

The Moral Value of Biodiversity

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The article considers how the preservation of biodiversity is morally justified in some of the key texts on environmental ethics, i.e. whether or not biodiversity can be justified as a moral end in itself. The views are classified according to the criteria which they hold to be the ultimate moral beneficiaries; positions are named as anthropocentrism, biocentrism and ecocentrism. In general, they are not in favor of regarding biodiversity as intrinsically valuable, but think its moral value as derivative. This means that the myriad characters of life on Earth are to be maintained as diverse because of their instrumental value for the constituents. It seems that Naess's deep ecology is the only major position that argues for biodiversity's intrinsic value, but this view has proved to be problematic.

The major source of the recent interest in diversity of life on earth, arises from an uncomfortable perception of a rapid decline, largely due to human activities. I look at the issue of biodiversity from a moral point of view and address the question: "Why should we fundamentally change our conduct and attempt to preserve biodiversity?" By "biodiversity" I mean broadly, following the Rio Convention on Biodiversity, diversity within species, between species and ecosystems. I assume that none of these components can be ignored in any adequate policy of preservation; for the intelligibility of preserving biodiversity stems from the whole.

I present a critical study on an ethical basis of biodiversity preservation in the light of some key presentations on environmental ethics. The other subsequential interest is more practical: What kind of policies can we formulate on the basis of different considerations about the moral significance of biodiversity? The evaluation is based on the idea of biodiversity given above; the more efficiently a policy protects biodiversity, the better it is. The other criterion, not touched upon here, would be about just distribution of environmental goods and services between humans.

I form three major moral outlooks on the basis of what are fundamental beneficiaries of our moral concern—anthropocentrism, biocentrism and ecocentrism—and clarify how the ethical treatment of these relates to the aims of preserving biodiversity. Most outlooks do not regard biodiversity as morally valuable in itself. In that sense, they are right; the idea of biodiversity as a moral end in itself is rather peculiar and ambiguous, and it is difficult to perceive what it would mean as an ultimate normative ideal.

INSTRUMENTAL AND INTRINSIC VALUES

There is no doubt about the usefulness of genetic, biological and ecological variety in nature, and we can imagine the potential practicality of those parts which are not currently used. In other words, diversity in nature is of some *instrumental value* in advancing human interests and well-being, either now or in the fu-

ture. As a part of this—though less accurate—is the worry about the unpredictable risks that biological impoverishment could mean for the continuous dynamic functioning of the biospheric system. Therefore, the anthropocentric rationale for not destroying biodiversity, locally or globally, is not easily denied: evidently, we have a *prima facie* reason *not* to destroy biodiversity wantonly, and it seems impossible to find any reasonable argument for decreasing biodiversity without referring to utility gained from the annihilation of some parts of it.

So, what is the problem with these arguments? Lawton, for example, points out the shortcomings of the instrumentalist argument: "The argument that we must conserve species because they might be useful is an argument that lacks a soul. It is both sensible and true, but it has no spirit, no human dimension. It is the argument of technocrats. [—] If utility becomes the main argument, the case for biological conservation is greatly weakened" (1). Lawton brings out the issue of the noninstrumental significance of biodiversity. Despite the intuition supporting points of Lawton's claim, it is much less evident whether such an abstraction as biodiversity is *morally* an end in itself, that is, of intrinsic value. Without entering deeply into meta-ethical considerations, to say that a thing is of intrinsic value means that in justifying morally its preservation one does not need to refer to any other duties or values in a justificatory sense; thus, it is an object of immediate moral concern. The activity that leads to continuous existence of biodiversity has in itself an adequate purpose based on the result. Then the principle that one should protect biodiversity is an *ultimate* moral principle if we are moral monists, or *one of the nonreducible* moral principles, if we hold to moral pluralism. (We can approach the question of noninstrumental value of biodiversity from other perspectives than moral, such as aesthetic, but I shall not consider these alternate perspectives here.)

One of the tasks of ethics is to discover or to invent what intrinsically valuable things there are in this world. As Aristotle and many others after him have asserted, there must be some things that are valuable in themselves because, if that is not the case, we would confront an endless regression where one instrumental value is justified with another instrumental value (2, 3). Then the question is, what is the locus, or what are the loci, of noninstrumental value making other things instrumentally valuable? More specifically, is there natural richness among these intrinsically valuable things?

