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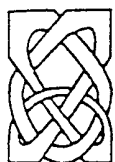
THE ETHICS OF CONSERVATION:

Report prepared for, and submitted to
Countryside Council for Wales

by

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I Introduction

I.1 Environmental philosophy and conservation

Until recently, the very idea of there being an 'ethic' concerning conservation might have seemed strange. The central question of ethics, in a formulation which goes back to the ancient Greek philosophers, is: 'How should one live one's life?' Despite the generality implicit in this formulation, however, it has usually been construed rather narrowly, as the question of how human beings should relate to one another.

For some, even among those who now work on the formulation of an ethic of conservation, this remains true. For them, humans remain at the centre of ethical concern. What has changed is not the basis of their ethic, but the realisation of how fundamentally we affect one another's lives through our relationship with our environment. This is seen to be true both in relation to our contemporaries - hence the increase in 'third world' concern - and our descendants - hence current preoccupations with sustainability, which reflect our concern for future generations.

For others, however, the new environmental challenges have provoked a more radical response, signalled by the appearance in the environmental literature of papers with titles such as: "Is there a need for a new, an environmental ethics?" (Routley, 1973). They claim to have discovered, or rediscovered, values existing outside and independently of the human domain - in sentient animals or even all individual living things, in species, communities and ecosystems, in soil, waters and rocks, and in the planet itself.

Whilst there is now a growing literature covering the area of environmental values in general, the philosophical articulation of an ethic of conservation as such, and as this is understood by CCW, remains in its infancy. There are two main reasons for this. One is that the focus of philosophical debate so far has been on questions about the nature and existence of such values. This is certainly an important task in the face of a general failure to take notice of the significance of the wider environment; it is also an indispensable basis for mounting the case for conservation. But it is not enough. What it crucially lacks is the development of a basis for making comparative judgements. It is all very well to expatiate on the values inherent in a pristine hillside; but this will not halt the march of a motorway, which is also thought to have some value, if we cannot bring the two kinds of consideration into some sort of relationship. It is the economists, rather than the philosophers, who have attended to the comparative question; and although we shall be critical of their approach, we recognise the justice in their insistence that this question must be faced (Pearce, 1992).

The other main reason for the relative lack of development of a wholesale ethic of conservation lies in the excessive concentration to date on wilderness preservation. Accordingly, the values attaching to environments which are neither wild nor pristine remain largely unexplored. The main explanation for the focus on wilderness no doubt lies in the historical fact that much of the

leading work in environmental philosophy has been done in Australia and America, where these concerns are uppermost. But there is also a widely shared feeling that conservation of 'pristine' nature is really the only kind of conservation which counts (Katz, 1993). Only what is wholly **natural** is truly irreplaceable and therefore worth every effort to conserve. What humans have shaped they can shape again, so that its destruction matters less. There is even the suggestion that what is touched by humans is thereby devalued (Colwell, 1989). We would vigorously resist this line of thought, and not merely out of a natural reluctance to report back to CCW that they have virtually nothing worth conserving. The truth is that there are many ways in which nature can renew itself in the wake of human assaults; and, conversely, there are many examples of modified landscapes - those shaped by our Iron Age ancestors, for example (*Independent*, 1989) - which are irreplaceable. In any case, one of the more convincing accounts of what gives natural things their value refers to their history and the manner of their origin. But this is precisely one of the features which gives human artifacts their value also; in both cases, we find 'fakes' - items which don't have the origins we thought they had - disappointing (Elliot, 1982). So far, then, we lack any convincing reason why value should be thought to reside exclusively in wilderness.

I.2 The discussion of values

The development of an ethic of conservation faces another obstacle, which is the widespread perception that ethics, and the question of values in general, are beyond the reach of rational and critical discussion. Sometimes this view is supported by referring to the diverse and culturally contingent origins of moral belief (Spellerberg, 1992) - an argument which commits what philosophers know as the 'genetic fallacy' - the fallacy of assuming that a thing's origins determine its credentials. In fact, how a belief has arisen is a separate question from the question of whether it is rationally defensible or whether it is true. In any event, a result of this perception is that ethical considerations are marginalised in favour of what are supposed to be more 'objective' considerations of a scientific or **utilitarian** kind.

We believe this perception is wrong on two counts. First, it is an illusion to suppose that ethical considerations can be sidelined. Conservation objectives may indeed be defended on scientific or utilitarian grounds, but to reach a decision on these grounds presupposes an evaluative commitment to the view that these considerations should hold sway. Value judgements are involved in the decision as to which interests and considerations are legitimate; and the question of legitimacy is a matter for critical evaluation. The second point is that, fortunately perhaps for the conservation cause, it does not follow that ethical debate is a mere battle of prejudices. There is a distinction to be drawn between judgements of value and judgements of taste. Taste, like prejudice, lays no claim beyond the particular circumstance of the judgement, and is not called upon to give an account of itself. If a person claims to like this, adore that, or hate the other, their claims are not open to critical challenge. Judgements of value ('This is better than that', 'This is not worthwhile'), on the other hand, make claims which are universal in character, i.e. which carry implications beyond the particular circumstance of the judgement (Hare, 1952). If I judge, today, that this action is right, I should be ready to make the same judgement tomorrow - or show that circumstances have changed. If I judge that this action is wrong for me to do, I must judge that it is wrong for anyone else to do - or show that their circumstances are different. This feature of value judgements makes them inherently open to challenge: a different judgement in apparently similar circumstances needs explanation and defence, e.g. by pointing to an unnoticed but relevant difference. If I say that Sally, but not Mark, ought to do the cooking, I owe an

explanation for this judgement.

A common and associated mistake is to picture the values that we hold as immovable points of departure, over which we have little control, and which dictate and shape all our reasonings, so that, unless we happen to share the same values, debate between us will be an empty charade. In our view, this picture is hardly true to the facts. The fact is, we often do not know what we think, what our values are, especially regarding issues we have never had to face before - what to think about genetic engineering, for example, or how to approach the problems of conservation in the face of unprecedented global environmental change; as often as not, values are what we reason *towards* - things that we work out or discover through a process of critical reflection.

Essentially this report is itself an exercise in critical reflection. It is concerned with general arguments for conservation rather than with arguments relating to specific contexts. Our philosophical brief is to elucidate and develop the conservationists' case by drawing attention to a range of considerations which may be deployed, identifying the strengths and weaknesses of those considerations where appropriate, and giving a flavour of the moves and countermoves which may be anticipated. We are conscious that our readers in CCW may possibly be disappointed by the lack of specific institutional recommendations, but in our judgement these require an ecological, economic and even political awareness to which, as philosophers, we cannot lay claim.

I.3 Conservation - a preliminary characterisation

In all change, as Aristotle remarked, something remains the same. But at the same time, something is lost, or else there would be no change. And surely, central to the project of conservation is a response to loss. But this should not be equated with resistance to change. Since change itself is both natural and inevitable, conservation must be presumed to be a response to:

- i) the degree of change
- ii) the extent of change
- iii) the pace of change, and
- iv) the nature of change.

The 'conservation interest', we might say, stakes out the claim that change can be effected well or ill, in each of these dimensions. It might even be characterised as 'the proper management of change', except that it would be a mistake to think that all change can be managed. Often it will be a matter of understanding and taking account of unmanageable change.

Conservation has always had to reckon with both biological and **cultural** systems which are constantly changing. The challenge which it faces is compounded, first, by recent institutional changes within the conservation movement itself, which require some delicate negotiation of the

tensions between the claims of 'wildlife' and the charms of the cultured landscape. More importantly still, global environmental changes, to a considerable degree the consequence of human activity, threaten to transform biological and cultural systems in ways, and at a pace, which are unprecedented within recent experience. Ecologists taking the long view are apt to say that massive upheavals are nothing new. But the point is unhelpful. The fact is that we do not wish to go the way of the dinosaurs.

If these factors present a challenge to the articulation and defence of conservation values, they also underscore the urgency and importance of the task. The image of conservation has been too often a negative one. Understandably, those whose immediate interests are likely to be thwarted by conservationist objections will encourage and reinforce such an image. But perhaps too, conservationists themselves have been too willing to see their role in this light - a matter simply of reacting to events, of holding the line and, where it is breached, fighting a rearguard action. We would like to reverse this common perception of the relationship between conservation and development, showing conservation to be a positive and life-enhancing objective in contrast with many 'developments' which, notwithstanding their positive aura, are often life-denying. (We have in mind here not simply those development projects which blight the lives of other species, but also the growing disillusionment with technological developments which disengage people from their surroundings (Strong, 1994). The motor car is just one such example.) At the same time, we mean to explore the possibilities of accommodation between these two objectives. The attempt to "freeze-frame the ecological status quo", as Callicott puts it (1991), should be no part of the conservationist's brief, which should contain provision both for evolution and for ecological and cultural development.

We shall discuss how the case for conservation can be made from within a human-centred perspective - that is to say, a perspective centred ultimately on an appeal to human interests - pointing out the importance to that case of an adequate theory of human interests and aspirations. We shall also discuss how the case may be put by appeal to considerations of a 'biocentric' kind - an appeal, in other words, to interests and concerns independent of the human domain.

I.4 The context

The environment is being degraded both globally and locally, largely as a result of human activity. The litany is too familiar to need much elaboration here.

Globally, for example, over half of the world's rainforests have been destroyed in the last thirty years; the remainder are being cut at a rate of between one and two acres per second. Worldwide, five million species of animals and plants are thought to inhabit tropical forests so that, at the current rate of deforestation, several hundred thousand species are candidates for extinction by the end of this century (Regenstein, 1985). According to one estimate, one species per day is already being wiped out - a rate which may soon accelerate to one species per hour (Myers, 1985). Extinctions are of course an essential part of evolution; but when so many occur at once, they are called catastrophes (Tickell, 1993).

At the local level, the picture is no less stark. In England and Wales almost 50% of old woodland, including 32,000 hectares of ancient woodland, have been lost since 1930. 97% of traditional meadowland and 100,000 miles of hedgerow have been lost over the last century. Hedgerow in Britain is still being lost at a rate of 3,000 miles per year. The accompanying loss of resident species can only be hazarded (Rackham, 1986).

The context, then, in which the question of conservation is being raised indicates that we are faced not so much with a choice between different kinds of future as a choice between a worthwhile future and a thoroughly impoverished one.

I.5 The response

The process of degradation is widely regarded as something to be deplored. Apparently perversely, however, we persist in taking decisions which permit it to continue: "the nature conservation movement has largely failed in its broad objective of stemming the losses of wildlife and habitat to 'development' in Britain" (Ratcliffe, 1992, quoting David Evans).

Some might argue that the increasing weight of human demands for the necessities of life make this process unavoidable, or at least unavoidable without the most almighty and impracticable upheaval, and the possible abandoning of our liberal/democratic traditions. This is a possibility which has obvious implications for the task of conservation; for an initial understanding of conservation is to see it, precisely and simply, as the attempt to halt, and if possible reverse, the process of environmental degradation. (As our discussion develops, we hope to refine and enrich this understanding.)

Whether the process is conceived as avoidable or unavoidable, however, depends upon what exactly we understand by environmental degradation. If on the one hand it is supposed that any alteration of nature by humans amounts to degradation, then it is hard to imagine circumstances in which it might be reversed, or even halted: "Wilderness is a resource which can shrink but not grow", as Leopold (1949) notes. This is the 'pessimistic' view of our predicament, exemplified in Bill McKibben's recent book *The End of Nature* (1990). If on the other hand degradation is taken to mean no more than a diminution in the flow of environmental goods and services, as understood in the concept of so-called 'resource conservation', we might hope to halt and reverse such a trend by, for example, improving our technology. This is the 'optimistic' view.

Neither of these ways of understanding the process of degradation, and the complementary task of conservation, however, seems satisfactory. Both are implicated in attitudes which lie at the root of our present predicament, the first by perpetuating the separation of human beings from nature, the second by perpetuating a wholly consumerist view of nature. They represent approaches to conservation which are each, in their way, uncompromising: the advancement of 'nature' at all costs; and the advancement of a 'culture' at all costs which views nature as mere raw material. Implicit in the case we shall present, however, is the view that both these pursuits

would ultimately be destructive of culture. Later we shall review some approaches to conservation which deal in compromise. They are, of course, more realistic (in the sense of being more acceptable) than the uncompromising positions, although it must be said that this is not in itself a philosophical virtue. Unlike the uncompromising positions, they also happen to be consonant with the statutory obligations of CCW which involve a duty of care for both manmade landscapes and wildlife. One of these approaches is to follow what might be termed a 'bias' towards the natural, by which is meant, roughly, the conservation of as much of nature as is compatible with a tolerable life for human beings. A second is to pursue what Aldo Leopold called 'land health', which Baird Callicott describes as: "Leopold's vision of a mutually beneficial and mutually enhancing integration of the human economy with the economy of nature" (Callicott, 1991). A third would involve the pursuit of 'sustainability', which carries a subtle difference of emphasis from our first option in that it essentially advocates the pursuit of culture so far as this is compatible with the maintenance of the ecological conditions for sustaining life.

If the process of environmental degradation is avoidable, there are any number of explanations available for why it is nevertheless taking place - many of them having to do with the way that human societies are structured socially, politically and economically. Yet we believe that at least part of the reason why conservation is facing such an uphill task is that its advocates are failing to win the intellectual argument - and not because the argument is inherently weak but because it is not being effectively articulated and deployed. Our ambition is to do what we can to remedy this. For it might be argued that a recognition of the strength of the case for conservation is absolutely crucial if people are going to be persuaded to do something about changing the social, political and economic forces which stand in the way of moves towards more conservationist practices.

