1 Environmental Problems and Humanity

What are **environmental problems**? How are they to be identified, and what generates them? While the answers may seem obvious, these questions turn out to repay reflection, not least because problems are identified differently by different perspectives, and different problems are identified as problems. In this chapter, issues considered include how environmental problems are identified, the range of values that people bring to them, theories about their causes, and whether humanity can have a constructive role in curing or alleviating them. The nature and role of **environmental ethics** itself are also considered.

Introduction: environmental problems and the global environment

Environmental problems are those problems that arise from human dealings with the natural world and its systems. Human beings cannot help using and modifying tracts of the natural world, since we depend on nature for food, clothing and shelter, for our water supply, and for the air we breathe. But the unintended impacts of human actions are now creating problems like global warming and the extinction of multitudes of species, problems which raise profound issues about how we should live our lives and organize our societies, and which present challenges never encountered by previous generations.

Not everyone means the same thing when they speak of '**environment**' or 'environmental problems'. They often (and this is a first

meaning) mean 'the surroundings', natural or otherwise, either of an individual for the duration of her life, or of a society for the duration of its existence, but they sometimes mean (secondly) the objective system of nature that encompasses either local society or human society in general, and that precedes and succeeds it. Alternatively (and thirdly) they sometimes have in mind the perceived surroundings or familiar *milieu* of an individual person or animal, the territory or pathways that give that individual a sense of belonging and comprise her home. However, while everyone has an environment, the mobility of modern life means that not everyone has such an environment in this third, home-territory, sense, as many people have little sense of being at home in the place where they currently find themselves living.[1] Fortunately many individuals prove able to 'put down roots' and form attachments in unfamiliar places and to develop a sense of belonging in more than one setting. In any case, people also prove capable of caring not only for their native territory but for the various shared surroundings and natural systems that we also refer to when we use 'the environment' in the other senses.

Besides, there could not be perceived environments, environments formed by the thoughts and activities of individuals (environments in the third sense), nor physical environments surrounding individuals either (environments in the first sense), if there were no environments in the sense of objective systems of nature, such as mountains, valleys and islands, forests, seas and rivers, and the natural cycles and processes that make them what they are (environments in the second sense). These objective systems both precede and outlive individuals, and, while they are far from immune from human action and its impacts, they supply the shared settings of our lives, and thus the very possibility of perceived environments and of familiar surroundings. I am not suggesting that all environments are benign, particularly as many have been ravaged by human industrial activity, or turned into deserts through human neglect. Indeed we have to be prepared to distinguish between social environments, whose defects stem from human action, and the underlying natural systems, inhospitable as these sometimes are. While these systems do not always suit human interests or comfort either, they nevertheless comprise public goods, making possible much of what is valuable in our lives; hence the high importance of our capacity to care for shared surroundings and natural systems.

So, unless the context specifies otherwise, 'environment' in this book normally means 'objective encompassing system of nature'. This usage of 'environment', besides cohering with concern for

local natural systems and settings, also makes sense of talk of '**the global environment**', a newly crucial topic granted the discovery that humanity has been disrupting the natural systems and cycles of our entire planet in recent decades. Such disruption has taken place, for example, through global warming, through emissions resulting in acid rain, through radioactive discharges, and through the release of chemicals such as **CFCs** that have damaged the ozone layer, which protects terrestrial species from skin-cancer. Like weather systems, environments refuse to observe international frontiers. Thus emissions of radioactivity, of greenhouse gases and of CFCs from anywhere on Earth are all liable to impact worldwide on the shared natural system of the planet (the system of systems). Hence the importance of reflection, not least in environmental ethics, on the global environment. The meaning of this phrase should here be clarified. By '**the global environment**' I mean not the environs or surroundings of our planet, much less the planet as a field of significance, but rather the actual natural systems of planet Earth. This shared environment will assume a prominent place in this text.

Brief excursus on the Gaia hypothesis

The global environment remains important whether or not we accept **the Gaia hypothesis** of James Lovelock, namely that the Earth is a self-regulating system, maintaining the conditions that support life. To take two examples of apparent regulation, the proportion of oxygen in the atmosphere and the salinity of the oceans have remained constant for billions of years; the constancy of the protective ozone layer seemed, at least until recently, to supply another example. Lovelock suggests that the explanation of such phenomena is that the complex system of life on our planet ensures its own continuation.[2] He does not claim that Gaia acts knowingly or purposively, but does regard it as a superorganism with pervasive capacities for self-repair.[3] These claims, however, may exceed the evidence,[4] even though some ethicists have endorsed them and concluded that what is needed is loyalty to Gaia.[5] Thus the presence of oxygen in the atmosphere is more favourable to some kinds of life than to others; and, as Andrew Brennan remarks, the natural systems that regulate the content of the oceans and the atmosphere may be simpler than Lovelock suggests, without it being any the less important not to disrupt them through our practices of production, consumption and waste-disposal.[6] This, however, serves to underline the importance of reflection on planetary problems as well as on local ones.

Local and global environmental problems

Besides the different senses of 'environment' (as discussed in the previous section), much variation is also found in people's understanding of **environmental problems**. This diversity arises because people diverge enormously in their assumptions about what constitutes a problem, or about what makes problems problematic.

While some people consider as important nothing but impacts on local people for the near future, others may take into account impacts on the whole of humanity,[7] and/or the entire foreseeable future, and/or other species too; and all kinds of intermediate stances are also taken. So from some perspectives water shortages in the Middle East or the loss of species in Amazonia or the Asian Brown Cloud, a three-kilometre-high blanket of **pollution** discovered in 2002 to stretch from Pakistan to Indonesia, are not problems at all, since they affect distant rather than local people and environments; and the same might be thought to apply to greenhouse gas emissions if regarded as more likely to affect future decades than the present. But at least one perspective, the perspective of what Arne Naess has called 'the Deep, Long-Range Ecology Movement',[8] considers that environmental problems include developments that adversely affect the natural systems of the Third World, of the further future and of non-human species, as well as issues affecting just Western countries and the human interests of the present. (**Deep Ecology** is a movement which aims at the flourishing or self-realization of all Earth's species, and urges us to identify with the totality of life on Earth, the planetary biosphere.) If we adopt anything like this perspective, then we shall count all developments of the kinds just mentioned as environmental problems, as well as ones impinging mainly on affluent people in developed countries for the next two or three decades. We can do this whether or not we subscribe to the specific tenets of Deep Ecology (in Naess's sense). I shall be arguing in this book that we need a broad enough value-theory to allow us to take all these impacts seriously, and to recognize the full range of environmental problems for what they are.

Such a broad value-theory does not make local environmental problems any the less important. The loss of many species of flowering plants, butterflies and songbirds from the British countryside, or the pollution from a local, inner-city factory, blighting the lives of already disadvantaged people, call for action at local, regional or national level. Indeed, such issues often open people's eyes to wider, worldwide problems arising from the human treatment of nature.

But the longstanding environmentalist slogan 'Think globally, act locally'[9] has become outmoded, granted that the global environment is itself now at risk, and that many environmental problems have become global, either in the sense of being repeated all over the world, like traffic congestion, deforestation and chemical pollution, or in the distinct sense of problems of interconnected global systems, such as the droughts, wildfires and floods that are generated by the impact of global warming on global weather patterns.[10] Nowadays, even people mainly concerned for their local territory need to be alert to the global environmental change that often threatens it, and self-interest is added to love of others and love of nature as a motive for environmental concern at the global level.