It is customary to distinguish between anthropocentrism and nonanthropocentrism. The anthropocentric doctrine holds that the restrictions in our dealings with nature are derived from the duties we owe to other humans; we ought to preserve biodiversity because doing otherwise would harm humanity. The nonanthropocentric view defends that nonhuman beings (individualism) or biotic systems (ecocentrism) themselves are morally significant.

Despite the underlying differences in fundamental moral and nonmoral beliefs, one may come to notice that the gap between these philosophies is not necessarily insurmountable in practice, and an environmental policy can be constructed both upon an anthropocentric and a nonanthropocentric basis (4). Both can generate similar norms regarding the preservation of biodiversity

but, as we shall see, the prospects for building and imposing successful policies vary.

ANTHROPOCENTRIC VIEWS

Anthropocentrism denies that biodiversity could be of ultimate moral value, in addition to it being instrumentally valuable for us. But, to defend an anthropocentric position does not imply utter disregard for the biodiversity issue. If biodiversity is not a good in itself, how is it valuable to humans?

Many environmental philosophers have differentiated various kinds of anthropocentrism. Perhaps the most widely recognized conceptualization so far was proposed by Norton. He distinguishes between strong and weak anthropocentrism (5). The distinction is grounded on considerations about the quality of preferences people have. Strong anthropocentrism is based on a robustly subjectivist theory of value, defining values and human well-being merely in terms of fulfilment of people's preferences, regarded as given, as actual. Norton labels these preferences as 'merely felt preferences'. Weak anthropocentrism, which Norton himself defends, is a more objectivist view on human well-being and its constitutive elements, e.g. preferences, and according to which these preferences can be assessed critically and based on careful deliberation. In Norton's discourse, these are 'considered felt preferences'.

What is of intrinsic value according to strong anthropocentrism is the state of mind having satisfied preferences; that is of instrumental value which serves to fulfil these actual preferences. Biodiversity is of value as much as it *tends to fulfil actual human preferences*; its treatment depends and *may morally depend* solely on this matter. The success of preservation is conditional to the fact of how people happen to value the items of which biodiversity is composed. Thus, the content of preferences are normatively unqualified. This conception is often fused with the economic theory of capitalism, which regards individual humans as naturally self-interested entities pursuing the fulfilment of their preferences in the market (6).

Practically, the point of departure is to identify the driving force(s) behind human activity which generate loss of biodiversity. The problem lies in wrong institutional structures and in the lack of proper incentives for diversity protection and maintaining use of resources. Swanson applies this idea to the biodiversity issue and writes that development occurring in natural areas is not inconsistent with preserving its variability. He suggests that the protection of biodiversity results from (the right kind of) use of these resources: "Constructive utilization of the resources in natural habitats can act to provide the incentive to keep them." He stresses that "there are no alternatives, other than the exhaustion of this ancient resource". The policy of preservation of variety occurs by means of commercialization of natural habitats and populations "for the purposes of harvesting or generating greater productivity" (7).

Virtually, this promotes such projects like ecotourism, gathering of herbal substances, and grazing wild animals. Consider the debate on African elephants. During the period 1989–1997 the international community made profitable management of elephants impossible by banning trade with elephant products. However, the advocates of commercialization argue that this species would exist in viable populations by means of making it a marketable commodity again, i.e. by grazing and culling it under certain social conditions, where property rights to individual animals were recognized. Advocates claim that prohibition of the utilization of the animals does not bring the preservationist aim any closer, but the best policy would be such that the local people, or certain individuals among them, would have an *incentive* to graze and to cull those animals while they accomplish their private preferences and help their clients to accomplish theirs. When a person values elephants and wants to encounter

a wild elephant or to purchase elephant products, he/she expresses his/her demand in the market making it advantageous to somebody to supply this demand. Hence, the interest satisfaction could coincide with the continuous existence of elephant populations.

