

Nature, Natural Resources and Valuation in the Anthropocene

Helen Kopnina

The Hague University of Applied Science, The Netherlands

Abstract. Biodiversity, including entire habitats and ecosystems, is recognized to be of great social and economic value. Conserving biodiversity has therefore become a task of international NGO's as well as grass-roots organisations. The 'classical' model of conservation has been characterised by creation of designated nature areas to allow biodiversity to recover from the effects of human activities. Typically, such areas prohibit entry other than through commercial ecotourism or necessary monitoring activities, but also often involve commodification nature. This classical conservation model has been criticized for limiting valuation of nature to its commercial worth and for being insensitive to local communities. Simultaneously, 'new conservation' approaches have emerged. Propagating openness of conservation approaches, 'new conservation' has counteracted the calls for strict measures of biodiversity protection as the only means of protecting biodiversity. In turn, the 'new conservation' was criticised for being inadequate in protecting those species that are not instrumental for human welfare. The aim of this article is to inquire whether sustainable future for non-humans can be achieved based on commodification of nature and/or upon open approaches to conservation. It is argued that while economic development does not necessarily lead to greater environmental protection, strict regulation *combined* with economic interests can be effective. Thus, economic approaches by mainstream conservation institutions cannot be easily dismissed. However, 'new conservation' can also be useful in opening up alternatives, such as care-based and spiritual approaches to valuation of nature. Complementary to market-based approaches to conservation, alternative ontologies of the human development as empathic beings embedded in intimate ethical relations with non-humans are proposed.

Keywords: Anthropocene; biodiversity; deep ecology; ecological modernization; 'new conservation'; sustainable development

ISSN 2384-8677

DOI: 10.7401/visions.02.03

Article history: Accepted in revised form November, 06, 2014

Published online: November, 25, 2014 <http://www.iris-sostenibilita.net/iris/vfs/vfsissues/article.asp?idcontributo=84>

Citation: Kopnina, H. (2014) Nature, Natural Resources and Valuation in the Anthropocene. *Visions for Sustainability 2*: 21-35.

Copyright: ©2014 Kopnina. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Competing Interests: The authors have declared that no competing interests exist.

Corresponding Author: Helen Kopnina, The Hague University of Applied Science, The Netherlands

E.mail: alenka1973@yahoo.com

Perspective: Theoretical vision

Fields: Earth life support systems - Human sciences - Economy and technology

*Issues: Sustainable transformation of conflicts -
Globalised industrialisation and global products - Environmental ethics*

1. Introduction

The ecosystem concept has been central to the public perception of environmental sustainability and to the growing awareness of environmental degradation since the nineteen nineties (Golley 1993). Recently, the idea of the Anthropocene, an informal term signifying a new geological epoch that marks the extent of human activities on the planet, has come into prominence. For Paul Crutzen, a Dutch Noble-prize winning atmospheric chemist who has coined the term, the Anthropocene is an era in which humans influence every flux and cycle of the planet's environmental system. The Anthropocene commences in the industrial age with its technologies to exploit carbon that has been stored and compacted over millions of years; and thus with the birth of fossil-fuel economy.

We are changing the way water moves around the globe –altering the water cycles, influencing ocean streams, delivering irrigation to previously dry areas, from Dubai (Alderman 2010) to China (The Economist 2013; Tilt 2015), to the American Southwest (Casagrande and Peters 2013) as never before. Almost all the planet's ecosystems at present bear the marks of our expanding presence. The greatest challenge has become how to ensure continuous economic development in the world of limited resources, degraded environment, and mounting threats to biodiversity.

Many ecologists have argued that preservation of biodiversity offers a safe 'operating space' for humanity (Rockstrom et al 2009). This argument of the need to preserve all biodiversity is illustrated by the idea of Gaia developed by James Lovelock (1979). Gaia theory portrays the entire planet as a living organism, and sees the survival of all its component parts in all their infinite complexity as intimately connected with

human survival and prosperity¹. Empirical evidence, however, demonstrates that extinction does not necessarily affect human welfare as people are largely dependent on productive monocultures (e.g. Crist 2012). Thus, powerful regulatory mechanisms and motivation are needed to guarantee the survival of functionally 'redundant' species.

The 'classical' approach to conservation is characterized by creation of designated nature areas and allowing biodiversity to recover from the effects of human activities. Typically, such areas prohibit entry to these areas other than through (commercial) ecotourism activities or necessary monitoring, as in the case of forest carbon programs such the United Nations' programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD). These areas are often linked by economic institutions to the functional capacity of ecosystem services (De Groot 2002; Braat & De Groot 2012).

Simultaneously, 'new conservation' approaches have emerged. It was argued that

¹ There are many examples of this interdependency we can find. For example, Ruppert et al (2013) have discovered that removing one species from the ecosystem - in the case they investigated, the shark - may result in unforeseen negative consequences for the entire system. They provide evidence that the loss of sharks has an impact that propagates down the food chain, threatening biodiversity of the entire marine ecosystem. The presence of predators controls the population on fish feeding on algae and has an effect on the abundance of herbivores, thus selective removal of sharks by fishing has implications for both natural and anthropogenic disturbances involving the loss of coral reefs. Similar cases are known in cases of selectively removing of other predators, such as wolves, so that population of local herbivores rises and in turn effects natural environment. Thus human development is often linked to the concept of utility that guarantees this safe operating space, often through economic valuation of nature.

we should move beyond the discourse of fragility and fully embrace the resilience of natural systems and plurality of visions of the Anthropocene (Kareiva et al 2011; Marris 2014). These calls for openness in relating to conservation have counteracted strict measures advocated by the 'classical' conservation model. New conservationists have argued for a practice 'that tolerates all ideologies' and makes the best of 'novel ecosystems, working with corporations and finding ways that poor nations can have both economic development and conservation' (Marvier 2014).

