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Abstract
I show that the late American ecologist and philosopher Aldo Leopold's concept of 'land health,' connects his holistic understanding of man and nature to core principles of public health policy at the center of today's global health concerns, e.g., world hunger, pandemics, sanitation.

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Implications for sound public health policy

Paul Carrick

Wilderness is the raw material out of which man has hammered the artifact called civilization.

Aldo Leopold (1887–1948)

Introduction

Aldo Leopold famously claimed that his land ethic involves individual responsibility for the health of the land. Having defined land health (Leopold, 1949, p221) as ‘the capacity of the land for self-renewal’, and conservation as ‘our effort to understand and preserve this capacity’, I set out to explore whether his land ethic and his related notion of land health, in particular, are sufficiently robust to support three essential elements of sound public health policy. These essential elements are:

- the community health perspective, which links the health or disease of individual citizens to the overall responsibility of the larger community within which he or she lives and works;
- the holistic health perspective, which recognizes that the quality of a community’s sanitation, housing, potable drinking water, workplace safety, and so on, significantly impacts the health and welfare of individual citizens; and
- the perspective of legal moralism, which acknowledges the liberty-limiting authority of the state to impose sanctions on individuals or corporations designed to promote sound health and safety practices and discourage harmful habits and practices (Carrick, 2007, p19–21).

My overall argument is a speculative and interpretative one. But if I am right, then we will be in a better position to appreciate the broader implications of Leopold’s ecocentric ethic not only for environmental ethics, but also for medical ethics and public health policy. At bottom, I argue that Leopold’s land ethic requires us to affirm that if we aim to rescue people from disease and suffering, we must work within a global ethical framework that both respects the Earth’s delicate ecological
balance and also warns against the limits of harmful human over-consumption.

**Leopold’s holistic outlook**

As background to my focus on Leopold’s concept of land health, it is instructive to recall core claims embraced by Leopold’s philosophy of nature. I begin with his ecocentric action-guiding environmental maxim:

> 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, 1949, pp224–225)

Although it is true that Leopold does not mention land health specifically in the above maxim, I will argue that appreciating Leopold’s public commitment to land health is a precondition to fully understanding the problem-solving, civic-minded and practical orientation to which his philosophical legacy is ideally suited. Moreover, it will be recalled that Leopold’s holistic vision of man and nature further endorses at least seven additional philosophical tenets:

1. That ethics are *evolutionary* in character.
2. That the land ethic reflects a newly evolving *ecological conscience* evidenced by a growing awareness of duties to preserve and protect the overall health and stability of the land (i.e. the biotic community).
3. That the emerging ecological conscience reveals Homo sapiens to be but one member of the whole biotic community, not its privileged overlord or conqueror.
4. That the land has value in and of itself aesthetically and culturally (i.e. intrinsic value), which goes beyond merely economic and instrumental ways of human thinking and doing.
5. That this ecological framework entails that land is an interconnected biotic pyramid so intimately linked that any major disorder, disease or pollution occurring in one part of the ecosystem may cause deleterious effects in other parts.
6. That the land is not a mechanism or dead matter but a whole living organism, each part of which is worthy of our moral consideration *before* we act or impose our collective will on the land.
7. That while humans may sometimes need to exploit, use and disrupt the land for economic, practical and other reasons, this needs to be done sparingly, weighing carefully the possible harmful consequences to the health and stability of the land and ultimately to the biosphere (Leopold, 1949, p201–226).  

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Furthermore, I concur with philosopher Laura Westra, a strong proponent of a version of Leopold's land ethic, who writes:

It is reasonable to conceive of humanity as being morally responsible to protect the integrity of the whole ecosystem ... Insofar as such responsibility is justified as a protection of human life and health, breaches of environmental regulations deserve not just economic penalties but criminal ones. (Westra, 2005, p576)²

Elsewhere, she observes: 'Because of this global connection between health and integrity, and the right to life and to living, a true understanding of ecological integrity reconnects human life with the wild, and the rights of the latter with those of the former' (Westra, 2005, p577). In sum, in its fullest application Leopold's land ethic is no mere lofty philosophical abstraction: it possesses practical and persuasive moral force toward the development of sound public health policy, international law and intergovernmental cooperation.

What is land health?

How, then, are we to understand Leopold's notion of land health? And how is it that this notion can be shown to support the three key aforementioned elements of sound public health policy? To find out, we need to do some digging not only into his classic A Sand County Almanac but also into at least three other lesser-known essays that he wrote in the last decade of his life, which were not published until 1999.