I.6 CCW and conservation

The conservation objectives of CCW include the conservation of the quality of the countryside and the richness of its wildlife, and the provision of access to the countryside for enjoyment and understanding. Its statutory obligations under the Environmental Protection Act of 1990 include the "conservation and enhancement of natural beauty in Wales"; also that it "shall have regard to the social and economic interest of rural Wales" (Part VII, 130-(2)).

With regard to these objectives several points deserve comment:

1. Although the above objectives specify the kinds of things we wish to conserve, they do little to clarify what exactly conserving them would amount to. We have suggested the need to draw a distinction between keeping things as they are, and making them last - that is, between preserving the status quo and preserving them as dynamic systems. It is the latter concept which better captures the essence of conservation. In fact, since change and development are endemic features of both social and biological systems it is likely that a policy of preserving the status quo would actually prove obstructive to the aim of conservation.

2. Since the objective specified is pluralistic we have to satisfy ourselves that the several elements are at any rate compatible, or if not, that they admit of some form of lexical ordering (i.e. there is some procedure for deciding, in cases of conflict, which objective has priority).

Prima facie, the objectives would appear to be broadly compatible and, indeed, mutually reinforcing. Thus, the countryside in question has a varied and mosaic quality, affording the variety of habitats needed to support the diversity of wildlife. Since the landscape is at the same time largely manmade, it will require the presence of a workforce to maintain its character, thus helping the rural economy and the social communities which it supports. The enjoyment and understanding which can only be derived from access is part of what engenders love for the landscape and makes its quality a worthwhile objective of conservation.

3. However, to say that the various elements of the objective are compatible is not to imply that they can always be satisfied together. For example, there may well be occasions when access is detrimental to the best interests of wildlife, or where the preservation of a site for its ecological importance may not best serve recreational or aesthetic interests. But it would be a mistake to think that this reflects badly on the specified aims any more than the existence of conflicting rights reflects badly on the theory of rights. It is not the role of conservation policy to make difficult decisions easy.

4. Finally it should be noticed that the term 'quality' has both a descriptive and a normative sense. It can refer simply to the character of the countryside, literally 'what it is like'. Or it can carry a favourable connotation, implying the presence of valuable features. Both should be included in the objective. It cannot in general be an objective of conservation to retain what is there, whatever its qualities. Suppose, for example, that the relevant area were merely a series of rubbish dumps. On the other hand, there are conceivable circumstances in which maintaining some valued feature, say, a certain dramatic quality, might impinge adversely on the richness of wildlife; or in which the quality of the landscape, in terms of the value of its features, could be increased - but only at the cost of making it different from the cultural character normally associated with the landscape of the country.

I.7 Report outline

Our plan will be first to focus on the positive case to be made for conservation, highlighting both the biological and cultural bases on which it rests, and then to address and disarm three lines of reasoning which in our view pose the most formidable challenge to that case. We shall then outline three approaches to conservation, briefly discussing the merits and demerits of each, before reaching our conclusions

II The Case for Conservation

II.1 The biological case

Conservation and life

The degradation of the environment poses as great a threat to life as nuclear war, and a more probable tragedy (Rolston, 1991)

If we were indifferent as to what kinds of things exist, and in particular if we were indifferent as to whether living things exist, we would not need to concern ourselves about conservation. Nature, operating under a law of the conservation of matter, would take care of things. It is with life itself that we first encounter a level of conservation which matters to us, which has significance. In the process of life itself something is conserved which matters. Each individual organism sustaining its inner structures and processes in defiance of the universal tendency towards disorder (entropy) is a miracle of conservation. We use the term 'miracle' advisedly, having in view the fact that life on earth may well constitute a fragile experiment unrepeated anywhere else in the universe. Once forms of life have proceeded beyond the autotrophic stage in which they garner the energy which sustains them solely from the sun, and a network of interlocking dependencies has evolved, then the experiment of life on earth becomes an exercise in the conservation of these ongoing systems of dependencies.

Quite simply then, a precondition of the affirmation of conservation as a desirable objective - the safeguarding of something of value - is the affirmation of the goodness of the processes which bring about and sustain life. In a minimal sense conservation is about aiding and abetting the processes of life.

The appropriate concept to set over against conservation therefore is the concept of environmental degradation, by which we understand all those life-denying processes which are inimical to the continued development of life on earth. An immediate corollary of this point is that we need to re-examine the working and overworked contrast between conservation and development. Conservation is not inherently opposed to development, but only to those developments which threaten to curtail the varied experiments in living which are to be found at the level of individual, species, habitat and ecosystem. The folly of pitting conservation against development is illustrated by a recent court judgement in Ireland ruling against a conservation-inspired ban on a proposed gold-mining development, on the grounds that such a ban could not possibly form part of any development plan (*Independent*, 1992).

A sceptic might observe that life is robust and thrives on the challenge posed by obstacles to be overcome; such challenges are creative forces driving forms of life towards ever more creative solutions. But against this observation we have to set one fact of quiet enormity. It is that now, for the first time since the beginning of life on earth, the rate at which species are becoming

extinct is outstripping the rate at which new species are coming into existence (Norton, 1987). In general, the trend of evolution has been to "elaborate and diversify the biota"(Leopold, 1949). There may have been temporary reversions of this trend in the past but they were due to external physical and climatic factors. What is new about the present situation is that it is being brought about by forces from within the biological system itself - specifically, by human activity. Thus, what is afflicting the biosphere this time round is analogous to a disease, rather than an injury. We are faced, then, by an unprecedented reversal of an evolutionary trend brought about by the combined effects of human activity which centres upon a process crucial for life itself - speciation. For as has been well said, extinction does not simply mean death, but the end of birth (McKibben, 1990). It is for this reason above all that, whatever the pressures on human societies, the imperative of conservation cannot be allowed to slide from view. Conservation is not some nuisance standing in the way of progress, nor simply one option among many; it is the very attempt to redress this, not life, but birth-threatening trend brought about by the nature and expansion of human economic needs. Indeed, the undeniable implication of these reflections is that conservation is not some marginal issue which we can attend to when all other needs have been satisfied; except under the most short term view, it is a condition for the satisfaction of all our other needs.

Diversity

The worst thing that can happen.....is not energy depletion, economic collapse, limited nuclear war, or conquest by a totalitarian government. As terrible as these catastrophes would be for us, they can be repaired within a few generations. The one process ongoing in the 1980s that will take millions of years to correct is the loss of genetic and species diversity by the destruction of natural habitats. This is the folly our descendants are least likely to forgive us (Wilson, 1980)

Embedded within the above reflections on the association between conservation and life lies the crucial importance of diversity. Since species are, precisely, different forms of life, the extinction of a species in itself will normally mean a reduction in 'biodiversity', by which we understand - roughly - that feature which manifests or is conducive to variety and variability among living systems. Of even greater significance may be the indirect effects of biodiversity loss, because of its implications for various life-support systems involving soil, water and atmosphere, and for geochemical cycles involving carbon, oxygen, nitrogen and sulphur. However, the question of diversity, and of the value associated with it, is in fact an enormously complex one. It seems entirely possible, for example, that the extinction of a particular species (rhododendron ponticum?), or even group of species, which was inhibiting certain potential avenues of speciation, might lead to an increase in diversity over the longer term. Many of the questions to do with diversity are ecological in nature, but there are some points worth noting of a conceptual kind which are indeed crucial to any attempt to decide wherein lies the value of biodiversity.

Strictly speaking, since diversity is a formal concept - in the sense that it specifies the form of something rather than its substance or content - little sense can be attached to the suggestion that diversity is valuable in and for itself. We need some specification of the kind of diversity in question, before affirming its value. There may be value in the existence of different forms of life - biodiversity - but surely not in the existence of different forms of torture. But even once we have settled on biodiversity as the potential locus of value, there are still many questions to be addressed.

1. One arises from the fact that diversity carries some connotation of *distance*, as well as the more commonly noted implications of difference and variety; in particular, ways of measuring 'genetic distance' have been devised (Colwell, 1989). Thus there is a question whether we should judge one community to contain a greater diversity than another if it contains fewer but more 'distant' (or disparate) life forms, e.g. both terrestrial and aquatic, as opposed to just terrestrial.

2. Second, although it is common to find attention drawn to the different levels at which diversity may be found - genetic diversity, species diversity, diversity of association and ecosystem diversity, there is a distinction less commonly noted which cuts across all levels - namely, whether we should be concerned about diversity within collections (of cells, individuals, species etc.) or diversity between collections (Norton, 1987). For these can certainly be at odds. An increase of diversity within a given community might well mean a decrease of diversity between that community and another. So there is a question as to how we decide, in any particular case, which sort of diversity is the more important.

3. A third question is how far it matters whether the diversity is 'appropriate' to the site in question, which essentially boils down to the question whether it is natural, in the sense of indigenous. Perhaps it matters very much. John Lawton has written that "we have still not resolved why we want lots of species anyway" (Lawton, 1991). This points up that 'lots of species', pure and simple, is not necessarily what we do want. What, then? Presumably we want in the main to hang on to the species we have, or at any rate do what we can to prevent their premature demise. But here it becomes possible to be seduced by a simple fallacy: to infer from the fact that loss of diversity is a bad thing to the conclusion that increase of diversity is a good thing. (To see that it is a fallacy, consider the same argument applied to loss of weight: from the fact that loss of weight was a bad thing for a given person, it would not follow that an increase of weight would be a good thing.) Indeed, the idea that it is an objective of conservation to 'enhance' biodiversity might seem a distinctly dubious one, unless we simply mean by this '*providing for* enhancement by natural processes'. Certainly, providing for the *restoration* or natural *regeneration* of habitats and ecosystems will be an important conservation concern (Sylvan, 1992). But, taking to heart the doubts that have been expressed about the relation between diversity and resilience (by which we mean the capacity to recover from disturbance) (Goodman, 1976), it is a real question whether humanly *induced* diversity has any conservation merit in its own right. The one circumstance in which this could readily be granted arises from a recognition of the 'makeshift' character of nature's own provision (Bostock, 1993). For example, pandas, though herbivores, have not evolved the stomach for it, and have enormous digestive problems. Thus, it cannot be ruled out, at any rate, that human introductions should 'improve' on nature in the sense of creating a more varied and also more resilient life-system, even though it may be judged unlikely that this would occur very often. (It is probably too early to judge, but the comparative success of some 'feral' animals might provide examples where this has happened accidentally.) In addition, however, there is perhaps the feeling that complexity of life-systems as such is a good thing - that there is a structural as well as a dynamic aspect to the value of diversity (Borza & Jamieson, 1992). Such a view has been abroad since the days of Aristotle and flourished in the medieval period which saw the 'fullness of being' as evidence of God's goodness. It is arguable that we should not ignore this view since it is not clear that we would endorse a living world whatever its nature - for example if it contained unbearable suffering (or, more unbearable suffering than the present one contains). So it does seem as if the kind of life that there is matters in some way. Complexity in particular will often cause amazement, arouse interest and perhaps, too, signify hope and promise. Another feature of some forms of life or habitat which seems to be valued for similar reasons is their fragility and delicacy (McQuillan, 1993). This is noteworthy because here what attracts attention is not the resilience of the life in

question but its very lack of resilience, its vulnerability. And clearly, if a vulnerable habitat is valued, it is more in need of protection than a resilient one.

A tentative suggestion arising from the points discussed might be that the value of biodiversity, other than any aesthetic appeal it may have, lies simply and solely in its significance for the continuation of life - in the empirical probability that the more options there are, the better the chances of survival for life as a whole in a universe that is sometimes hostile. But we might also want to take to heart McQuillan's acid remark that "to manage a forest for biodiversity is akin to devoting one's life to fitness exercises". Quality of life counts as well; and among the qualities which seem to matter are complexity and delicacy.

There comes into view here the question which must particularly tax CCW in its new role of overseeing both wildlife and cultivated landscape. It arises from the fact that concern for traditional forms of landscape may sometimes be judged at odds with concern for maintaining 'appropriate' or relatively natural forms of diversity. Certainly, a great deal of the managed landscape which CCW is charged with upholding involves keeping the potential natural landscape at bay. Hedgerows, and large swathes of uplands under the sway of grazing sheep (John Muir's 'hooved locusts') are obvious examples. The observation that hedgerows provide excellent wildlife habitat may be apt enough if one is thinking of the alternative of no hedgerows at all, but will only fully satisfy someone who thinks 'richness' of wildlife is valuable in and of itself. Some comments may be in order:

i) First it could be argued that hedgerows - in effect ecosystem 'corridors' - provide an example where human intervention has indeed improved on nature and thus are justified in ecological terms as enhancing resilience. Certainly they help in a context where much of the remaining landscape, for economic reasons, is covered by relatively monocultural systems.

ii) Second, it could be argued that keeping nature at bay is not open to objection from a conservation point of view if there are, for example, aesthetic or recreational advantages to be gained, provided that the capacity for resuming the natural condition is not lost.

iii) But third, it needs to be recognised that if the cultural demands made of the land do compromise ecological resilience, or indeed fragility, then the case will have to be made on cultural grounds, and it will need to be acknowledged in that case that cultural considerations are being given the greater weight.

iv) Fourth, it needs to be recognised that any form of managed conservation costs something, compared with a conservation strategy of letting nature take its course, where the 'loss' involved takes the form of benefits foregone.

v) But finally, it must be remembered that certain of the 'costs' of managing a landscape, in particular those involved in the maintaining of a rural work force, are actually to be welcomed as helping to support the rural economy.