Some of these calls are also militantly anti-conservation, labelling it elitist, neo-colonial, Western enterprise that fails to take the needs of poor people into account in favour of capital accumulation. The classical conservation model was criticized for being insensitive to local communities that are sometimes being displaced and insufficiently compensated (e.g. Beymer-Farris and Bassett 2012; Duffy 2014; Büscher and Fletcher 2014). Duffy (2014), for example, claims that conservationists are waging war against the poor to save biodiversity, as local populations are displaced from protected nature areas. Instead, it is argued, we should look at the true culprits of unsustainability, the privileged consuming elites and those who profit from conservation.

This article aims to support 'classical' conservation and simultaneously draw lessons from 'new conservation' discussing two issues. One set of issues concerns criticism of the premise of sustainable development. Another set of issues is concerned with ethics and ecological justice. We shall explore each of these issues in turn.

2. Theories of development and innovation

The concept of ecosystem management has a deeper ontology. The Club of Rome, a global intellectual think tank, set out to answer the

question: what would happen if the world's population and industry continued to grow rapidly? The Limits to Growth publication (Meadows et al 1972) postulated that biodiversity protection required bold measures. These measures include what Herman Daly (1991; 1994) has termed a 'steady state economy', which is an economy of relatively stable size, featuring stable population and stable consumption that remain at or below planetary carrying capacity.

Yet, since the publication of the Limits to Growth, little has been changed, other than *sustainababble*, or talking about sustainability without facing hard choices or making tough decisions (Engelman 2013). Societies are largely continuing with business as usual, tinkering at the margins of the problems, and continuing to be in overt denial about the magnitude of the global environmental challenges, both in regard to population and consumption growth (Wijkman and Rockström 2012; Washington 2013; Foster 2014).

In pondering why humanity continues to be in denial that it is 'living far beyond its means,' Wijkman and Rockström (2012:4) provide a number of explanations, such as lack of adequate education, unwillingness to change habits, powerful business interests which strongly defend business as usual models and essentially the type of optimism espoused by the established powerful lobbies.

It is believed that nature can be successfully 'managed' in such a way as to assure security for future human generations. Leaning upon the concept of risk society developed by Ulrich Beck (1992) we may note that we refer to both security from natural dangers and threats, and security from "manmade" dangers and threats; as well as 'socially manufactured' risks. While the natural disasters can also result from man-made causes, as in the case of climate change, manufactured risks may or may not have a

scientific basis, and be based on media reports and incomplete information, as in the case of some food scares and fears of pandemics. It is believed that many risks to human security can be eliminated or avoided through successful interventions in natural systems or manipulation of species – ranging from stimulating production of algae for absorption of carbon dioxide to genetic manipulation of crops. Both international organizations such as the United Nations Environmental Programs (UNEP) and commercial partners such as the World Bank support the idea that ecosystem management will lead to long-term sustainability. They define ecosystem management as an approach that focuses on sustaining ecosystems to meet both ecological and human needs in the future.

This managerial approach is grounded in ecological modernization theory (e.g. Mol and Sonnenfeld 2000). Ecological modernization refers to the idea that the economy and ecology can be favorably combined and that efficient use of natural resources combined with economic incentives and technical know-how can be a source of sustainable development (Stern 2004). It is thus believed that environmental problems can be fixed by technological advancement and innovation, with little reflection on these innovation's potential to backfire (The Economist 2013).

Critics argue that the validity accorded to the ecological modernization theory could have prevented the alteration of the impulses leading to environmental degradation to occur, but it has not (so far). There is also evidence that environmental concern is an exception to the post-materialist thesis, which postulates that poor people do not worry about anything aside from meeting their basic needs (Inglehart 1977). In fact, there is evidence that poor people actually worry more, and not less, about environmental problems such as poor water and air quality as they normally live in ecologically degraded areas that are directly

affected by poor environmental conditions (York and Rosa 2008).

Simply put, developed industrial societies have remained largely unsustainable (e.g. Foster 2002; 2012; Kopnina 2014c). In the case of water in the American Southwest, for example, Casagrande and Peters (2013) showed that the public remains unable to reconcile the realities of water scarcity and the drying of Colorado river with personal water and energy consumption. Despite the availability of appropriate technologies and information about risks of climate change caused by fossil fuels, powerful industrial lobbies that have a stake in perpetuating fossil fuel dependency, and majority of consumers, primarily concerned with low prices, have not changed their practices (Kopnina and Blewitt 2014). It became clear that without radically changing the way these 'developed' societies produce and consume, without strict government restrictions, the same model cannot be extended to developing societies without seriously undermining the earth's carrying capacity (Rees 2009; 2010). Neither can the growth of human population be ignored as the other key driver of unsustainability (e.g. Catton 2012; Washington 2013).

3. Ethical issues

As globalization has progressed, and production, consumption and population growth sites have shifted from 'the center' to literally everywhere, finding a single geographical culprit of (over)consumption has become increasingly difficult. The growth of human population is something that all of us celebrate as many lives can be saved and lived longer. At the UN Conference on Sustainable Development, Rio+20 held in Rio de Janeiro, Brazil in June 2012, agricultural productivity and efficiency and the necessity to provide food for the growing population was highlighted, with little mention of

population policies such as family planning. In fact, the accent lay on 'sustainable growth', redefined more inclusively with a special focus on the 'bottom billion', or 'development with a difference' (Kamarulazizi et al 2013).

Yet, not addressing the issue of human population growth may have a less altruistic motivation than just care for every (human) life. A growing population might be actually good for serving capitalist, industrial and expansionist interests as it provides bigger and ever expanding markets, cheap labor and an endless supply of consumers (Ehrlich et al 1992; Engelman 2012; Wijkman and Rockström 2012; Washington 2013)².

