethics seeks to give a philosophical understanding to the moral implications of this long arc of scientific developments which affirm our continuity with, and morally relevant similarities to, nonhuman animals.

1.6 - Some Key Concepts and Terminology

To conclude this chapter, I will do some terminological and conceptual housekeeping. I'll start by saying a bit about the term "animal", and then the distinction between wildness and domestication, and finally the term "sentiocentrism".

On the Animal: Human and Nonhuman

I share Jacques Derrida's concern about speaking of all nonhuman animals in general:

> [One] will never have the right to take animals to be the species of a kind that would be named the Animal, or animal in general. Whenever "one" says, "the Animal", each time a philosopher, or anyone else says, "the Animal" in the singular and without further ado, claiming thus to designate every living thing that is held not to be man… utters an *asinanity* [*bêtise*]. (Derrida 2008, 31)

For reasons such as this, I consider the scope of sentience in the animal kingdom in Chapter 3. The spirit of that discussion is just how heterogeneous animals are. These caveats

notwithstanding, it is expedient to simplify. By "animal", I generally mean *any nonhuman sentient organism in the kingdom Animalia*. I sometimes use "*nonhuman* animals" for emphasis, and sometimes use "animals" in the broader, biological sense of all organisms in the Animal kingdom, i.e. all descendents of the hypothesized last common ancestor, Urmetazoan, a flagellated eukaryote (Schierwater *et al* 2009). Context should make it clear enough which use is currently operating.

Wildness, Captivity, and Domestication

Much of the perceived tension between animal ethics and environmental ethics concerns the pragmatic implications of animal ethical theories about wild animals. So, something needs to be said about what wild animals are. Here, I'll employ Clare Palmer's three-fold distinction of wildness and associated terminology (Palmer 2010, 63-67). She begins with Ned Hettinger and Bill Throop's conception: "something is wild in a certain respect to the extent that it is not humanized in that respect" (Hettinger and Throop 1999, 12). This is on track because it captures the complexity of the terms "wildness" and "domestication." There are at least three separate respects in which animals may be, as Hettinger and Throop note, not humanized.

The first sense is *constitutive wildness*. This is wildness understood along a spectrum of fully wild to fully domesticated. Juliet Clutton-Brock (also mentioned by Palmer) defines domestication along these lines: an animal is domesticated if it is "bred in captivity" and humans maintain "complete mastery over its breeding organization of territory and food supply" (Clutton-Brock 1989, 21). Domestication refers to animals which have been selectively bred to emphasize traits which benefit humans and deemphasize those which do not. In practice, this

generally means smaller size, smaller teeth, and extended neotony compared to wild animals of the same species.

The second sense is *locational wildness*. This is wildness understood on the spectrum of wild to developed. That is, an animal is wild to the extent that it inhabits the natural environment or wilderness, and the opposite is living in the built environment. A constitutively wild animal can be held in captivity. A squirrel or pigeon can live in the built environment yet not be domesticated.

The third sense is *dispositional wildness*. This is wildness understood on the spectrum of wild to tame. Of course, a tame animal is an animal whose flight and fight responses are not triggered by humans in normal circumstances, and a wild animal is one which is fearful or aggressive towards humans.

Most animals that are wild in one sense are wild in all three of senses, but these senses do sometimes come apart. For example, house mice are not locationally wild yet are both constitutively and dispositionally wild. A cat in the woods is domesticated and tame, yet in a wild location. Generally, I'll mean wild in all three of these senses when speaking of wild animals.

Sentientism and Sentiocentrism

John Rodman seems to have been the first to use the term "sentientism" in 1977, which he used to refer to the view which restricts moral standing to conscious entities (Varner 2003, 192). Of course, a view of which entities are morally considerable is but a part of a moral theory. I will call any moral theory which regards sentience as necessary and sufficient for

moral standing a version of "sentiocentrism". This captures the sense in which all values are "centered around" sentient organisms.[23] Also, the term "sentiocentrism" has the virtue of mirroring the familiar terms "anthropocentrism" and "biocentrism". I distinguish two varieties of sentiocentrism when appropriate below (4.4).

1.7 - Conclusion

I began this chapter by discussing the supposed incompatibility between animal ethics and environmental ethics. I traced the origin of these two fields of applied philosophy through their emergence in the late 20th century, noting that each has its own core questions and intellectual history.

I then clarified the debate in two ways. First, I discussed consistency itself. I discussed the nature of consistency arguments and argumentative strategies for responding to allegations of inconsistency. I then showed that the arguments which allege that animal liberation and environmentalism are incompatible have the structure of consistency arguments.

A second area of unclarity was what defined the fields of "animal ethics" and "environmental ethics". This needed to be sorted out to the extent it possible in order to evaluate whether they are compatible. I argued that we must avoid a pair of errors in defining these fields. We must neither define these fields too broadly, lest every ethic becomes an

[23] I had thought that I was the first to coin this term a few years ago. It has just recently come to my attention that Ned Hettinger used the term in the 2nd edition of the *Encyclopedia of Animal Rights and Animal Welfare* (2010). It appears that Hettinger restricts the conception of sentiocentrism to what I will call "strong sentiocentrism" below, i.e. an ethic which holds that only sentient creatures "are morally important in their own right" and which "treats [nonsentient] nature as solely of instrumental value for sentient creatures. Such an ethic protects trees and ecosystems not for their own sake, but because they provide habitat and other benefits for sentient creatures" (Hettinger 2010, 221).

environmental or animal ethic, nor too narrowly, because overly narrow conceptions stipulate away controversy.

I argued that these concepts should be understood in terms of (i) certain core pragmatic implications supported by intra-field consensus and (ii) a thinly normative commitment of each: environmental ethics accounts for environmental value which transcends the environment's use-value for human use, and animal ethics accounts for the direct moral standing of some nonhuman animals. These findings are summarized below in *Table 1*. If my analysis and arguments are on track, then the fundamental question is whether or not the core normative claim and pragmatic implications of animal ethics are compatible with the core normative claim and pragmatic implications of environmental ethics. I finished with a brief discussion of key terms and distinctions that will be used throughout.

Table 1: Normative Claims and Pragmatic Goals of Environmental Ethics and Animal Ethics.

Environmental Ethics / Environmentalism	Animal Ethics / Animal Liberationism
Core Normative Claim: The environment is not merely a repository of natural resources for human use; some natural entities are morally valuable in a way which transcends use-value (but which entities, what kind of moral value, and why are matters of disagreement).	**Core Normative Claim**: Some nonhuman animals are morally considerable (but which animals, and why are matters of disagreement).
Core Goals: limit pollution of the air, water, and land; avoid human overpopulation; conserve biodiversity; and preserve wilderness.	**Core Goals**: eliminate or reform some uses of animals for food, research, clothing, and entertainment.

2 - RECONSIDERING MORAL CONSIDERABILITY: LIFE OR SENTIENCE FOR MORAL STATUS?

It is not difficult to present life in an appealing light. It is much more difficult, however, to come up with a philosophically rigorous defense of biocentric value.

– Nicholas Agar, 2001

There is a tendency… to draw up the wagons around the notion of sentience.

– Kenneth Goodpaster, 1978

Abstract

In this chapter, I consider how far moral considerability should be extended beyond human beings, given that anthropocentrism is unsatisfactory. I consider two other candidate individualist views, arguing against biocentrism and in favor of sentiocentrism. I argue that biocentrism suffers two problems. The Origin Problem develops the intuitive idea that an entity's origin is not relevant to its moral standing, and so biocentrism cannot make a moral distinction between artifacts and biological organisms on the basis of their different origins. The Normativity Problem is that biocentrists conflate the good and the right, assume a straightforward relationship between the two, or offer unsatisfying arguments to bridge the good-ought gap. Biocentrism appears unable, in principle, to answer good-ought skepticism. These critiques set the stage for sentiocentrism. I give two arguments in favor of a sentiocentric notion of moral considerability. I develop and defend a version of the Marginal Cases Argument, i.e., nonperson yet sentient humans have moral status, and because species membership is a morally arbitrary criterion, we must grant moral considerability to similarly capacitated animals. I then give the Extrapolation Argument, which claims that moral agents ought to value me because of some good I possess, and by parity of reasoning, moral agents should value whatever has this good. I argue that sentience is this good, and because sentience is independent of origin, the Origin Problem is avoided, and by including an ought-premise, this argument also avoids the Normativity Problem. I then defend sentiocentrism from a biocentric objection and an anthropocentric objection.

2.1 - INTRODUCTION

In this chapter, I consider two prominent, nonanthropocentric individualist approaches to moral considerability as providing grounding to environmental ethics: biocentrism and sentiocentrism. I argue against biocentrism and in favor of sentiocentrism.

There are three broad classes of individuals, the members of which are typically considered to be candidates for moral considerability: organisms (biocentrism), sentients (sentiocentrism), and humans (anthropocentrism). Anthropocentrism is typically justified in terms of the moral considerability of rational beings (logocentrism) or persons (prosopocentrism).[24] Each of these denote classes which are not coextensive with the class of all humans, because some humans are not rational (or persons) and because it is possible that there are rational beings (or persons) which are nonhuman.

I take it that anthropocentrism as a view of moral considerability has been sufficiently discredited, at least to the satisfaction of most working in environmental and animal ethics, such that it does not merit further attention here. The operative question is how far we have to expand the scope of moral consideration, given the inadequacy of anthropocentrism: to the more expansive conception of biocentrism or the comparatively more restrictive view of sentiocentrism? These two views are similar in taking an individualist approach to environmental ethics as opposed to a holistic approach, and are centrally concerned with the issue of moral considerability. The two views differ on just which properties or capacities are necessary for moral considerability, and why.

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[24] The term "logocentrism" is following Alan Wood (1998). Unfortunately, I can't deflect credit to another party for the neologism "prosopocentrism", a person-centered morality, from the Greek "prosopon" (πρόσωπον).

Also, there is also the possibility that groups or collectives – qua groups, not as aggregates of individuals – are morally considerable. In environmental ethics, this usually takes the form of the moral considerability of species or ecosystems. Holmes Rolston III is a proponent of the former view (Rolston 1985, 718-726; 1989, 126-159), but is a value pluralist in that he also maintains the value of ecosystems and sentient life, amongst others. Aldo Leopold is the most prominent advocate of ecological holism (Leopold 1990, 237-263).

While I am suspicious of the moral considerability of wholes for empirical, metaphysical, and metaethical reasons, a full defense of these reasons is far beyond this work's scope. Briefly, the empirical problem is that the clearly defined and organized ecosystems supposed to exist in early ecology haven't quite panned out empirically, and "fictitious entities have no rights" (Graff 1994, 194). The renowned ecologist, Dan Simberloff, recently asked of this longstanding controversy in ecology "whether a plant community is anything other than the assemblage of populations co-occurring in a specific place at a specific time: that is, to what extent are communities integrated, discrete entities, and, if they are, what is the nature of the integration?" (2010, 221). The ontological and metaethical problem is that it is difficult to see why one would think that ecological wholes are morally considerable. They aren't the right *sort* of things.[25]

After clarifying some fundamental concepts, I will critique biocentrism, arguing that there are not good reasons to think that life is a sound criterion of moral considerability, and will argue in favor of sentiocentrism. The purpose of this chapter, then, is to support the sentiocentric project generally by showing why that there are good philosophical reasons to, as Goodpaster

[25] For empirical criticisms of ecological holism, see Donald Worster (1990) and Mark Sagoff (2011). For a general critique of the notion of group rights, see Cahen (2003), for a critique specific to environmental wholes, see Gary Varner (1998, Ch. 2). Species, however, are real entities, but the metaethical problem still applies.

puts it, "draw up the wagons around the notion of sentience" (Goodpaster 1978, 317). The aim is to make sentiocentrism attractive independently from its potential consistency with environmental ethics. Furthermore, given the arguments in favor of sentience as a criterion of moral considerability and problems with biocentrism, the case for a sentience-based environmental ethic is improved because there is a lack of compelling alternative accounts of moral considerability available which could serve as a basis for environmental ethics.

2.2 – Interests, Goods, Intrinsic Value, and Moral Standing

Before getting into the specifics of these views, it is important to cover some conceptual groundwork concerning the notions of intrinsic value, interests, and moral status to clarify their meaning and distinguish them from related concepts. Intrinsic value, inherent worth, moral status, moral standing, and moral considerability are widely used terms of central importance in ethics generally, and in environmental and animal ethics in particular. Careful thought needs to be exercised in elucidating and distinguishing these fundamental concepts.

Intrinsic Value and Moral Standing

Towards this end, John O'Neill distinguishes four senses of intrinsic value in "The Varieties of Intrinsic Value", perhaps the most important work on intrinsic value in the environmental ethics literature. These four senses will help frame discussion:

1. **Non-instrumental value**: value that is not a means to some other end.

2. **Moral standing**: the status of a being whose good must be considered in making moral choices.[26]
3. **Moorean intrinsic value**: value which depends solely on the intrinsic nature of the entity in question.
4. **Objective value**: value that an object possesses independently of the valuations of valuers. (O'Neill 2003, 164-165)[27]

Environmental ethics is rife with equivocations among these various senses of intrinsic value, particularly between senses one and four and between senses two and four. To avoid a similar problem here, I'll refer to these as noninstrumental value, moral status, intrinsic value, and objective value, respectively, except where otherwise noted.[28]

I take moral status as synonymous with "moral considerability", "moral standing", and "being a member of the moral community." G. J. Warnock first addresses the issue of moral considerability in the form of a question:

> Let us consider the question to whom principles of morality apply from, so to speak, the other end – from the standpoint not of the agent, but of the 'patient.' What, we may ask here, is the condition of moral relevance? What is the condition of having a claim to be *considered* by rational agents to whom moral principles apply? (Warnock 1971,148)

The concept of moral considerability plays an important conceptual role in ethical theory insofar as it specifies the entities under its domain in the sense of the entities which must be directly taken into account in moral decision making. Perhaps nowhere in ethics is the nature and scope of this concept more contested than in environmental ethics.

The notion of moral considerability is supposed to capture the bridge between *good*, in the sense of noninstrumental value, and *ought*, or moral obligation. Moral status picks out, in

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[26] Relationship between 1 & 2: if y is of value to x, and x has moral standing, then there is a *prima facie* ethical duty for ethical agents not to deprive x of y.
[27] Note that the second sense of intrinsic value, moral standing, is new to O'Neill's "Metaethics." In a similar earlier paper, "The Varieties of Intrinsic Value," he distinguished only the other three senses.
[28] See below (4.4) for further metaethical discussion specific to sentiocentrism.

truncated form, the entities whose good or interests we ought to promote for their own sake or whose rights we have an obligation not to violate. It is a claim about the relationship between axiology and normative ethics. The conception of moral status that I prefer makes this most perspicuous: *x* has moral status if and only if *x*'s good ought to be considered by moral agents for its own sake and not for the sake of other entities.

The latter part of the conception is important, it avoids the problem of extending moral status to an entity because doing so has effects on others, including oneself. As Mary Anne Warren puts it:

> If an entity has moral status, then we may not treat it just in any way we please; we are morally obliged to give weight in our deliberations to its needs, interests, or wellbeing. Furthermore, we are obliged to do this not merely because protecting it may benefit ourselves or other persons, but because its needs have moral importance in their own right (Warren 2000, 3).

An entity has moral standing if *its* interests matter from a moral point of view, not if its interests indirectly satisfy the interests of some other entity which matter from a moral point of view.

This conception of moral status has the virtue of not assuming that obligations are owed *to* any entity in particular. They may well be, and some define moral consideration explicitly in terms of being a "direct object" of obligation, i.e. obligations are *to* or *towards* someone (or something). For example, Mary Anne Warren defines moral status in this way: "to have moral status is to be an entity towards which moral agents have, or can have, moral obligations" (Warren 2000, 3). But we need not understand moral status in this way.

This is important because a person-regarding conception of moral status such as Warren's conception is not theory-neutral. For example, we don't have obligations *to* anyone, strictly speaking, in most versions of consequentialism. Instead, we are obligated to maximize, satisfice,

etc. utility, as a deontic principle. Some working in the Kantian tradition also make a similar allowance. For example, Alan Wood argues that Kant thought that duties must be *to* or *towards* rational beings, e.g. the Humanity as End in Itself formulation of the categorical imperative: "So act that you use humanity, whether in your own person or in the person of any other, always at the same time as an end, never merely as a means" (Kant, 1998 4:429). This idea is similar to Warren's view of moral status, and is what Alan Wood calls this "personification principle". Wood claims that Kant never gave an explicit account of it, and goes on to argue that we should reject the personification principle and respect rationality in general, including the "fragments" of rationality which animals possess, in order to account for the moral considerability of animals within the framework of Kantian ethics (Wood 1998).[29] The conception of moral considerability given above is compatible with such ethical theories.

Of course, the set of entities having moral value (i.e. objective or noninstrumental value) may be, and *surely* is, more extensive than the set of the entities which are morally considerable. Also, it should not be assumed that all morally considerable entities are *equally* morally considerable. Towards this end, Kenneth Goodpaster helpfully distinguishes moral considerability – *that* an entity is morally considerable – and moral significance – *how much* an entity matters in moral deliberations, or as Goodpaster puts it "comparative judgments of moral 'weight' in cases of conflict" (Goodpaster 1978, 311).

Interests and Goods

[29] As Wood notes, perhaps Kant thought that if I we are to respect rational nature as such, and not personified rational nature, then I am not really respecting *you* as a rational being. This idea also seems to be the driving intuition to Tom Regan's objection to utilitarianism, that it does not respect moral patients themselves.

But what counts as *X*'s good? Many environmental ethical theories are teleological in nature; the good or evaluative is taken to be prior to the right or deontic. This makes deciding the issue of whether or not a biological entity has "interests" or "a good of its own" a central question in the debate on interspecies value theory in environmental and animal ethics.

There appear to be two main approaches to interspecies value theory. These approaches could be called the subjective approach and the objective approach. The subjective approach seeks to build upon and extrapolate from the centuries of mainstream philosophical work done in value theory to environmental ethics, i.e. expand conceptions of what is good for humans to conceptions of what is good for nonhuman entities as well, or to attempt to argue that a proper account of the value of humans includes more than humans.[30] This approach can be seen in the work of Gary Varner and Nicholas Agar. The objective approach seeks to ground ethics in objective descriptions of the world, such as in terms of explanations of what is good for an organism, species, or ecosystem, in terms of optimal functioning, adaptive value, etc. Paul Taylor and Holmes Rolston III exemplify this approach.

Given the truth of the theory of evolution, it is unsurprising that there is much overlap between preferences or desires on the one hand, and the good of the organism or species on the other, because desires-satisfaction generally contributes to the organism or its species' survival and reproduction. Indeed, it evolved to do so. For example sweet, fatty foods taste good to us

[30] This approach is common in animal ethics, as we know that many animals possess relevantly similar mental capacities to what we regard as being morally significant about humans: sentience, possessing desires, or the ability to consciously plan. As discussed below, it's not clear how this approach can be plausibly extended to nonconscious organisms. This hasn't stopped some governments from considering extending rights to plants. The gap appears unbridgeable. Recognizing this, Wesley J. Smith comments in the satirical "Silent Scream of the Asparagus: Get Ready for 'Plant Rights'" that the "enshrining of 'plant dignity' is a symptom of a cultural disease that has infected Western civilization, causing us to lose the ability to think critically and distinguish serious from frivolous ethical concerns" (Smith 2008).

and are good for us in the small amounts in which they have been available to our species over the vast majority of our history. This is the case for similar "desires" of nonconscious organisms as well, for example, that moths fly towards light. Presumably, this has been of some benefit to them throughout their evolutionary history.[31] In the case of humans – our desire for fats and sweets has become objectively bad for us in our current environment containing a practically limitless supply cheap fatty, sweet food (obesity, diabetes, and heart disease), as is the "desire" of moths to fly towards light objectively bad when the light happens to be a light bulb or a bug-zapper (burns, blunt-force trauma, and death). The link between desires and the objective goods of organisms is just a general link; it does not hold in all cases.

Many prominent philosophers hold both that having interests is a necessary and sufficient condition for moral status, and that only sentient beings have interests. Joel Feinberg held that the concept of interest "presupposes at least rudimentary cognitive equipment. Interests are compounded somehow out of desires and aims – both of which presuppose something like beliefs or cognitive awareness…" (Feinberg 1974, 52-53). As Singer put it, "the capacity for suffering and enjoyment is a prerequisite for having interests at all, a condition that must be satisfied before we can speak of interests in a meaningful way" (Singer 1990, 7).

This attempt to wed moral status to a psychological conception of interests strikes me as wrongheaded insofar as it implausibly denies the existence of the interests of nonsentient beings,

[31] Just why these positively phototactic (light-seeking) creatures do so is unclear. It may be a flight mechanism to evade terrestrial predators, similar to how terrestrial insects such as cockroaches are negatively phototactic. Another theory is that moths fly by orienting themselves to moonlight.

understood as O'Neill's "objective value".[32] Some animal ethicists trot too quickly past this issue. Regan helpfully distinguishes two senses of interests which makes this point explicit:

1. Welfare Interests – what is in one's interests – what is good for an individual.
2. Preference Interests – what one has or takes an interest in – what one wants, desires, or is interested in. (Regan 1981).

This distinction carries with it several important implications. Sentience is a necessary and sufficient condition for having preference interests. Yet nonsentient organisms can fare well and fare poorly; they have welfare interests, or goods of their own. The fulfillment of a welfare interest is objectively valuable. However, non-sentient beings do not have preference interests because they do not have wants, desires, or take an interest in anything.

Historically, arguments for sentiocentrism by the likes of Feinberg and Singer occurred before the push to a biocentrist notion of moral considerability following the notion of welfare interests as distinguished by Regan. I wish to add to a "second wave" of animal ethical thought which grants that nonsentient organisms have interests yet denies that this confers moral standing. The fundamental question, then, is whether having interests in this first, broader sense is sufficient for moral status. I think that it is not, and will now turn to consider this issue at length.

[32] Perhaps even this grants too much, if we understand it to imply that descriptive accounts of interests entail normative accounts of such interests, i.e. that they matter from a moral point of view. As discussed below (2.3), Gary Varner seems to confuse this distinction in holding that "an interest is, by definition, morally significant" (Varner, 1998, 77n). For this reason, distinguishing interests from goods may be a useful terminological distinction if we take "interests" in the normatively laden sense, i.e. entities with interests are morally considerable entities, and we take "goods" in a normatively neutral and descriptive sense. However, I won't maintain this distinction here because many biocentrists speak of interests as synonymous with goods.

2.3 - BIOCENTRISM: LIFE AND MORAL CONSIDERABILITY

Biocentrism, also known as biocentric individualism, is the view that all living things are morally considerable. The morally relevant property which biocentrists identify as a basis for attributing moral considerability to all and only organisms is roughly the same, though each uses a different vocabulary to express the idea, including having interests, a *telos*, a good of its own, and biopreferences. Proponents of this view include Mahatma Ghandi, Albert Schweitzer, Kenneth Goodpaster, Robin Attfield, Paul Taylor, Gary Varner, and Nicholas Agar. I'll focus discussion on Taylor, Varner, and Agar, as each has produced a dedicated monograph in defending his own version of biocentrism. Also, because these works–Taylor's *Respect for Nature* (1986), Varner's *In Nature's Interests* (1998), and Agar's *Life's Intrinsic Value* (2003)–span three decades and because each subsequent author responds to the previous author(s) work, looking at all three will show the changes in biocentrist thought.[33]

Despite the sustained tradition of biocentrist thought in environmental ethics, I will argue that the view suffers two serious problems: the Origin Problem and the Normativity Problem.[34] The Origin Problem is that many biocentrists think origin is relevant an entity's moral standing, but there is no good reason to think it should be. I argue that the origin problem arises from the attempt to overcome the Artifact *Reductio* to biocentrism, which claims that the criterion for moral considerability in biocentrism has the implausible implication that artifacts are morally

[33] I hesitate to say "improvements" because I regard Paul Taylor's work as the best of the bunch despite the fact that it is the earliest of the trio.

[34] There are other problems discussed in the literature, but they tend to concern the practicalities of the view such as resolving conflicts of interest or the burdensome psychology of having to think about so many entities' goods, given how wide the scope of moral status is in biocentrism. The two problems I raise are more central because they critique the grounds of biocentrism, not its applicability.

considerable. In short, the Origin Problem is that biocentrism is committed to an implausible account of the good. As Nicholas Agar notes, "it is not difficult to present life in an appealing light. It is much more difficult, however, to come up with a philosophically rigorous defense of biocentric value" (Agar 2003, 64).

Providing a philosophically rigorous defense of biocentric value is not the only serious problem for biocentrism, however. Even if such a defense were provided, there is the further problem of providing a philosophically rigorous defense account of the relationship between this biocentric value and moral obligation. This Normativity Problem is all too common in defenses of biocentrism. As will be shown, biocentrists tend to conflate the good and the right or assume a straightforward relationship between them. I'll begin with brief overviews of the Artifact *Reductio*, Origin Problem, and Normativity Problem, and then explain the three biocentrists' views, and show how, despite their differences, each suffers from these same fundamental problems.

The Artifact Reductio, Origin Problem, and Normativity Problem

A cursory, (overly) simple argument for biocentrism is this:

1. All entities that have interests are morally considerable.
2. Biological organisms have interests.
3. Therefore, biological organisms are morally considerable.

One immediate worry with biocentrism is that just as we can speak intelligibly of water being in a plant's interests, so too can we speak of an oil change being in a car's interests. Yet we can't be obligated to cars, that's absurd. Thus, the simple argument for biocentrism suggests a further, more problematic argument, the Artifact *Reductio*:

1. All entities that have interests are morally considerable.
2. Artifacts have interests.
3. Therefore, artifacts are morally considerable.
4. That artifacts are morally considerable is absurd.
5. Therefore, it is not the case that all entities that have interests are morally considerable.

This sort of argument is generally taken as a *reductio ad absurdum* of the simple argument for biocentrism because the idea that we could be obligated to a car is absurd. It is important to note that the Artifact *Reductio* is just not an external critique of biocentrism. Biocentrists themselves regard the moral considerability of simple artifacts as absurd. Taylor, Varner, and Agar all take this objection into account.

Biocentrists' strategy to respond to the Artifact *Reductio* is to formulate accounts of interests so that they apply to organisms and not to artifacts, i.e. deny premise 2 of the Artifact *Reductio*. This is surely the case for tables and cars. The problem is that some artifacts do, or at least could, have interests. It is open to the biocentrist to accept that some artifacts – i.e. those with interests – are morally considerable. Both of these strategies, and their merits are discussed in detail below.

The Origin Problem surfaces in many biocentric attempts to overcome the Artifact *Reductio* when seeking to grant moral considerability to living things and not artifacts *on the basis of their different origins*. Dale Jamieson seems to have the Origin Problem in mind in the following thought experiment:

> Imagine two organisms, duplicates in all respects. They have exactly the same requirements for nutrition, hydration, sleep, and so on. One was constructed by natural selection, the other by Halliburton Biotech, Inc. While it might be reasonable to say that one is an artifact and the other is not, it seems weird to suppose that one has interests and the other does not. (Jamieson 2008, 146)

This thought experiment is supposed to show that it is arbitrary to say that one of these organisms has moral standing and the other does not, when the two organisms are identical in all respects save their origin. However, one might be resistant to the claim that the Halliburton copy is an artifact, perhaps because it is formally identical to the organism of natural origin.

Consider then the following thought experiment which overcomes this potential objection. Imagine that given likely future developments in robotics and artificial life, we create nonconscious robots – say, quasi-organic solar panels capable of autopoesis, growth, and reproduction – yet due to "mutations" in the copying of the code, these robots evolve such that their good is no longer due to us, but is nevertheless describable in objective terms. This addition is significant because such an artifact would have a good of its own, and most biocentrists wish to deny moral considerability to artifacts because their goods are not their own. Obviously, this strategy won't work for artifacts with goods of their own.

The Origin Problem has traction because Varner and Agar explicitly resort to origins in their defense of biocentrism. Taylor doesn't mention origins, but his discussion of artifacts is quite brief. Perhaps this is explained by the fact that discussion of the Artifact *Reductio* took off after Taylor's seminal early work. While appeals to origins seem like an *ad hoc* attempt to save biocentrism – an argumentative strategy introduced late to save the view from absurdity – the more serious problem is that this claim appears to be in conflict with a strong intuition to the contrary: one's origins are irrelevant to whether or not one is morally considerable. In short, it's not where you come from, but who you are that matters. Each ought to be judged on her own merits, not her history.

While biocentrists go to great lengths to show *that* organisms have interests, goods of their own, etc., they give no convincing reasons for *why* these goods produce obligations for moral agents to organisms. This is the Normativity Problem. John O'Neill puts the point well:

> [W]hile it is the case that natural entities have intrinsic value in the strongest sense of the term, i.e., in the sense of value that exists independently of human valuations, such value does not as such entail any obligations on the part of human beings. (O'Neill 2003, 131)

In other words, the Normativity Problem is that biocentrists do not establish the link between objective value and moral obligation, what John Nolt calls "the move from good to ought" (Nolt 2006, 355-–374).

Paul Taylor's Respect for Nature

Paul Taylor's *Respect for Nature* (1986) is a seminal early contribution to the biocentrists' canon and environmental ethics generally. It is still widely read in environmental ethics courses and beyond. Taylor's book was groundbreaking, but some of the key moves in his argument are opaque or undeveloped.

Respect for Nature's central notion is inherent worth. For Taylor, an entity has moral standing if it has inherent worth, and an entity has inherent worth if it has a good of its own. If something "is good for an entity or bad for it, without reference to any *other* entity, then the entity has a good of its own" (Taylor 1986, 61). Taylor explains with the example of a butterfly: "once we come to understand its life cycle and know the environmental conditions it needs to survive in a healthy state, we have no difficulty in speaking about what is beneficial to it and what might be harmful to it" (Taylor 1986, 66). A thriving, prosperous organism is one whose good has been fully realized, which means that it develops normally into a healthy adult,

successfully adapts to its surroundings, and maintains species-typical biological functions throughout its entire lifespan (Taylor 1986, 65). Taylor claims that separating subjective value concepts – human's preference interests – from objective value concepts – the good of a being – means that "there is no problem understanding what it means to benefit or harm a plant, to be concerned about its good, and to act benevolently toward it" (Taylor 1986, 67).[35]

Taylor certainly seems to be correct that there is no problem *understanding* what it means to benefit or harm a plant. But does the good of such an entity make a claim on moral agents? Taylor argues that:

> [I]f a moral agent is to recognize or acknowledge such a claim, the entity in question must not only be thought of as having a good of its own; it must also be regarded as having inherent worth. When so regarded, the entity is considered to be *worthy of respect* on the part of all moral agents. The attitude of respect is itself then seen to be the only suitable, appropriate, or fitting attitude to take toward the entity. (Taylor 1986, 72)

Here, Taylor's core argument moves from a being having a good of its own to that being having inherent worth, and from that being having inherent worth to that being having moral status. In other words, the foundational argument of Taylor's biocentrism, which we can call the Respect Argument, seems to be:

1. All beings with a good of their own have inherent worth.
2. We ought to respect all beings with inherent worth.
3. Therefore, we ought to respect all beings with a good of their own.

Taylor explicitly observes the logical difference between the good of an entity and inherent worth. The good of an entity is an "is-statement", whereas the claim that moral agents should or

[35] For terminological clarity if nothing else, it is noteworthy that Taylor accepts a psychological concept of interests (discussed above), restricting talk of interests to preference interests. Yet some entities have a good of their own in that they can be benefited or harmed – what Regan calls welfare interests – but do not have (preference) interests because they do not care about what happens to them (Taylor 1986, 63).

should not treat that entity in a certain way is an "ought-statement." The link between thee two is expressed in the first premise. According to Taylor, only entities with goods of their own have inherent worth. But what does "inherent worth" mean? Taylor begins by discussing what inherent worth is *not*. It is not the same as intrinsic value or inherent value. For Taylor, intrinsic value is the value a human being places on or finds in "an event or condition in their lives which they directly experience to be enjoyable in and of itself," and this experience is valued due to its enjoyableness (Taylor 1986, 73). By "inherent value", Taylor means value we place on an object for its beauty, historical importance, or cultural significance; this value is "relative to and dependent on someone's valuing it" (Taylor 1986, 73).

Common to Taylor's conceptions of intrinsic value and inherent value is that both are dependent on the valuations of human beings. Inherent *worth* differs from both in that it is value *not* dependent on human beings. According to Taylor, to say that an entity *X* has inherent worth is to say that:

> A state of affairs in which the good of *X* is realized is better than an otherwise similar state of affairs in which it is not realized (or not realized to the same degree), (a) independently of *X*'s being valued, either intrinsically or instrumentally, by some human valuer, and (b) independently of *X*'s being in fact useful in furthering the ends of conscious beings or in furthering the realization of some other being's good, human or nonhuman, conscious or nonconscious. (Taylor 1986, 77)[36]

[36] Taylor notes that his concept of inherent worth is identical to Regan's concept of inherent value. Note, however, that Taylor's concept of inherent value differs substantially from Regan's concept of inherent value. Also, note that Taylor's conception of inherent worth is very close to O'Neill's conception of objective value above (the fourth sense of intrinsic value): "value that an object possesses independently of the valuations of valuers" (O'Neill 2003, 132). However, there is one important difference. Taylor understands objectivity to mean independence from *human* valuers. O'Neill understanding of objective value is value independent of any valuers, human or otherwise. Thus a chimpanzee's enjoyment of play is not objective for O'Neill, but is for Taylor. Intuitively, O'Neill's conception is the better, as it makes sense of the fact that both chimpanzee and human and enjoyment are subjective.

In short, all organisms have inherent worth, a value independent of their value to human purposes and values.

The Normativity Problem in Taylor

It should now be clear enough for present purposes what Taylor means by inherent worth and its relationship to a being having a good of its own, and so too for the first premise of the Respect Argument. What about the crucial second premise, which holds that we ought to respect entities with inherent worth? Taylor claims that if an entity has inherent worth then two moral judgments about the entity are *entailed*:

> (1) That the entity is deserving of moral concern and consideration, or in other words, that it is to be regarded as a moral subject, and
> (2) That all moral agents have a prima facie duty to promote or preserve the entity's good as an end in itself and for the sake of the entity whose good it is. (Taylor 1986, 75)

Here, the Normativity Problem rears its head. It seems that we can recognize that a state of affairs in which *X*'s good is realized is better than when *X*'s good is not realized, but this certainly does not of itself *entail* that (1) *X* is a moral subject or that (2) we have obligations to *X*.

There are at least two ways of interpreting Taylor here. The first is to consider the entailments as a matter of definition of "inherent worth," which is supported by the passage quoted above where regarding an entity as having inherent worth simply means that "the entity is considered to be *worthy of respect* on the part of all moral agents." Taylor seems to be saying that the moral considerability of a being with inherent worth is something that we should "just see" once we take on the "biocentric outlook on nature, which has four components:

1. The belief that humans are members of the Earth's Community of Life in the same sense and on the same terms in which other living things are members of that Community.
2. The belief that the human species, along with all other species, are integral elements in a system of interdependence such that the survival of each living thing, as well as its chances of faring well or poorly, is determined not only by the physical conditions of its environment but also by its relations to other living things.
3. The belief that all organisms are teleological centers of life in the sense that each is a unique individual pursuing its own good in its own way.
4. The belief that humans are not inherently superior to other living things. (Taylor 1986, 99-156)

In other words, the justification for the moral status of all organisms is a kind of *performative justification* – "the proof of the pudding is in the eating" – in the sense that, if we take on the biocentric outlook, then it is something we should *just see* as being true or fitting.

A second way of interpreting Taylor's entailment claim is that it is not solely a matter of the definition of "inherent worth." Rather, there seems to be a fairly substantial ought-premise which is never articulated or defended, but which is needed for the Respect Argument to work: we ought to realize, e.g. protect and promote, the good. That, together with the definition of inherent worth, is what needs to be built into the Respect Argument in order for it to be valid. What reason might be given to support this premise? Again, it would seem to be that it is something that one just sees once one adopts the biocentric outlook.

So, it all boils down to the biocentric outlook. What reasons does Taylor give for adopting it? Taylor argues that the biocentric outlook satisfies well-established criteria for the acceptability of a philosophical world view, because it is (a) comprehensive and complete, (b) systematically ordered, coherent, and internally consistent, (c) free from obscurity, conceptual confusion, and semantic vacuity, and (d) consistent with all known empirical truths (Taylor 1986, 158-159). Taylor also notes that the ideal conditions in which one should adopt a world

view such as the biocentric outlook include: (a) rationality of thought and judgment, (b) factual enlightenment, and (c) developed capacity for reality awareness. Nevertheless, Taylor notes that:

> It must be emphasized here that the biocentric outlook has not been *proven*. It cannot be… Since world views are neither formal deductive systems nor explanatory scientific theories, neither pure logic nor the procedures of empirical confirmation are appropriate methods (Taylor 1986, 167).

Taylor seems to be correct that selecting a worldview involves more than pure logic or empirical confirmation. In particular, I would think it should also appeal to plausible moral claims insofar as world views are partly normative. At any rate, Taylor never gives an argument that we ought to take up the biocentric outlook, just that it is "rational" (permissible?) to do so.

Taylor and the Origin Problem

Unlike Varner and Agar, Taylor appears to avoid the Origin Problem. Taylor attempts to cut off the Artifact *Reductio* early along the road by claiming that while organisms' have goods of their own, the goods of artifacts are not their own goods. Recall that Taylor says "if we can say, truly or falsely, that something is good for an entity or bad for it, without reference to any *other* entity, then the entity has a good of its own" (Taylor 1986, 61). According to Taylor, a pile of sand and a machine do not have goods of their own. Speaking of the latter, Taylor says "if we say that keeping a machine well-oiled is good for it we must refer to the purpose for

which the machine is used in order to support our claim" (Taylor 1986, 61). The good of artifacts depends on their relation to their maker or user.[37]

Taylor's consideration of the Artifact *Reductio* is quite short. He never considers the possibility that artifacts could have goods of their own. But surely they can. For example, supposing that God created organisms, one *might* think that they could not have goods of their own, that their goods are really just the good of their creator. However, it is more plausible to say that the supposition that God created living things is consistent with them having goods of their own. But this is also plausible in our case. We could create synthetic entities with goods of their own.

While Taylor never considered such a possibility, he could simply accept that *any* entity with a good of its own has inherent worth, and hence moral status.[38] Returning to Jamieson's Halliburton case discussed above (2.3), Taylor could accept that both have goods of their own; the original organism and the Halliburton copy are identical, and we can say truly or falsely what the good of each is, and can do so independently of reference to any other entity. *Exactly* the same things are good for both organisms in *exactly* the same way, and the goods of both the original and artifact are no more or any less relative to our ends. So, while Taylor's view clearly

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[37] As an aside, Taylor's view can account for what some regard as the morally relevant distinction between biological organisms and Genetically Modified Organisms (GMOs). This is because the genetic modifications typically made to organisms – for example frost and herbicide resistance – are put in place to further our ends, or at least are intended to do so, not the organism's own good. It is this redirecting of an organisms' purpose away from itself and towards us that may explain what some people find wrong with GMOs.

[38] Since Taylor never considered this possibility, we don't know what he would think about this problem for biocentrism. Perhaps this was due to the state of technology at the time, because he wrote *Respect for Nature* in the early 1980's. However, with the current and foreseeable state of computer technology, genetic engineering, synthetic biology, and the like, this is no longer an issue which biocentrists can ignore. There is nothing in Taylor's view which *precludes* granting moral considerability to artifacts with goods of their own. But whether or not Taylor would accept this implication of his view or seek to revise it accordingly remains to be seen.

succumbs to the Normativity Problem, he avoids the Origin Problem. However, the way he avoids the Origin Problem may nonetheless be problematic and is discussed below (2.6).

Gary Varner's Biocentric Individualism

Gary Varner's *In Nature's Interests?: Interests, Animal Rights, and Environmental Ethics* is a defense of biocentrism which differs in numerous respects from Taylor's biocentrism, yet which seeks to maintain the core notion that all organisms are morally considerable. Like Taylor, Varner seeks to also avoid the Artifact *Reductio* – although he does note that sufficiently complex artifacts would have interests if they met his criteria for having desires, such as would be the case were there sentient robots – by developing a conception of interests that augments the traditional Mental State Theory of Individual Welfare. Nonetheless, Varner's biocentrism suffers from the Origin and Normativity Problems. Enough exposition of Varner's view will be given so that how these two problems apply to Varner's view can be seen.

Varner thinks that the traditional Mental State Theory of Welfare (MSTW), the view that all interests are explicable in terms of desires, is fundamentally flawed because it cannot account for clear cases in which something is clearly in an individual's welfare despite the fact that they do not desire it. One such case is the case of Maude, a very smart young woman who is (i) aware of all of the evidence supporting the health risks of smoking and (ii) impartial across all phases of her life in the sense that she doesn't favor her present desire satisfaction over future satisfaction. Nonetheless, Maude is a cigarette smoker and desires to be one. Varner says that no sense can be made of the claim that "Maude's smoking is bad for her" on the MTSW:

> [B]y hypothesis, Maude is both adequately informed and impartial across all phases of her life. Therefore her actual preference is her enlightened preference, and therefore, on

> the [MTSW], Maude's smoking is in no way bad for her. (Varner 1998, 58)

Yet there is clearly a sense in which Maude's smoking *is* bad for her. "It is bad for her lungs, and we presume that she has an interest in the proper functioning of all her organs even if some other interest… overrides that interest". This means that MTSW is false, according to Varner. He concludes:

> The mental state theory seems to be flawed in a fundamental way, because its major principle of identifying all interests with desires (actual or ideal) leaves out a familiar but fundamentally biological sense of what one's interests are. (Varner 1998, 58)

In response, Varner's strategy is to develop an account of interests which augments the MTSW in a way which can account for the problem cases rather than reject it outright. He calls this account the Psycho-Biological Theory of Welfare (PBTW) in that it adds a biological notion of interests to MTSW.

It is also important to note that Varner specifically formulates his view with the intention to overcome the Artifact *Reductio*. That is, he is careful to formulate his conception of interests in a way that does not attribute interests to artifacts. Artifacts and organisms both have needs, such as a car needing oil, so a conception of interests which accommodates nonconscious organisms must do so in a way that does not grant interests to all entities with needs, because all parties are in agreement that can-openers and thermometers cannot be morally considerable. Accordingly, Varner develops his PBTW to support the following two claims:

1. **Varner's Empirical Claim:** Plants have needs in some sense in which artifacts do not.
2. **Varner's Normative Claim:** This difference between plants and artifacts qualifies plants, but not artifacts, for direct moral consideration.

PBTW states that *X* is in an individual A's interests if and only if:

[The Mental State Criteria of Welfare]

1. *A* actually desires *X*,
2. *A* would desire *X* if *A* were sufficiently informed and impartial across phases of *A*'s life[39], or

[The Biological Criterion of Welfare]

3. *X* would fulfill some biological function of some organ or subsystem [*S*] of *A*, where *X* is a biological function of *S* in *A* if and only if:
    a. *X* is a consequence of *A*'s having *S* and
    b. *A* has *S* because achieving *X* was adaptive for *A*'s ancestors. (Varner 1998, 68)

What is significant is that clause 3, the clause which augments the Mental State Criteria with the Biological Criterion, attributes interests to nonconscious organisms.

Most philosophical criticism of Varner's book has centered on this aspect of his argument, contending that MSTW *can* account for Varner's problem cases.[40] The main point of his criticism is that externalist accounts of individual well-being satisfactorily account for the interests in Varner's three problem cases in a way that is consistent with MSTW. If this is so, then the PBTW never gets off the ground. In other words, if the Mental State Theory of Welfare actually can account for the cases such as the case of Maude as discussed above, then it is not the case that the biological notion of interests, Clause 3, is needed to account for these interests; Varner's motivation for adding to MTSW would be undercut.

Furthermore, Varner has later admitted that he now thinks that "the core argument of chapter three of *In Nature's Interests?* is utterly and fatally flawed" (Varner 2003, 416). This core argument moves from the incompleteness of the MTSW in accounting for problem cases, to

[39] Note that the two clauses of the MSTW can point in opposite directions. In fact, each clause represents what is often taken to be a different view, namely desire-satisfaction theories and informed-desire satisfaction theories of well-being, respectively. Clause 2 makes good sense of the idea that smoking is bad for Maude. The problem is that something seems to have gone wrong with Maude's reasoning; despite her desire to smoke, if she really were fully informed and impartial, she would not desire to smoke. Perhaps we simply cannot accept Varner's stipulation that Maude's actual preferences are her considered preferences.
[40] For example, see Carter (2000) and Agar (2001).

the PBTW to account for such cases, to the idea that clause 3 entails the moral considerability of plants and other nonsentient organisms. However, Varner now accepts that he did not fully appreciate the ability of the MTSW to account for such cases at the time, so I won't dwell on the issue further.

The Origin Problem in Varner

The problem, as I see it, is not that MTSW cannot give an account of all of the goods that there are, it is that the PBTW suffers from the Origin Problem. Note that Clause 3 is part of Varner's strategy to overcome the Artifact *Reductio*. It is his attempt to develop a conception of interests that applies to all organisms, but not to artifacts. However, in so doing, it falls prey to the Origin Problem.

To see this, one may consider either the case of an extant organism with a novel, beneficial mutation, such as a novel organ or subsystem *S* in an organism *A*. In such a case, there are no ancestors for which the fulfillment of *S* by *X* was adaptive. According to Varner's Biological Criterion of Welfare, it is not the case that *X* fulfilling *S* is in *A*'s interests. However, in the case of *A*'s offspring A_1, which has inherited the same novel feature *S* from *A*, the fulfillment of *S* by *X* is in A_1's interests because it was adaptive for A_1's ancestor *A*. However, it is a wildly implausible consequence of Varner's Biological Criterion of Welfare that fulfilling the self-same feature can be in the offspring's interests, yet not be in the interest of the ancestor for which the feature was adaptive in the first place! Whatever interests are, what's in one's interests is so because it is in *one*'s interests, which do not depend on what was in the interests of one's ancestors. Surely, it is easier for us *to recognize* what is in the interests of the members of

a species by systematically studying that species through time, but not that interests are arise from ancestor-descendent relations. Varner has confused the discovery of interests, an epistemic matter, with what interests are, which is a metaphysical issue.

The Normativity Problem in Varner

The Normativity Problem is perhaps a more serious problem than the flaw in his argument that PBTW is needed because MTSW is incomplete or the Origin Problem. I don't believe that any paper in the literature that has brought this problem as it occurs in Varner to light. It is clear that, on this theory, nonsentient organisms have interests, but having interests does not entail that these organisms are morally considerable. Varner needs to bridge the good-ought gap. Varner's Normative Claim is not entailed by PBTW or Varner's Empirical Claim; an argument is needed.

Varner intends to address just this issue in the appropriately titled section, "Supporting the Normative Claim."[41] Varner makes two attempts to support his normative claim. The first, which I call the No Reason Not to Argument, is the argument he explicitly endorses at the end of the "Supporting the Normative Claim" section. The second, which I call the Interests Argument, occurs at the beginning of his next chapter. However, both fail to support his Normative Claim

[41] He begins with a consideration and rejection of Robin Attfield's version of the Last Man Argument, an argument which originates with Richard Sylvan and is supposed to prove that nonsentient organisms deserve direct moral consideration (Attfield 1981, 39-40). Varner's reason for rejecting this argument is because the intuition that the last man on earth should not cut down the last elm of its species appeals more to the rarity of the tree than the moral considerability of the tree. This is to say that the intuitions driving the conclusion of the last man argument can be explained by reasons other than the moral considerability of the tree. This all seems right to me.

that the "difference between plants and artifacts qualifies plants, but not artifacts, for direct moral consideration". The No Reason Not to Argument occurs in the following passage:

> The examples involving a cat's desire to go outside and the mariners' need for ascorbic acid lead us, in light of the account offered in the preceding section, to the conclusion that the fulfillment of the biological functions of the organs and subsystems of our bodies is in our interests, not just irrespective of our actually taking a conscious interest in their fulfillment, but even irrespective of our being capable of consciously taking an interest in their fulfillment. But if the fulfillment of the biological functions of our subsystems is in our interest irrespective of our even being capable of consciously taking an interest in their fulfillment, would not the fulfillment of those functions in plants be in their interest even though they are incapable of taking an interest in them? That is the best available argument for the expensive conception of moral standing represented in biocentric individualism. (Varner 1998, 73-74)[42]

The suggested argument, taken mostly from this passage, but also informed by other relevant parts of Varner's work, seems to be as follows:

1. Humans are morally considerable.
2. An adequate account of the moral considerability of humans includes biological interests in addition to psychological interests.[43]
3. Nonsentient organisms such as plants have biological interests.
4. Therefore, nonsentient organisms are morally considerable.

The core idea here seems to be a kind of consistency argument: There is no reason not to extend moral considerability to nonsentient organisms because we are morally considerable and because nonsentient organisms have welfare interests just as we do. Clause 3 is explanatory of interests in the paradigm cases of morally considerable beings such as human beings; it explains why these biological interests matter from the moral point of view whether or not the person desires

[42] Frankly, if this is the best available argument for a biocentrist notion of moral considerability, then it should be much clearer than this. A key premise is a rhetorical question, and the most significant premise is implicit.
[43] Note that these are welfare interests and preference interests, respectively, in Regan's terminology. Recall also that Varner would now regard this premise as false, because he regards the core argument of the chapter which is supposed to justify it as unsound.

them. But this is under the assumption that normal adult humans have interests that matter from the moral point of view.

The first premise of this argument is something that Varner takes for granted, which I take no issue with here. The second premise is based on Varner's claim that MTSW is incomplete and requires the PBTW to account for some of our interests. The third premise follows from the PBTW. Nonetheless, the conclusion doesn't follow.

The No Reason Not To Argument is a non-sequitur. Consider the following counterexample: while it is the case that humans are morally considerable, and while it may be that an adequate account of the moral considerability of humans includes both biological and psychological interests, and that nonsentient organisms have biological interests, it does not follow that nonsentient organisms are morally considerable because the moral considerability of humans results from some combination of biological and psychological interests, not from biological interests alone. Also, consider the following invalid argument, identical in form:

1. Hershey milk chocolate bars are delicious.
2. An adequate account of the deliciousness of Hershey milk chocolate bars must include the flavor of cacao in addition to their sugary sweetness.
3. Dark chocolate bars contain cacao.
4. Therefore, dark chocolate bars are delicious.

The conclusion does not follow. Dark chocolate bars are disgusting because they are too bitter; sugar is needed to make them delicious.[44]

[44] As an aside, this logical mistake is structurally identical to mistakes in the Kantian tradition which aim to extend moral considerability to animals because they have some of the infrastructure of rationality, such as preference autonomy. This argument, which seems fallacious, is made by Alan Wood (1998), amongst others. As Jon Garthoff notes, this argument is parallel to the following argument: "if we value the interstate system in the United States because it enables efficient travel, then we are committed to valuing bridges, since they are an essential constituent of the interstate system by virtue of which it enhances efficiency." Garthoff objects that "this does not commit us to

continued

To make the standardized argument above valid, the premise "welfare interests are sufficient for moral considerability" or "all beings with biological interests are morally considerable" needs to be added. However, this makes the argument circular because what the argument needs to show is *why* having biological interests makes a being morally considerable.

Assuming that PBTW were satisfactory, Criterion 3 is *explanatory* of interests in the paradigm cases of morally considerable beings such as human beings; it explains why these biological interests matter from the moral point of view, whether or not the person desires them. But this is under the assumption that normal adult humans have interests that matter from the moral point of view. Varner is supposed to show how this *justifies* that nonsentient organisms have interests that deserve moral consideration. It is clear – at least in principle; we must learn about *S*'s adaptive role in *A*'s ancestry – what constitutes fulfilling an organism's biological function(s), but no reason has been given as to why we ought to, even *prima facie*, consider the organism's interests. Allowing a culture of *Giardia lamblia* to enter my digestive tract will fulfill the organisms' interests, but it by no means follows that I ought, *prima facie* or otherwise, to allow their interest to be satisfied.

Varner is somewhat clearer in the opening passage of chapter 4 where he gives what I'll call the Interests Argument:

> The satisfaction of interests constitutes a fundamental moral value, because to say that a being has interests is to say that it has a welfare, or good of its own, that matters from the moral point of view. So if an action would satisfy an interest, that is a prima facie reason for performing it. On the other hand, the dissatisfaction of interests constitutes a

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valuing bridges wherever they may be found; in particular, bridges not reachable by road from the interstate need not be valued, as they may not enhance efficiency" (Garthoff 2011, 5). The fallacy of division is the same in both cases: just as we can't base the moral considerability of animals on their having "parts" of rationality, we can't base the moral considerability of nonconscious organisms on having "parts" of the welfare of sentients.

> fundamental moral disvalue. So if what I do sets back the interests of some other being, that is a prima facie reason for not doing it. (Varner 1998, 77)

In this passage, the argument seems to be:

1. To say that a being has interests is to say that it has a welfare, or a good of its own, that matters from the moral point of view.
2. Therefore, the satisfaction of interests constitutes a fundamental moral value.
3. Therefore, if an action would satisfy an interest, that is a prima facie reason for performing it.

Here Varner's reasoning is no better than Taylor's; both assume strong linkages between having interests or having a good of one's own and moral considerability. The core issue is more perspicuous here in the Interests Argument than in the No Reason Not to Argument, which allows just what is problematic about both to be more easily seen. To say that an organism's interests "matter from a moral point of view" or that "satisfying interests constitutes a fundamental moral value" begs exactly the question at issue. What needs to be established is the connection between the fact that a being has a good of its own, and that those goods matter from the moral point of view, i.e. that those goods must be promoted, and this is precisely what has not been established.

Tellingly, in a footnote just after the Interests Argument, Varner says "as I am using the term in this book, *an interest is, by definition, morally significant*" (Varner, 1998, 77n, e.a.). Does Varner think that "all interests are morally significant" is analytically true? This is not the case, and no reason is given for why we might think it so.

What's more, Varner criticizes Agar's biocentrism, discussed below, on precisely these grounds in a more recent book review (Varner 2003, 415). Varner begins by noting that "Agar clearly thinks that we *ought* to ascribe intrinsic value to non-conscious organisms, but all he

gives us is an explanation of why we *in fact tend to.*" Varner's criticism is that "without the argument to normativity, anyone is free to opt out of the biocentric individualist stance." This is correct, but Varner's criticism applies to his own version of biocentrism as well. Also, I'm suspicious of Varner and Agar's empirical claim that we tend to attribute intrinsic value[45] to nonconscious organisms. The issue is not opting *out* of the biocentric individualist stance; this has it backwards. The issue is why anyone would opt *in* to the biocentric individualist stance, absent a convincing normative argument.

Nicholas Agar's Life's Intrinsic Value

With forays into the philosophical method, philosophy of language, metaphysics, philosophy of mind, philosophy of biology, moral psychology, axiology, normative theory, and environmental ethics, not to mention the connections between these fields, Nicholas Agar's *Life's Intrinsic Value: Science, Ethics, and Nature* is an audaciously ambitious work. It shows how environmental ethics can be rooted in and be more conversant with the more traditional concerns of analytic philosophy, and also represents the cutting edge of biocentrist philosophic thought. Nonetheless, Agar's view suffers the same core problems – the Origin Problem, and the Normativity Problem – as do the other iterations of biocentrism considered above, and has problems all its own.

Agar begins by criticizing the classical view of semantic meaning, which he claims is founded on armchair conceptual analysis, which holds that "a definition is a set of necessary and

[45] Here, Varner clearly means intrinsic value in the sense of moral considerability because he is drawing attention not to the fact that there things are objectively valuable for nonconscious organisms, but that we ought to regard them in a certain way.

sufficient conditions for the correct application of a concept." This is pertinent to his interest in discussing intrinsic value. He thinks that philosophy needs to abandon the classical approach, and instead focus on constructing definitions that aim to pick out natural kinds, where "the defining task is continuous and interspersed with empirical investigation" (Agar 2001, 11). Agar begins with the definition that "something is intrinsically valuable if it is valuable in itself, or regardless of its benefit to any other being" (Agar 2001, 14), as a provisional theoretical definition of intrinsic value.

Agar then argues that our ordinary-language thinking about intrinsic value is deeply connected with and biased by concepts from folk psychology. By "folk psychology," Agar means our tacitly assumed everyday talk of mental states, which he divides into two categories: *intentional states*, which concern meaning or content such as beliefs and desires, and *qualitative states* which are distinguished by their 'feel' such as red afterimages and pain. Agar thinks that we tend to use these intentional and qualitative states to distinguish the "morally worthy from the morally worthless."

Two classes of views about intrinsic value track these two kinds of mental states. *Rationalistic views* place moral worth on intentional states, which include our plans and projects, and guide us in achieving our goods. *Hedonistic views* focus on the capacity to experience pleasure and pain. In practice, we often employ both of these views (Agar 2001, 16). Together, they are what Agar calls the *psychological view of intrinsic value*, which holds that "for something to be valuable in itself, regardless of its benefit to any other being, it must possess some set of folk psychological states" (Agar 2001, 7). Putting this all together, our ordinary moral language discussions about intrinsic value implicitly rely on concepts from folk

psychology, and these concepts extend only to beings which have some combination of intentional and qualitative mental states, roughly, to all beings which are sentient.