Interconnectedness

That land is a community is the basic concept of ecology (Leopold, 1949)

Darwin's demonstration of the dependence of orchids for their fertilisation upon the existence of particular species of insects (Darwin, 1877) is but one particularly striking example of the interconnectedness of the elements which make up the biosphere. Equally notorious is the relationship which was discovered to have obtained between certain hardwoods on the island of Mauritius and the extinct dodo, whose gut had served to facilitate the germination of their seeds (Tickell, 1993). The elucidation of these interconnections is the stuff of ecology.

There are two ways in which the existence of such relationships may be thought to contribute to the case for conservation. First they underline how, when any piece of the environment is affected, much more is at stake than is at first apparent. For this reason the image of the countryside as a tapestry is a good one. It emphasises how the destruction or impoverishment of a particular piece of countryside is invariably more than that, just as damage to a section of a tapestry affects the whole. In the United States, until recently, wildfowling was thought to be just shooting ducks. In fact they were damaging the survival prospects of the bald eagle, America's national emblem, who were feeding their young on dead or injured birds full of lead shot. (In nature, one can never only do one thing.) In the context of the debate over conservation two phenomena in particular, which owe their existence to the 'interconnected' character of the biosphere, have assumed considerable importance:

i) The first is the 'threshold effect', whereby the damage wrought by a series of actions is not immediately made evident, but is delayed. This in turn points to the need for conservation as a precautionary strategy. A network of relationships will sometimes enable an effect to be absorbed, but only up to a point. For example, an animal with several sources of food supply will cope with inroads into that food supply - until the last source is destroyed.

ii) The second is the so-called 'tragedy of the commons' (Hardin, 1968), the phenomenon whereby actions which are individually innocuous in their environmental effect, combine to produce 'tragedy' e.g. the exhaustion of a common resource. Again, one may reasonably hope to avert such effects by a conservation strategy.

The second way in which interconnectedness has been thought to count towards promoting the case for conservation is more controversial. Some ecologists have been led to suggest that there exist in nature organised units above the level of individual organisms, whose continuance has a claim to attention over and above the claims of the individual organisms of which they are comprised. The American ecologist Frederick Clements went so far as to designate plant communities as 'superorganisms', with a life-history similar to that of the individual organism. More recently the American conservationist Aldo Leopold proposed that land - by which he meant "soils, waters, plants and animals" be thought of as a 'community' to which each individual species, including humans, 'belongs'. However, these proposals have been strongly resisted, both by ecologists and philosophers; we shall discuss the issue briefly in the section on biocentrism.

Uniqueness and irreplaceability

..biology is biography..

Another consideration basic to the case for conservation revolves around the particularity and contingency of life forms - the 'fragile chance' of their ever having existed at all. The fact that each individual organism is unique is uncontroversial. What is less often appreciated is that this particularity is repeated at other biological levels - notably those of species, habitat and ecosystem, and ultimately, at the level of the whole of nature itself. The point has been developed in most detail in relation to species.

As recent exponents of **individualistic** (Ghiselin, 1987) and **cladistic** (Ridley, 1989) concepts of species have convincingly demonstrated, there is an historical uniqueness about species which differentiates them radically from other sorts of classes or groupings of objects. This feature is graphically if also tragically expressed in the liability of species to extinction. Bronze axes and bicycles *cannot* become extinct; bison *can*. It is the fact that species can become extinct which makes the traditional view of a species as 'a group of creatures united by a set of common characteristics' untenable. This irreplaceability of species is a consequence of the fact that they are individuals historically situated in space and time. In short, it is their individuality which explains their liability to extinction and the implication which this fact has both for diversity and for the continuation of life. And just as the origins of an individual are essential to its being the individual that it is - *you* cannot have been born of any parents other than the ones you were actually born of - so it is with species. Thus each species has, and is part of, a quite unique history. This uniqueness is transferred to the 'family' and the 'home' in which the species is found - that is to say, to communities, habitats and ecosystems. In an important sense, therefore, the history of life on earth is a *biography*.

We are not suggesting that uniqueness and irreplaceability are valuable features in their own right and regardless of what they attach to, but only that once something is established as of value, or even if it is not known whether it is valuable or not, its uniqueness or irreplaceability constitute *prima facie* grounds for being far more concerned about its destruction than if it were neither unique nor irreplaceable.

II.1.1 The issue of biocentrism

So far we have outlined the biological case for conservation without saying much about to whom or to what it matters. It seems very clear to us that it matters in two very fundamental ways to human beings. First and most obviously it matters because the viability of human social and economic systems depends upon the resilience and viability of the biological systems which support them. Second and less obviously it matters to human beings because of the way in which the considerations cited touch on what Huxley once called 'the question of questions', namely the subject of 'man's place in nature' (Huxley, 1906). However dimly, we all hold a picture of life in all its rich and varied forms continuing into the future, including of course human life, and this conception is part of what gives our own lives meaning. Bereft of such hope for the future, our own lives would be blighted. We may know for a theoretical certainty that it all must come to an end some day, and we may even believe that, in the context of eternity, life itself is a matter of indifference. But only in very rare cases could this be a lived belief. For most of us, such a

realisation serves only to make life itself more precious.

The biological case for conservation, then, can clearly be defended on the grounds of its contribution to human well-being, and to the significance which people give to their lives. But how might a **biocentric** case be built?

There are clearly constituents of the natural world about which one can say that they are very obviously threatened by environmental degradation - namely **sentient** creatures or 'subjects of a life', to use Rachels' phrase (1990). This is a class of creatures which includes humans but also many other animals besides. The impoverished life of the sea-bird caught up in the spillage from an oil tanker is but one of countless examples which might be given. What all sentient creatures have in common is that there is a 'way-that-it-is-better-for-them-to-be': e.g. living rather than dead; joyful rather than wretched. In the case of any such creature, therefore, the notion of what is good for it - i.e. its interests or its welfare - has a very clear purchase; and any development which threatens wildlife may legitimately be resisted not simply on the grounds of human interest in that wildlife but also in the interests of the wildlife itself. So much would be pretty generally agreed among philosophers. Occasionally, doubts may be expressed which can be traced to an idea graphically expressed by the philosopher Wittgenstein: "if a lion could speak, we would not be able to understand him" (Wittgenstein, 1967). The idea is that each species has its own 'form of life', separate enough to cast doubt upon whether we can ascribe beliefs, desires and other such human psychological states to other species. But in the main these doubts are met by drawing attention to the evolutionary kinship of sentient animals, making the existence of (degrees of) shared forms of life at least a reasonable hypothesis - a conclusion which Wittgenstein himself would accept in the case of experiences such as fear and pain.

Non-sentient animals and plants present a more difficult case. The stumbling block here is the thought that it doesn't make sense to ascribe interests to organisms which are not capable of having experiences. The question is: how can the state of the world matter to any creature which is not capable of *experiencing* that state? On the other hand it has been argued forcefully by Attfield, Taylor, Rolston and others that plants too have a life which they defend, that there is a pattern to their lives which makes it matter whether they are alive or dead, healthy or diseased. The self-organising processes exemplified in plant life, it is said, are of a different order from the mechanical processes of the inorganic world.

Even if we grant the case for saying that all individual organisms have a pattern of life which they seek to defend and therefore interests which, however minimally, merit protection in their own right, we still lack any similar grounds for defending other features of the natural world such as species, habitats and ecosystems. For here, the idea of an interest seems no longer applicable. As Brennan (1988) says: "A natural system...has no good of its own...we cannot even make sense of such an idea in application to communities and ecosystems". And Attfield (1991), who is prepared to find intrinsic value in individual living things, can find only instrumental value in ecosystems: they are the means whereby the value belonging to individuals is produced. There seems to be a similar difficulty about attributing value to species, considered as units of concern over and above their individual members.

But despite the formidable difficulties surrounding the attempt at its articulation, the idea that these more inclusive natural forms merit respect in their own right, and cannot be viewed simply as adventitious structures, has a deep hold on the environmental movement at large, and perhaps should not be brushed aside. Rolston observes that each of these differing levels of organisation, although categorically different from organisms, is nevertheless a 'unit of survival'. It seems reasonable to assume that in a broad sense habitats and ecosystems have been 'selected for' as much as have species, in so far as they embody patterns and relationships which tend to repeat themselves, albeit in looser ways than we find in individual organisms. Herbert Gleason's talk of 'fortuitous juxtapositions' (1927), or Miles' determination to speak only of 'patches' (1979), can seem needlessly fastidious, and scarcely to do justice to the persistence of association that is experienced, particularly among plant communities. As Arthur Tansley observed: "the organisation of a mature complex plant association is a very real thing" (1935). Moreover, the view of ecosystems as merely instrumental to the lives of individual organisms hardly does justice to the historical character of living things - how what they are is constituted by how they have come to be what they are. It is *constitutive* of the wood anemone, for example, that its characteristics and habits have been moulded by its woodland habitat. The view of ecosystems as instrumental would have us say that the *wood anemone* might conceivably have been nourished by the sand dune ecosystem; and this claim seems more than contingently false.

II.1.2 Comment on the biocentric case

Our own suggestion here would be to pick up a hint afforded by Rolston's remark that one cannot simply love lions without loving lions-in-jungles: "loving lions and hating jungles is misplaced affection", he writes (1990); and a creature is "what it is where it is" (1991). [Ecologists have drawn our attention to the fact that Rolston has himself somewhat misplaced lions by placing them in jungles rather than on savannahs!] Despite Rolston's own attempt to articulate a specifically 'systemic' value which he ascribes to ecosystems by virtue of the role which they play in placing, producing and promoting the value of individual living things, there seems to be some justice in Brennan's charge that this makes systemic value sound distinctly instrumental (Brennan, 1988). But what Rolston's remark does suggest is that we may need to rethink the very idea of individual value, not least the individual value of human beings.

One cannot provide for the welfare of lions without also being concerned for the savannahs where they laze - not instrumental to but incorporating what makes life good for lions. Just so, one cannot provide for human welfare without also being concerned for the habitats, communities and ecosystems which provide the context for human life. Certainly, a habitat, a dwelling place, cannot be regarded as flourishing unless the individuals who dwell there are flourishing. But to say that these wider structures have only contributory value to the value of the individual seems to get things the wrong way round. *The very idea of there being a human interest identifiable entirely separately from the context in which humans live their lives turns out to be an unwarranted abstraction rather than a basic 'given'*. But if this is true, then the very idea of there being a purely human interest to pursue, which is not part of some more broadly conceived objective, turns out to be an illusion. It is not in the interests of human beings to be **anthropocentric!**

What this line of thought suggests is that we need to transcend the customary distinction between the anthropocentric and the biocentric - between the human centred and the bio-centred perspectives. It will help in this endeavour to think, by analogy, of how friendship operates in our lives. Attempts to give an account of this relationship which reduce it either to a purely egoistic or a purely altruistic affair are singularly unconvincing. The fact is that it is a relationship in which concern for another person for their sake contributes to our own well-being *because* it is an other-regarding rather than a self-regarding concern. (This is the central theme of the classic analysis of friendship in Aristotle's *Ethics* (1976).) Now although we cannot even begin to make sense of the notion of friendship with something purely inanimate - we cannot, as Aristotle says, be friends with a bottle of wine - *something* of the analogy can be rescued in the case of the natural environment, as the effectiveness of the concept 'friends of the earth' testifies. As with a friend, the natural environment is responsive to the way we treat it and our mutual fortunes are similarly intertwined. Our concern for the environment for its sake, therefore, is, or can certainly come to be, a contributing and constitutive factor in our own well-being. We 'identify with' the environment in a manner which is at least analogous with the way we identify with a friend. In this way it becomes hard to see whether such concern should be classed as human-centred or biocentric; but it is certainly real.

At the same time there remains the thought that the anthropocentric and biocentric positions cannot be entirely fused together - that there are elements in the biocentric case which cannot and should not be 'humanised'. To an extent, the case for saying this depends upon the existence of individual creatures other than humans with a good-of-their-own, and even, it may be argued, living systems generally which exhibit an autonomous or **autopoietic** character. What the biocentric case preserves is the sense that what is at stake in our current environmental predicament is something altogether *larger* than the human dimension - that what we are witnessing when we witness widespread environmental degradation is something larger than a human tragedy. It is what Leopold hints at when he invites us to look upon 'land' as a "community to which we belong", rather than as property which we own.

II.1.3 Summary of the biological case

We have set out to identify the several elements in what we have called the biological case for conservation. At bottom there lies a concern for life itself and for its diversity, interconnectedness and uniqueness. We have shown how the continuation of such life matters both for humans and for the other creatures with whom we share the planet; but also, perhaps, how it matters in some vaguer and larger sense which subsumes these more specialised interests. We turn next to what we shall call the cultural case for conservation.

II.2 The cultural case

Man is the animal for whom it is natural to be artificial (Garvin, 1953)

Over recent millenia, human beings have fashioned for themselves a variety of cultures which together make up what we are pleased to call civilisation. Part of the case for conservation

focuses on the key role which the natural environment plays in the constitution of human culture. To begin with, two general points need to be made about the role and value of the natural environment in the context of human culture.

One is that the natural arena in which cultural values are realised is valuable not simply because it affords an extra arena for human activity, and therefore contributes to the diversity of human experience, but also because it contributes in unique and valuable ways to human experience. Thus, a feature of aesthetic experience outdoors, or recreation outdoors, is that nature has an abiding capacity to surprise and outstrip our imaginings, a characteristic which it owes to the dynamic processes, and to the multitude of life forms and their criss-crossing relationships which characterise the natural world. Moreover, there are numerous sources of valuable experience which only nature can supply, many of them connected with the chronological diversity which nature affords through the succession of night and day and the succession of the seasons. Many of them, again, are associated with the autonomy of wildlife and their indifference to our concerns, which helps us put those concerns into perspective: "wild lives move themselves, and they move us" (Rolston, 1987). And then, finally, there is just that experience of 'being in nature' which is a matter of feeling rather than of articulation; and when someone says "explain to me what it's like", one can only say "you simply have to experience it".

