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ASCESIS AND ASSISTED MIGRATION RESPONSES TO THE EFFECTS OF CLIMATE CHANGE ON ANIMAL SPECIES

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Abstract

A major cost to the planet of the likely changes in climate over the next century is the extinction of species, as they become trapped in habitats to which they are no longer adapted. Clearly the most effective mitigation policy would be to minimise the human contribution to climate change. However, another response now increasingly being considered is the assisted migration of species. While this is not always feasible, and should be subject to careful application of the precautionary principle, some scholars are seeing this as a necessary response to already inevitable climate change.
The paper summarises some recent literature on assisted migration, and offers a response from the perspective of Christian ethics. It calls for a kenosis of aspiration, appetite and acquisitiveness. It then looks at general motifs in Pauline ethics to see how they may be reappropriated in engaging with the current environmental crisis. Among the motifs considered are 'other-focus', *koinōnia* in the community, sufficiency, excess and contentment. The paper then offers a set of criteria (based on a set offered by Neil Messer) for evaluating projects in assisted migration, and concludes that one of their major values will be rhetorical, in showing nations just how much less costly and problematic it would be to engage in policies to mitigate climate change.

Keywords: Christian ethics, Pauline ethics, kenosis, migration

A major cost to the planet of the likely changes in climate over the next century is the extinction of species, as they become trapped in habitats to which they are no longer adapted [1-4]. In recent writing I have argued that it is ultimately part of the calling of humanity to seek to bring to an end biological extinction [5, 6], a view for which I have been criticised in various places [7, 8]. However, my critics and I would agree that anthropogenic extinction is a moral evil and should be minimised wherever possible. Clearly the most effective mitigation policy would be to minimise the human contribution to climate

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change. The difference between stabilising the rise in the global mean surface temperature (GMST) at 2°C (a level which increasingly looks inevitable [9]) and 3° could be the difference between the extinction of 10% of species and 50% [1, 10].

So I join with other ethicists in calling for the sort of restraint and wisdom in human activity that will restrict the rise in GMST. I also call for the impact on non-human creation to figure more largely in current studies of the effects of climate change. It is remarkable how few entries in the indexes of major texts on climate change in this area mention 'extinction', although the extinction of species is one of the most certainly irreversible effects of such change. An honourable exception is Michael Northcott's impressive *A Moral Climate*, which promises to be a lasting contribution even to this fast-moving field [11]. As Thomas Berry wrote almost twenty years ago, "Evolution is a difficult concept to grasp. It is an eternal concept. It's not at all like the killing of individual life forms that can be renewed through normal processes of reproduction. Nor is it simply diminishing numbers. Nor is it damage that can somehow be remedied or for which some substitute can be found. Nor is it something that only affects our own generation. Nor is it something that could be remedied by some supernatural power. It is, rather, an absolute and final act for which there is no remedy on Earth as in Heaven." [12] Books on extinction, in contrast, tend to lay great stress on the impact of climate change [4, 13].

My emphasis in the first part of this paper will be the possibility of human-assisted migration of species. If other habitats are likely to disappear, could representatives of species be moved to new locations where they might thrive? This might be effected in two main ways: either by ensuring that corridors exist that would enable species to move gradually to a more favourable habitat in, or by physically moving organisms to new environments in which they might be expected to be able to continue to flourish. The subject has recently been explored by McLachlan et al [14] and at a more popular level by Holmes [15].

The protection of migration corridors is an extension of the strategy propounded by E.O. Wilson in his *The Future of Life* of identifying 'hotspots' of species diversity and protecting these as reserves [16]. It is a cruel irony in the narrative of human interaction with the environment that the rising tide of 'green' concern may come too late for such a relatively straightforward (and according to Wilson remarkably cheap at $30 billion - 2002 values) strategy to be effective. It is now becoming evident that mid-latitude habitats – precisely the locus of most of Wilson's proposed hotspot reserves - will be at particular risk from climate change [15].

As McLachlan et al point out, "[a]ssisted migration is a contentious issue that places different conservation objectives at odd with one another" [14]. "Conservation ethics are strongly rooted in a sense of place, and a feeling of what belongs where." [14] Mark Schwartz calls assisted migration "a management option of last resort"..."all local options for conservation must be exhausted prior to assisted migration" [17].