Agar's biocentrist strategy is to expose the bias in folk psychology, revealing how the underpinnings of these concepts apply to all organisms:

> My diagnosis of morality's human bias points to a strong connection between moral and psychological language. We think that having moral standing has a great deal to do with having some manner of mind. I won't challenge this connection. Rather, I will show how the abandonment of the meaning classicist's interpretation of conceptual analysis allows us to considerably extend morality's reach. (Agar 2001, 11)

How, exactly, is the linkage worked out? He thinks that we can start from the psychological view, and bridge "the gap between familiar value concepts and nature" with science (Agar, 2001, 20). Agar argues further that:

> Given that commonsense views about how the world ought to be have co-evolved with commonsense ideas about what the world is, it should not be surprising that a significant alteration of the received descriptive views will have implications for moral theory. Successful challenges to folk metaphysics can reshape morality in such a way as to establish the theoretical backdrop for the specific claims about individual and holistic value offered in the remainder of this book. (Agar 2001, 41)

In other words, Agar's goal is to descriptively work out the natural kinds to which folk psychological concepts refer. To do so is to provide a "plausible naturalization" of the two morally relevant folk psychological natural kind terms: "intelligence" and "representation". Once we give appropriate consideration to the linkage between these natural kinds and their "value-endowing descriptive terms" we "will expand the category of the intrinsically valuable sufficiently to take in environmental objects" (Agar 2001, 42).

Agar considers several views of the relationship between ordinary theoretical definitions and natural kind terms. One view is that there is a one to one relationship, i.e. a theoretical definition picks out a single natural kind. Agar holds that this view of the relationship between

theoretical definitions and natural kinds needs to be weakened in two ways for moral terms such as intrinsic value. First, the definition can be provisional and adequate; it needn't be a final definition; "We must start with something, and… [we] may have only common sense or superstition to guide any initial attempts at understanding." Second, the normative component of a theoretical definition doesn't describe a moral natural kind. Rather progress in the descriptive element of definitions of moral terms "can 'drag' views about the normative component along with it (Agar 2001, 12-13).

He considers three possible outcomes of the attempt to naturalize folk psychological kinds. One possible result is that scientific investigations reveal that folk psychology does not isolate any natural kind or regularity in nature. Consider, for example, the folk psychological kind "telepathy." Empirical investigations seem to have already revealed that this psychological power does not pick out any object. The second possibility is that we find a close match between the folk metaphysics and natural kinds via investigation. If so, then folk psychology is legitimized by empirical investigation; i.e. there are objects which directly correspond to concepts from folk psychology. For example, consider the mental state concept from folk psychology "pain." If the word pain happens to match a specific neurological regularity such as nociceptors firing in conjunction with activity in certain regions of the brain, then we have identified the empirical correlate of the mental state called "pain." The third possibility is that "there is more than one kind that we can illuminate by using the folk package as the foundation" (2001, p. 61). Agar considers a moral implication for each of these three possibilities:

1. If folk psychological states are to be eliminated, we would then need to undertake the rough task of finding a new boundary between the morally considerable and the morally inconsiderable.

2. If we can find unique perfect deservers of folk psychological concepts, value would presumably carry over in an unproblematic and nondiscounted fashion.
3. If there is more than one deserver of the folk package, then each of these distinct kinds is a candidate for value and we should carry over value in proportion to the closeness of the kind to the folk package. (Agar 2001, 61-62)

Agar quickly rejects the second view because he thinks it unlikely that empirical investigations will reveal such unique perfect deservers (Agar 2001, p. 61). However, it seems to me that this is a mistake. While complex, the neurological underpinnings of sentience and intentionality are already understood in broad outline, particularly for mammals, and analogous structures capable of producing similar states have been identified in other vertebrates (such as the analogous structures of the neocortex in mammals and the hyperstriatum in birds) and perhaps some invertebrates. Indeed, Agar says as much elsewhere in his discussion of extending moral considerability to sentient animals:

> In all likelihood, some pattern of objective psychological sameness will be close enough to the folk pattern for intentional notions to be usefully retained through a rather more gradual, scientifically guided revision of the surrounding theory. The psychological view about intrinsic value requires that the boundaries of the moral community track this revision. (Agar 2001, 26)

Here, Agar seems to be saying that the second strategy *will* work in naturalizing folk psychology, and that it requires only that we extend moral considerability to other sentient animals, not that we abandon the psychological view. If this is the case, Agar has given no reason why we need to move beyond this second strategy to his preferred third way of naturalizing folk psychology, which he uses as his grounding for biocentrism, other than that this second strategy restricts value to psychological creatures.

These points notwithstanding, Agar takes the third tack as the "most likely" naturalization and proposes that:

> [T]he moral significance that traditional morality attaches to the commonsense notions be distributed among descendent plausible naturalizations. The closer the notion picking out a plausible naturalization to the ordinary-language concept, the greater the degree of moral weight that will be inherited from the ancestor notion. Thought experiments whose goal is to measure conceptual distance should allow us to distribute the moral value attaching to the scientifically dubious but morally clear-cut ancestor notion among its natural-kind-respecting descendents. (Agar 2001, 56)

In practice, what this means is that we begin with a scientific description of environmental objects, which we scour for "clues" about the natural kinds that overlap descriptively with folk psychological kinds. If we succeed, "we show these environmental objects to be intrinsically valuable" (Agar 2001, 58). Agar's own example of this is that we may find that certain systems are plausible naturalizations of *intelligence* without finding in this system a naturalization of phenomenal states. In other words, it could be the case that some nonconscious organisms behave intelligently.

Agar moves to defend *representation* as the most plausible naturalization of the folk psychological concept "life." According to Agar's representational account of life, "something is alive. . . if it has a state whose biofunction is to produce specific changes to, or movements of, it in response to particular states of the environment" (Agar 2001, 92). By "representation" Agar means "a structure linking the sensor of the ecologically salient environmental property to the movement producer" (Agar 2001, 91). Rocks and rivers don't represent, and so aren't alive. Plants, bacteria, and even viruses do, and so are alive. He coins the term "biopreferences" to refer to "the goals that biofunctional representers possess directed towards the environment." It seems that, insofar as all organisms have representations and goals, the two value-laden elements in folk psychology, these notions are supposed to "drag" value to all living things.

The Normativity Problem in Agar

The core problem of Agar's theory is that while he is generally careful in his forays into philosophy of biology, semantic theory, etc., unfortunately this care is not practiced when he works in the moral domain, both conceptually and argumentatively. On the conceptual front, Agar uses terms such as "intrinsic value", "moral considerability", "moral worth" and others more or less interchangeably and often unreflectively. The lengthy detour through folk psychology and its naturalization serves only to make these slides between the axiological to the normative more difficult to spot. One is left wondering what, for Agar, value *is*, such that even a bacteriophage can have little "bits" of it, and why this is something that we should care about as moral agents.

The key problem is move from good to ought. Agar's discussion passes back and forth between the axiological and the moral – biopreferences and moral considerability – as if there were no difference between the two. Consider this example: Agar says that the theoretical definition of intrinsic value has a normative dimension which "establishes appropriate connections to overtly moral notions such as 'warranting respect' and 'worthy of protection' " (Agar 2001, 13). Some things are good for organisms – that which fulfills their biopreferences – but why is it the case that these are "moral" goods, i.e. goods that obligate us to act? The problem is that no reason is given as to why the goods of organisms should support a moral distinction between the living and nonliving, where by this we understand that living things merit privileged treatment by moral agents and nonliving things do not. As do Taylor and Varner, Agar assumes that the presence of intrinsic value in biological organisms entails that we ought to respect them.

It is worth noting here that Agar largely agrees with criticisms of Taylor and Varner such as the ones I've given above. He says that while it is easy to present life in an appealing light, it is "much more difficult, however, to come up with a philosophically rigorous defense of biocentric value" (Agar 2001, 64). He contends that biocentrists have not yet given nonsentient life the "moral oomph" to get moral theorists past the psychological view. What he means by this is that many prior biocentrist accounts, such as those given by Holmes Rolston III and Paul Taylor appeal to autopoesis and other objective features of creatures, but this doesn't inspire us to be concerned for these organisms' goods. Rather, since philosophers generally hold the psychological view of intrinsic value, biocentrists should start with this view and show why philosophers should, by extension, embrace the presence of intrinsic value in nonsentients:

> I propose to make good on biocentrism's motivational deficiencies by avoiding a starting point conceptually alien to the psychological view. The representational account of life I favor is composed of plausible naturalizations of value-laden folk psychological notions. In this way the values of the nonsentient alive become visible to the partisan of the psychological view. (Agar 2001, 88)

In other words, Agar argues from the psychological view to biocentrism in his attempt to bridge the good-ought gap. Here, Agar's view is similar to Varner's, who argues from the psychological theory of welfare to the psycho-biological theory of welfare.

What is Agar's argument to get moral theorists past the psychological view? If what we value are psychological states, why should we "transfer" value to any plausible naturalization of that state, even dissimilar states? Agar argues that:

> The fact that biofunctional content is not identical with folk psychological content will not be an obstacle to its moral importance. A state can be a plausible naturalization of a folk psychological state without being identical to that folk psychological state. If life-constitutive content is as explanatorily useful as I have suggested, we could consider it a plausible naturalization of familiar folk psychological content. All the representationally alive are, therefore, candidates for some value attaching to the ordinary-language notion.

> I propose an identification of an organism's moral good with its content-characterized biopreferences. …This account supports a moral distinction between the living and nonliving. (Agar 2001, 94)

It seems that Agar's claim is that because we value psychological states, we should value the correct naturalizations of these states. There are three possible naturalizations, and the third is the most plausible naturalization. However, as I argued above, the second naturalization is the more plausible.

Also, there is a curious twist in Agar's argument here. Recall that his view is supposed to track the two elements of the psychological view – rationalistic intelligence and hedonistic sentience – show how there are analogs to these states in all organisms, and that we should value such analogs. However, when he turns to explicitly consider how we should assign value to the plausible naturalizations of ordinary-language moral reasoning, he instead says that:

> Intelligence and representation are morally loaded terms. According to the traditional view, an object can be eligible for intrinsic value by virtue of representing its environment, or being intelligent. So we need to ask what approach the moral philosopher should take to plausible naturalizations of folk psychological notions. (Agar 2001, 54)

Here, Agar's argument seems to be something like the following:

1. Representation and intelligence make it possible for certain organisms to be intrinsically valuable.
2. Therefore, we ought to value such organisms intrinsically.

The problem is that this conclusion does not follow because there is no "ought" premise from which we can derive an "ought" conclusion. Agar's thought seems to be that the justification for this move is that intelligence and representation are morally loaded terms, but how it is supposed to do so is quite obscure.

Also, Agar seems to construe *all* folk psychological notions of intentional and phenomenal states as morally significant, as well as the naturalizations of these terms, but this is too quick. A red afterimage, pain, and my life-plan are quite different, after all. Not all qualitative states – not all instances of phenomenal consciousness – are *affective* qualitative states, and it is the affective dimension of phenomenal consciousness that many moral theorists regard as being of moral significance. From the fact that *some* intentional or phenomenal mental states are morally valuable, it does not follow that the naturalization of *any* intentional or phenomenal mental state anchors value.[46]

Ironically, the worry I have about this third naturalization of folk psychology is the same as one of Agar's worries about Richard Dawkins' *The Selfish Gene* (Agar 2001, 58-59). According to Agar, Dawkins discovered a plausible naturalization of the psychological notion of selfishness in genes. But, Agar rightly asks whether selfishness has moral weight in the first place. Does this naturalization carry over moral weight from the psychological notion? Agar's first worry is that the psychological notion of selfishness is of doubtful positive moral significance. Also, there is "the question of the intuitive distance from the commonsense notion," between psychological selfishness and the 'selfishness' of genes. Agar concludes that Dawkins' naturalization of selfishness should not confer any value to genes whatsoever.

By the same token, the analogs to the two pillars of value in the psychological view, intelligence and representation, are intuitively distant from their folk psychological counterparts.

[46] There is another way of putting this same point. As the term "biopreferences" suggests, Agar is taking the satisfaction and frustration of preferences as being of central moral importance. However, animals can and do prefer what is not good for them. Our subjective preferences and our biopreferences do not necessarily coincide, this dissimilarity threatens Agar's claim that the value of subjective preferences should drag over to biopreferences.

We put the relevant terms in scare-quotes when using psychological terms for nonsentient entities. We talk of slime molds "knowing" their way through a maze. We talk of protozoa "feeling" noxious stimuli. We talk of a computer not "seeing" the printer. The use of these terms in this way is every bit as distant as the "selfishness" of genes. It's unclear why naturalizations of these concepts should confer *any* value to the states of a protozoan or printer.

Also, it is not clear that, like selfishness, merely *representing* has positive moral value on the psychological view. This seems to entail that phenomenal consciousness as such is morally valuable. This is a rather different claim than the claim of the hedonistic component of the psychological view that Agar began with, which holds that pleasure and pain, i.e. *affective* psychological states, are morally valuable. We should treat like cases alike. So, there is no reason to think that this third naturalization of folk psychology should carry any value to entities which only possess nonconscious analogs to these psychological states. Agar considers this line of objection:

> My suggestion is that when sufficiently many descriptive generalizations apply to an object, associated normative generalizations begin also to apply. Lack of an "essential" property is not an absolute barrier to value. Of course, properties that we adjudge essential may tend to be central rather than peripheral. Kinds lacking these properties will tend to be rather implausible and, therefore, will inherit rather little value. (Agar 2001, 57)

What Agar means here is that kinds lacking these essential properties will be rather implausible naturalizations of folk psychological kinds – i.e. they do not provide a particularly compelling naturalistic description of the folk phenomena – and hence should get less value than those who have that essential property. He claims that cockroaches do not "merely act *as if* they are sensitive to ecologically salient properties, they genuinely are" (Agar, 2001, 57). Leaving aside the issue of how many descriptive generalizations are needed to meet the sufficiency

criterion, the core issue is this: the essential property for which we ascribe value to intentionality and sentience is that they are conscious phenomena that matter to us, and it is this mattering to us that is essential to the psychological view of intrinsic value. This seems to be an absolute barrier to ascribing value to analogous, nonconscious states. Why should they inherit "rather little value" rather than none at all when the central property for which ascriptions of intrinsic value on the psychological view is altogether absent? If the essential property is missing, it should not get any value at all.

Agar's view falls prey to the same normative problem as do Taylor's and Varner's views. Like Taylor, in some instances, Agar seems to build moral considerability into intrinsic value, which is itself built into descriptions of being representationally alive. Elsewhere, like Varner, he seeks to argue from the psychological theory of value/welfare to the moral considerability of nonsentient organisms, which, like Varner's, his argument is unsuccessful.

The Origin Problem in Agar

Agar wishes to hold that the representational account is largely coextensive with what we commonly regard as living things. However, what falls under his account is much broader than this. This seems to apply even to organs of multicellular organisms because they respond to external signals in order to carry out their biofunction. This doesn't just mean that, for example, my liver is representationally alive, but also that it has intrinsic value. But it is false that any

system which has a structure linking a sensor and movement, i.e. any system which represents, is alive. [47]

Agar rightly worries that his view might imply that kidneys, thermostats, pocket calculators, gasoline gauges (and motion sensing light switches) are alive and hence have intrinsic value that we should respect. Agar responds by distinguishing between other-directed goals and self-directed goals. The contents of other-directed goals refer to goods of objects outside the representer. With self-directed goals, only the goods of the representer are featured. In applying this distinction for organs, Agar invokes an evolutionary story to explain kidney functioning as other-directed, specifically, it is directed towards the organisms' fitness.

So too for artifacts. Here, Agar's response is similar to Varner's attempt to limit interests to evolutionary heritage.[48] It is true that artifacts have a different origin, but this is not morally significant. Also, just like Taylor, Agar responds that the representations of artifacts "*tend to* have functions that… are teleologically subservient to human goods" (Agar 2001, 100, e.a.). It is true that the artifacts we design tend to serve our goods. We design thermometers to represent room temperature because the goal of a thermometer is maintaining an ambient temperature amicable to humans. But it needn't be the case that we create artifacts for our own ends. Actually, Agar allows that we could create increasingly complex, teleologically independent

[47] It might be objected that such a representer has no biofunction. However, Agar never defines "biofunction." So, to say that biological organisms have biofunctions and motion-sensing light switches do not have biofunctions *presupposes* some other conception of life, which means that Agar's conception of life as representation is incomplete insofar as it smuggles in another conception of life in the form of biofunctions.

[48] It is perhaps noteworthy that Varner makes the evolutionary history part of the criterion of value whereas Agar's criterion is self-directedness. The evolutionary story explains why organs such as livers are not self-directed.

machines and grants that "we may indeed find representing machines with values similar to those of simple living things" (Agar 2001, 100).

It is unclear why they would need to be *complex* independent machines; they'd need to be only as complex as a simple living thing. Surely we are close to passing that cusp already. Consider, for example, artificial intelligence (AI), which has improved substantially over the last decade. A recent article on AI notes that video games have moved from:

> Simple state machines to behaviour trees and using planners… describing knowledge of the world… with better knowledge for navigation over changing terrain, and more knowledge about strategic properties of the world. [They have] 'stimulus and sensor systems to more accurately model what an AI can conceivably know about'. (Parker 2010)

After completing the development of a recent video game, the developers noted that the artificial characters were "doing things that we did not expect, and this surprised us positively" (Parker, 2010). There are already relatively sophisticated representers whose behavior is increasingly independent of our ends. Agar thinks that the T4 bacteriophage has but a single biopreference: "lodgment of DNA in sugary-coated thing" but resists cases "even more scandalous to common sense" such as organs and artifacts (Agar 2001, 96-98). This distinction can't be maintained; his view entails that we grant intrinsic value to the bearers of "silicopreferences", if not already, then soon.

Yet elsewhere, Agar allows that machines of the future, perhaps by passing the Turing Test, can be counted as intelligent, and hence possessors of intrinsic value (Agar 2001, 56-57). Agar says that we should use "putative intuitive counterexamples" to "probe conceptions of intelligence that would count the computer in. Responses to thought experiments will help us discover what discount rate to apply to the value carried by the familiar notion" (Agar 2001, 57).

Why such a high standard? Why must machines be able to converse with us to count as sufficiently intelligent? A bacteriophage surely cannot. Agar's discussion suggests that he's not quite comfortable with granting moral considerability to simple artifacts with goods of their own yet wishes to do so for natural entities with goods of their own. This distinction cannot be maintained.

An "Anthropocentric" Biocentrism?

There is a new, essentially anthropocentric kind of argument which purports to support biocentrism. For example, John O'Neill argues that taking the goods of organisms as ends is constitutive of human flourishing (O'Neill 1993, 24), and John Nolt argues that we have a duty of self-transcendence to value the good of organisms because doing so optimizes hope (Nolt 2010). These virtue-based arguments claim to support biocentrism on the grounds that we ought to value and promote the good of at least some[49] organisms' good for their own sakes because doing so achieves these desired human end or another. I take no issue with these views per se; they are akin to the Korsgaardian view discussed shortly.

However, they are not arguments in support of biocentrism as a notion of moral considerability. The issue is whether one can motivate a conception of moral standing on a self-regarding motive. This type of argument claims that this can occur, but this is a mistake. Counterfactually, if valuing the goods of all organisms as ends did *not* optimize hope or was not (partly) constitutive of human flourishing, then these arguments give us no reason to do so.

[49] Nolt argues that we can't develop self-transcendence towards all organisms. He claims only that we ought to cultivate self-transcendence towards many organisms, which involves working for their good.

Recall the conceptions of moral status discussed above. An entity has moral status only if it's good ought to be considered by moral agents for its own sake, and not for the sake of other entities (2.2). O'Neill defined a morally considerable being as "a being whose good must be considered in making moral choices". Taylor claimed that we ought to promote an "entity's good as an end in itself *and for the sake of the entity whose good it is*" (Taylor 1986, 75, e.a.).

These new virtue-based "biocentrisms", while they claim that we ought to value the goods of organisms for their own sake, what they are really claiming is that we ought to noninstrumentally value the goods of organisms for *our* sake, not for the sake of the entity whose good it is. Such arguments violate my "…and not for the sake of other entities", O'Neill's "must", and Taylor's "…for the sake of the entity whose good it is" clauses. In these virtue-based arguments for biocentrism, that we ought to value an organism for its own sake is contingent upon the fact that doing so contributes to human hope (for Nolt) or flourishing (for O'Neill). These arguments may provide good reasons for why we should consider the good of nonconscious organisms (an obligation to oneself and to others), but they are not arguments for the moral standing of nonsentients.

Moral standing is centrally concerned with the morally salient capacities which entities possess, not the effects the entity has on others. For example, consider a child who promotes the good of her plush toy or Nintendog[50] for its own sake; she *genuinely* wants the thing to fare well for its kind. The same might also be said of a benefactor of a charity or a curator of a great work of art. Such acts exhibit the virtue of care, of promoting the good of things beyond ourselves.

[50] "Nintendogs" is a pet simulation videogame on Nintendo's portable Nintendo DS system where children have to care for their virtual pet(s) in real-time.

But we should not conclude from this that toys, charities, or paintings have moral standing! These "anthropocentric" biocentrisms or enlightened anthropocentrisms do not support the moral considerability of organisms.[51] Absent an independent argument to this effect, they do not get us any closer to a philosophically rigorous account of biocentrism.[52]

How We Might Think About Plants

If the arguments in favor of biocentrism are inadequate, how should we regard plants? Is there a way in which the proposition "we ought not harm plants" is true, other than in a merely prudential sense that they provide oxygen necessary to support human life? Focusing on the variety of value which nonsentient life has for us and other sentients, not life's moral considerability, seems to capture what's right about biocentrism without its problems. This seems to be the more common view in philosophy at large. Christine Korsgaard expresses this view well:

> So do we also have duties to plants? I don't think so. Since a plant is not conscious, being a plant is not a way of being someone, so it is not a way of being someone that we share with them. (I do not know how to defend that point further.) Still, I can't help thinking that the kind of thing Kant believed about our obligations with regard to natural objects generally is true of our obligations with regard to plants. Kant thought that we have no duty *to* other things found in nature, but that we have duties with regard to them, to treat them in ways that show a sensitivity to the fact that they are alive (in the case of plants and animals) and beautiful (Kant's example is 'beautiful crystal formations'). He thought that these duties are really grounded in a general duty not to do things which will have a bad effect on our own characters. This is an inadequate account of our obligations

[51] Such views are really just versions of weak anthropocentrism or weak sentiocentrism, described below (4.4).
[52] There may well be arguments other than these virtue-based arguments to which these authors can avail themselves. The more typical arguments of Taylor, Varner, and Agar were discussed above and rejected. Here, I'm solely concerned with whether the Noltian or O'Neillian sort of argument supports biocentrism. The only additional point I wish to make here is that they not support biocentrism (the moral considerability of living things), and absent some other as-of-yet unaired argument, there is no convincing argument in favor of biocentrism.

> to animals, but it seems to me to be right in the case of plants. Is it crazy to say that there is something amiss with someone who destroys plant life wantonly, or who can see a plant drooping but still alive without wanting to give it a drink? Such a person shows a lack of reverence for life which is the basis of all value. (Korsgaard 1996, 156)

Here, Korsgaard disagrees with Kant that there is an amphiboly between our moral psychology and our moral obligation in the case of animals. She argues that we do not simply have obligations regarding animals, but that we have obligations to animals (Korsgaard 1996, 145-160), but there is an amphiboly at work in the case of nonconscious life; we should revere life and beauty, which she believes is the basis of all value (perhaps understood as a necessary but insufficient condition for moral considerability) but this is not to say that all living things are for that reason morally considerable.

Concluding Remarks on Biocentrism

I have argued that the Origin Problem and the Normativity Problem are serious challenges to biocentrism. I have shown that the Origin Problem affects both Varner and Agar's views and that the Normativity Problem afflicts the views of Taylor, Varner, and Agar, three prominent and representative biocentrists over three decades. I then argued that views like those of Nolt and O'Neill, while more plausible, are not really arguments in favor of biocentrism, and gave a parsimonious account of our obligations with respect to plants that can accommodate biocentrists' intuitions without its shortcomings.

Where does this leave biocentrism as a school of moral thought? Is biocentrism dead, and if so, what are the implications? Perhaps biocentrism is not dead. At the least may this

critique prove helpful for biocentrists moving forward. Here are some final, constructive thoughts in this direction.

The Normativity Problem seems particularly difficult to resolve. Biocentrists dedicate much ink trying to showing *that* organisms have interests or goods of their own, and relatively little as to *why* this matters from a moral point of view. Biocentrists advocate a variety of normative principles,[53] yet all take "axiological biocentrism" (each organism has a good of its own) as grounding "normative biocentrism" (the good of organisms obligate moral agents to them). All seem to view the good as anterior to the right, yet these highly contentious issues in metaethics are simply glossed over and controversial claims are not only inadequately defended, but are not even explicitly articulated in some cases. Biocentrism seems to proceed with a profound ignorance of G.E. Moore's critique of metaethical naturalism in 1903's *Principia Ethica* and the ensuing discussion in theoretical moral philosophy ever since.

The Achilles' heel of biocentrism is its failure to articulate a cogent move from good to ought. Cognizance of, and grappling with, these foundational issues could serve biocentrism well into the future. Perhaps biocentrism's best hope is in developing a 'Platonic' teleological ethic which attributes a kind of "binding force" to the Good as Plato does in the *Republic* "that the truly good and 'binding' binds and holds everything together" (99c).

Overcoming the Origin Problem seems to require that biocentrists articulate the goods of organisms in a way that does not hinge on their origins in order to distinguish organisms from

[53] Some hold that we should maximize the good of all organisms: "biocentric consequentialism" (Attfield, 2003). Some grant moral considerability to all organisms, yet undercut this by prioritizing the value of human basic needs and projects: "axiological anthropocentrism" (Varner 1998). Others deny human superiority, holding the goods of slugs in equal esteem to our own: biocentric egalitarianism (Taylor 1986).

artifacts, because origin is an arbitrary criterion. Biocentrists would need to use a plausible criterion and successfully sort organisms from artifacts. I am skeptical that such a strategy can be developed.

There is, however, another avenue available for biocentrists to respond to the Artifact *Reductio* and the Origin Problem: bite the bullet. This strategy appears to be consistent with Taylor's view. For example, if robots function autopoeitically, the mere fact that they are artifacts might not concern the biocentrist. After all, the core claim of biocentrists is that "all organisms are morally considerable", not that "all *and only* organisms are morally considerable". The former claim is consistent with and entailed by the claim that "all entities with goods of their own are morally considerable", and biocentrism could be regarded as an implication of this more general conception which we might call "teleocentrism."

Leaving the property – candidates include "a good of their own", "autopoiesis", etc. – undetermined so that the different biocentrist conceptions of this property can be plugged in, the relevant argument for the moral considerability of organisms would then be standardized as follows:

1. All entities with property *x* are morally considerable.
2. All biological organisms have property *x*.
3. Therefore, all biological organisms are morally considerable.

The common ground between biocentrists and their critics encapsulated in the Artifact *Reductio* is that granting moral considerability to artifacts such as cars and can openers is absurd. The biocentrist can maintain that granting moral considerability to autopoetic artifacts is not absurd.

This line of response is consistent with biocentrism, but is it *plausible*? The point at which one is willing to call a view "absurd" is not cut and dry. However, it is telling that those

biocentrists who explicitly consider the implications of their view for artifacts and endorse these implications tend to set the bar for artifacts fairly high, and higher than is consistent with their own criterion of moral considerability. The fact that they do set the bar so high suggests that these authors are uncomfortable with coming too close to the Artifact *Reductio*.

For example, as discussed above (2.3.4.2) Agar considers the possibility that computers of the future, perhaps by passing the Turing Test, can be counted as intelligent, and hence possessors of intrinsic value (Agar 2001, 56). This is an awfully high standard, especially considering that Agar considers the world's simplest known organism, the T4 bacteriophage, to possess intrinsic value, and hence moral considerability. Surely, future artifacts – if currently existing artifacts such as IBM's Watson, which recently beat three Jeopardy! Champions, do not already meet the standard – will be not just *as* 'intelligent' as a T4 bacteriophage, but far, far *more* intelligent as synergy increases between the fields of artificial intelligence, robotics, and synthetic biology. Agar is compelled to grant that "some artifacts have property *x*", where *x* is a level of representation or intelligence comparable to the simplest biological organism. Yet Agar says that we should use:

> [P]utative intuitive counterexamples… [to] probe conceptions of intelligence that would count the computer in. Responses to thought experiments will help us discover what discount rate to apply to the value carried by the familiar notion. (Agar 2001, 56)

Granting moral status to these artifacts at the representational and intellectual level of bacteria or plants is putatively absurd and not independently plausible, i.e. one would not take up this strategy were one not already committed to biocentrism. The second premise can't be rejected by biocentrists because doing so would exclude organisms, therefore the morally substantive first premise must be rejected. Perhaps a biocentrist wishes to defend the argument as sound and

defend teleocentrism, in which case this line of objection fails. Yet the Normativity Problem still looms large.

We do well here to remember what we are after, and keep our eye on the prize. Biocentrism is a class of theories which seeks to provide an account of environmental ethics in terms of the moral considerability of individual organisms. If there are other theoretical accounts of environmental ethics which account for the core goals of environmentalism and which can cash out the value of plants without the baggage of such intuitively implausible implications, then they are to be preferred. We should look elsewhere for theoretical foundations of environmental ethics.

2.4 - SENTIOCENTRISM: SENTIENCE AND MORAL CONSIDERABILITY

What then, of moral considerability? The critique of biocentrism sets the stage for the positive account to follow. I now turn to argue in favor of sentiocentrism, the view that sentience is necessary and sufficient for moral status.[54] We have good reasons to think that sentience is a sufficient condition for moral considerability, and these reasons do not depend on origins, but rather on features of the entities in question and hence avoids the Origin Problem from which biocentrism suffers. Furthermore, sentience as a sufficient condition for moral considerability can be grounded in a way that overcomes the Normativity Problem which was

[54] Strictly speaking, I will only argue for the sufficiency of sentience for moral standing. I won't support the stronger claim that sentience is necessary for moral considerability. While I have provided a critique of prominent arguments supporting biocentrism, there may be an argument that establishes the moral considerability of all living things, some set of living things that includes all sentient organisms but not all organisms, or entities other than individuals (ecosystems, species, etc.). My task is to establish is to defend sentiocentrism as an approach to environmental ethics. I merely wish to motivate sentiocentrism in general because the question of whether it is an adequate environmental ethic is more interesting if there are compelling reasons to accept it in the first place.

shown to afflict biocentrism. There are at least two arguments which support sentience as a sufficient condition of moral considerability. These are the Argument from Marginal Cases and the Extrapolation Argument. I'll consider each in turn along with some objections.

The Argument from Marginal Cases

The Argument from Marginal Cases supports sentience as a criterion of moral considerability. This argument traces back at least to Porphyry, a vegetarian philosopher from the third century BCE.[55] The basic idea is that there are many non-person yet sentient humans whom we regard as having moral status, yet some sentient animals have relevantly similar capacities to these "marginal humans", i.e. infants, those with severe mental retardation, those suffering from degenerative mental illnesses, etc.[56] Therefore, sentient animals are morally considerable because species membership is not a justifiable basis for exclusion. More formally, the Argument from Marginal Cases can be run as follows, following Peter Singer's formulation:

1. In order to conclude that all and only human beings deserve a full and equal moral status (and therefore that no animals deserve a full and equal moral status), there must be some property *P* that all and only human beings have that can ground such a claim.
2. Any [reasonable candidate for] *P* that only human beings have is a property that (some) human beings lack (e.g., the marginal cases).
3. Any [reasonable candidate for] *P* that all human beings have is a property that (most) animals have as well.

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[55] See Daniel Dombrowski's "Vegetarianism and the Argument from Marginal Cases in Porphyry" (1984), and his *Babies and Brutes: The Argument from Marginal Cases* (1997) for the comprehensive defense of this argument.

[56] Of course, some of these humans, namely most infants have the potential to be persons, but not all "marginal humans" have even this potentiality. So, the problem remains for those who wish to hold that all actual or potential persons are morally considerable yet all nonhuman animals are not.

4. Therefore, there is no way to defend the claim that all and only human beings deserve a full and equal moral status. (Wilson 2010)

The core idea of the argument is that there is no defensible criterion by which we can grant moral considerability to all humans and to no nonhuman animals. If the bar is set too high, some humans will be excluded, and if the bar is lowered to include such humans, we thereby also include some nonhuman animals.[57]

One way of understanding the Argument from Marginal Cases is as a consistency argument. It seeks to show that it is inconsistent to grant moral considerability to "marginal humans" yet deny moral considerability to relevantly similar nonhuman animals. To restore consistency, one must either deny moral considerability to humans who lack the property which we hold as conferring moral considerability, such as rationality or moral agency, or grant moral considerability to animals possessing relevantly similar capacities. Few are willing to deny moral status to those humans which lack this property, and hence moral status must be extended to nonhuman animals possessing this capacity.

[57] Disability theorists have objected to the Argument from Marginal Cases on the grounds that the comparison of the disabled to nonhuman animals is offensive. The argument is not intended to denigrate the disabled nor offend anyone. That those concerned with a historically oppressed group such as the disabled that is increasingly included would object to rational arguments about expanding the moral community to include other historically oppressed groups is ironic. See Lori Gruen's *Ethics and Animals* (2011) for a nuanced defense of the Argument from Marginal Cases which is highly sensitive to the perspective of disability theorists, including Eva Feder Kittay. Gruen notes that it is possible to find good arguments offensive and that those who emphasize the value of personal and familial relationships with disabled people underestimate the relationships we can have with nonhuman animals. Also, note that some African Americans take offense to the parallel drawn between animal liberation and the abolition of slavery. See Marjorie Spiegel's *The Dreaded Comparison: Human and Animal Slavery* (1997) for an analysis of this issue.

The Extrapolation Argument

The Argument from Marginal Cases' weakness is that it relies on the claim that "marginal humans" *are* morally considerable. If an interlocutor denied this, taking the hard line that only moral agents are morally considerable, then the Argument from Marginal Cases would fail to establish the moral considerability of nonhuman animals in the eyes of this interlocutor.

However, the Argument from Marginal Cases is suggestive of a stronger argument which has been used historically to expand moral status among humans. The main idea of this Extrapolation Argument is that moral agents ought to value *us* because of some good we possess, and because similar cases should be treated similarly, it leads to the conclusion that moral agents should value whatever has this good. This argument has the following form, where V is value and G is some good:

1. Agents ought to V us (solely) on account of our possession of some good G.
2. Like cases should be treated alike (principle of parity).
3. So, Agents ought to V whatever has G. (Nolt 2006, 362)[58]

Here, the first premise is taken to be obvious; each of us knows it from our own case. Note also that the first premise is an ought-premise; the Extrapolation Argument circumvents the Normativity Problem by including a substantive yet plausible ought premise from the get-go. The second premise generalizes the first premise to relevantly similar cases; it applies to any

[58] Nolt notes that on at least one reasonable interpretation in predicate logic, this argument form is valid. This interpretation is as follows: "$Hmg \,\&\, Oamg, \forall x \forall y[(Hxg \,\&\, Hyg) \rightarrow \forall z(Ozxg \leftrightarrow Ozyg)] \vdash \forall x(Hxg \rightarrow Oaxg)$, where Hxz is a two-place predicate meaning "x has good z," O*xyz* is a three-place predicate meaning "Agents ought to do action x to y (solely) on account of y's possession of good z," the name *a* stands for an action, and the name *m* stands for me or us, and the name *g* stands for some particular good." (Nolt 2006, n16)

entity which possesses the relevant quality or capacity. This is a universalizing move, one which is taken by some as being the objective basis of morality. In Thomas Nagel's words:

> If you admit that you would resent it if someone else did to you what you are no doing to him, you are admitting that you think he would have a reason not to do it to you. And if you admit that, you have to consider what that reason is. … There's nothing so special about you. Whatever the reason is, it's a reason he would have against hurting anyone else in the same way. And it's a reason anyone else would have too, in a similar situation, against hurting you or anyone else. But if it's a reason anyone would have not to hurt anyone else in this way, then it's a reason *you* have not to hurt someone else in this way (since *anyone* means *everyone*). … This is a matter of simple consistency. (Nagel 1987, 59-67)

We must ask what it is about ourselves that obligates others towards us, and the way to do so is to imagine removing certain properties we have, and judging whether this affects our judgments about attributing moral status, including even removing properties which alter our identity.[59] It is not being a particular race, ethnicity, gender, class, or having a particular level of intelligence or education that matters.

Nor is it *being human* nor *being alive*. There is nothing about being a hydatidiform mole[60], an anencephalic newborn, or a human in a persistent vegetative state that merits the attribution of direct moral standing.[61] Particularly in the latter case, people often regard the person as no longer present. The *person*s were dead even though there were still living bodies.

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[59] This Extrapolation Argument could be interpreted as a kind of metaethical constructivism or naturalistic realism. It could be understood as metaethical constructivism in that it embodies an idealized deliberative procedure to arrive at moral truths constituted by what moral agents would agree to, not fixed by facts independent of this practical standpoint, or as a naturalistic realism if we understand normative facts as natural facts investigable by empirical methods, e.g. how agents respond to such a line of questioning in idealized circumstances (Bagnoli 2011).

[60] A hydatidiform mole (or molar pregnancy) is an anomalous, unviable conceptus that forms early in a pregnancy

[61] There are, of course, many aspects of such cases which are morally significant that could obligate moral agents, it's just that the moral considerability of these beings are not among them. Here, I mean things like duties to the family and loved ones, respect for the former person, and perhaps even a reverence for human life, but these are all self-regarding or other-regarding concerns.

The change of the definition of death in medicine and law over the last 50 years bears out this assessment in public reason. Traditionally, death was determined on the basis of the end of certain vital functions, particularly respiration and blood circulation, the so-called cardio-pulmonary definition of death. However, due to technological advancement, a better criterion was needed because many people were biologically alive on the cardio-pulmonary definition even though phenomenal consciousness was irreversibly gone. An *ad hoc* committee at Harvard Medical School drafted a seminal report defining irreversible coma in 1968. This whole-brain criterion of death gradually gained acceptance, particularly after the Karen Ann Quinlan case and surrounding controversy in 1976, leading to the Uniform Determination of Death Act (1981), which is now law in nearly all states.

Nor, it seems, is *being rational* the relevant essential property, because in imagining ourselves as nonrational, we don't think this should eliminate our moral status. This has been recognized as a problem with Kant's ethics since Schopenhauer. Ethicists sympathetic with Kant's general approach have wrestled to overcome this problem ever since.[62]

Rather, the difference-making property without which we shouldn't expect others to grant us moral standing is sentience. By "sentience", I mean affective phenomenal consciousness, which includes but is not necessarily limited to the ability to experience pleasure and pain. Many philosophers from a variety of moral traditions give versions of the Extrapolation Argument in support of sentience as a criterion of moral considerability. As the utilitarian Jeremy Bentham famously noted:

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[62] See for example Korsgaard (1996, 2004), Wood (1998), and Garthoff (2011) for three proposed accommodations. See Skidmore (2001) for a critical examination of such approaches.

> The day may come, when the rest of the animal creation may acquire those rights which never could have been withholden from them but by the hand of tyranny. The French have already discovered that the blackness of skin is no reason why a human being should be abandoned without redress to the caprice of a tormentor. It may come one day to be recognized, that the number of legs, the villosity of the skin, or the termination of the os sacrum, are reasons equally insufficient for abandoning a sensitive being to the same fate. What else is it that should trace the insuperable line? Is it the faculty of reason, or perhaps, the faculty for discourse?... [t]he question is not, Can they reason? nor, Can they talk? but, Can they suffer? (Bentham 1823, Ch. 17)

Note here both how Bentham understands the argument in terms of an expansion beyond historical attributions of moral status, and how he considers the various possibilities for moral status, ultimately deciding on sentience.

In the Kantian tradition, Korsgaard argues for sentience as a criterion of moral status as follows:

> When you pity a suffering animal, it is because you are perceiving a reason. An animal's cries express pain, and they mean that there is a reason, a reason to change its conditions. And you can no more hear the cries of an animal as mere noise than you can the words of a person. Another animal can obligate you in exactly the same way another person can. … So of course we have obligations to animals. (Korsgaard 1996, 153)

We cannot help but perceive animal pain as a reason for action, just like in humans. Returning to our own case, she says that we know "it is a pain to be in pain. And that is not a trivial fact" (Korsgaard 1996, 154).

Tom Regan discusses the moral relevance of sentience more generally rather than about suffering or pain specifically. He argues that some animals:

> [W]ant and prefer things, believe and feel things, recall and expect things. And all these dimensions of our life, including our pleasure and pain, our enjoyment and suffering, our satisfaction and frustration, our continued existence or our untimely death - all make a difference to the quality of our life as lived, as experienced, by us as individuals. As the same is true of those animals… they too must be viewed as the experiencing subjects of a life, with inherent value of their own. (Regan 1985)

While not all animals possess all of the above mental capacities which Regan discusses, the general point remains that many animals have the same capacities that matter to us. Since we know that pain is a reason, since similar cases should be treated similarly, and since there are nonhuman sentient beings, we ought to grant moral status to nonhuman sentient beings. If this line of reasoning is correct, then there is an asymmetry between moral agents and beings possessing moral status, which Tom Regan helpfully terms "moral patients" (Regan 2004).

I'll now consider two objections to a sentiocentric criterion of moral considerability to draw the discussion of moral consideration to a close. These objections come from opposite directions. I'll first consider a biocentrist objection and then an anthropocentric objection and argue that both objections fail.

A Biocentric Objection to Sentiocentrism

One prominent objection which biocentrists have of sentience as a criteria for moral status is that, from a biological perspective, sentience is merely a successful adaption. It serves a useful function for some organisms. It provides them with the ability to anticipate threats to life, disuse injured parts to facilitate healing, etc. Sentience is therefore merely instrumentally valuable towards the preservation of life, and life itself is the ultimate good.

It is true that sentience emerged historically and is adaptive, like the ability to fly or excrete cyanide. This is true only from an independent perspective, and is not the feeling "from the inside". Each of us knows that pain is bad and pleasure good, regardless of whether or not they are efficacious in ensuring our survival. It may be true that an evolutionary and physiological story can be told for all sentient states. Love, for example, may be described in

terms of serotonin uptake inhibition, endorphin release, etc., which incentivize us to hang around our nest and care for our young and the like, but these stories don't detract from our valuing love. The evolutionary origin and function of sentient states are aside from their being intrinsically valued, and do not entail that preserving all life is the real value. The reasoning of this objection is further flawed. It does not follow that nonsentient life is morally considerable because sentient life is morally considerable and because it arose from nonsentient life. As Bernard Rollin notes "the Holocaust may have caused the state of Israel; that does not make the Holocaust more valuable than the state of Israel" (Rollin 1988, 128).

An Anthropocentric Objection to Sentiocentrism

Another objection to sentiocentrism comes from the opposite direction. The Objection from Species-Typical Functioning against the Argument from Marginal Cases seeks to support anthropocentrism. Tibor Machan, in *Putting Humans First: Why We Are Nature's Favorite* (2004) and Carl Cohen, in "The Case for the Use of Animals in Biomedical Research" (1980) independently advance this anthropocentric objection to sentiocentrism. It merits some attention to show just why it fails, and because it further illuminates our understanding of moral status.

Both authors wish to ascribe moral standing or rights[63] to all and only humans. Cohen argues the point as follows:

> Rights arise, and can be intelligibly defended, only among beings who actually do, or can, make moral claims against one another. Whatever else rights may be, therefore, they are necessarily human; their possessors are persons, human beings. (Cohen 1992, 458-

[63] The difference between moral considerability and rights matters not here.

459)[64]

Cohen goes on to consider the various answers from the history of philosophy concerning the attributes that humans possess which give rise to moral agency, ultimately settling on the Kantian conception of autonomy. Applying this to animals, Cohen concludes that animals "are not self-legislative, cannot possibly be members of a truly moral community, and therefore cannot possess rights."

The problem here – and which gives legs to the Marginal Case Argument – is the fact that there is no such morally relevant capacity that *all* humans have and which *all* nonhuman animals lack. This seems to entail that Cohen must deny rights to some humans, an entailment he wishes to avoid. When it comes to "marginal case humans", Cohen responds that the Argument from Marginal Cases:

> … mistakenly treats an essential feature of humanity as though it were a screen for sorting humans. The capacity for moral judgment that distinguishes humans from animals is not a test to be administered to human beings one by one. Persons [sic] who are unable, because of some disability to perform the full moral functions natural to human beings are certainly not for that reason ejected from the moral community. The issue is one of kind. … Animals are of such a kind that it is impossible for them, in principle, to give or withhold voluntary consent or to make a moral choice. What humans retain when disabled, animals have never had. (Cohen 1992, 460)

The reasoning here is opaque and needs some unpacking. First, it is important to note that Cohen is engaging in a bait-and-switch here. Originally in his articulation of what confers rights to a being, the rights-conferring property was identified as the individual's capacity for moral

[64] Note that Cohen's rejection of animal rights depends on him conflating biocentrism with sentiocentrism: "To animate life, even in its simplest forms, we give a certain natural reverence. But the possession of rights presupposes a moral status not attained by the vast majority of living things. We must not infer, therefore, that a live being has, simply in being alive, a "right" to its life. The assertion that all animals, only because they are alive and have interests, also possess the 'right to life' is an abuse of the phrase, and wholly without warrant" (Cohen 1992, 459). Of course, it isn't the fact that an entity is alive, animate, or has biological interests that ground moral status, according to sentiocentrism.

agency. Then, in response to the Argument from Marginal Cases, the rights-conferring property was being a member-of-a-species-whose-members-are-normally-moral-agents. He shifts the property upon which a being is morally considerable as the argument progresses. The former criterion seems to be on track in that moral considerability is granted or denied to a being based on the presence of absence of morally significant properties, but off track in claiming that moral agency is this morally significant property. The latter class-membership criterion of moral considerability isn't obviously true, and Cohen gives no further reasons in its support.

I understand the term "essential feature" to mean a property an entity necessarily has for it to be what it fundamentally is, and the absence of which means that the entity loses its identity. However, it is quite clear that moral agency is *not* an essential feature of humanity. Cohen is equivocating here on "humanity."[65] On the one hand, if he intends "humanity" to mean all human moral agents, then the claim that an essential feature of humanity is moral agency is tautological, and Cohen's objection to the Argument from Marginal Cases fails. On the other hand, if "humanity" means *Homo sapiens*, then it is clearly false that an essential feature of humanity is moral agency. That not all humans are persons is precisely what is at issue!

Machan makes errors similar to Cohen. He rightly considers the Argument from Marginal Cases to be "the most telling point against" his view. Machan's version of the Objection from Species-Typical Functioning is that:

> [A]scriptions of capacities rely on the good sense of making certain generalizations. One way to show this is to recall that broken chairs, while they aren't any good to sit on, are still chairs, not monkeys or palm trees. Classifications are not something rigid but

[65] It may well be that Kant similarly equivocated in what is known as the Formula of Humanity version of the Categorical Imperative. He sometimes talks of "rational nature" and sometimes talks of humans. This same equivocation is common in the abortion debate.

> something reasonable. While there are some people who either for a little or longer while – say when they're asleep or in a coma – lack moral agency, in general people possess that capacity, whereas non-people don't. So it makes sense to understand them having rights so their capacity is respected and may be protected. (Machan 2004b)

There are serious issues with Machan's version of the objection as well. Like Cohen, Machan seems to be equivocating in his chair analogy. Chairs are generally valuable for sitting, but the issue is not whether broken chairs are still *chairs*, the issue is that a broken chair is not *good for sitting*. Of course it is true that humans in general possess the capacity for moral agency, but the issue is not whether "broken humans" are *humans* and not chairs, monkeys, or palm trees, the issue is whether they are moral agents. But it doesn't "make sense to understand [nonperson humans] as having rights so that their capacity is respected" because nonperson humans don't have that capacity.

In their own ways, Cohen and Machan both make the same mistake. Attempting to maintain symmetry between the class of moral agents and the class of morally considerable entities *and* attempting to ascribe moral considerability to all humans is speaking out of both sides of one's mouth. This objection to the Argument from Marginal Cases fails.

2.5 - Conclusion

In this chapter, I have considered two prominent nonanthropocentric accounts of moral status which might serve as foundations for environmental ethics. I considered and rejected three prominent, recent defenses of biocentrism because of the Origin and Normativity Problems. The Origin Problem contends that there is no non-arbitrary basis for giving moral status to living things but not artifacts, and therefore Varner's and Agar's arguments for biocentrism are unsuccessful. Biocentrists can avoid the Origin Problem by attributing moral considerability to

any entity with a good of its own, including artifacts, but this is not independently plausible and is an extreme measure to preserve the view. The Normativity Problem contends that while biocentrism may be able to articulate the good of living things, biocentrism cannot provide a successful argument as to why the good of living things obligates moral agents.

These two critiques set the stage for the positive account of sentiocentrism as a criterion of moral standing. I first defended a version of the Marginal Cases Argument, i.e., nonperson yet sentient humans have moral status, and because species membership is a morally arbitrary criterion, we must grant moral considerability to similarly capacitated animals. I then gave the Extrapolation Argument, which moves from the claim that moral agents ought to value us because of some good we possess to the claim that moral agents should value whatever has this good, by parity of reasoning. I argued that sentience is this good. Furthermore, by including an ought-premise, this argument avoids the Normativity Problem from the outset. I ended by considering two objections to sentiocentrism as a criterion of moral status. I argued that the biocentric objection fails to reduce sentience to an instrumental value, and that the anthropocentric to the Argument from Marginal Cases is an implausible bait-and-switch about the locus of moral considerability, suffers the Origin Problem, and actually reinforces the individualist, capacity-based approach to moral status of which sentiocentrism is a form.

3 - SENTIENCE: ITS NATURE AND SCOPE

"My God" he whined "it's alive, what'll we do?" The aunt simply had to laugh. She bustled off to the pantry to fetch her smart apron, leaving him goggling down at the lobster, and came back with it on and her sleeves rolled up, all business.

"Well" she said "it is to be hoped so, indeed."

"All this time" muttered Belacqua. Then, suddenly aware of her hideous equipment: "What are you going to do?" he cried.

"Boil the beast" she said, "what else?"

"But it's not dead" protested Belacqua "you can't boil it like that."

She looked at him in astonishment. Had he taken leave of his senses?

"Have sense" she said sharply, "lobsters are always boiled alive. They must be." She caught up the lobster and laid it on its back. It trembled. "They feel nothing" she said.

In the depths of the sea it had crept into the cruel pot. For hours, in the midst of its enemies, it had breathed secretly. It had survived the Frenchwoman's cat and his witless clutch. Now it was going alive into scalding water. It had to. Take into the air my quiet breath.

Belacqua looked at the old parchment of her face, grey in the dim kitchen.

"You make a fuss" she said angrily "and upset me and then lash into it for your dinner." She lifted the lobster clear of the table. It had about thirty seconds to live.

Well, thought Belacqua, it's a quick death, God help us all.

It is not.

– Samuel Beckett
Dante and the Lobster, 1934

Abstract

This chapter addresses the nature and scope of sentience in order to flesh out the "what" of morally considerable beings on a sentiocentric ethics, having answered the "why" in Chapter 2. To support animal sentience, I develop an argument by analogy with humans based on three lines of evidence: similar behavior, comparative neuroanatomy, and the evolutionary-functional role of pain. I frame this discussion in terms of phylogeny because it affords a "big picture" view of biological diversity and dispels certain oversimplifications of folk taxonomical approaches. I argue that the evidence for sentience in mammals, birds, and herpetofauna is overwhelming, and that it is sufficiently strong for sentience in fish as well. I then evaluate the prospects of sentience in the far more diverse invertebrates. There is enough evidence to claim that cephalopods are surely sentient and decapod crustaceans are likely to be sentient. Some evidence is suggestive for arachnids, particularly salticid spiders, and social insects, but they probably are not sentient. Evidence is increasingly dubious for other invertebrates. Based on the negative evidence, I make a "Noseeum inference" that most animals, including arthropods, mollusks, echinoderms, and cnidarians, are probably not sentient, but these conclusions are tentative and revisable in light of further evidence and theoretical understanding about consciousness.

3.1 - INTRODUCTION

When taking a sentiocentric approach to environmental ethics, it is important to get clear, to the extent that it is possible, which animals are sentient and which are not in order to know which entities are morally considerable and which are not. This question is more vexing for sentiocentrism than for its main rivals. It is generally clear which entities are morally considerable on an anthropocentric position, questions arising at the beginning and end of life notwithstanding. Similarly, for a biocentric view, it is pretty clear which entities are organisms and which are not, problem cases such as corals, aspens, and abiogenesis aside. On the contrary, the scope of sentience is a much more open question. It is clearly more expansive than anthropocentrism and more restrictive than biocentrism in terms of the number of individuals which merit moral standing.

In this chapter, I provide an account of the scope of sentience in the animal kingdom. I begin by explaining some key terms and articulating a methodology. I then consider the evidence for sentience in the animal kingdom by giving an analogical argument from humans on the basis of three lines of evidence: similar behavior, comparative neuroanatomy, and evolutionary-functional role of pain. I argue that there is strong support for the claim that all vertebrates and some closely related quasi-vertebrates and invertebrates are sentient. Higher vertebrates – mammals, birds, and herpetofauna (reptiles and amphibians) – won't be given an extensive treatment because their sentience is well supported and uncontroversial.[66]

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[66] For relatively recent, philosophically-oriented discussions of the evidence for sentience in higher vertebrates, see David DeGrazia's *Taking Animals Seriously: Mental Life and Moral Status*, Chapters 3-7, and Gary Varner's *In Nature's Interests?: Interests, Animal Rights, and Environmental Ethics*, Chapter 2. Varner also has a forthcoming

continued

Rather, I'll focus my discussion on "lower" vertebrates, quasi-vertebrates, and invertebrates. I will argue that the evidence in "fish" and related quasi-vertebrates is sufficient to attribute sentience. Due to their greater evolutionary distance from us, and greater diversity, sentience in invertebrates is more difficult to assess. I will argue that the balance of evidence suggests that most invertebrates are probably not sentient, but that a few select phyla probably are – the most cognitively developed mollusks, arthropods, and non-vertebrate chordates.

In 2005, the Animal Health and Animal Welfare Panel (AHAW) of the European Food Safety Authority (EFSA) was asked to provide a comprehensive assessment of sentience and pain in invertebrates. My own assessment is roughly consistent with their summary conclusion, which merits quotation at length:

> Cyclostomes (lampreys and hagfish) have a pain system similar to that of other fish and brains that do not differ much from those of some other fish. There is evidence that cephalopods have adrenal and pain systems, a relatively complex brain similar to many vertebrates, significant cognitive ability including good learning ability and memory retention… Nautiloids have many characters similar to those of other cephalopods… The largest of decapod crustaceans are complex in behaviour and appear to have some degree of awareness. They have a pain system and considerable learning ability. As a consequence of this evidence, it is concluded that cyclostomes, all Cephalopoda and decapod crustaceans [are sentient]. Using similar arguments, the dramatic evidence of the sensory processing, analytical and prediction ability of salticid spiders provides evidence for awareness greater than in any other invertebrates except cephalopods but we have little evidence of a pain system so do not at present put these spiders in that same category. Free-swimming tunicates are also in this borderline area and social insects and amphioxus are close to it. (EFSA 2005)

In short, the EFSA concluded that jawless fishes, cephalopods, and decapod crustaceans are sentient. Salticid spiders (arthropods) and some tunicates (chordates) seem to be phenomenally conscious, but there is no evidence of the anatomy requisite for the experience of pain. Social

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book, *Personhood, Ethics, and Animal Cognition: Situation Animals in Hare's Two Level Utilitarianism*, that promises to take the conversation further than in *In Nature's Interests?*

insects (arthropods), some tunicates (chordates) and amphioxus (chordates) are also at this level or close to it.

A few cautionary remarks are needed at the outset. We do not know everything there is to know about sentience in particular or consciousness in general. Behaviorism and logical positivism were dominant themes in much of 20th century philosophy and psychology. The late 20th century cognitive revolution, which hadn't toppled behaviorism in psychology until the 1970's, the new and growing field of cognitive ethology, which combines cognitive science and classical ethology, and related developments are still quite recent history.[67] We do well to recall that, until recently, surgery on human neonates was still done without analgesics or anesthesia because it was thought that they could not feel pain. There has even been a major shift in veterinary medicine in the past decade. Surgery on animals was long practiced without anesthesia or analgesics, but now veterinary doctors deliver pain alleviation treatments comparable to those delivered to humans (Allen 2010).

