

ARTICLE

What is lost through no net loss

John O'Neill 

Philosophy, School of Social Sciences, Humanities Bridgeford Street Building, University of Manchester, Manchester M13 9PL, UK
Email: john.f.o'neill@manchester.ac.uk

(Received 26 October 2017; revised 08 June 2019; accepted 22 July 2019; first published online 10 September 2019)

Abstract

No net loss approaches to environmental policy claim that policy should maintain aggregate levels of natural capital. Substitutability between natural assets allows losses in some assets to be compensated for by gains in others while maintaining overall levels of natural capital. This paper argues that significant goods that matter to people's well-being will be lost through a policy of no net loss. The concepts of natural capital and ecosystem services that underpin the no net loss approach to environmental policy cannot capture important dimensions of value that are central to human well-being.

Keywords: *de re*; *de dicto*; offsets; natural capital; ecosystem services

1. Natural capital, ecosystem services and no net loss

In environmental policy making natural environments, resources and beings have been increasingly conceptualized as 'natural capital'. Central to this conceptualization of environmental goods as capital is the concept of 'ecosystem services'. Natural environments, resources and beings should be understood as assets valued in terms of the services they provide to human beings, either directly for the welfare of those who use them and value their existence, or indirectly as inputs into production and as the background conditions for human life and production. A standard list of ecosystem services accompanies this claim: provisioning services, such as clean water and inputs into food production; regulating services, such as waste assimilation, carbon sequestration and pollination; cultural services, such as recreation or aesthetic enjoyment; supporting services, such as soil formation and photosynthesis (TEEB 2010: 7). On this account, then, environmental goods such as biodiversity are understood as capital that are conditions for the provision of ecosystem services.

This conceptualization of environmental goods in terms of capital and ecosystem services is the starting point in defence of a number of further independent claims that have underpinned environmental policy making. It informs standard approaches to economic valuation: the economic valuation of environmental goods is conceived in terms of ascertaining the monetary value of ecosystem

services. It informs standard approaches to sustainability. Sustainability is a matter of maintaining those levels of capital required to provide these services. This understanding of environmental goods is largely shared by both sides of the debate between proponents of weak and strong sustainability in economics (O'Neill 2015). Both assume that environmental goods should be understood as capital that provides services. The point at issue is whether and how far natural capital can be substituted by forms of human capital. Proponents of weak sustainability are taken to claim that a wide degree of substitutability of goods at the margin is possible and hence that all that matters for sustainability is that the total level of capital, human-made and natural, does not decline. Proponents of strong sustainability are typically taken to claim that there are limits to the substitutability of natural and human-made capital and hence that sustainability requires that there is some level of 'natural capital' that does not decline (Beckerman 1994, 1999; Daly 1995; Jacobs 1995; Dobson 1996; Holland 1997).

Proponents of strong sustainability, while insisting on the limits of substitutability between natural and human capital, can still be open to the possibility of considerable substitutability between different components of natural capital. The aim of policy should be to ensure there is 'no net loss' of natural capital such that the total aggregate level of natural capital is maintained. This is possible if the loss in one component of natural capital can be compensated with gains in another.

'No net loss' of natural capital has been increasingly appealed to in national and international environmental policy statements. It is associated with biodiversity offsetting markets that have become the standard market-based approach for the realization of the objective of no net loss. Landowners and environmental bodies who create, restore or enhance a habitat or site of biodiversity are assigned credits. Those credits can then be sold to developers to offset environmental damage to natural capital caused by a development. Market transactions can ensure that there is no net loss of habitats, biodiversity and other forms of natural capital. Early versions of biodiversity offsetting were developed in New South Wales, Australia and, in the form of wetland mitigation banking, in the USA. It is now becoming increasingly prevalent elsewhere (Kiesecker *et al.* 2009; Madsen *et al.* 2011; UNEP 2011). A policy to 'ensure there is no net loss of ecosystems and their services (e.g. through compensation or offsetting schemes)' (European Commission 2011) forms a significant component of the 'EU Biodiversity Strategy to 2020'. In the UK no net loss forms part of the UK Biodiversity 2020 plan (Defra 2012), where the aim is to be similarly pursued by biodiversity offsetting (Defra 2013). The approach is itself part of the larger international initiative to develop 'no net loss' approaches to environmental protection (BBOP 2012). The policy is used increasingly in development projects, for example, in the planning for the High Speed Two train line in the UK (HS2 Limited 2015) and in the justification of mining projects by Rio Tinto Zinc in Madagascar (Seagle 2012; Kill and Franchi 2016).

In this paper I will argue that major goods that matter to people and their well-being will be lost through a policy of no net loss. I develop that argument through a criticism of the claim that environmental goods should be characterized in terms of natural capital and the ecosystem services they provide

which underpins the no net loss approach to environmental policy. My central aim in the paper will be to show that the concepts of natural capital and ecosystem services cannot capture important dimensions of value that matter to human well-being. As such I will not consider all the dimensions of value that cannot be captured by the concepts of natural capital and ecosystem services. The concepts of natural capital and ecosystem services are concerned only with environmental goods insofar as they are good for human beings. The approach is welfarist: only human well-being matters in itself. It does not include those dimensions of value which are claimed to be independent of human well-being. There are two dimensions of value that might be appealed to in this regard. The first is the appeal to the moral status of non-human beings: the well-being of sentient beings, or more generally the good of living things, might be taken to matter in itself independently of the well-being of human beings. The second is the appeal to impersonal values. To claim that some things or states have impersonal value is to claim they have value that is independent of their contribution to the goodness of the life of some being (Brink 1989: 219). For example, if biodiversity is intrinsically valuable and not simply a means to the realization of some other good, such as the well-being of particular beings affected by biodiversity loss, then it looks like it has impersonal value.¹ Questions about the defensibility of claims about the moral standing of non-human beings or of the existence of impersonal values are important. However, the arguments in this paper will not address those questions. I will rather suggest that, even if we are only concerned with human well-being, there are significant dimensions of environmental value that are not captured by the concepts of natural capital and ecosystem services. Significant goods that matter for human well-being will be lost through a policy of no net loss.