² It is questionable whether large population can be sustained in the long term, and whether indeed sustainable development's promises for future generations can be fulfilled without stabilizing population. Yet, the negative side of population growth has become an issue not often talked about in the politically correct academic circles. Some academics have argued that we do not have a global over-population issue, but a global issue of over-population of the highly privileged and exploitative minority, and that population growth is used as scapegoat for rich over-consuming elites (Fletcher et al 2014). This separation appears a bit simplistic, dividing people into the bad (rich, Western) consumers and the innocent (poor non-western) bottom class. Such division tends to underplay the economic differences within countries, e.g. urban poverty in 'developed' countries and growth of middle classes in 'developing' ones. Simultaneously, polarization serves to make any argument in favor of discussion of population growth (that is most prominent in poorer developing countries) and overconsumption (that occurs in richer ones) potentially politically explosive. This polarization certainly plays into the hands of those who claim any population action is racist as they often concern non-Western societies, or 'coercive' including draconian measures such as sterilization and quotas for child bearing. Such polarization also ignores significant global trends, such as migration, portraying anybody who says anything about population as directly 'anti-poor' or 'anti-developing country'.

Critics have argued that the market-based valuation techniques do not 'cover' what can be seen as 'redundant' species that fall outside of 'cultural ecosystem services' provided by landscapes (Tengberg et al 2012). Also, in valuing living beings as 'capital' we are abandoning concerns about biospheric egalitarianism, or ecological justice for non-humans (Crist 2012; 2013a; 2013b; Cafaro and Primack 2014; Kopnina 2014a; 2014b; Miller et al 2014). The "resourcism" (Shepard 1967; Foreman 2011) reduces nature to nothing more than a resource or 'service'. Economic capture gives no grounding for prohibiting or even restricting the processes that lead to extinctions. Sociologist Eileen Crist (2012: 145) has expressed the implications of commodification:

The very idea of resources... prefigures the living world's physical erasure. The plunder of the oceans, for example, has been ideationally prefigured in the resource-derivative words fisheries and fish stock. The same goes for the word livestock which has conceptually anticipated the infernal

Perhaps even more significantly, a position that population is not a problem, and that conservation should consider the needs of people as its prime focus, actually threatens to ignore the needs of the poor themselves. Research demonstrates that it is often not the wanted children that are born into the most impoverished families, due to forced and early marriages, rapes, and more generally the lack of traditional means of contraception (discouraged in the past by, among others, Western missionaries) (Engelman 2010). By some estimates, there are millions of women on Earth who suffer unwanted pregnancies and their dire consequences, not just in developing world (Wijkman and Rockström 2012). It is also known that high fertility causes more poverty, and degrades both social structures and environment (Hern 1992). Conservation helps protect fragile environments upon which the poor are dependent – often in a more than material, but also spiritual and 'restorative' sense, and offers means of traditional family control and a more healthy relationship with the environment.

treatment of animals in the industrial food system. Similarly, the worldwide devastation of freshwater Life... is utterly unsurprising, given that rivers and lakes have been conceptually conflated with, and instrumentally reduced to, freshwater. Fisheries, livestock, freshwater—they are all for the taking, and our ability to take them is testimony to our superior nature, and our superior nature entitles us to the taking, and the rightfulness of the taking is ciphered to be reflected back to us in our very words.

Crist (2012: 145) further states that the greatest loss would be that of accepting to live in a thoroughly de-natured environment, and building human civilization on the ruins of once abandoned, beautiful and unique natural world. In her more recent publication, Crist (2013a:129) reflects:

The Anthropocene has morphed into a discourse that is organizing the perception of a world picture (past, present, and future) through a set of ideas and prescriptions that is tenaciously anthropocentric; indeed, the championed name itself—Anthropocene, or the age of Man—evokes the human-centeredness that is at the root of our ecological predicament.... The discourse of the Anthropocene refuses to challenge human dominion, proposing instead technological and managerial approaches that would make human dominion sustainable. By the same token, the Anthropocene discourse blocks from consideration the possibility of abolishing a way of life founded on the domination of nature.

Thus, it was argued that destruction of biodiversity, independent of human interests, is simply morally wrong (e.g. Cafaro and Primack 2014; Koprina 2014; Miller et al 2014). Simultaneously with the current focus of sustainability framework away from population growth and towards embracing of 'sustainable growth', there is a growing

disregard for non-human populations. Sustainable development discourse represents a radical departure from the Limits to Growth concerns as in shifting the focus on solving environmental problems towards social equity issues. Sustainable development discourse seems to embrace anthropocentrism, which entails human moral superiority vis-à-vis other species and the natural environment is only useful in as far as it provides resources that can be used to satisfy human wants. Animals used for consumption, recreation, medical experimentation, tourism, or pet-keeping remain (willingly or not) our loyal companions, while the 'rest' is dependent on efforts of conservationists or animal welfare activists to protect them.

This is not to imply that those who are not focused on reducing human populations are not concerned with conservation. Yet, the insistence on the discounting of population growth as a challenge to sustainability testifies to double-standards. The same observers who comment that population is not a problem are not as benevolent in the case of populations of carnivorous predators, or urban 'pests' such as rats or weeds³.

Concomitant with this ethical concern is that with the people who are most vulnerable to the risks of environmental degradation. Numerous examples of 'classical' conservation are known which are implemented so that it conserves biodiversity and helps poor people improve their lives. International Institute for Environment and Development (IIED), for example, focuses on "pro-poor conservation" such as community-based approaches to conservation as well as other opportunities for enhancing the

³ Even our beloved pets like dogs and cats are castrated and sprayed without any ethical questions about their right to reproduce (Shepard 1993). In fact, pet sterilization is normative – because otherwise, it is reasoned, there would be too many cats and dogs.

synergies between conservation and poverty alleviation. However, caution needs to be exercised that neither nature itself nor the collaborative efforts of the marginalized communities are subverted into purely economic valuation. Also, if the population growth within same communities is not taken into account, and traditional means of contraception or ‘modern’ family planning services are not considered, long-term sustainability of social and natural systems, and specifically efficacy of conservation, may be greatly threatened.