To begin, Leopold had no unified theory of land health. He used the phrase 'land health' both metaphorically and heuristically with the aims of: (i) educating the general public, farmers, businessmen, conservationists and others about the complexities of soil erosion and resource renewal; and (ii) connecting the health of the land to the health of the broader biotic community, including human and non-human animals, plants, and related organic and inorganic matter (waters, soils, fungi, wind vectors, mountains, streams, solar energy chains, etc.) - all caught-up in the planetary web of life.

In his little-known essay, 'The land-Health Concept and Conservation', written in 1944 but published posthumously in 1999, 'Leopold presented the notion of land health as analogous to the sense of well-being associated with the proper functioning of a living organism' (Minteer, 2006, p137). For Leopold, symptoms of land sickness included, among other things, uncontrollable loss of species, accelerating infertility of the soil, and the spread of biological pests, all pointing to the declining health of the larger land system (Minteer, 2006, p136). In a related essay, 'Biotic land use', also written in the early 1940s, Leopold identified two 'yardsticks' for the measurement of the stability and health of the land: first, the diversity of
flora and fauna; and, second, the fertility of the soil (Minteer, 2006, p137).3 Even more important for my thesis – which links Leopold’s environmental vision to concerns for both the health of the land and, by extension, the health of the human community – Ben Minteer (2006, pp138–139) has recently called attention to Leopold’s 1941 essay, ‘Planning for Wildlife’.4 In it, Leopold expresses his conviction (also echoed in Sand County) that land health could be achieved only if owners of private property (private lands) adopted it as a personal ethical obligation to the land. Minteer elaborates:

Leopold reiterated his belief that appeals to profit and the self-interest of the landowner would prove insufficient … Only a sense of community welfare and a personal pride in the health or ‘unity’ of the land would motivate the landowner and the wider public. Good land use practices, he suggested, must be presented ‘primarily as an obligation to the community, rather than an opportunity for profit’. (Minteer, 2006, p139)

Further, Leopold’s other writings and speeches to civic, professional and community groups strongly imply that Leopold was referring chiefly to the human community here. In other words, Leopold saw land health as a core conservation goal. If so, this reading of Leopold demonstrates his commitment to the common good – and to the wider public interest (Minteer, 2006, p139).

This suggests, too, that Leopold may have flirted, towards the end of his life, with adopting an ecocentric ethic, investing intrinsic value to the things of nature; in fact, I find that he never quite gave up his more traditional human-centred, anthropomorphic ethic, investing intrinsic value to the things of man.5 This creative tension in his thinking may be seen especially in his persistent concern for land health and its related impact on humanity and on nature. Arguably, Leopold – as forester, outdoorsman, community organizer, nature writer and professor of game management at the University of Wisconsin – was completely at home using the experimental approach of a pragmatic, progressive thinker. Consistent with this scientific, human-centred orientation in Sand County, he concludes: ‘Wilderness, then, assumes unexpected importance as a laboratory for the study of land health’ (Leopold, 1949, p196). Note that ‘wilderness’ is here cast as a laboratory for human use and not as a pristine temple of utopian worship.

**Ethical and social implications for public health policy**

In sum, the health of the land is inextricably bound to the health and welfare of the human community. What’s more, Leopold’s notion of land health – however unsophisticated compared with today’s biometric indices favoured by agronomists and climate scientists – is decidedly more than a purely descriptive diagnostic tool used to measure the integrity and stability
of various Earth systems. Significantly, his concept of land health also serves as a prescriptive, normative standard of practical interest to farmers, environmental activists and policy planners alike.

Given this, I conjecture that Leopold’s concept of land health does double duty. First, it serves as an *evaluative deontological standard* by which wildlife conservation measures can be judged as ‘good’ or ‘bad’ for the overall stability and well-being of the biotic community. This dimension of land health accents the pre-eminence of man’s *ethical duty* to be faithful stewards of the land community by bending our collective wills to Leopold’s environmental maxim.6 In addition, it serves as an *aspirational teleological standard* by which the actual results of any new programme of wildlife conservation or environmental health reform may be judged as ‘worthwhile’ or ‘worthless’. Hence, this dimension of land health accents the ultimate, *consequentialist end-in-view* for Leopold and his followers: to strive daily to live in harmony with the biotic community.

We are now in the strategic position to cash out these preliminary analytical and historical antecedents heretofore explored. However, two questions remain

- First, what is commonly meant by public health, the public health movement, or public health policy?
- Second, how could Leopold’s concept of land health, along with his related land ethic, be understood to endorse – or at least be logically compatible with – the three essential public health perspectives that I introduced at the beginning of this inquiry: namely, the community health, holistic health, and legal moralism perspectives? (To clarify, I am asserting that these are necessary conditions. Hence, in their absence no public health policy, national or international in scope, can with soundness go forward).