2. Justifying no net loss

The policy of no net loss takes it to be both possible and desirable to maintain or even increase total levels of natural capital through substitution across different dimensions of natural capital. As Helm puts it ‘the aggregate of natural capital should be non-decreasing, but . . . there can be substitutability between different types of natural assets’ (Helm 2014: 111). Helm contrasts this approach with, on the one hand, weaker versions of sustainability which focus ‘on the substitutability between natural and man-made factors of production, with sustainability being achieved if the investment in produced capital equals the

¹The claim that equality is an impersonal value as are other ideals, such as freedom and justice, is defended by Temkin (2003a, b; 2012: Ch. 12 and *passim*). G. E. Moore thought that beauty was of value even in a world without an agent conscious of that beauty (Moore 1903: 85–87). The world would be a less good place with the loss of beauty even if no individual being’s well-being was affected. The claim that biodiversity is an impersonal value would get some force from the similar thought that the world would be a poorer place in some respects for the loss of species and habitats and a better place for the prevention of their loss, independently of the instrumental value of biodiversity for individual living organisms. A similar argument for example might be made of linguistic diversity – that there is a respect in which the world is poorer for the loss of languages even if it is not bad for any particular individuals. For criticism of the claim that biodiversity does have this impersonal value see Kraut (2012: Ch. 23).

reduction in natural capital' (Helm 2014:111) and, on the other hand, versions of deep green environmentalism according to which 'all and every environmental asset should be preserved from development' (Helm 2014: 111). If the aim of policy is to preserve aggregate natural capital, the approach allows that losses in one natural asset can be compensated for and offset by improvements in another natural asset elsewhere:

It leads on to the notion of compensation: any damage to a particular renewable natural asset must be offset with an improvement in another natural asset that is at least as good, so that the aggregate is maintained . . . One bit of damage can and must be 'offset' by an improvement elsewhere. (Helm 2014: 112)

Helm suggests that such compensation can take place through monetary payments in properly constituted markets: 'It remains to determine how the compensation will be carried out. In principle this could be a monetary payment, equal to the value of the damage. A market could be constituted in which bids are made for natural capital improvements . . .' (Helm 2014: 118).

Two claims need to be distinguished here. The first is that it is possible to substitute one natural asset by another, so that losses in one area of natural capital can be compensated for by gains in another, and aggregate natural capital can be maintained. The second is that compensation can be achieved through monetary payments allowing the development of biodiversity offset markets. The second claim is stronger than the first. Most of this paper will be concerned to criticize the first basic claim. However, I will first make some critical observations about the second stronger claim.

Against the view that monetary compensation is not possible for damages and should rather take a non-monetary physical form, Helm offers the following response:

The damage has to be compensated for by either a payment or by the cost of a replacement. This has a monetary value. Unless an asset is of infinite value, there is always a price or a cost that can be paid in compensation for its loss. (Helm 2014: 118)

The claim that 'unless an asset is of infinite value, there is always a price or a cost that can be paid in compensation for its loss' assumes that all goods have either a finite or infinite price. There are good grounds for rejecting that disjunction. It is open to the response that some goods are priceless in the sense that either they do not or should not have any price. This is to make a particular incommensurability claim: X cannot be valued in monetary terms or is not appropriately valued in monetary terms. It is important to notice that this claim is logically distinct from the claim that a good X has an infinite value. Indeed, the claim (1) 'it is not the case that X has or ought to have a price' is logically inconsistent with the claim (2) 'X has or ought to have a price of infinity'. The central arguments against the claim that environmental goods can

be priced are incommensurability arguments against the possibility or desirability of pricing (O'Neill *et al.* 2008: Ch. 5; O'Neill 2017a).²

Why should some goods be considered incommensurable with monetary values? One argument for monetary incommensurability to which I will return later appeals to the claim that some social relations and ethical commitments are constituted by a refusal to place monetary values on them (Raz 1986: 345ff; O'Neill 1993: 118–122; O'Neill *et al.* 2008: 77–79). Consider the following passage from a person facing eviction to make way for the development of the Narmada dam:

You tell us to take compensation. What is the state compensating us for? For our land, for our fields, for the trees along our fields. But we don't live only by this. Are you going to compensate us for our forest? . . . Or are you going to compensate us for our great river – for her fish, her water, for vegetables that grow along her banks, for the joy of living beside her? What is the price of this? . . . How are you compensating us for fields either – we didn't buy this land; our forefathers cleared it and settled here. What price this land? Our gods, the support of those who are our kin – what price do you have for these? Our adivasi (tribal) life – what price do you put on it? (Bava Mahalia 1994)

The point of the rhetorical questions – 'what price our adivasi life?' – is not to suggest there is a monetary value that could be placed on the good – be this finite or infinite – but rather to reject the very possibility of properly expressing the value of kinship and a way of life in monetary values. The claim that monetary compensation for a loss is always possible is rejected. I return below to the defensibility and rationality of this refusal to accept monetary compensation for environmental damage.

The claim that specifically monetary substitution is always possible for environmental damage needs to be kept distinct from a second claim that Helm defends and which underpins the policy of no net loss – that it is possible to substitute one natural asset by another so that losses in one area of natural capital can be compensated for by gains in another such that aggregate natural capital can be maintained. The claim here is that environmental goods be understood as natural capital, assets that provide services, and that one asset can be substituted by another if it provides the same services. This claim need not be committed to monetary compensation. It need only assume that physical offsets are available which provide the same services.³ My central aim in the rest of the paper is to reject this prior claim: major goods that matter to people and their well-being will be lost through a policy of no net loss.⁴

²Compare Elizabeth Anderson's claim that some goods require a different mode of valuation than that of price (Anderson 1993: 9–11 and *passim*).

³For distinctions between a number of different claims made by proponents of natural capital see O'Neill (2017b).

⁴There is a prior question of what it is for one good to be an adequate substitute for another. For a detailed discussion see O'Neill (2015).

3. Ecosystem services: *de re* and *de dicto* valuation

Environmental policy is increasingly framed in terms of environmental goods, such as biodiversity, being understood as natural capital, valued in terms of the ecosystem services they provide. What is it to value goods in terms of the services they provide? A useful starting point here is an influential characterization of the nature of economic goods in terms of the services they provide offered by Ayres and Kneese. The characterization is a general one that pre-dates the specific use of the concept of ecosystem services:

Almost all of standard economic theory is in reality concerned with services. Material objects are merely the vehicles which carry some of these services, and they are exchanged because of consumer preferences for the services associated with their use or because they can help to add value in the manufacturing process. (Ayres and Kneese 1969: 284)

Important here is the claim that objects should be understood as 'merely the vehicles' which carry services. What are valued are services. Any object as such is valued simply as a 'vehicle' for these services. For what class of objects is this true? What is it to value objects in this way and when is such valuation justified?

A useful starting point for answering these questions is the distinction between *de re* and *de dicto* valuation. The distinction can be illustrated by the following mildly funny joke about Zsa Zsa Gabor offered by Hare:

Zsa Zsa: 'Ah! People misunderstand me! They think that I am just a creature of leisure, that I do nothing useful, but they are wrong. I am constantly finding new ways to do good for people.'

Interviewer: 'Like what?'

Zsa Zsa: 'I have found a way of keeping my husband young and healthy, almost forever.'

Interviewer: 'Eternal youth . . . that is quite a discovery! How do you do it?'

Zsa Zsa: 'I get a new one every five years!' (Hare 2007: 514)

The joke turns on an ambiguity between *de re* and *de dicto* valuations. When Zsa Zsa says she does good in finding a way to keep her husband young and healthy we expect her to be concerned about the youth and health of a particular person who is her husband. However, it transpires that Zsa Zsa is only concerned that whoever turns out to fall under the description 'my husband' be young and healthy. We expect her to value the person *de re*, to be valuing a particular object. It turns out that she is valuing *de dicto*: she values whoever happens to fall under the description of being her husband. Consider the statement 'Zsa Zsa Gabor values a husband who is young and healthy'. The statement is ambiguous. Under the *de re* reading what is valued is a particular individual who is young and healthy. Under the *de dicto* reading what is valued is that she has a husband who falls under a description of being young and healthy.