As with the new technologies for manipulating genes and embryos, assisted migration would change our sense of what is a 'given' of the natural world and what is properly an object of human manipulation. Many introductions of species have proved very destructive – anyone who has lived in the American South will be familiar with the impact of Japanese knotweed on those ecosystems, and famously Australian ecosystems have been badly damaged by a whole series of introductions of exotic species [18]. It is not necessarily easy to determine in advance what species will prove to be damaging in a new environment, the more so since species may need to be moved in clusters (e.g. in the case of a herbivore with a specialised diet). Occasionally exotic species may prove to be surprisingly beneficial [19]. McLachlan et al helpfully point to three classic positions on this issue, depending on a) confidence in ecological understanding, b) perceived risk of no assisted migration and c) perceived risk of assisted migration [14]. A balanced approach will want to invoke the precautionary principle in considering any given introduction of species, given that this may well be irreversible. Nevertheless they conclude that "[d]elays in policy formulation and implementation will make the situation even more urgent…we cannot wait for better data" [14]. Despite the disastrous history of species introductions into Australia, the Ecological Society of Australia has issued a position paper on climate change which accepts that translocation or assisted migration of key species may be a necessary part of a response to the crisis [20].

So far the content of this essay has concerned issues in Ecology and environmental policy, and has rested ethically on no more than a presumption of the intrinsic value of species. Even this could probably be dispensed with, given the many different forms that instrumental valuing can take [21]. What, it may fairly be asked, has the Christian ethicist to contribute to the debate?

First, I contend, a biblically-informed ethic will insist on the value of species to God, as such classic texts as Genesis 1.31 insist – "God saw all that he had made, and behold it was very good", cf. also Psalm 24.1, "The earth is the Lord's and all that is in it." [New Revised Standard Version] The Lord's enigmatic reply to Job out of the whirlwind also implies God's care for all species, even the ugly, the monstrous and the implausible (Job 39-41). Tellingly in terms of the present essay, God charged Noah with the preservation of every species on the Earth (Genesis 6.19-20, 7.1-3). Therefore, secondly, the non-human creation cannot simply be a commodity, nor should its 'voice' fail to be heard in human deliberations. For an important emphasis of the Earth Bible Project see *Readings from the Perspective of Earth. The Earth Bible* [22]. This notion of the ‚voice' of the non-human creation needs careful development; at its best it can make helpful connections with the biblical motif of creation's praise of God [6]. However, it should not be allowed to lead to a romanticised or inadequately scientific approach.

Thirdly, however, and in tension with much ecotheological writing, I hold that a Christian ethic will insist on the importance of humans' role and their contribution to the good of the created order [6]. Christianity is in Vischer's helpful terminology an anthropocentric, though not an anthropomonist, religion [23]. Vischer's distinction is particularly important in the light of the Earth Bible Team's 'ecojustice principles', which include a profound suspicion of anthropocentrism [22, p. 38]. The human role may be variously conceived – as steward, priest, co-creator, co-redeemer, as the one species able to witness to the glory around us [24]. I have argued elsewhere for the importance of all these different roles, properly understood. I showed in an article published in 2006 that the concept of stewardship implies that the human role is to ensure that the future is no worse than the present and this in effect has been the ethos of most conservation Biology up to now [25]. I indicated that that rather cautious ethic does not do justice to the richness of the human calling before God. Climate change, however, is likely to give rise to a future very much worse, in terms of the flourishing of existing species in their present habitats, than the present. It calls therefore for precautionary stewarding on a large scale, for the determined defence of the biodiversity that is under such great threat. Paradoxically the strategy of 'letting-be' of wild nature beloved of so much ecotheological writing will not prove adequate [24, 26]. Merely to establish reserves, free of human depredation, in species' present ranges will not be enough. Ingenious co-creatorly activity will be needed to introduce species into loci they have not occupied for many millennia, if at all, and to make sure that the population in the new locus has an adequate gene-pool to ensure its long-term viability. These efforts may be helped by strategies still present in the genomes of species that survived the last Ice Age, which would allow them to be moved much nearer the poles than their present ranges, even before the effects of climate change affect their habitats [14]. However, those same data on 'glacial refuges' may show that previous estimates of the speed of dispersion of those species after the Ice Age were far too high, and therefore that those same species are far more endangered by climate change than had been imagined [27].