While local problems (such as litter or smog) often generate environmental awareness among communities, some go unremarked for many years, as did the toxic effects of lead pipes on drinking water for many centuries from Roman times, and of asbestos on healthy air for many decades. Problems, then, can exist unnoticed; greenhouse gas emissions supply a global example. Nor does consciousness of situations as problems invariably make them authentic problems; the NIMBY (Not In My Back Yard) syndrome often betokens concern over the impact of a new development on local property values as much as genuine environmental disruption. Besides cases of community concern, local problems include issues principally related to particular localities but paralleled elsewhere, from the loss of topsoil in parts of the United States to overfishing in particular seas such as the North Sea or the Grand Banks off Newfoundland. Localized problems merge into regional problems in cases like the evaporation and shrinking of the Aral Sea, due to misguided irrigation schemes and agricultural projects in the former Soviet Union; this ongoing problem is now affecting several of the new Central Asian republics and thus has an international dimension.

Global problems of the repetitive or cumulative kind include, in addition to those already mentioned, the oil slicks that now besmirch all the principal sea-lanes of our seas and oceans, losses of species and habitats across most of Earth's ecosystems, and loss of wetlands (often due to agricultural expansion) and of forests (through profiteering companies and the need of afforested countries to service their international debt). While these problems may not reflect interconnected global ecological problems, they do seem to be worldwide side-effects of the global economic and financial system.[11] Meanwhile other global environmental problems are systemic, having become embedded in the ecological systems of the planet, including the worldwide effects of the insecticide DDT (that

has long since been affecting even the penguins of the Antarctic), and of radioactive strontium (circulating in the stratosphere since nuclear tests of the 1950s, and still polluting our rainfall). Similarly the worldwide growth of deserts probably reflects global **climate change**, and comprises a further consequence of global warming.

The very scope and range of these problems (both local and global) present a challenge to environmental ethics. For those who work in this field need to sustain principles of right action and of value adequate not only to concerns such as resource conservation, wildlife protection and species preservation, but also to the full range and extent of the problems depicted in this section.

Animal-welfarism and environmentalism

Ethics, however, has a yet broader scope, for it is concerned with inter-human dealings as well as with human dealings with nature. Its concerns include both relations between individuals and the rules of society; with how individuals ought to treat one another, and with how societies ought fairly to be organized. And relations between individuals might reasonably be held to include relations between human agents and individual non-human animals. In any case, the ethics of the treatment of animals is an important area of contemporary ethical debate.

For some readers, the ethics of the treatment of animals will appear simply a part (even possibly the central part) of environmental ethics, while for others these two areas may seem separate and even potentially in conflict. The different groundings of these stances warrant discussion here, although debates about fundamental values and priorities, and how to study them, will be reserved for later chapters.

The case for regarding the treatment of animals as continuous with (and possibly central to) environmental ethics goes like this. The key factor that qualifies anything for moral consideration is either its capacity to suffer, or alternatively its having a perspective or point of view of its own. Most non-human animals have this capacity, albeit to different degrees, and, to the extent that they are conscious, have points of view, from which things can go better or worse for them. Because like cases should be treated alike, non-human animals should be given consideration comparable to human beings with respect to these shared capacities, though this would not apply where human beings (or most human beings) have capacities that non-humans lack. Creatures that lack both sentience (the capacity to feel and to suffer) and consciousness, and

thus have no point of view, lack the kind of interests that warrant such consideration. (Let us call the adherents of this position 'sentientists', a term that is more closely defined in the coming section.) These principles are just as relevant to environmental issues as they are to (say) agricultural issues, or to issues of research ethics.

Positions of this kind are held by philosophers and ethicists with a great variety of outlooks. (We return to the particular theories in greater detail in chapter 2, and the point here is to note the range of positions held and some of the leading thinkers who hold them, rather than to study their details or differences in depth at this stage.) These philosophers and ethicists, then, sometimes include **consequentialists** (theorists for whom the morality of actions and policies depends on foreseeable outcomes). More precisely, they include the kind of consequentialists who, like Peter Singer, regard the interests of conscious (as opposed to self-conscious) creatures as turning on pleasure and absence of suffering.[12] There again, they also include **rights-theorists** such as Tom Regan,[13] who hold that having a point of view betokens having fundamental rights (rights that are not derivative from anything else), including the rights not to be made to suffer, not to be confined, and not to be killed by human agents. And there are further approaches again. Despite their differences, all these ethical systems have emphasized either sentience or consciousness, and the related interests, whether these interests figure as consequences, as rights, or (to mention yet a further possible approach) as themes in an imaginary contract.[14]

Accordingly environmental problems will consist in problems either for human interests or for the interests of non-human animals, and an acceptable environmental ethic would have these individual interests as its grounds. Indeed those who believe that only sentient or conscious creatures have interests and that having interests is necessary for warranting moral consideration will hold that nothing else has interests on which environmental problems could turn. Problems for ecosystems are thus held to turn invariably on the interests of sentient or conscious individuals. And within such an ethic, priority is liable to be placed on averting suffering or premature death for vulnerable individuals, whether this is best done by the introduction of humane methods of farming, by abstaining from eating meat (or at least meat from factory-farms), by curtailing human interventions in the natural order, or even possibly by intervening to reduce the suffering inflicted (for example) by predators on prey. Millions of people are influenced by such an ethic, and their approach to environmental problems would often follow the general pattern just mentioned (or some elements of it).

Others, however, suggest that environmental ethics must start somewhere quite different. Thinking about the environment involves taking much greater account of ecological systems than such an individualist approach can do, and if we fail to understand the natural systems of our planet we are likely to generate ecological catastrophes, either by neglect or through seeking to rescue individuals while the systems on which they depend are crumbling. By the time we have understood such systems, our focus will no longer be on individual suffering or survival, since far more is at stake, such as the survival of whole species, and the viability and health of whole **ecosystems**. For example, if grasslands are at risk of becoming deserts, measures to protect the grassland system (for example, by planting trees) take priority over efforts to care for ailing individual animals there.

Thus many environmentalists prioritize the **preservation** (or in some cases the rehabilitation) of species and of ecosystems. While all of them would recognize that the survival of species and systems is functionally necessary for the existence and well-being of individuals, some go further and maintain that it is ultimately the species and ecosystems that should be valued, and that the importance of individuals is dependent on their contribution to the good of the species or the ecosystem, or to the good of the biosphere (the system of living and non-living systems) as a whole. At the level of theory, this is a **holistic value-theory**, which locates independent value in wholes (such as species and ecosystems); in some ways it resembles (and sometimes consciously imitates) social and ethical theories that locate value in society as a whole, rather than in its individual members.[15] However, without invariably adhering to such a holistic value-theory (or **axiology**), many people (once again in their millions) take the view that in practice environmental policies must focus on preserving systems or species or their diversity, rather than on enhancing the lives of individual wild creatures. They would often add the goal of conserving resources, with a view to the well-being of future human generations; but this does not suggest that human well-being is their only goal, unless their concerns for preservation are made entirely subordinate to the goal of conserving resources; and this is far from always the case.

So there is a potential clash of values, as well as of policies, between the animal-welfare approach (let us call this **animal-welfarism**) and many kinds of environmentalism. The value-theory that animal-welfarists tend to adopt, which prioritizes the well-being of individual animals, is potentially in conflict with the holistic axiology of some environmentalists, which ultimately locates value in the health of ecosystems, or in the continuing existence of

species, or in biological diversity, and measures the value of individuals by their contribution to this. This latter position often appeals to the famous passage of Aldo Leopold: 'a thing is right when it tends to promote the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise',[16] far removed as Leopold's ethic is both from animal-welfarism and from the ethic of traditional humanism alike. The divergences of these three positions explain the title of an early paper about their clash, J. Baird Callicott's 'Animal Liberation: A Triangular Affair'.[17] This clash became apparent earlier in the 1970s, when the two newer positions, animal-welfarism and ecological holism, were each put forward, by Peter Singer and by Arne Naess respectively, as the new ethic necessary to make good the shortcomings of traditional humanism.