The distinction allows us to clarify at least part of what is at stake in the use of the language of natural capital and ecosystem services. To value something simply as a vehicle for the provision of services is to assume that it should be valued *de dicto* and not *de re*. Consider the statement ‘P values a site of biodiversity which has qualities $\alpha_1 \dots \alpha_n$ ’. The statement displays an ambiguity. One reading is a *de re* reading. What is valued is a particular place that is a site of biodiversity with qualities $\alpha_1 \dots \alpha_n$. Another reading is a *de dicto* reading. What is valued is that a site falls under the appropriate description as a site of biodiversity with qualities $\alpha_1 \dots \alpha_n$. Policy that aims at no net loss and the related practices of biodiversity markets and offsets assume *de dicto* valuations. A site is valued since it falls under the appropriate description and its loss can be compensated for by its replacement by another site that falls under the same description. Those opposed to the destruction of sites of biodiversity for the purposes of some development to be offset are often moved by an attachment to particular places. They value sites of biodiversity *de re*. Conflicts emerge where the same specific site is valued *de re* by people with a particular attachment to a site of biodiversity, but *de dicto* by a policy maker committed to no net loss. Consider a particular example – Smithy Wood, an 800 year old woodland of 20 acres near Sheffield in the UK. The developers who want to build a new motorway service area on the site of the Smithy Wood plan to offset the loss of woodland with the creation of a new community woodland of up to 600 acres. For locals with a particular attachment to the woodland, what matters is the value of the woodland as a particular place with its particular history. It is valued *de re*. The policy maker looking at the same woodland in the light of a no net loss policy will understand the value of the woodland differently. It is valued solely in terms of the biodiversity properties $\alpha_1 \dots \alpha_n$ the wood exhibits. It is valued *de dicto*.

The competing valuations matter to how far substitutability between different environmental goods is possible. If sites are valued *de dicto* then one site can be substituted by another with respect to that valuation if and only if it falls under the same description. *De dicto* valuation does bring with it important restrictions on substitutability. The substitute must fall under the same description as the original. The point is at the centre of many disputes about biodiversity offsetting. Whether or not substitutability is possible will depend upon the description under which substitution takes place. Given a detailed and specific description of the qualities of the site, $\alpha_1 \dots \alpha_n$, substitutability will be very difficult or even impossible. On the other hand, given a very general and minimal description of those qualities, $\beta_1 \dots \beta_m$, substitution will not be difficult at all. One site will not be a substitute for another under one description, say as a woodland that contains a very specific mix of species of plants and trees, but may be under another, say as simply a mixed woodland. The detailed disputes about the adequacy of offsets typically concern the descriptions under which the offsets are made – with the ways in which the equivalence of two sites of biodiversity is characterized (Sullivan 2013; Carver and Sullivan 2017). *De dicto* valuation is consistent with considerable limits on the possibility of substitution. However, if sites of biodiversity are valued *de re*, then there exist still stronger limits on the possibility of substitution. The loss of one valued particular site or place cannot be simply substituted by another no

matter whether there is a description characterizing their environmental properties which both meet. It is the particular site that is valued. An important background question then concerns what is the scope of objects to which *de re* and *de dicto* valuation is appropriate and why?

What objects are owed a *de re* valuation, what objects are owed *de dicto* valuation and why are these valuations owed to each? *De re* value appears to be what is often ethically demanded or appropriate with respect of persons. Zsa Zsa Gabor isn't finding a 'way of doing good for people' by substituting a new person with the required husband-like qualities for an old one. Zsa Zsa husbands are not substitutes for real husbands. Similarly Stepford wives are no substitutes for real wives. Love is a *de re* attitude to a particular person. As Kraut puts it, 'it is one thing to love a particular person and quite another to love some property or properties that s/he happens to possess' (Kraut 1986: 421; cf. Goldie 2010; Grau, 2010). To say this is not to deny that the basis for loving a person makes reference to his or her properties – his or her kindness, generosity, sense of humour, and so on. However, it is a mistake to confuse the basis of love and the object of love (Soble 1990: 225ff.; cf. Velleman 1999: 368; Kolodny 2003: 154; Grau 2010: 260). The object of love is the person and not the properties he or she happens to exhibit. If it was simply the properties that were the object of love, then the person could be substituted by another.

On the other hand, there is a large class of objects to which *de dicto* valuation is appropriate. Some things are valued in virtue of displaying some set of properties. We value whatever falls under a description. We typically value tools *de dicto*. We are concerned with the job that the tool does, not this or that particular tool. For the most part I am not attached to a particular tool. There are exceptions where the particular history matters. I have, for example, a hammer that was passed on to me from my father. As a tool it could be better. The head sometimes comes loose. However, the hammer is valuable to me *de re*. It is this particular hammer with its history that I value. However, these are exceptions. A similar story goes for everyday fungible goods like apples and pears. I value any apple that falls under the description of a fruit with particular gustatory properties. Again there are exceptions – for example, the first apple picked off a tree that I planted with my daughter, which I took several hundred miles to give to her. However, these are again exceptions. The range of goods for which *de dicto* valuation is owed is a wide one. That this is the case indeed matters for the possibility of sustainability. Consider sources of energy. Insofar as sources of energy are valued simply in terms of the needs they are able to satisfy, such as transport, warmth, sustenance and health, they will be typically valued *de dicto*. What is valued is that there is a source of energy that meets those needs, not any particular source (Brand-Correa and Steinberger 2017). That this is the case is a precondition of sustainability since it allows sources of energy with high environmental impacts, for example, high greenhouse gas emissions such as coal and oil, to be substituted by sources that have lower emissions such as wind and solar power.

The defender of the view of environmental goods as components of natural capital that are to be valued for their ecosystem services assumes this attitude to be appropriate to environmental goods more generally. We are taken to value

whatever provides the ecosystem services or functions that are relevant. The particular site or object is a vehicle for the provision of services. The loss of one vehicle can be substituted by another that provides the same services. Is this assumption defensible or are there good reasons to suppose that many environmental goods are goods to which *de re* valuation is appropriate?

An initial point to note is that the question of substitutability is Janus faced in discussions of sustainability (O'Neill 2015: 404). On the one hand, sustainability requires the substitutability of environmentally damaging technologies, goods and resources by others that are less environmentally damaging. On the other, sustainability is taken to require constraints on the substitutability of particular places, habitats and beings by others. Correspondingly, for example, where a new source of energy production such as a dam causes the loss of a particular valued place or habitat, it can result in the loss of a good for which there is no substitute (O'Neill 2017b). Why are there such limits on substitutability? In the following I argue that one source of non-substitutability is the existence of goods for which *de re* rather than *de dicto* valuation is appropriate.