Also, by broaching the possibility of invertebrate consciousness, I fear that, in this chapter, I say both too much for some audiences and too little to others. Most treatments of the delineation problem in animal ethics focus on vertebrates, and the common platitude 'some invertebrates may be sentient' is attractive. But the devil is in the details, and given the

[67] There is a lot of intellectual baggage further in the background here. In the Western philosophical tradition, a barrier to the recognition of nonhuman animal consciousness is rooted in the idea that humans are qualitatively different from all other animals, of being in the "image of God", etc. This can be seen in ancient philosophers' discussion of the nature of human beings, Christian Aristotelians, and then Descartes. It wasn't until after the rise of evolutionary theory, which suggests humans' continuity with, not difference from, other animals, which occurred long after the scientific revolution, that animal consciousness was taken seriously as a scientific enterprise. William James' *Principles of Psychology* (1890), and Conway Lloyd Morgan *An Introduction to Comparative Psychology* (1894) emerged as remedies just before psychology and philosophy entered the behaviorist's slumber. It took the better part of a century before the issue was widely addressed once again. See Colin Allen (2010) for a longer history of the study of and attitudes towards animal consciousness, which I drew on in part here.

staggering diversity of invertebrate forms and the paucity of our understanding of the mystery that is consciousness, the details are devilish indeed.

While the assumptions and conclusions in this chapter are a reasonable interpretation of our understanding of the available evidence, they are surely not the last word and will need to be reconsidered as more and better evidence and conceptual understanding of the nature of consciousness become available. They are a best guess and may be fundamentally flawed. This is particularly the case for invertebrates because they are neurologically quite different from humans and because there has been (comparatively) much less research conducted on invertebrates than vertebrates. Thankfully, there is some room for optimism, as research into questions of invertebrate welfare is on the rise. At present and for the foreseeable future, we do well to keep in mind Tom Regan's standard response when asked about demarcating sentients from nonsentients: "wherever you draw the line, draw it in pencil" (Cohen and Regan 2001, 58).

3.2 - Concepts and Terminology

Some key terms merit clarification. Sentience is an aspect of consciousness. Consciousness is "at once the most familiar and most mysterious aspect of our lives" (Schneider 2008, 1). There are several live theories of consciousness, but nonhuman animal consciousness does not stand or fall with any particular one.[68] There are two distinct meanings of sentience.

[68] Peter Carruthers (2000) claims that animals are not conscious by appealing to the Higher Order Thought (HOT) theory of consciousness, which holds that a mental state is a state of phenomenal consciousness in a being only if it is accessible to be thought about by that being. Carruthers argues that a being needs a theory of mind in order to form thoughts about mental states. Of course, this argument depends on the HOT theory being correct, that a being needs a theory of mind on the HOT theory, and that all nonhuman animals lack a theory of mind. Each of these claims is problematic, but I won't pursue the issue further here. It does bear mentioning that children don't acquire

continued

The first sense is conscious awareness or *phenomenal* consciousness, i.e., the sense in which an entity has subjective perceptions of reality.[69] Thomas Nagel famously asked "what it is like to be a bat?" The "something-it-is-like" to be a bat is its phenomenal consciousness (Nagel 1974). The class of sentient beings is the class of beings for which there is something-it-is-like for these beings to be these beings, and which is not the case for rocks, amoebas, and plants.

There is also a second, more specific meaning of sentience, which is the sense typically used in the animal ethics literature. In *Animal Liberation*, Peter Singer used the term to mean "a convenient if not strictly accurate shorthand for the capacity to suffer and/or experience enjoyment" (Singer 1990, 8-9).[70] This second sense of sentience means *affective* phenomenal consciousness – i.e. consciousness of pain, pleasure, suffering, satisfaction, distress, desire, fear, anticipation – which is morally significant whereas phenomenal consciousness as such does not seem to be. That is, for sentient beings, things can go better or worse *for them*, in a sense in which things do not and cannot go better or worse *for* a rock, virus, bacterium, plant, fungus, or coral. This is the essentially the same idea that D'Silva has in mind in saying that "sentient creatures are those who have feelings – both physical and emotional – and whose feelings matter to them" (D'Silva 2006, xxiii). Throughout, by "sentience," I'll mean affective sentience, not bare, phenomenal consciousness. Sentience$_2$ (affective consciousness) is a kind of sentience$_1$ (phenomenal consciousness), but not all sentience$_1$ is sentience$_2$.

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theory of mind until around age four, and hence are not sentient. For critiques of Carruthers, see for example Jamieson and Bekoff (1992), and Gennaro (2004), and Allen (2010).

[69] There are several other senses of "consciousness" that need not concern us here: 1. The sense of being awake, rather than asleep, in a coma, etc. 2. The sense of being able to 'perceive' and respond to aspects of the environment 3. The sense of representations being available to rational control, or "access consciousness", and 4. The sense of second-order representation of mental states, or "self-consciousness" (Allen 2010).

[70] Presumably, Singer thought that 'pain' and 'suffering' were synonymous.

Empirical research into sentience has largely concerned pain. The International Association for the Study of Pain (IASP) defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage."[71] Note that the IASP defines pain as *necessarily* experiential. This explicitly distinguishes pain from nociception, although the two are interrelated for sentient entities, although nociception is neither necessary and sufficient for pain (discussed below).

3.3 - The Analogical Argument for Animal Sentience

Since both senses of sentience involve a subjective or 'private' component, it cannot be known with certainty that an entity other than oneself is sentient. This results in the traditional philosophical problem of other minds – how can I know that you have a mind? For nonhuman animals, this results in the *other* problem of other minds (Allen 2010) – how can I know that a nonhuman animal has a mind?

How do we know which beings are sentient and which are not? In our everyday lives, we know that humans and some nonhuman animals are sentient non-inferentially. John Searle expresses this thought better than I, and it bears quoting at length:

> I do not infer that my dog is conscious, any more than, when I came into this room, I infer that the people present are conscious. I simply respond to them as is appropriate to respond to conscious beings. I just treat them as conscious beings and that is that. If somebody says, "Yes, but aren't you ignoring the possibility that other people might be

[71] IASP's definition of pain seems inconsistent with pain asymbolia as discussed below, i.e. IASP's definition seems to reflect only the affective dimension of pain, not the sensory part. This inconsistency is of little consequence here because it is the affective dimension that is morally significant. The sensory dimension of pain could not unreasonably be called "conscious nociception". Assuming that a phenomenally conscious being devoid of affective consciousness is possible, which is not the case in pain asymbolia, but which may be the case for some invertebrates, it is an interesting question whether or not this matters from a moral point of view. It is my view that it would not, but I needn't defend this aside here.

> unconscious zombies, and the dog might be, as Descartes thought, a cleverly constructed machine, and that the chairs and tables might, for all you know, be conscious? Aren't you simply ignoring these possibilities?" The answer is: Yes. I am simply ignoring all of these possibilities. They are out of the question. I do not take any of them seriously. Epistemology is of very little interest in the philosophy of mind and language for the simple reason that where mind and language are concerned very little of our relationship to the phenomena in question is epistemic. The epistemic stance is a very special attitude that we adopt under certain special circumstances. Normally, it plays very little role in our dealings with people or animals. Another way to put this is to say that it does not matter really *how* I know whether my dog is conscious, or even *whether* or not I do "know" that he is conscious. The fact is, he is conscious and epistemology in this area has to *start* with this fact. (Searle 1998, 75)

Searle is surely right about this, which is why the idea that we need to infer or justify animal sentience strikes some people as wrongheaded. However, this applies only for *some* animals. Note Searle's "Normally…" qualifier. I am interested here in less 'normal' animals. Uncertainty arises when confronting animals with bodies, forms of life, and behavior very different from our own. I "know" that a dog, a highly intelligent, social mammal is conscious, but an octopus is an *alien* consciousness (Montgomery 2011), and it is not obviously true that other invertebrates are conscious. Here, we need to make inferences.

Also, our everyday knowledge is fallible; we naturally anthropomorphize, ascribing sentience and intentionality[72] more broadly than they in fact occur. Furthermore, there remain skeptics about animal sentience in general, or with respect to particular phyla, and a response is needed to address the doubts of such interlocutors in establishing the bounds of a sentiocentric ethic. For these reasons, it is important to examine the evidence for animal sentience, and draw inferences from this evidence.

[72] Here, I mean intentionality in both Brentano's sense of the directedness or "pointing-towards" of consciousness and in the ordinary sense of one's purpose in acting a particular way.

The gold standard would be to have an empirically informed, comprehensive theory of consciousness to decide which organisms are sentient and which are not. Alas, we are nowhere close to this. One natural way to address the question of animal minds is to start with what we know and work from there: we can take our own case, where we know certain things are painful or pleasant, and to examine the extent to which animals are analogous to us in this respect. Lynn Sneddon expresses the gist of the Analogical Argument for Animal Sentience: "If a noxious event has sufficiently adverse effects on behaviour and physiology in an animal and this experience is painful in humans, then it is likely to be painful in the animal" (2003, 1116).

Analogical arguments, or arguments by analogy, are arguments which have the following logical form:

1. Object X and object Y have properties Q_a, Q_b, Q_c, ... Qn.
2. Object X has property P.
3. Therefore, object Y also has property P.

In other words, based on the presence of the same qualities in two objects, and that it is known that one of the objects possesses a further property, the inference that the other object has this further property is drawn.

All analogical arguments are at best inductive arguments.[73] This means that it is logically possible for the premises of an analogical argument to be true and the conclusion false; the arguments do not show that their conclusions can be demonstrated with certainty. This does not mean, however, that no analogical arguments are cogent. In general, the likelihood that the

[73] Whether all are depends on the definition of induction, and there is no widely-accepted standard definition.

premises support an analogical argument's conclusion depends on the degree to which the entities compared are similar, and also on the absence of relevant disanalogies.

In the present context, the analogical argument for animal sentience runs roughly like this:

1. Humans and cats have large, complex brains, nociceptors, endogenous opioids, behave as though they are in pain, act as though they are able to learn from pain, and have evolved from similar species for whom pain would have served adaptive functions.
2. Humans perceive pain.
3. Therefore, cats also perceive pain.

Just as evidence for one's own sentience is stronger than evidence for the sentience of another human, the evidence for sentience in other humans is greater than evidence for less similar species. When the relationship between properties Q_1, Q_2, Q_3, ... Qn and property P, where Q_1, Q_2, Q_3, ... Qn is the causes, constituents, or effects of P, analogical arguments are particularly strong. This is precisely what seems to be the case in the Analogical Argument for Animal Sentience, at least for some animals: complex brains, nociceptors, and endogenous opioids play specific causal roles in pain experience and pain-based learning in humans. The Analogical Argument for Animal Sentience weakens as similarity decreases.[74]

Method

The method I'll use to develop the argument is two-fold. The first aspect concerns the kinds of evidence considered in developing the argument. Evidence for pain is of three sorts:

[74] Colin Allen suggests that abductive arguments (inferences to the best explanations) for certain behavioral phenomena is superior to analogical arguments concerning animal consciousness, and by extension, sentience. See Allen (2010) and Allen & Bekoff (1997, Ch. 8) for the development of this kind of argument.

1. Behavioral evidence,
2. Neuroanatomical evidence, and
3. Evolutionary-functional evidence.

This approach is now standard (Sherwin 2001), dates back at least to Peter Singer's *Animal Liberation*, and in our present state of incomplete understanding about sentience and consciousness in general, is superior to using any one kind of evidence to attribute or deny sentience to an organism.[75] Thankfully, these three lines of evidence are generally corroborating.

The second aspect of the method I'll be taking concerns not the evidence considered, but the kinds of animals considered and the perspective from which I'll approach evaluating their sentience. Many treatments of animal sentience in the ethics literature are historic and rely on folk taxonomy, i.e. our common sense categorization of animals.[76] It is understandable that many proceed in this fashion for two reasons. First, their pragmatic interests primarily concern "domestic" issues such as use of animals for food, clothing, and research, which typically involve a relatively limited number of taxa, almost all of which are higher vertebrates. Second, phylogenetics, the explicitly evolutionary approach to understanding the relationships amongst

[75] Elwood gives a longer list of evidentiary standards, which can be understood as more detailed specifications of the three lines of evidence just mentioned: (i) Has a suitable nervous system and receptors; (ii) Physiological changes to noxious stimuli, (iii) Displays protective motor reactions that might include reduced use of an affected area such as limping, rubbing, holding or autotomy, (iv) Has opioid receptors and shows reduced responses to noxious stimuli when given analgesics and local anesthetics, (v) Shows trade-offs between stimulus avoidance and other motivational requirements, (vi) Shows avoidance learning, (vii) High cognitive ability and sentience. (Elwood *et al.* 2009). EFSA includes the following largely similar considerations: (i) possess short and long term memory, (ii) exhibit complex learning, such as social learning, conditioned suppression, discrimination and generalization, reversal learning, (iii) show spatial awareness and form cognitive maps, (iv) show deception, (v) perform appropriately in operant studies to gain reinforcement or avoid punishment, (vi) possess receptors sensitive to noxious stimuli connected by nervous pathways to a central nervous system and brain centers, (vii) possess receptors for opioid substances, (viii) modify their responses to stimuli that would be painful for a human after having had analgesics, (ix) respond to stimuli that would be painful for a human in a manner so as to avoid or minimize damage to the body, (x) show an unwillingness to resubmit themselves to a painful procedure indicating that they can learn to associate apparently non-painful with apparently painful events.

[76] One notable exception to this trend, albeit not ethics-oriented, is Adam Zeman's *Consciousness: A User's Guide* (2004), which includes a detailed discussion of evolutionary biology as it pertains to the origins of consciousness.

organisms, is a relatively new field of biological inquiry, whose findings are only beginning to be widely appreciated.[77]

However, the present inquiry concerns potentially all animals, not just those that we commonly eat, use, or otherwise interact with. A more biologically-informed, systematic approach is called for, and offers a few advantages. It overcomes the tendency in folk taxonomy to oversimplify the varieties of life. One such example is the division of organisms into "vertebrates" and "invertebrates," which amongst other things, doesn't do justice to the transitional, "quasi-vertebrate" phyla. We won't get anywhere in determining whether or not hagfishes, traditionally regarded as vertebrates even though they are non-vertebrate craniates, are sentient by determining whether or not they are or really vertebrates because, while "no brain, no pain" *may* be true, "no spine, no pain" surely is not.[78] Even the name "in-vertebrates" is telling. The members of a single chordate species, *Homo sapiens*, define 97% of animal species in terms of what they lack.[79]

A brief overview of the evolutionary history and taxonomy of the animal kingdom will help set the stage for the discussion of animal sentience to follow. *Figure 1* depicts the most likely phylogenetic hypothesis about animal evolution from early single-celled protists. Animals

[77] For an introduction to phylogenetics written for a popular audience, see Colin Tudge's, *The Variety of Life: A Survey and a Celebration of All the Creatures that Have Ever Lived* (2000).

[78] Vertebrates are chordates with a spinal column, cranium, and vertebra. Traditionally, lampreys and hagfishes were considered vertebrates, i.e. all Agatha, or "jawless fishes", are vertebrates. However, lampreys are vertebrates and hagfish are non-vertebrate craniates. Furthermore, lampreys and hagfishes are more closely related to each other than either is to the gnathostomes (jawed vertebrates). Despite previous ridicule, there is now strong evidence that Agnatha is a "good" clade known as the cyclostomes (Delabre 2002).

[79] Also, a phylogenetic approach is significant because, if there are sentient animals which are evolutionarily distant from humans (e.g. any protostome), then sentience is a characteristic not shared by a common ancestor, i.e. a case of convergent evolution like flight (birds, bats, and insects), homoeothermia (mammals, birds, and some fish), and vision (too many instances to mention). We can use this to identify related organisms and perhaps even learn more about the evolutionary significance of sentience, i.e. as we get a better handle on what consciousness and sentience are and how widely they are distributed, we can also gain more traction on their adaptive value.

came into existence over 700 million years ago, although most emerged during the so-called "Cambrian explosion" (or Cambrian radiation) approximately 542 million years ago. Except for a few minor phyla, the animal kingdom divided early into two major phyla: the deuterostomes and protostomes.[80] All vertebrates are deuterostomes. There are also some deuterostome invertebrates, including non-vertebrate chordates (lancelets, tunicates, and hagfish), echinoderms (sea cucumbers, urchins, sand dollars, starfish, etc.), Hemichordata (acorn worms), and Xenoturbella (two known species of primitive worm-like deuterostomes). However, most invertebrates are protostomes. There are three major groups of protostomes: Ecdysozoa (arthropods and nematodes), Platyzoa (flatworms and rotifers), and Lophotrochozoa (mollusks and annelids).

Three Forms of Evidence for Animal Sentience

Now that I've given an overview of the structure of the Analogical Argument for Animal Sentience and disclosed the two-fold method, I will move to survey the three lines of evidence for animal sentience, and then examine the particularities of various phyla in order to arrive at an all-things-considered answer for each. I'll first discuss behavioral evidence, then neuroanatomical evidence, and I'll finish with evolutionary-adaptive evidence.

[80] They are distinguished by a difference in their embryonic development. In deuterostomes, the first opening on the embryo, the blastopore, becomes the anus, whereas the blastopore becomes the mouth in protostomes.

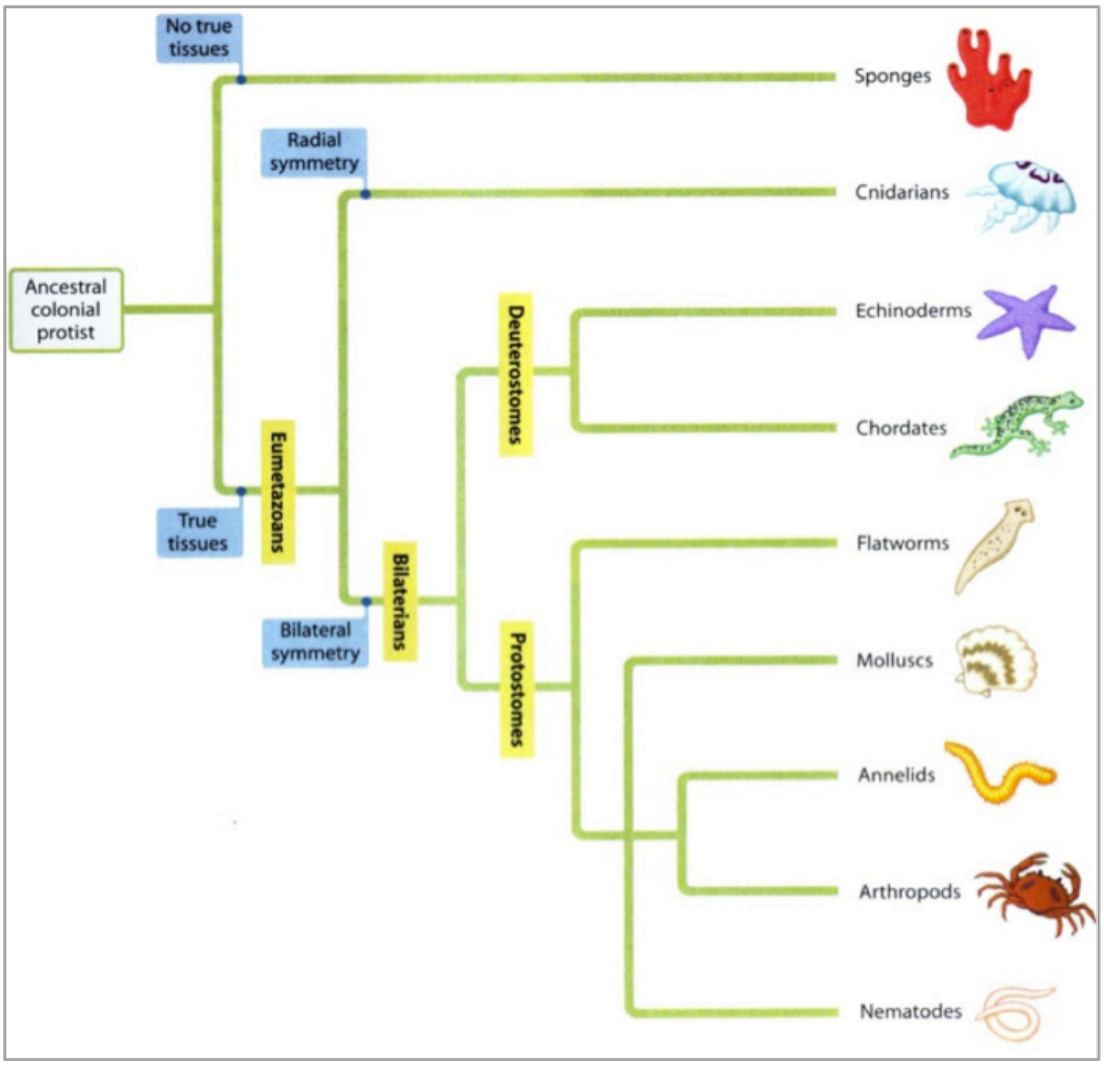

Figure 1: An Evolutionary Overview of the Animal Kingdom
with Some Defining Features (Campbell 2009, 369).

Behavioral Evidence

Behavioral evidence of sentience is easy enough to understand. We exhibit "pain behavior" when subjected to noxious stimuli and we experience pain, and we exhibit "pleasure behavior" when subjected to pleasant stimuli and experience pleasure. Some animals exhibit similar behavior when exposed to similar stimuli, and this is evidence that they have similar experiences.

In humans, a standard way to indicate our mental states is through language. Language in living nonhuman animals is controversial, but possibilities include other primates, cetaceans, songbirds[81], cephalopods (Byrne 2003), prairie dogs (Slobodchikoff 2009), and bees. The distinction between language and communication is slippery and controversial, although the recent evolutionary turn in linguistics and ethology poses some promise. While most potential cases are probably best understood as communication rather than language, the case for language ability in nonhuman primates, especially common and bonobo chimpanzees, is quite strong.[82]

Language notwithstanding, there are other forms of behavioral evidence for animal sentience, many of which we also use in the human case when pain is not expressed linguistically. These include gestures, facial expressions, eye-contact, vocalizations, social behavior, color changes (octopuses change color depending on mood, white for fear and red for anger), disuse of injured parts, and "nursing" an injury.

Perhaps more than the other two lines of evidence, relying solely on behavioral evidence is problematic for two reasons. The first is that we deny animal pain based on the absence of

[81] For discussion of a particularly fascinating case, Alex the Gray Parrot, see Wise 2002, 90-108.
[82] Their larynxes preclude the possibility of human speech, but strong evidence for the ability for language use comes in the form of sign language and lexigram keyboards.

'appropriate' behavior, or fail to interpret behavior as indicative of pain. Acting 'like us' is not a necessary condition of being in pain. Evolutionarily distant animals are dissimilar from us in radical ways, and an inherent weakness in the argument from analogy is the worry that our evaluations are based on the degree to which animals behave like us.

The second worry is that not all seemingly-appropriate behavior is indicative of sentience. Too often, philosophers, like lay persons, have relied solely on behavioral evidence for sentience. This is problematic because a behavioral response to noxious stimuli is possible in the absence of sentience, which results in the attribution of sentience to more organisms than is corroborated by other lines of empirical evidence. In short, not all behavior responsive to noxious stimuli involves the experience of pain, and therefore we cannot attribute sentience to an organism on the basis of behavior alone. It is in this milieu that seemingly mistaken attributions of sentience, such as Wittgenstein's reflections on flies and Mark Sagoff's false dilemma of saving a worm from a bird (Sagoff 1984), are possible.

A bacterium (Berg 1975), a Roomba (an autonomous vacuum cleaning robot), and a garage door opener have a withdrawal reflex. A withdrawal reflex has also been observed even in decapitated insects (Horridge 1962). Various single-celled organisms can detect light, gravity, touch, and various chemicals (Butler 2002, 414). Other protective motor reactions, such as escape behavior are widely observed throughout the animal kingdom, and are often stereotyped and scripted rather than plastic. The flatworm (*Notoplana aticola*) exhibits such a motion. The tail-flick response of crustaceans is another such avoidance behavior.

These behaviors are usually governed by short neural arches in their limbs allowing them to quickly withdraw from noxious stimuli without the involvement of the central nervous system.

In our own case, the withdrawal reflex occurs *before* consciousness of the noxious stimuli. In the clichéd case of one's hand on a hot stove, the hand is removed before pain is felt. Such genetically scripted behavioral responses to noxious stimuli are also adaptive. It is possible, and apparently, common to have reflexes without consciousness; however, all with consciousness do also have reflexes. Learning might seem to be more indicative of sentience, but simple associative learning and nociceptive sensitization can be achieved even in single small ganglion, such as the abdominal ganglion in snails such as *Aplysia* (Crook 2011, 192).

Elwood holds the observance of behavior in high regard in deciding questions of pain perception:

> It is thus behavior that provides the greatest insights into the likely experience of pain. Rapid avoidance learning, coupled with a prolonged memory, indicates central processing and is consistent with pain, but it is more convincing after one stimulus than after numerous repetitions. Complex, prolonged grooming or rubbing might indicate an awareness of the specific site of stimulus application and seems to be more than a reflex reaction. Tradeoffs with other motivational systems indicate central processing and may be useful to determine what an animal will "pay" to avoid the noxious stimulus. An ability to use information from various sources might indicate sufficient cognitive ability for the animal to have a fitness benefit from a pain experience. (Elwood 2011, 1982)

Observations of the neuroanatomy during such behavioral experiments could prove to be especially illuminating.

Neuroanatomical Evidence

The second line of evidence is neuroanatomical evidence, which concerns the quantity and type of neurological 'hardware' that organisms possess, as well as specific neurotransmitters, hormones, and chemicals. The nervous system of multicellular animals varies from simple nerve

nets to highly complex nervous systems consisting of a brain, spinal cord, and peripheral components.

No empirical evidence suggests that consciousness occurs except in collections of neurons.[83] We have no reason to suspect that neuronless entities – rocks, chairs, fungi, etc. – are sentient.[84] From here, there is a logical gap to conclude that all neuron-less organisms are nonsentient, i.e. this conclusion is not deductive. It is true that "absence of evidence is not evidence of absence" (Sagan 1997, 213). However, we are often justified in concluding that certain phenomena are not occurring based on the evidence of absence, as Irving Copi notes:

> In some circumstances it can safely be assumed that if a certain event had occurred, evidence of it could be discovered by qualified investigators. In such circumstances it is perfectly reasonable to take the absence of proof of its occurrence as positive proof of its non-occurrence. (Copi 1982, 102)

The two prokaryotic biological domains - Bacteria and Archae - can be summarily excluded. In the remaining domain, Eukarya[85], the vast majority of organisms are mindless as well: all

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[83] Or at least in connection to neurons. While I think physicalism is true, this claim is not necessary, strictly speaking. Adherents to dualist philosophies of mind surely grant that neurons and not other parts of living things or inanimate matter are the mediators through which the nonphysical mind (or nonphysical mental states or whatever) interacts with the physical body. In what follows, I'll assume physicalism is true, but what is said can presumably be interpreted as concerning the *meditative* functions of the brain, given that nonphysical minds do not causally interact with substances other than those possessing neurons.

[84] I suppose it is conceivable that sentience evolved even in one-celled organisms, or for all we know, some version of panpsychism is true. For example, in *The Emperor's New Mind* (1989), Roger Penrose gives a speculative account that microtubules in neural cells are components of quantum amplifiers that are ultimately responsible for consciousness. Microtubules are present in all eukaryotic cells at least, including all single-celled eukaryotic organisms. Also, Paul Stamets has noted the similarity between complexly connected fungal mycelia and assemblages of neurons and speculated about a kind of fungal consciousness: "You have a neurological landscape that looks like mycelium. It is no accident that brain neurons and astrocytes are similarly arranged. It is no accident that the computer Internet is similarly arranged" (Baker 2003). Of course, both of these accounts are highly speculative.

[85] The phylogeny of Eukarya is complex, inadequately understood, and hotly contested. For present purposes, Woese's four kingdom model suffices (1990).

members of Fungi, Plantae, and Protista[86] are pretty clearly out. As should be no surprise, sentient organisms are a subcategory of the remaining kingdom: Animalia. Sponges and other early animals lack true tissues, including a nervous system, and are clearly out. Starting from early animal phylogeny, a basic nervous system is present in both Cnidaria (sea anemones) and Ctenophora (comb jellyfish), therefore, tracing the phylogeny, a basic nervous system was likely of monophyletic origin and present in their common ancestor, an earlier Eumetazoan (Cavelier-Smith 1996).

Total brain size, number of neurons, brain-to-body weight ratio, encephalization quotients, etc. are all general ways to get a sense of an organism's mental capacities, including sentience. In very general terms, the larger and more complex an organism's brain, the more intelligent and sentient that organism tends to be. The extent to which the number of neurons and total brain sizes of various organisms correlate roughly with our intuitive sense of their cognitive and emotional sophistication.[87] Brain weight to body weight ratio is a better guide, as shown in *Figure 2.* Brain to body weight ratios for mammals is twice that of birds and ten times that of reptiles (Northcutt, 2002). EFSA summarizes the general point well:

> Studies of complexity of brain function can give much information about ability as well as about welfare. One measure of brain complexity is the total numbers of nerve cells present in the central nervous systems, for these cells are the basic elements responsible for neural integration, memory and the generation of behaviour. Nerve cell numbers in central nervous systems vary enormously across different animal species… This rank order seems well correlated with the performance ability and behavioural sophistication

[86] Protista is a controversial kingdom in taxonomy and systematics; it is most likely a mere catch-all kingdom, encompassing 30-40 phyla of eukaryotes not subsumed by the other eukaryotic kingdoms.

[87] Here is a short list of species with respective neuron counts: Sponge 0, Roundworm, *Caenorhabditis elegans*, 302. Sea Slug 7,000, Ant (varies by species) 10,000-100,000, Pond Snail 11,000, Fruit Fly 100,000, Honey Bee 850,000, Cockroach 1 million, Mouse 4 m. (cerebral cortex), Frog 16 m., Rat 15 m. (cerebral cortex), Octopus 300 m., Cat 300 m. (cerebral cortex), Dolphin 5.8 billion (cerebral cortex), Chimpanzee 6.2 b. (cerebral cortex), Human 11 b. (cerebral cortex) and 100 b. total, Elephant 200 b., Whale 200 b.

of the different animal groups. (EFSA 2005, 26-27)

Working from our own case, the neuroanatomical evidence for sentience is strongest in other mammals. The neuroanatomical evidence strongly suggests that at least all vertebrates are sentient. All vertebrates have brains with the same major structural features and divisions. The vertebrate brain is typically divided into the forebrain, midbrain (mesencephalon), and hindbrain. The forebrain includes the telencephalon (cerebrum) and diencephalon (thalamus and hypothalamus). The hindbrain includes the cerebellum, pons (metencephalon), and medulla oblongata (myelencephalon). These similarities reflect both common ancestry and comparable functionality (Butler 2002).

Subsequent neurological differentiations are riffs on this motif. All vertebrates (as well as lampreys and hagfishes), have a differentiated cerebrum. The cerebrum appears to be responsible for such functions as consciousness, learning, memory, volitional movement, sensory processing, olfaction, language/communication. In particular, it is significant that all vertebrates (as well as lampreys and hagfishes) have a diencephalon, which consists of the hypothalamus, thalamus, epithalamus (including the pineal gland), and subthalamus. The diencephalon is the region of the forebrain involved in impulses, emotions, and feelings (Singer 1990, 11), and the thalamus appears to play an important role in pain consciousness.[88]

[88] As Gary Varner notes: "damage to the portion of the cerebrum devoted to bodily sensation (the somatosensory cortex) does not destroy awareness of bodily pain. Only the 'ability to localize the stimulus or to discriminate its intensity is severely impaired' by injuries to the somatosensory cortex. Conversely, when damage is limited to the thalamus, 'thalamic pain' – intense pain triggered by minor bodily contact – results (Varner, 1998, 39, n. 4). Here, Varner is citing Nolte 1981, 177.

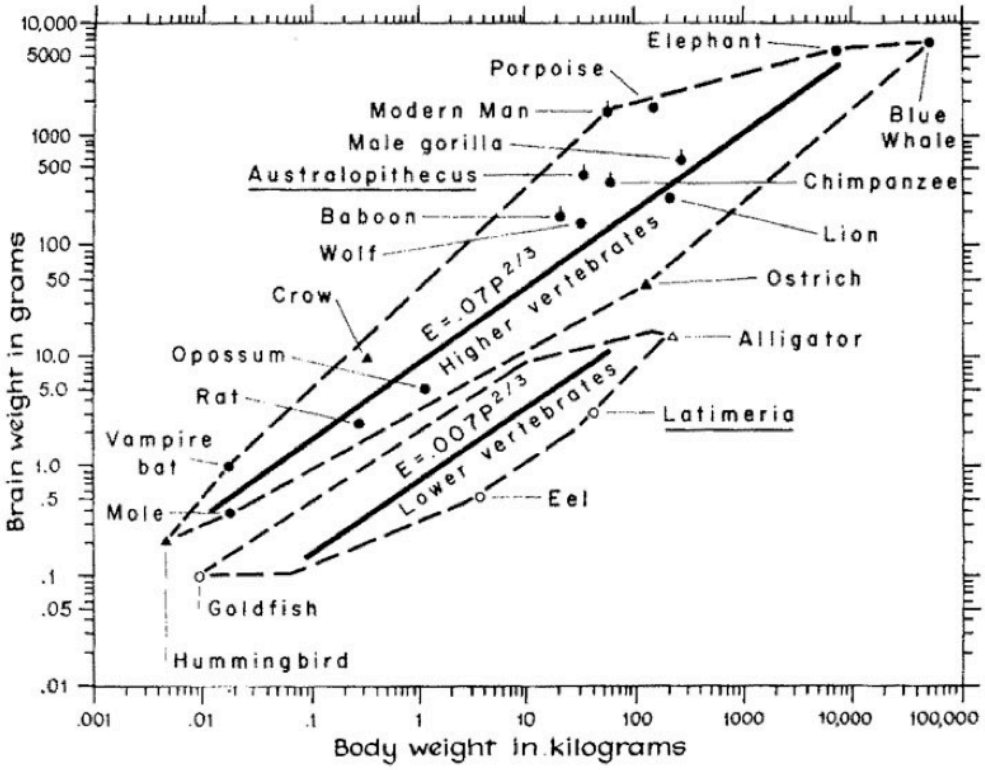

Figure 2: Relation between Brain Weight and Body Weight of Living Vertebrates (Jerison 2011).[89]

[89] Note that the axes represent exponential rather than linear weight increases.

The remaining differences concern *how* and *to what extent* the cerebrum is differentiated. All herpetofauna (reptiles and amphibians), birds, and mammals have a cerebral cortex, which, however, is absent in fish. Herpetofauna are less neurologically complex with comparatively less developed cerebral cortexes than mammals and birds. Birds and mammals – and their brains – both evolved from reptiles, but did so separately. In birds, the hyperstriatum is a highly developed and differentiated region at the base of the cerebrum, which is homologous in many functions to the prefrontal cerebral cortex in mammals. In mammals, the prefrontal cortex on the cerebrum is more developed and differentiated. The development of the cerebral cortex is the best measure of mammalian intelligence and development of the hyperstriatum is the best measure of intelligence in birds (Varner 1998, 38).

Nociception is "the neural processes of encoding and processing noxious stimuli," (Loeser and Treede 2008). Bernard Rollin calls nociception "the machinery or plumbing of pain" (Rollin 1989, 124). While partly true, this is misleading because nociception can occur without pain. The two are often conflated, and it is important to keep them separate. In the famous essay, "Consider the Lobster," David Foster Wallace conflates the two.[90] After noting that the human cerebral cortex contains humans' higher faculties, Wallace says that "pain reception is known to be part of a much older and more primitive system of nociceptors and prostaglandins that are managed by the brain stem and thalamus" (Wallace 2004).[91] The mistake is seen more clearly in his elaboration by way of example:

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[90] This shouldn't be taken to mean that lobsters are not (or are) sentient. Lobsters and other decapod crustaceans are discussed below.

[91] Later in the essay, Wallace does make the relevant distinction: "There is, after all, a difference between (1) pain as a purely neurological event, and (2) actual suffering, which seems crucially to involve an emotional component, an

continued

> The common experience of accidentally touching a hot stove and yanking your hand back before you're even aware that anything's going on is explained by the fact that many of the processes by which we detect and avoid painful stimuli do not involve the cortex. In the case of the hand and stove, the brain is bypassed altogether; all the important neurochemical action takes place in the spine. (Wallace 2004, n12)

The problem is that, in humans, the higher faculties seated in the cortex include consciousness, and pain is, by definition, conscious. The brain stem and thalamus concern nociception. While it's true that "all the important neurochemical action" to avoid damage takes place in the spine of humans, none of it involves pain.

Nociception is a nonconscious neural activity which is distinct from, yet closely associated with the experience of pain. C.S. Sherrington discovered nociceptors, and noticed that they were correlated with reflex withdrawal, autonomic responses, and pain (Sherrington 1906). Nociceptors have been found even in the 'lowly' medicinal leech (*Hirudo medicinalis*), a fairly typical annelid worm; and each segment of its body has a ganglion with nerve cells receptive to noxious stimuli (Nicholls 1968). We know that Cnidarians lack nociceptors, yet some are sensitive to noxious mechanical stimuli through neurons which are not 'true' nociceptors. It appears that it was in the early evolution of bilateralism and the development of a more structured nervous system that nociceptors first appeared (Smith 2009). *Figure 3* includes a helpful phylogenetic overview of nociception throughout major phyla. Less technically, nociceptors are the free nerve endings that act as the beginnings of an organism's "alarm system" to potential damage. Passing a particular threshold often results in defensive actions on the part of the organism, and may result in pain. These potentially damaging stimuli include thermal (hot

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awareness of pain as unpleasant, as something to fear/dislike/want to avoid." However, $pain_1$ is not pain but nociception, and $pain_2$ is pain.

and cold), mechanical (extreme pressure, lesions to the skin), and chemical (such as capsaicin, as anyone who has sliced spicy peppers and touched his eye knows all too well). These three kinds of myelinated nociceptors are associated with 'rapid pain,' which is quick onset, but which quickly dissipates if no damage is sustained, and are carried by A-delta nerve fibers. There are also so-called 'silent nociceptors' which only fire in response to inflamed tissue, typically occurring from actual tissue damage. These C-fibers are unmyelinated, transmitting information much more slowly, resulting in so-called 'slow pain'.

In animals that have them, nociceptors are found both inside and on the body's surface. Externally, they occur in the skin, mucous membranes, and corneas. Internally, there are nociceptors in many internal organs as well as muscles, joints, and along the digestive tract.

Significantly, damage to areas of the body where nociceptors are absent does not result pain. For this reason, in the absence of nociceptors, there is literally no (path)way that could cause an organism to have a sensation of pain as a result of tissue damage in its body.[92] However, the presence of nociceptors alone is not necessarily indicative of sentience either, because nociception is also associated with reflexive and autonomous behavior such as an organism's scripted withdrawal response.

We often describe a pain has having both sensory and an affective aspects. The sensory part is more information-oriented, including the location and qualities of the pain. The affective aspect of pain concerns how bad the pain feels. Pains which are about equal in the affective sense can differ markedly in their sensory qualities, and vice versa.

[92] Nonetheless, there is still the possibility of neuropathic pain or pain resulting from the direct stimulation of the certain parts of the CNS, but presumably, neuropathic pain only occurs in organisms which can experience 'ordinary' pain, which requires nociceptors.

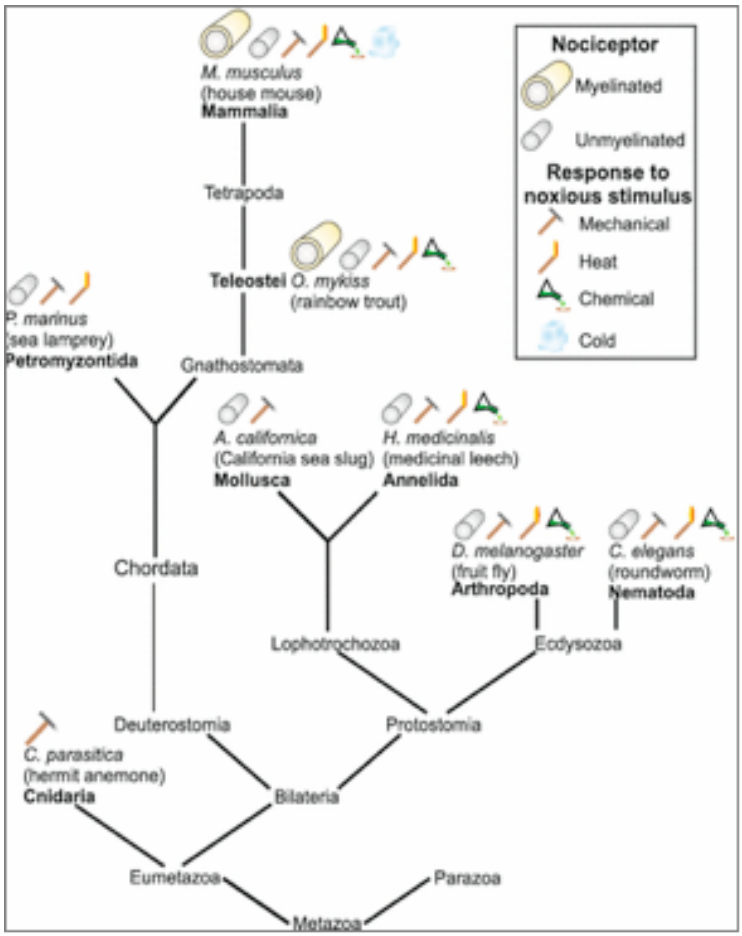

Figure 3: The Acquisition of Different Capabilities by Nociceptors From an Evolutionary Viewpoint (Smith 2009)[93]

[93] "Starting with Cnidaria with an ability to sense a noxious mechanical stimulus, but no defined nociceptors, and ending with mammals, which have both myelinated and unmyelinated nociceptors capable of detecting a wide range of mechanical, thermal and chemical (acid, capsaicin etc.) stimuli. The graph is not fully conclusive because, to our knowledge, not all species have been examined for sensitivity to all stimuli, for example *P. marinus* N-cells have not been tested for either capsaicin or acid sensitivity" (Smith 2009).

Perhaps the clearest case of this distinction occurs in patients suffering from pain asymbolia, a condition resulting from brain trauma, lobotomy, or morphine analgesia, in which the location and intensity pain is perceived, but the pain does not include suffering. As Nikola Grahek puts it, there are two kinds of pain disassociation: pain without painfulness and painfulness without pain, the former of which is much more common and is what occurs in pain asymbolia (2007). It is seemingly paradoxical, but it is possible to perceive even extreme pain, yet not be bothered by it. The same disassociation of sensory and affective parts of pain seems to occur in other pathological mammals, including rats and monkeys, based on their behavior (Shriver, 2006).

Anatomy corroborates and corresponds to the phenomenology of the sensory and affective components of pain. There are two pain pathways: the medial pathway, which is correlated with the affective 'part' of pain, and the lateral pathway, which is correlated with the sensory 'part' of pain. The medial pathway passes through the ventral region of the anterior cingulate cortex, which is responsible for processing emotion and motivational information in humans at least (Bush 2000).

The limbic system is the area of the human brain primarily responsible for mediating emotion. The parts of the limbic system considered to be central to emotion as we know it are all subcortical parts of the brain: the hypothalamus, basal forebrain, amygdala, and brain stem (Damasio 2001, 781). The limbic system itself and the afferent neurons supplying it with sensory inputs are "strikingly similar" among vertebrates, suggesting the requisite structure for having emotions (Butler 2008, 6).

The presence or absence of endogenous opioids is another piece of the pain puzzle. Opioids are chemical transmitters that regulate the pain pathway in mammals and other vertebrates. They are released in response to nociceptive signals in the spinal cord, modulating conscious awareness of pain. Part of the explanation for this is that too much pain is maladaptive.

Opioids are also present in many invertebrates. Some have used the presence of opioids as evidence that invertebrates are sentient. Joan Dunayer uses this line of argument:

> [A]bundant evidence indicates that all invertebrates with a brain can experience pain. Like vertebrates, numerous invertebrates produce natural opiates and substance P [a neurotransmitter and neuromodulator found in the brain and spinal cord which is associated with nociception]. These animals include crustaceans (e.g., crabs, lobsters, and shrimps), insects (e.g., fruit flies locusts, and cockroaches), and mollusks (e.g., octopuses, squids, and snails). (Dunayer 2004, 128)

However, opioids were present early in evolutionary history, likely before sentience emerged. Their role is to modulate activity in the nervous system, just as morphine has both analgesic and sedative properties (Kavaliers 1988). In other words, opioids "calm the nerves" in many organisms with nervous systems, not all of which are necessarily sentient. Opioid compounds have even been discovered in protozoa (Roith 1981, 566A). Therefore, the presence of opioids (or at least their functional role), just like nociception, is necessary but not sufficient for sentience in life as we know it (Dyakonova 2001).

Pharmaceutical research on animals for human application provides strong evidence of pain in mammals. The degree to which the findings of pharmaceutical research on animal subjects can be extrapolated to humans relies on the fact that the brain receptors responsive to psychotropic drugs – from analgesics to heroin, and crack to Prozac – and the resulting animal behavior are highly analogous to those of humans. Prozac reduces depression and anxiety in

mice (Dulawa 2004). Many species self-administer addictive drugs in the same way as humans addicted to these substances. The effects of personality have even been documented; cocaine self-administration varies according to an individual's impulsivity (Dalley 2007). Morphine extends the length of time it takes crickets (Dyakonova 1999) and snails (Kavaliers 1983) to avoid the heat of a hotplate, but it is unclear whether this nerve modulation is nociceptive only or also indicative of pain.

Perhaps the most significant question is the one we do not have the answer to. Just how low the minimum number of neurons required for phenomenal consciousness and sentience? For example, it is hard to imagine that the 302 neurons in the roundworm (*Caenorhabditis elegans*) are sufficient for sentience, especially considering behavioral and evolutionary evidence in tandem. Darwin thought that the brain of an ant – which has approximately 10,000-100,000 neurons depending on the species –was in some respects more impressive than that of a human:

> It is certain that there may be extraordinary mental activity with an extremely small absolute mass of nervous matter: thus the wonderfully diversified instincts, mental powers, and affections of ants are notorious, yet their cerebral ganglia are not so large as the quarter of a small pin's head. Under this point of view, the brain of an ant is one of the most marvellous atoms of matter in the world, perhaps more so than the brain of man. (Darwin 1871, 48)

The question is whether such a small mass of neurons is able to produce sentience. Unfortunately we do not know the answer to this question, and must make inferences about such comparatively simple organisms based on a total assessment of neuroanatomy, behavior, and evolutionary adaptive value.

Evolutionary Adaptation Evidence

The third line of evidence concerns the evolutionary role of pain. Nociception is clearly adaptive and was surely a necessary evolutionary precursor to pain:

> The ability to react to environmental change is crucial for the survival of an organism and an essential prerequisite is the capacity to detect and respond to aversive stimuli. The importance of having an inbuilt "detect and protect" system is illustrated by the fact that most animals have [nociceptors]. … The ability to sense life threatening mechanical forces is perhaps the most conserved sensory trait among living organisms, demonstrated by *Escherichia coli* bacteria possessing mechanosensitive channels. (Smith 2009)

Nociception clearly predates the Cambrian explosion when modern animal phyla emerged approximately 550 million years ago. Elwood speculates that:

The next step in the development of pain was probably a link between nociception (with the associated reflex response) and a longer-term motivational change (with central processing and memory). But in which groups did this development take place and when? (Elwood 2011, 176)

Marian Stamp Dawkins puts the point about pain specifically as follows:

> Pain evolved because, by being unpleasant, it keeps us away from the larger evolutionary disaster of death. Pain is part of a mechanism for helping us to avoid immediate sources of injury, and also to refrain from repeating actions that have resulted in damage. (Dawkins 1998, 308)

Pain allows an organism to avoid damaging stimuli, both presently and if the painful experience is remembered, then in the future as well. Note that Dawkins connects learning and memory with the utility of pain. It also causes us to immobilize damaged parts and protect them so as to not cause further damage and so that healing may occur. It seems to be the case that pain is especially adaptive for longer-lived organisms.

It is noteworthy that these functions of pain are potentially adaptive only in motile organisms, i.e. sessile organisms don't move and thus cannot avoid damaging stimuli or disuse damaged parts (as the can't 'use' them). Therefore, we should not expect sentience to occur in organisms incapable of taking advantage of the information and motivation that pain provides. So, we should not expect sessile organisms to be sentient. Their nonsentience appears to be corroborated by the neurophysiological and behavioral evidence. This is also the case for organisms with limited motility, such as bivalve mollusks, where a withdrawal reflex suffices for shell closure and their jet-propelled escape response. This, of course, is not to suggest that all motile organisms are sentient.

There seem to be distinct adaptive advantages to having both rapid and slow pain pathways because:

> [R]apid pain may serve as a response to the threat of tissue damage, by leading to rapid limb movement away from a noxious stimulus. [Slow] pain leads to tonic contraction of muscle, causing immobilization and allowing healing and repair. (Rose and Adams 1989, 47).

Still, each pain "speed" is likely adaptive on its own. It might be the case that some organisms possess one and not the other.

The inability to perceive pain in individuals from ordinarily sentient species is striking. Humans with the rare condition known as congenital insensitivity to pain (CIP) are in constant danger, and have shorter life expectancies. One young woman with CIP bit off the tip of her tongue while chewing food and received third-degree burns simply from kneeling on a radiator in order to look out of a window. She died early in life due to tissue damage and the resulting infections (Pinel 2007). It is important to note that those with CIP are not for this reason not

sentient. They still are sentient, i.e. they still have various positive and negative affective states, it is just that there is a set of experiences, namely painful ones, that are inaccessible to them.

An interesting aside is that the ability to perceive pain is not strictly speaking a necessary condition of sentience. Therefore, we cannot conclude that beings which cannot perceive pain are nonsentient, because they could possess phenomenally conscious affective states other than pain. To my mind, the most likely candidates for this are positive affective states as 'positive reinforcement' for evolutionarily advantageous acts, e.g. those resulting from eating and sex. These could be adaptive as positive reinforcement even for creatures that lack the negative reinforcement of pain. Of course, the ability to perceive pain is still a sufficient condition of sentience, and most research on animal sentience has focused on pain, so my discussion will mostly concern pain, following available evidence.

3.4 - A Phylogenetic Survey of Animal Sentience

I will now survey the evidence for sentience in animals in various phyla. I begin with species most closely related to humans, as the analogical argument is strongest in their case, and work "down" the tree of life to increasingly more distant species on the same branch as humans. I then consider the most basic animals and then more highly evolved forms on different evolutionary branches than our own and that of other tetrapod vertebrates.

Chordates: From Mammals "Down" to Tunicates

The case for sentience in 'higher' vertebrates – mammals, birds, and herpetofauna – is so strong and uncontroversial that I won't rehearse it here.[94] For mammals, birds, and herpetofauna, the relevant question is not *whether* they are sentient, but what the character of their minds is. There are fascinating issues in the nature of animal minds, but my concern here is solely the demarcation "line" of sentients from nonsentients, the basement of moral considerability. *Figure 4* shows a likely phylogenetic hypothesis of chordates.

Ray-Finned Fishes (Teleosti)

Over the past few decades, there has been some controversy in the scientific community over whether fish are sentient, so, I will dedicate more space to addressing the question of fish sentience. The ancestors of modern fishes diverged from the line that gave rise to tetrapod vertebrates approximately 400 million years ago in the Devonian era. This evolutionary distance is part of the reason why fish sentience is more controversial and difficult to assess than is the case for tetrapod vertebrates. The issue is compounded somewhat because there are comparatively fewer studies done on fish, although there has been a splash of research in recent years to which we will now turn.

Fish are the most abundant vertebrates, comprising around 20,000 of the approximately 60,000 vertebrate species. Fish are a paraphyletic group. Technically, "fish" refers to all non-tetrapod craniates with gills throughout life, and whose limbs, if present, are fins (Nelson 2006).

[94] Much of the work by Marc Bekoff (1997, 1998, 2002a, 2002b, 2007, 2009) is a good place to start. He discusses the species of minds, animal cognition, emotions, play, and the proto-morality of animals.

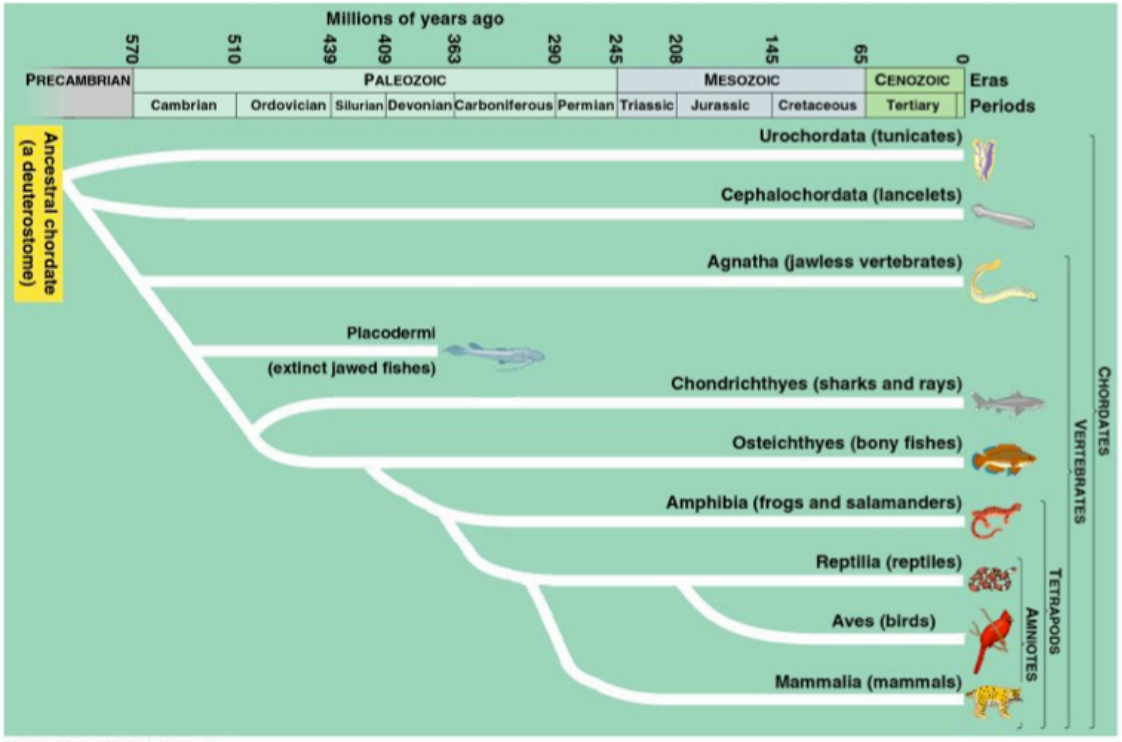

Figure 4: Likely Phylogenetic Hypothesis of Chordates
(Campbell 1999).

Fish are neurologically less complex than tetrapod vertebrates. On average, a fish's brain is about 1/15 the mass of the brain in a comparably sized bird or mammal (Nelson, 2006). Fish are distinguished from all lower animals by the presence of a differentiated cerebrum with hemispheres. However, as *Figure 5* below shows, is comparatively primitive when compared to the human cerebrum. Fish do not have a neocortex, which is the brain structure responsible for sensory functions in mammals. The medial pallium in fish appears to perform an analogous function to the amygdala in herpetofauna and higher vertebrates, suggesting that they possess the basis for emotionality (Broglio, 2005). Fish also produce opioids similar to those which regulate pain in humans. Ray-finned (teleost) fish have nociceptors sensitive to mechanical and chemical stimuli. There are 58 nociceptors on the face and head of a rainbow trout (*Oncorhynchus mykiss*) that respond to noxious stimuli (Sneddon 2003). Both A-delta and C fibers were identified, as in mammals.[95]

Behavioral evidence for sentience in teleost fish is also suggestive. Sneddon's team sought to determine whether nociceptors in fish were associated with reflexive behavior or whether the behavior was subtler. They injected bee venom or acetic acid into the fishes' lips and saline into the lips of fish in the control groups. The harmed fish had an elevated respiration rate and "demonstrated a 'rocking' motion, strikingly similar to the kind of motion seen in stressed higher vertebrates like mammals" (Kirby 2003). They also rubbed their lips on the tank's walls and substrate and took three times longer to resume feeding than the control groups

[95] Interestingly, fish nociceptors are actually *more* sensitive than our own, which is most likely the case because our skin is thicker and hence more resistant to damage than the skin of fishes (Sneddon 2003).

(Sneddon 2003).[96] In a study by William Tavolga, toadfish, one of the few vocalizing fish species, grunted when exposed to an electrical shock, and learned to grunt at the sight of the electrode even when not being shocked, seemingly anticipating the unpleasant sensations (Dunayer 1991).