While the merits of these diverse positions cannot be sifted at this stage, readers are entitled to know how I react to them. Unlike Singer and Regan, I do not accept that creatures (such as trees) that lack both sentience and consciousness lack the kind of interests that warrant consideration. Unlike ecological holists, I do not grant that independent value lies in the good of systems or wholes (such as forests) and not in that of individuals. But unlike human-centred ethicists, I shall argue that moral standing cannot be restricted to humanity alone. (For example, the reported European Commission plan to test chemicals for toxicity on as many as 50 million animals, all of which would be killed after the tests, cannot, I suggest, be appraised simply in terms of human interests.)[18] I shall also be suggesting that ethicists can take both the good of non-human individuals and the systems of nature fully into account without becoming either sentientists or holists.

Issues raised so far on which you are invited to form views of your own include the core meaning of 'environment', what makes global environmental problems global, and whether animal-welfarism and environmentalism have values in common. The issue of why environmental problems are problems has also come into view, but possible answers remain to be developed in coming sections.

Theories of value

The view just mentioned, that moral standing can be restricted to humanity alone, is called '**anthropocentrism**', a term that is also

used of the related value-theory that none but human interests or concerns matter, in the sense of having independent value. As we have already seen, this position is rejected by (among others) **sentientists**, who hold that all sentient creatures (or all conscious creatures) have moral standing, and that their interests have **independent value**, value that is not dependent on human interests or on any other kind of value. Some anthropocentrists believe that understanding of and compassion towards animals is grounded in human interests, of which they give a very broad interpretation; compassion, for example, is desirable ultimately because it is good for us. But sentientists stoutly maintain that animal interests are important irrespective of human needs and sensitivities, and that an animal's suffering would matter (and ought to be prevented) even if no human being would be adversely affected in any way whatever by awareness of this suffering. Many people, however, consider both anthropocentrism and sentientism too narrow to supply convincing theories either of moral standing or of value.

Broader theories take the forms of **biocentrism** and of **ecocentrism**. Biocentrists maintain that all living creatures have a good of their own, and have moral standing as such, and further that their flourishing or attaining their good is **intrinsically valuable**, valuable, that is, because of its very nature. Having a good of one's own does not turn on sentience or the capacity for feeling; even a human being in a coma has interests, and the common interest of humans and of other animals in health seems not to depend on the feelings of the individual concerned. Similarly, creatures that lack feelings, such as plants, still have a good of their own, consisting in their developing such capacities as those for growth, photosynthesis, respiration, reproduction and self-repair. Given that the health of sentient creatures has independent value, it is difficult to deny that the health of insentient creatures has value on the same basis. (This is even true of genetically engineered creatures, inclined as we may be to regard them, as Keekok Lee does, as 'biotic artefacts'.)[19] Intrinsic value, then, is carried by individual living creatures or their states. Biocentrists do not deny that ecosystems have great value; but this value arises (according to biocentrism) from the way that ecosystems facilitate the lives and the flourishing of the numerous individual creatures that comprise them or depend on them. The same holds for the entire systems of nature and of evolution; such systems too have high value not in themselves but because of the lives that they generate or make possible. (Sentientists can make parallel claims about ecosystems and the system of nature, except that they have to hold that what gives these systems

their value is nothing but the sentient creatures that the systems facilitate.)

Ecocentrists, however, maintain that ecosystems have a good independent of that of their component individuals, and as such have their own moral standing; their attaining their good has intrinsic value on much the same basis as biocentrists claim for individual organisms. (Parallel claims are sometimes made by ecocentrists about species.) While some ecocentrists suggest that systems (and possibly species) alone have intrinsic value (an unqualified holist position), others hold that the intrinsic value of systems and of species coexists with that of individual creatures. Ecocentrism is held to take systemic factors more seriously than rival views. However, biocentrists and others can recognize that systems shape the development of life and of evolution in a causal manner, without recognizing either that these systems have an identifiable good of their own or that they should be given consideration over and above their living members. Clearly the lives of many individual members turn on the continuation in existence of a relevant ecosystem; hence the systems need to be preserved if the members and thus their species are also to be preserved. If so, biocentrists maintain, it is unnecessary to reason as if the health of the relevant systems mattered independently.

The debate between anthropocentrism, sentientism, biocentrism and ecocentrism is considered further in chapter 2, and cannot be resolved here. Besides, there are some questions that need to be considered first about these theories: what kind of theories are they, and what kind of difference would adopting one of these theories make?

To consider the first question first, these theories are (among other things) theories of the scope and extent of moral standing. To adopt the definition of Kenneth Goodpaster (who coined the phrase **'moral considerability'** to express the same idea), **moral standing** belongs to things that ought to be taken into consideration when action is in prospect, and that thus warrant respect. Goodpaster's own theory is that moral standing attaches to everything that has a good of its own (independently of the good of its owners, producers or users), and that this includes all living creatures (at least). Goodpaster also raises (without settling) the question of whether ecosystems have a good of their own and are also to be included. If so, his theory is ecocentric, and if not, it is biocentric.[20] However, he is clear that inanimate entities lack moral standing, as they have no good of their own, and thus cannot be benefited.[21] This does not mean that followers of Goodpaster would have to regard

(say) works of art as unimportant. Efforts to display and conserve them, however, would be grounded not in consideration or respect for the works of art themselves, but for the human beings who are capable of appreciating them.

Besides being theories of the scope and extent of moral standing, these theories (anthropocentrism, sentientism, biocentrism and ecocentrism) are also theories of the location of intrinsic value. As the above passage about things that are intrinsically valuable suggests, something has **intrinsic value** if it is valuable because of its nature, or because of what it is in itself. Intrinsic value contrasts with **extrinsic** (or derivative) **value**, for example the **instrumental value** that things (such as tools and machines) have because of their actual or potential usefulness, or the value that (say) works of art have because people are benefited through appreciating them (a kind of value for which philosophers have devised the term '**inherent value**'),[22] and it is important to avoid the widespread confusions that misrepresent aesthetic value or even all non-instrumental value as intrinsic value. The theories just listed claim to disclose that intrinsic value is located either solely in human good (or human interests), or in the good or flourishing of all sentient beings, or of all living creatures (future ones included), or (either additionally or instead) of ecosystems; in other words, the good of these entities comprise fundamental (non-derivative) grounds or reasons for action (e.g. to benefit or foster or preserve the things in question).

Some clarification is here in place, because writers sometimes misleadingly suggest that the various kinds of value are simply and invariably functions of what people value. Thus instrumental value is suggested to be nothing but what people value as a means, and intrinsic value to be nothing but what people value as an end, or for its own sake. Granted that these terms are occasionally used in these senses, it is important to observe that 'valuable' standardly means 'what there is reason to value' or 'what is worthy of being valued', and not merely 'what is valued'. Thus things centrally and characteristically have instrumental value when there is reason to value them instrumentally (for example, when they really do serve agreed purposes, as opposed to just being regarded as serving them), and, more importantly, things have intrinsic value when there is reason to value them for what they are in themselves, rather than when they are simply valued as ends. (Many people value money as an end in itself, but this does not mean that money really has intrinsic value.) All this underlines the significance of theories of intrinsic value. Rather than conveying anything about valuings or praise or esteem, such theories convey that certain things

(such as the good of living creatures) are fit to be valued, and thus supply reasons for action (as facts about valuings or praise or esteem could never do).

