

3. What does Goodpaster mean by "moral considerability"?
4. What are Goodpaster's objections to those like Feinberg and Singer who would make *sentience* the necessary condition for moral considerability?
5. What is Goodpaster's definition of "interests"? Do you agree that all living things have needs and interests? Is this morally significant?

ECOCENTRIC ETHICS

19 Ecocentrism: The Land Ethic

ALDO LEOPOLD

Aldo Leopold (1887–1947) worked for the U.S. Forest Service before becoming the first professor of Wildlife Management at the University of Wisconsin. He is considered the father of "The Land Ethic." His main work is *Sand County Almanac* (1947) from which our selection is taken.

Leopold was distressed at the degradation of the environment, and argued that we must begin to realize our symbiotic relationship to Earth so that we value "the land" or biotic community for its own sake. We must come to see ourselves, not as conquerors of the land but rather, as plain members and citizens of the biotic community.

When god-like Odysseus returned from the wars in Troy, he hanged all on one rope a dozen slave-girls of his household whom he suspected of misbehavior during his absence.

This hanging involved no question of propriety. The girls were property. The disposal of property was then, as now, a matter of expediency, not of right and wrong.

Concepts of right and wrong were not lacking from Odysseus' Greece: witness the fidelity of his wife through the long years before at last his black-prowed galleys clove the wine-dark seas for home. The ethical structure of that day covered wives, but had not yet been extended to human chattels. During the three thousand years which have since elapsed, ethical criteria have been extended to many fields of conduct, with corresponding shrinkages in those judged by expediency only.

THE ETHICAL SEQUENCE

This extension of ethics, so far studied only by philosophers, is actually a process in ecological evolution. Its sequences may be described in ecological as well as in philosophical terms. An ethic, ecologically, is a limitation on freedom of action in the struggle for existence. An ethic, philosophically, is a differentiation of social from anti-social conduct. These are two definitions of one thing. The thing has its origin in the tendency of interdependent individuals or groups to evolve modes of cooperation. The ecologist calls these symbioses. Politics and economics are advanced symbioses in which the original free-for-all competition has been replaced, in part, by cooperative mechanisms with an ethical content.

The complexity of cooperative mechanisms has increased with population density, and with

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the efficiency of tools. It was simpler, for example, to define the anti-social uses of sticks and stones in the days of the mastodons than of bullets and billboards in the age of motors.

The first ethics dealt with the relation between individuals; the Mosaic Decalogue is an example. Later accretions dealt with the relation between the individual and society. The Golden Rule tries to integrate the individual to society; democracy to integrate social organization to the individual.

There is as yet no ethic dealing with man's relation to land and to the animals and plants which grow upon it. Land, like Odysseus' slave-girls, is still property. The land-relation is still strictly economic, entailing privileges but not obligations.

The extension of ethics to this third element in human environment is, if I read the evidence correctly, an evolutionary possibility and an ecological necessity. It is the third step in a sequence. The first two have already been taken. Individual thinkers since the days of Ezekiel and Isaiah have asserted that the despoliation of land is not only inexpedient but wrong. Society, however, has not yet affirmed their belief. I regard the present conservation movement as the embryo of such an affirmation.

An ethic may be regarded as a mode of guidance for meeting ecological situations so new or intricate, or involving such deferred reactions, that the path of social expediency is not discernible to the average individual. Animal instincts are modes of guidance for the individual in meeting such situations. Ethics are possibly a kind of community instinct in-the-making.

THE COMMUNITY CONCEPT

All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts. His instincts prompt him to compete for his place in the community, but his ethics prompt him also to cooperate (perhaps in order that there may be a place to compete for).

The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land.

This sounds simple: do we not already sing our love for and obligation to the land of the

free and the home of the brave? Yes, but just what and whom do we love? Certainly not the soil, which we are sending helter-skelter down-river. Certainly not the waters, which we assume have no function except to turn turbines, float barges, and carry off sewage. Certainly not the plants, of which we exterminate whole communities without batting an eye. Certainly not the animals, of which we have already extirpated many of the largest and most beautiful species. A land ethic of course cannot prevent the alteration, management, and use of these "resources," but it does affirm their right to continued existence, and, at least in spots, their continued existence in a natural state.

In short, a land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such.

In human history, we have learned (I hope) that the conqueror role is eventually self-defeating. Why? Because it is implicit in such a role that the conqueror knows, *ex cathedra*, just what makes the community clock tick, and just what and who is valuable, and what and who is worthless, in community life. It always turns out that he knows neither, and this is why his conquests eventually defeat themselves.

In the biotic community, a parallel situation exists. Abraham knew exactly what the Land was for: it was to drip milk and honey into Abraham's mouth. At the present moment, the assurance with which we regard this assumption is inverse to the degree of our education.

The ordinary citizen today assumes that science knows what makes the community clock tick; the scientist is equally sure that he does not. He knows that the biotic mechanism is so complex that its workings may never be fully understood.

That man is, in fact, only a member of a biotic team is shown by an ecological interpretation of history. Many historical events, hitherto explained solely in terms of human enterprise, were actually biotic interactions between people and land. The characteristics of the land determined the facts quite as potently as the characteristics of the men who lived on it.

Consider, for example the Mississippi valley. In the evolution, three groups were in control: the native Indians, the English traders, and the horticulturists. The horticulturists wonder what would have happened had the English at Detroit had thrown their weight into the Indian side, which decided the outcome of the migration into the cane-time now to ponder the effects of the lands, when subjected to the forces represented by the ax of the pioneer, became plant succession inherent in the ground had, under the given us some worthless. Would Boone and Kent would there have been Indiana, Illinois, and the Purchase? Any transcontinental states? Any Civil War?

Kentucky was one of the actors in this drama. The freedom told that their success hung in large degree on soils to the impact of the by their occupancy. In do not even know what from—whether it is a away from Europe.

Contrast the cane-tells us about the South were equally brave, respect. The impact of occupant grass, or other plant bumps and buffetings when grazed by livestock sense of more and shrubs, and weeds to equilibrium. Each recession; each increment recession of plants. The sive and mutual deterioration and soils, but of the animals thereon. The early settlement the ciénegas of New ditches to hasten it.

Consider, for example, the settlement of the Mississippi valley. In the years following the Revolution, three groups were contending for its control: the native Indian, the French and English traders, and the American settlers. Historians wonder what would have happened if the English at Detroit had thrown a little more weight into the Indian side of those tipsy scales which decided the outcome of the colonial migration into the cane-lands of Kentucky. It is time now to ponder the fact that the cane-lands, when subjected to the particular mixture of forces represented by the cow, plow, fire, and ax of the pioneer, became bluegrass. What if the plant succession inherent in this dark and bloody ground had, under the impact of these forces, given us some worthless sedge, shrub, or weed? Would Boone and Kenton have held out? Would there have been any overflow into Ohio, Indiana, Illinois, and Missouri? Any Louisiana Purchase? Any transcontinental union of new states? Any Civil War?

Kentucky was one sentence in the drama of history. We are commonly told what the human actors in this drama tried to do, but we are seldom told that their success, or the lack of it, hung in large degree on the reaction of particular soils to the impact of the particular forces exerted by their occupancy. In the case of Kentucky, we do not even know where the bluegrass came from—whether it is a native species, or a stow-away from Europe.

Contrast the cane-lands with what hindsight tells us about the Southwest, where the pioneers were equally brave, resourceful, and persevering. The impact of occupancy here brought no bluegrass, or other plant fitted to withstand the bumps and buffetings of hard use. This region, when grazed by livestock, reverted through a sense of more and more worthless grasses, shrubs, and weeds to a condition of unstable equilibrium. Each recession of plant types bred erosion; each increment to erosion bred a further recession of plants. The result today is a progressive and mutual deterioration, not only of plants and soils, but of the animal community subsisting thereon. The early settlers did not expect this: on the *ciénegas* of New Mexico some even cut ditches to hasten it. So subtle has been its

progress that few residents of the region are aware of it. It is quite invisible to the tourist who finds this wrecked landscape colorful and charming (as indeed it is, but it bears scant resemblance to what it was in 1848).

This same landscape was “developed” once before, but with quite different results. The Pueblo Indians settled the Southwest in pre-Columbian times, but they happened *not* to be equipped with range livestock. Their civilization expired, but not because their land expired.

In India, regions devoid of any sod-forming grass have been settled, apparently without wrecking the land, by the simple expedient of carrying the grass to the cow, rather than vice versa. (Was this the result of some deep wisdom, or was it just good luck? I do not know.)

In short, the plant succession steered the course of history; the pioneer simply demonstrated, for good or ill, what successions inhered in the land. Is history taught in this spirit? It will be, once the concept of land as a community really penetrates our intellectual life.

THE ECOLOGICAL CONSCIENCE

Conservation is a state of harmony between men and land. Despite nearly a century of propaganda, conservation still proceeds at a snail’s pace; progress still consists largely of letterhead pieties and convention oratory. On the back forty we still slip two steps backward for each forward stride.

The usual answer to this dilemma is “more conservation education.” No one will debate this, but is it certain that only the *volume* of education needs stepping up? Is something lacking in the *content* as well?

It is difficult to give a fair summary of its content in brief form, but, as I understand it, the content is substantially this: obey the law, vote right, join some organizations, and practice what conservation is profitable on your own land; the government will do the rest.

Is not this formula too easy to accomplish anything worthwhile? It defines no right or wrong, assigns no obligation, calls for no sacrifice, implies no change in the current philosophy of values. In respect of land-use, it urges only enlightened self-interest. Just how far will such

education take us? An example will perhaps yield a partial answer.

By 1930 it had become clear to all except the ecologically blind that southwestern Wisconsin's topsoil was slipping seaward. In 1933 the farmers were told that if they would adopt certain remedial practices for five years, the public would donate CCC labor to install them, plus the necessary machinery and materials. The offer was widely accepted, but the practices were widely forgotten when the five-year contract period was up. The farmers continued only those practices that yielded an immediate and visible economic gain for themselves.