A more recent study led by Joseph P. Garner showed further evidence of sentience in goldfish (*Carassius auratus*). Half of the fish were given morphine injections. The control group was injected with saline. The fish were then exposed to noxiously high temperatures with small foil heaters. The researchers had hypothesized that the fish injected with morphine would withstand higher temperatures than the saline-injected fish. Both groups of fish exhibited an escape response at the same temperature, indicative of a withdrawal reflex, as pain could not have been felt in the test group. However, later in their home tanks, while the morphine-injected fish behaved normally, "the fish that had gotten saline - even though they responded similarly in the test - later acted differently. They acted with defensive behaviors, indicating wariness, or fear and anxiety," according to Garner. The researchers concluded that the fish “consciously perceive the test situation as painful and switch to behaviors indicative of having been through an aversive experience” (Nordgreen, 2009). In another study, it was observed that goldfish prefer to swim in locations where they have been given amphetamine, a drug which stimulates the release of dopamine, a neurotransmitter associated with pleasure, when given the option (Balcombe, 2006, 14). In summary, these recent studies indicate that analgesics modulate nociception, that fish exhibit avoidance learning, and exhibit abnormal behavior in response to noxious stimuli.

[96] James Rose published a critique of this paper. His main points reiterate the aspects of his view as discussed herein. See: Rose (2003).

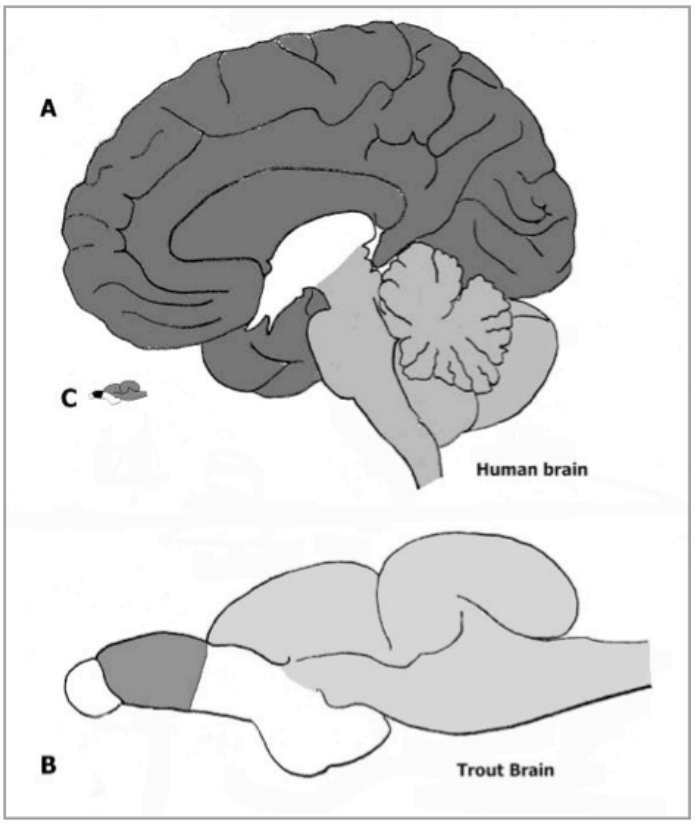

Figure 5: Structural (A:B) and Size (A:C) Comparisons of Human and Trout Brains (Royal (Dick) School of Veterinary Studies, University of Edinburgh). [97]

[97] Grey-scale tones are analogous brain regions. The light grey region is the brainstem and cerebellum. The white region is the diencephalon. The dark grey region is the cerebrum. A and C reflect the relative size difference between a human brain and trout brain. Source: Royal (Dick) School of Veterinary Studies, University of Edinburgh, "Do Fish Feel Pain?"

Cartilaginous Fishes (Chondrichthyes)

The extant members of Chondrichthyes (cartilaginous fishes) include both Elasmobranchii (sharks, skates, and rays) and Holocephali (chimaera, ghost sharks, ratfish, spook fish). The popular misconception of sharks is that they are "mindless killing machines" with a brain the size of a walnut. Actually, cartilaginous fishes generally have much larger brains than other poikilothermic vertebrates of the same size, and their brain-mass to body-mass ratios overlap the range for mammals and birds (Demski 1996). Also, there is a widespread misunderstanding of fish neuroanatomy that most of the shark's brain is dedicated to its sense of smell. The shark's forebrain contains both olfactory organs and cerebral hemispheres. In vertebrates generally, the olfactory bulbs are connected to the cerebral hemispheres, so this was also assumed to be true of sharks. However, elasmobranches are apparently unique among vertebrates because the olfactory tracts are fused to the sides of the cerebral hemisphere, creating the false impression that the cerebrum is smaller than it actually is (Martin 2011). Distinct from teleost fish and other vertebrates, Chondrichthyes possess very few C fibers, although A-delta fibers are present (Snow 1993). In electrophysiological studies of stingrays, slowly adapting mechanical nociceptors were not found (unlike mammals), nor were temperature-sensitive nociceptors (Sneddon 2004).

Behavioral evidence for sentience in cartilaginous fishes is a mixed bag. There is a lot of anecdotal maritime evidence that sharks do not respond even to extreme injury when in a "feeding frenzy," indicating that they do not sense such injuries as noxious, continuing to feed even when incurring fatal injuries. However, some dog breeds also have a high pain tolerance, yet nonetheless clearly are sentient. On the other hand, the Porbeagle shark is one of the few

species of fish known to play with objects individually and in groups. There are even anecdotal accounts of Porbeagle's playing what appears to be a cartilaginous version of the game of tag: individuals spin through kelp beds, seemingly with the intention of getting the kelp wrapped around their bodies. Other sharks in the group chase the shark streaming the kelp behind it. Play is typically intrinsically motivated and is associated with enjoyment. Commenting on the Porbeagle case and other anecdotal accounts, Martin concludes that:

> This species seems to possess curiosity and a sense of exploratory play, the ability to investigate novel objects in an apparently systematic way, a keen sense of caution and quickly learns to avoid unpleasant stimuli, it can learn to recognize inedible objects and not waste effort in trying to eat them, it has a sense of property and will defend a food resource in an oriented, apparently calculated – but non-violent – way, and may even co-operate to enable group members to maximize their feeding efficiency (Martin 2011).

Based on their apparent lack of nociceptors and nociceptive behavior, it seems unlikely that Chondrichthyes experience pain. Yet considering their large brains and considerable intelligence, it seems to be the case that some or all Chondrichthyes are nonetheless phenomenally conscious and otherwise sentient. This conclusion is tentative, as there is comparatively less research on Chondrichthyes than Teleost fish.

Skepticism about Fish Sentience

Some authors deny fish sentience because fish lack a cerebral cortex. James Rose of the University of Wyoming gives this line of argument:

> There are no neurological bases for assuming that fish might have the capacity for consciousness and pain. In order to show that fish experiences pain, it is necessary to show that a fish has consciousness. This depends on a specific area of the brain, namely the neocortex regions of the cerebral hemisphere, which are absent in fishes. (Rose 2002).

He makes a similar point regarding fear in saying that "because the experience of fear, similar to pain, depends on cerebral cortical structures that are absent from fish brains, it is concluded that awareness of fear is impossible for fishes" (Rose, 2002). Rose concludes that:

> Fishes display robust but nonconscious, neuroendocrine, and physiological stress responses to noxious stimuli. Potentially injurious stress responses, as opposed to pain or emotional distress, are the proper matter of concern in considerations about the welfare of fishes. (Rose 2002, 2)

More broadly, Rose denies that fish are phenomenally conscious, claiming that their perception is akin to blindsight in humans. The basic argument we can glean from Rose seems to be as follows:

1. All sentient beings have a neocortex.
2. Fish do not have a neocortex.
3. Therefore, fish are not sentient beings.

The problem with this line of argument is that it is implicitly committed to the identity theory of consciousness. We could similarly conclude that fish don't respire because they lack lungs! To see how radical Rose's view, we need only recall that birds lack a neocortex too. Recall that it is the hyperstriatum and not the neocortex that is highly developed in birds. Therefore, per Rose's account, birds and herpetofauna are not conscious either.

The problem is that there is no reason to suppose in advance that sentience is necessarily tied to a specific neurological structure. Octopuses are pretty clearly sentient (discussed below), and if this is the case, and because cephalopod minds evolved independently from vertebrate minds, we have no reason to expect sentience to be instantiated only in a particular neurological structure such as the neocortex. Rose cannot account for even the possibility of convergent evolution producing sentience in disparate species, and sentience is very probably not

monophyletic. A functionalist theory of consciousness is more plausible than identity theory in its own right, and in light of other available evidence, supports fish sentience.[98]

Rose points to studies where the cerebral hemispheres of fish have been removed with the brainstem and spinal cord left intact, noting that while their learning ability is diminished, their behavior, including nociceptive behavior, is largely preserved. However, this is also true of mammals:

> Experiments on decorticate mammals have shown that complex, though stereotyped, motor responses to noxious stimuli may occur in the absence of consciousness and, therefore, of pain. (Iggo 1984)

It is noteworthy that decorticate fish have a significantly diminished capacity for avoidance learning. Just like decorticate mammals, decorticate fish's behavior is highly stereotyped, lacking the nuance of unaltered fish, which exhibit more modulated behavior, i.e. exhibit more variation in intensity, frequency, and refinement of behavior (Rose 2002, 8).[99]

Rose goes on to give an explanatory account of why we readily attribute sentience to fish:

> The existence of these complex capacities in humans is not a justification for presuming the existence of similar capacities in species that had very different evolutionary histories leading to very different neurobehavioral adaptations. Recognition of this basic difference in evolutionary histories is essential to a valid understanding of the neurobehavioral differences between ourselves and other vertebrates. This evolutionary perspective is critical because of the widespread anthropomorphic tendency of humans to view other vertebrates as having mental states similar to our own. So, in observing the actions of other organisms where the actions appear to resemble our own, often it is assumed that these non-human organisms have intentions and experiences similar to ours. This human tendency to attribute mental states to others is called "theory of mind" and is

[98] As a particular example of the, consider he superior colliculus, a brain structure which plays an important role in the visual control of behavior in most vertebrates. However, the superior collicululs is much smaller in mammals because many of its functions have been moved to the visual regions in the cerebral cortex (Northcutt, 2002).

[99] As Gary Varner notes, electrical stimulation of our brains causes sensation, body movement, and memory recall, yet stimulation of the neocortex does not produce immediately observable effects. Yet it is well-known that trauma to the neocortex can cause personality disorders, as in the case of Phineas Gage, who had an iron rod shot through his head in a railroad construction accident.

> probably the basis for our tendency to feel empathy toward other people. Theory of mind is thought to have evolved as a device for increasing our accuracy in predicting the behavior of other humans (Bogdan, 2000; Macphail, 1998). If we anthropomorphically apply the human theory of mind to other organisms, however, we are increasingly likely to be mistaken as the neuropsychological differences between ourselves and another organism increases. Most scientists familiar with higher nervous system functions would not attribute human mental states and experiences to an earthworm or an ameba. (Rose 2002, 3)

This is entirely backwards, and we aren't talking about earthworms or amebae. We do not use *our* complex capacities as a justification for fish sentience. We notice similar behavior in response to similar stimuli in other vertebrates, and upon physiological examination, discover globally similar neurology. It is not anthropomorphic to attribute consciousness in such cases.

Rather, the opposite problem to anthropomorphism, anthropocentrism, seems to be operating in Rose. He insists that fish experiences must be human-like, and occur in the same brain region as humans, to be fish *experiences*. Rose makes a similarly spurious argument in a more recent paper:

> Anthropomorphism, the use of human characteristics as a foundation for interpreting behavior and mental capacities of animals, is a bias undermining our understanding of other species, especially species as evolutionarily distant from humans as fishes. Anthropomorphism is not justified by allusions to evolutionary continuity among vertebrates, because no living vertebrate was ever a descendant of humans, so none could have inherited human traits. (Rose 2007, 139)

Why on earth would we suppose that fish inherited sentience – or any other trait – *from humans*? It's not that the common chimpanzee (*Pan troglodytes*) or any other species became sentient by inheriting *human* traits! Given that our species is sentient and did not become so *ex nihilo*, the relevant question is: how long ago did sentience evolve, given that it is a shared trait in humans and related species? One answer is: relatively early in chordate evolution, perhaps before the emergence of vertebrates. Even if this were not the case, sentience could have evolved in fish

after "higher" vertebrates diverged from them in evolutionary history.[100] Rose approaches the question of evolutionary continuity from entirely the wrong direction.

The majority view is that fish are sentient. Numerous scientific panels which have investigated the issue, including U.S. Public Health Service (PHS), E.U.'s EFSA, and World Organization for Animal Health (OIE) all concluded that fish are probably sentient, and fish are extended some form of legal protection in most countries.[101] Some skeptics remain.[102] It seems that their conclusions stem more from the outcome desired and less from an objective assessment of available evidence.

Jawless Fish (Cyclostomes)

Cyclostomes include the "quasi-vertebrate" lampreys and hagfish. Hagfish are unique in that they have a cranium, yet lack vertebra. As such, they are non-vertebrate craniates. Lampreys are quite similar, but have a cartilaginous skeleton; some texts treat them as vertebrates, others do not. Cyclostomes have pain systems similar to that of other fish and brains

[100] Referencing Long (1995), Rose notes that the "evolutionary radiation of modern fishes unfolded, to a great extent, separately from that of mammals" (Rose 2002).

[101] Fish are protected by the U.K. Animal Act (1986), but not the U.S. Animal Welfare Act (AWA) (1966). However, Public Health Service Policy (PHS) on Humane Care and Use of Laboratory Animals, which is based in the Health Research Extension Act of 1985, covers all vertebrates, including fish. AWA regulations are enforced by the Department of Agriculture, whereas the PHS Policy id enforced by its Office of Laboratory Animal Welfare (OLAW), and to a lesser extent also by the NGO Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC). The pragmatic import of this is that fish in laboratory research are federally protected by animal welfare legislation in the U.S. whereas fish are not federally protected in other contexts, e.g. angling, commercial fishing, and the pet industry.

[102] It perhaps bears mention that they tend to come from a pro-angling perspective. Rose is a fisherman, and his publications occur in venues such as *Reviews in Fisheries Science*. In a short piece on catch and release for the New York Times, Rose does note that "anglers practicing catch-and-release are ethically, and often legally, obligated to handle fish so as to help ensure their survival and well-being." Of course, on Rose's view, it is only in the biological sense of what is good for fish, not its psychological well-being, because fish have none to speak of, on Rose's view.

that do not differ much from those of some other fish (EFSA 2005, 14). Both have a cerebrum, diencephalon, and midbrain, but hagfishes lack a pineal complex and cerebellum, whereas lampreys and now-extinct fishes (placodermi) do have the pineal complex and cerebellum (Nieuwenhuys 2002). The lamprey, *Petromyzon marinus*, has unmyelinated fibers and slowly adapting receptors that respond to high temperature (Sneddon,2004), and true endogenous opioids like those found in higher vertebrates (Dores 2002). As such, cyclostomes are probably sentient, and the case is stronger for lampreys than for the hagfishes, but this could be better supported (or falsified) with more behavioral studies.

Cephalochordates and Tunicates

Cephalochordates, commonly known as lancelets or amphioxus, are small (8cm) primitive chordates. They are worm-like filter-feeding marine animals, living in sand in predominantly tropical coastal waters. There are only about 25 extant species, and they are little-known by the public. However, lancelets are very significant in biology, because, as members of Chordata, they are the closest living relatives of vertebrates. Unlike vertebrates, lancelets lack a protective spinal column. Instead, their dorsal nerve cord is encased in a notochord, a protective muscular cylinder, which extends into the head, also unlike vertebrates. They lack a cranium, but their nerve cord or ‘brain’ is enlarged at the 'head' end. Lancelets do have a brain region similar to the hypothalamus (Murakami 2005). Lancelets lack eyes and other specialized sense organs typical of vertebrates, but do have chemical- and mechanical-sensitive nociceptors, and have simple photoreceptors along their entire back. Not enough is known about lancelets to make a conclusion at present, but they probably are too simple in neuroanatomy and behavior to

infer that they are sentient. The EFSA refrained judgment on amphioxus due to insufficient studies, but considered them approaching the capacity to feel pain (EFSA 2005, 14).

Tunicates, also known as sea squirts, are the evolutionarily most distant chordates from humans. There are about 3,000 species in the phylum Tunicata (previously known as Urochordata). In most species, the larval form of tunicates resembles a tadpole, and some species remain free-swimming their whole lives. The larval form lasts approximately one day.[103] However, upon metamorphosis to its sessile adult form, the tunicate consumes its cerebral ganglion and becomes a sponge-like organism. Yes, tunicates 'eat their own brains'. The fact that the adult-organism is sessile means that there is no functional-evolutionary reason for sentience. There is the intriguing possibility that these tunicates are sentient in one life-phase and not in another, but given the relative simplicity of their nervous system, even this possibility appears remote.

Non-Chordate Deuterostomes

Hemichordates are the closest living relatives between chordates and other invertebrates. They are marine, bottom-dwelling, deposit-feeding, worm-like organisms. They have no central nervous system; their nervous system consists of ventral and dorsal nerve cords. Their behavior is unsophisticated, and it is unlikely that they are sentient (EFSA 2005, 15).

Echinoderms (starfish, brittle stars, urchins, sand dollars, sea cucumbers, feather dusters) are exclusively marine organisms, and number about 7,000 species. As deuterostomes,

[103] The larval form is essentially a dispersal mechanism – an 'animal seed' as it were – larvae are moved by currents as they swim up to the surface and then back down in order to anchor themselves to the substrate at a new location.

echinoderms are more closely related to humans than protostome invertebrates, and are recognized as the sister group of hemichordates.[104] However, their nervous systems are extremely simple compared to many 'higher' invertebrates. They have a radial nervous system consisting of a nerve net around the mouth, with nerves extending down the organism's various podia. Some echinoderms have ganglia along these radial nerves, however there is no central brain and no cephalization. They also lack specialized sense organs, but do have sensory neurons which are sensitive to chemicals, touch, water current, and in some species, light. There is little doubt that they are nonsentient.

Protostomes: From the Simplest Animals "Up" to the Cephalopods

Having worked from mammals "down" to the simplest deuterostomes, I will now work "up" from the simplest animals to the most neurologically sophisticated invertebrates. There is essentially no doubt that the simplest invertebrates are nonsentient. However, there is compelling evidence that the common Octopus, *Octopus vulgaris*, is sentient. Between these extremes lies much uncertainty. My treatment of the neurologically simplest of organisms will be brief in order to discuss the more likely candidates in greater detail.

Non-Bilateral Animals

Sponges (Porifera) are the simplest animals, and are the most evolutionarily distant from humans. They lack specialized tissues of any kind. They have no digestive, respiratory,

[104] As an interesting evolutionary note, even the those echinoderms with pentaradial (five-sided) body plans evolved from bilateral organisms.

circulatory, or nervous systems. They are also sessile organisms, meaning that they would accrue no evolutionary advantage from sentience, and have no behavior to speak of. There is no doubt that sponges are not sentient.

There are about 9,000 species of Cnidarians, including anemones, corals, and jellyfish. All are aquatic and most are marine. While morphologically diverse, sometimes dangerous, and often beautiful, Cnidarians lack a brain, central nervous system, and true ganglia. They have a simple nerve net consisting of scattered, diffusely connected neurons (Butler 2002, 414). They lack nociceptors. They exhibit a stereotyped withdrawal reflex. There is very little doubt that they are nonsentient.

Simple Protostome Invertebrates (Flatworms, Nematodes, Annelids)

Platyhelminthes (flatworms), including planarians and most parasitic worms such as tapeworms and flukes, are primitive, bilateral, unsegmented invertebrates. They lack a body cavity as well as circulatory and respiratory systems. The simplest flatworms have a diffuse nerve net like cnidarians. Higher flatworms have the first central nervous systems - a simple ladder-like nervous system comprised of two nerve cords running the length of their bodies, which can be regarded as the 'prototype' for future nervous systems. There is a ganglion or set of ganglia on each nerve cord at the "head" (and anus) end. Planaria have been extensively studied. They have a nociceptive withdrawal reflex and basic learning ability. Presumably, they are not sentient.

Nematodes (roundworms) differ from flatworms by having a digestive system. *Caenorhabditis elegans* is an extremely important invertebrate model organism for neurological

study. It is approximately 1mm in length and lives for 5 days at room temperature. *C. elegans*' body has exactly 959 cells, 302 of which are neurons. There are four peripheral nerves running the length of the body. There is a dense circular nerve ring, or 'brain', around the pharynx at the 'head' end. The have tactile receptors all over their body, and some chemoreceptors. Opioid or orphanin genes have not been detected (Dores 2002, 222).

There are about 17,000 species of annelids, colloquially known as segmented worms (Latin: "little ring"). They are traditionally divided into three groups: Polychaetes are almost all marine, bristled worms, Oligochaetes, including earthworms, are aquatic and terrestrial worms, and Hirudinea, leaches and leach-like organisms. The 'brain' consists of two pairs of ganglia in a ring around the throat, and is often divided into fore-, mid-, and hind-brain regions. These regions are less differentiated than in Arthropods (Sømme 2005, 10). The remainder of their nervous system is ladder-like, as is the case with most invertebrates. They have a diverse array of sense organs, which varies according to their ecological niche. Nonetheless, their nervous systems and behavior are simple and it is "very unlikely that they can feel any pain" (Sømme 2005, 36).

Mollusks

Mollusks[105] are a highly diverse group, numbering approximately 240,000 species. There are neurologically primitive forms such as the Aplacophora and Polyplacophora as well as the

[105] In this section on mollusks, I lean fairly heavily on Robyn J. Crook and Edgar T. Walters's "Nociceptive Behavior and Physiology of Molluscs: Animal Welfare Implications", Institute for Laboratory Animal Research Journal 52 (2) 2011: 185-195.

most neurologically advanced protostome invertebrates, the Cephalopods, with many forms of intermediate neurological complexity. Figure 6 shows a current hypothesis of molluscan phylogeny and has reference images of representative species. It is better not to speak generically about sentience in as diverse a group as mollusks. Their diversity calls for examining sub-groups individually.

Polyplacophora, Aplacophora, Monoplacophora, and Scaphopoda

Most mollusks are neurologically simple and unlikely to be sentient. Polyplacophora (Latin: "bearers of many plates"), often known as chitons, are the most primitive extant mollusks. They are headless and brainless and lack true ganglia, unlike other mollusks.

Monoplacophora are limpet-like mollusks, and resemble half an oyster shell with a segmented worm inside.[106] They live only in the deep ocean, away from advanced predators.[107] Their nervous system consists of small ganglia serving their two main nerve chords, one for the visceral organs and one for the podia. They have no eyes or tentacles.

[106] The phylogeny of Monoplacophora is presently controversial. Fossil evidence has long suggested that they were the sister group of Conchifera. However, a recent molecular study – then the first of its kind on Monoplacophora – points to it forming a clade, Seriala, with Polyplacophora (Giribet, 2006). It is unclear the impact that this finding will have on molluscan systematics. Note that the latter hypothesis is reflected in the cladogram above (Figure 6).
[107] Long thought extinct, the discovery of an extant species of Monoplacophora, *Neopilina galantheae*, by Danish biologist Henning M. Lemche in 1952 caused quite a sensation.

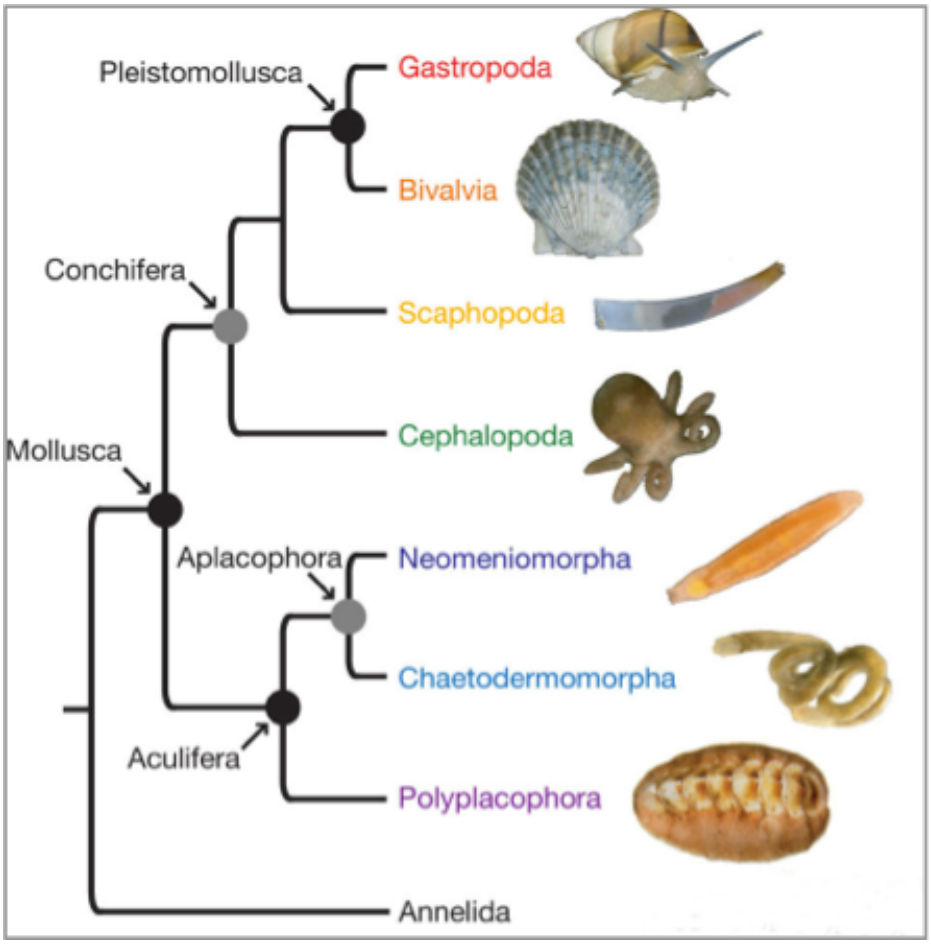

Figure 6: A Recent Hypothesis of Molluscan Phylogeny
(Koket 2011).

Aplacophora are small (2.5cm on average), cylindrical worm-like creatures. They are shell-less, bearing little resemblance to other mollusks. They possess a single simple ganglion and a lateral nerve cord, and have no specialized sense organs.

Scaphopoda (Tusk Shells) is comprised of approximately 350 present day species. Scaphopods are filter feeders, pumping water through a single tusk-like shell. The nervous system of scaphopods are simple neural networks with small ganglia. They lack eyes and other specialized sense organs. Given their neurological simplicity and behavior, "the possibility of [scaphopods] experiencing painlike responses to tissue insult is remote" (Crook 2011, 188). There is little doubt that Polyplacophora, Aplacophora, Monoplacophora, and Scaphopoda are not sentient.

Bivalves

Bivalve mollusks (Bivalva) aren't likely to be sentient either. Interestingly, Singer has changed his views back and forth and back again on bivalves. In the first edition of *Animal Liberation*, Singer claimed that bivalves were not sentient. In the later, revised editions, he gave them the benefit of the doubt. However, Christopher Cox of Slate Magazine quotes Singer via personal communication (email) in 2009 as saying:

> Perhaps there is a scintilla more doubt about whether oysters can feel pain than there is about plants, but I'd see it as extremely improbable. So while you could give them the benefit of the doubt, you could also say that unless some new evidence of a capacity for pain emerges, the doubt is so slight that there is no good reason for avoiding eating sustainably produced oysters. (Cox 2010)

The evidence bears out Singer's most recent assessment. Neurologically speaking, bivalves are extremely simple organisms. They have no cephalization or central nervous system. While we

don't know the minimum necessary 'neural hardware' for sentience, it seems unlikely that bivalves are above the threshold. They have mechanosensory neurons which trigger the foot withdrawal reflex and shell closure, however it is unclear if these are nociceptors (Crook 2011, 188). The shell closure of oysters, mussels, and scallops in response to noxious stimuli is an autonomous, reflexive behavior more parsimoniously explained in terms of reflexes. While bivalves are capable of 'clapping' their two shells together to create a jet-like propulsion to evade predators or to burrow into sand, they are otherwise non-motile. So, sentience would not incur any adaptive advantage that autonomous motor control would not account for.

Gastropods

With Gastropods (Gastropoda, Greek: "stomach-foot"), things begin to get more interesting. Gastropods, commonly known as snails and slugs, are both more diverse than most molluscan groups and also more neurologically complex than all mollusks except cephalopods. Numbering at approximately 85,000 species, they are second only to insects in biodiversity (McArthur 2003), and vary from microscopic organisms to the Australian trumpet snail, *Syrinx aruanus*, which can weigh up to 18kg. From terrestrial habitats including woodlands and deserts through freshwater rivers and lakes to estuaries, intertidal zones, and the deep ocean, gastropods live in widely diverse habitats as well. Generally speaking, gastropods have more diverse and specialized sense organs and a greater range of behavior than the mollusks discussed above.

Unlike many other mollusks, the nervous systems of some gastropods have been extensively studied, particularly studies of nociception, sensitization, learning, and memory (Crook 2011, 188). The California sea hare (*Aplysia californica*) is a model organism for

neurological research. *Aplysia*'s central nervous system is comprised of approximately 10,000 neurons in nine ganglia. *Aplysia* are capable of associative learning, including sensitization as well as classical and operant conditioning. There is indirect evidence of opioid signaling – pharmacological evidence of opioids and opioid antagonists – but no molecular evidence that provides firm support for "true opioid signaling" (Crook 2011, 189). Furthermore, *Aplasia* is capable of a conditioned 'fear-like' behavioral state to previously neutral chemosensory stimuli when associated with noxious electrical shocks:

> For example, after pairing with shock, the smell of shrimp evoked a state that was not obvious unless combined with other stimuli—indeed, when only the shrimp extract was presented, the animal exhibited a response reminiscent of the freezing exhibited by rats to a conditioned fear stimulus (Walters et al. 1981). When tested in combination with weak tactile stimulation, the shrimp extract greatly facilitated head and siphon withdrawal responses, defensive inking, and escape locomotion. Moreover, when delivered to a feeding animal, the conditioned smell inhibited the feeding. (Crook 2011, 189)

However, the locations of the neurons responsible for this behavior are unknown, and while suggestive, it is unclear whether this fear-like state is conscious.[108]

There have been extensive studies on *Helix spp*., a genus of relatively large (with respect to most mollusks) land snails which are common prey to many generalist predators such as birds and frogs. Brains of *Helix* species contain approximately 20,000 neurons in 11 ganglia, which "might be presumed to be incapable of higher-order processing necessary for emotional responses" (Crook 2011, 188).

In an interesting experiment, electrodes were hooked up to the mesocerebrum, which is the neural region involved in sexual activity, and to the parietal ganglion, which is associated

[108] Damasio distinguishes between emotions and feelings, and this distinction mirrors the distinction between nociception and pain, respectively.

with nociception. A lever available to the snails allowed stimulation of one of these neuronal regions. The snails depressed the lever connected to the mesocerebrum more than the baseline frequency, and less often than baseline when the lever was hooked up to the parietal ganglion. To one author, these results suggest that:

> Different CNS regions of snails have some rudimentary "emotional coloration": snails self-stimulated more frequently when the electrodes were placed in the mesocerebral region of the cerebral ganglion (containing some neurons involved in sexual behavior) and less frequently when they were placed in the rostral portion of the parietal ganglion, in an area where electrical stimulation of putative nociceptive sensory neurons underlying reflexive withdrawal behavior was likely. (Crook 2011, 189)

While such studies are suggestive, it nonetheless seems that even the most sophisticated of the gastropods lack sufficiently complex nervous systems to generate consciousness. The EFSA found the case for any "substantial degree of awareness" to be weak for land gastropods.

Cephalopods

Cephalopoda (Greek: "head-feet") are exclusively marine invertebrates with eight or ten limbs, and include cuttlefish, octopus, nautilus, and squid. There are approximately 800 extant species. Their shell varies from external (nautilus), internal (cuttlefish), to absent (squid and octopuses).

Cephalopods are the most neurologically developed invertebrates by a long shot. As Figure 7 shows, their brain to body ratio generally exceeds that of most fishes and reptiles but falls below that of most mammals and birds. The central nervous system of the common octopus, *Octopus vulgaris*, contains approximately 500,000 million cells, which is tremendously more than gastropods, and is more than some mammals (Young 1963). Its brain has 25 lobes

(Sømme 2005, 15), and is the same size as the brain of the African Grey Parrot (Montgomery 2011). On top of this, the octopus has an extensive peripheral nervous system. Three fifths of the octopus' central nervous system are in its legs, not the brain. (Montgomery 2011). As the philosopher Peter Godfrey-Smith notes, "octopuses are a separate experiment in the evolution of the mind" (Godfrey-Smith 2011).[109]

Nautilidae diverged from all other cephalopods in the Ordovician period approximately 450 million years ago. They, along with ten-armed cephalopods, have smaller brains than eight-armed cephalopods, but to put this in perspective, the nautilus' 13-lobed brain is still much larger than any non-cephalopod mollusk (Sømme 2005, 15).

Cephalopods have a complex array of sensory organs. Octopuses touch and taste with the nearly 200 suckers on each leg, each of which has several thousand chemoreceptors. With irises, corneas, and lenses focused by a muscle-ring, the eyes of octopi are strikingly human-like, complete with eyelids, and capable of generating true images. This is clearly an uncanny case of convergent evolution.[110]

Crook notes that there have been no "systematic behavioral or physiological investigations into nociception and nociceptive plasticity" in cephalopods (Crook 2011, 190). Their team is currently conducting researching on this front. They are investigating the behavioral responses to sublethal arm injury in the squid (*Loligo pealei*).

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[109] Alexa Warburton, who conducted maze research on octopuses at Middlebury College's octopus lab, gives an interesting anecdote: "Science can only say so much. I know they watched me. I know they sometimes followed me. But they are so different from anything we normally study. How do you prove the intelligence of someone so different?" (Montgomery 2011).

[110] Nautiluses have inferior vision. The eye is highly developed, but lacks a lens, looking rather like a pin-hole camera, and is open to the environment, allows water to pass freely into the interocular cavity.

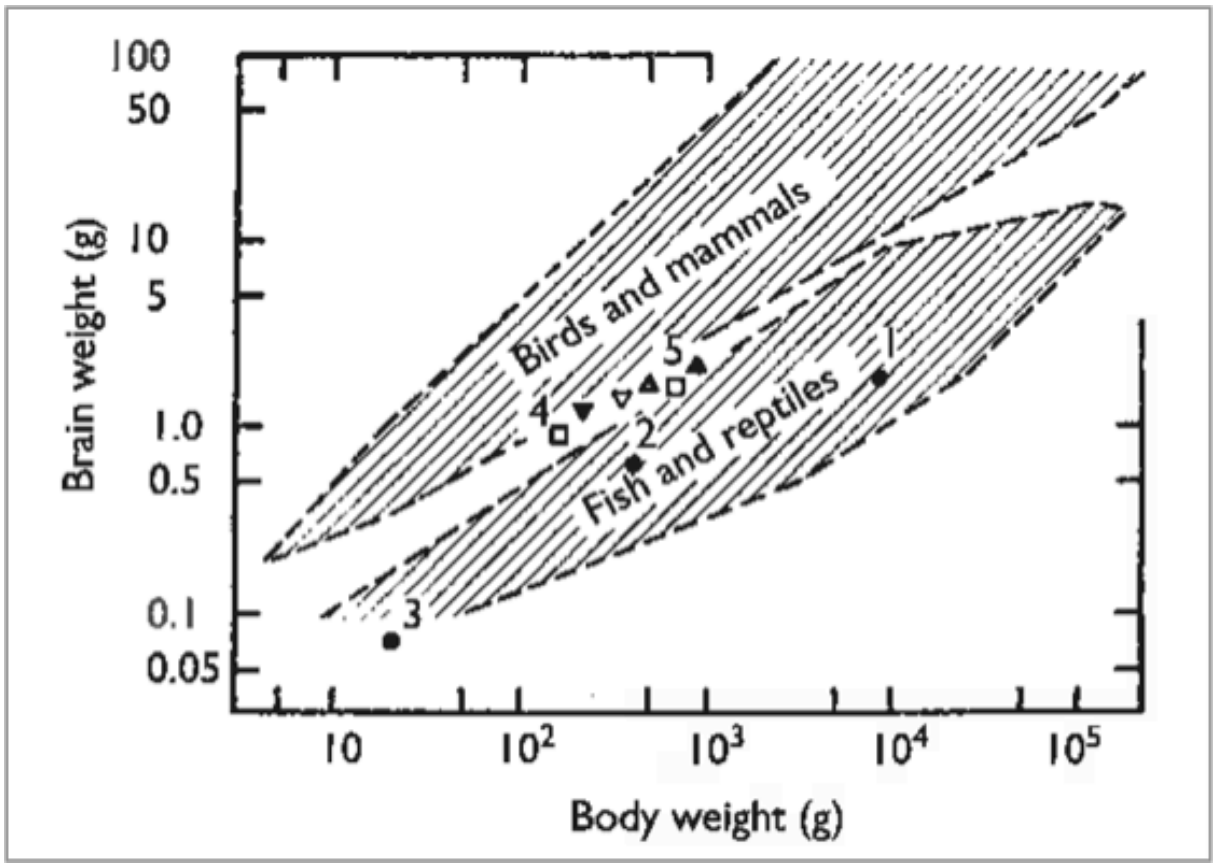

Figure 7: Brain and Body Weights of Cephalopods Compared to Vertebrates.[111]
(Nixon and Young 2003).

[111] 1. Octopus vulgaris, 2. O. salutii, 3. O. defilippi (Octopoda); 4. Illex, and 5, Todarodes (Oegopsina).

The evolutionary-adaptive evidence is interesting.[112] Unlike most literally more familiar organisms that we recognize as sentient, octopuses are not long-lived or social. While they grow fast, most cephalopods live only one to two years.[113] Jennifer Mather, a researcher of octopus behavior and consciousness, speculates that it was the loss of its ancestral shell that drove the cognitive development of coleoid (non-nautiloid) cephalopods such as octopuses. This increased their vulnerability and mobility, which resulted in them becoming clever predators. They prefer to eat crabs, but hunt a variety of species, each requiring different tactics: "Will you camouflage yourself for a stalk-and-ambush attack? Shoot through the sea for a fast chase? Or crawl out of the water to capture escaping prey?" (Montgomery 2010).

The behavior of cephalopods is telling.[114] They have a high capacity for learning, including sensitization, habituation, associative learning, spatial learning, and even observational learning. Even the comparatively lowly nautilus is capable of "vertebrate-like" spatial learning (Crook, 2009). Cephalopods "exhibit body postures, colour patterns and behaviour that resemble those of pain…" and their great learning ability is also suggestive (Sømme 2005, 31). Octopuses

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[112] Cephalopods do not appear to regard heat as noxious. The famous oceanographer, Jacques Cousteau, describes an octopus' lack of response during exposure to burning heat: "Dumas dived with an underwater rocket and began waving it in front of an octopus' house. Nothing happened. The animal reacted not at all. He did not try to hide, or to escape. Dumas then turned the beam directly onto the octopus, which did not even draw its arms. The game was called off, however, when Dumas saw that it was becoming cruel. The octopus showed signs of having been burned. But even then it had not tried to escape from it… This surprising insensitivity to fire has been confirmed by Guy Hilpatric, one of the pioneers of diving, who told us that he has seen an octopus, which had been brought onto shore, cross through a fire to get back into the water (Cousteau 1973, 23-24; Crook 2011, 190)." Although it is potentially valuable for animals (including members of intertidal species) to sense when environmental temperatures are approaching dangerous levels, selection pressure for nociceptors tuned to extreme heat is unlikely in most aquatic animals (Crook 2011, 190).

[113] Members of some species live as few as six months, others as many as five years, and all invariably die within months after reproduction due to a "programmed senescence", the reasons for which are obscure (Anderson *et al*. 2002). The nautilus is an exception, living up to fifteen years.

[114] As a left-handed person, I find it fascinating that, much as people have a dominant hand, octopuses have a dominant *eye*. Athena, the Giant Pacific Octopus at the New England Aquarium, was left-eyed. I wonder what the neurological explanation is for such behavioral asymmetry.

change color based on what seems to be mood: a red octopus is agitated; a white octopus is relaxed (Montgomery 2011). They are notoriously difficult to keep in captivity, not because of their physiological requirements, but because they are 'escape artists' and actively prevent being moved from one enclosure to another if it is not to their liking. The EFSA summarizes as follows:

> Cephalopods have a nervous system and relatively complex brain similar to many vertebrates, and sufficient in structure and functioning for them to experience pain. Notably, they release adrenal hormones in response to situations that would elicit pain and distress in humans, they can experience and learn to avoid pain and distress such as avoiding electric shocks, they have nociceptors in their skin, they have significant cognitive ability including good learning ability and memory retention, and they display individual temperaments since some individuals can be consistently inclined towards avoidance rather than active involvement. (EFSA 2005, 15)

Following EFSA's recommendations, the European Union amended its 1986 animal welfare legislation in 2010 to read as follows:

> This Directive shall apply to the following animals: (a) live non-human vertebrate animals, including: (i) independently feeding larval forms; and (ii) foetal forms of mammals as from the last third of their normal development… (b) live cephalopods (as there is scientific evidence of their ability to experience pain, suffering, distress and lasting harm).

In its "Categories of Invasiveness in Animal Experiments", the Canadian Council on Animal Care's (CCAC) Guidelines recognizes cephalopods "and some other higher invertebrates" as having "nervous systems as well developed as some vertebrates", perhaps meriting inclusion in categories where pain and distress is caused during research.[115]

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[115] In some ways, practice is ahead of legislation with respect to cephalopods. It is now standard practice to give captive animals enrichment to prevent pathological behavior such as self-mutilation, presumably resulting from boredom, and to improve quality of life. It seems that octopuses need play just as many vertebrates do, so as not to become problematic captives. Accordingly, Cincinnati's Newport Aquarium has developed some best practices for the care of captive octopuses in the "Octopus Enrichment Handbook" (Montgomery 2010).

Arthropods

Arthropods (Arthropoda, Greek: "jointed feet") dominate the planet. Their diversity and sheer numbers are astounding. 83% of all described animal species are arthropods.
At any time, there are 10^{18} (one quintillion) insects alive, approximately 160 million insects per human being (University of California Museum of Paleontology, 2012). Arthropods are also significant because they are the only animals other than us amniotes which are widely successful in terrestrial environments. Arthropod diversity and phylogeny is shown in *Figure 8* below.

Cephalopods aside, the most developed central nervous systems of protostome invertebrates are in arthropod species. The common arthropod nervous system plan is comprised of a pair of dorsal nerve cords (i.e. below the digestive system). The nervous system is decentralized by mammalian standards. Each body segment contains a pair of ganglia. The brain is a fused set of ganglia encircling the throat in the head.

The mushroom bodies are the brain-region responsible for higher cognitive functions such as learning and memory, including associative memory and place memory, and motor control. Mushroom bodies are common to all arthropods, but are more developed in some species than others. Interestingly, the genes responsible for mushroom body development are homologous with genes responsible for early mammalian forebrain development (Kurusu 2000).

There are four main groups of living arthropods: Chelicerata (horseshoe crabs, scorpions, spiders, sea spiders, mites), Myriapoda: (centipedes and millipedes), Crustacea (crabs, lobsters,

shrimp, mantis shrimp, copepods, barnacles, pill bugs, brine shrimp, water fleas, remipedes), and Hexapoda (insects, silverfish, springtails).[116]

Treatment of arthropods will be brief due to space considerations, and will focus on the most likely candidates for sentience, and on insects due to their ubiquity. While I am not aware of any research looking into the possibility of sentience, Myriapods (centipedes and millipedes) are presumably not sentient, and so I will omit this group.

Chelicerates (horseshoe crabs, sea spiders, scorpions, ticks, spiders)

Chelicerates originated as marine organisms. The living marine species are the four species of Xiphosurans (horseshoe crabs), and the 1,300 species of Pycnogonida (sea spiders).[117] Horseshoe crabs are amongst earth's oldest living creatures, and haven't evolved significantly over the past 250 million years. Their central nervous system is simple, consisting of cerebral ganglia surrounding the throat. Sea spiders have similar nervous systems.

[116] A fifth, extinct group is the Trilobites. Arthropods clearly evolved from annelid worms (as is likely the case with us chordates too). Arthropod systematics has been hotly contested for over a century, and there is now ample reason to think that this four-group breakdown is wrong. Over the last two decades, new molecular analysis techniques have been used to uncover the deep phylogenetic history. One clear result is that arthropods are monophyletic. Also, insects are actually more closely related to aquatic crustaceans than to terrestrial centipedes and millipedes. It is likely that Hexapods and Crustaceans are monophyletic (clade: Pancrustacea), as is Mandibulata (Pancrustacea plus Myriapoda). The Linnaean class Crustaceans is almost certainly paraphyletic. See Reiger *et al.*'s important piece in *Nature* for details of the recent systematics (2010). All of this is significant because the sister clade of Mandibulata is Arachnomorpha (Chelicerata plus Trilobita), meaning that spiders and scorpions are more distantly related to insects than insects are to crabs, even though we tend to lump spiders and insects together as "bugs". If salticid spiders (or other chelicerates), some mollusks such as cephalopods, and some 'crustaceans' such as lobsters or insects are conscious beings, and since this trait is clearly not a trait derived from a common ancestor, then consciousness, and therefore sentience, is a multiply emergent trait even in invertebrates.

[117] Note that sea spiders are not spiders, nor arachnids, and may not even be chelicerates. Regier *et al.*'s study places them as the sister group to all other extant arthropods (2010).

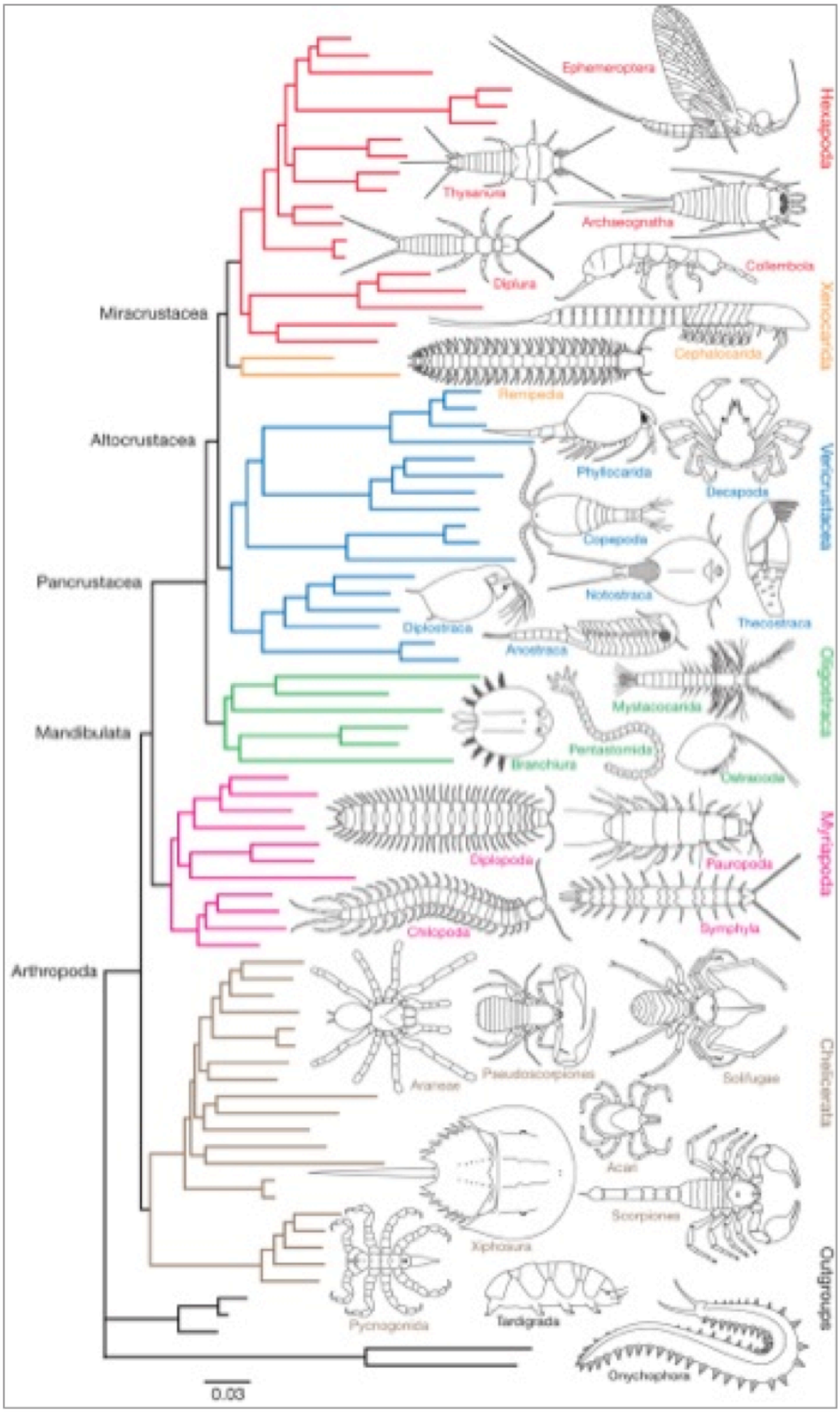

Figure 8: Deep Arthropod Phylogeny
(Regeir 2010).

Aquatic chelicerates aside, most are air-breathing, including the familiar arachnids: scorpions, spiders, ticks, and mites. Mites and ticks are presumably below the neurological threshold requisite for sentience. Scorpions are amongst the oldest terrestrial animals. Some species have a life expectancy of 15-25 years, longer than any known arachnid or insect.[118]

Spiders' nervous system is much more centralized than is typical of arthropods, and even other arachnids. Whereas there is typically a pair of ganglia in each body segment of arthropods, these ganglia are moved to the cephalothorax (the first body segment) in spiders, resulting in a highly fused central nervous system.

Salticid (jumping) spiders, family *Salticidae*, stand out in particular. They are highly active predators, and exhibit impressively adaptive behavior, and there is "dramatic evidence of the sensory processing, analytical and prediction ability" (EFSA 2005, 3). They use indirect routes to their prey, even keeping the prey out of sight for long distances. They also modify their hunting strategy depending on the prey species. They have amongst the best vision in invertebrates; many species have tetrachromatic color vision into the UV range (human vision is trichromatic). The EFSA concludes:

> [A]lthough the brain is composed of a relatively small number of cells, the level of processing is considerable and sophisticated, if rather slow. Evidence for awareness is greater than in any other invertebrates except cephalopods but we have little evidence of a pain system. (EFSA 2005, 16)

In other words, as far as invertebrates go, there is suggestive evidence of phenomenal consciousness in salticid spiders, but not much evidence of the necessary neurological structures

[118] This may be due to their extremely low metabolism, which is on par with a radish root (Angier, 1990), and is conducive to their living in sparse, dry environs. From our perspective, they are in slow motion.

for the experience of pain. Might it be the case that spiders (and some other arthropods) are phenomenally conscious yet not sentient? We simply do not know.

Hexapods (insects, silvertails, springtails)

Hexapods include insects and close relatives. There are over 1 million known species of insects – over 350,000 species of beetles alone have been described, and there may be at least that many more unknown species. This led the 20th century British biologist, J.B. Haldane, to famously remark that God had "an inordinate fondness for beetles." Due to their sheer numbers, insects are bugging for a longer discussion.

Available neuroanatomical evidence appears to count against insect sentience. Insects' nervous systems consists of 100,000 to 1 million neurons, approximately 80% of which are immediately concerned with integrating sensory inputs, leaving comparatively few for higher faculties including consciousness. For comparison, the nervous systems of a frog consists of nearly 16 million neurons, cats have just under a billion, and humans have approximately 85 billion (Hoyle 1973). The low number of neurons available casts doubt on phenomenal consciousness in insects in general and "at least raises the question of whether any experience akin to human pain could be generated" (Eisemann 1984, 165). Endogenous opioids and receptors have been found in insects (El-Salhy 1983), and unmyelinated nociceptors sensitive to heat, chemical, and mechanical stimuli have been identified in the fruit fly, but neither is necessarily indicative of sentience, as discussed above.

The behavioral evidence corroborates the neuroanatomical evidence, suggesting that insects cannot feel pain, at least from mechanical damage. Insect behavior is not modified after severe mechanical trauma:

> No example is known to us of an insect showing protective behavior towards injured parts, such as by limping after leg injury or declining to feed or mate because of general abdominal injuries. On the contrary, our experience has been that insects will continue with normal activities even after severe injury or removal of body parts. (Eisemann 1984)

Specific examples of this include:

- Insects continue walking with normal force on a crushed leg.
- There is no known case of an insect showing protective behavior of damaged body parts such as limping, favoring other legs, or immobilizing the damaged limb.
- Insects continue to eat while being eaten: Locusts continue to feed while being eaten by mantids, aphids continue to feed while coccinellids eat them, tsetse flies fly in to feed while half-dissected, male mantids continue to mate while the female decapitates and eats them, caterpillars eat while tachinid larvae bore into them, many other insects have not been observed to modify their behavior while being ravaged by large internal parasites. (Eisemann 1984, 166; Wigglesworth 1980, 8-9).

However, insects show strong reflexes to constraint (Sømme, 2005, 36) and react aversively to noxious chemical stimuli.

Evolutionary-adaptive evidence does not appear to favor insect sentience. Insect behavior is largely genetically determined. Insect responses to noxious stimuli are "rigid, programmed avoidance and escape responses," essentially the same as that of other simple motile organisms, including bacteria (Eisemann, 1984, 165). Caterpillars are a telling example of this rigidity of insect behavior. Members of many species normally climb to the tops of trees immediately after hatching. They do this by slowly moving in the direction of the side which receives more light which is normally up. However, if one eye is blinded, they move incessantly in a circle until they starve to death (DeGrazia 1996, 111).

Recent studies suggest that insect behavior is more plastic than previously thought. Insects exhibit a mix of genetically scripted and plastic behavior. Insects, and even their decapitated and isolated ganglia, are capable of learning. However, this learning is highly situation-specific, "limiting the possible adaptive value of hypothetical pain-activated learning" (Eisemann 1984, 165).

Given their modest learning needs and short life spans, the dividends of learning from pain are unlikely to significantly accrue, meaning that insects would incur little adaptive advantage from pain (DeGrazia 1996, 112). A biological metastudy of the possibility of insect pain concluded similarly:

> On balance, however, the evidence from consideration of the adaptive role of pain, the neural organization of insects and observations of their behavior does not appear to support the occurrence in insects of a pain state, such as occurs in humans. (Eisemann 1984, 167)

Amongst insects, social insects such as social ants and bees are the most neurologically and behaviorally sophisticated. The case is strongest for them.

> The social ants and bees, and to a lesser extent the wasps and termites, show considerable learning ability and complex social behaviour. There is evidence of inflexibility in their behaviour but the trend in recent research has been to find more flexibility. The small size of the brain does not mean poor function as the nerve cells are very small. A case might be made for some bees and ants to be as complex as much larger animals. They might be aware to some extent but we have little evidence of a pain system. (EFSA 2005, 16)

The EFSA concluded that insects were unlikely to be sentient or possess awareness, but because the social insects have more complex behavior than asocial insects, more studies were needed on the social insects.

Crustaceans

Crustaceans are one of the largest phyla in the animal kingdom, and include such diverse forms as the parasitic 0.1mm *Stygotantulus stocki* and the massive, four-meter Japanese Spider Crab (*Macrocheira kaempferi*). Some crustaceans, such as barnacles, are sessile marine animals, and others, such as woodlice, are terrestrial, and others are parasitic. However, most crustaceans are motile aquatic organisms. The diminutive copepods are ubiquitous in essentially all aquatic habits and are also found in moist terrestrial environments. Most species of crustaceans – including woodlice/pill bugs and the various marine species: isopods, copepods, barnacles, brine shrimp, water fleas, remipedes – have some learning capacity, yet their behavior is less complex than that of decapod crustaceans, insects, and spiders, and they are unlikely candidates for sentience (EFSA 2005, 17).

Amongst the crustaceans, the decapod crustaceans – e.g. crabs, lobsters, shrimp – stand out as the most likely candidates for sentience. Some decapod crustaceans are long-living creatures; lobsters are known to live over 100 years, and many species of crabs live to be 30.[119] While their tail-flick withdrawal response is clearly a simple reflex arc without involvement from the CNS (Sømme 2005, 27), other behavior is subtler. Crabs respond with a threat display in response to electric shocks (Lozada, 1988). In a recent experiment, sodium hydroxide or acetic acid were applied to an antenna of glass prawns (*Palaemon elegans*), the prawns initially exhibited a reflexive tail movement. However, this was followed by a longer period in which the prawns rubbed the effected antenna against the aquarium glass and groomed the antenna. This

[119] Lobsters don't appear to age. They retain all normal functions (strength, metabolism, reproduction, etc.) throughout their lifespan and mortality rates do not correlate with age. Apparently, they live as long as they last until they succumb to predation, illness, etc.

behavior was inhibited by the administration of the anesthetic benzocaine, eliminated by morphine, and reinstated by injecting naloxone, which is an opioid antagonist, i.e. cancels out anesthetics and analgesics (Barr 2008).[120]

In another recent experiment, hermit crabs (*Pagurus bernhardus*) were exposed to minor electric shocks. Many more shocked crabs left their shell than did so in the control group, showing the noxious nature of the shocks. However, few hermit crabs in the study group left the shell which they occupied if it was a preferred type of shell, yet readily left the shell "traded up" if offered a better shell. This suggests that hermit crabs engage in motivational trade-offs between averting noxious stimuli and mobile home quality (Elwood 2009).