Accordingly, the theories that we are considering, besides being theories of the scope and extent of moral standing, and of the location of intrinsic value, comprise fundamental theories of **normative ethics**. For any general theory of normative ethics (that is, theories of what ought to be done by agents of one kind or another, and of the related principles and criteria) will need an account of which things have moral standing and which things have intrinsic value. (Thus, to take the example of utilitarianism, moral standing is usually ascribed by holders of this theory to sentient beings, and intrinsic value is located in pleasure or in happiness.) Since theorists are prone to make assumptions in such matters, it is a merit in all the theories currently under consideration that their stance in these matters is explicit. Just because they purport to say which things have moral standing and where intrinsic value is to be found, they potentially supply at least some of the foundations that a general theory of normative ethics requires.

All this helps with our second question, the one concerning what kind of difference the adoption of one of these theories can make. A key part of the answer here is that, just because these theories have the fundamental role just mentioned, the adoption of one or another of them importantly affects what we recognize as a problem, as well as what we accept as a proper way of confronting such situations. (The fundamental role of these theories also helps explain the relation between perspectives and recognition of problems, already mentioned in the second section (p. 4). It is not only what we recognize as right action that is affected by our value-theory, but also what we are able to recognize as a practical problem in the first place. It goes without saying that practical problems are bad states of affairs that are in principle capable either of solution or of alleviation.[23] However, anthropocentric theorists are prone not to recognize as bad or as problematic states of affairs that biocentrists and ecocentrists readily recognize as such.

Thus John Passmore, whose value-theory is largely anthropocentrist, is reluctant to recognize loss of wilderness as an ecological problem.[24] (I say 'largely anthropocentrist' because Passmore, who is basically a traditionalist, also gives a welcome to animal-welfarism; but this welcome seems not to extend to sentientism, or therefore to concern for the future of wild creatures dependent on the continued existence of wildernesses.)[25] Passmore's reluctance to count the shrinking or disappearance of wildernesses as a problem has

led to criticism from Val Routley (now Val Plumwood), because of his restricted view of what amounts to a problem. In her judgement, Passmore's conclusion that his ethic is adequate to the various problems is no more than a hollow victory, because his anthropocentric approach recognizes nothing but threats to *human* interests as problems in the first place. Hence it is not surprising that the related anthropocentric ethic is capable of solving or mitigating the particular range of problems that he actually recognizes as such.[26] By contrast, a value-theory concerned directly for the good of wild creatures or their habitats will identify **ecological problems** against its broader perspective, and will recognize wilderness loss among them. It would not follow that all failures to preserve wilderness are wicked, for the interests of wild creatures might sometimes have to be overridden. But the good of these creatures ought at any rate to be taken into consideration, as is done by biocentrists and by most kinds of ecocentrists. (Incidentally some versions of anthropocentrism would also claim to recognize the importance of preserving wilderness and wild species, albeit ultimately on the basis of human interests;[27] hence the debate about anthropocentrism should not yet be regarded as resolved.)

Yet a key part of the answer to the second question is by now clear: the adoption of one or another value-theory can actually affect and mould our recognition of problems as well as our understanding about what individuals or other agencies such as governments ought to do about them. Some people might treat this finding as a cue for relativism; what we regard as problems and as solutions is (at least in part) perspective-dependent, and perspectives (it might be suggested) are themselves just a matter of preference. However, I shall be arguing to contrary effect; there can be good grounds for choices between value-theories (see chapter 2). If so, then the finding just mentioned supplements and underlines the importance of endorsing one value-theory or another.

Some people suggest, however, that sentientism, biocentrism and ecocentrism are not really alternatives to anthropocentrism after all, because all valuing is ultimately human valuing, all valuations human valuations, and hence all values are anthropocentric in the sense of being generated by human beings, however biocentric (etc.) they may seem. But this reasoning (however it is to be assessed itself) is beside the point where the above debate between value-theories is concerned. This is because the meaning of 'anthropocentric' has shifted from 'deriving from human interests', to 'generated by human judgements'. This is a different concept, for which philosophers use the term '**anthropogenic**' (meaning 'generated by humanity'). Besides, anthropogenic theories of value

concern the status of judgements about value, rather than their normative content, and even if they were true it would still be possible to defend any of the normative value-theories discussed above. Thus even those who endorse the anthropogenic argument need not be anthopocentrists (in the normal sense). In any case, this argument itself is highly suspect, implying as it does that if human valuers had never evolved there would have been nothing bad about the pain of sentient animals, because there would have been no human valuers to confer on pain its badness or disvalue. (I have argued this point in greater detail elsewhere.)[28] Indeed if, as was argued above, 'having value' does not mean 'being valued by someone or other', then the theory that it is human valuations that confer value on things that would otherwise lack such value can in any case be seen to be difficult to defend. Rather than our making things valuable by judging them so, their value is typically something that we recognize or discover.

Environmental ethics and its neighbours

Granted that '**environment**' standardly (both here and standardly elsewhere) means 'objective encompassing system of nature', **environmental ethics** is the study of the ethics of human interactions with and impacts on such systems. It includes both normative ethics (the study of relevant principles of value and of obligation, and their bearing on action and policy) and meta-ethics, the study of the basis and status of all such discourse. For example, the questions of the grounds for pursuing sustainability and the forms that it should take are normative questions, while the issue of whether there are true answers to questions such as these, or whether the answers are all relative to perspectives, are meta-ethical questions.[29] Some key normative questions and meta-ethical questions are discussed in chapter 2.

Accordingly, environmental ethics is defined by its sphere. There are several adjacent or overlapping spheres, to which its findings will often be relevant, though they cannot all be studied here. They include forestry ethics (the sphere from which environmental ethics historically emerged), agricultural ethics, the ethics of animal welfare (links with which have already been noted), **development** ethics (the ethics of social and economic development), business ethics, biomedical ethics, the ethics of genetic engineering and population ethics. Other adjacent fields are transport policy, planning policy and policies concerning recreation and tourism. In order to have a bearing on adjacent fields, as well as strictly environmental

questions, it is important that the full range of value-theories (including anthropocentrism) is included in this field of study.

Different understandings of 'environmental ethics' are exhibited by different writers, some of whom define the discipline not by its sphere but by its values. Thus 'environmental ethics' is sometimes defined not as above, but as the kind of approach to environmental issues which finds independent value to be situated not only in the interests of humanity or of sentient creatures, but also in the good of natural living creatures or their ecosystems.[30] While many environmental philosophers in fact adhere to this kind of approach, many are instead anthropocentrists or sentientists. This being so, it would be unwise to treat the work of the latter as lying outside environmental ethics. Accordingly commitment to either biocentrism or ecocentrism should not be regarded as essential to environmental ethics (a verdict that Christopher Belshaw has recently underlined).[31] The debate concerning the location of intrinsic value can then continue to take place within environmental ethics. Equally, we can avoid making the precise location of the boundaries of environmental ethics a battleground about values; wherever the boundaries lie, there should be plentiful traffic across them, with exchanges of visits between those concerned with related or overlapping study or reflection.