This led to the idea that maybe farmers would learn more quickly if they themselves wrote the rules. Accordingly the Wisconsin Legislature in 1937 passed the Soil Conservation District Law. This said to farmers, in effect: *We, the public, will furnish you free technical service and loan you specialized machinery, if you will write your own rules for land-use. Each county may write its own rules, and these will have the force of law.* Nearly all the counties promptly organized to accept the proffered help, but after a decade of operation, *no county has yet written a single rule.* There has been visible progress in such practices as strip-cropping, pasture renovation, and soil liming, but none in fencing woodlots against grazing, and none in excluding plow and cow from steep slopes. The farmers, in short, have selected those remedial practices which were profitable anyhow, and ignored those which were profitable to the community, but not clearly profitable to themselves.

When one asks why no rules have been written, one is told that the community is not yet ready to support them; education must precede rules. But the education actually in progress makes no mention of obligations to land over and above those dictated by self-interest. The net result is that we have more education but less soil, fewer healthy woods, and as many floods as in 1937.

The puzzling aspect of such situations is that the existence of obligations over and above self-interest is taken for granted in such rural community enterprises as the betterment of roads, schools, churches, and baseball teams. Their existence is not

taken for granted, nor as yet seriously discussed, in bettering the behavior of the water that falls on the land, or in the preserving of the beauty or diversity of the farm landscape. Land-use ethics are still governed wholly by economic self-interest, just as social ethics were a century ago.

To sum up: we asked the farmer to do what he conveniently could to save his soil, and he has done just that, and only that. The farmer who clears the woods off a 75 per cent slope, turns his cows into the clearing, and dumps its rainfall, rocks, and soil into the community creek, is still (if otherwise decent) a respected member of society. If he puts lime on his fields and plants his crops on contour, he is still entitled to all the privileges and emoluments of his Soil Conservation District. The District is a beautiful piece of social machinery, but it is coughing along on two cylinders because we have been too timid, and too anxious for quick success, to tell the farmer the true magnitude of his obligations. Obligations have no meaning without conscience, and the problem we face is the extension of the social conscience from people to land.

No important change in ethics was ever accomplished without an internal change in our intellectual emphasis, loyalties, affections, and convictions. The proof that conservation has not yet touched these foundations of conduct lies in the fact that philosophy and religion have not yet heard of it. In our attempt to make conservation easy, we have made it trivial.

SUBSTITUTES FOR A LAND ETHIC

When the logic of history hungers for bread and we hand out a stone, we are at pains to explain how much the stone resembles bread. I now describe some of the stones which serve in lieu of a land ethic.

One basic weakness in a conservation system based wholly on economic motives is that most members of the land community have no economic value. Wildflowers and songbirds are examples. Of the 22,000 higher plants and animals native to Wisconsin, it is doubtful whether more than 5 per cent can be sold, fed, eaten, or otherwise put to economic use. Yet these creatures are members of the biotic community, and

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When one of these is threatened, and if we invent subterfuges to get out of it. At the beginning of the century we were supposed to be displaced by the machine. We jumped to the rescue with evidence to the effect that if birds failed to control the insects, we had to be economic in our

It is painful to react today. We have no land at least drawn nearer the birds should continue right, regardless of the economic advantage to

A parallel situation exists with predatory mammals, raptorial birds. Time was when birds worked the evidence that the health of game by the way they control rodents for prey only on "worthless" the evidence had to be valid. It is only in recent years that more honest argument has been heard from members of the community, and the forest has the right to extend a benefit, real or fanciful. In this enlightened stage. In the field the evidence goes merrily on: witness the timber wolf by fiat of the Game and Fish Department, and the

Some species of trees are taken for granted because they grow too slowly to have any sale value to pay as timber. In Europe, where more advanced, the trees are recognized as members of the community, to be preserved. Moreover some trees are found to have a value in themselves for soil fertility. The integrity of the forest and its constituent tree fauna is taken for granted

if (as I believe) its stability depends on its integrity, they are entitled to continuance.

When one of these non-economic categories is threatened, and if we happen to love it, we invent subterfuges to give it economic importance. At the beginning of the century songbirds were supposed to be disappearing. Ornithologists jumped to the rescue with some distinctly shaky evidence to the effect that insects would eat us up if birds failed to control them. The evidence had to be economic in order to be valid.

It is painful to read these circumlocutions today. We have no land ethic yet, but we have at least drawn nearer the point of admitting that birds should continue as a matter of biotic right, regardless of the presence or absence of economic advantage to us.

A parallel situation exists in respect of predatory mammals, raptorial birds, and fish-eating birds. Time was when biologists somewhat overworked the evidence that these creatures preserve the health of game by killing weaklings, or that they control rodents for the farmer, or that they prey only on "worthless" species. Here again, the evidence had to be economic in order to be valid. It is only in recent years that we hear the more honest argument that predators are members of the community, and that no special interest has the right to exterminate them for the sake of a benefit, real or fancied, to itself. Unfortunately this enlightened view is still in the talk stage. In the field the extermination of predators goes merrily on: witness the impending erasure of the timber wolf by fiat of Congress, the Conservation Bureaus, and many state legislatures.

Some species of trees have been "read out of the party" by economics-minded foresters because they grow too slowly, or have too low a sale value to pay as timber crops: white cedar, tamarack, cypress, beech, and hemlock are examples. In Europe, where forestry is ecologically more advanced, the non-commercial tree species are recognized as members of the native forest community, to be preserved as such, within reason. Moreover some (like beech) have been found to have a valuable function in building up soil fertility. The interdependence of the forest and its constituent tree species, ground flora, and fauna is taken for granted.

Lack of economic value is sometimes a character not only of species or groups, but of entire biotic communities: marshes, bogs, dunes, and "deserts" are examples. Our formula in such cases is to relegate their conservation to government as refuges, monuments, or parks. The difficulty is that these communities are usually interspersed with more valuable private lands; the government cannot possibly own or control such scattered parcels. The net effect is that we have relegated some of them to ultimate extinction over large areas. If the private owner were ecologically minded, he would be proud to be the custodian of a reasonable proportion of such areas, which add diversity and beauty to his farm and to his community.

In some instances, the assumed lack of profit in these "waste" areas has proved to be wrong, but only after most of them had been done away with. The present scramble to reflood muskrat marshes is a case in point.

There is a clear tendency in American conservation to relegate to government all necessary jobs that private landowners fail to perform. Government ownership, operation, subsidy, or regulation is now widely prevalent in forestry, range management, soil and watershed management, park and wilderness conservation, fisheries management, and migratory bird management, with more to come. Most of this growth in governmental conservation is proper and logical, some of it is inevitable. That I imply no disapproval of it is implicit in the fact that I have spent most of my life working for it. Nevertheless the question arises: What is the ultimate magnitude of the enterprise? Will the tax base carry its eventual ramifications? At what point will governmental conservation, like the mastodon, become handicapped by its own dimensions? The answer, if there is any, seems to be in a land ethic, or some other force which assigns more obligation to the private landowner.

Industrial landowners and users, especially lumbermen and stockmen, are inclined to wail long and loudly about the extension of government ownership and regulation to land, but (with notable exceptions) they show little disposition to develop the only visible alternative: the voluntary practice of conservation on their own lands.

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When the private landowner is asked to perform some unprofitable act for the good of the community, he today assents only with outstretched palm. If the act costs him cash this is fair and proper, but when it costs only forethought, open-mindedness, or time, the issue is at least debatable. The overwhelming growth of land-uses subsidies in recent years must be ascribed, in large part, to the government's own agencies for conservation education: the land bureaus, the agricultural colleges, and the extension services. As far as I can detect, no ethical obligation toward land is taught in these institutions.

To sum up: a system of conservation based solely on economic self-interest is hopelessly lopsided. It tends to ignore, and thus eventually to eliminate, many elements in the land community that lack commercial value, but that are (as far as we know) essential to its healthy functioning. It assumes, falsely, I think, that the economic parts of the biotic clock will function without the uneconomic parts. It tends to relegate to government many functions eventually too large, too complex, or too widely dispersed to be performed by government.

An ethical obligation on the part of the private owner is the only visible remedy for these situations.

THE LAND PYRAMID

An ethic to supplement and guide the economic relation to land presupposes the existence of some mental image of land as a biotic mechanism. We can be ethical only in relation to something we can see, feel, understand, love, or otherwise have faith in.

The image commonly employed in conservation education is "the balance of nature." For reasons too lengthy to detail here, this figure of speech fails to describe accurately what little we know about the land mechanism. A much truer image is the one employed in ecology: the biotic pyramid. I shall first sketch the pyramid as a symbol of land, and later develop some of its implications in terms of land-use.

Plants absorb energy from the sun. This energy flows through a circuit called the biota,

which may be represented by a pyramid consisting of layers. The bottom layer is the soil. A plant layer rests on the soil, an insect layer on the plants, a bird and rodent layer on the insects, and so on up through various animal groups to the apex layer, which consists of the larger carnivores.

The species of a layer are alike not in where they came from, or in what they look like, but rather in what they eat. Each successive layer depends on those below it for food and often for other services, and each in turn furnishes food and services to those above. Proceeding upward, each successive layer decreases in numerical abundance. Thus, for every carnivore there are hundreds of his prey, thousands of their prey, millions of insects, uncountable plants. The pyramidal form of the system reflects this numerical progression from apex to base. Man shares an intermediate layer with the bears, raccoons, and squirrels which eat both meat and vegetables.

The lines of dependency for food and other services are called food chains. Thus soil-oak-deer-Indian is a chain that has now been largely converted to soil-corn-cow-farmer. Each species, including ourselves, is a link in many chains. The deer eats a hundred plants other than oak, and the cow a hundred plants other than corn. Both, then, are links in a hundred chains. The pyramid is a tangle of chains so complex as to seem disorderly, yet the stability of the system proves it to be a highly organized structure. Its functioning depends on the cooperation and competition of its diverse parts.

In the beginning, the pyramid of life was low and squat; the food chains short and simple. Evolution has added layer after layer, link after link. Man is one of thousands of accretions to the height and complexity of the pyramid. Science has given us many doubts, but it has given us at least one certainty: the trend of evolution is to elaborate and diversify the biota.

Land, then, is not merely soil; it is a fountain of energy flowing through a circuit of soils, plants, and animals. Food chains are the living channels which conduct energy upward; death and decay return it to the soil. The circuit is not closed; some energy is dissipated in decay,

some is added by absorption stored in soils, peats, and is a sustained circuit, like a revolving fund of life. This is offset by downhill wash, but the ocean and, in the case of raised to form new lands.

The velocity and character of energy depend on the plant and animal community flow of sap in a tree depends on its organization. Without circulation would preserve the characteristic kinds and component species. This is the complex structure of functioning as an energy attributes.