Decapod crustaceans also appear to be capable of avoidance learning in response to noxious stimuli. Crayfish (*Procambarus clarkii*) associated electric shocks with a light being turned on. The crayfish learned to move to an area where the shocks were not present (Kawai, 2004). An earlier study with crabs (*Chasmagnathus granulatus*) evinced similar associative behavior. The crabs associated electric shocks with a lit compartment of their aquarium, and subsequently avoided that compartment (Denti 1988).

It is unclear what to conclude from all this.[121] In his recent report to the Norwegian Scientific Committee for Food Safety, Sømme concluded that it is unlikely that decapod

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[120] Interestingly, a set of similar experiments to Barr's using three smaller decapod crustacean species, Louisiana red swamp crayfish (*Procambarus clarkii*), white shrimp (*Litopenaeus setiferus*), and ghost shrimp (*Palaemonetes spp.*), was unable to replicate the nociceptive antenna grooming behavior; there was no change compared to controls (Puri 2010). This suggests that generalizing even amongst the decapod crustaceans is problematic.

[121] Of course, Lobster aficionados wish to preclude this possibility for obvious reasons. The 2003 Main Lobster Fest program, developed by the Maine Lobster Promotion Council, had the following to say about Lobster pain: "The nervous system of a lobster is very simple, and is in fact most similar to the nervous system of the grasshopper. It is decentralized with no brain. There is no cerebral cortex, which in humans is the area of the brain that gives the experience of pain" (Wallace 2004).

crustaceans feel pain (Sømme 2005, 36). The EFSA has a different assessment, concluding as follows:

> The behavioral evidence, presence of a pain system, and learning abilities of decapod crustaceans are suggestive of sentience, at least in the species studied (crabs, lobsters, and prawns). However, there is little available evidence for or against sentience in many decapods, particularly the smaller species. Little evidence is available for many decapods, especially small species. However, where sub-groups of the decapods, such as the prawns, have large species which have been studied in detail they seem to have a similar level of complexity to those described for crabs and lobsters. (EFSA 2005, 17)

The EFSA recommended extending protection to all decapod crustaceans. However, this was not taken up by the EU in the resulting legislation. Norway's equivalent of the US's Animal Welfare Act does protect them.[122] To my knowledge, this is the only federal protection afforded to invertebrates other than cephalopods.

In addition to decapod crustaceans, one other group of crustaceans bears brief mention. Stomatopods, including mantis shrimp (which are neither shrimp nor mantids), are long-lived, highly-active predators. They have complex behavior, including the ability to communicate to conspecifics via florescent patterns on their bodies, and exhibit ritualized fighting. They have the most advanced eyes on the planet.[123] Some species are monogamous, cohabitating for up to 20 years, and both parents care for the eggs. There is little research available on stomatopods. Opiate antagonists were found to modulate nociception in the mantis shrimp, (*Squilla mantis*) (Maldonado and Miralto 1982).

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[122] Also, it is now illegal to kill lobsters by boiling in the town of Reggio Emilia, Italy (Johnson 2004).

[123] They have two compound eyes which move independently. Each eye is composed of three sections, each of which has its own pupil. Each trinocular eye is capable of depth-perception on its own. They can perceive both polarized light and hyperspectral color vision compared to humans. Stomatopod eyes have as many as a dozen different pigments (humans have three). Is anyone home behind those sophisticated eyes?

3.5 - CONCLUSION

Phenomenal consciousness and sentience are "private", and our theoretical and empirical understanding of consciousness is at best incomplete, and at worst fundamentally wrong.[124] Accordingly, the question as to which organisms are sentient (and to what degree) is difficult indeed.

Our knowledge of sentience in nonhuman animals is inferential, but using three lines of evidence – similar behavior, comparative neuroanatomy, and the evolutionary-functional role of pain – we can conclude (with varying degrees of confidence) that some nonhuman animals are sentient. The case is overwhelming for mammals. Bird sentience, especially in corvids (crows, rooks, ravens, etc.) and parrots considering their high intelligence and social natures, is also very well supported. Yet it is noteworthy that the brain structure which appears to be responsible for sentience in birds – the hyperstriatum – differs from that of mammals. While herpetofauna are neurologically simpler than mammals and birds, the evidence for sentience is nonetheless compelling.

It is more difficult to establish sentience in fish, but the bulk of evidence suggests they are. Fish are more evolutionary distant from humans than other vertebrates. Relative to their body weight, the brains of fish are generally smaller than other vertebrates. Yet they share the same global neurological structures, including a cerebrum and diencephalon in particular, with other vertebrates, and unlike any invertebrate, have both myelinated and unmyelinated nociceptors. Arguments against fish sentience such as those given by Rose get the evolutionary

[124] Ironically, we know more about whether and to what extent animals can learn than we do about whether and to what extent they can feel pain because it is easy to test learning via behavior, yet difficult to distinguish pain from nociception because pain is "private" by definition and therefore can only be observed indirectly.

story wrong and imply that higher vertebrates are not sentient even though we have stronger reason to think are sentient.

Sentience is increasingly more dubious in more distant deuterostomes. Of these, the case is strongest case for sentience in lampreys and then hagfish. Free-swimming tunicates and lancelets are more doubtful and there is little available research into pain. There is little reason to believe that echinoderms, acorn worms, or xenoturbellan worms are sentient.

The simplest animals are undoubtedly not sentient. Sponges lack neurons altogether. Cnidarians have neurons in a simple nerve net, lack a central nervous system and nociceptors, and exhibit unsophisticated behavior.

In protostome invertebrates, the strongest case for sentience by far is for the molluscan cephalopods. Based on their behavior alone, it is hard to see cephalopods as anything but sentient. Their neurological sophistication, which is approximately between the level of mammals and birds on the one hand and fish and herpetofauna on the other, corroborates this. From the cephalopods, it is a large step down to gastropods, yet the behavior of some snail species is suggestive of sentience. The case for the remaining gastropods – Polyplacophora, Aplacophora, Monoplacophora, Scaphopoda, and Bivalvia – is weak. The case for protostome invertebrates which are not mollusks or arthropods, e.g. annelids, appears to be weak as well.

Arthropods are, unfortunately, the biggest unknown. Presumably, most arthropods are too unsophisticated in their neurology for sentience, and their generally scripted behavior counts against their sentience as well. The strongest case for arthropod sentience is the decapod crustaceans, and perhaps the closely related stomatopods as well. However, remaining crustaceans are unlikely candidates. Salticid spiders have remarkable cognitive abilities

suggesting awareness, but there is little evidence of a pain system. Other chelicerates are not as neurologically developed making sentience more doubtful. Insects and other hexapods are amazingly diverse. The strongest case can be made on behalf of the social insects, but while they possess memory and some learning ability, it does not seem that even they are sentient.

4 - Clearing Some Ground: Environmentalist Challenges to Sentiocentrism

Are we not to vindicate the rights of the persecuted prey of the stronger? Or is our declaration of the rights of every creeping thing to remain a mere hypocritical formula to gratify pug-loving sentimentalists?

– David George Ritchie, 1903

Abstract

In this chapter and the next, I examine the allegedly anti-environmental implications of sentience-based ethics levied by environmental philosophers. I identify these criticisms as being of two sorts: (i) sentiocentrism is an *inadequate* account of environmentalism (ii) sentiocentrism is *incompatible* with environmentalism. After briefly critiquing the largely rhetorical objections to sentiocentrism, I diagnose a common theme to the incompatibility critiques, which is to assume that sentiocentrism requires (i) a hedonistic value theory, and (ii) holds value maximization or a strong view of entitlement rights as normative commitments. I argue that such incompatibility arguments construe sentiocentrism too narrowly; there are other grounds for animal liberation, and therefore such arguments are partial critiques of sentiocentrism at best. Before addressing the inadequacy objections, I develop a distinction between two forms of sentiocentrism. Strong sentiocentrism focuses solely on the interests of wild nonhuman animals in deciding environmental questions. Weak sentiocentrism takes into account additional environment-regarding values, including aesthetic, recreational, and intellectual values. I then discuss two inadequacy objections. The first is that sentiocentrism is inadequate because it fails to appropriately value nonsentient organisms or species. The second is that sentiocentrism is inadequate because it does not necessarily value nature. I argue that both of these objections assume an overly narrow conception of environmental ethics. Nonetheless, weak sentiocentrism is able to answer these additional concerns in a way that strong sentiocentrism is not.

4.1 - INTRODUCTION

In this and the next chapter, I'll consider and respond to the objections and arguments against a sentiocentric approach to environmental ethics. The objections raised by prominent environmental ethicists are legion. I'll focus primarily on the two most famous critiques from the literature: Callicott's "Animal Liberation: A Triangular Affair" (1980) and Mark Sagoff's "Animal Liberation and Environmental Ethics: Bad Marriage, Quick Divorce" (1984), as these are the most widely cited works which argue that animal liberation and environmental ethics are incompatible positions. The general strategy of such critiques seems to be to fling as much mud as possible to see what sticks in order to detract from sentiocentrism and in favor of one's pet theory of environmental ethics. There is a lot of rhetoric and bad arguments to cut past in order to get at the real issues, many intuition pumps which emotionally reinforce a dogmatic position.

Objections raised by environmental ethicists against a sentiocentric approach to the environment fall into two kinds. The first kind of objection is that, because sentiocentrism restricts moral considerability to sentient beings, it cannot account for certain kinds of environmental protection or values in nature – it *doesn't go far enough* and hence is an inadequate environmental ethic. Environmental ethicists' worry is that sentiocentrism will fail to protect the nonsentient environment, permitting environmentally damaging actions. I'll call these objections to sentiocentrism the Inadequacy Objections.

The second kind of objection is that sentiocentrism entails positively *anti*-environmental outcomes. By placing value on individual sentient beings, *it goes too far* and has us meddle in nature in the wrong ways. I'll refer to these objections to sentiocentrism as Inconsistency Objections. Recall that the distinction between consistency and adequacy was introduced in

Chapter 1. The Inconsistency Objections and Inadequacy Objections track these, respectively. I will discuss each in turn.

4.2 - Largely Rhetorical Objections

Before doing so, the largely rhetorical objections against animal liberationism merit some discussion. I do this mostly for comprehensiveness. These objections will be quickly cast aside as they lack substance, have been dealt with adequately elsewhere, and were later regretted by Callicott himself as rhetorical and divisive (Callicott 1989).

The first objection is that sentiocentrism entails vegetarianism, which would be environmentally disastrous. Callicott argues that vegetarianism will result in human population growth that will be "probably ecologically catastrophic" (Callicott 1980, 335), because a vegetarian diet has a much smaller ecological footprint than a traditional, omnivorous diet; this land-use efficiency increase will lead to population growth. This is highly speculative and "discounts human forethought" (Varner 2003, 197). It is deeply ironic that an environmentalist would object to *improving* land-use efficiency because this has the potential to reduce our ecological footprint and allow for greater wild flourishing. Also, Callicott is inconsistent on this issue, because he regards livestock as a "ruinous blight on the landscape" in the same article (Callicott 1980, 331).

The second objection is that ending the human dominion of domesticated animals would be environmentally disastrous. Callicott thinks that if domesticated animals were literally liberated, there would be two possible scenarios: (i) either they would die off and go extinct or (ii) become feral and harm the local environment as invasive species. Seeing both of these

outcomes as bad, we might instead continue to house and feed them and allow them to reproduce. This would require "clearing more land with further loss of wildlife habitat and ecological destruction" (Callicott 1980, 331). Then he considers ceasing to breed domesticated animals and letting them go gradually extinct, which he regards as ironic because the supposed "beneficiaries of a humane extension of conscience are destroyed in the process of being saved" (Callicott 1980, 331).[1] Edward Johnson responded that any actual animal liberation would surely be gradual, and besides, a species cannot be liberated from "suffering and exploitation", for a species cannot suffer or be exploited (Johnson 1981, 267). Having handled Callicott's facile objections, the potentially more forceful objections to a sentiocentric approach to environmental ethics remain to be considered.

4.3 - The General Incompatibility Objection

The main idea of the general incompatibility argument is that a sentiocentric approach to environmental ethics holds that we have obligations to wild animals which are inconsistent with environmental preservation. I'll respond by arguing that environmental ethicists who've objected to sentiocentrism are attacking a straw-man. At best, such critiques show that some

[1] Note that this is similar to the Disappearing Beneficiaries Argument against the idea that present generations have obligations to future generations. The idea of that argument is that different actions will result in different people existing in the future, and so we cannot make any particular person better or worse off. Therefore, we have no obligations to future generations because we have no obligations to those whom we cannot make better or worse off. The problem with the Disappearing Beneficiaries Argument is that it assumes that obligations must be to particular people (person-regarding). It is still reasonable to claim that we have general obligations to future people, whomever they might turn out to be. Similarly, and contra Callicott, it could be argued that the extinction of domesticated animal populations whose members' lives are not worth living is a good thing, and that our obligations to future generations of animals are general in nature, such as preserving the background conditions necessary for the existence of sentient life.

theories of animal ethics have anti-environmental implications, not that sentiocentrism as such has these implications.

Mark Sagoff argues that the theoretical underpinnings of sentiocentrism entail that we:

- Extend entitlement programs to animals.
- Provide animals food, perhaps laced with contraceptives.
- Provide heated shelters and dens.
- Prevent predation.
- Convert wilderness areas into farms in order to more humanely manage them. (Sagoff 1984)

Callicott objects along similar lines. He argues that the animal ethicist must view predators as "incorrigible murders" and should view "humane herdsmen" as a moral ideal (Callicott 1980, 320).

The most widely discussed objection in the literature, and the one which especially riles Callicott, is the Predation *Reductio* argument. This argument claims that we are morally obligated to prevent predation. It is a particular version of the general incompatibility argument, and is supposed to problematize sentiocentric approaches to the environment:

1. Suppose that humans were morally obligated to alleviate avoidable animal suffering.
2. Animals experience avoidable suffering in predation.
3. Therefore, humans are morally obligated to prevent predation.
4. But an obligation to prevent predation would be absurd.
5. Therefore, contrary to hypothesis, humans are not morally obligated to alleviate avoidable suffering. (Sapontzis 1992, 229)

Note that this general argumentative structure can be readily applied to Sagoff's other claims about animal liberation: cold, starvation, parasitization, etc. could replace predation in the argument. So, while disparate on the surface, Sagoff and Callicott's objections here all share a

common core: the theoretical basis of animal liberationism requires interventions in nature which are, if not absurd, at least inconsistent with environmentalism.

However, it can't be intervention in nature *per se* that is problematic. Other accounts of environmental ethics permit or require intervention. Aldo Leopold's land ethic, which determines the rightness of actions according to their contribution to the stability, integrity, and beauty of ecosystems, requires that we intervene when ecosystems are unstable, disintegrated, or ugly. Furthermore, any remotely plausible ethic must permit humans to intervene in nature to some extent to procure resources necessary for their survival. Rather, it is the *kinds* of intervention that sentience-based approaches to environmental ethics which are seen as problematic. What Callicott and Sagoff are most worried about is that sentiocentrism entails biodiversity reduction – preventing predation – and the "dewilding" of nature – domesticating nature to better manage animal welfare – which relates their concerns back to the core goals of environmentalism discussed above (1.5). Therefore, their central claim is that if sentiocentrism entails that we must prevent predation and domesticate wilderness areas, then sentiocentrism is inconsistent with environmentalism.

In what follows, note that the general incompatibility argument against sentiocentrism equates the view with something like the following two claims, one axiological and one normative: (i) a hedonistic value theory, and (ii) we are obligated to protect wild animal welfare.

Sagoff begins his general incompatibility argument by considering the view that moral obligations to animals *could* rest on the idea that:

> …[H]uman beings are obligated to prevent and to relieve animal suffering however it is caused. Now, insofar as the animal equality or animal liberation movement makes a philosophically interesting claim, it insists on this stronger thesis, that there is an obligation to serve the interests, or at least to protect lives, of *all* animals who suffer or

> are killed, whether on the farm or in the wild. Singer… argues the controversial thesis that society has an obligation to prevent the killing of animals and even to relieve their suffering wherever, however, and as much as it is able, at reasonable cost to itself. (Sagoff 1984, 39)

Sagoff contends that animal liberation *must* rest on these grounds if it is saying anything new or philosophically interesting, lest it be interchangeable with an anti-cruelty ethic (Sagoff 1984, 41). Callicott paints essentially the same picture of animal liberation, equating it to utilitarianism combined with the recognition that animals suffer:

> As moral agents (and this seems axiomatic), we have a duty to behave in such a way that the effect of our actions is to promote and procure good, so far as possible, and to reduce and minimize evil. That would amount to an obligation to produce pleasure and to reduce pain. Now pain is pain wherever and by whomever it is suffered. As a moral agent, I should not consider my pleasure and pain to be of greater consequence in determining a course of action than that of other persons. Thus, by the same token, if animals suffer pain – and among philosophers only strict Cartesians would deny that they do – then we are morally obligated to consider their suffering as much an evil to be minimized by conscientious moral agents as human suffering. (Callicott 1989, 19)

Sagoff then argues that the two prominent theories of animal liberation, Peter Singer's utilitarian view and Tom Regan's rights view, both entail the "stronger thesis" that we are obligated to serve the interests or protect the lives of *all* animals, domestic or wild. I'll examine Sagoff's critique of each in turn.

Sagoff's Critique of Singer's Utilitarianism

First, let's consider Sagoff's critique of Singer's utilitarian view. Utilitarianism is concerned with maximizing the balance of pleasure over pain. It is neutral with respect to the origin of harm. Utilitarianism cannot distinguish between human inflicted animal suffering and naturally occurring animal suffering. Therefore, Singer's view appears to be quite open to Sagoff's criticism if and when maximizing utility is achieved by intervening in nature. This

implication is further supported by Singer's underlying theory as found in his various writings on animals and in "Famine, Affluence, and Morality" (1972), where he argues that neither spatial distance from suffering nor the absence of causal involvement in that suffering are of moral importance; one has a moral obligation to assist regardless.

Nevertheless, Singer argues on pragmatic grounds that his view does not entail that we ought to intervene to prevent suffering in the case of wild animals. Considering the resources involved to build and heat dens, grow and distribute grain, etc. and the new problems these interventions would create makes it rather doubtful that intervening in these ways would actually contribute to animal welfare over the long term, all things considered. Whether or not this response is adequate, I'll leave unsettled for now and will deal with it in more detail below (Chapter 5). For now, suffice it to say that Singer resists this conclusion, arguing on pragmatic grounds that we should not generally intervene in nature on behalf of animal welfare and should leave wild animals alone, except in some limited circumstances.

Sagoff's Critique of Regan's Rights View

Now let's consider Sagoff's critique of Regan's rights view. Regan's rights view consists largely of moral agents' negative obligations to respect the rights of animals; we only have a duty of justice to assist in cases where other moral agents violate the rights of moral patients. For example, we would be required to assist a rhino in the case of poaching, but not in the case of predation by another animal. On Regan's view, prey have no right to assistance.

To push Regan's view to the "stronger thesis", Sagoff appeals to Henry Shue's view of rights in *Basic Rights* (1996). Shue critiques the distinction between positive and negative

rights, arguing that basic human rights are partly negative *and* positive. According to Shue, basic rights include the right to physical security and the right to minimum subsistence because "the enjoyment of them is essential to the enjoyment of all other rights" (Shue 1996, 19). These rights are partly positive because the security and subsistence of others must be provided for when they cannot achieve these things on their own:

> A demand for physical security is not normally a demand simply to be left alone, but a demand to be protected against harm. It is a demand for positive action… a demand for social guarantees against at least the standard threats. (Shue 1996, 38-39)

There are several problems with Sagoff's critique of Regan. First, Regan never endorses anything like Shue's account. Regan explicitly argues that animals have no entitlement rights to food or security. Sagoff simply assumes that Shue's view is *the* correct account of rights. If Shue's theory of basic rights incorrect, then Sagoff's argument that Regan's view has anti-environmental pragmatic implications fails.[2]

A second problem with Sagoff's critique of Regan's view is that he assumes that what is true of human rights is also true of animal rights. Sagoff argues that Regan must apply Shue's conception of basic human rights to animals:

> This, surely, is true of the basic rights of animals as well, if we are to give the conception of 'right' the same meaning for both people and animals. For example, to allow animals to be killed for food or to permit them to die of disease or starvation when it is within human power to prevent it, does not seem to balance fairly the interests of animals with those of human beings. To speak of rights of animals, of treating them as equals, of liberating them, and at the same time to let nearly all of them perish unnecessarily in the most brutal and horrible ways is not display humanity but hypocrisy in the extreme. (Sagoff 1984, 41)

[2] Note that Shue's view is similar in spirit to Singer's view in "Famine, Affluence, and Morality," but for political philosophy rather than interpersonal ethics. Both are controversial and have received significant philosophical criticism.

There is a lot going wrong in such a short passage. While Regan doesn't much discuss human rights, he might hold essentially the same view about animal rights as human ones. That is, Regan could hold that one commits no injustice, i.e. violates no person's rights, if one does not assist a person in person. Sagoff doesn't seem to understand that Regan's view is a deontological ethic focused on obligations of justice, particularly the duty not to harm. Regan's view does not require that we "balance interests". This is the view which Regan argues *against*. Regan argues that, above all else, we ought not violate animals' rights. Nature is not a moral agent and hence cannot violate rights. Sagoff regards Regan's view as "hypocrisy" because he wants to insist that an animal ethic *must* be an outcome-oriented welfarist ethic, but this fundamentally mischaracterizes Regan's view.[3]

Also, there may well be morally significant differences between animals and persons such that Shue's view of human rights is inapplicable to Regan's theory of animal rights. So, even if Shue is correct about human rights, this does not entail that Regan is committed to Shue's conception of basic rights for animals. Like Shue, Martha Nussbaum rejects the view that there can be negative duties to humans without accompanying positive duties. However, she holds that this is *not* the case for duties towards animals. In her own words:

> In the human case, there is a traditional distinction between positive and negative duties that it seems important to criticize… In the case of animals, however, there might appear to be room for a positive/negative distinction that makes some sense. It seems at least coherent to say that the human community has the obligation to refrain from certain egregious harms towards animals, but that it is not obligated to support the welfare of all

[3] As discussed below (5.6), Regan does amend his largely negative rights view with limited duties to assist grounded in a general obligation of beneficence. Hence we must "display humanity" (compassion?) in some respects to wild animals, but it is nothing like Sagoff's gross mischaracterization of Regan's view. Furthermore, Regan did not revise his view until 2004. Regan's original rights view (1983) was the view which Sagoff purports to be criticizing, yet it was more strongly cast in terms of negative rights than is his 2004 view. Sagoff's scholarship appears to be pretty uncharitable.

> animals, in the sense of ensuring them adequate food, shelter and health care. Fulfilling our negative duties would not be enough to ensure that all animals have a chance to pursue flourishing in their own way, but it might be that nothing more is morally required of us: the species themselves have the rest of the task of ensuring their own flourishing… (Nussbaum 2006, 372-373)

Nussbaum's suggestion seems to be that positive obligations to humans arise in the context of a community, but since wild animals fall outside this community, we are not responsible for the flourishing of their lot even though we should not make them worse off.[4] In conclusion, Sagoff's critique of Regan's rights view is unsuccessful.

Limits of Sagoff's Critique of Sentiocentrism

The most important limitation of Sagoff's critique of animal liberation is that he has, in fact, only critiqued two grounds for animal liberationism. Animal liberation does not require that we have such controversial positive obligations towards wild animals. As argued in Chapter 1, we should take "animal liberationism" to mean that (some) animals have moral status and that their use for food, clothing, fuel, research, etc. is *prima facie* wrong, and without overriding reasons to the contrary, ought to be abolished.

Authors such as Sagoff and Callicott attribute (i) theoretical views and (ii) pragmatic implications of these views to specific sentiocentrists which they simply do not hold. Regan does not hold the view of rights attributed to him, and Singer rejects the pragmatic implications of policing nature levied against him. While Singer's utilitarian view and Regan's rights view are examples of justifications of animal liberation, they are but two paths to these conclusions. Even granting that Sagoff is correct that both Singer's view and Regan's views are anti-

[4] One might also think that positive obligations to animals (and perhaps humans as well) arise in the context of a community as well. This idea is developed by Clare Palmer (2010) and is discussed below in Chapter 5.

environmental, these two views aren't exhaustive of the views which can support animal liberation. Therefore, even if Sagoff's criticisms of Regan and Singer's versions of sentiocentrism entailed anti-environmental consequences, it does not follow that sentiocentrism is necessarily anti-environmental.[5] If sentiocentrism is incompatible with environmentalism, it is not for the reasons Sagoff or Callicott have given.

4.4 - Strong and Weak Sentiocentrism

In order to address the Inadequacy Objections, we should first distinguish two forms of sentiocentrism. While both forms go some distance towards protecting the environment, one goes further in addressing traditional environmental ethicists' concerns with a sentiocentric approach to the environment. "Sentiocentrism" means any sentience-centered ethic. Yet values can be "centered-around" sentient entities in a broader and narrower sense.

As argued above (1.5, 4.3), environmental ethicists opposed to sentiocentric approaches to the environment have tended to define "animal liberationism" too narrowly, in effect straw-manning the view. By this, I mean that, in approaching questions of how we should think about wild animals and the rest of nature, environmental ethicists have assumed that sentiocentrism

[5] Furthermore, note that Sagoff regards cruelty to animals as *obviously* immoral: "The platitude one learns along with how to tie shoestrings: people ought not be cruel to animals, that they ought not to be, that this cruelty should be stopped and that sermons to this effect are entirely appropriate and necessary. I deny only that these sermons have anything to do with environmentalism or provide a basis for an environmental ethic."(Sagoff 1984, 41). Even this would go quite some distance towards the aims of animal liberation from where we are at present. A more stringent, but nonetheless plausible claim is that we ought not cause unnecessary harm, and this goes even farther to satisfy the goals of animal liberation. It is a *strength*, not a weakness, if the aims of animal liberation can be achieved with moral principles which we've known since we were able to tie our shoes. The goal should not be to make "philosophically interesting" or even novel claims, but in coming up with a satisfying account of our obligations to animals and with respect to the rest of the environment.

must decide environmental questions *solely* in terms of the welfare or rights of nonhuman animals in nature. I'll call this narrow view "strong sentiocentrism".

There is also a broad interpretation of the significance of sentience as a criterion of moral status. On this view, while only sentient entities have moral standing, more than the welfare or rights of animals should be taken into account in deciding environmental questions. I'll call this broader view "weak sentiocentrism". Here, I am mirroring Eugene Hargrove's weak anthropocentrism, which is the view that some values, such as environmental values, are assigned by human judgment and are intrinsic (noninstrumental) (2003).

Strong Sentiocentrism

Sentiocentrism is the view that sentience is necessary and sufficient for moral status (1.6, 2.4). Strong sentiocentrism is not entailed by the notion that all and only sentient beings are morally considerable. The commitment to sentience as a criterion of moral considerability, of itself, does very little to decide many moral questions. Much difficult theoretical work remains to be done. To see this, we need only recall that there is huge disagreement on multiple points at multiple levels of moral theory and practice within the anthropocentric paradigm even though all parties accept an anthropocentric notion of moral status.

Tom Regan's treatment of endangered species in *The Case for Animal Rights* suggests a strong sentiocentric reading. In discussing the value of endangered species, Regan emphasizes that his rights view is about the moral rights of *individuals*, and because species are not individuals, they have no rights. Regan adds that the reason to save endangered species is because their *members* have rights. He then argues that animals which are members of an

endangered species have no stronger rights claims than any other animals, "they are equal in value to all who have inherent value" (Regan 2004, 360). Further, if we had to choose between saving the last two, thousand, or million members of an endangered species or one animal of a plentiful species whose death would be a greater harm to that individual, then we ought to save the latter individual.

Several aspects of this response as articulated thus far are problematic. In the first place, the vast majority of animals are not sentient, so saving sentient individuals will not save endangered species generally. Regan's defense applies to a minority of cases. It may be true that all sentient beings have an equal right not be harmed, yet there may well be other morally relevant reasons to decide particular cases, such as aesthetic value and rarity, which have nothing to do with rights.[6]

There is no principled reason for Regan to deny this on his theory. At the end of his discussion of endangered species is the following important but often overlooked and underdeveloped passage:

> The rights view does not deny, nor is it antagonistic to recognizing, the importance of human aesthetic, scientific, sacramental, and other interests in rare and endangered species or in wild animals generally. (Regan 2004, 361)

Regan goes on to deny that (i) the value of animals comprising endangered species is reducible to or exchangeable with the satisfaction of these human interests, and (ii) such human interests

[6] An analogy in the human case might prove fruitful. Suppose that all human persons have rights and have them equally. Does it follow that that our obligations to a loved one and a distant stranger are the same? Of course not. More to the point, can't values play a role in addition to rights in moral deliberation? Diversity comes to mind here. If one decides to make a charitable humanitarian donation, one might consider donating to a generic human rights organization or donating to an organization with a goal to protect a small indigenous cultural and ethnic group such as the Ngöbe-Buglé in Western Panama currently embattled with the Panamanian government over land-use and sovereignty, with their unique and threatened culture and language. This is not because these indigenous persons have more rights, but because cultural diversity is valuable and adds reasons in addition to rights claims.

should be used to determine how we ought to treat such animals. More specifically, any harm done to animals in the name of these human interests is wrong because it violates animals' rights (Regan 2004, 361).

In the preface to the 2004 edition of *The Case*, Regan returns to the issue of endangered species because some environmental philosophers such as Callicott had objected to his rationale for protecting endangered species in the original (1983) edition. Regan addresses how to accommodate the intuition that members of endangered species are owed more than members of plentiful species, a question which he claims he did not ask nor answer in *The Case*.[7] Regan's new answer is that we can account for the intuition in terms of compensatory justice because endangered species' numbers are in decline due to past wrongs, e.g. we owe the East African black rhino *more* than an animal of a common species. Yet he still maintains that there is no compelling argument to grant inherent value to species, ecosystems, or the biosphere as such (Regan 2004, xxxix-xli). So, while not fleshed out, Regan's early nod to the "human aesthetic, scientific, sacramental, and other interests" suggests that he is a weak sentiocentrist afar all, even if this aspect does not factor prominently in his view.

Strong sentiocentrism takes us some distance along the path to environmental protection. Generally speaking, animals need healthy air, water, and land, just like us. If animals are morally considerable, then strong sentiocentrism goes farther than strong (and perhaps weak) anthropocentrism in providing reasons in support of the core goals of environmentalism, as discussed below (6). Weak sentiocentrism is surely more congenial to environmentalism.

[7] This is somewhat disingenuous of Regan because he did consider endangered species in the first addition, and even said specifically that "the same principles apply to the moral assessment of rare or endangered animals apply as to those that are plentiful…" (Regan 2004, 359), seeming to invite criticisms similar to that given by Callicott.

Weak Sentiocentrism

Other animal ethicists advocate weak sentiocentrism, and do so more explicitly than Regan. This view is sentiocentrist about moral considerability, yet endorses a more expansive view of value than strong sentiocentrism. I'll try to tease out just what these authors are on about. Dale Jamieson argues that:

> We can be sentientist with respect to the source of values, yet non-sentientist with respect to their content. Were there no sentient beings there would be no values but it doesn't follow from this that only sentient beings are valuable. … Ultimately the value of non-sentient entities rests on how they fit into the lives of sentient beings. (Jamieson 2008, 204-205)

An analogy may help elucidate the point here. Take the view that only (most) humans are morally considerable. Does it follow that only the welfare or rights of (most) humans matter? Of course it does not follow. Jamieson points towards art as a more familiar example of value within an anthropocentric framework, noting that:

> Many people have traditional evaluational outlooks yet value works of art intrinsically and intensely. There is no great puzzle about how they can both intrinsically value persons and works of art. Similarly, animal liberationists can value nature intrinsically and intensely, even though they believe that non-sentient nature is of derivative value. (Jamieson 2008, 207)

This is the salient point. There is no deep puzzle as to how things other than sentient entities can be valuable even though only sentient entities are morally considerable, according to sentiocentrism. Furthermore, it does not follow from a view about moral considerability that these derivative values are necessarily of lesser importance in all cases:

> [A]lthough non-sentient entities are not of primary value, their value can be very great and urgent. In some cases their value may even trump the value of sentient entities. The distinction between primary and derivative value is not a distinction in degree of value, but rather in the ways different entities can be valuable. (Jamieson 2008, 205)

Again, Jamieson gives an analogy in the anthropocentric paradigm. During World War II, Winston Churchill ordered the evacuation of great works of art housed in museums as bombing by the Germans was imminent. Churchill could have diverted England's resources towards saving more British civilians. He did not. He saw the works of art as trumping the value of some number of human lives that could have been saved. This also appears to be the case for certain cities of great historic and archeological importance. We can expand this list to include certain aspects of the natural world including particular natural features, ecosystems, and species. This does not require that such entities have moral standing.

There is any number of reasons why natural features, ecosystems, species, wilderness, etc. should matter for sentient beings. Peter Singer suggests one way to account for the value of species on a weak sentiocentric view:

> [I]f we allow species to become extinct, we shall deprive ourselves and our descendents of the pleasures of observing all of the variety of species that we can observe today. Anyone who has ever regretted not being able to see a great auk must have some sympathy with this view. (Singer 1979, 202)[8]

Michael Nelson gives thirty reasons for wilderness preservation in his "Amalgamation of Wilderness Preservation Arguments" (2002), which I have summarized in *Table 2* below. Nearly all of these reasons are consistent with both versions of sentiocentrism[9], and while many

[8] Peter Singer also regards an analogy with art as a promising strategy: "the destruction of a whole species is the destruction of something akin to a great work of art", that each species is "immensely complex and inimitable", and that "each has its own noninstrumental value, just as a great painting or cathedral has value apart from the pleasure and inspiration it brings to human beings" (Singer 1979, 203). He goes on to reject this strategy because, as a preference act utilitarian, the only reasons he can see for being concerned for endangered species is if they are of benefit to humans and other animals. It is puzzling why he doesn't advocate preserving art and species because they produce pleasure in humans.

[9] It seems all but 27 & 30, and many would exclude 2 as well.

of these reasons support strong sentiocentrism[10], many of the rest of these reasons go beyond strong sentiocentrism and supply reasons for weak sentiocentrism (and weak anthropocentrism).

Bernard Rollin also advocates weak sentiocentrism. Like Eugene Hargrove's weak anthropocentrism (2003), Rollin emphasizes the aesthetic value of nature. He argues that:

> There is nothing to be gained by attempting to elevate the moral status of nonsentient natural objects to that of sentient ones. One can develop a rich environmental ethic by locating the value of nonsentient natural objects in their relation to sentient ones. … One can argue for preserving mountains, snail darters, streams, and cockroaches on aesthetic grounds. Too many philosophers forget the moral power of aesthetic claims. … Rather than attempting to transcend all views of natural objects as instrumental by grafting onto nature a mystical intrinsic value that can be buttressed only by poetic rhetoric, it would be far better to nurture public appreciation of subtle instrumental value, especially aesthetic value. (Rollin 1988, 129)

Rollin endorses something like Jamieson's concept of derivative value for nonsentient nature, and like Jamieson, also explicitly notes that the value of nonsentients can even trump the value of individual sentient organisms in some cases. As Rollin puts it:

> [T]he attribution of value to nonsentient natural objects as a relational property arising out of their significance (recognized or not) for sentient beings does not denigrate the value of natural objects. Indeed, this attribution does not even imply that the interests or desires of individual sentient beings always trump concern for nonsentient ones. (Rollin 1988, 130)

Rollin's notion of "subtle instrumental value" and Jamieson's "derivative intrinsic value" seem to amount to the same thing, but aren't instrumental value and intrinsic value opposites? Christine Korsgaard provides a way to understand what is going on here. She claims that the distinction between intrinsic value and instrumental value is the wrong distinction to draw, as there are actually two pairs of distinctions, and instrumental value and intrinsic value each belong to different pairs of the two distinctions.

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[10] Such as 1, 3, 4, 5, & 26.

Table 2: Summary of Nelson's Amalgamation of Wilderness Preservation Arguments

	Argument	**Description of the Value of Wilderness:**
1	Natural Resources	Provides natural resources.
2	Hunting	Provides terrific venues for hunting game and fishing.
3	Pharmacopeia	Provides great actual and potential pharmaceutical use such as the Amazon Rainforest and Pacific Northwest.
4	Service	Provides valuable environmental services such as removing carbon dioxide (forests) and protecting river headways (wetlands).
5	Life-Support	Supports human life.
6	Physical Therapy	Enhances and supports physical health through exercise.
7	Arena	Provides a superb locale for athletic and recreational pursuits.
8	Mental Therapy	Provides psychological health benefits.
9	Art Gallery	Is beautiful and sublime.
10	Inspiration	Provides inspiration for artistic and intellectual pursuits.
11	Cathedral	Provides spiritual, mystical, or religious encounters.
12	Laboratory	Provides scientists the raw materials for scientific inquiry.
13	Standard of Land Health	Is important as a measure of land health and as a model of a normal ecologically balanced landscape.
14	Storage Silo	Is important as a repository of biodiversity.
15	Classroom	Provides a plethora of learning experiences.
16	Ontogeny	Provides the context of our existence and historical development.
17	Cultural Diversity	Cultural diversity reflects wilderness diversity; specific cultures are derived from and dependent on their particular ontogenetic contexts.
18	National Character	National monuments symbolically enshrine national values.
19	Self-Realization	Necessary to achieve a complete and appropriate view of self; Necessary to understand our world, our place in it, and duties to it.
20	Disease Sequestration	Is important so that pathogens do not adapt and take humans as their host, as in the cases of HIV and Ebola Zaire.
21	Salvation of Freedom	Serves as potential sanctuary from political oppression.
22	Mythopoeic	Is necessary for viewing the history and future of myth.
23	Necessity	Is necessary for civilization like good for evil and hot for cold.
24	Defense of Democracy	Shows respect for the needs of a minority, and is indicative of good democracy, like opera houses and softball diamonds.
25	Social Bonding	Serves as a valuable mechanism in social bonding.
26	Animal Welfare	Provides home for wild animals, who have moral standing.
27	Gaia Hypothesis	Earth is an organism, worthy of moral standing and preservation.
28	Future Generations	Owed to future generations.
29	Unknown and Indirect Benefits	Provides unknown future benefits, providing option value, so we should err on the side of caution and not destroy it.
30	Intrinsic [mind-independent] Value	Possesses intrinsic value even if humans do not experience it or benefit from it.

In Korsgaard's own words:

> It is rather standard fare in philosophy to distinguish two kinds of this value of goodness, often called 'intrinsic' and 'instrumental'. Objects, activities, or whatever, have an instrumental value if they are valued for the sake of something else--tools, money, and chores would be standard examples. A common explanation of the supposedly contrasting kind, intrinsic goodness, is to say that a thing is intrinsically good if it is valued for its own sake, that being the obvious alternative to a thing's being valued for the sake of something else. This is not, however, what the words 'intrinsic value' mean. To say that something is intrinsically good is not by definition to say that it is valued for its own sake: it is to say that it has its goodness in itself. It refers, one might say, to the location or source of the goodness rather than the way we value the thing. The contrast between instrumental and intrinsic value is therefore misleading, a false contrast. The natural contrast to intrinsic goodness - the value a thing has 'in itself' - is extrinsic goodness - the value a thing gets from some other source. The natural contrast to a thing that is valued instrumentally or as a means is a thing that is valued for its own sake or as an end. There are, therefore, two distinctions in goodness. One is the distinction between things valued for their own sakes and things valued for the sake of something else - between ends and means, or final and instrumental. The other is the distinction between things which have their value in themselves and things which derive their value from some other source: intrinsically good things versus extrinsically good things. Intrinsic and instrumental good should not be treated as correlatives, because they belong to two different distinctions. (Korsgaard 1983, 169-170)

Here, Korsgaard contrasts instrumental value – value as a means to something else – with "final value", a thing valued for its own sake. This distinction is the same as O'Neill's instrumental-noninstrumental distinction (2.2). The correct contrast for intrinsic value, a thing which has goodness in itself, is with extrinsic value, value a thing has in relation to something else.

There are two important upshots for environmental ethics. The first point is that intrinsic value is not necessarily objective (mind-independent) value.[11] The second, more important point is that final value can be *extrinsic* value. Things can be valued for their own sakes yet their value can be extrinsic, e.g. in relation to us. Korsgaard mentions gorgeously enameled frying pans as

[11] I take it that Korsgaard's distinctions are compatible with metaethics which allow for mind-independent value and those which do not.

an example of final value, yet surely such frying pans are not intrinsically valuable; their being valued for their own sake depends on us. Their value is extrinsic.

Despite their different terminology, Korsgaard's "extrinsic final" value is the same as Jamieson's great, urgent, "intrinsic" yet "derivative" value and Rollin's "subtle instrumental" value. By "intrinsic", Jamieson means noninstrumental or final. By "derivative", he means extrinsic value, i.e. dependent on the "primary" value of minds (intrinsic value). By "subtle" Rollin means noninstrumental. By "instrumental", he means "extrinsic."[12]

The upshot is that weak sentiocentrists can agree with environmentalists who believe that objective (mind-independent) value entails moral considerability, e.g. biocentrists and ecocentrists, about the *prima facie* wrongness of treating all of nature as merely instrumentally valuable. They can regard the environment as having extrinsic final value. The disagreement between weak sentiocentrism and such "objectivist" views is metaethical. Both are views of intrinsic value in the traditional philosophical sense dating back to Plato.

Perhaps the key to understanding sentiocentrism is the following. It restricts intrinsic value to sentient beings in some sense. That is, only mental states or well-being[13] are valuable in terms of their intrinsic qualities, i.e. without reference to other entities, and this fact makes

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[12] This puts us in a position to understand why "instrumental value" is often taken to have pejorative connotations in the literature, and therefore why we should probably avoid Rollin's terminology. Instrumentally valuing the environment means valuing it merely as a resource to be used. However, if we were to regard aesthetic and other values as "subtle" instrumental values, such negative connotations would not apply, and then we might contrast subtle instrumental value with brute instrumental value, such as the value of a forest expressed solely in terms of extractable lumber and oxygen production. However, to avoid confusion, it is better to speak of noninstrumental value rather than subtle instrumental value. Note also how Hargrove rejects environmental pragmatism because it does not "set certain things aside as exempt them from use" in defending weak anthropocentric [noninstrumental] value (Hargrove 2003, 185). It's very clear that all environmental value is extrinsic for Hargrove, occurring only in relation to human valuers. His objection concerns the instrumental-final distinction, not the intrinsic-extrinsic distinction.

[13] I'm intentionally leaving this undetermined because there are accounts about well-being, e.g., objective list theories, which do *not* hold that well-being is purely subjective, i.e. accountable solely in terms of mental states.

possessors of such states deserving of direct moral considerability. Weak sentiocentrism also holds that there are things of extrinsic noninstrumental value, a claim which strong sentiocentrism rejects. As Jamieson puts it elsewhere, "value is mind-dependent, but it is things in the world that are valuable or not" (Jamieson 2004, 242). We might understand this in the adverbial sense of noninstrumentally valuing – valuing something for its own sake or "intrinsically" valuing – as contrasted with instrumentally valuing.

This weak sentiocentric way of thinking goes back at least to John Stuart Mill:

> The ingredients of happiness are very various, and each of them is desirable in itself, and not merely when considered as swelling an aggregate. The principle of utility does not mean that any given pleasure, as music, for instance, or any given exemption from pain, as for example health, is to be looked upon as means to a collective something termed happiness, and to be desired on that account. They are desired and desirable in and for themselves; besides being means, they are a part of the end. Virtue, according to the utilitarian doctrine, is not naturally and originally part of the end, but it is capable of becoming so; and in those who love it disinterestedly it has become so, and is desired and cherished, not as a means to happiness, but as a part of their happiness. (Mill 1957, 46)

While Mill argues that only happiness is ultimately desired (Mill 1957, 48), here he argues that we value many things in themselves and that they are *constitutive* of happiness, not means or instruments to it. This, combined with Mill's commitment to sentience as a basis for moral consideration – pleasure and the absence of pain – and his view that the "reasons for legal intervention in favour of children, apply not less strongly to the case of those unfortunate slaves and victims of the most brutal part of mankind, the lower animals" (Mill 1909, 958), suggest that Mill was a weak sentiocentrist.[14]

[14] Also, Epicurus was a hedonist who thought that infants and nonhuman animals were capable of experiencing pleasure and pain (Cicero, 1914, I 30). He also thought that "friendship had its beginning as a result of utility, but is to be chosen for its own sake" (Vatican Sayings 23) and "The wise man will be fond of the countryside WM22)."

Some leaders in the biodiversity conservation movement seem to talk in this weak sense about the "intrinsic value" of nature. In Noss and Cooperrider's *Saving Nature's Legacy: Protecting and Restoring Biodiversity* – a book which Michael Soulé, the founder of the Society for Conservation Biology, regarded highly and considered to be "a bible for wildlands managers" – argue that utilitarian, use-value arguments for the value of biodiversity are limited. They argue for an alternative which adds to these use-value arguments: "the appreciation of wild creatures and wild places for themselves". They argue that in addition to 1) direct utility, 2) indirect utility and 3) recreational and esthetic value, nature and biodiversity possess "intrinsic values (or the spiritual and ethical appreciation of nature for its own sake) offer the least biased and ultimately most secure arguments for conservation" (Noss and Cooperrider 1994, 22). Noss and Cooperrider are arguing that *our appreciation* of nature and biodiversity for its own sake is "intrinsic value". This way of talking can comfortably take place within weak sentiocentric and weak anthropocentric frameworks.

To summarize the developments of this section, perhaps the key to understanding weak sentiocentrism is something like the following:

1. Only well-being is intrinsically valuable.
2. An entity's possession of intrinsic value is necessary and sufficient for moral status.
3. There is noninstrumental value, yet its value is extrinsic, e.g. occurring only in relation to a valuer.

In contrast, strong sentiocentrism accepts these first two claims, yet rejects, or at least fails to endorse, this third claim.[15] The difference between weak sentiocentrism and weak

[15] The first is a view of what ultimately matters, a variant of Joseph Raz's humanistic principle: "the explanation and justification of the goodness or badness of anything derives ultimately from its contribution, actual or possible, to human life and its quality" (Raz 1986, 194), expanded to cover nonhuman animal well-being. Roger Crisp notes

continued

anthropocentrism is that weak anthropocentrism considers 1 & 2 to apply to all sentient beings, not just all or most humans.[16] The commonality between weak sentiocentrism and weak anthropocentrism is 3.[17] With this distinction between weak and strong sentiocentrism in mind, we are now better situated to approach the inadequacy objections.

4.5 - Inadequacy Objections

There are at least two inadequacy objections raised in the literature. The first objection is that environmental ethics must place a specific kind of value on the environment which a sentiocentric approach cannot accomplish. The second objection is that a sentiocentric ethic values nature only contingently, which is inadequate.

Both of these objections assume that an environmental ethic must have a specific character. As argued above (1.5), when asking whether an ethic is environmental, we should consider whether it (i) supports the core goals of environmentalism and (ii) regards some aspects of the environment as having value which transcends use-value. These objections seem to hold

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that this means that "ultimately speaking, the justificatory force of any moral reason rests on well-being" (Crisp 2008). The second point connects intrinsic value to moral status. The third points to the importance of goods in the world.

[16] Note, however, that the weak sentiocentrism being outlined here is not the same as value pluralism of the sort offered by Mary Ann Warren (1983). She argues that individual sentient beings *and* ecosystems both have moral standing. Sentiocentrists such as Jamieson and Rollin only grant direct moral standing to individual sentient entities.

[17] In this work, I focus exclusively on noninstrumental valuing by humans, i.e. that with which *I* am familiar. However, unlike weak anthropocentrism, weak sentiocentrism allows for the possibility that nonhumans can also value noninstrumentally. Play might be an example. It originally seems to serve an instrumental purpose, e.g. learning how to hunt or establishing social hierarchies without resort to violence, but seems to take on an apparently purposeless character, seemingly done for its own sake. UT's Gordon Burghardt writes in *The Genesis of Animal Play* that play has "limited immediate function" (2005). Mark Bekoff and Jane Goodall argue that some nonhuman animals have transcendent or spiritual experiences (nonmaterial, intangible, and introspective experiences comparable to what humans have) which we might understand as noninstrumental valuing. Jane Goodall has observed chimpanzees dance to the point of entering a trance-like state at waterfalls which emerge after heavy rains. Goodall wonders "Is it not possible that these performances are stimulated by feelings akin to wonder and awe?" (Viegas 2010). Goodall said something similar when I saw her speak at the University of Akron's E.J. Thomas Hall on March 13, 2001.

that by not attributing moral status to nonsentients or species or by not valuing nature necessarily, a sentiocentric ethic violates this second condition. It cannot value nature in "the right way". These objections are mistaken.

Nonsentient Organisms and Species

How, if at all, do nonsentient organisms fit into a sentiocentric approach to the environment? According to sentience as a criterion of moral considerability and as was argued above in Chapter 2, nonsentient organisms and species are not morally considerable. However, from the fact that an entity is not morally considerable, it does not follow that we ought to do with it as we please.

Nonsentient organisms are generally of huge direct instrumental value for humans and other animals as food, fuel, shelter, etc. They are also of indirect instrumental value because they provide environmental services and are used by other nonsentient organisms which are of direct instrumental importance. It is easy to underestimate the significance of these points and how powerful their implications are. Any sentiocentric ethic can avail itself to these claims.

What about "useless" nonsentient life? There seem to be organisms that play no instrumental role in the lives of sentients. Extremophiles such as the Pompeii worm (*Alvinella pompejana*) which live in deep-ocean hydrothermal vents, Tardigrades which live under solid layers of ice atop the Himalayas, and naturally rare species which have minimal impact on the environment, all seem to fit the bill. Does a sentiocentric approach permit the elimination of these species, provided that no sentient beings are harmed directly or indirectly?

On strong sentiocentrism, it follows that useless species are eliminable because they are, by definition, of no instrumental value to animals. The strong sentiocentrist could bite the bullet and contend that valuing every species is not necessary for an ethic to be environmental.

However, this is not the case on weak sentiocentrism. Scientists who study these organisms value them, and many others do as well for their aesthetic and intellectual reasons. Edward McCord recently argued in the aptly titled *The Value of Species* that the value of species, while intellectual in nature, is significant enough to rise above other values (McCord 2012). To discuss just one example, the extremophiles, there are some indications that these species may prove crucial in understanding abiogenesis – the genesis of living things from the nonliving – and these organisms' ability to survive in space has ramifications for astrobiology. In conclusion, while it is true that no sentiocentric ethic regards nonsentient organisms or species as having moral status, they may nonetheless be highly valued.

The Contingency Objection

Erik Katz, Brian Norton, and Tom Regan have all offered variants of the Contingency Objection. The idea is that a sentiocentric approach to environmental ethics values nature only contingently, which is inadequate. For example, animals happen to need habitats, so we ought to respect their need for habitats. However, Katz, Norton, and Regan think that this foundation for environmental ethics is too flimsy. It could, at least in principle, fail to value nature. What we need, these objectors claim, is an environmental ethic that *necessarily* values nature. Eric Katz voices the objection as follows:

> An environmental ethic can be made compatible with an animal liberation ethic if it is conceived as an ethic primarily concerned with the satisfaction of sentient beings – the

> higher animals and humans. Natural entities and ecological communities would be preserved, not because of any intrinsic value, but simply because they provide satisfaction or pleasure to sentient beings. But this… [destroys] the essence of the environmental ethic. The fact is that the existence of any natural entity or ecological system is only contingently related to the satisfactions of sentient beings… If the natural environment is only protected, e.g., because it provides humans with aesthetic and recreational satisfactions, then if human interests in aesthetics and recreational activities change (as they seem to be in this increasingly artificial and technological world) there will be no reason to protect the natural environment. (Katz 2003, 92)

Tom Regan advanced the Plastic Trees Argument, a variant of the Contingency Objection:

1. Suppose that we were able to manufacture an environment that would be significantly better for sentient beings than is the natural environment.
2. Also suppose that there was no more beneficial (for sentient beings) way for us to employ our energies and resources and that the benefits from this manufactured environment would be distributed fairly, including appropriate consideration for future generations.
3. It would follow that we ought, on utilitarian grounds, to replace the natural environment with a manufactured one.
4. But [3] is an unacceptable conclusion.
5. Therefore, a utilitarian environmental ethic is unacceptable. (Regan 1981, 27)

Just like the general Contingency Objection, the plastic trees argument draws rhetorical force from artifice versus nature.

Nonetheless, it is an interesting objection. It's doubtful that the first premise is true when "environment" is taken in its total sense. It is also doubtful that the second premise will ever be true.

In the first place, it isn't clear that an environmental ethic must *necessarily* value nature in the sense Katz and others envision. Humans and other animals happen to need a place to live and therefore require various environmental services. That these facts are in some sense contingent does not count against sentiocentrism's standing as an environmental ethic. As argued above in Chapter 1, we shouldn't place theoretical restrictions on which ethics count as environmental, and should instead focus on agreement at the level of practice. So, even

advocates of a strong sentiocentric ethic can hold the environment to be valuable, here and now. If this is so, it may be enough to say that sentiocentrism is an environmental ethic because the views in fact coincide. Sentiocentrists may be content to concern themselves with an ethic for *this* world, not all possible worlds.[18]

However, this response may be inadequate to some, as the Contingency Objection is an in-principle objection, and what may be possible a thousand years from now may be beyond our present imagination. The worry is that such an ethic does not adequately capture environmental value. Weak sentiocentrists think both that moral status begins and ends with sentience yet much else is valued for its own sake. Such a weak sentiocentrism has a ready answer to the Contingency Objection: while it is the case that the natural environment is instrumentally valuable and it could be possible to construct artificial environments which would be significantly better for sentient beings, it does not follow that we ought to do so because it would come at the cost of other values, such as aesthetic or scientific values.

4.6 - CONCLUSION

In this chapter, I examined several arguments offered by prominent environmental philosophers against a sentience-based environmental ethic and argued that these arguments are unsuccessful. I identified these criticisms as being of two sorts: (i) animal ethics is *incompatible* with environmental ethics and (ii) animal ethics is an *inadequate* environmental ethic. I first considered and critiqued the general incompatibility argument. I diagnosed a common theme to

[18] Furthermore, sentient entities are themselves valuable, and sentient animals are natural entities. So, it isn't true that *all* nature is only contingently valuable on a sentience-based ethic.

the incompatibility critiques, which was to assume that sentiocentrism requires (i) a hedonist value theory, and, either (ii) the priority of the good over the right, e.g. value maximization or negative utilitarianism, or that entitlement rights are tied to negative rights, as normative commitments. Some animal ethicists do endorse these views, and some of these positions do indeed have anti-environmental implications, but they are not exhaustive of the philosophical foundations of animal liberationism. I then considered and critiqued the inadequacy arguments after discussing the distinction between weak and strong forms of sentiocentrism, and argued that while sentiocentrism need not satisfy these responses in order to be an adequate environmental ethic, weak sentiocentrist theories are able to account for these environmental philosophers' concerns more so than strong sentiocentrist theories.

5 – RECREATING EDEN?: SENTIOCENTRISM AND NATURAL EVIL

Who trusted God was love indeed
And love Creation's final law
Tho' Nature, red in tooth and claw
With ravine, shriek'd against his creed

– Alfred Tennyson
In Memoriam A.H.H.,
Canto 56, 1849

Abstract

In this chapter, I continue the argument from the previous one. I further evaluate the consistency of animal liberation and environmental ethics by developing an analogy between the problem of evil in philosophy of religion and what I call the problem of wild animal suffering in ethics. The analogy starts from the similarity of the following two questions: "Why does God allow evil?", and "Why does a good person allow wild animal suffering?" I argue that the simple and obvious responses to wild animal suffering – (i) that animal suffering is nonexistent or not bad (ii) that we are not knowledgeable enough to eliminate suffering (iii) that we are not capable enough to eliminate suffering, or (iv) that we are not good enough to eliminate suffering – track simple responses – evil is unreal, God is not omniscient, omnipotent, or omnibenevolent – to the problem of evil. Furthermore, while such pragmatic responses are important, they are ultimately unsatisfactory responses to the problem of wild animal suffering, as is widely accepted for the problem of evil. I then consider two lines of principled responses. One response is analogous to the free will defense to the problem of evil, making the axiological argument that a world with "free" creatures is better than a world in which we "fix" nature. Another mirrors deontological responses to the problem of evil. I further argue that these axiological and deontological responses are not total responses in that there is a "residue" of suffering for which they have no answer. I argue that both allow or require some meddling in nature, yet rather than realize environmentalists' fears about sentiocentrist approaches to the environment, these interventions are similar to those advocated by environmentalists themselves, but are motivated for by welfarist concerns rather than the conservation of populations.

5.1 - INTRODUCTION

In the last chapter, I critically examined the environmental ethicists' critique that sentiocentrism is incompatible with environmentalism. This chapter builds on the last by delving deeper into the issue of their compatibility. This is important because Sagoff's critique only addressed whether (his interpretation of) Regan's and Singer's views were compatible with environmentalism, yet there are many other animal liberationist responses to the incompatibility objection. How do these responses fare?