The other general point is that although, for convenience, we may seek to itemise the various forms of value associated with our experience of nature, this approach will consistently under-rate such value by failing to capture the internal dynamics of such experience. Think, for example, of how a swim in the sea can bring with it the exciting menace occasioned by a glimpse of the towering cliff above - and ensuing humility, and how many elements are captured in this single experience; a good illustration of the point is afforded by Wordsworth's boyhood experience on Rydal Water, captured in *The Prelude*, which left him "with a dim and undetermined sense of unknown modes of being" (I, 392-393).

1. Aesthetic Value

The aesthetic case for conservation is often understated and, in consequence, undervalued. (An exception here is Elliot Sober (1986), who argues that it is the foundation of all environmental concern). It faces two difficulties in particular. One is the widespread belief that aesthetic concern is a culture-relative phenomenon and therefore not something we need go to any great lengths to uphold. The other is the sense that aesthetic concern is a luxury to which we can ill afford to give priority.

A response to the first difficulty is to point out the dubious nature of the inference involved. From the fact that our aesthetic tastes and judgements might have been different, it in no way follows that they are not important to us. (The fact that we might have loved someone else does nothing to lessen the importance to us of the ones we do love). Moreover, the diversity of aesthetic appreciation seems of far less significance than its existence in almost all cultures - as cave paintings and aboriginal art testify. A response to the second difficulty is to point out that it rests on too thin a notion of the nature of aesthetic appreciation, and also upon an underestimate of the role of aesthetic experience in our lives.

For example:

(a) we need to be aware that aesthetic experience is by no means simply a visual matter, a point delightfully made by Clare Leighton (1935): "I mow the lawn. How many people know the right way it should be done? Feet should be bare; grass should be slightly damp. The cold, moist clover strikes up from the mower upon my bare feet, and blades of grass and bits of slashed weeds stick between my toes.....we..ignor[e] the vast range of emotion that is within the scope of hand or foot. Few think of caressing a flower and enjoying the feel of its form and texture, the tightness of its bud, the hardness of its seed pod, or know the pleasure the hand can get from the surface of a tree trunk or a vegetable marrow".

(b) we need to be aware that the features which move us in our aesthetic experience of nature embody many qualities besides beauty: for example, horror, fascination, awe, peace, delicacy, - and fear. This is due in no small measure to the fact that nature is an arena of events, as much as scenes. When we witness the struggle of a wasp to escape the spider's web, we are present at an unfolding drama. Bernard Williams (1992) has plausibly suggested that our response to nature is governed at least in part by what he terms 'Promethean fear' - the sense that nature will exact a terrible revenge if we fail to show a proper respect.

(c) we need to be aware that aesthetic experience is not an isolated and momentary experience such as an itch or spasm, but something that keys into all aspects of human life in many and surprising ways. The aesthetic experience of nature sets in train dynamic interactions with the whole field of human emotion and human understanding, prompting many artistic endeavours to give expression to these responses. Accordingly, when any loved landscape is under threat, it is always appropriate to draw attention to paintings, poems and any other forms of artistic expression which have been inspired by this or similar landscapes, as bearing witness to nature's dynamic role in human experience.

(d) finally, then, we need to be aware of how nature, perhaps more than any other object of aesthetic appreciation, nourishes the whole world of arts and letters (Nash, 1982). This is but an aspect of the pervasive and formative influence which nature exerts upon the cultures which have been fashioned from it: "Wilderness is the raw material out of which man has hammered the artifact called civilization" (Leopold, 1949).

2. Recreational Value

The high value attributed in industrialised societies to recreation 'outdoors' needs little elaboration here. It is well attested by the enduring popularity of activities like hill walking, climbing, fishing, cycling, sailing, riding and camping. All such outdoor activities attempt some sort of integration with an individual's natural environment, and are characterised by varying degrees of 'absorption'. We are both serious and carefree in these pursuits; indeed, carefree through being serious. We seem to want to emulate the assurance of the wild animal in its element (Cooper, 1993).

Aldo Leopold, in his analysis of the importance of the recreational value of nature, suggests that people generally accept that "there are cultural values in the sports, customs and experiences that renew contacts with wild things". For example, we may be reminded of our distinctive national origins, or the place of humans in the fundamental organisation of the biota. He also stresses the 'contrast' value of outdoor recreation: "recreation is valuable in proportion to the intensity of its

experiences and to the degree to which it differs from and contrasts with workaday life."

3. Educational & Scientific Value

Through science and art our distinctive human capacities are developed and our relation to nature goes beyond a narrowly utilitarian one (O'Neill, 1993)

Destruction of the natural world has been well likened to tearing out or defacing the pages of an extremely old and valuable reference book (Rackham, 1986). The illustration has specific relevance to nature conservation and would tend in particular to reinforce what we shall be calling the 'bias' towards the natural. But of course the very use of an artifact such as a book to make the point shows that the qualities to which attention is being drawn are not exclusive to the natural world. The book shares with the natural world qualities such as uniqueness and venerability. However, what is here being underlined is the importance of preserving the natural world - including its complex biological and ecological systems - as a source of knowledge, a subject of scientific study, and an inexhaustible avenue to understanding. It is worth remarking in particular how certain sorts of understanding of these systems is achievable only by direct experience of them - requiring their continued existence - rather than, say, from records.

The importance of an understanding of the natural world can be demonstrated both instrumentally and intrinsically: instrumentally because our culture is to a very profound extent built on applications of scientific knowledge; intrinsically because it awakes us to what is wonderful and beautiful (not to be confused with the arousing of a vain curiosity which can degenerate into lust - O'Neill, 1993), which is a fundamental need in human nature. In many accounts of the constituents of the good life, understanding is put forward as equal in importance to such desirable states as happiness and virtue. Many have risked or sacrificed more conventional forms of happiness or even life itself in the pursuit of understanding.

Included in the educational and scientific value of conservation should be the chance it affords for developing an understanding of our place in the natural world. For, as Holmes Rolston observes: "Some sort of inclusive environmental fitness is required of even the most advanced culture. Whatever their options, however their environments are rebuilt, humans remain residents in an ecosystem" (Rolston, 1988).

4. Therapeutic and Character-Building Value

Spending time outdoors has value in at least four ways:

(a) Therapy. Recent accounts of the benefits people have derived from swimming with dolphins epitomise the potential therapeutic value of the 'outdoors'. Nor are such benefits limited to encounters with the wild: similar accounts are available of how stroking a cat can help relieve stress. And Clare Leighton (1935) speaks with feeling of "the great healing power of digging". (Her account of how two days devoted to "the massacre of dandelions" helped to heal a friend who was recently bereaved carries a more interesting, if possibly disturbing, message.)

(b) Self-development. People who work with maladjusted children testify to the value of outdoor experience, chiefly because of the chance it affords of encountering an environment which is not heavily manipulated. In general spending time outdoors provides unique opportunities to learn about ourselves from and through natural encounters - about our abilities, fears, weaknesses and limitations.

(c) Character-building. Spending time away from the cushioning effects of cultural artifacts, we are able to gain a better idea of the true consequences of our actions. There grows a sense of responsibility and habits of self-reliance. Encounters with wild things can teach us restraint, and a respect for an order of being which goes its own way, indifferent to human affairs.

(d) Sense of significance. Contact with nature helps us develop a proper sense of our significance and a sense of proportion. A poet explains how this comes, for example, from climbing: "...at least for a time I have grafted myself back into nature, and the sense of rightness achieved, or regained, is unmistakable"...the climber loses his innocence...He is no longer in Eden where harm is unthinkable and bodily vitality rules unchallenged. That things can go badly wrong is now a truth of life.." (Craig, 1988).

5. Historical and Cultural Identity

Mark Sagoff has forcefully advanced the symbolic significance of the environment as one of the major arguments for conservation (Sagoff, 1974). He maintains the rights of a citizen to his or her history, the "signs and symbols of their culture", as equal in importance to the right to vote. Preserving the environment, he argues, may be compared to maintaining an institution on the grounds of what it symbolises. As a result of the historical interactions of nature and culture, the environment has come to express various qualities, whose appreciation forms part of our broader aesthetic experience; thus, a particular landscape may be perceived as laughing or mysterious, forbidding or - maybe - beautiful. These qualities have become constitutive of our culture. The destruction of this environment, therefore, involves the destruction of our own cultural ideals.

Sagoff's argument has, however, met with some criticism. It has been questioned whether the environment really does have the importance attached to it which Sagoff claims; or whether it does so in all cultures, and therefore, whether the argument can provide grounds for environmental protection on a global scale. Moreover, it is argued that conservation efforts must often transcend cultural boundaries, and conflicts may arise if different cultures value different qualities. Perhaps what these objections show are the limitations of Sagoff's case, rather than its ineffectiveness.

II.2.1 Summary of the cultural case

We have lightly sketched the several elements of what we have called the cultural case for conservation, attempting to capture the subtle and varied ways in which the natural world comes to have significance in human culture. Through brief descriptions of the aesthetic, recreational,

scientific, therapeutic and symbolic values derived from our relations with nature, we have tried to show how the conservation of these values and of the relations with nature which support them contribute to the quality of human experience.

II.3 Conservation and agriculture

Three environments - the urban, the rural, and the wild - provide three human pursuits: culture, agriculture, and nature (Rolston, 1988)

In focusing almost exclusively upon culture and nature, we have neglected the 'third estate' - that of agriculture. This is the arena in which human activities and natural processes are most closely intermingled. There has developed a considerable literature on the ethics of agriculture, which we shall not engage with here, except to draw attention to one or two leading ideas.

Among the possible models which might inform agricultural practice are the following:

i) The first is the 'sustained yield' model, whose goal is efficiency. Whether this type of agricultural practice is compatible with the objectives of conservation is highly doubtful, but it must in the end come down to the question of what criteria of efficiency are chosen. If, for example, they do not include the maintenance of the structure of the soil, then it is unlikely that the aims of conservation will be secured.

ii) The second is the 'stewardship' model. If stewardship is understood to be on behalf of a divine agency, then again, the prospects for the conservation agenda are uncertain. In his well known article on the historical roots of the environmental crisis, Lynn White (1967) lays some of the blame for the crisis at the door of Judaeo-Christian religious beliefs, although Attfield (1992) has discovered more benign influences in the same religious tradition. If, on the other hand, stewardship is on behalf of future generations, then this will in effect make agriculture subject to the constraint of sustainability; we shall be considering the relation between conservation and sustainability in a later section.

iii) The third is the partnership model. The partnership in question is deemed to lie between the farmer and his or her land. Casting the land in the role of a partner implies the adoption of some form of biocentric perspective since it appears to grant the land some independent standing. It is broadly consonant with the land ethic of Aldo Leopold, which again we shall be considering in a later section, although Leopold's central concept is that of community rather than partnership.

One of the most worrying developments from the conservation point of view, however, must be the increasing dominance of agriculture by the multinational corporations, a process which is likely to render all of the above models obsolete. In their pursuit of company profits, technological development and efficiency based on monocultural regimes, it is hard to see a place for conservation objectives. There are grounds for thinking that only small-scale farming is able to provide the context within which such objectives may hope to be realised (Rawles & Holland, 1993).

III Challenges to Conservation

What we have done so far is to assemble the leading elements in a case for conservation in so far as these have been disclosed in recent philosophical and related literature. Invariably, however, the issue of conservation arises in a situation of choice and, typically, in opposition to a case which is being put on behalf of 'development'. We have already expressed a general unease about the alleged contrast between conservation and development, but we need also to see how this confrontation works itself out at the more detailed level. It is proposed, let us say, that some portion of the Welsh countryside, some unique landscape, some habitat with its dependent wildlife is to give way for factory development, housing, parking lot, by-pass or shopping mall.

In this situation, we suggest that there are three ways, chiefly, in which the case for conservation comes under pressure. The first ascribes a necessary priority to jobs over conservation, suggesting that wherever the two are in conflict, conservation must give way. The second arises from the domination of the utilitarian perspective in the policy world. The challenge is all the more powerful given the apparent reasonableness of this perspective. What could be more reasonable than a policy which aims to 'do the best for everyone'? It is also a perspective which is firmly esconced within the accepted framework of liberal-democratic values. The third arises from the fact that in Wales at any rate, and indeed in most of Europe, the countryside to be defended has already been radically modified as a result of human economic activity. If the countryside is already so compromised, how can development which is merely the continuation of established practice matter so much?

III.1 Jobs come first

[W]ild things, I admit, had little value until mechanisation assured us of a good breakfast
(Leopold, 1949)

The first challenge, which we shall deal with only briefly, is the claim that economic activity is a prerequisite for the realisation of a quality of life which incorporates the kinds of goods which conservation seeks to protect.

This claim may be fully admitted; only we must be careful to observe what does and does not follow from it. In particular, from acceptance of the fact that jobs come first, in circumstances when there is something to follow after, it does not follow that jobs come first, if this means that there is nothing to follow after. There comes a time when we may say: 'yes, we must have our bread; but not this way'. Thus, the argument that jobs come first must not be allowed to conceal the possibility that the prospect of losing completely the goods of nature which conservation seeks to protect may prove a powerful enough force to move us to a radical revision of the nature of our economic activity. *The important point is to question the system which forces us to choose between the two.*

In other words, the argument for jobs over conservation on the basis that economic activity is a prerequisite for the enjoyment of the goods of nature becomes less and less persuasive as the economic activity in question tends more and more to the destruction of those goods.