When a change occurs in a circuit, many other parts are affected. Change does not need the flow of energy; even self-induced changes, has been to elaborate and to lengthen the circuit. However, are usually slow. The invention of tools has enabled unprecedented violence.

One change is in the flora and faunas. The larger the apex of the pyramid, the first time in history, but longer. Domesticated are substituted for wild. Moved to new habitats, the introduction of faunas and flora bounds as pests and are extinguished. Such effects are foreseen; they represent untraceable readjustments. Cultural science is the emergence of new periods and new techniques for the

Another change is through plants and animals and soil. Fertility is the store, and release

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some is added by absorption from the air, some is stored in soils, peats, and long-lived forests; but it is a sustained circuit, like a slowly augmented revolving fund of life. There is always a net loss by downhill wash, but this is normally small and offset by the decay of rocks. It is deposited in the ocean and, in the course of geological time, raised to form new lands and new pyramids.

The velocity and character of the upward flow of energy depend on the complex structure of the plant and animal community, much as the upward flow of sap in a tree depends on its complex cellular organization. Without this complexity, normal circulation would presumably not occur. Structure means the characteristic numbers, as well as the characteristic kinds and functions, of the component species. This interdependence between the complex structure of the land and its smooth functioning as an energy unit is one of its basic attributes.

When a change occurs in one part of the circuit, many other parts must adjust themselves to it. Change does not necessarily obstruct or divert the flow of energy; evolution is a long series of self-induced changes, the net result of which has been to elaborate the flow mechanism and to lengthen the circuit. Evolutionary changes, however, are usually slow and local. Man's invention of tools has enabled him to make changes of unprecedented violence, rapidity, and scope.

One change is in the composition of floras and faunas. The larger predators are lopped off the apex of the pyramid; food chains, for the first time in history, become shorter rather than longer. Domesticated species from other lands are substituted for wild ones, and wild ones are moved to new habitats. In this world-wide pooling of faunas and floras, some species get out of bounds as pests and diseases, others are extinguished. Such effects are seldom intended or foreseen; they represent unpredicted and often untraceable readjustments in the structure. Agricultural science is largely a race between the emergence of new pests and the emergence of new techniques for their control.

Another change touches the flow of energy through plants and animals and its return to the soil. Fertility is the ability of soil to receive, store, and release energy. Agriculture, by

overdrafts on the soil, or by too radical a substitution of domestic for native species in the superstructure, may derange the channels of flow or deplete storage. Soils depleted of their storage, or of the organic matter which anchors it, wash away faster than they form. This is erosion.

Waters, like soil, are part of the energy circuit. Industry, by polluting waters or obstructing them with dams, may exclude the plants and animals necessary to keep energy in circulation.

Transportation brings about another basic change: the plants or animals grown in one region are now consumed and returned to the soil in another. Transportation taps the energy stored in rocks, and in the air, and uses it elsewhere; thus we fertilize the garden with nitrogen gleaned by the guano birds from the fishes of seas on the other side of the Equator. Thus the formerly localized and self-contained circuits are pooled on a world-wide scale.

The process of altering the pyramid for human occupation releases stored energy, and this often gives rise, during the pioneering period, to a deceptive exuberance of plant and animal life, both wild and tame. These releases of biotic capital tend to becloud or postpone the penalties of violence.

This thumbnail sketch of land as an energy circuit conveys three basic ideas:

1. That land is not merely soil.
2. That the native plants and animals kept the energy circuit open; others may or may not.
3. That man-made changes are of a different order than evolutionary changes, and have effects more comprehensive than is intended or foreseen.

These ideas, collectively, raise two basic issues: Can the land adjust itself to the new order? Can the desired alterations be accomplished with less violence?

Biotas seem to differ in their capacity to sustain violent conversion. Western Europe, for example, carries a far different pyramid than Caesar found there. Some large animals are lost; swampy forests have become meadows or plowland; many new plants and animals are introduced, some of which escape as pests; the remaining natives are greatly changed in distribution and

abundance. Yet the soil is still there and, with the help of imported nutrients, still fertile; and waters flow normally; the new structure seems to function and to persist. There is no visible stoppage or derangement of the circuit.

Western Europe, then, has a resistant biota. Its inner processes are tough, elastic, resistant to strain. No matter how violent the alterations, the pyramid, so far, has developed some new *modus vivendi* which preserves its habitability for man, and for most of the other natives.

Japan seems to present another instance of radical conversion without disorganization.

Most other civilized regions, and some as yet barely touched by civilization, display various stages of disorganization, varying from initial symptoms to advanced wastage. In Asia Minor and North Africa diagnosis is confused by climatic changes, which may have been either the cause or the effect of advanced wastage. In the United States the degree of disorganization varies locally; it is worst in the Southwest, the Ozarks, and parts of the South, and least in New England and the Northwest. Better land-uses may still arrest it in the less advanced regions. In parts of Mexico, South America, South Africa, and Australia a violent and accelerating wastage is in progress, but I cannot assess the prospects.

This almost world-wide display of disorganization in the land seems to be similar to disease in an animal, except that it never culminates in complete disorganization or death. The land recovers, but at some reduced level of complexity, and with a reduced carrying capacity for people, plants, and animals. Many biotas currently regarded as "lands of opportunity" are in fact already subsisting on exploitative agriculture, i.e. they have already exceeded their sustained carrying capacity. Most of South America is overpopulated in this sense.

In arid regions we attempt to offset the process of wastage by reclamation, but it is only too evident that the prospective longevity of reclamation projects is often short. In our own West, the best of them may not last a century.

The combined evidence of history and ecology seems to support one general deduction: the less violent the man-made changes, the greater the probability of successful readjustment

in the pyramid. Violence, in turn, varies with human population density; a dense population requires a more violent conversion. In this respect, North America has a better chance for permanence than Europe, if she can contrive to limit her density.

This deduction runs counter to our current philosophy, which assumes that because a small increase in density enriched human life, that an indefinite increase will enrich it indefinitely. Ecology knows of no density relationship that holds for indefinitely wide limits. All gains from density are subject to a law of diminishing returns.

Whatever may be the equation for men and land, it is improbable that we as yet know all its terms. Recent discoveries in mineral and vitamin nutrition reveal unsuspected dependencies in the up-circuit: incredibly minute quantities of certain substances determine the value of soils to plants, of plants to animals. What of the down-circuit? What of the vanishing species, the preservation of which we now regard as an esthetic luxury? They helped build the soil; in what unsuspected ways may they be essential to its maintenance? Professor Weaver proposes that we use prairie flowers to reflocculate the wasting soils of the dust bowl; who knows for what purpose cranes and condors, otters and grizzlies may some day be used?

LAND HEALTH AND THE A-B CLEAVAGE

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. Health is the capacity of the land for self-renewal. Conservation is our effort to understand and preserve this capacity.

Conservationists are notorious for their dissensions. Superficially these seem to add up to mere confusion, but a more careful scrutiny reveals a single plane of cleavage common to many specialized fields. In each field one group (A) regards the land as soil, and its function as commodity-production; another group (B) regards the land as a biota, and its function as something broader. How much broader is admittedly in a state of doubt and confusion.

In my own field, for content to grow trees like those as the basic forest (A) inhibition against violence. Group B, on the other hand, forestry as fundamentally different because it employs natural selection in a natural environment rather than an artificial one. Group B is based on principle. It works on economic grounds about like chestnut, and the white pines. It worries about secondary forest functions, watersheds, wilderness. Group B feels the sting of ecological conscience.

In the wildlife field, for Group A the basic food and meat; the yardsticks of take in pheasants and quail is acceptable as a temporary recourse—if its use is on the other hand, worried about biotic side-issues. What about producing a game crop? How to recourse to exotics? How to the shrinking species, like the hopeless as shootable quail? How to restore the trumpeter swan and wild geese? Management principles become here again it is clear that the same A-B cleavage as in

In the larger field of agriculture, competent to speak, but what parallel cleavages. Group B is actively developing biotic, hence a slower penetration might be expected. Most of the very nature of his technology is biota more radically than a life manager. Nevertheless, contents in agriculture are a new vision of "biotic

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In my own field, forestry, group A is quite content to grow trees like cabbages, with cellulose as the basic forest commodity. It feels no inhibition against violence; its ideology is agronomic. Group B, on the other hand, sees forestry as fundamentally different from agronomy because it employs natural species, and manages a natural environment rather than creating an artificial one. Group B prefers natural reproduction on principle. It worries on biotic as well as economic grounds about the loss of species like chestnut, and the threatened loss of the white pines. It worries about a whole series of secondary forest functions: wildlife, recreation, watersheds, wilderness areas. To my mind, Group B feels the stirrings of an ecological conscience.

In the wildlife field, a parallel cleavage exists. For Group A the basic commodities are sport and meat; the yardsticks of production are ciphers of take in pheasants and trout. Artificial propagation is acceptable as a permanent as well as a temporary recourse—if its unit costs permit. Group B, on the other hand, worries about a whole series of biotic side-issues. What is the cost in predators of producing a game crop? Should we have further recourse to exotics? How can management restore the shrinking species, like prairie grouse, already hopeless as shootable game? How can management restore the threatened rarities, like trumpeter swan and whooping crane? Can management principles be extended to wildflowers? Here again it is clear to me that we have the same A-B cleavage as in forestry.

In the larger field of agriculture I am less competent to speak, but there seem to be somewhat parallel cleavages. Scientific agriculture was actively developing before ecology was born, hence a slower penetration of ecological concepts might be expected. Moreover the farmer, by the very nature of his techniques, must modify the biota more radically than the forester or the wildlife manager. Nevertheless, there are many discontents in agriculture which seem to add up to a new vision of "biotic farming."

Perhaps the most important of these is the new evidence that poundage or tonnage is no measure of the food-value of farm crops; the products of fertile soil may be qualitatively as

well as quantitatively superior. We can bolster poundage from depleted soils by pouring on imported fertility, but we are not necessarily bolstering food-value. The possible ultimate ramifications of this idea are so immense that I must leave their exposition to abler pens.

The discontent that labels itself "organic farming," while bearing some of the earmarks of a cult, is nevertheless biotic in its direction, particularly in its insistence on the importance of soil flora and fauna.