I address this question by developing an analogy between the problem of evil in the philosophy of religion and what I'll call "the problem of wild animal suffering" in moral philosophy. Drawing out parallels between the argument from evil and theistic responses to this argument on the one hand, and environmental ethicists' objections to a sentiocentric approach to the environment and animal ethicists' responses to these objections on the other hand, is a useful way to examine some strikingly similar philosophical issues.[1] It also allows us to see how the widely recognized gulf between environmental ethics and animal liberation emerged and to identify a host of ways in which this gap might be bridged. In so doing, the boundaries of a workspace of animal ethical theories compatible with environmentalism will take further shape.

Debate on the age-old problem of evil is considerably more developed and nuanced than recent work in applied ethics. Most views in the animal ethics literature are anti-environmental in principle if not in practice. Some authors argue that we are obligated to prevent wild animal suffering to the extent that it is possible, accepting that sentiocentrism is thoroughly incompatible

[1] They also might be mutually illuminating. However, in this present work, my concern is with making philosophical progress on our obligations with respect to animals and the environment, not contributing to the body of thought on the problem of evil. Any insights cutting back in that direction will be tabled for a later date.

with a wilderness-respecting environmental ethic. A more common response is to avoid this conclusion on pragmatic grounds. While discussion of this line of response will prove informative, it remains theoretically unsatisfying. However, there are promising, principled defenses which parallel theistic responses to the problem of evil. I'll articulate two kinds of such defenses, one in terms of the good, and another in terms of the right. I will argue that these axiological and normative defenses provide principled reasons supporting the Laissez-Faire Intuition, the idea that we should leave wild animals alone.

However, the Welfarist Intuition also proves resilient; these two defenses permit if not *prima facie* obligate us to some interventions in nature on welfarist grounds. However, I will contend that environmentalists cannot reasonably object to these interventions, as they arise in some of the same circumstances where environmentalists recommend intervention, but are motivated by welfarist reasons rather than or in addition to conservationist reasons. In the process, I hope to push the debate in animal ethics beyond the platitude that a sentiocentric approach does or does not *generally* require welfarist interventions into the lives of wild animals in principle or in practice, as is common in the literature, and towards addressing more specific questions about particular kinds of intervention. With the problem of natural evil like so much else, the devil is in the details.[2]

[2] Given the analogy being drawn between the problems of evil for theism and for sentiocentric approaches to environmental ethics, it is not improper to regard the work done here as a "sentiocentric apologetic". The original Greek meaning of apologetics (απολογία) is "speaking in defense" of a position. The modern usage of the term has come to suggest defending a minority position. In this light, regarding the main aim of this chapter as an apologetic is all the more appropriate given the state of the literature.

The Problem of Wild Animal Suffering

The natural world is rife with suffering.[3] Charles Darwin's theory of evolution in *Origin of Species* implies that life is an often brutal struggle for existence, an implication he found deeply troubling:

> I own that I cannot see, as plainly as others do, & as I shd wish to do, evidence of design & beneficence on all sides of us. There seems to me too much misery in the world. I cannot persuade myself that a beneficent & omnipotent God would have designedly created the Ichneumonidæ [a parasitic wasp] with the express intention of their feeding within the living bodies of caterpillars, or that a cat should play with mice. (Darwin 1860)

Inspired by Darwin's influential work, Alfred Tennyson famously remarked that nature is "red in tooth and claw."

In historical perspective and given the variety of nature's "cruelty", it is rather odd that contemporary debate on the animal-environmental divide focuses so heavily on predation. The favored example of 19th century naturalists, philosophers, and theologians was Ichneumonidæ when contemplating the problem of natural evil. These parasitic wasps inject their offspring into the bodies of other arthropods (mostly caterpillars), and the larvae then devour their host from the inside out. For perspective, there are more species of Ichneumonidæ than there are vertebrate species. If there is anything to the arguments of Chapter 3, such arthropods are probably not sentient and these naturalists engaged in a great deal of anthropomorphizing.[4] Still, these naturalists were onto something: being slowly and agonizing devoured until death by an internal parasite is a terrible prospect for a sentient being, much worse than being preyed upon.

As the famous popular author and biologist Richard Dawkins aptly sums up:

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[3] It's not all bad, of course. See Jonathan Balcombe's *Pleasurable Kingdom: Animals and the Nature of Feeling Good* (2006) for an account of the positive side of animal life.

[4] Furthermore, in the case of sentient predators, at least one sentient is getting a meal out of predation. See Gould (1994) for an historical discussion of some of these 19th century authors' treatments of this issue.

> The total amount of suffering per year in the natural world is beyond all decent contemplation. During the minute it takes me to compose this sentence, thousands of animals are being eaten alive; others are running for their lives, whimpering with fear; others are being slowly devoured from within by rasping parasites; thousands of all kinds are dying of starvation, thirst and disease. (Dawkins 1996, 131-132)

Commenting specifically on predation, Matthew Scully, former speechwriter for President George W. Bush, comments:

> Predation itself, the intrinsic evil in nature's design of creatures devouring and absorbing one another to survive, is among the hardest of all things to fathom. One falls back in the end on the idea that it was not God's design at all… (Scully 2003, 318)[5]

In discussing the problem of evil in the theological context, Edward Madden and Peter Hare echo Richard Dawkins' concern:

> The terrible pain, suffering, and untimely death caused by events like fire, flood, landslide, hurricane, earthquake, tidal wave, and famine and by diseases like cancer, leprosy and tetanus—as well as crippling defects and deformities like blindness, deafness, dumbness, shriveled limbs, and insanity by which so many sentient beings are cheated of the full benefits of life. (Madden and Hare 1968, 6)

Within a theistic context or without, a disdain for the cruelty of nature is not an uncommon or recent sentiment. John Stuart Mill:

> The phrases which ascribe perfection to the course of nature can only be considered as the exaggerations of poetic or devotional feeling, not intended to stand the test of a sober examination. No one, either religious or irreligious, believes that the hurtful agencies of nature, considered as a whole, promote good purposes, in any other way than by inciting human rational creatures to rise up and struggle against them. (Mill 1904, 32)

The brute fact of natural evil that has so often lead people to not just lament and rise against nature, but also to question the existence of its supposed author, God. Yet it is often considered heresy to even contemplate eliminating such natural evils; God forbid we do anything about it.

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[5] Note Sculley's revulsion that this could have been God's plan: "One falls back in the end on the idea that it was not God's design at all…" (Scully 2003, 318). The Christian notion of the fall seeks to lay the blame at the feet of humans for the world's evil, absolving God from responsibility for evil.

Some authors question whether apparent evils in nature merit our moral attention in the first place. For example, Michael Pollan regards predation as beyond "morality and politics" (Pollan 2006, 322). Anyone who has felt some sympathy when seeing a gazelle being taken down by a lion or a cat playing with a mouse would agree that there is something to consider. To say that predation is not necessarily beyond morality is not to automatically condemn it or seek its abolition. It is simply to consider the issue.

Peter Singer appears to have been the first to have done so in the wake of the late 20th century consideration of the animal question in moral philosophy:

> It must be admitted that the existence of carnivorous animals does pose one problem for the ethics of Animal Liberation, and that is whether we should do anything about it. Assuming that humans could eliminate carnivorous species from the earth, and that the total amount of suffering among animals in the world were thereby reduced, should we do it? (Singer 1975, 238)

Is animal liberation a hopelessly naïve sentimentalism with anti-environmental implications such as the elimination of predator species? This would be the case only if animal liberationism entailed this result, but there are a host of good reasons to think that it does not.

The (Logical) Problem of Evil

Before developing these reasons, we must first examine the problem of evil in order to flesh out the analogy, as these reasons are best seen with this context in place. In the seminal paper, "Evil and Omnipotence," J.L. Mackie gives what is known as the logical argument from evil (or the incompatibility argument from evil). The basic idea of the argument is that there is a logical incompatibility between the existence of a theistic God and the existence of evil.

This idea traces back at least to Epicurus, who (as recounted by Hume) asks: "Is [God] willing to prevent evil, but not able? Then is he impotent. Is he able, but not willing? Then is

he malevolent. Is he both able and willing? Whence then is evil? (Hume 1947, 198). More specifically, there seems to be an incompatibility between the (i) existence of evil, (ii) God's omniscience, (iii) omnipotence, and (iv) omnibenevolence.[6] The problem of evil is typically used as an argument against the existence of God. A more Augustinian approach is to ask: *why would a good God allow evil*? This question applies more to present concerns because the analogous issue is not whether we *exist* but rather: *why would a good person permit animal suffering*? The parallels are shown below in *Table 3.*

Table 3: Analogies Between the Problems of Evil and Wild Animal Suffering.

(Logical) Problem of Evil in Philosophy of Religion	**Problem of Wild Animal Suffering in Animal / Environmental Ethics**
1. Evil is *real.*	A. Wild animal suffering is *real*.
2. God is *omniscient*.	B. We *know* there is wild animal suffering.
3. God is *omnipotent*.	C. We *can* reduce wild animal suffering.
4. God is *omnibenevolent*.[7]	D. We are *capable* of moral goodness.

[6] Mackie formulates the problem of evil in terms of an "Inconsistent Triad" of propositions, electing not to include God's omniscience. However, God's omniscience also seems necessary, for God could be omnipotent, omnibenevolent, and evil exist, yet God could not know that there is evil that he is capable of and desires to eliminate. It seems that there is an Inconsistent Quad.

[7] It bears mention that some authors prefer describing God as a "morally perfect person" rather than omnibenevolent, distinguishing between deontological and axiological conceptions of God. This becomes important below.

5.2 - THE HERETICAL CONCLUSION

Suppose that sentient animals *do* suffer in the wild, that we have the *power* to eliminate this suffering, that we *know* that doing so would decrease total suffering, and that we are *morally good* beings. Is the inevitable conclusion that, just as a good God "eliminates evil as far as it can" (Mackie 1978, 93), we are obligated to eliminate all preventable suffering? Ought we recreate the Garden of Eden, a predation-free utopia before the Fall, which introduced evil into the world? In the Bible, there is a vision of such a future reordered world, absent natural evils:

> The wolf will live with the lamb, the leopard will lie down with the goat, the calf and the lion and the yearling together; and a little child will lead them. The cow will feed with the bear, their young will lie down together, and the lion will eat straw like the ox. The infant will play near the cobra's den, and the young child will put its hand into the viper's nest. They will neither harm nor destroy on all my holy mountain, for the earth will be filled with the knowledge of the LORD as the waters cover the sea. (Isaiah 11:6-9, Bible, New International Version)

Clement Dore explores the idea in relation to the problem of evil "it would not, perhaps, be logically inconsistent to say that an act of taking pains to relieve suffering is an intrinsically desirable act…" (Dore 1970, 124 n10).

Following this line of reasoning, one might think that it is our obligation to pick up the slack and reorder the natural world to reduce suffering, taking into account the way that the world is and insofar as we are able. This line of thought accepts that the Inconsistent Quad really is inconsistent; that, morally speaking, we must "drive out" all possible suffering.[8]

Indeed, David George Ritchie thinks that this is precisely what a sentiocentrist view (what he calls the humanist view) requires to avoid hypocrisy:

> Must we not put to death blackbirds and thrushes because they feed on worms or… starve

[8] Note that this line of thinking, while concerned with human action and animal welfare, implicitly assumes that there is no adequate response to the problem of evil.

> them slowly by permanent captivity and vegetarian diet? What becomes of the 'return to nature' if we must prevent the cat's nocturnal wanderings, lest she should wickedly slay a mouse? Are we not to vindicate the rights of the persecuted prey of the stronger? Or is our declaration of the rights of every creeping thing to remain mere hypocritical formula to gratify pug-loving sentimentalists? (Ritchie 1903, 109)

While Ritchie clearly intended this as a *reductio ad absurdum* of sentiocentrism, some animal ethicists have taken up exactly this position, qualifying this claim only by saying that it is unlikely to obtain and that such a position is not absurd. I'll call this view "the heretical conclusion", following Jeff McMahan:

> It would be good to prevent the vast suffering and countless violent deaths caused by predation. There is therefore one reason to think that it would be instrumentally good if predatory animal species were to become extinct and be replaced by new herbivorous species, provided that this could occur without ecological upheaval involving more harm than would be prevented by the end of predation… I am therefore inclined to embrace the heretical conclusion that we have reason to desire the extinction of all carnivorous species. (McMahan 2010)

McMahan considers arranging the gradual extinction of carnivorous species and their replacement with new herbivorous species, or genetically engineering predators into herbivores, as possible interventions.[9] Many other animal ethicists advance the same line of thought, but without McMahan's apparent hesitation. Singer says:

> If, in some way, we could be reasonably certain that interfering with wildlife in a particular way would, in the long run, greatly reduce the amount of killing and suffering in the animal world, it would, I think, be right to interfere. (Singer 1973)

Tyler Cowen argues that for welfarist reasons, we should "shift the balance of power against nature's carnivores" which means "most obviously, we should invest fewer resources in saving endangered carnivores", that we should weaken or remove strictures against the human hunting

[9] However, note that McMahan himself falls short of what I'm calling the heretical conclusion. He claims only that we have *reason to desire* the extinction of all carnivorous species, not *reason to bring about* the extinction of carnivorous species. Might this hedge suggest that McMahan has reservations about the line of reasoning he is advancing?

of carnivores, and prefer the trapping and use of carnivores over non-carnivores for laboratory research (Cowen 2003, 182). Oscar Horta recently argued that we should not reintroduce predators such as wolves where we have eliminated them from their natural ranges and that there are "strong reasons to consider other ways in which we could intervene in nature in order to minimize animals' suffering and death" (Horta 2010, 182).

Sapontzis bites David George Ritchie's bullet, a move which he regards not as an *reductio ad absurdum* of the moral considerability of animals, but as a sound argument:

1. We are morally obligated to alleviate unjustified animal suffering that it is in our power to prevent without occasioning as much or more unjustified suffering.
2. Innocent animals suffer when they are preyed upon by other animals.
3. Therefore, we are morally obligated to prevent predation whenever we can do so without occasioning as much or more unjustified suffering than the predation would create, and we are also morally obligated to attempt to expand the number of such cases. (Sapontzis 1992, 274)[10]

Note that the first premise bears all the moral weight. McMahan expresses this same core idea as Sapontzis' first premise: "The claim that suffering is bad for those who experience it and thus ought in general to be prevented when possible cannot be seriously doubted" (McMahan 2010).[11]

Not only animal ethicists entertain this view. The prominent political philosopher Martha Nussbaum holds a similar view about intervening in predation:

> The death of a gazelle after painful torture is just as bad for the gazelle when torture is inflicted by a tiger as when it is done by a human being. That does not mean that death by tiger is as blameworthy; obviously it is not. But it does suggest that we have similar reasons to prevent it, if we can do so without doing greater harms. [My view] is entitlement-based and outcome-oriented. One way of preventing gruesome deaths of

[10] This is essentially the same point which Sapontzis made in his earlier article "Predation": "where we can prevent predation without occasioning as much or more suffering than we would prevent, we are obligated to do so by the principle that we are obligated to alleviate avoidable animal suffering" (Sapontzis 1984, 36).

[11] Note that in this passage, McMahan has moved from the desire that suffering end to the obligation that we prevent suffering when possible.

> animals at the hands of other animals is to put all vulnerable animals (or, alternatively, all predators) in protective detention, so to speak. (Nussbaum 2006, 379)[12]

More generally, Nussbaum argues that animals are entitled to bodily health and integrity, pleasurable experience and absence of non-beneficial pain, fulfilling emotional lives, affiliation with conspecifics, and play (Nussbaum 2006, 392-401). She argues that we are obligated to aid sick, disabled, and elderly wild animals, and expresses her dislike of hierarchy and inequality in the wild. Animals engage in "humiliation of the weak" and "violent competition for sexual advantage", and because we probably cannot prevent most of this intraspecies behavior without making things worse, "only the most egregious harms to weaker species members must be prevented and other forms of hierarchy may be tolerated, though they will not be protected as central animal capacities" (Nussbaum 2006, 399). Note how Nussbaum uses a welfarist, entitlement-based moral vision to decide which animal capacities are central and hence deserving of protection, and which capacities are not central and hence undeserving of protection.

Both Sapontzis and Nussbaum see interventionism as progressively improving nature. Pace Sapontzis, we should prevent unjustified suffering as much as possible, and *seek to expand* our intervention as we make progress in "fixing" nature. Nussbaum echoes this interventionism, calling for the "gradual formation of an interdependent world in which all species enjoy cooperative and mutually supportive relations… *a gradual supplanting of the natural by the just*" (Nussbaum 2006, 400, e.a.).

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[12] However, Nussbaum adds that this alternative closes off the possibility of flourishing in the wild, but that the question is difficult because death by predation is more "gruesome" than hunger, disease, etc. But just because predation is "gruesome" does not mean that it is worse than the other alternatives. The idea of wild flourishing being of greater value than protective detention is discussed in the next section.

The negative utilitarian David Pearce represents the logical conclusion of this line of thought.[13] All of his various writings express the same core idea: there is an ethical imperative for humans to abolish the suffering of all sentient beings. The way to abolish suffering is by rewriting nature, including human nature. We ought to engage in "paradise-engineering", which includes rewriting the genome of all sentient beings including humans, reprogramming predators, redesigning the global ecosystem. We must transcend our Darwinian heritage so that all sentient beings experience only blissful states, heaven on earth, as it were (Pearce, 2009). Never mind that this morally obligates us to eliminate our own species and replace ourselves first with trans-humans, then with post-humans. Pearce holds these goals not just as technically feasible, but *morally imperative*.

These authors seem to regard the Heretical Conclusion as *inevitable*. They point out how we are increasingly in control of the planet and intervention is a foregone conclusion. We're already playing God, we might as well do so benevolently. Of course, it doesn't follow that we should intervene from the fact that we are able.

The value commitment underlying the Heretical Conclusion appears to have some resonance outside academia. It is also sometimes expressed in the animal protectionism movement in popular culture. For example, the Animal Welfare Trust's (AWT) "guiding belief" is that "animals have rights to experience a life of respect, free from unnecessary suffering"

[13] He has made his view public in various internet-books and websites including the Hedonistic Imperative, Abolitionist Project, BLTC Research Institute. These can be found at www.hedweb.com, www.abolitionist.com, www.bltc.com, respectively. Note that these are self-published and not peer reviewed.

(Animal Welfare Trust, 2011). One wonders whether AWT intended this belief to apply to wild animals who experience much unnecessary suffering.[14]

As will be discussed more fully below (5.4), there are several problems with the Heretical Conclusion. It seems to take strong sentiocentrism for granted. It is also incompatible with the Laissez-Faire Intuition. These authors take the Welfarist Intuition as central if not exhaustive of morality. That it has anti-environmental implications goes without saying. The views of some animal ethicists, and now political philosophers like Martha Nussbaum, surely provide plenty of fuel for environmental ethicists wishing to stoke the flames of the funeral pyre for a sentiocentric approach to the environmental ethics. But does sentiocentrism entail the defanging of nature?

There are both pragmatic and principled reasons to think this is not the case. As discussed above (1.4), there are two ways to reconcile an apparent inconsistency. The first way, which I'll call "Apologies", is to reject one (or more) of the propositions that generate the inconsistency. The second way, which I'll call "Defenses", is to argue that an apparent set of propositions is, upon more careful examination, consistent after all. I'll discuss these two strategies in turn.

5.3 - All Apologies

The first of two kinds of strategy for eliminating the seeming inconsistency is to reject one (or more) of the component propositions. This kind of solution to the problem of evil is

[14] However, at the beginning of the paragraph following this passage, "AWT recognizes that much abuse toward animals is based in deep-rooted cultural and social attitudes, which requires fundamental changes in how people think about their relationship with the animal community." This may indicate that the above quoted passage is implicitly constrained to human-caused unnecessary suffering and so the view is similar to Regan's in the sense that only moral agents can violate rights. Nonetheless, it is at least unclear whether this is the intention, and this opens to door to this kind of criticism.

unlikely to be accepted by most theists because it rejects canonical beliefs about the nature of God and the belief that evil is real. Importantly, this kind of solution is extremely common in animal ethics. Any such solution in animal ethics is an "Apology", i.e. a "a plea for forgiveness" implicitly admitted guilt for our inability to live up to the moral ideal of the elimination of all suffering. That is, animal ethicists offering an Apology (and only an Apology) hold fast to the normative commitment of the Welfarist Intuition, and offer only ancillary reasons in support for the Laissez-Faire Intuition. Generally speaking, these views accept the Heretical Conclusion in principle, but reject it in practice.

At the outset, it needs to also be made clear that surely much about Apologies for the problem of animal suffering is *correct*. After all, we are not God. Nonetheless, I'll argue that the four apologies, both individually and collectively, are ultimately inadequate responses to the problem of wild animal suffering. Mirroring the Inconsistent Quad, I'll first consider denying the existence of evil, then denying knowledge, then power, and finally, goodness. I will show representative authors for each, what is correct about each apology, and their limitations.

Badness

One Apology is to deny that evil exists. Some, such as Mary Baker Eddy, the founder of Christian Science, disagree. She claimed "Sin, disease, whatever seems real to material sense, is unreal in divine Science" (Eddy 1958, 296). This is also Augustine's solution, as he sees evil not as anything positive, but as the privation of being. These solve the problem of evil in that there is no problem to solve! However, most reject this as an implausible response.

Analogously, we could deny that wild animals experience pain or suffering, deny that this suffering is bad, or deny that this suffering is as bad as human suffering. The view that animals are not sentient is often attributed to Descartes, and not without cause:

> For in my view, pain exists only in the understanding. What I do is explain all the external movements which accompany feeling in us; in animals it is these movements alone which occur, and not pain in a strict sense. (Descartes 1991, 149)[15]

Some of Descartes' followers, including Malebranche and Arnauld, advocated this view. Animals "eat without pleasure, cry without pain, grow without knowing it; they desire nothing, fear nothing, know nothing" (Malebranche 1958, 394). These Cartesians were quick to put this view to its obvious theological use in a response to the problem of evil, because "divine goodness would not permit animals to feel the pain that their behaviors appear to signal" (Murray 2008, 50).[16] The view remains seductive. Neo-Cartesianism is still a common response in the literature on the problem of evil.[17]

Applying this Apology to the problem of wild animal suffering, the problem disappears, as there simply is no animal suffering. There's no problem to solve! However, as argued previously in Chapter 3, we have good reasons to believe that some nonhuman animals are sentient.

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[15] Perhaps history has done Descartes a disservice by making him into a whipping boy on this issue, as there is some textual evidence that this is not Descartes view at all, particularly later in his career. He appears to have granted the reality of animal consciousness and sensation but to have denied thought and *self*-consciousness. In the sixth Meditation Descartes argues that sensation and imagination are separate from our essence because they do not require thought. See Cottingham (1978), Harrison (1992) and Murray (2008, 49-52) for reassessments of Descartes' view on animals.

[16] Indeed, perhaps the desire for this theodicy drove the adoption of Cartesianism rather than vice versa. Notably and perhaps to his credit, Descartes did *not* develop this theodicy, unlike his followers. See Harrison (1992, 220, n7) for a lengthy list of citations of these historical figures' texts. According to Harrison, Descartes was more interested in positing a difference in kind between humans and animals, contra the likes of Montaigne and Charron, than denying animal sentience altogether.

[17] See Murray (2008, 41-72) for a recent overview of these Neo-Cartesian responses.

We can learn two lessons from this Apology. The first is that most nonhuman animals are not sentient. The scope of the problem is less than we might imagine. Most instances of predation aren't a problem at all. For example, Sagoff thought that animal liberationists were committed to saving worms from birds. But avian predation of worms raises no pretense of a moral dilemma for sentiocentrism.

To the contrary, the predation of nonsentients by sentient animals is directly and indirectly beneficial to animal welfare. Consider, for example the Sea Otter (*Enhydra lutris*) off the Alaskan coast. Otters eat sea urchins, nonsentient herbivores, and in turn, urchins eat kelp, which provide habitat for fish and other creatures. Humans decimated otter populations for their pelts from the mid 18th into the early 20th century. In the absence of this keystone predator, the sea urchins overbrowsed the kelp forests, which had an ecological cascade effect resulting in the collapse of the ecosystem. Areas in which the otter was reintroduced have led to a reduction of sea urchins, which in turn has allowed the kelp forests to recover, providing food and habitat for other sentient creatures.

The second lesson is that not all pain is bad, all things considered. Pain is adaptive. It teaches valuable lessons. It also alerts to tissue damage, and prevents further injury by incentivizing disuse. As discussed in Chapter 3, those with congenital insensitivity to pain are in constant mortal peril. We should be glad to have *functional* pain, and this upshot serves as part of a sentiocentric apologetic.

Does nature minimize suffering? This would provide a response to the Heretical Conclusion, for there would be no reason to intervene if suffering is already at the minimum possible. Holmes Rolston suggests that this is the case:

> Any population whose members are constantly in counterproductive pain will be selected against and go extinct or develop some capacities to minimize it. In this sense, natural selection, so far from needlessly increasing pain, rather trims it back in the system, so far as the system can remain vital–both conserving past vitalities and developing new ones. Pain is self-eliminating except insofar as it is instrumental of a subsequent, functional good. Intrinsic pain has no logical or empirical place in the system, neither does maladaptive pain. (Rolston 1992, 273)

This is a nice idea, if only it were true! Tellingly, Rolston adds "we cannot show this in the detail of every case; perhaps we need not expect it to be true in every case, and there are troublesome anomalies" (Rolston 1992, 273).

Therefore this Apology appears incomplete, for there are "troublesome anomalies." Much animal pain and suffering is pointless, pain and suffering that is *gratuitous*, even if the pain of some or all nonhuman animals is not as bad as it is for humans. In the problem of evil literature, William Rowe defines gratuitous evil as "where there does not appear a greater good such that the prevention of [it] would require either the loss of that good or the occurrence of an evil equally bad or worse" (Rowe 1979, 336). The case of Rowe's Fawn is supposed to illustrate a gratuitous evil:

> In some distant forest lightning strikes a dead tree, resulting in a forest fire. In the fire a fawn is trapped, horribly burned, and lies in terrible agony for several days before death relieves its suffering… So far as we can see, the fawn's intense suffering is pointless. (Rowe 1979, 335-336)

According to Rowe, this is but one example of "a familiar sort of tragedy, played not infrequently on the stage of nature" (Rowe 1988, 119).

One move theists make in response is to turn to so-called "skeptical theism" by claiming that we are not in a "Condition Of ReasoNable Epistemic Access (CORNEA)" to make the "no-see-um inference" from *apparently* gratuitous evil to *actually* gratuitous evil (Wykstra, 1984; Alston 1991). I mention this here only because, whatever its merits as a skeptical challenge to

arguments from evil, the "we can never know if suffering is pointless and therefore ought not intervene" response to the problem of wild animal suffering results in a devastating moral paralysis: we should *never* act to alleviate any suffering, even of ourselves, because we can *never* be sure whether any given is gratuitous or serves some higher purpose. Nothing (or everything) follows. This is an epistemic matter, so we'll now turn to knowledge.

Knowledge

The second Apology rejects "omniscience". This approach solves the problem of evil because God cannot correct a problem of which s/he knows not or which s/he does not know how to solve. This seems to be the view of process theologians such as John Haught; God is in a process of self-discovery through the process of evolution (Haught 2001; 2010).

Analogously, we may recognize that animals can suffer, want to eliminate it, and have the power to do so, yet not know *of* the evils, not know whether apparent evils are *true* evils, or not have the know-*how* to eliminate them. This is Peter Singer's response to the question of whether we should intervene in nature. Singer makes the general point in *Animal Liberation*:

> Judging by our past record, any attempt to change ecological systems on a large scale is going to do far more harm than good. For that reason, if for no other, it is true to say that, except in a few very limited cases, we cannot and should not try to police all of nature. (Singer 1975, 252)

Two years earlier, Singer made the same point in more explicitly epistemic terms:

> As for wild animals, for practical purposes I am fairly sure, judging from man's past record of attempts to mold nature to his own aims, that we would be more likely to increase the net amount of animal suffering if we interfered with wildlife, than to decrease it. Lions play a role in the ecology of their habitat, and *we cannot be sure what the long-term consequences would be* if we were to prevent them from killing gazelles. (The way to do this, I suppose, would be by eliminating lions, perhaps by sterilization.) So, in practice, I would definitely say that wildlife should be left alone. (Singer 1973, e.a.)

A few years later, Singer went on to give the same account in a piece concerning the place of animals in environmental issues, noting that:

> *We may never know* the ecological role a given species plays, or may play under some unpredictable change of circumstances. Books on ecology are full of stories about how farmers/the health department/the army/the Forestry Commission decided to get rid of a particular rodent/bird/fish/insect because it was a bit of a nuisance, only to find that that particular animal was the chief restraint on the rate of increase of some much nastier and less easily eradicated pest. [18] (Singer 1979, 202, e.a.)

Bernard Rollin expresses the same thought: "one can argue for preserving ecosystems on the grounds of unforeseen pernicious consequences resulting from their destruction, a claim for which much empirical evidence exists" (Rollin 1988, 129).

There is much to be said in favor of this Apology. Our past is riddled with interventions in nature resulting in unforeseen terrible consequences, demonstrating the paucity of our understanding relative to the task. For example the wildlife management of Yellowstone National Park by the National Park Service (NPS) over most of the 20th century had unanticipated results. NPS's "assistance" resulted in the direct elimination of the wolf from the park, indirect near-elimination of beaver, and reduction of the grizzly bear population to "threatened" status on IUCN's red list.[19] Another example is the intentional introduction of numerous species throughout the 20th century by various branches of the U.S. government with little appreciation of the consequences. We now know that many such introduced species have turned invasive.

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[18] Singer notes: "it is always possible" that the future will be different and we ought to preserve biodiversity, including genetic diversity so that future organisms have a greater potential to adapt to such unforeseen circumstances (Singer 1979, 202).

[19] Alston Chase's *Playing God in Yellowstone* (1987) and James Pritchard's *Preserving Yellowstone's Natural Conditions: Science and the Perception of Nature* (1999) both chronicle these events. Chase's work is rather polemical. Nonetheless, the text is well researched and the main critique remains apt. Pritchard's text makes many of the same points with a more even keel.

This Apology surely plays a part of an adequate answer to the problem of wild animal suffering. We should not intervene if we don't have sufficient reason to believe that our intervention will have the desired effect of reducing suffering. We may not only fail to achieve the desired end, we may make things worse. Furthermore, calculating the costs and benefits is unrealistic, particularly for large-scale interventions.

Another relevant concern is the doubt that we are operating with the right values. Despite centuries of thought on the issue, there remains much reasonable disagreement in value theory. We would have to be quite confident in our moral knowledge to reorder nature to fit a particular and contentious conception of the good, such as the view that suffering is bad and ought to be eliminated, all else be damned. This reeks of hubris. The mental lives and moral status of animals has only recently garnered widespread attention in academia. It's simply too soon to rewrite nature when we have just begun to understand its workings and value.

We may wish to distinguish fundamental or systemic interventions, i.e. changes which alter ecosystems such as eliminating species, from superficial or token interventions, i.e. interventions which leave natural processes intact but reduce suffering or improve animal well-being such as rescuing trapped animals and euthanizing irreparably injured wildlife. We might call these "reengineering nature" and "policing nature", respectively. The former seeks to fundamentally change nature to conform to a conception of value, such as the elimination of particular species, the latter leaves natural systems intact and works within that context, such as the rehabilitation of injured wildlife. Our degree of confidence likely tracks the scope of intervention. We should be more confident in our beliefs about cases of policing nature than about reengineering nature because the effects are small-scale and short-term.

While this Apology is powerful, it is inadequate in the final analysis. Ecology and the applied science of ecosystems management are relatively new developments. Through empirical discovery, increased theoretical understanding, and simple trial and error, our ecological understanding and practical know-how have improved considerably over the years. Our ecological knowledge, and therefore our predictive powers, are only going to increase.

Furthermore, our past large-scale interventions were not with a mind to animal welfare or environmental integrity; some of our shortcomings are explicable in terms of our anthropocentric intentions and ecological naiveté. They were more self-interested than benevolent. One day we may be able to reliably predict the ecological consequences of our interventions. Ignorance would no longer be an obstacle to rewriting the natural order. This response from ignorance is a flimsy foundation for the Laissez-Faire Intuition and is unlikely to satisfy environmentalists.

Power

The third Apology rejects "omnipotence". This solves the problem of evil because, while God may be morally perfect and evil may exist, designing a world without evil, or driving out evil, etc. is beyond God's power. This is perhaps the most common Apology among animal ethicists, and there surely is much to it. However, it is an incomplete answer to the problem of wild animal suffering because it is false that we are always powerless to do anything about it.

Just a century and a half ago, philosophers such as John Stuart Mill doubted our ability to significantly change nature. How times have changed! Climate change and the ongoing anthropogenic Holocene extinction event show the extent to which we can modify nature, intentionally or not.

Martha Nussbaum suggests this Apology when she says "we would just mess up the lives of animals if we tried to be benevolent despots of the world" (Nussbaum 2006, 373).[20] David DeGrazia also gives a version of this response to the problem of wild animal suffering. In general, he advances limited positive obligations towards animals, including those resulting from special relationships such as pet ownership, and voluntary agreements such as working for the Humane Society. Outside of these, our positive obligations to animals are *discretionary* because "we may choose, amid the deafening roar of urgent calls for help, to which we will respond" (DeGrazia 1996, 275). Later, in his consideration of the Predation *Reductio*, the idea that sentiocentrism requires us to prevent predation, which is absurd, DeGrazia says that:

> Even if we were required to meddle in nature, protecting animals from predators would not be a high priority – if it would be sensible at all. Better that we help whales stuck in ice or protect animals threatened by natural disaster. Predators are, with very few exceptions (such as humans), exclusively or primarily carnivores, being unable to survive without meat. To protect the gazelle from the lion, or the elephant from the hyena, would be to save one but doom the other. It seems very doubtful that we are obligated to pick sides here (even if shooting a lion might cause the lion less suffering than what her gazelle victims would experience). Nature really seems to be "red in tooth and claw" when it comes to carnivores. In conclusion, the *reductio* argument concerning positive obligations to animals fails. Contrary to that argument, if the combination of equal consideration and our obligations to humans supports any positive obligations to animals, these obligations prove to be plausible ones. (DeGrazia 1996, 277-278)

There's a lot going on here, much of which seems right. Note that DeGrazia implicitly acknowledges that the general arc of his view obliges us to police nature in principle but not in practice. For DeGrazia, while predation is a bad thing which we *prima facie* ought to prevent, we ought not prevent it all things considered for two reasons: (i) we are creatures of limited

[20] This recalls imperialism and colonialism in the human case. There is an interesting analogy here, too. One common justification of colonialism was Christian missionary. According to the Bible, Jesus told his apostles to make disciples of all nations (Matthew 28:19–20). This carries on into the present in the form of well-intentioned yet problematic forms of international aid and development. There is a kind of axiological imperialism at work here, an overconfidence that one has *the* answer.

power who cannot fulfill all *prima facie* obligations, and (ii) we lack the power to protect the gazelle without causing just as much harm to the lion. I'll discuss these two aspects in turn.

The first part of DeGrazia's response is that we are powerless to prevent all suffering, and presumably ought implies can, so we are not obligated to prevent all suffering. Steven Sapontzis also held this version of the apology:

> Once such an obligation [to prevent predation] is acknowledged, further issues must be considered in determining how much and what sort of effort should be devoted to fulfilling it. Among these issues is whether we will do more good by attempting to fulfill this obligation or by seeking to alleviate other forms of avoidable animal suffering. Other than by preventing predation by animals under our control, e.g., pets, it seems likely that for the foreseeable future, animal rights activists will do better by directing their organized efforts on behalf of animals towards alleviating the suffering humans cause animals than by attempting to prevent predation among animals. Perhaps this question of where one can do the most good is the most substantive question concerning the practicality of an obligation to prevent predation. (Sapontzis 1984, n10)

For DeGrazia and Sapontzis, our power falls short of our goodness. We exhaust our energies long before we fulfill all *prima facie* obligations to animals. Therefore, we should maximize our efforts and get the "best bang for our buck": eliminate anthropogenic sources of animal suffering; policing the wild is less "cost-effective" in most cases.

The second aspect of DeGrazia's objection is that we lack the power to prevent predation without causing as much harm. Given that ought implies can, we cannot be obligated to prevent unpreventable animal suffering, and so we are not obligated to prevent predation. In other words, we ought not prevent predation because doing so would prevent no more harm than it would cause; preventing predation is a zero-sum game, so it is pointless to pick winners.

Empirically, the issue is more complex than DeGrazia suggests. The predator-prey relationship is disequal. Deciding between the gazelle and the lion is a zero-sum game only at a single point in time. Lions eat many gazelles during their lives. The question is whether killing

predators or sequestering them and giving them vegetarian feed in good living conditions until they die a natural death, ending their species, would result in a net reduction of harm. If we could prevent predation or otherwise intervene in nature without occasioning as much or more harm, then we would be *prima facie* obligated to do so, per DeGrazia's and Sapontzis' reasoning.

There clearly is something to this Apology. It seems true for any case where animals will be better off without human intervention over the long-term. This is an empirical claim which likely applies to some kinds of cases but not others. Also, our degree of confidence about these cases varies; the "omniscience" Apology plays a role as well, as discussed above.

It seems to work for predation, which is at least better than many alternatives. William Buckland, a 19th century British geologist considered predation a vexing question for natural theology. As recounted by Stephen Jay Gould, Buckland argues that predators increase "the aggregate of animal enjoyment" and "diminish that of pain", concluding:

> The appointment of death by the agency of carnivora as the ordinary termination of animal existence, appears therefore in its main results to be a dispensation of benevolence; it deducts much from the aggregate amount of the pain of universal death; it abridges, and almost annihilates, throughout the brute creation, the misery of disease, and accidental injuries, and lingering decay; and imposes such salutary restraint upon excessive increase of numbers, that the supply of food maintains perpetually a due ratio to the demand. (Gould 1994, 32-33)

This is an overly optimistic view because populations ebb and flow, but much of Buckland's point holds merit. Lori Gruen draws an appropriate conclusion:

> A utilitarian may believe a better world would be one in which the lion would lie down with the gazelle and painful predation would not occur, but recognizes that any attempt to bring about such a world would not actually maximize the well-being of all. It is probably true that our interference with predator-prey relations would lead to worse consequences than if we left well enough alone. (Gruen 2011, 181).

It is something like this driving Ty Raterman's judgment that we ought to *lament* predation even if we ought not prevent it (2008).

Furthermore, we shouldn't treat preventing predation as a mere hypothetical. The question is not "what *would* happen *if* we eliminated predators?" but rather "what *has* happened when we *have* eliminated predators?" We have eliminated predators from some regions, typically for the protection of livestock or for there to be more "big game" for hunters. These serve as test cases because we know what their effects have been. They generally speak against predator elimination on welfarist grounds such as those Buckland articulated. Predators eliminate the sick and weak, ending their suffering and allowing the fitter to flourish, and prevent overpopulation beyond their niche's carrying capacity.[21]

One test case of eliminating predators is the grey wolf in Yellowstone National Park. This case is particularly interesting because the wolf was originally present, eliminated by humans, and subsequently reintroduced. Superficially, intentionally reintroducing wolves would seem an anathema to sentiocentrism, and some animal ethicists such as Cowen and Horta endorse this superficiality. However, the reality is something quite different. Upon wolf reintroduction, elk population's size remained relatively the same, but their browsing behavior changed. According to Doug Smith, a biologist with the U.S. National Park Service, elk began to browse away from riparian areas to avoid ambush predation due to their limited vision along the riverbanks. This behavioral change allowed overbrowsed cottonwoods and willows to recover, strengthening the river banks, providing shade and improved wildlife habitat, including nesting areas for many species of birds. As a result of the riparian reforesting, beavers are moving back in, recreating aquatic habitats for fish. Robert Beschta of Oregon State University

[21] It is for similar reasons that Gary Varner argues that, having eliminated their natural predators, there is a moral necessity, on animal welfarist grounds, for us to manage obligatory management species, i.e. a species which "has a tendency to overshoot the carrying capacity of its range, to the detriment of future generations of it and other species" such as deer, through culling, i.e. killing/hunting (Varner 2003, 98).

regards the wolf impact as "inordinate" and is sure that the same is true of top predators elsewhere (Holland, 2004). In this sense, ecological holism may be an effective management strategy for animal welfare in many cases, yet it is an operational holism (Varner 1998, 10-25).

Feeding wild animals seems problematic for similar reasons. Providing an artificial food source increases the number of offspring which the natural food supply cannot support, creating a culture of dependency and requiring more agricultural land for feed production, which eliminates animal habitat, harming those such policies are intended to benefit. Also, animals then associate humans with food, which changes their behavior and reduces their inhibitions towards humans. The most visible such case is bears, a scene which plays out every summer in the national parks and leads to bears being put down for being too comfortable around humans.

Some biologists argue on welfarist grounds that we should not feed deer. Kent Gustafson, deer project leader for New Hampshire Fish and Game tells us that:

> Quality natural habitat provides the best insurance for deer survival in winter. If you care about deer, leave them alone - let them be wild, and find natural foods and appropriate winter shelter on their own. (Gustafson and Vachon 2012)

Gustafson adds that deer receive little nutritional value from new food for about two weeks after feeding because, as ruminants, their intestinal fauna have to adjust to the change in diet. Commenting on this, Gustafson adds that "Ironically, while well-intentioned people try to help the deer by feeding, they may be harming them due to the time and energy needed to convert the microorganisms" (Gustafson and Vachon 2012).

Another case involving changed behavior and reduced inhibitions occurred in Monterey, California in 1988. Street vendors sold fish to feed California brown pelicans and sea lions as a tourist attraction. Consequently, many pelicans did not migrate and the reduced food supply in winter was not enough. In desperation, the pelicans learned to scavenge spoiled fish from

garbage bins along the wharf and began to snatch food from people's hands. The Monterey Wildlife Center received hundreds of pelicans who became ill from the spoiled fish, and several people were injured by the pelicans' sharp beaks (Muraski 2012).

Such cases suggest that well-intentioned interventions often result in more harm than good. We simply aren't able to eliminate all suffering. This Apology remains committed to the normative claim that if we can intervene without occasioning as much or more harm, then we ought to. So, this Apology does not work for other cases. In cases of disasters and injured or trapped animals, it appears that intervening would improve their lot. Unsurprisingly, DeGrazia considers just these sorts of cases as possibilities for intervention: "Better that we help whales stuck in ice or protect animals threatened by a natural disaster" (DeGrazia 1996, 277).

Yet if our powers were greater than they now are or if we succeed in eliminating anthropogenic sources of animal suffering, our discretionary positive obligations are increasingly pushed towards more meddling in nature. While the stuff of science fiction at present, technologies like genetic and planetary engineering may one day be possible. Accordingly, this response to the problem of wild animal suffering seems little more than a temporary truce between animal and environmental ethics. Environmentalists rightly view sentiocentrism as lacking promise as an approach to environmental ethics if the only rationale for not reengineering nature is that we currently lack the power to enact our moral will.

Goodness

The fourth Apology rejects "omnibenevolence". This is a solution to the problem of evil because, while God may be omnipotent and evil exists, it supposes that God is indifferent to evil

and hence chooses not to intervene. The analogous response to the problem of wild animal suffering is to deny that we are capable of being morally good enough to prevent evil.

Surely we are not capable of being completely good. One might question whether this acknowledgment gives up on morality, and as such is not a solution to our "Augustinian" problem of wild animal suffering. One might think that perhaps we are not good enough to do what is right, but we ought to be. Jamieson and Elliot entertain this thought in response to the demandingness objection to many varieties of consequentialism, the claim that consequentialism demands too much of moral agents, including their preferred version:

> We may have to accept that from the perspective of any plausible consequentialist morality, our obligations are very strenuous by the standards of common sense, and that almost all of us fail to live up to them almost all of the time. The problem may not be with the theory, but with ourselves. (Jamieson and Elliot 2009, 249)

At minimum, this Apology might serve as a reminder that if a moral theory commits us to absurd and demanding outcomes in practice such as preventing predation, we ought to revisit and reconsider the parts of the theory which got us there. Also, perhaps there is something to this Apology along the lines of Rawls' view that obligations should not be overburdening, creating "strains of commitment" (Rawls 2009, 153). They must be realizable by us, given the facts about our moral psychology.

Concluding Remarks on Apologies

Individually, each of these four Apologies provides some pragmatic reasons to think that sentiocentrism does not require reordering nature to felicific specifications. Also, each Apology is based on general facts and therefore can be taken into account by a variety of moral theories. Furthermore, these Apologies are not mutually exclusive, and when combined together, they

provide a strong collective case against reengineering nature on pragmatic grounds regardless of the general sort of moral theory one endorses. While there is some merit to all four of these Apologies, they are ultimately unsatisfactory as total or principled responses to the problem of wild animal suffering. These thin Apologies give only pragmatic reasons against redesigning nature according to a hedonistic ideal. It is not for no reason that early environmental ethicists had reservations about the prospects of sentiocentric approaches to the environment.

5.4 – Defenses: Challenging the Heretical Conclusion

In the problem of evil literature, it is much more common to argue that, while the four propositions in the logical argument from evil *appear* inconsistent, they are actually consistent when properly understood. The analogous approach is the road less traveled in animal ethics. However, it should be a part of the full story because, if the Apologists' pragmatic reasons supporting the Laissez-Faire Intuition failed to apply, then the Welfarist Intuition would carry the day, forcing us to the Heretical Conclusion. All Apologies are thus too contingent, and fail to do justice to the Laissez-Faire Intuition. Whereas Apologies give pragmatic reasons why sentiocentrism does not the anti-environmental meddling in nature, Defenses offer principled reasons for this conclusion.[22]

Pain is bad. It is not at all clear, however, that pleasure is the sole or primary moral value or pain the primary or sole moral disvalue, nor is it clear that ethics should be solely or centrally concerned with promoting pleasure and alleviating pain, irrespective of its causal origin or the

[22] Recall that a Defense is any attempt that seeks to affirm the analogs of the four propositions to our case – (i). wild animal suffering exists, (ii). we are sufficiently knowledgeable, (iii). powerful, and (iv). morally good – yet rejects the Heretical Conclusion, following the term for this strategy in the problem of evil literature.

reason for its imposition. As goes the Bengali proverb, Half-truth is more dangerous than falsehood (Ôrdho shotto mittha ôpekkha bhôeongkôr). There are deep and interesting issues under the surface about the priority of - and proper relationship between - the good and the right, the normative and the natural. The core idea driving the Heretical Conclusion is a simplistic conception of the good and a straightforward relationship between the good and the right: suffering is bad and we ought to prevent it. These are both controversial claims to say the least.

The Heretical Conclusion follows from something like the following two controversial claims discussed in the previous chapter, one concerning the nature of the good, the other concerning the relationship between the good and the right:

1. **Hedonism:** Pleasure is the sole value and pain is the only disvalue.[23]
2. **Value Maximization**: we are morally obligated to at least minimize badness (e.g. suffering) if not maximize goodness (e.g. pleasure).[24]

Accordingly, there are at least two kinds of Defenses available which reflect the rejection of the respective claims: Axiological Defenses and Normative Defenses. If either or both of these lines of response are successful, then sentiocentrism is compatible with environmental ethics. Axiological Defenses reject hedonism and countenance value(s) other than pleasure and the absence of pain. Normative Defenses reject value maximization and offer a different conception of the nature of obligation. Of course, these Defenses can be deployed together, i.e. one can accept a value theory other than hedonism and a deontic principle other than value maximization, or can be deployed individually. Peter Singer anticipated the basic idea of the Defenses:

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[23] "Hedonism" is meant in a loose sense; the general idea is a subjectivist theory of well-being such as hedonistic and desire theories. The differences between the subjectivist theories of well-being are unimportant here.

[24] I've put it this way rather than simply in terms of the greatest balance of pleasure over pain because of the asymmetry of pleasure and pain. We are motivated more strongly to avoid pain than to encounter pleasure because staying alive and avoiding damage is more basic than pursuing pleasure (Kringelbach 2010).

> Having said [that we ought to eliminate predators if it maximizes well-being], I should add that it is a consequence not of the idea of Animal Liberation in itself, but of the general moral views I hold. It would be quite possible, if one accepted other moral views, for instance some theory of natural rights, to be a non-speciesist and to hold that man had no right to impose his own designs on other species. (Singer 1973)

At the outset, I should also distinguish two interpretations of the Laissez-Faire Intuition, the idea that "we should just leave wild animals alone" (Palmer 2010, 2). The stronger Laissez-Faire Intuition is that, generally speaking, we are obligated *not* to intervene. Intervening is not only not obligatory, it is impermissible.

The weak interpretation of the Laissez-Faire Intuition is that, generally speaking, we are only *not obligated* to intervene, i.e. it is not morally *required* that we intervene, but may be morally *permissible*. The rationale for this view depends on accepting views about obligation which reject value maximization. One may nevertheless accept a hedonistic value theory, and therefore regard intervention as *good*, but it is not obligatory, i.e. intervening is *supererogatory*.

Of course, "generally speaking" is doing a lot of work on either interpretation, as it is crucial how we construe the "general" case. I'll argue that while the axiological Defenses and normative Defenses give principled reasons against some forms of intervention in the lives of wild animals, the most plausible versions of each are not total solutions to the problem of wild animal suffering; we ought to intervene in some cases. If this argument is on track, then neither the strong or weak Laissez-Faire intuition holds for all cases. The salient point is that both interpretations have the potential to avoid the alleged anti-environmental implications.

5.5 - Axiological Defenses

The first class of responses occurs in value theory.[25] These Axiological Defenses reject hedonism and countenance value(s) other than pleasure or desire satisfaction. Those who advocate the Heretical Conclusion are committed to a narrow conception of the good, a version of hedonistic welfarism, a strong sentiocentrism.

However, it is unclear that subjective welfare is the only or most important good. Precisely this is at issue in the debate over the problem of evil: there are at least two rival axiologies at play. John Hick makes this point well in response to the problem of evil:

> The sceptic's assumption is that… God's purpose in making the world was to provide a suitable dwelling place for [human beings]. Since God is good and loving, the environment that he has created for human life to inhabit will naturally be as pleasant and comfortable as possible. … Since our world, in fact, contains sources of hardship, inconvenience, and danger of innumerable kinds, the conclusion follows that this world cannot have been created by a perfectly benevolent and all-powerful deity. (Hick 1990, 45)

Hick's response to the skeptic's challenge is that Christianity "has never supposed that God's purpose in the creation of the world was to construct a paradise whose inhabitants would experience a maximum of pleasure and a minimum of pain" (Hick 1990, 45). Hick's point can be modified to express a similar point with respect to the problem of wild animal suffering. The hedonistic axiology is incorrect, and therefore should not govern our obligations to wild animals.

[25] I will treat Axiological Defenses as versions of consequentialism, i.e. modifications of utilitarianism. Namely, modifications which reject the hedonistic conception of value and in terms of the consequences which we ought to produce. For now, I will leave the deontic principle of value maximization in place. Below (5.6) in the treatment of nonmaximizing consequentialisms, I consider other moves which consequentialists might make in response to the problem of wild animal suffering which seek to avoid the Heretical Conclusion.

The "Free Will" Defense

The free will defense is a common theistic response to the logical problem of evil, and is central to Hick's own positive axiology. The main claim is that a world with free beings is of greater value than a world without them because certain ends, such as moral goodness or the genuine acceptance of God, are only realizable with the existence of free beings. However, it is also possible that these beings, by virtue of being free, choose evil rather than good. Alvin Plantinga, the foremost proponent of the free will defense, ties these points together as follows:

> It is possible that God, even being omnipotent, could not create a world with free creatures who never choose evil. Furthermore, it is possible that God, even being omnibenevolent, would desire to create a world which contains evil if moral goodness requires free moral creatures. (Meister 2009, 133)

There is an analogous response to the problem of animal suffering. The basic idea is the same: a world containing "free" beings is better than a world not containing such beings, i.e. a world with wild animals such as ours is better than alternative worlds without these wild animals, such as a world containing only happy, controlled animals. This Defense is consistent with the Welfarist Intuition, it is just that this intuition conflicts with the realization of other value(s). On this view, what we owe wild animals, generally speaking, is not a welfare-entitlement, but to let them be.

In the debate over whether keeping wild animals in captivity is a harm, John Wuichet and Bryan Norton distinguish two conceptions of an animal's well-being:

> **The Welfare Criterion**: treatment of captive animals must achieve a level of well-being comparable to, or better than, the life they could be expected to live in a wild context. This can be measured by standard physical criteria, such as longevity and freedom from disease, and second by psychological criteria, such as the exhibition of species-typical behavior.
>
> **The Authenticity Criterion**: There is an inherent value in wildness itself; no amount of caring for an animal can compensate for the freedom and authenticity of experience lost

> when the animal is removed from its habitat, which is fraught with both danger and opportunity, and in which the animal succeeds or fails on its own strengths and weaknesses. A wild animal achieves a state of authentic well-being when it survives and reproduces offspring, based on its own genetic abilities and behavioral adaptations, in a truly natural environment. (Wuichet and Norton 1995, 238-240)

Wuichet and Norton's distinction makes explicit what is too often implicit. Those on both sides of the debate often have different conceptions of value in mind. Note how these two conceptions are akin to the two conceptions of value Hick distinguishes: a hedonistic conception of value (the welfare criterion) and a non-welfarist conception (the authenticity criterion). The general distinction also pertains to present concerns.

Similarly, Jamieson argues against keeping animals captive in zoos. He argues that zoos restrict animals' liberty, depriving them of many goods. They are denied their "interest in not being taken from the wild" (Jamieson 1985).

Elsewhere, Norton gives another version of the free will defense:

> Wild animals, considered as individuals, are valuable in an important sense, but in most situations are not morally considerable to humans… they do not exist in a relevant moral sphere for us… In the most straightforward situation – when individual wild animals live largely undisturbed by human activities in their natural habitat – humans accept no responsibility for animals as individuals. This very general claim of nonresponsibility is not justified by any absolute claim about the intelligence or sensitivity of those individuals. It is rather a manifestation of a decision to respect the animal individuals as *wild*. By deciding to respect their wildness, we have agreed not to interfere in their daily lives, or deaths. We value them, but we value their wildness more; to respect their wildness is, in effect, to refrain from placing a moral value on their welfare or suffering. (Norton 1995, 105)

This passage calls for interpretation. With the "in effect…" clause, Norton seems to mean that the value of wildness is of different order than welfare or suffering; it is a trumping value. This helps explain what he means in saying that animals are not "morally considerable" to us, i.e. we aren't obligated to protect them from each other or the rest of nature. He is not saying that animals are not "morally considerable" in the ordinary sense of having moral status. Rather, he

means that we simply don't have to *consider* wild animals in most contexts, as they are outside of the context of our moral thinking because they are beyond the scope of our actions.

Furthermore, the free will response seems to be the view most naturally associated with animal liberation in the first place. After all, a rally cry of animal rights activists is not "larger cages" nor "no suffering", but rather "empty cages" (Regan 2004, xiv). Animal liberation focuses on *liberating* animals from human dominion, not maximizing their welfare. Perhaps what we generally owe animals is not happiness, but the *pursuit* of happiness. It would be deeply ironic if the philosophical underpinnings of an activist movement focused on liberating animals from human oppression turned out to require the domestication or reengineering of wild animals!

The general idea of the free will defense is not new. In *Circle of the Seasons* (1953), Edwin Way Teale wrote "Those who wish to pet and baby wild animals 'love' them. But those who respect their natures and wish to let them live normal lives, love them more" (Teale 1987, 71). Teale's suggestion is that letting animals be to live their own lives respects their value more than the coddling, welfarist view.

Other authors argue that wild animal independence is a kind of sovereignty. This view resembles the free will defense, but pertains to the value or rights of animal *groups* to self-determination rather than of individual animals. In 1928, Henry Beston wrote:

> We patronize [animals] for their incompleteness, for their tragic fate of having taken form so far below ourselves. And therein we err, and greatly err… They are not brethren, they are not underlings; they are other Nations, caught with ourselves in the net of life and time, fellow prisoners of the splendour and travail of the earth (Beston 2002, 369).

Referencing Beston's quote, Tom Regan adds "wildlife managers should be principally concerned with letting animals be, keeping human predators out of their affairs, allowing these 'other nations' to carve out their own destiny" (Regan 1984, 357).

Marc Bekoff and Jessica Pierce (2009) argue that the distinction between human moral agency and nonhuman animal moral agency is a difference in degree, not kind, and that animals exhibit a variety of intraspecific moral behavior, including empathy, fairness, reciprocity, and trust. If there is anything to this notion of (proto)-moral animal communities, it might make sense to view them as having a kind of sovereignty, placing a high bar on altruistic intervention into animals' systems of "wild justice".