On this basis, environmental ethics can remain a neighbour of population ethics, biomedical ethics and the rest, rather than a rival approach with essentially different values of its own. The alternative might even incline neighbouring disciplines (biomedical ethics, for example, which has to reflect on the ethics of experiments on animals) to become exclusively anthropocentric, confident that non-human interests would be stressed by environmental ethicists. In any case it is greatly preferable if environmental ethics can contribute to interdisciplinary discussions, for example, of planning strategies, on an equal footing with other branches of ethics and with other disciplines such as (in this case) economics and sociology; there is no need for it to be regarded as essentially a school or a movement, although there is plenty of scope for schools of thought (such as Deep Ecology) within it (or within the broader field of environmental philosophy).

Accordingly environmental ethics may be regarded as concerned with a variety of practical issues arising from human interactions with the natural world. For all value-theories, these include: pollution and its prevention or mitigation, the availability of natural resources (both for use and for energy generation), human impacts on the local or the planetary climate, and the preservation of biological diversity (or **biodiversity**), in terms of diversity both within

and among species, subspecies and habitats. Biodiversity preserva-
tion, however, is likely to be stressed particularly by biocentrism
and ecocentrism, which also emphasize issues of loss of habitat
and of wilderness (topics that sometimes trouble anthropocentrist
and sentientist theorists as well, but from one or another narrower
basis). The issues already mentioned involve the related issues of
deforestation, the loss of wetlands and of coral reefs, and the growth
of deserts, and also bring in aspects of transport, of planning, and
of the growth of the human population. Additionally, they raise
aesthetic issues such as provision for spaces for refuge and recrea-
tion and the preservation and appreciation of landscape,[32] and is-
sues of environmental health such as the importance of clean water
and uncontaminated fresh air. Environmental concern can also
embody issues of identity, of community and of belonging. Yet it
also transcends such human-related issues in favour of concern for
the living systems, the evolutionary processes and the entire bio-
sphere of the planet; and the scope of environmental ethics is equally
extensive.

By this stage, you should be forming views about what has moral
standing and intrinsic value, and about the scope and limits of en-
vironmental ethics. You should also have grasped how different
environmental problems are recognized by different perspectives
(such as anthropocentrism, biocentrism and ecocentrism).

Theories of the genesis of the problems

While ecological problems are too diverse to admit of any single
cause, it will prove useful to survey some of the proposed explana-
tions for such problems at this stage. The theories surveyed here
variously attribute these problems to: population, affluence, tech-
nology, capitalism, absence of markets, patriarchy, growth and reli-
gion. But conclusions about both causes and solutions must await
consideration in later chapters of the potential role and significance
of environmental ethics itself (see chapters 3 and 6).

   Many people think that ecological problems, whether local, re-
gional or global, are due to the growth of the human population
(which has now reached just over six billion). For the problems are
caused by human actions, and the more humans there are (they
say) the worse the problems are bound to become. However, many
human communities, far from making the problems worse, live

harmoniously with the land, and much of the worst environmental degradation bears more relation to technological production than to population density or growth. Problems are likely to emerge later this century in supplying the growing population with food and fresh water, and with the electricity that future people are likely to need to satisfy their basic needs; hence population levels need to stabilize, if possible at levels compatible with sustainable resource use and with preservation of biodiversity. But such stabilization is possible, at least in principle, at a higher level of population than that of the present. Besides, even if population levels were somehow to decline, that would be no guarantee that ecological problems such as global warming, deforestation, desertification or nuclear pollution would disappear, or even diminish in proportion. Accordingly, population growth, important as it is, does not seem pivotal to the problems. (Its relation to environmental problems and to poverty will be further discussed in chapter 5.)

Others focus on affluence and overconsumption as the key factor. Through increases in the Gross National Product of most countries of the rich North, modern consumers often command many times the horse power (or the slave power) of even the richest of their predecessors, and in combination with this power their expectations and often wasteful lifestyles either initiate or at least exacerbate the erosion of the natural world.[33] Yet many environmental problems (such as those to be witnessed in the slums of the great cities of the South) are due not to affluence but to poverty – and the same is probably true of rapid population growth. In any case, increases in consumption are insufficient to account for increases in levels of pollution; to explain these increases, as Barry Commoner has argued,[34] new technologies of production have to be taken into account. As with population, the consequences of untrammelled growth of affluence could be dire, and sustainable lifestyles are likely to be needed in place of throwaway consumption. Yet no amount of changes of lifestyle are capable of curing ecological problems in isolation, granted the powerful structures that exist at the levels of corporations and governments. Affluence does not lie at the heart of the problems. (The relation of ethics to lifestyle choices and to economic structures is further discussed in chapter 3.)

A similar picture emerges when high technology is suggested as the root of our problems. While modern technology helps explain levels of pollution and, in some cases, resource depletion, it cannot explain those problems that result from poverty; nor are its consequences uniformly harmful; nor can it be regarded as an autonomous force, and thus the source of ecological problems, as if no

further explanation were needed. Indeed, modern technology will often be needed if the problems are to be tackled, whether in matters of agriculture, or of electricity generation, or of replacing ozone-depleting propellants such as chloro-fluoro-carbons (CFCs). The attitude of managerialism, displayed by some technologists, could still generate problems, and will be discussed in the coming section. But to distinguish between beneficent and other applications of technology, we need to look further.

Not even global **capitalism** seems sufficient to explain the generality of the problems, despite the considerable contribution of market forces and of self-seeking corporations to problems such as deforestation, pollution and global warming. Capitalism may well be unsustainable, as Martin O'Connor suggests,[35] and certainly in a wide range of cases it well explains the aggressive impacts of technology; yet other even more intense instances of technological-induced pollution came to light just after the Cold War at the end of Communist rule in the countries of Eastern Europe such as (the then) Czechoslovakia and East Germany.[36] It should also be recognized that capitalist corporations have been discovering new opportunities for investment in energy-efficient, low-pollution green technology capable of contributing to sustainable solutions. While corporations and the governments that support them need to exercise their power far more responsibly before sustainable global solutions can even be in prospect, capitalism cannot be considered the unique source of all our discontents.

Nor, come to that, can the absence of markets. Some theorists suggest that environmental problems derive from inefficient use of resources, itself explained by the lack of markets to ensure their efficient distribution and deployment.[37] For example, carbon dioxide emissions currently overuse the absorptive capacities of the atmosphere supposedly because there is (as yet) no international emissions market to assign them their proper cost. But this theory implies that where markets and private enterprise prevail, environmental problems are absent. Yet this implication conflicts with widespread experience of toxic emissions, whether around chemical plants as at Bhopal (India), or in polluted rivers such as the Rhine, or at nuclear energy generators like the one at Three Mile Island, where nuclear meltdown was only narrowly avoided. It also implies that where land is held communally on an inalienable basis, and there is thus no market in land, degradation is inevitable, again contrary to experience.[38]

Patriarchy, or the oppression of women by men, has also been suggested (not least by some **ecofeminists**) as underpinning the oppression of nature,[39] whether because belief in the superiority of

male rationality devalues females, emotions, the body and the nat-
ural, or because all the various kinds of oppression (whether on
the basis of gender, class, race, or species) reinforce one another,
and must be combated together. Granted that each kind of oppres-
sion tends to beget other kinds, however, the conclusion to be
drawn (as other ecofeminists have recognized) is that all oppres-
sion, exploitation, and unjustified discrimination are to be con-
tested,[40] and not that any one kind, such as patriarchy, underlies
all the others. Whether patriarchy invariably generates or even
accompanies exploitation of nature can in fact be questioned;[41] for
example, in Ethiopia traditional Oromo culture is deeply patriar-
chal but enlightened with regard to the preservation of species.[42]
Nor could the overthrow of patriarchy be expected of itself to over-
come alienation from nature or to deliver the disappearance of
ecological problems, any more than the overthrow of racism or
of class-division could, although the demise of all these forms
of oppression would make an important contribution. (Some more
constructive **feminist** insights are introduced in the final section of
this chapter and in the first section of chapter 2.)