The ecological fundamentals of agriculture are just as poorly known to the public as in other fields of land-use. For example, few educated people realize that the marvelous advances in technique made during recent decades are improvements in the pump, rather than the well. Acre for acre, they have barely sufficed to offset the sinking level of fertility.

In all of these cleavages, we see repeated the same basic paradoxes: man the conqueror *versus* man the biotic citizen; science the sharpener of his sword *versus* science the searchlight on his universe; land the slave and servant *versus* land the collective organism. Robinson's injunction to Tristram may well be applied, at this juncture, to *Homo sapiens* as a species in geological time:

*Whether you will or not
You are a King, Tristram, for you are one
Of the time-tested few that leave the world,
When they are gone, not the same place it was.
Mark what you leave.*

THE OUTLOOK

It is inconceivable to me that an ethical relation to land can exist without love, respect, and admiration for land, and a high regard for its value. By value, I of course mean something far broader than mere economic value; I mean value in the philosophical sense.

Perhaps the most serious obstacle impeding the evolution of a land ethic is the fact that our educational and economic system is headed away from, rather than toward, an intense consciousness of land. Your true modern is separated from the land by many middlemen, and by innumerable physical gadgets. He has no vital relation to it; to him it is the space between cities on

which crops grow. Turn him loose for a day on the land, and if the spot does not happen to be a golf links or a “scenic” area, he is bored stiff. If crops could be raised by hydroponics instead of farming, it would suit him very well. Synthetic substitutes for wood, leather, wool, and other natural land products suit him better than the originals. In short, land is something he has “outgrown.”

Almost equally serious as an obstacle to a land ethic is the attitude of the farmer for whom the land is still an adversary, or a taskmaster that keeps him in slavery. Theoretically, the mechanization of farming ought to cut the farmer’s chains, but whether it really does is debatable.

One of the requisites for an ecological comprehension of land is an understanding of ecology, and this is by no means co-extensive with “education”; in fact, much higher education seems deliberately to avoid ecological concepts. An understanding of ecology does not necessarily originate in courses bearing ecological labels; it is quite as likely to be labeled geography, botany, agronomy, history, or economics. This is as it should be, but whatever the label, ecological training is scarce.

The case for a land ethic would appear hopeless but for the minority which is in obvious revolt against these “modern” trends.

The “key-log” which must be moved to release the evolutionary process for an ethic is simply this: quit thinking about decent land-use as solely an economic problem. Examine each question in terms of what is ethically and esthetically right, as well as what is economically expedient. 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.

It of course goes without saying that economic feasibility limits the tether of what can or cannot be

done for land. It always has and it always will. The fallacy the economic determinists have tied around our collective neck, and which we now need to cast off, is the belief that economics determines *all* land-use. This is simply not true. An innumerable host of actions and attitudes, comprising perhaps the bulk of all land relations, is determined by the land-users’ tastes and predilections, rather than by his purse. The bulk of all land relations hinges on investments of time, forethought, skill, and faith rather than on investments of cash. As a land-user thinketh, so is he.

I have purposely presented the land ethic as a product of social evolution because nothing so important as an ethic is ever “written.” Only the most superficial student of history supposes that Moses “wrote” the Decalogue; it evolved in the minds of a thinking community, and Moses wrote a tentative summary of it for a “seminar.” I say tentative because evolution never stops.

The evolution of a land ethic is an intellectual as well as emotional process. Conservation is paved with good intentions which prove to be futile, or even dangerous, because they are devoid of critical understanding either of the land, or of economic land-use. I think it is a truism that as the ethical frontier advances from the individual to the community, its intellectual content increases.

The mechanism of operation is the same for any ethic: social approbation for right actions, social disapproval for wrong actions.

By and large, our present problem is one of attitudes and implements. We are remodeling the Alhambra with a steamshovel, and we are proud of our yardage. We shall hardly relinquish the shovel, which after all has many good points, but we are in need of gentler and more objective criteria for its successful use.

J. Baird Callicott
North Texas State University
Defense of the Land Ethic
Callicott (1989) argues that the land ethic is rooted in the work of Aldo Leopold and Gifford Pinchot, who saw the land as a commonwealth. He argues that the land ethic is a basic human value that should be taught in schools and universities.

The two great cultural revolutions of the last century were the development of geology and the development of agriculture; however, as the or soil is the question community. That science of ecology, web of interdependence, amaze—were he I who, of all men, should tremble before the

ALDO LEOPOLD

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I

As Wallace Stegner in *Sand County Almanac* is considered a conservation circles,” and “an American Isaiah.” He writes, “The Land Ethic,” *Sand County*, “the One might, therefore

From *Companion to the Land Ethic*
mission of University of Wisconsin

STUDY QUESTIONS

1. Does Leopold make a case for the intrinsic value of the biotic community, or does he only assume this?
2. Analyze Leopold’s view of humans and of biotic communities. How do we resolve conflicts between their claims and needs? Which are more important, ecosystems or individuals?
3. Critically discuss the strengths and weaknesses of Leopold’s position.
4. Leopold makes two fundamental claims of the American conservation movement. What are they? Has American environmentalism moved in the direction that Leopold advocated?

20 The Conceptual Foundations of the Land Ethic

J. BAIRD CALLICOTT

J. Baird Callicott (b. 1941) is professor of philosophy and natural resources at the University of North Texas and the author of several works in environmental philosophy, including *In Defense of the Land Ethic* (1989) from which this essay is taken.

Callicott develops the philosophical implications of Leopold's land ethic. He shows how it is rooted in the eighteenth-century Scottish Sentimentalist School of David Hume and Adam Smith, who said that ethics is based in natural sympathy or sentiments. Leopold, adding a Darwinian dimension to these thoughts, extended the notion of natural sentiments to ecosystems as the locus of value. Callicott argues that Leopold is not claiming that we should sacrifice basic human needs to the environment, but rather that we should see ourselves as members of a wider ecological community.

The two great cultural advances of the past century were the Darwinian theory and the development of geology. . . . Just as important, however, as the origin of plants, animals, and soil is the question of how they operate as a community. That task has fallen to the new science of ecology, which is daily uncovering a web of interdependencies so intricate as to amaze—were he here—even Darwin himself, who, of all men, should have least cause to tremble before the veil.

ALDO LEOPOLD, FRAGMENT 6B16,
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UNIVERSITY OF WISCONSIN—
MADISON ARCHIVES

As Wallace Stegner observes, *A Sand County Almanac* is considered "almost a holy book in conservation circles," and Aldo Leopold a prophet, "an American Isaiah." And as Curt Meine points out, "The Land Ethic" is the climactic essay of *Sand County*, "the upshot of 'The Upshot.'" One might, therefore, fairly say that the

recommendation and justification of moral obligations on the part of people to nature is what the prophetic *A Sand County Almanac* is all about.

But, with few exceptions, "The Land Ethic" has not been favorably received by contemporary academic philosophers. Most have ignored it. Of those who have not, most have been either nonplussed or hostile. Distinguished Australian philosopher John Passmore dismissed it out of hand, in the first book-length academic discussion of the new philosophical subdiscipline called "environmental ethics." In a more recent and more deliberate discussion, the equally distinguished Australian philosopher H. J. McCloskey patronized Aldo Leopold and saddled "The Land Ethic" with various far-fetched "interpretations." He concludes that "there is a real problem in attributing a coherent meaning to Leopold's statements, one that exhibits his land ethic as representing a major advance in ethics rather than a retrogression to a morality of a kind held by various primitive peoples." Echoing McCloskey, English philosopher Robin Attfield went out of his way to impugn the philosophical respectability of "The Land Ethic." And Canadian philosopher L. W. Sumner has called it "dangerous nonsense."

From *Companion to a Sand County Almanac* by J. Baird Callicott. Copyright © 1987. Reprinted by permission of University of Wisconsin Press. Footnotes deleted.

Among those philosophers more favorably disposed, "The Land Ethic" has usually been simply quoted, as if it were little more than a noble, but naive, moral plea, altogether lacking a supporting theoretical framework—that is, foundational principles and premises which lead, by compelling argument, to ethical precepts.

The professional neglect, confusion, and (in some cases) contempt for "The Land Ethic" may, in my judgment, be attributed to three things: (1) Leopold's extremely condensed prose style in which an entire conceptual complex may be conveyed in a few sentences, or even in a phrase or two; (2) his departure from the assumptions and paradigms of contemporary philosophical ethics; and (3) the unsettling practical implications to which a land ethic appears to lead. "The Land Ethic," in short, is, from a philosophical point of view, abbreviated, unfamiliar, and radical.

Here I first examine and elaborate the compactly expressed abstract elements of the land ethic and expose the "logic" which binds them into a proper, but revolutionary, moral theory. I then discuss the controversial features of the land ethic and defend them against actual and potential criticism. I hope to show that the land ethic cannot be ignored as merely the groundless emotive exhortations of a moonstruck conservationist or dismissed as entailing wildly untoward practical consequences. It poses, rather, a serious intellectual challenge to business-as-usual moral philosophy.

II

"The Land Ethic" opens with a charming and poetic evocation of Homer's Greece, the point of which is to suggest that today land is just as routinely and remorselessly enslaved as human beings then were. A panoramic glance backward to our most distant cultural origins, Leopold suggests, reveals a slow but steady moral development over three millennia. More of our relationships and activities ("fields of conduct") have fallen under the aegis of moral principles ("ethical criteria") as civilization has grown and matured. If moral growth and development continue, as not only a synoptic review of history, but recent past experience suggest that it will, future

generations will censure today's casual and universal environmental bondage as today we censure the casual and universal human bondage of three thousand years ago.

A cynically inclined critic might scoff at Leopold's sanguine portrayal of human history. Slavery survived as an institution in the "civilized" West, more particularly in the morally self-congratulatory United States, until a mere generation before Leopold's own birth. And Western history from imperial Athens and Rome to the Spanish Inquisition and the Third Reich has been a disgraceful series of wars, persecutions, tyrannies, pogroms, and other atrocities.

The history of moral practice, however, is not identical with the history of moral consciousness. Morality is not descriptive; it is prescriptive or normative. In light of this distinction, it is clear that today, despite rising rates of violent crime in the United States and institutional abuses of human rights in Iran, Chile, Ethiopia, Guatemala, South Africa, and many other places, and despite persistent organized social injustice and oppression in still others, moral consciousness is expanding more rapidly now than ever before. Civil rights, human rights, women's liberation, children's liberation, animal liberation, and so forth, all indicate, as expressions of newly emergent moral ideals, that ethical consciousness (as distinct from practice) has if anything recently accelerated—thus confirming Leopold's historical observation.