However, it is clear from the analysis given above just how difficult, partial and risky such efforts will be. Perhaps initially only 10% of the introductions of species will work (though it is reasonable to suppose that this percentage will increase in the course of such an intensive effort, as more becomes known about what makes for success) [15]. Consider as a thought-experiment an effort to establish polar bears - a magnificent, iconic species which may well be doomed as the great expanses of Arctic sea-ice disappear - in Antarctica. Could they survive such a journey? What would be the carbon cost of flying them there, as almost certainly the only way to deliver healthy animals? Will there be, on the melting fringes of late 21st-Century Antarctica, sufficiently stable habitats of ice on water, with sufficiently stable sources of food, to enable them to establish themselves? These are huge imponderables. But the enormous effort and care required of such a project, its costliness and precariousness, would have another value. It would not only serve the needs of that species.

Whereas Barlow and Martin describe the proposed introduction of the Florida torreya into more northern latitudes as 'easy, legal and cheap' [14] clearly many assisted migrations will be neither easy nor cheap (and may well be opposed by the human population of the receiving area). Great projects - like polar bear relocation - would act as a rhetorical device to make yet more plain to those who influence the course of the most carbon-intensive economies in the world just how vital a change of policy has become.

What, then, can a Christian understanding of the human calling contribute to such a change of policy? I have written elsewhere of the Christian imperative to cultivate a kenosis of aspiration, appetite and acquisitiveness [6, 28]. By this I mean that to "have that mind that was in Christ Jesus" (Philippians 2.5) will mean taking a less arrogant view of humans' privileges over other organisms. Like Christ, the believer is called not to make of status a 'snatching-matter' (Gerard Manley Hopkins' translation of *harpagmon* in Philippians 2.6) [29], not to aspire to a status beyond that which is most helpful to other creatures. The essence of a kenosis of aspiration is of resisting the temptation to grasp at a role which is not God-given, not part of the calling of the individual believer or community. The consequence of such grasping is at once to fail to respect fully the status of the other creature, and to fail to receive our situation as gift from God. This is the sense in which I believe the Genesis 3 account of 'the Fall' has a profound wisdom to it. It is an account of the tendency in human nature to grasp at more than is freely given, to seek to elevate our status beyond what is appropriate and helpful, to seek to be 'as Gods'. So Simone Weil writes: true love means "to empty ourselves of our false divinity, to deny ourselves, to give up being the centre of the world" [30].

With kenosis of aspiration, however, must go a kenosis of appetite. It is possible to think of sin as "a compulsion towards attitudes and actions not always of [humans'] own willing or approving", a power which prevents humankind from recognizing its own nature [22, p. 193; 31]. This may be a compulsion to desire status over against God - the greatest and most pernicious of sins, and therefore the one on which the Genesis 3 account focuses. But it may be for power over others or for sex for sex's sake or for an excess of intake of alcohol, drugs, food or sensation of whatever kind. All these draw us into idolatry - they make of a substance or experience a kind of substitute god. All drain away the freedom that comes from worshipful dependence on God. Particularly evidently in respect of the ecological crisis, disordered appetite harms our freedom to contemplate appropriately and relate lovingly to the non-human creation. Such appetite consumes more of the world's fullness than is our share. (I avoid the term 'resources' here as that carries the implication that the good things of the world are defined by their availability for use by human beings.) The application of this principle of kenosis of appetite is widespread - it applies to deforestation to expand farmland for excess export crops, but also to the high-food-mile demands of the West which fuel so many unsustainable practices, to the taking of spurious long-haul flights as well as the frittering away of carbon-intensive energy in so many human dwellings.