Martha Nussbaum mixes individualist and collectivist language, valuing both:

> The very idea of a benevolent despotism of humans over animals, supplying their needs, is morally repugnant: the sovereignty of species, like the sovereignty of nations, has moral weight. Part of what it is to flourish, for a creature, is to settle certain very important matters on its own, without human intervention, even of a benevolent sort. (Nussbaum 2006, 373)

Shortly thereafter, Nussbaum comments that this more expansive approach of attributing non-hedonistic values to the lives of animals is "greatly superior" to utilitarianism, "with its single-minded focus on pain and pleasure (or the fulfillment of conscious interests)" (Nussbaum 2006, 378). She concludes "there is much truth in this imagined argument" (Nussbaum 2006, 373).[26]

Assessing the Free Will Defense

The free will defense raises at least three questions. The first question is whether animals can be free in the relevant sense such that it is appropriate to make an analogy with the free will

[26] It is puzzling why Nussbaum drops the line of thought in this "imagined argument", and is unclear how this is could be reconciled with the her view of animal entitlements, discussed above (5.2).

defense to the problem of evil. The second question is how we understand the value of freedom. The third question is how we reconcile the value of freedom with other values.

What Means This Freedom?

One question is whether there is a relevant disanalogy between the free will defense to the problem of evil and the free will defense to the problem of wild animal suffering. The free will defense to the problem of evil requires a libertarian conception of free will, i.e. we have free will, and this is incompatible with causal determinism.[27] Thus, the potential objection is that the analogy falls apart if animals are not free in the libertarian sense.

Some object to the idea that nonhuman animals are free at all, and therefore such freedom cannot possibly be thwarted by captivity or intervention. Heini Hediger held this view: "However paradoxical it may sound, the truth is actually this: the free animal does not live in freedom; neither in space nor as regards its behaviour towards other animals" (Hediger 1964, 4). We need not accept Hediger's denial of animal freedom. It may be that, if humans are free in the libertarian sense, then some animals are free in this sense as well. This would not be surprising considering our evolutionary continuity with other animals.

But this need not be the case, and this point may cut the other way. If no nonhuman animals have libertarian freedom, and if we are evolutionarily continuous with other animals,

[27] Libertarianism is a variety of incompatibilism, the view that free will is incompatible with causal determinism, and which affirms that we have free will and denies that causal determinism is true. Plantinga's defense is explicitly libertarian. The idea is that if compatibilism is true, then determinism is true, and if determinism is true, then God is the ultimate cause of all evil because God is the cause of everything. However, on a libertarian conception of freedom, God is not the cause of evils resulting from our free choices, because it is logically possible that we never freely choose evil. If we do freely choose evil, we are causally (and morally) responsible, not God. God was only responsible for creating the best possible world, which is a world containing genuinely free creatures. Or so it goes.

then how could we possess such a radically different capacity? Unlike the free will defense to the problem of evil, the free will defense to the problem of wild animal suffering is compatible with, but does not require, that human or nonhuman animals have libertarian freedom.

We should not interpret the analogy too literally. It could be maintained that the relevant sense of animal freedom here concerns those actions emanating from animals' own internal states, even if those internal states are causally determined. This is W.T. Stace's compatibilist account of free will (1952), and there is no reason it cannot be applied to animals.[28] Relevant for present purposes are senses of freedom other than a metaphysical ability to do otherwise, including the absence of external constraint, ability to control one's own actions, and as Mill says in *On Liberty*, the ability to do "what one desires" (Mill 1869, Ch. 5).

The Value of Freedom

A second question is how we understand the value of freedom. There are both instrumentalist and noninstrumentalist accounts. Instrumentalist accounts appear to collapse back to the Heretical Conclusion. Only noninstrumentalist interpretations add substance.

One might understand freedom as being instrumentally valuable in that it facilitates some other good: pleasure or desire-satisfaction. The idea is that each of us knows ourselves best, and so each is best situated to realize our own subjective well-being. In the case of animals, we might think that, because their forms of life are different in many respects from our own, they are better able to realize their well-being than we are. A poignant example is the Orca or killer

[28] We might also distinguish freedom *of the will* – freedom to will what one wants to will – from freedom *of action* – the freedom to do what one wills – and contend that we are concerned with freedom of action in the case of animals.

whale (*Orcinus orca*), which has a much shorter life expectancy in captivity than in the wild, and is kept in a small pool with little to do. So, the interventions recommended by Heretical Conclusion might interfere with the capacity of animals to realize their well-being.

The problem with this instrumentalist account as a Defense is that, on at least hedonistic and desire-satisfaction accounts of well-being, one might experience greater subjective well-being absent liberty. A captive animal provided with adequate food, enrichment and play opportunities, conspecific socialization (if applicable), protection from predation, disease, parasites, and inclement weather seems to have a better, longer, and more secure well-being than that same animal in the wild, despite the loss(es) of freedom. Therefore, the instrumentalist interpretation of the Free Will Defense slips back to the Heretical Conclusion or Apologies. If so, this line of thought nonetheless serves as a reminder that free animals are often better equipped to achieve their own well-being than we are, reinforcing the "omnipotence" Apology .

The second account is that the value of freedom is more than, or altogether different than, its instrumental role in the procurement of subjective well-being. On this account, freedom permits – indeed, is bought at the price of – pain, desire frustration, and objective harm. A predator causes all three to its prey, and in turn may itself become prey. Also, wild animals often act in ways which cause themselves pain and suffering. Humans do too, as anyone who has taken a dangerous job or engaged in risky activities such as extreme sports knows. Dying for one's country or in defense of one's young are certainly not good for one's subjective well-being. We don't ordinarily think that intervention is called for in such circumstances. We regard their acts as laudable, their lives as good.

This noninstrumental account is clearly the correct interpretation of many of the authors considered above, such as Teale and Norton. Recently, Lori Gruen has defended a version of the noninstrumental account of the value of freedom in the animal ethics literature: "liberty can be conducive to well-being (but it isn't always) but liberty is always constitutive of a genuinely good life, one in which an individual's actions are under her control" (Gruen 2011, 143).

Gruen also endorses a related concept which she calls "wild dignity". She holds that we deny animals their wild dignity when we "project our needs and tastes onto them, try to alter or change what they do, and when we prevent them from controlling their own lives" and that "we dignify the wildness of other animals when we respect their behaviors as meaningful to them and recognize that their lives are theirs to live" (Gruen 2011, 155).[29] On this noninstrumentalist interpretation, freedom is partly constitutive of a good life, even if it comes at the cost of pain and possibility of death. Perhaps an objective list theory of well-being can accommodate the noninstrumental value of liberty if it is a necessary component of well-being and not reducible to pleasurable experience or desire-satisfaction.[30] This might be what Gruen has in mind in referring to liberty as "always constitutive of a genuinely good life". If this is on track, then this interpretation of the Free Will Defense can be understood as a version of weak sentiocentrism.

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[29] Gruen's discussion occurs in the context of her consideration of animals in captivity. She has in mind such cases as a bear being made to push a baby carriage for human entertainment. She seeks to show that we can violate wild animals' dignity in captivity even if we are not causing them suffering. What strikes me as off about Gruen's account is that she thinks that wild dignity only arises when animals are a part of our social world because questions of dignity only arise in our social world and because "it is in these contexts where it is most likely to be violated". She says that animals living in the wild might be "majestic or awesome" but thinking of them as dignified "seems odd in that context" (Gruen 2011, 154). Perhaps there is something to this way of thinking – Gruen is surely right that dignity-talk is often used when it is violated – yet it is odd to think that a wild animal only has dignity where it is most likely to be violated, and how it's being held captive grants it a dignity that it did not have before.

[30] See James Griffin (1986) for a recent defense of objective list accounts of well-being and David DeGrazia (1996) for a defense specific to animal ethics.

The Limits of Liberty

Assume now that the value of freedom is not instrumental to subjective welfare. The final and perhaps most interesting question for the Free Will Defense is whether it provides an adequate answer to the problem of wild animal suffering, and if not, whether the resulting view is consistent with environmentalism. One might think that freedom is a value trumping all other values, but I'll argue that this is probably untenable, at least for sentiocentric theories. It seems more plausible to doubt that freedom is always worth the price in terms of subjective welfare. If so, then the Free Will Defense does not provide a *total* solution to the problem of wild animal suffering, i.e. there are cases in which we ought to intervene in the lives of wild animals for welfarist reasons. I contend below (5.7), that such cases are no real threat to the realization of the core goals of environmentalism.

Bryan Norton suggests that freedom or wildness is a trumping value when he analogizes letting wild animals be with wise parenting: "the forbearance we exercise here is very similar… to the attitudes of wise parents who, after the time of maturity, let their children live their own lives" (Norton 1996, 106). There is some wisdom to this analogy. It shows what is wrong with the Heretical Conclusion, why Teale is right that generally letting wild animals be shows them more respect than hounding them in an attempt to provide for every perceived need.

However, this analogy does not hold up to scrutiny, as Palmer also notes (2010, 130). It's fairly obvious that parents ought to help their adult children when they are in mortal peril. It is one thing to say that it is wise to generally let one's children work things out for themselves. It's quite another to claim that one should *never* assist them. Analogously, it is one thing to say

that wild animal freedom is valuable. It's quite another to say that it is a value trumping all else. Norton doesn't fully endorse this absolutist position, as discussed below (5.7).

A bit more material from the theological problem of evil will help discuss the limitations of the Free Will Defense further. It is generally accepted in recent contemporary debate in the philosophy of religion that the free will defense is a successful response to the *logical* problem of evil. Renowned philosopher of religion William Rowe states that "there is a fairly compelling argument for the view that the existence of evil is logically consistent with the existence of the theistic God" (Rowe 1979, 335). J.L. Mackie's assessment echoes Rowe, but also hints that it may not ultimately be satisfactory:

> Since this defense is formally [i.e. logically] possible, and its principle involves no real abandonment of our ordinary view of the opposition between good and evil, we can concede that the problem of evil does not, after all, show that the central doctrines of theism are logically inconsistent with one another. But whether this offers a real solution of the problem is another question. (Mackie 1982, 154)

Mackie's dissatisfaction is that the free will response merely shows that the existence of a theistic God is *logically* compatible with the existence of evil, i.e. evil and God can both exist without contradiction, but this is a far cry from an adequate explanation of *why* a good God would create or sustain a world such as ours as it is, rife with the kinds, amounts, and perhaps distributions of evil as it seems to be. Any argument which draws on this idea is known as an *evidential* argument from evil rather than a logical argument from evil.

Evil is typically divided into two sorts. Moral evil is evil which results from free human choices. Examples of moral evil include murder, lying, and genocide. Natural evil is all the rest; evil which does not result from human free will. Examples include pain and suffering not induced by human agency and, historically, natural corruption such as oxidation and decay.

By definition, the free will defense to the problem of evil cannot account for natural evil. Gratuitous evil features prominently in evidential arguments from evil. Recall that gratuitous evil is evil without a greater good and that, if eliminated, would not result in another evil as bad or worse. The salient dialectic parallels between the problems engendered by freedom (in the theological context, the problem of sin) and the analogous problems of natural evil (which have nothing to do with freedom) are reflected in *Table 4* below.

Cases of animal suffering are commonly given as examples of gratuitous natural evil in evidential arguments. Rowe's Fawn, introduced above (5.2) is an example; a fawn is horribly burned in a forest fire and dies after several days of agony. As Rowe puts it:

> So far as we can see, the fawn's intense suffering is pointless. There does not appear to be a greater good such that the prevention of the fawn's suffering would require either the loss of that good or the occurrence of an evil equally bad or worse. (Rowe 1979, 336)

Examples such as this play into Rowe's influential formulation of the evidential argument from evil. Again, the dialectical parallels are shown below in *Table 5*.

If there are such gratuitous natural evils, then the Free Will Defense to the problem of wild animal suffering gives us no reason not to prevent them. There do seem to be such cases of gratuitous evil. Therefore, the Free Will Defense is not a *total* solution to the problem of wild animal suffering. There is a remainder of suffering that, all else equal, we ought to prevent, assuming value maximization. For those who reject value maximization, we can at least speak of such interventions as permissible or supererogatory on this axiology.

It should be kept in mind that this critical conclusion should be tempered by the Apologies considered above, i.e. our limited knowledge, powers, and resources, combined with ecological facts about the way the world works. It is doubtful that preventing such gratuitous evils is always or even often the best use of resources available to us. Such considerations

suggest that this view may not be too demanding after all, and as DeGrazia noted above (5.2), human obligations to wild animals turn out to be limited and plausible. If this is the case, then such interventions are less intensively interventionist than what environmentalists fear. I develop several case studies with analysis below (5.7) after introducing the normative Defenses, as the cases involve issues best discussed with both views in sight.

Table 4: Analogies Between the Limits of 'Free Will' Defenses.

Problem of Sin: God apparently should prevent sin, yet God does not.	**Problem of Predation**: Good agents apparently should prevent predation, yet they do not.
Why? God sees that freedom requires sin and knows that the freedom is worth the sin.	**Why?** Good agents see that freedom requires predation and know that the freedom is worth the predation.
Theological Problem of Natural Evil: God should nevertheless not allow preventable natural evils, yet God does.	**Sentiocentrist Problem of Natural Evil**: Good agents should nevertheless not allow preventable natural evils (to animals), yet they do.

Table 5: Analogies Between Evidentialist Arguments from Evil and Wild Animal Suffering.

***Evidential* Argument from Evil**	***Evidential* Argument from Wild Animal Suffering**
1. Factual Premise: There exist instances of intense suffering which an omnipotent, omniscient being could have prevented without thereby losing some greater good or permitting some evil equally bad or worse.	1. Factual Premise: There exist instances of intense suffering which a capable, adequately informed, moral agent can prevent without thereby losing some greater good or permitting some evil equally bad or worse.
2. Theological Premise: An omniscient, wholly good being would prevent the occurrence of any intense suffering it could, unless it could not do so without thereby losing some greater good or permitting some evil equally bad or worse.	2. Normative Premise: A good moral agent would prevent the occurrence of any intense suffering it could, unless it could not do so without thereby losing some greater good or permitting some evil equally bad or worse.
3. There does not exist an omnipotent, omniscient, wholly good being [because such evils are not prevented]. (Rowe 1979, 336)	3. Therefore, a capable, adequately informed, moral agent prevents instances of intense suffering which can be prevented without thereby losing some greater good or permitting some evil equally bad or worse.

5.6 - Normative Defenses

As Michael Tooley notes, arguments from evil in the philosophy of religion literature are typically axiological. Consider the following standard argument, which is axiological in spirit:

1. There exist states of affairs in which animals die agonizing deaths in forest fires, or where children undergo lingering suffering and eventual death due to cancer, and that are intrinsically bad or undesirable, and are such that any omnipotent person has the power to prevent them without thereby either allowing an equal or greater evil, or preventing an equal or greater good.
2. For any state of affairs, the existence of that state of affairs is not prevented by anyone.
3. For any state of affairs, and any person, if the state of affairs is intrinsically bad, and the person has the power to prevent that state of affairs without thereby either allowing an equal or greater evil, or preventing an equal or greater good, but does not do so, then that person is not both omniscient and morally perfect.
4. Therefore, there is no omnipotent, omniscient, and morally perfect person (from 1, 2, 3). (Tooley, 2009)[31]

Such axiological arguments from evil are crucially incomplete because they fail to make explicit *why* a failure to bring about a good state of affairs or prevent a bad one is morally wrong. The standard way that this connection is bridged involves something like the controversial value maximization claim. Tooley's suggestion is that we focus on rightness or wrongness to determine whether an action ought to be performed, not the value or disvalue of states of affairs, as a solution to the problem of evil (Tooley 2009).[32]

The same can be said about the problem of wild animal suffering. This is the clue from which normative Defenses begin. They need not deny that suffering is bad, they merely contend that we are not necessarily obligated to alleviate all suffering.

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[31] For a formal proof of the argument's validity, see: http://plato.stanford.edu/entries/evil/validity.html

[32] There is also a relevant disanalogy between the problem of evil and the problem of wild animal suffering that bears mentioning. God is supposed to be the Architect of all that is. Unlike is supposed to be the case for God, we did not create this world; we find ourselves thrown into it. The Heretical Conclusion assumes that we are responsible for all of creation, that God has erred in the design of this world, and that it is our job to fix it.

In this section, I'll discuss the views of several authors which have the character of normative Defenses. I will point out some potential problems with these Defenses concerning the duty to assist which suggest that they are not *complete* solutions to the problem of wild animal suffering. The most plausible versions of normative Defenses hold that we have *prima facie* obligations to prevent some kinds of animal suffering. These turn out to be the same kinds of interventions allowed by the free will Defense.

The Rights View

Tom Regan, Gary Francione, and Angus Taylor defend versions of the rights view. Beginning as he does with a patient-centered deontological framework of rights rather than axiological framework, Tom Regan's *The Case Against Animal Rights* (1983) holds promise as a normative Defense. Unlike utilitarianism and some other consequentialist approaches to ethics, Regan is not concerned with the best possible states of affairs, but with duties and rights:

> Only moral agents can have duties, and this because only these individuals have the cognitive and other abilities necessary for being held morally accountable for what they do or fail to do. Wolves are not moral agents. They cannot bring impartial reasons to bear on their decision making—cannot, that is, apply the formal principle of justice or any of its normative interpretations. That being so, wolves in particular and moral patients generally cannot themselves meaningfully be said to have duties to anyone, nor, therefore, the particular duty to respect the rights possessed by other animals. In claiming that we have a prima facie duty to assist those animals whose rights are violated, therefore, we are not claiming that we have a duty to assist the sheep against the attack of the wolf, since the wolf neither can nor does violate anyone's rights. (Regan 2004, 285)

Accordingly, Regan's "general policy recommendation" regarding wild animals is "*let them be!*" (Regan 2004, 361) because we are "neither the accountants nor managers of felicity in nature" (Regan 2004, 357). The aim of wildlife management should be "to defend wild animals in the possession of their rights, providing them with the opportunity to live their own life, by

their own lights, as best they can, spared that human predation that goes by the name 'sport'" (Regan 2004, 357). Angus Taylor also defends a version of the rights view. He holds that there is a "fundamental right of sentient beings to live as they see fit, each exercising its natural powers in pursuit of what it sees as its own good…" (Taylor 1996, 250).

In general, the rights view accounts for some common moral intuitions. Moral patients such as children have rights before they have duties. If a person treats an animal cruelly, we should intervene because a moral agent is committing an injustice. However, we should not intervene when a wolf is taking down a sheep, because moral patients such as wolves cannot violate rights. Predation really is beyond the pale. The rights view avoids the Predation *Reductio* from the outset. The moral agent-moral patient distinction is crucial to this avoidance.

Regan revisits wild animals in the new foreword to the 2004 edition of *The Case*:

> [O]ur ruling obligation with regard to wild animals is to *let them be*, an obligation grounded in a recognition of their general competence to get on the business of living, a competence that we find among members of both predator and prey species… [W]e honor the competence of animals in the wild by permitting them to use their natural abilities, even in the face of competing needs. As a general rule, they do not need help from us in their struggle for survival, and we do not fail to discharge our duty when we choose not to lend our assistance. (Regan 2004, xxxvii)

Due to natural selection, animals are generally competent to get about in the world and fend for themselves; they are the progeny of a long list of survivors. Obviously, if animals do not need assistance, then there is no duty to assist them, for unneeded assistance is undue assistance.

Regan also worries about interventions into the lives of wild animals driven by paternalistic attitudes (Regan 2004, 103-109). Wild animals which possess preference autonomy not only have preferences, but are also able to act so as to satisfy them, and we ought to respect this capacity. He defines paternalistic interventions as "taking measures to prevent [wild animals] from pursuing what they want because, we believe, permitting them to do so will be

detrimental to their interests." Again, "*in general*, we act in ways that respect the rights of wild animals by adopting an anti paternalistic stance…" (Regan 2004, xxxviii, e.a.). Yet he contends that putting young children in the woods to "live by their own lights" would be criminally irresponsible; paternalistic attitudes are perfectly appropriate for children, and anti-paternalistic attitudes are appropriate for wild animals; both stances "show equal respect for the rights of each group" (Regan 2004, xxxviii).

Regan is right that misplaced paternalistic attitudes often makes things worse. For example, every spring well-intentioned but uninformed people "rescue" what they believe to be poor abandoned fawns and take them to veterinary hospitals. The fawns are placed in foster care at great cost and are then reintroduced into the wild. The problem is that does leave their fawns hidden in spring. These "rescuers" separate mother and child.

The claims that wild animals are generally competent and thus ought to be left alone, and that paternalistic attitudes are often inappropriate are fine as *general* obligations and attitudes. The rights view readily accounts for the Laissez-Faire Intuition, avoiding claims that we are obligated to reengineer nature from the outset. It also gives some support to the Welfarist Intuition by providing reasons why we ought not cause pain. Can Regan's rights view support the latter part of Scanlon's thought, that we have a *prima facie* obligation to prevent pain? Based on what has been said about Regan's view so far, it seems not. Regan is generally read as holding that wild animals only have negative rights, e.g. the right not to be interfered with, corresponding to our negative obligation not to interfere, except duties to assist in order to prevent rights violations by other moral agents.

However, this common reading of Regan is wrong. Regan's claims do not preclude all intervention because some animals are not competent to go about the business of living and there are cases where animals are not able to act on their preferences. This is discussed further below (5.6). For now, suffice it to say that this general obligation cannot be an absolute obligation because it cannot be reconciled with Regan's views about duties of beneficence in general and duties to assist in particular.

The Relational View

In her recent and important work, *Animal Ethics in Context* (2010), Clare Palmer offers a contextual or relational account of our obligations to animals. Her contextual view is an agent-centered deontology similar in some respects to Mary Midgley's communitarian view in *Animals and Why They Matter* (1983). Palmer's view is novel in taking as its central task giving an account of *why* our obligations to wild animals and domestic animals differ. On Palmer's view, we have both positive and negative obligations to domesticated animals, but only negative obligations to wild animals, except in special circumstances. In short, obligations depend on context, on the relations we have or lack with animals; they cannot be read off animal capacities.

She argues that we have the negative general *prima facie* obligation not to harm all sentient beings, wild animals included, but acquire positive obligations in certain contexts, such as relationships or to compensate for past harms or the creation of vulnerabilities. People have relationships with domesticated animals under their care, and so take on positive obligations.

However, because we are not in relationships with wild animals, we do not have positive obligations to them. We do have special obligations to assist wild animals in order to redress

past harms, such as assisting coyotes harmed by urban development through habitat elimination and depreciation, which reduce their ability to live good lives on their own and increase their vulnerability (Palmer 2010, 96-114). Outside of the context of relations and redressing past harms, there is no general obligation to assist. Palmer's relational view provides an account of a weak version of the Laissez-Faire Intuition:

> No-Contact Laissez-Faire Intuition: One should (prima facie) not harm wild animals and there is no presumptive duty to assist them, though assistance is (sometimes or always) permissible. But positive duties to assist may be generated in some circumstances. (Palmer 2010, 68)

In short, "duties to assist are absent" in the case of wild animals (Palmer 2010, 84).

Palmer's theory is similar to the rights view in that both focus on negative rights. In fact, Palmer claims that her contextual view is compatible with the rights view (Palmer 2010, 34), and that one may think of her book as fleshing out Regan's account of largely negative rights by adding acquired duties, i.e. those arising voluntary acts and institutional arrangements (Palmer 2010, 38).[33]

Nonmaximizing Consequentialisms

Another kind of Defense merits brief discussion. One could defend a version of consequentialism more refined than utilitarianism by rejecting value maximization as the normative principle. Satisficing consequentialism and progressive consequentialism are two such nonmaximizing consequentialisms. Satisficing consequentialism is the view that we are

[33] Palmer treats the rights view as consisting solely of negative rights plus positive prima facie obligations to prevent injustices, as Regan originally argued. However, as discussed in the shortly, Regan made some substantial "clarifications" in the preface to the 2004 edition by clearly endorsing positive rights grounded in obligations of beneficence. It's not clear why Palmer did not treat these important changes in Regan's view (Palmer 2010, 32-39).

obligated to produce *enough* good, not obligated to *maximize* the good (Slote and Pettit 1984). A more recent nonmaximizing consequentialism is progressive consequentialism, which holds that we are obligated to improve the world, not maximize the good (Jamieson and Elliot 2009).[34]

These modified consequentialisms may suffer problems similar to those discussed elsewhere in this chapter, including the Permissibility Problem discussed below. As long as satisficing and progressive consequentialisms are undergirded by a hedonistic axiology, both *permit* the Heretical Conclusion in principle even if it is not obligatory. Furthermore, if driven by hedonism, progressive consequentialism more closely approximates the Heretical Conclusion with each improvement in the world. Perhaps *we* are not obligated to act on the Heretical Conclusion, but if we fulfill our obligations by making the world a better place, then we raise the baseline utility for the next generation, and our posterity will be obligated. Such modified consequentialisms are promising when paired with weak sentiocentrism or axiological Defenses such as the Free Will Defense and informed by the pragmatic considerations which emerged from discussion of the Apologies.

Assessing the Normative Defenses

Rights- and relations-based views provide support for the Laissez-Faire Intuition by constraining the scope of obligation from the outset. The main problem with these Defenses comes from the opposite direction. The worry is that they cannot account for duties to assist, a duty which many regard as important to morality; they may fail to give the Welfarist Intuition its

[34] Elliot and Jamieson regard progressive consequentialism as superior to satisficing consequentialism. They argue that the level of what counts as "enough" utility in satisficing consequentialism is unduly arbitrary. Progressive consequentialism is open-ended and avoids drawing a line for the sake of drawing a line.

due. I will discuss the views of Francione, Regan, and Palmer in this light. The upshot is that if there are duties to assist, they likely turn out to be fairly limited and obtain in the same sorts of cases as was found in the Apologies and axiological Defense.

Francione's Total Laissez-Faireism

Gary Francione argues that there are no duties to assist others, human or animal. This hardline stance occurs in the context of examining the question of whether animal rights entails preventing predation and other harm to wild animals. He first responds that there is no *legal* obligation to assist others.[35] Our concern is moral obligations, not the law.

Francione goes on to argue that animals, like humans, have "the basic right not to be treated as things" or resources, but this basic right "does not necessarily mean that we have moral or legal obligations to render them aid or to intervene to prevent harm from coming to them" (Francione 2000, 184-185). Moral or legal obligations to assist may not *necessarily* follow from the basic right of humans and animals to not be treated as things. However, the question is whether and when there is a moral duty to assist, not whether this duty is necessary or arises solely from the basic right of humans and animals to not be treated as things. Francione does not answer these questions. That said, his view is surely the strongest possible defense of the Laissez-Faire Intuition, as we must always leave wild animals alone. This is an "edge" of the sentiocentric workspace compatible with environmentalism.

[35] As an aside, some jurisdictions, particularly in Europe, actually *do* have such Good Samaritan and Duty to Rescue laws which require that we assist in some circumstances. For example, the French penal code contains a "non-assistance à personne en danger" (deliberately failing to provide assistance to a person in danger) law.

Regan's Rights View

In any case, most philosophers accept that we have duties to assist. Dale Jamieson famously criticized Regan's *The Case* on the grounds that it cannot account for such a duty. Regan argues that we have a duty to assist in cases of injustice in *The Case*:

> The respect principle, as a principle of justice, requires more than that we not harm some so that optimific results may be produced for all affected by the outcome; it also imposes the prima facie duty to assist those who are victims of injustice at the hands of others. (Regan 2004, 249)

Jamieson argues that this is an inadequate account of the duty to assist. To do so, Jamieson asks us to consider five cases. In each case, suppose that you are walking on a hiking trail and that ahead of you on the trail is a man you do not know. In all five cases, a boulder is set in motion which will result in the man being killed if you do not warn him.

1. The woman intentionally pushes the boulder down the mountain toward the man.
2. The woman takes a step, inadvertently causing the boulder to roll.
3. The woman sneezes, and the boulder rolls toward the man as a result.
4. There is a wolf on the trail above instead of the woman. While stalking her prey, the wolf causes a boulder to roll down the mountain toward the man.
5. The boulder is set in motion by a landslide toward the man. (Jamieson 2009)

Jamieson alleges that, on Regan's rights view, while we have a duty to prevent an injustice in Cases 1 & 2 (and perhaps Case 3 if the accidental harm by a moral agent is an injustice) we have no duty to warn in Cases 4 & 5 because these cases do not involve injustices. The harms are not caused by a moral agent. They are caused by a moral patient in Case 4, and the forces of nature in Case 5.

Jamieson objects to this, contending that surely the *origin* of the threats is irrelevant to the determination of one's duty; one should intervene and assist regardless. He does so by appeal to a sixth case where there is *uncertainty* as to the cause of a boulder rolling towards the

man, and that in such a situation, one ought to warn him. If there is something to this line of thought, then Regan's view appears to be in need of some assistance.

However, Jamieson mistakenly concludes that while we are required to assist victims of injustice, "we are not required to help those in need who are not victims of injustice" on Regan's account (Jamieson 1990, 351). Jamieson's mistake is that it does not follow that we *only* have duties to assist in cases of injustice from the supposition that we have duties to assist in cases of injustice. In the preface to the 2004 edition of *The Case*, Regan admits some fault for Jamieson's and similar misunderstandings by acknowledging that he focused too heavily on duties of justice, i.e. those involving rights violations, leading the reader to believe that there are no duties to assistance on Regan's view.

Regan adds that "nothing in the rights view prevents it from recognizing a general *prima facie* duty of beneficence, one that enjoins us to do good for others" independently of what we owe one another as a matter of justice. He adds that a *prima facie* duty of beneficence grounds a duty to rescue (Regan 2004, xxvi-xxvii). Regan believes that "we humans have such duties to each other" apart from duties of justice and "there is no reason why duties of the same kind might not arise in circumstances in which animals are involved" (Regan 2004, xxvi). Unfortunately, Regan does not articulate full accounts of the duty of beneficence or how it fits with duties of justice. He does claim that the (i) duty to beneficence is limited, (ii) that we should not promote the good of some by violating the rights of others, and (iii) that "the demands of justice always take precedence over the claims of beneficence" (Regan 2004, xxvii).

These last points are crucially important to assessing Regan's view as a normative Defense to the problem of wild animal suffering. They definitely rule out preventing predation

because it promotes the good of the prey by violating the rights of the predator. Similarly, they also speak against the elimination of predator species to increase aggregate or average utility, as these are clear case of promoting the good of some by violating the rights of others. So too for interfering with intraspecies relations which some find objectionable, such as Nussbaum's qualms with intraspecies hierarchies and dominance (5.3).

When do we have a duty to assist wild animals? Regan never says! He gives no principle or even an example. Recall that Regan argued only that animals are generally competent in living and that "*as a general rule*, they do not need help from us… and we do not fail to discharge our duty when we choose not to lend assistance" (Regan 2004, xxxvii, e.a.). Paternalism is perfectly appropriate for children, presumably because they are not yet competent, but not wild animals because they are generally competent. Regan does not elaborate beyond this. The only examples of duties to assist concern humans: Jamieson's hypothetical cases and the case of saving an infant from a lion (Regan 2004, xxxviii).[36]

However, there do seem to be clear cases of interventions to wild animals which are not misplaced paternalism, do not violate the rights of others, thwart the demands of justice, or cause as much or more harm than they prevent. Rowe's Fawn seems like such an example. Orphaned young animals which have not yet developed preference autonomy to speak of seem like another;

[36] Regan claims that we have a duty to assist a human child in such a case but not a wildebeest in the same circumstances. This appears to be inconsistent in at least two ways. The first way is similar to Regan's apparent inconsistency in "lifeboat cases" where we ought to save a human over a dog because death is a greater harm to a human than a dog. If this is right, then Regan can handle the infant-wildebeest case similarly. The second way is that we would be promoting the good of the infant, assisting her due to a duty of beneficence, while violating the right of the lion, intervening in her affairs, seemingly against the duty of justice. This is inconsistent with Regan's claim that duties of justice take precedence over those of beneficence. It clearly promotes the good of one at the expense of another. Perhaps this inconsistency could be reconciled by further specifying how and why the duties of beneficence and justice differ in the case of persons (and potential persons) from the case of "mere" moral patients, or in terms of relations, with a Palmer-style view serving as an "add on" to account for such special obligations. I only wish to point out that addressing this apparent inconsistency is work which remains to be done.

they are quite *dependent*, yet the parent(s) on which they depend are gone. These orphans are not "competent to get on the business of living" and do "need help from us in their struggle for survival". Regan argues that we ought to act paternalistically to young humans, oughtn't we for young animals as well in some cases?

Regan's positive account of duties to assist outside of the context of preventing injustices is far from being a worked out view. He notes as much in saying that his original account is incomplete because it does not discuss duties of beneficence (Regan 2004, xxvii). After discussing similar problems with Palmer's view, I will then work through some cases which flesh out duties to assist in the spirit of Regan's view.

Palmer's Relational View

Palmer's relational view is strained in a way similar to Regan's rights view. Palmer is able to straightforwardly avoid the Heretical Conclusion by claiming that positive obligations only arise in the context of relationships and to redress past harms. However, two worries with Palmer's view are that it (i) *requires too little* and (ii) *permits too much* in different respects.

The first worry is that Palmer's view obligates us to too little; it cannot account for duties of assistance. This critique is separate from the question of whether a relational sentiocentrism is compatible with environmentalism, it questions whether the view is plausible in its own right as a moral theory. Suppose that you see an unknown drowning child. All it would take for you to save her is to flip her over with your waterproof shoe. Aren't you obligated to assist?

At first blush, it seems that you are not obligated to assist on Palmer's view, making her view similar to Bernard Gert's view that there are no obligations of beneficence, including

obligations to assist, except when fulfilling a professional role and other acquired situations (2005). For Gert, providing assistance outside of specific roles (for Palmer: relations) pertains to discretionary moral ideals, not obligation. Palmer wishes to avoid Gert's conclusion, at least in the case of humans and domesticated animals. The dilemma for Palmer is (i) either there are *not* duties to assist strangers, which is implausible, or (ii) there *are* duties to assist strangers, in which case there are also duties to assist wild animals for the same reasons, undermining the relational view's support for the Laissez-Faire Intuition. She accepts that the relational view requires too little if it cannot account for obligations to assist strangers, but she does not want to give up the Laissez-Faire Intuition. It appears she cannot do both.[37]

Palmer tries to avoid the dilemma by expanding the concept of "relation" in selective and questionable ways to account for putative duties to assist humans and domesticated animals. She notes this worry of *ad hocism*, an add-on to the relational view, but does not consider it to be a major problem (Palmer 2010, 123-124). She appeals to Samuel Sheffler's three grounds for relations which generate special obligations:

1. Past interactions (promises, agreements, debts, harms).
2. Special relationships (children, parents, siblings, friends).
3. Group/Community Membership. (Sheffler 1997, 190)

Throughout most of her book, Palmer appealed to grounds one and two. She now seeks to ground duties to assist strangers in the third relation: you and the stranger are both members of a community, the *human* community, and so you ought to save the drowning child. Clearly,

[37] In a candid passage, Palmer notes that "my difficulties have flowed from continuing to see the attractions both of wholly capacity-oriented approaches and of the consequentialist view that there *is* no real distinction between harming and failing to assist, when one could have assisted without causing a harm of equal or greater moral significance. So I am, therefore, sympathetic to readers who remain unpersuaded by central arguments in this book" (Palmer 2010, 165).

Palmer and Sheffler do not mean the biological sense of *Homo sapiens*, but in Francis and Norman's (1978) moral sense of community membership, which includes mutually recognized communication, the ability to justify obligations to one another, reciprocal economic relations, and mutual cooperation (Palmer 2010, 121). However, Palmer faults Francis and Norman for holding that all and only human interactions are sufficiently rich to count as relations. She amends the view to include domesticated animals with which we have "strong social relations" (Palmer 2010, 122-3). The result is a "mixed" community in Midgley's sense (1983).

A similar expansion of "relations" occurs in the *Dumpster Kittens* and *Rat Nest* cases. Palmer imagines that Peter walks by some domesticated kittens in in a dumpster which will die if unassisted. Imagine a similar case where Peter walks by a nest of week-old orphaned brown rats, which are constitutively wild contramensals.[38] Palmer argues that "Peter should help the kittens but not the rats" because the kittens are there due to the actions of a breeder, which is part of an institutional history of domestication and pet ownership. So, Peter has a weak obligation to assist the kittens, even if Peter has never owned a Pet, because (i) Peter is related to domesticated animals generally by gaining small social and economic benefits in a society which keeps pets, and (ii) because Peter contributes towards the creation of a group attitude of permitting harm to animals such as kitten dumping (Palmer 2010, 111-114).[39]

Palmer's attempt to dodge the dilemma by selective expansion of relations is similar to the objection against consequentialist case reasoning which introduces further facts to reach the

[38] The introduction of a contramensal species here introduces unnecessary complications, and appears to be a red herring. A better case is to imagine walking by dumpster kittens in a rural area, and then walking by a dead feral cat or bobcat mother beside her brood.

[39] Palmer calls the former the Personal Benefits Argument, the latter the Shared Attitudes Argument. She acknowledges that the Shared Attitudes argument is unsuccessful if Peter does not share this attitude.

desired conclusion. It's odd to think that others' participation in a practice can obligate Peter in this way. This line of reasoning entails that we have all kinds of weak obligations we would not otherwise think we have. Does Peter, an agnostic, also have a weak obligation to assist a local church on the brink of bankruptcy because he gains small economic and social benefits in a society which practices religion?

Even granting that Palmer's expanded relational view is generally on track in accounting for duties to assist humans and domesticated animals, problems remain. It cannot account for a duty to assist all "marginal case" humans. Palmer considers those who are "weakly able to engage in at least some rich human relations" (Palmer 2010, 122), but there are sentient humans not capable of even this much. She could hold that assisting in such cases is desirable, but not obligatory. It appears, therefore, that Palmer's account is susceptible to a version of the Argument from Marginal Cases.

Also, the relational view cannot account for a duty to assist wild animals, i.e. those with which, by definition, we have no social relations. Palmer considers a pair of such one-on-one wild animal assistance cases. In *Squirrel 1*, one is walking on a trail and encounters a squirrel, injured and suffering from an attack by another animal. One could easily and safely euthanize the squirrel. *Squirrel 2* is identical to *Squirrel 1* with the difference that the squirrel is alongside the road injured by a vehicle strike. Palmer claims that one has a duty to assist in *Squirrel 2* because the source of the harm is human, but not in *Squirrel 1*, because the cause of harm is nonhuman. Palmer acknowledges that:

> Even someone who, in general, accepts the [Laissez-Faire Intuition] – for instance, that there is no duty to go out looking to relieve wild pain nor to attempt to change ecosystems or make wildlife policy to reduce it – might flinch at the implication that if one *encountered* a suffering wild animal, it is perfectly fine just to walk past and leave it

> lying there. Something seems wrong about the immediacy of the encounter that raises questions about the general principle. (Palmer 2010, 149)

Palmer tries to soften the blow by concluding that "there is no *duty* to assist in cases of encounter, but we can explain why assistance is not only permissible but also perhaps desirable, in encounter cases where there are no reasons *not* to assist" (Palmer 2010, 149).[40] She then seeks to cash out the permissibility or desirability to assist in terms of moral character and our emotional world, not obligation.[41]

If one accepts that there are limited duties to assist wild animals, then the Laissez-Faire Intuition is not absolute. The central aim of Palmer's book is to provide the strongest possible account of the Laissez-Faire Intuition, but at what cost to morality?[42] Not responding to a non-person yet sentient human stranger or to a beached dolphin in distress seem to be blameworthy omissions because of the capacities of the individuals in question, the ease with which one can assist, and the lack of competing obligations, and nothing to do with whether or not one is in a relation with them.[43] Palmer's views about the duty to assist do not appear to stand up to critical

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[40] Reasons not to assist which generally count against intervention in the lives of wild animals – our limited powers, knowledge, etc. and axiological Defenses - pretty clearly don't apply in such immediate cases as *Squirrel 1*. Are these reasons doing a lot (or perhaps all) of the explanatory work in other cases involving wild animals where we don't intuitively think we have obligations, not the absence of relations?

[41] Other deontologists, including Kant, argue that we have an imperfect duty to assist others. Some of the recent Kantian revisions which extend moral status to animals also extend this duty to animals. Korsgaard's view about human and animal pain suggests such an interpretation (1996).

[42] By "strong", she means most plausible. The No-contact Laissez-Faire Intuition is a weak interpretation. As discussed above (5.4), the strong interpretation of the Laissez-Faire Intuition generally or always *disallows* assistance rather than merely not requiring it. This becomes important in the second criticism below.

[43] More fundamentally, both of these problems may reveal that the relational approach is off track from the beginning. Asking oneself "am I in a relationship to *x*?" to decide how to act strikes me as the wrong question to ask. Some understand ethics as starting from a very different place, a duty to assist flowing from the immediate recognition of need in another. David Hume begins with benevolence as basic to morality (Beauchamp 2008). Immanuel Levinas argues that, phenomenologically, ethics begins with responsiveness in face-to-face encounters, i.e., being called upon by another. Levinas' ethics is anthropocentric, denying that animals can initiate a genuine ethical encounter in or with us. Derrida smartly quips that, pace Levinas "the animal has neither face nor even skin in the sense Levinas has taught us to give to those words. There is, to my knowledge, no attention ever seriously

continued

reflection. As noted above in Jamieson's critique of Regan's view, the source of harm does not seem relevant to whether we have a *prima facie* duty to assist in one-to-one situations. Palmer generally argues in impressive fashion, and her view provides a strong account of negative obligations and special, acquired obligations to animals which can stand alone or augment Regan's rights view.

However, Palmer seeks to defend the Laissez-Faire Intuition and avoid the demandingness of views like utilitarianism only to accept potentially troubling implications in cases where it seems that we have a *prima facie* obligation to assist. Perhaps Palmer's worry is that allowing *any* general positive obligations to wild animals is akin to opening Pandora's box. Once opened, we've let obligations out into the wild so to speak, a deed which cannot be undone and which pushes us to an overly demanding view, losing our grip on the Laissez-Faire Intuition in the process. Here, we do well to recall that the Laissez-Faire Intuition is inchoate. It is a starting point for analysis, not an *a priori* truth which a sentiocentric theory must accommodate, full-stop. If there is anything to the arguments in this chapter, then there are numerous pragmatic and theoretical reasons supporting the Laissez-Faire Intuition for a variety of inter-animal conflicts including predation, yet there are also other cases, such as those involving animal rescue, which may place limits on the Laissez-Faire Intuition.

The second worry with Palmer's relational view comes from the opposite direction. The concern is that it permits too much, turning out to be incompatible with environmentalism. In her brief discussion of the question of whether her view is compatible with environmentalism,

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given to the animal gaze, no more than to the difference among animals, as though I could no more be looked at by a cat, dog, monkey, or horse, than by a snake or some blind protozoon" (Derrida 2008, 107). For a modified Levinasian view which takes animals into account, see especially the work of Matthew Carlarco (e.g. 2008), now that much of the continental tradition has awakened to consider the "animal question" in recent decades.

she claims that her view is more compatible with environmentalism than utilitarianism or Nussbaum's capabilities approach. As she puts it:

> One of the central issues at stake in the animal-liberation/environmental-ethics debate has always been that animal liberation appears to require action in the wild for animal welfare and, ultimately, the transformation of the wild in ways that mean it contains less suffering. But I have been defending a laissez-faire approach to the wild: what happens beyond any human contact does not require any human response, at least on behalf of animals' well-being. (Palmer 2010, 162)

Palmer's view is more compatible with environmentalism than utilitarianism or the capacities approach because these views *require* anti-environmental interventions in principle if not in practice whereas her view does not.[44] But is her view compatible *enough*? The worry is that it is not. Palmer's view can clearly give a noncontingent defense of the weak version of the Laissez-Faire Intuition: we are not obligated to assist wild animals. Yet her view permits that we assist them.[45]

This Permissibility (or Supererogation) Problem is acute for Palmer because she endorses a subjectivist theory of well-being. She clearly rejects the value-maximization claim driving the Heretical Conclusion, but she accepts something quite close to the hedonistic value theory which informs it (Palmer 2010, 9-24). The worry is that the relational view returns us to the Heretical Conclusion, but in terms of permissibility or supererogation rather than obligation. The relational view is compatible with environmentalism only to the extent that we fulfill the moral

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[44] Palmer developed the relational approach to steer a course between the animal liberation tradition, which focuses on protecting domesticated animals and which becomes implausible when applied to wild animals, and environmental ethics, which is centrally concerned with place and context and which holds that domesticated animals merit little or no moral concern. Palmer hoped to contribute to a "more complex and context-sensitive form of animal ethics" which neither undercommits to domesticated animals (unlike environmental ethics) nor overcommits to wild animals (unlike animal liberationism).

[45] To put the point more bluntly, Palmer's view may not adequately support the Laissez-Faire Intuition after all. The basic idea of the Laissez-Faire Intuition that Palmer began with – "we *should* just leave wild animals alone" (Palmer 2010, 2, e.a.) – has become we *may* leave wild animals alone, but also "it is not only permissible but also perhaps desirable" to assist them (Palmer 2010, 149).

minimum. It is clear that we are not obligated to prevent predation on Palmer's view, but *may* we? Her view can avail itself to pragmatic reasons against such interventions which arose in discussing the Apologies (5.3). However, it offers no principled reasons *against* gradually eliminating predator species by sterilization or converting wilderness areas into farms to maximize subjective well-being, provided that no animals are subjectively harmed in the process.

If this is correct, then the real issue is not the normative principles at play, but the values informing them. It's not just that Heretical Conclusion demands too much, but rather, it also demands the wrong things. Similarly, it's not that the relational view demands too much nor too little, but allows the wrong things.

One way to remedy this is to expand the conception of value. I have suggested that weak sentiocentrism and the Free Will Defense are two ways a sentiocentrist can loosen up about value. Palmer is generally averse to environmental value, skeptical that arguments supporting it will work. However, her worries seem to be against mind-independent environmental value, not noninstrumental value. Her skepticism seems to come from the acceptance of a subjectivist metaethics which appears to be quite close to strong sentiocentrism. However, as argued above (4.4), weak sentiocentrism is an alternative to both and is compatible with skepticism about objectivist metaethics in environmental philosophy, a skepticism which I and many other sentiocentrists share.

Palmer recognizes that "holistic environmental ethicists" may wish to place a constraint against assisting wild animals, i.e. defend the strong Laissez-Faire Intuition by appealing to wildness or other values in nature (Palmer 2010, 162). However, she never considers the possibility that sentiocentrists such as those who endorse the Free Will Defense or weak

sentiocentrism generally might also wish to place this constraint on assisting wild animals by giving reasons in favor of the strong Laissez-Faire Intuition by endorsing a richer conception of value than her more austere subjectivism.

Also, Palmer considers only an *absolute* version of the strong Laissez-Faire Intuition, i.e. it is *always* impermissible to assist wild animals (Palmer 2010, 78-84). Some forms of assistance may be impermissible, yet others may be permissible or obligatory. This conclusion follows from the Free Will Defense and my interpretation of Regan's rights view, which both disallow preventing predation, yet appear to permit or require other forms of assistance such as assisting injured wildlife. In short, the second problem with Palmer's contextual view is that it is not sensitive *enough* to the different contexts in which we might consider assisting wild animals. It may well depend on the kind of case, and it is to the cases we now turn.

5.7 - Exploring Some Cases

I now take it for granted that I have provided enough pragmatic and principled reasons to think that the *reductio ad absurdum* against sentiocentrism has been avoided, that some versions of sentiocentrism do not require or even allow the prevention of predation or domestication of wild animals, that we ought not supplant the natural with the just. However, I also argued that the Free Will Defense and all three versions of the normative Defenses considered above permit or obligate other kinds of assistance to wild animals. In what kinds of cases might we take the edge off of nature's "cruelty"? I won't pretend to fully work this out, but will consider three kinds of possible interventions: debilitated individual animals, diseased populations, and disaster scenarios.

But first, a bit of framing material is in order. In the West, we consider ourselves separate from nature and our behavior generally inimical to it. We have trouble envisioning a positive role for ourselves in nature. None of these cases appear to be inconsistent with the core goals of environmentalism nor the Defenses just discussed. These cases show ways in which we might play a positive role in nature on wild animals' behalf.

When is paternalistic intervention justified? In *On Liberty*, Mill thought that the only justifiable restriction of liberty in the human case is to prevent harm to another (Mill 1869). Anything else, including attempts to benefit others when they do not want the benefits, is unjustifiable. This is quite strict, and most philosophers allow for greater scope of justifiable paternalism. Tom Beauchamp suggests that, at minimum, the following four principles need to be satisfied for paternalism to be justified:

1. A person is at risk of a significant, preventable harm or loss of a benefit.
2. The paternalistic action will probably prevent the harm or obtain the benefit [and will probably not cause harm or prevent obtaining benefits to others].
3. The projected benefits of the paternalistic action outweigh its risks to the person.
4. The least autonomy-restrictive alternative that will secure the benefits and reduce the risks is adopted. (Beauchamp 2008)

These constraints on benevolent interventions are broadly applicable to wild animals. Respecting wild animal freedom or autonomy seems to require that we avoid exerting a dominant influence them, not that we never interact with them for any reason whatever (Hettinger 2005). In what cases might paternalism towards wild animals be justified?

Injured, Ill, and Orphaned Wildlife

The clearest cases involve isolated cases of "compromised" wildlife. It is no surprise that Rowe chose his fawn as an example of gratuitous evil and that Palmer considered the case of

Squirrel 1; the pain seems entirely pointless in both cases. As the environmental philosopher Holmes Rolston puts it, "We are not much troubled by seeds that fail, but it is difficult to avoid pity for nestling birds fallen to the ground" (Rolston 1992, 271).

Collectively, we already do intervene in these cases. There are organizations dedicated to the enterprise of wildlife rescue and rehabilitation, where injured, sick, or orphaned animals are rehabilitated and reintroduced into the wild. According to the National Wildlife Rehabilitators Association's code of ethics, non-releasable animals inappropriate for education, foster-parenting, or captive breeding should be euthanized.[46]

It is particularly telling that Bryan Norton, an environmental ethicist who has argued that animal liberationism cannot serve as a basis for environmental ethics, also acknowledges that the value of individual sentient beings can sometimes override the value of wildness or authenticity such that assistance is supererogatory in such cases. Norton considers a rescue case, first discussed by Alston Chase (1986), in which the National Park Service (NPS) refused to help a bison which had fallen through the ice on the Yellowstone River. Norton argues:

> Because the bison's life has positive value, I do not take the general preference for wildness to *require* that we let the bison die in these cases. I would reason that while I have no moral obligation to save the bison, a general preference for saving things of ontological value might in this case override the minor cost to authenticity of the struggle to existence. (Norton 1995, 120, n1)

[46] Palmer's *Squirrel 1* is a case of this kind. I witnessed a similar case as a United States Peace Corps Volunteer in Western Panama. Along the access trail to the rural mountainous village where I lived, an animal had fallen off of a precipice and lay at the bottom, irreparably shattered and obviously suffering. It was a calf, but the fact that it was a domesticated animal with an owner is immaterial to the case; it could just have easily been a deer. I asked around in the community. Everyone thought the animal should be put down. In fact, someone had already gone to find the owner. The animal was euthanized that afternoon.

I take it for granted that if an environmental ethicist critical of a sentiocentric approach to the environment argues that we should intervene in such cases, then a sentiocentric approach cannot be criticized as anti-environmental for generally recommending the very same intervention.

Furthermore, there is at least one essentially identical case where the NPS *has* intervened.[47] In the Rocky Mountains, a U.S. Park Ranger saw a bighorn sheep trapped in a large depression in a rock formation. Without intervention, the ram surely would have died from dehydration, exposure, or starvation. Escape from the small pit was impossible. The ranger decided to intervene; he could not leave the animal to its inevitable fate. With the assistance of another man, a rope, and a ladder, they got the ram out of the pit. Significantly, when consulting with his NPS supervisor about what to do, the boss noted that while intervening was against the official policy of the national parks (which is laissez-fairist), he did the right thing in this case.

An even more dramatic case occurred in late 1988. Three grey whales were trapped in pack ice in the Beauford Sea near Point Barrow, the northernmost point of the United States in Alaska. They were discovered by an Inuit hunter, who unsuccessfully tried to free them. Their plight soon became national news and eventually involved an eclectic combination of actors: Alaskan whale hunters, biologists, journalists, Greenpeace, oil companies, and various persons from the Alaskan state, federal government, and U.S. military. At the request of President Regan and the Department of State, two Russian icebreakers rescued the remaining two whales, during the cold war, no less.[48]

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[47] My description of the case is based on a documentary I saw which included live footage of the rescue and an interview with the Park Ranger. Unfortunately, I don't recall the title and hence haven't been able to track down the video, and so I'll treat the case as a hypothetical.

[48] The story is recounted in Tom Rose's *Freeing the Whales* (1989) and a fictionalization of part of the story was featured in the 2012 Hollywood film *Big Miracle* starring Cameron Diaz.

In such cases, we might reasonably judge that the cost to freedom of intervening is outweighed by the good of the animals' welfare, per the Free Will Defense. In fact, we might even see such interventions as *enabling* freedom insofar as intervening attempts to rehabilitate such animals for reintroduction. Objectively, these animals are not able to realize their natural capacities. Their freedom is presently inoperable, and intervening does not come at the expense of other animals realizing their natural capacities, as is the case in predation. Such interventions aim at reestablishing animals' independence. Per Regan's gestures at duties to assistance, such animals are not capable of "getting on with the business of living", and paternalistic intervention seems justified.

Disease and injury cases seem analogous to medical interventions whose purpose is to restore people's autonomy or independent functioning. Paternalistically, we act on behalf of others so that they may act on their own behalf once again. So, rather than such interventions coming at the expense of freedom or preference autonomy, they can be seen as enhancing them. Furthermore, pragmatic reasons such as ignorance of possible consequences and our limited resources do not apply.

Plagued Populations

What about less piecemeal interventions? A second kind of case involves not individual illness, but diseases afflicting whole populations and species. If we ought to intervene in such cases, then surely it is a collective enterprise better handled at institutional levels rather than a matter for individuals due to the scope of the actions, costs, and specialized knowledge required.

One example is the Devil Facial Tumor Disease (DFTD), a contagious cancer which afflicts the Tasmanian devil (*Sarcophilus harrisii*), a marsupial species native to Tasmania, Australia. DFTD causes lesions on the face and mouth. Death is usually due to starvation because the cancerous growths inhibit the devils' ability to feed. Cancer metastasis and secondary infections are secondary causes of mortality. DFTD was first sighted in 1996. Mortality rates are as high as 95% in afflicted populations, and devil sightings were down 70% on average by 2010. The species was listed as threatened in 2005 and was declared endangered in 2009. The species will likely go extinct unless a cure is found.[49]

Another example of this kind of case is the bighorn sheep (*Ovis canadensis*). Bighorns were once widespread throughout Western North America with as many as 2 million in 1800. There number has dwindled to approximately 70,000 due to hunting, disease, and competition from domesticated sheep which force the bighorns to marginal upland habitat with devastating consequences in the winter (Runquist 2011).

In 1936, Boy Scouts of America took up the bighorn sheep cause in Arizona. In 1939, the Kofa National Wildlife Refuge and Cabeza Prieta National Wildlife Refuge, totaling 1.5 million acres were established, despite opposition by ranching and mining interests. By order of President Roosevelt, the reserves were co-managed by the Fish & Wildlife Service and the Bureau of Grazing. A Civilian Conservation Corps went to task in a bit of habitat improvement, digging waterholes for the sheep in the high mountains (Saxton 1978). Strain on the population

[49] There are concerns beyond the devils themselves. The chief concern is that without carrion-eating devils, carrion levels of other species will increase, and the introduced and invasive European red fox (*Vulpes vulpes*) will further infiltrate the landscape. The fox is recognized as the most significant threat to Tasmanian wildlife, preying on at least 70 endemic vertebrate species not adapted to the new predator, and which could directly endanger seven species (Save the Tasmanian Devil Appeal, 2010). These facts suggest further reasons in favor of saving the devil if possible, per the discussion of biodiversity and introduced species below (6.3).

is being relieved elsewhere, e.g. Idaho is phasing out 70% of grazing allotments, resulting in more habitat allocated to bighorns.

Bighorns are particularly susceptible to pneumonia. Sri Srikumaran, professor of veterinary microbiology and pathology at Washington State University, says "when they start dying, 75 to 90 percent of the herd can die in two weeks", and herds have been decimated in the Northwestern United States (Runquist 2011). Srikumaran is part of a project which administers pneumonia vaccines to bighorns in hopes of reversing this trend.