4. Constituents and determinants of well-being

Why is *de re* valuation often appropriate? Consider the case of human persons first. Why are *de re* valuations required when we are concerned with persons? To answer that question, start with a prior question. What would be wrong with valuing a person simply for the services they provide? One answer that might be offered is a Kantian answer that appeals to the moral attitudes required. We are morally required, from the Kantian perspective, to value persons not merely as means, but as ends in themselves. We should not value persons merely for the services they provide us, but as autonomous rational persons. The Kantian reasons for holding this view are in outline as follows: Every rational agent is necessarily committed to treating himself or herself as a rational agent who governs themselves by their own reason – i.e. treating themselves as ‘ends in themselves’. Since reasons are impersonal, every rational agent recognizes that all other rational agents are also committed to treating themselves as ends in themselves. Hence, all rational agents are committed to treating other rational agents as ends in themselves (Kant 1948: 91 [429]). Whether this argument is a good one or not I will not consider here. The argument, if successful, would show that we should not value persons merely as a means. However does it offer grounds for *de re* valuations of persons?

The difficulty with the suggestion that the argument could provide a justification for *de re* valuation is that the grounds it offers for treating persons as ends in themselves are impartial. They are reasons that require a particular attitude of moral respect for any rational person whoever he or she is. They do not give reasons for valuing a particular person as that particular person. Such impartial moral concerns look like the wrong place to ground valuations *de re*. They don't offer a strong ground for *de re* valuations as such – although moral respect will always be owed in the end to particular persons. The point is one pressed by Williams against both Kantian and utilitarian ethical positions (Williams 1976).

A husband who saved his wife over a stranger on the grounds that 'moral principle can legitimate his preference, yielding the conclusion that in situations of this kind it is at least all right (morally permissible) to save one's wife' would have provided 'one thought too many' (Williams 1976: 18). The motivation to act should be simply that this person was *his wife* without the additional thought that there was a moral principle that rendered it permissible for a person to save whoever happened to be his wife. *De re* attitudes are not plausibly grounded in an impartial ethic (Smith 1995: 71–76).⁵

Similar points apply to considerations about valuing the non-human world. An objection to understanding the value of the natural world through the concept of

⁵An important attempt to defend a Kantian approach to love of particulars is that developed by Velleman (1999, 2008). Velleman defends the claim that it is the particular person that is the object of love, not this or that quality. He cites Yeats' poem 'For Anne Gregory' in which Anne threatens to dye her hair, so that young men

'May love me for myself alone
And not my yellow hair' (Yeats 1956: 240)

He writes:

We are like the girl who wants to be loved but not for her yellow hair – and not, we should add, for her mind or her sense of humor, either – because she wants to be loved, as she puts it, 'for myself alone.' What is this self for which she wants to be loved? What can it be, if not her particular bundle of personal qualities, which include the color of her hair? (Velleman 1999: 363–364)

Velleman's answer to the question 'what is the self for which she wants to be loved?' is Kantian. The self to be loved for his or her self is the rational valuing person who constitutes the 'true self': 'the capacity for a rational and consequently good will is that better side of a person which constitutes his true self. I find it intuitively plausible that we love people for their true and better selves' (Velleman 1999: 365). Both respect and love are modes of valuing rational personhood. Respect is the necessary minimal valuation we must pay to rational personhood. Love is a maximal valuation that may also be paid to the same capacity for rational valuation.

The Kantian view is that respect is a mode of valuation that the very capacity for valuation must pay to instances of itself. My view is that love is a mode of valuation that this capacity may also pay to instances of itself. I regard respect and love as the required minimum and optional maximum responses to one and the same value. (Velleman 1999: 366)

We are limited in the number of people we can love in virtue of limits in our ability to attend to the personhood of empirical selves.

One reason why we love some people rather than others is that we can see into only some of our observable fellow creatures. The human body and human behavior are imperfect expressions of personhood, and we are imperfect interpreters. Hence the value that makes someone eligible to be loved does not necessarily make him lovable in our eyes. Whether someone is lovable depends on how well his value as a person is expressed or symbolized for us by his empirical persona. (Velleman 1999: 372)

Velleman's account is a sophisticated attempt to offer a Kantian defence of the claim that it is the particular person that is the object of love, not the qualities he or she exhibits. However, it is implausible. Anne Gregory is as likely to be at least as unmoved by the claim that she is loved as a symbol or expression of rational personhood as she is by the claim she is loved for her yellow hair. It is the empirical human being before us that is the object of love – not rational personhood who happens to be embodied in this particular person. Better to be loved as an actual empirical human being than as a 'true and better' self. For similar criticisms see Millgram (2004).

ecosystem services is that it values environmental goods purely instrumentally for the services they provide to human beings. What is the source of the objection? One possible answer is one that follows a broadly Kantian route. One implication of Kant's account of the attitudes owed to persons in saying that they are ends in themselves and not to be treated merely as a means is that they have a moral standing as such. They are said to have 'intrinsic value' in the sense of being morally considerable.⁶ A central move in much environmental ethics has been to extend moral standing beyond the Kantian domain of persons to include non-human beings and states – be this all sentient beings, all living things or even collectives such as ecosystems. Non-humans are said to have intrinsic value in this moral sense.⁷ If this is the case, then they cannot be treated merely as a means – so that to treat them as simply providers of ecosystems services is to fail to recognize their value. Whether some non-humans can be said to have intrinsic value in this moral sense, and if they can, how far intrinsic value extends, raises large questions which I will not pursue here. However, again it does not give strong grounds for *de re* valuations as such being important. The grounds for appropriate ethical attitudes are impartial. For example, if sentient beings have moral standing they have it in virtue of falling under the description of being sentient beings, not in virtue of being this or that individual sentient being. A *de re* valuation is not plausibly grounded in an impartial ethic of this kind.

What then might be the grounds for *de re* valuation? A distinct line of argument for *de re* attitudes being appropriate is an Aristotelian one. Consider again relationships to particular persons. The argument would run something as follows. Relationships to particular persons are a central component of what it is to live a flourishing human life. This claim might appear to take us back into the realm of treating persons as a means to an end, in this case that of leading a flourishing life. However, an important distinction in subsequent interpretations of Aristotle and in the Aristotelian tradition is a distinction between two ways in which something might be said to promote an end. The first is that something is an external causal means to an end. The second is that something is constitutive of that end (Wiggins 1980).⁸ Take a well-worked example, the claim that

⁶For an outline of the different senses of intrinsic value employed in environmental ethics see O'Neill (1992, 2001).

⁷Kantian arguments of this kind are developed by Regan (1988) to extend moral considerability to all sentient beings and by Taylor (1986) to argue that all living things have intrinsic value in this Kantian sense. Singer (1986) develops consequentialist arguments to extend moral considerability to sentient beings. Attfield (1987) argues on consequentialist grounds for moral considerability to be extended to all living things. These views extend intrinsic moral value to individual sentient or living beings. They do not give grounds for intrinsic value in this sense to be extended to species, still less to biodiversity, be this diversity of genetic kinds, species or habitats. For a critical discussion see O'Neill *et al.* (2008 Ch. 6).

