

## NECESSARY ANTHROPOCENTRISM

Neil A. Manson

Many environmental philosophers maintain that eliminating anthropocentric thinking is the key to developing an ethical system protective of the environment. Some critics respond with a *reductio ad absurdum*. They identify the completely non-anthropocentric perspective with the long-term planetary perspective and argue that, from that perspective, the environmental destruction we are currently wreaking amounts to only incidental damage. Over the upcoming several billion years, life will go on in some form or another. Eliminating anthropocentrism thus yields an attitude of environmental unconcern.

In this paper I seek to develop an analogous *reductio* by identifying the non-anthropocentric perspective with the cosmic perspective. Recent findings regarding extra-solar planets indicate that the universe is teeming with possible abodes for life, while both theoretical and observational cosmology suggest that spacetime is infinite. Assuming spacetime is infinite, either life exists at only one location or it exists in an infinite number of locations. If the former, then it seems our top priority should be to spread life throughout the galaxy, both in order to increase the raw amount and diversity of life, and to decrease the chances of a catastrophic setback to the development of complex life. If the latter, then the raw amount of life in the universe is infinite, and the degree of biodiversity is maximal. Thus nothing we do will have any significant effect on the amount of life or degree of biodiversity in existence, and so there is no reason to protect non-human life or preserve biodiversity on Earth – if we take the cosmic perspective on what it is for our actions to be significant. The only way to block these

unwelcome conclusions, I will argue, is to reject the premise that anthropocentric thinking must be eliminated if we are to protect the environment. After presenting my argument, I will state two objections and offer my replies.

## I. THE PLANETARY PERSPECTIVE

To be anthropocentric is to regard human beings as of primary importance in the grand scheme of reality. If being ethical requires that we not be anthropocentric, then what should we be instead? To answer “non-anthropocentric” is not to give much real guidance. For our limited minds to reason at all, we must adopt some perspective or other. One standard offering – perhaps the dominant offering in environmental philosophy today – is the perspective of the Earth as a whole. Deep ecologists, biocentrists, land ethicists, environmental holists – whatever the label, all share the belief that taking the planetary perspective is the key to following an environmental ethic.

The problem with taking the planetary perspective is that from it, massive environmental damage within the next few centuries can be written off as just a blip on the screen. Suppose we cook and poison the planet, dramatically reducing biodiversity as a result (and perhaps destroying ourselves too). The result many millions of years later would be a biosphere re-set to a different equilibrium, but one with life and biodiversity comparable to that of the planet prior to our degradation of it. To say the biosphere as it is here and now is more valuable than the future one is to be guilty of “temporal parochialism,” to borrow a term from Callicott.

Considering our time as but an infinitesimal moment in the three and one-half billion year tenure of life on planet Earth, the present tendency of man to extirpate and eventually extinguish other species and take over their habitats for himself and his domesticated symbionts might be viewed quite disinterestedly as but a brief transitional stage in the Earth's evolutionary odyssey. Non-human life will go on even under the worst possible anthropogenic destructive scenario presently conceivable, novel species will radiate anew, and novel ecosystems will mature. The new Age (of Insects, perhaps) will eventually be just as diverse, orderly, harmonious, and stable, and thus no less good than our current ecosystem with its present complement of species. [Callicott 303-4]

From this observation William Grey [463] concludes that “the grand perspective of evolutionary biology provides a *reductio ad absurdum* of the cluster of non-anthropocentric ethics which can be found under the label ‘deep ecology’.”

There have been far more traumatic disruptions to the planet than any we can initiate. From a long-term planetary perspective, [claiming human activity is driving the ecosystem towards collapse] is alarmist nonsense....From a planetary perspective, we may be entering a phase of mass extinction of the magnitude of the Cretaceous. For planet Earth that is just another incident in a four and a half billion year saga. Life will go on – in some guise or other. [Grey 468]

From these and similar considerations, Grey concludes [473] that “the attempt to provide a genuinely non-anthropocentric set of values seems to be a hopeless quest.”