The National Wildlife Federation gives other examples of wildlife disease in the U.S. and beyond:

- *Chytrid Fungus*: Batrachochytrium dendrobatidis (or "chytrid" for short), is a fungus that grows on the skin of amphibians, interfering with their ability to breathe or take up water through their skin. It has spread across the globe, infecting and decimating frog populations. It is a global killer of amphibians.
- *Fibropapillomatosis*: Sea turtles worldwide are becoming infected with this disease, possibly caused by viruses, which causes tumors to appear on the skin or internally. These tumors can make it difficult for a turtle to swim, eat or see, and they weaken immune systems.
- *White-nose Syndrome*: Hundreds of thousands of bats in the Northeast and Mid-Atlantic states have been infected or have died from the white-nose fungus. The disease affects hibernating bats, making them appear to have a white substance on their faces and wings.
- *Chronic Wasting Disease*: This disease is a highly contagious, fatal neurological disease (spongiform encephalopathy) that infects primarily deer and elk. The disease is believed to be caused by a modified protein called a prion.
- *Whirling Disease*: Trout, salmon and whitefish in 25 states have been infected by the parasite Myxobolus cerebralis that causes whirling disease. It damages nerves and cartilage, causing young fish to die and older fish to swim in a tail-chasing or whirling motion, making it hard for them to find food and increasing their vulnerability to predators.
- *Sylvatic Plague*: Prairie dogs are highly susceptible to this bacterial disease, which is transmitted by fleas. The endangered black-footed ferret is at even greater risk from the effects of the disease, because not only can it be infected by the disease, but prairie dogs are also its primary food source. (National Wildlife Federation 2012)

Like wildlife rehabilitation, there are whole institutions dedicated to disease elimination and remediation projects. The justification for these projects is typically put in conservationist terms. For example, the Wildlife Disease Association's (WDA) objectives include endangered species preservation, wildlife conservation, and disease monitoring during wildlife translocation. Yet treating wildlife disease seems consistent with many sentiocentrist theories.

Many of these cases involve endangered or threatened species. As Peter Singer notes, "defending endangered species is, after all, defending individual animals too" (Singer 1979, 204). Weak sentiocentrists can appeal to both welfarist and conservationist reasons to account for duties to assist diseased members of endangered and threatened species. Given our limited resources, it seems reasonable to focus on endangered species because of the convergence of welfarist and conservationist reasons.

These diseased population cases are all more complex than one-on-one cases. Humans have played roles in many of the populations' troubles.[50] The black-footed ferret was long-subjected to direct killing. So too for prairie dogs, of which the ferret is an obligate predator. Bighorn sheep were nearly driven to extinction by hunting and competition with domestic sheep, forced to live on inferior upland habitat. We made these populations vulnerable to disease. The species are endangered because of past harms to their members. The individuals currently comprising them are typically worse-off because of humans. On nonconsequentialist

[50] Furthermore, given the anthropogenically-caused fractured state of the biological world, prudential self-interest dictates intervention in some cases. Zoonotic diseases – diseases which cross species boundaries from other animals to humans – are increasingly common due to wild animals displaced by habitat fragmentation and degradation which force them into contact with domesticated animals and humans. The new field of conservation medicine draws on the connections and interrelations of ecosystem health, wild animal health, and human health. It is interdisciplinary, combining biomedicine, veterinary medicine, and conservation biology. See Alonso Aguire (2002) and Bob Weinhold (2003) for more on this new field.

sentiocentrist views such as Regan's and Palmer's, these factors are directly relevant to moral duties of assistance.

What about cases of species where the disease is not anthropogenic in origin nor are the species' members themselves significantly harmed by human activity? Chronic wasting disease (CWD) in cervids, a condition of chronic weight loss leading to death caused by prions (an infection of folded proteins), appears to be such a case. Like Bovine spongiform encephalopathy (mad cow disease), also a prion-caused disease, CWD is untreatable. Supposing it were treatable, this would also appear to be a case of benevolent assistance permitted by most sentiocentrist views from consequentialism to rights views and relational views.

What about killing afflicted cervids to prevent the spread of infection? Palmer discusses this in the case of *Wild-Elk Disease*, where assisting some harms others (Palmer 2010, 146-148). Consequentialist views would generally recommend intervention. Regan's view would reject assisting because it would violate the rights of those killed. So too for Palmer's relational view because there is a constraint on harming and a supererogatory assistance is not strong enough to override this constraint. However, had humans introduced the disease, we would be harming some elk either way – through culling on the one hand and through allowing the anthropogenically introduced disease to spread on the other hand. In such a case, Palmer argues that this changes things for the rights view and her relational view. Per Regan's mini-ride principle we should minimize comparable rights violations when it is inevitable that some rights

will be violated, and therefore we are *prima facie* obligated to kill afflicted elk in order to prevent more from dying from the anthropogenic disease (Palmer 2010, 147).[51]

Disaster Scenarios

A third kind of assistance case involves disasters. An obvious distinction to draw is between anthropogenic – "man-made" – and natural – "acts of God" – disasters. Anthropogenic disasters include climate change, industrial accidents, oil spills, nuclear/radiation accidents, transportation accidents, and anthropogenically caused fires in the natural or built environment. Natural disasters include earthquakes, floods, landslides, tornados, volcanic eruptions, and naturally caused wildfires.

Some disasters are a mix of anthropogenic and natural causes. A clear example of this was Hurricane Katrina in New Orleans. While the hurricane was natural, the catastrophic failure of the levee system in New Orleans led to extensive flooding, resulting in one of the largest animal rescue operations in history. Another example is naturally caused wildfires which are worse than they otherwise would have been, e.g. exacerbated by previous fire-suppression efforts.[52]

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[51] Parasitism raises issues similar to disease, at least for nonsentient parasites, which are the vast majority. While some parasites are actually beneficial to their hosts, there seems to be no greater good that would be lost in many cases of deparasiting afflicted individuals. Reflecting on parasitism, Gould says candidly that "I suspect that nothing evokes greater disgust in most of us than slow destruction of a host by an internal parasite - gradual ingestion, bit by bit, from the inside" (Gould 1983, 33). Holmes Rolston, who generally sees systemic value as overriding particular values and disvalues concedes that "there is obvious disvalue in much parasitism; this may be, on average, a glitch in the system" (Rolston 1992, 256).

[52] Throughout most of the 20th century, U.S. policy, acted on by the U.S. Army and the U.S. Forest Service, was to prevent wildfires and attempt to suppress them regardless of their cause, as they were perceived as a threat to civilization and natural resources, particularly timber. Public education campaigns, including Smokey the Bear attempted to deliver this message. The general futility of fire-suppression efforts became recognized later in the 20th century and we've since learned to live with wildfires except where they directly impact the built environment.

Duties to assist wild animals in cases of anthropogenic disasters are pretty widely recognized. The most obvious cases of this are oil spills and the extensive efforts made to ameliorate harms to wild animals, particularly birds and marine mammals. As per the discussion of disease cases above, normative Defenses such as Regan's and Palmer's emphasize duties to rescue in cases of anthropogenic harm. For Regan, these are duties of justice, the prevention of – or compensation for – rights violations, which are more stringent than are duties of beneficence. For Palmer, harms to wild animals generate positive obligations.

In the case of natural disasters, it is unclear what Regan would think, as his account of duties to rescue is undeveloped. Palmer's view would appear to permit but not require assistance in such cases. Wild animals are sensitive to and generally better able to avoid natural disasters than are humans and domesticated animals, e.g. running away from wildfires and hurricanes. In some cases there are few or no casualties. Domesticated animals are often trapped indoors or in yards and are therefore unable to help themselves out of harm's way. Accordingly, it makes sense that we focus our limited powers on rescuing humans and domesticated animals. However, at least in some cases, it seems that the axiological and normative Defenses outlined above would allow if not require assistance in natural disaster cases as knowledge and resources permit. One such example is the aftermath of wildfires. While many wild animals are able to escape direct harm, the loss of habitat means that animals aren't able to get about their normal business, unable to affect their wills. Per Buchanan's conditions of justified paternalism above, and apparently absent any greater goods which would fail to be realized, assistance would appear to outweigh the loss of liberty in such cases.

5.8 - Conclusion

In this chapter, I have examined the allegedly anti-environmental implications of sentiocentrism through the lens of the problem of evil. I argued that animal ethical theories which endorse the Heretical Conclusion are inconsistent with environmentalists' goals such as the preservation of wilderness and the conservation of biodiversity because they recommend eliminating predator species and managing nature in pursuit of pleasure and the absence of pain. I then considered four Apologies – (i) the denial of evil, (ii) the appeal to human ignorance, (iii) the appeal to limited human power, and (iv) the denial of human goodness – which attempt to avoid the Heretical Conclusion on pragmatic grounds. I found that there is some truth to each of these Apologies due to ecological and other facts about the world and ourselves which check much of the vision of a hedonistic utopia. Together, they constitute a strong pragmatic response to environmentalists' fears about animal liberationism.

I then challenged the Heretical Conclusion in principle, arguing that it results from the combination of a hedonistic axiology and a deontic principle of value maximization. The first Defense rejected the hedonistic axiology and developed a richer conception of the good compatible with sentiocentrism, arguing that a world with "free" creatures is better than a world in which we are benevolent despots, mirroring the free will response to the problem of evil. The second Defense rejected the deontic principle of value maximization, mirroring deontological responses to the problem of evil. I considered Regan's and Francione's rights view, Palmer's relational view, and two versions of nonmaximizing consequentialism. I argued that these axiological and deontological Defenses provide principled checks against the view that we should prevent predation or domesticate nature, yet also argued that these Defenses are not total

responses to the problem of wild animal suffering; there is a "residue" of natural evil for which they have no answer. Therefore, at least in principle, I argued that both allow or require some meddling in nature. Yet rather than realize environmentalists' fears about sentiocentric approaches to the environment, these interventions are recommended by environmentalists themselves.

In lieu of a conclusion, I would like to consider a lengthy quote by Holmes Rolston about values and disvalues in nature:

> Nature is random, contingent, blind, disastrous, wasteful, indifferent, selfish, cruel, clumsy, ugly, struggling, full of suffering, and, ultimately, death? This sees only the shadows, and there has to be light to cast shadows. Nature is orderly, prolific, efficient, selecting for adapted fit, exuberant, complex, diverse, renews life in the midst of death, struggling through to something higher. There are disvalues as surely as there are values, and the disvalues systemically drive the value achievements. We miss this panoramic creativity when we restrict value to human consciousness; we make value a prisoner of the particular sort of experiential biology and psychology that humans happen to have, or even of the particular sort of culture that humans happen to have chosen.…The view here is not panglossian; it is a sometimes tragic view of life, but one in which tragedy is the shadow of prolific creativity. That *is* the case, and the biological sciences – evolutionary history, ecology, molecular biology—can be brought to support this view, although neither tragedy nor creativity are part of their ordinary vocabulary. Since the world we have, in its general character, is the only world logically and empirically possible under the natural givens on Earth—so far as we can see at these native ranges that we inhabit – such a world *ought* also to be. (Rolston 1992, 275)

Throughout the paper, Rolston gives examples of disvalues for which he has no explanation, disvalues which serve no greater good. If it is possible to ameliorate such disvalues without the loss of nature's values, what reason is there against doing so? Rolston considers Annie Dillard's view of the human predicament: "I came from the world, I crawled out of a sea of amino acids, and now I must whirl around and shake my fist at that sea and cry Shame" (Dillard 1974, 180). Rolston responds that:

> If I were Aphrodite, rising from the sea, I think I would turn back to reflect on that event and rather raise both hands and cheer. And if I came to realize that this rising out of the

> misty seas involved a long struggle of life renewed in the midst of its perpetual perishing, I might fall to my knees in praise. (Rolston 1992, 275-276)

Rolston seems to suggest that the choice is an either-or, but can't it be a both-and?

6 - PLANTING SOME SEEDS: SENTIOCENTRISM AND THE GOALS OF ENVIRONMENTALISM

The bulldozer and not the atomic bomb may turn out to be the most destructive invention of the 20th century.

– Philip Shabecoff, 1979

Three and a half million years separate the individual who left these footprints in the sands of Africa from the one who left them on the moon. A mere blink in the eye of evolution. Using his burgeoning intelligence, this most successful of all mammals has exploited the environment to produce food for an ever-increasing population. In spite of disasters when civilisations have over-reached themselves, that process has continued, indeed accelerated, even today. Now mankind is looking for food, not just on this planet but on others. Perhaps the time has now come to put that process into reverse. Instead of controlling the environment for the benefit of the population, perhaps it's time we control the population to allow the survival of the environment.

– David Attenborough, 2002

Abstract

In this final chapter, I advance the positive case for a sentiocentric approach to environmental ethics in terms of its support for the core goals of environmentalism, returning full circle to the discussion began in Chapter 1. I begin by arguing that a sentiocentric approach to environmental ethics not only clearly supports the goals of limiting pollution and limiting the size of the human population, but provides stronger support for these goals than does anthropocentrism. Then, I develop more detailed considerations of wilderness preservation and biodiversity conservation through a sentiocentric lens. I argue that sentiocentrism clearly supports wilderness preservation as habitat preservation. Also, biodiversity conservation finds broad support within a sentiocentric approach to the environment, and rather than oppose invasive species remediation, sentiocentrism generally supports it and provides reasons to avoid the future release of invasives. Third, I consider the interrelations between animal agriculture and environmental degradation, arguing that sentiocentrism is particularly well-situated to account for this primary source of many environmental harms. I conclude on a conciliatory note, arguing that concern for animals, in popular culture, conservation organizations, and in the work of prominent environmental ethicists, has been a large part of the motivation for environmentalism all along.

6.1 - INTRODUCTION

The previous two chapters considered and responded to various critiques which allege that sentiocentrism is incompatible with environmentalism or is inadequate as an environmental ethic. This final chapter ends this inquiry on a more positive note. I advance the affirmative case for a sentiocentric approach to environmental ethics by arguing that it provides ample support for the core goals of environmentalism discussed in Chapter 1: limit pollution of the air, water, and land; avoid human overpopulation; preserve wilderness; conserve biodiversity. I will argue that not only can we take the first step, we can go as far as needed to enlighten and explain our obligations regarding nature by appealing to the rights or interests of human and nonhuman animals, despite Sagoff's claim to the contrary that "moral obligations to nature cannot be enlightened or explained – one cannot take the first step – by appealing to the rights of animals…" (Sagoff 1984, 306).

I begin by arguing that a sentiocentric approach to environmental ethics clearly supports the goals of limiting pollution and limiting the size of the human population, and that sentiocentrism provides stronger support for these goals than does anthropocentrism. Then, I take sentiocentrism to task in support of wilderness preservation and biodiversity conservation in terms of habitat preservation. I argue further that sentiocentrism generally supports invasive species remediation and provides reasons to avoid their future release. Third, I consider the connections between animal agriculture and environmental degradation in light of the FAO's recent landmark study, arguing that sentiocentrism is particularly well-suited to account for this primary source of an array of serious environmental harms. Finally, I conclude on a conciliatory note, arguing that concern for animals, both in popular culture and in the work of prominent

environmental ethicists, has long been a part of the motivation for environmentalism, rather than being inimical to it.

6.2 - Pollution and Polluter Abatement

The first of two main goals of the environmental movement are (i) abating pollution of the air, water, and land and (ii) abating polluters themselves, i.e. avoiding human overpopulation. Sentiocentrism provides straightforward support for these core goals of environmentalism.

The environmental implications of a sentiocentric approach to ethics, which differentiate it from an anthropocentric approach to ethics, derive from the fact that sentient beings permeate the planet from all but the highest peaks to all but the deepest ocean trenches. Any sentiocentric ethic will hold that it is *prima facie* wrong to harm sentient beings, for doing so fails to take into account their morally considerable interests (2.4). Land, air, and water pollution have great potential to harm sentient creatures directly or indirectly.

Even unenlightened forms of anthropocentrism can recommend some degree of pollution abatement. Enlightened or prudential anthropocentrism, i.e. anthropocentrism which argues that the pragmatic purpose of environmental ethics is to justify social policies aimed at "protecting the earth's environment and remedying environmental degradation", surely provides greater support for pollution abatement than unenlightened versions (Brennan and Lo 2008).[1] Yet a sentiocentric approach to environmental arguably provides or has the potential to provide even greater support for these core goals of environmentalism for two reasons.

[1] This approach is common in political philosophy and environmental pragmatism. See Bookchin (1990), Shalit (1994), and Rawls (1999) for examples of the former, and Norton (1991) and Light and Katz (1996) for examples of the latter.

The first reason is that some sentient beings live in narrower ranges of environmental conditions or are more sensitive to pollution than humans. It is for this reason that workers once used canaries in coal mines to detect the release of methane and carbon monoxide. Canaries are more sensitive to these pollutants. Their deaths served as warning signs. Amphibian health has since served as a metaphorical canary in a coal mine, i.e. an indicator of ecosystem health, perhaps due to amphibians' permeable skin and varied lives: they live in water and land and are typically herbivorous and carnivorous during different parts of their life cycles (Vitt 1990).

The second reason is that there are so many more sentient beings than there are human beings. The potential for harm from pollution is greater – potentially by many orders of magnitude – when the interests of sentient beings are taken into account. The wrongness of environmental harms and their perceived urgency is augmented when more than humans are morally considerable.

Curbing human population growth is the second core goal of environmentalism. Sentiocentrism readily supports this goal as well. Population growth since the industrial revolution is truly astounding. The total human population grew from 1 billion to 7 billion during the period of 1800-2011. At the time of this writing, the total population is 7.022 billion according to the U.S. Census Bureau.[2]

This unprecedented population growth – and the resource footprint "sustaining" it –has occurred through systematic disregard of nonhuman forms of life. A 2002 study estimated that

[2] Thankfully, the rate of growth has been declining since peak growth in 1963 (U.S. Census Bureau 2010), and most projections have the population topping out at between 9 to 11 billion by the year 2040-2050 with most estimates arriving at a figure just over 9 billion. In 2004, the UN gave three projections for the population at the year 2100: 16 billion (high), 10 billion (medium), and 6 billion (low). Whether (and if so, how far) the population will fall after it peaks is anyone's guess. Hopefully the result is something better than a Malthusian catastrophe.

83% of the planet's total land surface is directly influenced by human activities, and this figure is 98% in areas where the three main grain crops – maize, rice, and wheat – are cultivable (Mayell 2002). Jeremy Rifkin sums up the somber state of affairs:

> [O]ur burgeoning population and urban way of life have been purchased at the expense of vast ecosystems and habitats. Cultural historian Elias Canetti once remarked that each of us is a king in a field of corpses. If we were to stop for a moment and reflect on the number of creatures and the amount of Earth's resources and materials we have expropriated and consumed in our lifetime, we would be appalled at the carnage and depletion used to secure our existence… our species now consumes nearly 40 per cent of the net primary production on Earth – the amount of solar energy converted to plant organic matter through photosynthesis – even though we make up only one half of 1 per cent of the animal biomass of the planet. This means less for other species to use. (Rifkin 2006)

Where some see "undeveloped" land fit for human development, a sentiocentrist sees the land as already inhabited. On any nonanthropocentric ethic, we've clearly taken more than our fair share of the world's resources. Through the effects of pollution, direct killing, and humanity's expanded and expanding footprint, wild animals have been burdened with many environmental harms with nary a benefit.

6.3 - Wilderness & Biodiversity Conservation

A sentiocentric approach to environmental ethics also supports wilderness preservation and biodiversity conservation. "Habitat" derives from the Latin for "it inhabits," which conveys the notion that habitat is the environment an organism lives in and which fulfills many functions essential to its well-being: food, water, shelter, nesting and resting areas, etc.

It goes without saying that all human and nonhuman animals need a place to live. Wildlife Habitat Canada puts the point quite succinctly: "Without habitat, there is no wildlife. It's that simple." Respecting animals' interests requires that we not harm them, which includes

respecting their habitat. This is the central focus of some environmental groups such as Defenders of Wildlife, the Nature Conservancy, and the World Wildlife Fund, already blurring the boundary between environmental conservation and animal protection groups.

Captive breeding programs of endangered species, while perhaps justified in some circumstances[3], are by themselves insufficient for species conservation because they address the symptom and not the cause. Anthropogenically endangered species almost always arrive at this plight through habitat elimination and encroachment by humans. Addressing these primary factors, including *further* introduction of invasives, is of paramount importance. Anything else is akin to continually trying to save people from a slow-burning apartment fire rather than extinguishing the fire itself.

Habitat elimination, fragmentation, and degradation are all serious concerns for sentiocentrists, a tide we ought to stem and reverse. Some environmental philosophers such as Eric Katz (1992) have argued against restoration of environmentally degraded areas on the grounds that the result will be an artifact of human creation, a fake devoid of the value the original possessed.[4] As Andrew Light notes, this has led some restoration ecologists to think that environmental philosophy is inimical to their work (2003). This is as unfortunate as it is unnecessary. Light and others offer philosophical accounts more congenial to habitat restoration. Sentiocentric approaches to ethics clearly support ecological restoration either in terms of their contributions to animal welfare – restored habitats better support sentient life than do degraded

[3] See Bryan Norton *et al.* (eds.)'s *Ethics on the Ark: Zoos, Animal Welfare, and Wildlife Conservation* (1996) for discussions of this issue.

[4] More plausibly, Robert Elliot (1982) argues that we may object to resource extraction such as strip mining even if corporations promise to restore the area to its previous state. Even assuming that humpty dumpty could be put back together again, Elliot argues that some value has been lost. However, Elliot does not argue that this means that we should not seek to restore previously degraded areas.

areas – or in terms of restorative justice – correcting for past intrusions into the lives of wild animals which have made them worse-off.

Sentiocentric ethics also provide support for the conservation of biological diversity, another core goal of environmentalism. Norton set the bar here quite low, merely requiring that an environmental ethic prohibit "wanton destruction of species" to be adequate (Norton 2003, 163). Clearly, for our own sake and that of other animals, we ought not wantonly "pop rivets on spaceship earth", to borrow the Ehrlichs' famous metaphor (1981).

Biological diversity or biodiversity – the variation of life at all levels of biological organization, including molecular, genetic, population, species, ecosystem levels – plays a role in habitat quality. In an analysis of marine biodiversity, Boris Worm *et al* found that recovery, stability, and water quality decrease exponentially as biodiversity declines, and restoring biodiversity increases productivity and stability (Worm 2006).[5] Water quality, food availability, and environmental stability are all relevant to animal welfare. Regardless of the particulars of sentiocentric theories, biodiversity is at least generally valuable in terms of direct and indirect benefits to animals.

It is sometimes argued that a sentiocentric approach to the environment is incompatible with the remediation of invasive species. Invasive species are nonnative species which reduce biodiversity, e.g. extinction of native species, hybridization with related native species, domination of ecosystems, and fostering disease.[6] There has been conflict at the level of practice

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[5] The relationship between biodiversity and ecological stability and fecundity is hotly contested empirical terrain.
[6] "Invasive species" has at least two meanings. The most common definition, and the current legal definition in the United States is "an alien species [i.e. "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem"] whose introduction does or is likely to cause economic or environmental harm or harm to human health" (Clinton 1999). A second, broader meaning

continued

as well. Animal protectionist groups and environmentalists have clashed when biodiversity conservation appears to conflict with animal welfare.[7] I will explore this controversy and argue that the alleged conflict between biodiversity conservation and sentiocentrist ethics is overstated because the two views converge in the vast majority of cases.

However, before moving on to discuss ethics and invasive species, a major caveat related to biodiversity and habitat preservation is in order. The threats to biodiversity are many. E.O. Wilson categorizes the threats under the acronym HIPPO: Habitat destruction, Invasive species, Pollution, human over-Population, and Overharvesting. What is common to such analyses is that the greatest threat to biodiversity is habitat loss caused by human activity, not invasive species.[8] According to the International Union for Conservation of Nature (IUCN), the top four "direct threats" to biodiversity are:

1. Residential and commercial development,
2. Agriculture and aquaculture,
3. Energy production and mining, and
4. Transportation and service corridors.

While invasive species factor in to some of these four threats indirectly, anthropogenic habitat elimination is by far the main cause. Preserving biodiversity for humans and other animals will

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includes the first, but includes native species that dominate an ecosystem beyond natural levels, typically due to the loss of natural controls, such as predator extermination. Examples of these native invasive species include deer in the Northeastern United States, the Southern Pine Beetle, and Water hyssop (*Bacopa monnerii*) in Hawaii, a native species which quickly covers mudflats, making it poor habitat for the endangered Hawaiian stilt. As Dan Simberloff *et al*. have found, introduced species are forty times more likely to turn invasive than are native species in the United States, and native species typically become invasive only when the local ecology is disturbed (2012).

[7] "Biodiversity" is quite the buzzword, and most people regard its preservation as a laudable goal. Yet oftentimes people fumble about when asked just why that's so. Conservationists tend to construe their view as scientifically objective, and the animal welfare view as overly emotional. The latter is curious considering that most animal ethicists are careful to articulate and rationally defend their views. The former is curious because, in fact, biodiversity conservation necessarily involves normative commitments, they just tend to be hidden.

[8] Or rather, according to the definition above, *Homo sapiens* is the most invasive species of all. It is far outside its native range and causes much biodiversity loss. The greatest threat to biodiversity is in the mirror, not the bush.

not be very effective if it doesn't address habitat elimination. Our attitudes, policies, and allocation of conservation resources should reflect this.

Accordingly, there is a tendency to overemphasize invasive species as threats to biodiversity. Perhaps we tend to do so because it externalizes blame, creates an identifiable "enemy" to be combated, and is more politically palatable than addressing anthropogenic habitat loss. It's as if we've taken the cake and then blame the mouse for taking crumbs which "rightfully belonged" to the wren. Furthermore, preventing habitat loss is readily under human control, whereas the eradication or remediation of invasive species is oftentimes extremely difficult and costly if not impossible to achieve.[9]

This caveat aside, how might a sentiocentrist approach the topic of invasive species management? One important distinction to draw is between species whose members are sentient species whose members are not sentient. Therefore, there are four types of cases:

1. Nonsentient invasive species which harm nonsentient native species.
2. Nonsentient invasive species which harm sentient native species.
3. Sentient invasive species which harm sentient native species.
4. Sentient invasive species which harm nonsentient native species. [10]

Of course, this is an ideal typology. Real cases are almost always more complex, but it will be helpful in structuring discussion.

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[9] As a case in point, consider Florida's campaign to eradicate the Burmese Python (*Python molurus bivittatus*), an invasive species which negatively impacts native fauna. The snakes were introduced by Floridians who kept them as pets and released them when they realized that they couldn't keep them. Arguably, they never should have been candidates for pets in the first place. 2009 was the first open python hunting season on state-managed land around the Everglades. Despite the low cost of permits and state-sponsored training in python hunting, zero pythons were reported as captured or killed. Approximately fifteen state-sanctioned snake experts continue the hunt, yet had captured and killed merely 52 pythons in the park as of 2010 (Skoloff 2010). This snake-cum-witch hunt has garnered disproportionate attention considering that 75% of Florida's wetlands have been drained and developed for human purposes. This should not be taken as downplaying the impacts of pythons on wildlife, which have been quite devastating, it is intended to put the problem in perspective.

[10] Degree of sentience is surely important as well, particularly in Type 3 cases, but I won't address this complication here.

Type 1 conflicts pose no problem for sentiocentrism. There is no conflict involving sentient organisms. We can manage invasive nonsentients as need be.

Type 2 conflicts are the most common. They are a serious concern for sentiocentrism and are readily accommodable by the approach. Nonsentient organisms are not morally considerable on a sentiocentric view. Nonsentient species, including plant, insect, and disease species cause the greatest damage to ecosystems of all introduced species. This is morally problematic on a sentiocentric approach because, intentionally or not, we introduced species which harm sentients directly or indirectly through the elimination or impoverishment of habitat.

Consider, for example, Giant Salvinia (*Salvinia molesta*), a floating aquatic fern native to Southeastern Brazil which according to the U.S. Army Corps of Engineers, is perhaps "the world's worst weed". It grows rapidly, reproducing every 2.2 days in ideal conditions, and forms incredibly dense mats, the largest of which was recorded at 96 square miles and 3 feet deep. These mats block sunlight, eliminating the submersed vegetation upon which many fish species depend. Decomposition of Giant Salvinia depletes available oxygen, which, combined with reduced gas exchange at the water's surface, cause stagnant waters, asphyxiating fish and impoverishing their habitat. Migratory birds may also be affected, flying over greenery, not noticing that it's really a waterway. The plant also creates ideal breeding conditions for mosquitoes (Donaldson 2002).[11]

[11] Melaleuca (also known as Paperbarks) a genus of plants endemic to Australia, are a similarly problematic invasive plant species. They were intentionally introduced to Florida and Hawaii to drain wetlands. It worked *too* well. The plant turned invasive, forming dense monocultures in and near the Everglades, replacing native species, particularly cypress, providing poorer animal habitat. Hydrilla is similarly problematic in Florida's waterways, outcompeting native species and providing poorer forage for manatees and other native marine animals.

Similar results follow when invasive insect species are involved. An example of this is the Balsam Wooly Adelgid (*Adelges piceae*), a small wingless insect native to Europe which feeds on firs. The Wooly Adelgid was introduced to the United States around 1900 and is now invasive. In the United States, Balsam and Fraser Firs have no resistance to the Adelgid. The Wooly Adelgid is impoverishing wildlife habitat in myriad ways across North America. Balsam Firs are a food source for moose, American red squirrels, crossbills, and chickadees. They also provide shelter for moose, snowshoe hares, white-tailed deer, ruffed grouse and other small mammals and songbirds. The Red Spruce and Fraser Fir forests of Southern Appalachia are the preferred habitat of the pygmy salamander, and are also home to several bird species, including black-capped chickadees, blackburnian warblers, brown creepers, golden-crowned kinglets, saw-whet owls, winter wrens, and many others besides.

Invasive disease species which directly or indirectly harm sentient organisms are also of this type. A very significant case is Chestnut Blight Fungus (*Cryphonectria parasitica*), which was introduced around 1900 and virtually wiped out American Chestnut forests all across the United States by 1940. American Chestnuts provided habitat for many species such as white-tailed deer and wild turkey. Also, they are prolific producers of nuts, and were an important food source for many animals. Another kind of case involves invasive mollusk species, such as the Zebra mollusk (*Dreissena polymorpha*). Typically introduced along with ballast water, these mollusks have destroyed Great Lakes ecosystems from the lowest trophic levels up and are very costly economically.[12]

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[12] Interestingly, invasive species can have benefits even despite the loss of biodiversity. A study by Thaddeus Graczyk at the Johns Hopkins School of Public Health concluded that Asian oysters "will really offer great ecological services, because they will remove particulates from the water. They will improve the water clarity" more

continued

Type 3 conflicts pose the greatest challenge for a sentiocentric approach to environmental ethics because parties "on both sides" have interests to take into account. Yet sentiocentrism is generally able to account for the problematic nature of such invasive species. However, sentiocentrists and conservationists may not agree on all cases.

A common kind of Type 3 conflict concerns invasive predator species. One such example is the Small Indian Mongoose (*Herpestes auropunctatus*) which was intentionally introduced to Hawaii to control the rat population.[13] As a generalized predator, the mongoose did not have the intended effect, preferring to eat native birds, which have no natural defenses to the new predator, and their eggs. The brown tree snake (*Boiga irregularis*) has had similarly devastating results on the island of Guam. Before its introduction, Guam had only two predator species, and the birds are completely defenseless to the introduced snake. Intervention in such cases seems to be an exception to predation generally. Typically, predator and prey evolve in relation to one another. Members of prey species are more able to succeed. In the case of invasive predators, killing is more indiscriminate, unbalanced, and unsustainable.

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than native oysters do (Pelton 2006). Asian oysters are better filterers of water pollutants than native oysters, grow faster, and are more resistant to disease than natives. They also grow faster and withstand disease better. The Chesapeake Bay has been plagued by dead zones with hypoxic water conditions caused by algal blooms due to eutrophication from agricultural, industrial, and residential runoff, particularly nitrogen and phosphorous. Overharvesting of native oysters for human consumption exacerbated this problem because it eliminated the Bay's natural filtration system. Releasing the Asian oyster into the Chesapeake Bay has been considered, although there are concerns with protozoan infections if humans eat them raw. Another interesting kind of case is where introduced nonsentient species contributes to animal welfare via the creation of new habitat. Here, nativist and sentiocentrist approaches might untwine. One possible case is the introduction of the Red Mangrove to Hawaii, which seems to provide enriched fish habitat compared to the rather barren beaches there previously.

[13] This case is often described as involving the species *Herpestes javanicus*, the Javan Mongoose. *H. javanicus* and *H. auropunctatus* are sometimes treated as the same species referred to as the Small Asian Mongoose (*H. auropunctatus)*. A recent study by Geraldine Veron *et al.* (2007) confirms that they are distinct clades. Those introduced to Hawaii and other tropical islands around the world for rodent and serpent control are of the *H. auropunctuatus* variety and not the *H. javanicus*, except possibly Hainan Island (Dan Simberloff 2012, pers. comm., 24 Jul.).

Another kind of Type 3 case is where a sentient invasive species outcompetes a native sentient species for food or habitat. For example, the feral goats of San Clemente Island in California threatened not just three endangered plant species, but also the San Clemente loggerhead shrike, which was pushed towards extinction due to the goats' disruption of its nesting habitat.

In Type 3 cases, relocation to their native habitat (or to captivity in the case of domesticated and feral species such as goats) is sometimes feasible and perhaps desirable. The Fund for Animals rescue program was able to relocate many goats in the San Clemente Island case. Where "win-win" solutions are unavailable or highly impractical, it may well be appropriate to manage or eradicate populations of invasive species just as it can be appropriate to manage deer populations through culling, given that we've eliminated natural predators (Varner 1998, 98-120).[14] Such cases not only reduce biodiversity on the island, but probably reduce aggregate and average animal welfare as well, and are best construed as cases where we are harming animals by proxy and hence ought to intervene. If Varner's arguments are correct, this could be justified on a rights view such as Regan's on the grounds that we ought to minimize rights violations.[15]

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[14] Of course, this ought to be done as painlessly as possible and with due care. In Australia, they proudly stomp and play cricket with the invasive Cane Toad (*Bufo marinus*). This hardly minimizes suffering or embodies proper attitudes towards such a creature.

[15] Feral cat populations have had similar effects on the Hawaiian Islands and elsewhere around the world. "Outside cat" populations number around 150 million in the United States worsen the problem (William 2009). Like other invasive predators, prey species did not evolve in relation to this predator species, and lack appropriate defense mechanisms. Catch, neuter, and release programs have so far proven unsuccessful for eliminating feral cats. Killing the cats is not a final solution either, due to the constant influx of lost and abandoned pets, but may be the least worst solution. The Humane Society used to advocate euthanizing feral cat populations out of concern for wild animal welfare, but has since caved to pressure from the no-kill wing of the animal protectionist movement (William 2009). In what appears to be a doubly misplaced sympathy, humans provide feral cats with food, artificially elevating their

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Type 4 conflicts are where sentiocentrist accounts would be most likely to part ways with conservationism. One example of this type of conflict is the Green Iguana (*Iguana iguana*) and Spiny-tailed Iguana (*Ctenosaura similis*) in Southern Florida. Iguanas feed on curacao bushes (*Cordia globosa*), an endangered native plant, and compete with the critically endangered Miami Butterfly (*Cyclargus thomasi bethunebakeri*), the only *C. thomasi* subspecies in the U.S., for food. The Miami Butterfly was once common, but is now incredibly rare due to urban development. Too many have taken their talents to South Beach. Iguanas may also compete with the Florida Burrowing Owl (*Athene cunicularia*) and the Gopher Tortoise (*Gopherus polyphemus*) for burrows. However, the real cause of population decline in all of the above species is habitat destruction (and motor vehicle accidents in the case of the Gopher Tortoise), not iguanas. W.H. Kern, Jr. of the University of Florida thinks that one reasonable iguana management strategy is simply to tolerate them and "learn to appreciate these exotic creatures" (Kern 2004).[16]

In summary, sentiocentrism provides ample support for the preservation of wilderness areas and the conservation of biodiversity, including general support for invasive species remediation. While invasive species containment, control, and eradication is supported in most cases by sentiocentrism, these measures are all extremely costly. While we probably ought to mitigate many present cases, for our own sakes and values and those of other animals, greater efforts need to be dedicated to *preventing* invasions from occurring in the first place. As goes the old adage, an ounce of prevention is worth a pound of cure. Current legislation concerning

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numbers, and relying on animal products which have been created in a fashion which reduces total welfare and causes harm.

[16] Weak sentiocentrists may judge the noninstrumental value of the irreplaceable species to outweigh the interests or rights of the iguanas, or may regard iguanas' interests as more significant.

nonnative species introduction in the United States is piecemeal and takes a "black-list" approach: innocent until proven guilty. This is clearly ineffective because each species introduction is a roll of the dice. While it would be a major endeavor, the U.S. should probably move to a "white-list" approach – guilty until proven innocent – as recently proposed by the National Invasive Species Council (1999), and has been entertained in some state legislatures since then. This idea has proved to be politically controversial because special interest groups such as the pet and botanical industries oppose the move, arguably placing their own discretionary recreational interests over the common good.

6.4 - The Cattle in the Room

I will now discuss a particular strength of a sentiocentric approach to environmental ethics that ties this all together. This strength is how sentiocentrism generally regards the long shadow which livestock casts on the planet, which is a cause of a vast array of environmental harms from pollution to climate change, from wilderness elimination to biodiversity reduction. Dating back to at least ancient Greece in the Western tradition, some philosophers have advocated vegetarianism due to the moral considerability of animals (Dombrowski, 1984). More recently, vegetarianism has found an ecological grounding. Francis Moore Lappe's *Diet for a Small Planet* (1971) exposed a wide audience to the ecological and humanitarian arguments for vegetarianism based on its increased efficiency and reduced environmental impact.[17]

[17] See also John Lawrence Hill's *The Case for Vegetarianism: Philosophy for a Small Planet* (1996) for a more rigorous argument to the same effect.

Curiously, many environmentalists organizations and environmental ethicists were slow to the trough. Perhaps this was because many environmentalists, including Aldo Leopold, favored hunting and viewed domesticated animals with "indifference" (Callicott 1982), suggesting conventional attitudes towards nonhuman animals. Callicott and Katz regarded domesticated animals as artifacts, akin to "tables and chairs" (Callicott 1982). Katz went so far as to say the following:

> The vast majority of cases involving domesticated animals - the morality of factory farming, for example - are in a realm of substantive ethics completely removed from the concerns of an environmental ethic. (Katz 1983, 87)

It is bizarre that an environmental ethicist would miss the connections between industrialized methods of food production, facts about entropy and trophic levels, the connections between our instrumentalization of animal life and of the land, and environmental ethics. Both are part and parcel of a world view of dominion over nonhuman life. The moral concerns raised by factory farming are not "completely removed" from the concerns of an environmental ethic, they are quite interconnected. Caged Animal Feeding Operations and animal agriculture generally should be of central concern to an environmental ethic because the livestock sector is one of the main causes of most environmental harms of our era, and growth indicators in the developing world suggest that this will only get worse.

Steve Best notes that it wasn't until the first decade of the 20th century that the importance of the livestock problem for the environment gained widespread recognition by scientists, governments, and prominent environmental organizations such as the Sierra Club (Best 2009). This culminated in the United Nations' Food and Agricultural Organization (FAO)

landmark report *Livestock's Long Shadow: Environmental Issues and Options* (2006).[18] The study identified the livestock sector's negative impact on nearly every major environmental problem confronting us today. In no uncertain terms, the main conclusion of the study was that:

> The livestock sector emerges as *one of the top two or three most significant contributors to the most serious environmental problems*, *at every scale from local to global*. The findings of this report suggest that it should be a major policy focus when dealing with problems of land degradation, climate change and air pollution, water shortage and water pollution and loss of biodiversity. (FAO 2006, xx, e.a.)

The livestock sector is the single largest anthropogenic land use by far. Direct grazing accounts for 26% of the ice-free terrestrial land on the planet. In addition, 33% of arable land is dedicated to feed crop production. All told, livestock production accounts for 70% of arable land and 30% of the planet's terrestrial surface. 70% of deforested land in the Amazon is now pasture, and feed crops cover "a large part of the remainder". 20% of the world's pastures and ranges are degraded, primarily due to overgrazing.

Livestock are protein factories in reverse, producing less protein than they consume (Lappé 1971). It takes 6 kilograms of plant protein to produce just one kilograms of animal protein (Pimentel 1997). Cornell ecologist Roger Pimentel estimated that the U.S. could feed 800 million people with the grain its livestock eat annually (Pimentel 1997). A meat-based diet has a much larger land footprint than a vegetarian diet. In a study of 42 different diets and their corresponding land footprints in the state of New York, Christian Peters found that "a person following a low-fat vegetarian diet, for example, will need less than half (0.44) an acre per person per year to produce their food" and a the typical American "high-fat diet with a lot of meat, on the other hand, needs 2.11 acres" (Science Daily, 2007).

[18] Except where otherwise noted, figures in this section are drawn exclusively from the executive summary (FAO 2007, xx-xxiii). Each issue is covered in far depth in the body of the 416 page report, which is available online.

Livestock are also a main consumer and polluter of water. The livestock sector accounts for 8% of water consumption. Due to the release of animal wastes, antibiotics and hormones, fertilizers and pesticides for feed crops, chemicals from tanneries, and sedimentation from eroded pastures, the livestock sector is:

> probably the largest sectoral source of water pollution, contributing to eutrophication, 'dead' zones in coastal areas, degradation of coral reefs, human health problems, emergence of antibiotic resistance and many others. (FAO 2006, xxii)

Livestock are a source of a host of other pollutants. While global figures are unavailable, in the United States, the world's 4th largest landmass, the livestock sector is responsible for 37% of pesticide use, 50% of antibiotic use, 55% of erosion and sedimentation, and 33% of nitrogen and phosphorus emitted into freshwater. Making matters worse, livestock compact soil and degrade the banks of waterways, resulting in the desertification of floodplains and reduced replenishment of freshwater aquifers.

The livestock sector is responsible for 18% of anthropogenic greenhouse gas emissions in CO2 equivalent, which is a higher share than the transportation sector. The livestock sector is responsible for 9% of CO2 emissions, 37% of methane emissions (methane has 23 times the global warming potential (GWP) of CO2) and 65% of nitrous oxide emissions (N2O has 296 times the GWP of CO2). Add to this the fact that livestock are responsible for 64% of anthropogenic ammonia emissions, a major contributor to acid rain and the subsequent acidification of ecosystems.

Biodiversity is impacted as well. Livestock numbers have quadrupled in the last half century, and now make up approximately 20% of the terrestrial animal biomass. That bears repeating: one fifth of the planet's animal mass exists to satisfy humans' discretionary preference for flesh. Extinction rates are at 50-500 times the background rate. 15 of 24 important ecosystem

services are declining. According to the World Wildlife Fund, livestock were reported as a threat to 306 of the 825 terrestrial eco-regions. Conservation International reports that 23 of the world's 35 biodiversity hotspots are negatively affected by livestock.

In summary, the livestock sector is one of the top two or three causes of most serious environmental problems. Individually, this would be significant enough, but taken together, the livestock sector stands out as perhaps *the* most significant cause of the full panoply of environmental problems, from pollution and climate change, erosion and aquifer depletion, to the loss of biodiversity and wildlands. Of course, prototypical environmental ethics are primarily worried about the environmental damage of animal agriculture whereas animal ethics are typically more concerned for agricultural animals. However, a sentiocentric ethic takes into account the negative harms on domesticated and wild animals *and* the degradation of so many ecosystems and their services necessary to support sentient life and well-being. This suggests synergy rather than conflict on such an important issue. Our dietary and other lifestyle choices have costs largely born by animals and future generations. By advocating a vegetarian or vegan diet, as animal ethicists often do, a sentiocentric ethic endorses a diet with a substantially lower environmental impact than the status quo.[19] Due to its strong and longstanding critique of animal agriculture, a sentiocentric approach to environmental ethics is well-suited to address one of the main causes of most environmental problems of our time.

[19] For discussions of the interconnected themes of diet, animal welfare, and the environment, see Martin Rowe's *The Way of Compassion: Vegetarianism, Environmentalism, Animal Advocacy and Social Justice* (2000).

6.5 - Were Animals and Environmentalism Ever Really Apart?

A common narrative in the environmental ethics canon is one of conflict and incompatibility with animal ethics. While this makes for good press, it obscures a deeper sense in which the two are deeply intertwined. There has always been an intimate connection between concern for animals and environmentalism. In fact, concern for animals appears to be a strongly motivating reason for environmentalism. This suggest that animal ethics had a limb in the door of environmental ethics all along. It bears briefly reflecting on this fact by way of a conclusion.

Rachel Carson's *Silent Spring* (1962) was a major catalyst for the environmental movement. Her thesis was that the widespread use of pesticides, particularly DDT, harms and kills humans and other animals, particularly birds. The title is meant to suggest an absence of bird song in the spring due to their pesticide-induced death, and was inspired by a line in the poem "La Belle Dame sans Merci" by John Keats: "The sedge is wither'd from the lake, And no birds sing" (Coates 2005, 654). I ask the reader to consider what it was about *Silent Spring* that had such a resounding impact on the public imagination.

Consider another example. In a controversial and influential article, "Saving People versus Saving Nature," Holmes Rolston considers the objection to environmentalism that "you wouldn't let the Ethiopians starve to save some butterfly, would you?" Rolston argues that "when natural values at stake are quite high and the opportunities for human development are low, then humans are not obligated to prioritize human lives and well-being over natural values" (Rolston 2002, 451-463). However, the two examples he cites as examples where natural values should win out over people are of highly sentient animals of endangered species: black rhinoceros and tigers. He mentions other endangered species in the same habitats which would

benefit from protection the rhinoceros and tigers, all of them sentient animals: the sloth bear, the pygmy hog, the swamp deer, the black buck, the Asian rock python, and the gharial crocodile. Elsewhere he mentions spotted owls, toucans, and howler monkeys. He notes that the World Health Organization's "People First, Nature Second" policy is a policy that leave the world without tigers and rhinos.

But never does Rolston argue or even suggest that protecting a rare plant, insect, or protozoan species should be prioritized over human lives. The reader is left wondering whether he would let Ethiopians starve to save a species of butterfly; he never argues that we should, despite opening with that very dilemma. Similarly, Bryan Norton lamented that environmentalists drew public attention to an endangered plant species which was threatened by dam construction because it weakened popular support for the environmentalism (Norton 1992, 71-94).

There is also the notion of flagship species, which are species chosen to represent a particular environmental cause, such as a particular kind of environmental problem or a particular ecosystem or type of ecosystem in peril. An example of the former is the plight of polar bears due to climate change. An example of the latter is the giant panda for the bamboo forests in the Qinling Mountains and Sichuan province of Central-Western and South-Western China. Flagship species are specifically chosen to engender support for that particular cause from the public. The World Wildlife Fund (WWF) now focuses its efforts exclusively on a select few priority species, and specifically mentions flagship species. All of the WWF's high-priority, flagship species are sentient animals, and most are highly sentient vertebrates (World Wildlife Fund 2010).

An example closer to home is the Porcupine Caribou (*Rangifer tarandus granti*), the largest herd of which has calving grounds in Alaska's Arctic National Wildlife Refuge (ANWR) and Northwestern Canada. I suspect that mere plants would not have stopped our lust for oil. Without the caribou, oil development would surely have began in ANWR in the early 1990's under President George H.W. Bush.[20]

Furthermore, when we scratch the surface of many self-described biodiversity conservation organizations, such as the Royal Society for the Protection of Birds (RSPB), we find more than meets the eye. The RSPB claims to be a biodiversity conservation group "driven by a passionate belief that we all have a responsibility to protect birds and the environment" (Royal Society 2010a) and specifically claims *not* to be concerned with animal welfare issues (Royal Society 2010b).

However, a closer examination seems to reveal something different. There is a curious token-type ambiguity at play between individual animals and the species they comprise. Is RSPB's passion just for Birds (species) or is it for birds (individuals) too? RSPB's website has substantial content dedicated to issues such as "wildlife-friendly gardening," which is gardening to provide habitat and food sources, and "helping birds" by providing food and water, nest boxes and roof habitats, orphaned baby bird care, how to reduce window-strikes, etc.

While these practices surely make minor contributions to biodiversity, they seem to be much more strongly motivated by concern for the animals themselves. Assuming a species is

[20] Speaking in 1991 about the Alaskan pipeline, President George H.W. Bush spoke angrily against environmentalists' opposition to the pipeline. The most humorous passage is the following: "If you're worried about caribou, take a look at the arguments that were used about the pipeline. They'd say the caribou would be extinct. You've got to shake them away with a stick. They're all making love lying up against the pipeline and you got thousands of caribou up there." Excerpts from the speech can be seen in the National Film Board of Canada's documentary, *Being Caribou*, written and directed by Leanne Allison and Diana Wilson.

common – a species categorized as Least Concern by the International Union for the Conservation of Nature (IUCN) – the contribution to genetic, population, and ecosystem diversity of rearing an orphaned baby bird for release is at best a drop in a very large bucket if not completely insignificant. Clearly something else is doing the real work here.

I wish to raise a few questions in light of the above points. Would Carson's book have been less influential if it concerned the impact of pesticides on wild grasses, not birds? Why did Rolston in effect argue that nature should win out over humans when "nature" takes the form of a rhinoceros or a tiger? Why are flagship species almost always "charismatic" vertebrates? Why do biodiversity conservation organizations attempt to distance themselves from animal welfare considerations, yet at the same time appeal to them and seek to contribute to them?

While part of this concern is surely aesthetic – bird *song* – I suggest that a large part of the answer to these questions is that we already regard sentient nonhuman animals in nature as meriting special concern. They are a strong motivating reason for environmentalism in the public at large, even though this concern is selectively deployed. The widespread moral and political outcry over the harmful effects of the recent BP oil spill in the Gulf of Mexico on seabirds and marine mammals reinforces the point. I do not mean to suggest that the fact that we do value these creatures is a reason for why we ought to, but rather that our intuitions about nature and wild animals never were so disparate. Michael Soulé argued that conservation and animal welfare are conceptually distinct and should remain separate in practice (Soulé 1985, 371). This has not nor ought to be the case. The two are too deeply intertwined.

CONCLUSION AND FUTURE DIRECTIONS

I am glad I will not be young in a future without wilderness.
– Aldo Leopold

SUMMARY

In this work I have defended a sentiocentric approach to environmental ethics. I began with a history of the development of animal ethics and environmental ethics and their alleged inconsistency with an eye to clarifying the debate. I argued that we should avoid the errors of defining "animal ethics" and "environmental ethics" too narrowly and too broadly, instead understanding them in terms of their core pragmatic implications supported by intra-field consensus, and a thinly normative commitment of each: environmental ethics accounts for environmental value which transcends the environment's use-value for humans, and animal ethics accounts for the direct moral standing of some animals.

I then considered how far moral considerability should be extended beyond human beings, given that anthropocentrism is no longer tenable, arguing in favor of the more austere nonanthropocentric individualist option, sentiocentrism, and against the more expansive option, biocentrism. I argued that biocentrism cannot bridge the good-ought gap (the normativity problem) and is either committed to the anti-egalitarian idea that an entity's origin is relevant to its moral standing (the origin problem), or to the moral standing of all autopoetic beings, which is not independently plausible. I defended two arguments in favor of a sentiocentric notion of moral considerability. These arguments include plausible ought-premises, avoiding the normativity problem, and depend on the entities' capacities, not origins, avoiding the origin problem.

Having argued for the "why" of sentience, I then fleshed out the "what" of sentience by giving an analogical argument for animal sentience taking into account the latest available evidence I argued that the evidence for sentience in mammals, birds, and herpetofauna is

overwhelming, and is sufficiently strong for fish. I then evaluated the prospects of sentience in the far more diverse invertebrates, arguing that cephalopods are surely sentient and that decapod crustaceans are likely to be sentient. There is some suggestive evidence for some arachnids and social insects, and evidence is increasingly dubious for "lower" invertebrates.

Next, I examined the alleged anti-environmental implications of sentiocentrism. These criticisms claim that sentiocentrism is either incompatible with environmentalism or an inadequate account of environmentalism. I diagnosed a common theme to the incompatibility critiques, which is to assume that sentiocentrism requires (i) a hedonistic value theory, and (ii) holds value maximization or a strong view of entitlement rights as normative commitments. I contended that this theme construes sentiocentrism too narrowly. I then distinguished strong sentiocentrism, which focuses on the interests of wild nonhuman animals in deciding environmental questions, from weak sentiocentrism, which takes into account additional environment-regarding values, including aesthetic, recreational, and intellectual values, and deployed the latter in response to two inadequacy objections. I argued that these objections assume an overly narrow conception of environmental ethics. Even so, a weak sentiocentrism is able to account for these additional concerns of environmental philosophers.

I then developed an analogy between the problem of evil in philosophy of religion and the problem of wild animal suffering in ethics to explore the alleged inconsistency of sentiocentrism and environmental ethics. I argued against the view that we ought to eliminate all possible suffering (the heretical conclusion), and considered four pragmatic evasions of the heretical conclusion, finding some merit to each. I then considered two lines of principled responses, the first analogous to the free will defense to the problem of evil, making an

axiological argument transcending hedonism, the second analogous to deontological responses to the problem of evil, constraining the scope of moral obligation. I argued that these axiological and deontological responses are complementary (and superior) to the pragmatic responses, yet there is a "residue" of suffering for which they have no answer. I argued that both allow or require some meddling in nature, yet these interventions are fairly limited and similar to those advocated by some environmentalists and hence should be no cause for alarm.

Finally, I advanced the positive case for a sentiocentric approach to environmental ethics in terms of its support for the core goals of environmentalism. I argued that sentiocentrism not only supports the goals of limiting pollution and limiting the size of the human population, but provides stronger support for these goals than does anthropocentrism. I then argued that sentiocentrism supports wilderness preservation and biodiversity conservation, and is particularly well-suited to account for the many harms in animal agriculture. I concluded on a conciliatory note, arguing that concern for animals has been a catalyst for environmentalism all along.

FUTURE DIRECTIONS

Along the way, some paths were left incompletely explored, some stones left largely unturned. While I have defended a sentiocentric approach to environmental ethics, I have not fully defended each of the views which I argued populate this workspace. Much work remains for future consideration.

One such area is the weak sentiocentrism which I began to analyze and defend (4.4). While I attempted to clarify the views of Jamieson and Rollin, the metaethics and normative principles which might explain and justify such a view have not been fully fleshed out. In

particular, such weak sentiocentrists argue that noninstrumental values can be promoted even at the cost of the morally considerable in some circumstances, yet neither Jamieson nor Rollin developed when, exactly, these circumstances obtain, nor its rationale, leaving the view full of promise, yet insufficiently defended and action-guiding at present.

A second area for further work is the free will defense (5.5). I showed that many animal ethicists think that there is something to the idea that we should respect wild animals' liberty or autonomy, but the value theory that would explain or justify this is unclear, and how these details bear on actual cases is not fully worked out. Lori Gruen's "wild dignity" and the interplay between Tom Regan's duties of justice and beneficence is incomplete but promising. Is the free will defense compatible with welfarism? Is it just a proxy for desire-satisfaction or hedonist theories of well-being or is it better understood as an objective list view of well-being? Is only an account of animal well-being involved, or is it a mixed judgment, also involving the value of autonomy of nature generally or associated aesthetic values? How do we adjudicate between respecting liberty and developing a positive relationship with nature and its inhabitants?

A third concern is whether the framing of the tension between animal ethics and environmental ethics is sufficiently forward-looking. I have largely concerned myself with the question of whether a sentiocentric ethic is compatible with a preservationist environmental ethic, whether an account of our obligations with respect to sentient beings can adequately support the normative commitment and core goals of environmentalism, especially the protection wilderness and biodiversity. This is understandable because the main tradition of environmental philosophy, particularly in the United States, has the preservation of wild nature at its core, and it is from this philosophical and historical tradition that the critique of animal liberation was

developed. Yet we are now in or entering the Anthropocene epoch. Directly and indirectly, the mark of humanity on the planet is nearing completion. If it is true that "in wilderness lies the preservation of the world"[1], what use are a preservationist environmentalism or a laissez-faire sentiocentrism for a world without wilderness, a world at "the end of nature" (McKibben 1996)?

I am not so skeptical or hopeless. Lamenting what has been lost is not the only course.[2] For better or worse, we are now playing God, and need a moral vision to light the path we cut through the wilderness and the world we create in its shadow, lest we amble about in darkness. Yet this world will not be created *ex nihilo*, it will be created out of what's left of nature's splendor, guided by our needs and values. If there is anything to what I have argued herein, part of this vision surely includes respect for animals as they are, balanced by compassion for their shared predicament on this earth, a plight for which we are increasingly responsible.

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[1] Aldo Leopold attributed this to Thoreau in *A Sand County Almanac* when writing "Perhaps this is behind Thoreau's dictum: In wildness is the salvation of the world." While perhaps a more quotable quote, it is a misquotation of Thoreau. What Thoreau actually said in "Walking" was: "The West of which I speak is but another name for the Wild; and what I have been preparing to say is, that in Wildness is the preservation of the world" (Thoreau 1862).

[2] Paul Wapner's recent book, *Living Through the End of Nature: The Future of American Environmentalism* is a helpful starting point for thinking through environmentalism in our brave new world. Wapner laments the boundary we have breached with nature, yet argues that combining elements of environmentalist's "dream of naturalism" and the postnaturalists' "dream of mastery" has the potential to yield a sustainable future which does justice to both dreams: "All living and nonliving entities on earth are a mélange. We are so intermixed and mutually constituting that although we are different entities, one cannot disaggregate the human from the nonhuman, nor imagine their fates as separate" (Wapner 2010, 210).

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VITA

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