⁸The distinction is central to a proper understanding of Aristotle's account of practical reason: 'We deliberate not about ends, but about what promotes ends' (Aristotle 1985 book III.3., 1112b). This account of deliberation does not render Aristotle a proponent of the standard instrumental account of rationality that informs economic approaches to rational choice. Deliberation is not just a matter of determining the causal means to an independently specified end. It is rather a matter of specifying what the constituents of that end are. So take again the end of living a good life. Deliberation is about a specification of what the constituents of a good life are. Having specified those constituents, for

friendship is necessary for a good life. There are two ways in which that might be understood. The first is that friendship is a causally necessary means to a good life, for example that friends will bring you support in hard times and the pleasures of conversation in all times. More recently, social relationships like friendship have been described as forms of 'social capital' with the benefits these bring – better employment possibilities, higher incomes, better physical and mental health and so on. All these facts about the causal impact of friendships on life might be true. However, if this was all that there was to the contribution of friendship to a good life it might look as if something was awry. It makes friendship look like an insurance contract with additional benefits. We don't merely value relationships of friendship as an external causal means to other goods. We value our friends and our relationships with our friends as ends in themselves. Friendships are part of what makes a good life. They are one of its constituents. They are constitutive of the good life. One might say then that friendship is not just a means to a good life in the sense of being a causal determinant, but a 'means' in the sense that it is a central constituent of the good life.⁹

Similar points can be made with respect to environmental goods (O'Neill 1993: 23–24; cf. James 2016). Relationships to particular persons and places are central components of human well-being. Relationships to particular places and particular non-human beings and environments are constitutive of the good life. These relationships involve *de re* attitudes and values. While they are conditions for human well-being, they are not conditions in the sense of being external causal means for independently specified ends. Rather they are constitutive of well-being. They are valued not simply for services they provide. Rather, they are valued for their own sake. As such they do not have substitutes in other objects with the same causal properties. The loss of particular places matters as such.

It is attachments to such particulars that moves opposition to offers of compensation, be this monetary or in the form of a physical replacement.

example satisfying work, personal relationships etc., the constitutive features of those goods in turn will often need further specifications. Any such specifications will be prior to the discovery of the causal means to their realization. The point is made well by David Wiggins:

I shall characteristically have an extremely vague description of something I want – a good life, a satisfying profession, an interesting holiday, an amusing evening – and the problem is not to see what will be causally efficacious in bringing this about but to see what really qualifies as an adequate and practically realizable specification of what would satisfy this want. Deliberation is . . . a search, but it is not primarily a search for means. It is a search for the best specification. (Wiggins 1980: 228)

This specificationist account of practical deliberation is clearly distinct from the concept of practical reason that informs standard economic models of instrumental rationality. As Wiggins notes it serves to 'dissociate Aristotle's whole theory of deliberation from that pseudo-rationalistic irrationalism, insidiously propagated nowadays by technocratic persons, which holds that reason has nothing to do with the ends of human life, its only sphere being the efficient realization of specific goals in whose determination or modification argument plays no substantive part' (Wiggins 1980: 227).

⁹A point to note here is that some instrumental relationships might themselves become valued also as constituents of a good life. Livelihoods can be central to a person's well-being not just in offering independent benefits – say food or income – but in forming a central component of a person's life. The livelihood activities are not just external means to a good life, but rather themselves become part of a way of life and are valued as such. I develop this point further below.

Consider again the passage from a person facing eviction to make way for the development of the Narmada dam quoted earlier. The response does make reference to services provided by the river: the provision of water and fish, and the watering of soil for growing vegetables. However, what matters here is not just the provision of services, but the loss of a particular place. It matters in virtue of the past of a community that is embodied in it and in the way that it is constitutive of particular social relations in the present. What is at stake in the flooding of the place is the disintegration of a community and way of life. The basic dimensions of human well-being – human affiliation and community – are rooted in a particular place.

Similar points apply to the ordinary and everyday places people inhabit. They are relationships to particular environments that embody their histories, personal and collective. Habitats may have species assemblages that might be easy to replace – a pond or copse of woodland – and hence are replaceable with ‘no net loss’ of biodiversity. In that sense they might have replacements, although this requires qualification since there is an historical dimension to biodiversity.¹⁰ However, they also have significance as particulars, relationships to which are constitutive of a life. It is this particular pond where I as a child caught fish with my father or this particular copse I walked in with friends and family that matters. Where developments threaten a particular place it is these kinds of attachments to particulars that often motivate resistance.

Many environmental goods that are valued *de re* matter centrally to the well-being of individuals. Hence the reason why environmental concern with local places is central to so much environmental conflict. Attachment to particulars matters to people. They matter not just as resources that are an external causal condition for the realization of some distinct good, but as a constitutive condition of the lives of persons and communities. As such, as Goodin notes of natural

¹⁰There is an historical dimension to biodiversity itself. Biodiversity is short for biological diversity. It is a standard observation that there are different levels of diversity: genetic diversity, diversity of species, diversity of ecosystems and diversity of habitat form distinct levels of diversity. However there are also different kinds of diversity including the following:

1. numerical diversity, e.g. the number of species;
2. dimensional diversity – the degree of separation, or distinction, along a dimension, e.g. difference in size, length, height and so forth;
3. material diversity – difference in the substance(s) and structural properties of which things are composed, e.g. a jellyfish and a crab;
4. relational diversity, e.g. differences in the kinds of interactions that obtain between organisms, such as those between predator and prey, parasite and host; and
5. causal diversity – differences in the way in which things have come into existence, e.g. salmon and lungfish are quite similar but have very different evolutionary origins. (O'Neill *et al.* 2008: 168)

Causal diversity brings an historical dimension to the specification of biodiversity as such. A particular site is valuable because it is the outcome of and subject to particular evolutionary processes. Replacing a particular landscape that embodies a particular evolutionary history with one that lacks that history is, on that dimension of biodiversity, a loss. It also threatens the diversity of evolutionary processes. Maintaining particular natural or agricultural biodiversity *in situ* matters in order to allow ‘the evolutionary processes that shape the genetic diversity and adaptability of plant populations to continue to operate’ (FAO 1997: 51).

environments, they provide a context in which people can make 'some sense and patterns to their lives' (Goodin 1992: 37). Just as it is an error to treat social relationships like friendship merely as forms of 'social capital' valued simply for the independent benefits these bring in the form of employment, incomes and health, so it is an error to treat relationships to particular places and environments simply as 'natural capital' that deliver benefits in the form of services. The facts about the external benefits of relationships to people and places might be true – but what the metaphors of capital and services disguise are the ways in which these relationships are constitutive of a good life.

5. Rescuing ecosystem services from economics?

The recent conceptual framework developed by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has included concern for what are characterized as 'relational values' as opposed to both 'instrumental' and 'intrinsic' values (Diaz *et al.* 2015; cf. Chan *et al.* 2016). Intrinsic values are defined as 'those inherent to nature, independent of human judgement' and are claimed to 'have no relationship with possible benefits to humans or their quality of life' (Diaz *et al.* 2015: 11). Instrumental values are defined in terms of 'nature's benefits as far as they allow people to achieve a good quality of life, be it through spiritual enlightenment, aesthetic pleasure or the production or consumption of a commodity' (Diaz *et al.* 2015: 11). In contrast to both, relational values are characterized as those 'imbedded in desirable (sought after) relationships, including those between people and nature' (Diaz *et al.* 2015: 11). In another recent paper that defends this approach the contrast is introduced thus:

Few people make personal choices based only on how things possess inherent worth or satisfy their preferences (intrinsic and instrumental values, respectively). People also consider the appropriateness of how they relate with nature and with others, including the actions and habits conducive to a good life, both meaningful and satisfying. In philosophical terms, these are relational values (preferences, principles, and virtues associated with relationships, both interpersonal and as articulated by policies and social norms). (Chan *et al.* 2016: 1462)

These relational values are taken in the IPBES conceptual framework to fall outside the scope of economic valuation. Space will not permit a critical examination of these conceptual contrasts and the way they are drawn here. However, the introduction of the concept of 'relational values' is consistent with the arguments developed in this paper. Indeed, one way of understanding the arguments here might be as a way of characterizing at least one class of environmental relational values and contrasting them both with instrumental values and with values that reflect the independent moral status of non-human beings. Relationships to particular other humans and non-humans are constitutive of a good life for human beings – rather than being external instrumental means. The *de re*

valuations that underpin them are not reducible to impartial claims about the moral status of human and non-human beings. The arguments here are also clearly consistent with the recognition in the IPBES framework that these relational values cannot be captured by ‘an economic valuation framework’ (Diaz *et al.* 2015: 11).