A particular aspect of the kenosis of appetite, which links it to the kenosis of aspiration, is the kenosis of acquisitiveness. Just as we must be willing to order our ambitions and our experiences in accord with the freedom of the redeemed order, so we must order our acquisition of the material trappings of life, which again are often acquired at the expense of the well-being of others, be it through sweated labour to make trainers or printed circuit boards, or the mining that delivers exotic metals and other raw materials at great expense to human health and natural ecosystems. However, while this self-emptying, Christlike mind is the calling of all Christians, this no more requires the poor to abandon a just aspiration to conditions of ordinary human flourishing than it requires women to accept oppression in patriarchal cultures [32]. As Coakley so wisely says, although we may deploy the hermeneutics of suspicion in relation to the language of self-sacrifice, 'it does not follow that *all* attempts to rethink the value of moral kenosis, or of 'sacrificial' love, founder on the shoals of gender essentialism'. The call to abandon acquisitiveness bears particularly heavily on those of us living (and writing) in highly privileged, materially affluent contexts.

My comments above on a kenosis of aspiration might seem at first to be in tension with my earlier assertion that ingenious co-creatorly activity will be necessary to preserve species from extinction. Clearly considerable discernment is necessary to distinguish such co-creative work from a hubristic arrogance. It is therefore important to look wider than Philippians 2.7 for ethical tools for such discernment. In our collaborative project on 'The Use of the Bible in Environmental Ethics', Drs David Horrell, Cherryl Hunt and I have been exploring the extent to which great motifs in Pauline ethics can be reappropriated in respect of the whole creation, not just human beings [33, 34]. This is not to suppose that Paul himself would have applied these motifs to the non-human creation. What we seek to attempt is rather an imaginative re-engagement with the Pauline texts in the light of contemporary ecological concerns, an engagement of which I can only give a brief sketch here. The motifs we note as particularly important include the following:

a) the self-emptying of Christ as example for imitation (Philippians 2.7)

This forms the basis for the analysis of various forms of 'ethical kenosis' given above. The underlying principle is one of self-abnegation and 'other-regard', as Horrell terms it [35]. As he points out, this can be regarded as a 'meta-norm', which may determine whether other ethical imperatives are to be followed or set aside [35, p. 214]. Closely related to this is:

b) Other-focus; "do good to one another and to all" (1 Thessalonians 5.15)

This is largely focused in the Pauline corpus on the building up of the *ekklesia* but also concerned with acting well toward outsiders, assuming that there will be at least some overlap between what insiders and outsiders consider to be 'good' [35, p. 246]. All *who are due it* are deserving of respect; all should be treated well not just believers. There may be an inference to be drawn here that human freedoms that might otherwise be legitimately exercised might need

to be relinquished in order to 'do good' to another living organism. In the current context that might well involve the extraordinary steps required to assist the migration of a species to a new habitat.

c) *koinōnia* in the community

Paul's ethic is very often to be seen as concerned with the life of the community, not just the individual in isolation. Although the concept of a biotic 'community' is a questionable one, given that non-human creatures are neither self-conscious nor freely-choosing members of this supposed community, humans' interdependence with the non-human world is unquestionable. So it seems at least reasonable to extend the ethical force of *koinōnia*, the desire for the co-flourishing of the whole, to human treatment of the wider creation. This in turn ties up with our fourth 'meta-category' in Pauline ethics:

d) Sufficiency, excess and contentment

Paul's letters continually return to the subject of the collection he was organising for the churches in Judea. Paul clearly expected believers to support other churches in need, the Corinthians 'plenty' will supply the need of those receiving the gift (2 Corinthians 8.13-14). In other words they are not giving up their needs but only their excess. Rather than seeing all creation as being at the disposal of the human race to be used at will, the example Paul gives in the Corinthian giving would see humans putting the survival needs, or 'goods', of other species at a higher priority than the 'excess' wants of humanity.

In a dispute over resources, then, between, for example, the preservation of the habitat of an endangered species and the proposed development of a leisure complex, we may find here a principle whereby the non-essential resource requirements of human life are foregone in order to meet the needs of another species. In an alternative conflict, between the same species and needed shelter for the vulnerably housed, the right way forward from a Pauline perspective might be to see if there is a way in which the proposed beneficiaries can share their land in some manner that respects the needs of the species facing extinction. In both cases however, the responsibility for choosing rests with the human agents since they are in the position of power, in a position in which they can *give*. Going further still, the Macedonian churches are praised for giving out of their *poverty* (2 Corinthians 8.1-5) suggesting that some sacrifice or curtailment of human *needs* might be justified in meeting the needs of other species.