III.2 The utilitarian bind

Conservationists, faced with a proposed development of the kind mentioned, may be tempted to describe the situation as one in which a long-term interest in conserving a high quality, species-rich countryside for all to enjoy is being subordinated to the short term interest of a few; they may be tempted to see the development as a manifestation of exploitative attitudes. Obviously any development scheme needs to be looked at with this possibility in mind and also the question raised whether the benefits of the scheme are as palpable and certain as they are made out to be. In particular, for example, the claim that a scheme 'creates jobs' needs to be looked at with special care; does it create them or simply transfer them from elsewhere? Transferred benefits can easily be passed off as net gains.

But in general this sort of response to development embodies a high risk strategy, and the conservationist is liable to be hoist by his or her own rhetoric. It is common indeed for environmentalists taking a historical view to speak of how environmental degradation has been brought about by 'exploitation'. But this masks the extent to which these effects have been wrought simply by people going about their business, often indeed with the precise intention of 'doing the best for everyone'. Just so, in the contemporary case, developers are likely to reply that far from manifesting an exploitative and self-serving attitude their proposal is an attempt to secure, by the most rational method available, a state of affairs which is 'best for everyone'. This is a powerful case, for two reasons. One is that it will be generally accepted that developments involving housing, roads, shopping precincts and the rest are 'for the good of the community'. The other is that the 'good of the community' will be generally perceived to be a worthy objective. Indeed, the early twentieth century conservationist Gifford Pinchot precisely defines the goal of conservation as being "the greatest good of the greatest number for the longest time" (Callicott, 1993). In this way, then, it is too easy for a conservationist case rested upon a critique of exploitation to be side-lined.

On the other hand, if it is accepted that the developer's proposal is aimed at securing the best for all by the most rational means, then the claim that development should take priority over conservation turns out to be the claim that, on this occasion, the best for all is achieved by the pursuit of a particular development project rather than by the conservation of existing habitats and rural landscapes. Thus it is not an adequate strategy for the defence of conservation simply to argue that doing the best for everyone will not further the cause of conservation, for this argument is open to the retort that what this fact shows is, precisely, that a policy of conservation is not the best policy. Indeed, resistance to development can then be cast in a decidedly unfavourable and even undemocratic light, and the conservationist, rather than the developer, can be represented as pursuing a sectional interest regardless of whether such a pursuit is or is not for the public good. We take this to be perhaps the most formidable challenge

to the case for conservation.

Of course, if it can be shown that even on economic grounds the case for conservation makes sense, this is all to the good. But in view of the availability of arguments purporting to show, for example, that economic considerations actually favour reductions in biodiversity, it would seem unwise, at best, to concede that this is the ground upon which conservation issues should be decided. In fact, we believe it can be shown that this basis for deciding on policy fails to take account of the true nature of the case for conservation.

The developer's attempt to bring about the best for all by the most rational means typically appeals to a) Cost Benefit Analysis and, more broadly, b) Utilitarianism, as procedures which can be employed to reach good, just, or fair decisions in cases where there is a conflict of interests. We shall consider both of these in turn.

III.2.1 Cost benefit analysis

It is now widely acknowledged that, in the case of decisions concerning the use of the natural environment, it is not appropriate for these decisions to be left to the play of market forces alone. This is because our use of the natural environment typically involves costs and benefits which, for various reasons, lie outside the market and hence will not be processed by it. This may be the case, for example, when environmental goods are not privately owned; or when people have preferences with regard to the environment which are not normally reflected in the market place; or when a development project involves costs to the environment that would not be represented in ordinary market transactions.

The use of Cost Benefit Analysis [CBA] may include an attempt to remedy these omissions by putting a price on environmental costs and benefits. This is done in terms of people's preferences that, for example, certain habitats are preserved or that certain side effects, such as pollution, are not permitted. These preferences are translated into economic terms, allowing not just the preference, but its strength, to be registered (Pearce, 1989) and rendering all preferences commensurable. Preferences concerning the environment, which would not be picked up in the market place, can now be considered alongside all others. It is important to register that all the considerations which have so far been marshalled under the 'case for conservation' are not neglected on this approach; they are subsumed under it - or at least that is the claim. Thus, the importance of maintaining biodiversity, or scientific understanding, is transmuted into the strength of people's preferences for such things.

The overall aim of those who employ the techniques of CBA is to identify the most efficient way in which a limited resource - of which the environment is one example - can be used. Efficiency is understood as the greatest aggregate of preference satisfaction that can be gained from the resources in question. In order to achieve it, the preferences of all affected will be ascertained and translated into monetary terms. The benefits and costs of all options can then be established.

The option which results in the greatest balance of benefits over costs will be the one prescribed.

The technique may appear both to be democratic and to exemplify fairness, and hence leave conservationists little room for appeal if the outcome goes against them. They cannot complain that the impact upon the environment is simply being left out of the equation, as they could if the decision was being left to market forces alone. The proponent of CBA can argue that contingent valuation of environmental goods ensures that all relevant preferences are considered and, this being granted, the decision reached will embody the satisfaction of the greatest possible number of them.

However, even in cases where all relevant preferences are considered, the appearance of fairness is likely to be illusory, and it is far from clear that a policy of enacting the aggregate of people's preferences will in fact result in a situation which is 'best for everyone':

A - because the techniques employed in CBA are themselves highly problematic, or even fatally flawed

B - because CBA can only yield an incomplete and distorted account of the human interest in conservation.

Moreover

C - CBA as it is usually practised totally ignores the preferences of other animals.

A. Fatal flaws

Many of these problems have been well-rehearsed in recent literature, and we shall only summarise them here.

CBA involves affixing a price to certain goods by appealing to the economic strength of people's preferences with regard to them. For example, the monetary value of a heathland may be established by asking people how much they are prepared to pay to continue visiting it, or for the knowledge that it will continue to exist. However:

(1) In practice, there is a difference (a 40%+ divergence, according to one estimate - Turner, 1993) between the sum people profess willingness to pay (WTP) to retain a privilege and the sum they profess willingness to accept (WTA) in compensation for its loss. It is not always clear which figure should be used. Where there are guidelines, it is not clear what the rationale behind them is, nor how it would be defended: "merely identifying gainers and losers in some resource change situation will be insufficient to determine whether WTP or WTA is the most appropriate indicator of value. We need to know more about the motives of the valuer" (Turner & Pearce, 1993).

(2) There is a difference between what people will actually pay/accept and what they

profess to be willing to pay/accept. Which figure should be used? Both are problematic:

a) What people are actually prepared to pay/accept will be relative to the amount of money they have available. If this measure is used, therefore, there will be a bias towards the preferences of those with the most resources. In cases where conservation and 'development' interests are in opposition it is clear that this will often amount to a bias against conservation, given that in the actual world those who command the most resources will tend to stack up on the side of 'development' - since this is how they came to command these resources in the first place. "Consider a mining company...wishing to exploit a site, such as Kakadu National Park in Australia, which is sacred to the penniless aborigines who live there. The sum that the aborigines are willing/able to pay to defend Kakadu is pitifully small compared to the fortune at the disposal of the developers" (Adams, 1991). In any case, (i) A's ability to pay more for x than B does not necessarily indicate that A's preference is stronger than B's, and (ii) A's ability to pay more for x than B is able to pay for y does not indicate that x is more valuable than y . It would seem, then, that the claim to fairness is undermined if monetary values for environmental (or any other) goods are established by appeal to people's actual ability to pay for their preservation.

b) If, alternatively, the criterion used is people's willingness to pay, rather than their actual ability, then bizarre results ensue due to protest bids, and bids in terms of infinite sums. A good example of what happens when actual monetary restraints are removed is the case of Frankfurt resident Frau Kraus, whose home lay within a 45-degree angle of a proposed new skyscraper, and whose consent was therefore required before construction could begin. Offered first DM1 million, and then DM 10 million, she declined saying: "Not even if they were to offer me DM 20 million would I change my mind..... it would block out my sunlight and spoil the place where I was born and bred" (Adams, 1990). Moreover, work done by the Nature Conservancy Council and others indicates that the results obtained by these procedures will vary according to how much information is available and of what kind.

(3) The procedures for establishing and quantifying preferences may lead to a bias against certain sorts of goods, for example those which are less visible, or less easy to quantify, or more long term. Since many of the goods which conservation seeks to protect are of this kind, there may again be a built-in bias against conservation. Even where preferences do favour conservation, there may be a bias against, for example, the ugly and the slimy, or the very small. On the other hand, romantic and elegant creatures, such as eagles, may be favoured.

(4) CBA is supposed to function as a neutral mechanism by which preferences can be aggregated and their satisfaction maximised. Preferences are treated as 'givens', as uncontaminated 'raw' data which thus enjoys a certain immunity to challenge. The whole procedure therefore lays claim to a certain objectivity, and this is undoubtedly a major part of its appeal. In the public mind *preferences* are often contrasted in this regard with *values*, a distinction to which we shall return later. The latter are frequently seen as rather suspect, woolly and above all 'subjective' affairs, on which little reliance can be placed in the formation of public policy. As Sagoff observes (1988), people are reluctant to 'come clean' and argue explicitly in terms of their values, whereas they view economic considerations invoking preferences as somehow objective, important and 'down to earth' (Craig et al, 1993). However:

a) Although it is true that preferences enjoy a certain immunity to challenge, it is not at all the kind of immunity which justifies the sacrosanct status afforded them by the procedures of CBA. If A expresses a preference for x over y , and the preference is challenged, it is perfectly proper for A to reply with: 'I just do'. In the case of an evaluation on the other hand, expressed in the judgement: ' x is better than y ', it is not similarly acceptable for A to respond to a challenge with: 'It just is'. In other words, preferences are not open to critical discussion in the way that is characteristic of evaluations - a feature due to their relatively limited and short term scope; yet they are eminently creatures of culture and circumstance. In short, the character of preferences is such as to *discourage*, rather than *encourage*, their use as the unexamined basis for the formulation of public policy in the manner contemplated by CBA.

b) The preferences a person will express are affected by and contingent upon the information which they possess, and more generally by their education, experience and other factors. Given that the context in which these expressed preferences are elicited is dominated by the market and market values, it is arguable that far from being a neutral exercise, CBA exhibits a built-in bias towards the market-dominated status quo. If this is correct, then preferences for conservation goals, amongst others, cannot be claimed to have been given a fair hearing. This point is particularly important in view of the fact that people often do not know what their preferences are, especially with regard to situations which are hypothetical and which they have never considered before. There is a failure to recognise how environmental values and attitudes are rarely pre-existing, but are frequently discovered under the threat of loss; they can also be created and formed by the very manner in which attempts are made to elicit them. The CBA process itself is an agent in the social process and may be a vehicle for the inculcation of values. It is not even clear that what CBA reveals are environmental values at all. Recent research by Kahneman and Knetsch (1992) suggests that the most likely explanation for the valuations typically offered by subjects of CBA exercises is that what they are really 'purchasing' is moral satisfaction - the same satisfaction, for example, that might be obtained from giving to charity.

c) A particular preference belongs to, and is expressed in, a particular context. (The invitation to express a preference without assuming any particular context would produce meaningless results) Accordingly, a mother may put a low figure on what she would be prepared to pay to preserve marshland habitat, knowing that this is all she can afford after she has paid for food and accommodation for herself and her family. She might well wish, however, that she did not have to make such a choice; she would much prefer it if the context were different. In general, since preferences - both actual and hypothetical - are expressed within a system, a method based on the collection and aggregation of preferences is not neutral but conservative and self-supporting. It leaves no room for the expression of a preference *that the system be different*.

d) The invitation to express a preference can be framed in an indefinite number of ways. Do we itemise the components of a marshland habitat and ask about each item what people would be willing to pay for its preservation, or do we ask this question about the habitat as a whole? There is empirical evidence to show that the amount people are willing to pay for the preservation of a given item varies enormously depending on whether it is made the subject of a separate inquiry, or presented as part of a package, on whether it is the subject of a one off payment, or a series of payments, and so forth. (This is the so-called 'embedding effect')

discussed by, among others, Kahneman and Knetsch, 1992) Moreover it is quite unclear how many preferences should be included in the aggregation. The preferences of those affected? But in the case of existence value, how many is that? Two American researchers, for example, as a result of questionnaires distributed to a cross-section of the residents of 3 large cities, among others, estimated the total combined option and existence value of whooping cranes in the US at \$1.58 billion, if the bids represented individuals, or \$573 million if they represented households (Peterson, 1993) Which *should* they represent? And why 3 cities rather than 33? A similar exercise conducted in Australia based on a random sample of 2034 people revealed that they would be willing to pay between \$52 and \$128 per person per year to stop mining in Kakadu National Park. Defenders of the Park argued that since these amounts multiplied by the total number of Australians would far exceed earnings from the mine, the mine ought not to be permitted. The mining company thought these results were "nonsensical" (Adams, 1991) But CBA itself does not tell us which results would be 'sensible'; to make that decision we need to turn to value judgements which are external to the method.

The first lesson to be drawn from all this is that the CBA method knows no internally prescribed limitations and that therefore it is not in fact a method but an open cheque to be drawn on at will, or until it delivers the right result - as this is determined by so far undisclosed forces, most likely those in control of the ruling institutions. In other words, far from being a bastion of liberal-democratic principles, CBA is shown up to be rather the reverse, because crucial values are surreptitiously fed into the mechanism rather than being openly debated. The second lesson is that the method itself is capable of being employed in an indefinite number of ways, each of which may produce materially different results and point to materially different policies whilst it is at the same time unable to determine which is the appropriate mode of employment. How it is employed will therefore be determined in a variety of extraneous ways, involving judgements and assumptions, many of them normative. In other words, there will inevitably be hidden value judgements at work, entirely belying the claim to be standing on some relatively neutral and objective basis. It is not our contention that value judgements should, or even can, be avoided; only that it is more in accordance with liberal-democratic principles that their influence be acknowledged.