The view has, however, been proposed that the pursuit of eco-
nomic growth, whether through capitalism, communism, national
socialism, or any other such system, lies at the root of the prob-
lems. As the authors of *Limits to Growth* would maintain,[43] the
unlimited drive for growth in production as well as of population
is likely to prove fatal not only locally but globally too. Yet not all
ecological problems are due to growth, for some are due either to
poverty or to passivity, and draconian ceilings to growth could
even prevent the phased introduction of sustainable solutions
(which would in some cases involve investment in forms of devel-
opment to overcome poverty). Thus particular kinds of growth
need to be considered case by case; some kinds, such as growth in
global warming, need to be halted and if possible reversed, while
others (such as investment in agriculture, water supply and energy
generation from renewable sources) may actually be necessary in
the cause of sustainable solutions.

The possibility remains that human beliefs and attitudes may
partially explain the problems. To suggest, as some have,[44] that
Christian and Jewish beliefs (about creation and the roles of hu-
manity and nature) comprise the root of the problems involves
unduly disregarding economic factors and forces, as well as (argu-
ably) doing violence to history.[45] My own past suggestion that the
problems have partly been caused by belief in perpetual material
progress, its rightness and its inevitability was already explicitly
qualified by awareness of possible interplay between the influence

of material factors and of ideas,[46] and was qualified later in the same text by recognition of 'the crucial role of the world system of economic relations and power relations'.[47] Despite this, I have recently been berated for neglecting the socio-economic context in which beliefs and attitudes might exercise an influence.[48] But economic factors and human beliefs can both be significant. For example, ethical and metaphysical beliefs should not be disregarded, such as the teaching of Descartes that non-human animals are machine-like entities, entirely lacking in consciousness, and may be treated accordingly,[49] or the contrasting belief in stewardship, which is discussed below. Such beliefs might still contribute, through a variety of social mechanisms, either to the problems or to possible solutions, alongside some of the other factors discussed in this section. Whether this suggestion assigns too much influence to ideas and attitudes will be discussed further in chapter 3, while the debate about the impact of Christianity and Judaism will be further considered in the coming section and in chapter 2.

Human stewardship of nature

Since at least the seventeenth century, it has been explicitly main-tained that human beings hold the Earth as a trust, and are not only responsible for its care, but also answerable for the delivery of their role as stewards or trustees. Not surprisingly, these beliefs have religious origins, particularly among Christians and, to a lesser extent, among Jews and Muslims; and their origin is widely held to derive from much earlier centuries, granted that the Old Testament is often interpreted as embodying a message of stewardship (and in the views of many scholars, rightly so interpreted).[50] But many non-religious people adhere to much the same beliefs, and secular versions of stewardship are coming to be accepted without any religious overtones whatever, for example by the World Wide Fund for Nature, Scotland.[51]

According to both the religious and the secular belief in **steward-ship**, human beings do not own the Earth, but hold it as a trust, not least for the sake of future generations. In the Bible, the Earth is understood as belonging not to humanity but to God (Psalm 24), and the land is understood to be held as a leasehold (Leviticus 25:23), and subject to ethical conditions, including taking care of the poor (Leviticus 25; Deuteronomy 15). Correspondingly, secular writers (including Karl Marx) deny that the current generation of human beings can own the globe, and stress that it is a patrimony for our descendants.[52] Both kinds of believers in stewardship

recognize widespread responsibilities to care for the Earth and preserve it intact for our successors. While stewardship does not offer any comprehensive ethical theory, these particular ethical implications, at any rate, are clear.

But believers in stewardship characteristically believe that humans are answerable for their performance as trustees; can this belief be sustained? The religious version of stewardship, whether Christian, Jewish or Islamic, holds that it is to God that humans are answerable. This is not the place for a discussion of grounds for belief in God, particularly as I have discussed these matters elsewhere.[53] Rather the problem is how the secular version can accommodate such belief in answerability. Current human beings cannot strictly be answerable to future generations who do not yet exist (even though environmentalists sometimes talk as if they could be); but they can be answerable to the present generation of humanity as a whole, or perhaps to the community of moral agents (present and future) which shares these responsibilities. A large part of this community is currently alive and competent in the present (which makes answerability a serious possibility), and could reasonably hold to account individuals or peoples who fail to play their part, despite their having been able to do so. This community does not need to be organized into some kind of world government to make such answerability a reality; morally, current agents could be answerable however ill-organized the world community may be, although this answerability is more likely to make a practical difference if international civil society or institutions organize themselves enough to make their presence felt.

Belief in stewardship, then, is a coherent possibility. It has also been criticized, on historical as well as on ethical grounds. Not all the criticisms can be considered here.[54] But one criticism should be tackled directly, the criticism that belief in human stewardship does not cohere with the biblical belief in human **dominion** 'over all the Earth' and its non-human creatures (Genesis 1; Psalm 8). Talk of 'dominion' is prone to conjure up images either of **domination** (an objectionable relationship) or of domineering (an objectionable form of behaviour). However, the concept of dominion conveys no more than the ability to rule or govern that makes responsibility possible. And dominion in the Bible was always conditional, and subject to ethical requirements. Hence the kind of dominion ascribed there to human beings actually clashes with domineering over the Earth and with domination (whether local or global). By the same token this dominion was compatible with notions of (what later came to be called) stewardship. So it is mistaken to contrast dominion

with stewardship; belief in stewardship, as previously mentioned, is becoming regarded as a reasonable interpretation of what the Old Testament (Genesis included) has to say about the relation of humanity to the Earth.

Belief in stewardship also has its dangers. While stewardship is usually regarded as aimed at 'preserving the face of the earth in beauty, usefulness and fruitfulness' and therewith Earth's species,[55] attempts to take control of the entire surface of the planet, or of the entire evolutionary process, have been suggested in its name by (among others) the social ecologist Murray Bookchin, as realizing the creativity implicit in nature.[56] This, however, is a domineering approach, out of keeping with stewardship (which involves respecting what is held in trust), and also focuses excessively on human interests as if there were no other interests or as if they were of no importance. Yet even anthropocentric ethicists such as Bryan G. Norton hold that Earth's species and ecosystems should be preserved for the sake of human well-being,[57] while most adherents of stewardship reject anthropocentrism, and at the same time any approach such as Bookchin's that adopts an exclusively instrumental view of non-human creatures and treats them as dispensable raw material. Stewardship, then, is actually incompatible with the instrumental approach of managerialism. It can take the form of leaving creatures and their habitats alone ('letting-be'), and should not be confused with instrumental attitudes to nature or with the perpetual pursuit of interference or even of change. (Likewise, Martin Heidegger rejects the view that nature comprises a 'standing-reserve', insisting instead that humanity is, in the full sense of the word, its 'care-taker'.)[58]

Besides, a renunciation of the human stewardship of nature could be disastrous. Human beings cannot help drawing their food, clothing and shelter from the natural world, and if in doing so they attempt to throw off all ethical constraints (and thus concern for contemporary and future humans and for fellow creatures), the outcome is likely to be the exercise of power without any pretence at responsibility. This remains the case even if people tell themselves that what they are doing is ignoring moral inhibitions or conventional values, fulfilling their instincts and/or identifying with nature. If the world of nature is full of value, then agents are needed who recognize and respect that value, developing a sense of responsibility and, if possible, of answerability at the same time. However, many related issues need to be considered if stances such as this one are to be defended. Some of the relevant debates are discussed in chapter 2.