4. What is “environment” worth?

In discussing the case of deep sea ecosystem services, Armstrong and colleagues reflect: ‘as our knowledge of deep-sea environments increases, there may be a reduction in value related to wonder or awe for the unknown, and an increase in value associated with marvelling at the intricacies of the natural world and our ability to decipher its secrets’ (Armstrong et al 2012:10). Similarly, the focus on compensating the local communities for their conservation efforts masks the very cause of their poverty that arguably lies in present globalization of neoliberal governance with economics at the center. The impoverishment of communities through extraction of ‘natural resources’ goes hand in hand with commodification of nature. At its worst, this commodification undermines traditional ways of relating to nature and draws local communities into its economics-centered circuit.

The root causes include the power hegemonies that promote mainstream discourse on sustainable development (e.g. Lewis and Kanji 2009; Mosse 2010). By supporting the oxymoronic goal of maintaining economic growth, re-distribution of wealth and simultaneously keeping the health of the ecosystem intact (e.g. Daly 1994), this mainstream discourse promotes

unidirectional idea of ‘progress’. Nature is conceived as nothing more than a collection of valuable resources to enable future generations to lead a similar ‘progressive’ consumerist lifestyle.

Some scholars (e.g. Black 2010; Maathai 2010; Anderson 2011; Singh 2013), have argued that traditional societies tended to be more ecocentric than ‘modern’ or ‘developed’ ones. Similar to the position of the deep ecology (Naess 1973), it was assumed that traditional societies saw humans as part of larger – non-hierarchical and interconnected – holistic interdependent systems (Rolston 2015). “Environmental care labour” or conservation practices based on affective labour modelled after these traditional communities (Singh 2013) promised maintain economic subjectivities based on principles of gift and reciprocity rather than profit. Supporters of community-based approaches to conservation have argued that traditional community economic practices are based on cooperation, reciprocity and abundance (e.g. Black 2010). This would make traditional societies ideal for sharing the burdens and benefits of environmental care as an alternative to markets in ecosystem services.

However, we need to note that there is a controversy about how ecologically benign the traditional or ‘primitive’ societies have been or still are. The principles of ‘traditional’ cooperation and reciprocity were criticized the ideal types, and the idea of abundance of wildlife stands in sharp contrast with present-day scarcity (Kopnina 2012a, 2012b). Several studies challenge the “noble savage” depiction of traditional societies, claiming that they are no good role models, with commodification of animals tracing back to centuries ago (Richards 2014). In his historical study of the Native American groups prior to contact with Europeans, Krech (2005) concludes that there is no evidence for pro-conservation practices. A claim that native peoples have never caused

the local extinction of species is countered by Redford and Sanderson (2000) who provided historical evidence of human-caused extinctions.

Preserving predatorily species may be 'inconvenient' due to the expansion of human population and agriculture in areas where large predators used to roam. Human-wildlife conflicts, particularly those between farmers and predatorily animals are often described in terms of the detrimental effects to humans. This is also true in the case of large herbivores, such as elephants that graze on cultivated land (e.g. Barua et al 2013; Locke 2013).

What is significant here is not so much the question of how ecologically minded or not traditional societies have been or still are, but that the expanding – both demographically and in terms of consumption – neoliberal capitalist industrial society has caused more unprecedented damage than primitive societies ever have. In the race to grab a piece of economic progress, entire countries, governments and multinational corporations might be stripping away what has originally been a sustainable ways of life. While the importance of involving local communities in conservation is gaining recognition, empirical examples of community-based conservation do not always show the hoped-for alternative to market-based exchange of “ecosystem services”. In fact, many failures are attributed to the fact that the local communities are no longer 'traditional' (even if we assume that the 'traditional way of life' was ever sustainable) and economic disputes often erupt in relation to management of wildlife 'resources' and conflicts with wildlife 'intruders' in developed areas (Barua et al 2013; Locke 2013).

This has implications for the 'classical' model of conservation that offers stricter regulatory controls and centrally monitors compensation of local communities in areas designated for environmental protection.

While the ideal of indigenous people living as one with nature is slowly fading (if it ever existed) due to the forces of neoliberal industrial capitalism and population growth, entrusting biodiversity protection to the assumed 'natural guardians of their land' may be less reliable.

In the present status quo, biodiversity protection is not necessarily contingent with social and economic interests (Katz 1998). Without strict regulation, 'new conservation' does not guarantee that economic considerations will not win over ecological concerns, when hard choices need to be made. For example, while high-yield oil palms were supposed to save forest (less space needed) they made farmers plant more (to make more money). The intensification of production of soybeans or palm oil merely meant that they generated more money in farming for export production, and so more people got into the game and cleared more land (Carrasco et al 2014). Besides, growing human population and consumption demands are pressuring non-human species into increasingly instrumental and subservient categories of resources, rather than recognizing their intrinsic value (Ehrenfeld 1988; Cafaro and Crist 2012).

Alternatives are possible though, and the vision as well as practical steps for achieving sustainability for both humans and other species is within reach.

5. Reflection: Alternative visions for valuation of nature

In the Introduction we have mentioned those who believe that biodiversity conservation can be achieved by the economic capture approach, and that general concern about biodiversity needs to be tempered by more rational, managerial, and open perspectives. From everything said above it might appear

that utilitarian or economic approaches to nature conservation are a bad idea.