B. Incomplete account

B.1 Even if there were not these flaws in the methodology it has become increasingly apparent that CBA fails to capture important elements in the human response to the natural environment, chiefly because it is working with an impoverished account of human nature. For example, it ignores vital areas and features of the structure of human value systems - notably, the distinction between values and other kinds of preference identified by Mark Sagoff (1988), the existence of 'self-reflective' preferences, and the further distinction between transformative and demand values identified by Bryan Norton (1987). Thus:

1. Sagoff suggests that in our capacity as agents we occupy two distinct roles, that of consumer and that of citizen. As consumers we are concerned with our private interests and the satisfaction of our preferences.

But as citizens our concern is for the public interest about which we may come to form various judgements consequent upon a process of reflective debate with others about matters of value.

This debate is 'rational' insofar as it is conducted in accordance with certain virtues appropriate to discourse such as honesty, tolerance, fair-mindedness and the like. Whereas preferences can only be explained, values are to be justified. His criticism of Cost Benefit Analysis is, first, that it mistakenly assimilates values to preferences and, second, that it fails to recognise that environmental issues are issues in the public domain and hence engage our citizen values rather than our consumer preferences. Thus, claims Sagoff, "The contingent valuation method...insofar as it tries to make respondents express preferences rather than form judgements, denies their status both as thinking and political beings". It is as if one were to try to settle the question of what the speed limit should be by asking people at what speed they like to drive, rather than at what speed they think they ought to drive.

2. Even if we attempt to address the whole matter in terms of preferences, our preferences are not all of the same order. Among our preferences are some which might be termed, simply, 'appetites'. But others are what might be thought of as 'second order' preferences, in that they imply some attitude - of approval or disapproval, perhaps - towards our appetites. Thus, there may be some appetites that we would prefer we didn't have. These second order preferences clearly key in to our values, the ideals which perhaps we are trying to live up to, and to notions of self-respect. Failure to act on these preferences typically gives rise to guilt, whereas failure to satisfy an appetite is merely cause for regret. Moreover, it seems likely that much of the concern we feel over environmental issues is expressive of our ideals rather than our appetites. Now CBA treats all our preferences as if they were on a single level and can simply be weighed against one another. But this seems implausible. For one thing it would make guilt unintelligible, and eradicate the distinction between guilt and regret. It is as if, when called upon to advise a friend contemplating some action of which they would subsequently feel ashamed, we simply inquired about the relative strength of the preferences involved and advised our friend to follow the stronger. This would completely ignore the fact that one has a special status by virtue of the fact that it stands as a commentary upon the other. Many a motorist's attitude to their use of the car is of this nature; they disapprove of their own reliance upon the car, and feel not a little guilty about it.

3. Bryan Norton draws attention to some important distinctions which are to be made between the grounds upon which features of the environment may be valued. Some things are valued simply because they satisfy, or have the potential to satisfy, our various needs or demands. These have, therefore, what may be termed 'demand value' - a category which embraces what economists call 'use value' and 'option value'. Contrasting with demand value there is non-demand value, which includes what economists have come to call 'existence value' - the value we attach to the fact that something exists, irrespective of any actual or potential use we may make of it. But according to Norton, there is another kind of non-demand value, which is the value we attach to something by virtue of the capacity it has for changing and shaping the pattern of our demands. This he calls 'transformative value', and suggests that it is to be found in abundance in the natural environment. Clearly, a number of the cultural values we have already identified - aesthetic, educational, and the like, have this 'transformative' feature, the capacity to change our view of things, to surprise and to edify. Once again, as with the two previous distinctions we have discussed, there is revealed a radical heterogeneity which makes the single scale comparison typical of the CBA method quite inappropriate. To compare the importance of satisfying a particular demand with the importance of exposure to a situation in which the demand might be supplanted, and judge the one 'preferable' to the other is verging on the unintelligible.

Exponents of the CBA method are apt to respond to claims that they cannot do justice to the richness and variety of human environmental concerns by subsuming each proposed enrichment under some pre-existing category. Thus, transformative value is construed as latent existence value (Turner & Pearce, 1993). By this, presumably, is meant that transformative value is a preference for the chance of something's coming into existence. But the objection is that this response does not get the measure of the challenge. Certainly it is possible to ask what store people set by a certain state of affairs, and invite them to put a price on it; and then to do the same with another state of affairs of a different order. But whatever else this procedure measures, it cannot measure the strength of a preference for the one state of affairs over another of a different order, since such a preference does not make sense.

B.2 There are two other areas in which CBA fails significantly to handle the issues around conservation.

i) The first is that there is simply no provision in the mechanism of cost benefit analysis which will enable it to register the significance of threshold effects (Bilsborough, 1992). There is little reason why people's preferences should coincide with the ecological realities. There are two features of the procedure which account for this. One is the essentially 'populist' nature of the method: the preferences of experts count for no more than those of the ignorant. The other is that the method invites people to confront environmental issues as isolated individuals - what would you do? how much would you pay? Yet it is becoming a commonplace now to observe that the resolution of many environmental problems requires public discussion and concerted action. The consequences of ignoring this were illustrated in Garrett Hardin's classic paper "The tragedy of the commons" (1968).

ii) The second is that the method is ethically 'blind' in that it takes no account of legal or moral rights, or of the interests of anyone other than currently existing human beings. Specifically, both animals and future people are disenfranchised. It is arguable that many of the so-called 'protest bids' which are a regular feature of CBA exercises reflect unease over this fact.

B.3 Proponents of CBA may say that several of these problems of incompleteness can be met by introducing a 'sustainability' constraint on the implementation of CBA whether this concerns individual projects or wider policy issues. However, the formulation of an adequate criterion of sustainability is itself not without problems, and we shall discuss these in a later section.

C. The issue of other sentient animals

'Doing the best for everyone', as it is usually understood, ignores the possibility of claims arising from outside the human sphere. Even though they may be highly contested, we nevertheless regard it as entirely appropriate to canvas these claims as part of the case for conservation. One reason is that even if we cannot take literally the idea of acting 'for the sake of the environment' because we cannot make sense of the idea that the environment has a 'good of its own', it is nevertheless a fact about some humans that they are capable of so acting. Not only is this true but such action also forms a part of what those humans conceive to be a worthwhile life. In other words these considerations are readily reinterpreted as extended areas of human concern, and their incorporation into human activity a contribution to human well-being (Brennan, 1988;

Clark, 1987). But "the human concern for other, non-human and non-animal, effects is misrepresented if one tries to reduce it simply to a kind of human self-concern. Since, moreover, the concern for those other effects is itself a human phenomenon, humanity will be itself misrepresented in the process" (Williams, 1992). Failure to appreciate this point sometimes stems from a failure to distinguish between the trivial truth that we cannot escape from the human perspective and the substantial falsehood that the human perspective cannot ultimately embrace anything other than the pursuit of human interests. There is a sense, therefore, in which the philosophical debate about the intelligibility of a biocentric rather than human-centred viewpoint is unimportant in the context of the case for conservation. To an extent, the biocentric perspective can, and can only, be represented through the medium of human preferences. But the exception to this is the case of sentient animals. Not only do they have a good of their own and therefore claims which ought not to be ignored, but these claims are in principle capable of being recognised independently of human representation.

In fact, it can plausibly be argued to be a requirement of the method of cost-benefit analysis that it take into account the preferences of non-human sentient creatures, as is indeed proposed by the advocates of so-called '**comprehensive weighing**' (Attfield & Dell, 1989), which is, precisely, a variant of CBA which takes this implication to heart. Quite simply, if preferences count, then so do all creatures which have them; and to deny that animals have preferences, smacks very much of special pleading.

Such an approach will always be open to allegations of '**anthropomorphism**'. But we should be careful to distinguish here between the mere ascription to animals of human characteristics and the inappropriate ascription to animals of human characteristics (Midgley, 1983). These are by no means necessarily the same, and only the latter is objectionable.

At present no detailed proposals exist for how the theory of comprehensive weighing might be put into effect, but there are at least three approaches which might prove feasible. One would be to build on the work of Marion Dawkins, who has devised quite sophisticated methods for 'consulting' pigs, hens and other farm animals about their preferences regarding housing, bedding, living conditions and the like (Dawkins, 1980). Another is to use the findings of animal ethologists who are providing an increasingly rich account of the social and psychological life of animals (Noske, 1989). A third, which should not be completely beyond human ingenuity, would be to extrapolate from the ranking of human concerns, making appropriate adjustments for the particular species of animal under consideration. Thus, on the basis of the importance we attach to having somewhere reasonably secure and permanent to live, it is reasonable to suppose that it would matter very much to a badger if its sett were destroyed; and we can assign to the badger a strong preference over this matter. Or again, to illustrate the point about adjustment, on the basis of evidence regarding the perceptual system of an animal, a dog, for example, we can assign it a preference not to be assailed by a very high pitched sound, even though humans would not register such a sound. There remains, of course, the problem of how to calibrate the preferences of humans as against those of badger or dog; and different assumptions will yield very different results. But this dependence of result upon initial assumption is endemic to any mechanical decision procedure.

III.2.2 Utilitarianism

CBA is heir to all the problems traditionally associated with utilitarianism, which have been sufficiently exposed not to require too much attention here. (See, for example, Williams, 1973.) We shall be content just to give a taste of the problems.

A utilitarian believes that matters of right and wrong are decided by weighing the balance of satisfactions, interests or benefits of all concerned. Satisfactions and benefits, dissatisfactions and costs, are thought all to be commensurable and capable, therefore, of being balanced off and traded against each other. CBA is thus a true scion of this approach. But one serious objection is that benefits and costs, satisfactions and dissatisfactions, ought never to be allowed to count uncritically in the weighing and balancing. The reason is that both the source and nature of a satisfaction or a benefit can make a difference to whether the satisfaction or benefit is an acceptable one. To take the simplest kind of utilitarian 'benefit', namely pleasure, it is clear, for example that pleasures may be wrongfully or shamefully gained. The receipt of a large sum of money would be regarded as a benefit by most people; but many would find it unacceptable, if it were the proceeds of a robbery. Thus to ask someone to state a preference in the absence of a full account of the circumstances under which that preference is to be satisfied, is to invite them to suspend their moral scruples. In short, the balance of satisfactions cannot decide acceptability, since it presupposes it.

The second problem is that calculation of cost and benefit cannot ignore the question of the relation between the two. A benefit which is obtained by paying a cost cannot be regarded in the same light as one which is not. Certainly, we appear to think the advantages of motorised transport, more especially the freedoms which it represents, outweigh the loss of life which is thereby caused. We would view the matter very differently, however, if the advantages of motorised transport had to be secured in advance by the sacrifice of a certain number of lives. It is this kind of case which leads people away from reliance upon the aggregation of costs and benefits and more in the direction of a '**Kantian**' system of morality which bids us treat one another not as means only but as 'ends', as beings to whom certain 'rights' attach. Here, it is argued, is a feature of our moral thinking to which utilitarianism fails to do justice. Thus, CBA and the utilitarianism on which it rests, stand accused of neglecting to take account of rights in their approach to a conservation ethic. If, as some philosophers urge, rights should be extended beyond the human domain to sentient creatures, or even to all living things, this omission will be seen as an even greater problem.

III.2.3 Conclusion

In sum, CBA which assigns monetary values to environmental costs and benefits is no doubt

better than CBA which ignores such costs and benefits. But this is a far cry from saying that it gives adequate expression to the case for conservation. It appears in various ways inappropriate for application to this subject matter, and the method used to affix prices to environmental costs and benefits is problematic in ways which undermine the claim to objectivity, rationality and fairness. Furthermore, it often serves to mask, rather than reveal, the value judgements which necessarily surround conservation issues.

Economic valuation of the environment fails to represent all values, and fails to represent correctly those which it does address. More generally, the real problem about treating environmental problems as if they reduced ultimately to problems about human interests is this: no-one can suppose that environmental problems would not exist if human beings never became aware of them; and no-one can suppose that environmental problems would be solved if we educated ourselves not to care about them.

III.3 The manmade environment

Although we shall deal with the issue more briefly, we next propose to identify and attempt to disarm a third and possibly more insidious line of argument which we believe underlies at least some of the resistance to the case for conservation. It arises from the fact that the case for conservation is concerned very largely with environments which have already been modified by human activity.

More specifically, the argument may be put as follows: if what we are bidden to protect is largely manmade, how can there be any serious objection to the further processes of humanisation represented by various forms of development?

The argument throws up further questions of the following sort:

- what are the criteria for distinguishing between acceptable and unacceptable forms of manmade landscape?

- how can there be any limits to what we are bidden to protect ? (It is reported for example that English Heritage is at least looking into a case for the protection of certain of the original bridges spanning the M1, and of the 'golfballs' or 'Radomes' which were part of the early-warning radar system at Fylingdales) As Derek Ratcliffe (1989) observes: "One of the frequent questions is, 'How much do you conservationists want?' "

- how can the existing conservationist demands be construed as anything more than reflections of a culturally select, and possibly elitist perspective?

- how can we criticise shadow projects (developments to compensate for loss of existing countryside) without implying criticism of proposals e.g. to create a new Midlands forest?

III.3.1 Replies

R1 There is often associated with this line of reasoning an implied contrast between the character of the natural environment as it exists in Britain and most of the countries of Western Europe today, and the natural environment of continents such as the Americas and Australasia which confronted the earliest European settlers. The idea is that although we might begin to make sense of nature conservation in those latter contexts, so far as Europe is concerned we are simply too late.