## II. RECENT WORK IN COSMOLOGY AND EXOPLANET SCIENCE

Callicott and Grey saw that, given we take the planetary perspective, the projected lifetime of the Earth worked to diminish the importance of the here and now. It did so by expanding radically the relevant time scales of evaluation. Recent discoveries in both cosmology and exoplanet science expand both temporal and spatial scales even more so.

Let us begin with the work in exoplanet science – work that has generated enormous public interest. The discovery of the first extrasolar planet around a Sun-like star was announced in October 1995. Since that time hundreds of other extrasolar planets have been identified, mostly by detecting Doppler shifts in the light emanating from the orbited star. Most of the planets identified have been gas giants, but very recently astronomers have identified a rocky, Earth-like planet, Gliese 581 E, that is only 1.9 times the mass of Earth. Although it sits close to the star it orbits, a neighboring planet, Gliese 581 D, resides in the “habitable zone” that permits liquid water. Outside of the habitable zone, water exists either as a gas or a solid; neither state is conducive to the formation of life. Astronomer Geoffrey Marcy said the discovery of Gliese 581 E “shows that nature makes such small planets, probably in large numbers; surely the galaxy contains tens of billions of planets like the small, Earth-mass one announced here” [Quinn]. Astrophysicist Alan Boss has estimated that each Sun-like star has one Earth-

like planet on average [BBC News]. “Not only are they probably habitable but they probably are also going to be inhabited,” he claimed.

Inflationary cosmology in general predicts a universe much larger than the observable universe, which itself is thought to contain well over ten sextillion ( $10^{22}$ ) stars. By the estimate of Alan Guth, the physicist who came up with the idea of cosmic inflation, the universe is approximately a thousand sextillion ( $10^{24}$ ) times larger than the part of it we can currently observe. Given the ubiquity of Earth-like planets, it seems there are a staggering number of chances for life to form elsewhere in reality – certainly enough chances for the probability to be vanishingly small that only Earth harbors life. But the chances of life forming elsewhere may be even higher. Recent data from the WMAP (Wilkinson Microwave Anisotropy Probe) indicate our universe is infinite, though the interpretation of this evidence is controversial [Muir]. These data are no surprise to many theoretical cosmologists; on many versions of inflationary cosmology, the universe is predicted to be infinite [Knobe, Olum, and Vilenkin].

### III. THE PROBABILITY OF ABIOGENESIS

Now it might seem to follow from these considerations that life exists either in an extremely large number of places in the universe or in an infinite number of places. Yet this conclusion cannot be drawn unless we know the probability of abiogenesis – the probability of a natural origination of life from nonlife. Consider an arbitrary Earth-like planet occupying an orbit in the habitable zone around a Sun-like star. There are three options regarding what the probability is of abiogenesis on such a planet: zero,

infinitesimal, or some finite positive probability. If the probability of abiogenesis is zero, then a natural origination of life is physically impossible, and so the existence of life on Earth (or anywhere else in the universe) is a bona fide miracle. While some Intelligent Design theorists might welcome this idea, I think we can safely ignore it for the purposes of this discussion.

An infinitesimal probability would be a probability greater than zero but less than any real number greater than zero. Some mathematicians think infinitesimal probabilities make sense, though I am on the side of philosophers Timothy and Lydia McGrew in thinking that they do not (McGrew and McGrew 441-2). Let us suppose they do make sense, and let us suppose that the probability of abiogenesis is infinitesimal. Then even in an infinite universe with an infinite number of Earth-like planets occupying the habitable zone around a Sun-like star, we should expect abiogenesis on only one planet. [If abiogenesis happened more than once in an infinite universe, it would follow that the probability of abiogenesis was not, in fact, infinitesimal, though I will not attempt to prove that here.] Since we would be living on that planet, we might wonder what the philosophical and ethical implications are for us.