This last point takes us into the always problematic area of assessing the value of non-human species in the terms of ordinary human calculus of value. This is extremely problematic, not least because conventional economics discounts the future [36, 37], and yet the irreversibility of extinction challenges such discounting. Somehow there may have to be found some metric that expresses the value of polar bears, and the importance of finding them new habitat even at enormous cost in financial terms. However this is done, it will make it all the more plain that the move to a low-carbon economy is actually a

very inexpensive option compared with the measures necessary to seek to mitigate the effects of major climate change once it has started in earnest.

By what criteria, then, other than some form of new economic indicator, should we judge that assisted migration will be appropriate in the case of a given species? I propose that the criteria recently given by Neil Messer for exploring new projects in biotechnology form a promising set [7, p. 229]. I now consider them in turn.

i) 'Is the project good news to the poor?' In the first instance this would have to mean the human poor. I noted above Paul's concern for the poor of Jerusalem – a very particular outworking of his other-regard (see motifs b) and d) above). It would be unthinkable to conduct an assisted migration that further oppressed a human population already denied any possibility of flourishing. More than that, one would hope such projects might be positive good news to those populations – whether by alleviating the threat from distressed wild animals, or by offering new possibilities, such as a sensitively-managed and sustainable ecotourism. But beyond that, some authors have seen threatened organisms and ecosystems as the new *anawīm* (Hebrew: poor) [38, 39]. An assisted migration that succeeded in saving a species from extinction would indeed be a form of good news to the powerless and previously marginalized, those threatened and oppressed by the actions of greedy and powerful humans.

ii) "Is the project an attempt to be 'like God', or does it conform to the image of God?" This takes us back to the possible tension I noted above - to some the movement of animal populations would seem hubristic, a sign of an effort to be *sicut Deus*. It will smack of the belief that Messer criticises, that in Messer's words "given enough time, effort and investment, we can achieve virtually anything we wish to, and …think that every human problem is susceptible to a technological fix" [7, p. 231]]. He goes on, "By contrast, by activity that conforms to the image of God, I mean responsible action that both respects human finitude and honours our divine mandate to make something of the world" [7, p. 231]. That responsible action must be guided in particular by the desire to "have that mind that was in Christ Jesus" (Philippians 2.5), the true "image of the invisible God" (Colossians 1.15). And the imperative, in ecosystemic terms, of making something of the world other than what we are currently allowing to happen seems all too plain.

iii) "What attitude does the project embody towards the material world (including our own bodies)?" Messer here is looking for a middle course which "will embody and express a proper respect for the material world, valuing it as a good in and of itself, not merely instrumentally; [and] will refuse to make an idol of the material or invest all human hope in it" [7, p. 233]. Again, the call to humility and away from idolatry is well heard. I have already made plain my conviction of the intrinsic value of the non-human creation by dint of its value to God. Our own very partial and inadequate powers to manipulate and control it

should necessarily lead to a proper respect for the intricacy of its mechanisms, and to a precautionary approach to new projects, an approach that seeks to act with real prudential wisdom [40].

iv) "What attitude does the project embody towards past failures?" Much of what has been said above indicates the importance of this. It will be imperative to learn from past, disastrous, species introductions, both as to what to avoid, and also as to the limits of our knowledge of the effect of such translocations. Such projects should indeed in Messer's words "be characterized by an acknowledgement (implicit or explicit) or past failures and mistakes, an awareness that things must be different in the future, and an openness to the help that will be needed if things are to be different" [7, p. 234]. Calls for this type of 'conversion' are found both among theologians, going back to Josef Sittler [41] and secular philosophers, most famously Arne Naess [42]. He goes on to quote Stephen Clark's conviction that "'[s]omething like a religious experience may be necessary' to awaken us from our shared addiction to the way of life that has precipitated our ecological crisis" [7, p. 234]. There is as yet very little sign of real *metanoia* among the most highly carbon-intensive nations, any recognition that this life-style has already limited the opportunities for flourishing in other parts of the world, and will unless there is radical change eliminate those possibilities – certainly for many non-human species. The churches too must hear the call to repentance. The neglect of environmental issues in the heart-life of mainstream churches in the West has been very marked, and does call for *metanoia*. This must be so if the churches are to offer any measure of leadership in relation to Clark's call for a 'religious experience' of conversion from the Western addiction to consumption. Ernst Conradie notes that what is needed here is not immobilising feelings of guilt, but a sense of shame and commitment towards the future - international and inter-generational justice, not rituals of sacrifice (cf. Micah 6.6-8). Nevertheless, he goes on to acknowledge with admirable honesty that our own good intentions remain deeply flawed and the impact of our intentional actions may prove to be highly ambiguous.