Yet, we should be careful not to throw a baby out with the bath water. Utilitarian approaches by mainstream economic institutions cannot be easily dismissed as they also offer alternative ecological possibilities. Utilitarian valuation of nature argued that such valuation should not be discarded because of disagreements with particular economists' assumptions regarding sustainability, justice and efficiency (Farley 2012:40). Significantly, monetary and management approaches have in fact worked to protect certain areas of biodiversity through redistributing profits from a lucrative industry of ecotourism, or forest carbon credits to both governments and communities (Armstrong et al 2012; Tengberg et al 2012; Farley 2012). Simply put, given current power hegemonies and the dominance of neoliberal economy, economic valuation of nature may – alas – be one of the most effective ways of saving biodiversity (Kopnina and Blewitt 2014). If the wealthy eco-tourists, or large conservation NGO's, or government and corporate elites, as well as economically weak communities living in proximity with protected nature areas financially profit from conservation, this could – and does – create a powerful motivation to save these invaluable 'assets' (Armstrong et al 2012; Tengberg et al 2012; Farley 2012)⁴. Biodiversity is likely to become even more valuable (and profitable) the less of it remains due to the high value of scarce 'goods' such as (endangered) Hainan gibbons.

However, caution needs to be exercised. Those in favor of the 'new conservation' (e.g.

⁴ The Foundation for Deep Ecology (FDE), for example, defends 'classical' conservation-at least makes the case that protecting large landscapes is the most effective and secure way to sustain ecological function and reduce biodiversity loss. Additionally, the Foundation supports rewilding programs.

Marris 2014; Marvier 2014), assume that openness to different perspectives will counter certain tendencies espoused by hegemonic ecosystem-services view of nature. These plural perspectives also include opposition to conservation, with critics arguing that preservation of nature areas happens at the cost of livelihood of poor communities (Büscher and Fletcher 2014; Duffy 2014). It is significant to note that such criticisms are very similar to the arguments developed by influential economists such as Paul Collier that sees poverty elevation and economic development to be far more important than protection of biodiversity⁵. Typically, such criticisms do not include the non-economic value considerations, also non-monetary benefits that biodiversity offers to the same impoverished communities (Black 2010; Maathai 2010; Anderson 2011).

Nor do such arguments against conservation take into account the realities of demographic and commercial expansion of the communities they seek to portray as victims of conservation. Instead, consideration of the moral value of non-humans, and seeking simultaneous environmental justice for the people and ecological justice between species may be called for.

Another reason why we should be cautious about plural and open approaches to conservation is the potential of innovative or

⁵ In an interview with *The Ecologist* (Lee 2010), Paul Collier says: "Sometimes, in poor societies, it is very important to burn down nature and convert it into more productive assets and hand these on. This is the ethical imperative – that's what stewardship is. Using natural assets productively, creating more value and passing them on is how we will reduce poverty... But in other cases, the same thought experiment will come up with a different answer – the future may say you are proposing to leave us a nasty climate and we will be awash in man-made assets...Once you come from a doctrinal, ideological position that 'nature has to be preserved', it will condemn poor societies to poverty (Collier in Lee 2010).

'creative' approaches to conservation (rather than simply creating designated nature areas and allowing nature to take its course) to backfire. As in the case of 'synthetic biology' and 'innovative' conservation strategies, critics of the 'new conservation' have warned that all these plural approaches may fail if they does not recognize the root causes that endanger biodiversity (Redford et al 2013).

As the name of this journal suggests, we should also look for alternative visions of sustainability, thus one of the visions proposed here is the ethics-based valuation of nature. Alternatives to market-based approach to conservation are respectful of affect-laden and vibrant socio-nature entanglements, and based on principles of intrinsic valuation. These stem in part from contemporary environmental movements; in part from practices in many societies based on non-economic utility rationale (Black 2010; Kopnina 2012a, 2012b; Singh 2013); and in part from academic rethinking of frameworks that enable commodification of nature (Jackson and Palmer 2014).

Valuing the encounter value in the interactions between humans and non-humans could be a starting point (Haraway 2008). What we stand to gain from these alternatives is not just livelihood security for one species only, but also the possibility to return to ourselves as responsible and indeed rational and caring citizens of the earth (Crist 2012). Alternative ways of being with the world necessarily need to include consideration of the rights of mother nature.

Thus, we need to critically address the technocratic, neoliberal, elitist proclamations of the short-cited economic development proponents. Return to the culturally variable but infinitely more sustainable ways of relating to environment, and ourselves, as humans within this environment, is where hope for humanity and all its inhabitants lies.

This means that we need to fundamentally rethink our relationship to the environment, and openly address the hidden assumptions of superiority and species' supremacy within the current sustainable development and Anthropocene discourse. This does not mean the return to primordial roots, however, but it does mean the need for rethinking what ideas of human progress entail.

Returning to Crist's vision of the alternatives to the currently conceived Anthropocene:

Living in integration with wild nature is not a veiled invitation for humanity to return to its pre-Neolithic phase nor does it automatically signal... an a priori ceiling to technological innovation; nor is it intended to conjure a naive view of life as an Edenic kingdom. It is not my aim here to recommend what human integration within the biosphere might specifically look like, but instead to contend about the prerequisite for such a way of life to emerge: namely, catching "a sideways glance of a vast nonhuman world that has been denigrated by the concepts, institutions, and practices associated with 'the human'... and also becoming receptive to the view that if the imperative of respecting the natural world's selfintegrity and intrinsic value appears unimposing to the human mind, it is because the human mind has been conditioned and enclosed by a species-supremacist civilization. Only from a perspective of profound deference for the living world can an integrated human life be imagined and created (Crist 2013a:143).

Representing this view from a non-Western perspective, Vandana Shiva (1993) argues that in a mono-agricultural society, trees are seen as nothing more than timber and crop yield. In traditional societies, trees have multiple material and spiritual purposes. Traditional knowledge systems contribute in major ways to the understanding of biodiversity, ecological sustainability and

cultural, including agricultural, diversity. In a similar vein, social geographers have worked to decenter the human by foregrounding the agency of the “more-than-human” beings (Whatmore 2006) exploring how animated sacred and sentient being (Kohn 2013) can be seen for their own intrinsic or spiritual value. In this view, protection of biodiversity becomes more than material necessity, but an issue of moral and spiritual importance. As Wangari Maathai (2010: 193) has noted, “In the end... the questions of how or whether we heal the Earth's wounds are spiritual ones.”

