

## ARTICLE

## An Ecological Argument for Vegetarianism

1. To the prudential, humanitarian, utilitarian, and deontological arguments for vegetarianism, I would like to add an ecological argument.<sup>1</sup> I will suppose, for the sake of argument, that healthy ecosystems are of value, that the value of an ecosystem is positively related to its degree of health, and that at least part of this value is independent of the interests of human and other sentient beings. This is not to deny that human interests and sentient experiences have value, but to affirm that the value of a healthy ecosystem does not rest entirely upon these other values.

The following argument is thus hypothetical in form. If one accepts the independent value of healthy ecosystems, then one must accept the prescription to become a vegetarian. The antecedent is controversial. Kantians and hedonistic utilitarians will not accord the required value to ecosystems, whereas W. D. Ross's formalism and G. E. Moore's idealistic utilitarianism are compatible with this value. Rather than repeat the arguments here, I refer the reader to the appropriate literature<sup>2</sup> and move on to the vegetarian implications of believing that healthy ecosystems are intrinsically good.

The "vegetarian implication" that I endorse in the present paper is limited, but nonetheless of great practical significance. Except for those relatively few people whose health would be endangered by vegetarianism, members of industrial societies have an absolute duty, as opposed to a merely *prima facie* duty, to adopt a diet that does not include the meat of animals that have been deliberately raised for food, nor of animals

acquired through the hunting methods employed almost universally in industrial societies. This would be a diet without MacDonald's hamburgers, without ground meat, or steak or chicken or pork from the grocery store, without Kentucky Fried Chicken, and without pepperoni or sausage or ham on one's pizza, to mention but a few of the ways in which the prescribed diet differs from that of most Americans. The implications of the argument are thus considerable. But the argument falls short of prescribing anything at all for some people (traditional hunter-gatherers and those with special dietary problems), and does not prescribe strict vegetarianism for anyone (because strict vegetarianism excludes eating even the small quantities of fish that may be acquired through ecologically benign fishing). In these respects, the argument is like the utilitarian argument for vegetarianism. Yet, as in the case of the utilitarian argument, the argument presented here prescribes so many dietary changes in the direction of vegetarianism for so many of our society's omnivores, that it is not unreasonably labeled an argument for vegetarianism.

2. If healthy ecosystems are of value, and the value of an ecosystem is positively related to its health, then, according to both ethical theories that are compatible with this value, one has a moral reason to avoid needlessly impairing the health of any ecosystem. To do so is to diminish the good, which runs afoul of both the formalist duty of nonmaleficence and the (ideal) utilitarian duty to maximize the good. The same theories endorse repairing the damage one has done to an ecosystem's health.

Formalism includes a duty of reparation, and repairing damage would, all other things being equal, maximize the good. Further, one ought, when possible, to promote or improve the health of ecosystems. This accords with both the formalist duty of beneficence and the utilitarian duty to maximize the good.

However, the value of healthy ecosystems is just one among many values. So on either ethical theory, the duties to avoid harming, to repair damage and to improve the health of ecosystems are only *prima facie*. They apply when all other things are equal.

This may suggest to some people that these duties are overridden whenever they call for behavior that the agent finds inconvenient or irksome. But such a view ignores the distinction between moral and prudential obligations. A moral obligation is affected by and responsive to considerations relating not only to the agent, but to at least some other beings as well. A purely prudential obligation, by contrast, is affected by and responsive to considerations relating to the agent alone. The slightest inconvenience to the agent could override an obligation only if no weight is accorded to considerations relating to others, which is to say, only if the obligation in question is prudential rather than moral. Any *prima facie* moral obligation requires more, if it is to be overridden, than the slightest inconvenience to the agent. Since the obligations to refrain from harming, to repair harm done, and to promote the health of ecosystems are moral obligations, they cannot be overridden by the slightest inconvenience to the agent.