If Earth really is the only planet on which life arose, it seems to me we have an obligation to get off of it. This is less because our continued presence on it is unsustainable and more because putting all of our eggs in Basket Earth is fairly reckless. Various disaster scenarios, including but not limited to an asteroid collision, threaten to destroy human civilization and to reset the ecosystem back to a quite primitive stage. Some argue that

the Precautionary Principle demands we develop asteroid-destroying or asteroid-deflecting technologies so as to ward off this threat [Rubin]. A better strategy, it seems to me, is to colonize space, thus providing life numerous additional chances to survive and flourish. In the long run, it also seems to be the best way to increase biodiversity. In any case, I think the idea that the probability of abiogenesis is infinitesimal is pretty strange. The probability of abiogenesis may be extraordinarily low – we currently have no good account of abiogenesis – but there is a vast difference between an extraordinarily low probability and an infinitesimal probability. The former is well-defined mathematically. The latter is mathematical esoterica of dubious coherence.

If the probability of abiogenesis on an Earth-like planet has some finite positive probability, then how many times should we expect complex life to arise in our universe? If the universe is infinite, then we should expect complex life to have arisen an infinite number of times. If the universe is tremendously large but still finite, then we will have to weigh the improbability of abiogenesis – to repeat, a number we really don't know – against the tremendously large number of chances there are for abiogenesis. The estimates of the probability of abiogenesis vary widely. Complexity theorists such as Stuart Kauffman think it likely that life will emerge wherever the conditions for self-organized complexity are met and that the universe abounds with such locations [Kauffman Chapter 2]. Others think it exceedingly unlikely that *all* the necessary conditions for complex life to arise on an Earth-like planet are met; too many happy accidents (having the right kind of moon, having gas giants in the outer part of the solar system) are necessary [Conway Morris 340-3]. It is quite possible that the probability of

abiogenesis is so low that even with the vast number of opportunities a vast-but-finite universe provides, it would still be unlikely that abiogenesis would happen anywhere. Given our current state of knowledge, we just cannot say.

#### IV. THE ARGUMENT

Let us focus for the remainder of this paper on the possibility that the universe is infinite and that the probability of abiogenesis on an Earth-like planet has some finite positive probability. In that case it is certain that complex life arises an infinite number of times. What are the consequences of this for the non-anthropocentrist? I presumed earlier that it is impossible to take no perspective whatsoever, so that if we are forbidden from reasoning morally from an anthropocentric perspective, we must adopt some alternate perspective. Callicott and Grey considered the consequences of taking the planetary perspective and found those consequences were not at all favorable to the conclusions non-anthropocentrists typically wish to draw.

Taking the cosmic perspective only makes things worse. Following the reasoning of Callicott and Grey, it seems we have no reason whatsoever to be concerned with the state of the Earth. No matter what we do, life flourishes elsewhere in the universe. We cannot affect the overall amount of it, nor can we effect a decrease in the overall levels of the various properties non-anthropocentrists value: biodiversity, interrelatedness, and so on. True, alien life does not possess the properties of being experienced by humans, of being genetically related to us, and so on, but if we are truly non-anthropocentric, we should not think these properties are morally relevant. To modify Callicott's terms slightly, we are

guilty of spatiotemporal parochialism if we think spatiotemporal proximity to the planet Earth in the early 21st century makes some lives and some ecosystems more important than others. No, if the universe has an infinite amount of life in it, then what we do to the life here on Earth makes no ultimate difference. We can seek to preserve it if we like, but by doing so we are not fulfilling any obligation to the cosmos; we are merely satisfying our own partisan preferences.

The solution to this problem is to readmit anthropocentrism into our ethical systems. But the anthropocentrism must be of the right sort to do the job. Let us distinguish two kinds of anthropocentrism: “abstract property anthropocentrism” vs. “causal/historical property anthropocentrism.” The first sort of anthropocentrism picks out abstract properties displayed by humans – reason, free will, a capacity for entering into moral communities – and either mistakenly claims only humans possess them or mistakenly thinks those properties mean only humans deserve moral consideration. Adopting abstract property anthropocentrism leaves unsolved the problem articulated in this paper. If the universe is infinite and the abstract properties in question – reason, free will, a capacity for entering into moral communities – are natural ones with a finite probability of arising on an Earth-like planet, then those properties are tokened an infinite number of times in the universe. In that case, all of the arguments against being concerned about the fate of living creatures here on Earth apply *mutatis mutandis* against being concerned about the fate of rational, free, moral creatures here on Earth. In both cases, the infinitude of the universe guarantees that the favored properties will be displayed in abundance somewhere in reality. Nothing we do can diminish the overall extent to which those properties are

displayed, so the abstract property anthropocentrist has no more basis than does the non-anthropocentrist for taking care of things here on Earth.