Weak anthropocentrism is a view claiming that we are to adopt an objective view on human good, which includes as a constitutive element the existence of the world as composed of diverging things, as biologically complicated. Besides the function of satisfying basic human needs, biodiversity contributes to the realization of human ideals and to the development of one's personality; there is no need to postulate an intrinsic value to biodiversity. Whereas subjectivism of strong anthropocentrism foils the appraisal of the moral quality of preferences, weak anthropocentrism is clearly normative in claiming that humans *should not have such preferences that are inconsistent with the preservationist goals*. In that sense, weak anthropocentrism provides us with standards for criticism regarding people's preferences. It is objectively better satisfaction to meet a living than a stuffed elephant (3, 5–9).

The consideration of preferences as nonequal implies a possibility of overriding the inferior for the more important ones. For example, the existence of elephants contributes to human well-being, the world without this species would be less good for humans than the world with elephants. So, it should be ensured that the elephant will survive, and if this aim requires the rejection of any lesser preference, so be it.

Because the conception of well-being is determined, this makes possible the use of multiple measures leading to the goal; these can be conducted by the state, by nongovernmental organizations and by individuals. A typical strategy can be found from the early environmental movement, where a central role was given to the state and its task was to save wilderness areas and single species which were claimed to belong to nation's cultural heritage, and thus symbolically significant to all members of a nation, including the deceased and posterity (new terms such as 'nation's park' and 'national park' were coined). Therefore, what the state was to do was to establish nature preservation areas and to prohibit the hunting of protected species.

Will the protection of biodiversity occur successfully and adequately through its large-scale commercialization or are the prospects better in noncommercial version of anthropocentrism? Is it morally right to regard natural things merely as objects of commerce? While recognizing the primacy of the latter question, I shall deal here only with the former.

Intuitively, Swanson's view has at least one good aspect: people *may have* a straightforward motive, based on self-interest, to ensure the existence of natural variety for future purposes, and it is against their self-interest that things are otherwise; but this works only under the assumption that the agent's self-interest will be met in nondepleting use. If it does not, or if people show no interest in biodiversity protection, there is no ground for criticizing people's interests—because of their equal significance (10). In some cases commercialization could work but, generally, I think the *extension* and the *quality* of preservation concern in this respect are not adequate. There are both practical and political problems.

First of all, it is very difficult to extend this policy, realistically considered, to those parts of biodiversity which do not immediately attract human interest. Usually, biodiversity has been diminished for human purposes, therefore, it has to be proven that the contrary would be *more* lucrative. But how can this be done within the subjectivist assumptions? Most species will never be directly useful to humans. On the contrary, most species are useless and some harmful. Strong anthropocentrists may answer this objection by claiming that the value of species not directly utilizable arises from them being supportive for those kinds which are directly useful. But this is not entirely a satis-

factory answer. Biodiversity is classified into categories of directly useful, indirectly useful, and useless. However, this makes long-term preservation more difficult. People are more likely to preserve profitable parts of biodiversity at the cost of the nonprofitable ones. Within a single species, this leads to attempts to alter the genetic basis of organisms for the purpose of yield maximization, and this can jeopardize the efforts to preserve the genetic variability within a species.

Secondly, although strong anthropocentrism does not necessarily emphasize the need for private ownership to replace traditional local economies (11), its more conservative defenders endorse enlargement of property rights over those areas and things that may be presently outside this arrangement (e.g. patents in genetic resources), and to the cultures where they are unknown. Otherwise, it would be rather pointless to construct any significant incentives for efficient use of these resources (12). The policy of privatizing the commons and stressing one economic system as universally superior to others is not only politically doubtful, it can be a threat to different cultures and lifestyles and, thus, indirectly to biodiversity because ecological variation coexists with varying local habits (13).

Weak anthropocentrism has a better chance to carry out successful preservationist policies than strong anthropocentrism, because it explicitly *obliges* us to regard biodiversity seriously and to construct social structures that help to pursue its preservation. Individual preferences can be subordinated to this higher aim. This view has at least one major problem, which I will not try to solve here: On what grounds can we make statements about people's true interests? If we were sure about them, the next step would be to pay attention to people's moral education. How can we convince people about those 'true interests'? What would be a proper role for the state in assisting people to realize their true good? One generally recognized aspect in biodiversity preservation is different from traditional nature preservationism; some biodiversity has resulted from human practice, and thus to establish designated wilderness areas is no longer a proper standard-solution model.