There is another question however. Can they still be integrated into a framework of ecosystem services? After all, the framework offered is that of Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. What response might be made to the arguments in this paper? One response that has been put to me by proponents of the IPBES approach is this – that my arguments assume a particular narrow economic understanding of the concept of services.¹¹ They assume the framework outlined by Ayres and Kneese:

Material objects are merely the vehicles which carry some of these services, and they are exchanged because of consumer preferences for the services associated with their use or because they can help to add value in the manufacturing process. (Ayres and Kneese 1969: 284)

The response runs that we can extend the concept of services beyond this narrow economic reading – and that once expanded it can include what have been characterized as ‘relational values’. The point might be pressed that there are after all other uses of the concept of services that are wider than a narrowly market-based concept. Consider for example, ‘public services’ or ‘social services’ or the concept of ‘being of service to someone’. Care for other people and things might be included within this wider concept of services.

This line of argument concerns the scope of the concept of service. There are features of the Ayres and Kneese reading that are clearly narrowly economic in scope – in particular the characterization of services in terms of consumer preferences, either directly through their use or indirectly through their contribution to manufacturing processes. However, it is not the scope of the concept that has been the object of criticism in this paper. Rather, the paper has been concerned with two features of the very concept of service as it is employed in its standard uses.

1. Services are instrumental in the sense of being external means to an end.
2. An object, insofar as it is valued for its services, is valued *de dicto*. It is valued only as a vehicle for those services.

If services are understood in this way, then relations to particular others that are constitutive of well-being cannot be captured in the language of services. Since this is the standard use of the concept, there are good grounds to be sceptical of the view that the relational values that IPBES properly want to include can be

¹¹The objections were made to me by some of the authors of the papers just cited at the IPBES workshop *Relational Values and Nature: Implications for Science and Policy* in response to a presentation in which I developed earlier versions of some of the arguments stated in this paper. I would like to thank the participants at the meeting for their excellent critical comments. I learned a great deal from them.

included under the heading of services – that the term ‘service’ is appropriate for describing relationships to particular persons, places, activities and goods that matter for the lives of individuals. Interestingly, in more recent documents IPBES has shifted its language from ‘services’ to ‘contributions’, specifically to talk of ‘nature’s contributions to people’ (Pascual *et al.* 2017). Part of the motivation for that move is a recognition that many values, in particular relational values, cannot be captured by the concept of ecosystem services. The notion of ‘contribution’ is undoubtedly an improvement with respect to the arguments of this paper in that it allows for both causal and constitutive contributions to well-being. Given that the concept of ‘ecosystem services’ in its current use is closely tied to the extension of the economic language of ‘capital’ and has the features just outlined, clarity of discussion may be best served by dropping the concept.

One final response to this argument is to question whether the concept of services needs to be understood as having the two features noted in its economic use outlined above: services are external means to a good; an object valued for its services is valued *de dicto*. Could there be uses of the concept that lack these two features? Consider the following passage from Robert Louis Stevenson in a discussion of services:

So long as we love we serve; so long as we are loved by others, I would almost say that we are indispensable; and no man is useless while he has a friend. The true services of life are inestimable in money, and are never paid. Kind words and caresses, high and wise thoughts, humane designs, tender behaviour to the weak and suffering, and all the charities of man’s existence, are neither bought nor sold. (Stevenson 1911: 47–48)

The concept of the ‘true services of life’ that Stevenson employs here is not one that ties services to the external causal means to some good, or makes the service provider a mere vehicle. The services that Stevenson outlines here, such as kind words and tender behaviour, are not just the external means to friendship. Rather they are the very stuff of friendship. They are themselves constitutive parts of relationships of friendship, not means to some distinct good. Friendship is a relationship constituted by reciprocal attitudes, behaviours and beliefs. Insofar as friendship itself is one of life’s central goods, offering and receiving those services form part of what makes a good life. Conversations with friends and caring attitudes and behaviour with respect to them are all part of what makes for a flourishing life. If Stevenson’s usage of the concept of services is taken seriously here, then it might be that one can extend the concept so that it includes relationships to particular others that are constitutive of a good life.

How far is this account of services applicable to the environmental sphere? There are clear problems in simply taking a relationship like friendship as a paradigm case. The attitudes, behaviours and beliefs that make up friendship are reciprocal in nature. This in part distinguishes friendship from other relationships, such as romantic love, in which reciprocation may be absent. With relationships to particular places central to a good life, like the case of the Narmada river to the community threatened by its loss, the concept of reciprocated beliefs, attitudes and behaviours of the kind found in friendship does not apply. The river does

not reciprocate in this sense. However, the idea of services of life that are constitutive of the relationship might have some hold. The gifts of the river – ‘for her fish, her water, for vegetables that grow along her banks’ – are central to the relationship not simply as an external means to other goods, but also as central contributors to what the river means for that community and a way of life in which it plays such a central part. Fishing, growing vegetables, the other livelihood activities themselves make up the way of life that is valued and is threatened by loss. They are not external means to something else that is a way of life. At the same time, the relationship is constituted on the other side by the practices, attitudes and beliefs that are brought to the river by the members of the community. What makes the river central to the way of life of a community is not just the history of the community that is embodied in it, but its continued presence through these practices, stories and attitudes. The loss of a relationship can be the result of the direct destruction of the place – as is the case with the Narmada dam. However, its loss is also made possible through the loss of the beliefs and practices of a community that are constitutive of the relationship. The livelihood practices central to the meaning of place may disappear with technological change or the emigration of young people from the community. The beliefs and attitudes may no longer make sense to a person – she becomes alienated from them. Correspondingly, the evolving relationship to a place is sustained through engagement in practices, through stories told and retold, through everyday activities in which a place, like a river, are central. In that sense the services of life of the kind that Stevenson hints at are not just gifts from nature, but also services that members of a community bring to the place. A place is constituted by attitudes, beliefs and practices that members of a community bring to it.

Whether or not the concept of services can be rescued in this way is a question that I will leave open. However, if thus used it involves a departure from the standard economic sense of a benefit stream received. The concept of services, if it is to be used at all, would require a radical inversion of the traditional use of services in the economic sense. Services are not simply something received, but something that has to be brought to the relationship that they constitute.