3. One way that people can reduce their negative impact upon, and promote the health of ecosystems is by becoming vegetarians (of the

sort mentioned earlier). Less cultivation is needed to feed vegetarians than omnivores because the animals eaten by omnivores must themselves be fed by vegetation grown on the land. But most of the nutritional value of this vegetation is used by the animals for their own bodies' maintenance. So people who eat plants instead of feeding them to animals can feed themselves by growing fewer plants and cultivating less land.<sup>3</sup>

The cultivation of land is almost universally detrimental to an ecosystem's health. One ecosystem is healthier than another if it has a greater ability to regenerate itself. In the words of Aldo Leopold, "Health is the capacity of the land for self-renewal."<sup>4</sup> The surface of the Moon and Parmenides' One are paradigm cases of non-ecosystems. They include neither generation nor regeneration. Central Illinois is typical of land under cultivation. A few species, such as human beings, corn and soybeans are overrepresented, while the general diversity of species is very small (compared to a wilderness area). The soil is eroding faster than it is being built (hence the massive use of fertilizers) and insect populations tend toward inordinate growth (hence the massive use of pesticides). The capacity for self-regeneration is thus very limited. Take away the fertilizers, pesticides and herbicides, and the fields of corn and soybeans would change rapidly; they would not regenerate in their current form.

Healthy ecosystems may be compared to healthy organisms. A healthy plant or animal has the power to regenerate itself in the context of the environmental conditions to which it is adapted by evolution. By contrast, an animal that is seriously ill may require blood transfusions, a respirator, and other artificial life-support systems if it is to remain

alive. If it dies, the matter of which it is composed will continue to exist, but will no longer participate in the same system of relationships that characterized the living organism.

The herbicides, pesticides and fertilizers used in Central Illinois are like the artificial life-support systems that may be used to keep an animal alive. Just as the necessity of artificial life support indicates ill health in an organism, the necessity of pesticides and the like indicates ill health in Central Illinois' agricultural ecosystems. In both cases, ill health is indicated by the inability of a system (or organism) to regenerate itself. Central Illinois would be ecologically healthier were it not farmed.

The ecologically disruptive impact of agriculture is not due entirely to the use of modern agricultural methods. In the ancient Near East the emergence of agriculture caused "the local extinction of large wild mammals, deserts replacing forests, the degradation of grasslands and the disappearance of soil."<sup>5</sup> In the Far East, as well, agriculture accounts for eroded slopes surrounding ancient cities, their burial under successive layers of silt, and periodic floods and pestilence. Wilderness areas are almost universally healthier than areas that are farmed.

Some land is not suitable for growing plants that humans can eat, but can be used to grow vegetation that animals can eat. People can make nutritional use of this land only by eating the animals raised upon it. However, this method of deliberately raising animals for food also degrades the ecosystems involved. The herded species are overrepresented in the ecosystem just as is corn in central Illinois. So are the plant species upon which the herds feed. The general variety of animal species is reduced because predators are

eliminated to protect the flock, and other grazing animals are crowded out of the limited food supply. The man-made machines used in the process of controlling and moving the herd are ecologically disruptive, and range overuse often causes ecological difficulties. The result is a diminished capacity for self-regeneration. Just as a sick individual may need to have fluids drained from her body in an artificial manner, so members of the herded species must be eliminated by massive human intervention, because humans are the species' only predators. If human beings ignore the flock for a considerable period of time, over-grazing will denude the landscape. Rains will then wash away the topsoil, reducing floral regeneration. The herd will starve for lack of food. They will be unable to regenerate themselves. In short, the ecosystem will die, to be replaced by another.

A vegetarian population would allow such land to remain in the ecologically healthier wilderness state. Thus, whether animals are raised for human consumption through farming or herding, people could feed themselves in a less ecologically disruptive manner by being vegetarians. Their prima facie obligation to reduce their negative impact upon and promote the health of ecosystems thus gives them a prima facie obligation to be vegetarians.

4. It is true that alfalfa cropping enriches soils by adding nitrogen to them. Nitrogen enrichment can enhance an area's generative and regenerative capacities. So one way of improving the ecological health of an area that has nitrogen depleted soil is to grow alfalfa there before allowing the area to return to a wilderness state. People can make nutritional use of the resulting alfalfa only by going through the animal cycle. From the purely ecological perspective meat should occasionally be raised this way

and consumed by people. This would allow some of people's nutritional requirements to be met in a way that, unlike most agricultural production, is ecologically constructive, rather than destructive. The same reasoning supports raising animals for human consumption on garbage, the waste from vegetable processing, and the like.

But some human beings have special medical needs for the consumption of meat and are therefore exempt from the current argument for vegetarianism. It is assumed that their physical health is of greater value than is the ecological disvalue that is typically caused by eating meat. Occasional alfalfa cropping and the like makes it possible to feed (many of) these people without any ecological disvalue. But this does not justify anyone else eating meat grown deliberately for human consumption.