BIOCENTRIC INDIVIDUALISM

Biocentric individualism holds that *in addition to humans* some or all individual organisms are, morally, considerable beings in themselves. In general, this stance is critical towards all kinds of anthropocentric theories. According to it, the basis of preservation of biodiversity springs from the fact that various modes of life are dependent upon each other and how the extinction of one species affects others, at worst fostering their extinction too.

One of the main doctrines in biocentric individualism is about moral irrelevance of species boundaries; only individuals are of intrinsic value. Contrary views are labeled as "speciesist" meaning that the interests of morally equal beings are ignored or belittled unjustly because of their species. Roughly, there are two kinds of biocentric individualism: sentientism and conativism.

According to the most prominent advocates of sentientism, Singer (14) and Regan (15), all sentient nonhuman animals are morally considerable beings. To be sentient is to be able to feel pleasure and pain; and this capacity is the criterion for being morally considerable. The sentientists assert that in justifying the moral judgment that it is wrong to inflict suffering and any other unnecessary harm to them we do not need to refer to the obligations we owe to other humans. Torturing a cat is morally wrong because of what it is for the cat. Both Singer and Regan adhere to the egalitarian idea that "all animals are equal."

Whereas the animal rightists defend all sentient animals, conativism enlarges the moral community more and includes nonsentient organisms. Attfield bases his theory on the idea about the nature of organisms seeking for their own good and main-

taining their own life (16–18). A living being has conative capacity; thus the label conativism (19). In Attfield's view of morality, what counts is whether a being is capable of being harmed or benefitted, and only those beings can be harmed or benefitted which have interests or conative capacity. When these beings meet their interests, they flourish. The intrinsic value of living beings is realized in their flourishing. The value is nonderivative in kind, and it outlaws the differential treatment of organisms when it is based, merely on their species membership. However, the significance of organisms, Attfield clarifies, varies with their capacities (16). Thus, the species membership is morally irrelevant to some extent, as Attfield says, or completely irrelevant, as egalitarians assert, when a decision is to be made about the treatment of an organism.

Also Attfield is of the opinion that diversity in nature has merely instrumental value. Because the interests of nonhuman and even nonsentient beings are morally considerable, they have to be taken into consideration and one should recognize how human activity affects nonhuman organisms. But the diversity of species is valuable in virtue of what it practically is to all sorts of living organisms, and the device not to diminish biodiversity is reducible to the obligation not to harm individual organisms: "diversity is valuable by making our lives, and those of our fellow-creatures, fuller and richer, without being of value in itself" (16). Biodiversity is not such a thing that has interests, therefore, its value can be merely derivative. Sentientism justifies biodiversity preservation in the same way as conativism. How to tackle biodiversity from the biocentric viewpoint?

It has been suggested that egalitarianism undermines *active* preservation policies, because it puts too much emphasis on the uniqueness and irreplaceability of individual organisms. This is a hotly discussed topic in environmental ethics (20), and it seems that to protect endangered species actively, and to allow "therapeutic hunting" is at odds with the egalitarian doctrine of biocentric individualism. This was one of the central claims in Callicott's polemical article "Animal Liberation: A Triangular Affair". Species preservation requires holistic moral thinking in which different species are of different value and this value depends on their impact on the stability of the biotic community (21). Equally pugnacious is Regan's response: he rejects Callicott's view as "environmental fascism", since it recommends sacrifice of individual animals for the interest of a community (15).

Can we bridge the gap between individualism and holism? Individualists may count species indirectly, by considering how the absence of a population in an ecosystem affects the well-being of other populations. Thus, biocentric individualism, generally, supports species preservation *to some extent and with certain methods*, although it deems species membership morally irrelevant. The policy they adopt may also emphasize the importance of human nonactivity, i.e. that we should not support members of a certain species at the cost of other species; Regan recommends that it is better to let them be and Taylor suggests a "hands off" policy (15, 18).

However, it is plausible that certain animal populations, like those of the elephant, may multiply naturally to the extent that they finally exceed the carrying capacity of the area, if no human interference takes place. Human interference may also be required to maintain some habitats, for instance, meadows. To find out what human actions are appropriate in different situations with respect to our choices of value, we need empirical knowledge about history and the functioning of ecosystems, though this knowledge in itself does not solve the ethical problems in our choices. Another tricky issue for individualists, particularly for sentientists, is whether organisms may be captured in order to preserve their kind or whether it is an unjustified violation of the basic moral principle of letting them be.