III

Leopold next points out that "this extension of ethics, so far studied only by philosophers"—and therefore, the implication is clear, not very satisfactorily studied "is actually a process in ecological evolution" (p. 202). What Leopold is saying here, simply, is that we may understand the history of ethics, fancifully alluded to by means of the Odysseus vignette, in biological as well as philosophical terms. From a biological point of view, an ethic is "a limitation on freedom of action in the struggle for existence" (p. 202). . . .

Let me put the problem in perspective. How, . . . did ethics originate and, once in existence, grow in scope and complexity?

The oldest answer is theological. God (or gods) are on people. And God (or gods) are a most vivid and good account occurs in the Bible. It is up on Mount Sinai that the Ten Commandments directly from God illustrates the divine willences, droughts, and famines for moral disobedience. The Bible explains the divine will, of course, but simply explains subsequent development.

Western philosophy has almost unanimously rejected the idea of ethics in human culture as a product of human reason. It is pivoted in the "social contract" theory of origin and nature of ethics. In modern, and contemporary, philosophy, from Protagoras, to Heraclitus, to the wellspring of virtue ethics, and Aristotle, and according to Kant. In modern philosophy, in the history of moral beings becoming moral beings. The ongoing social progress is progressive illumination and the right expansion of the historical growth of ethics, noticed by Leopold.

An evolutionary account cannot be satisfied with the accounts of the origin of ethics. The idea that God is out in principle—a principle of a natural phenomenon in natural science. *principle* be a function of mathematical calculation that it is so *in fact* the horse. Reasonable, and recently under any circumstances evolved in the abilities which depend upon a highly developed cannot have been assumed limitation.

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The oldest answer in living human memory is theological. God (or the gods) imposes morality on people. And God (or the gods) sanctions it. A most vivid and graphic example of this kind of account occurs in the Bible when Moses goes up on Mount Sinai to receive the Ten Commandments directly from God. That text also clearly illustrates the divine sanctions (plagues, pestilences, droughts, military defeats, and so forth) for moral disobedience. Ongoing revelation of the divine will, of course, as handily and as simply explains subsequent moral growth and development.

Western philosophy, on the other hand, is almost unanimous in the opinion that the origin of ethics in human experience has somehow to do with human reason. Reason figures centrally and pivotally in the "social contract theory" of the origin and nature of morals in all its ancient, modern, and contemporary expressions from Protagoras, to Hobbes, to Rawls. Reason is the wellspring of virtue, according to both Plato and Aristotle, and of categorical imperatives, according to Kant. In short, the weight of Western philosophy inclines to the view that we are moral beings because we are rational beings. The ongoing sophistication of reason and the progressive illumination it sheds upon the good and the right explain "the ethical sequence," the historical growth and development of morality, noticed by Leopold.

An evolutionary natural historian, however, cannot be satisfied with either of these general accounts of the origin and development of ethics. The idea that God gave morals to man is ruled out in principle—as any supernatural explanation of a natural phenomenon is ruled out in principle in natural science. And while morality might *in principle* be a function of human reason (as, say, mathematical calculation clearly is), to suppose that it is so *in fact* would be to put the cart before the horse. Reason appears to be a delicate, variable, and recently emerged faculty. It cannot, under any circumstances, be supposed to have evolved in the absence of complex linguistic capabilities which depend, in turn, for their evolution upon a highly developed social matrix. But we cannot have become social beings unless we assumed limitations on freedom of action in the

struggle for existence. Hence we must have become ethical before we became rational.

Darwin, probably in consequence of reflections somewhat like these, turned to a minority tradition of modern philosophy for a moral psychology consistent with and useful to a general evolutionary account of ethical phenomena. A century earlier, Scottish philosophers David Hume and Adam Smith had argued that ethics rest upon feelings or "sentiments"—which, to be sure, may be both amplified and informed by reason. And since in the animal kingdom feelings or sentiments are arguably far more common or widespread than reason, they would be a far more likely starting point for an evolutionary account of the origin and growth of ethics.

Darwin's account, to which Leopold unmistakably (if elliptically) alludes in "The Land Ethic," begins with the parental and filial affections common, perhaps, to all mammals. Bonds of affection and sympathy between parents and offspring permitted the formation of small, closely knit social groups, Darwin argued. Should the parental and familial affections bonding family members chance to extend to less closely related individuals, that would permit an enlargement of the family group. And should the newly extended community more successfully defend itself and/or more efficiently provision itself, the inclusive fitness of its members severally would be increased, Darwin reasoned. Thus the more diffuse familial affections, which Darwin (echoing Hume and Smith) calls the "social sentiments" would be spread throughout a population.

Morality, properly speaking—that is, morality as opposed to mere altruistic instinct—requires, in Darwin's terms, "intellectual powers" sufficient to recall the past and imagine the future, "the power of language" sufficient to express "common opinion," and "habituation" to patterns of behavior deemed, by common opinion, to be socially acceptable and beneficial. Even so, ethics proper, in Darwin's account, remains firmly rooted in moral feelings or social sentiments which were—no less than physical faculties, he expressly avers—naturally selected, by the advantages for survival and especially for successful reproduction, afforded by society.

The protosociobiological perspective on ethical phenomena, to which Leopold as a natural historian was heir, leads him to a generalization which is remarkably explicit in his condensed and often merely resonant rendering of Darwin's more deliberate and extended paradigm: Since "the thing [ethics] has its origin in the tendency of interdependent individuals or groups to evolve modes of co-operation, . . . all ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts" (pp. 202-3).

Hence, we may expect to find that the scope and specific content of ethics will reflect both the perceived boundaries and actual structure or organization of a cooperative community or society. *Ethics and society or community are correlative*. This single, simple principle constitutes a powerful tool for the analysis of moral natural history, for the anticipation of future moral development (including, ultimately, the land ethic), and for systematically deriving the specific precepts, the prescriptions and proscriptions, of an emergent and culturally unprecedented ethic like a land or environmental ethic.

IV

Anthropological studies of ethics reveal that in fact the boundaries of the moral community are generally coextensive with the perceived boundaries of society. And the peculiar (and, from the urbane point of view, sometimes inverted) representation of virtue and vice in tribal society—the virtue, for example, of sharing to the point of personal destitution and the vice of privacy and private property—reflects and fosters the life way of tribal peoples. Darwin, in his leisurely, anecdotal discussion, paints a vivid picture of the intensity, peculiarity, and sharp circumscription of "savage" mores: "A savage will risk his life to save that of a member of the same community, but will be wholly indifferent about a stranger." As Darwin portrays them, tribespeople are at once paragons of virtue "within the limits of the same tribe" and enthusiastic thieves, man-slaughterers, and torturers without.

For purposes of more effective defense against common enemies, or because of increased

population density, or in response to innovations in subsistence methods and technologies, or for some mix of these or other forces, human societies have grown in extent or scope and changed in form or structure. Nations—like the Iroquois nation or the Sioux nation—came into being upon the merger of previously separate and mutually hostile tribes. Animals and plants were domesticated and erstwhile hunter-gatherers became herders and farmers. Permanent habitations were established. Trade, craft, and (later) industry flourished. With each change in society came corresponding and correlative changes in ethics. The moral community expanded to become co-extensive with the newly drawn boundaries of societies and the representation of virtue and vice, right and wrong, good and evil, changed to accommodate, foster, and preserve the economic and institutional organization of emergent social orders.

Today we are witnessing the painful birth of a human supercommunity, global in scope. Modern transportation and communication technologies, international economic interdependencies, international economic entities, and nuclear arms have brought into being a "global village." It has not yet become fully formed and it is at tension—a very dangerous tension—with its predecessor, the nation-state. Its eventual institutional structure, a global federalism or whatever it may turn out to be, is at this point completely unpredictable. Interestingly, however, a corresponding global human ethic—the "human rights" ethic, as it is popularly called—has been more definitely articulated.

Most educated people today pay lip service at least to the ethical precept that all members of the human species, regardless of race, creed, or national origin, are endowed with certain fundamental rights which it is wrong not to respect. According to the evolutionary scenario set out by Darwin, the contemporary moral ideal of human rights is a response to a perception—however vague and indefinite—that mankind worldwide is united into one society, one community, however indeterminate or yet institutionally unorganized. As Darwin presciently wrote:

As man advances in civilization, and small tribes are united into larger communities, the simplest

reason would tell each extend his social instincts to members of the same unknown to him. There is only an artificial pathos extending to races. If, indeed, suffer him by great differences in experience unfortunate before we look at the

According to Leopold's sequence beyond the universal humanity, a step on the horizon, is the "community concept" has, so fundamental of ethics from family of man. "The land ethic: the boundary of the soils, water, plants, and the land" (p. 204).

As the foreword to the overarching theme of the inculcation of the description, discursive generalization, and "that land is a community concept is "the land ethic" (viii). Once land is population community—as it is population ecology—a correlative the collective cultural

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Although anticipated eighteenth century—in "ethics of nature"—the concept was more fully and developed working model or paradigm Elton in the 1920s. There is an intricate corporate animals occupy "niche" called them, "roles" or community of nature. As in a socio-economic model exists in the biotic community's trade.

Human society, in large part, upon man

reason would tell each individual that he ought to extend his social instincts and sympathies to all the members of the same nation, though personally unknown to him. This point being once reached, there is only an artificial barrier to prevent his sympathies extending to the men of all nations and races. If, indeed, such men are separated from him by great differences of appearance or habits, experience unfortunately shows us how long it is, before we look at them as our fellow-creatures.

According to Leopold, the next step in this sequence beyond the still incomplete ethic of universal humanity, a step that is clearly discernible on the horizon, is the land ethic. The "community concept" has, so far, propelled the development of ethics from the savage clan to the family of man. "The land ethic simply enlarges the boundary of the community to include soils, water, plants, and animals, or collectively: the land" (p. 204).

As the foreword to *Sand County* makes plain, the overarching thematic principle of the book is the inculcation of the idea—through narrative description, discursive exposition, abstractive generalization, and occasional preachment—"that land is a community" (viii). The community concept is "the basic concept of ecology" (viii). Once land is popularly perceived as a biotic community—as it is professionally perceived in ecology—a correlative land ethic will emerge in the collective cultural consciousness.