There are, of course, objections to eating meat that are distinct from the ecological considerations raised here. Peter Singer objects to meat consumption on utilitarian grounds,<sup>6</sup> and Tom Regan on the basis of animal rights.<sup>7</sup> Any concessions made in this paper to the practice of eating meat relate solely to ecological considerations, and are not meant to imply that the practice is acceptable from the perspectives of utilitarianism or animal rights. I am here considering the implications only of the ecological perspective.

Some meat is available from animals that have not been deliberately raised for human consumption. These are animals that have grown in the wild. They can be acquired through ecologically benign hunting, such as that undertaken by many hunter-gatherers, and by such hunting advocates as Aldo Leopold and Paul Shepard. Such hunting is ecologically benign because it does not detract from the ecosystem's ability to regenerate

itself. However, ecologically benign hunting represents an insignificantly small percentage of the hunting conducted world-wide. The small quantities of meat acquired by it should, for humanitarian and ecological reasons, be reserved for those with special medical problems, since alfalfa cropping and the like are unlikely to be sufficient for their needs.

An exception should be made in this regard for some contemporary hunter-gatherers. Their entire way of life depends upon the (ecologically benign) hunt meeting some of their nutritional needs. The loss they would experience by becoming vegetarians, like that of people with special medical problems, is more than can be justified by the ecological good that their vegetarianism would do.

Some fishing could be ecologically benign and result in large catches, though at present little fishing is conducted in this manner. But if a great deal were, healthy people would be able to eat some fish, but probably much less than at present. (Again, this is the case when the issue is viewed solely from the ecological perspective.)

5. Some people might be surprised to learn that vegetarianism is ecologically better than omnivorous eating, because they think that if everyone became a vegetarian, the world would be populated by increasing hordes of cows, hogs and chickens, who would plague humanity and cause ecological disaster. However, this fear is ill-founded. Farmers currently control the size of their flocks and so would be able to reduce them appropriately as the demand for meat diminished. But most species need not become extinct, either. Some of their members could probably be returned to suitable wilderness areas (after sufficient research, so as to avoid such ecological disruption as that caused by

burros in the Grand Canyon, mustangs in Wyoming and camels in the California desert).

The fact that omnivorous diets are ecologically destructive does not imply that all vegetarian diets are ecologically benign. It is, for example, ecologically damaging to raise tomatoes and pineapples monoculturally. But this does not diminish one's *prima facie* obligation to be a vegetarian. It means merely that being a vegetarian does not discharge completely one's *prima facie* obligation to reduce one's negative impact upon and promote the health of ecosystems. The obligation requires (*prima facie*) that we alter many aspects of our lives, in areas as diverse as transportation, recreation and family planning. But the point of the present paper is that we are required to become vegetarians.

If the arguments above are correct, I have so far shown that people have a *prima facie* obligation to be vegetarians, and that this obligation is not overridden by very slight inconveniences to the agent. I will now show that except for those with special health problems, people have an obligation pure and simple, one that is not *prima facie*, to *become* vegetarians.

For healthy people, no loss in nutrition or health need accompany a change to a vegetarian diet. There will be some loss in gustatory pleasure, but this need be no more than temporary. Delicious vegetarian meals can be made as easily, and often more inexpensively, than the dishes they replace. Thus, the major obstacle to becoming a vegetarian is the trouble associated with abandoning old patterns of behavior and adopting new ones. This inconvenience is considerable, but temporary, lasting only a matter of months, at most. If one can remain a vegetarian for many years, then the burden of becoming one is

smaller per unit of time during which one can be a vegetarian, than is the ecological benefit per unit of time of a vegetarian over an omnivorous diet. This is because each day a person is a vegetarian, the strain that his or her food consumption puts on the biosphere is cut by more than one-half.<sup>8</sup>

Because individuals differ, no one can be certain that his or her long-term experience of loss will not be very great. But the testimony of those who have already become vegetarians gives everyone very good evidence that in the long run being a vegetarian involves very little loss. So everyone has an obligation, which is not *prima facie*, to at least *become* a vegetarian, and remain so long enough for the formation of habits that have for other people made vegetarianism convenient and esthetically pleasurable.