Biological diversity is only an indirect concern for some spe-

cific individualists, and the intensity of the worry about biodiversity varies. Individualism might weaken biodiversity protection possibilities, not only to the extent that it favors individuality over holism, but also to the extent that it promotes "hands off" policy.

ECOCENTRIC HOLISM

As a response to the problems individualism faces in species preservation—there are other reasons for problems too—some environmental philosophers adhere to ecocentric holism. Ecocentric holism is broadly defined as a view which puts moral emphasis on ecological nonindividual entities, like species, ecosystems, or the biosphere, or on the processes which promote and maintain those entities. They maintain that *what are ultimately of moral concern are "the wholes"*, and moral considerability of their constituents is reducible to them. Ecocentric holism seems to be the only option left to defend the intrinsic value of biodiversity, including the intrinsic value of those parts of it which are inorganic. However, not all holists defend the idea of biodiversity as intrinsically valuable.

In Elliot's characterization of ecocentric holism the basis of biodiversity preservation is derivative: "We should worry [about species] not because of what this implies for its individual members or even for the species itself but because the extinction runs counter to the goal of maintaining the biosphere or ecosystems." (22) This is confirmed by e.g. Rolston: "Diversity is not, however, *ipso facto* a value." (23) Rolston is largely inspired from Leopold's views, which are akin to Elliot's characterization.

The main notion in Leopold's theory is 'the land', which does not refer merely to the soil but to complex interactive relationships between animate beings and inanimate forces and structures. The land is stratified in the form of a biotic pyramid, and each layer of it is in contact with another through the fountain of energy, coming from the sun and flowing upward. Leopold states that "velocity and character of the upward flow of energy depend on the complex structure of the plant and animal community [—]. Without this complexity normal circulation would presumably not occur." Natural evolutionary changes have elaborated the flow mechanism and, thus, lengthened the circuit of energy on the Earth. The more there is diversity and complex relationships between different kinds of organisms, the longer the energy stays here and contributes to the continuance of the evolutionary process, and, hence, brings about more diversity. A healthy land is such which has capacity for self-renewal (24). What humans are to do is to protect the good of the biotic community which consists of integrity, stability and beauty. Callicott suggests that "the good of the biotic community is the ultimate measure of the moral value, the rightness or wrongness, of actions" (21).

The value of diversity is in how it is incorporated into these good states of affair. To determine to what extent the good of a biotic community requires diversity is partly an empirical issue. We may also suppose that an ecosystem is more integrated, stable and beautiful if it has more variety. How much and of what quality of diversity does the continuance of ecological and evolutionary process need? Does diversity correlate with stability? (25). What is the role of humans according to it? In answer to this last question Leopold has been interpreted as stressing noninterference as a rule of thumb, because we do not know enough about functions of ecosystems; so it is better to behave minimally (26).

After contemplating several positions in environmental ethics there is one stance left which maintains that biodiversity is a morally worthwhile end in itself. It is the *deep ecology*, developed by Naess. Two of Naess's basic ideas are that "the flourishing of human and non-human life on Earth has intrinsic value", and that "richness and diversity of life forms are values

in themselves and contribute to the flourishing of human and non-human life on Earth" (27, 28). These two ideas are interrelated and are among the basic values in the value theory of deep ecology. Axiologically, it is a pluralist view. In addition, these two ideas support the idea of biocentric equality, meaning that "all organisms and entities in the ecosphere, as parts of the interrelated whole, are equal in intrinsic worth" (28).

How to justify the value-assumption? Because of the equality assumption, does deep ecology face similar predicaments with biodiversity preservation as individualistic views? Do simpler ecosystems require less attention than the more heterogeneous ecosystems?

In order to answer the first question we have to enter into meta-ethical considerations, because the justification of this proposition is not derivable, but has to be justified as an ultimate principle. Deep ecology bases the value assumption on intuition; it is a self-evident moral fact that a world of more species and more diversity is better than a world with less diversity. This means the value of biodiversity is a matter that "cannot be fully grasped intellectually" but is "ultimately experiential" (28). Neither Naess nor his American supporters attempt to determine the position of this fundamental moral principle among other intrinsic values.