However, recent work by J. Baird Callicott (1991) and others should really disabuse us of any idea that the natural environment encountered by these early settlers represented some kind of pristine wilderness. One estimate has it that, taking into account the subsequent decimation of the indigenous peoples caused by the introduction of old-world diseases, there were as many as ten million inhabitants of North America when the Europeans first landed, who managed a wide range of domesticated animals and plants and controlled their environment through the use of pyrotechnology. And the forests of Central and South America would contain similar distributions of indigenous peoples. Thus the newcomers only thought they were encountering pristine wilderness, but it was a misconception which has even now not been laid to rest. If the intrusion of humans creates a problem for conservation, therefore, it does so as much in the new world as in the old.

R2. Our first reply questioned the credentials of certain landscapes to qualify as natural, on the grounds of how they have come to be as they are. A second reply looks into the very concept of the natural itself and claims to find a 'socially constructed' concept which gains both its purchase and its significance from the contrast with culture. As one 'postmodern' text wittily has it: "Even nature.....doesn't grow on trees" (McQuillan, 1993). To say this is not to demean interest in things natural, but rather to make the point that 'nature' may not be the basic concept we take it for. We tend to view culture as a 'departure from nature', whereas the truth may lie precisely the other way round: nature provides both the setting and the relief from culture - and light relief is better than none.

R3. A further lesson to be derived from the American experience is how greatly human modified environments can differ from one another, and specifically how much more 'natural' are some than others. For there is no good reason to suppose that 'natural' is an absolute term - that the property of being natural has to be an all or nothing affair. On the contrary, one can give a ready sense to the idea that there are more, and less, natural landscapes. The point applies quite generally: we can recognise more, and less natural forms of behaviour, clothing, colour and childbirth.

R4. Finally, we have already seen reason to detach the objective of conservation from any uncompromising pursuit of the natural (nature idolatry), as well as from the Pinchot concept of resource conservation, in favour of more moderate forms of the objective, to be developed in section **IV**.

III.3.2 The issue of shadow projects

The argument that we may readily compensate for development projects by the use of so-called 'shadow projects' is a variant of the main line of objection under consideration. According to this view, if a former meadow is 'lost' to a supermarket, this can be fully compensated for by constructing a meadow from former 'waste' ground. *So far as human origins are concerned* the exchange is a matter of indifference; the only issue is about the respective ecological and aesthetic quality of the two meadows. How far should we be satisfied with this form of exchange?

We shall mention two considerations which seem to be relevant. One is that while the origin of a landscape is not always a readily detectable feature, it may still count towards its value. So in this respect, at least, shadow projects can never constitute a fair exchange (Elliot, 1982). Indeed the idea that non-experienced features of our environment matter has been around for some time, for example in the concept of existence value - the idea that a feature of the environment may matter to us even though we may never expect to use or experience it in any way. It is worth noting a tension between this recognition and the almost universal view that development is tolerable if it is hidden - for example under ground; thus it is common to prefer under ground to overhead cable, and there was strong pressure recently in favour of routing the M3 through a tunnel under Twyford Down rather than overland. But the case for this view seems far from obvious. The overland route may be thought aesthetically more obtrusive; but origins count aesthetically too, and there is existence disvalue as well as existence value. The overland route may be thought ecologically more disruptive; but we wonder how much serious investigation has gone into establishing this claim. (The answer may of course vary from site to site.)

A second consideration focuses on the appropriateness of the notion of compensation. The term surely has its primary use in the context of a system of justice and when some damage or injury has been involuntarily incurred. To use it in the context of an arrangement voluntarily undertaken is surely to confuse a system of trade with a system of justice. It is a notion which seems to turn damages for rape into prostitution (Adams, 1993).

IV Three approaches to conservation

We shall now briefly review three approaches to conservation, or guidelines which might be used in the pursuit of that objective, which recognise the need for some form of 'negotiation' between the human economy and 'the economy of nature', and which, therefore, are consonant with CCW's brief - including the requirement it is under to work within the framework of a democratic state.

IV.1 The bias towards the natural

It has often been remarked how significant a part has been played in human history by the cultivation of plants and the domestication of animals. It is equally clear that these practices constitute significant incursions into the natural world, both by transforming natural lineages into artificial ones, and by the considerable displacement of natural habitat which they entail. However unthinkable it may appear to some, there are those who, in the uncompromising pursuit of the natural, are prepared to contemplate abandoning, or seriously curtailing these practices. A residue of this thinking lies behind the Wildlands Project, currently being advocated by environmental activists in the United States, who are committed to "vast landscapes without roads, dams, motorized vehicles, powerlines, overflights, or other artifacts of civilization, where evolutionary and ecological processes that represent four billion years of Earth wisdom can continue" (Davies, 1992). Although we have seen reason to question the wisdom of an uncompromising pursuit of the natural, it still seems that a major part of what conservationists stand for must embrace the natural world in some way or other. No doubt there are limits. To take a couple of extreme cases: when attempts were being made not so long ago to divert the course of a lava flow which threatened to engulf a village by dropping huge concrete blocks in its path, conservationists were not loud in their pleas to let natural processes take their course; nor were they to be seen picketing medical laboratories on behalf of the small-pox virus. Nevertheless it may still be urged that there ought to be a presumption in favour of the natural, to be trumped only by some serious human interest - or perhaps we should say, some other serious human interest, since we do also have a serious interest in the natural. Moreover, a 'bias' towards the natural would go some way towards safeguarding those features which have traditionally been of concern to conservationists (Ratcliffe, 1977). Thus, favouring the natural will automatically lead one to favour the indigenous life-forms of a given site; and it is very often because of a thing's natural origins that it is rare, fragile, venerable or irreplaceable. True, it is sometimes argued that if rarity, for example, is due to the fact that a species in that locality is existing at the limit of its range, there is no particular reason for striving to maintain this state of affairs. We would disagree strongly, on the grounds that this form of existence actually constitutes a contribution to diversity.

But how can this bias be made operational in the largely manmade Welsh landscape? Some philosophers argue that once human intervention occurs, there is no longer a natural system to be preserved, there is only an artifactual system (Katz, 1993). But even on this rather severe account, we could still make sense of a bias towards the natural if we meant by this to refer to something's being more or less close to the natural. For example, one cultivated plant or domesticated animal might be judged 'closer' to the natural than another on the basis of genetic affinities. Again, extensive farming practices might be judged more natural than intensive practices on the basis of the character of the lives led by the animals involved. But, as we have argued, it is far from clear, in any case, that naturalness has to be regarded as an all or nothing affair. The concept of the semi-natural has been around in conservationist thinking for some time (Guidelines, 1989), and it clearly seems to make room for notions of the more, and the less natural. Hence a bias towards the natural would consist in promoting the more natural. However, it might be objected that it is not easy to form a clear picture of such a process; and in particular the question arises of how anything could be natural that was the result of human promotion. In fact the situation needs to be further analysed. A purist might insist that a wilderness area - an area which was to all intents and purposes 'as nature made it' - ceased to be wilderness if it so much as owed its continuation to human forbearance. This permits an initial distinction to be drawn between a natural system which does, and one which does not, owe its continuation to human forbearance. Next we might distinguish between a system which originated naturally, some ancient oak woodland perhaps, and one originated by humans, such as the Norfolk Broads. Then again, even if a system is originated by humans it may be allowed to develop entirely

naturally, or more, or less, naturally. And human intervention itself may be more or less invasive, more or less tolerant of naturally occurring elements and processes. The house-sparrow, the cockroach, the rosebay willow herb that squeezes up between the paving stones of some forgotten yard - these are nature in the raw! A stone on which lichen collects, or a wall playing host to ivy are receiving nature. In short, and given such an understanding of nature's presence, there are any number of ways in which a bias towards the natural might be manifested in what are loosely called 'manmade' (better, humanly-modified) environments.

But there remains the question: what is so good about the natural that we should wish to conserve it as such? Here again, philosophers have entered their doubts, who, citing examples such as sickness and disease, allege that a general presumption in favour of the natural cannot possibly be justified because these things, though natural, are quite clearly bad (Elliot). But this argument is less than persuasive. For example, it can be replied that sickness and disease are only bad in a qualified sense and may be defended as indispensable parts of the preconditions for life. However, although elements in the natural world which are rare, irreplaceable or venerable are often valued, the same goes, too, for cultural artifacts. Moreover laziness, for example, is not obviously the better for being natural. So being natural seems neither a necessary nor sufficient condition for something's being good. In any case, the attempt to depict goodness as an automatic and implicit feature of the natural meets the longstanding philosophical objection to any attempt at deriving values from facts (Hume, 1962).

In asking what is so good about the natural, we are approaching the sphere of basic values, where articulation becomes difficult. Of course the natural world comprises many forms of existence which, for reasons which have already been rehearsed, command respect. But the question we are now asking is what commends these items insofar as they are natural. Among other reasons, nature might be commended i) for its 'exemplary' character; ii) as an object of awe; iii) as a source of significance; iv) as the 'nurturer' of human culture - 'mother nature':

i) The attempt to commend natural things and processes as exemplars meets the classic retort of John Stuart Mill, that "In sober truth, nearly all the things which men are hanged or imprisoned for doing to one another are nature's everyday performances" (1874). Yet although nature might be a dubious model for human action, it is less open to objection to suggest that natural systems might usefully function as exemplars for, say, the operation of agricultural systems. (Indeed this is a leading idea in Leopold's conception of 'land health' which we shall discuss next.)

ii) Robert Colwell, too, seems to strike a chord when, in addressing this question, he writes of how the natural world amazes us both by its complexity and its improbability. There is more than adequate historical evidence for the awe and wonder which the natural world has inspired when conceived as the 'handiwork of God'. And many would agree with Darwin that this response in no way diminishes when the supernatural explanation gives way to a naturalistic explanation of how this has all come about. The natural world remains what a being such as God might have created.

iii) Again, many would attach importance to there continuing to be forms of existence independent of the exercise of any human will, and to the need for there to be something which sets human culture in context and gives it significance. (As Voltaire demonstrates in *Candide*,

gold is of no consequence if the very streets are paved with it.) Of course, the rest of the universe does provide such a context, but it is a source of comparison which lacks immediacy.

iv) Nature embodies the history of life on earth. It is that out of which human culture has evolved and within which it is embedded. When Leopold describes wilderness as the raw material of civilisation he captures something of this point, but not all of it, because it might seem as if nature is only being valued for what it has produced. In fact there is vital continuity. By keeping in touch with nature we are keeping in touch with our history. Some sense of loss might indeed be thought to have brought the nature conservation movement into being, a sense that in losing touch with nature we are losing touch with our history.

IV.2 Land health as a conservation objective

The practices we now call conservation are, to a large extent, local alleviations of biotic pain. They are necessary, but they must not be confused with cures. The art of land doctoring is being practiced with vigour, but the science of land health is yet to be born (Leopold, 1949)

As a regulatory ideal, land health would seem to avoid the problems of justification which beset the appeal to nature. Health, it can be argued, is self-evidently good.

Leopold defines land health as "the capacity of the land for self-renewal"; and he defines conservation as "our effort to understand and preserve this capacity". The claims of land health as an objective of conservation are currently being advocated with some vigour by the American environmental philosopher Baird Callicott, who writes: "faced with the sobering realities of the coming century, the only viable philosophy of conservation is.....a generalised version of Leopold's vision of a mutually beneficial and enhancing integration of the human economy with the economy of nature." (1991). As a phenomenon open to direct experience land health is perhaps most familiar to those who work the land and know what it is for land to be 'in good heart'. From both an ecological and a philosophical point of view, however, it so far remains a somewhat elusive notion. A point in its favour from CCW's point of view lies in the hint that there may be a desirable state for land identifiable independently of either its cultural or its natural properties, and hence the possibility of resolving tensions between these two 'wings' of CCW's brief. This may not be obvious because of Leopold's invocation of wilderness (i.e. nature) when talking of land health. The important distinction to notice is this: that, for Leopold, land is to be judged healthy if it functions in the way that wilderness does; whereas the position we have described as exhibiting a 'bias' towards nature advocates the retention of the natural, where possible. The former requires only an analogy with nature, the latter its very presence. However, a great deal more work needs to be done to demonstrate that land health is a viable objective of conservation policy. We shall itemise some of the difficulties:

i) First it should be realised that even in its primary use - as a predicate of individual living organisms - there are competing theories of health. Some advocate a 'functionalist' theory, which holds that an organism is healthy if it is functioning well. Against this, its critics say that if, for example, a malfunction should happen to prolong a creature's life, we would not say it was unhealthy. Others defend a normative view, which holds that being healthy is a matter of being in a condition, physically, to lead a worthwhile life. The objection to this is that there are

physical conditions which detract from a worthwhile life, e.g. in some cultures, skin-colour, which certainly should not be seen as constituting ill-health (Reznek, 1987).

ii) Second, the question arises of whether the ascription of health to land can be anything other than quixotic. Bearing in mind that 'healthy' is a predicate, primarily, of organisms, which are determinately bounded individuals, 'land' can seem too diffuse a subject for this concept to get a grip on. The need to address this point is underlined by Leopold's reference to self-renewal when elucidating his concept of land health. This implies the existence of an identifiable and reidentifiable subject.

iii) A connected point is that for conservation purposes we need the notion of health to apply to any number of connected and overlapping parcels of land. In the case of an organism we do not need a notion of a healthy liver separate from that of whatever contributes to the health of the organism. In the environmental case, on the other hand, it needs to be demonstrated that what constitutes a healthy planet will also constitute a healthy environment for the inhabitant of No. 49, Acacia Close.

iv) Another difficulty is the absence of any 'context-free' notion of land health. Land, it seems, will be healthy for some life forms but not for others. If the way that natural systems work is to be our guide (the phenomenon of 'succession') and as natural extinctions testify, land stays healthy precisely by becoming 'unhealthy' for particular species.

v) Finally, it is not at all clear that operating with the criterion of land health will produce the answers that conservationists want. The 'collective wisdom' of conservationists tends, for example, to favour the indigenous, the rare, the venerable, the fragile and the irreplaceable. It is arguable, perhaps, that only healthy ecosystems can support fragile or rare species, relationships and structures. It is certain that indigenous species and habitats will be judged healthy, given that they constitute the yardstick of health. But it is far from clear that an appeal to health will protect the venerable or the irreplaceable. A test case is Oxleas Wood. It is hard to see how one could have defended the wood on the basis of an appeal to land health, since a re-sited and re-planted wood might be argued to be just as healthy as the original.