But is caring about the environment really possible?

Sometimes it is suggested that our sympathies are too confined and narrow to allow us to care either about the human future or about the natural environment. Some, who believe that we are all basically self-interested, infer that we are incapable of caring about the distant future, and conclude that therefore we can have no obligation to care.[59] Others, such as David Hume, have rejected such **psychological egoism**, but have held that our sentiments (of which Hume considered moral discourse an expression, not itself subject to reason) are so restricted as to support recognizably useful systems of property and justice, and (where obligations are concerned) little more.[60] Yet others have regarded human society as a contract between self-interested individuals, allowing of only those motivations and responsibilities derivable from an ultimately egoistic basis. However, with the possible exception of Hume, who at least recognized sympathy as a natural sentiment, these thinkers adopt implausibly atomistic assumptions about human nature,[61] as if human beings did not begin life as dependent infants, and, as adults, had little or no inclination to tend and nurture such vulnerable beings.[62] In trying to understand both ethics and society on this basis, such thinkers disregard significant aspects of common human experience which may well underlie and make possible empathy, altruism and a sense of social solidarity.[63]

This **feminist** critique of atomism and of egoism crucially modifies the setting to which theories of motivation and of normative ethics are applied. Once the model of agents being imprisoned in self-interest is questioned, it becomes possible to take into account the plentiful empirical evidence that 'people are often motivated to act out of concern for the interests of people of the future'[64] and of members of other species. Psychological egoism attempts implausibly to reduce the wide range of human motivation to a single pattern, and perforce either ignores or misrepresents acts of which the main outcomes are intended and expected to fall after the agent's death, plus self-sacrificial acts of compassion or mercy, and (there again) acts intended to foster causes such as protection of species or habitats. Ernest Partridge has even argued that people have a need to undertake causes of this general type, ones in which we transcend our narrow self-interest (see chapter 4).[65] Whether or not there is a universal need for such self-transcendence, the capacity to care for another not on the basis of self-interest, but in the sense of taking the other's point of view and doing what seems

best from that perspective,[66] is undeniably widespread; and this rightly suggests that acting for others' good, or for the sake of the common good, is equally a widespread motivation (and for that matter one that makes stewardship, as discussed above, a significant possibility).

As we have seen, things are intrinsically valuable when there is reason to promote, cherish or protect them for no reason other than their own nature. Such value is manifestly to be found in states of affairs such as the health and flourishing of (at least) human beings and (perhaps also) of members of other species. Granted all this, there will often be ample reason to promote, cherish or protect such states of affairs, and the various goods on which they depend. Since environmental concern is a form of concern to promote, cherish and protect such goods (whether for human beings or for all species), it need not evoke surprise, and stands in no special need of explanation; in fact it is a phenomenon as unsurprising as ethical concern of any (other) sort.

You are invited to ask yourself your preliminary view on the genesis of environmental problems, the aptness of regarding humanity as stewards of the natural world, and the possibility, given human nature, of human beings sufficiently caring about it.

Summary

Environmental problems arise from human dealings with the natural world, and can be either local or global, and either cumulative or systemic. Animal-welfarism, environmentalism and humanism seemingly embody contrasting values, and we need to distinguish between positions that are anthropocentric, sentientist, biocentric and ecocentric. These contrasting positions concern the scope of moral standing and the location of intrinsic value, and choosing between them affects not only what we recognize as right action but also what we count as a problem. Environmental ethics studies all such issues, and is defined and contrasted with neighbouring disciplines by its sphere and not by its values. Environmental problems are not explained by any single factor, neither population, nor affluence, nor technology, nor capitalism, nor lack of markets, nor patriarchy, nor growth, nor religion. However, beliefs may be influential as well as structures, and belief in the human stewardship of nature could form part of their cure. Feminist critiques of

individualism show that human beings are not incapable of the kind of caring that this belief presupposes.

Notes

1   David E. Cooper, 'Other Species and Moral Reason', p. 145.
2   James Lovelock, *Gaia: A New Look at the Earth*; *Gaia: The Practical Science of Planetary Medicine*.
3   See the discussion of Lovelock's Gaia hypothesis in Andrew Brennan, *Thinking About Nature: An Investigation of Nature, Value and Ecology*, at pp. 129–31.
4   James W. Kirchner, 'The Gaia Hypotheses: Are They Testable? Are They Useful?'; Christopher Belshaw, *Environmental Philosophy: Reason, Nature and Human Concern*, pp. 285–8; Michael Allaby, *Basics of Environmental Science*, p. 7.
5   Stephen R. L. Clark, 'Gaia and the Forms of Life'; Mary Midgley, *Science and Poetry*, pp. 171–86.
6   Brennan, *Thinking About Nature*, p. 131.
7   This, combined with technological optimism, is the perspective of Björn Lomborg, *The Skeptical Environmentalist: Measuring the Real State of the World*.
8   Arne Naess, 'The Shallow and the Deep, Long-Range Ecology Movement: A Summary'. Some of the implications of Deep Ecology, such as its advocacy of the goal of a reduced human population, are highly problematic.
9   A slogan of René Dubos. See Gerard Piel (ed.), *The World of René Dubos*, Part 8, 'Think Globally, Act Locally: Local Solutions to Global Problems'.
10 These senses of 'global' are distinguished in B. L. Turner II, Roger E. Kasperson and William B. Meyer, 'Two Types of Global Environmental Change'.
11 See Lester R. Brown, 'Challenges of the New Century'.
12 See Peter Singer, *Animal Liberation: A New Ethic for Our Treatment of Animals*, and *Practical Ethics*.
13 Thus Tom Regan, *The Case for Animal Rights*.
14 Thus animal-welfarism also encompasses certain contract-theorists such as Mark Rowlands. Contract-theorists hold that ethical practices are ones that individuals who were ignorant of their own future would freely choose if they were bargaining on an utterly equal basis. Rowlands contrives to bring animal interests into such a contract: see Mark Rowlands, *Animal Rights: A Philosophical Defence*.
15 J. Baird Callicott, 'Animal Liberation: A Triangular Affair'.
16 Aldo Leopold, *A Sand County Almanac and Sketches Here and There*, pp. 224–5.
17 Callicott, 'Animal Liberation: A Triangular Affair'. A reconciliation of these tendencies is attempted in James Sterba, *Justice for Here and Now*, p. 132, and in *Three Challenges to Ethics: Environmentalism, Feminism*

and Multiculturalism, p. 43; but his prioritizing of the basic needs of all humans over those of all non-humans seems discriminatory (as is argued in chapter 2).

18   Andrew Osborn, '50 Million Animals in Mass Test Plan'.

19   Keekok Lee, *The Natural and the Artefactual: The Implications of Deep Science and Deep Technology for Environmental Philosophy*, pp. 51–4.

20   Kenneth E. Goodpaster, 'On Being Morally Considerable'.

21   Goodpaster, 'On Stopping at Everything: A Reply to W. M. Hunt'.

22   Robin Attfield, 'Postmodernism, Value and Objectivity'.

23   John Passmore, *Man's Responsibility for Nature*, pp. 43–5.

24   Passmore, ibid., pp. 110–11.

25   Passmore, ibid., pp. 111–21.

26   Val Routley (now Plumwood), Critical Notice of John Passmore, *Man's Responsibility for Nature*.

27   See Bryan G. Norton, *Toward Unity Among Environmentalists*.

28   Attfield, 'Evolution, Theodicy and Value', and 'Rehabilitating Nature and Making Nature Habitable'.

29   For a recent discussion of meta-ethical issues in environmental ethics, see Attfield, 'Postmodernism, Value and Objectivity'.