The causal/historical property anthropocentrist, on the other hand, picks out as special various causal/historical properties – for example, the property of being a member of the species *homo sapiens* – rather than abstract properties such as reason or freedom. Lack of these properties would make alien life irrelevant to our moral deliberations. Note that philosophers of biology think perfect physical duplicates of us that did not share our evolutionary history would not be members of the species *homo sapiens*, since they think species are individuated in part by their histories. “If we discovered that other planets possess life forms that arose independently of life on earth, those alien organisms would be placed into new species, regardless of how closely they resembled terrestrial forms,” says Elliott Sober [Sober 151]. “Martian tigers would not be tigers, even if they were striped and carnivorous.” This observation puts in a new light Peter Singer’s allegation that most humans are guilty of “speciesism.” For the causal/historical property anthropocentrist, the fact that an organism is a member of *our species*, sharing *our history*, is morally relevant, and the fact that alien life does not share this history reduces (if not eliminates) its moral relevance to us, no matter how many value-conferring abstract properties it shares with us. Let us give a handier label to this sort of anthropocentrist and call him a “crude speciesist.”

I suggest the only way to solve the problem articulated in this paper is to readmit somehow crude speciesism into our thinking about the environment. Otherwise, if there is

an infinite amount of life of all forms in the universe, then we have no basis for concern about the long-term fate of the life on *this particular* planet. Whether a deep concern for the environment can be squared with crude speciesism is a topic for another paper.

## V. TWO OBJECTIONS, AND REPLIES

Objection 1: *We must think globally but act locally; we can do the most good for the collective, for the universe as a whole, if we focus on preserving the life it is within our power to preserve – the life that exists on Earth here and now.*

Reply: This would be an excellent response if we were dealing with a finite system. For example, if all we are concerned with is maximizing human welfare here on Earth, it makes excellent sense for each person to focus his or her efforts on people nearby rather than unfamiliar people in remote countries (assuming both sorts of people are equally in need of help). With greater knowledge of local conditions comes greater power to bring about meaningful improvement, so the best way to maximize overall human welfare might be for each actor to seek to maximize local human welfare. In an infinite universe with an infinite amount of life, however, talk of maximization makes no sense. We can neither add to nor subtract from an infinite total.

This marks an important philosophical distinction between the objection to non-anthropocentrism of Callicott and Grey and the objection that I am proposing. Even though from the perspective of geologic time what happens on Earth over the next several

hundred years is not very significant, it still makes some quantifiable difference. The Earth itself has not been around forever and will not last forever. Eventually the Sun will die out and the Earth will become a frozen, dead planet. Hence the overall amount of biotic good displayed on Earth during its existence, while perhaps vast in comparison to the amount of biotic good displayed on Earth during the next few centuries, is still only finite. If we think there is some obligation to maximize the biotic good, and if we think the Earth is the only location for biotic good, then the propinquity of biotic good is quite plausibly a relevant factor guiding our actions. But if we are in a universe with an infinite amount of life, the idea of acting so as to maximize the biotic good makes no sense, and so propinquity is not a relevant factor.

Objection 2: *Non-human life is intrinsically valuable; our duties to it are not conditional on how things go outside of it. Thus what happens elsewhere in spacetime is not morally relevant to our treatment of non-human life here and now.*

Reply: This objection proves too much. If what happens elsewhere in spacetime is not morally relevant, then neither is what happens on this planet in the long term. If non-human life is intrinsically valuable and we have duties towards it, then consequentialist reasoning is not appropriate when deciding how to treat it. Yet the standard non-anthropocentric prescription concerning the environment is that we should act so as to mitigate the long-term effects of our actions on the environment. We are urged to think ahead of time of our effects on the biosphere as a whole. The non-anthropocentric cannot have it both ways here. She cannot urge us to expand our horizons beyond our short-term

concerns here on Earth, then complain when the person who grasps the real significance within the cosmos of Earth's life disregards that life due to its cosmic insignificance.

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