The value of healthy ecosystems does not diminish the value of human well-being, so the consequences for the general level of human well-being of a massive shift to vegetarianism must be assessed. These consequences are mostly positive. It would be easier and less expensive to feed a vegetarian than an omnivorous population. Thus, we would all gain at the supermarket. More important, it would be easier to eliminate malnutrition and starvation among human beings as nutritious food was produced more efficiently. (Of course, this does not by itself guarantee that the poor would actually be fed.) The improved ecosystems resulting from vegetarianism could be of recreational, esthetic and scientific benefit to people.

On the negative side, the meat industry would be ruined, creating hardships for those who depend upon it for income. There is however, a general belief in our society that the commercial hardships created by

changing consumption patterns are more than compensated for by the benefits associated with such changes. Thus, we do not censure those who are voluntarily buying small, fuel-efficient cars, even though this creates difficulties in the auto industry. We do not look back with moral disdain upon those who chose eighty years ago to light their homes with electricity, rather than gas. We have no more reason to question the moral propriety of a change to vegetarianism. Indeed, we have less, due to the obviously great human benefits to be derived from the change, and to the fact that the change is called for by the obligations to minimize the harm one does to ecosystems and to promote their health.

6. J. Baird Callicott, in his generally excellent article "Animal Liberation: A Triangular Affair,"<sup>9</sup> maintains that the earth's biosphere is best protected by people remaining omnivores rather than becoming vegetarians. One's *prima facie* obligation to reduce one's negative impact upon and promote the health of ecosystems would thus require that one continue eating meat. Callicott does not dissent from the view urged here that, all other things being equal, vegetarian humans are lesser burdens on the biosphere than their omnivorous counterparts. He notes, however, that vegetarianism

"increases available food resources for human beings. The human population would probably, as past trends overwhelmingly suggest, expand in accordance with the potential thus afforded. The net result would be fewer nonhuman beings and more human beings who, of course, have requirements of life far more elaborate than even those of domestic animals, requirements which would tax other 'natural resources' (trees for shelter,

minerals mined at the expense of topsoil and its vegetation, etc.) more than under present circumstances. A vegetarian human population is therefore *probably* ecologically catastrophic." (emphasis in original)

The first thing to note is that the argument here is not that general vegetarianism would be ecologically catastrophic, but that an increased human population would be so, which is of course correct. So Callicott is not denying the ecological advantages of the prescriptions that people *both* stop eating meat *and* stabilize or decrease their population.

He maintains, however, on the basis of "past trends" (he might have invoked Malthus, as well) that the human population tends to expand in accordance with the food available to people. Following the first prescription, vegetarianism, thus makes it unlikely that people will follow the second, population stabilization or reduction. But the Malthusian prediction is surely ill-founded. Contemporary industrial and post-industrial societies (i.e. Western Europe, Japan and the United States) illustrate almost universally that an increased availability of food, whether created by altered agricultural practices or by agricultural imports paid for with manufactured goods, need not be accompanied by population increase. The populations in these countries are either leveling off, stable or declining slightly. Is there any reason to think that if food became increasingly available due not to increased agricultural or industrial output, but because people became vegetarians, that the effect on population would be any different? I see none. Quite to the contrary, if people were so moved by the ecological argument presented here as to change their eating habits, the last thing one would expect them to do is apply the money they save on



food to the birth and rearing of a child they would not otherwise have had. So the connection between vegetarianism and population increase upon which Callicott's argument turns is factually ill-founded and psychologically implausible.

Reliance upon a Malthusian assumption about human behavior is inappropriate in an argument against vegetarianism for yet another reason. Suppose the assumption were correct, that people could be relied upon to increase their population so as to fully use their food production potential. Twentieth century technology has made that potential so great that the corresponding population increase would be great enough to lead to nothing short of world-wide ecological disaster. All roads would lead to perdition. Whether people were vegetarians or omnivores, whether industry were powered by solar energy or nuclear energy, whether there were disarmament or a continued arms race, population increase would destroy the biosphere. The danger of ecological disaster would, therefore, not serve to favor any one course of action over its opposite, and so would not favor either an omnivorous or a vegetarian diet over the other. Thus, even when his Malthusian assumption is granted, Callicott does not present a cogent argument against vegetarianism.