V

Although anticipated as far back as the mid-eighteenth century—in the notion of an "economy of nature"—the concept of the biotic community was more fully and deliberately developed as a working model or paradigm for ecology by Charles Elton in the 1920s. The natural world is organized as an intricate corporate society in which plants and animals occupy "niches," or as Elton alternatively called them, "roles" or "professions," in the economy of nature. As in a feudal community, little or no socioeconomic mobility (upward or otherwise) exists in the biotic community. One is born to one's trade.

Human society, Leopold argues, is founded, in large part, upon mutual security and economic

interdependency and preserved only by limitations on freedom of action in the struggle for existence—that is, by ethical constraints. Since the biotic community exhibits, as modern ecology reveals, an analogous structure, it too can be preserved, given the newly amplified impact of "mechanized man," only by analogous limitations on freedom of action—that is, by a land ethic (viii). A land ethic, furthermore, is not only "an ecological necessity," but an "evolutionary possibility" because a moral response to the natural environment—Darwin's social sympathies, sentiments, and instincts translated and codified into a body of principles and precepts—would be automatically triggered in human beings by ecology's social representation of nature (p. 203).

Therefore, the key to the emergence of a land ethic is, simply, universal ecological literacy.

VI

The land ethic rests upon three scientific cornerstones: (1) evolutionary and (2) ecological biology set in a background of (3) Copernican astronomy. Evolutionary theory provides the conceptual link between ethics and social organization and development. It provides a sense of "kinship with fellow-creatures" as well, "fellow-voyagers" with us in the "odyssey of evolution" (p. 109). It establishes a diachronic link between people and nonhuman nature.

Ecological theory provides a synchronic link—the community concept—a sense of social integration of human and nonhuman nature. Human beings, plants, animals, soils, and waters are "all interlocked in one humming community of cooperations and competitions, one biota." The simplest reason, to paraphrase Darwin, should, therefore, tell each individual that he or she ought to extend his or her social instincts and sympathies to all the members of the biotic community though different from him or her in appearance or habits.

And although Leopold never directly mentions it in *A Sand County Almanac*, the Copernican perspective, the perception of the earth as "a small planet" in an immense and utterly hostile universe beyond, contributes, perhaps

subconsciously, but nevertheless very powerfully, to our sense of kinship, community, and interdependence with fellow denizens of the earth household. It scales the earth down to something like a cozy island paradise in a desert ocean.

Here in outline, then, are the conceptual and logical foundations of the land ethic: Its conceptual elements are a Copernican cosmology, a Darwinian protosociobiological natural history of ethics, Darwinian ties of kinship among all forms of life on earth, and an Eltonian model of the structure of biocenoses all overlaid on a Humean-Smithian moral psychology. Its logic is that natural selection has endowed human beings with an affective moral response to perceived bonds of kinship and community membership and identity; that today the natural environment, the land, is represented as a community, the biotic community; and that, therefore, an environmental or land ethic is both possible—the biopsychological and cognitive conditions are in place—and necessary, since human beings collectively have acquired the power to destroy the integrity, diversity, and stability of the environing and supporting economy of nature. In the remainder of this essay I discuss special features and problems of the land ethic germane to moral philosophy.

The most salient feature of Leopold's land ethic is its provision of what Kenneth Goodpaster has carefully called "moral considerability" for the biotic community per se, not just for fellow members of the biotic community.

In short, a land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such. (p. 204, emphasis added)

The land ethic, thus, has a holistic as well as an individualistic cast.

Indeed, as "The Land Ethic" develops, the focus of moral concern shifts gradually away from plants, animals, soils, and waters severally to the biotic community collectively. Toward the middle, in the subsection called "Substitutes for a Land Ethic," Leopold invokes the "biotic rights" of *species*—as the context indicates—of wildflowers, songbirds, and predators. In "The

Out-look," the climactic section of "The Land Ethic," nonhuman natural entities, first appearing as fellow members, then considered in profile as species, are not so much as mentioned in what might be called the "summary moral maxim" of the land ethic: "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" (pp. 224–25).

By this measure of right and wrong, not only would it be wrong for a farmer, in the interest of higher profits, to clear the woods off a 75 percent slope, turn his cows into the clearing and dump its rainfall, rocks, and soil into the community creek, it would also be wrong for the federal fish and wildlife agency, in the interest of individual animal welfare, to permit populations of deer, rabbits, feral burros, or whatever to increase unchecked and thus to threaten the integrity, stability, and beauty of the biotic communities of which they are members. The land ethic not only provides moral considerability for the biotic community per se, but ethical consideration of its individual members is preempted by concern for the preservation of the integrity, stability, and beauty of the biotic community. The land ethic, thus, not only has a holistic aspect; it is holistic with a vengeance.

The holism of the land ethic, more than any other feature, sets it apart from the predominant paradigm of modern moral philosophy. It is, therefore, the feature of the land ethic which requires the most patient theoretical analysis and the most sensitive practical interpretation.

VII

As Kenneth Goodpaster pointed out, mainstream modern ethical philosophy has taken egoism as its point of departure and reached a wider circle of moral entitlement by a process of generalization: I am sure that *I*, the enveloped ego, am intrinsically or inherently valuable and thus that *my* interests ought to be considered, taken into account, by "others" when their actions may substantively affect *me*. My own claim to moral consideration, according to the conventional wisdom, ultimately rests upon a psychological capacity—rationality or sentience were the classical candidates of Kant and Bentham, respectively—which is arguably valuable

in itself and which thus qualifies as a moral good. However, then I grant the same moral value to others, on this basis I can also claim to possess a logical characteristic.

A criterion of moral value is thus identified. Goodpaster argues that mainstream modern moral philosophy when all the learned dust is blown away is a simple paradigm of ethical theory exemplified by the Bentham types. If the criterion of moral value is pitched low, Bentham's criterion of moral value of animals are admitted, the criterion of moral value is pushed lower still—as it is in the reverence-for-life ethic. Things (plants as well as animals) extended moral consideration. Animal liberation/life-life-principle ethic direct applications of the paradigm of moral argument. Modern model of ethical theory: possibility whatever form of wholes—of threatened and plants, or of endangered species, or of biotic communities, of the biosphere. Wholes per se have no moral value of any kind. Because no theory has been "psychically and intractably intrinsic" in its fundamental

Hume, Smith, and Bentham prevailing theoretical model. Altruism is as fundamental as egoism. Human nature as is egoism. Analysis, moral value is intrinsic quality objectively present in beings—as reason and sentiment present in people and animals were, projected by value.

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in itself and which thus qualifies *me* for moral standing. However, then I am forced grudgingly to grant the same moral consideration I demand from others, on this basis, to those others who can also claim to possess the same general psychological characteristic.

A criterion of moral value and consideration is thus identified. Goodpaster convincingly argues that mainstream moral theory is based, when all the learned dust has settled, on this simple paradigm of ethical justification and logic exemplified by the Benthamic and Kantian prototypes. If the criterion of moral values and consideration is pitched low enough—as it is in Bentham's criterion of sentiency—a wide variety of animals are admitted to moral entitlement. If the criterion of moral value and consideration is pushed lower still—as it is in Albert Schweitzer's reverence-for-life ethic—all minimally conative things (plants as well as animals) would be extended moral considerability. The contemporary animal liberation/rights, and reverence-for-life/life-principle ethics are, at bottom, simply direct applications of the modern classical paradigm of moral argument. But this standard modern model of ethical theory provides no possibility whatever for the moral consideration of wholes—of threatened population of animals and plants, or of endemic, rare, or endangered species, or of biotic communities, or most expansively, of the biosphere in its totality—since wholes per se have no psychological experience of any kind. Because mainstream modern moral theory has been "psychocentric," it has been radically and intractably individualistic or "atomistic" in its fundamental theoretical orientation.

Hume, Smith, and Darwin diverged from the prevailing theoretical model by recognizing that altruism is as fundamental and autochthonous in human nature as is egoism. According to their analysis, moral value is not identified with a natural quality objectively present in morally considerable beings—as reason and/or sentiency is objectively present in people and/or animals—it is, as it were, projected by valuing subjects.

Hume and Darwin, furthermore, recognize inborn moral sentiments which have society as such as their natural object. Hume insists that "we must renounce the theory which accounts

for every moral sentiment by the principle of self-love. We must adopt a more *publick affection* and allow that the *interests of society* are not, *even on their own account*, entirely indifferent to us." And Darwin, somewhat ironically (since "Darwinian evolution" very often means natural selection operating exclusively with respect to individuals), sometimes writes as if morality had no other object than the commonweal, the welfare of the community as a corporate entity:

We have now seen that actions are regarded by savages, and were probably so regarded by primeval man, as good or bad, solely as they obviously affect the welfare of the tribe,—not that of the species, nor that of the individual member of the tribe. This conclusion agrees well with the belief that the so called moral sense is aboriginally derived from social instincts, for both relate at first exclusively to the community.

Theoretically then, the biotic community owns what Leopold, in the lead paragraph of "The Outlook," calls "value in the philosophical sense"—that is, direct moral considerability—because it is a newly discovered proper object of a specially evolved "publick affection" or "moral sense" which all psychologically normal human beings have inherited from a long line of ancestral social primates (p. 223).

VIII

In the land ethic, as in all earlier stages of social-ethical evolution, there exists a tension between the good of the community as a whole and the "rights" of its individual members considered severally. . . .

In any case, the conceptual foundations of the land ethic provide a well-informed, self-consistent theoretical basis for including both fellow members of the biotic community and the biotic community itself (considered as a corporate entity) within the purview of morals. The preemptive emphasis, however, on the welfare of the community as a whole, in Leopold's articulation of the land ethic, while certainly consistent with its Humean-Darwinian theoretical foundations, is not determined by them alone. The overriding holism of the land ethic results, rather, more from the way our moral sensibilities are informed by ecology.

IX

Ecological thought, historically, has tended to be holistic in outlook. Ecology is the study of the relationships of organisms to one another and to the elemental environment. These relationships bind the *relata*—plants, animals, soils, and waters—into a seamless fabric. The ontological primacy of objects and the ontological subordination of relationships characteristic of classical Western science is, in fact, reversed in ecology. Ecological relationships determine the nature of organisms rather than the other way around. A species is what it is because it has adapted to a niche in the ecosystem. The whole, the system itself, thus, literally and quite straightforwardly shapes and forms its component species.