It is no a big surprise, after all, to note that systematic environmental philosophy in general does not argue for the intrinsic value of biodiversity. Compare it with political philosophy. Plurality of political and moral views is sometimes considered to be better than the alternative of only one morality. There are various reasons to prefer plurality but, ultimately, most of them are derivative. On the one hand, the value of plurality arises from an assumption that since we do not know the elements of the good life, we should exclude no option, because any exclusion would decrease our chances to find out the correct conception of the *ultimate* good. This resembles the instrumental argument for biodiversity preservation discussed previously. But, on the other hand, were plurality the ultimate value, it could justify many practices and ideologies that are often regarded as morally erroneous. How much plurality should a system tolerate to be a pluralist system? Analogously, the diversity of living beings has value mainly as it contributes to realizing the ultimate good in a world, and that good is for individualists the well-being of moral subjects, and for holists the good of "the whole". Whether the analogy applies to the latter case is more controversial. Some instances of biodiversity, like some viruses, are harmful to humans and to other organisms. If we consider biodiversity valuable as such, then we should undoubtedly allow malignant organisms to exist and, perhaps, to flourish; their human-caused extinction does not match with our fundamental moral obligation.

If we view diversity as an ultimate moral value, we face a puzzling situation in environmental preservation, as well as in political liberalism, whether to allow those components of total diversity to flourish which constitute a threat to continuous existence and are likely to decrease total diversity. A deep ecologist may answer that diversity is not an unequivocal, nonoverridable consideration but, as on many occasions in human ethics, those things that are of intrinsic value must be sacrificed for the sake of some other, hierarchically equal, intrinsic value (28). But any suggestion like this seems to contradict the egalitarian doctrine to which deep ecology also adheres since it calls for paying special attention to some beings because of their species.

The third aspect of ecocentric which stresses "the wholes" has been less often acknowledged although it is a part of the idea of biodiversity, namely diversity *among* ecosystems. Ecosystems vary in respect of the biotic and abiotic elements they contain. Consider the contrast between the Amazon Basin and the Sahara Desert. Though we tend to emphasize the importance of the former, its value does not invariably outweigh that of the latter:

both of them are constituents in global diversity and nonexistence of either of them would impoverish this aspect of diversity. If ecocentrism suggests that the poor habitats should be replaced by the richer ones, it may have unexpected implications in justifying the decline of the diversity of ecosystems. We face a question relating to the right combination of different kinds of ecosystems on earth.

CONCLUDING REMARKS

In dealing with the biodiversity issue, no political strategy should be overemphasized at the cost of others. Real-life solutions require a great deal of flexibility and deliberation case by case. This is largely due to the uncapturable and the undecidable nature of biodiversity; its continuous maintenance cannot be condensed into one principle. The ethics of preserving biodiversity consists of taking into account every discernible level of diversity—individuals, species, ecosystems. We need an adequate moral decision-making process which contemplates the issue as a whole. Conflicts on these instances are inevitable, and choices have to be made; this would make the moral idea of intrinsic value of biodiversity rather indeterminate. Its value is different in kind; it can, possibly, be of intrinsic value in some other sense but not in an ultimate, ethical sense. This conclusion accords with the view of a great majority of environmental ethicists. Is this a defect for environmental ethics? I think not. Both anthropocentrists and biocentrists hold to a sensible view of protection of biodiversity, which arises from concern in life of most fundamental beneficiaries of morality. In that reasoning, biodiversity deserves preservation, in virtue of what it is for morally considerable beings, regardless of whether they are humans or nonhumans, and what it is for the natural system. It is not the thing "biodiversity" that is of ultimate moral value, but its various constituents. The variety is significant for them because they are sentient, conscious or conative beings who are affected by the existence or nonexistence of other species. For them biodiversity is an abstraction, deprived of all the organic features that make discussions about their well-being intelligible. This conclusion does not undermine in any way the importance of protection of biodiversity: there are many reasons, of which some are not purely anthropocentric, for its preservation and hardly any to defend its large-scale destruction (29).

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