Whatever the resolutions to this difference of whether the term services should be employed or not, neither view will give support for a policy of no net loss. For, once the concept of services is extended to include relations to particular others that are constitutive of a good life, then it does not allow for the substitution of one good for another that provides the same services. Where a relation to a particular is central to a life, the loss of that particular person or place cannot be substituted by another. The loss of that good, like the loss of a real husband or wife, cannot be substituted by another that provides the same services. The policy of no net loss relies on the concept of ecosystem services that I have criticized in the earlier sections of this paper. It assumes goods are valued *de dicto* such that any good can be substituted by others that provide the same services so that the aggregate remains the same.

One final objection that has been made to the arguments for the significance of relations to particulars is that it would lead to a form of radical policy conservatism where the value of relations to particular persons and places always trumps other goods no matter how important they are. This objection misses the point of the arguments in this paper. No such claim about comparative value of relations to

others and other central components of human well-being has been made in this paper. Not all relations to particulars valued *de re* as particulars are constitutive of a good life. Many are not. Sometimes, where other vital needs are at stake, the relationships to particulars that are constitutive of a good life will be lost. The seriousness of conflicting vital needs might justify their loss.¹² However, where they are lost there is a need to recognize the values at stake. Where a relationship to a particular that is central to the good life of a community or person is lost, there is no substitute. When a close relation dies the loss is a loss that cannot be replaced. If a husband or wife dies and the relationship was a good one, there is no substitute. The loss is a loss and nothing can replace or compensate that loss. Some goods are irreplaceable. A central problem with the policy aim of no net loss is that it fails to recognize the importance of irreplaceable goods grounded in relationships to particulars. It assumes goods are valued *de dicto*. In doing so it justifies the destruction of places that matter to persons and communities on the grounds that substitutes exist. However, environmental goods valued *de re* that are central to human well-being do not have substitutes. There is a necessary loss. Consideration of policy needs to recognize this and not proceed on the illusion that it is otherwise.

Acknowledgements. The arguments in this paper were developed as part of the European Commission funded BIOMOT project and the NERC funded GHIA project. I would like to thank the partners in these projects for their feedback on earlier versions. Particular thanks are owed to Paul Knights and Michael Scott. An earlier version of some of the arguments developed here was given to *Biosymposium 2015: the Functions and Values of Biodiversity*, Oxford University, January 2015. My debate with Deiter Helm at that meeting was particularly rewarding and conducted in the spirit of open inquiry that should inform such conversations. I learned much from the discussion. Versions of the arguments were also presented at the following meetings: *Der Wert der Natur*, University of Frankfurt, December 2016; *Relational Values and Nature: Implications for Science and Policy*, San Sebastian, 30 May–1 June 2016; Edinburgh Science Festival, April 2015; *Financialisation of Nature*, University of Sussex, March 2015; *Nature is Not for Sale*, London, June 2014. I would like to thank the many participants in these events for their valuable comments. Finally I would like to thank the journal's referees for their helpful comments on an earlier draft of this paper.

References

- Anderson E.** 1993. *Value in Ethics and Economics*. Cambridge, MA: Harvard University Press.
- Aristotle** 1985. *Nicomachean Ethics*. Transl. by T. Irwin. Indianapolis, IN: Hackett.
- Attfield R.** 1987. *A Theory of Value and Obligation*. London: Croom Helm.
- Ayres R.U. and A.V. Kneese** 1969. Production, consumption, and externalities. *American Economic Review* 59, 282–297.
- Bava Mahalia** 1994. Letter from a tribal village. *Lokayan Bulletin*. 11.2/3, Sept–Dec.
- Beckerman W.** 1994. 'Sustainable development': is it a useful concept? *Environmental Values* 3, 191–209.
- Beckerman W.** 1999. Sustainable development and our obligations to future generations. In *Fairness and Futurity: Essays on Environmental Sustainability and Social Justice*, ed. A. Dobson, 71–92. Oxford: Oxford University Press.
- Brand-Correa L. and J. Steinberger** 2017. A framework for decoupling human need satisfaction from energy use. *Ecological Economics* 141, 43–52.
- Brink D.** 1989. *Moral Realism and the Foundations of Ethics*. Cambridge: Cambridge University Press.
- Business and Biodiversity Offsets Programme (BBOP)** 2012. *Resource Paper: No Net Loss and Loss-Gain Calculations in Biodiversity Offsets*. Washington, DC: BBOP. <http://bbop.forest-trends.org/guidelines/Resource_Paper_NNL.pdf>.

¹²For a discussion of this point see O'Neill (2017b). On the concept of vital needs and its place in deliberation see Wiggins (1998, 2006).

- Carver L. and S. Sullivan** 2017. How economic contexts shape calculations of yield in biodiversity offsetting. *Conservation Biology* 31, 1053–1065.
- Chan K., P. Balvanera, K. Benessaiah, M. Chapman, S. Díaz, E. Gómez-Baggethun, R.K. Gould, N. Hannahs, K. Jax, S.C. Klain, G. Luck, B. Martín-López, B. Muraca, B. Norton, K. Ott, U. Pascual, S. Satterfield, M. Tadaki, J. Taggart and N.J. Turner** 2016. Why protect nature? Rethinking values and the environment. *PNAS* 113, 1462–1465.
- Daly H.E.** 1995. On Wilfred Beckerman's critique of sustainable development. *Environmental Values* 4, 49–55.
- Defra** 2011. *Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services*. <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-11111.pdf>.
- Defra** 2012. *Biodiversity Offsetting Pilots: Technical Paper: The Metric for the Biodiversity Offsetting Pilot in England*. <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69531/pb13745-bio-technical-paper.pdf>.
- Defra** 2013. *Biodiversity Offsetting in England Green Paper*. <https://consult.defra.gov.uk/biodiversity/biodiversity_offsetting/supporting_documents/20130903Biodiversity%20offsetting%20green%20paper.pdf>.
- Diaz S. et al.** 2015. The IPBES Conceptual Framework – connecting nature and people. *Environmental Sustainability* 14, 1–16.
- Dobson A.** 1996. Environmental sustainabilities: an analysis and a typology? *Environmental Politics* 5, 401–428.
- European Commission** 2011. *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*. Communication From the Commission to the European Parliament, the Council, the Economic and Social Committee, and the Committee of the Regions. COM (2011) 244 final. <<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0244:FIN:EN:PDF>>.
- FAO** 1997. *The State of the World's Plant Genetic Resources for Food and Agriculture*. Rome: Food and Agricultural Organization of the United Nations.
- Goldie P.** 2010. Love for a reason. *Emotion Review* 2, 61–67.
- Goodin R.** 1992. *Green Political Theory*. Cambridge: Polity Press.
- Grau C.** 2010. Love and history. *Southern Journal of Philosophy* 48, 246–271.
- Hare C.** 2007. Voices from another world: must we respect the interests of people who do not, and will never, exist? *Ethics* 117, 498–523.
- Helm D.** 2014. Taking natural capital seriously. *Oxford Review of Economic Policy* 30, 109–125.
- High Speed Two (HS2) Limited** 2015. HS2 London – West Midlands: No Net Loss in Biodiversity Calculation. <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/490928/No_net_loss_in_biodiversity_calculation_-_methodology_and_results_v2.pdf>.
- Holland A.** 1997. Substitutability: or, why strong sustainability is weak and absurdly strong sustainability is not absurd. In *Valuing Nature*, ed. J. Foster, 119–134. London: Routledge.
- Jacobs M.** 1995. Sustainable development, capital substitution and economic humility: a response to Beckerman. *Environmental Values* 4, 57–68.
- James S.** 2016. Ecosystem services and the value of places. *Ethical Theory and Moral Practice* 19, 101–113.
- Kant I.** 1948. *Groundwork of the Metaphysics of Morals*. Transl. by H. Paton. London: Hutchinson.
- Kiesecker J., H. Copeland, A. Pocewicz, N. Nibbelink, B. McKenney, J. Dahlke, M. Holloran and D. Stroud** 2009. A framework for implementing biodiversity offsets. *Bioscience* 59, 77–84.
- Kill J. and G. Franchi** 2016. *Rio Tinto's Biodiversity Offset in Madagascar*. World Rainforest Movement and Re-Common. <https://www.wrm.org.uy/wp-content/uploads/2016/04/RioTintoBiodivOffsetMadagascar_report_EN_web.pdf>.
- Kolodny N.** 2003. Love as valuing a relationship. *Philosophical Review* 112, 135–189.
- Kraut R.** 1986. Love *De Re*. *Midwest Studies in Philosophy* X, 413–430.
- Kraut R.** 2012. *Against Absolute Goodness*. Oxford: Oxford University Press.
- Madsen B., N. Carroll, D. Kandy and G. Bennett.** 2011. *Update: State of Biodiversity Markets*. Washington, DC: Forest Trends. <https://www.forest-trends.org/wp-content/uploads/imported/2011-update_state-of-biodiversity-markets_1-27-12_web-pdf.pdf>.
- Millgram E.** 2004. Kantian crystallization. *Ethics* 114, 511–513.
- Moore G.E.** 1903. *Principia Ethica*. Cambridge: Cambridge University Press.
- O'Neill J.** 1992. The varieties of intrinsic value. *The Monist* 75, 119–137.
- O'Neill J.** 1993. *Ecology, Policy and Politics: Human Well-Being and the Natural World*. London: Routledge.