What is also crucially important if we were to take our ‘common future’ seriously, is the necessity to stop denial for the sake of comforting promises that offer hope but deliver no change. As John Foster (2014) has reflected in his recent blog:

You have to be prepared, in the first place, to recognize the situation which we have brought on ourselves as a tragedy, involving terrible and uncompensated loss, not a set of problems which human ingenuity must be able to solve (the progressivist template on which all our current politics is fixated).

In other words, we need to move beyond the denial and even beyond mere hope into action.

6. Conclusions

According to economic valuation of nature, conventional economists pursue efficiency and the maximization of monetary value, achieved by integrating ecosystem services into the market framework. Translated into the framework of sustainable development, with its implicit moral objective of fair sharing of economic (and thus natural) wealth, a number of issues need to be raised. One of the issues discussed in this article is

the moral objectives to commodifying something that has intrinsic value of its own.

Economic valuation of nature then often takes precedence over other types of valuation. The question remains: will anthropocentric view of nature lead to abandoning biodiversity conservation outside of economically motivated conservation practice? Is the currently practiced form of conservation sufficient in long-term protection? What is also at stake is the very formidable idea of human domination as well as predestination in the era of the Anthropocene. We may need to ask whether sustainable future and human security can be achieved in the first place based on the politics of domination over other elements of nature, and the false hope that continuous exploitation of environment can lead to human – let alone natural – sustainability of biodiversity in the long term.

Alternative ontologies of the human development as empathic beings, embedded in intimate ethical relations with non-humans, rather than rational economic actors may be the key. Empathic (Crist 2013b), care-based (Singh 2013) and spiritually-based (Shiva 1996; Maathai 2010) approaches to valuation of nature are as helpful. To reach these alternatives, however, difficult questions concerned with the manner of production and consumption, population growth, as well as ethics in relation to nature need to be addressed.

Taking heed from ‘new conservation’ (Marvier 2014; Marris 2014), we may conclude that different approaches to conservation can be indeed beneficial to both the people and biodiversity. Yet, while some ‘new conservationists’ are right in pointing out that conservation has become in some cases highly monetized and we should be wary of these commodification tendencies, they tend to overlook other ethical implications of pitching conservationists against local ‘communities’. Such critique also leaves a thorny question as whether we

should feel condescending toward those 'consumers' (also in the 'developing world') that have made it out of poverty. By joining the capitalist-industrial 'system', according to 'the poor people are not to blame' assumption they have become 'guilty' themselves. It also implies that the non-human species are excluded from consideration of who profits from conservation.

Thus, this article supports those scholars who argue for the need to take the efficacy of conservation and moral consideration of non-humans as a starting point (e.g. Foster 2002; Foreman 2011; Cafaro and Primack 2014; Miller et al 2014). This shift away from valuing nature only in terms of economic benefits promises to integrate human interests with those of the entire ecosphere of which all of us are a part.

References

- Alderman, L. 2010. Dubai Faces Environmental Problems After Growth. *The New York Times*. October 27. Accessed on line: <http://www.nytimes.com/2010/10/28/business/energy-environment/28dubai.html?pagewanted=all>
- Anderson, E. 2011. Drawing from Traditional and 'Indigenous' Socioecological Theories. In *Environmental Anthropology Today*. Helen Kopnina and Eleanor Shoreman-Ouimet, eds. Pp 56-74. London: Routledge.
- Armstrong, C. D., Foley, N. S., Tinch, R. van den Hove, S. 2012. Services from the deep: Steps towards valuation of deep sea goods and services. *Ecosystem Services*, 2: 3-12.
- Barua, M., Bhagwat, S.A. and Jadhav, S. 2013. The hidden dimensions of human-wildlife conflict: Health impacts, opportunity and transaction costs. *Biological Conservation*, 157: 309-316.
- Beck, U. 1992. *Risk Society, Towards a New Modernity*. London: Sage Publications.
- Beymer-Farris, B.A., Bassett, T.J., 2012. The REDD menace: Resurgent protectionism in Tanzania's mangrove forests. *Global Environmental Change-Human and Policy Dimensions* 22 (2), 332-341.
- Black, C. 2010. *Schooling the World: The White Man's Last Burden*. Documentary film. Lost People Films. www.schoolingtheworld.org.
- Braat, L. C. and de Groot, R. 2012. The ecosystem services agenda: Bridging the worlds of natural science and economics, conservation and development, and public and private policy, *Ecosystem Services*, 1(1): 4-15.
- Büscher, B. & Fletcher, R. 2014. Accumulation by Conservation, *New Political Economy*, DOI: 10.1080/13563467.2014.923824
- Cafaro, P. & Primack, R. 2014. Species extinction is a great moral wrong. *Biol. Conserv.* 170, 1-2.
- Carrasco, L. R.; C. Larrosa; E. J. Milner-Gulland; D. P. Edwards. 2014. A Double-edged Sword for Tropical Forests. *Science* 346:38-40.
- Casagrande, D. and Peters, C. 2013. Eco-myopia meets the longue durée: An information ecology of the increasingly arid southwestern U.S.A. In *Environmental Anthropology: Future Directions* Eds. H. Kopnina and E. Shoreman-Ouimet, New York and Oxford: Routledge. Pp. 97-144.
- Catton, W. R. Jr. 2012. Destructive Momentum: Can an Enlightened Environmental Movement Overcome it? In P. Cafaro and E. Crist (Eds). *Life on the Brink: Environmentalists confront Overpopulation*. University of Georgia Press (p. 123-129).
- Crist, E. 2012. Abundant Earth and The Population Question. In P. Cafaro and E. Crist (Eds). *Life on the Brink: Environmentalists confront Overpopulation*. Atlanta: University of Georgia Press.
- Crist, E. 2013a. On the Poverty of Our Nomenclature. *Environmental Humanities* (3): 129-147.
- Crist, E. 2013b. Ecocide and the extinction of animal minds. In *Ignoring Nature No More: The Case for Compassionate Conservation*, Marc Bekoff, ed. Chicago University Press. Pp. 45-53.