Antedating Charles Elton's community model of ecology was F. E. Clements and S. A. Forbes's organism model. Plants and animals, soils and waters, according to this paradigm, are integrated into one superorganism. Species are, as it were, its organs; specimens its cells. Although Elton's community paradigm (later modified, as we shall see, by Arthur Tansley's ecosystem idea) is the principal and morally fertile ecological concept of "The Land Ethic," the more radically holistic superorganism paradigm of Clements and Forbes resonates in "The Land Ethic" as an audible overtone. In the peroration of "Land Health and the A-B Cleavage," for example, which immediately precedes "The Outlook," Leopold insists that

in all these cleavages, we see repeated the same basic paradoxes: man the conqueror *versus* man the biotic citizen; science the sharpener of his sword *versus* science the searchlight on his universe; land the slave and servant *versus* land the collective organism. (p. 223)

And on more than one occasion Leopold, in the latter quarter of "The Land Ethic," talks about the "health" and "disease" of the land—terms which are at once descriptive and normative and which, taken literally, characterize only organisms proper.

In an early essay, "Some Fundamentals of Conservation in the Southwest," Leopold speculatively flirted with the intensely holistic

superorganism model of the environment as a paradigm pregnant with moral implications. . . .

Had Leopold retained this overall theoretical approach in "The Land Ethic," the land ethic would doubtless have enjoyed more critical attention from philosophers. The moral foundations of a land or, as he might then have called it, "earth" ethic would rest upon the hypothesis that the Earth is alive and ensouled—possessing inherent psychological characteristics, logically parallel to reason and sentience. This notion of a conative whole earth could plausibly have served as a general criterion of intrinsic worth and moral considerability, in the familiar format of mainstream moral thought.

Part of the reason, therefore, that "The Land Ethic" emphasizes more and more the integrity, stability, and beauty of the environment as a whole, and less and less the biotic right of individual plants and animals to life, liberty, and the pursuit of happiness, is that the superorganism ecological paradigm invites one, much more than does the community paradigm, to hypostatize, to reify the whole, and to subordinate its individual members.

In any case, as we see, rereading "The Land Ethic" in light of "Some Fundamentals," the whole Earth organism image of nature is vestigially present in Leopold's later thinking. Leopold may have abandoned the "earth ethic" because ecology had abandoned the organism analogy in favor of the community analogy as a working theoretical paradigm. And the community model was more suitably given moral implications by the social/sentimental ethical natural history of Hume and Darwin.

Meanwhile, the biotic community ecological paradigm itself had acquired, by the late thirties and forties, a more holistic cast of its own. In 1935 British ecologist Arthur Tansley pointed out that from the perspective of physics the "currency" of the "economy of nature" is energy. Tansley suggested that Elton's qualitative and descriptive food chains, food webs, trophic niches, and biosocial professions could be quantitatively expressed by means of a thermodynamic flow model. It is Tansley's state-of-the-art thermodynamic paradigm of the environment that Leopold explicitly sets out as a "mental image of land" in relation to which

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practical precepts of the land ethic.

"The Land Pyramid" is the pivotal section of
"The Land Ethic"—the section which effects a
complete transition from concern for "fellow-
members" to the "community as such." It is
also its longest and most technical section. A
description of the "ecosystem" (Tansley's delib-
erately nonmetaphorical term) begins with the sun.
Solar energy "flows through a circuit called the
biota" (p. 215). It enters the biota through the
leaves of green plants and courses through
plant-eating animals, and then on to omnivores
and carnivores. At last the tiny fraction of solar
energy converted to biomass by green plants
remaining in the corpse of a predator, animal
feces, plant detritus, or other dead organic mate-
rial is garnered by decomposers—worms, fungi,
and bacteria. They recycle the participating ele-
ments and degrade into entropic equilibrium
any remaining energy. According to this paradigm

land, then, is not merely soil; it is a fountain of
energy flowing through a circuit of soils, plants,
and animals. Food chains are the living channels
which conduct energy upward; death and decay
return it to the soil. The circuit is not close-
d; . . . but it is a sustained circuit, like a slowly aug-
mented revolving fund of life. (p. 216)

In this exceedingly abstract (albeit poetically
expressed) model of nature, process precedes
substance and energy is more fundamental than
matter. Individual plants and animals become
less autonomous beings than ephemeral struc-
tures in a patterned flux of energy. According
to Yale biophysicist Harold Morowitz,

viewed from the point of view of modern [ecol-
ogy], each living thing . . . is a dissipative structure,
that is it does not endure in and of itself but only
as a result of the continual flow of energy in the
system. An example might be instructive. Con-
sider a vortex in a stream of flowing water. The
vortex is a structure made of an ever-changing
group of water molecules. It does not exist as an
entity in the classical Western sense; it exists only
because of the flow of water through the stream.
In the same sense, the structures out of which bio-
logical entities are made are transient, unstable
entities with constantly changing molecules,

dependent on a constant flow of energy from
food in order to maintain form and structure. . . .
From this point of view the reality of individuals
is problematic because they do not exist per se
but only as local perturbations in this universal
flow.

Though less bluntly stated and made more
palatable by the unfailing charm of his prose,
Leopold's proffered mental image of land is just
as expansive, systemic, and distanced as Moro-
witz's. The maintenance of "the complex struc-
ture of the land and its smooth functioning as
an energy unit" emerges in "The Land Pyramid"
as the *summum bonum* of the land ethic (p. 216).

X

From this good Leopold derives several practical
principles slightly less general, and therefore
more substantive, than the summary moral
maxim of the land ethic distilled in "The Out-
look." "The trend of evolution [not its "goal,"
since evolution is ateleological] is to elaborate
and diversify the biota" (p. 216). Hence,
among our cardinal duties is the duty to preserve
what species we can, especially those at the apex
of the pyramid—the top carnivores. "In the
beginning, the pyramid of life was low and
squat; the food chains short and simple. Evolu-
tion has added layer after layer, link after link"
(pp. 215–16). Human activities today, especially
those like systematic deforestation in the tropics,
resulting in abrupt massive extinctions of species,
are in effect "devolutionary;" they flatten the
biotic pyramid; they choke off some of the chan-
nels and gorge others (those which terminate in
our own species).

The land ethic does not enshrine the ecolog-
ical status quo and devalue the dynamic dimen-
sion of nature. Leopold explains that "evolution
is a long series of self-induced changes, the net
result of which has been to elaborate the flow
mechanism and to lengthen the circuit. Evolu-
tionary changes, however, are usually slow and
local. Man's invention of tools has enabled him
to make changes of unprecedented violence,
rapidity, and scope" (pp. 216–17). "Natural"
species extinction, that is, species extinction in
the normal course of evolution, occurs when a

species is replaced by competitive exclusion or evolves into another form. Normally speciation outpaces extinction. Mankind inherited a richer, more diverse world than had ever existed before in the 3.5 billion-year odyssey of life on Earth. What is wrong with anthropogenic species extirpation and extinction is the *rate* at which it is occurring and the *result*: biological impoverishment instead of enrichment.

Leopold goes on here to condemn, in terms of its impact on the eco-system, "the world-wide pooling of faunas and floras," that is, the indiscriminate introduction of exotic and domestic species and the dislocation of native and endemic species, mining the soil for its stored biotic energy, leading ultimately to diminished fertility and to erosion; and polluting and damming water courses (p. 217).

According to the land ethic, therefore: Thou shalt not extirpate or render species extinct; thou shalt exercise great caution in introducing exotic and domestic species into local exosystems, in exacting energy from the soil and releasing it into the biota, and in damming or polluting water courses; and thou shalt be especially solicitous of predatory birds and mammals. Here in brief are the express moral precepts of the land ethic. They are all explicitly informed—not to say derived—from the energy circuit model of the environment.

XI

The living channels—food chains—through which energy courses are composed of individual plants and animals. A central, stark fact lies at the heart of ecological processes: Energy, the currency of the economy nature, passes from one organism to another, not from hand to hand, like coined money, but, so to speak, from stomach to stomach. Eating *and being eaten*, living *and dying* are what make the biotic community hum.

The precepts of the land ethic, like those of all previous accretions, reflect and reinforce the structure of the community to which it is correlative. Trophic asymmetries constitute the kernel of the biotic community. It seems unjust, unfair. But that is how the economy of nature is

organized (and has been for thousands of millions of years). The land ethic, thus, affirms as good, and strives to preserve, the very inequities in nature whose social counterparts in human communities are condemned as bad and would be eradicated by familiar social ethics, especially by the more recent Christian and secular egalitarian exemplars. A "right to life" for individual members is not consistent with the structure of the biotic community and hence is not mandated by the land ethic. This disparity between the land ethic and its more familiar social precedents contributes to the apparent devaluation of individual members of the biotic community and augments and reinforces the tendency of the land ethic, driven by the systemic vision of ecology, toward a more holistic or community-per-se orientation.

Of the few moral philosophers who have given the land ethic a moment's serious thought, most have regarded it with horror because of its emphasis on the good of the community and its deemphasis on the welfare of individual members of the community. Not only are other sentient creatures members of the biotic community and subordinate to its integrity, beauty, and stability; so are *we*. Thus, if it is not only morally permissible, from the point of view of the land ethic, but morally required, that members of certain species be abandoned to predation and other vicissitudes of wild life or even deliberately culled (as in the case of alert and sentient whitetail deer) for the sake of the integrity, stability, and beauty of the biotic community, how can we consistently exempt ourselves from a similar draconian regime? We too are only "plain members and citizens" of the biotic community. And our global population is growing unchecked. According to William Aiken, from the point of view of the land ethic, therefore, "massive human diebacks would be good. It is our duty to cause them. It is our species' duty, relative to the whole, to eliminate 90 percent of our numbers." Thus, according to Tom Regan, the land ethic is a clear case of "environmental fascism."

Of course Leopold never intended the land ethic to have either inhumane or antihumanitarian implications or consequences. But whether he intended them or not, a logically consistent

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XII

The land ethic, happi mane nor inhuman c philosophers think it their own theoretic from the theoretical e itself. Conventional m moral entitlement, as a criterion or qualifica the criterion—ration: most commonly posit tled to equal moral s possess the same qual Hence, reasoning in t dox way, and forcing form: if human being plants, soils, and wa the biotic community bership is the criteri ation, then not only and waters have ec "rights," but human to the same subordin and rights in respect t nity as a whole.