On the other hand, even if the concept of land health should resist definition, the same charge can be levelled at many working concepts in the life sciences - 'organism' and 'species', to name but two. Moreover, it does appear to afford some sort of criterion which is capable of being operated with at a practical level. It is possible to distinguish, for example, between 'rich' land and 'healthy' land, and between 'poor' land and 'sick' land. Thus, Leopold himself will wax lyrical over the pasque-flowers of his beloved Sand Counties for which "Only gravel ridges are poor enough to offer...full elbow-room in April sun". At the same time he will speak of the pain which only ecologists feel when in the presence of land sickness identified as a condition when, for example, "soil loses fertility, or washes away faster than it forms, and when water systems exhibit abnormal floods and shortages". In the same vein, he cautions us against mistaking the exuberance of plant and animal life which may follow the alteration of a long established ecological 'pyramid' (in Elton's sense) for health, speaking of how such releases may simply "postpone the penalties of violence". Nor is Leopold alone in being comfortable with such distinctions. When, for example, the 1991 CPRE report contrasts the River Stour with its "teeming wildlife" with "the depressing sight of the dried up River Pang...devoid of all aquatic life", we have a clear expression of the contrast between land health and sickness.

A second more positive point is the consonance we detect between Leopold's philosophy and the thinking behind CCW's recent Tir Cymen initiative, which aims to maintain and instil conservationist thinking in agricultural practice. "When land does well for its owner", wrote Leopold, "and the owner does well by his land; when both end up better by reason of their partnership, we have conservation. When one or the other grows poorer, we do not". In general, whilst fully recognising the necessity under which humans lie to make their living from the land Leopold condemns an approach to the land based solely on economic self-interest which, he thinks, "assumes, falsely....that the economic parts of the biotic clock will function without the uneconomic parts". Such thinking seems to be reflected in the Tir Cymen scheme, which encourages the incorporation of (relatively) natural components in a blend of careful husbandry.

Finally, it must probably be admitted (objection (v) above) that land health alone could not meet all of the conservationists' requirements. However, the remedy may lie to hand in another of Leopold's notions - that of 'integrity', as this is elucidated by Bryan Norton (Norton, 1992). This notion appears in probably the most quoted passage of all of Leopold's writings, where he urges respect for the "beauty, integrity and stability of the biotic community". Norton finds in Leopold the makings of a distinction between the notions of health and integrity, the latter being the stronger term. Whereas the health of an ecosystem is a functional notion, denoting simply its state of well-being, e.g. its maintenance of a system of autonomous, complex processes, integrity denotes in addition the maintenance of the *historically particular forms of association* which have so far held sway, i.e. the particular species, micro-climates and so forth of which it is constituted. A re-sited Oxleas Wood, therefore, would definitely have forfeited its integrity. Thus, by reinforcing the criterion of health with that of integrity, it is possible that objection (v) may be disarmed.

IV.3 Sustainability and future generations

Many of the arguments for conservation already given owe part of their force to the fact that future generations will be amongst the beneficiaries. Thus, if we maintain ecological resilience now, then, besides other arguments for pursuing such a policy, this will clearly benefit those who come after us. But there is one regulative ideal which purports to make future generations central to its rationale, and that is sustainability. Moreover, the concepts of conservation and sustainability are perceived by some to be intimately related. Indeed the chairman of CPRE, David Astor, writing in the 1991 annual report, claims that "The great pioneers of CPRE in the 1920s did not use the term sustainable development but that is exactly what they stood for". If this is true, then the objective of conservation can borrow all the moral authority which the quest for sustainability is currently thought to enjoy.

Future generations enter into discussions of sustainability in two ways. They enter first as beings in whom the present generation has an interest, and for whom, perhaps, they have a duty of care. This duty may be enlivened by what John Passmore terms 'chains of love' (Passmore, 1980), by which he refers to the fact that our love for our children may be extended to include a love for those whom they love, and so forth. Second they enter as beings with claims and interests of their own, and in particular a claim to be treated justly. If, then, conservation and sustainability can be regarded virtually interchangeably, we have powerful additions to the case for conservation in the form of justice and a duty of care. But how far does the pursuit of

sustainability forward the cause of conservation? There are a number of points which place this in some doubt:

i) One writer has suggested that an argument based on the appeal to justice will not in fact prevent the using up of non-renewable resources (Bowers, 1990). The reasoning is that, by their nature, non-renewables can be used only once and might as well be used now as at any time - whenever 'now' may be. In particular, on a so-called '**Rawlsian**' account of justice, this will not be unjust. Rawls' theory of justice stipulates that any distribution of goods will not be unjust provided it makes no-one worse off. Except for the fact that using up exhaustible resources will create waste products, which may, however, be compensated for by generating capital with those resources, no generation will be worse off as a result of this action and at least one generation will be better off.

ii) The classic elucidation of sustainability to be found in the Brundtland report focuses firmly on human needs. Basically, we must not foul things up for our descendants; it's unfair. But if, as we have argued in the section on cost-benefit analysis, a policy of maximising human welfare cannot be relied upon to advance the case for conservation, it is hard to see how the outcome is going to be any different of a policy designed to secure maximum human welfare *over the long term*.

iii) The previous point seems effectively to be conceded by those exponents of sustainability such as David Pearce who build into their account an explicit reference to the preservation of 'critical natural capital'. True, he claims that concern for human welfare long term will automatically safeguard 'natural capital'. But a convincing case for this claim remains to be made. It is not obvious, for example, that human welfare will require the retention of every rare species. "The planet can be made to work with rather few rivets", suspects John Lawton (1991).

iv) Another problem with defining sustainability in terms of human needs is that human needs themselves are partly a function of the resources available to meet them. They can hardly, therefore, provide a robust basis for the defence of natural capital: sustainability could be 'achieved' through a combination of environmental degradation and reducing needs.

v) But even if the requirement to safeguard natural capital is explicitly built in to the quest for sustainability, everything turns on how the concept of natural capital is to be understood. We are offered two interpretations (Pearce, 1989):

(a) natural capital in the simple physical sense of the total 'stock' of nature - ...'four colley birds, three French hens, two turtle doves...!', as it were;

(b) the flow of services yielded by the physical stock, which of course depends entirely on the state of human technology.

Few, if any, proponents of sustainability favour the former option, on the grounds that it would

be too constricting. They opt instead for the latter. But herein lies the Achilles heel of this approach (Holland, 1994). For, on this view, as long as human ingenuity at exploiting natural resources keeps pace with human needs, for so long will natural capital be regarded as constant. But this is counter-intuitive, as can be seen from considering that part of CCW's brief concerning access to the countryside. To increase access to the countryside may certainly be desirable, other things being equal. But usually this is thought to be something which has to be *weighed against* the damage which such encroachment might cause. On the view under discussion, however, to increase access will paradoxically be to *increase* available natural capital, because it constitutes an increase in the flow of services yielded by the natural environment. What this point also means is that the ability of sustainability to function as a constraint upon the operation of cost benefit analysis, which it was supposed to do to make up for the various kinds of deficiency in that procedure (section **III.2.1**) are compromised. The constant natural capital requirement cannot act as a check upon the deliverances of people's preferences, since they ultimately provide the measure of constancy.

V Summary and Conclusion

V.1 Summary

In this report we have offered a critical presentation of the case which might be made to promote the objectives of conservation; and we have sought to disarm those arguments against conservation which we consider to be the most formidable.

Since it would be a mistake to suppose that the objectives of conservation are necessarily widely agreed upon, we have also offered three differing interpretations of the concept of conservation and of what conservationists might be construed as seeking to promote.

We recognise that the concept of conservation may stand in need of more radical review than we have offered here or felt ourselves called upon to provide, and that such a critical overhauling may well be an important and significant task for conservation bodies in the near future.

Implicit in the report is the view that, among the preconditions for a fully developed case for the conservation of nature are:

a) an adequate theory of human nature. Making the case for conservation involves challenging the impoverished picture of human nature underlying certain existing methods of approaching environmental questions, and replacing it with one that is richer. In particular, we believe that the strength of the case for conservation will not be recognised so long as we continue to regard human beings as little more than bundles of preferences.

b) an adequate theory of the relationship between individual and society which includes (i) an account of the stake which society as such has in the environment through the latter's role in the cultural life which defines and constitutes the society and (ii) an account of the stake which each individual citizen has in the environment as a member of that society.

c) an adequate theory of the relationship between man and nature and of the limitations which natural ecological systems impose upon human economic ones.

V.2 Conclusion

In conclusion we would suggest that conservation has as much to do with conserving the future as with conserving the past. It is not, however, simply about preserving the potential for future exuberance, but about preserving the future *as a realisation of the potential of the past*. If, for example, we simply let the genetic engineers loose with instructions to 'diversify the biota', we should hardly be true to the spirit of conservation. However much biodiversity was thereby generated, it would not have the same significance as that which flowed naturally from processes

already in train. As a tentative conclusion from the discussion as a whole, we are tempted to suggest that conservation is about *negotiating the transition from past to future in such a way as to secure the transfer of maximum significance*. The way in which this might be achieved is through negotiation between cultural and natural imperatives according to one or more of the regulative ideals which have been discussed.

If we accept that the survival of the human species requires that our activities be compatible with the medium and long-term health of the ecological systems within which we function then, in the last analysis, the burden of proof should lie not with conservationists, but on developers, to show that the projects which they advance are compatible with long-term ecosystem health. Conservation is not about hanging on to features of a past which no longer have any significance; but it is about creating a future we actually want, rather than being swept into a future which is none of our choosing.

Glossary

anthropocentrism

literally, human-centredness; found in two forms:

a) the sole value assumption - the belief that (of all earthly creatures) humans alone are morally significant because they alone possess the characteristics which bestow moral significance

b) the greater value assumption - the belief that humans are more significant, morally speaking, than any other creatures, because they possess in a greater degree the characteristics which bestow moral significance

anthropomorphism

a) in a neutral sense - the ascription to non-humans of human characteristics

b) in a derogatory sense - the inappropriate ascription to non-humans of human characteristics

autopoiesis

literally, 'self-making'; a concept developed by two Chilean biologists, Maturana and Varela, aimed at marking the distinction between living and non-living systems; refers to the fact that the distinctive and primary product of living systems - whether individual organisms or larger ecosystems - is themselves; living systems are not merely self-organising, but self-generating and self-renewing

biocentrism

the contrary of anthropocentrism; a view that attributes moral value to living systems generally

cladistic (species concept)

defines a species as the group of organisms (the lineage) between two speciation events (where a speciation event is understood as the process of the formation of a species), or between one speciation event and one extinction event (in the case of extinct species), or that are descended from a speciation event (in the case of living species); in other words, a species is defined by its evolutionary relations

comprehensive weighing

a variant of cost benefit analysis which aims to take account of the preferences of all sentient creatures, and not just human beings

culture (cultural)

set of shared values, beliefs, institutions and practices capable of being transmitted from one generation to the next by other than genetic means

individualistic (species concept)

in opposition to the traditional 'class' concept of a species, which views a species as a group of organisms united by a set of common characteristics, it holds that species are (scattered) individuals having a definite location in space and time - compound objects made up of parts; individual organisms are not members of species but parts of species, just as the thumb is a part of the individual organism

Kantian(ism)

a moral theory developed by the eighteenth century German philosopher, Immanuel Kant, which took the criterion of a moral action to be whether or not you could will the principle of the action to be a universal law; an important principle which Kant believed to be established by the criterion is that we should always treat one another as 'ends', and never merely as 'means', or instruments, to our own ends (because we could never will that we should be treated as means); he believed that consideration of consequences was irrelevant to the morality of an action, which could only be truly moral if it was done 'on principle'

nature (natural)

a) in a general sense - everything that takes place, the sum of all phenomena; as in 'a law of nature'

b) in a narrower sense - everything that takes place, other than through deliberate human agency; this is the sense of the term which is relevant to nature conservation

Rawlsian

the theory of justice devised by the American philosopher, John Rawls, whose leading principle is that an unequal distribution of goods is allowed (i.e. counts as just) only if there is reason to believe that the system permitting the inequality will work out to everyone's advantage i.e. if no one is disadvantaged compared with how they would have fared without the inequality

sentience

the capacity to have experiences; the capacity for feeling and sensation - in particular the capacity to feel pleasure and pain

speciesism

a speciesist is one who gives priority in moral matters to members of their own species; found in two forms:

a) a radical (human*) speciesist is an anthropocentrist who believes that being human, all by itself, is the characteristic which bestows moral significance

b) a moderate (human*) speciesist is an anthropocentrist who believes that, being human, all by itself, is a characteristic which bestows greater moral significance

[*technically, a member of any species might be a speciesist]

utilitarianism

a moral theory which holds that the rightness or wrongness of an action is determined by its consequences, and in particular by its consequences for the happiness or unhappiness of those affected; thus an action is right if it brings about the greatest happiness, or the least

unhappiness, of those affected

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