- Crist, E. and Cafaro, P. 2012. Human Population Growth as If The Rest of Life Mattered. In P. Cafaro and E. Crist (Eds). *Life on the Brink: Environmentalists confront Overpopulation*. Atlanta: University of Georgia Press. (p. 3-15).
- Daly, H. E. 1991. *Steady-State Economics*, 2nd edition. Island Press, Washington, DC. p.17.
- Daly, H .E. 1994. Sustainable Growth: An Impossibility Theorem. *Clearinghouse Bulletin*, April, Carrying Capacity Network, Washington, D.C.
- De Groot, R. 2002. A typology for the classification, description and valuation of ecosystem functions, goods and services. *Ecological Economics*, 41 (3): 393-408.
- Duffy, R. 2014. Waging a war to save biodiversity: the rise of militarised conservation. *International Affairs* 819-34 (90): 4.
- Eckersley, R. 2004. *The Green State. Rethinking Democracy and Sovereignty*. MIT Press: London.
- The Economist. 2013. Water in China: Desperate measures. October 12. Available online: <http://www.economist.com/news/leaders/21587789-desperate-measures>
- Ehrenfeld, D. 1988. 'Why Put a Value on Biodiversity?', in E. O. Wilson (ed.), *Biodiversity*, Washington, DC, National Academy Press.
- Ehrlich, P. R., A. H. Ehrlich, and Daily, G. C. 1992. Population, ecosystem services, and the human food supply. *Morrison Institute for Population and Resource Studies Working Paper No. 44.*, Stanford University, Stanford, CA.
- Engelman, R. 2010. Population, climate change and women's lives. *Worldwatch Report 183*, www.worldwatch.org
- Engelman, R. 2013. 'Beyond sustainababble', in *State of the World 2013: Is Sustainability Still Possible?*, ed. L. Starke, Washington: Island Press.
- Farley, J. 2012. Ecosystem Services: The Economics Debate, *Ecosystem Services*, 1 (1): 40-49.
- Fletcher, R., Breitlin, J. and Puleo, V. "Barbarian Hordes: The Overpopulation Scapegoat in International Development Discourse." *Third World Quarterly*, 35(7):1195- 1215.
- Foreman, D. 2011. "The Arrogance of Resourcism." In *Conservation vs. Conservation*. Durango, CO: The Rewilding Institute and Raven's Eye Press.
- Foster, J.B. 2002. *Ecology Against Capitalism*, New York, Monthly Review Press.
- Foster, J.B. 2012. The Planetary Rift and the New Human Exemptionalism: A Political-Economic Critique of Ecological Modernization Theory. *Organization and Environment*, 25(3):211-237.
- Foster, J.B. 2014. *Environment and Sustainability. After Sustainability: Life Beyond the End of Pretending?* Blog post. http://www.routledge.com/sustainability/articles/after_sustainability_life_beyond_the_end_of_pretending/
- Golley, F. B. 1993. *A History of the Ecosystem Concept in Ecology*. Yale University Press, New Haven.
- Inglehart, R. 1977. *The Silent Revolution: Changing Values and Political Styles Among Western Publics*. Princeton: Princeton University Press.
- Jackson, S., & Palmer, L. R. 2014. Reconceptualizing ecosystem services: Possibilities for cultivating and valuing the ethics and practices of care. *Progress in Human Geography*, 0309132514540016.
- Haraway, D. 2008. *When Species Meet*. Minneapolis: University of Minnesota Press.
- Hern, W. M. 1992. Family Planning, Amazon Style. *Natural History* 101(12)30-37.
- Kamarulazizi, I, Koshy, K. and Asrar, G. 2013. 'Development with a Difference: Neo-Disaster Risk Management for Sustainable Development', An 'Opinion' paper by invitation on an innovative idea, *Journal of Geomatics, Natural Hazards and Risk*, <http://dx.doi.org/10.1080/18475705.2013.82429>, Pub: Taylor & Francis, England.