To the first question above, *public health* is defined by medical historian John Duffy as ‘the collective action by a community or society to protect and promote the health and welfare of its members’ (Duffy, 2004, p2206). It is sobering to recall that a bona fide government sponsored *public health movement* is only about 160 years old, starting in England with passage of the Public Health Act of 1848. This progressive law enforced sanitary conditions for housing, waste disposal, drinking water, and so on, while establishing boards of health in cities and towns to carry out enforcement (Carrick, 2007, p14). To be sure, concern for the health and general welfare of the public extends back at least 2,500 years to the Athens of Hippocrates, Pericles, and Socrates (Carrick, 2001, p21–35). Yet the actual systematic development and deployment of government funded *public health policy* is largely a twentieth-century phenomenon. In addition, physician and historian George Rosen observes that:
... the major problems of [public] health ... have been concerned with community life, for instance, the control of transmissible disease, the control and improvement of the physical environment (sanitation), the provision of water and food of good quality and in sufficient supply, the provision of medical care, and the relief of disability and destitution. (Rosen, 1958, p25)

Note that Rosen rightly cites 'community life' as the central focus of sound public health policy. In addition, the community health perspective states that the health or disease of individuals is the proper concern of the larger community or government within which one lives, works and plays.

To the second question above, I submit that Leopold's concept of land health, as explicated here, would be completely compatible with this community health perspective. For does not Leopold imply that the health of individuals (whether persons or non-human organisms) is directly or indirectly affected by the entire biotic community? (See tenet 5, p57). And, moreover, that humans are collectively obligated by the land ethic to be attentive to the condition of individual members of the land community? (Tenet 6).

Next, consider the holistic health perspective. This states that an individual's health properly concerns not simply personal factors like exercise, diet, or genetic heritage. It also involves much wider environmental factors and linkages such as clean air and water, adequate sanitation, sound habitat (housing) and the like. If so, holistically considered, these external, non-personal factors that contribute to an individual's overall health and hygiene are seen from the holistic health perspective as the community's or government's responsibility to both monitor and regulate. But, again, I submit: Leopold's concept of land health would certainly be completely compatible with this holistic health perspective. For is not Leopold's land ethic fundamentally predicated on a holistic view of nature, according to which the whole is greater than the sum of its parts? (Tenet 3, p57). Indeed, we observed that one of Leopold's specific tenets (tenet 2) implies that the ecological conscience will make us sufficiently aware to act in time to preserve and protect the overall health of the land community, thereby also protecting the health of individuals organisms (including humans).

Moral legalism and the ecological conscience

Lastly, what about the perspective of moral legalism? How does this perspective fit into Leopold's holistic philosophy of nature? To be sure, this is a liberty-limiting philosophical principle. It is linked historically to John Stuart Mill's democratic defence of the limits of personal freedom and self-determination in his now-classic On Liberty (1859). Furthermore, this third perspective of legal moralism is easily the most controversial of this trio. To wit, it asserts that there is a moral duty on the part of governments to enact laws that
would prohibit objectionable behaviour on the part of individuals or corporations, especially behaviour that, if left unchecked, would pollute, harm, destabilize or otherwise sicken the larger community. Obviously, this ambitious modus operandi carries challenging legal and moral overtones. For example, who or what agency ought to have the authority to decide what behaviours are objectionable, sickening, polluting? And by what criterion will such judgements be rendered?

Environmental education and enforcement

In brief, for Leopold, given the record of his own outstanding government service as a forester, regulator, policy analyst, civic leader and environmental educator, it is safe to say that one should invest this diagnostic and enforcement authority with a democratically run and scientifically oriented governmental body of some sort (whether on the regional, state, national or international level). Granted, Leopold did acknowledge, in Sand County Almanac, that there were limits to what government could accomplish in introducing and enforcing progressive, healthy farming or conservation practices. Nevertheless, he still insisted that such efforts, backed by sound environmental education campaigns, had a legitimate civic role to play in fostering a kinder, gentler, more harmonious relationship with the biotic community (Leopold, 1949, pp207–214). If so, when it comes to deciding what specific individual or corporate behaviour is harming the environment, does not his concept of land health – which casts the land community as an interconnected biotic pyramid of energy chains – also obligate us to be caring physicians and stewards of the earth? The short answer is yes.