This is very much in accord with what I called for above in terms of a kenosis, within the wealthy and privileged world, of aspiration, appetite and acquisitiveness.

I envisage a policy, then, that will be a complex mixture of human letting-be of wild nature, affluent individuals and communities choosing to adopt simpler, lower-impact lifestyles, and ingenious, high-tech strategies such as carbon capture and storage – and, as I indicated above – assisted migration. It will be greatly facilitated by the sort of economic biasing that Gary Yohe recommends [10]. A carbon tax starting at $50 per ton and increasing by 2-3% year on year would make very plain the imperatives of shifting to a low-greenhouse-gas economy. But this crude measure needs to be refined to take account, for example, of the very high greenhouse effect of methanogenic animals, especially domestic cattle, and yet of the essential role cattle play in many subsistence economies. Also to recognise that deforestation, which is so

disastrous a factor in accelerating climate change, is motivated not only by corporate greed but also by a desperate need to subsist. So human economics, *simpliciter*, is an all-too-crude tool with which to address the interaction between humans and the non-human creation.

At a conference held in Romania in 2006 I posed to a panel of Eastern Orthodox theologians the question – how will the Orthodox Church respond to the challenge of the consumer economy that membership of the European Union will surely bring in its wake? The answer I was given surprised me very much – it was not in terms of the building-up of community, or the preaching of social justice. Not in terms of political lobbying to try and ensure that the benefits of economic growth are spread through the human population, and accompanied by prudence in respect of the non-human environment. No, the answer came back that the teaching would be the ancient call to ascesis and prayer. At the time I was profoundly dissatisfied with this answer, but now I begin to see its wisdom.

Richard Foster wrote in his classic *A Celebration of Discipline* that: "…the lust for affluence in contemporary society is psychotic. It is psychotic because it has completely lost touch with reality. We crave things we neither need nor enjoy. We buy things we do not want to impress people we do not like….Covetousness we call ambition. Hoarding we call prudence. Greed we call industry." [43]

It might seem anomalous to invoke ascesis, which has often been seen as rejecting the value of the material, as a way of refining our approach to the inescapably physical issues of ecological care. But as Christos Yannaras shows, "asceticism in the Church is not in conflict with matter itself, but with the rebellion of material individuality, the rebellious drive for self-subsistence" [44]. It is therefore very much in tune with the motifs of kenosis and generous other-regard explored above. The key point is our current loss of touch with reality, the failure to grasp the impact of a carbon-intensive lifestyle and its implications for the future. I indicated above the importance of our being able to see the costs and difficulty of assisted migrations, as a powerful 'reality check' as to the consequences of our actions. For Christians this will be helpfully accompanied by disciplines of abstinence (developed within ecclesial communities), such as the 'car-free day' and ecological versions of the Lenten fast, but also by those ancient emphases in the Desert Fathers on "the importance of prayer and stillness, of perseverance, of penitence and obedience" [45] As Northcott has indicated, such a transformation of our lifestyle and our oikonomics should not be "a dispiriting task of merely constraining or limiting human making of creativity". "Rather it should be 'joyous and spiritual work." [11, p. 16] By recovering our capacity for obedience, we recover our God-given freedom to work out our God-given vocation.

To return to the Noah myth, which I mentioned above as an index of divine concern for all creatures, it would be tempting, once the possibility of assisted migration is actively being considered, to overstate our Noachic role and suppose that indeed we are in a position to save the creatures as Noah does in the story. But the profoundly difficult and risky exercise of moving animals from

one locus to another should instead reinforce the point that the Earth is our only ark, and the great preponderance of our current effort must be towards prayerfully and humbly ensuring the continued health of the 'vessel', such that it is no longer necessary to keep displacing its inhabitants.

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