- Kareiva, P., Lalasz, R. And M. Marvier. 2011. Conservation in the Anthropocene: Beyond Solitude and Fragility. *Breakthrough Journal*. Fall, P. 29-27.
- Katz, E. 1998. Searching for intrinsic value: Pragmatism and despair in environmental ethics. In *Environmental pragmatism*, ed. A. Light and E. Katz, 307-18. New York, NY: Routledge.
- Kohn, E. 2013. *How forests think: toward an anthropology beyond the human*. University of California Press.
- Kopnina, H. 2012a. 'Towards Conservational Anthropology: Addressing anthropocentric bias in anthropology.' *Dialectical Anthropology*, 36 (1): 127-146.
- Kopnina, H. 2012b. 'Re-Examining Culture/Conservation Conflict: the view of anthropology of conservation through the lens of environmental ethics.' *Journal of Integrative Environmental Sciences*, 9(1): 9-25.
- Kopnina, H. 2014a. 'Environmental justice and biospheric egalitarianism: reflecting on a normative-philosophical view of human-nature relationship'. *Earth Perspectives*, 1:8.
- Kopnina, H. 2014b. 'Revisiting Education for Sustainable Development (ESD): examining anthropocentric bias through the transition of environmental education to ESD'. *Sustainable Development*. 22: 73-83.
- Kopnina, H. 2014c. 'Christmas tale of (un)sustainability: reflecting on consumption and environmental awareness on the streets of Amsterdam'. *Sustainable Cities and Society*. 10: 65-71.
- Kopnina, H., & Blewitt, J. 2014. *Sustainable business: Key issues*. New York: Routledge Earthscan.
- Krech, S. 2005. Reflections on conservation, sustainability, and environmentalism in indigenous North America. *American Anthropologist* 107:78-86.
- Lee, M. 2010. Paul Collier: saying 'nature has to be preserved' condemns the poor to poverty: http://www.theecologist.org/Interviews/484203/paul_collier_saying_nature_has_to_be_preserved_condemns_the_poor_to_poverty.html
- Lewis, D. & Kanji, N. 2009. *Non-Governmental Organisations and Development*. London: Routledge.
- Locke, P. 2013. *Explorations in Ethnoelephantology: Social, Historical, and Ecological Intersections Between Asian Elephants and Humans*. *Environment and Society: Advances in Research* 4(1): 79-97.
- Lovelock, J. 1979. *Gaia: A New Look at Life on Earth*. Oxford: Oxford University Press.
- Marris, E. 2014. 'New conservation' is an expansion of approaches, not an ethical orientation *Animal Conservation*. DOI: 10.1111/acv.12129
- Marvier, A. 2014. A call for ecumenical conservation. *Animal Conservation*. <http://onlinelibrary.wiley.com/doi/10.1111/acv.12130/full>
- Maathai, W. 2010. *Replenishing the Earth: Spiritual Values for Healing Ourselves and the World*. New York, NY: Doubleday.
- Meadows, D. H., Meadows, D. L., Randers, J. and Behrens III. W. W. 1972. *The Limits to Growth*. New York: Universe Books.
- Miller, B., Soulé, M.E. & Terborgh, J. 2014. 'New conservation' or surrender to development? *Animal Conservation*. doi: 10.1111/acv.12129.
- Mol, A.P.J. and Sonnenfeld, D.A. 2000. *Ecological Modernisation around the World: Perspectives and Critical Debates*, London and Portland: Routledge.
- Mosse, D. 2010. A Relational Approach to Durable Poverty, Inequality and Power.' *Journal of Development Studies*, 46 (7): 1156-1178.
- Naess, A. 1973. The shallow and the deep: long-range ecology movement. A summary, *Inquiry*, 16:95-99.
- Redford, K and Sanderson, S. 2000. Extracting humans from nature. *Conserv. Biol.* 14:1362-64.
- Redford, K.H., Adams, W., Mace G.M. 2013. *Synthetic Biology and Conservation of Nature: Wicked Problems and Wicked Solutions*. *PLoS Biol* 11(4): e1001530. doi:10.1371/journal.pbio.1001530

- Rees, W. 2009. The ecological crisis and self-delusion: implications for the building sector. *Building Research and Information* 37(3):300-311.
- Rees, W. 2010. What's blocking sustainability? Human nature, cognition, and denial. *Sustainability: Science, Practice, & Policy* 6(2):13-25.
- Richards, J. 2014. *The World Hunt: an environmental history of the commodification of animals.* University of California Press.
- Rockstrom, J., W. Steffen, K. Noone, A. Persson, F. S. Chapin, E. F. Lambin, T. M. Lenton, M. Scheffer, C. Folke, H. J. Schellnhuber, B. Nykvist, C. A. de Wit, T. Hughes, S. van der Leeuw, H. Rodhe, S. Sorlin, P. K. Snyder, R. Costanza, U. Svedin, M. Falkenmark, L. Karlberg, R. W. Corell, V. J. Fabry, J. Hansen, B. Walker, D. Liverman, K. Richardson, P. Crutzen and J. A. Foley 2009. A safe operating space for humanity. *Nature* 461(7263): 472-475.
- Rolston, H. III. 2015. Environmental Ethics for Tomorrow: Sustaining the Biosphere. In *Sustainability: Key issues.* Edited by H. Kopnina and E. Shoreman-Ouimet. New York: Routledge Earthscan.
- Ruppert, J. L. W.; M. J. Travers; L. L. Smith; M. J. Fortin, M. G. Meekan. 2013. Caught in the Middle: Combined Impacts of Shark Removal and Coral Loss on the Fish Communities of Coral Reefs. *Plos -one*. September 18. Available on-line: <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0074648>
- Singh, N. M. 2013. The affective labor of growing forests and the becoming of environmental subjects: Rethinking environmentality in Odisha, India. *Geoforum*, 47, 189-198.
- Shepard, P. 1993. On animal friends. In S. R. Kellert and E. O. Wilson (eds.) *The Biophilia Hypothesis*, 275-300. Washington: Island Press.
- Shepard, P. 1967. *Man in the Landscape: A Historic View of the Esthetics of Nature.* Athens, Georgia: University of Georgia Press.
- Shiva, V. 1993. *Monocultures of the Mind: Biodiversity, Biotechnology and Agriculture,* Zed Press, New Delhi.
- Stern, D. I. 2004. The Rise and Fall of the Environmental Kuznets Curve. *World Development*, 32(8): 1419-1439.
- Tengberg, A., Fredholm, S. Eliasson, I. Knez, I. Saltzman, K. Wetterberg, O. 2012. Cultural ecosystem services provided by landscapes: Assessment of heritage values and identity. *Ecosystem Services* 2: 14-26.
- Tilt, B. 2015. *Dams and Development in China: The Moral Economy of Water and Power.* New York: Columbia University Press.
- UNEP. Biodiversity. <http://www.unep.org/dgef/Biodiversity/tabid/1697/Default.aspx>
- Washington, H.G. 2013. *Human Dependence on Nature,* New York. Routledge: Earthscan.
- Whatmore, S. 2006. Materialist returns: practising cultural geography in and for a more-than-human world. *Cultural geographies*, 13(4), 600-609.
- Wijkman, A. and Rockström, J. 2012. *Bankrupting Nature: Denying Our Planetary Boundaries.* New York: Routledge.
- York, R., and Rosa, E.A. 2003. Key challenges to ecological modernization theory, *Organization and Environment*, 16(3):273-288.