Finally, Callicott raises a consideration which does not so much argue against vegetarianism as denigrate its importance. He writes in relation to the horror that animal liberationists have of factory farming,

"The land ethic takes as much exception [to] (sic) the trans-mogrification of plants by mechanicochemical means as to

that of animals. The important thing, I would think, is not to eat vegetables as opposed to animal flesh, but to resist factory farming in all its manifestations, including especially its liberal application of pesticides, herbicides, and chemical fertilizers to maximize the production of vegetable crops."

The ecological perspective of the present paper supports this call to eat "organically as opposed to mechanicochemically produced food," because pesticides, herbicides and chemical fertilizers damage the biosphere greatly. But this in no way diminishes the moral importance, from the same ecological perspective, of avoiding the consumption of meat. Presently, most of the meat consumed in our society is produced by feeding animals mechanicochemically produced grains. Cutting these animals out of the human food chain would therefore drastically reduce the mechanicochemical production of vegetables. Second, current food production methods are used, as Callicott notes, because they "maximize the production of vegetable crops." Making the transition that he and I both advocate to organic vegetable production will result in a food shortage unless the relative "inefficiency" of organic farming is compensated for by some additional efficiency elsewhere. So long as the human population is over two or three billion, which means in the foreseeable future, vegetarianism will be needed to create additional efficiency in the human food chain in order to make the transition to organic agriculture feasible. So contrary to Callicott's view, the importance of eliminating the mechanicochemical production of vegetables strengthens rather than weakens the ecological argument for vegetarianism.

## NOTES

<sup>1</sup>Peter Singer alludes to an ecological argument for vegetarianism in *Animal Liberation*, (New York: Avon Books, 1975), pp. 177-178 and 257, but he does not develop the argument. More oblique reference to this theme is made by Michael W. Fox, "Philosophy, Ecology, Animal Welfare, and the 'Rights' Question," *Ethics and Animals*, Harlan B. Miller and William H. Williams, eds. (Clifton, N. J.: The Humana Press, 1983), pp. 308-310. Francis Moore Lappe, *Diet for a Small Planet*, (New York: Ballantine Books, 1975), Part 1, relates vegetarianism to decreased human land use, but does so in the context of a humanitarian, rather than an ecological argument for vegetarianism.

W. D. Ross's formalist theory of "What Makes Right Acts Right" is compatible with the ecological argument presented here when it is combined with G. E. Moore's "ideal utilitarian" conception of the good. Ross's duty of beneficence then requires that, all other things being equal, people should preserve and promote healthy ecosystems. See *The Right and the Good* (Oxford, 1930), pp. 24-26. In sum, I am alluding to Ross's theory of the right, not his theory of the good. The others mentioned in this footnote supply appropriate theories of the good for the purposes of this paper.

<sup>2</sup>G. E. Moore, *Principia Ethica* (Cambridge: Cambridge University Press, 1903) pp. 81-85. Christopher Stone, "Should Trees Have Standing? Toward Legal Rights for

Natural Objects," *Southern California Law Review* 45 (1972), 450-501; Holmes Rolston III, "Is There An Ecological Ethics?" *Ethics* 85 (1974-1975), 93-109, and "Are Values in Nature Subjective or Objective?", in *Environmental Ethics* 4 (1982), 125-151; John Rodman, "The Liberation of Nature?" *Inquiry* 20 (1977), 83-131; Tom Regan, "The Nature and Possibility of an Environmental Ethic," *Environmental Ethics* 3 (1981), 19-34; William Godfrey-Smith, "The Value of Wilderness," *Environmental Ethics* 1 (1979), pp. 309-319.

<sup>3</sup>John Harris, "Killing for Food" in *Animals, Men and Morals*, eds. Godlovitch and Harris (New York: Taplinger Publishing Co., 1972), p. 107.

<sup>4</sup>Aldo Leopold, *A Sand County Almanac*, (New York: Ballantine Books, 1970), p. 258

<sup>5</sup>Paul Shepard, *The Tender Carnivore and the Sacred Game* (New York: Charles Scribner's Sons, 1973), p. 20

<sup>6</sup>*Animal Liberation*

<sup>7</sup>*The Case for Animal Rights* (Berkeley: The University of California Press, 1983)

<sup>8</sup>See footnote 3 and Lappe pp. 9-12.

<sup>9</sup>J. Baird Callicott, "Animal Liberation: A Triangular Affair," *Environmental Ethics* 2 (Winter, 1980), pp. 311-338. See especially pp. 335-336.