- O'Neill J. 2001. Meta-ethics. In *Blackwell Companion to Environmental Philosophy*, ed. D. Jamieson, 163–176. Oxford: Blackwell.
- O'Neill, J. 2015. Sustainability. In *The Routledge Handbook of Global Ethics*, ed. D. Moellendorf and H. Widdows, 401–415. London: Routledge.
- O'Neill J. 2017a. Pluralism and incommensurability. In *Routledge Handbook of Ecological Economics*, ed. C. Spash, 227–236. London: Routledge.
- O'Neill J. 2017b. *Life Beyond Capital*. Centre for the Understanding of Sustainable Prosperity. <<https://www.cusp.ac.uk/wp-content/uploads/Life-beyond-capital-online.pdf>>.
- O'Neill, J., A. Holland and A. Light 2008. *Environmental Values*. London: Routledge.
- Pascual, U., P. Balvanera, S. Diaz et al. 2017. Valuing nature's contributions to people: the IPBES approach. *Current Opinion in Environmental Sustainability* 26–27, 7–16.
- Raz J. 1986. *The Morality of Freedom*. Oxford: Clarendon.
- Regan T. 1988. *The Case for Animal Rights*. London: Routledge.
- Seagle C. 2012. Inverting the impacts: mining, conservation and sustainability claims near the Rio Tinto/QMM ilmenite mine in Southeast Madagascar. *Journal of Peasant Studies* 39, 447–477.
- Singer P. 1986. All animals are equal. In *Applied Ethics*, ed. P. Singer, 215–228. Oxford: Oxford University Press.
- Smith M. 1995. *The Moral Problem*. Oxford: Blackwell.
- Soble A. 1990. *The Structure of Love*. New Haven, CT: Yale University Press.
- Stevenson R.L. 1911. *Lay Morals and Other Papers*. London: Chatto and Windus.
- Sullivan S. 2013. After the green rush? Biodiversity offsets, uranium power and the calculus of casualties in greening growth. *Human Geography* 6, 80–101.
- Taylor P. 1986. *Respect for Nature*. Princeton, NJ: Princeton University Press.
- Temkin L. 2003a. Personal versus impersonal principles: reconsidering the slogan. *Theoria* 69, 20–30.
- Temkin L. 2003b. Egalitarianism defended. *Ethics* 113, 764–782.
- Temkin L. 2012. *Rethinking the Good: Moral Ideals and the Nature of Practical Reason*. Oxford: Oxford University Press.
- TEEB 2010. *The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature: A Synthesis of the Approach, Conclusions and Recommendations of TEEB*. <<http://www.teebweb.org/wp-content/uploads/Study%20and%20Reports/Reports/Synthesis%20report/TEEB%20Synthesis%20Report%202010.pdf>>.
- UNEP 2011. *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. <https://wedocs.unep.org/bitstream/handle/20.500.11822/18966/Green_EconomyReport_Final_Dec2011_UNEP.pdf?sequence=1&isAllowed=y>.
- Velleman D. 1999. Love as a moral emotion. *Ethics* 109, 338–374.
- Velleman D. 2008. Beyond price. *Ethics* 118, 191–212.
- Wiggins D. 1980. Deliberation and practical reason. In *Essays on Aristotle's Ethics*, ed. A.O. Rorty, 221–240. Berkeley, CA: University of California Press.
- Wiggins D. 1998. The claims of need. In *Needs, Values, Truth* (3rd edn), 1–58. Oxford: Clarendon Press.
- Wiggins D. 2006. An idea we cannot do without. In *The Philosophy of Need*, ed. S. Reader, 25–50. Cambridge: Cambridge University Press.
- Williams B. 1976 [1981]. Persons, character and morality. In *Moral Luck: Philosophical Papers, 1973–1980*, 1–19. Cambridge: Cambridge University Press.
- Yeats W.B. 1950. *The Collected Poems of W. B. Yeats*. London: Macmillan.

John O'Neill is Hallsworth Professor of Political Economy and director of the Political Economy Centre at the University of Manchester. His books include *Markets, Deliberation and Environment* (Routledge, 2007), *The Market: Ethics, Knowledge and Politics* (Routledge, 1998) and *Ecology, Policy and Politics: Human Well-Being and the Natural World* (Routledge, 1993). He is co-author of *Environmental Values* (Routledge, 2008) with Alan Holland and Andrew Light. URL: [https://www.research.manchester.ac.uk/portal/en/researchers/john-oneill\(f38c5bc2-3fab-4956-b865-9320310f4481\).html](https://www.research.manchester.ac.uk/portal/en/researchers/john-oneill(f38c5bc2-3fab-4956-b865-9320310f4481).html)

Cite this article: O'Neill J (2020). What is lost through no net loss. *Economics & Philosophy* 36, 287–306. <https://doi.org/10.1017/S0266267119000191>