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deduction from the theoretical premises of the land ethic might force such untoward conclusions. And given their magnitude and monstrosity, these derivations would constitute a *reductio ad absurdum* of the whole land ethic enterprise and entrench and reinforce our current human chauvinism and moral alienation from nature. If this is what membership in the biotic community entails, then all but the most radical misanthropes would surely want to opt out.

XII

The land ethic, happily, implies neither inhumane nor inhuman consequences. That some philosophers think it must follow more from their own theoretical presuppositions than from the theoretical elements of the land ethic itself. Conventional modern ethical theory rests moral entitlement, as I earlier pointed out, on a criterion or qualification. If a candidate meets the criterion—rationality or sentience are the most commonly posited—he, she, or it is entitled to equal moral standing with others who possess the same qualification in equal degree. Hence, reasoning in this philosophically orthodox way, and forcing Leopold's theory to conform: if human beings are, with other animals, plants, soils, and waters, equally members of the biotic community, and if community membership is the criterion of equal moral consideration, then not only do animals, plants, soils, and waters have equal (highly attenuated) "rights," but human beings are equally subject to the same subordination of individual welfare and rights in respect to the good of the community as a whole.

But the land ethic, as I have been at pains to point out, is heir to a line of moral analysis different from that institutionalized in contemporary moral philosophy. From the biosocial evolutionary analysis of ethics upon which Leopold builds the land ethic, it (the land ethic) neither replaces nor overrides previous accretions. Prior moral sensibilities and obligations attendant upon and correlative to prior strata of social involvement remain operative and preemptive.

Being citizens of the United States, or the United Kingdom, or the Soviet Union, or

Venezuela, or some other nation-state, and therefore having national obligations and patriotic duties, does not mean that we are not also members of smaller communities or social groups—cities or townships, neighborhoods, and families—or that we are relieved of the peculiar moral responsibilities attendant upon and correlative to these memberships as well. Similarly, our recognition of the biotic community and our immersion in it does not imply that we do not also remain members of the human community—the "family of man" or "global village"—or that we are relieved of the attendant and correlative moral responsibilities of that membership, among them to respect universal human rights and uphold the principles of individual human worth and dignity. The biosocial development of morality does not grow in extent like an expanding balloon, leaving no trace of its previous boundaries, so much like the circumference of a tree. Each emergent, and larger, social unit is layered over the more primitive, and intimate, ones.

Moreover, as a general rule, the duties correlative to the inner social circles to which we belong eclipse those correlative to the rings farther from the heartwood when conflicts arise. Consider our moral revulsion when zealous ideological nationalists encourage children to turn their parents in to the authorities if their parents dissent from the political or economic doctrines of the ruling party. A zealous environmentalist who advocated visiting war, famine, or pestilence on human populations (those existing somewhere else, of course) in the name of the integrity, beauty, and stability of the biotic community would be similarly perverse. Family obligations in general come before nationalistic duties and humanitarian obligations in general come before environmental duties. The land ethic, therefore, is not draconian or fascist. It does not cancel human morality. The land ethic may, however, as with any new accretion, demand choices which affect, in turn, the demands of the more interior social-ethical circles. Taxes and the military draft may conflict with family-level obligations. While the land ethic, certainly, does not cancel human morality, neither does it leave it unaffected.

Nor is the land ethic inhumane. Nonhuman fellow members of the biotic community have no "human rights," because they are not, by definition, members of the human community. As fellow members of the biotic community, however, they deserve respect.

How exactly to express or manifest respect, while at the same time abandoning our fellow members of the biotic community to their several fates or even actively consuming them for our own needs (and wants), or deliberately making them casualties of wildlife management for ecological integrity, is a difficult and delicate question.

Fortunately, American Indian and other traditional patterns of human-nature interaction provide rich and detailed models. Algonkian woodland peoples, for instance, represented animals, plants, birds, waters, and minerals as other-than-human persons engaged in reciprocal, mutually beneficial socioeconomic intercourse with human beings. Tokens of payment, together with expressions of apology, were routinely offered to the beings whom it was necessary for these Indians to exploit. Care not to waste the usable parts and care in the disposal of unusable animal and plant remains were also an aspect of the respectful, albeit necessarily consumptive, Algonkian relationship with fellow members of the land community. As I have more fully argued elsewhere, the Algonkian portrayal of human-nature relationships is, indeed, although certainly different in specifics, identical in abstract form to that recommended by Leopold in the land ethic. . . . Is the land ethic prudent or deontological? Is the land ethic, in other words, a matter of enlightened (collective, human) self-interest, or does it genuinely admit nonhuman natural entities and nature as a whole to true moral standing?

The conceptual foundations of the land ethic, as I have here set them out, and much of Leopold's hortatory rhetoric, would certainly indicate that the land ethic is deontological (or duty oriented) rather than prudential. In the section significantly titled "The Ecological Conscience," Leopold complains that the then-current conservation philosophy is inadequate

Although Leopold claims for communities of plants and animals a "right to continued existence," his argument is homocentric, appealing to the human stake in preservation. Basically it is an argument from enlightened self-interest, where the self in question is not an individual human being but humanity—present and future—as a whole.

Lehmann's claim has some merits, even though it flies in the face of Leopold's express

because "it defines no right or wrong, assigns no obligation, calls for no sacrifice, implies no change in the current philosophy of values. In respect of land-use, it urges *only* enlightened self-interest" (pp. 207–8, emphasis added). Clearly, Leopold himself thinks that the land ethic goes beyond prudence. In this section he disparages mere "self-interest" two more times, and concludes that "obligations have no meaning without conscience, and the problem we face is the extension of the social conscience from people to land" (p. 209).

In the next section, "Substitutes for a Land Ethic," he mentions rights twice—the "biotic right" of birds to continuance and the absence of a right on the part of human special interest to exterminate predators.

Finally, the first sentences of "The Outlook" read: "It is inconceivable to me that an ethical relation to land can exist without love, respect, and admiration for land, and a high regard for its value. By value, I of course mean something far broader than mere economic value; I mean value in the philosophical sense" (p. 223). By "value in the philosophical sense," Leopold can only mean what philosophers more technically call "intrinsic value" or "inherent worth." Something that has intrinsic value or inherent worth is valuable in and of itself, not because of what it can do for us. "Obligation," "sacrifice," "a conscience," "respect," the ascription of rights, and intrinsic value—all of these are consistently opposed to self-interest and seem to indicate decisively that the land ethic is of the deontological type.

Some philosophers, however, have seen it differently. Scott Lehmann, for example, writes,

An ethic may be regarded for meeting ecological care, or involving such the path of social expectation the average individual modes of guidance for such situations. Ethics community instinct in-the-From an objective, ethical point of view, eth

expresses it in sociobiological the biosocial foundation aware of this moral part Leopold, in fact, sees these "resources." Leopold, in fact, is aware of this moral part of the biosocial foundation that expresses it in sociobiological care, or involving such the path of social expectation the average individual modes of guidance for such situations. Ethics community instinct in-the-From an objective, ethical point of view, eth

- STUDY QUESTIONS**
1. What are the three neglected, confusion, "land ethics," accord
 2. How is the land ethic and mainstream m such as Kant's and Goodpaster's critical draws.
 3. Is Callihcott successful basis of value in the (humans) and the environmental problems with this

commitments. Leopold does frequently lapse into the language of (collective, long-range, human) self-interest. Early on, for example, he remarks, "in human history, we have learned (I hope) that the conqueror role is eventually *self-defeating*" (p. 204, emphasis added). And later, of the 95 percent of Wisconsin species which cannot be "sold, fed, eaten, or otherwise put to economic use," Leopold reminds us that "these creatures are members of the biotic community, and if (as I believe) its stability depends on its integrity, they are entitled to continuance" (p. 210). The implication is clear: the economic 5 percent cannot survive if a significant portion of the uneconomic 95 percent are extirpated; nor may *we*, it goes without saying, survive without these "resources."

Leopold, in fact, seems to be consciously aware of this moral paradox. Consistent with the biosocial foundations of his theory, he expresses it in sociobiological terms:

An ethic may be regarded as a mode of guidance for meeting ecological situations so new or intricate, or involving such deferred reactions, that the path of social expediency is not discernible to the average individual. Animal instincts are modes of guidance for the individual in meeting such situations. Ethics are possibly a kind of community instinct in-the-making. (p. 203)

From an objective, descriptive sociobiological point of view, ethics evolve because they

contribute to the inclusive fitness of their carriers (or, more reductively still, to the multiplication of their carriers' genes); they are expedient. However, the path to self-interest (or to the self-interest of the selfish gene) is not discernible to the participating individuals (nor, certainly, to their genes). Hence, ethics are grounded in instinctive feeling—love, sympathy, respect—not in self-conscious calculating intelligence. Somewhat like the paradox of hedonism—the notion that one cannot achieve happiness if one directly pursues happiness *per se* and not other things—one can only secure self-interest by putting the interests of others on a par with one's own (in this case long-range collective human self-interest and the interest of other forms of life and of the biotic community *per se*).

So, is the land ethic deontological or prudential, after all? It is both—self-consistently both—depending upon one's point of view. From the inside, from the lived, felt point of view of the community member with evolved moral sensibilities, it is deontological. It involves an affective-cognitive posture of genuine love, respect, admiration, obligation, self-sacrifice, conscience, duty, and the ascription of intrinsic value and biotic rights. From the outside, from the objective and analytic scientific point of view, it is prudential. "There is no other way for land to survive the impact of mechanized man," nor, therefore, for mechanized man to survive his own impact upon the land (p. viii).

STUDY QUESTIONS

1. What are the three reasons for the professional neglect, confusion, and neglect of Leopold's "land ethics," according to Callicott?
2. How is the land ethic different from classical and mainstream modern ethical philosophy, such as Kant's and Bentham's systems? Note Goodpaster's criticisms on which Callicott draws.
3. Is Callicott successful in arguing for the natural basis of value in the interaction between valuers (humans) and the environment? Can you see any problems with this view?
4. Leopold wrote "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." This passage has been interpreted by some to mean that humans should be sacrificed if they interfere with the good of the biotic community. Callicott tries to modify this statement, removing the misanthropic implications. Go over his defense. Has Callicott strengthened or weakened Leopold's land ethic by modifying it as he does?