30   Thus Janna Thompson, 'A Refutation of Environmental Ethics'.

31   See Christopher Belshaw, *Environmental Philosophy*, p. 216.

32   See Allen Carlson, 'Nature and Positive Aesthetics', p. 24.

33   For recent philosophical discussions of the ethics of consumption, see David A. Crocker and Toby Linden (eds), *Ethics of Consumption: The Good Life, Justice, and Global Stewardship*.

34   Barry Commoner, *The Closing Circle: Confronting the Environmental Crisis*, pp. 140–77.

35   Martin O'Connor (ed.), *Is Capitalism Sustainable? Political Economy and the Politics of Ecology*.

36   On environmental destruction in the former Soviet Union, see also Murray Feshbach and Alfred Friendly, *Ecocide in the USSR*.

37   See Terry L. Anderson and Donald R. Leal, *Free Market Environmentalism* and Terry L. Anderson 'Free Market Environmentalism'.

38   See Martin Adams, *Breaking Ground: Development Aid for Land Reform*, pp. 9–12.

39   As Val Plumwood explains, this position is held by some ecofeminists, but is not the mainstream position of ecofeminist writers. See Plumwood, 'Nature, Self and Gender: Feminism, Environmental Philosophy, and the Critique of Rationalism', pp. 22–3, and nn. 22 and 23, pp. 24–5.

40   See Attfield, 'Development and Environmentalism'; also Warwick Fox, 'The Deep Ecology/Ecofeminism Debate and its Parallels'.

41   That there is an essential connection between patriarchy and the oppression of nature has been maintained in Karen Warren, 'The Power and Promise of Ecological Feminism', and disputed in Margarita Garcia Levin, 'A Critique of Ecofeminism'. The various kinds of oppression would seem capable of independent existence, but often systemically related. For representative ecofeminist writings, see

Michael E. Zimmerman (ed.), *Environmental Philosophy: From Animal Rights to Radical Ecology*, pp. 253–341. For a survey of ecofeminism, see Des Jardins, *Environmental Ethics: An Introduction to Environmental Philosophy*, 3rd edn, pp. 249–57.

42   Workineh Kelbessa, *Indigenous and Modern Environmental Ethics: A Study of the Oromo Environmental Ethic and Oromo Environmental Ethics in the Light of Modern Issues of Environment and Development*.

43   Donella Meadows et al., *The Limits to Growth*, a report for the Club of Rome's Project on the Predicament of Mankind (1972); see also Donella Meadows, Dennis L. Meadows and Jørgen Randers, *Beyond the Limits: Global Collapse or a Sustainable Future*.

44   Thus Lynn White Jr, 'The Historical Roots of Our Ecological Crisis'.

45   See chapter 2; also Attfield, 'Christian Attitudes to Nature' and 'Western Traditions and Environmental Ethics', both reprinted in Attfield, *Environmental Philosophy: Principles and Prospects*.

46   Attfield, *The Ethics of Environmental Concern*, pp. 8–17; for the interplay of the influence of material forces and ideas, see pp. 8–9.

47   Attfield, *The Ethics of Environmental Concern*, 2nd edn, pp. 197–8.

48   See Barnabas Dickson, 'The Ethicist Conception of Environmental Problems', pp. 132, 137 and 148. I have written further about power relations and structures of injustice in *Environmental Philosophy: Principles and Prospects*, pp. 221–35.

49   The relevant passages of Descartes are gathered together in Regan and Singer (eds), *Animal Rights and Human Obligations*, pp. 60–6.

50   Clarence Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century*; Eric Katz, 'Judaism and the Ecological Crisis'.

51   World Wide Fund for Nature, Scotland, *Stewardship of Natural Resources*.

52   Karl Marx, *Capital*, vol. 3, p. 776.

53   Attfield, *God and the Secular*, chs 5 and 6.

54   For discussion of the various criticisms, see Attfield, *The Ethics of the Global Environment*, ch. 3.

55   Sir Matthew Hale, *The Primitive Origination of Mankind*, sect. 4, ch. 8, p. 370.

56   Murray Bookchin, 'Thinking Ecologically: A Dialectical Approach'.

57   See Norton, *Toward Unity among Environmentalists*. Norton's position is made more explicit in 'Epistemology and Environmental Values'.

58   Martin Heidegger, 'The Question Concerning Technology', pp. 298 and 305; Bruce V. Foltz, 'On Heidegger and the Interpretation of Environmental Crisis', pp. 336–7. For a comparable, more recent approach, see Jeremy Rifkin, *The Biotech Century: Harnessing the Gene and Remaking the World* (Tarcher-Putnam, New York, 1998).

59   Thomas H. Thompson, 'Are We Obligated to Future Others?'.

60   David Hume, *A Treatise of Human Nature*, Books II and III, and *An Enquiry Concerning the Principles of Morals*. J. Baird Callicott and Alan Carter have each attempted to ground an environmental ethic on Humean foundations (Callicott in 'Hume's *Is/Ought* Dichotomy and

the Relation of Ecology to Leopold's Land Ethic', and 'Animal Libera-
tion and Environmental Ethics: Back Together Again'; Carter in
'Humean Nature'). However, these attempts miscarry, Callicott's for
the reasons given by Carter in 'Humean Nature' and by Y. S. Lo in 'A
Humean Argument for the Land Ethic?', and Carter's partly because
of the exaggerated roles for reason and objectivity that he ascribes to
Hume, and partly because Carter's view that the intrinsic value of
natural creatures is projected onto them by humans, however Humean
itself, is subject to the difficulties encountered by the anthropogenic
theory of value, discussed in this chapter and in chapter 2.

61   Mary Midgley, 'Duties Concerning Islands'.
62   See Doris Schroeder, 'Homo Economicus on Trial: Plato, Schopenhauer
     and the Virtual Jury', pp. 69–70.
63   Paula England, 'The Separative Self: Androcentric Bias in Neoclassi-
     cal Assumptions', p. 45.
64   Joseph R. Des Jardins, *Environmental Ethics*, 3rd edn, p. 84.
65   Ernest Partridge, 'Why Care About the Future?'.
66   Des Jardins, *Environmental Ethics*, p. 85. Discussion of the possibility
     of caring for the environment as a common human heritage is to be
     found in chapter 6.

Further Reading

Brown, Lester R., 'Challenges of the New Century', in Lester R. Brown,
   Christopher Flavin and Hilary French, *State of the World 2000*, Linda
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Commoner, Barry, *The Closing Circle: Confronting the Environmental Crisis*
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Some Useful Websites

www.cep.unt.edu/theo.html Website of University of North Texas; lists
   systematic works in Environmental Ethics.
www.wwf-uk.org Website of WWF-UK. The World Wide Fund for
   Nature describes itself as 'the global environmental network'.

www.gechs.uci.edu/envethics.htm Website of Global Environmental Change and Human Security, University of California, Irvine, section on environmental ethics; includes useful bibliographies.
www.unedforum.org Website of UNED UK. Includes preparatory papers for United Nations World Summit on Sustainable Development of 2002.

Music for Environmental Ethicists

Rautavaara, Einojuhani, 'Cantus Arcticus, Op. 61: Concerto for Birds and Orchestra'; CD (HNH International, 1999) available from Naxos.