In my view, tenets 5, 6 and 7 of Leopold’s ecocentric ethic together define the working criterion of land health. This it does by binding citizens of ecological conscience to its uncompromising ethical demands. But what exactly are these demands?

First, the imperative that we give moral consideration to the land before we act to exploit it (see tenet 6). Second, the imperative that we remain vigilant to the scientific evidence that any major disorder, disease, or pollution occurring in one part of the ecosystem may cause destabilizing or sickening effects in other parts (see tenet 5). And finally, the imperative that, while acknowledging the fact that humanity will almost certainly continue to exploit, use, and disrupt the land for economic, practical, competitive and other sometimes frivolous purposes – and that this unfortunate behaviour cannot always be prohibited within the relatively free market system of democratic societies – there yet remains a powerful, over-riding obligation. This obligation exhorts us to use the land thoughtfully and sparingly. It reminds us to weigh options carefully and then act decisively to reduce the harmful consequences that may result from the sometimes irrational felt needs and impulsive pressures of a consumer-driven marketplace (see tenet 7). In essence, this ‘weighing’, this ‘vigilance’,
and the embodied moral courage of an enlightened human community to act in concert to prevent disease, derangement and suffering, galvanizes the theoretical and practical elements of Leopold’s unalloyed notion of land health. Indeed, a philosophical, scientific and ethical commitment to land health, coupled with direct action, constitutes a powerful tool for national and international environmental protection.

**Leopold’s unifying humanitarian vision**

Leopold asserted: ‘A land ethic, then, reflects the existence of an ecological conscience, and this in turn reflects a conviction of individual responsibility for the health of the land’ (Leopold, 1949, p221; emphasis added). If my conjectures are correct, we have seen that the fullest expression of Leopold’s ecological conscience involves (i) not only an ethical duty to preserve and protect the health of the land, but (ii) an ethical duty to establish progressive policies of both public health and environmental health that, taken together, complement and strengthen each other. Moreover, I find that Leopold’s land ethic, wedded to his concept of land health, inspires us to imagine a more promising future, one in which all citizens accept some personal responsibility toward achieving the following difficult goals:

1. Reversing or significantly limiting human overconsumption.
2. Respecting the Earth’s ecological balance via both national and international vigilance and enforceable legal sanctions.
3. Taking direct action to educate the public about salient scientific links between environmental health and human health (e.g. see www.gatesfoundation.org/global-health/Pages/overview.aspx).
4. Promoting intergovernmental cooperation to secure more stable (and less toxic) human and planetary measures of land health – reducing thereby the suffering of all sentient creatures, while continuing to protect other vital and sustaining forms of life.

In conclusion, only if citizens risk direct action by daily practising the imperatives of their ecological consciences – at home, at work, at play, in their communities – will Leopold’s dream of living in harmony with nature be fully realized on a truly humanitarian and global scale.

**Notes**

1. Hence, Leopold would probably be sympathetic to the precautionary principle: it is prudent to resist any likely serious harmful activity or substance from despoiling the biotic community even if, at present, we lack conclusive scientific proof of the alleged harm.
2. For an interesting contrary view of this oft-repeated ecocentric claim of human responsibility for protecting the health and welfare of the planet, see Stephen Jay Gould (2001) ‘The golden rule – a proper scale for our environmental


See also Flader, S. L. and Callicott, J. B. (eds) (1991) The River of the Mother of God and other Essays by Aldo Leopold, University of Wisconsin Press, Madison, WI.

For more on this meta-ethical, interpretative controversy, see Minteer (2006, pp128–132). While Baird Callicott insists that Leopold is fundamentally ecocentric (non-anthropocentric) in his ontology of man and nature, Bryan Norton finds in Leopold a civic-minded pragmatic orientation — allowing for a more or less anthropocentric approach to ethics. My view is that there is plenty of evidence in Leopold’s writings to warrant both perspectives. In fact, for rhetorical purposes, Leopold may have equivocated between these positions depending on his audience. See also Norton, B. G. (1991) Toward Unity among Environmentalists, Oxford University Press, Oxford, UK; and Callicott, J. B. (1987) ‘The conceptual foundations of the land ethic’, in J. B. Callicott (ed.) A Companion to A Sand County Almanac, University of Wisconsin Press, Madison, WI.

For Leopold’s ‘environmental maxim’, see p60 of this chapter.

If there is any real doubt about Leopold’s cosmopolitan, international scale of thinking, recall that in the last year of his life, he accepted a position as ‘conservation advisor’ to the United Nations, the first such international appointment of its kind.

References and further reading


